1. LOCATION ELEMENT INDEX

1.10 PURPOSE

1.20 REGIONAL

- Western States
- Geography
  - ocean
  - valleys
  - mountains
  - desert

1.30 STATE

- Characteristics
  - recreation opportunities
  - environmental quality
  - land use planning

1.40 LOCAL

- Location
  - southwest Oregon
  - Rogue River Valley

- Recreational Opportunities
- Regional Importance of Location
  - distance to major market areas

1.50 FINDINGS

LOCATION ELEMENT

1.10 PURPOSE

The purpose of this element is to describe the location of Grants Pass relative to the amenities that make it an enjoyable and desirable place in which to work and live. The geography of the City will be presented on regional, state and local levels. Each level of geographic location specifies different advantages for the City of Grants Pass. Taken all together, these advantages describe a very unique place to live and work.

1.20 REGIONAL LOCATION

The western states that border the Pacific Ocean are known as the Pacific Rim States (see Map 1-1). These states include Alaska, Washington, Oregon and California. The City of Grants Pass is located in southwestern Oregon (see map 1-2). The geography of these states, except Alaska, is remarkably similar; all the states have coastal shorelines, inland valleys, a central mountain range and eastern deserts. The land area is vast and the population densities are relatively low. The Pacific Rim States offer many amenities to the inhabitants. There is the endless coastline with its sandy beaches, jagged cliffs and abundant wildlife including whales, seals, shorebirds, deer and bear. East of the ocean, behind the protection of the small coastal mountains, lie large interior valleys resplendent with verdant agricultural fields and clear, mountain-fed rivers and streams. Here also in these temperate valleys, reside the majority of the population in cities and towns that have grown prosperous from the riches of farming, fishing, forestry, and mining.

Proceeding east from the interior valleys the elevations increase dramatically as the massive Sierra Nevada-Cascade mountain range rises skyward to altitudes of 14,00 feet above sea level. These mountains offer an unimaginable vastness of space that provides year-round opportunities for recreation and solitudes. In the rain shadow of the mountains lie the deserts, and expansive and diverse land, abundant with life forms and contrasting beauty. The arid deserts, snow-covered mountains, green valleys and blue ocean are all within reach of the residents of the Pacific Rim States.

1.30 STATE

The City of Grants Pass is located in the southwestern quarter of the State of Oregon. Oregon is a state progressive in the areas of recreation, environmental quality and land use planning.

The recreational opportunities in Oregon are as diverse as the natural features. Thanks to the farsightedness of past Oregonians, the entire Oregon coastline is accessible to the public. There are over 100 state parks and waysides along the coastline provided for public use.

Another vast area of recreational opportunity is the Cascades mountain range. The Cascades extend from the southern to the northern border of the state, effectively dividing the state into two distinct geographic regions. The Cascades provide opportunities for hiking, fishing, hunting, camping, and skiing. Over 50% of Oregon is publicly owned, and most of the Cascades range is accessible to the public.

The final vast area of the recreational opportunity, comprising fully one-third of the land of the state, is the Oregon high desert. The desert lies in the rain shadow of the Cascades and is relatively arid compared to the western slope of the mountains. However, the high desert is more than sand and sage brush. It is pine-oak forests, juniper thickets, bunch grass, seasonal lakes, dramatic geologic formations and ethereal panoramas. Antelope and elk have habitat there. Large flocks of migratory birds, including the sand hill crane and Canadian goose, stop there during migratory flights. Rainbow trout inhabit the rivers and there are the typical desert settings with lizards and sagebrush.

Other unique natural features of the state include the Columbia River Gorge, Mount Hood, Crater Lake, and the Oregon Caves.

The environmental quality of the state is an important issue for most Oregon residents. The quality of air, land and water resources are important factors for maintaining livability. The topography of western Oregon particularly lends itself to air inversions and consequent air stagnation problems. Water quality is affected primarily by increasing urban development and wastewater discharge. Land disposal of solid waste has also created environmental problems due mainly again to increasing urban development. However, Oregon is working toward resolving these problems with its typical innovative ways. Air pollution is due mainly to automobile emissions. Therefore the state encourages the development of alternative modes of transportation. It provides revenue sharing to local governments for the development of bike paths. Water quality standards are strictly enforced. The state provides assistance to local governments to help them maintain the standards. A classic case of state initiative in water quality is the rehabilitation of the Willamette River in the 1970's. Also in the '70's the state enacted the "Bottle Bill", which places a redeemable value on beverage containers, thus encouraging recycling and discouraging roadside litter.

Land use planning is state mandated for all jurisdictions in Oregon. The program is unique in the United States and offers many innovative measures of urban growth and resource conservation. The impetus behind statewide planning is livability. The state seeks to avoid the traditional conflicts between rural and urban activities and to promote orderly, efficient development.

MAP 1-1
Pacific Rim States

MAP 1-2
Grants Pass located within Oregon

MAP 1-3
Cultural Destinations in SW Oregon

1.40 LOCAL

Grants Pass is the geographic center of southwest Oregon. The city lies along the Rogue River, midway between the river's headwaters near Crater Lake and the river's delta at the Pacific Ocean. The Rogue River Valley is famous for its pastoral beauty that is often highlighted by snow covered mountains and brilliant blue skies.

The Klamath mountain ranges lie west of the Rogue River Valley and Grants Pass. The mountains provide protection from winds and rains. Therefore, Grants Pass has less precipitation than most cities in western Oregon with an average of 25 inches per year. Also, due to the elevation of the city at 900 feet above sea level and the mountain protection, the city has a higher number of solar degree days than other cities in western Oregon.

The central location of Grants Pass places it near many recreational and cultural destinations in southwest Oregon shown in Table 1-1. See also Map 1-3.

TABLE 1-1
Time Intervals from Grants Pass to Recreation Destinations

Recreational Destination	Driving Time in Hours
Klamath Forest National Wildlife Refuge	3
Mountain Lakes Wilderness Area	2
Pacific Ocean	2
Crater Lake National Park	2
Oregon Caves National Monument	1
Kalmiopsis Wilderness Area	1
Ashland Shakespearian Festival	1
Mount Ashland Ski Area	1
Wild and Scenic Rogue River	½
Rogue River National Forest	½

The nearness of Grants Pass to so many unique recreational areas enhances the livability of the city.

The City's location in southwest Oregon also has regional importance. Interstate commerce among the Pacific Rim States is predominantly dependent on motor freight transportation of goods along the Interstate Highway. Grants Pass is located at a nexus of interstate transportation, see Map 1-4. Interstate 5 carries motor freight from Los Angeles to Seattle and to all points in between. Grants Pass is situated at a convenient point along the Interstate route. The major commercial and industrial market areas of the Pacific Rim States are within 15 hours of Grants Pass along Interstate 5. See Table 1-2.

TABLE 1-2
Distance to Major Market Areas from Grants Pass

Market Area	Mileage from Grants Pass	Approximate Time in Hours*
Los Angeles, CA	722	14.4
San Francisco, CA	426	8.5
Portland, OR	246	4.9
Seattle, WA	421	8.4
Vancouver, BC	548	11.0
Spokane, WA	611	12.0

*Averaging 50 m.p.h.

MAP 1-4
Interstate 5

1.50 LOCATION ELEMENT FINDINGS

Regional

1. The western states that border the Pacific Ocean are known as the Pacific Rim States which include California, Oregon, Washington, and Alaska.
2. Grants Pass is located in southwest Oregon.
3. All of the Pacific Rim States, except Alaska, have similar geography; all states have coastal shorelands, inland valleys, a central mountain range and an eastern desert.
4. Recreational opportunities are plentiful. The arid deserts, snow covered mountains, green valleys and blue ocean are all within reach of residents of the Pacific Rim States.

State

5. The City of Grants Pass is located in the southwest quarter of the state of Oregon.
6. Oregon is a progressive state in the areas of recreation, environmental quality and land use planning.
7. The recreational opportunities in the state are plentiful and unique. The entire Oregon coastline is accessible to the public.
8. Oregon is one of the leading states in environmental quality. Innovative solutions, such as the Bottle Bill, help keep the state clean.
9. Oregon has statewide land use planning to ensure orderly, efficient development and conservation of resources.

Local

10. Grants Pass is the geographic center of southwestern Oregon.
11. The city lies along the Rogue River in the midst of the beautiful Rogue River Valley.
12. The central location of Grants Pass places it near many unique recreational and cultural destinations.
13. The nearness of Grants Pass to so many interesting recreational and cultural areas enhances the livability of the city.
14. The city's location in southwest Oregon along Interstate 5 has regional commercial importance.
15. Grants Pass is located at a nexus of interstate motor freight transportation.
16. The major commercial and industrial market areas of the Pacific Rim States are within 15 hours of Grants Pass along Interstate 5.

2.00 CITIZEN INVOLVEMENT ELEMENT INDEX

CITIZEN INVOLVEMENT

2.10 PURPOSE

The purposes of this element are: to relate the history of the citizen involvement process in the development of the Comprehensive Plan and the Urban Growth Boundary, to evaluate the past citizen involvement programs, to identify criteria for the establishment of an ongoing citizen involvement program for the Urban Growth Boundary area, and to set forth policies that will direct the citizen involvement program of the future.

2.20 STATE REQUIREMENTS

The statewide planning goal for citizen involvement, Goal 1, requires the City to develop a citizen involvement program that provides the opportunity for citizen involvement in all phases of land use planning. The City Council is required to adopt and publicize a citizen involvement program that accomplishes the following:

- defines procedures of involvement clearly
- is appropriate to the scale of the planning effort
- provides for continuity of citizen participation, and
- provides information that enables citizens to identify and comprehend the issues.

Goal 1 goes on to identify various components of the citizen involvement program that will be required, as follows:

Citizen Involvement

- involve a cross section of citizens
- include an officially recognized Citizen Advisory Committee, broadly based
- the Citizen Advisory Committee is to be responsible for developing, assisting in implementing, and evaluating the citizen involvement program

Communication

- establish mechanism for effective communication between citizen and elected and appointed officials

Citizen Influence

- give opportunity for involvement in all phases of land use planning process

Technical Information

- make information available in simple, clear form
- provide assistance in interpreting and use of information

Feedback Mechanisms

- retain and respond to recommendations resulting from citizen involvement

Financial Support

- allocate adequate human, financial and information resources for citizen involvement

State Goal 1 also determines that those jurisdictions using the City Council or Planning Commission as the agency responsible for citizen involvement must receive a review from the State Citizen Involvement Advisory Committee.

2.30 HISTORY OF THE GRANTS PASS CITIZEN INVOLVEMENT PROGRAM

Summary of Planning Process

The preparation of the Grants Pass Comprehensive Plan, implementing ordinances and supporting studies and agreements fell into four basic phases:

Phase I - Urban Growth Boundary (36 months)

- Initial Citizen Participation Program
- City-County Joint UGB Agreement
- Water System Crisis, and Bond Issue Approval
- UGB and Service Extension Policies Adopted

Phase II - Urban Growth Plan (12 months)

- Revised Citizen Participation Program
- Urban Growth Plan Committee Appointed
- Key Factors of Economy, Traffic and Urban Form Alternatives Study
- Urban Growth Plan Adopted
- Water Treatment Plant Expansion bid let

Phase III - Comprehensive Plan (27 months)

- Detailed UGB Management Agreement signed, keyed to joint land use review based on Urban Growth Plan, and to joint service extension
- One Planning Commission, Zoning Ordinance and set of Development Standards adopted for entire UGB
- Traffic Plan, Downtown Plan, Bikeway Plan, and Storm Drain Plan adopted, Historic Inventory completed, and Park plan bid let
- Comprehensive Plan Map, Goals and Policies adopted by the City, together with revised Zoning Map

Phase IV - Implementing Ordinances (9 months)

- County adoption of Comprehensive Plan, Land Use Map and Zoning Map
- Development Code Adopted

A full listing of the key points in the planning process may be found in Table 2-1.

TABLE 2-1
Key Points in Comprehensive Plan/Ordinance Preparation

Date	Key Items	Ordinance / Resolution
I - Urban Growth Boundary		
9/2/76	Citizen Participation - CAC, CPAC (CIC) formed	Res. 866
2/2/77	City-County Commitment to Joint UGB	Res. 885
12/7/77	Commitment strengthened	Res. 963
1/18/78	Utility Commission formed	Ord. 4187
7/21/78	UGB / Service Policies draft published	
3/7/79	Water system study accepted, Annexation freeze	Res. 1106
3/29/79	Water Policy Committee formed	
5/16/79	Water Improvements Financing Study adopted	
5/16/79	Water Bonds and Bond Issue Election authorized	Ord. 4283, 4284
8/1/79	Urban Growth Boundary / Service Policies adopted	Res. 1141
II - Urban Growth Plan		
11/21/79	Urban Growth Plan Committee authorized	Res. 1165
1/2/80	Citizen Participation Program revised	Res. 1173
3/5/80	Urban Growth Plan Committee enlarged	Res. 1190
3/26/80	Urban Growth Plan contract	
3/26/80	Traffic Plan contract	
3/26/80	Downtown Plan contract	
5/8/80	Water Bond Bid accepted	
6/4/80	Historic Preservation Committee formed	Res. 1210
8/6/80	Water Treatment Plant Expansion Bid awarded	
8/20/80	Urban Growth Plan adopted	Res. 1242

III - Comprehensive Plan		
1/28/81	Management Agreement signed	
3/4/81	City-County Bikeway Committee formed	
3/4/81	Historic Preservation Committee enlarged	
3/18/81	Traffic Plan adopted	Res. 1274
3/18/81	Downtown Plan adopted	Res. 1274
4/15/81	Interim Development Standards adopted	Ord. 4398
4/15/81	Urban Area Planning Commission created for UGB	Ord. 4399
4/15/81	Urban Area Zoning Ordinance adopted	Ord. 4415
10/7/81	Water Main - River Crossing Agreement with County authorized	Res. 1416
3/3/82	Historic Inventory and draft ordinance presented by Historic Committee	
3/17/82	Water Facility Construction Standards adopted	Res. 1494
5/5/82	Bikeway Plan adopted	
5/19/82	Storm Drain Facilities and Management Plan adopted	Res. 1521
7/7/82	Water Main - River Crossing bid awarded	
12/15/82	Park Plan bid awarded	Res. 1589
12/15/82	Comprehensive Plan Map, Goals & Policies adopted - City	Ord. 4471
12/15/82	Zoning Map revised - City	Ord. 4471
IV - Development Code		
2/23/83	Comp Plan Map & Zoning Map adopted - County	Ord. 83-4
6/29/83	Development Code Hearing - City	
8/3/83	Development Code Adoption - City	
8/3/83	Citizen Participation Program adopted	
8/3/83	Comp Plan revisions - City	

Key Factors in the Planning Process

The Grants Pass Urban Growth Boundary (UGB) was primarily determined by previous commitment to urbanization, as established by the extensions of two sewer systems outside city limits, covering more than two-thirds of the UGB! Both systems were installed south of the Rogue River, while the city water system was north of the river, with only limited extension south. North of the river the boundary followed water and sewer extensions, urban level development and the economic limits of water line extensions. The County was several years ahead of the City at that point (Phase I) and was anxious to get a Boundary formed. The City was entering a water crisis and its treatment plant neared capacity, exacerbated by the 1976-77 drought. Of principle concern, therefore, was not just land use and the size or location of the boundary, but the extension of services, and the funding of service extensions, primarily water.

Once bonds were authorized and the water treatment plant expansion was underway, and the urban form alternatives sorted through and compromises arrived at (Phase II), the way was cleared for intensive joint City-County agreements on service extension management, development standards, zoning provisions and UGB administration, as well as the completion of most of the service plans for the UGB area, and the Comprehensive Plan could then be finally formulated and adopted (Phase III). The implications of land use decisions for the provision of services has been as important a question locally as the determination of urban form and the extent and location of the Boundary, and has governed the pace and timing of Comprehensive Plan preparation.

Loss of O & C revenues by the County and the other local impacts of the recession has caused some rethinking of service extension mechanisms. The City has gone ahead with the Development Code and the Comprehensive Plan, however, and will amend service mechanisms as needed (Phase IV).

Citizen Participation

The form of citizen participation in the planning process evolved from the typical CAC-CIC structure to a system of standing committees, ad hoc interest groups, intensive workshop sessions and consultant activity.

Phase I of the Comprehensive Plan activity saw the creation of the City's initial Citizen Involvement Program, resulting in the typical CAC-CIC structure, although in this case the CIC was called the City Planning Advisory Committee (see Resolution No. 866, Appendix 2-A). Four CAC's were formed, one from each city ward, and the CPAC was formed of CAC members from each ward. Although the "primary focus" of the CPAC was to have been "comprehensive planning issues (including the urban growth boundary)" the CPAC was also authorized to "review land use applications prior to the Planning Commission." CAC members found local land use actions more interesting than general issues, and could not come to terms on just how different ward interests would be worked out by CPAC. They preferred direct ward and neighborhood workshops and meetings. CPAC, in fact, was never formally organized, and the CAC's concentrated on land use action review.

The latter half of Phase I found the City with a water supply crisis, leading to formation of a Water Policy Committee and the freezing of annexation commitments. In this context, the Urban Growth Boundary process grew into protracted services of workshops and hearings lasting 13 months and resulting in numerous revisions to the Boundary. County CAC's were heavily involved, but many of the crucial results came from joint workshops held first by the City and County Planning Commissions, and then by the City Council and Board of County Commissioners.

This experience of City-County joint review using extensive workshops set the stage for Phase II of the Comprehensive Plan process, the Urban Growth Plan. The City CAC-CPAC system was obstructing specific land use action review and needlessly lengthening the review process, and had failed to make an impact on the major Comp Plan issues. The Boundary hearing and the water issue, on the other hand, had interested many civic leaders, citizens and property owners, as well as interest groups and organizations, in the key issues of urban form: what forces resulted in the current urban form, what urban form was most appropriate for the Urban Growth Boundary area, and how did the choices in urban form relate to the street and highway network, the area economy and the present and future provision of services? As a result, the City obtained grants, obtained a consultant team to explore alternatives in urban form and their consequences, and relate the form possibilities to the area economy, transportation system and service provision.

A committee was formed composed of two members each of the City Council, Board of County Commissioners, City and County Planning Commissions, City Utility Commission, Downtown Merchants Association, Shopping Center Merchants Association, Chamber of Commerce and citizens at large (see Resolutions 1165 and 1190, Appendix 2-A). The Citizen participation program was likewise changed to encourage and require extra workshop sessions with full staff support (see Resolution 1173, Appendix 2-B). The issues of urban form were addressed and debated extensively by the Committee, the two planning commissions and the Board and Council, with full staff and consultant support. The workshop sessions were held either at special early breakfast or luncheon meetings, weekends or evenings to generate the fullest attendance. Notice was given, and newspaper coverage was extensive. The resultant Urban Growth Plan was adopted by Council, and included by the Board in an interim urbanizing area "comprehensive plan", and Phase III of the process began.

Phase III was a burst of cooperative City-County activity, once the issues of the Boundary, urban form and the Management of Services extension had been decided (Management Agreement, signed January 28, 1981, See Appendix 2-C). Implementation went forward with common development standards and Zoning Ordinance, as well as creation of a single Planning Commission for the entire Urban Growth Boundary area, both City and County (see ordinances 4398, 4399, and 4415, Appendix 2-C). The City committed itself to 250 acres of annexation contracts within nine months of Management Agreement adoption.

Also adopted were the Traffic Plan, Downtown Plan, Bikeway Plan, and Storm Drain Plan. The Historic inventory was completed and a model ordinance drafted. A Park Plan bid was awarded.

The water treatment plant expansion got underway and a City-County agreement allowed award of bid for a major extension of City water under the river. The City then adopted the Comprehensive Plan and a revised Zoning Map.

During Phase III, the planning process utilized the Commission, Historic Preservation Committee, Bikeway Committee and Downtown Merchants Association in workshop sessions, in addition to Planning Commission and Board-Council workshop-hearing sessions, with the Historic and Bikeway committees producing their own material. The County Board commissioned the City to the Comp Plan on their behalf, while withholding the right to amend the results.

As Phase IV began, the County did adopt the City's Comp Plan Land Use Map and attendant zoning, substantially as adopted by the City. The effects of the recession, including a major loss in O & C revenues, caused a rethinking of the mechanisms of service extension within the urbanizing area, as well as raising certain questions of principle regarding annexation commitments by the County. To date, the County is considering alternate Comprehensive Plan policies, and may even be contemplating a Boundary revision. The basics of the Management Agreement are intact. The County elected to participate in the Development Code process, adopting a "wait and see" approach.

Using the Citizen Involvement Committee

The citizen involvement program must include an officially recognized and broadly based citizen involvement committee. That committee can either be comprised of citizens at large, the planning commission, the city council, or a combination of all. When either the planning commission or city council becomes the citizen advisory committee, then these government bodies are performing a dual role. As decision-making bodies, the council and commission must provide for citizen involvement and be responsive to citizen input. The responsibilities of the citizen advisory committee include:

1) Assisting the City in developing a citizen involvement program that creates opportunities for participation of a broad cross section of people
2) Assisting in implementation of the citizen involvement program
3) Evaluation of the effectiveness of the citizen involvement program and suggestion of new approaches

When the city council or planning commission alone is evaluating the effectiveness of the citizen involvement program it is essentially evaluating itself. In such a situation the governing body must really make an attempt to be impartial in judging the opportunities it provides for citizen input and response. If impartiality cannot realistically be achieved then the governing body should appoint a citizen body to serve as the citizen involvement committee.

The present size of the City, coupled with the citizen involvement history of the Comprehensive Plan process, suggests a critique and review by all those involved in the process over the past year with a frank exchange of views by participants on the recent successes and failures of citizen involvement policies and procedures. There should be clear separation of the annual citizen

involvement review function and the bi-weekly land use action function of staff, hearings officer, planning commission and council.

Should any "emergencies" of citizen involvement come up between the periods of annual review, they would be handled by the City Council.

Criteria For An Ongoing Program

The statewide planning goal states that "a program for citizen involvement.... defines the procedures by which the general public will be involved in the ongoing land use planning process." Criteria for an ongoing program area is as follows:

1) The ongoing program needs a long-term commitment by the City Council.
2) Procedures for the establishment and change of the program and committee must be set forth in a concise manner.
3) Standards for the review of the program must be established.
4) General charge and specific tasks must be assigned to the Citizen Involvement Committee.

2.40 CITIZEN INVOLVEMENT ELEMENT FINDINGS

1. Citizen involvement in the Comprehensive Plan process has been full, broadly based, included in every phase of the planning process and more than adequately supported by consultants, staff and city council.

2. The Grants Pass Comprehensive Plan planning process has proceeded in four broad stages, as follows:

Phase I - Urban Growth Boundary (36 months)

- Initial Citizen Participation Program
- City-County Joint UGB Agreement
- Water System Crisis, and Bond Issue Approval
- UGB and Service Extension Policies Adopted

Phase II - Urban Growth Plan (12 months)

- Revised Citizen Participation Program
- Urban Growth Plan Committee Appointed
- Key Factors of Economy, Traffic and Urban Form Alternatives Study
- Urban Growth Plan Adopted
- Water Treatment Plant Expansion bid let

Phase III - Comprehensive Plan (27 months)

- Detailed UGB Management Agreement signed, keyed to joint land use review based on Urban Growth Plan, and to joint service extension.
- One Planning Commission, Zoning Ordinance and set of Development Standards adopted for entire UGB.
- Traffic Plan, Downtown Plan, Bikeway Plan, and Storm Drain Plan adopted, Historic Inventory completed, and Park plan bid let.
- Comprehensive Plan Map, Goals and Policies adopted by the City, together with revised Zoning Map.

Phase IV - Implementing Ordinances (9 months)

- County adoption of Comprehensive Plan, Land Use Map and Zoning Map
- Development Code Adopted
- Citizen Participation program adopted

A full listing of the key points in the planning process may be found in Table 2-1.

3. Up to the final adoption of the Comprehensive Plan and implementing ordinances, City-County cooperation, coordination, and joint review and implementation have met both the letter and the spirit of the State land use goal 14 (cooperative process of Urban Growth Boundary establishment), goal 1 (citizen involvement), and goal 2 (land use planning process as basis for all land use decision, city-count consistency).

4. The city fully intends to proceed with implementation of the Plan based upon jointly adopted assumptions and commitments made through the planning process. Amendments to basic assumption or previous commitments affecting Plan content or implementation should receive as full an exposure as Plan development.

5. The citizen involvement program must incorporate the following:
   a) citizen advisory committee
   b) mechanisms for communication between citizens and elected/appointed officials
   c) assistance for the provision and interpretation of technical information
   d) mechanisms for responding to individual citizen input
   e) financial support allocated within the planning budget

6. The citizen involvement program must include a citizen advisory committee composed of either citizens, appointed officials or elected officials or a combination of each.

7. The responsibilities of the citizen advisory committee include:
   a) assist in developing citizen involvement program
   b) assist in implementing citizen involvement program
   c) evaluate the effectiveness of the citizen involvement program

8. Criteria for an ongoing citizen involvement program:
   a) long term commitment by city in policy, time and personnel
   b) procedures for establishment and change of the program and committee
   c) general charge and specific tasks assigned to citizen advisory committee

9. In the City's Comprehensive Plan experience, the most successful citizen involvement has been as follows:
   a) use of appointed or recognized committees performing a specific task of review or preparation or advising on a specific activity or issue over time
   b) use of public workshops with affected interest groups and organizations, specially affected areas and neighborhoods, or the general public, particularly when such workshops are fitted to the schedule and meeting place of the interest group or the locale of the area or neighborhood
   c) direct citizen participation in hearings, when informed by timely and accurate notice, and exposed to pre-hearing workshops
   d) utilization of joint City-County processes where appropriate, on issues involving interest and commitments of both jurisdictions

3.00 SCENIC, ROGUE RIVER, HISTORIC AND NATURAL RESOURCES INDEX

3.10 PURPOSE

3.20 INVENTORY

- Scenic View and Areas
- Rogue River Corridor
- Historic Sites
- Mineral and Aggregate Resources
- Fish, Wildlife and Vegetation Resources
  - Fish
  - Wildlife
  - Vegetation

3.30 CONFLICTS

- Scenic
- Rogue River
- Historic
- Natural Resources

3.40 CONSERVATION AND ENHANCEMENT

3.50 FINDINGS

WETLAND RESOURCE PLAN

City of Grants Pass Ordinance No. 4919 adopted the Wetland Resource Plan as part of the Comprehensive Community Development Plan and amended the Development Code (January 11, 1998). Please see the Wetland Resource Plan as an addendum to this element of the Comprehensive Community Development Plan.

SCENIC, ROGUE RIVER CORRIDOR, HISTORIC AND NATURAL RESOURCES

3.10 PURPOSE

The purpose of this element is to inventory the location, quality and quantity of the scenic, Rogue River, historic and natural resources of the Urban Growth Boundary areas; to identify land uses that may conflict with the preservation of the identified resources, and to propose methods for preserving, conserving and enhancing scenic, Rogue River, historic and natural resources.

3.20 INVENTORY

The location, quality and quantity of the following resources shall be inventoried in this section: scenic views and areas, Rogue River, historic sites, mineral and aggregate resources and fish, wildlife and vegetation resources.

The Rogue River resource section is highly interrelated with the other resources in this element; however, due to the significance and community impact of the river, it warrants a separate section. Much of the data utilized for this section is in the "Rogue River Riverfront and Development Plan" (The River Plan; also RRP) adopted February, 1988. For the purposes of this document, the following descriptions apply:

100 Year Flood Plain - The 100 Year Flood Plain has boundaries determined by the Federal Insurance Administration as the base flood elevation for purposes of flood plain management and is the level at which a flood may occur every 100 years with a 1% chance of occurring annually.

Flood Way - Flood Ways are stream corridors designed to conduct waters of a 100 Year Flood out of the area as fast as possible. They are not necessarily a natural feature.

River Corridor - The River Corridor establishes the location of the Scenic Overlay Zone and is covered by the same area as the 100 Year Flood Plain.

Scenic Views and Areas

Scenic views and areas are often the initial features that attract people to the Grants Pass area to live or to visit. The Rogue River is a unique scenic area with exciting characteristics such as white water, fast flying waterfowl and a streamside canopy of large trees. The Rogue River has been a center of attraction and attention in the Grants Pass area for a long time. The 1960 City Park Plan identified the river as "the area's most important recreation asset." People enjoy the scenic quality of the river from such vantage points as the bridges, motel verandas, parkside, and by boat or raft.

Scenic areas along the roadways of the UGB, especially the arterial roadways which serve as entrances to the UGB, are also important features that may attract people to the area. The scenic entrances may bias the opinions of visitors in favor of the community. Landscaping along the arterials is a requirement of the 1982 Zoning Ordinance: The City is also implementing a street tree planting program in the downtown area.

There are some major streets that have older, big trees growing along the avenue, such as 6th Street from Evelyn to "A" Street, and "A" Street from 9th to 6th Street. Many of the trees are majestic Redwoods that symbolize the logo of many tourist commercial businesses and of the region which is recognized as part of the "Redwood Empire". Many significant entrances to the UGB, such as north 6th Street, the Redwood Spur, the Rogue River Highway and the Redwood Highway are barren of almost any species of trees. Instead, the motorist is confronted with a confusion of signs, acres of pavement and fast moving traffic. Hardly the scenic qualities that entice travelers to venture further into downtown or other commercial areas to sightsee and shop.

Scenic views are available from high vantage points within the UGB. (See Scenic Map 3.20.1.) The elevation changes from approximately 880 feet above sea level near the river to 1600 feet in the Northwest Subarea. There are good scenic vantage points along Hillcrest Drive, Woodson Drive, Crescent Drive and at Rogue Community College. The City has a subgrade water storage tank off Woodson Drive that offers a panoramic view of the mountains surrounding the Rogue Valley of Grants Pass. There is also a 40 acre parcel of BLM land located in the Northwest Subarea that is undeveloped at this time.

The view from that site is also panoramic. Such views are gratifying to many urban dwellers. San Francisco, California, is famous for its hills and scenic vistas which visually "enlarge" the environment for urban dwellers. Also, there is a sense of community pride and enhanced awareness derived from viewing large areas of the city from one place. The hustle and bustle of urban life seems more impressive from a scenic vantage point. The city is reduced to a comprehensible scale which can facilitate one's identity with the place.

Rogue River Corridor

As mentioned elsewhere in this document, the Rogue River is an important community asset to the City of Grants Pass. The river offers the City:

1. A natural habitat,
2. A recreational asset,
3. A scenic attraction, and
4. An economic opportunity.

The river bisects the southerly portion of the City in an east/west direction. Residential, commercial and recreational land uses are presently located along the river as stated on Page 12 of "The River Plan". There are approximately 21,000 l.f. of single family residential river frontage; 3,500 l.f. of commercial river frontage; 4,700 l.f. of publicly owned river frontage; and 2,400 l.f. of undeveloped frontage between Tom Pierce Park and Schroeder Park along the 4.5 mile study area of the Plan. There are a great number of existing single family residential parcels. There are 18 public rights-of-way which access the river throughout the study area.

The intersection of the commercial downtown development and the Rogue River Corridor point to the potential importance of this area as a node of community activity and connection to the central business district bisecting the river. The third bridge corridor, currently under construction, is a designated urban renewal area. Further, located along and accessible to Highway 99, are eight

commercial parcels within one half mile of each other. Primary locations for vehicular access to the river are found at the five parks, larger commercially owned parcels, and intervals throughout the corridor. Land use patterns and the influence of floods suggest that there are opportunities for trails throughout the south bank of the river portion of the corridor area within the floodway. Specific opportunities here are found east and west of the Third Bridge where commercial, residential and public rights-of-way exist. Ownerships and land use patterns are so dispersed here that public access is difficult.

Plans highlighted in Josephine County's Bikeways Master Plan proposal suggest increased bikeways throughout the Rogue River Corridor and the Downtown area. The most obvious way to tie-together the river corridor and the rest of the community (such as downtown) is through increased and improved bikeways, pedestrian ways, and other methods of non-motorized circulation such as carriages and rickshaws.

Two kinds of access opportunities are apparent:

1. A large number of public and undeveloped parcels create an opportunity for the development of several additional access areas.
2. Already designated commercial sites suggest the potential for privately sponsored access opportunities such as restaurants, boat rentals and overnight tourist accommodations.

Five riverfront parks span the river area offering major opportunities for public use and access to the riverfront. Linkages between these parks (Pearce, Baker, Tussing, Riverside and Schroeder) can take the form of pedestrian paths, bikeways and boating opportunities for both residents and tourists alike. Bikeways can provide an excellent linkage between the variety of public uses and the commercial sites along the river. Bikeways are another way of linking the riverfront to the rest of the community and downtown as well, beyond the study area.

Certain locations, especially in the vicinity north of the river and west of the Fourth Bridge, have a large flood plain. This factor tends to limit intensive development for residential, commercial and industrial uses, but could suggest opportunities for additional larger scale recreation facilities and other water related public uses. Another area, between the Caveman and Fourth Bridges south of the river has a large flood plain which must be considered an opportunity for recreation and other public uses. Of particular importance is the pedestrian linkage between the river and downtown.

As stated in the RRP, approximately 95% of the riverbank has at least "intact primary" riparian vegetation, which is a major component of the Rogue River's natural setting. Riparian vegetation is defined as trees, shrubs and ground cover that grow along streams, creeks and rivers. This is of great aesthetic value and must be preserved to the maximum extent possible to forever enhance the user experience. Further, such vegetation has structural biological implications relative to the riverbanks' integrity.

Topographic modulation, riparian and other vegetation, the river itself, and short-, medium- and long-range views changing at every turn of the river all combine to offer an extremely high scenic quality to the corridor.

MAP 3.20-1
Scenic View Map

Historic Sites

The renovation of historic buildings is becoming a financial as well as cultural investment. Traditionally, the preservation of older buildings was done to culturally enrich the community. The preserved artifacts of community history lend a sense of place and purpose to many persons. In addition, the historic architectural styles associated with older buildings often add diversity to the building stock. The interior designs of historic building are usually unique, thus creating an anachronistic environment that often intrigues people who are looking for a special place for their business or home.

Recently, however, the renovation of historic buildings has been stimulated by financial incentives. There are some possibilities of good investment return among some of the old, dusty structures. Many downtown historic building in other cities are being renovated for mixed-use residential and commercial space. It's usually less expensive to rehabilitate an aged structure than to provide equivalent floor space through new construction. According to a Portland renovator, it's profitable to preserve old buildings. On the average, he estimates it would cost $20 per square foot more to construct new space than to renovate an old space in a quality manner. Another Portland renovator suggests that high quality rehabilitations may have more market value in the rental market than many of the new buildings. However, most historic commercial buildings in Grants Pass are small, which may increase the cost per square foot. In addition, local financing may be difficult and contractors with experience may be unavailable. There are also the unanticipated costs that may arise during the rehabilitation.

The tax incentives can be an encouragement, however, especially for those seeking income tax shelter. Buildings that qualify for the National Register of Historic Places, and most old structures within designated historic districts, offer the greatest tax incentives. Currently, there are two buildings in Grants Pass listed on the National Register of Historic Places:

1. Clemens, Michael, House
   612 N.W. 3rd Street
2. Kienlen-Harbeck Building
   147 S.W. "G" Street

In June, 1980, Resolution No. 1210 established the Mayor's Advisory Committee on Historic Preservation for Grants Pass. The committee made an inventory of sites, areas, structures and objects considered as possibly related to the history and heritage of the Grants Pass area. A total of 544 evaluations were made by the committee during on-site tours throughout the UGB area. Each evaluation was determined by suing a rating system based on a Portland, Oregon, method devised for the completion of Old Town historical surveys. The numerical rating system included the following criteria: physical condition, important to the neighborhood, architectural interest and historical interest. The final evaluation of each inventory entry was based on a value rating; poor, fair, good, excellent or exceptional. Of the 544 inventory entries, 148 entries (27%) were given an excellent or exceptional rating. A partial listing of some of the areas that contain a high number of excellent or exceptional entries is shown in Table 3.20.2.

TABLE 3.20.2
Historic Sites by Geographic Area: UGB (excellent or exceptional rating)

Subarea	General Street Location	Number
Northwest	6th Street	11
	2nd & 3rd Streets	5
	"B" Street	7
	Washington - Lawnridge	10
	4th & 5th Streets	14
	"A" Street	10
	Subtotal	**57**
Northeast	8th Street	6
	"A" Street	3
	6th Street	4
	Beacon	4
	Subtotal	**17**
Southeast	"M" & "N" Streets	3
	Riverside	2
	8th Street	2
	Subtotal	**7**
Southwest	6th Street	3
	"K" Street	2
	"G" Street	25
	4th & 5th Streets	3
	"L" Street	3
	"I" Street	3
	Subtotal	**39**
Harbeck - Fruitdale	Grandview	2
	Fruitdale	2
	East Park	2
	Subtotal	**6**
Redwood	Dowell Road	2
	TOTAL	**128***

* The remaining 20 entries are isolated sites throughout the UGB. For a complete listing of all 544 entries, please see the appendix Inventory Study of sites related to the history and heritage of the Grants Pass area.

Rehabilitation of potential historic sites must be extensive, and must meet certain standards designed to ensure that the character of the building's exterior is preserved. Those that qualify are entitled to these tax incentives:

1. A 25% investment credit for rehabilitation expense under federal law. That means that one fourth of the expenses can be subtracted from the owner's tax payment the first year.
2. The entire building value (including the 25% credit) can be depreciated over 15 years on federal tax returns.
3. Oregon law permits a 15 year freeze of assessed value on such building for tax purposes. If the building qualifies prior to renovation, that means the owner avoids property taxes for 15 years on the investment in rehabilitation as well as on other increased value.

So, those who rehabilitate historic buildings these days often have mixed motives, including an interest in tax shelter and after tax return on investment.

Significant tax benefits are also available for rehabilitation of older nonresidential structures that don't qualify for the national register. An owner can get a 20% investment credit for extensive renovation of buildings more than 40 years old and 15% for those more than 30 years old. The 15 year federal depreciation tax write-off also applies (except that one must subtract the investment credit from the value to be depreciated).

Historic districts can be created by local government. The "old town" district located along "G" Street may be a candidate for historic district designation. The district must be admitted to the National Register of Historic Places in order to qualify for the federal and state tax incentives. Within such a district, all properties would be placed in one of four categories. Those which contribute to the historic character of the district would become eligible for maximum tax benefits.

The City provides interest-free loans to homeowners residing within the city limits who qualify based on family income to rehabilitate or repair their homes. The funds for the program come from a Department of Housing and Urban Development Community Development Block Grant. Loans can be made up to $7,500 and need not be paid back until the house is sold or the original owner moves out. The loans can be used for items such as roofs, electrical systems. heating systems, plumbing, foundations, exterior paint, insulation, storm windows and structural instabilities from termites or dry rot.

Mineral and Aggregate Resources

The Rogue River flows through the approximate center of the UGB. During the several million years that the river has flowed, much alluvial sediment has been deposited within the UGB. The alluvial deposits are classified on the basis of age and position in the alluvium. The deposits consist of river sediment on benches, terraces, floodplain, and in the floodway (Aggregate Resources of Josephine County, Oregon. Oregon Dept. of Geology and Mineral Industries, 1975).

The oldest alluvial deposit is bench gravel which is found near the fringes of the current floodplain of the river. Bench gravel is composed of clay, silt, sand and assorted sizes of stone including

boulders. The presence of clay and silt required that the gravel be washed thus increasing its production costs. Therefore, bench gravel is not a preferred aggregate source.

High terrace gravel lies between the low terrace gravel which is subject to flooding and the higher bench gravel which does not flood. The deposit is overlain with 1 to 3 feet of silty-sandy soil that is used primarily for irrigated agriculture. The gravel is relatively fresh and hard and is used as a concrete aggregate.

Low terrace gravel lies within the floodplain and is subject to annual flooding. The deposit is covered by a mantle of silty sand loam. Generally, low terrace gravel is of good quality and may be underlain with older gravels. The deposits are sensitive, erosion-prone areas due to the proximity to the river channel and flooding waters.

Floodway gravel is located between the floodfringe and the floodway. It is comprised of washed gravel, making it relatively clean and suitable as a concrete aggregate. Floodway gravel is located in sensitive, highly erosion-prone areas. The mining of floodway gravel can create new river channels and change the downstream flooding patterns.

Riverwash gravel is found in the river channel and as point-bars where the river changes direction. Riverwash is usually visible during the summer flows of the river. The gravel is of good quality. The construction of improperly designed dikes and berms during gravel removal can have adverse effects in terms of erosion and downstream flooding.

Quaternary sediment is also an alluvium deposit. However, it does not contain commercial quantities of gravel. The sediment occur in close proximity to terrace gravel deposits.

The Aggregate Resources Map identifies the gravel deposits that are located within the UGB. The map also identifies existing aggregate mining sites. There are two sites in the UGB: a gravel pit is situated in the high terrace gravel deposits north of "G" Street at Lincoln Road, and another gravel pit is located in the Rogue River Floodway in the southwest sub-area opposite the City's sewage treatment plant. However the most productive aggregate source and mining operation is located outside of the UGB within 10 miles of the Boundary edge, at the confluence of the Applegate and Rogue rivers.

Sustained population growth and the resulting demand for improved support services and facilities such as local streets and highways, commercial and industrial development, schools and housing are indicators of an increasing commercial market demand for mineral and aggregate resource products. Every housing unit construction generates a need for approximately 176 cubic yards of concrete in addition to crushed rock that is used for foundation pads, embankments and select fill. Additionally, the rate of growth for a community has a dramatic affect on the per capita consumption of aggregate materials of all types. A rapidly growing community can be expected to use up to three times as much aggregate as one that is not expanding. The fact that Grants Pass is a rapidly developing city emphasizes and clearly highlights a need to preserve, maintain and make adequate and reasonable

provision for the extraction of mineral and aggregate resources within and in close proximity to Grants Pass.

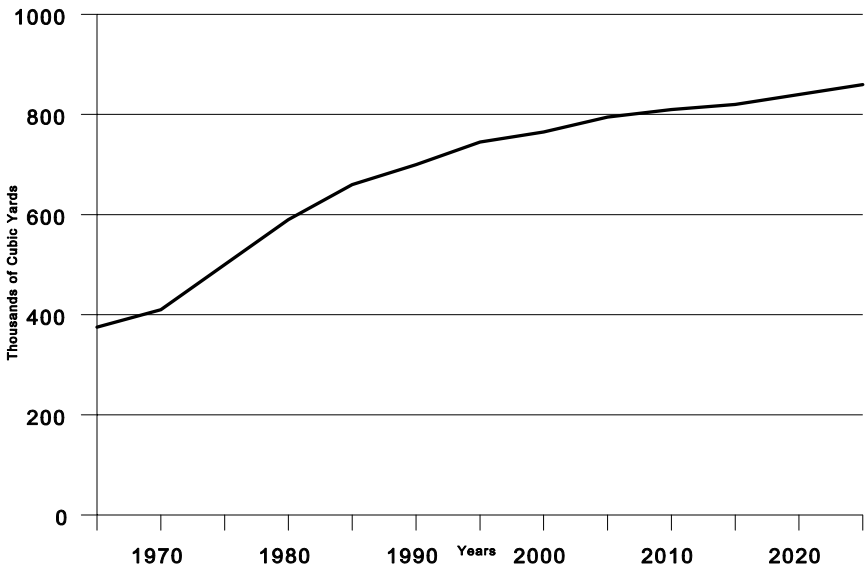
MAP 3.20-2
Aggregate Resources Map

The overall weight and bulk of aggregate materials bears a direct relationship to its cost since hauling costs are unusually high. The delivered cost of aggregate can be expected to double if hauled ten miles to its place of use and thirty miles appears to be the maximum distance these materials can be transported cost effectively.

According to a document titled Aggregate Resources of Josephine County, Oregon, 1975, published by the Oregon Department of Geology and Mineral Industries, Josephine County used approximately 460,000 cubic yards of aggregate in 1973. This equals about 12.3 cubic yards or almost 19 tons per capita. By the end of the planning period, the annual consumption is expected to equal approximately 770,000 cubic yards. Graph 3.20-3 below illustrates the expected annual demand for aggregate materials for Josephine County.

It can be expected that per capita consumption for an urban area like Grants Pass will be greater than for an equal rural population due to the greater level of support services and facilities typically found in urban environments.

GRAPH 3.20.3
Projected Aggregate Demand: Josephine County



Fish, Wildlife and Vegetation Resources

Fish - Anadromous fish, which live in the ocean but migrate to fresh water rivers and streams to breed, are an important resource of the Rogue River and its viable tributaries within the UBG. Several anadromous fish species spawn and rear in the portion of the Rogue River within the UGB. Spring and fall chinook salmon, summer and winter steelhead trout and coho salmon migrate through the UGB section of the river every year. Summer steelhead trout spawn in four of the UGB creeks: Sand, Allen, Gilbert, and Fruitdale. (Skunk Creek has been almost entirely enclosed with street paving, culverts, and concrete lining). Summer and winter steelhead spawn in Jones Creek. As many as 825 fish may spawn each year in these streams. (Oregon Department of Fish and Wildlife) Non-anadromous cutthroat and rainbow trout also inhabit the river in small numbers. (Draft EIS, Third Bridge, 1978, page 32) Rainbow trout are stocked at Baker Park during the early summer.

Wildlife - The condition of wildlife habitats in the study are reflect the intensity of land use. The majority of existing habitat have been reduced in quality and quantity because of urbanization. As a result, there are simplistic and less stable ecosystems and expanded areas of biologically unproductive lands (barrens). The trend toward unstable ecosystems results in fewer wildlife species.

The Oregon Department of Fish and Wildlife lists 145 faunal species for Josephine County. The EIS Third Bridge Study estimates that there are habitat in the area for about 90 of those faunal species. According to the EIS, there are five types of habitat within the area: 1) the woodland, 2) the barren, 3) the shrub, 4) the grassland/old-field, and 5) the freshwater shallow marsh. There are two major influences that affect the quality of the habitat: 1) urbanization, and 2) the Rogue River. Increasing urbanization can decrease the habitat area. The river provides a dynamic interface between the terrestrial (land) and aquatic ecosystems. The river provides the wildlife with food, water and protective vegetative cover.

The woodland habitat exist predominantly along the river and in the foothills near the edges of the UGB. Much of the riparian woodland has been altered for park or residential uses. The underbrush and smaller trees have been removed and replaced with grass. The remaining big trees are Black Cottonwoods, Douglas Fir and Bigleaf Maple.

The barren habitat is generally denuded land such as trees, parking lots, industrial storage areas, buildings and naturally occurring areas of sparse vegetation such as floodway-gravel deposits. Vegetative growth is either eliminated or extremely sparse, providing almost no habitat or wildlife.

The grassland/old field habitat is found on old landfills, abandoned lots, pasture, lawns and roadside right-of-way. The number of floral species is rather limited, but the habitat does provide protective cover and some food.

The shrub habitat is found along drainage ditches, fence rows, and in places along the river. Due to the scattered pattern of distribution, shrub habitat has a high proportion of edge to the total shrub

area, and therefore, provides a large transitional area, or ecotone, and fosters great wildlife diversity by providing a competitive fringe between two habitats.

The marsh habitat is shallow inland freshwater wetlands contain an abundance of cattails, sedge and hawthornes. The habitat provides ample protection and food for adapted wildlife. Some of the wildlife common to the UGB are listed in Table 3.20.4.

TABLE 3.20.4
Wildlife Common to UGB (a partial list)

Birds	Kingfisher	Robin	Canvasback
	Pigeon	Merganser	Flycatcher
	Sandpiper	Finch	Mallard
	Sparrow	Wren	Osprey
	Jay	Starling	
Mammals	Squirrel	Deer	Rabbit
	Mouse	Rat	Beaver
	Opossum	Shrew	Mole
Reptiles	Garter Snake	Lizard	Skink
Amphibians	Bullfrog	Frog	Salamander
	Toad		

Many of the wildlife species listed above find breeding habitats within the UGB. Other species do not live within the UGB but rather visit the area in search of food or temporary shelter.

Numerous species of game animals, non-game animals, fur-bearers and birds occupy the general area in and surrounding Grants Pass. These species include Black-tailed Deer, Black-tailed Jackrabbit, Beaver, Bobcat, Coyote, Raccoon, Badger, Spotted Skunk, Silver-Grey Squirrel, Canada Goose, Red-tailed Hawk, Golden Eagle, Bald Eagle, Osprey, Peregrine Falcon, Ruffled Grouse, California Quail and Great Horned Owl.

Animals that are unable to tolerate human intrusion or that are dependent on climax or old growth vegetational communities have generally declined as man has increased his presence in the environment. Species more tolerant of human intrusion or which are more flexible in regard to habitat preference have been better able to adapt to environmental changes. Existing populations of these species are generally believed to be stable. Certain animal species and populations may flourish in close association with man. These species are generally limited to rodents and certain bird species. The populations of these species are probably expanding. Generally, there are no occurrences of rare or endangered wildlife species within the general Grants Pass area.

Vegetation - Vegetation is a primary determinant of animal or wildlife habitat. Each plant community previously described contains numerous wildlife communities although wildlife habitat suitability is greatly influenced by climate and other physical variables. The structure of plant communities and physical environmental features that are similar within the overall vegetative zone allow considerable overlap of wildlife populations, especially those with wide habitat tolerances.

Vegetation is an important natural feature of the urban environment. "In an increasingly urbanized and artificial environment, vegetation is the greatest natural component of the Josephine County Urban Area. Unfortunately, historic (and careless) removal and mutilation of vegetation at construction sites, along stream banks, and in developing areas has resulted in little consideration of vegetative function. Commonly, plants must compete with man-made structures and designs without regard to functional systems." (Josephine County Comprehensive Plan, 1981)

Indigenous vegetation in the UGB area is either being replaced by hybrid nursery stock or is being removed for urban development. Of special concern is riparian vegetation which provided cover for fish spawning, regulates the temperature of the water, provides wildlife habitat and stabilizes stream banks from erosion.

Skunk Creek is an example of the effects of urbanization on stream quality and vegetative cover. That creek is almost completely channelized and covered over with impervious surfaces. No stream-side vegetation exits and no anadromous fish spawn in its water. In addition to its value for wildlife and aquatic habitat, vegetation is important for human habitat. The following statements are excerpted from the Josephine County Comprehensive Plan, 1981.

> "Urban vegetation may be used to produce dramatic benefits. Plants may be employed for erosion control, noise reduction, pollution abatement, traffic control, glare reduction, temperature control, aesthetic enhancement, wind control, privacy enhancement, and architectural development.
>
> "The topography of the Grants Pass airshed basin often results in temperature inversions which may trap pollutants close to ground level. Studies have indicated that plants may be utilized to remove pollutants from the atmosphere and to serve as indicators of hazardous concentrations. Bach and Matthews (1969) indicated that 25 acres of beech trees are capable of removing four tons of dust per year from the air. A 200 foot wide green area may be capable of reducing sulfur concentrations by 70%. Odum (1971) has suggested the economic feasibility of establishing "waste management parks" as elements of planned industrial parks. These "waste management areas" would consist of greenbelt areas, designed and planted with specific species to mitigate the adverse effects of industrial pollution. Such parks may also be designed as linear units to reduce impacts between line sources, such as major highways, and residential areas.
>
> "Vegetation may also be employed for glare reduction and climate modification. Studies have demonstrated that temperatures in cities and urban areas are invariably higher than in surrounding rural areas (Aloys, 1966). Deciduous trees have long been employed to provide

shade in the summer without interfering with winter sunlight. The benefits of these trees also include reduced temperature variations as plants absorb solar radiation during the day and release heat during the night, reduced heat radiation, and reduced glare reflection. Vegetation, thus, may be used to mitigate the adverse reflecting surfaces of streets and buildings. In Grants Pass, where temperatures may exceed 100 degrees Fahrenheit during the summer, provision of extensive shade trees may greatly improve the relative comfort of residents.

"Plants may also be used to reduce noise. Studies conducted by Cook and Van Haverbeke (1970), Weiner and Keast (1959), and Embelton (1936) document the effectiveness of vegetation in reducing undesirable sound levels. Acoustical modification is accomplished by sound-absorption, sound-deflection and sound-masking. The ability of plants to absorb noise is pronounced. One hundred feet of grass will reduce noise at 500 cycles per second by three decibels. Dense foliage will reduce noise at 500 cycles per second by five decibels (Moore, 1966). Embleton (1963) determined that noise could be reduced by seven decibels for 100 feet of planting. The combinations of plantings and source separations can increase the effect of noise control. The energy of a sound measured at the source and at a distance of 100 feet will be reduced by 20 decibels. If the separation includes 100 feet of planting, the reduction will total 27 decibels. Lacking the planting, an additional 150 feet of distance would be require to achieve the same sound direction." (Robinette, 1972)

3.30 CONFLICTS

The Population Element (6.0) states that the population of the UGB areas will increase by 16,000 to 22,000 people during the 20 year planning period. The Housing Element (9.0) states that between 9,000 and 12,000 new dwelling units will be needed during the planning period. In addition, approximately 500 acres of commercial and industrial land will need to be developed during by the year 2000. The cumulative impacts of these land use activities could have a definite effect on the scenic, Rogue River, historic and natural resources.

Scenic

The scenic area that will be most affected by increased land use intensity within the UGB is the Rogue River. The river frontage land is a focal point of existing tourist commercial and single family residential development. It is anticipated that commercial and residential land uses will continue to develop near the river. In addition, two additional vehicular bridges are proposed to be built across the river during the planning period.

Rogue River

As mentioned in scenic and natural resources sections of this element, the Rogue River will be most affected by increased land use intensity. Specifically, conflicts will occur between private property development versus the increased demand for public access and public utilization of the river's amenities such as bikeways, pedestrian trails and view points. In addition, conflicts will occur

between the demand for recreational activities (such as jet boats, fishing and park development) and protection of the riparian habitat. These conflicts can be resolved by providing:

1. A balance between conflicting uses,
2. Prioritizing competing activities, and
3. Developing design and habitat standards for new projects review.

Historic
Historic sites and areas will increasingly come under pressure to be converted to new uses. The Conversions may take place without the owner being aware of the cost savings that may be realized by rehabilitation or the tax incentives available for a restored or rehabilitated building.

Natural Resources
Increasing urbanization will affect the zoologic and botanic resources of the UGB. Birth and death rates as well as diversity among wildlife are linked to the amount of available habitat. That means the protection of habitat is paramount for the conservation of wildlife in the UGB.

"The land-animal relationship is direct. Without land (or specific habitat areas), wildlife cannot exist. In addition, every habitat has its carrying capacity (wildlife support capability), determined by the availability of food, cover, water and other essentials of life. If specific land areas are withdrawn, wildlife populations must compete with other populations for suitable habitat. Obviously, when competition is great and resources are limited, there is little room for wildlife production and promotion." (Josephine County Comprehensive Plan, 1981, pages 9-1)

The Oregon Department of Fish and Wildlife made this statement in the County Plan: "Man is in direct competition with wildlife. More people equals less wildlife. And since the human population of Josephine County is growing rapidly, it is a fact that wildlife resources in the County are shrinking. As the human population replaces the wildlife population, a predictable sort of evolution occurs as, one by one, the birds and the animals disappear."

Fish habitat can also be affected by urbanization. Hundreds of anadromous fish spawn each year in the creeks of the UGB. The quality of these creeks for spawning is dependent on the cooling effect of vegetation along the stream channel and a minimal amount of siltation during gestation and hatching of the eggs. Siltation, or the covering of the stream bottom with silt, can cover the eggs and consequently suffocate the newborn salmon.

Urban activity along these creeks, such as construction or vegetation removal, can affect the quality of the fish habitat, and may further reduce the number of fish that make the creeks of the UGB their home.

3.40 CONSERVATION AND ENHANCEMENT

There is no profound biological rule that says history and natural resources must diminish in face of human progress and population growth. The dilemma of heritage and progress is a malleable one that can be directly affected by the community's attitudes and subsequent policies for community growth. Assumedly, there is a direct link between heritage and progress that is important to recognize. The Population Element, Sections 6-11 and 6-12, points out that people come to the Grants Pass area to live a slower life in a clean environment with rural amenities, and for the area's unusual recreational opportunities. Apparently, these metropolitan immigrants and tourists are seeking relief from the hard, fast-paced urban life where scenic views overlook urban blight, the historic building are run-down slums, the rivers are used as open sewers and the natural features are found in zoos. The cliche', "you don't know what you've got until it's gone" need not be the epitaph of urbanizing areas.

Scenic views and areas can be enhanced by the planting of vegetation, prohibiting unnecessary removal of vegetation and ensuring that new development harmonizes with the landscaped or natural setting. Recreation, residential and commercial development along the Rogue River can co-exist with environmental protection and visual enhancement through;

1. Incorporation of planning and urban design strategies within and adjacent to the River Corridor,
2. Detailed review of new development, and
3. The balancing and the prioritizing of competing uses.

Historic sites can be used as an economic and cultural asset to the community, one that enhances the sense of time and place for all generations of the community. Natural features can become intimate aspects of the community environment; aspects that foster a feeling of identity with nature that is so prevalent in a rural environment, and plays such an important role in attracting persons to recreate in the area.

By recognizing the need for wildlife, the community can choose to set aside small areas of woodland and meadow for habitat, and can encourage larger developments to preserve some habitat areas, possibly in conjunction with landscaping requirements or noise and sight buffering zones. The marshlands and wetlands found in some areas of the UGB provide good habitat for fish, birds and amphibians and can be conserved as wildlife refuges without interfering with development. Woodlands on steeper slopes may provide refuge for deer and birds and can also be conserved without affecting urban development.

3.50 SCENIC, ROGUE RIVER, HISTORIC AND NATURAL RESOURCES FINDINGS

Scenic

1. Scenic views and areas are often the initial features that attract people to the Grants Pass area. The Rogue River is a unique scenic area that has historically attracted people to the area.
2. Scenic areas along the roadway entrances to the UGB may favorably influence visitor's impressions of the community. Landscaping requirements and street free planting programs are already part of the UGB ordinances.
3. Some major streets, particularly 6th from Evelyn to "A" Street and "A" Street from 9th to 6th Street, have large trees planted along the avenue. Many of these trees are Redwoods which are the symbol of the "Redwood Empire" and many tourist commercial businesses.
4. Many significant entrances to the UGB, specifically north 6th Street, Redwood Spur, Rogue River Highway and the Redwood Highway are without street trees.
5. There are good scenic view spots along Hillcrest Drive, Woodson Drive, Crescent Drive, and at Rogue Community College. The subgrade City water tank off Woodson Drive offers a panoramic view of the mountains surrounding the Rogue River Valley. The 40 acre BLM lot located off Crescent Drive also offers a panoramic view of the valley. (See Scenic View Map 3.20.1)
6. The scenic area that will be most affected by future population growth and urbanization is the Rogue River. It is anticipated that commercial and residential uses will continue to desire to develop along the river. In addition, two additional vehicular bridges are proposed to be built across the river during the planning period.
7. Scenic views and areas can be enhanced by the planting of vegetation, prohibiting the unnecessary removal of vegetation along streets, and the river and other waterways, and ensuring that new developments harmonize with the landscaped or natural setting.

Rogue River

8. In terms of scenic beauty, the Rogue River Corridor offers nearly unparalleled scenic grandeur among the Southern Oregon river system communities.
9. In order to preserve the economic potential of this spectacular river/recreation corridor, its inherent beauty and natural endowments must be preserved.
10. A Scenic Overlay Zone between Park and Schroeder Park needs to be developed and integrated into the Comprehensive Plan to help manage the river corridor in perpetuity. This zone should:
    a) define those elements which comprise the river's scenic qualities
    b) define goals which, if implemented, will help in achieving preservation of this scenic quality
    c) create a Scenic Management Plan component in the City's Comprehensive Plan capable of serving as a regulatory framework with which to enforce the Scenic Overlay Zone.
11. Future commercial lands should be sited based upon demand projections and/or the likely impact of major new facilities such as the Third and Fourth Bridges. Nodes of commercial property should be formed in these locations, which are intended to avoid riverfront "strip"

commercial and to establish a critical mass of commercial development where individual commercial ownerships might otherwise be weakened.

12. Established right-of-ways to the river can be used for vehicular access, while very narrow tax lots in public ownership fronting the river can be used for pedestrian and bicycle access. These areas of access have been identified in the "Rogue River Riverfront and Development Plan" as viewpoints.
13. Pedestrian, bicycle and jogging paths as identified in the Parks and Recreation Master Plan form the basis for potential new trails on the river corridor.
14. Riparian vegetation currently is found on approximately 95% of all riverbank frontage in the overall 4.5 mile RRP area between Park and Schroeder Park. This critical resource should be preserved and enhanced in its current form within the River Corridor for riverbank protection, positive impact on the salmon spawning beds and its impact on scenic edge quality.
15. Riverfront public and commercial sites should be linked together with bikeways which can also serve as pedestrian and jogging trails.
16. The Third Bridge Corridor urban renewal area offers a tremendous opportunity for simultaneous development of improvements within the Rogue River Corridor. Those improvements already identified in the Third Bridge Corridor urban renewal plan study include: new bicycle paths, sidewalks on the Third and Fourth Bridges, a computerized information center, a pedestrian bridge over the river, the Third Bridge itself, and Riverside, Baker and Tussing Park improvements.
17. A multi-purpose trail loop system fronting the river as well as using street right-of-ways linking both the north and the south banks of the Rogue River between the Third Bridge and the Fourth Bridge can become a major year-round tourist, visitor, and local attraction.
18. Visual linkage to the river should occur wherever public right-of-ways are developed for use along the river corridor. Even if functional facilities are not developed in these locations, passive recreational facilities can be developed which can allow the public to view the river at intervals.
19. Riverfront parcels should be zoned so that compatible uses are adjacent to one another. Locating adjacent, inconsistent uses should be avoided.
20. The most opportune places to locate riverfront trails are on "benches" midway down the riverbank, out of view of the property owners and yet well above and closer to the river's edge.
21. The most obvious way to link the river corridor to the downtown community is to develop pedestrian and bicycle connections from the point that the Caveman and Seventh Street bridges cross the River into the downtown.
22. A trail system is the single, best method for bringing both tourists and locals to the river's edge for sheer enjoyment. A multi-purpose trail loop system fronting the river as well as using street right-of-ways will likely be a critical link in the City's goal of having a year-round riverfront attraction. The scenic beauty of the Rogue can then be captured as perennial attribute of Grants Pass.

Historic Sites

23. The renovation of historic buildings is becoming a good financial as well as cultural investment. It is usually less expensive to rehabilitate an aged structure than to provide equivalent floor space through new construction. On the average, rehabilitation cost $20 per square foot less that new construction for commercial buildings.
24. The preserved artifacts of community history lend a sense of place and purpose to the community. The interior designs of historic buildings are usually unique, thus creating an anachronistic (from a former age) environment that often intrigues people who are looking for a special place for their business or home.
25. Many downtown historic buildings in other Oregon cities are being renovated for mixed use residential and commercial space. (Albany, Oregon City, Astoria, Salem, Eugene, Baker, Oakland, Jacksonville, Aurora, Portland, and The Dalles)
26. There are tax incentives available for historic rehabilitation that can be an encouragement for those seeking an income tax shelter. Buildings that qualify for the National Register of Historic Places offer the greatest tax incentives. However, buildings greater than 30 years of age can be eligible for tax deductible status. Rehabilitation of historic sites must be extensive and must meet certain standards designed to ensure that the character of the building's exterior is preserved. Those that qualify are entitle to these tax incentives:
    1. A 25% investment credit for rehabilitation expense under federal law. That means that one fourth of the expenses can be subtracted from the owner's tax payment the first year.
    2. The entire building value (including the 25% credit) can be depreciated over 15 years on federal tax returns.
    3. Oregon law permits a 15 year freeze of assessed value on such buildings for tax purposes. If the building qualifies prior to renovation, that means the owner avoids property taxes for 15 years on the investment in rehabilitation as well as on other increased value.
27. Significant tax benefits are also available for rehabilitation of older, non-residential structures that don't qualify for the national register. An owner can get a 20% investment credit for extensive renovation of buildings more than 40 years old and 15% for those more than 30 years old. The 15 year federal depreciation tax write-off also applies (except that one must subtract the investment credit from the value to be depreciated).
28. Historic districts can be created by local government. The "old town" district located along "G" Street may be a candidate for historic district designation. The district must be admitted to the National Register of Historic Places in order to qualify for the federal and state tax incentives. Within such a district, all properties would be placed in one of four categories. Those which contribute to the historic character of the district become eligible for maximum tax benefits.
29. The City provides interest-free loans to homeowners residing within the city limits who qualify based on family income to rehabilitate or repair their homes. The funds for the program come from a Department of Housing and Urban Development Community Development Block Grant. Loans can be made up to $7,500 and need not be paid back until the house is sold or the original owner moves out. The loans can be used for items such as roofs, electrical systems, heating systems, plumbing, foundations, exterior paint, insulation,

storm windows and structural instabilities from termites or dry rot. Many old homes of historic significance owned by retired persons with limited incomes can be maintained in this manner.

Mineral and Aggregate Resources

30. The Rogue River flows through the center of the UGB and has deposited much alluvial sediment containing aggregate material including gravel. Gravel is used for road building and concrete making. The alluvial deposits in the UGB area are classified on the basis of age and position in the alluvium. The deposits consist of river sediment on benches, terraces, floodplains and in the floodway.
31. Except for the floodway gravel deposits, the other deposits are generally overlain with fertile soil or are located in areas suitable for urbanization.
32. There are two gravel mining pits located in the UGB: North of "G" Street at Lincoln Road, and in the southwest sub-area opposite the City's sewage treatment plant.
33. Every housing unit constructed generates a need for approximately 176 cubic yards of concrete in addition to crushed rock that is used for foundation pads, embankments and select fill a rapidly growing community can be expected to use up to three times as much aggregate as one that is not.
34. The overall weight and bulk of aggregate materials bears a direct relationship to its cost to the consumer since hauling costs are unusually high. The delivered cost of aggregate can be expected to double if hauled ten miles to its place of use, and thirty miles appears to be the maximum distance these materials can be transported in a cost effective manner. The most productive aggregate source and mining operation is located at the confluence of the Applegate and Rogue Rivers within 10 miles from the UGB.

Fish, Wildlife and Vegetation Resources

35. Anadromous fish, which live in the ocean but migrate to fresh water rivers and streams to breed, are an important resource of the Rogue River and its UGB tributaries (excepting Skunk Creek).
36. As many as 825 anadromous fish spawn each year in Sand, Allen, Fruitdale, Gilbert and Jones Creeks. Non-anadromous cutthroat and rainbow trout also inhabit the river in small numbers. Rainbows are stocked at Baker Park during the early summer. Sport fishing is one of the area's strongest tourist attractions. Tourism is a strong component of the area economy, generating $10 - $12 million in total income in 1979 alone. (See Recreation and Economic Elements)
37. Riparian (streamside) vegetation provides cover for fish spawning, regulates the temperature of water by keeping it cool which is necessary for fish survival, and stabilizes the streambank from erosion. Erosion can cause silt to settle on the bottom of the streambed in gravel areas where fish eggs are laid. The silt suffocates the newborn fish.
38. The majority of existing habitats within the UGB are either the direct result of urbanization (such as barren land in parking lots and industrial storage areas), or are greatly diminished in size by urbanization (such as the woodland and marsh habitats).
39. There are five types of habitat within the Grants Pass UGB; 1) the woodland which exists predominately along the river, streams and in the foothills, 2) the barren which exist in the

urban area as parking lots, streets, industrial storage areas and gravel bars, 3) the grassland/old field which is found on old pastures, landfills, lawns and roadsides, 4) the shrub which is found along drainage ditches, fence rows and along the river and streams, and 5) the marsh which is found in the east Grants Pass industrial area and along Redwood Highway.

40. Vegetation is the primary determinant of wildlife habitat. Vegetation, therefore, is the most important natural component of the UGB area. Historic removal of vegetation at construction sites, along utility right-of-ways, along roadways, along the streambanks and in developing areas has resulted in a greatly diminished vegetative cover.
41. The Rogue River and its tributary stream are the most important habitat areas in the UGB. Of special concern is the riparian vegetation which provides habitat for numerous fish and wildlife along the Rogue River and its tributary streams.
42. Skunk Creek is an example of what urbanization can do to a stream. The creek has become a channelized drainage ditch which does not support any fish or wildlife.
43. Of the 145 wildlife species found in Josephine County, approximately 90 species are found within the UGB.
44. The various elements of this plan state that urbanization will continue within the UGB. Between 16,000 and 22,000 more people will live in the area. Between 9,000 and 12,000 more homes will be built. Approximately 500 acres of commercial and industrial land will be developed. The cumulative impacts of these land use activities could have definite effects on the area's scenic, historic and natural resources.
45. The land-animal relationship is direct. Without land or specific habitat areas, wildlife cannot exist. In addition, every habitat has its carry capacity (wildlife support capability), determined by the availability of food, cover, water, and other essentials of life. If specific habitat areas are withdrawn, wildlife populations must compete with other populations for suitable habitat. Obviously, when competition is great and resources are limited, there is little room for wildlife production and promotion.
46. Vegetation can be employed for erosion control, noise reduction, pollution abatement, traffic control, glare reduction, temperature control, aesthetic enhancement, wind control, privacy enhancement and architectural development.

4.00 ENVIRONMENTAL RESOURCES QUALITY ELEMENT INDEX

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- Future Air Quality
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- Future Land Quality

4.40 CARRYING CAPACITY OF THE ENVIRONMENT

4.50 FINDINGS

4.10 PURPOSE

The purpose of this section is to evaluate the characteristics and quality of the air (including noise), water and land environmental resources of the UGB area, determine the future quality of the environmental resources, and define the concept of "carrying capacity" as it is related to the environmental resources.

4.20 CHARACTERISTICS AND QUALITY OF THE AIR, WATER AND LAND RESOURCES

Air Resource

Characteristics - There are three factors that affect the quality of the air in the UGB area; climate and airshed, atmospheric conditions and topography.

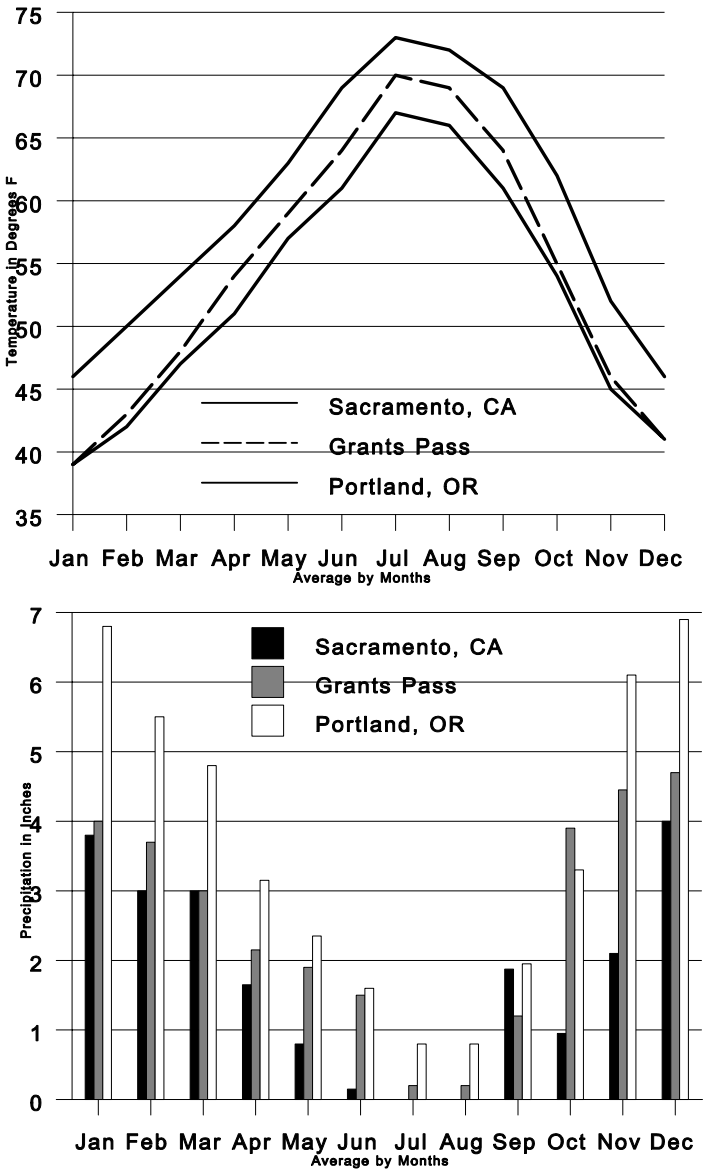
Climate and Airshed - The transitional climate of Grants Pass offers a pleasant blend of the Mediterranean climate of the south and the marine-mesothermal climate of the north. Figure 4.1 illustrates the average temperature and precipitation of the city and compares Grants Pass to Sacramento, a typical Mediterranean climate, and Portland, a typical marine-mesothermal climate.

The excellent year-round climate is marked by dramatic seasonal changes and average annual precipitation rates which equal approximately 30 inches. Freezing temperatures normally occur from mid October through mid May, with the lowest temperatures seldom dropping below 16 degrees. The maximum temperatures typically occur in July and often exceed 90 degrees. Temperatures greater than 100 degrees are not uncommon during July and August.

Precipitation, also illustrated in Figure 4.1, is concentrated during the winter months. Snowfall in the city is rare with an annual average of less than twelve inches, which generally melts rapidly.

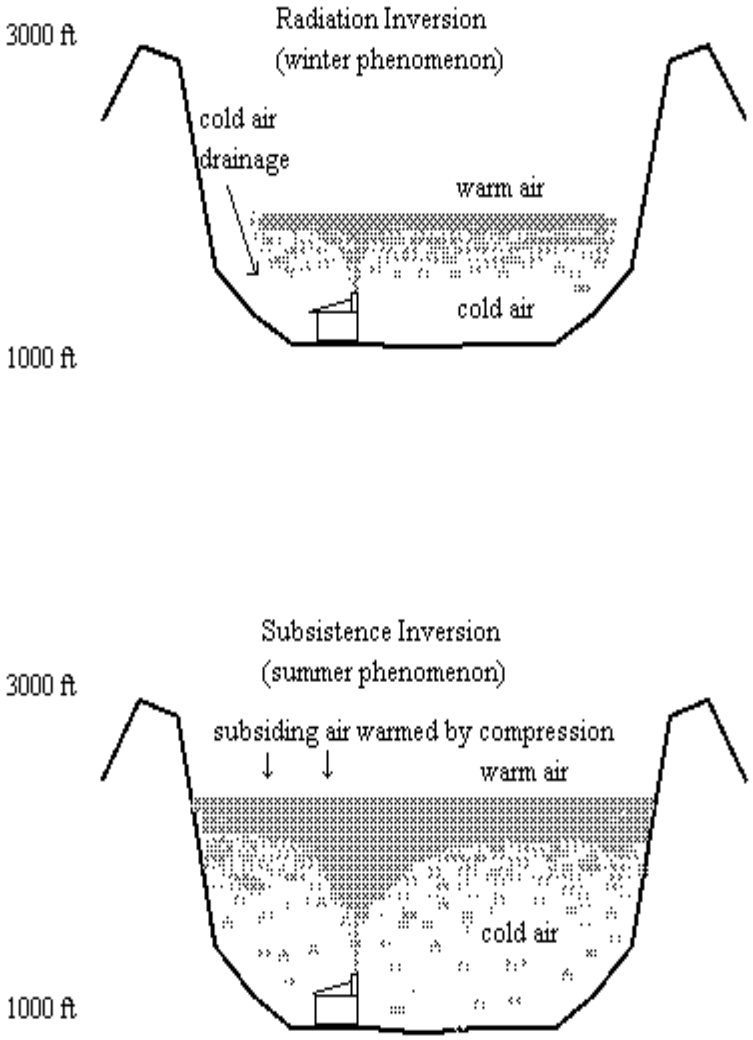
Winds in Grants Pass are normally light with an annual average windspeed of approximately 3.3 miles per hour. The mountains that surround the city generally shelter Grants Pass from wind and protect it from the strong sea breezes from the Oregon coast. During the summer months, winds are generally light and prevail from a westerly direction. In the winter months, winds generally prevail from the southeast.

FIGURE 4.1
Comparative Temperature and Precipitation



Atmospheric Conditions - Extremely stable atmospheric conditions are called inversions that act as barriers to pollutants, and in mountainous areas form a lid that traps the pollutants and prevents their dispersal. In the Grants Pass area, traditional cooling and subsidence are the two primary mechanisms that are responsible for the formation of inversions. Figure 4.2 illustrates the winter and summer phenomenon of radiation and subsidence inversions.

FIGURE 4.2
Inversion Formation



Source: Grants Pass Airshed Study, 1978

Radiational cooling is enhanced in the nearby hills as flows of cold air move downward along the canyons forming a pool of cold air in the valley with warmer air above. The radiation inversion may have a depth of several thousand feet and cooling within this layer is often sufficient to cause the formation of fog. Normally, winter radiation inversions dissipate after sunrise as the ground warms and fog burns off, although during stagnant air conditions, the inversion and fog may remain for several days.

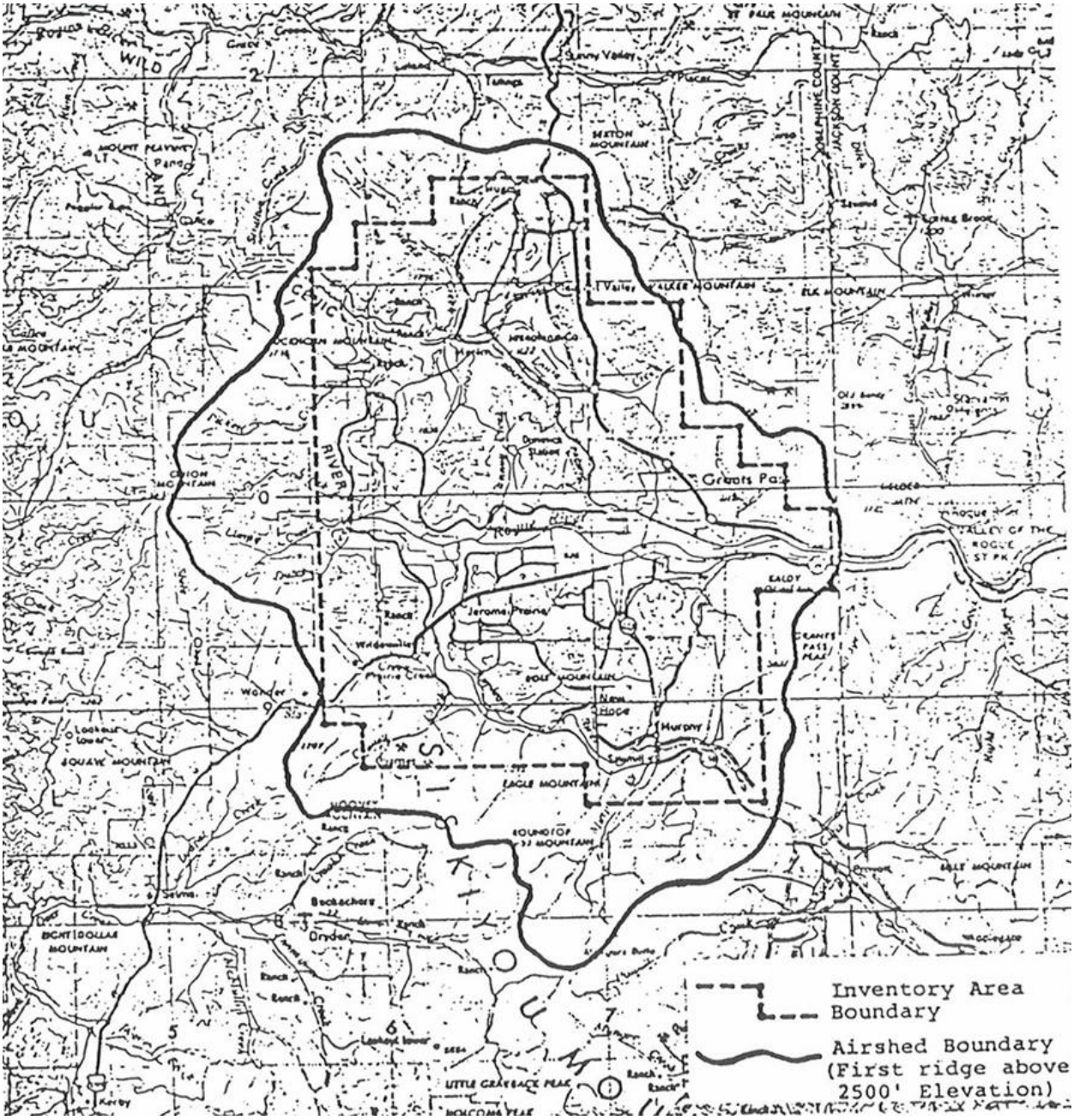
Unlike winter inversions, subsidence inversions occur several thousand feet above the ground. These inversions are formed by subsiding air which is warmed by compression and which may last for several days. This phenomenon is typically associated with periods of stagnant air movement.

Topography - Grants Pass is located in a relatively wide, circular valley nearly surrounded by mountains with a few high and narrow gaps that results in light winds which limits the horizontal dilution of air pollutants.

A nationwide study prepared by the U.S. Environmental Protection Agency in 1972 surveyed the air pollution potential of all areas within the contiguous United States and found that Southern Oregon in general and the Rogue River Valley in particular has one of the highest potentials for air pollution within the United States. It was found, in fact, that the pollution potential within the Rogue River Valley was approximately four times greater than Los Angeles. In other words, if a city the size of Los Angeles were built in the Rogue River Valley, air contaminant levels would have been four times greater than those currently existing in Los Angeles.

Under a grant from the Oregon Department of Land Conservation and Development, a study was made of the Grants Pass airshed. In summary, according to that 1978 Grants Pass Airshed Study, "the air pollution potential of the Grants Pass area is very high. Wind movement in the area is very low, and the combination of restricting terrain and frequent inversions that limit vertical dilution combine to frequently limit the ability of the atmosphere to transport or dilute pollutants". The boundary of the Grants Pass airshed and area inventoried by the 1978 study are illustrated by Figure 4.3.

FIGURE 4.3
Grants Pass Airshed and Inventoried Area



Source: Grants Pass Airshed Study, 1978

Air Quality

The Federal Clean Air Act of 1967 as amended established primary and secondary or welfare standards for several pollutants. Oregon uses the federal guidelines as its present levels for the State's standards. The standards, reported in Figure 4.4 below, relate to durations for specific contamination levels that are designed to avoid adverse affects with a reasonable margin of safety.

FIGURE 4.4
Federal and Oregon Air Quality Standards

Pollutant	Averaging Time	Federal Standard: Primary (Health)	Federal Standard: Secondary (Welfare)	Oregon Standards
Total Suspended Particulate (TSP)	Annual Geometric Mean 24 Hours (1) Monthly (2)	The Federal TSP standard was dropped in 1987. Oregon retained the state standard.		60 ug/m3 150 ug/m3 100 ug/m3
PM 10 (Fine Particulant)	Annual Arithmetic Mean 24 Hours	50 ug/m3 150 ug/m3	50 ug/m3 150 ug/m3	50 ug/m3 150 ug/m3
Ozone	1 hour	0.12 ppm	0.12 ppm	0.12 ppm
Carbon Monoxide	8 hours 1 hour	9 ppm 35 ppm	9 ppm 35 ppm	9 ppm 35 ppm
Sulfer Dioxide	Annual Arithmetic Mean 24 hours 3 hours	0.03 ppm 0.14 ppm	 0.5 ppm	Same as Federal
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm	0.053 ppm	Same as Federal
Hydrocarbons (Nonmethane)	3 hours (1) (6 - 9 a.m.)	160 ug/m3 "The EPA has repealed its standard for non-methane hydrocarbons and DEQ has taken similar action." (1988 Oregon Air Quality Annual Report)		160 ug/m3
Lead	Calendar Quarter	1.5 ug/m3	1.5 ug/m3	Same as Federal

Source: Table 4, p 17. OREGON AIR QUALITY 1988 ANNUAL REPORT
Notes: ug/m3 = micrograms of pollutant per cubic meter of air
ppm = parts per million

As illustrated in Figure 4.4, the State of Oregon and federal government are concerned with several pollutants, although adequate monitoring for all of them has not been done. None of the pollutants appear to present an immediate problem in the Grants Pass area. The following is simply a descriptive analysis of the composition and primary causes of the various pollutants and the quality of the Grants Pass airshed in relation to the pollutants.

Fine Particulate (PM10) - Total Suspended Particulate (TSP)

PM10 - "Particulate monitoring in Oregon changed from a measurement of Total Suspended Particulate (TSP) to respirable particulate below a diameter of microns (PM10) in 1987 with the advent of new federal regulations" (OAQ 1988 AR)*. "Fine particulate air pollution consists of solid particles or liquified droplets that are less than 10 microns in diameter (about 50 times smaller than the period at the end of this sentence).

Particles in this size range are of great concern because they can be inhaled deeply into the lungs where they can remain for years. The health effect of particulates vary with the size, concentration and chemical composition of the particles. In general, particulates cause three kinds of health problems:

1. The particles may be inherently toxic because of their chemistry.
2. The particles may mechanically damage the respiratory system.
3. The particles may be carriers for absorbed toxic substances.

Relationships have been shown between exposure to high concentrations of particulate matter and increased hospital admissions for respiratory infections, heart disease, bronchitis, asthma, emphysema and similar diseases. In addition, there may be several potential carcinogens present in particulates. Of particular concern are the condensed organic compounds released from low temperature combustion processes (woodstoves for example).

Among the most obvious effects of fine particles are reductions in insolation and visibility due to absorption and scattering of light by suspended particles. Almost all smoke particles from residential woodstoves and fireplaces, industrial boilers, field burning and other combustion processes are in the PM10 size range. In contrast, a minor fraction of the particles from road dust, agricultural tilling and windblown dust are in the PM10 size range" (OAQ 1988 AR).

TSP - "Pollution made up of particulates less than about 100 micrometers in diameter is called TSP (100 micrometers is about the thickness of a human hair). Larger particles tend to settle out of the air quickly and do not cause pollution problems. The smaller particles in a TSP sample are the same as PM10 and so have the same adverse health effects because of their ability to reach the thoracic or lower regions of the respiratory tract.

Other effects of TSP include soiling and corrosion of building materials and textiles, damage to vegetation, and toxicity to animals which feed on vegetation covered by toxic particulate matter.

Natural sources include pollen, windblown dust and smoke from wildfires. Human-caused sources include a variety of combustion sources (motor vehicles, utility and industrial boilers and dryers, woodstoves, open burning, field burning, slash burning), and dust from roads, agriculture, construction and mining" (OAQ 1988 AR).

Photochemical Oxidants (OX) - Ozone (O3) - Photochemical oxidants consist of a variety of oxidizing substances that are formed in the atmosphere. Photochemical oxidants, commonly known as "smog", are the result of a number of chemical reactions between hydrocarbons and oxides of nitrogen in the presence of sunlight. Unlike other pollutants, photochemical oxidants are not emitted directly into the atmosphere from any sources. Major sources of oxides of nitrogen include combustion sources such as automobiles and factories, and the evaporation of fuels and solvents. The health effects include damage to lung tissues and eye irritation. Certain materials such as rubber are damaged and certain plant species react adversely to photochemical oxidants.

Oxidant concentrations are not regularly measured in Grants Pass. The nearest monitoring site is in Medford. In 1976, the Oregon Graduate Center conducted airborne measurements over Grants Pass of ozone, the primary photochemical oxidant. On one of these flights, concentrations equaling or exceeding the federal standard were found at an altitude of 500 feet above the city. Although three aircraft flights are insufficient to determine whether the oxidant level is regularly exceeded, the severity of the oxidant problem in Medford suggested that photochemical oxidant could be a problem in Grants Pass.

During the summer of 1980, an ozone monitoring station was operated by DEQ at Averill Drive, located East of the city limits. According to Josephine County Environmental Health Officials, there were no violations of DEQ standards for ozone levels during that period. Mark Hansen, DEQ monitoring technician, confirmed that ozone did not appear to be reaching problem levels in the Grants Pass area.

"Ozone is a pungent, toxic, highly reactive form of oxygen. It causes irritation of the nose, throat and lungs. Exposure to ozone can cause increased airway resistance and decreased efficiency of the respiratory system. In individuals involved in strenuous physical activity and in people with pre-existing respiratory disease, ozone can cause sore throat, chest pain, cough and headaches. Plants can also be affected. Reductions in growth and crop yield have been attributed to ozone.

Ozone can affect a variety of materials, resulting in fading of paint and fabric, and accelerated aging and cracking of synthetic rubbers and similar materials. It is also a major contributor to photochemical smog.

Ozone is not emitted directly into the air. It is formed through a series of photochemical (sunlight-requiring) reactions between other pollutants and oxygen (O2). Most important are nitrogen oxides and volatile organic compounds. To control ozone pollutants, it is necessary to control emissions of these other pollutants" (OAQ 1988 AR).

Carbon Monoxide (C0) - "Carbon monoxide is a colorless, odorless gas. In the body, CO binds tightly to hemoglobin (the red pigment in the blood that moves oxygen from the lungs to the rest of the body). Once hemoglobin is bound to CO, it can no longer carry oxygen. In this way, CO reduces the oxygen-carrying capacity of the blood and can have adverse health effects. High concentrations of CO strongly impair the functions of oxygen-dependent tissues, including brain, heart and muscle.

Prolonged exposure to low levels of CO aggravates existing conditions in people with heart disease or circulatory disorders. There is a correlation between CO exposure and increased hospitalization and death among such patients. Even in otherwise healthy adults, carbon monoxide has been linked to increased heart disease, decreased athletic performance and diminished mental capacity. Carbon monoxide also affects newborn and unborn children. High CO levels have been associated with low birthweights and increased infant mortality.

A major natural source of CO is spontaneous oxidation of naturally occurring methane (swamp gas). The major human-caused source is incomplete combustion of carbon-based fuels. This is primarily from gasoline-powered motor vehicles. Other important sources are woodstoves and slash burns.

How a motor vehicle is operated has an effect on the amount of CO emitted. In stop-and-go driving conditions, CO emissions are high. Emissions are also increased when the outside temperature is low. Oregon's most serious CO problems occur during the winter in urban areas, when CO emitted by slow-moving traffic is trapped near ground" (OAQ 1988 AR).

Sulfur Dioxide (SO2) - "Sulfur dioxide is a colorless, pungent gas. In the body it acts as a lung and eye irritant. When SO2 is inhaled, it causes bronchial constriction, which results in breathing difficulty and increased pulse and respiratory rate. People with respiratory diseases like asthma, bronchitis or emphysema are particularly susceptible to the effects of SO2.

When particulates capable of oxidizing sulfur dioxide to sulfuric acid are present, the irritant response of SO2 increases in magnitude by two to three times. When sulfuric acid is inhaled, mucous production increases. This reduces the respiratory system's ability to remove particulates, and can lead to more severe respiratory infections, such as pneumonia. Chronic exposure to SO2 can lead to coughs, shortness of breath, fatigue and bronchitis.

Sulfur dioxide can also damage plants and building materials. The leaves of some vegetables (spinach and lettuce, for example) are damaged by exposure to high levels of SO2. Sulfur oxides accelerate corrosion of metals and other building materials (limestone, marble, mortar) by forming sulfuric acid on the surface of the material or in the atmosphere, with subsequent deposition on the material.

In addition, sulfuric acid and sulfate particles formed in the atmosphere from SO2 can cause scattering of visible light, thus contributing to haze. These same processes can contribute to acid rain and lead to acidification of lakes and soils.

The major source of SO2 pollution nationwide is combustion of high-sulfur coal. In Oregon, burning of high sulfur coal is not allowed. Diesel fuel and heating oil are the major sources in Oregon" (OAQ 1988 AR).

Nitrogen (NO2) - "Nitrogen dioxide is a reddish-brown gas that is toxic in high concentrations. It is a lung irritant and may be related to chronic pulmonary fibrosis. It is also important in the photochemical reactions leading to the formation of ozone. It can cause indirect damage to materials when it combines with moisture in the air to form nitric acid. The nitric acid can then cause corrosion of metal surfaces and can also contribute to acid rain. In addition, NO2 absorbs visible light and causes reduced visibility. It has also been linked to suppressed growth rates in some plants.

The major human-caused source of NO2 is fuel combustion in motor vehicles, and utility and industrial boilers. Nitric oxide (N0) is the major nitrogen oxide produced during the combustion process, but once in the atmosphere, NO is rapidly oxidized to form NO2 in the presence of ozone" (OAR 1988 AR).

Hydrocarbons (HC) (Non-methane) - "Non-methane hydrocarbons are a large family of compounds made up of hydrogen and carbon. These compounds are instrumental in the complex series of reactions leading to the formation of ozone and photochemical smog.

The compounds come primarily from motor vehicles, fuel evaporation, the coatings industries, and combustion processes. The EPA has repealed its standard for non-methane hydrocarbons and DEQ has taken similar action" (OAR 1988 AR).

Lead (Pb) - "Lead is a toxic heavy metal, abundant in the earth's crust. Airborne lead particles are of sufficiently small size (less than 0.7 microns) that they can penetrate deep within the lungs and ultimately be absorbed into the blood. High concentrations of lead in the blood can cause severe and permanent brain damage, especially in children. Lower levels have vague, non-specific symptoms, including headaches, malaise, stomach pain, irritability and pallor. Damage can be caused to heart, kidney, liver, and nerve and blood tissues. The major source of lead in the air is the combustion of leaded gasoline in automobiles. This one source accounts for close to 90 percent of the total emissions in the country annually" (OAQ 1988 AR).

Noise

Characteristics - Noise travels mainly through the air as a wave of sound. Air consists of gas molecules that are distributed fairly evenly and that move around in a random fashion. The gas molecules give air its mass and elasticity. Therefore, when a sound wave moves away from its source the wave compresses the mass of gases surrounding it. That compression moves away from the source in alternating waves relative to the frequency of the original sound. The loudness of the sound is related to the pressure of the source. The pressure of the source determines the distance the wave will travel and the sound level as measured in decibels.

A decibel is a measure of how loud sound is. It is a measure of the magnitude of sound pressure with respect to a standard reference value such as microbars or watts. One decibel is the first level that a human can hear. Humans whisper at 30 decibels and converse at 60 decibels.

Land areas nearest the source of the sound are impacted more seriously by the sound level than those land areas which are further away or are protected by a sound barrier. Figure 4.8 depicts the sound levels of certain noise sources, measured in decibels, and the sound levels measured at certain locations. There is no direct relationship between the sources and locations listed in the table. Instead, the sources and locations should be compared in order to achieve an appreciation of sound levels.

FIGURE 4.8
Sound Levels by Noise Source and Location

Noise Source (Exposure Level)	Sound Level in decibels	Location* (average 24 hour period)
Air Raid Siren	130	Rocket Launching Pad
Jet Take-off	120	Airport
Chainsaw	110	Lumber Mill
Motorcycle	100	Railroad Yard
Lawn Mower	90	Apartment next to Interstate
Heavy Traffic	80	Apartment near Downtown Area
Vacuum Cleaner	70	Row Housing on Major Street
Conversation	60	Older City Neighborhood
Rainfall	50	Woodlot Residence
Library Activity	40	Rural Residence
Soft Whisper	30	Wilderness
Very Soft Whisper	30	
Breathing	10	
Inaudible	0	

* Sound level for 24 hour period that characterizes average sound levels.
Sources: (1) Protective Noise Levels EPA 550/9-79-100.
(2) Noise and the Environment EPA Journal, Vol 5, #9, Oct. 1979.

There have been no measurements of noise levels within the UGB area. It is assumed that sources of noise generate similar noise levels regardless of geographic location. Therefore, Figure 4.8 may be representative of noise levels in the UGB area wherever similar noise sources and/or locations exist. Street noise in the downtown area is loud because of the high volume of traffic, especially truck traffic. Chainsaws and lawnmowers can occasionally be heard throughout the City and urbanizing area. The railroad passes through the center of the City. All these sources of noise contribute to the overall background noise level of the urban area, also termed the ambient noise level.

Quality - Noise can be harmful to peoples' health; there is no question that exposure to certain levels of noise can damage hearing. Figure 4.9 contains at-ear noise exposure levels that produce no more than 5 decibel noise-induced hearing damage for both 8-hour and 24-hour exposure on a yearly and working day basis over a 40-year period. Since an individual often experiences intense noise exposure outside of working hours, protection on a 24-hour basis requires exposure of an intermittent variety which is less than the work day exposure.

FIGURE 4.9
At-Ear Noise Exposure Marginal Safety Levels (In Decibels)

Exposure Time	Continuous Noise	Intermittent Noise	Margin of Safety
8 hours	71.4	76.4	75
24 hours	66.4	71.4	70

Source: Protective Noise Levels, EPA 550/9-79-100

Figure 4.9 depicts the average sound levels of locations during a 24-hour period. Locations with an average daily sound level that is greater than 70 decibels are described as "harmful to hearing". It is important to note that three residential locations are considered "harmful to hearing." Those residential locations are 1) an apartment next to an Interstate Highway - 90 decibels, 2) an apartment near a downtown area - 80 decibels, 3) row housing on a major street - 70 decibels. (See Figure 4.8.)

In addition to sound levels that cause hearing loss, there are levels of sound and durations of sound that can cause other health problems and even learning problems. The Oregon Department of Environmental Quality (DEQ) has defined noise for two different situations. During the day, 7 a.m. to 10 p.m., harmful noise is generally any sound that disturbs normal speech. Tests have shown that sound to be above 60 decibels. Ambient sound levels that are higher than 60 decibels can interfere with normal communications in the home and work place. The Environmental Protection Agency (EPA) has identified special effects of noise on children in learning environments:

> "Levels of noise which do not interfere with the perception of speech by adults may interfere significantly with the perception of speech by children as well as with the acquisition of speech, language and language-related skills." (National Academy of Sciences Report," Noise: A Health Problem EPA, August 1978.)

The learning problem extends to locations beyond the school. Children who live in noisy neighborhoods and homes, and who play in noisy areas, may suffer listening disabilities that may hinder the development of language skills.

The second noise hazard situation defined by DEQ is the disruption of sleep and sleep patterns by noise levels above 45 decibels. The DEQ has made three significant findings:

1. Noise affects the quantity and quality of sleep.
2. The elderly and sick are more sensitive to disruptive noise.
3. When sleep is disturbed by noise, work efficiency and health may suffer.

According to DEQ, humans respond to noise before and during sleep. The elderly and sick are especially sensitive to noise. The elderly are more easily awakened by noise, and once awake, find great difficulty returning to sleep. In order to maintain their health and vigor, the elderly need to develop consistent sleep patterns. Disruption of sleep can result in insomnia and instability. (EPA, August, 1978, IBID)

Other health problems related to excessive noise levels, but not conclusively demonstrated by research, are heart disease, nervous stress, fetal stress and low birth weights, emotional and behavioral aberrations, headaches and fatigue.

In 1971 the Oregon State Legislature found that noise was reaching excessive levels. Noise had become a threat to the human environment as was air or water pollution. The legislature authorized the Environmental Quality Commission (EQC) to design and enforce noise control standards for the State of Oregon. The DEQ, the administrative agency for EQC, was given the task of setting standards. DEQ undertook an extensive citizen involvement process in order to receive the views and complaints of citizens concerning noise pollution.

Based on the input of the citizens, standards in 3 areas were set:

1. For new motor vehicles sold in the state
2. For motor vehicles presently in use
3. For industry and commerce

The standards are found in Chapter 340, Oregon Administrative Rules. In addition to these standards, EPA has set noise standards on interstate transport trucking. The Federal Occupational Safety and Health Act has set standards for the workplace.

However, many noise hazards are not covered by state and federal standards. Noise created by heat pumps, motorcycles, amplifiers, lawnmowers and chainsaws cause a great deal of noise pollution in the urban area. The location of residential uses in noisy areas also sets up potential conflicts between humans and noise.

Future Noise Quality - Noise pollution will no doubt increase as population increases. According to the DEQ, the level of noise is rising 10% per year in many urban areas. "Noise consciousness" is still low. Many new products currently being manufactured will be noisy, and combined with the

existing inventory of noisy products, will actually increase the level of noise in the future. If more people are using noisy products, then the levels of noise within the UGB will probably increase.

The effects of noise on human health is proportionate to the level and duration of the noise. If the level of noise increases in the future then the adverse effects on human health from noise will also increase. There are two practical methods for a jurisdiction to affect local noise levels and the effects of noise on human health: enact noise ordinance and locate noise sensitive developments away from the major noise sources. A local noise ordinance can be used to prevent excessive sound which may jeopardize the health and welfare or safety of the citizens. The DEQ has developed a "Model Noise Ordinance for Oregon Communities," which establishes a noise control officer and a noise control review board. The model ordinance prohibits certain acts that create noise disturbances such as the operation of noise products at odd hours or within a specified distance from noise sensitive area. The location of noise-sensitive developments, such as housing, away from major noise sources, is a preventive measure that can reduce the future hazards from excessive level of noise. If noise sensitive developments cannot be located away from noise sources then noise attenuation measures should be required of those developments. There are various architectural and site development techniques for attenuating noise levels.

Architectural methods of attenuating noise levels include the orientation of the building away from the noise source, the use of noise attenuating building materials and the use of design measures that block-out the noise and/or locate the living and sleeping rooms away from the noise source. The following Figures show examples of some of these techniques.

FIGURE 4.10
Orientation of Buildings on Sites

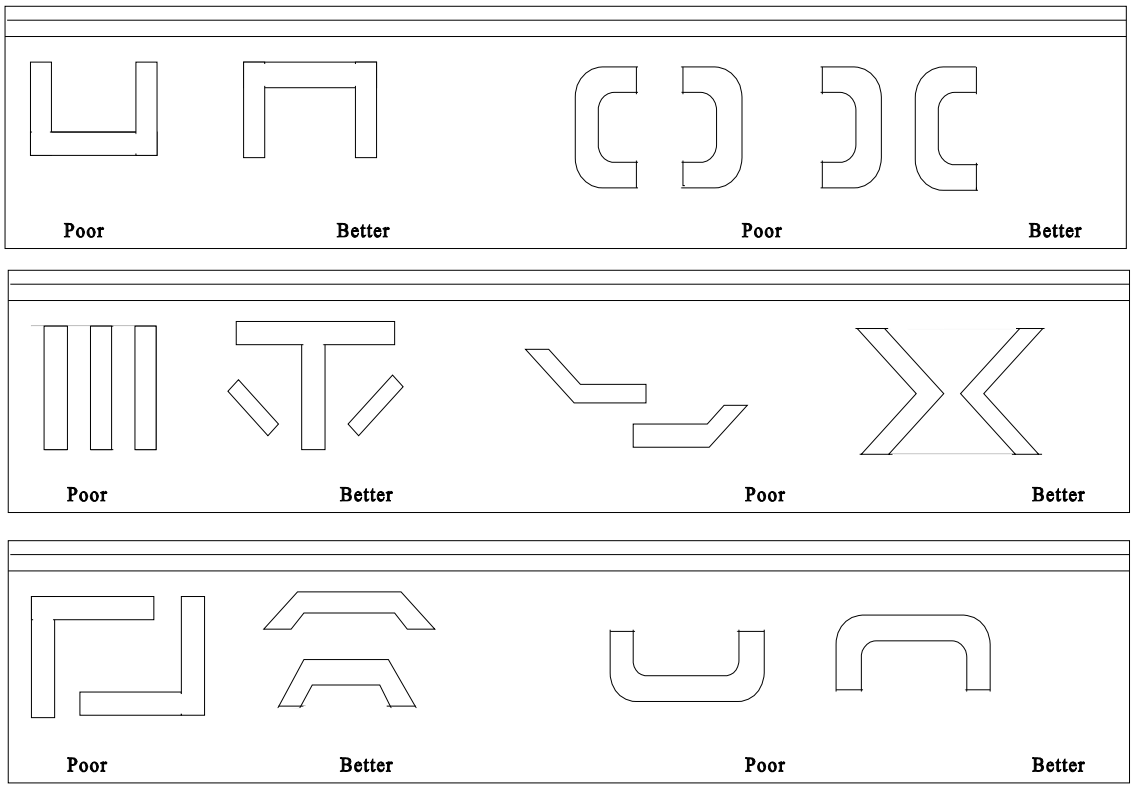


FIGURE 4.11
Use of Courtyard House to Obtain Quiet Outdoor Environment

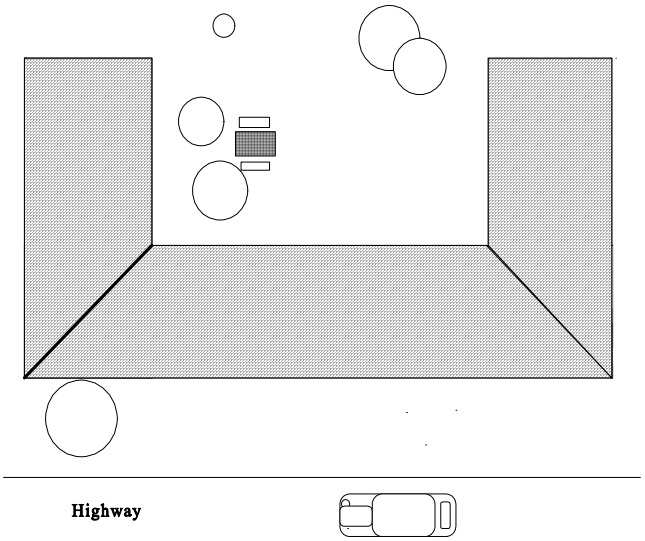
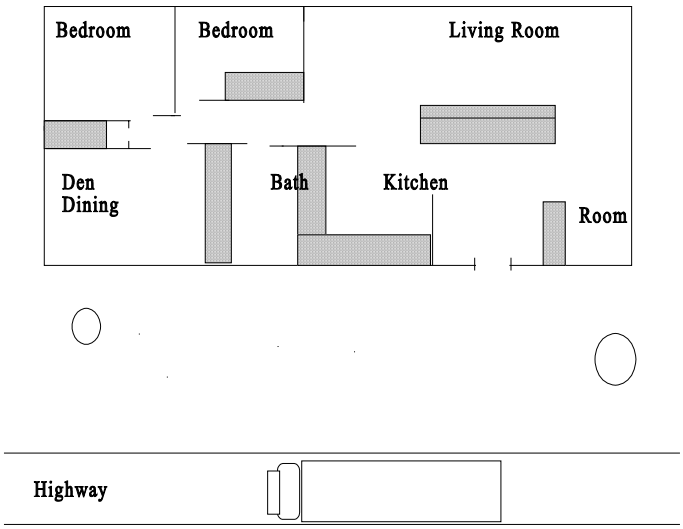


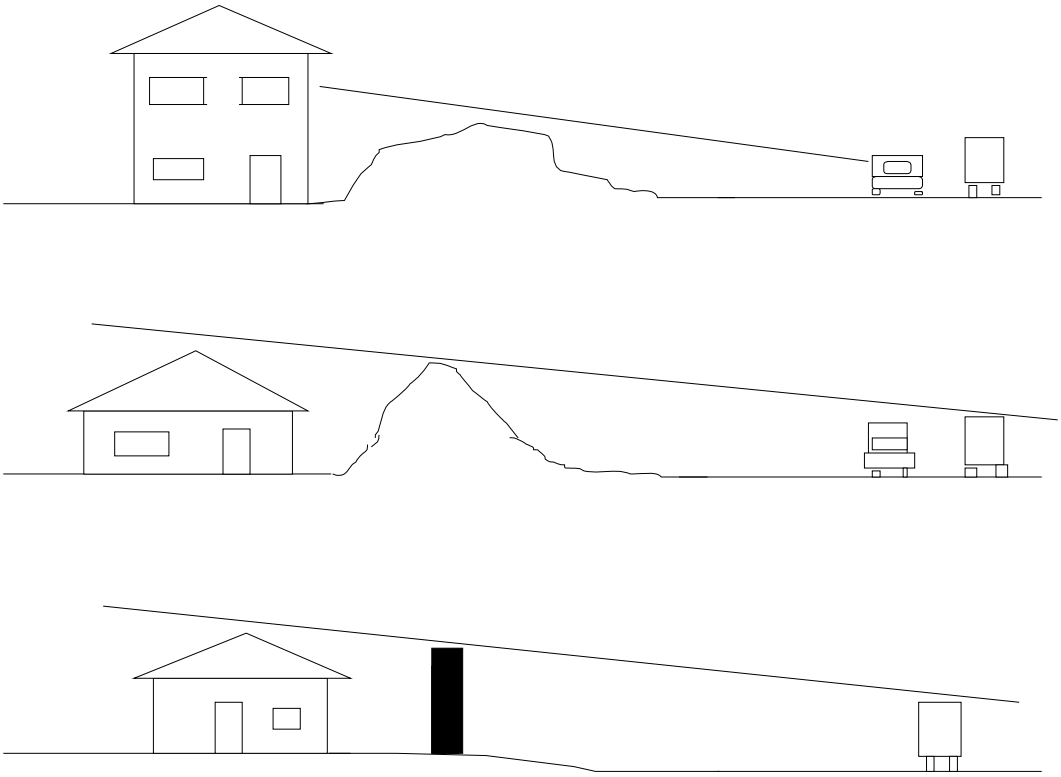
FIGURE 4.12
Use of Accoustical Architectural Design to Reduce Noise Impacts on More Noise Sensitive Living Spaces



Site development techniques can include simple concepts like increased setbacks or open space, locating the building behind a natural or constructed berm, and establishing a vegetative and masonry barrier between the building and the noise source. The following figures are examples of some of these techniques.

FIGURE 4.13
Using Cluster Development Open Space to Reduce Noise Levels

FIGURE 4.14
Using Berms and Reduced Building Height to Reduce Noise Levels



Noise impacts can be reduced by the use of a single story house. To be effective, a barrier must block the line of sight between the highest point of a noise source and the highest point of a receiver.

Source: Highway Noise, US Department of Transportation

Water Resources

Characteristics and Quality - There are three sources of water in the UGB area: 1) surface water runoff of snow melt and recent precipitation, 2) groundwater flow of precipitation that has percolated down into the soil and subsoil and 3) the Grants Pass Irrigation District system.

Surface water runoff in the UGB area is in the form of overland flow on the surfaces of the urban area and stream flow in the water channels of the area.

Overland flow comprises water which, failing to infiltrate the surface, travels over the ground surface toward a stream channel. In the urban area the infiltration capacity is greatly reduced by rooftops and paved surfaces. Precipitation is caught by these surfaces and carried to the stormwater drainage system which is designed to dispose of the water into nearby streams as rapidly as possible. The overland water flow is often polluted with urban litter like paper and plastic items, and with street waste like oil, grease and other insoluble chemicals that are disposed of onto driveways and street.

Stream flow water runoff occurs mainly in five tributary streams and one major stream within the UGB area. All streams have summer flow due to the Grants Pass Irrigation District system. The five tributary streams, Skunk, Gilbert, Fruitdale, Allen and Sand Creeks, all discharge into the area's major stream, the Rogue River.

The quality of the water in the tributary streams can be affected by the activities within the urban area. The flow of the tributaries and any other direct discharge can affect the quality of Rogue River water which also flows through upstream urban areas. The City of Grants Pass uses the Rogue River as the source of its municipal water. The water is treated and disinfected at the water treatment plant before it is distributed by the water treatment plant. Eventually, the water is discharged into the river by the City's sewage treatment plan as treated wastewater. The City has been in violation of DEQ wastewater discharge permit regulations. Most of these violations were a result of excessive inflow resulting from rainy periods and are in the winter only. At times, untreated raw sewage is discharged directly into the Rogue River. (See Public Facilities Element, Sewer Services Section 10.3.2). Otherwise, wastewater is treated according to DEQ standards. Microorganisms that are present in the wastewater are disinfected prior to the discharge of the wastewater into the Rogue River.

Sludge, which is separated from the wastewater during sewage treatment, must be regularly removed from the sewage digesters and disposed of using land application. The City sewage plant currently lacks dependable sludge disposal land sites.

Industrial wastewater is of concern to the City and DEQ (see Public Facilities Element). DEQ feels that industrial wastewater may be the source of excessive dissolved solids metals in the influent flow to the treatment plant. In 1969, Brown and Caldwell Consulting Engineers designed an industrial waste monitoring program to characterize waste discharges for their possible effects on sewage treatment (Sewage Treatment and Disposal Study, Brown and Caldwell, 1969.) In order to

determine the composition and strength of industrial waste, samples were taken from two plywood plants and a meat packing plant. The survey revealed relatively high phenol content in the glue waste from the plywood plants. The biologic oxygen demand (BOD) of the waste for all three industries that were tested was of no special significance.

The City is currently involved in an industrial waste pretreatment program under the conditions of the National Pollutant Discharge Elimination System Permit issued to the City on March 10, 1981. The City is making an inventory of industrial users and identifying sources of toxic pollutants. The results of the program survey of industrial users and the contents of industrial waste will determine the need for a pretreatment program, as part of our current facility planning process.

Groundwater, unlike surface water runoff which travels great distances in short periods of time and is readily replenished, flows slowly and is not readily recharged. Thus, the adverse impacts on ground water quality can have severe and long-lasting effects. The primary potential source of groundwater pollution in the UGB area is the subsurface septic disposal system. Also, according to the County Watermaster, improperly abandoned wells are another potential source. Groundwater pollution caused by failing septic systems was a significant problem in the Redwood and Harbeck-Fruitdale subareas of the UGB during the 1960's and early 1970's. Consequently, the Redwood Sewer Service District and the Harbeck-Fruitdale Sewer Service District were formed. Sewage collection and treatment systems installed and the pollution problem was arrested.

According to the watermaster, there are many improperly abandoned wells in the UGB area. These wells have been drilled and then abandoned without being properly capped or sealed to prevent pollution of the groundwater.

A saltwater intrusion problem has been recorded in the southern part of the Harbeck-Fruitdale subarea. The County Watermaster thinks that the problem will be a minor one during this planning period. However, some wells are excessively salty and the extension of municipal water may be the only cure for the problem.

Future development utilizing groundwater will cause further mining of the aquifers in the area. The potential loss of the Grants Pass Irrigation District system may also have an impact on this area.

Future Water Quality - Surface water quality within the UGB area can be greatly affected by future development. Increasing levels of development will create more impervious surfaces and urban runoff which may contain increasing quantities of water insoluble chemicals and litter. Erosion and stream siltation may increase as future development encroaches into the foothills and along the streambanks.

Sewage wastewater flows will improve greatly as the present plant is expanded and modified.

Groundwater quality will be affected directly by the potential hazards of uncapped or improperly abandoned water wells. Septic systems should not be a problem because the entire UGB area is or will be provided with sewers.

There are several methods for protecting the quality of the surface water in the UGB area. In order to reduce the pollutants from stormwater runoff, the stormwater can be treated at a stormwater treatment plant. A more practical preventive method would be to maintain a vigorous street sweeping and cleaning program and encourage residential and commercial land uses to maintain their impervious surfaces in clean, litter free conditions.

Groundwater quality can be protected by a diligent effort to identify all uncapped water wells and require that those wells be properly capped or sealed. All new wells that become dry should be required to be capped, sealed or properly abandoned immediately.

Saltwater intrusion into private wells of the Harbeck-Fruitdale area may eventually cause a health problem requiring municipal water service as an emergency corrective measure. Currently the problem appears to be minor.

Wastewater pollution of the Rogue River can be corrected by making capital improvements to the hydraulic capacity of the treatment plant. The City is currently making a study of the problem and solutions. (See Public Facilities Element, Sewer Section)

Land Resources

Characteristics - According to the Josephine County Comprehensive Plan, the soils in Josephine County are formed extensively from eroded igneous and metamorphic parent rocks. Those rocks contain a high percentage of quartz material that is the principal source of sand in soil formations. Sand is a relatively large soil particle that has a smaller surface area to volume ratio than the other soil particles such as silt and clay. Also, because a sand particle originated from the glass-like quartz material, its shape is spherical with an angular surface. In the soil formation, the sand particles "fit" loosely together because of the shape and surface of the particles. Consequently, there is a large volume of pore space in a soil formation that has a high percentage of sand particles. The pore space can be filled either with water or air depending on the season and the level of groundwater.

Due to the small surface area of the sand particles relative to the volume of space it displaces in the soil, and to the angularity of the sand particle, the amount of water retained on the surface of the particle is relatively smaller than silt and clay particles. The forces of surface tension are weak, thus water stored in a sandy soil formation is very susceptible to the forces of gravity and soil suction by plants.

Therefore, sandy soils are porous and are generally well-drained of water, especially in the dry season. The county plan describes most soils in the county as "well-drained" and/or "excessively-drained" soils. The water that drains from the soil percolates rapidly through the soil into the groundwater or surface water channels. The retention time of infiltrated water in the soils within the UGB area is probably quite short. Therefore, pollutants such as sludge, leachate and septic wastewater can affect the quality of the area's water resources if the land application process is improper or incorrect.

Quality - There are five potential sources of soil pollution within the UGB: sludge disposal, chemical fertilizers, products used in commercial and industrial operations, leachate from solid waste disposal, and septic wastewater from subsurface septic disposal.

1. Sludge is a thick liquid waste residue from the sewage digesters at the sewage treatment plants. The sludge must be removed from the digesters on a regular basis. Sludge has the potential to be a contaminant if contaminants are not eliminated at the source. An enforced pre-treatment ordinance should prevent the presence of pollution elements such as heavy metals. Based on a combination of pretreatment, composting and/or other additional treatment, the sludge may be used for land application without a detrimental effect to the environment. Currently, the sludge is transferred from the treatment plant to local farm lands outside the UGB where it is spread onto the soil.

2. Chemical fertilizers include the categories of herbicides and pesticides. Proper application of these chemicals will lessen their potential to contaminate the soil.

3. Products used in commercial and industrial operations within the UGB fall into several categories. They include underground storage tanks used by both commercial, industrial and private property owners, products used at gas stations and automobile repair shops (oil, solvents, antifreeze, lead) and products and residues from mill and wood product manufacturing. A pretreatment ordinance and the site plan review process impose conditions toward prevention of future contamination.

4. Leachate is a wastewater that emerges from solid wastes which contains objectionable impurities such as metals, minerals, micro-organisms and dissolved gases. Leachate occurs when precipitation and/or groundwater mix with the solid wastes in the landfill.

5. Septic wastewater is derived from subsurface septic waste disposal systems. The wastewater emerges from the subsurface leach lines and percolates into the soil. These systems are generally associated only with residential development.

The Department if Environmental Quality (DEQ) regulates sludge and solid waste disposal. Sludge disposal onto local farmland is regulated by rules that set forth the soil type, slope, depth to ground water and weather conditions that must be met before land application can proceed.

Solid waste disposal is also regulated by rules that specify the methods by which solid waste shall be disposed of. Leachate is an ongoing condition at the Merlin solid waste site. Please see the Public Facilities Element: Solid Waste Section for further details.

Future Land Quality - Land quality will be impacted in the future by increasing volumes of sludge and solid waste. The land application of sludge is regulated by DEQ and will continue to be so regulated in the future.

As the volume of solid waste increases concurrent with the population growth and with increased development, the City will continue to monitor activities within the community through the development and building permit process. On-site storage of materials having the potential to contaminate the local soils is permitted only after design plans have been approved demonstrating chemical product containment in the event of any intentional or accidental spill or discharge.

As the landfill is currently constructed, the increasing volumes of solid waste would create more leachate. However, the City will cover ninety-percent of the landfill with an interim plastic cover that will significantly reduce the amount of leachate generated. In addition the City will install a leachate collection system and implement other activities to contain the leachate, treat what may be in the groundwater and protect the environment. These studies and activities are occuring according to the DEQ and EPA regulations.

The Merlin landfill operates on leased Bureau of Land Management (BLM) property. The lease expires in the year 2000. The City is currently negotiating with the BLM on when and how landfill closure will occur, but it is expected that the landfill will remain operating for several more years. However, in anticipation of eventual closure the City is working with the private sector to locate a transfer station, possibly within the UGB. The City expects to aggressively recycle and ultimately transfer its solid waste to the regional landfill, Dry Creek, located in Jackson County.

4.50 AIR, WATER & LAND RESOURCES QUALITY FINDINGS

Air Characteristics and Quality

1. The combination of climate, atmospheric conditions and topography have created a unique airshed for the Southern Oregon and Grants Pass UGB area.

2. Air inversions are common in the Grants Pass UGB area. Inversions act as barriers to pollutants by forming a "lid" of stable air over the Rogue River Valley that traps the pollutants and prevents their dispersal.

3. There are six major potential air pollutants to be found in the Rogue River Valley: 1) total suspended particulates (TSP) which are now categorized as PM10, 2) ozone, 3) carbon monoxide, 4) lead, 5) sulfur dioxide and 6) nitrogen dioxide.

4. **TSP-PM10.** "Particulate monitoring in Oregon changed from a measurement of Total Suspended Particulate (TSP) to respirable particulate below a diameter of 10 microns (PM 10) in 1987 with the advent of new federal regulations" (Oregon Air Quality 1988 Annual Report). Grants Pass was designated as a PM10 Group I area in 1987 which meant that the city violated the required standards. (*Grants Pass was not designated a non-attainment area by the state in 1987 for not meeting federal ambient air standards*.) "The majority of the areas that experience difficulty meeting the PM10 standard do so principally because of impacts of wood space heating. The southern Oregon communities generally experience more of a problem than those in northern Oregon from this source for a variety of reasons.

   First, surveys indicated that wood is a more common fuel for home heating in southern Oregon. Also, the majority of southern Oregon is higher in elevation than is northern Oregon and wood stoves burn less efficiently at higher elevations, producing more particle emissions per unit of heat output.

   Finally, there is a tendency toward sustained thermal inversions in the interior of southern Oregon, so emissions from wood stoves have a greater impact on air quality levels than in the better ventilated areas of the north.

   Control strategies are being developed for all Group I areas by the Department of Environmental Quality. "Because it has no authority to regulate home space heating, the Department is assisting city and county officials and advisory committees with development of workable and acceptable local plans to abate the problem."

   The Oregon Air Quality 1988 Annual Report showed Grants Pass as having 3 days in 1987 and 0 days in 1988 exceeding standards for Fine Particulate (PM10). During the years 1984 and 1986 there were no days in violation. (OAQ 1988 AR).

5. **Ozone.** "The summer of 1988 was one of the hottest on record for many locations in Oregon and around the nation. Sustained high temperatures coupled with low wind speeds produced elevated ozone potential in most areas. The Medford area monitor recorded the highest level in over ten years but still managed to stay within the standard. Eugene experienced a single day above the standard which was also due to high temperatures and stagnant conditions.

   Because ambient ozone concentrations are related to the release of VOCs from motor vehicles and other commercial and industrial sources, control strategies have centered mainly on these two source categories.

   Major reductions in VOCs (volatile organic compounds) have been achieved through the federal new car program, the state vehicle inspection and maintenance program, and local transportation control strategies. Industrial emissions from gasoline handling have also been substantially reduced by improved controls on gasoline storage and transport facilities" (Oregon Air Quality 1988 Annual Report).

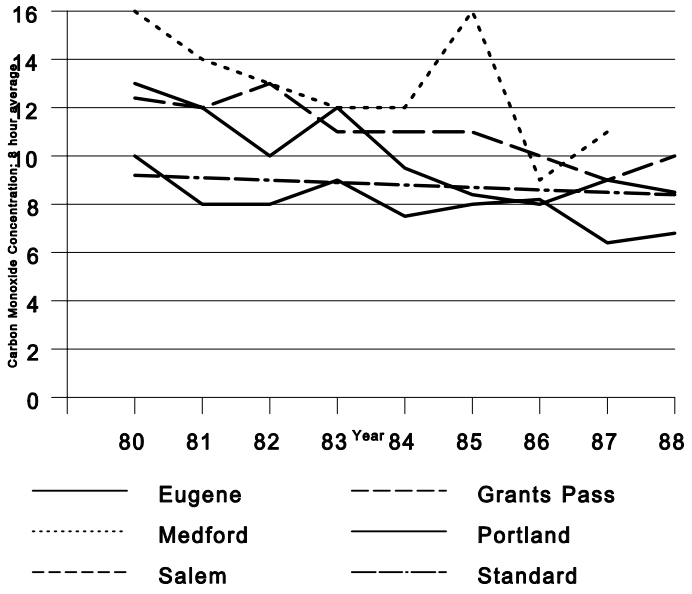
6. **Carbon monoxide**. "Carbon monoxide levels generally continued to improve around the state in 1988. The CO standard is violated when more than one exceedance of the 9 ppm 8 hour average occurs in 8 calendar quarters. (See Figure 4.5 (a).) These measurements are in keeping with the planned attainment and maintenance strategy developed for the Portland area." The Oregon Air Quality 1988 Annual Report gave the following records on Carbon Monoxide levels for Grants Pass:

   Number of Days Exceeding Standards

1984 = 9	1987 = 4
1985 = 10	1988 = 2
1986 = 2	

   "Because carbon monoxide pollution is strongly influenced by motor vehicle emissions, control strategies have focused mainly on the federal Motor Vehicle Emission Control Program. Manufacturers responded to this program by equipping most vehicles built after 1974 with catalytic converters and other emission control features. In addition, EPA has developed a list of Reasonable Available Control Measures for transportation sources that can be employed in CO nonattainment areas. These additional measures are weighted for cost-effectiveness and feasibility of implementation before they are recommended for a specific area. These measures include: motor vehicle inspection and maintenance, public transportation improvement, park-and-ride lots, parking management and traffic flow improvements...In Grants Pass a new bridge is expected to relieve carbon monoxide problems by diverting traffic from the downtown area" (Oregon Air Quality 1988 Annual Report). Completion date is scheduled for December, 1991.

FIGURE 4.5 (a)
Ambient Carbon Monoxide Trends in Selected Oregon Cities
(Second Highest Day)



7. **Lead**. "No site in Oregon exceeded the lead standard in 1988. The last exceedance of the standard was reported in Portland during the second quarter of 1984" (Oregon Air Quality 1988 Annual Report).

8. **Sulfur Dioxide**. "No exceedance of sulfur dioxide standard has been recorded in Oregon. This is primarily due to the lack of use of heavy sulfur-laden fuels in the state.

9. **Nitrogen Dioxide**. No exceedance of the nitrogen dioxide standard has been recorded in Oregon" (Oregon Air Quality 1988 Annual Report).

Exceeding the Standards
Table 4.5 (b) from the Oregon Air Quality Annual Report indicates the number of days in each of the past five years that selected Oregon communities experienced pollution levels above the National Ambient Air Quality Standards. Many of the communities have multiple monitoring sites operating in them, and a day is considered to exceed the standard if as few as one site is found to exceed.

In 1988, the weather patterns appeared fairly normal except that the summer temperatures were relatively high, which lead to an increased tendency to produce elevated ozone levels.

The table indicates that most areas of the state are continuing to experience levels below the standards. Instances of increased number of days above the standard may be the result of more intensive monitoring in an attempt to characterize highest levels and obtain better data for strategy development..." (OAQ 1988 AR).

TABLE 4.5 (b)
Number of Days Exceeding Standards for Selected Cities
1984 through 1988

CITY	1984	1985	1986	1987	1988
FINE PARTICULATE (PM 10)					
Bend	0	1	0	1	0
Eugene / Springfield	-	12	1	2	0
Grants Pass	-	-	-	3	0
Klamath Falls	-	-	-	22	28
La Grande	-	-	0	1	5
Medford*	5	13	2	5	7
Pendleton	-	-	0	0	0
Portland*	0	0	1	0	0
White City	-	16	2	2	1
CARBON MONOXIDE					
Eugene / Springfield	0	1	0	0	0
Grants Pass	9	10	2	4	2
Medford*	18	35	16	4	2
Portland*	2	1	1	1	1
Salem	0	4	0	0	0
OZONE					
Eugene / Springfield	0	0	0	0	1
Medford*	0	0	0	0	0
Portland*	2	2	3	1	2
Salem	0	0	0	-	-

* Combined data from multiple sites in area.

Air Pollution Index Values

"The Air Pollution Index (API) provides the public with an objective means of assessing ambient (outdoor) air quality. The lower the API value, the better the air quality." (See Figure 4.5 (c) which is from Table 1, Oregon Air Quality 1988 Annual Report. These levels are measured for Eugene, Medford and Portland.)

FIGURE 4.5 (c)
Air Pollution Index Value and Air Quality Category

0 to 50	Good
51 to 99	Moderate
101 to 199	Unhealthful
200 to 299	Very Unhealthful
300 and up	Hazardous

"During 'good' days the amount of air pollution is very low, below roughly half of the standard for any of the pollutants measured. On 'moderate' days there may be some soiling, visibility impairment and damage to materials and crops but no human health or welfare effects. During 'unhealthful' days, high-risk individuals--those with asthma, or heart or lung disease--might suffer adverse effects. Healthy individuals may even experience some discomfort after prolonged exposure to levels at the 'unhealthful' range."

Figure 4.5 (d) from the Oregon Air Quality 1988 Annual Report "shows how API relates to possible air pollution activities initiated by the DEQ. An API of 100 means the air quality is right at the National Ambient Air Quality Standard. The long-term goal of DEQ is to design strategies to keep levels from going above those standards. A value of 200 or more may result in the declaration of an Air Pollution Alert if it is determined that the condition causing the levels is likely to persist. During an Alert, more intensive monitoring may be initiated and the public is advised of the situation. If the API exceeds 300 and conditions causing the elevated levels are forecast to continue, an Air Pollution Warning may be declared. At the Warning level, specific sources may be requested to curtail non-essential operations and additional cautions are issued to the public. At a level of 400, an Air Pollution Emergency may be deemed to exist and emergency measures may be enacted to prevent serious health impacts to the entire population. At the Emergency level, many air pollution sources would be required to terminate or severely curtail operations in an attempt to decrease pollution levels" (Oregon Air Quality 1988 Annual Report).

The latest Air Pollution Index is available from the phone numbers listed in Figure 4.5 (d) for the most recent reporting measurement period during normal work days. This information is also made available to the news media through the National Weather Service and is reported daily by some newspapers and broadcast media.

FIGURE 4.5 (d)
API Values and Air Pollution Episodes

Pollutant	Standard	Alert	Warning	Emergency	Significant Harm
API Value	100	200	300	400	500
PM10	150	350	420	500	600
TSP (24 hr) ug/m3	260	375	625	875	1,000
CO (8 hr) ppm	9	15	30	40	50
Ozone (1hr) ppm	0.12	0.20	0.40	0.50	0.60
SO2 (24 hr) ppm	0.14	0.30	0.60	0.80	1.00
NO2 (24 hr) ppm	n/a	0.16	0.31	0.41	0.52

Noise Characteristics and Quality

10. Noise travels through the air as sound wave. The loudness of a sound is related to the pressure of the source and is measured in decibels: one decibel is the first sound level that a human ear can hear. The farther a person is from the source of the sound the lower the decibel level. Figure 4.8 depicts the decibel levels as measured in some locations. There is no direct relationship between the sources and locations having similar decibel levels. However, the sources and locations should be compared in order to appreciate noise levels.

FIGURE 4.8
Sound Levels by Noise Source and Location

Noise Source (Exposure Level)	Sound Level in decibels	Location* (average 24 hour period)
Air Raid Siren	130	Rocket Launching Pad
Jet Take-off	120	Airport
Chainsaw	110	Lumber Mill
Motorcycle	100	Railroad Yard
Lawn Mower	90	Apartment next to Interstate
Heavy Traffic	80	Apartment near Downtown Area
Vacuum Cleaner	70	Row Housing on Major Street

Conversation	60	Older City Neighborhood
Rainfall	50	Woodlot Residence
Library Activity	40	Rural Residence
Soft Whisper	30	Wilderness
Very Soft Whisper	30	
Breathing	10	
Inaudible	0	

* Sound level for 24 hour period that characterizes average sound levels.
Sources: (1) Protective Noise Levels EPA 550/9-79-100.
(2) Noise and the Environment EPA Journal, Vol 5, #9, Oct. 1979.

11. It is assumed that the sources of noise listed in the above table generate similar noise levels regardless of location. Therefore, such noise sources with the exception of two, exist within the Grants Pass UGB.

12. The decibel levels of certain locations listed in Figure 4.8 are also assumed to prevail in most Oregon cities and therefore, within the UGB, (with the exceptions of the airport and launching pad).

13. Noise can be harmful to people's health. Certain levels of noise can damage hearing, especially if the 8-hour continuous noise level exceeds 75 decibels or if the 24-hour intermittent noise levels exceed 70 decibels. There are also sound levels and durations of sound, yet to be precisely determined, that can cause other health problems such as heart disease, low birth rates and emotional disturbance.

14. In figure 4.8 there are three residential locations which have 24-hour intermittent noise levels in excess of 70 decibels. All three are located along or nearby busy highways and major streets.

15. Normal speech can be disturbed by sound levels above 60 decibels. Learning disabilities in children are related to noise levels which interfere with the perception of speech. The learning problem can exist in a noisy school classroom situation and/or a noisy neighborhood and home environment.

16. The disruption of sleep and sleep patterns can be created by noise levels above 45 decibels. The DEQ has made three findings.
    - Noise affects the quantity and quality of sleep.
    - The elderly and sick are more sensitive to disruptive noise.
    - When sleep is disturbed by noise, then work efficiency and health may suffer.

17. Again, as shown in Figure 4.8, three residential location types have 24-hour intermittent noise levels that exceeds both the sleep interference level of 45 decibels and the speech interference level of 60 decibels.

18. The DEQ has set standards for noise levels in three areas:
    - For new motor vehicles sold in the state.
    - For motor vehicles presently in use.
    - For industry and commerce.

    The standards are found in Chapter 340, Oregon Administrative Rules.

19. There are proposed state standards and local standards for the noise sources that contribute to the intermittent background noise levels. These sources in Grants Pass are regulated under the City's Municipal Code, Chapter 5, Section 5.12.110: Unnecessary Noise.

Water Characteristics and Quality

20. There are three sources of water in the UGB area, 1) surface water runoff, 2) groundwater and the Grants Pass Irrigation District system. Surface water runoff in the UGB is in the form of overland flow on the surfaces of the UGB area and stream flow in Allen, Sand, Fruitdale, Skunk and Gilbert Creeks and the Rogue River. Groundwater is found in the Redwood aquifer which underlies the Central UGB area while the outlying areas are supplied by the granite aquifer.

21. Overland flow comprises water which, failing to infiltrate the surface, travels over the ground service toward a stream channel. The infiltration capacity of the land is greatly reduced by rooftops and paved surfaces. The overland water flow is often polluted with urban litter like paper and plastic items and with street waste like oil, grease and other insoluble chemicals that are disposed of onto driveways and streets. The overland flow in the urban area is directed into storm drains which eventually discharge into streams and river.

22. Most of the water distributed by the City's water treatment plant and private water sources is eventually discharged into the Rogue River by the two sewage treatment plants in the UGB. The City's sewage treatment has been in violation of DEQ wastewater discharge regulations. At times, untreated sewage is discharged directly into the river.

23. Wastewater is properly processed through the sewage treatment plant before being discharged into the Rogue River. However, some industrial wastewater may be of such quality and/or quantity as to require pretreatment. The City is currently involved in an industrial waste pretreatment program under the conditions of the National Pollutant Discharge Elimination System, Permit 3311-J.

24. Groundwater pollution by failing septic systems in the urbanizing area was arrested by the construction of the Redwood and Harbeck-Fruitdale sewage systems. However, according to

the County Watermaster, the quality of the groundwater in the UGB is still threatened by many improperly abandoned groundwater wells.

Land Characteristics and Quality

25. The soils of the UGB area are predominantly sandy soils that are well drained to the groundwater and surface water channels.

26. There are five potential sources of soil pollution within the UGB: sludge disposal, chemical fertilizers, products used in commercial and industrial operations, leachate from solid waste disposal and septic wastewater from subsurface septic disposal. Sludge is a thick, liquified waste transferred from the sewage treatment plants to local farms where it is spread onto the soil. Leachate is liquid waste that emerges from solid waste and contains many offensive chemicals. Chemical fertilizers and products used in commercial and industrial operations include such chemicals as herbicides, pesticides, fuels, oils and solvents that are petroleum based, lumber processing residues and wood product manufacturing glues. Septic waste leaches from surface leach lines of a subsurface wastewater septic system.

27. Sludge disposal is currently regulated by DEQ as to soil type, slope and depth-to-ground water of the soil. No problems have been recorded to date.

28. Leachate is one of many items regulated by DEQ at the Merlin Landfill site. The Merlin Landfill is currently being studied under the federal Resource Conservation Recovery Act (RCRA) / Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) / and Superfund Amendment and Reauthorization Act (SARA) regulations to determine how to treat the leachate and ground water, to plan for the eventual closure, and to prepare for the post-closure activities. The city is working closely with the DEQ to resolve the issues and to continue to protect the environment. The City will install and interim plastic cover over ninety-percent of landfill to reduce leachate generation. Quarterly samples taken from on-sight monitoring wells indicate some contamination. In addition, the City is sampling several off-site domestic wells. A couple of wells have low levels of three constituents but are well within the water quality standards established by the DEQ and the EPA. The City continues to monitor wells and is aggressively addressing the issue.

29. The entire UGB area is now served or able to be served by public sewerage systems. As development in the urbanizing area becomes increasingly more urban the use of septic systems will decrease accordingly.

5.00 AREAS SUBJECT TO NATURAL HAZARDS INDEX

5.10 PURPOSE

5.20 GEOLOGIC, SLOPE AND SOILS HAZARD

- **CHARACTERISTICS**
  - Geology
  - Slopes
  - Soils

- **INVENTORY**
  - Geologic Hazard Areas
  - Slope Hazard Areas
  - Soil Hazard Areas

- **SAFEGUARDS FROM HAZARD AREAS**
  - Geologic
  - Slopes
  - Soils

5.30 FLOOD HAZARD

- **HISTORY OF FLOODING**

- **FLOOD PRONE AREAS**

- **DEGREE OF FLOOD HAZARD**

- **SAFEGUARDS FROM FLOODING**
  - Warning Systems
  - Land Use Regulations
  - Federal Flood Insurance Program

5.36 FINDINGS

AREAS SUBJECT TO NATURAL HAZARDS

5.10 PURPOSE

The purpose of the Natural Hazard Element is to identify and map areas within the Boundary subject to natural hazards, and to describe appropriate safeguards.

5.20 GEOLOGIC, SLOPE AND SOILS HAZARD

PURPOSE

The purpose of this section is to define the geologic, slope and soil characteristics of the UGB area, identify the geologic, slope and soil related hazards in the UGB area, and describe appropriate safeguards from hazardous areas.

CHARACTERISTICS

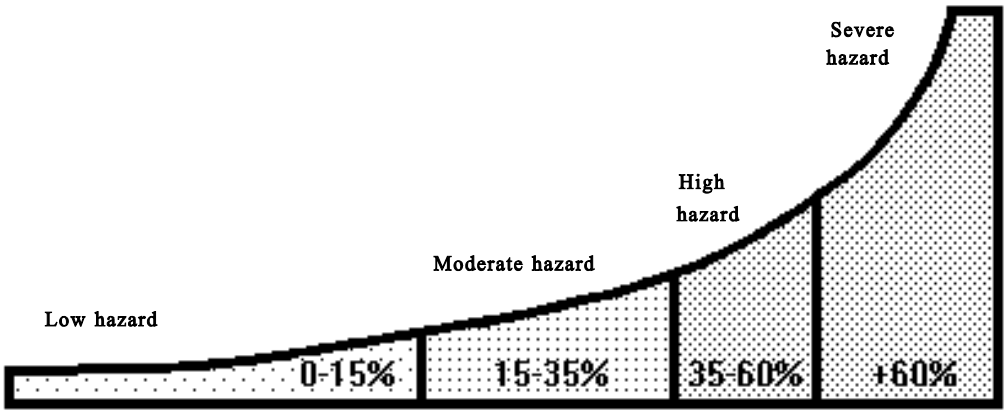
Geology - The geology and mineral resources of southwestern Oregon have been studied since the late 1800's. The most recent and up-to-date source of geologic information is contained within a 1979 publication by the Oregon Department of Geology and Mineral Industries, entitled Geology and Mineral Resources of Josephine County, Oregon. Although geologic information specific to the Grants Pass Urban Growth Boundary area is limited, it is known that two geologic formations characterized the Grants Pass area. The overlying formation is the recent Quaternary Sediment which is made up of stream deposited sand, silt and gravel. The underlying formation is the Grants Pass Pluton which is composed of Quartz Diorite and related rock. Several extensive north-to-northeast longitudinal faults with vertical dips occur in Josephine County. These faults lie parallel to the major axis of folding and fit the regional tectonic pattern for the Klamath Mountains. The pattern of displacement is not clear or uniform along these faults, although most appear to have some vertical displacement. There is only one major high-angle longitudinal fault within the UGB area. That fault occurs along the contact of the Applegate formation and the Grants Pass Pluton.

Slopes - Earthflow is a natural geologic and geomorphic process. This process can be, and often is, greatly accelerated by human activity. The natural forces that hold a hillside in place are altered through the construction of roads and buildings which increase the bearing load of the hillside and through excavations which remove support from below. The removal of natural vegetation from a site results in increased soil saturation and decreases slope stability. That can result in supersaturation of the soil and consequent earthflows. The extensive root system of natural vegetation found in steeply sloped areas reduces soil erosion by holding soil in place within the root network. The removal of vegetation without other immediate mitigation measures causes the soil to succumb to the forces of gravity which it cannot resist without the aid of viable roots.

Steepness of slope is the single greatest contributing factor to earthflow, whether it be slope erosion or mass movement. Slopes over thirty-five percent generally have high to extreme susceptibility to mass movement. Moderate susceptibility for mass movement exists between fifteen to thirty-five percent, although areas of unusually wet or unstable soil can increase the landslide potential.

Alteration of the load bearing capabilities through excavation and construction, or increasing water saturation through the removal of natural vegetation may upset the stability of slopes over thirty-five percent, resulting in slope erosion. There is also a potential for slope erosion on slopes ranging from fifteen to thirty-five percent when the soil, slope and vegetation balance is upset the actions of man. Relatively low potential for slope erosion exists for slopes less than fifteen percent. The potential for slope erosion, as used here, is relative to the percent of the slope. Obviously, erosion can occur on any slope and even on "flat" ground.

EXHIBIT 5.20.1
Slope Steepness



The percentage of slope is found by dividing the vertical rise by the horizontal run of a specific area of the slope.

Soils - Soils are made up of decomposed rock and organic material. The sources of the decomposed rock are the geologic formations found in the Rogue River drainage basin. Chemicals, wind, water, plant roots and gravity all act on the rocks to break them down into three general soil particle sizes: sand, silt and clay. The soil particles bind up with organic material derived from decomposed plant matter to form a cohesive veneer of porous material overlying the rock formations. Soils have pore spaces that are filled either with water or air depending on the season, level of the water table and depth of soil. These pore spaces are vital for the formation of the soil structure which affects soil stability, water-holding capacity and root penetration.

The combinations of soil particles, organic materials and soil structure can vary greatly from geographic area to geographic area due to the diversity of weathering forces, topography, climate and vegetation.

INVENTORY

Geologic Hazard Areas

A large number of high-angle cross faults tending northwest to west have been mapped since 1940. Many such faults occur north and west of Grants Pass and are either approximately located or concealed. Only two faults are known to be located within the Grants Pass UGB area. One fault is concealed, running north/south and adjacent to McLearn Drive. The other fault is located in the upper Grants Pass area, east of Interstate 5 in the vicinity of Terrace Drive. Both faults are high-angle faults and no recent movement has been detected along these or other faults in Josephine County. No earthquake epicenters or seismic activity have been recorded.

Slope Hazard Areas

The slope hazard map depicts the land areas of the Grants Pass Urban Growth Boundary Area with the slopes greater than 15%. (Map 5.20.2) Generally these slopes are located along the edges of the UGB in the Northwest, Northeast and Harbeck-Fruitdale subareas. Few steeply sloped areas within the UGB are developed because the potential hazards of steep slopes cause building designs to be more complex and expensive, and the cost of extending services such as streets, sewer and water is correspondingly high.

The Salem Homebuilders Association estimated the additional expense for building a home "in the hills." Their findings are presented in Table 5.20.3

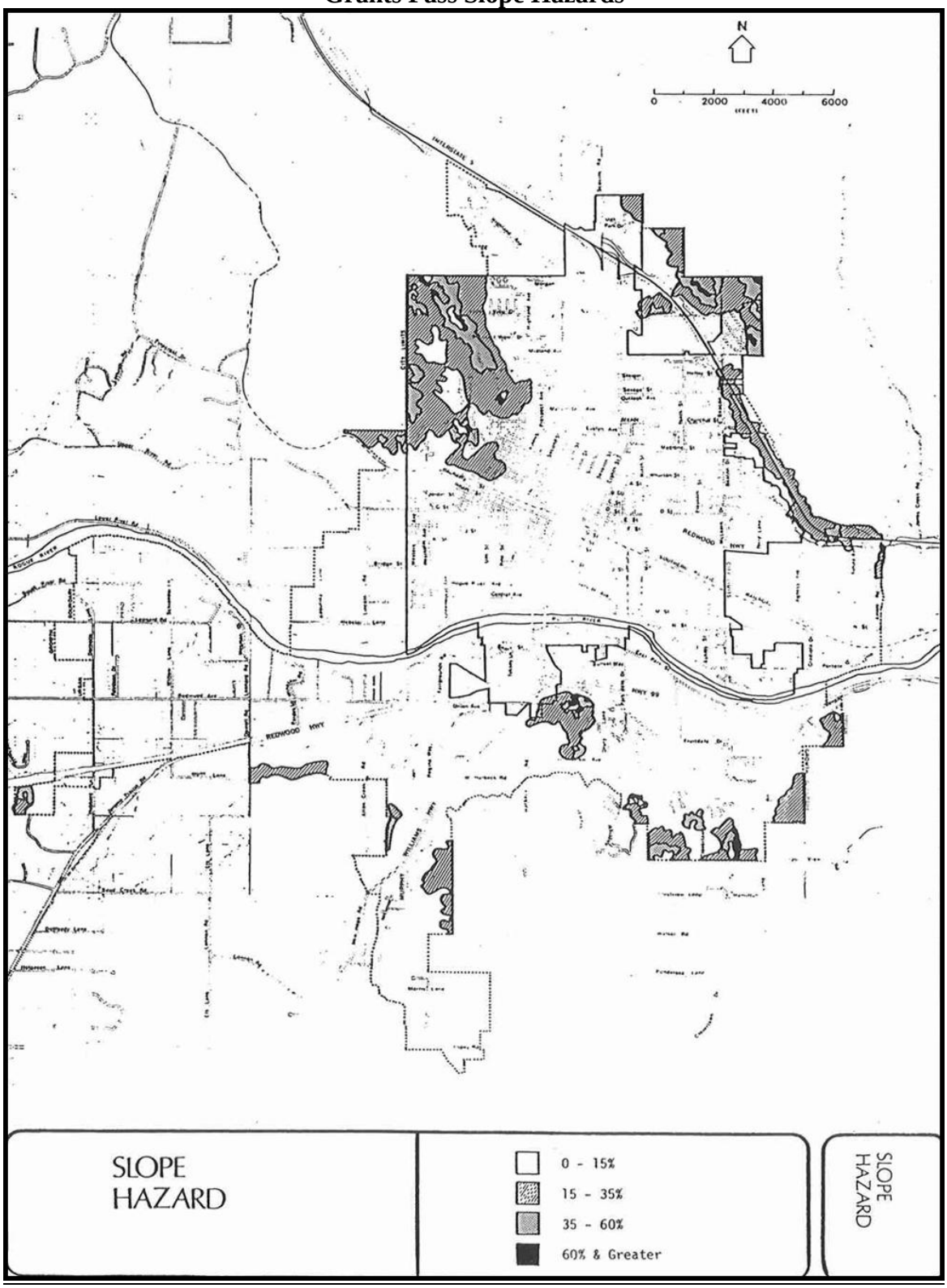
TABLE 5.20.3
Effect of Slope on Housing Cost

Slope	Added Cost
0 - 5%	0
6 - 8%	10 - 12%
8 - 12%	50%
12 - 15%	50 - 75%
18+ %	100%

Source: Salem Home Builders Association, 1976

Although these figures represent a general guideline, it would appear that only certain housing types and development styles are adaptable to steep topographic conditions. Generally, allowing the transfer of density to or the clustering of allowable units on a bench, or on a more gently sloping portion of the lot, can increase the cost effectiveness of a development project.

MAP 5.20.2
Grants Pass Slope Hazards



Soil Hazard Areas

Within the Grants Pass urbanizing area there are approximately forty-one different soil types or soil mapping units. The suitability of different soils for urban uses is determined by the combination of several factors including steepness of slope, underlying geologic formation, hydrologic characteristics, and particle size. Table 5.2.4 depicts the constraints and limitations of each of the soil mapping units found within the Grants Pass UGB area.

A slight soil limitation is the rating given to soils that have the properties favorable for the rated use. This degree of limitation is easily overcome and good performance and low maintenance can be expected.

A moderate soil limitation can be overcome or modified by special planning, design or maintenance. During some part of the year, the performance of the structure or other planned use is somewhat less desirable than for soils rated slight. Moderate soil limitations have soil properties only moderately favorable for the rated use.

A severe soil limitation has one or more soil properties that are unfavorable for the rated use. This degree of limitation generally requires major soil reclamation, special design or intensive maintenance.

The soil erosion factor is a measure of the susceptibility of soil particles to detachment and transport by rainfall and runoff. There are several soil properties that affect soil erosion including soil texture, percent of sand, organic matter content, soil structure, permeability, clay mineralogy and rock fragments.

Soil properties that most affect the design and construction of roads are the land bearing capacity and stability of the subgrade. The shrink-swell potential is an indication of the traffic supporting capacity, and wetness or flooding affect the stability of the material. Slope, depth to hard rock or cemented layers, content and size of stone or rocks, and wetness affect the ease of excavation. As the rock content of a soil increases, then the amount of cut needed to make a fill for an excavation project decreases.

Buildings With and Without Basements. As reported in Table 5.20.4, this category applies to structures less than three stories high that are supported by foundation footings placed in undisturbed soil. The features that affect the rating of a soil relate the capacity of a soil to support a load and resist settlement under a load, and those that relate to the ease of excavation.

Soil properties that relate to load bearing capacity are wetness, density, plasticity, texture and shrink-swell potential. Soil properties that affect excavations are wetness, slope, depth to bedrock and content of rock and stones. These factors alone or in combination may cause moderate to severe soil limitations that require special planning, design, construction techniques or maintenance to overcome.

TABLE 5.2.4
Soil Types - Constraints and Limitations

Soil Name	Shrink-Swell Potential	Erosion Factor	Road Con-struction	Buildings Without Basements		Buildings With Basements		Corrosivity	
				Rating	Limitation	Rating	Limitation	Steel	Concrete
Newberg Fine Sandy Loam	low	mod	severe	severe	floods	severe	floods	low	mod
Wapato Silt Loam	low	mod	severe	severe	floods wetness	severe	floods wetness	high	mod
Evans Loam	low	mod	severe		floods	severe	floods	low	high
Central Point Sandy Loam	low	low	slight	slight	-	mod	wetness	low	mod
Takilma Cobbly Loam	low	low	mod	mod	large stones	mod	large stones	mod	low
Takilma Variant Extremely Cobbly Loam	low	low	severe	severe	large stones	severe	large stones	mod	low
Selmac Loam 2 - 7% Slopes	low	mod	severe	severe	shrink-swell	severe	wetness shrink-swell	high	mod
Camas Gravelly Sandy Loam	low	low	severe	severe	floods	severe	floods	mod	mod
Abegg Gravelly Loam 2 - 7% Slopes	low	low	slight	slight	-	slight	-	mod	mod
Abegg Gravelly Loam 12 - 20% Slopes	low	low	severe	severe	slope	severe	slope	mod	mod
Kerby Loam	low	mod	slight	slight	-	slight	-	low	mod
Copsey Clay 3-7% Slopes	high	low	severe	severe	floods, wetness shrink-swell	severe	floods, wetness shrink-swell	high	low

Soil Name	Shrink-Swell Potential	Erosion Factor	Road Construction	Buildings Without Basements		Buildings With Basements		Corrosivity	
				Rating	Limitation	Rating	Limitation	Steel	Concrete
Holland Sandy Loam, Cool 2 - 7% Slopes	mod	high	mod	mod	shrink-swell	slight	-	mod	mod
Holland Sandy Loam, Cool 7 - 12% Slopes	mod	high	mod	mod	shrink-swell, slope	mod	slope	mod	mod
Holland Sandy Loam, Cool, 12 -20% Slopes	mod	high	severe	severe	slope	severe	slope	mod	mod
Holland Sandy Loam, Cool, 20 - 35% Slopes	mod	high	severe	severe	slope	severe	slope	mod	mod
Clawson Sandy Loam 2 - 7% Slopes	low	mod	mod	severe	wetness	severe	wetness	mod	mod
Barren Coarse Sandy Loam 2 - 7 % Slopes	low	mod	slight	slight	-	slight	-	low	mod
Jerome Sandy Loam	low	mod	severe	severe	wetness	severe	wetness, shrink-swell	high	mod
Brockman Cobbly Clay Loam 2 - 7 % Slopes	mod	mod	severe	severe	shrink-swell	severe	wetness, shrink-swell	high	low
Brockman Cobbly Clay Loam 7 - 20% Slopes	mod	mod	severe	severe	shrink-swell	severe	wetness, shrink-swell	high	low
Brockman Cobbly Loam 7 - 12% Slopes	mod	mod	severe	severe	shrink-swell	severe	wetness, shrink-swell	high	low
Cove Silty Clay Loam	mod	mod	severe	severe	floods, wetness, shrink-swell	severe	floods, wetness, shrink-swell	high	mod

Soil Name	Shrink-Swell Potential	Erosion Factor	Road Construction	Buildings Without Basements		Buildings With Basements		Corrosivity	
				Rating	Limitation	Rating	Limitation	Steel	Concrete
Ruch Gravelly Silt Loam 2 - 7% Slopes	low	mod	mod	mod	shrink-swell	mod	shrink-swell	mod	mod
Banning Loam	low	mod	severe	severe	wetness	severe	wetness	high	low
Siskiyou Gravelly Sandy Loam 20 -35% Slopes	low	low	severe	severe	slope	severe	slope	mod	mod
Siskiyou Gravelly Sandy Loam 35-60% South Slopes	low	low	severe	severe	slope	severe	slope	mod	mod
Siskiyou Gravelly Sandy Loam 35 - 70% North Slopes	low	low	severe	severe	slope	severe	slope	mod	mod
Debenger Loam 7-12% Slopes	low	mod	mod	mod	slope	mod	slope, depth to rock	mod	mod
Debenger Loam 12 - 25% Slopes	low	mod	severe	severe	slope	severe	slope	mod	mod
Camas - Newberg Complex	low	mod	severe	severe	floods	severe	slope	mod	mod
Vannoy Silt Loam 20 - 35% Slopes	low	mod	severe	severe	slope	severe	slope	mod	mod
Vannoy Silt Loam 35 - 55% North Slopes	low	mod	severe	severe	slope	severe	slope	mod	mod
Vannoy-Voorhies Complex 25 - 35% South Slopes	low	low-mod	severe	severe	slope	severe	slope	mod	low-mod
Witzel Rock Outcrop Complex 30 - 75% Slopes	low	low	severe	severe	slope depth to rocks, large stones	severe	slope depth to rocks, large stones	mod	mod
Manita Loam 2 - 7% Slopes	low	mod	severe	severe	shrink-swell	severe	shrink-swell	high	mod

Soil Name	Shrink-Swell Potential	Erosion Factor	Road Construction	Buildings Without Basements		Buildings With Basements		Corrosivity	
				Rating	Limitation	Rating	Limitation	Steel	Concrete
Manita Loam 7-12% Slopes	low	mod	severe	severe	shrink-swell	severe	shrink-swell	high	mod
Manita Loam 20 - 35% Slopes	low	mod	severe	severe	shrink-swell, slope	severe	shrink-swell, slope	high	mod
Manita Loam 35 - 50% Slopes	low	mod	severe	severe	shrink-swell, slope	severe	shrink-swell, slope	high	mod
Manita Loam 5 - 50% South Slopes	low	mod	severe	severe	shrink-swell, slope	severe	shrink-swell, slope, depth to rocks	high	mod
Bestman-Colestine Comlpex 50 - 80% North Slopes	low	low	severe	severe	slope	severe	slope	low	low

Shrink-Swell Potential - The shrink-swell potential of a soil may be defined as the relative change in volume with changes in moisture content. In other words, the extent to which a soil shrinks as it dries out or swells when it gets wet. The extent of shrink-swell is influenced by the quantity of clay in the soil. This potential often increases with depth, such that the shrink-swell potential may be low on the surface and at a depth of twelve inches, but high at a depth of sixty inches. This accounts for the low ratings for shrink-swell on the surface and severe limitations for building foundations.

MAP 5.2.5
Shrink-Swell Hazard Areas

SAFEGUARDS FROM HAZARD AREAS

Geologic Hazard Areas

Since there is no recent record of any geologic activity in the region, it is reasonable to assume that development may proceed without implementing safeguards such as earthquake design or avoidance of location on fault lines.

Slope Hazard Areas

The most effective method for the city and county to minimize the hazards of development on steep slopes is to review the development process. Slopes in the excess of 35% should be considered hazardous areas. Development that is proposed on slopes greater than 35% should be required to have development plans approved by a licensed engineering geologist in order to ensure that soil erosion and earth movement hazards will be minimized. A review of hillside developments on slopes 15% to 35% should be made by an engineer and a soil scientist in order to minimize the hazards to the structure and to reduce the potential for erosion. Supplemental engineering and site design may be required to lessen the degree of risk.

Soil Hazard Areas

In the preceding subsection, the various soils within the UGB area are inventoried according to a set to characteristics that relate the properties of each soil to specific hazards.

Safeguards for each hazard are primarily related to regulations that protect the stability of the soil and the major hazard for most soils. Once significant soil erosion begins in an area, drastic and costly "stop-gap" measures must be implemented to arrest the rate of erosion. Preventive measures for soil stability on erodible soils is often the best approach. Such preventive measures are:

- traps to keep top soil on the site
- leaving natural vegetation in place
- reducing surface water run-off with vegetative planting and keeping natural water retention areas.

Shrink-swell and road building hazards can be safe-guarded with adequate design and site preparation. An important task is to ensure that builders and developers are made aware of the soil properties of the site or area before planning and construction begin. The soil mapping and inventory of this section should serve as adequate generalized information regarding the hazards of soils within the UGB area. Site specific analysis of the soils should be encouraged in sensitive areas where soils are exposed to weathering and/or where slopes are steeper than 35% percent.

The relationship between steep topography, soils and natural vegetation becomes increasingly delicate as the percentage of slope increases. This delicate balance is strongly affected by human actions in developing or preparing sites for development. Extensive excavations for cut and fills, premature removal of natural vegetation and the additional load placed on a hillside by development can lead to earth movement in the form of slope erosion or mass movement.

5.30 FLOOD HAZARD

PURPOSE

The purpose of this section is to describe the history of flooding in the urban growth boundary area, identify the flood-prone areas, evaluate the degree of hazard, and describe the appropriate safeguards from flooding.

HISTORY OF FLOODING

The earliest recorded flood in Josephine County occurred in 1861. Since no subsequent flood has surpassed the magnitude of that flood, it has been chosen to represent the "100 year flood." (Army Corps of Engineers) Flood magnitudes are rated by their chance of annual occurrence. A "100 year flood" is assumed to have a 1% chance of occurring each year. A "1 year flood" is assumed to have a 100% chance of occurring each year. These are mathematical relationships that ignore the natural variables which affect the weather. Table 5.30.1 depicts the major floods of the Rogue River at Grants Pass during the last 120 years.

TABLE 5.3.1
Major Floods of the Rogue River at Grants Pass

Flood Year	Water Discharge in Cubic Feet Per Second (cfs)
Nov. - Dec., 1861	175,000 cfs (“100 year”)
Feb., 1890	160,000 cfs
Feb., 1907	60,500 cfs
Nov., 1909	70,000 cfs
Feb., 1927	138,000 cfs
Dec., 1942	54,400 cfs
Dec., 1945	70,000 cfs
Jan., 1948	59,900 cfs
Oct., 1950	65,400 cfs
Jan., 1953	77,000 cfs
Dec., 1955	135,000 cfs
Dec., 1964	152,000 cfs (“50 year”)
Dec., 1972	82,500 cfs
Dec., 1974	96,400 cfs

The table reveals that there is little mathematical order to the occurrence of floods. Floods of similar magnitude can occur within a few years of each other, such as the February 1907 and November 1909 floods and the October 1950 and January 1953 floods. Floods of relatively great magnitude can occur within a decade of each other, such as the December 1955 and December 1964 floods. The long range forecasting of flood occurrences would seem able to predict only that floods will occur at random intervals and at varying magnitudes.

FLOODPRONE AREAS

The Rogue River flows through the approximate center of the Urban Growth Boundary area. There are five confluent creeks that discharge into the Rogue River within the UGB. Map 5.30.3 shows the UGB and the floodprone areas (shaded). These areas were subject to flooding during the 1964 flood. Note that flood levels protruded into the channels of Gilbert and Allen Creeks. This phenomenon occurs because the flood level of the river is at a high elevation and the flood waters of the creeks are effectively "dammed" by river water. Water always seeks mean sea level and, therefore, is always flowing to the ocean. When the creeks are dammed by the river, then they overflow their banks upstream and water flows in sheets over the surface of the land in its relentless search for sea level. Therefore, the confluent creeks of the UGB area are also prone to a flood hazard relative to the magnitude of the river flooding.

DEGREE OF FLOOD HAZARD

The degree of flood hazard is measured in terms of loss of life and property. No deaths from flooding in the Grants Pass area are noted in the literature. Flood warnings usually occur in time to prevent loss of life, as people are able to move out of the floodprone areas. However, real property and improvements such as buildings are subject to the forces of flooding water. A quote from the Postflood Report, December 1964 Flood (Army Corps of Engineers) can dramatically relate the damages to property by flooding.

"One of the major factors causing excessive damages during this flood was the enormous quantity of debris brought into the channel from every source. This debris collected behind bridges resulting in the complete destruction of several, and major damage to nearly ever other bridge across the main stream. It also contributed to residential damage all along the river, knocking buildings from their foundations or smashing into walls."

Within the UGB area, residential areas on both sides of the river were flooded up to 8 feet. (Postflood Report, 1964. Army Corps of Engineers). The city sewage treatment plant sustained damages estimated at about $65,000. The Postflood Report did not summarize the value of residential damage but did state the values of the home flooded to be between $30,000 and $50,000 per home and estimated the average residential damage to be $900 per residence. Exhibit 5.30.2 shows an aerial view of the flooding of 1964.

EXHIBIT 5.30.2
Aerial View of 1964 Flood

SAFEGUARDS FROM FLOODING

Safeguards from flooding that can be implemented at the local level are warning systems, land use regulations and the Federal Flood Insurance Program.

Warning Systems

The Army Corps of Engineers operates a computer simulation model for the hydrological characteristics of all the significant water drainage basins in Oregon. That simulation model can predict fairly accurately when a flooding river system will "crest", or reach its highest flooding elevation, and what the elevation will be at the "crest." That information is provided to all radio stations and local emergency units like the police and national guard. If elevations of floodprone areas are known by recognized landmarks, then people and mobile property can be removed from the anticipated flooding area. An emergency evacuation program that employs local police, fire department and other civic groups can help facilitate the relocation of persons and property from a floodprone area.

Land Use Regulations

The City and/or County can regulate the use of land within known floodprone areas. The regulations can range from allowing no development in floodprone areas to allowing any type of development in conjunction with federal floodplain laws. The regulations can also selectively designate floodprone areas as public open space for parks, wildlife areas and floodways. Public open spaces would allow active public use of the land and enhance the attractiveness and livability of the Urban Growth Boundary Area, while reducing future potential losses of life and property from flooding.

Land use regulations can also be used to set aside land areas for the detention of storm water. Those lands, such as wetlands, grassed waterways, and woodlands, may reduce flood elevations of the frequent small floods, and prevent future increases in flood heights of these frequent floods.

Flood heights have the potential for increase in proportion to the increases in urban level development in the Boundary area. Urban development increases the amount of storm water runoff by increasing the area of impervious surfaces such as streets, driveways, parking lots, and rooftops. If the natural storm water detention areas of the UGB area are converted to impervious surfaces by urban development, then the storm water runoff will flow more rapidly over the surface, into stormdrains and on to the creeks and the river, thereby increasing the elevation of the flood and/or decreasing the elapsed time between the beginning of the flood and the flood "crest".

Land use regulations can provide equitable transfers of land use intensities for each land use type from the floodprone areas and storm water detention areas to other less sensitive areas.

For example, a proposed residential development in an area with potential for storm water detention may be encouraged to preserve the detention area through incentives encouraging the transfer of density. The potential number of dwelling units that can be built on the detention area may be transferred to the remaining buildable area of the land that has less potential for detention. In this way, the developer retains the revenue potential of the development, and may even reduce the costs

of development by clustering. The community retains an open space and a storm water detention area, reducing the hazard of flood, and reducing the size and cost of storm drain lines.

Federal Flood Insurance Program

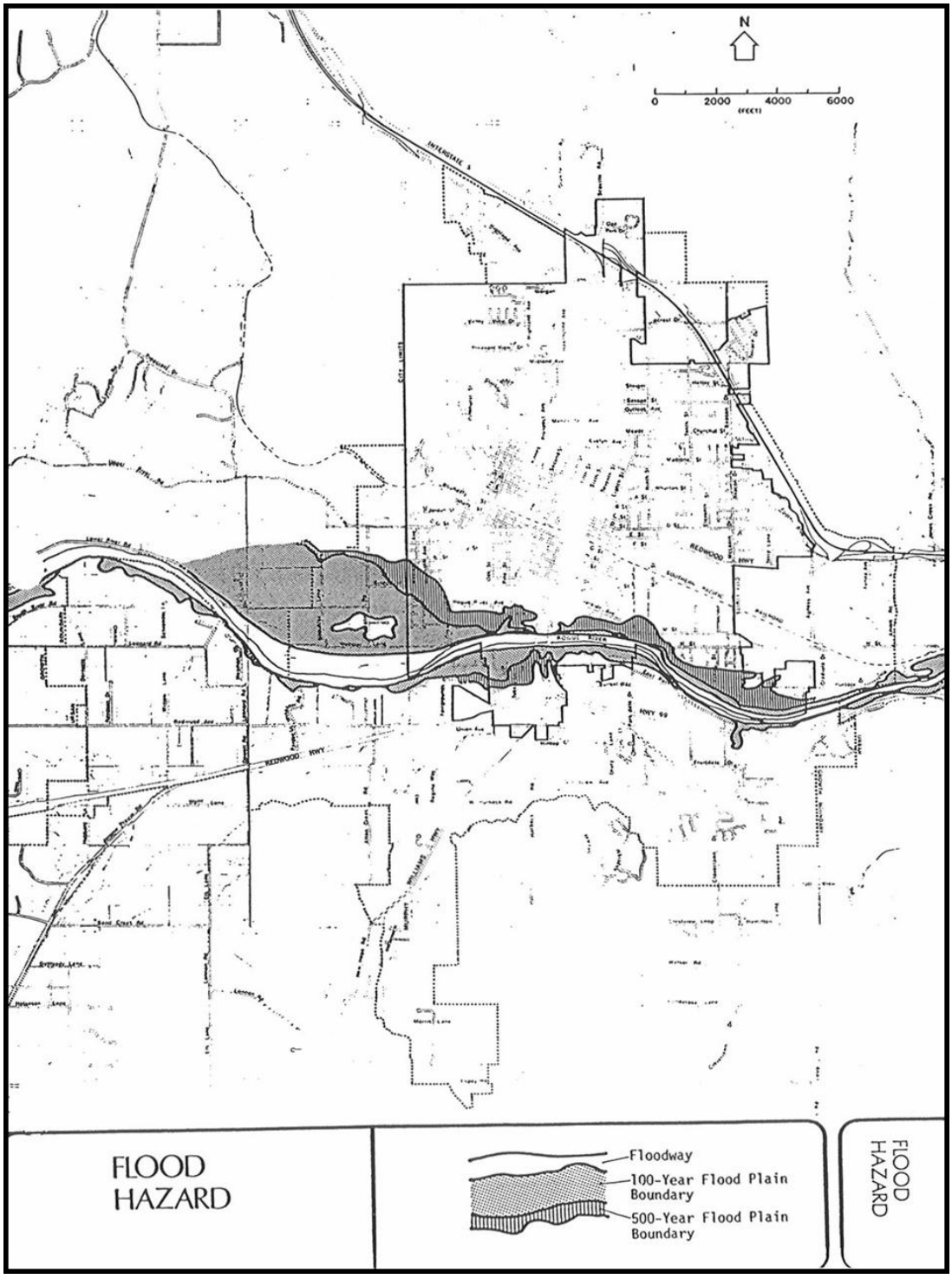
The catastrophic nature of flooding and the relatively localized effect of intermittent floods caused the insurance industry to find it financially unfeasible to provide flood insurance at reasonable rates. Increasingly, the federal government was requested to act to protect and safeguard private property. Legislation was passed in 1956, but money was never appropriated to implement the program. Further studies resulted in Title XIII, National Flood Insurance, part of the Housing and Urban Development Act of 1968 (Public Law 90-448) and the Flood Disaster Protection Act of 1973. Together these acts created an enormous federal subsidy in an effort to provide reasonable flood insurance at affordable rates. In effect, the federal government underwrites private insurance companies and subsidizes insurance premiums by paying the difference between the "affordable" premium which is charged to the policyholder, and the actuarial or "true cost" premium. The actuarial premium would be the rate charged to the policy holder if the insurance policy were written based on the statistical likelihood of flooding combined with the potential losses resulting from flood damage. In exchange for the reduced rate, property owners, through state and local governments, agree to adopt appropriate land use control measures to bring the risk of public and private losses to acceptable levels.

In 1979, work was completed on the Flood Insurance Study for the City of Grants Pass. A similar study was completed for Josephine County in 1980. Initial use of this information will be to convert Grants Pass and Josephine County to the regular flood insurance program of the Federal Insurance Administration. Streams in the area requiring detailed study were identified at informal meetings held in January 1978, between the U.S. Geological survey, the Federal Insurance Administration and the City of Grants Pass. The Rogue River and Gilbert Creek were studied by detailed methods. Although the Gilbert Creek flood plain is quite small, the density and intensity of streamside development justified establishing the flood zones by detailed methods.

A primary purpose of the National Flood Insurance Program is to encourage state and local governments to adopt and enforce land use practices within flood prone areas to the degree necessary to reduce the risk to acceptable levels as set forth in the program. Each Flood Insurance Study therefore includes a map which delineates the extent and location of areas subject to periodic inundation and differentiates between the floodway and 100-year and the 500-year flood boundaries. In order to provide a national standard without regional discrepancies, the 100-year flood has been adopted by the Federal Insurance Administration as the base flood for flood management and insurance purposes. The 500-year flood is indicated simply to make communities aware of additional areas in the community with perceivable levels of flood risk. Map 5.30.3 illustrates the approximate location of the floodway, the 100-year and 500-year flood boundaries.

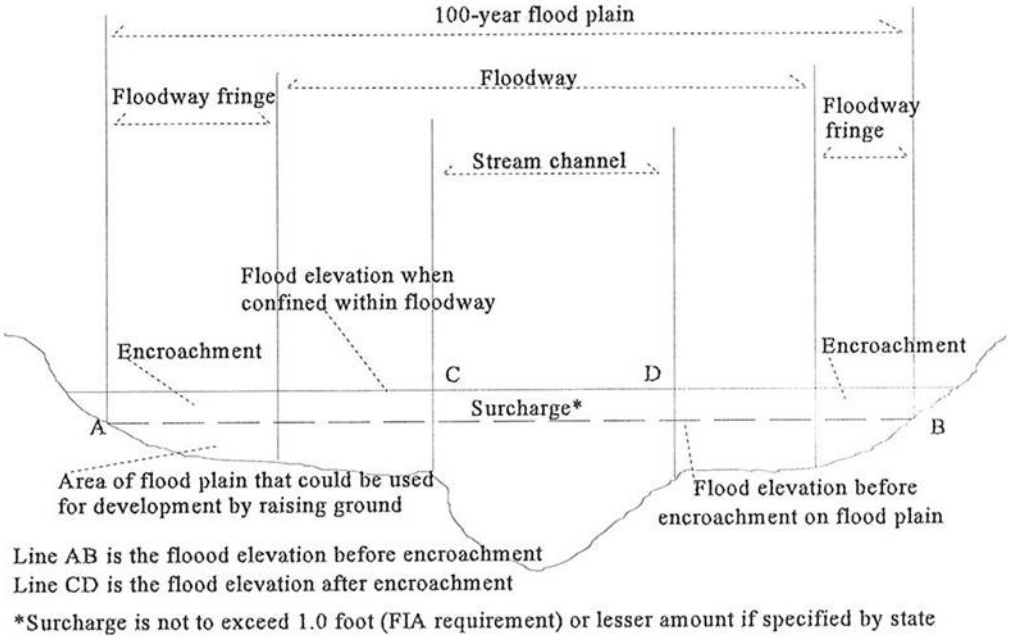
The principal result of the Flood Insurance Study is the Flood Insurance Rate Map. This map contains the official delineation of flood elevation lines. The level of flood risk and therefore insurance premiums are determined from this map.

MAP 5.30.3
Floodway and 100-Year Flood Plain for
Grants Pass Urban Growth Boundary



The National Flood Insurance Program divides the area of the 100-year flood into a floodway and floodway fringe. The floodway is the actual channel of a stream or river plus any adjacent flood plain areas that must be free of encroachment to allow the 100-year flood to flow freely without substantial increases in flood heights. Maximum federal standards establish a limit for flood height increases of one foot, provided that hazardous velocities are not produced. The area between the floodway and the boundary of the 100-year flood are termed the floodway fringe. Exhibit 5.30.4 depicts the relationship among the stream channel, floodway, floodway fringe and 100-year floodplain.

EXHIBIT 5.30.4
Floodway-Flood Plain Schematic



Insurance rates are based on the degree of flood risk. In order to establish actuarial insurance rates, the Federal Insurance Administration has developed a process to transform the data depicted in the floodway schematic drawing, into flood insurance criteria. That process includes the determination of flood hazard factors and flood insurance zone designations for each flooding river or creek.

The city has adopted a floodplain development ordinance that is in compliance with the National Flood Insurance Program. The city ordinance identifies buildable land within the 100-year floodplain as the floodway fringe. The floodway is not considered buildable. Development on the buildable land (floodway fringe) must be constructed so that the first floor level of the building is a minimum of one foot above the 100-year flood elevation. This regulation anticipates that once the floodway fringe is fully encroached upon by development, the actual flood elevation will be raised one foot above the 100-year flood level. Development in the floodway must demonstrate that encroachment will not raise the flood elevation beyond the one foot maximum above the 100-year

flood elevation. The federal regulations require that a qualified surveyor determine the degree of displacement. The displacement of floodway water by the proposed floodway development may adversely affect other development on the adjacent floodway fringe, which usually precludes floodway development in an urban area.

5.25 GEOLOGIC, SLOPE AND SOILS HAZARD FINDINGS

1. There are three potential land hazards in the Grants Pass Urban Growth Boundary area; geologic, slopes and soils related.
2. There are two geologic formations in the Grants Pass UGB area. The overlying formation is composed of recent stream deposits of sand, silt and gravel. The underlying formation is a large mass of igneous material that is composed of quartz diorite. There are several major faults in Josephine County but only one within the UGB area: a north-south fault that is parallel to McLean Drive, and a north-south fault east of Interstate 5 in the vicinity of Terrace Drive. No recent movement of any faults has been detected in Josephine County. There are no earthquake epicenters. The region is geologically dormant.
3. The slopes in the UGB area range from 0% to greater than 60%.
4. There is a low potential for earthflows for slopes less than 15%. Moderate potential for earthflows exist between 15% to 35%, although areas of unusually wet or unstable soil can increase that potential. Slopes over 35% generally have a high to extreme potential for earthflows, especially when the integrity of the slope is disturbed by removal of vegetation, excavation and construction.
5. The slopes greater than 15% are identified on the Slope Hazards map. Generally, these slopes are located at the edge of the UGB in the Northwest, Northeast and Harbeck-Fruitdale subareas.
6. The most effective method for the city and county to minimize the hazards of development on steep slopes is to review the development process in these areas. Developments that are proposed on slopes between 15% and 35% should be reviewed by a soil scientist and an engineer in order to reduce the hazard potential. Developments that are proposed on slopes in excess of 35% should be required to have the development plans reviewed by a licensed engineering geologist in order to ensure that soil erosion and earth movement hazards are minimized.
7. Soils are composed of decomposed rock and organic material and are basically defined by the content of rock particles and organic matter, and structure. Soil types vary according to geographic area due to the diversity of weathering forces, topography, climate and vegetation. There are forty-one different soil types in the UGB area each with distinct characteristics which make them either more or less suitable for urban developments. Table 5.20.4 identifies the soils and their general characteristics related to urban development. These characteristics are erosion factor, road construction, buildings with or without basements, shrink-swell potential and corrosivity. The information in Table 5.20.4 is derived from the soil data of the U.S. Soils Conservation Service. The ratings for each soil should be considered general guidelines. Where necessary clarification is required, then a site specific soil analysis should be performed by a soil scientist.
8. The single most important potential soil hazard is erosion. Preventive measures for soil stability on erodible soils is often the best safeguard. Such preventive measures are:
    - traps to keep top soil on the site
    - leave natural vegetation in place

- reducing surface water run-off with vegetative planting and keeping natural water retention areas

9. Other important soils-related hazards such as shrink-swell and road construction can be mitigated by forewarning builders and developers early in the development process. Site specific analysis of soils should be encouraged in all developments with slopes in excess of 35%.

5.36 FLOOD HAZARD FINDINGS

1. The occurrence and magnitude of flooding the Grants Pass Urban Growth Boundary area is unpredictable. However, history reveals that flooding does occur at seemingly random times with varying degrees of magnitude. One can assume that flooding will occur in the future, and that the magnitude of the floods may be as great as any historical flood to date.
2. The floodprone areas within the UGB area are located along the Rogue River and the confluent creeks, especially Gilbert Creek. The flooding of the confluent creeks is relative to the magnitude of the river flooding.
3. The degree of flood hazard is measured in terms of loss of life and property. Apparently, no lives have been lost by flooding in the area, although property damages have been substantial. The 1964 flood caused $65,000 worth of damages to the city sewage treatment plant. After the 1974 flood, the Army Corps of Engineers estimated the average residential damage to be $900.00 per residence.
4. Safeguards from flooding that can be implemented at the local level are warning systems, land use regulations and a flood insurance program.
5. The warning system safeguard entails the use of the Army Corps of Engineers' flood simulation model for predicting peak flood elevations. Elevation landmarks should be established and made known so that the potential danger areas of the oncoming flood can be broadcast and evacuated.
6. Land use regulations can minimize the loss of life and property due to the flooding. Floodprone land that is designated as open space for parks, wildlife areas and floodways can enhance the livability of the community while reducing future potential losses of life and property from flooding. Land use regulations can also be used to set aside land areas for the detention of storm water. Storm water detention areas such as wetlands, grassed waterways and woodlands may reduce existing and future flooding conditions. Density transfer is a method to encourage the preservation of storm water detention areas without affecting the revenue potential of developments in such areas.
7. The National Flood Insurance Program is intended to encourage local government to adopt and enforce land use practices within floodprone areas to the degree necessary to reduce the risk to acceptable levels as set forth in the program. The City of Grants Pass has adopted a floodplain ordinance that adopts by reference the federal engineering report entitled "The Flood Insurance Study for the City of Grants Pass." That ordinance specifies that development in the floodplain may not raise the elevation of the 100-year flood by more than one foot, and, therefore, all new development must construct the level of the first livable floor at least one foot above the 100-year flood elevation.

6.00 POPULATION ELEMENT INDEX

6.10 BACKGROUND

The City of Grants Pass is located along I-5 in Southern Oregon. It is the largest city in Josephine County, with about 38% of the County's population within the city limits in 2006. Population in the city limits has grown from about 17,500 residents in 1990 to about 30,900 residents in 2006, an increase of about 13,000 residents or more than 75%.

Population forecasts are a foundational component of planning analysis and are necessary for an assessment of land needed for residential and employment purposes, as well as land needed for public and semi-public uses. The population forecast provides the foundation for a technical analysis of future growth and land availability to determine whether the City has sufficient lands within its Urban Growth Boundary (UGB) for 20-years of growth. The City may also consider establishing Urban Reserve Areas, which would include enough land for 50-years of growth.

6.11 Oregon Statewide Planning Requirements

Local governments in Oregon have developed and adopted population forecasts for planning purposes since the inception of the statewide planning program. The forecasts are used for many purposes including determining the size of Urban Growth Boundaries (UGBs), capital improvement planning, and other planning activities. For example, Oregon state planning law (ORS 197.295 – 197.296) requires cities to plan for needed housing to accommodate population growth in urban growth boundaries. ORS 197.712 also requires cities to ensure that sufficient land is available in urban growth boundaries for commercial development and economic growth.

Historically, consistency was an issue in the forecasting process. In many instances the forecasts of incorporated cities would sum to a figure far higher than the county forecast. In 1995, the Oregon Legislature recognized a need for local consistency in population forecasting and for a coordinated statewide forecast by adding a statute requiring counties to:

> "…establish and maintain a population forecast for the entire area within its boundary for use in maintaining and updating comprehensive plans, and shall coordinate the forecast with the local governments within its boundary." [ORS 195.036]

To help with consistency at the state level, the legislature designated the state Office of Economic Analysis (OEA), a division of the Department of Administrative Services, as the primary forecasting agency for the state of Oregon. The OEA prepares population and employment forecasts for the state and each county. The OEA prepared state and county population forecasts in 1997 and again in 2004. These forecasts are intended to serve as a basis for county-level population coordination.

ORS 195.036 requires that population forecasts be coordinated by a designated "coordinating" agency; in this case Josephine County. The combined sum of forecasts for incorporated cities and rural areas must roughly equal the forecast for the county as a whole (the county "control total").[1] The control total usually comes from the long-term population and employment forecasts developed by the Office of Economic Analysis of the State Department of Administrative Services.[2] The most recent OEA forecasts are from 2004.

OAR 660-024-0030 provides additional guidance on local population forecasts. Subsection 1 requires cities to adopt a 20-year population forecast for the urban area consistent with the coordinated county forecast. Subsection 2 defines the standards for population forecasting:

> "The forecast must be developed using commonly accepted practices and standards for population forecasting used by professional practitioners in the field of demography or economics, and must be based on current, reliable and objective sources and verifiable factual information, such as the most recent long-range forecast for the county published

[1] The forecasts for incorporated cities include all lands within the existing Urban Growth Boundaries (UGBs) of those cities. In short, the forecasts are for growth in the UGBs.

[2] While most coordinating bodies use the OEA forecasts as the basis for coordination, there is no statutory requirement that the OEA forecasts be used.

> by the Oregon Office of Economic Analysis (OEA). The forecast must take into account documented long-term demographic trends as well as recent events that have a reasonable likelihood of changing historical trends. The population forecast is an estimate which, although based on the best available information and methodology, should not be held to an unreasonably high level of precision." OAR 660-024-0030(2)

Thus, the forecasting requirement is for 20 years—a figure consistent with the requirement that cities maintain a 20-year land supply. OAR 660-021, however, allows the establishment of urban reserve areas to accommodate up to 50 years of growth.

This chapter provides 20-year and 50-year forecasts of population growth for Grants Pass. It presents information on population growth and population characteristics necessary to the City's present and future needs for the type and amount of residential housing and commercial and industrial development. The forecasts in this chapter will be used to assess the demand for urban services such as water, sewer, storm drainage, streets, parks and open space, schools, and fire and police protection.

6.20 ORGANIZATION

The remainder of this chapter is divided into sections.

- **Section 6.30** describes the data sources, methods, and assumptions used to develop the population forecast.
- **Section 6.40** discusses factors that influence households' locational choices.
- **Section 6.40** presents historic population trends and demographic trends in Grants Pass.
- **Section 6.50** presents the population forecast for the Grants pass UGB.
- **Section 6.60** identifies the key findings of this chapter for population change in Grants Pass.

6.30 DATA SOURCES AND METHODS

The population forecast presented in this chapter build from an analysis of a range of secondary data sources—primarily historical population data and the Oregon Office of Economic Analysis' forecast for Josephine County. All of the data used in developing the allocations are from easily available standard sources:

- The U.S. Census of population and housing (1980, 1990, and 2000) provides decennial population figures as well as a broad range of demographic and socioeconomic variables;
- The Oregon Office of Economic Analysis (OEA) provides long-term state and county-level population forecasts (through 2040);
- The Population Research Center at Portland State University provides annual population estimates and annexation history for incorporated cities; and

- The Grants Pass Community Development Department provided data on building permit activity in the Grants Pass UGB.

6.31 Population forecast Josephine County 2007 to 2060

Table 6.30.1 shows the adopted population forecast for Josephine County. The forecast projects that Josephine County will grow from 85,966 people in 2007 to 113,167 people in 2027, an increase of 27,201 people at an average annual growth rate of 1.38%. Between 2007 and 2057, Josephine County is forecast to grow by 69,163 people at an average annual rate of 1.19%.

TABLE 6.30.1
POPULATION FORECAST
Josephine County, 2000-2060

Year	Population
2000	76,050
2005	79,956
2007	85,966
2010	93,233
2020	104,528
2027	113,167
2030	116,895
2040	129,812
2050	144,156
2057	155,129
2060	160,084
Change 2007 to 2027	
Number	27,201
Percent	32%
AAGR	1.38%
Change 2007 to 2057	
Number	69,163
Percent	80%
AAGR	1.19%

Source: ECONorthwest
AAGR – Average Annual Growth Rate

The forecast presented in Table 6.30.1 is based on the "Alternative" forecast presented in the report "Josephine County Coordinated Population Forecast" by ECONorthwest. This forecast is based on the OEA's 2004 forecast for Josephine County. The forecast includes an adjustment to the population base (2007) to more accurately reflect current population in Josephine County, based on building permit activity in the County between 2000 and 2006. In addition, the growth rate for 2000 to 2040 used in this scenario is lower than the historic growth rate for the 1960 to 2006 period (2.19%) and the 1990 to 2006 period (1.63%). However, it is reasonable to expect a decline in the average annual rate of population growth as population increases because a larger population base requires a larger increase in the *number* of people in the County to achieve the same *rate* of increase.

6.32 Grants Pass population forecast methods

The literature identifies many accepted approaches to projecting or forecasting population. More robust approaches use component models (natural increase plus migration),[3] or econometric models (which consider the interplay between population and employment). Simpler approaches extrapolate from historic trends. At large geographic levels, migration becomes less of a factor making component models more accurate. For smaller regions, migration and other factors are more difficult to document.

At the national or state level, population growth has a larger affect on employment growth. Standard cohort-component models can provide relatively accurate forecasts of population growth in larger areas where the migration component is small. Such models are frequently applied in areas where there is relative stability in demographic characteristics and vital statistics (e.g., birth and death rates).

Regional or city-level forecasts often use a step-down method based on a larger regional or national forecast. The general concept is to estimate the portion of regional population growth that will occur in the subregion. There are several variations on the step-down method, summarized in Table 6.30.2.

TABLE 6.30.2
BASIC POPULATION FORECASTING METHODS

Method	Description
Trend extrapolation	Uses historical population growth rates and extrapolates them into the future, includes straight-line and compounding methods.
Ratio trend	Uses current city/county ratio of population and extrapolates to the future.
Comparative	Past growth pattern is compared with growth patterns of larger, older areas. Should consider social, economic, political, and other variables.

Source: ECONorthwest

These methods are relatively simple and rely on past trends as an indicator of future growth. A number of assumptions are implicit in these methods: (1) past growth is a good indicator of future growth; (2) factors affecting local population growth will not change substantially; and (3) selection of base year can significantly affect the forecast. The ratio and comparative methods scale from forecasts of larger geographies and implicitly assume that the forecasts for the larger areas are (1) good forecasts, and (2) represent trends that might be observed in the smaller geography.

The "trend extrapolation" method described in Table 6.30.2 was used to forecast population for the Grants Pass UGB. Developing the population forecast involved reviewing historical population trends to develop observed annual growth rates that provide the basis for the forecast

[3] The OEA long-range forecasts use this methodology.

(e.g., the assumed future growth rates). Trend data was also reviewed as part of this analysis included annual population changes from the Census and from the Population Research Center at Portland State University, trends in residential development, and trends in population demographics and characteristics.

Several different methods for forecasting population in the Grants Pass UGB were considered, including the straight-line extrapolation method, the compounding method, and the ratio method. The comparative method was dismissed in this instance because it would be difficult to identify comparable cities to Grants Pass. The **compounding methodology** was selected because it is (1) most consistent with historical population growth trends, (2) it is a relatively simple approach that builds from historical data and assumptions about future City and County growth policies, and (3) it assumes that the increment of population growth (e.g., the rate of growth or annual percent change) will be constant.

6.33 Forecast assumptions

The assumptions that are implicit in a forecasting model can profoundly influence the forecasts. This analysis is based on the following assumptions:

- *Historic trends will continue into the future.* Historic population data assuming that past trends will continue into the future were reviewed. The forecast does not assume that future growth will be at the same rate as historic growth but that historic growth rates provide some indication of future growth rates.
- *Future population growth in Grants Pass will be influenced by national, regional, and local economic and social conditions.* These variables are not explicitly incorporated into our model. Historic trends are influenced by these factors, however, and are thus indirectly included in the forecasts.

6.40 FACTORS AFFECTING LONG-TERM GROWTH

This section discusses some of the factors that affect long-term growth in Grants Pass. These factors include regional population growth trends and residential development trends in Grants Pass.

6.41 State and Southwestern Oregon Population Trends

Population growth in Oregon tends to follow economic cycles. Oregon's economy is generally more cyclical than the nation's, growing faster than the national economy during expansions and contracting more rapidly than the nation during recessions. This pattern is shown in Table 6.40.1, which presents data on population in the U.S., Oregon, and Southern Oregon, and Jackson and Josephine Counties and selected cities in Southern Oregon over the 1980–2006 period.

Table 6.40.1 shows Oregon grew more rapidly than the U.S. in the 1990s (which was generally an expansionary period) but lagged behind the U.S. in the 1980s. Oregon's slow growth in the 1980s was primarily due to the nationwide recession early in the decade. Oregon's population growth regained momentum in 1987, growing at annual rates of 1.4%–2.9% between 1988 and

1996. Population growth for Oregon and its regions slowed in 1997 and remained slow between 2000 to 2006, averaging 1.1% to 1.3% annually, the slowest rate since 1987.

Growth in Southern Oregon, including Douglas, Jackson, and Josephine Counties, has been on average slower than the State average over the twenty-six year period. The fastest growing county in Southern Oregon has been Jackson County, which grew by about 62,000 residents at an average annual rate of 1.55% over the twenty-six year period. Josephine County grew by more than 22,000 people at an average annual growth rate of 1.29% between 1980 to 2006.

The majority of population growth in Southern Oregon occurred in the cities of Medford, Ashland, Central Point, and Grants Pass. These cities grew by about 62,000 people, accounting for about two-thirds of the population growth in Southern Oregon over the 1980 to 2006 period. Population within the Grants Pass city limits grew from 15,032 residents in 1980 to 30,930 residents in 2006, an increase of 15,898 people at an average annual rate of 2.81%.

TABLE 6.40.1
HISTORIC POPULATION CHANGE
U.S., Oregon, Southern Oregon, Jackson And Josephine Counties, and Selected Cities in Southern Oregon, 1980 - 2006

	Population				Change 1980 to 2006		
Area	1980	1990	2000	2006	Number	Percent	AAGR
U.S.	226,545,805	248,709,873	281,421,906	299,398,484	69,864,599	31%	1.08%
Oregon	2,639,915	2,842,321	3,421,399	3,690,505	988,785	37%	1.28%
Southern Oregon	285,059	303,685	357,394	383,555	98,496	35%	1.19%
Jackson County	132,456	146,389	181,269	198,615	62,059	47%	1.55%
Medford	39,746	46,951	63,154	73,960	31,109	78%	2.34%
Ashland	14,943	16,234	19,522	21,430	5,937	40%	1.35%
Central Point	6,357	7,509	12,493	16,550	9,283	146%	3.67%
Josephine County	58,855	62,649	75,726	81,125	22,270	38%	1.29%
Grants Pass	15,032	17,488	23,003	30,930	15,898	106%	2.93%
Cave Junction	1,023	1,126	1,363	1,600	577	56%	1.81%

Source: U.S. Census, Population Research Center, and calculations by ECONorthwest
Note: Southern Oregon includes Douglas, Jackson, and Josephine Counties.

Oregon's population is also related to economic conditions in other states—most notably, in California. During downturns in California's economy, people leave the state for opportunities in Oregon and elsewhere. As California's economy recovers, the population exodus tapers off. Such interstate migration is a major source of population change.

According to a U.S. Census study, Oregon had net interstate in-migration (more people moved *to* Oregon than moved *from* Oregon) during the period 1990-2004.[4] Oregon had an annual average

[4] Marc J. Perry, 2006, *Domestic Net Migration in the United States: 2000 to 2004*, Washington, DC, Current Population Reports, P25-1135, U.S. Census Bureau.

of 26,290 more in-migrants than out-migrants during the period 1990-2000. The annual average dropped to 12,880 during the period 2000-2004.[5]

According to data from the Population Research Center at Portland State University, about 70% of population growth in Oregon resulted from migration and about 30% resulted from natural increase (births minus deaths). Between 2000 to 2006 In Southern Oregon, net migration accounted for all the population increase because population growth from natural increase was negative (deaths outnumbered births). All population growth in Josephine County between 2000 and 2006 was the result of net migration because the County had about 1,500 more deaths than births.

The Oregon Department of Motor Vehicles collects data on out-of-state driver licenses surrendered by applicants for Oregon licenses. These data provide an indicator of the source of Oregon's in-migration. During the period 1999-2005, over 30% of surrendered licenses were from California and approximately 17% were from Washington. All other states each accounted for less than 5% of the surrendered licenses.[6] The DMV also collects data on Oregon driver licenses surrendered in other states. These data indicate that Washington and California are the top destinations for Oregon's out-migrants.[7]

The *1999 Oregon In-migration Study* found that migrants to Oregon tend to have the same characteristics as existing residents, with some differences—recent in-migrants to Oregon are, on average, younger and more educated, and are more likely to hold professional or managerial jobs, compared to Oregon's existing population. The race and ethnicity of in-migrants generally mirrors Oregon's established pattern, with one exception: Hispanics make up more than 7% of in-migrants but only 3% of the state's population. The number-one reason cited by in-migrants for coming to Oregon was family or friends, followed by quality of life and employment.[8]

6.42 Grants Pass Development Trends

Residential development is a key factor directly related to population growth—households cannot (and will not) move to an area without housing. One way to track residential development is to compare the number of permits issued for new residences, which can provide an indication of the level of potential building activity but does not indicate the amount of actual residential development because a building permit does not guarantee development. The construction of a new dwelling unit will eventually result in a population increase when the new dwelling becomes occupied.

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[5] In contrast, California had net interstate *out-migration* over the same period. During 1990-2000, California had an annual average of 220,871 more out-migrants than in-migrants. The net outmigration slowed to 99,039 per year during 2000-2004.

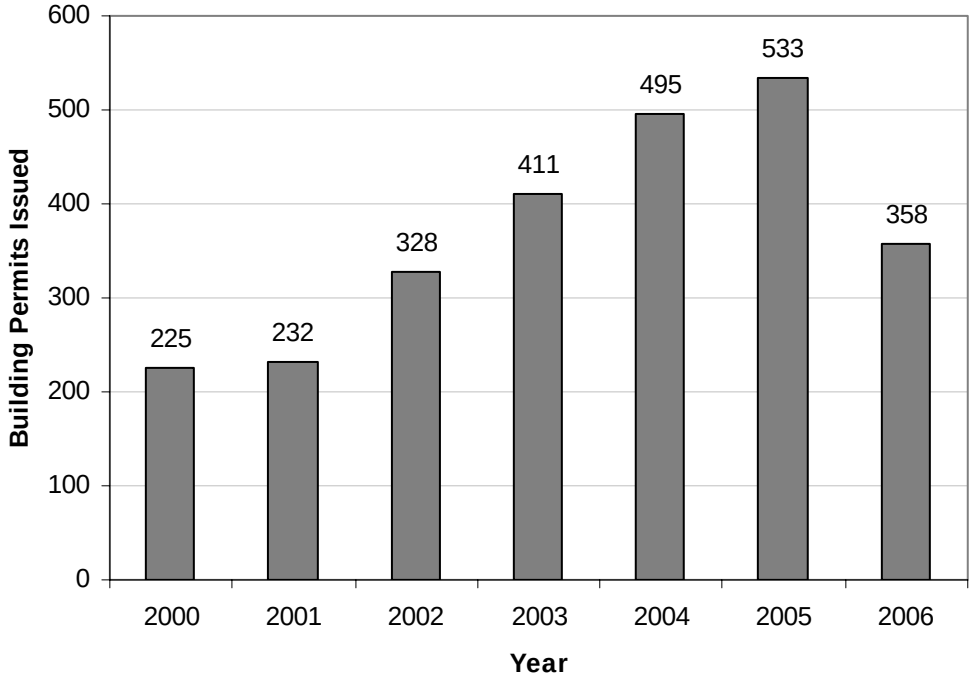
[6] *See* Oregon Department of Motor Vehicles, "Driver Issuance Statistics," http://www.oregon.gov/ODOT/DMV/news/driver_stats.shtml, accessed April 19, 2007.

[7] For a discussion of the DMV data, *see* Ayre, A, 2004, *People Moved to Oregon Despite Recession*, Oregon Employment Department, July.

[8] State of Oregon, Employment Department. 1999. *1999 Oregon In-migration Study*.

Figure 6.40.1 shows all residential building permits issued by the City of Grants Pass between 2000 and 2006 within the Urban Growth Boundary. The City issued a total of 2,582 residential permits during the seven-year period. The number of building permits issued peaked in 2004 and 2005. The average number of permits issued annually was 368. The U.S. Census database of building permit activity shows that Grants Pass issued an average of about 235 permits annually during the 1990's. The increase in the number of building permits issued annually since 2002 suggests an increase in development activity in Grants Pass.

FIGURE 6.40.1
DWELLING UNITS APPROVED THROUGH BUILDING PERMITS ISSUED FOR NEW RESIDENTIAL CONSTRUCTION,
Grants Pass UGB, 2000 to 2006



Source: City of Grants Pass, 2007

An indicator of future development activity is subdivision of land into residential lots. Subdivision of land and creation of residential lots does not guarantee immediate development of a dwelling unit but increases the likelihood of residential development on the subdivided land. Table 6.40.2 shows the number of subdivisions in the final plat process and the number of lots created annually between 2000 and 2006. Grants Pass had 109 subdivisions and more than 2,000 lots created during the seven-year period. The number of subdivisions platted and lots created peaked in 2005 and 2006. The increased number of subdivisions and lots created suggest that developers are likely to continue developing residential units in Grants Pass.

TABLE 6.40.2
SUBDIVISIONS IN THE FINAL PLAT PROCESS ANDLOT CREATION,
City of Grants Pass, 2000 to 2006

Year	Number of subdivisions	Number of lots created
2000	5	113
2001	9	195
2002	10	166
2003	14	329
2004	23	327
2005	29	487
2006	19	386
Total	109	2,003
Average	16	286

Source: City of Grants Pass, 2007

6.50 HISTORIC POPULATION CHANGE AND DEMOGRAPHIC CHARACTERISTICS

This section discusses long-term historical population changes in Grants Pass from 1960 to 2006. It also discusses changes in the demographic characteristics of Grant Pass' population, comparing the City to Josephine County and Oregon where appropriate.

Table 6.50.1 shows population change within the city-limits of Grants Pass from 1960 to 2006. Grants Pass' population more than doubled between 1960 and 2006, growing by 20,812 residents at an average annual rate of 2.46%. Grants Pass grew at an average annual rate of 2.81% between 1980 and 2006, faster than the County average.

The share of population in Grants Pass has varied from about one-third of the County population in 1970, dropping to about one-quarter of the County population in 1980. By 2006, more than one-third of the County's population lived within the city limits of Grants Pass.

TABLE 6.50.1
POPULATION CHANGE
Grants Pass city-limits, 1960-2006

Year	Population	Pop. Change	Percent Change	Percent of County Pop.
1960	10,118	--	--	34%
1970	12,455	2,337	23%	35%
1980	15,032	2,577	21%	26%
1990	17,488	2,456	16%	28%
2000	23,003	5,515	32%	30%
2006	30,930	7,927	34%	38%
Average Annual Growth Rates				
1960 to 2006	2.46%			
1980 to 2006	2.81%			
1990 to 2006	3.63%			

Source: Portland State University Center for Population Research; Calculations by ECONorthwest.

Between 1990 and 2006, annexations added more than 4,600 persons to the City of Grants Pass.[9] Excluding population growth from annexations, the average annual growth rate for Grants Pass between 1990 and 2006 was 2.6%. More than 95% of 4,600 people annexed into the City were brought in between 2000 to 2006. Excluding population growth from annexations, the average annual growth rate for Grants Pass between 2000 and 2006 was 2.42%.

6.51 Demographic characteristics

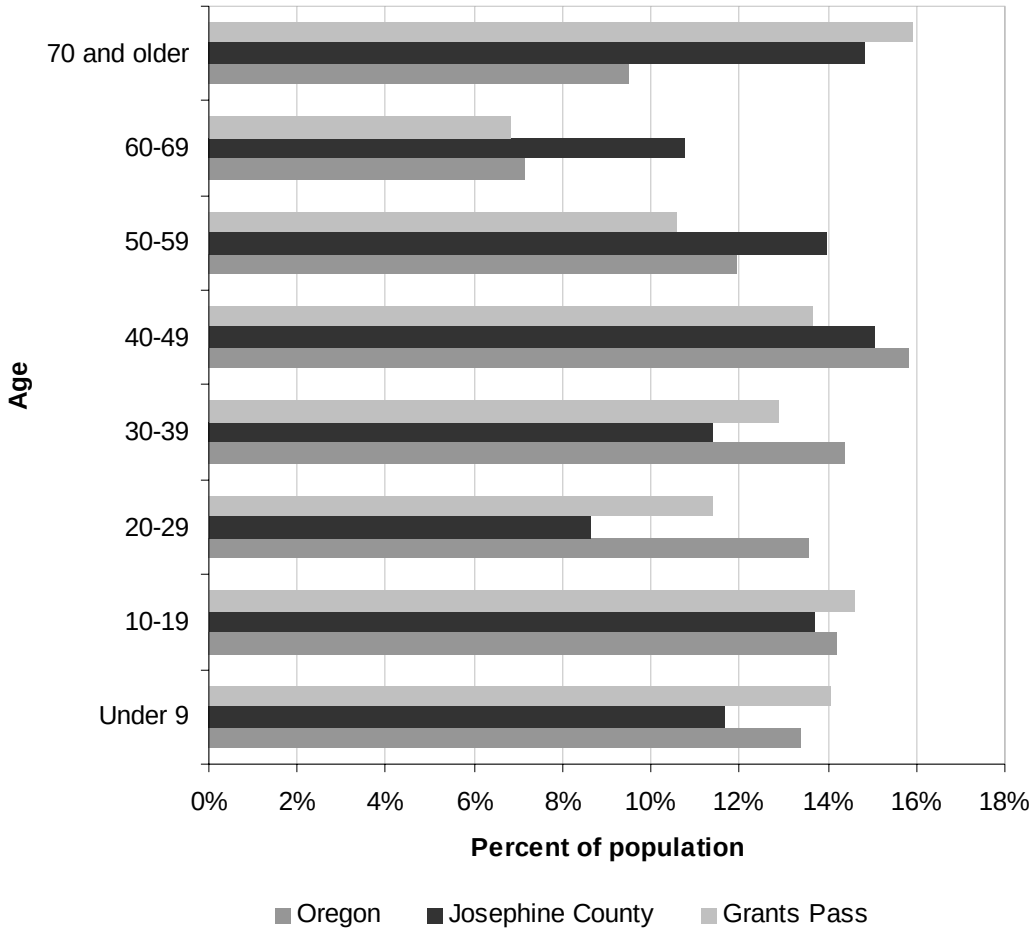
Demographic characteristics provide a broader context for growth; factors such as age, household composition, ethnicity, and migration show how communities have grown and shape future growth. To provide context, Grants Pass is compared to Josephine County and Oregon where appropriate.[10]

Figure 6.50.1 shows the age distribution of Grants Pass compared with Oregon and Josephine County in 2000. Grants Pass and Josephine County had a smaller share of population aged 20 to 59 than the state average. Grants Pass had a larger share of residents aged 20 to 39 years than the County average. Grants Pass had a larger share of residents under 19 years and 70 years and older than Josephine County or Oregon. These trends suggest that Grants Pass attracted retirees and families with children.

[9] PSU's information about annexations prior to 2002 seems to be incomplete, possibly resulting in an under reporting of the number of people annexed by Grants Pass.

[10] For a discussion of economic characteristics and employment growth in Grants Pass, please refer to the Economic Element (Chapter 8) of Grants Pass' comprehensive plan.

FIGURE 6.50.1
AGE DISTRIBUTION,
Oregon, Josephine County, and Grants Pass, 2000



Source: U.S. Census, 2000

During the 1990's Grants Pass experienced changes in the age structure of its residents. Table 6.50.2 shows population by age for Grants Pass for 1990 and 2000. Grants Pass grew by more than 5,500 people during the ten year period. While Grants Pass experienced an increase in population for every age group, the fastest growing groups were 45 to 64 years and 5 to 17 years. The slowest growing group was 65 years and older.

TABLE 6.50.2
POPULATION BY AGE,
Grants Pass, 1990 and 2000

	1990		2000		Change		
Age Group	Number	Percent	Number	Percent	Number	Percent	Share
Under 5	1,257	7%	1,613	7%	356	28%	0%
5-17	3,087	18%	4,377	19%	1,290	42%	1%
18-24	1,406	8%	1,872	8%	466	33%	0%
25-44	4,902	28%	5,917	26%	1,015	21%	-2%
45-64	2,995	17%	4,760	21%	1,765	59%	4%
65 and over	3,841	22%	4,464	19%	623	16%	-3%
Total	17,488	100%	23,003	100%	5,515	32%	0%

Source: U.S. Census, 1990 and 2000

The Census data suggest that Grants Pass attracted recent retirees or people nearing retirement and families with older children. This suggests that Grants Pass is attractive to families and retirees. This may be due, in part, to differential housing costs between California and Grants Pass.

The age structure of residents of Grants Pass is likely to get older as the baby-boomers age, following State and national trends. According to the OEA's forecast of population growth by age group in Josephine County, nearly half of population growth will be in people aged 65 and over between 2000 and 2025, with this age group accounting for about one-third of population growth between 2025 and 2040. The OEA forecasts that growth in people under 19 years will account for 9% of population growth between 2000 and 2040. Assuming that the demographics of Grants Pass residents change is similar to Josephine County, the City can expect to have a growing number or retirees, especially through 2025.

Table 6.50.3 shows household composition for Oregon, Josephine County, and Grants Pass. Grants Pass households show the following characteristics when compared with Josephine County and the State:

- Grants Pass had fewer people per household, with an average household size of 2.36 people, compared to the County average of 2.41 and State average of 2.51 people per household.
- Grants Pass had a larger share of households with children (32%) compared with Josephine County (27%) and Oregon (31%). Grants Pass also had a larger share of female householders with children and no husband, 9% compared with the County and State averages of 6%.
- Grants Pass had a smaller share of households with married couples, with and without children, than the State and County averages.
- Grants Pass had a larger share of non-family households (36%) than the County average (30%) or State average (34%).

TABLE 6.50.3
HOUSEHOLD COMPOSITION
Oregon, Josephine County, and Grants Pass, 2000

	Oregon		Josephine County		Grants Pass	
Household Type	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Households with children	**410,803**	**31%**	**8,454**	**27%**	**3,003**	**32%**
Married couples	296,404	22%	5,929	19%	1,980	21%
Female householder, no husband present	83,131	6%	1,929	6%	865	9%
Other families	31,268	2%	596	2%	158	2%
Households without children	**922,920**	**69%**	**22,573**	**73%**	**6,442**	**68%**
Married couples	396,128	30%	11,458	37%	2,393	25%
Other families	70,740	5%	1,657	5%	628	7%
Nonfamilies	456,052	34%	9,458	30%	3,421	36%
Total Households	**1,333,723**	**100%**	**31,027**	**100%**	**9,445**	**100%**
Average Household Size	2.51		2.41		2.36	
Average Family Size	3.02		2.85		2.94	

Source: U.S. Census, 2000

Table 6.50.4 shows the number of persons of Hispanic or Latino origin in Oregon, Josephine County, and Grants Pass for 1990 and 2000. The Census data show that Grants Pass had a larger share of Hispanic population (5.4%) compared to the County (4.3%) but a smaller share compared to the State (8.0%). Grants Pass Hispanic population grew from 494 residents in 1990 to 1,236 residents in 2000, an increase of 742 people or 150%.

The Hispanic population grew faster in Grants Pass than the overall population, which is similar to State trends. National demographic trends suggest that this trend will continue in Grants Pass. By 2050, the Census forecasts that Hispanics will account for 24% of the population nationwide.

TABLE 6.50.4
PERSONS OF HISPANIC OR LATINO ORIGIN
Oregon, Josephine County, and Grants Pass, 1990 and 2000

	Oregon	Josephine County	Grants Pass
1990			
Total Population	2,842,321	62,649	17,488
Hispanic or Latino	112,707	1,749	494
Percent Hispanic or Latino	4.0%	2.8%	2.8%
2000			
Total Population	3,421,399	75,726	22,865
Hispanic or Latino	275,314	3,229	1,236
Percent Hispanic or Latino	8.0%	4.3%	5.4%
Change 1900-2000			
Hispanic or Latino	162,607	1,480	742
Percent Hispanic or Latino	144%	85%	150%

Source: U.S. Census, 1990 and 2000

Richard Bjelland, State Housing Analyst at the Housing and Community Services Department of the State of Oregon, analyzed recent demographic changes taking place in Oregon and discussed their implications in a 2006 presentation "Changing Demographics: Impacts to Oregon and the US." Bjelland's findings with the most significant implications for population growth are summarized below:

- Oregon's **minority population is growing** quickly. Minorities made up 9.2% of the population in 1990 and 16.4% of the population in 2000, a 52% increase.

- **Hispanics and Latinos make up a large share of that population** and their growth rate is higher than non-Hispanics/ Latinos. The growth rate of Oregon's non-Hispanic/ Latino population between 1990 and 2000 was 15.3% compared to 144.3% for Hispanics and Latinos.

- The **birth rates** of Hispanic/ Latino residents are higher than non-Hispanic/ Latino residents. In 1998, for the US, white non-Hispanic/ Latino residents had a birth rate of 12.3 per 1,000, lower than Asians and Pacific Islanders (16.4 per 1,000), black non-Hispanics (18.2 per 1,000) and Hispanic/ Latino (24.3 per 1,000).

- The share of resident births and deaths in Oregon shows the implications of that birthrate: Hispanic/ Latino residents accounted for 17.4% of births but only 1.4% of deaths in Oregon for 2001. In addition, **Hispanic/ Latino Oregonians are younger than non-Hispanic/ Latino residents**: in 2000, 75.9% of Hispanic/ Latino residents of Oregon are under age 35, compared to 45.7% of non-Hispanic/ Latino residents.

Table 6.50.4 shows race for Oregon, Josephine County, and Grants Pass in 2000. Grants Pass and Josephine County were less racially diverse than Oregon, which had less racial diversity than the nation. About 93% of Grants Pass' residents were white, compared to 87% of Oregon's residents and 75% of U.S. residents. Less than 0.3% of Grants Pass where black or African American, compared to 2% of Oregon's residents and 12% of U.S. residents.

TABLE 6.50.4
RACE
Oregon, Josephine County, and Grants Pass, 2000

	Oregon		Josephine County		Grants Pass	
Race	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
White	2,961,623	87%	71,103	94%	21,386	93%
Black or African American	55,662	2%	202	0%	76	0%
American Indian & Alaska Native	45,211	1%	949	1%	251	1%
Asian	101,350	3%	476	1%	226	1%
Native Hawaiian & Other Pacific Islander	7,976	0%	83	0%	27	0%
Some other race	144,832	4%	883	1%	375	2%
Two or more races	104,745	3%	2,030	3%	662	3%
Total	**3,421,399**	**100%**	**75,726**	**100%**	**23,003**	**100%**

Source: U.S. Census, 2000

The Census collects information about migration patterns. Specifically, it asks households where their residence was in 1995 (5 years prior to the Census count). Table 6.50.6 shows the place of residence in 1995 for Oregon, Josephine County, and Grants Pass. Table 6.50.6 shows that residents of Grants Pass were more mobile than the County or State averages. Residents of Grants Pass in 2000 were more likely to have lived in a different state in 1995. Sixty-percent of Grants Pass residents lived in a different house in 1995, compared with 49% of Josephine County residents and 53% of Oregon residents. Seventeen percent of Grants Pass residents lived in a different state in 1995, compared with 15% of Josephine County and 12% of Oregon residents.

TABLE 6.50.6
PLACE OF RESIDENCE IN 1995
Oregon, Josephine County, and Grants Pass,
Persons 5 years and over

	Oregon		Josephine County		Grants Pass	
Location	**Persons**	**Percent**	**Persons**	**Percent**	**Persons**	**Percent**
Population 5 years and older	3,199,323	100%	71,725	100%	21,283	100%
Same house in 1995	1,496,938	47%	36,636	51%	8,570	40%
Different house in 1995:	1,702,385	53%	35,089	49%	12,713	60%
Same county	863,070	27%	18,814	26%	7,087	33%
Different county:	755,954	24%	15,946	22%	5,531	26%
Same state	356,626	11%	5,207	7%	1,865	9%
Different state	399,328	12%	10,739	15%	3,666	17%

Source: U.S. Census, 2000

6.60 POPULATION FORECASTS

Forecasting population for the Grants Pass UGB required development of (1) a base population estimate for the UGB and (2) annual population growth rate assumptions. This section presents the methods and assumptions used to develop these components of the forecast and the population forecast based on these assumptions for the Grants Pass UGB from 2006 to 2060.

6.61 Base population estimate

Data about population change in Grants Pass city limits is available from the Population Research Center at Portland State University on an annual basis. Data about population living within the Urban Area within the UGB but outside of the city limits is less readily available. The base population estimate for the UGB presented in this section is based on information from the following sources: the City of Grants Pass, PSU, and the 2000 Census.

Figure 6.40.1 shows the number of new dwelling units permitted within the Grants Pass UGB between 2000 to 2006. Based on building permit data, it appears that the PSU estimates of population within the city limits of Grants Pass from 2001 to 2006 have been consistently low. Permits for 2,572 new dwelling units, excluding group quarters, were issued in within the UGB between 2000 and 2006.

Table 6.60.1 shows an estimate of the new population in the Grants Pass UGB living in the dwelling units. The number of new dwelling units was reduced by the number of demolitions of existing dwelling units. The average household size and occupancy rate assumptions are based on 2000 Census data. Table 6.60.1 shows that the Grants Pass UGB population increased by an estimated 5,375 residents since 2000.

TABLE 6.60.1
ESTIMATE OF NEW POPULATION BASED ON NEW DWELLING UNITS
Grants Pass UGB, 2000-2006

	Grants Pass UGB
New Units	2,572
Demolitions	160
HH size	2.34
Occupancy	95%
New Population	**5,375**

Source: City of Grants Pass; U.S. Census; Calculations by ECONorthwest

Table 6.60.2 shows a comparison of population estimates for the Grants Pass UGB. The information in Table 6.60.2 includes the following rows:

- **2000 Census.** The City of Grants Pass developed the 2000 estimate of the population within the UGB by matching 2000 Census Block data with the UGB boundaries and aggregating population within these blocks.
- **2007 Estimate.** The 2007 estimates were developed by adding the 2000 Census population to the new population shown in Table 6.60.1. Based on this information, the Grants Pass UGB is estimated to have 37,460 people. This estimate serves as the base population for the forecast for the Grants Pass UGB.
- **2006 Estimate: PSU estimate and Grants Pass UGB estimate.** The 2006 Grants Pass UGB estimate is based on PSU's July 1, 2006 estimate for Grants Pass city limits (30,930 people) and a 2006 staff analysis of population located in the Urbanizing Area (UA), which is the area within the UGB but outside City limits (3,223 people).
- **Increase of 2006 estimate.** This shows the difference in population in the "2007 Estimate" from the "2006 Estimate."

TABLE 6.60.2
COMPARISON OF POPULATION ESTIMATES,
Grants Pass UGB and city limits, 2007

	Grants Pass UGB	Grants Pass city limits
2000 Census	32,085	23,003
2007 Estimate	37,460	34,237
2006 Estimate	34,153	30,930
Increase over PSU est.	3,307	3,307

Source: U.S. Census; Population Research Center; ECONorthwest, City of Grants Pass

6.62 Growth rate assumptions

The forecast uses two growth rate assumptions: one for the period 2007-2027 and the other for the 2027 to 2060 period. This section presents the rationale for the growth rate assumptions.

The assumed growth rate for Grants Pass between 2007 to 2027 is 2.2% average annual growth. This growth rate is based on the assumption that the future will be similar to the past and the following trends:

- **Population growth.** Grants Pass grew at an average annual rate of 3.6% between 1990 and 2006. Excluding population increases resulting from annexations, the City grew by an average annual rate of 2.6% between 1990 and 2006. Both of these growth rate assumptions are higher than the forecast of 2.2% average annual growth. The 2.2% annual growth rate may be a conservative forecast but it is reasonable to expect a decline in the average annual rate of population growth as population increases because a larger population base requires a larger increase in the *number* of people in the City to achieve the same *rate* of increase.
- **Recent development trends.** Since 2000, Grants Pass has issued building permits for an average of 367 dwelling units annually. The number of permits issued annually and lots created through subdivision has increased since 2002 peaking in 2005 and declining in 2006. These development trends do not include group quarters, such as retirement communities or nursing homes. However, the City has experienced an increase in development of group quarters, as well as other residential units.
- **Demographic changes.** Grants Pass has a larger share of retirees and families with children than the County and State averages. These trends suggest that Grants Pass is attracting retirees and families with children. In addition, Grants Pass has become more ethnically diverse since 2000, attracting an increasing number of Hispanic residents. National trends suggest that this trend will continue.
- **Migration.** About 70% of Oregon's population growth between 1990 and 2006 resulted from in-migration. All population growth in Southern Oregon and Josephine County between 2000 and 2006 was the result of migration.

The assumed growth rate for Grants Pass between 2027 and 2060 is 1.05%, which is the same as OEA's forecast for population growth in Josephine County between 2030 and 2040.

6.63 Population forecast

Table 6.60.3 presents the population forecast for the Grants Pass UGB between 2006 and 2060. Table 6.60.3 shows that the Grants Pass UGB will grow from 37,460 people in 2007 to 57,888 people in 2027, an increase of 20,428 people at an average annual growth rate of 2.2%. Between 2007 to 2057, the forecast projects that the Grants Pass UGB will grow to 79,275 people, an increase of 41,815 people at an average annual growth rate of 1.51% over the 50-year period.

TABLE 6.60.3
POPULATION FORECAST
Grants Pass UGB, 2007-2060

Year	Population
2006	34,153
2007	37,460
2010	39,987
2015	44,584
2020	49,708
2025	55,422
2027	57,888
2030	59,737
2035	62,951
2040	66,337
2045	69,906
2050	73,667
2055	77,631
2057	79,275
2060	81,807
Change 2007 to 2027	
Number	20,428
Percent	55%
AAGR	2.20%
Change 2007 to 2057	
Number	41,815
Percent	112%
AAGR	1.51%

Source: ECONorthwest

6.70 POPULATION ELEMENT FINDINGS

This section summarizes the findings in support the Grants Pass UGB population forecast. The following are key findings identified through analyzing historic population and demographic trend data and through developing population forecasts for the City of Grants Pass.

1. Josephine County experienced substantial population growth between 1980 and 2006. Josephine County grew from 58,855 people in 1980 to 81,125 people in 2006, an increase of more than 22,000 people at an average annual growth rate of 1.29%. Over the twenty-six year period, Josephine County grew at approximately the same rate as the State average.
2. The State projects that Josephine County will continue growing but at a lower rate than the historic average. The State forecast for population growth in Josephine County projects that the County will grow from 76,050 people in 2000 to 117,216 people in 2040, an increase of 41,166 people at an average annual growth rate of 1.09%. Extending the State's forecast for population growth in Josephine County out to 2060 based on an average annual growth rate of 1.05%, Josephine County can be expected to grow to about 144,500 people, an increase of about 64,600 people between 2005 and 2060.
3. The majority of population growth in Josephine County occurred in Grants Pass. Population within the Grants Pass city limits grew from 15,032 residents in 1980 to 30,930 residents in 2006, an increase of 15,898 people at an average annual rate of 2.81%.
4. Grants Pass experienced faster population growth than the County average. Grants Pass' population more than doubled between 1960 and 2006, growing by 20,812 residents at an average annual rate of 2.46%. Grants Pass grew at an average annual rate of 2.81% between 1980 and 2006, faster than the County average. Excluding population growth from annexations, the average annual growth rate for Grants Pass between 1990 and 2006 was 2.6%.
5. Migration was the largest source of population growth in Oregon and Josephine County. For the 1990 to 2006 period, about 70% of population growth in Oregon resulted from net migration. All population growth in Josephine County between 2000 to 2006 was the result of net migration because Josephine County experienced negative population growth from natural causes, with about 1,500 more deaths than births during this period. In addition, Census data show that residents of Grants Pass were more likely to have lived in a different state in 1995 compared with the County and State averages.
6. The City issued permits in the Urban Growth Boundary for a total of 2,572 dwelling units between 2000 and 2006, averaging 367 permits issued annually.
7. Residential subdivision activity suggests that residential development is likely to continue in Grants Pass. Between 2000 and 2006, Grants Pass had 109 subdivisions and more than 2,000 lots created in the Urban Growth Boundary. The number of subdivisions platted and lots created peaked in 2005 and 2006.

8. Grants Pass is attracting retirees or near retirees and families with children. Grants Pass has a larger share of residents under 19 years and 70 years and older than Josephine County or Oregon. During the 1990's the fastest growing groups were 45 to 64 years and 5 to 17 years. The slowest growing group was 65 years and older. According to the OEA's forecast of population growth by age group in Josephine County, nearly half of population growth will be in people aged 65 and over between 2000 and 2025, with age group accounting for about one-third of population growth between 2025 and 2040. Assuming that the demographics of Grants Pass residents change is similar to Josephine County, the City can expect to have a growing number or retirees, especially through 2025.

9. Grants Pass has a smaller average household size (2.36) compared to the County (2.41) or State (2.51) averages. Grants Pass has a larger share of households with children (32%) compared with Josephine County (27%) and Oregon (31%). Grants Pass has a larger share of non-family households (36%) than the County average (30%) or State average (34%). National trends suggest that Grants Pass may see small decreases in household size.

10. Grants Pass is becoming more ethnically diverse. Grants Pass Hispanic population grew from 494 residents in 1990 to 1,236 residents in 2000, an increase of 742 people or 150%. In 2000, Grants Pass had a lower share Hispanic residents (5.4%) compared to the State average (8.0%) but higher than Josephine County's average (4.3%). National trends suggest that Grants Pass will continue to become more ethnically diverse.

11. Grants Pass and Josephine County was less racially diverse than Oregon, which had less racial diversity than the nation. In 2000, about 93% of Grants Pass' residents were white, compared to 87% of Oregon's residents and 75% of U.S. residents. Less than 0.3% of Grants Pass where black or African American, compared to 2% of Oregon's residents and 12% of U.S. residents.

12. The key assumptions used to develop the population forecast for the Grants Pass UGB were the base population of the UGB and growth rate assumptions. The base population used in this forecast for the Grants Pass UGB was 37,460 people in 2007. The growth rate assumption for population growth over the 2007 to 2027 period was 2.2%. This rate was based on historic population growth, recent development trends, demographic changes, and migration trends. The growth rate assumption for the forecast for 2027 to 2060 was 1.05%, which is the OEA's forecast for population growth in Josephine County between 2030 and 2040.

13. The forecast for population growth in the Grants Pass UGB projects that population in the UGB will grow from 37,460 people in 2007 to 57,888 people in 2027, an increase of 20,428 people at an average annual growth rate of 2.2%. Between 2007 to 2057, the forecast projects that the Grants Pass UGB will grow to 79,275 people, an increase of 41,815 people at an average annual growth rate of 1.51% over the 50-year period.

7.00 RECREATION, PARKS AND OPEN SPACE INDEX

7.10 PURPOSE

7.20 HISTORICAL PERSPECTIVE

1960 Park Plan and Inventory

- Planning Study Area
- Park Standards and Park Types
    1. Play Lot
    2. Neighborhood Playground
    3. Neighborhood Park
    4. Playfield
    5. Community Park
    6. Reservation
    7. Community Recreation Building
- Park Inventory
- Park Plan
    1. Highland School
    2. Lincoln Area
    3. Fruitdale Area
    4. Harbeck Area
    5. Redwood Area
    6. New School - Park Sites
    7. Forest Parks
    8. River Frontage Parks

1967 County Parks Plan

1969 General Plan

- Planning Study Area
- Park Standards
- Park Types
    1. Neighborhood- School Parks
    2. Special Parks
    3. Gilbert Creek
    4. River Parks
    5. Fairgrounds
    6. Sexton Dam
    7. Goals and Objectives
    8. General Principles
    9. Recommendations

1980 City Park Inventory

7.30 PARKS AND RECREATION

Existing Recreation Programs

- City of Grants Pass
- Josephine County
- State of Oregon
- Federal Government
- Private

Existing Recreational Demand

- Increasing Local Use
- Statewide Comprehensive Outdoor Recreation Plan
- Attitude Survey

Existing Recreation and Park Facilities

- City of Grants Pass
- School Districts
- Josephine County
- Private

Future Recreation and Park Needs

- Needs Analysis
- Ten Year Park Plan
- Capital Improvement Program

7.40 OPEN SPACE NETWORK

- Open Space Functions
- Greenways and Trails
    1. Creeks
    2. Canals
    3. Pedestrian/Equestrian
    4. Bike Paths
- Existing Open Space and the Open Space Network

7.50 ACQUISITION, EASEMENTS AND DEDICATIONS

- Acquisition
- Easements
- Dedications

7.60 URBAN SERVICE POLICIES AND MANAGEMENT AGREEMENT

- Urban Service Policies
- Management Agreement
- Park Plan

7.70 FINDINGS

RECREATION, PARKS & OPEN SPACE ELEMENT

7.10 PURPOSE

The primary purpose of the Element is to determine the recreation, park and open space need of that area within the Grants Pass Urban Growth Boundary by the year 2000. Existing facilities, existing facility usage, and program participant opinion are used as a basis for projecting future need, as well as federal and state standards and standards of other cities. The element further examines the role of the City of Grants Pass, Grant Pass School District No. 7, Josephine County School District No. 23, and Josephine County in providing for the recreation and open space needs of the present and future population of the area. A goal is determined, and policies and procedures necessary to implement the goal are enumerated, incorporating previous City and County policies as stated in the Urban Service Policies and Management Agreement. Provision is made for the preparation of a parks and Open Space Plan to be used by each jurisdiction in determining site specific needs and meeting these service needs throughout the planning period.

7.20 HISTORICAL PERSPECTIVE

1960 Park Plan and Inventory

The City of Grants Pass began supervised public recreation activities in 1952, and hired a full time Parks and Recreation Director in 1953. In 1960, the City, Josephine County, and the U.S. Housing and Home Finance Agency jointly funded a recreation planning document, *Planning for Recreation Areas, Grants Pass and Vicinity*, prepared by the Bureau of Municipal Research and service, University of Oregon. This 1960 Park Plan inventoried existing recreation facilities and acreage, determined types of recreation areas, set standards for recreation areas and facilities development, and located potential river-front, residential and community parks.

Planning Study Area

The 1960 Plan utilized a planning area very similar to the City's 1979 Urban Growth Boundary, and estimated a target population of 36,000 persons, the same as the 1979 UGB target, and close to the present target range of 38,300 to 44,750 persons. (See Map 7.20.1)

Park Standards and Park Types

The 1960 Plan identified general standards for park and recreation space set by the National Recreation Association, as follows, and as shown in Table 7.20.2.

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> "one acre of land in recreation use for every 100 persons. Half of this area should be for 'active' recreation -- playfields and playgrounds, and half for casual or passive recreation. Also, half of this area should be devoted to neighborhood parks and half to larger community parks. ...Large regional facilities (see Reservations below) have as desirable minimum standard...two acres for every 100 persons."

MAP 7.20.1
1960 Park Plan Study Area

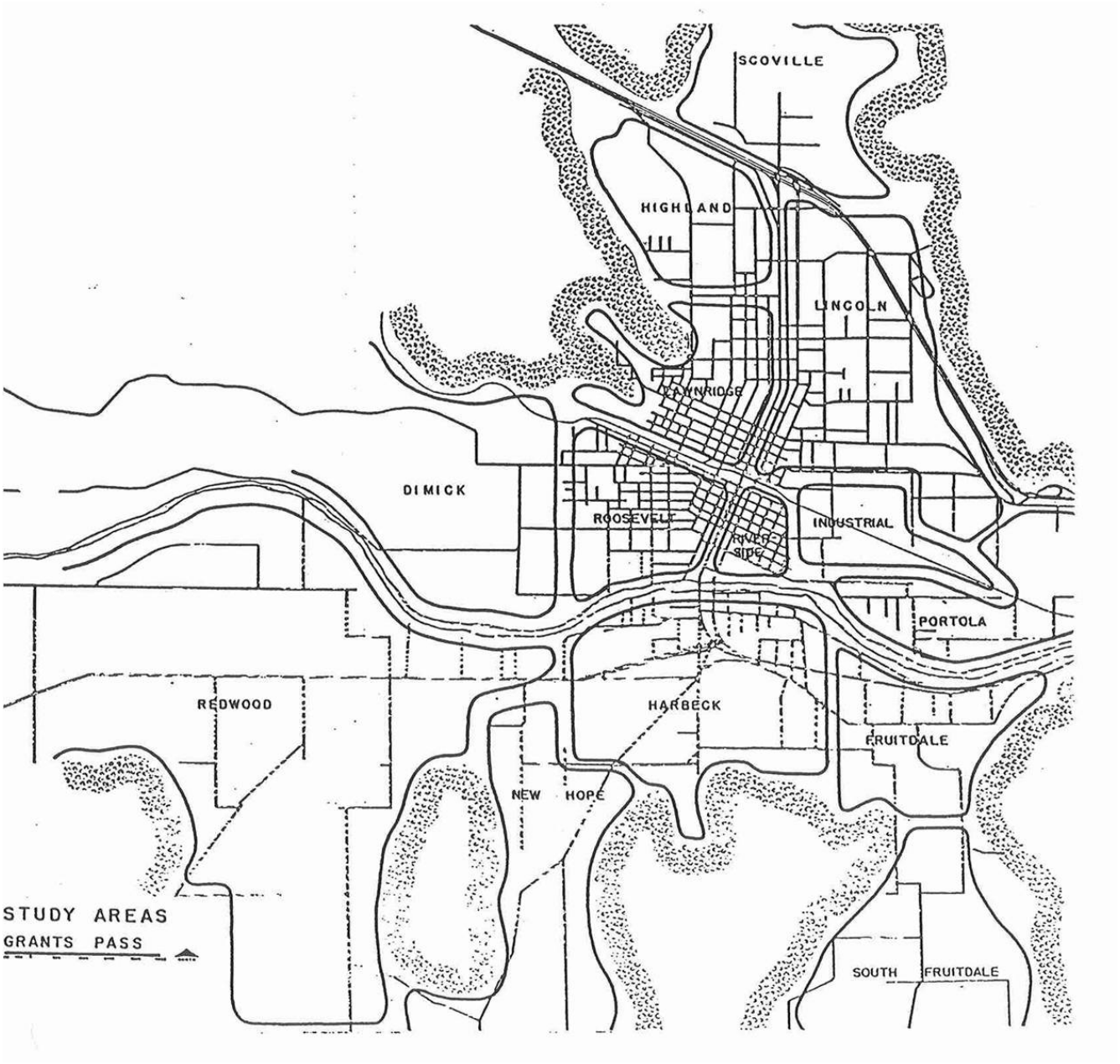


TABLE 7.20.2
Standards for Recreation Facilities

Facility	Population Standards	Site Standard (Size)
Playground	1 acre per 800 population	3 - 6 acres
Local Park	1 acre per 1,000 population	2 or more acres
Playfield	1 acre per 800 population	10 - 30 acres

The 1960 plan identified six types of parks:

Playlot - A small area designed for preschool children, ordinarily located as part of a larger recreation area. Contains sand, and small-scale apparatus, and is shaded and separated from other facilities by fencing or landscaping.

Neighborhood Playground - Designed for elementary age children, equipped with swings, slides and apparatus, field and court games, and including both open turfed areas and shaded areas. Also indicated were wading pool and shelter house. Location recommended within 1/2 mile of every home, adjacent to school and avoiding heavily traveled streets, and sized from three to five acres.

Neighborhood Park - Landscaped, open area designed for passive recreation, taking advantage of some natural terrain feature such as hill, gully or stream, and perhaps developed as a buffer between the neighborhood playground and residences. Size recommended at two to six acres, or one to two city blocks.

Playfield - Larger specialized facility, designed for organized team sports, serving older youth and adults. Central location with arterial street access recommended, in conjunction with junior and senior high school. No size given.

Community Park - Large park, developed around natural feature such as river or wooded area. Location and size depend upon local feature location and property availability.

Reservation - Large area retained in its natural state, with development limited to access roads, foot paths, bridle trails, picnicking and camping. Perhaps most appropriate at county, state or federal level.

Community Recreation Building - Provides facilities for indoor sports, club meetings, classes. School buildings could be used.

The 1960 Plan notes that the general and specific standards must be tempered by the situation. Single family housing on large lots would have less need for public recreation area of certain types than would high density neighborhoods. Further, in built-up areas of the city lacking parks, any opportunity to acquire land for recreation purposes should be pursued.

Park Inventory

As mentioned by the 1960 Plan, the city had 29.1 acres of facilities, while the school district had 32.8 acres of facilities within the city, for a total of 61.9 acres within the city, not all of which was developed. With a population of 10,118 persons, the city's ration of recreation acres to population was one acre per every 163 persons, or 6.1 acres per thousand, and would have required the city to acquire an additional 39 acres of recreation land. (See table 7.20.3)

TABLE 7.20.3
1960 Park Plan Inventory

Name	Total Acres	Acres in Playground	Acres in Playfield	Acres in Park	Acres in Special Use	Facilities
City Facilities						
Lawnridge Park	1.4	1.4				Tennis court, basketball, equipped play area, turfed open area
Hillside Park	0.9			0.9		Unimproved
Washington Blvd. Park	0.3				0.3	Parkway, trees, lawn
Westholm Park	1.0			1.0		Undeveloped, future park
Hi-teen Building	0.7				0.7	Recreation building
City Park	23.5	1.0	4.0	17.5	1.0	
Rose Garden	0.3			0.3		
Caveman Pool	1.0		1.0			
Total City Facilities	**29.1**	**2.4**	**5.0**	**19.7**	**2.0**	
County Facilities						
Chinook Park	5.3					Boat access
Climate Park	0.4					Riverside picnic area, river access
Tussing Park	1.2					River access
Schroeder Park	4.9					Picnic and camping facilities, boat access
County Fairgrounds	37.0					4-H clubhouse, stable, riding facilities, ½ mile race track, covered arena
Total County	**49.7**					

Facilties						
School Inventory - Inside City						
Lincoln Elementary	9.5	9.5				Partially developed
Washington Elementary	0.8	0.8				Gravel surface and equipment
Roosevelt Elementary	2.5	2.5				Partially developed
Riverside Elementary	2.0	2.0				Partially developed
High and Jr. High	18.		18.0			Football field and stadium, track, baseball, and other field sports, girls' and boys' gyms
Total School - Inside City	32.8	14.8	18.0			
School Inventory - Outside City						
Fruitdale Elementary	5.0	5.0				Partially developed
Redwood Elementary	8.0	8.0				Partially developed
South Junior High	9.0	1.0	8.0			Partially developed
Highland Elementary	8.0	8.0				Partially developed
Total School - Outside City	**30.**	**22.0**	**8.0**			

TOTAL PARK FACILITY INVENTORY	
Public Recreation Land	**Acres**
Inside City	
City parks and recreation land	29.1
School recreation land	32.8
Subtotal	61.9
Outside City	
County parks and recreation land	49.7
School recreation land	30.0
Subtotal	79.7
Privately Owned	
Golf course	62.0

Rogue Rod and Gun Club	31.0
Subtotal	93.0
TOTAL	**234.6**

Additional recreation facilities were provided in or near the study area by the county (49.7 acres), the school district (30.0 acres) and privately owned facilities (93.0 acres), for a planning area total of 234.6 acres. At the stated standard, and for a target population of 36,000 persons, the study area would require a total of 360 acres, or an additional 125 acres.

Park Plan

The city was deficient in park space, according to the standard set, and the 1960 Plan went on to call for additional park space in Wards I and IV and in the Fruitdale and Redwood areas (see Map 7.20.4).

Highland School - (Ward I) Proposed neighborhood playground north of Midland Avenue at intersection with Gilbert Creek, connected to Highland School by a neighborhood park (scenic) extending along Gilbert Creek, and extending south of Midland between Gilbert Creek and Prospect Avenue. While this proposal was not accomplished, the city did develop 8.72 acres directly behind Highland School and fronting on Hawthorne and containing playfield, Gilbert Creek, tennis courts, ballfield, a small recreation building and parking. The property remains in School District No. 7 ownership under a long term lease. Gilbert Creek remains open and in private hands along the proposed parkway.

Lincoln Area - (Ward II) Proposed improving Memorial Park Cemetery as a historical landmark, being adjacent to Lincoln Elementary School. Proposal not complete.

Roosevelt School - (Ward IV) Proposed three possible sites: Purchase of three to four acres site adjacent to Roosevelt School containing four homes, acquire five acres one block southeast from the federal government, and develop a city owned site, Westholm Park.

Fruitdale Area - Proposed four to five acre addition to Fruitdale Elementary School, developed as playlot, playground and landscaped park. Proposal not accomplished.

Harbeck Area - Proposed 25 to 30 acre community park south of South Junior High as a park and playfield complex across East Harbeck Road from the school. Proposal not accomplished.

Redwood Area - Proposed two to three acre site immediately south of Redwood School.

New School - Park Sites - Proposed park or playground development together with new school sites, as follows: Elementary schools in Portola and Foothill areas and in the New Hope and Harbeck areas and a junior high school in the Foothill area.

The Portola area elementary school was developed (Riverside School), and subsequently Eckstein Park was developed adjoining the school, containing soccer, tennis, ballfield, picnic, restrooms and shelter.

The New Hope School was developed as_____ _____ School, with recreational facilities including _____, and utilized by the city's recreation program. The other facilities were not realized.

Forest Parks - Proposed utilizing the Mt. Baldy area owned by BLM and Josephine County; two square miles of hills between Fruitdale and Murphy Road, including 422 acres managed by BLM, utilizing existing hiking and bridle trails; and 300 to 350 acres west of Allen Creek Road including 40 acres managed by BLM as a bridle trail area closest to the County Fairgrounds.

River Frontage Park - Proposed four riverside parks: at Old Railroad Bridge site, ten to fifteen acres including the state owned bridge site, and private land to the east being used as gravel site. (The State owned parcel is now an undeveloped park and the location of the proposed third bridge, while the private parcel is proposed for a residential development); at the Pierce property southeast of Jones Creek between the railroad tracks and the river, containing about 50 acres (now developed by the County as Pearce Park and containing _____); and at Tussing Park, an additional 12 acres acquired to the east and developed as river access (not acquired).

7.22 1967 County Parks Plan

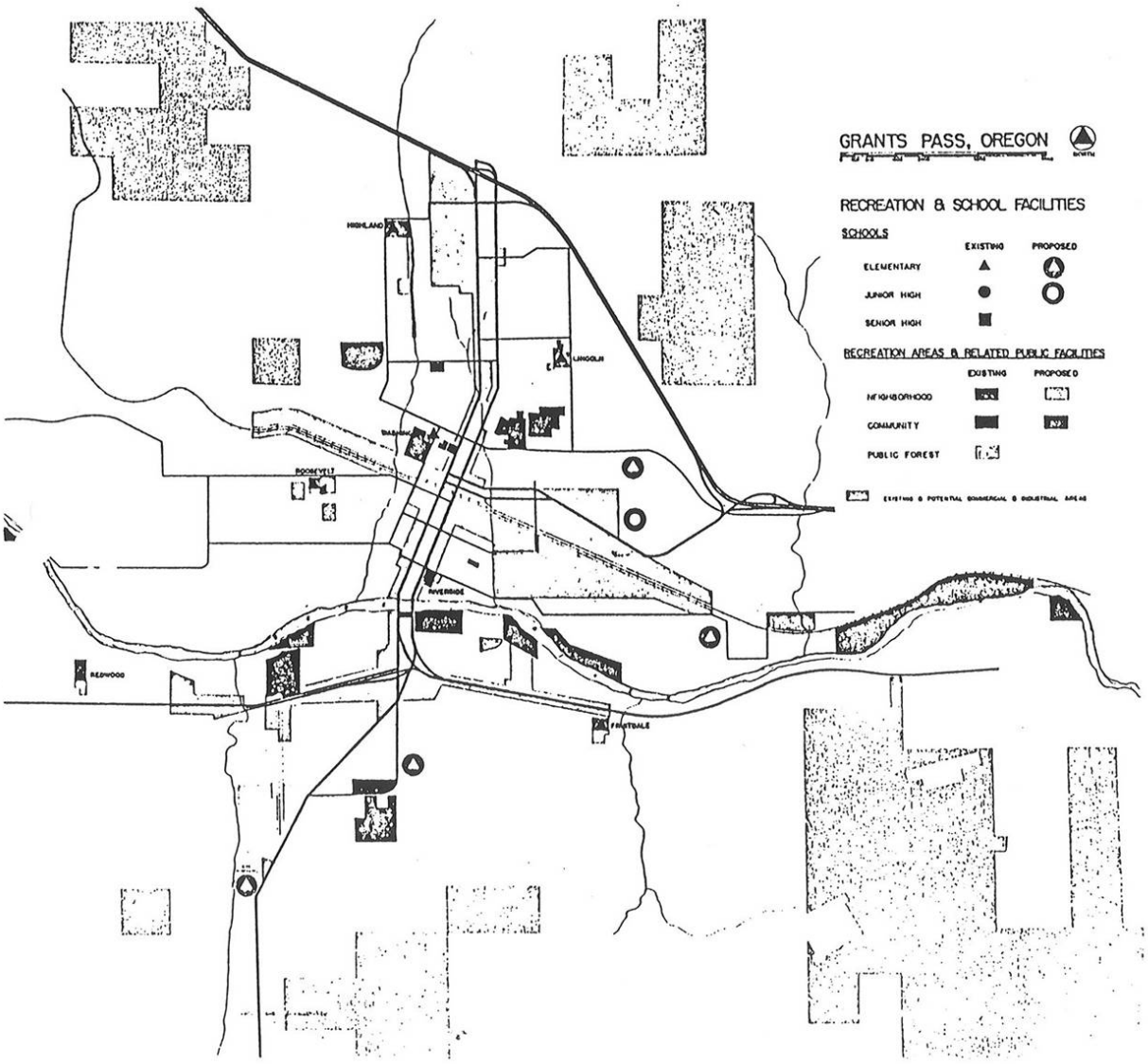
In August, 1967, a park plan was prepared by the Bureau of Municipal Research, University of Oregon, for Josephine County, and those features relating to the Grants Pass urbanizing area were incorporated into the General Plan for the urbanizing area of Josephine County and the City of Grants Pass, completed in September, 1969.

7.23 1969 General Plan

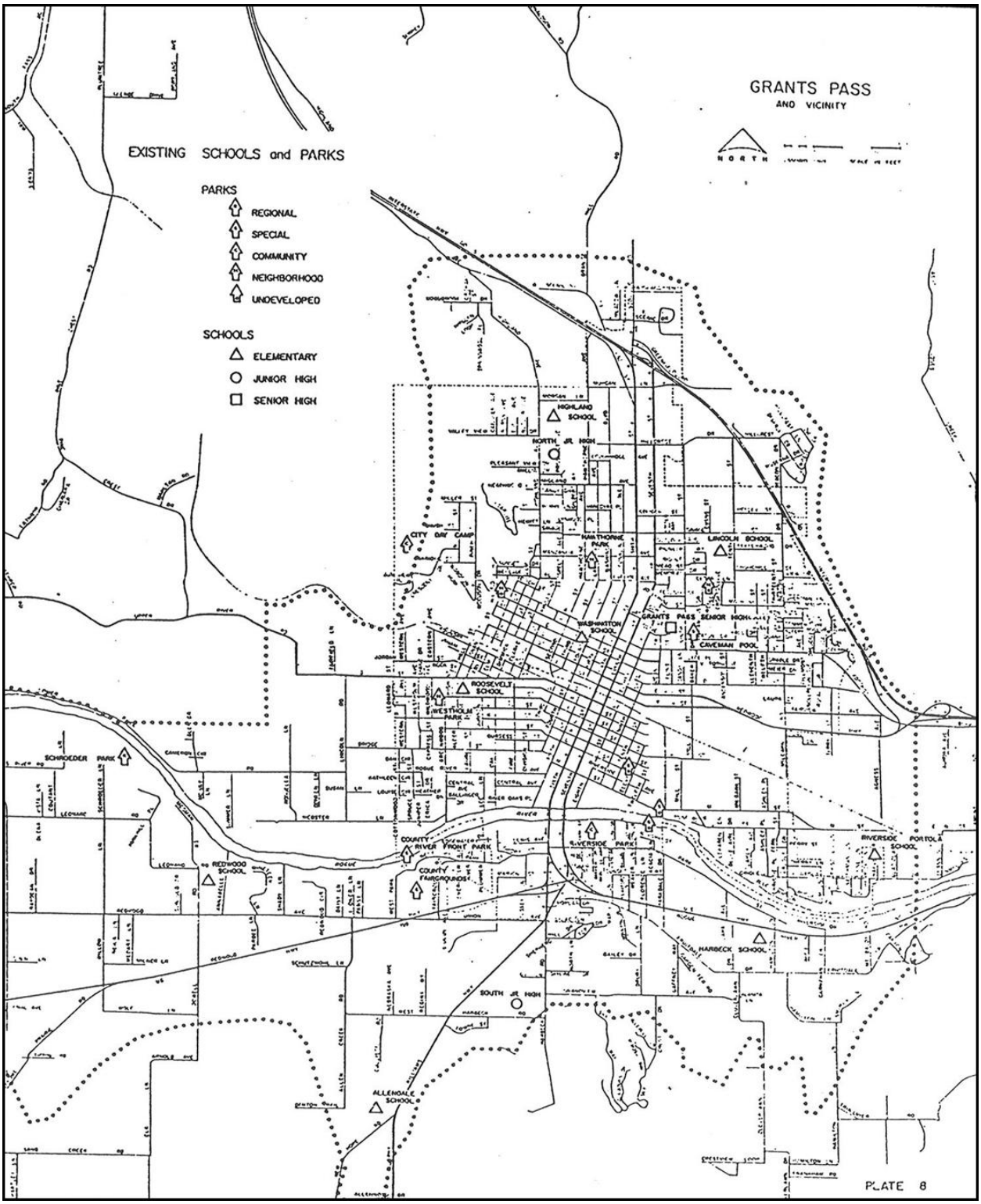
Planning Study Area

The General Plan as adopted by the City and County showed an urbanizing area quite similar to the present Urban Growth Boundary (see Map 7.20.5). The estimated county population for 1985 was 58,000 persons and urbanizing area population for 1985 was estimated at approximately 34,600 persons. By comparison, the 1980 census showed the county population to be 58,800 persons and based on census results, and the 1980 Urban Growth Boundary population was estimated to be approximately 22,300 persons.

MAP 7.20.4.
1960 Park Plan Proposals



MAP 7.20.5
1969 Urbanizing Area Park Inventory Map



Park Standards

The 1969 General Plan did not identify acreage standards, but did estimate the park acreage, both developed and undeveloped, to be 126.5 acres. Given an estimated urbanizing area population of 20,151 persons in 1967, this computes to one acre of park land for every 159 persons, or 6.3 acres per 1,000 population. (See Table 7.20.6) Without the 40 acres of BLM land, used as a City Day Camp at the time, the totals become 86.5 acres, and one acre of park land for every 233 persons, or 4.3 acres per 1,000 population. Thus the urbanizing area at that time had between 43% and 63% of the acreage standard of the National Recreation Association and the 1960 Plan. Of the total 126.5 acres (including the BLM site), 8.4 acres (97%) was utilized for neighborhood parks, while 37.8 acres (30%) was in special parks, 65.3 acres (52%) in community parks and 15.0 (12%) in regional parks. The National Standard used by the 1960 Plan had recommended 50% of the acreage to be in neighborhood parks.

TABLE 7.20.6
1969 Urbanizing Area Park Inventory
Josephine County Urbanizing Area Existing Parks - Grants Pass and Vicinity

Park Type	Acres	Total Acres	Percentage
Regional			
Schroeder Park		15.03	12%
Community			
Riverside Park	25.27		
City Day Camp (BLM)	40.0	65.27	52%
Special			
County Fairgrounds	30.27		
Caveman Pool	.94		
Community Building Site*	.74		
North Bank Railroad Right-of-Way*	.99		
South Bank Railroad Right-of-Way*	2.42		
County Riverfront Park	2.43	37.79	30%
Neighborhood			
Hawthorne	1.43		
Grant and “B” Street*	1.90		
Lincoln School Park*	1.77		
Westholm Park	3.32	8.42	7%
TOTAL PARK AREA		126.51	100%

By 1976, the park tally had been revised to show the following park percentages, improving the neighborhood park ratio, but still not approaching 50%.

TABLE 7.20.7
1976 Urbanizing Area Park Inventory

Park Types	Acres	Total Acres	Percentage
Regional			
Schroeder	15.03		
Riverside	25.27	40.30	28%
Community			
North Gilbert Creek	8.72*	8.72*	6%
Special			
County Fairgrounds	30.27		
Caveman Pool	.94		
Community Center	.74		
North Bank Railroad Right-of-Way (nursery)	.99		
South Bank Railroad Right-of-Way (Baker)	2.42*		
County Riverfront (Tussing)	2.43		
Greenwood (Water Restoration Plant)	1.58*		
Highland (day-camp) (BLM)	40.00*	79.37	55%
Neighborhood			
Westholm Park	3.32		
Lawnridge (Hawthorne)	1.43		
Hillside (Grant & “B” Street)	1.90*		
Eckstein (Portola)	6.93		
Croxton (Lincoln School Park)	1.77	15.35	11%
TOTAL PARK AREA		**143.74**	**100%**

* Undeveloped Sites

Park Types
The 1969 General Plan identified six park types: Regional, Community, Neighborhood, Special, Landscaping and School Parks. The definition of these park types, as revised by Council Resolution #877 of December 8, 1976, is as follows:

Regional - Parks to which people travel due to the natural beauty of the area or special opportunities offered, with a strong emphasis on a natural outdoor setting, including facilities for picnicking, camping, river access, and swimming.

Community - Relatively large facilities intended to serve the entire urban area population. Include all facilities found in smaller parks and in addition provide recreation opportunities not included in smaller sites.

Neighborhood - Smaller sized facilities, ideally sized from three to eight acres. Envisioned in 1969 as typically serving surrounding areas within 1/4 to 1/2 mile, the concept was altered in 1976 to include service to persons outside the immediate area as well. These facilities include playgrounds, courts, playfields, picnic areas, landscaping, restrooms and parking but exclude night lighting for organized sports.

Special - Special purpose developments, such as the County Fairgrounds, swimming pools, community building, and special natural feature or limited space parks.

Landscaping - Landscaping and beautification along public rights-of-way.

School Parks - Essentially a Neighborhood Park adjacent to and integral with an elementary school, the School Park is a larger facility than either facility individually, allowing better design of both school and park facilities. The combination offers year round and evening use of school facilities by the general public, and a larger school ground during the school day for student sand faculty. Both the 1969 General plan and the 1976 update strongly endorse the school-park concept, and note its benefit to the City over time.

Park Plan
The 1969 General Plan went on to call for additional park facilities, as well as establishing general goals and recommending policies. No analysis was given of park acreage.

Neighborhood - School Parks - All proposed Neighborhood Parks were located adjacent to existing or proposed elementary schools. (see Map 7.20.8, 1969 Public Facilities Plan Map, and Table 7.20.9, showing new parks by subarea) Four new parks were proposed, at Highland/North Junior High and at Riverside, and at two proposed school sites on District 7 properties located west of the City in the area of Bridge and Lincoln Streets, and south of the river in the area of Harbeck Road and Grandview Avenue.

Special Parks - Six special parks were proposed, four along Gilbert Creek and two in Ward II, one located at the end of Pepperwood Drive and the other near Madrone Street and Beacon Drive.

Gilbert Creek - The 1969 General Plan described Gilbert Creek as "one of the most exciting potential park developments in the City of Grants Pass," and recommended a park or trail or greenway along the creek, developed together with four small, special parks in the vicinity of Berry Lane, Prospect Avenue, "I" Street, and Rogue River Avenue. The 1969 Plan stated that Gilbert Creek "has the potential of being one of the nicest elements of the park plan and an outstanding feature of the City."

River Parks - The 1969 General Plan proposed developing a trail or greenway along the Rogue River, connecting the fairgrounds and Riverside Park, and further proposed a Community Park at the sewage treatment plant site, connected to the Fairgrounds with a pedestrian bridge. Also included was a low dam downstream from the Sixth Street bridge, creating a small lake in front of Riverside Park. Schroeder Park, further downstream on the south bank, was proposed to be doubled in size.

Fairgrounds - The County Fairgrounds was identified as an especially valuable asset to the community, and the 1969 General Plan noted that "care should be taken to protect the site from the encroachment of other public uses which may detract from its basic function."

Sexton Dam - The proposed Sexton Dam site, as yet unbuilt and unfunded, was referred to by the 1969 General Plan as "perhaps the greatest single opportunity for park and recreation development" in the urbanizing area, and containing a full pool of 660 acres. The Plan recommended, however, that the irrigation component be reduced and that recreation remain as the paramount purpose of the dam.

Goals & Objectives - The recreation oriented Goals & Objectives of the 1969 General Plan were given as follows:

> "...to respect and conserve all of the natural resources in the area so that the benefits of each can be enjoyed without detriment to another. To protect and enhance the quality and usefulness of the Rogue and Applegate rivers and recognize that natural beauty is of great significance to the future of the area.
>
> "...to increase the variety and number of public and private recreation opportunities and leisure time activities in the area."

General Principles - The Plan's General Principle relating to recreation, parks and open space are as follows:

> "Major public open spaces within the area, especially publicly owned lands, extensive private timber holdings, water courses and recreation areas along the rivers, should be protected against encroachment by uses which would adversely affect these areas of great significance to the future economic growth of the county."
>
> "Recreation sites should be obtained by the city and county as soon as possible so that these open spaces will be preserved for the future. Development should also proceed as soon as possible in order to increase and enhance recreational opportunities in the area. If recreation sites are not acquired in advance of need, the cost often becomes too great to be practical or

the available properties may be to small to provide the services that are desired."

"Community appearance should become a major concern and the subject of a major effort in the area. Street tree planting and landscaping, sign regulation and building improvement and painting programs will all contribute to an improved environment. With visitor income as a primary source of future economic growth and development, beauty becomes a matter of basic economic significance."

Recommendations
The Plan's Park Recommendations are as follows:

"...that park and recreation development be considered as a vital part of the future economy of the area and that efforts be made to keep these facilities abreast of growth.

...that park sites be acquired well in advance of need so that they can reserved for community use before the cost of acquisition becomes prohibitive for community use.

...that park sites be acquired in conjunction with school sites wherever possible.

...that parks be centrally located and easily accessible to the areas they are intended to serve.

...that the city and county initiate a regular program for acquisition and development of park and recreation facilities."

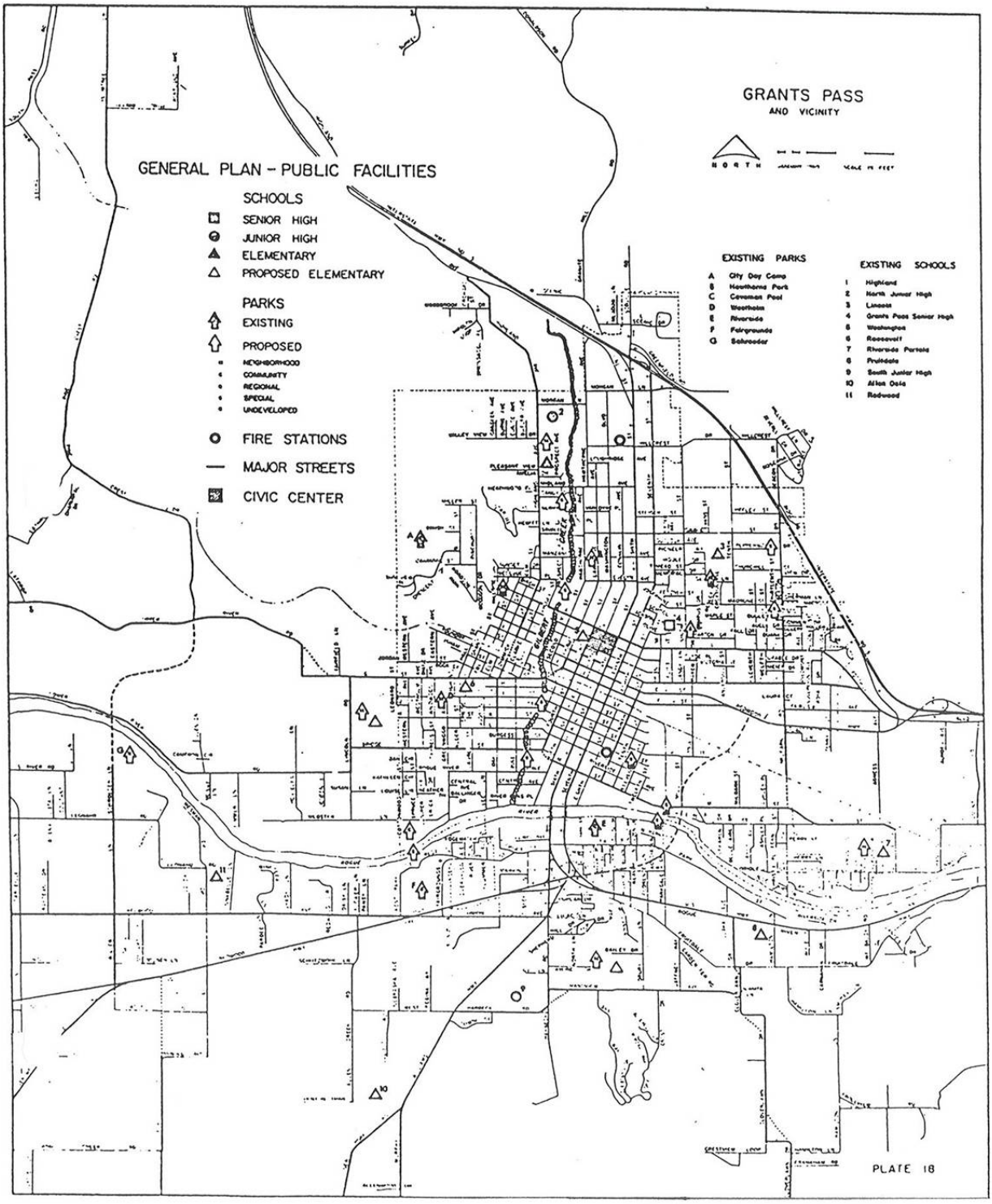
7.24 1980 City Park Inventory

In 1980, the City listed seventeen parks in its inventory, totaling 57.05 acres; of this, 51 acres were developed (89%). With a City population of 15,000 in the 1980 ratio of developed park acres to population was one acre per 263 persons, or 3.4 acres per 1000 population. Of these 51 acres, 40.8 are owned by the City; the remainder is on a lease-agreement with School District No. 7.

Doubling the City's park acreage from the 1960 inventory (from 29.1 acres to 57.1 acres), while increasing the population by only 50% (from 10,118 to 15,000), improved the park acreage /population ratio to 1 acre per 263 persons, or 3.4 acres per 1000 population. Still the City showed only 34% of the acreage required by the standard used in the 1960 plan.

TABLE 7.20.7
1980 City Area Park Inventory

MAP 7.20.8
1969 Public Facilities Plan Map



7.30 PARKS AND RECREATION

Existing Recreation Programs

Although deficient in recreation acres, the City's recreation program has evolved from primarily outdoor oriented athletics to a combination of sporting events, arts and crafts, specialized classes of instruction, and senior travel trips. School District No. 7 has been instrumental in providing facilities for these services. Athletic and classroom facilities at each school are available to and utilized by the City's recreation program. To a lesser but still significant extent, Josephine County Unit School District and Rogue Community College District also provide facilities for the recreation program.

The area served by City recreation programs has expanded as the recreation program has expanded. In 1968, Josephine County began paying into the City's Parks and Recreation budget to allow non-City residents to participate in the recreation program. In 1980, 51% of City recreation users were non-City residents, with Josephine County paying $75,000 (31%) of the City's total recreation budget of $240,000. *(1979, Use Figures, Department of Field Services, City of Grants Pass)*

City of Grants Pass - The Recreation Program is administered by the City's Field Services Department. The program provides a wide variety of activities on a year round basis. In addition to offering the typical organized athletic events such as soccer, softball, swimming, and basketball, specialized classes in arts and crafts are also available such as rug making, dancing, cooking and gymnastics. Refer to Appendix 7.10 for a complete list of each activity offered, together with the frequencies of use for each activity.

The program is oriented to all age groups, from kindergarten and preschool classes to Senior travel programs. The City' s program is available to all Josephine County residents. A major feature of the recreation program is the close relationship the program has with Grants Pass School District No. 7. Except for the City's community center and the Izaak Walton Building, all special class offerings and basketball events are conducted in the facilities of School District No. 7. This relationship is reinforced by the existing Grants Pass General Plan which designates the location of all proposed parks adjacent to existing or proposed elementary schools. This "school-park" concept permits the two jurisdictions to share facilities and development costs as well as ongoing maintenance costs.

Josephine County - The Josephine County Parks and Recreation Department administers the recreation program for Josephine County. Primarily responsible for park planning and development, the Department's program is oriented toward outdoor use, focusing on non-organized athletic uses such as fishing, camping, picnicking, day use, hunting, boating, etc. The County provides primarily for non-urban, regionally oriented, low intensity recreational use. Both Schroeder Park and Pearce Parks recently developed by the County, provide some urban type uses. Most of the County facilities are located outside of the Urban Growth Boundary, but are within reasonable proximity to the urban area.

The County Fairgrounds also provides recreational opportunities and activities. Of particular interest are the many kinds of equestrian and live animal events at the Fairgrounds, ranging from an official racing season to nationally and regionally recognized breed shows and events to 4-H shows and

classes. The Fairgrounds features a major enclosed arena as well as the track and spectator stands, and includes extensive stable and training areas. Other boarding stables and equestrian related businesses are located nearby. Regularly drawing from Northern California and Southern Oregon, equestrian events also draw participants and spectators from all of Oregon, California and portions of Washington, Idaho, Montana and Nevada as well, and can make a major impact upon the area's economy. One recent event in nearby Gold Hill resulted in a direct expenditure in the Community of $4,436 per participant, with the total paid into the community of $74,039, and a total economic impact of the event amounting to $222,116. (See also Economic Element)

State of Oregon - The State of Oregon has a limited recreation program in Josephine County. The program orients primarily to the motoring public vis-à-vis "wayside" facilities. The State also regulated designated Scenic Waterways, including a portion of the Rogue and Illinois Rivers. The state proposed "Rogue River Hiking Trail" is identified as top priority for implementation. If implemented, that trail would link the national "Pacific Crest" trail to the coast via Wolf Creek, Graves Creek and the Rogue River.

Federal Government - The Federal Government owns considerable acreage in Josephine County, which is primarily administered through the Bureau of Land Management (BLM) and the National Forest Service. Together, these agencies provide hiking, camping, horseback riding, picnicking, hunting, and fishing areas. BLM manages approximately 41 acres within the City limits and some 400 acres just outside the UGB.

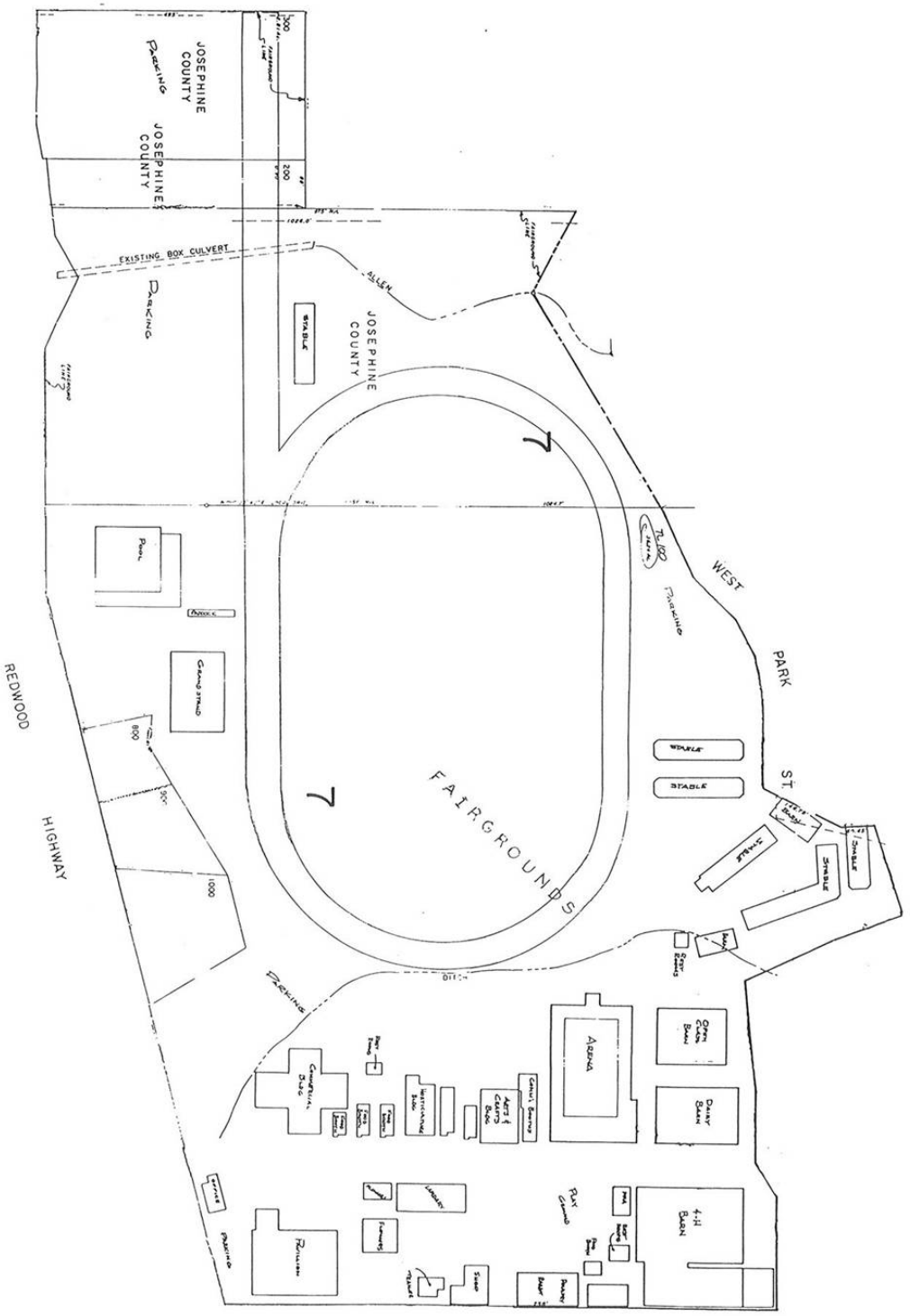
Private - The private sector provides a considerable number of recreation facilities within the City limits and within or near the UGB area. These uses appear to augment the public sector as well. Most private uses are associated with overnight camping, bowling, skating, golfing, racquetball and spas, boating, etc. There are not private-public joint uses.

Existing Recreation Demand

Increasing Local Use - Over the last twenty years, demand for public recreation facilities and programs has changed, as partially reflected by the City's expanded recreation program. In 1960, the City Budget for public recreation was $69,000 or $6.83 per City resident, while in 1980 the City share of the recreation budge that increased to $165,000, or $11 per City resident.

As the program changed from the basic organized outdoor sports format to one of providing a wide range of activities, demand usage not only increased in frequency but also in the cross-section of participants. The 1980 program offered activities to all age groups. (Appendix 7.1 contains a complete list of activities offered and the frequency of use.) This information is maintained by the City's Field Services Division and only accounts for "organized" activities. Therefore, "casual" recreation is not reflected. Form 1976 to 1979, overall "use" had increased by 35,00 participant occasions. (Use figures represent the frequency of participation in any particular program over time, and not number of persons enrolled in the program.)

MAP 7.30.1
Josephine County Fairgrounds - Plan View



Both the Josephine County and City Recreation departments agree that the existing recreation program is an excellent one providing a high quality of service; however, they also agree that recreation demand is of such magnitude in the planning area that facilities are at or reaching capacity, especially for ballfields, basketball courts, tennis courts, and soccer fields. During winter months, basketball facilities are at capacity, and during spring and summer months softball and soccer fields are solidly booked.

The high level of demand for softball facilities has caused the program to reach outside of the Urban Growth Boundary to available public facilities. Many of these facilities, however, are substandard. The response to soccer in the Grants Pass area has been overwhelming. Before expansion of the program in 1978, soccer participation was moderate; in 1982 new program included over 1,200 participants with many areas overcrowded due to lack of facilities, equipment and personnel. The high demand for organized sports facilities is based partially on the UGB location, which provides urban-level facilities within reach of the Grants Pass "Market Area," estimated to contain 70% of the County's population (estimate by Pacific Economics, letter to Rebecca Marshall of First Interstate Bank, January 10, 1982), and partially on the strong desire for organized athletics in the local population, as also evidenced by surveys (see below). Senior citizen travel trips are also in great demand. Within hours after taking travel reservations, each of these trips has been "sold out." Demand is high and will continue to increase.

Statewide Outdoor Recreation Plan - Based on the Oregon Recreation Demand Bulletin, 1975 Technical Document I of the Statewide Comprehensive Outdoor Recreation Plan, general recreation demand characteristics for Josephine County were estimated as follows:

> For both residents and visitors to Oregon pleasure walking occurred more often than any other form of recreation, next came bicycling, sight-seeing, outdoor games, public swimming, and picnicking.
>
> Visitors to Josephine County participate primarily in walking and hiking, bicycling, outdoor games, swimming, sight-seeing and pleasure driving and picnicking.
>
> Forty-nine percent of all recreation visitations by Josephine County residents were to other Oregon counties.
>
> Of all the outdoor games occurring in Oregon, 11.9% took place in Josephine County, exceeded only by Lane (14.5%) and Multnomah (20.0%) counties.

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) of 1978 reviewed the data in the 1975 Recreation Demand Bulletin, and made the following findings:

> The primary indicators of demand at the state level are considered to be the percent of the population participating in an activity, and the activity occasions generated. (page 2.4)
> Statewide needs are best considered in terms of park-type areas. These, prioritized on the basis of the statistical needs determination and locally expressed needs, are:

1. Neighborhood Parks
2. Community Parks
3. District Parks
4. Regional Parks
5. Multiple Resource Areas-- Recreation
6. Waysides

Statewide need, grouped by activity opportunity categories in priority order are:

1. Game areas, courts, and ballfields
2. Bicycle trails/paths
3. Water access (boating, fishing, swimming)
4. Swimming pools
5. Campsites
6. ORV trails/areas
7. Trails (hiking and multiuse)
8. Golf courses
9. Picnic tables
10. Ski areas
11. Hunting access (pages 2.7 - 2.8)

Tourism and recreation, the third ranked industry, depends on the state's scenic beauty and outdoor recreation opportunities for its attraction base; therefore, it is dependent on an efficient and effective outdoor recreation system that serves the needs of residents and visitors. (page 2.2)

Attitude Survey - As a means of comparison, the Attitude and Awareness Study of September 1, 1979, conducted by Consumer Attitude and Research, polled residents of the Grants Pass market area relative to sports activity. The results were as follows:

Freshwater fishing was the sport activity with the highest number of participants, then walking, swimming, backpacking/camping, bowling, hunting, bicycling, and saltwater fishing.

Participation in sports decreased with age; however, the highest number of responses, freshwater fishing and walking, showed a high participation rate for older persons.

The results of these surveys are compared in Table 7.30.2. Several significant results emerge from the studies. First, with few exceptions, the percent of persons in the respondent population participating in any given recreation activity in the BOR Study (1975) is remarkably similar to the City's Attitude Survey (1979) even though the methodology and survey area differed, tending to reinforce the validity of the findings (compare columns B and F). The exceptions are activity 10 (where only baseball as quarried in the City survey, compared to all outdoor games in the BOR survey); activity 4 (where backpacking/camping in the City survey averaged two-thirds the BOR finding, 29% to 52%, but did range from 47% to 54% for the age groups 40 and under in the City survey); and activity 9 (where twice the tennis players may be expected within an urban area). All

other activities are within five percentage points in the two surveys.

Second, the percentage of persons participating in recreation needing minimal facilities or equipment, such as walking, fishing, hunting, bicycling, is every bit as high or higher than those activities needing extensive facilities an equipment, such as swimming, bowling, tennis, baseball and other outdoor games. It is interesting to note that even with such a high percentage of older persons in the State, golfing is low both in the City and the surrounding area.

Third, the number of activity occasions generated by the participants is every bit as important as the percentage of the population engaged in the activities. When activity occasions are considered, the ranking of recreation activities is altered. Table 7.30.3 shows the ranking of recreation activities by the number of activities generated, given BOR rates, for a city of 15,000 persons.

TABLE 7.30.2 - Participation in Recreation Activities

Attitude & Awareness Study - 1979 Percent Participating (1)		Recreation Activity Category (2)			U.S. Department of the Interior Bureau of Outdoor Recreation			
					Outdoor Recreation Demand Bulletin, 1975, Josephine Co. (3)		State-Wide Facilities Need Ranking - 1978 (4)	
(A) Study Area	(B) City Limits	(C) Study Rank	(D) Category	(E) Study Rank	(F) Percent Participating	(G) Participant Activity Occasions	(H) Rank	(I) Category
47.9	46.3	1.	Fresh water fishing	2.	41.2	7.4/	3	water access
39.0	42.2	2.	Walking (6)	3.	35.2	71.5/	7	trails
35.1	36.1	3.	Swimming (9)/ pool /non pool	7. 4.	28.6 34.9	29.8/ 10.4/	4 3	swimming pools water access
27.3	28.8	4.	Backpack/Camp	1.	51.7	4.7/	5	camp sites
25.9	26.9	5.	Bowl	-	-	-	-	-
26.3	25.1	6.	Hunt	9.	19.6	4.7/	11	hunting access
24.3	24.6	7.	Bicycle (7)	8.	24.6	90.6/	2	bicycle paths
18.2	16.9	8.	Saltwater fishing	-	(See freshwater fishing)		3	water access
13.3	15.7	9.	Tennis	11.	8.2	14.9/	1	game areas
12.9	13.6	10.	Baseball (5)/outdoor games	5.	34.7	30.5/	1	game areas
11.3	13.2	11.	Day Hiking (8)	6.	29.4	8.7/	7	trails
11.4	11.3	12.	Jogging	-	-	-	-	-
10.7	10.4	13.	Motorcycle Riding/ORU	10.	11.9	35.2/	6	ORV trails
11.1	9.8	14.	Golf	12.	6.6	22.5/	8	golf courses
-	-	-	Horseback riding	12.	6.6	42.0/	7	trails

Notes for TABLE 7.3.2 - General:
1. Percent of persons participating in activity.
2. Recreation activity, listed in order of Attitude Study -- City participation by percentage. (In case of split category, read Attitude Study / BOR Demand Bulletin.)
3. Participation in activity, 1975, as measured by BOR poll. Shown by percent of population.
4. A ranking of needed facilities in the state, determined by camping facilities inventory with demand estimate.

City Respondents - Attitude Survey:
5. High of 31% to 35% for ages under 25-40, dropping to 18% for ages 41-50.
6. Maintain at steady 44% - 45% participation through 31-65 age groups.
7. High of 48% for under 25 age group, 33% for 26-30 age group, 43% for 31-40 age group, falling off sharply thereafter
8. High of 31% for under 25 age group, 22% for 26-30 age group, falling off thereafter.
9. High of 79%(!) for under 25 age group, 51% for 26-30 & 31-40 age groups, 48% for 41-50 age group, staying at 25% - 30% for 51-65 age groups.

TABLE 7.30.3
Recreation Activity Ranking by Activity Occasions for Population of 15,000 Persons

Park Activity	Percent Participating	Activity Occasions / Participants	Total Activity Occasions / Yr.	Group
1. Walk	35.2	71.5	378,000	1
2. Bicycle	24.6	90.6	341,250	
3. Outdoor Games	34.7	30.5	162,750	
4. Pool Swim	70.6	29.8	130,500	
5. ORV	11.9	35.2	63,000	2
6. Non-pool Swim	34.9	10.4	52,500	
7. Fresh Water Fish	41.2	7.4	44,100	
7. Horseback Riding	6.6	42.0	44,100	
8. Day Hike	29.4	8.7	39,150	
8. Backpack/Camp	51.7	4.7	39,000	
9. Golf	6.6	22.5	24,150	3
10. Tennis	8.2	14.9	18,000	
11. Hunt	19.6	4.7	15,000	

*Rates from BOR Outdoor Recreation Demand Bulletin, 1975.
Activity occasions = 15,000 population x % population participating x # activity occasions per participant.

Note that walking, bicycling, outdoor games and pool swim generate the highest with the activity occasions, ranging from 2 to 6 times the occasions of the highest activities of the second group, and 5 to 16 times the occasions of the highest activities of the third group. This table shows that the highest ranking activity in percent of population participating may rank among the lowest in activity occasions generated. This becomes important in computing the highest return for facilities or personnel dollars available. Walking or bicycle trails (totaling 719,250 occasions!), or even equestrian trails (44,100 occasions), perhaps should be built before additional tennis courts (18,000 occasions) or even golf courses (24,150 occasions). Both bicycle and walking double the activity occasions of even their nearest "competitor" for the facility dollar, outdoor games and pool swim. In fact, bicycling and waking together (with 719,250 occasions) exceed all other top ranking activity occasions put together (with 632,250 occasions) by 14%! Horseback riding occasions equal freshwater fishing occasions!

In addition to the heavy preference for non-team or non-organized recreation activity, use figure for the City's organized recreation program indicates a high demand for traditional, organized team sports activities. (See Appendix 7.1)

Existing Recreation and Park Facilities

Facilities are provided by the City of Grants Pass, Josephine County, School District No. 7, Josephine County Unit School District, and the Rogue Community College District. The majority of facilities are provided by the City and School District No. 7.

City of Grants Pass - An inventory of existing facilities reveals the following:

TABLE 7.30.4
City Recreation Facilities

	Park	Type	Size	Ownership	Facilities
1	Baker		2.26	City	Undeveloped. Future: boat ramp, fishing and related activities
2	Croxton	Memorial	1.82	City	Historical Cemetery, No facilities
3	Debo	Beautification strip	.13	City	Benches
4	Greenwood	Neighborhood	1.58	City	Undeveloped. Future: tennis courts, picnic
5	Hillside	Neighborhood	1.50	City	Undeveloped. Future: Limited facilities, horse shoes, shuffle board
6	Kesterson	Beautification	.57	City	Benches, rose garden
7	Lawnridge	Neighborhood	1.42	City	1 tennis court & basketball court (lighted), playground facilities
8	Henry C. Martin	Beautification	.20	City	Benches

9	North Gilbert Creek	Community	8.72	School District #7	4 lighted tennis courts, 1 lighted regulation softball field, 1 soccer field, picnic, meeting room
10	Ogle	Mini-park	.25	City School District	Picnic, wedding receptions
11	Portola	Community	6.93	School District #7	1 softball field, 2 lighted soccer fields, playground, 3 tennis courts, 1 basketball court, shelter
12	Riverside	Regional	25.77	City	1 lighted softball field, 1 soccer field, lawn bowling, playground, boat ramp, kindergarten cottage
13	Standfield	Beautification	.01	State Hwy.	Beautification strip
14	Washington	Beautification	1.80	City	Beautification median strip
15	Westholm	Neighborhood	2.75	City	1 tennis court, playground, nonregulation softball field
16	Triangle - Caveman		.40	State Hwy.	Caveman, benches
17	Caveman Pool		.94	City	Olympic size, outdoor swimming pool
		Subtotal	**57.05**		
18	Highland	Passive	41.84	BLM	Undeveloped. Future: open space, picnic
		Total	**98.89**		

Note that most of these parks are "school parks", and therefore provide more recreation intensive activities, which usually serve a younger population. With one-third of the City's population over the age of 60, there appears to be a lack of retirement-age outdoor facilities.

A breakdown of park acreages by City wards reveals the following:

TABLE 7.30.5
City Park Acreage by Facility Type

	Existing Developed Areas				**Undeveloped - Future Acres**				
Wards	**Active**	**Passive**	**Beautification**	**Sub-total**	**Active**	**Passive**	**Beautification**	**Sub-total**	**Grand Total**
NW Ward 1	10.39	0	2.97	13.36	1.50	41.84*	0	43.34	56.70
NE Ward 2	.94	1.82	0	2.76	0	0	0	0	2.76
SE Ward 3	32.70	0	0	32.70	2.26	0	0	2.26	34.96

SW Ward 4	2.75	0	.14	2.89	1.58	0	0	1.58	4.47
Total	**46.78**	**1.82**	**3.11**	**51.71**	**5.34**	**41.84**	**0**	**47.18**	**98.89**

* Includes the large open space land of BLM

This breakdown is significant as it indicates where existing developed parks are, where undeveloped park acreage is, and where there is a deficiency in park space. Of the active park developed acreage, 70% is in Ward III, while only 6% is in Ward IV and 2% in Ward II.

School Districts - Each school district makes recreation facilities available to the public. While District No. 7 and Josephine County Unit provide recreational equipment and space, Rogue Community College District is more oriented toward classroom instruction. Nevertheless, these school districts are vital components to the overall Grants Pass recreation program.

The City's recreation program utilizes the following school district facilities:

District No. 7: 12 gymnasiums, 9 classrooms, 6 ballfields
County School District: 7 gymnasiums, 1 classroom, ballfields
Rogue Community College: Classroom instruction, Gymnasium, Ballfields

Most of the school district facilities are located at elementary, middle, and high schools within the UGB. Map 7.30.6 shows the location of both school sites and park facilities relative to ward boundaries. This exhibit dramatically illustrates the "school-park" concept, which is such an integral part of the City's recreation program. As can be seen, Ward II relies totally on the school district (except for Caveman Pool) to provide neighborhood active recreation facilities; however, in Ward IV there are no school district facilities. Wards I and III best reflect the school-park concept: in both cases where a school-park exists, the park is developed and maintained by the City but the land is owned by School District No. 7, and is leased to the City by a 30 year agreement.

Josephine County - As shown on Map 7.30.6, County facilities within the UGB are all located south of the Rogue River, west of the Redwood Highway Interchange. There are no County recreation facilities within easy access of the neighborhoods of the Harbeck-Fruitdale area.

There are County facilities outside of the UGB but within easy commuting distance. Map 7.30.7 locates these parks. Some function as passive regional facilities (i.e. Cathedral Hills -- equestrian, hiking trails) while others (Pearce Park) are more recreation intensive, providing a more urban service. The County has two parks within the Urban Growth Boundary, Tussing and Schroeder, with additional facilities available at the County Fairgrounds.

TABLE 7.30.8
County Recreation Facilities Within the UGB

	Park	Type	Size	Facilities
1	Tussing	Neighborhood	1.2	Picnic Tables
2	Schroeder	Community	24.0	Picnic tables, tennis courts, softball field, trailer and tent camping, and boat ramp
3	Fairgrounds	Regional	52.48	Soccer-Football field, swimming pool, classrooms, horse racing and boarding, large indoor animal facilities, playground, auditorium and stadium
		Total	**77.68**	

Private - In addition to private recreation facilities which normally occur in urban areas (theaters, skating rinks, golf clubs, recreational vehicle parks, little league baseball, etc.), the Grants Pass area also contains tourist related recreation facilities. With the Rogue River running through the middle of the UGB, river-related recreation activities are popular. Boating, fishing, and rafting excursions are provided by motel owners and other private businesses.

The Grants Pass Golf Club is the largest private recreation facility within the UGB. Colonial Valley Golf Course is not within the UGB, but is within close proximity.

Future Recreation and Park Needs

Needs Analysis - In lieu of a Park Facilities Plan, the following indication of needed park acreage given the most probable Urban Growth Boundary population in the year 2000 of 38,300 to 44,750 persons. (See also Population Element.) Table 7.30.9 and 7.30.10 depict total park acreage needs for the high and low ends of the population range, shown by the six subareas of the UGB as described in the Land Use Element. The population projected for each subarea is a function of the low-density and high-density housing models, as projected in the Housing Element, based upon the buildable lands inventory.

In order to select an acreage-population ratio that reflected local conditions, a recent Leisure Services Plan for the City of Medford was utilized (*City of Medford Leisure Services Comprehensive Plan, 1979-84, presented May, 1979, by Northwest Research Analysts*). This plan determined that in 1979, Medford possessed 18.2 total public and private park acres for every 100 persons in the area served, and recommended a standard of 15 to 20 acres per 1000 population. The neighborhood and community park ratio (the active parks servicing district subareas) was significantly less, averaging 4.4 acres per 1000 population overall, with a subarea median of 3.4, and a range for each subarea from 2.2 to 8.4 acres per 1000 population.

Medford was chosen as an example, for with a 1979 population of 38,700 persons, Medford falls within the 38,300 - 44,800 range of estimated future Grants Pass population, and the basic geographic, demographic and socio-economic data similar. Only the existing active and passive park acreage was included per subarea, and the projected need was calculated on a 6 acre per 1000 population basis.

TABLE 7.30.9
Urban Growth Boundary Area Parks - Recreation Land Use Needs for 38,300 Population

	Existing			Future			
Subarea	**Existing Park Acres**	**Existing Population**	**Acre/ 1000 Pop**	**Existing Need**	**Additional Future Need**	**Future Need**	**Year 2000 Total Need**
Northwest	14.09	3,460	4.1	6.65	1,978	11.86	18.51
Northeast	3.33	2,233	1.0	15.99	1,936	11.58	27.57
Southeast	6.93	1,342	5.2	1.21	514	3.08	4.29
Southwest	4.48	3,946	1.1	18.97	1,926	11.55	30.52
Harbeck-Fruitdale	3.36	3,833	.9	19.52	4l050	24.30	43.82
Redwood	0	1,283	0	7.68	5,738	34.42	42.10
Subtotal	32.29	17,097	1.9	70.02	16,142	96.79	166.81
Regional Parks	102.25	22,158	4.6	0	0	0	0
All Parks Total	134.54	22,158	6.1	70.02	16,142	96.79	166.81
					Year 2000 Need		**166.81**

TABLE 7.30.10
Urban Growth Boundary Area Parks - Recreation Land Use Needs for 44,700 Population

	Existing			Future			
Subarea	**Existing Park Acres**	**Existing Population**	**Acre/ 1000 Pop**	**Existing Need**	**Additional Future Need**	**Future Need**	**Year 2000 Total Need**
Northwest	14.09	3,460	4.1	6.65	1,978	11.86	18.51
Northeast	3.33	2,233	1.0	15.99	1,936	11.58	27.57
Southeast	6.93	1,342	5.2	1.21	514	3.08	4.29
Southwest	4.48	3,946	1.1	18.97	1,926	11.55	30.52
Harbeck-Fruitdale	3.36	3,833	.9	19.52	5,719	34.31	53.82
Redwood	0	1,283	0	7.68	10,519	63.00	70.68
Subtotal	32.29	17,097	1.9	70.02	22,592	135.38	205.4
Regional Parks	102.25	22,158	4.6	0	0	0	0
All Parks Total	134.54	22,158	6.1	70.02	22,592	135.38	205.4
					Year 2000 Need		**205.4**

Ten Year Park Plan - Table 7.30.11 was prepared by City and County Planning staffs for the Josephine County Comprehensive Plan. The table depicts a generalized parks needs assessment of the ten year period from 1978 to 1988. However, the lack of an urban growth boundary comprehensive parks plan that compares existing park land inventories with the projected year 2000 UGB population restricts the use of that table to existing park land needs. The table should be used as a guideline for the immediate development of park land in the UGB until such a park plan is developed or adopted.

TABLE 7.30.11
UGB Interim Park Need

City Wards Area	Existing	Needed
Northeast	Croxton High School Lincoln Kesterson Cemeteries Reservoirs	Neighborhood Parks: 2 sites, 5 acres each (10 acres total)
Northwest	Gilbert Lawnridge Highland - 40 acres Hillside - 3 acres 6th St. Triangle Ogle Reservoirs Laurelridge exaction	None (10 acres)
Southeast	Tom Pearce Eckstein Cemeteries Industrial Sites beautified	Neighborhood Parks: 1 site, 2 acres (2 acres)
Southwest	Greenwood Plant Westholm School Park	Neighborhood Parks: 2 sites, 5 acres (20 acres)
City River Frontage		As much as possible
County Urbanizing Area		
Redwood	Redwood School Fairgrounds Tussing Schroeder School Property	Neighborhood Parks: 2 sites, 5 acres each (10 acres)
Harbeck	South Allendale Cathedral Hills (400 acres - 7 mi. trails)	Neighboring Parks: 2 sites, 5 acres each (10 acres)
Fruitdale	Fruitdale Climate Wayside Riverside Baker	Neighboring Parks: 3 sites, 5 acres each (15 acres)
Urbanizing Area North of I-5	Reservoir	Neighborhood Parks: 2 sites, 10 acres each (20 acres)
County River Frontage		As much as possible

Totals		**77 acres Neighborhood Parks** **10 acres Laurelridge Exaction** **Industrial Sites Beautified** **As much river frontage as possible (purchase or easement)**

Cost projection (1978-79 Estimates): 77 acres purchase $77,000
Development $2,250,000
Per year maintenance $308,000
Per year program $350,000

TABLE 7.30.12
Cost Projections for UGB Interim Park Need

Park Area in UGB:
City owned: 50 acres developed; 60 acres undeveloped
County owned: 74 acres developed; 4 acres undeveloped

Establishing Cost by Case Example:
Gilbert Creek Park's 9 acres have been developed at a cost of $28,000 to $30,000 per acre; cost of land per acre probably $10,000.

Development Costs:
Existing Undeveloped Pubic Property with Park Potential

BLM	40 acres @ 5,000	200,000
Fairgrounds	5 acres @ $30,000	150,000
Schroeder	9 acres @ 30,000	270,000
Tussing	3 acres @ 30,000	90,000
Redwood School	10 acres @ 30,000	300,000
Allendale	5 acres @ 30,000	150,000
Baker	2 acres @ 30,000	60,000 (boat ramp, restrooms)
4 Water Reservoirs	20 acres @ 30,000	600,000
Hillside	3 acres @ 30,000	90,000
Greenwood	10 acres @ 30,000	300,000
School - SW	10 acres @ 30,000	300,000
Total	**117 acres**	**$2,510,000**

River Frontage: 30 acres desired - 12 acres in flood plain priced at $1,500,000 (1979)

Capital Improvement Program - As of March, 1982, the City Budget Committee had been presented a six-year Capital Improvement Program for the City and urbanizing area, totaling over $56 million, with project follow through over following years requiring over $49 million. The recreation total (including parks, fairgrounds, swimming pools and community centers) came to $2.52 million, or 4.5% of the six year total. Of the total recreation expenditure, $1.79 million (71% of parks, and 3.2% of total six-year plan) was allocated for park purchase and development. This average of $300,000 per year would, in fact, accomplish the 10 year, $3.02 million program of acquisition and development proposed in the County Comprehensive Plan.

7.40 OPEN SPACE NETWORK

Open Space Functions and Acquisition - Open space lands serve a number of urban functions. Open space conserves natural and scenic resources, protects water supply and quality, minimizes erosion and run off, enhances the value of neighboring property, serves athletic and recreational needs, buffers incompatible land uses, promotes orderly urban development and enhances city design. As the urbanizing areas of the UGB develop and evolve in an urban context, open space areas could be secured and developed. The UGB parks plan could include as one objective the preservation of open spaces and natural landscapes, particularly stream, drainage ways, river flood plain and wooded hillsides. It could be the practice of the Planning Departments of both the city and the county to encourage open space dedication as subdivisions and PUD's are brought in for approval. The Planning Departments should, on a case by case basis, relate the UGB's need for open space to special hazards and problems associated with flood plains, hillsides, streams and utility easements such as sewer, water and the Grants Pass Irrigation District.

Greenways & Trails - Open space designations could be directed toward achieving a coherent system which interconnects greenways, parks and other activity areas such as the County Fairgrounds, Cathedral Hills and river greenways. Private land that has already been developed presents obstacles to the completion of an interconnected greenway system. Private developed lands could then become part of the greenway system through the acquisition of easements. Property which has not been approved for development, and which can contribute to the greenway system or provide other open space, has potential for enhancing the UGB's livability.

Creeks, Canals and Rivers - Properly planned open space serves the dual function of minimizing hazard of life and property that could occur on steep slopes, erosive soils, wetlands and flood plains, while preserving important community features. Locations for future open space designations can be guided by the dual purpose principle. Hazard and natural resource areas should be priority locations for future open space. Portions of the greenway system could focus on the creeks, canals and Rogue River. Large segments of Allen Creek, Sand Creek and the Rogue River are undeveloped, offering potential for future greenway dedication. The upper reaches of Fruitdale Creek within the UGB are undeveloped at this time. The Harbeck-Fruitdale subarea has a great need for open space and recreation opportunities. The upper reach of Gilbert Creek from Midland Avenue North to I-5 is relatively undeveloped and could provide a viable greenway connecting many parts of the Northwest subarea to the Highland School complex and Gilbert Creek Park. The

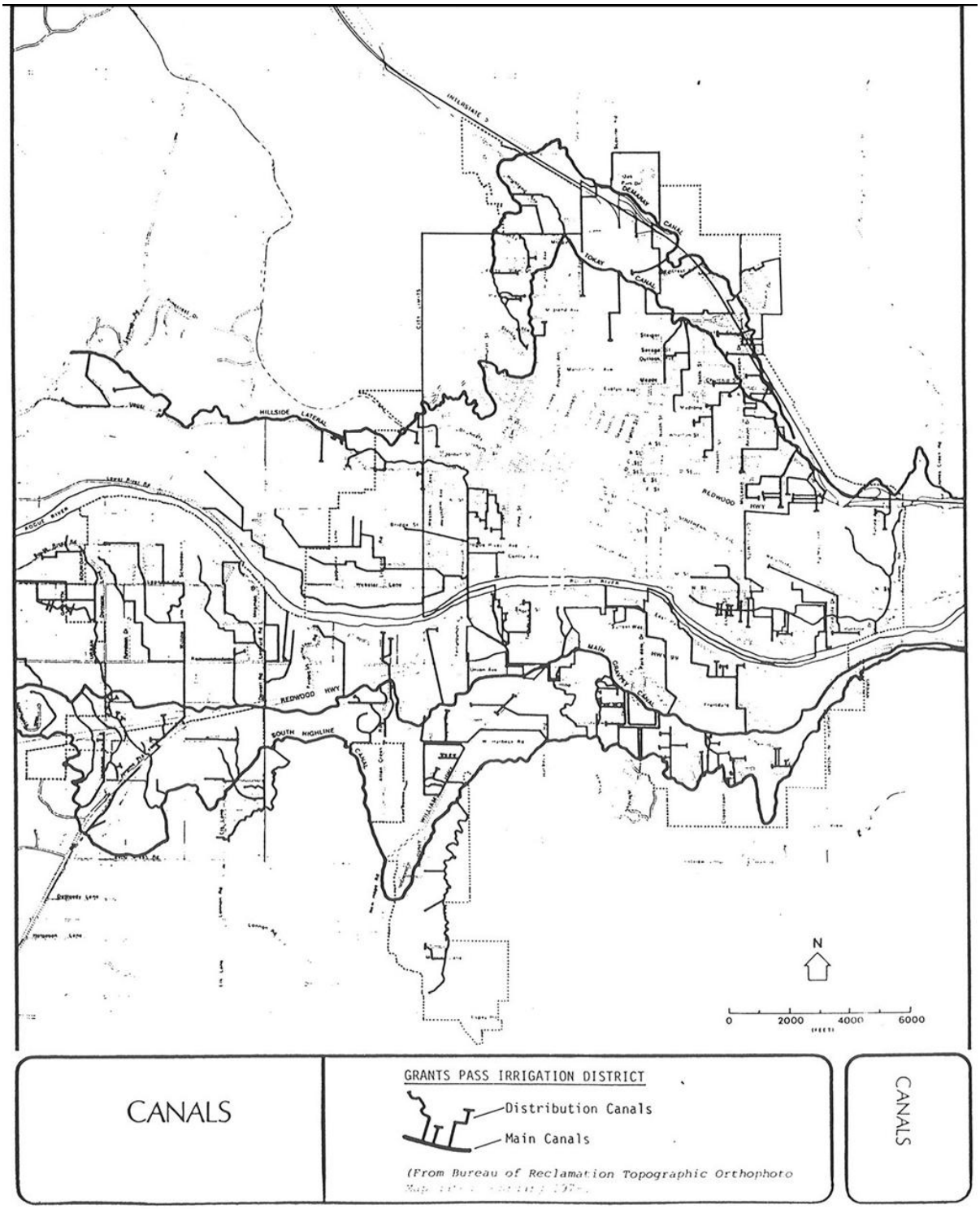
Rogue River is the major attraction for tourists as well as residents of the area. Public access to this important scenic and recreational resource could be maintained by a continuous greenway along the river's floodplain. Sewer and water easements could be utilized for greenway trails connecting the parks and activity centers along the river. Land dedication and acquisition should be strongly pursued by policies and programs for that purpose.

Pedestrian and Equestrian Trails - Another concern that has been pursued by local citizens is the establishment of greenway and roadside trails for pedestrians and horse riders. Cathedral Hills is a large equestrian and hiking area adjacent to the southern boundary of the Harbeck-Fruitdale subarea. A local citizens group, known as Josephine County Horseriding and Hiking Committee, has suggested that a continuous trail system from Cathedral Hills to the County Fairgrounds be established via land dedication requirements and public-private acquisition of easements. Other roadside trails suggested by the committee interconnect many of the activity centers in the urbanizing area south of the Rogue River (see Map 7.30.13). The roadside trials would require that a well graded, soft roadside shoulder of adequate width be maintained for pedestrians and horseback riders. There are many attributes to the roadside trail system in the Redwood and Fruitdale-Harbeck subareas and south of the river. Both subareas are relatively rural in nature because of the present low densities and rural road system that is without curbs and gutters on most streets. The fact that many residents prefer the rural character represented by the "country" road and ample open space is also supportive of the roadside trail system, which properly landscaped would "soften" urban standard roadways. The roadside trail system should be coordinated with future roadway improvements as depicted on the UGB Traffic Management Plan and adequate standards developed as in other communities, most notably in California. A program could be established for the mapping and marking of the trials with signs located at strategic points along the trail system.

Open spaces can also be developed as greenways that provide public access to parks and activity centers that are inaccessible because of noisy, congested, high-volume arterials or collector streets, which present physical and psychological barriers to pedestrians and horses. The use of stream banks and irrigation canal easements for pedestrian greenways could provide and extensive network of trails throughout the entire UGB (see Canal Map 7.30.14). Initially, greenway trails could be minimally developed by acquiring the easements through dedication, purchase or agreement and by low level maintenance of brush clearing and trail signing.

As the intensity of use on trails increases, then, canal and stream bank trails could be overlaid with wood by-products such as chips and bark mulch. Citizen groups like horse, hiking, jogging, and nature clubs could be recruited as labor resources for development and maintenance of the trials. School groups could also be encouraged to provide a community service in return for special public recognition and symbolic reward. The immigrants to Josephine County, in particular, as measured by recent surveys and committee efforts, are willing to volunteer time and labor for trail construction and maintenance. These residents are highly active trails people (walking, hiking, jogging, biking, horseback riding), and have been willing to sacrifice large portions of their income in other locations to locate here, precisely for what the local environment has to offer in recreational opportunity. This commitment is a great "natural resource" of the community that could bear fruit if properly encouraged.

MAP 7.30.14
UGB Canal Map



Bicycle Paths - Another group of like-minded trails advocates has also banded together as the Josephine County Bikeways Advisory Committee, and the bicycle path study and proposal is due for presentation to Council in April, 1982. Many of the same considerations apply, as with the pedestrian/equestrian trails. The bike paths have been carefully considered to provide public facility destinations, such as schools, parks, and pools, so that the area's youth could be guaranteed safe, direct access to recreation facilities in the neighborhood and subarea. Also considered has been a larger network with recreation and business designations for both the serious and casual biker. (See Maps 7.20.6, 7.20.1)

Existing Open Space and the Open Space Network

Currently, most public open space within the UGB is provided by the playground and fields of the Grants Pass School District No. 7. These school grounds serve as large green spaces that create a sense of openness for the urban area. The open spaces often serve as buffers between different land uses, such as the Highland School grounds which separate residential and industrial uses, and the Redwood Elementary School grounds which buffer high density residential from lower density. The open space serves to alleviate the "crowded" feeling that often agitates urban dwellers, especially in the winter months. However, public open space can serve many other purposes that will enhance the livability of the urban area. Open spaces can be used to provide protection for sensitive natural features such as streams, wetlands and unstable soils. The protection of these spaces often provides habitat for wildlife and natural spaces for human enjoyment. Natural recreation that includes wildlife observation, plant identification, walking along streams for peace of mind and playing in a natural setting close to home has always been in demand by a large segment of the population.

In conclusion, the natural environment of the Grants Pass UGB area provides unique opportunities to develop an open space network. Sensitive natural resource areas and areas that are hazardous to urban development are both compatible with open space, parkland, greenway and recreational designations. The designations are important in order to conserve the UGB's remaining natural resources and to minimize the threat of hazards to life and property. Open space designations in areas exhibiting physical constraint on urban development also reduces erosion and surface water runoff, protects wildlife habitat, enhances drainage management and minimizes stream flooding and pollution.

Existing open spaces, both public and private, contribute to the quality of life in the UGB, buffer residential areas, enhance property values of adjacent land, function as positive urban design elements and facilitate pedestrian movement. The current amount of open space land is adequate for the present population size but is not located evenly throughout the UGB, and a true network would allow the connection of open space user with the open space resource.

TABLE 7.30.15
Inventory of Existing Open Spaces for the Grants Pass Urban Growth Boundary

UGB Area	Open Space	Ownership	Acres
Northwest	Highland Elementary School	School District 7	9.0
	North Middle School	School District 7	20.0
	Highland Park	BLM	41.84
Northeast	Lincoln Elem. School	School District 7	10.0
	Grants Pass High School	School District 7	30.0
Southeast	Riverside Elem. School	School District 7	14.0
	Water Treatment Plant	School District 7	1.4
Southwest	Future school site	School District 7	22.0
	Sewer Treatment Plant	School District 7	5.0
Harbeck-Fruitdale	Allendale School	School District 7	19.0
	South Middle School	School District 7	14.5
Redwood	Future school Site	School District 7	38.5
		Total Acres	**225.2**

7.50 ACQUISITIONS, EASEMENTS AND DEDICATIONS

Acquisitions

The acquisition of park lands will depend a great deal upon the City and County Capital Improvement budget, and upon the inventiveness and skills of the persons in charge of acquisition. If the department is to effectively compete in real estate transactions, then it must have the financial backing in the budget. Apart from the monetary resources, the department must possess the skills of matching land use needs with the market factors of real estate transactions. For that reason, the location of certain future park lands cannot and should not be specific. Speculation can distort the market factors and often cause the real estate transaction to fall through. Also, such designation can effectively "condemn" the private property to nothing but public use, even though the public agency may be unable to acquire it at the time.

Easements

Open space easements may be classified into two categories; those which utilize existing public or semi-public easement, and those which must be purchased from private property owners. Existing public easements may be sewer or water easements across private property, usually along the flood plain of the Rogue River. Generally, these easements are at least fifteen feet in width and must be accessible by vehicle. The use of these easements for pedestrian/equestrian use would provide a basis for a greenway system along the river. Existing semi-public easements may be gas line, electric power line, and irrigation canal easements. Within the UGB, the irrigation canal easements appear to be the most extensive, most accessible and most suitable for pedestrian/equestrian greenway easements. The use of these public/semi-public easements for greenways would require few improvements and subsequently little maintenance, while at the same time would facilitate the movement of pedestrians within the UGB.

The second category of open space easement, those which must be purchased from private property owners, requires a combinations of adequate financing, good public reactions, and negotiating skills. First and foremost, greenway easements must be depicted as a benefit to adjoining properties. The greenway is, in itself, an extension of the parks and larger open spaces in the greenway network. Adjoining properties have immediate access to these parks and open spaces via the greenway easement. The value of such properties may eventually be enhanced by a greenway easement. It should be expected that all easements along a predetermined greenway route will not be acquired. Therefore, alternative routes should be prepared for most greenway routes. An easement acquisition fund should be maintained by the Parks and Recreation Department so that acquisitions can be made on an annual basis, thus making measurable progress toward achieving the goal for a greenway network during the planning period.

Dedications

Dedications are a viable means of securing public open space and greenways. It is important to have an open space and greenways plan before dedication can become an objective and useful tool. Once the plan is an adopted part of the Comprehensive Plan and funded in the budget, developments can be evaluated in light of the needs for open spaces and greenways. Dedications are one part of a "trade-off" process between the developer and the city and county governments. The developer must anticipate a "quid pro quo" arrangement before a dedication will take place. Incentives for dedication are usually those that will increase the profit margin of the development such as density bonus, reduced development fees, expedition of the processing of the development application, or the opportunity to implement innovative development design. Any development proposal that creates open space for public use should be encouraged by the planning departments of the City and County. Examples of such "mutual benefit" dedications are already occurring, as the UGB urbanizes, such as Allen Creek Estates, O'Dell Subdivision, and Locklear Subdivision. All are Planned Unit Developments showing design innovation, and could have benefited from density bonuses in return for open space dedications.

7.50 URBAN SERVICE POLICIES AND MANAGEMENT AGREEMENT

Urban Service Policies

When adopting the Grants Pass Urban Growth Boundary, the City and County also adopted Urban Service Policies as an integral part of the boundary. These policies were to guide the City and County in their Comprehensive Plan development, and were stated as follows:

Policy 42. The City shall develop an open space, park and recreation plan. The basic elements of this plan should be considered as part of the City's Comprehensive Plan.

Policy 43. The City and County shall coordinate their long-range open space, park and recreation planning as it affects the planning area.

Policy 44. Park, open space, and recreation standards for the urbanizing area should be carefully developed to reflect existing and anticipated demand, probable sources of revenue and economic impact.

Management Agreement

After lengthy negotiation, the City and County adopted a Management Agreement in January, 1981, that set interim development standards for the urbanizing area and called for basic service plans that should establish the extent, design, location and cost of providing water, sewer, streets, storm drainage and parks to the boundary area at the required urban levels. The Management Agreement also required an implementation and financing plan for parks acquisition and development and required the completion of the Park Plan within 24 months of adoption of the Management Agreement. (See Joint Urban Area Service Management Agreement, Section III - 6.)

Park Plan

As required by the Agreement, several attempts were made by the City Parks Department to use City and County funds as seed money to qualify for a State matching grant to develop the Park Plan, complete with implementation and financing components. Grant efforts were unsuccessful and the City has proceeded on its own initiative. The Parks Department expects to have a Park Plan contract let by June, 1982, and the Plan completed and adopted in the fall of the same year. The Parks Plan will use the park needs analysis as a starting point, together with the efforts of the Bike and Equestrian Committees and data from other elements of the Comprehensive Plan.

Therefore, the proposed recreation, park and open space policies are deemed to be a "framework" Parks Plan, to be augmented or replaced by the contract effort as finally adopted.

7.70 RECREATION, PARKS AND OPEN SPACE ELEMENT FINDINGS

Purpose

1. The purpose of the Recreation Element is to assess the park and open space need for the City of Grants Pass and urbanizing area for the planning period, utilizing inventories of existing facilities, usage rates of existing facilities, participant opinion, and applicable local, state and national standards.

2. Provisions of previous Park Plans and requirements of current policy are included in the needs assessment, and preparation of a Recreation Facilities Plan is required.

Facilities and Standards

3. The City of Grants Pass began supervised public recreation activities in 1952, approving a bond issue for a swimming pool construction, together will a one million dollar levy for operating expenses. In 1953, the City hired its first full-time Parks and Recreation Director.

4. A 1960 Park Plan determined that the national standard of 10 park acres per 1000 population, one-half of the acreage to neighborhood parks and one-half to larger parks, was to be used as a "general guide" by the City to determine park need.

5. The 1960 Park Plan inventoried the City and urbanizing area, and found the City to have a total of 29.1 park acres, not all of which was developed. With a city population of 10,118 persons the total park acreage equated with a park ratio of 2.9 acres per 1000 population, or 29% of the national standard "guide". (see Table 7.20.3) To meet the standard, the City required 71 acres of additional parkland within the City limits.

6. The 1960 Park Plan Inventory showed that the Plan Study Area, remarkably similar to the 1979 Urban Growth Boundary Area, had either within or nearby some 235 acres of City, County, school and private recreation areas. For the Plan Study Area's target population of 36,000 persons, this total park acreage would provide 6.5 acres per 1000 population, similar to the existing city ratio, and 65% of the national standard "guide". Of the total park 234.6 acres within or near the Plan Study Area, the City provided 29.1 acres (12%), the school district 62.8 acres (27%), the County 49.7 acres (21%) and the privately owned facilities (golf course, rod and gun club) provided 93 acres (40%). Deducting the rod and gun club (30 acres) brought the total acreage to 205 acres, or 5.7 acres per 1000 population for a 36,000 target population.

7. The 1969 General Plan for the Urbanizing Area of Josephine County and the City of Grants Pass, as adopted by City and County, also incorporated the 1967 Park Study done for the County by the Bureau of Municipal Research, University of Oregon. The Grants Pass urbanizing area of the 1969 General Plan was even more similar to the 1979 Urban Growth Boundary Area than the 1960 Park Plan Study Area.

8. The 1969 General Plan inventoried the public park acreage within the urbanizing area, and found some 126.5 acres. (see Table 7.20.6) For the estimated 20,151 persons in the urbanizing area in 1967, this computed to 6.3 acres per 1,000 population (63% of the national standard). Without the 40 acre BLM parcel, used as a day camp, the ratio became 4.3 acres per 1,000 (43% of the national standard). A tally of the inventory by park type showed the following distribution:

neighborhood parks	8.4 acres	(7%)
special parks	37.8	(30%)
community parks	65.3	(52%)
regional parks	15.0	(12%)
Total	126.5 acres	(100%)

The national standard, used as a guide by the 1960 Park Plan, recommended 50% of the park acreage be devoted to neighborhood parks.

9. The Parks Section of the 1969 General Plan was revised in 1976, and the 1976 inventory showed 143,7 acres in public parks. (see Table 7.20.7) No urbanizing area population was estimated. However, the ratio of neighborhood parks had improved, partly due to a change in definition, as follows:

neighborhood parks	15.4 acres	(11%)
special parks	79.4	(55%)
community parks	8.7	(6%)
regional parks	40.3	(28%)
Total	143.7 acres	(100%)

10. A 1980 inventory of City park space tallied 57 acres of which 51 acres were developed. (see Table 7.20.7) For the 1980 census count of 15,032 persons within City limits, the developed park acreage computed to 3.4 acres per 1.000 population, or 34% of the national standard. Doubling the park acreage within the City limits from 1960 (from 29 to 57 acres), while increasing the population by 50% during the same time period (from 10,000 to 15,000 persons) resulted in an improved ratio for the City.

11. A Park Plan done for the City of Medford in 1979 (population 38,700 persons) showed a total public, private, and commercial park and recreation site acres to population ratio for the service area (population 46,800 persons) to be 18 acres per 1,000 population, while neighborhood and community parks (including school parks) were determined to average 4.4 acres per 1,000, with a median of 3.4, and a range of 2.2 to 8.4 acres per 1,000.

12. The 1979 Medford plan recommended a neighborhood and community park range of 4 to 6 acres per 1,000 population. Medford's 1979 population (38,700) is within the range of the most probable UGB population by the year 2000 (36,300 to 44,800), and its basic geographic, demographic and socio-economic data are similar to the Grants Pass Urbanizing Area.

Recreation Programs

13. The City currently provides a great variety of recreation programs including arts and crafts, dancing, fitness, yoga, child birth, gymnastics and senior travel trips, as well as the more traditional organized athletics, such as baseball, softball, football, volleyball, soccer and swimming.

14. Beginning in 1967, Josephine County began paying into the City's Recreation budget to allow county residents to participate in the City's recreation program. Non-City resident participation has been as follows:

Year	Non-City	City
1975	40%	60%
1976	44%	56%
1977	47%	53%
1978	47%	53%
1979	52%	48%
1980	57%	43%

In 1980, when 57% of the recreation users of City programs were non-City residents, Josephine County contributed $75,000 (31%) of the City's total recreation budget of $240,000.

15. Recreation demand has significantly increased over the past 20 years, as witnessed by the increase in per capita recreation expenditure. In 1960, the City budget for public recreation was $69,000 or $6.82 per resident, while by 1980 the City share of the recreation budget was $165,000, or $11.00 per resident. The budget increased 139% while per capita expenditure increased 61%.

16. This increase in per capita demand is partly explained by the factors driving persons to migrate into the Grants Pass area in the first place, as confirmed by numerous studies. Professor Stevens of Oregon State University determined in a 1977 study of recent immigrants to Josephine and Jackson Counties that over two-thirds of the respondents found recreational opportunities here better than at their point of origin, and half determined this consideration to be important in deciding to move. (See Population Element) In a recent City Attitude Survey (1979), all but 5% of the respondents participated in some form of active, outdoor recreation, and this participation continued strongly thorough the retirement age groups and beyond.

17. Grants Pass School District No. 7 has been instrumental in providing recreational and classroom facilities. Except for Community Center and Izaak Walton buildings, Riverside Park Art Cottage and Gilbert Creek Building, all special classes and all basketball events are conducted as school facilities. To a lesser extent, but equally important, the Josephine County Unit and Rogue Community College Districts also contribute facilities. All school districts combined provide 20 gymnasiums, 15 recreation fields and 12 classrooms for the City-run recreation program.

Park Plans

18. In 1960, the City, Josephine County and a federal grant funded the preparation of a Park Plan titled "Planning for Recreation Ares, Grants Pass and Vicinity." The Plan was prepared by the Bureau of Municipal Research and Service, University of Oregon. The Plan is similar to the 1979 Grants Pass Urban Growth Boundary (see Map 7.20.1), and contained a target population of 36,000 persons, almost identical to the target adopted for the 1979 UGB of 35,750 persons.

19. The 1960 Park Plan defined various types of parks and recreation facilities as follows:
Reservation - A large area retained in its natural state with development limited to access roads, footpaths, bridle trails, picnicking and camping.
Community Park - A large park serving the entire community, developed around some salient natural feature, such as the Rogue River.
Playfield - A specialized facility, designed for organized team sports, serving older youth and adults, with locations central to the portion of community served, to be developed in conjunction with junior and senior high schools.
Neighborhood Park - A landscaped open area, utilizing some natural feature if possible, designed for passive recreation, or as a buffer between the Neighborhood Playground and surrounding residences. Recommended at 2 to 6 acres in size, or 1 to 2 City blocks.
Neighborhood Playground - An active play park designed for elementary school children, equipped with pay apparatus and soft surfaces, and including wading pool and shelter house. Recommended within one-half mile radius of every home, adjacent to schools, and 3 to 5 acres in size.
Playlot -A small area designed for pre-school children, usually part of, but separated from, a larger recreation area.

20. The 1960 Park Plan recognized key factors to be utilized in the development of the areas park system.
School Parks - Recognized as especially advantageous, combining school, school grounds, Neighborhood Playground and Neighborhood Park all on one site. The school gym and classrooms would be used in place of a recreation building, and economies would result from the operation and maintenance of a joint facility.
Rogue River - Identified as "the area's most important recreation asset," the plan proposed four major river front additions, several of which have been acquired or partially acquired.
Neighborhood and School Parks - Areas of deficiency were identified and future school sites were recommended for simultaneous park development.
Forest Parks - Large areas under public ownership were recommended for more intensive use as hiking and riding areas.

21. The 1960 Park Plan inventory showed an existing City ratio of public park acreage to be 6.1 acres per 1,000 population. The study area had 235 acres of public and private recreation area, and with no additions would show a ratio of 6.5 acres per 1,000 for the target population of 36,000 persons, needing an additional 125 acres to meet the national standard. (see Table 7.20.3)

22. The 1960 Park Plan identified areas of deficiency in City Ward I and IV, in the Fruitdale and Redwood areas, and river front parks, and made recommendations for new parks.
School Parks were proposed at Highland School, Roosevelt School, Fruitdale Elementary School, South Junior High School (a major community park of 25 to 30 acres), and Redwood School. Future school parks were recommended for proposed elementary schools in the Portola, Foothill and New Hope areas.
Major River Parks or river park additions were proposed at the Old Railroad Bridge sites, both shores, at the Pearce property below Jones Creek, and at Tussing Park adjacent to the County Fairgrounds.
Gilbert Creek was proposed to be developed as a scenic greenway, from the proposed park and Highland School south along the creek to a proposed Neighborhood Playground along the creek just north of Midland.
Public Easements for sewer lines and other utilities, as well as existing public right-of-ways were utilized by the Plan.
Realized Projects include parks near Highland School and at Portola School (by the City), recreation facilities in the New Hope area at Allendale Elementary School (by School District No.7), and a major river front acquisition and development at Pearce Park (by the County).

23. In August, 1967, a Park Plan was prepared by the Bureau of Municipal Research, University of Oregon, for Josephine County. The features of this 1967 Park Plan for the Grants Pass urbanizing area were incorporated into the 1969 General Plan.

24. In September, 1969, a General Plan for the Urbanizing Area of Josephine County and the City of Grants Pass, containing a Parks Section, was completed at the behest of City and County. The General Plan's urbanizing area as shown is markedly similar to the 1979 Urban Growth Boundary, and showed target populations for 1985 of 22,197 persons for the City, 34,600 persons for the urbanizing area and 58,000 persons for the County. For comparison, the 1980 census showed 15,032 persons in the City, an estimated 22,300 persons in the Urbanizing area and 58,855 persons in the County. (see Map 7.20.5)

25. The 1969 General Plan defined various types of parks and recreation facilities. As updated by City Council Resolution No. 877 of December, 1976, these definitions are as follows:
Regional Parks - A park attracting persons from the entire region, due to the natural beauty of the area, or to special recreation opportunities offered, with an emphasis on a natural setting.
Community Park - A large facility designed to serve the entire urban area population, including and exceeding all facilities found in smaller parks.
Neighborhood Parks - Smaller facilities envisioned in 1969 as serving a "neighborhood" within a one-fourth to one-half mile radius of every home. The concept was altered in 1976 to include the potential of serving other users outside the immediate neighborhood as well. Facilities include playground, ballfields, courts, picnic areas, restrooms and parking, but specifically exclude night lighting.
Special Parks - Special purpose developments such as the County Fairgrounds, swimming pools, community buildings and natural feature, limited space parks.

Landscaping - Landscaping and beautification along the public right-of-ways.
School Parks - Neighborhood parks acquired and developed jointly by the City and the School District, allowing a larger facility than could be afforded with separate development, and offering evening and year-round use of the combined facility as well as a larger facility available by day to students and faculty.

26. The 1969 General Plan stated certain goals, objectives, principles and recommendations for future park and open space development, as follows:

Goals and Objectives:

... to respect and conserve all of the natural resources in the area so that the benefits of each can be enjoyed without detriment to another. To protect and enhance the quality and usefulness of the Rogue and Applegate Rivers and recognize that natural beauty is of great significance to the future of the area.

...to increase the variety and number of public and private recreation opportunities and leisure time activities in the area.

General Principles:

Major public open spaces within the area, especially publicly owned lands, extensive private timber holdings, water courses and recreation areas along the rivers, should be protected against encroachment by uses which would adversely affect these areas of great significance to the future economic growth of the county.

Recreation sites should be obtained by the City and County as soon as possible so that these open spaces will be preserved for the future. Development should also proceed as soon as possible in order to increase and enhance recreational opportunities in the area. If recreation sites are not acquired in advance of need, the cost often becomes too great to be practical or the available properties may be too small to provide the services that are desired.

Community appearance should become a major concern and the subject of a major effort in the area. Street tree planting and landscaping, sign regulation and building improvement and painting programs will all contribute to an improved environment. With visitor incomes a primary source of future economic growth and development, beauty becomes a matter of basic economic significance.

Recommendations:

...that park and recreation development be considered as a vital part of the future economy of the area and that efforts be made to keep these facilities abreast of growth.

...that park sites be acquired well in advance of need so that they can be reserved for community use before the cost of acquisition becomes prohibitive for community use.

...that park sites be acquired in conjunction with school sites wherever possible.

...that parks be centrally located and easily accessible to the areas they are intended to serve.

...that the city and county initiate a regular program for acquisition and development of park and recreation facilities.

27. The 1969 General Plan inventory showed the entire urbanizing area, including the City, to have 126.5 acres of public recreation areas, and an estimated urbanizing areas population of 20,151 persons in 1967 resulting in park acreage ratio of 6.3 acres per 1000 population. Without the 40 acres managed by BLM and used as a day camp, the total becomes 86.5 acres and the park acreage ratio is 4.3 acres per 1000. (To meet the 1960 Park Plan "Standard", between 76 and 116 acres were required. No acreage standard was addressed by the plan, however.) Only 7% of the total park acreage was in the neighborhood park category.

28. The 1976 update and revision of the parks inventory showed an increase of total recreation acreage to 143.7 acres, a 14% gain, and an improvement in neighborhood park percentage to 11%, representing a 7 acre gain.

Existing Facilities and Deficiencies

29. An inventory of existing city park area, all ownerships, shows 98.89 acres. At the July 1, 1981, P.S.U. population estimate of 15,630 persons, the City's current park ratio stands at 6.3 acres per 1,000, or 3.8 acres per 1,000 if the BLM 40 acres were eliminated. (see Table 7.30.4)

30. The ratio of city park acreage to population has fluctuated over the past twenty years, and has steadily improved going from 2.9 acres per 1,000 in 1960 to 6.3 acres per 1,000 population in 1981.

31. 70% of the active park acreage is in Ward III, with only 6% in Ward IV and 2% in Ward II. (see also Table 7.30.5)

32. The City's recreation program utilized 20 gyms, 12 classrooms and 15 ballfields belonging to Grants Pass School District No. 7, the County unit and Rogue Community College Districts. Map 7.30.6 shows the location of school and park facilities, revealing the extent to which the school parks are part of the area's recreation program.

33. The County park facilities within the UGB are all south of the Rogue River and west of the Redwood Highway-Redwood Avenue intersection. Map 7.30.7 shows the County facilities within easy commuting distance of the City and urbanizing area. County facilities within the UGB total 77.7 acres.

Recreation Needs Analysis

34. In lieu of the required Park Facilities Plan, a Park and Recreation needs analysis was performed to give an indication of the needed park acreage for the most probable range of UGB population for the year 2000 of between 38,300 and 44,750 persons.

35. Recreation demand has been steadily increasing, both absolutely and on a per capita basis. (see Findings 13-17) Between 1976 and 1979 the number of activity occasions was increasing at the rate of about 12,000 occasions per year. The increase has been not only in volume, but in the variety of recreation as well as age groups involved. Both City and

County recreation officials agree that the capacity of many facilities has been reached or exceeded, especially the capacity of fields and courts for organized team sports such as baseball, softball, basketball, and volleyball.

36. A portion of the increased demand is due to the position of Grants Pass in the County. The City contains 25% of the County population, but 70% of the County population live within the City's "market area" of 10-15 miles travel radius. Another portion of increased demand is due to the unusually high orientation of immigrants and residents toward all forms of recreation, as demonstrated by several studies.

37. Professor Stevens of Oregon State University demonstrated a strong recreation preference as a reason for moving to Josephine County. In addition, both the Federal Bureau of Outdoor Recreation (1975) and the City of Grants Pass (1979) conducted surveys among Josephine County and Grants Pass area residents. The studies show remarkably similar results in the types and intensities of recreation engaged in by area residents. (see Table 7.30.2)

38. The percentage of respondents participating in forms of recreation needing minimal equipment and facilities (walking, freshwater fishing, hunting, bicycling, riding) is as high as or higher than the percentage participating in forms needing more extensive facilities and equipment (swimming, outdoor games, tennis, golf).

39. The number of activity occasions generated is as important in judging facilities demand as the percentage of the population participating. Using BOR rates for Josephine County, another ranking of recreation activity emerges (see Table 7.30.3). Walking, bicycling, outdoor games and pool swim dominate, generating from 2 to 6 times the activity occasions of the second activity group, and 5 to 16 times the activity occasions of the third activity group. Bicycling and walking together exceeded all other top ranking activities by 14% and double the activity occasions of outdoor games, their nearest "competitor." Horseback riding occasions equal that of freshwater fishing, the most popular activity, and nearly doubles the golf occasions.

40. Using both ranking of percent participation and numbers of activity occasions generated is important in computing the "facilities return" on construction, maintenance and staff dollars spent.

41. The BOR, in its 1978 Comprehensive Outdoor Recreation Plan for Oregon, determined the highest park and activity needs of the State to be as follows, ranked in order of priority:
<u>Need for Park Areas (by Park Types)</u>:
    1. Neighborhood Parks
    2. Community Parks
    3. District Parks
    4. Regional Parks
    5. Multiple Resource Areas -- Recreation
    6. Waysides

    <u>Needs by Type of Activity</u>:

1. Game areas, courts, and ballfields
2. Bicycle trails/paths
3. Water access (boating, fishing, swimming)
4. Swimming pools
5. Campsites
6. ORV trails/areas
7. Trails (hiking and multiuse)
8. Golf courses
9. Picnic tables
10. Ski areas
11. Hunting access (pages 2.7 - 2.8)

42. The BOR 1978 Comprehensive Plan further stated that "Tourism and recreation, the third ranked industry, depends on the state's scenic beauty and outdoor recreation opportunities for its attraction base; therefore, it is dependent on an efficient and effective outdoor recreation system that serves the needs of residents and visitors." (page 2.2)

43. This economic finding is reinforced by the City's Urban Growth Plan, whose Economic Base Analysis found that tourism was one of the major underpinnings of the area's economy, which estimated the 1977 travel-generated payroll to be $7-9 million, generating some 1,550 jobs. Adding proprietor income to payrolls for 1977 would total tourist-generated income at $10-12 million. Tourism accounts for 10% of the County's economic base. At the same time, higher gasoline prices, remoteness form metro population centers, and lack of business and resort destinations will require local effort to retain tourist income. (See also Economic Element)

44. Open space conserves natural and scenic resources, protects water supply and quality, minimizes erosion and runoff, enhances the value of neighboring property, serves athletic and recreational needs, buffers incompatible land uses, promotes orderly urban development and enhances city design.

45. Open space designations could be directed to achieve a coherent system of inter-connecting greenways, parks and other activity areas, such as the County Fairgrounds, Cathedral Hills, school parks, pools and the Rogue River parks.

46. Creeks, canals and rivers offer great potential for achieving such a greenway network. Large segments of Allen Creek, Sand Creek and the upper reaches of Fruitdale Creek are undeveloped, and could be included as development occurs. The Grants Pass Irrigation District system of delivery canals and their maintenance easements could become an important part of the system, or retained as public easement as development occurs and canal delivery of irrigation water is either phased out, or piped for delivery elsewhere. Sewer, water, gas, and electric utility easements, and street right-of-ways could augment the systems.

47. Citizen committees concerned with trail use have formed, and include the Josephine County

Bikeways Advisory Committee and the Josephine County Horseriding and Hiking committee. The Bikeways Committee has suggested a complete trail system, within and beyond the UGB, including development phases, standards, and the location of hazard sites. The Horseriding and Hiking Committee has prepared a trails proposal connecting portions of the southern and western urbanizing area to a major natural resource areas in public ownership (BLM, NFS, County) and to the key activity centers (Fairgrounds).

48. Immigrants (nearly half of the present County population of 58,855 persons located here within the last ten years) have shown by their activities and by surveys to be highly active "trails people", locating here precisely for what the local environment has to offer, and willing to sacrifice income to live in the area. These people offer a potential resource for the development and maintenance of a community-wide trails and greenway network.

49. A greenway/trails network could be acquired through purchase, donation, easement or dedication. Many public and semi-public easements already exist for purposes. Dedication of easements in new development will require "trade-offs," most easily given in the form of density bonuses or alternative site design standards, and can be accomplished through existing Planned Unit Development (PUD) mechanisms. Many such PUD dedications or easements have already occurred, or in the process, such as Allen Creek Estates, O'Dell Subdivision and Locklear Subdivision.

Requirements of Policy

50. The City and County adopted Urban Service Policies concurrent with and a part of their adoption of the Urban Growth Boundary in August, 1979. These policies relate to the provision of urban services, and were to guide Comprehensive Plan development as follows:

    Policy 42. The City shall develop and open space, park and recreation plan. The basic elements of this plan should be considered as part of the City's Comprehensive Plan.

    Policy 43. The City and County shall coordinate their long-range open space, park and recreation planning as it affects the planning area.

    Policy 44. Park, open space, and recreation standards for the urbanizing area should be carefully developed to reflect existing and anticipated demand, probable sources of revenue and economic impact.

51. The Joint Urban Area Service Management Agreement, adopted in January, 1981 by the City and County, provided for the joint provision of the urban services within the Boundary, and called for service delivery plans to be developed for basic services, including parks as follows:

    Policy 6, Section III
    The City and County shall mutually adopt a park plan for the Urban Growth Boundary area designed local use and regional park facilities. Such plan shall include the number, size, and approximate location of such facilities not yet existing and deemed necessary to serve the expected population within the Urban Growth Boundary. The City and County shall

mutually adopt an implementation and financing plan for acquiring, developing, and maintaining needed park and recreation facilities within the Urban Growth Boundary within 24 months from the date of execution of this agreement.

52. As required by the agreement, attempts were made to secure a State and Federal matching grant to prepare the Park Plan. The City, with County assistance, is now proceeding on its own, and a contract for Plan preparation is expected to be let by June 1982, and complete by the end of the year.

8.00 ECONOMIC ELEMENT INDEX

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ECONOMIC ELEMENT

8.10 INTRODUCTION

8.11 Framework for Economic Development Planning in Oregon

The content of this element is designed to meet the requirements of Oregon Statewide Planning Goal 9 and the administrative rule that implements Goal 9 (OAR 660-009). The analysis in this element is designed to conform to the requirements for an Economic Opportunities Analysis in OAR 660-009.

1. *Economic Opportunities Analysis (OAR 660-009-0015).* The Economic Opportunities Analysis (EOA) requires communities to:

   - identify the major categories of industrial or other employment uses that could reasonably be expected to locate or expand in the planning area based on information about national, state, regional, county or local trends;
   - identify the number of sites by type reasonably expected to be needed to accommodate the expected employment growth based on the site characteristics typical of expected uses;
   - include an inventory of vacant and developed lands within the planning area designated for industrial or other employment use; and
   - estimate the types and amounts of industrial and other employment uses likely to occur in the planning area.

   Local governments are also encouraged to assess community economic development potential through a visioning or some other public input based process in conjunction with state agencies.

2. *Industrial and commercial development policies (OAR 660-009-0020).* Cities with a population over 2,500 are required to develop commercial and industrial development policies based on the EOA. Local comprehensive plans must state the overall objectives for economic development in the planning area and identify categories or particular types of industrial and other employment uses desired by the community. Local comprehensive plans must also include policies that commit the city or county to designate an adequate number of employment sites of suitable sizes, types and locations. The plan must also include policies to provide necessary public facilities and transportation facilities for the planning area

3. *Designation of lands for industrial and commercial uses (OAR 660-009-0025.* Cities and counties must adopt measures adequate to implement policies adopted pursuant to OAR 660-009-0020. Appropriate implementing measures include amendments to plan and zone map designations, land use regulations, public facility plans, and transportation system plans. More specifically, plans must identify the approximate number, acreage and site characteristics of sites needed to accommodate industrial and other employment uses to

implement plan policies, and must designate serviceable land suitable to meet identified site needs.

In summary, this chapter includes an Economic Opportunities Analysis, the first key element required by Goal 9. This EOA also includes an employment forecast that leads to identification of needed development sites, and an inventory of commercial and industrial land in Grants Pass.

8.12 Organization of this chapter

The remainder of this chapter is organized as follows:

- **Section 8.20** examines the context for economic growth in Grants Pass, including long run national, regional, and local economic trends that may affect Grants Pass
- **Section 8.30** provides an overview of the f**a**ctors affecting future growth in Grants Pass' economy, and an evaluation of the comparative economic advantages of Grants Pass
- **Section 8.40** presents an employment forecast for Grants Pass for the 2007 to 2030 period and discusses site needs for industrial and other employment development
- **Section 8.50** identifies the key findings of this chapter for economic growth in Grants Pass

8.20 CONTEXT FOR ECONOMIC GROWTH IN GRANTS PASS

8.21 Long run national trends

Economic development in Grants Pass over the next twenty years will occur in the context of long-run national trends. The most important of these trends include:

- **The aging of the baby boom generation, accompanied by increases in life expectancy.** The number of people age 65 and older will double by 2050, while the number of people under age 65 with grow only 12 percent. The economic effects of this demographic change include a slowing of the growth of the labor force, an increase in the demand for healthcare services, and an increase in the percent of the federal budget dedicated to Social Security and Medicare.[1]
- **The growing importance of education as a determinant of wages and household income.** According to the Bureau of Labor Statistics, a majority of the fastest growing occupations will require an academic degree, and on average they will yield higher

[1] The Board of Trustees, Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, 2006, *The 2006 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, May 1; Congressional Budget Office, 2006, *The Budget and Economic Outlook: Fiscal Years 2007 to 2016*, January; and Congressional Budget Office, 2005, *The Long-Term Budget Outlook*, December.

incomes than occupations that do not require an academic degree.[2] In addition, the percentage of high school graduates that attend college will increase.[3]

- **Continued growth in global trade and the globalization of business activity.** With increased global trade, both exports and imports rise. Faced with increasing domestic and international competition, firms will seek to reduce costs and some production processes will be outsourced offshore.[4]

- **Innovation in electronics and communication technology, and its application to production.** Advancements in communication and manufacturing technology increase worker productivity. There will be growth in the production of both services and goods, but the economy's emphasis on services will increasingly dominate.[5]

- **Continued shift of employment from manufacturing and resource-intensive industries to the service-oriented sectors of the economy.** Increased worker productivity and the international outsourcing of routine tasks lead to declines in employment in the major goods-producing industries. Projections from the Bureau of Labor Statistics indicate that U.S. employment growth will continue to be strongest in professional and business services, healthcare and social assistance, and other service industries. Construction employment will also grow.[6]

- **The combination of rising energy costs, strong energy demand, and requirements to reduce emissions and increase use of renewable fuels.** Output from the most energy-intensive industries will decline, but growth in the population and in the economy will increase the total amount of energy demanded. Energy sources will diversify and the energy efficiency of automobiles, appliances, and production processes will increase.[7]

- **Continued westward and southward migration of the U.S. population.** Although there are some exceptions at the state level, a 2006 U.S. Census report documents an

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[2] Jobs requiring an academic degree are those that require postsecondary education or training such as an Associate, Bachelor's, Master's, or Doctoral degrees, as compared to jobs where the most significant source of training is on-the-job-training.

[3] Daniel E. Hecker, "Occupational Employment Projections to 2014," *Monthly Labor Review* 128: 11, November, pp. 70-101.

[4] Jay M. Berman, 2005, "Industry Output and Employment Projections to 2014," *Monthly Labor Review* 128:11, November, pp. 45-69.

[5] Jay M. Berman, 2005, "Industry Output and Employment Projections to 2014," *Monthly Labor Review* 128:11, November, pp. 45-69.

[6] Jay M. Berman, 2005, "Industry Output and Employment Projections to 2014," *Monthly Labor Review* 128:11, November, pp. 45-69; and Daniel E. Hecker, "Occupational Employment Projections to 2014," *Monthly Labor Review* 128: 11, November, pp. 70-101.

[7] Energy Information Administration, 2006, *Annual Energy Outlook 2006 with Projections to 2030*, U.S. Department of Energy, DOE/EIA-0383(2006), February.

ongoing pattern of interstate population movement from the Northeast and Midwest to the South and West.[8]

- **The importance of high-quality natural resources.** The relationship between natural resources and local economies has changed as the economy has shifted away from resource extraction. Increases in the population and in households' incomes, plus changes in tastes and preferences, have dramatically increased demands for outdoor recreation, scenic vistas, clean water, and other resource-related amenities. Such amenities contribute to a region's quality of life and play an important role in attracting both households and firms.[9]

Short-term national trends will also affect economic growth in the Josephine and Jackson county region, but these trends are difficult to predict. At times these trends may run counter to the long-term trends described above. A recent example is the downturn in economic activity in 2001 following the collapse of Internet stocks and the attacks of September 11. The resulting recession caused Oregon's employment in the Information Technology and high-tech Manufacturing industries to decline. Employment in these industries has partially recovered, however, and they will continue to play a significant role in the national, state, and local economy over the long run. This report takes a long-run perspective on economic conditions (as the Goal 9 requirements intend) and does not attempt to predict the impacts of short-run national business cycles on employment or economic activity.

8.22 Long run state and regional trends

State and regional trends will also affect economic development in Grants Pass over the next twenty years. The most important of these trends includes: population changes, continued in-migration from other states, distribution of population and employment across the State, shift from natural resource to high-tech industries, continued lack of diversity in the State economy, and public policy.

Population changes in Oregon and Southern Oregon

Population growth in Oregon tends to follow economic cycles. Historically, Oregon's economy is more cyclical than the nation's, growing faster than the national economy during expansions and contracting more rapidly than the nation during recessions. Oregon grew more rapidly than the U.S. in the 1990s (which was generally an expansionary period) but lagged behind the U.S. in the 1980s. Oregon's slow growth in the 1980s was primarily due to the nationwide recession early in the decade.

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[8] Marc J. Perry, 2006, *Domestic Net Migration in the United States: 2000 to 2004*, Washington, DC, Current Population Reports, P25-1135, U.S. Census Bureau.

[9] For a more thorough discussion of relevant research, *see*, for example, Power, T.M. and R.N. Barrett. 2001. *Post-Cowboy Economics: Pay and Prosperity in the New American West*. Island Press, and Kim, K.-K., D.W. Marcouiller, and S.C. Deller. 2005. "Natural Amenities and Rural Development: Understanding Spatial and Distributional Attributes." *Growth and Change* 36 (2): 273-297.

Oregon's population growth regained momentum beginning in 1987, growing at annual rates of between 1.4% and 2.9% between 1988 and 1996. Population growth for Oregon and its regions slowed in 1997, to 1.1% statewide, the slowest rate since 1987. Between 2000 and 2005 the rate of population growth in Oregon increased slightly to 1.2% annually.

Migration is the largest component of population growth in Oregon. Migration slowed from about 35,000 people in 1996 to 18,000 in 1999. The rate of migration increase between 2000 and 2004 averaged about 22,800 people moving to Oregon annually. The reasons most often cited for the slowing of migration since 1996 are the recovery of the California economy, the combination of a high cost of living (especially housing) and low wages in Oregon, and a perceived decline in the quality of Oregon's schools.

Continued in-migration from other states

Oregon's population is also related to economic conditions in other states—most notably, in California. During downturns in California's economy, people leave the state for opportunities in Oregon and elsewhere. As California's economy recovers, the population exodus tapers off. Such interstate migration is a major source of population change.

According to a U.S. Census study, Oregon had net interstate in-migration (more people moved *to* Oregon than moved *from* Oregon) during the period 1990-2004.[10] Oregon had an annual average of 26,290 more in-migrants than out-migrants during the period 1990-2000. The annual average dropped to 12,880 during the period 2000-2004.[11]

The Oregon Department of Motor Vehicles collects data on out-of-state driver licenses surrendered by applicants for Oregon licenses. These data provide an indicator of the source of Oregon's in-migration. During the period 1999-2005, over 30% of surrendered licenses were from California and approximately 17% were from Washington. All other states each accounted for less than 5% of the surrendered licenses.[12] The DMV also collects data on Oregon driver licenses surrendered in other states. These data indicate that Washington and California are the top destinations for Oregon's out-migrants.[13]

The *1999 Oregon In-migration Study* found that migrants to Oregon tend to have the same characteristics as existing residents, with some differences—recent in-migrants to Oregon are, on average, younger and more educated, and are more likely to hold professional or managerial jobs, compared to Oregon's existing population. The race and ethnicity of in-migrants generally mirrors Oregon's established pattern, with one exception: Hispanics make up more than 7% of

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[10] Marc J. Perry, 2006, *Domestic Net Migration in the United States: 2000 to 2004*, Washington, DC, Current Population Reports, P25-1135, U.S. Census Bureau.

[11] In contrast, California had net interstate *out-migration* over the same period. During 1990-2000, California had an annual average of 220,871 more out-migrants than in-migrants. The net outmigration slowed to 99,039 per year during 2000-2004.

[12] *See* Oregon Department of Motor Vehicles, "Driver Issuance Statistics," http://www.oregon.gov/ODOT/DMV/news/driver_stats.shtml, accessed May 25, 2006.

[13] For a discussion of the DMV data, *see* Ayre, A, 2004, *People Moved to Oregon Despite Recession*, Oregon Employment Department, July.

in-migrants but only 3% of the state's population. The number-one reason cited by in-migrants for coming to Oregon was family or friends, followed by quality of life and employment.[14]

Distribution of population and employment across the State

Oregon's population is not distributed equally across the state. Nearly 70% of Oregon's population lives in the Willamette Valley. With higher growth rates than the rest of the state, the Willamette Valley and Central Oregon have each captured a higher percentage of the state's population throughout the period 1970-2005. After the Willamette Valley, Southern Oregon is the second-largest population center in the state. The *1999 Oregon In-migration Study* found that the majority of in-migrants moved to the Willamette Valley.

Employment growth generally follows the same trend as population growth. Employment growth varies between regions even more, however, as employment reacts more quickly to changing economic conditions. Total employment increased in each of the state's regions over the period 1970-2004, but the increases in employment did not materialize uniformly across the state. Over 70% of Oregon's employment growth occurred in the Willamette Valley over the period 1970-2004.

Tightening of labor market as a result of retiring workers.

As the baby-boomers reach retirement age over the next two decades, the State may have a scarcity of qualified workers. In the next decade, the State projects that there will be almost twice as many job openings resulting from retirements compared to openings resulting from creation of new jobs. The sectors with the most employment and the largest share of employees 55 years or older include: Education Services; Real Estate; Transportation and Warehousing; Health Care and Social Assistance; Public Administration; and Agriculture, Forestry, Fishing, and Hunting. The State expects little or no growth in Manufacturing employment over the next decade but expects that retirements will create demand for employees in Manufacturing.[15]

Shift from natural resource-based to high tech industries

The composition of Oregon's employment has changed since 1970. Employment growth has been led by the Services sector. The share of Oregon's total employment in this sector increased from its 1970s average of 19% to 30% in 2000. Slow growth in Manufacturing caused its share of total employment to decline from its 1970s average of 18% to 12% in 2000.

During the same period, Oregon started to transition away from reliance on traditional resource-extraction industries. A significant indicator of this transition is the shift within Oregon's manufacturing sector, with a decline in the level of employment in the Lumber & Wood

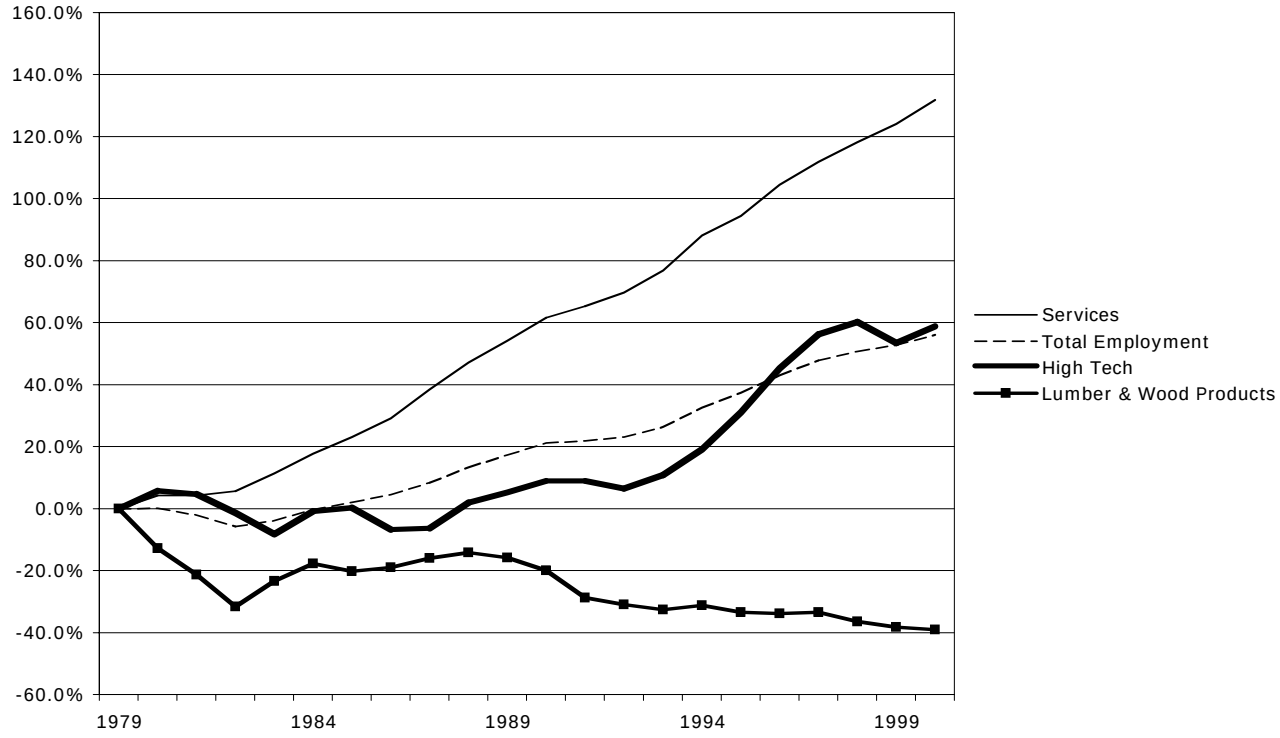
[14] State of Oregon, Employment Department. 1999. *1999 Oregon In-migration Study*.

[15] Oregon Employment Department Workforce Analysis Section, *Will Oregon Have Enough Workers?*, 2007

Products industry[16] and concurrent growth of employment in high-technology manufacturing industries (Industrial Machinery, Electronic Equipment, and Instruments[17]).

This pattern is shown in Figure 8.20.1, which charts the changes in the level of employment since 1979. The peak of Oregon's employment in the Lumber & Wood Products industry was in 1979. From 1979 to 2000, employment in the Lumber and Wood Products industry declined 40%. Over the same time period, employment in high-tech industries increased by 60%, and employment in the Services sector increased by over 130%.

FIGURE 8.20.1
CHANGES IN EMPLOYMENT BY MAJOR SECTOR
Oregon, 1979-2000



Source: ECONorthwest, based on data from the Bureau of Economic Analysis.

Continued lack of diversity in the State economy

While the transition from Lumber and Wood Products manufacturing to high-tech manufacturing has increased the diversity of employment within Oregon, it has not significantly improved Oregon's diversity relative to the national economy. Oregon's relative diversity has historically ranked low among states. Oregon ranked 35th in diversity (1st = most diversified) based on Gross

[16] SIC 24

[17] SIC 35, 36, 38

State Product data for 1963–1986, and 32nd based on data for the 1977–1996 period.[18] A recent analysis, based on 2003 data, ranked Oregon 33rd.[19] These rankings suggest that Oregon is still heavily dependent on a limited number of industries. Relatively low economic diversity increases the risk of economic volatility as measured by changes in output or employment.

The changing composition of employment has not affected all regions of Oregon evenly. Growth in high-tech and Services employment has been concentrated in urban areas of the Willamette Valley and Southern Oregon, particularly in Washington, Benton, and Josephine Counties. In Josephine County, the Service industries with the greatest employment growth were Health, Social, and Business services. The brunt of the decline in Lumber & Wood Products employment was felt in rural Oregon, where these jobs represented a larger share of total employment and an even larger share of high-paying jobs than in urban areas.

8.23 Economic conditions in Grants Pass

Future economic growth in Grants Pass will be affected in part by demographic and economic trends in the city and surrounding region. A review of historical demographic and economic trends provides a context for establishing a reasonable expectation of future growth in Grants Pass. In addition, the relationship between demographic and economic indicators such as population and employment can help form judgments about future trends and resulting economic conditions.

Population and demographics

The interaction between population growth and economic development is complex. As population grows, the demand for retail and services grows. Growth in the economy, especially in traded-sector industries like manufacturing, can result in population growth, as the region attracts people to fill new jobs.

Table 8.20.2 shows population over the 1980-2006 period for the U.S., Oregon, Southern Oregon, Josephine County, and Grants Pass. During this period, Oregon and Southern Oregon grew at a faster rate than the U.S. Josephine County grew at about the same pace as Oregon, at an average annual rate of 1.29%, adding 22,270 residents over the 26-year period.

Grants Pass grew faster than Josephine County or Oregon. Grants Pass grew by an average of 2.93% annually and added 15,898 residents over the 26-year period. More than 4,600 of the new residents in Grants Pass were the result of annexations since 1990, rather than new migration to the Grants Pass area.

[18] LeBre, Jon. 1999. "Diversification and the Oregon Economy: An Update." *Oregon Labor Trends.* February.

[19] CFED, 2006, The Development Report Card for the States, http://www.cfed.org.

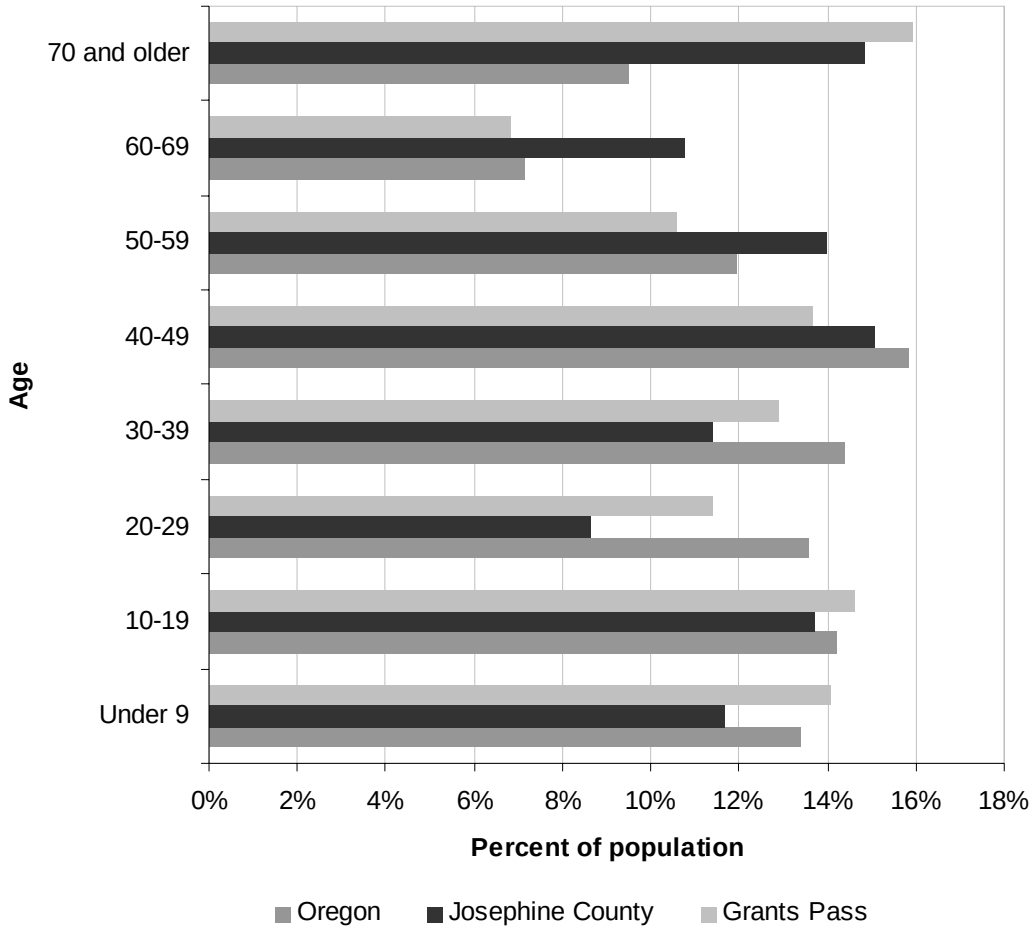
TABLE 8.20.2
POPULATION CHANGE
U.S., Oregon, Southern Oregon, Josephine County, and Grants Pass, 1980-2006

	Population				Change 1980 to 2006		
Area	**1980**	**1990**	**2000**	**2006**	**Number**	**Percent**	**AAGR**
U.S.	226,545,805	248,709,873	281,421,906	299,398,484	69,864,599	31%	1.08%
Oregon	2,639,915	2,842,321	3,421,399	3,690,505	988,785	37%	1.28%
Southern Oregon	285,059	303,685	357,394	383,555	98,496	35%	1.19%
Josephine County	58,855	62,649	75,726	81,125	22,270	38%	1.29%
Grants Pass	15,032	17,488	23,003	30,930	15,898	106%	2.93%

Source: U.S. Census, the Population Research Center at Portland State University.
Notes: Douglas, Jackson and Josephine Counties represent the Southern Oregon region.

Figure 8.20.2 shows the age distribution of Grants Pass compared with Oregon and Josephine County in 2000. Grants Pass and Josephine County had a smaller share of population aged 20 to 59 than the state average. Grants Pass had a larger share of residents aged 20 to 39 years than the County average. Grants Pass had a larger share of residents under 19 years and 70 years and older than Josephine County or Oregon. These trends suggest that Grants Pass attracted retirees and families with children.

FIGURE 8.20.2
AGE DISTRIBUTION,
Oregon, Josephine County, and Grants Pass, 2000



Source: U.S. Census, 2000

During the 1990's Grants Pass experienced changes in the age structure of its residents. Table 8.20.3 shows population by age for Grants Pass for 1990 and 2000. Grants Pass grew by more than 5,500 people during the ten year period. While Grants Pass experienced an increase n population for every age group, the fastest growing groups were 45 to 64 years and 5 to 17 years. The slowest growing group was 65 years and older.

TABLE 8.20.3
POPULATION BY AGE,
Grants Pass, 1990 and 2000

	1990		2000		Change		
Age Group	Number	Percent	Number	Percent	Number	Percent	Share
Under 5	1,257	7%	1,613	7%	356	28%	0%
5-17	3,087	18%	4,377	19%	1,290	42%	1%
18-24	1,406	8%	1,872	8%	466	33%	0%
25-44	4,902	28%	5,917	26%	1,015	21%	-2%
45-64	2,995	17%	4,760	21%	1,765	59%	4%
65 and over	3,841	22%	4,464	19%	623	16%	-3%
Total	17,488	100%	23,003	100%	5,515	32%	0%

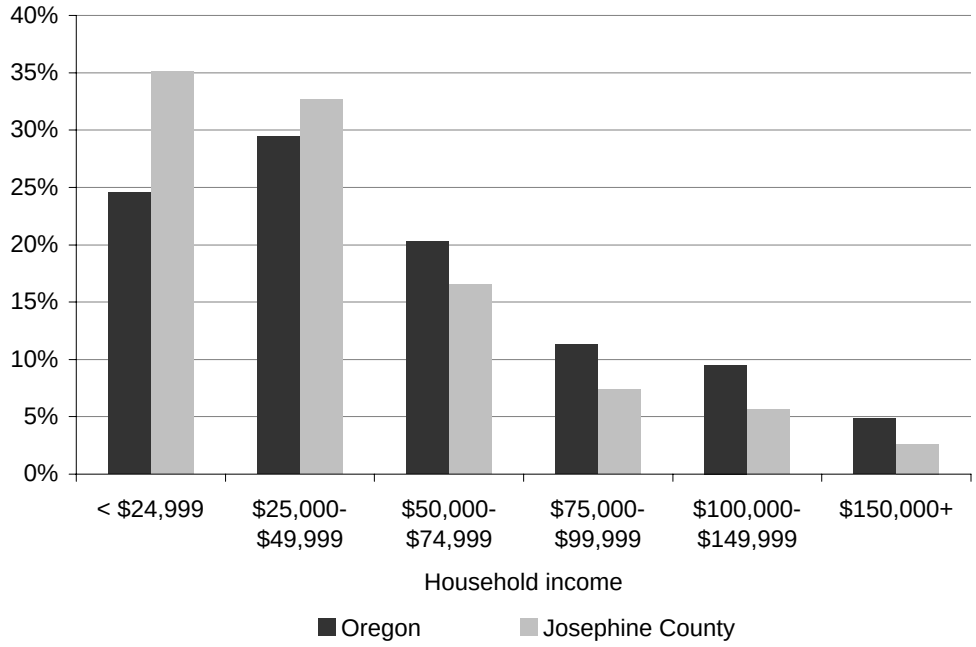
Source: U.S. Census, 1990 and 2000

Personal income

According to Census data the median household income in Grants Pass in 1999 was approximately $29,197, which was lower than Josephine County's median household income of $31,229 and Oregon's median household income of $40,916. Median household income in Grants Pass was about 71% of the state average.

Figure 8.23.3 shows the distribution of household income of Oregon and Josephine County in 2005. Figure 8.23.3 shows that household income has generally remained higher for Oregon than Josephine County. A larger percentage of households in Josephine County had income of less than $25,000 than in Oregon, 34% of households in Josephine County compared to 28% in Oregon.

FIGURE 8.20.3
DISTRIBUTION OF HOUSEHOLD INCOME
Oregon and Josephine County, 2005



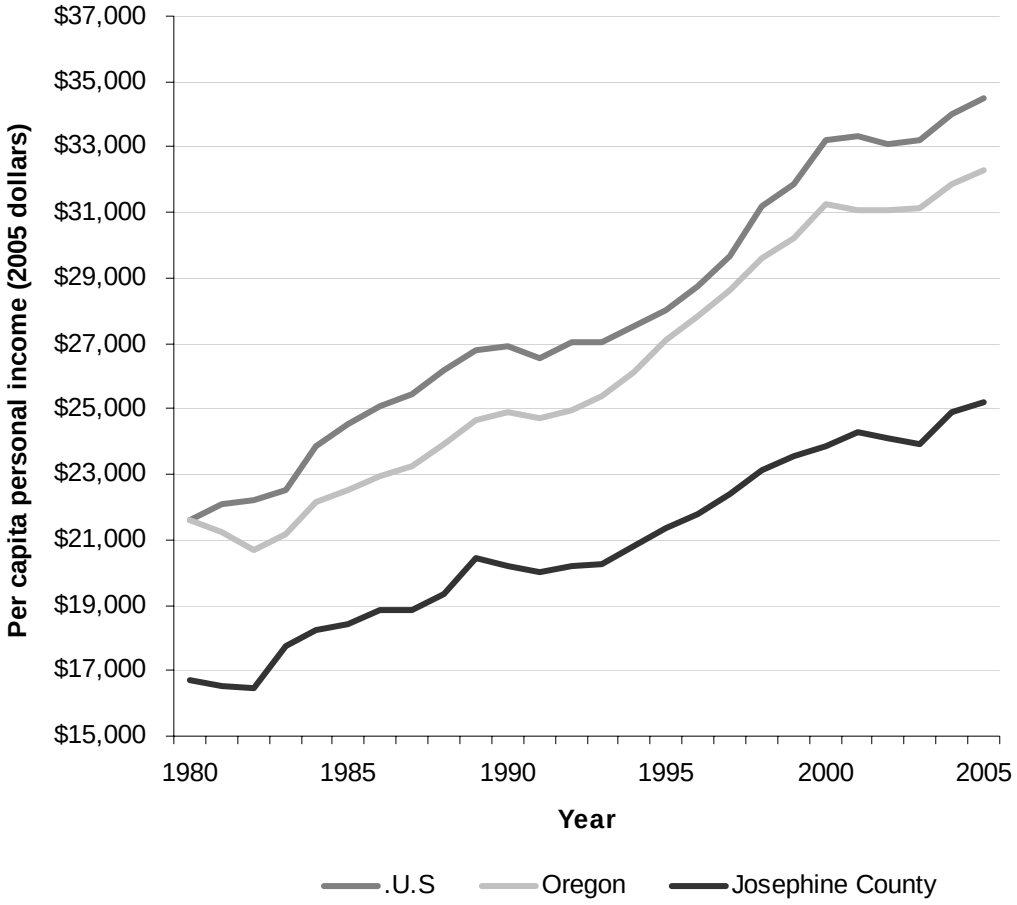
Source: U.S. Census Bureau, 2005 American Community Survey

Figure 8.20.4 shows the change in per capita personal income for the U.S., Oregon, and Josephine County between 1980 and 2005 (in constant 2005 dollars). In 2005, Josephine County's per capital personal income was about $25,200, compared with the State average of about $32,290 and national average of $34,470.

Oregon's per capita personal income was consistently lower than the U.S. average between 1980 and 2005. While the gap between the Oregon and US average narrowed in the mid-1990s, it widened again starting in the late 1990s through 2003.

Josephine County's personal income over the 25-year period has been consistently lower than personal income in Oregon's or the U.S. In 2005, per capita personal income in Josephine County was approximately 78% of Oregon's per capita personal income and 71% of the U.S. per capita income. The gap between per capita income in Josephine County compared to the national average has widened since the late-1990s. During the 25-year period, Josephine County's per capita personal income grew by 51%, while personal income grew by 49% in Oregon and 59% nationally during the same period.

FIGURE 8.20.4
PER CAPITA PERSONAL INCOME
U.S., Oregon, and Josephine County, 1980-2005, ($2005)

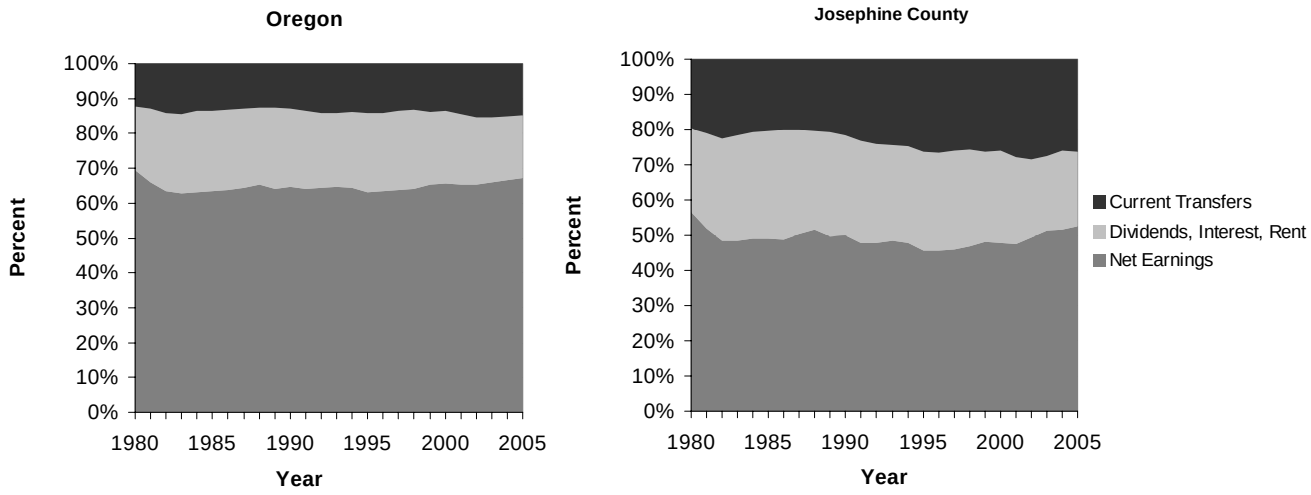


Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

Figure 8.20.5 shows the major sources of per capita personal income for Oregon and Josephine County between 1980 and 2005. The source of personal income was more variable in Josephine County than the state average. Josephine County consistently had a smaller share of personal income from net earnings than the State average, approximately 49% compared with the State average of 65% for the twenty-five year period.

Since 2000 the share of personal income from current transfers in Josephine County averaged about 27% of personal income, compared with the State average of 15%. During the same period, the average share of personal income from dividends, interest, and rent was 23%, compared with the State average of 19%. The people most likely to have personal income from these sources are retirees, which shows that retirees have been migrating to Josephine County.

FIGURE 8.20.5
SHARE OF TOTAL PERSONAL INCOME BY MAJOR SOURCE
Oregon, and Josephine County, 1980-2005



Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

Employment

Tables 8.20.4 though 8.20.6 present data from the Oregon Employment Department that show changes in sectors and industries in Josephine County between 1980 and 2005. The changes in sectors and industries shown in two tables: (1) between 1980 and 2000 and (2) between 2001 and 2005. The analysis is divided in this way because of changes in industry and sector classification that made it difficult to compare information about employment collected after 2001 with information collected prior to 2000.

Until 2001, industries were classified under the Standard Industrial Classification (SIC) system, which grouped industries according to their primary activity. Although the SIC classification structure was updated periodically to include new industries, SIC's structure was essentially unchanged since its development in the 1930's. Employment data in this section is summarized by *sector*, each of which includes several individual *industries*. For example, the Retail Trade sector includes General Merchandise Stores, Motor Vehicle and Parts Dealers, Food and Beverage Stores, and other retail industries.

Tables 8.20.4 and 8.20.5 present data from the Oregon Employment Department that shows changes in covered employment[20] for Josephine County between 1980 and 2005. Table 8.20.4 shows the changes in covered employment by sector in Josephine County between 1980 and 2000. Total employment in the County grew from 15,111 to 22,370, adding 7,259 jobs. Every sector added jobs during this period, except for Manufacturing and Nonclassifiable jobs. The

[20] Covered employment refers to jobs covered by unemployment insurance, which includes most wage and salary jobs but does not include sole proprietors, seasonal farm workers, and other classes of employees.

sectors with the greatest change in employment were Services and Retail Trade, adding a total of 4,815 jobs. The sector that decreased the most was Manufacturing, which lost 146 jobs, although that only accounted for 4% of total employment in Manufacturing.

TABLE 8.20.4
COVERED EMPLOYMENT
Josephine County, 1980-2000

				Change from 1980 to 2000			
Sector	**1980**	**1990**	**2000**	**Difference**	**Percent**	**AAGR**	**Share**
Agriculture, Forestry and Fishing	167	316	564	397	238%	5.0%	2%
Mining	55	76	86	31	56%	1.8%	0%
Construction	583	533	964	381	65%	2.0%	2%
Manufacturing	3,608	3,952	3,462	-146	-4%	-0.2%	-12%
Trans., Comm., and Utilities	568	600	724	156	27%	1.0%	1%
Wholesale Trade	293	474	736	443	151%	3.8%	1%
Retail Trade	3,391	4,397	5,061	1,670	49%	1.6%	2%
Finance, Insurance and Real Estate	566	662	868	302	53%	1.7%	0%
Services	2,565	3,908	5,710	3,145	123%	3.3%	8%
Nonclassifiable/all others	27	15	25	-2	-7%	-0.3%	0%
Government	3,288	3,193	4,171	883	27%	1.0%	-2%
Total	**15,111**	**18,125**	**22,370**	**7,259**	**48%**	**1.6%**	

Source: Oregon Employment Department, Oregon Labor Market Information System, Covered Employment & Wages.
Summary by industry and percentages calculated by ECONorthwest
Note: The number of employees in all sectors does not sum to the "Total Covered Employment" because of disclosure issues.

Table 8.20.5 shows the change in covered employment by sector for Josephine County between 2001 and 2005. Employment increased by 2,261 jobs or 10% during this period. The sectors with the largest increases in numbers of employees were Construction and Health and Social Assistance. Sectors that lost the greatest number of employees during this period were Government and Information.

TABLE 8.20.5
COVERED EMPLOYMENT
Josephine County, 2001-2005

Sector	2001	2005	Change from 2001 to 2005 Difference	Percent	AAGR	Share
Agriculture, Forestry, Fishing & Hunting	501	497	(4)	-1%	-0.2%	0%
Mining	80	53	(27)	-34%	-9.8%	0%
Construction	918	1,736	818	89%	17.3%	3%
Manufacturing	2,901	3,291	390	13%	3.2%	0%
Wholesale	630	930	300	48%	10.2%	1%
Retail	3,508	3,877	369	11%	2.5%	0%
Transportation, Warehousing, & Utilities	495	440	(55)	-11%	-2.9%	0%
Information	415	345	(70)	-17%	-4.5%	0%
Finance & Insurance	634	765	131	21%	4.8%	0%
Real Estate Rental & Leasing	335	376	41	12%	2.9%	0%
Professional, Scientific & Technical Services	445	522	77	17%	4.1%	0%
Management of Companies	111	141	30	27%	6.2%	0%
Admin. Support & Cleaning Services	777	957	180	23%	5.3%	0%
Private Education	184	162	(22)	-12%	-3.1%	0%
Health & Social Assistance	3,017	3,535	518	17%	4.0%	1%
Arts, Entertainment & Recreation	242	244	2	1%	0.2%	0%
Accomodations & Food Services	2,084	2,333	249	12%	2.9%	0%
Other Services (except Public Admin.)	979	986	7	1%	0.2%	0%
Government	4,173	3,500	(673)	-16%	-4.3%	-4%
Total Covered Employment	**22,433**	**24,694**	**2,261**	**10%**	**2.4%**	

Source: Oregon Employment Department, Oregon Labor Market Information System, Covered Employment & Wages.
Summary by industry and percentages calculated by ECONorthwest
Note: The number of employees in all sectors does not sum to the "Total Covered Employment" because of disclosure issues.

Table 8.20.6 shows covered employment by sector and industry within the Grants Pass Urban Growth Boundary (UGB) for 2005. The data in Table 8.20.6 is based on confidential records for individual employers provided to the Oregon Employment Department.[21] Table 8.20.6 does not report employment in sectors where there were fewer than three firms or where one firm accounts for greater than 80% of employment in order to maintain the confidentiality of individual employers.

Table 8.20.6 shows that Grants Pass had 1,580 establishments with 18,765 covered workers. Employment in Grants Pass accounts for 76% of all employment in Josephine County in 2005. The sectors with the greatest percentage of employment in 2005 were Retail Trade (18%), Health Care and Social Assistance (18%), Manufacturing (11%), Government (11%), and Accommodation and Food Services (11%). Together these sectors accounted for 12,865 jobs or 69% of employment in Grants Pass.

[21] The covered employment data presented in table 8.20.6 may contain information about employers not located in Grants Pass or may not cover all employers with covered employees in Grants Pass. The reason for these discrepancies is the way that the location for employers is tracked by the Oregon Department of Employment. Many of these problems have been fixed over the last several years but some inconsistencies may still exist.

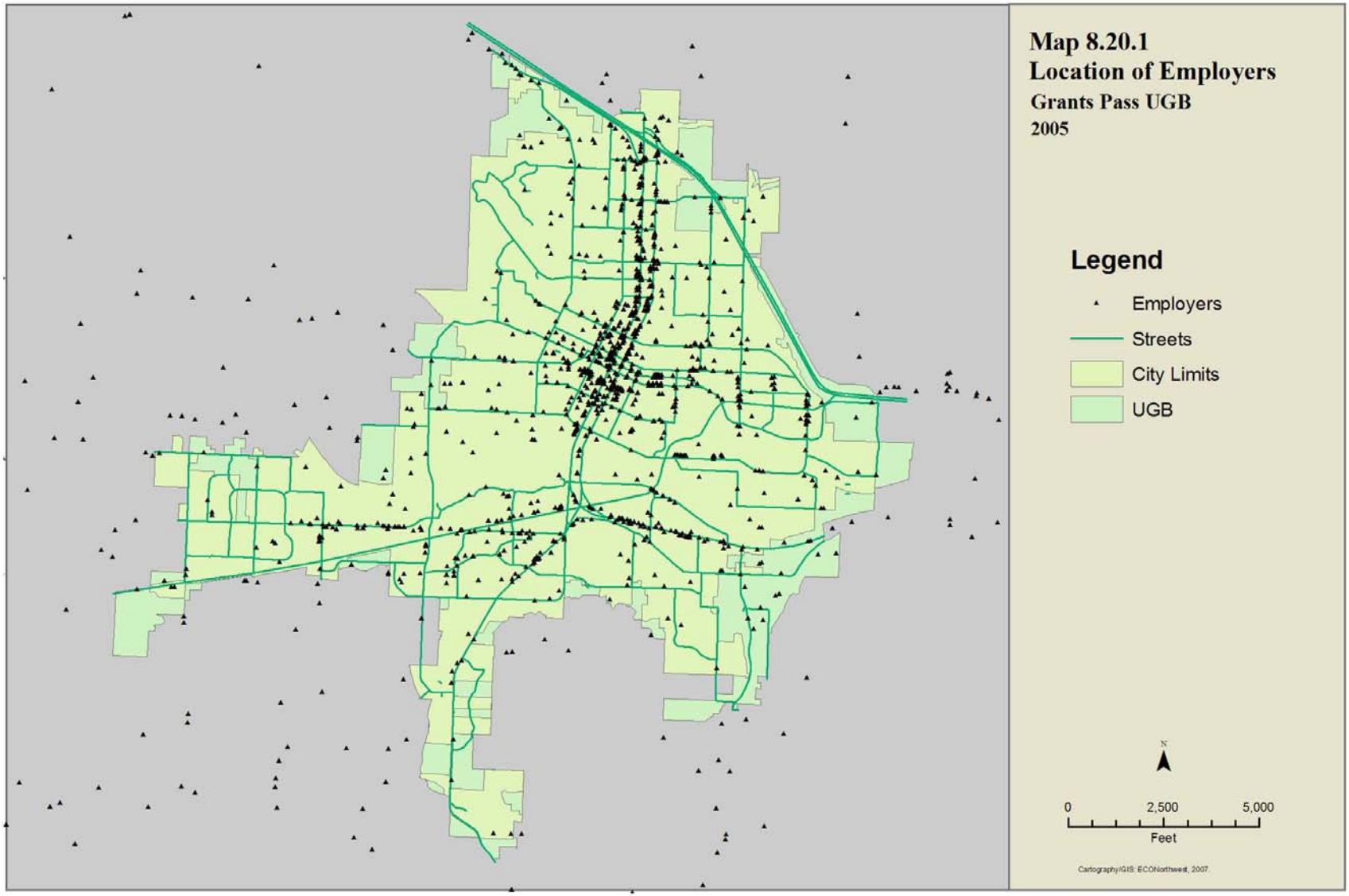
The average pay for covered employees in 2005 was $28,269. The sectors with greatest share of employment and above average pay were Government ($39,238), Health Care and Social Assistance ($33,429), Construction ($30,680), and Manufacturing ($30,117). The other sectors with a large share of employment had below average pay per employee, including Retail Trade ($23,999) and Accommodation and Food Services ($12,739).

Map 8.20.1 shows the location of employers in and around Grants Pass in 2005 based on data from the Quarterly Census of Employment and Wages.

TABLE 8.20.6
COVERED EMPLOYMENT BY SECTOR AND INDUSTRY
Grants Pass UGB by sector and industry, 2005

Sector/Industry	**Est.**	**Emp.**	**Payroll**	**Average Pay/Emp.**
Agriculture, Forestry, Fishing, Hunting, & Mining	**12**	**95**	**$3,141,167**	**$33,065**
Construction	**167**	**1,022**	**$32,376,946**	**$31,680**
Specialty Trade Contractors	102	545	$16,129,958	$29,596
Construction of Buildings	59	351	$9,812,619	$27,956
Heavy and Civil Engineering Construction	6	126	$6,434,369	$51,066
Manufacturing	**72**	**2,125**	**$63,997,574**	**$30,117**
Wood Product Manufacturing	6	567	$18,027,344	$31,794
Computer and Electronic Product Manufacturing	4	254	$7,639,506	$30,077
Nonmetallic Mineral Product Manufacturing	6	228	$6,508,796	$28,547
Fabricated Metal Product Manufacturing	15	114	$3,937,186	$34,537
Other manufacturing	41	962	$27,884,742	$28,986
Wholesale Trade	**52**	**860**	**$23,891,639**	**$27,781**
Retail Trade	**245**	**3,303**	**$79,267,598**	**$23,999**
General Merchandise Stores	9	876	$18,960,143	$21,644
Food and Beverage Stores	36	676	$12,991,191	$19,218
Motor Vehicle and Parts Dealers	35	528	$19,498,159	$36,928
Gasoline Stations	21	207	$3,112,797	$15,038
Building Material & Garden Equip. & Supplies	17	197	$4,983,246	$25,296
Health and Personal Care Stores	15	170	$4,360,467	$25,650
Furniture and Home Furnishings Stores	17	150	$4,683,795	$31,225
Other Retail Trade	95	499	$10,677,800	$21,398
Transportation, Warehousing, and Utilities	**29**	**312**	**$9,866,952**	**$31,625**
Information	**29**	**324**	**$11,902,546**	**$36,736**
Finance and Insurance	**100**	**739**	**$30,145,757**	**$40,793**
Real Estate and Rental and Leasing	**69**	**298**	**$6,967,379**	**$23,380**
Professional, Scientific, and Technical Services	**100**	**403**	**$11,245,138**	**$27,904**
Management of Companies and Enterprises	**9**	**80**	**$3,080,144**	**$38,502**
Administrative & Support & Waste Mgt. Srv.	**64**	**721**	**$18,962,583**	**$26,300**
Educational Services	**10**	**85**	**$1,382,410**	**$16,264**
Health Care and Social Assistance	**204**	**3,325**	**$111,151,021**	**$33,429**
Ambulatory Health Care Services	134	1,181	$47,721,474	$40,408
Other Health Care	34	1,783	$56,612,394	$31,751
Social Assistance	36	361	$6,817,153	$18,884
Arts, Entertainment, and Recreation	**20**	**177**	**$2,359,473**	**$13,330**
Accommodation and Food Services	**144**	**1,995**	**$25,413,554**	**$12,739**
Accommodation	18	263	$3,817,580	$14,516
Food Services and Drinking Places	126	1,732	$21,595,974	$12,469
Other Services (except Public Administration)	**160**	**784**	**$12,246,882**	**$15,621**
Government	**94**	**2,117**	**$83,066,093**	**$39,238**
Federal Government	6	238	$12,245,139	$51,450
State Government	10	292	$10,561,125	$36,168
Local Government	78	1,587	$60,259,829	$37,971
Total	**1,580**	**18,765**	**$530,464,856**	**$28,269**

Source: Confidential Quarterly Census of Employment and Workforce (QCEW) data provided by the Oregon Employment Department. Summary by sector and industry, percent of total employment, and average payroll per employee by ECONorthwest.


Map 8.20.1
Location of Employers
Grants Pass UGB
2005
Legend
Employers
Streets
City Limits
UGB
N
0
2,500
5,000
Feet
Cartography/GIS: ECONorthwest, 2007

Employment activities occur throughout the City, as shown in Map 8.20.1. Some employment activity occurs in residential plan designations. Table 8.20.7 shows the location of covered employment within the Grants Pass UGB by plan designation. About 28% of covered employment is located in residential plan designations, with employment spread nearly evenly among all residential plan designations.

TABLE 8.20.7
LOCATION OF COVERED EMPLOYMENT BY PLAN DESIGNATION
Grants Pass UGB by sector and industry, 2005

Plan Designation	Name	Covered Employment	Percent of Employment
Employment Designations			
BP	Business Park	2,183	13.2%
CBD	Central Business District	1,418	8.6%
GC	General Commercial	9,314	56.2%
I	Industrial	905	5.5%
IP	Industrial Park	205	1.2%
NC	Neighborhood Commercial	79	0.5%
RTC	Riverfront Tourist Commercial	6	0.0%
Subtotal		**11,927**	**71.9%**
Residential Designations			
LR	Low Density Residential	1,391	8.4%
MR	Moderate Density Residential	1,251	7.5%
HR	High Density Residential	940	5.7%
HRR	High Rise Residential	1,037	6.3%
Subtotal		**4,619**	**27.9%**
ND	No Designation	36	0.2%
Total		**16,582**	**100.0%**

Source: Confidential Quarterly Census of Employment and Workforce (QCEW) data provided by the Oregon Employment Department. Summary by plan designation by ECONorthwest using Grants Pass GIS data.
Note: Areas with "No Designation" are records that GIS reported as having no a plan designation because they were at the edge of a boundary or designation.

It is likely that not all of the employees working in residential plan designations work from home. The types of employment typically located in residential plan designations include schools, home-based businesses, telecommuters, small retail establishments like convenience stores, and other services such as churches or fraternal organizations. About 20% of the 4,619 jobs (about 920 jobs) located in residential designations are from public employers, such as city and county offices or the school districts. It should be noted that the summary of employment in 8.20.7 does not include uncovered workers, most importantly sole proprietors, who may also locate in residential areas.

The R-4 zone in the HRR plan designation also allows professional office use, and there is substantial office development in the R-4 zones, especially in the vicinity of city and county

offices, along ‘A’ Street, near the old hospital at ‘A’ Street and Highland, and south of Ramsey Avenue near the new hospital.

Census data give some indication of the amount of home-based employment in Grants Pass. According to the 2000 Census, about 4.2% (370) of residents of Grants Pass worked from home, compared with 6.8% of Josephine County and 5% of Oregon’s workforce. In 2006, Census data indicated that the share of Oregonians working from home increased to 6%. If Grants Pass has followed State trends, then a larger share of people in Grants Pass may work from home. It is difficult to quantify the effect of this trend but it may have an impact on commercial land demand in Grants Pass during the planning period.

The analysis presented in Tables 8.20.4 through 8.20.6 show that the Services, Retail Trade, and Government sectors account for about two-thirds of employment growth in Josephine County since 1980, accounting for about 6,500 new jobs. Manufacturing continues to be an important source of employment in Josephine County, accounting for about 13% of employment in 2005. The Manufacturing industries with the greatest employment in Josephine County in 2005 included wood products manufacturing and plastics and rubber products manufacturing. The types of industries with the greatest share of employment in Grants Pass in 2005 were similar to the County: Retail Trade, Manufacturing, Government, and Services, such as Health Care and Social Assistance and Accommodations and Food Services.

Business activity

The Goal 9 administrative rule (OAR 660-009-0015(2)) suggests that local governments take into consideration expansion plans of major employers when determining the site requirements of major employers.

Eleven major employers in Grants Pass were interviewed about their expansion plans for the next twenty years, including their plans for adding employees, plans for expanding their facilities, whether they would need to purchase land for expansion, whether they have plans to move their facilities outside of Grants Pass, and whether there are infrastructure deficiencies that affect their ability to continue operations in Grants Pass. Table 8.20.8 summarizes the results of our interviews.

TABLE 8.20.8
FACILITY AND EMPLOYEE EXPANSION PLANS FOR MAJOR EMPLOYERS, Grants Pass, 2007

Firm name	Plans to add jobs?	Plans to expand facilities?	Plans to purchase land for expansion?
Electronic Sub Assembly Manufacturing (ESAM)	Yes	Yes	No
Fire Mountain Gems Inc.	Yes	No	No
Grants Pass	Yes	Yes--long term	Yes--long term
Grants Pass High School	No	No	No
Hire Calling Staffing Solutions	Yes	Lease	New lease
Master Brand Cabinets	Maintain level	No	No
Royale Gardens Health & Rehabilitation Center	No	No	No
Three Rivers Community Hospital	Yes	Yes	No
Wal-Mart Supercenter Store #1834	Maintain level	No	No

Source: Interviews conducted by ECONorthwest.
Notes: On three or more occasions, ECONorthwest attempted to make contact with Diversified Collections and Rogue Valley Sash and Door to determine their future businesses expansion plans.

Four of the major employers plan to expand their workforce and three plan to expand their facilities. Four firms have no plans to add employees other than to maintain current staffing levels or expand their facilities. Only one employer, the City of Grants Pass, indicated that they may need to purchase land for a long-term expansion.

The following is a list of the major employers interviewed, and their responses regarding firm expansion plans.

- **Three Rivers Community Hospital (747+ employees):** Three Rivers Community Hospital will be hiring physical therapists and registered nurses as fast as they can find qualified applicants. The various campuses on which Three Rivers operates have different expansion plans. In the next 5-8 years, Three Rivers plans to relocate the services on the Washington Street campus to the new campus. In addition, Three Rivers plans to expand the emergency department at the new campus, which will require moving parking onto additional land adjacent to the current parking facilities and using some of the existing parking facilities for the expansion. They plan to purchase no new land for the expansion.

- **Master Brand Cabinets (600+ employees):** Master Brand expanded 3 years ago and has no plans for additional expansion and no land upon which it could expand. If necessary, the plant would create a third shift to use existing space, which would require hiring 150 new employees, but Master Brand does not foresee this occurring in the short-term. Master Brand will continue hiring to replace turnover as necessary.

- **Fire Mountain Gems Inc. (490+ employees):** Fire Mountain Gems will be looking to add 10-20 technical staff positions over the next three to five years. Fire Mountain Gems

recently constructed a new 68,400-square foot warehouse, which will provide manufacturing space for a projected 20 years. If additional built space is needed, Fire Mountain Gems has approximately two thirds of its 17-acre site to expand onto.[22]

- **Wal-Mart (500+ employees):** The Wal-Mart store in Grants Pass already has made the transition from a standard store to a super center with grocery component, and therefore foresees no expansion or major hiring plans. The store will continue to maintain the current level of employees and hire as needed in response to turnover.

- **Electronic Sub Assembly Manufacturing (ESAM) (200+ employees):** Over the next five years ESAM plans to increase its employment by 50%, or hire an additional 100 semi-skilled employees over the next five years. Over the next three years ESAM plans to add 50,000 square feet of built space to their existing 47,000 square feet. At the time of this interview, ESAM was in escrow for purchasing a large property adjacent to its existing facility that would accommodate the proposed 50,000 square foot facility.[23]

- **Royale Gardens Health & Rehabilitation Center (190+ employees):** Royale Gardens Health & Rehabilitation Center is stable at its current size and will not expand its employment or built space in the near future. The presence of Three Rivers Community Hospital within Grants Pass provides Royale Gardens Health & Rehabilitation Center with local clientele.[24]

- **City of Grants Pass. (190+ employees):** The City of Grants Pass has outgrown its current site and will be searching for a site upon which to construct a new campus in the next 7-12 years. The City owns no suitable property for the new campus, estimated to require at least 6 acres. The City plans to add employees as necessary.

- **Grants Pass High School (185 employees):** Grants Pass High School has no current plans to expand employment or built space. School District representatives noted that the District's employment and built space needs are reactive to growth. Grants Pass High School has two acres adjacent to its current facilities to accommodate future built space needs if these needs should arise.[25]

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[22] Personal communication with Nicky Whilhelm, Fire Mountain Gems, CFO, 4/12/07

[23] Personal communication with Dave Mytheney, Electronic Sub Assembly Manufacturing, Vice President, 4/13/07. ESAM notes their location in the Spalding industrial park, the current tax situation, and their good relationship with the City as the comparative advantages that have allowed them to thrive in Grants Pass in the face of overseas cost pressures.

[24] Personal communication with Randy Nations, Royale Gardens Health & Rehabilitation Center, Owner, 4/11/07

[25] Personal communication with Sherry Ely, Grants Pass School District, Business Office Supervisor, 4/11/07

- **Hire Calling Staffing Solutions (2.5 permanent employees, 100+ contract employees):** Hire Calling will be adding 1-2 permanent positions in the next year. They may relocate but will continue to lease space.

The Oregon Labor Market Information System (OLMIS) web site provided additional information about employment activity in Grants Pass.[26] Recent or upcoming changes in employment in Grants Pass include the following.

- **Retail firms:** Over 2006 and into 2007 retail was the most active business type entering and exiting the Grants Pass market. Businesses opening in 2006 included: Joleen's Touch at Body Dynamics, Book Boutique, Arabesque Dancewear, Fourth Street Beauty Co., Aaron's Sales and Lease Ownership, Valley Wine Cellar and Havoc, EBS Urban Boutique, and Monster's Workwear. Businesses opening in the first quarter of 2007 included: HeartSong, Fahrenheit Fashion Boutique, Alterations and Tailoring by Delia, and Avalon Tile. Marilyn's and the Redwood Select Market closed in April and December of 2006 respectively.

- **Food Services**: Businesses opening in 2006 and 2007 included: Denise's Family Restaurant, Ubaldi's Coffee, AJA, Muchas Gracias, Circle J Café, Tic-Toc Taco, Miranda Mae Café and Piano Bar, and Sonic Drive-In.

- **Professional Services**: Businesses opening in 2006 and 2007 included: Sterling Bookkeeping and Business Consulting, American General Financial Services, and Adventures in Computing. SOWAC Microenterprise Development Center closed in February of 2007.

- **Manufacturing**: Exceptional Metals, a division of Duro-Last Roofing, is adding a second manufacturing site in Grants Pass in June of 2007.

The 2005 Business Retention and Expansion Program Business Survey/ Visitation Summary Report[27] provided additional information about business activity in Grants Pass. The survey of business indicated the following trends:

- **Employment**. Of the 66 businesses surveyed, most anticipated adding new jobs in the next three years. These businesses projected adding a total of 931 jobs.

- **Facility expansion.** One third of business surveyed planned to add square footage in the next three years. Fifty nine percent expanded their facilities in the last 5 years, and 52% remodeled their facilities in the past 5 years.

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[26] Oregon Employment Department, Oregon Labor Market Information System (OLMIS) Website: http://www.qualityinfo.org/olmisj/PubReader?itemid=00000036

[27] Mitchell, Charlie, *Grants Pass/ Josephine County Oregon Business Retention and Expansion Program 2005 BR&E Business Survey and Visitation Summary Report*, City of Grants Pass, 2005.

- **Relocation**. Thirty-seven percent of businesses surveyed relocated in the last 5 years, and 21% planned to relocate in the next 3 years.

- **Land**. Forty percent of businesses surveyed did not have sufficient land or building to accommodate necessary expansion.

8.24 Outlook for Growth in Grants Pass

Grants Pass is growing. The City grew at faster rate than Josephine County and Oregon, growing by 15,898 people at an annual average growth rate of 2.93% between 1980 to 2006. Over the same period, the County and State grew at an annual average growth rate of 1.29% and 1.28%, respectively.

According to the Josephine County's adopted forecast, the County will grow from 76,050 people in 2000 to 113,167 people in 2027, an increase of 37,117 people at an average annual growth rate of 1.48%. By 2057, Josephine County projects that it will grow to about 160,084 residents at an average annual growth rate of 1.26%.

Table 8.20.9 presents the population forecast for the Grants Pass UGB for 2007 to 2057. Grants Pass is expected to have 57,888 residents by 2027 and 79,272 residents by 2057.

TABLE 8.20.9
POPULATION FORECAST
Grants Pass UGB, 2007 to 2057

Year	Population
2007	37,460
2027	57,888
2057	79,275
Change 2007 to 2027	
Number	20,428
Percent	55%
AAGR	2.20%
Change 2007 to 2057	
Number	41,815
Percent	112%
AAGR	1.51%

Source: ECONorthwest.

Table 8.20.10 shows the Oregon Employment Department's forecast for employment by industry between 2004 and 2014 for Oregon and Region 8, which includes Jackson and Josephine Counties. The Oregon Employment Department is forecasting 19,820 new jobs in Region 8 over the ten-year period, an increase of nearly 20%. The State forecast for growth in Jackson and Josephine County is for an average annual growth rate of 1.8%, compared to the State average of 1.4%.

The sectors that are expected to lead employment growth in Jackson and Josephine Counties are: Retail Trade, Health Care and Social Assistance, Professional and Business Services, and

Accommodation and Food Services. Together, these sectors are expected to add 12,820 new jobs, or 65% of the employment growth in Region 8 between 2004 and 2014.

TABLE 8.20.10
NONFARM EMPLOYMENT FORECAST BY SECTOR AND INDUSTRY
Region 8 Jackson and Josephine Counties, 2004-2014

	Jackson and Josephine Counties			
Sector/ Industry	**2004**	**2014**	**Growth**	**% Growth**
Natural Resources & Mining	**970**	**990**	**20**	**2.1%**
Construction	**5,940**	**7,270**	**1,330**	**22.4%**
Manufacturing	**10,010**	**10,870**	**860**	**8.6%**
Durable Goods	7,640	8,160	520	6.8%
Wood Product Manufacturing	3,030	2,940	-90	-3.0%
Transportation, & Utilities	**3,080**	**3,660**	**580**	**18.8%**
Wholesale Trade	**3,130**	**3,590**	**460**	**14.7%**
Retail Trade	**17,010**	**20,270**	**3,260**	**19.2%**
Information	**2,170**	**2,570**	**400**	**18.4%**
Leisure & Hospitality	**11,410**	**14,030**	**2,620**	**23.0%**
Accomodation & Food Services	9,730	12,120	2,390	24.6%
Financial Activities	**5,480**	**6,340**	**860**	**15.7%**
Professional & Business Services	**9,100**	**11,740**	**2,640**	**29.0%**
Education	**690**	**920**	**230**	**33.3%**
Health Care & Social Assistance	**13,870**	**18,400**	**4,530**	**32.7%**
Other Services	**3,650**	**4,190**	**540**	**14.8%**
Government	**15,110**	**16,600**	**1,490**	**9.9%**
Federal Government	2,040	2,050	10	0.5%
State Government	2,780	3,010	230	8.3%
State Education	1,480	1,580	100	6.8%
Local Government	10,290	11,540	1,250	12.1%
Local Education	6,030	6,650	620	10.3%
Total Nonfarm Payroll Employment	**101,620**	**121,440**	**19,820**	**19.5%**

Source: Oregon Employment Department. Employment Projections by Industry 2004-2014. Projections summarized by ECONorthwest.

8.30 FACTORS AFFECTING FUTURE ECONOMIC GROWTH IN GRANTS PASS

Economic development opportunities in Grants Pass will be affected by local conditions as well as the national and regional economic conditions that were addressed in the beginning of this chapter. Factors affecting future economic development in Grants Pass include its location, labor force, housing, public services, and transportation. Grants Pass shares the general characteristics and advantages of the Rogue Valley, Oregon, and the Pacific Northwest as a whole, such as a high quality of life, proximity to I-5 and the recreational amenities of the Rogue Valley, Siskiyou Mountains, Cascade Mountains, and access to the California and Oregon Coasts. Moreover, Grants Pass is, and will continue to be, a regional employment center. Economic conditions in Grants Pass relative to conditions in Southern Oregon form Grants Pass' comparative advantage for economic development, which has implications for the types of firms most likely to locate and expand in Grants Pass.

This section begins with a description of comparative advantage and why it is relevant for this Economic Opportunity Analysis. The section then reviews local factors affecting economic development in Grants Pass and any advantages, opportunities, disadvantages, or constraints these factors may present. It ends with a discussion of the comparative advantages formed by the mix of factors present in Grants Pass and the implications for the types of firms most likely to locate in Grants Pass.

There is little that Grants Pass can do to influence national and regional conditions that affect economic development. Grants Pass, however, can influence local factors that affect economic development.

8.31 What is comparative advantage?

Each economic region has different combinations of productive factors: land (and natural resources), labor (including technological expertise), and capital (investments in infrastructure, technology, and public services). While all areas have these factors to some degree, the mix and condition of these factors vary. The mix and condition of productive factors may allow firms in a region to produce goods and services more cheaply, or to generate more revenue, than firms in other regions.

By affecting the cost of production and marketing, comparative advantages affect the pattern of economic development in a region relative to other regions. Goal 9 and OAR 660-009-0015(4) recognizes this by requiring plans to include an analysis of the relative supply and cost of factors of production. An analysis of comparative advantage depends on the geographic areas being compared. Economic conditions in Grants Pass will be largely shaped by national and regional economic conditions affecting Southern Oregon. This section focuses on the comparative advantages of Grants Pass relative to Southern Oregon, as well as Josephine County. The implications of these individual factors for Grants Pass overall comparative advantage are discussed at the end of this section.

8.32 Location

Grants Pass' location will substantially influence its future development. Grants Pass is located on Interstate 5 and Highways 99 and 199 and a railroad line in Southern Oregon, near the California border. It is located along the Rogue River in the Rogue Valley. Much of the City is surrounded by federally owned forestland and low-lying hills and mountains. Grants Pass' location has played a critical role in the City's growth and will continue to have implications for economic development within the City.

- **Transportation access.** Grants Pass' location provides opportunities for multiple forms of transportation. Interstate 5 passes through the City, providing access to the major West Coast north-south freight route. Grants Pass' easy access to I-5 provides businesses with access to markets in Northern California and the Willamette Valley. Grants Pass is located along State Highways 99 and 199. Highway 99 provides a secondary connection between Grants Pass and Medford. Highway 199 connects Grants Pass with Cave Junction and the northern California Coast. Further, the City is located along one railroad route and is located 30 miles from the Rogue Valley International Airport in Medford.

- **Proximity to the Bear Creek Valley.** Grants Pass has access to workers and markets of the major cities in Southern Oregon (known as the Bear Creek Valley). Grants Pass is located near Southern Oregon's largest cities, approximately 30 miles from Medford and 40 miles from Ashland. Grants Pass is also within close proximity to other cities within the Rogue Valley, including Gold Hill, Eagle Point, White City and Central Point. The City's proximity to these cities gives Grants Pass access to the labor force, employment opportunities, cultural amenities and markets of these cities. The proximity to these cities also provides workers in Grants Pass opportunities to live in an urban area other than Grants Pass.

- **Quality of life.** Grants Pass offers access to rural housing and recreational opportunities. Grants Pass maintains a small town atmosphere and access to a rural lifestyle, which provides housing and lifestyle options to workers in the Rogue Valley. Grants Pass' location within the Rogue Valley provides opportunities for outdoor recreation, including hiking, biking, rafting, fishing, and skiing. Grants Pass has urban amenities, such as shopping and cultural and recreational opportunities, like the Rogue Valley Symphony, art galleries, the Rogue Theater, and other cultural activities. The weather in Grants Pass is relatively mild in the summer and winter. This factor has helped the City attract many retirees from Oregon and California.

Grants Pass' location is a comparative advantage for economic development within the City because of its proximity to I-5 and Highway 99 provide easy automotive access. Although Grants Pass is growing rapidly, it still offers residents a small town lifestyle, with major employers and urban amenities within driving distance. However, Grants Pass' distance from larger urban areas, such as the Willamette Valley, may create disadvantages for economic development because some businesses may wish to be located in an area with more urban amenities. In addition, the hills near Grants Pass, an element of the City's natural beauty, make expansion of city services and development difficult in some areas.

8.33 Transportation

A number of transportation options are available in Grants Pass, including state and interstate highways, and the Central Oregon & Pacific Short Line Railroad. Grants Pass is located on Interstate 5 and Highways 99 and 199, which give the City access to domestic and international markets via West Coast ports. Interstate 5 gives Grants Pass a direct connection to Medford and California to the south and Eugene to the north.

According to the Oregon Department of Transportation, average daily traffic volumes on Interstate 5 just north and south of Grants Pass have increased between 1996 and 2005. Table 8.30.1 shows average daily traffic volumes on Interstate 5 between 1996 and 2005. Traffic volume is heaviest south of Grants Pass and near the Louse Creek Interchange north of Grants Pass. The area with the greatest increase in traffic volume (44%) was near the Redwood Highway Interchange.

The share of freight traffic is higher north of Grants Pass than south of Grants Pass. In 2005 18.6% of traffic at the Grave Creek Automatic Traffic Recorder north of Grants Pass was single

trailer trucks. About 14.4% of traffic 2 miles west of Gold Hill (not shown in Table 8.30.1) was single trailer trucks.

TABLE 8.30.1
AVERAGE DAILY TRAFFIC COUNTS ON INTERSTATE 5 NEAR GRANTS PASS
Interstate 5, 2005, 2000, and 1996

	Location and Mile Post (MP)	2005	2000	1996	Change 1996-2005 Number	Change 1996-2005 Percent
North ↑	Grave Creek Automatic Traffic Recorder (MP 64.20)	22,300	20,400	17,700	4,600	26%
	Near Louse Creek Interchange (MP 61.05)	32,900	29,700	26,900	6,000	22%
	Near the Redwood Highway Interchange (MP 57.56)	29,100	23,400	20,200	8,900	44%
	Near the East Grants Pass Interchange (MP 55.38)	32,900	31,700	28,900	4,000	14%
South	Rogue River Bridge (MP 45.61)	34,600	32,500	28,400	6,200	22%

Source: Oregon Department of Transportation, 2007

One rail line runs through Grants Pass: the Central Oregon & Pacific Railroad (CORP), Oregon's second largest short line railroad. The main north-south line runs from Eugene in the north, through Grants Pass and connects with Medford and Ashland in the south before heading into California. Very little of the freight on this line originates in Grants Pass.[28] Passenger rail service is not available in Grants Pass.

As Grants Pass grows, transportation capacity and connectivity could become a constraining factor on economic development. In addition, business survey respondents to the Grants Pass and Josephine County Business Retention and Expansion Survey indicated that the distance from markets is a disadvantage in doing business in Grants Pass.

8.34 Labor force

The availability of labor is critical for economic development. Availability of labor depends not only on the number of workers available, but the quality, skills, and experience of available workers. This section examines the availability of workers in Grants Pass.

The labor force in any market consists of the adult population (16 and over) who are working or actively seeking work. The labor force includes both the employed and the unemployed. Children, retirees, students, and people who are not actively seeking work are not considered part of the labor force.

The unemployment rate is one indicator of the relative number of workers who are actively seeking employment. Data from the Oregon Employment Department shows that unemployment in Josephine County was 6.7% in 2006, compared with 5.4% in Oregon. The unemployment rate

[28] Oregon Department of Transportation: Rail Division. "2001 Oregon Rail Plan." Adopted by the Oregon Transportation Commission, November 8, 2001. Page 48.

in Josephine County through March 2007 increased to 8.0%, about 2.2% higher than the State average.

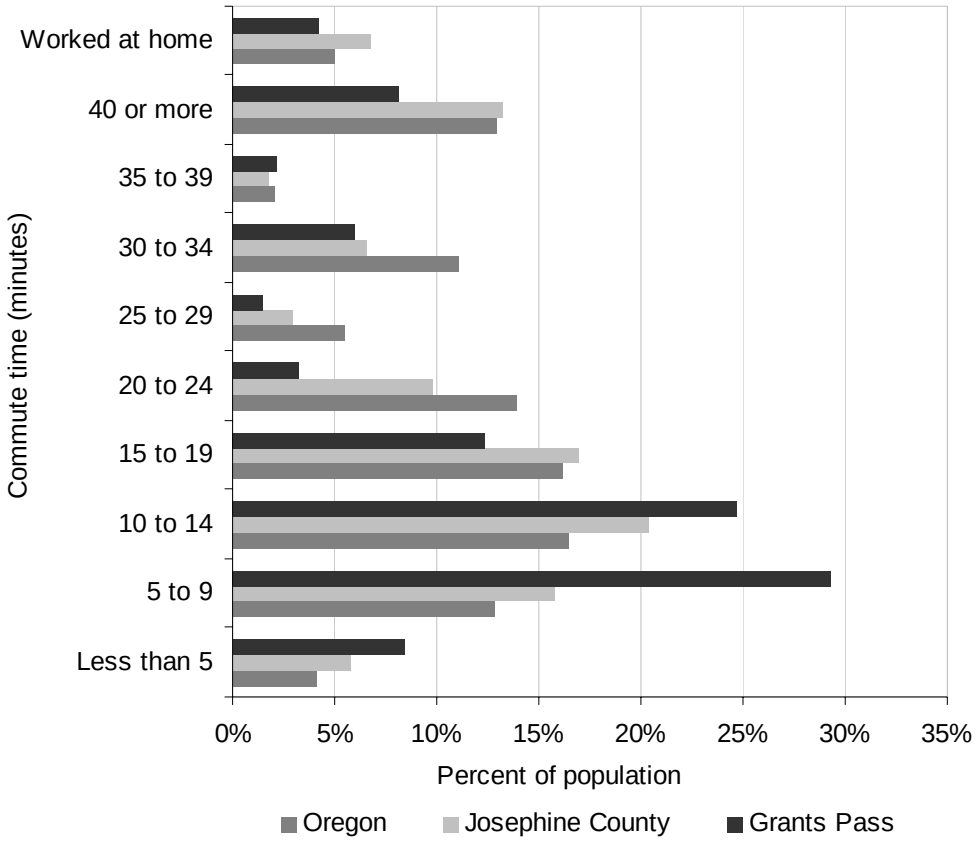
Labor force participation is an important consideration in the availability of labor. The labor force consists of people 16-years and older that are available for work. The labor force excludes the following groups of people: students, fully retired workers[29], institutionalized people, and other individuals. In 2000, about 55% of residents of Grants Pass were a part of the labor force, compared with 52% of Josephine County residents and 65% of Oregon residents. The most likely cause of the lower labor force participation in Grants Pass and Josephine County is the larger share of retirees compared to the State average.

Access to postsecondary education and workforce training can be an important consideration in the quality of the labor force. Residents in and around Grants Pass have access to higher education and workforce training through Rogue Community College (RCC) and Southern Oregon University in Ashland. RCC has campuses in Grants Pass, Medford, and White City. RCC offers two-year degrees, certificates, and workforce and short-term training in a variety of areas including sciences, business programs, medical specialties, and vocational skills like welding, truck driving, or computer systems.

Figure 8.30.1 shows a comparison of the commute time to work for residents 16 years and older for Oregon, Josephine County, and Grants Pass. Residents of Grants Pass generally spent less time commuting to work than residents of Josephine County or Oregon. Sixty-two percent of residents of Grants Pass spent less than 15 minutes commuting, compared with 42% Josephine County residents and 33% of Oregon residents.

[29] The labor force includes workers that retired but continue to be employed, either full or part-time.

FIGURE 8.30.1
COMMUTING TIME TO WORK
Residents of Oregon, Josephine County and Grants Pass city limits, 2000



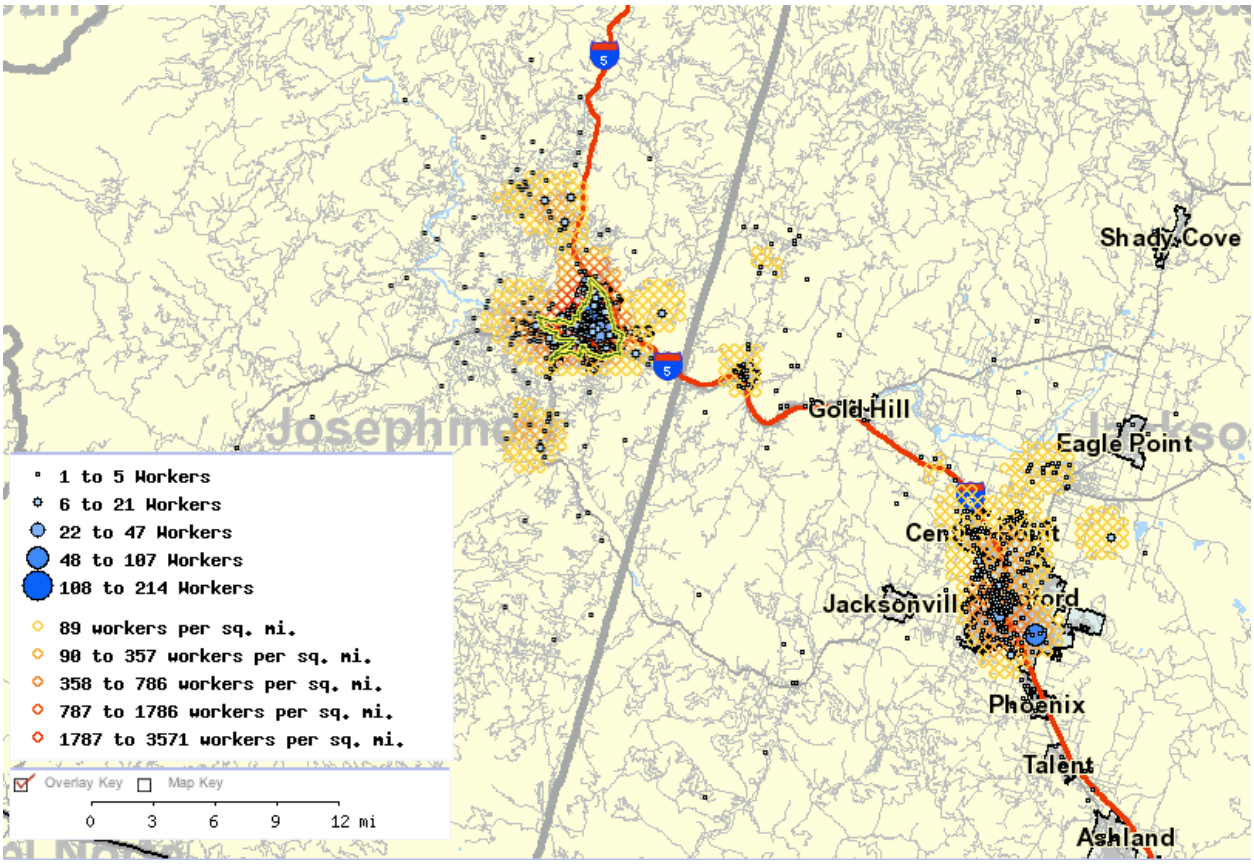
Source: U.S. Census Bureau, 2000 Census.

Figure 8.30.2 and Table 8.30.2 show where residents living within the city limits of Grants Pass worked in 2003.[30] Figure 8.30.2 and Table 8.30.2 show that nearly 63% of residents of Grants Pass worked in Josephine County, with slightly more than one-half working within the City and 10% working in unincorporated areas.[31] About one-fifth of Grants Pass residents worked in Jackson County, with 14% commuting 30 miles to Medford.

[30] Information in Figures 8.30.2 and 8.30.3 and Tables 8.30.2 and 8.30.3 is for covered employment only, which generally excludes sole proprietors and self-employed workers. The information in this analysis does include telecommuters and home occupations with covered employees.

[31] The information for unincorporated Josephine County includes people that commute from Cave Junction.

FIGURE 8.30.2
PLACES WHERE GRANTS PASS RESIDENTS WERE EMPLOYED
Grants Pass city limits, 2003



Source: US Census Bureau, LED Origin-Destination Database (2nd Quarter 2003)

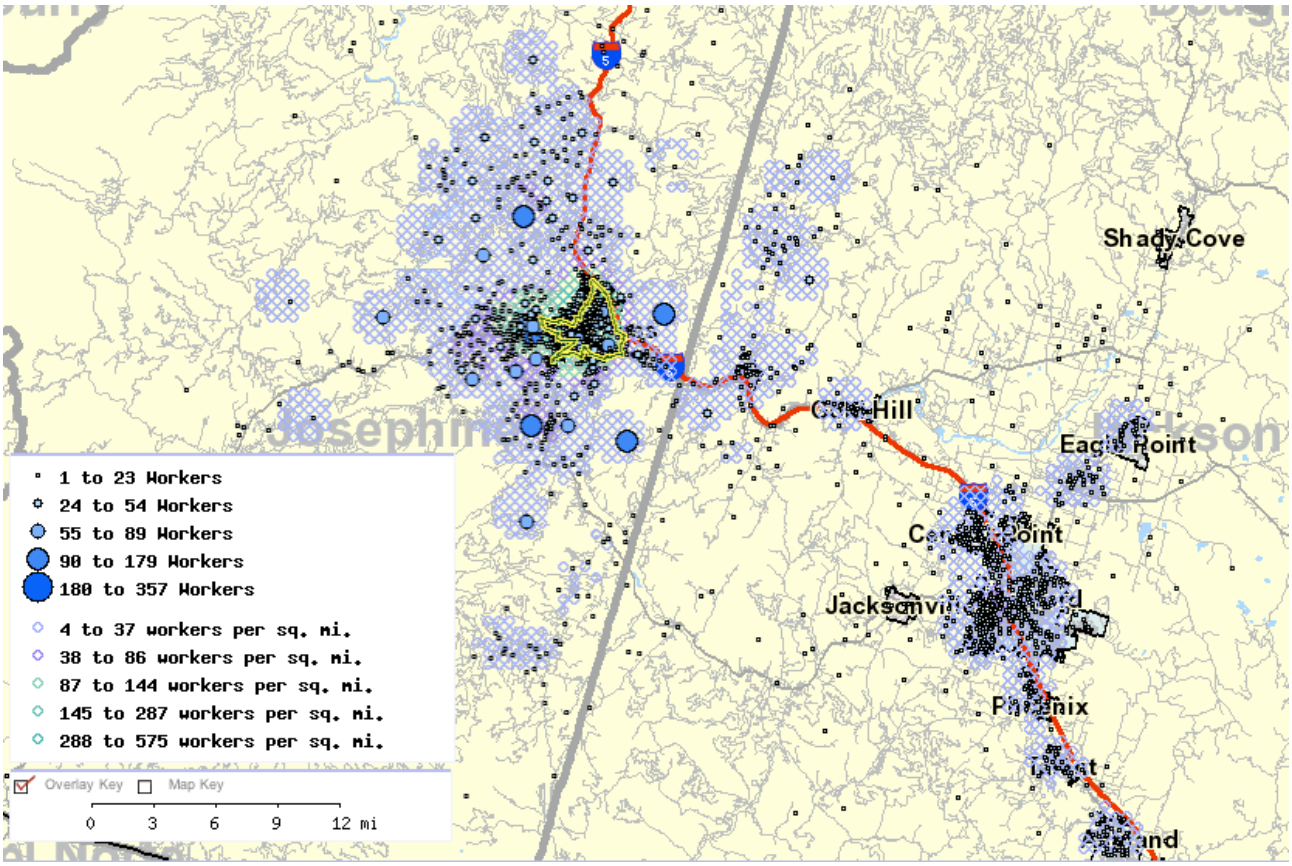
TABLE 8.30.2
PLACES WHERE GRANTS PASS RESIDENTS WERE EMPLOYED
Grants Pass city limits, 2003

Location	Number	Percent
Josephine County	3,440	63%
Grants Pass	2,867	52%
Unincorporated	573	10%
Jackson County	1,112	20%
Medford	744	14%
All Other Locations	939	17%
Total	5,491	100%

Source: US Census Bureau, LED Origin-Destination Data Base (2nd Quarter 2003)

Figure 8.30.3 and Table 8.30.3 show where employees of firms located in Grants Pass lived in 2003. Seventy percent of workers in Grants Pass lived in Josephine County. Thirty-two percent of workers in Grants Pass lived in Grants Pass, while 38% commuted into the City from unincorporated areas.[32] An additional 14% of workers lived in Jackson County, only 4% of whom lived in Medford.

FIGURE 8.30.3
PLACES WHERE GRANTS PASS WORKERS LIVED
Grants Pass city limits, 2003



Source: US Census Bureau, LED Origin-Destination Database (2nd Quarter 2003)

[32] The information for unincorporated Josephine County includes people that commute from Cave Junction.

TABLE 8.30.3
PLACES WHERE GRANTS PASS WORKERS LIVED
Grants Pass city limits, 2003

Location	Number	Percent
Josephine County	8,281	70%
Grants Pass	3,830	32%
Unincorporated	4,451	38%
Jackson County	1,600	14%
Medford	519	4%
All Other Locations	1,928	16%
Total	11,809	100%

Source: US Census Bureau, LED Origin-Destination Data Base (2nd Quarter 2003)

The implication of the data presented in this section is that a majority of Grants Pass' workforce either live in Josephine or Jackson County, but do not reside in the City of Grants Pass. More than one-third of workers within Grants Pass city limits lived in Josephine County, near to Grants Pass, some within the Grants Pass UGB. This analysis shows that businesses in Grants Pass have access to the labor force in parts of Jackson County, including Medford, the largest regional economic center. Grants Pass is also a regional economic center, with a population to employment ratio of 1.2, below the State average of 2.2 persons per job.

Information from stakeholder interviews and the Grants Pass and Josephine County Business Retention and Expansion Survey indicate that firms in Grants Pass have difficulties finding qualified employees. The shortage is both in skilled labor and reliable unskilled labor. As baby-boomers reach retirement age over the planning period, the labor market for qualified workers may tighten statewide and in Grants Pass. The difficulty in finding workers may discourage firms from locating or expanding in Grants Pass.

8.35 Public services

This section discusses public services that are important for economic development, including tax policy, water, wastewater, and Grants Pass' enterprise zone.

Tax policy

Studies show that tax rates are not a primary location factor—they matter only after businesses have made decisions based on labor, transportation, raw materials, and capital costs. The cost of these production factors are usually similar within a region. Therefore, differences in tax levels across communities within a region are more important in the location decision than are differences in tax levels between regions. Table 8.30.4 shows the average property tax rates per $1,000 assessed value for Oregon, Josephine and Jackson counties, Grants Pass, and other cities in the region in 2006-2007. Table 8.30.4 shows that the property tax rate in Grants Pass are higher than Josephine County and Cave Junction but lower than Central Point, Medford, and Ashland.

TABLE 8.30.4
PROPERTY TAX FOR ALL TAXING DISTRICTS
PER $1,000 OF ASSESSED VALUE
Oregon, Josephine County, Jackson County,
and selected cities, 2006-2007

Area	Tax Rate (per $1,000 assessed value)
Oregon	$15.20
Josephine County	$9.50
Grants Pass	$11.68-$13.82
Cave Junction	$10.30
Jackson County	$13.43
Central Point	$16.34-$17.05
Medford	$14.54-$15.24
Ashland	$14.49-$14.67

Source: Oregon Department of Revenue

Systems Development Charges

Like other taxes, variations in systems development charges (SDCs) are not a primary location factor but are important in location decisions within a region. The League of Oregon Cities conducted a survey of average commercial SDCs for all jurisdictions in Oregon. Table 8.30.5 shows SDCs for Grants Pass, jurisdictions in Josephine and Jackson Counties that answered the survey, and the cities of Ashland and Medford, which did not answer the survey.[33] Grants Pass has the highest SDCs of any city in Josephine and Jackson counties, with the probable exception of Medford. It was not possible to calculate Medford's sewer or water SDCs based on the characteristics of the office building described in the survey of commercial SDCs. Assuming that Medford's sewer and water SDCs are comparable to Grants Pass, then Medford's total SDCs might be comparable to Grants Pass' SDCs.

[33] SDCs for Ashland and Medford were calculated for a 20,000 square foot office building, as described in the League of Oregon Cities survey "System Development Charges" from May 2007.

TABLE 8.30.5
AVERAGE COMMERCIAL SYSTEM DEVELOPMENT CHARGES
Grants Pass and selected cities in Josephine and Jackson counties, 2007

Jurisdiction	Sewer	Water	Stormwater	Transportation	Parks	Total
Grants Pass	$ 7,881	$ 18,925	$ 412	$ 118,200	$ 11,650	$ 157,068
Medford**	unavailable	unavailable	$ 8,025	$ 114,929	$ 3,744	$ 126,698
Central Point	$ -	$ 6,651	$ 6,425	$ 80,662	$ -	$ 93,738
Ashland*	$ 7,948	$ 26,332	$ 3,378	$ 46,126	$ -	$ 83,784
Cave Junction	$ 2,985	$ 17,500	$ -	$ -	$ -	$ 20,485
Butte Falls	$ -	$ -	$ -	$ -	$ -	$ -
Gold Hill	$ -	$ -	$ -	$ -	$ -	$ -

Source: League of Oregon Cities "System Development Charges" survey, May 2007; City of Ashland; and City of Medford
Notes: The League of Oregon Cities survey did not include SDC information about SDCs for the cities of Ashland or Medford. The amounts calculated in Table 8.30.5 are based on an estimate of Ashland and Medford's SDCs for the type of office building described in the League of Oregon Cities survey of SDCs. ECO was unable to calculate Medford's sewer SDC because the formula for determining the SDC required more data about the type of plumbing fixtures than the survey provided about the office building.

Water

The City of Grants Pass provides drinking water to the residents of Grants Pass. Grants Pass' drinking water comes from the Rogue River. The capacity of the system is 18 million gallons per day. The water system master plan of 2001 includes the following upgrades to the system: an addition of a 4.5 million gallon reservoir, extension of water mains, and construction of a new pump station. These improvements are expected to allow the system to meet projected capacity needs between 2000 and 2020.

The 2007 capacity of the water treatment plant is just over 20 million gallons per day. The reservoirs have a 2007 capacity of 19.2 million gallons of water. The City is currently constructing the pump station (Hilltop) planned in the 2001 master plan to accommodate new growth.

Wastewater

The wastewater collection system for the City of Grants Pass serves over 10,000 residential, commercial, and industrial locations throughout the City and urban growth boundary, as well as a portion of the Redwood Sanitary Sewer district located partially outside of the UGB. The City of Grants Pass Water Restoration Plant, an activated sludge secondary treatment plant with ultra violet disinfection, has a 27 million gallon per day hydraulic capacity for influent pumping, a 13 million gallon per day capacity for secondary treatment, and a 43 million gallon per day capacity for UV-disinfection. The average dry weather flow in 2007 was 5.5 million gallons per day and the peak wet weather flow was 30.0 million gallons per day. By 2020, due to projected population increases, the average dry weather flow will be 6.8 million gallons per day and the peak flows will be 27.5 million gallons per day. Biosolids from the Wastewater Treatment Plant are transported to the JO-GRO™ Co-composting facility and mixed with greenwaste from the surrounding community to create compost for sale to the public.

The Redwood Sanitary Sewer Service District operates partially outside and partially inside the Grants Pass city limits. The Jo-Gro operation at Redwood wastewater treatment plant was forced because of legal action to cease compost activities at its plant. The Redwood Plant was converted from an independent treatment facility to a collection system that conveys wastewater from the Redwood District to the Grants Pass Water Restoration Plant. Upgrades to the system have been constructed so that starting in 2000 wastewater is conveyed to the Grants Pass Water Restoration Plant.. Upgrades to the plant to meet the projected flow and load included: constructing one pump station, retrofitting one pump station, and building a 30,000-foot-long pipeline, as well as upgrades to eliminate ammonia and chlorine discharge. The District expects the transfer to the Grants Pass plant to meet the capacity demanded in 2020.

Improvements scheduled between 2000 and 2010 address the need for upgrades to the liquid stream treatment, including constructing a ballasted sedimentation process. Upgrades to the plant allow the city to accommodate future growth in the City and in the Redwood area. Without these upgrades, sanitary sewer capacity could constrain economic growth.

Enterprise zone

The Grants Pass area established an enterprise zone in 1997 that includes all land zoned for employment use within the City limits. The enterprise zone provides a break on property taxes on the improvements (e.g., buildings) to qualifying businesses for three to five years. The purpose of the enterprise zone is to attract manufacturing businesses that would pay family wage jobs and diversify the city's property tax base; requirements for the program include a minimum investment of $25,000, an increase in employment by the higher of 1 person or 10%, and for the highest amount of tax abatement, employing at 150% or more of the county's average annual wage. Other businesses, such as motels, hotels, and resorts could also qualify for property tax reductions within the enterprise zone. The Grants Pass zone is designated as an "E-Commerce" enterprise zone, which means that businesses "engaged in electronic commerce" are eligible for the property tax abatement.

8.36 Quality of life factors

Grants Pass' quality of life, combined with its location and small town sense of community, are key comparative advantages for economic development. The following list summarizes the quality of life factors that affect the City:

- *Small town atmosphere.* Survey respondents indicate Grants Pass is a safe and friendly place to live as well as a good place to raise children.[34]

- *Low cost of living.* Survey respondents indicate that the cost of living, especially of homes for families of moderate incomes, makes Grants Pass an attractive place to live.

[34] All survey responses cited in this section are from the 2006 Annual telephone survey of Grants Pass residents. Northwest Survey and Data Services, December 2006.

- *Mixture of rural and urban places to live.* Grants Pass offers rural and small town living situations.

- *Ease of auto access.* Grants Pass has easy access to Interstate 5 and State Highway 199 to Cave Junction and the coast.

- *Central location in Southern Oregon.* Interstate 5 and the state highway system give Grants Pass good access to the markets of the Southern Willamette Valley and Southern Oregon, and Northern California. as well as the population of Jackson County. In particular, Grants Pass has access to workers, markets, and employment opportunities of Medford and Ashland, which also allows residents of Grants Pass to access the cultural amenities and markets of these cities.

- *Access to outdoor recreation.* Residents have easy access to outdoor recreational opportunities, including hiking, water sports on nearby rivers, bicycling, and other activities. Residents surveyed cited a range of factors, the climate and scenery were most frequently mentioned as things they most enjoy about living in Grants Pass.

While Grants Pass has many desirable qualities, businesses in the 2005 Business Retention and Expansion Program Business Survey/ Visitation Summary Report cited the distance from markets and the difficulty hiring skilled workers as their two issues of greatest concern.

8.37 Comparative Advantage in Grants Pass

The mix of productive factors present in Grants Pass, relative to other communities in Oregon, is the foundation of the city's comparative advantage. Grants Pass' comparative advantages include its location on I-5, proximity to California, and high quality of life. These factors make Grants Pass attractive to residents and businesses that want a high quality of life where they live and work.

Grants Pass' comparative advantages are similar to Oregon's comparative advantages, although the labor force has lower levels of education than Oregon. Businesses moving to Grants Pass may have problems finding reliable unskilled workers and some types of skilled workers but should be able to find a sufficient number of workers. Grants Pass has access to a full range of services to support businesses and a full range of amenities to create a high quality of life, available either within the City or within the region. Grants Pass also has access to higher education through the Rogue Community College, with a campus in Grants Pass, and Southern Oregon University located in Ashland.

Grants Pass may also have some factors that constrain future employment growth. Housing affordability—particularly workforce housing—is likely to be an issue in the community. Provision of public facilities, such as transportation or wastewater treatment, may be a constraining factor if the City and State are unable to provide sufficient infrastructure to support growth.

Section 8.23 reports industries that have shown growth and business activity in Grants Pass over the past few years. These industries are indicative of businesses that might locate or expand in Grants Pass.

The characteristics of Grants Pass will affect the types of businesses most likely to locate in Grants Pass:

- Grants Pass' proximity to I-5, high quality of life, natural beauty and proximity to recreational activities make it attractive to businesses that want a high quality of life. These types of businesses could include corporate head quarters, software design, engineering, research, and other professional services that are attracted to high-quality settings.

- Grants Pass' location, proximity to natural resources, and high quality of life may attract small food processing firms, especially firms specializing in organic or natural foods.

- Grants Pass' access to outdoor recreation, proximity to other cities in the Rogue Valley, and proximity to regional attractions like the Rogue River, Oregon Caves and the Shakespeare Festival make Grants Pass attractive to tourists. Industries that serve tourists, such as food services and accommodations, are likely to grow if tourism increases.

- Grants Pass' location along I-5, proximity to cities in Jackson County, and high quality of life may make Grants Pass attractive for manufacturing firms. Examples include high-tech electronics, recreational equipment, furniture manufacturing, specialty apparel, and other specialty manufacturing.

- Grants Pass' growing population of retirees or near retirees, climate, location, and high quality of life may attract health services that provide services to older people, such as assisted living facilities or retirement centers.

Cities often have factors that are disadvantages. One factor that could be a disadvantage to Grants Pass is land configuration and availability. The City has a limited number of sites available for employment uses, and no sites over 100 acres. Moreover, topography in the Grants Pass area may make it difficult to find suitable sites in the future.

8.40 DEMAND FOR COMMERCIAL AND INDUSTRIAL LAND

8.41 Employment Forecast

To provide for an adequate supply of commercial and industrial sites consistent with plan policies, Grants Pass needs to have an estimate of the amount of commercial and industrial land that will be needed over the planning period. Demand for commercial and industrial land will be driven by the expansion and relocation of existing businesses and new businesses locating in Grants Pass. The level of this business expansion activity can be measured by employment

growth in Grants Pass. This section presents a projection of future employment levels in Grants Pass for the purpose of estimating demand for commercial and industrial land.

The projection of employment in this chapter has four major steps:

1. **Establish base employment for the projection.** The analysis starts with the estimate of covered employment in the Grants Pass UGB presented in Table 8.20.6. Covered employment does not include all workers; covered employment was adjusted to reflect total employment in Grants Pass. Employment by sector will be summarized into employment by land use type for the purposes of estimating land demand by type.

2. **Identify potential growth industries in Grants Pass.** Given trends in economic activity and expected growth in Oregon, and Grants Pass' comparative advantages, these types of firms are the most likely to locate or expand in Grants Pass.

3. **Projected employment.** The projection of employment uses the safe harbor method from OAR 660-024-0040 to project future employment in Grants Pass.

4. **Allocate total employment to land use types.** This allocation will use assumptions based on expected trends in employment growth by land use type.

The remainder of this section is organized by headings that correspond to these three major steps for the projection.

Employment Base for Projection

An estimate of the number of employees in Grants Pass is needed to forecast employment growth. Table 8.41.1 shows an estimate of total employment in the Grants Pass UGB in 2007. The estimate was developed using an estimate of *covered* employment from the confidential Quarterly Census of Employment and Wages (QCEW) data provided by the Oregon Employment Department. Covered employment does not include all workers in an economy. Most notably, covered employment does not include sole proprietors. Analysis of data shows that covered employment reported by the Oregon Employment Department for Josephine County is only about 65% of *total* employment reported by the U.S. Department of Commerce. The comparison of *covered* employment to *total* employment in Josephine County was used to develop an estimate of covered employment by sector in Grants Pass.

Table 8.40.1 shows that Grants Pass had an estimated 28,988 employees within its UGB in 2005. This figure results in a relatively low population-to-employment ratio of 1.24 persons per employee. The statewide average is about 2.2 persons per employee. Grants Pass may have a lower population-to-employment ratio than the state because it is a regional employment center and draws workers from throughout the Josephine and Jackson Counties, especially from unincorporated areas near to Grants Pass UGB. Another explanation is that employees in Grants Pass choose to live outside of the UGB for a variety of reasons, such as the cost of housing in the City or the desire for a rural lifestyle.

TABLE 8.40.1
ESTIMATED TOTAL EMPLOYMENT BY LAND USE TYPE
Grants Pass UGB, 2007

	Covered Employment		Total Employment		
		% of 2005			% of All
Land Use Type / Sector	**2005**	**Total Emp.**	**2005**	**2007**	**2007 Emp.**
Retail and Services	12,234	60%	20,352	21,258	70%
Industrial	4,414	69%	6,375	6,659	22%
Government	2,117	94%	2,261	2,362	8%
Total Employment	**18,765**	**65%**	**28,988**	**30,279**	**100%**

Source: 2005 covered employment from confidential Quarterly Census of Employment and Workforce data provided by the Oregon Employment Department. Employment summarized by land use type by ECONorthwest. Covered employment as a percent of total employment calculated by ECONorthwest using data for Josephine County employment from the U.S. Department of Commerce, Bureau of Economic Analysis (total) and the Oregon Employment Department (covered). 2005 total employment converted to 2007 total employment by ECONorthwest using an annual growth rate of 2.2% over two years.

Potential Growth Industries

Previous sections review historical growth trends by industry in Josephine County since 1980 and employment in Grants Pass. A review of key historical trends in employment in Josephine County can help identify potential growth industries in Grants Pass, which has three-quarters of the County's covered employment. While all sectors of the economy in the County experienced growth over this period (1980-2005), some sectors grew faster than others, resulting in a shift in the distribution of employment by sector. Key **historical trends** include:

- A substantial increase in the share of employment in Services, which increased from 21% to 42% of covered employment.
- A decrease in the share of employment in Retail Trade, from 22% to 16%.
- A decline in the share of employment in Government, which fell from 22% to 14% of covered employment.
- A decline in the share of employment in Manufacturing, which fell from 24% to 13% of covered employment.

Together, these sectors represent about 85% of employment in the County. Other sectors of the County's economy have a relatively stable and small share of the County's employment.

Historical employment trends show a substantial shift in the County's economy that mirrored shifts in the State and national economies, specifically the substantial growth in Services and decline of Manufacturing. While these trends are expected to continue into the future, **future shifts** are not expected to be as dramatic as those experienced over the past twenty years. There are several reasons for this expectation (e.g., that the future will be somewhat different that the past):

- Growth in the Services sector has matured and should track more closely with overall employment growth rather than continuing to gain a substantial share of total employment.

- The decline in Manufacturing was primarily due to decreased timber harvests and the outsourcing of production to facilities in countries with lower costs. Timber harvests are expected to level off and increase in the future as commercial forests that were replanted since the 1970s grow to a harvestable size. While outsourcing will continue, much of what can be outsourced has already gone. Remaining Manufacturing firms are tied to their region to be near supplies or markets, or manufacture specialized goods for which small production quantities, fast turn-around times, and the need for quality limit the ability to outsource.

One way to assess the types of businesses that are likely to have future growth in an area is to examine relative concentration and employment growth of existing businesses. This method of analysis can help determine relationships and linkages within in industries, also called industrial clusters. Sectors that are highly concentrated (meaning there are more than the "average" number of businesses in a sector in a given area) and have had high employment growth are likely to be a successful industrial cluster. Sectors with either high concentration of businesses or high employment group may be part of an emerging cluster, with potential for future growth.

The School of Business at Southern Oregon University prepared a report titled "Industrial Clusters in Jackson and Josephine Counties." This report identified twelve industrial clusters in the Rogue Valley. The clusters that may be successful or have potential growth in Grants Pass include:

- **Elder/Health Care.** This cluster includes elder care facilities and health care facilities and offices. Grants Pass has been attracting retirees, who may want to continue living in the community as they age. Grants Pass' quality of life and large share of people over 45 years old is likely to result in growth in this cluster.

- **Electronic Shopping.** This cluster includes Electronic Shopping and Non-store Retailers. The City's quality of life may attract firms involved with electronic shopping, which can locate most places that have high speed Internet.

- **Headquarters.** The report identifies Management of Companies and Enterprises as a growing cluster. Grants Pass' quality of life and easy access to I-5 may attract headquarters that want to locate in Southern Oregon or more generally in the Pacific Northwest.

- **Wholesalers.** The report identifies Wholesalers involved with electrical goods and miscellaneous durable goods as industries with potential for employment growth. Grants Pass' access to I-5 and proximity to the Willamette Valley and Northern California may attract wholesalers.

- **Freight Transportation.** Freight transportation, including General Freight Trucking and Freight Transportation Arrangement, are identified by the report as having opportunities for growth. Growth in the Freight Transportation and Wholesaler clusters are likely to benefit both clusters because of the need to transport wholesale goods. Grants Pass' access to I-5 and proximity to the Willamette Valley and Northern California may attract Transportation firms.

- **Wood Products.** While some industries in this cluster are declining, such as primary wood processing, other industries are growing. The most significant growth has been in Household and Institutional Furniture and Kitchen Cabinet Manufacturing. Grant Pass' proximity to timber production and access to I-5 make it likely that wood products firms may locate or expand in the City

- **Food and Beverage Production.** The report identifies Food and Beverage Production as an emerging cluster with opportunities for growth. This cluster includes wine production, which has shown substantial growth in the Rogue Valley over the last 20-years.

- **Metals Manufacturing.** The report identifies industries involved with fabricating metal, such as Machine Shops, as an emerging cluster with opportunities for growth.

This analysis of industrial clusters and specialty manufacturing, the analysis of economic conditions and trends in Section 8.20, and Grants Pass' comparative advantages in Section 8.30 have implications for the industries with potential for growth in the City. Based on these assumptions, the types of firms that may locate in Grants Pass include the following:

Retail and Services. About three-quarters of Grants Pass current employment is in retail and services. The State's forecast for nonfarm employment forecast for 2004 to 2014 (Table 8.20.10) projects that about two-thirds of employment growth in Jackson and Josephine Counties will be in Retail and Services. Grants Pass may attract the following industries:

- Grants Pass may attract retail and services to serve residents, such as financial institutions, professional services, restaurants, drug stores, grocery stores, general retailers, and specialty retailers.
- Grants Pass may attract additional big-box and mid-sized retail stores, primarily for Grocery, General Merchandise, and Home Improvement stores.
- Population growth and business growth may drive development of offices for business, professional, health care, and other services.
- The aging population in Grants Pass, both from aging of existing residents and in-migration of retirees, will increase demand for health care services. This will attract healthcare related firms that provide services to older people, such as assisted living facilities or retirement centers.

- Grants Pass' amenities, high quality of life, access to a rural life style, and proximity to Medford and Ashland may be attractive for firms engaged in professional, scientific and technical services, such as software design, engineering, and research.
- Grant Pass' proximity to outdoor recreation areas and activities in the Rogue Valley may make Grants Pass attractive to tourists. Industries that serve tourists, such as food services, accommodations, and specialty retail, are likely to grow if tourism increases.

Manufacturing. Grants Pass has comparative advantages, such as location, access to transportation, access to natural resources, and high quality of life that may contribute to the growth in employment in the following industries:

- Grants Pass may be attractive to manufacturing firms that benefit from proximity to natural resources, such as furniture manufacturing or metals manufacturing. Grants Pass' access to agricultural products and availability of drinking water may make it attractive to food processors.
- Grants Pass should be attractive to small-scale light manufacturing firms that do not have to locate near their market. Examples include high-tech electronics, recreational equipment, specialty apparel, and other specialty manufacturing.

Government and Institutional. As population grows in Grants Pass, government employment will grow. The following types of public employment may grow in Grants Pass:

- Demand for government services, such as education, will grow with population. Government employment may decrease in the short-term as a result of cuts in the County's budget caused by cuts in Federal funding for lost timber receipts.
- Grants Pass will continue to be the location for regional institutions such as the Three Rivers Community Hospital, Grants Pass City governmental offices, Josephine County governmental offices, and local schools.

Projection of Employment

OAR 660-024-0040 (8) (a) (ii) allows the City to determine employment land needs based on "The population growth rate for the urban area in the adopted 20-year coordinated population forecast…" Based on this safe harbor, employment in the Grants Pass UGB can be assumed to grow at 2.2% annually from 2007 to 2030. Table 8.40.2 shows the result of applying this growth rate to the total employment base in Grants Pass estimated in Table 8.41.1. By 2027, Grants Pass will have about 46,788 jobs, an increase of 16,509 jobs.

To estimate employment growth by land use type in the Grants Pass UGB, the forecasted level of total employment in 2027 (46,788) was distributed among the three categories of land use types shown in Table 8.40.2. Table 8.41.2 shows the share of employment by land use type in 2007 and the assumed shares in 2027 and 2030. The forecast does not anticipate a shift in the distribution of employment among land-use categories between 2007 and 2030.

TABLE 8.40.2
EMPLOYMENT GROWTH BY LAND USE TYPE
Grants Pass UGB, 2007–2030

Land Use Type	2007 Total	% of Total	2027 Total	2030 Total	% of Total	2007-2027 Growth
Retail and Services	21,258	70%	32,752	34,961	70%	11,494
Industrial	6,659	22%	10,293	10,988	22%	3,634
Government	2,362	8%	3,743	3,996	8%	1,381
Total Employment	30,279	100%	46,788	49,944	100%	16,509

Source: ECONorthwest.
Note: shaded cells indicate assumptions by ECONorthwest.

Allocation of Employment to Land-Use Types

Employment growth in Grants Pass will drive demand for industrial, commercial, and public land. To estimate the demand for land generated by employment growth, the analysis applies factors for the number of employees per acre for each of the three land use types used in the employment forecast. The first step in this analysis is to make a deduction from total new employment (referred to as the "refill" assumption). This deduction accounts for:

- **Percent of total employment growth that requires no commercial or industrial built space or land.** Some new employment will occur outside commercial and industrial built space or land. For example, some construction contractors may work out of their homes, with no need for a shop or office space on non-residential land.
- **Percent of employment growth on non-residential developed land currently developed.** Some employment growth will be accommodated on existing developed or redeveloped land, as when an existing firm adds employees without expanding space or when a business occupies a vacant building.

Typical refill deductions range from 10% in small cities to 30% or more for larger areas. For example, Portland Metro estimated refill at around 40% for 1996 and 1997 in a small empirical study they conducted. A reasonable refill rate for Grants Pass is 10%.

The next set of assumptions needed to estimate non-residential land need is employees per acre (EPA). This variable is defined as the number of employees per acre on non-residential land that is developed to accommodate employment growth. There are few empirical studies of the number of employees per acre, and these studies report a wide range of results. Ultimately the employees/acre assumptions reflect a judgment about average densities and typically reflect a desire for increased density of development. The EPA assumptions used in this analysis are based on the range of employment density assumptions presented in the DLCD's *Goal 9 Guidebook*.

The final assumption is a net to gross factor. The EPA assumptions are employees per *net* acre (e.g., acres that are in tax lots). As land gets divided and developed, some of the land goes for right-of-way and other public uses. The net to gross factor varies by land use, but 20% is a reasonable assumption for employment lands.

Table 8.40.3 shows estimated demand for employment land in the Grants Pass UGB by land use type for the 2007-2027 period. The results show that Grants Pass will need an estimated additional 1,364 gross acres of land for employment on new land within its UGB for the 2007-2027 period.

TABLE 8.40.3
ESTIMATED DEMAND FOR EMPLOYMENT LAND
Grants Pass UGB, 2007–2027

Land Use Type	Total New Emp.	Emp. On Refill Land	Emp. on New Land	Emp. Per Net Acre	Land Need (Net Acres)	Land Need (Gross Acres)
2007-2027						
Retail and Services	11,494	1,149	10,345	17	608.5	760.6
Industrial	3,634	363	3,271	10	327.1	408.8
Government	1,381	138	1,243	8	155.4	194.2
Total	**16,509**	**1,651**	**14,858**		**1,090.9**	**1,363.7**

Source: ECONorthwest.

8.42 Site Needs

OAR 660-009-0025(1) states "…the plan must identify the approximate number, acreage and site characteristics of sites needed to accommodate industrial and other employment uses to implement plan policies." This section identifies the site requirements of firms that are likely to locate in Grants Pass and provides a refined land need estimate that reflects identified site needs. The non-residential land needs presented in this section may change based on policy decisions, which may result in increased or decreased land need.

Firms wanting to expand or locate in Grants Pass will be looking for a variety of site and building characteristics, depending on the industry and specific circumstances. While there are always specific criteria that change from firm to firm, many firms share at least a few common site criteria. In general, all firms need sites that are relatively flat, free of natural or regulatory constraints on development, with good transportation access and adequate public services. The exact amount, quality, and relative importance of these factors vary among different types of firms. This section discusses the site requirements for firms in industries with growth potential in Grants Pass.

Employment growth in Grants Pass is expected in the each of the categories defined by type of land use: Retail and Services, Industrial, and Government. There are a wide variety of firms within each of these categories, and the required site and building characteristics for these firms range widely. As such, a variety of parcel sizes, building types, and land use designations in Grants Pass are required to accommodate expected growth.

Table 8.40.4 summarizes the lot sizes typically needed for firms in selected industries. The emphasis in Table 8.40.4 is on new large firms that have the most potential to generate employment growth. For example, while the number of convenience stores in the region is likely

to grow, the site needs for these stores is not included in Table 8.40.4 because they are unlikely to generate substantial employment growth. Large food stores, which are typically 50,000 to 100,000 sq. ft. in size, are more likely to generate substantial employment growth in the region, and these stores require sites of 5 to 10 acres.

TABLE 8.40.4
TYPICAL LOT SIZE REQUIREMENTS FOR FIRMS IN SELECTED INDUSTRIES

Industry	Lot Size (acres)
Manufacturing	
Printing & Publishing	5 - 10
Stone, Clay & Glass	10 - 20
Fabricated Metals	10 - 20
Industrial Machinery	10 - 20
Electronics - Fab Plants	50 - 100
Electronics - Other	10 - 30
Transportation Equipment	10 - 30
Transportation & Wholesale Trade	
Trucking & Warehousing	varies
Retail Trade	
General Merchandise & Food Stores	5-10
Eating & Drinking Places	0.5-5
FIRE & Services	
Non-Depository Institutions	1 - 5
Business Services	1 - 5
Health Services	1 - 10
Engineering & Management	1 - 5

Source: ECONorthwest.

More specific site needs and locational issues for firms in potential growth industries include a range of issues. Table 8.40.5 summarizes these issues and how they pertain to development in Grants Pass.

TABLE 8.40.5
SUMMARY OF SITE CHARACTERISTICS

Characteristic	Description	Comments
Flat sites	Flat topography (slopes with grades below 10%) is needed by almost all firms in every industry except for small Office and Commercial firms that could be accommodated in small structures built on sloped sites. Flat sites are particularly important for Industrial firms in manufacturing, trucking, and warehousing, since these firms strongly prefer to locate all of their production activity on one level with loading dock access for heavy trucks.	Slopes to the north and south may be a constraint for employment sites in Grants Pass if the City expands into the hills.
Parcel configuration and parking	Large Industrial and Commercial firms that require on-site parking or truck access are attracted to sites that offer adequate flexibility in site circulation and building layout. Parking ratios of 0.5 to 2 spaces per 1,000 square feet for Industrial and 2 to 3 spaces per 1,000 square feet for Commercial are typical ratios for these firms. In general rectangular sites are preferred, with a parcel width of at least 200-feet and length that is at least two times the width for build-to-suit sites. Parcel width of at least 400 feet is desired for flexible industrial/business park developments and the largest Commercial users.	Availability of larger parcels could be a long-term issue for Grants Pass. Parking does not appear to be a problem.
Soil type	Soil stability and ground vibration characteristics are fairly important considerations for some highly specialized manufacturing processes, such as microchip fabrications. Otherwise soil types are not very important for Commercial, Office, or Industrial firms—provided that drainage is not a major issue.	Soils are generally suitable for development.
Road transportation	All firms are heavily dependent upon surface transportation for efficient movement of goods, customers, and workers. Access to an adequate highway and arterial roadway network is needed for all industries. Close proximity to a highway or arterial roadway is critical for firms that generate a large volume of truck or auto trips or firms that rely on visibility from passing traffic to help generate business. This need for proximity explains much of the highway strip development prevalent in urban areas today.	Road capacity and access from Interstate 5 is not a constraining factor in Grants Pass at this time. If competition increases for sites in close proximity to I-5, these sites may become scarce. Road capacity and connectivity within the City may be a constraining factor, especially when crossing the Rogue River.

Characteristic	Description	Comments
Rail transportation	Rail access can be very important to certain types of heavy industries. The region has good rail access to many industrial sites.	Freight rail service is provided by the Central Oregon & Pacific Railroad (CORP), which connects Grants Pass to Eugene in the north and Medford, Ashland, and California in the South.
Air transportation	Proximity to air transportation is important for some firms engaged in manufacturing, finance, or business services.	Grants Pass is located about 30 miles away from the Rogue Valley International-Medford Airport located in Medford. The airport provides passenger and freight service. Josephine County Airport provides service for private aircraft.
Transit	Transit access is most important for businesses in Health Services, which has a high density of jobs and consumer activity, and serves segments of the population without access to an automobile.	Grants Pass has limited transit through Josephine County Transit. The city is not required by state law to provide transit. The City is served by Greyhound.
Pedestrian and bicycle facilities	The ability for workers to access amenities and support services such as retail, banking, and recreation areas by foot or bike is increasingly important to employers, particularly those with high-wage professional jobs. The need for safe and efficient bicycle and pedestrian networks will prove their importance over time as support services and neighborhoods are developed adjacent to employment centers.	Within Grants Pass, the street grid provides easy pedestrian and bicycle access to most areas of town. In addition, the City has bike lanes and multi-use paths for bicycles.
Labor force	Firms are looking at reducing their workforce risk, that is, employers want to be assured of an adequate labor pool with the skills and qualities most attractive to that industry. Communities can address this concern with adequate education and training of its populace. Firms also review turnover rates, productivity levels, types and amount of skilled workers for their industry in the area, management recruitment, and other labor force	Grants Pass is able to attract labor from Josephine and Jackson Counties. Employers needing highly skilled employees may need to recruit from the greater Rogue Valley or work with Rogue Community College to develop customized training programs.

Characteristic	Description	Comments
	issues in a potential site area.	
Amenities	According to the International Economic Development Council[35], attracting and retaining skilled workers requires that firms seek out places offering a high quality of life that is vibrant and exciting for a wide range of people and lifestyles.	Grants Pass offers a rural lifestyle with close access to outdoor recreational opportunities and is centrally located along the I-5 corridor, near California, the Coast, and Siskyou and Cascade Mountains.
Fiber optics and telephone	Most if not all industries expect access to multiple phone lines, a full range of telecommunication services, and high-speed internet communications.	Grants Pass has access to high-speed telecommunications facilities.
Potable water	Potable water needs range from domestic levels to 1,000,000 gallons or more per day for some manufacturing firms. However, emerging technologies are allowing manufacturers to rely on recycled water with limited on-site water storage and filter treatment. The demand for water for fire suppression also varies widely.	The City has sufficient water to meet current and future demand for water but will need systems upgrades in the next 20 years to accommodate population and employment growth.
Sanitary Sewer	Sanitary Sewer needs range from domestic levels to 1,000,000 gallons or more per day for some manufacturing firms. The demand for sanitary sewer and the types and strength of effluent vary widely.	The City may have some limits on the types of discharges with higher strengths, which could be a limiting factor for certain industries.
Power requirements	Electricity power requirements range from redundant (uninterrupted, multi-sourced supply) 115 kva to 230 kva. The highest power requirements are associated with manufacturing firms, particularly fabricated metal and electronics.	Grants Pass has access to sufficient power supply to accommodate most commercial and industrial users.
Natural gas	Commercial use of natural gas is similar to residential uses, including space heating, water heating, and cooling. Industrial uses of natural gas vary based on the product being manufactured. Natural gas is a base ingredient in some products, such as plastic, fertilizer, anti-freeze, and fabrics. It is use in by industrial firms for lighting, heating, and running machinery.[36]	Avista Utilities provides residential and business natural service in Grants Pass.

[35] International Economic Development Council. "Economic Development Reference Guide," http://www.iedconline.org/hotlinks/SiteSel.html. 10/25/02.

[36] Based on information from NaturalGas.org; http://www.naturalgas.org

Characteristic	Description	Comments
Land use buffers	Industrial areas have operational characteristics that do not blend as well with residential land uses as they do with Office and Commercial areas. Generally, as the function of industrial use intensifies (e.g., heavy manufacturing) so to does the importance of buffering to mitigate impacts of noise, odors, traffic, and 24-hour 7-day week operations. Adequate buffers may consist of vegetation, landscaped swales, roadways, and public use parks/recreation areas. Depending upon the industrial use and site topography, site buffers range from approximately 50 to 100 feet. Selected commercial office, retail, lodging and mixed-use (e.g., apartments or office over retail) activities are becoming acceptable adjacent uses to light industrial areas.	The City can address compatibility through planning.

Source: ECONorthwest.

In summary, there is a wide range of site requirements for firms in industries with potential for growth in Grants Pass. While firms in all industries rely on efficient transportation access and basic water, sewer and power infrastructure, they have varying need for parcel size, slope, configuration, and buffer treatments. Transit, pedestrian and bicycle access are needed for commuting, recreation and access to support amenities.

Table 8.40.6 shows site needs by site size and major employment use. The estimate of needed sites builds off of the 20-year employment forecast. Employees and employers are distributed in ratios similar to those in 2005. The distribution assumes that Grants Pass will continue to attract similar types of employers in the future as exist in the City now. It also assumes that the average number of employees per firm (12.9) will continue into the future. Grants Pass will need about 1,400 acres of land in 445 to 695 sites.

TABLE 8.40.6
NEEDED SITES BY SITE SIZE AND MAJOR USE,
GROSS ACRES
Grants Pass, 2007-2027

Size of firm	Est Acres Needed	Avg. Site Size	Total Sites Needed	Industrial	Other Emp.
250 +	150	50+ ac	1-2	1-2	-
100-250	200	20-50 ac	4-8	3-5	1-3
50-99	300	5-20 ac	30-45	20-30	10-15
25-49	250	2-5 ac	60-90	25-45	30-45
10-24	200	1-2 ac	100-150	30-45	70-105
1-9	300	<1 ac	250-400	75-125	175-275
Total	**1,400**		**445-695**	**154-252**	**286-443**

Source: ECONorthwest.

Table 8.40.7 compares land supply with overall demand. Goal 9, however, requires cities consider *site needs* of targeted industries. Table 8.40.7 compares industrial and commercial site needs with site supply within Grants Pass UGB between 2007 and 2027. The results show that Grants Pass has a deficit of industrial and commercial sites in all size categories. However, the deficit of smaller sites (e.g., sites less than 5 acres) will probably be compensated for through the mixed use developments, redevelopment, and increased utilization of under-utilized land.

TABLE 8.40.7.
COMPARISON OF INDUSTRIAL AND COMMERCIAL LAND NEED AND LAND SUPPLY, GROSS ACRES,
GRANTS PASS UGB, 2007-2027

Employment need	Industrial Sites			Other Emp Sites		
Avg. Site Size	Needed Sites	Site Supply	Site Surplus (Deficit)	Needed Sites	Site Supply	Site Surplus (Deficit)
50+ ac	1-2	0	(1)	-	0	-
20-50 ac	3-5	1	(2-4)	1-3	0	(1-3)
5-20 ac	20-30	9	(11-21)	10-15	1	(9-14)
2-5 ac	25-45	18	(8-28)	30-45	14	(16-29)
1-2 ac	30-45	9	(22-37)	70-105	35	(35-70)
<1 ac	75-125	62	(13-63)	175-275	118	(57-157)
Total	**154-252**			**286-443**		

Source: City of Grants Pass; analysis by ECONorthwest
Note: Negative numbers represent a deficit of acres and are shown in parenthesis ().
The numbers represent the amount of buildable land that Grants Pass will need to add to its UGB to accommodate development.

8.50 FINDINGS

Population and demographic trends

1. Josephine County's population grew from 58,855 residents in 1980 to 81,125 residents in 2006, an increase of 22,270 residents over the 26-year period. Josephine County's annual population growth rate was 1.29%, which was similar to the State average (1.28%).
2. According to the Josephine County's adopted forecast, the County will from 76,050 people in 2000 to 113,167 people in 2027, an increase of 37,117 people at an average annual growth rate of 1.48%. By 2057, Josephine County projects that it will grow to about 160,084 residents at an average annual growth rate of 1.26%.
3. The majority of population growth in Josephine County occurred in Grants Pass. Population within the Grants Pass city limits grew from 15,032 residents in 1980 to 30,930 residents in 2006, an increase of 15,989 people at an average annual rate of 2.93%.
4. Grants Pass experienced faster population growth than the County average. Grants Pass' population more than doubled between 1960 and 2006, growing by 20,812 residents at an average annual rate of 2.46%. Grants Pass grew at an average annual rate of 2.81% between 1980 and 2006, faster than the County average. Excluding population growth from annexations, the average annual growth rate for Grants Pass between 1990 and 2006 was 2.6%.
5. Migration was the largest source of population growth in Oregon and Josephine County. For the 1990 to 2006 period, about 70% of population growth in Oregon resulted from net migration. All population growth in Josephine County between 2000 to 2006 was the result of net migration because Josephine County experienced negative population growth from natural causes, with about 1,500 more deaths than births during this period. In addition, Census data show that residents of Grants Pass were more likely to have lived in a different state in 1995 compared with the County and State averages.
6. The population of the nation is aging. The number of people age 65 and older will double by 2050, while the number of people under age 65 with grow only 12 percent. The economic effects of this demographic change include a slowing of the growth of the labor force, an increase in the demand for healthcare services, and an increase in the percent of the federal budget dedicated to Social Security and Medicare.
7. Grants Pass is attracting retirees or near retirees and families with children. Grants Pass has a larger share of residents under 19 years and 70 years and older than Josephine County or Oregon. During the 1990's the fastest growing groups were 45 to 64 years and 5 to 17 years.

Personal income trends

8. Personal income has historically been lower in Josephine County than the State or national averages. Between 1980 and 2005, Josephine County's per capita personal income was approximately 78% of Oregon's per capital personal income and 71% of the

U.S. per capital income. In 2005, Josephine County's per capital personal income was about $25,200, compared with the State average of about $32,290 and national average of $34,470. The gap between per capita income in Josephine County compared to the national average has widened since the late-1990s. During the 25-year period, Josephine County's per capita personal income grew by 51%, while personal income grew by 49% in Oregon and 59% nationally during the same period.

9. Josephine County residents had a smaller share of income from net earnings than the State average between 1980 and 2005. Approximately 49% of personal income in Josephine County was from net earnings, compared with the State average of 65% for the twenty-five year period.

   Since 2000 the share of personal income from current transfers in Josephine County averaged about 27% of personal income, compared with the State average of 15%. During the same period, the average share of personal income from dividends, interest, and rent was 23%, compared with the State average of 19%. The people most likely to have personal income from these sources are retirees, which shows that retirees have been migrating to Josephine County

10. Household income in Grants Pass has historically been lower than the County average. The median household income in Grants Pass in 1999 was approximately $29,197, which compared to Josephine County's median household income of $31,229 and Oregon's median household income of $40,916. Median household income in Grants Pass was about 93% of the County average and 71% of the State average.

Employment trends

11. Josephine County added 9,520 jobs between 1980 and 2005. The sectors with the largest job growth included Retail Trade, Government, and Services, such as Health Care and Social Assistance and Accommodation and Food Services.

12. Manufacturing continues to be an important source of employment in Josephine County, accounting for about 13% of employment in 2005. The Manufacturing industries with the greatest employment in Josephine County in 2005 included wood products manufacturing and plastics and rubber products manufacturing.

13. Grants Pass is, and will continue to be, a regional employment center. In 2000, about 55% of residents of Grants Pass were a part of the labor force, compared with 52% of Josephine County residents and 65% of Oregon residents. In 2005, Grants Pass had a population to employment ratio of 1.2, below the State average of 2.2 persons per job, meaning that Grants Pass has fewer residents per job than the State average.

14. In 2005 Grants Pass had 1,580 establishments with 18,765 covered workers. Employment in Grants Pass accounts for 76% of all employment in Josephine County in 2005. The sectors with the greatest percentage of employment in 2005 were Retail Trade (18%), Health Care and Social Assistance (18%), Manufacturing (11%), Government (11%), and Accommodation and Food Services (11%). Together these sectors accounted for 12,865 jobs or 69% of employment in Grants Pass.

15. The average pay for covered employees in Grants Pass in 2005 was $28,269. The sectors with greatest share of employment and above average pay were Government ($39,238), Health Care and Social Assistance ($33,429) and Manufacturing ($30,117). The other sectors with a large share of employment had below average pay per employee, including Retail Trade ($23,999) and Accommodation and Food Services ($12,739).

16. About 28% of employment in the Grants Pass UGB is located in residential plan designations. It is likely that not all of the employees working in residential plan designations work from home. The types of employment typically located in residential plan designations include schools, home-based businesses, telecommuters, small retail establishments like convenience stores, and other services such as churches or fraternal organizations. It should be noted that this estimate of employment in residential plan designations does not include workers uncovered workers, most importantly sole proprietors, who may also locate in residential areas.

17. According to the 2000 Census, about 4.2% (370) of residents of Grants Pass worked from home, compared with 6.8% of Josephine County and 5% of Oregon's workforce. In 2006, Census data indicated that the share of Oregonians working from home increased to 6%. If Grants Pass has followed State trends, then a larger share of people in Grants Pass may work from home.

18. The Oregon Employment Department forecasts that Jackson and Josephine County will add 19,820 new jobs between 2004 and 2014, an increase of nearly 20%. The State forecasts that employment in Jackson and Josephine County will grow faster than the State average, 1.8% average annual growth compared to the State average of 1.4%.

19. The State forecasts that the following sectors will lead employment growth in Jackson and Josephine Counties: Retail Trade, Health Care and Social Assistance, Professional and Business Services, and Accommodation and Food Services Together, these sectors are expected to add 12,820 new jobs, or 65% of the employment growth in Jackson and Josephine Counties between 2004 and 2014.

Factors affecting employment growth in Grants Pass

20. The labor force in any market consists of the adult population (16 and over) who are working or actively seeking work. The labor force includes both the employed and the unemployed. Children, retirees, students, and people who are not actively seeking work are not considered part of the labor force. The unemployment rate is one indicator of the relative number of workers who are actively seeking employment. Data from the Oregon Employment Department shows that unemployment in Josephine County was 6.7% in 2006, compared with 5.4% in Oregon. The unemployment rate in Josephine County through March 2007 increased to 8.0%, about 2.2% higher than the State average.

21. The labor market in Grants Pass may be impacted by the retirement of the baby-boomers over the planning period. In the next decade, the State projects that there will be almost twice as many job openings resulting from retirements compared to openings resulting from creation of new jobs statewide. The sectors with the most employment and the

largest share of employees 55 years or older include: Education Services; Real Estate; Transportation and Warehousing; Health Care and Social Assistance; Public Administration; and Agriculture, Forestry, Fishing, and Hunting. The State expects little or no growth in Manufacturing employment over the next decade but expects that retirements will create demand for employees in Manufacturing.

22. Most workers in Grants Pass either live in Josephine or Jackson County, but do not reside in the within the city limits of Grants Pass in 2003. More than one-third of workers in the city limits of Grants Pass lived in Josephine County, near to Grants Pass. About one-third of workers in the city limits lived within the city limits of Grants Pass.

23. Information from stakeholder interviews and the Grants Pass and Josephine County Business Retention and Expansion Survey indicate that firms in Grants Pass have difficulties finding qualified employees. The shortage is both in skilled labor and reliable unskilled labor. The difficulty in finding workers may discourage firms from locating or expanding in Grants Pass.

24. As Grants Pass grows, transportation capacity and connectivity could become a constraining factor on economic development. In addition, business survey respondents to the Grants Pass and Josephine County Business Retention and Expansion Survey indicated that the distance from markets is a disadvantage in doing business in Grants Pass

Employment growth

25. The School of Business at Southern Oregon University prepared a report titled "Industrial Clusters and Jackson and Josephine Counties." This report identified twelve industrial clusters in the Rogue Valley. The clusters that may be successful or have potential growth in Grants Pass include: Elder/Health Care, Electronic Shopping, Headquarters, Wholesalers, Freight Transportation, Wood Products, Food and Beverage Production, Metals Manufacturing.

26. OAR 660-024-0040 (8) (a) (ii) allows the City to determine employment land needs based on "The population growth rate for the urban area in the adopted 20-year coordinated population forecast…" Based on this safe harbor, employment in the Grants Pass UGB can be assumed to grow at 2.2% annually from 2007 to 2030. Based on this forecast Grants Pass will have about 46,788 jobs by 2027, an increase of 16,509 jobs.

27. Grants Pass will need an estimated 1,364 gross acres of land for new employment within its UGB for the 2007-2027 period. Grants Pass will need 761 gross acres for Retail and Services, 409 gross acres for Industrial uses, and 194 gross acres for Government employment.

28. Grants Pass will need to provide a supply of sites for non-residential development. The City will need to provide between 445 to 695 sites with 1,400 acres of land. Grants Pass will need to provide five to ten larger sites, 20 to 50 acres or 50 acres or more. The predominant use of these larger sites will be industrial. The majority of sites, 350 to 550 sites, will need two acres or less. These sites will be used for industrial and other employment uses.

9.00 HOUSING ELEMENT INDEX

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9.00 HOUSING ELEMENT

Purpose

The purpose of the Housing Element is to examine Oregon Statutory requirements for housing planning; to analyze the measurable factors of the housing market, such as vacancy, rate, tenure, condition, and cost as a portion of household income; to estimate and project the probable demand for various types of housing; and, by comparing buildable residential lands, probable population growth and housing demand, to determine need for various housing densities over the planning period. Various cost mitigation measures are then reviewed and recommended.

Housing Planning and Services Provision

Housing planning is rapidly becoming the most important task for community development. Nationwide, the supply of adequate housing is currently lagging behind the demands placed on the housing market. The reasons for this disparity can be explicated in elementary terms by examining the trends of the national, state and city population-housing-economic characteristics.

The population characteristics, or demographics, of the nation are recorded extensively in the United States Census data. The Bureau of Census tabulates population statistics for the benefit of current government programming and decision making. In addition, the Bureau makes conservative forecasts of population trends which affect future planning processes. Data from the census improves the ability of planners to project the future needs of the populace so that services and facilities may be provided in a cost effective and timely manner.

Census Bureau statistics show that the population of the nation is growing at the rate of .8% per year. The Census Bureau predicts that this low growth rate will continue despite a "wave" of births due to the increasing rate of family formation and a slightly higher fertility rate of the post World War II "baby boom" generation. The fertility rate is expected to vary between 1.7 to 2.7, but not approach the 1950's rate of 3.7, due to greater access to effective birth control methods, the rising costs of family formation, the uncertain economy, and the changing role of women.

The State of Oregon is currently experiencing a population growth rate of 2.5% per year. The City of Grants Pass has a growth rate of 1.9% annually while the Josephine County growth rate from 1970 to 1980 was 5.1%. The growth rates for the state, county and city are significantly higher than the nation's. Disproportionate levels of interstate migration into the State of Oregon, accounting for 60% of the state's growth in the 1970's, is the reason for the difference between national and state population growth rates. For reasons attributed to rural and small town preference, clean environment, mild climate, lower costs of living and lower population density, people from other parts of the nation are migrating to Oregon and the Grants Pass area at a steady rate. This persistent population growth is placing considerable strain on the ability of local governments to provide the public facilities and services required for new housing development.

In addition to inadequate levels of public facilities and services for new housing, the state and cities are troubled by an insufficient housing supply to meet housing demand. Nationwide, inflation has had a profound effect upon new housing development. The cost of housing increases faster than

personal incomes. Therefore, more and more people are becoming increasingly disadvantaged in the housing market. Increasing costs of the provision of public facilities and services contribute to higher housing development costs. In order to mitigate the adverse effects of inflation on housing opportunities of the state and cities, elected officials have recognized the need to become an active participant in housing planning. One of the major objectives of government activity in the housing market is to ensure coordination of public facilities and services with housing development in a cost efficient manner.

Oregon Statutory Requirements

The state legislature of Oregon responded to the pressures of population growth and housing needs by enacting a statewide planning law which prescribed standards and criteria for comprehensive land use planning at all levels of government within the state. The law created a public commission (Land Conservation and Development Commission) which is empowered to establish statewide planning goals affecting all government jurisdictions and special taxing districts. The commission established housing planning goals as Goal 10 of the Oregon Statewide Planning Goals, as follows:

> GOAL 10: TO PROVIDE FOR THE HOUSING NEEDS OF THE CITIZENS OF THE STATE Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density. (emphasis added)

The state law also established an administrative department (Department of Land Conservation and Development) to assist the Commission in administering the statewide planning goals. In the course of implementing Goal 10, many local jurisdictions indirectly breached the intent of the goal, requiring an analysis and evaluation by the administrative department, D.L.C.D. Forthcoming from these evaluations were papers establishing the position of the Commission and Department concerning compliance with the goals. Housing policies enacted by local jurisdictions are now measured by the goal itself, and by a position paper interpreting the goal referred to as the "St. Helen's Housing Policy".

St. Helen's Housing Policy

"Where a need has been shown for a housing within an urban growth boundary at partial price ranges and rent levels, housing types determined to meet that need shall be permitted in a zone or zones with sufficient buildable land to satisfy that need. This policy shall not be construed as an infringement on a community's prerogative to 1) set approval standards under which a particular housing type is permitted outright, 2) impose special conditions upon approval of a specific development proposal, or 3) establish approval procedures. However, approval standards, special conditions and the procedures applicable to both 1) must be clear and objective and 2) must not have the effect, either of themselves or cumulatively, of discouraging, such as through unreasonable cost or delay, the need housing type." *D.L.C.D., Commission Action, July 12, 1979, St. Helens Clarification.*

The housing element of the Grants Pass Comprehensive Land Use Plan addresses the Goal and all applicable position papers in order to meet the requirements of state law.

9.13 Housing as a Commodity

Housing is actually a bundle of services. First, there is the physical structure of the house; the floor area, number of rooms, garages, heating and cooling systems and the lot size. Second, there is the neighborhood environment in which the house is located. The neighborhood environment affects the social and physical amenities of the house. The socio-economic aspects of neighborhood such as community organizations, the incidence of anti-social activity such as crime rates and vandalism, and the physical characteristics such as general housing conditions, population density, traffic congestions and the existence of natural amenities such as trees, parks, waterways and views all play a part in defining the quality of the house. Third, the type, amount and quality of public facilities and services and how efficiently these are delivered are an important aspect of the housing bundle. The quality of schools and police protection are especially important to most households. The cost of developing sewer and water service for the house is of secondary importance to the household, even though these facility's costs significantly impact the development costs and consequently the market cost. Fourth, the specific location of the house within the infrastructure of the community is important to the household. The considerations are: how far is the house from the work place, shopping area, schools, cultural activities, and other areas of importance to the household.

All of these factors stated above determine house area commodity. As a commodity, housing plays a major role in community development and must be given a high value both economically and socially. The development of good quality housing and neighborhoods is fundamental to the well-being of the community.

9.14 Housing as a Responsibility

Adequate housing must be provided for all housing groups within the community. Dilapidated housing is generally considered to be a blight on the community. It is akin to the proverbial rotten apple which has the potential to decay the whole barrel. Property adjacent to dilapidated housing usually suffers by lower market values result in downward filtering of the neighborhood, or depreciation of property values, deterioration of housing conditions, and the transition of occupancy from higher income level households to the lowest income families.

The social well-being of residents is often influenced by location of housing and/or the costs of the housing stock, which in turn can be influenced by land use decisions, new housing production and institutional factors such as lenders, real estate brokers, and housing managers. Land use decisions can affect the location of housing through such implementations as a traffic management plan, sewer and water service plan, parks and recreation plan and zoning designations like residential, commercial and industrial. New housing on newly developed land with modern amenities competes very successfully with older housing in the city, thereby causing older units to incur a decline in value relative to the newer housing units. Value declines of this sort encourage downward filtering of older neighborhoods.

The fact that the financial community views a specific neighborhood as a bad-risk investment for home mortgages and refinancing can contribute to downward filtering of that neighborhood. Once the value of the property within the neighborhood begins to drop through a reduction in home ownerships and public facilities and services, the denial of credit will hasten the area's demise.

In addition to the social responsibility, the community has a responsibility to provide for the psychological well-being of its households which is often influenced by the quality/quantity of housing in the community. The psychological health of people can be affected by their immediate environment such as a dwelling unit. The dwelling unit serves as the total functional environment for many residents, especially the disable and elderly. The community should maintain accurate information concerning housing conditions, location, type and density in order to facilitate housing planning efforts that will provide adequate housing for all the members of the community.

9.15 Housing as an Economic Activity

The presence of adequate housing influences economic development patterns by providing housing units for new workers for new or expanding industrial and commercial development, by sustaining the economic activity of the building trades and by providing a durable good which many people purchase in order to hedge against inflation of less durable goods.

New industry or commerce may be discouraged in the community by the lack of adequate and affordable housing. The community needs to relate its economic planning with housing planning in order to facilitate efficient growth in these areas. The building trades are a significant part of the local economy, providing 5.7% of the county's non-manufacturing jobs in 1978. In addition, building trades rely on many local manufacturing, supply and service components, all of which contribute to the economic well-being of the community.

Housing is also a durable retail good with an investment life of about forty years. Consequently, housing is a capital intensive good which is considered secure collateral because of its appreciative value. This is the security component of housing, and is the major difference between renting a housing unit and buying one. Home ownership provides the benefits of home equity and requires a substantial investment in the form of down payments and transaction fees. The home owner is genuinely concerned about the security of the investment and does much to maintain the quality of the housing unit. The community should recognize that there is a considerable community-wide investment in housing that needs to be secured with neighborhood stability and upward filtering through a community commitment to efficient provision of services and comprehensive housing planning.

9.16 Community Housing Preferences

Housing planning can help effect community preferences for housing by attempting to integrate the hard facts of housing such as housing law, costs, and resources with the attitudes of community residents. A consumer attitude and awareness study done in the Grants Pass area in 1979 shows that the majority of residents would prefer to live on larger lot sizes than they currently reside on.

Table 9.10.1 depicts the preferences of Grants Pass area citizens for building sites. Generally, there is a strong preference for rural lot sizes greater than one acre among the young and middle age groups and a preference for urban lots sizes among the older age groups. The factors that motivate these preferences are more fully addressed in the Population Element. It states that 79% of the recent migrants to Josephine County had come from a metropolitan area and enjoyed the Grants Pass area for its amenities: friendliness, slower pace, lower crime, lower density and clean environment. Many of these people equate large lot sizes with a rural environment that provides for these amenities, as was demonstrated by immigrant home site choice in the 1970's. Of the 23,000 persons entering the County during 1970-1980, only 11%, or 2,560 persons, located within the City Limits. (see also Table 6.50.9)

In the face of the desire for rural density, the cost effectiveness of providing public facilities and services is best achieved at urban densities. The dilemma confronting the elected official is how to provide for a rural environment while providing economical facilities and services that can most effectively be achieved in an urban environment. Housing planning can evaluate this dilemma in light of existing and future housing needs, the feasibility of large lot developments related to available land and development costs, and the alternative methods of providing open spaces and amenities while at the same time increasing density and keeping costs down.

TABLE 9.10.1
Community Home Site Preference by Respondent Age of Head of Household

Site	Total	Under 25 Yrs	26-30 Years	31-40 Years	41-50 Years	51-59 Years	60-65 Years	Over 65
Small City Lot (6,000 sq. ft.)	9.4	2.2	1.2	3.2	6.6	8.2	11.7	22.7
Large City Lot (7,000-20,000 sq. ft.)	13.1	1.9	9.7	14.7	12.8	15.7	12.7	15.9
½ Acre	11.3	6.1	4.3	8.2	8.1	14.5	20.1	13.7
1 Acre	15.0	15.7	14.3	9.5	18.0	17.9	18.5	13.7
1 - 2.5	9.3	11.2	6.4	12.3	10.8	9.3	11.3	5.0
2.5 - 5	19.9	33.5	28.9	25.6	20.4	20.4	14.9	8.0
More Than 5 Acres	16.0	25.8	31.2	25.0	21.7	12.0	3.7	4.6
Apartment or Condo	2.5	3.7	1.2	0	0	1.3	4.6	6.4
No Answer	3.6	0	2.7	1.5	1.6	.6	2.5	10

SOURCE: Attitude and Awareness Study, Consumer Attitude Research, September, 1979.

Special Needs Housing

An important and often forgotten part of the housing element is housing for those with special needs: those who are handicapped, elderly, or undergoing special treatment and care. Zoning codes have traditionally segregated these groups from residential neighborhoods. However, recent social and legal changes prompt changes in policy and in the traditional view of the residential neighborhood. There is an ongoing need in the Grants Pass community to provide housing for those with special needs within, not excluded from, the traditional housing framework.

- **Social Changes -** The era in which the handicapped and those with special needs were relegated to institutions is quickly ending. A nationwide trend is to incorporate these people into the traditional family structure. Thousands of foster homes are being created where families care for one or more persons with special needs in their own homes. Many other special homes are being created whereby five to fifteen handicapped individuals live together as a type of family unit. These homes are becoming more and more similar to the traditional family home, both inside and outside.
- **Legal Changes -** Dozens of new federal and state laws have been enacted which prohibit discrimination against these types of housing. One of the most far reaching was the Federal Fair Housing Act amendment in 1988. The act extended protection from housing discrimination to the handicapped from residential neighborhoods. The Oregon Legislature also passed a series of laws limiting local jurisdictions' power to regulate the siting of special needs housing.
- **Local Demand** - There is a demand in the Grants Pass community for housing for those with special needs. In 1990, the Grants Pass Urban Area contained twenty-two Adult Foster Care homes and at least thirteen different residential care or treatment facilities. Almost all of these facilities located within existing residential dwellings. As local, state, federal, and other support for these facilities grows, so should their numbers.
- **Policy Implications** - Because of the legal and social changes, zoning can no longer be a means of segregating those with special needs. The Community's goal should be to develop residential neighborhoods that embrace rather than exclude those with special needs. Land development rules should be a catalyst for achieving this goal.

9.20 DATA BASE ANALYSIS

The data base includes information about housing supply, housing demand, and cost mitigating measures. Housing supply and demand factors examine similar bits of housing information, like population, incomes, costs, vacancies, household sizes, tenure, housing conditions and buildable lands. The major difference between housing supply and housing demand is temporal. Housing supply relates to the current housing situation in the existing urbanized area. Housing demand relates to the projected housing situation in the future urban growth area. The summation of supply and demand produces a scenario relating the various development conditions of the housing market in the urban growth area. The cost mitigating measures bring the intent of the state housing goal to bear by evaluating measures which can mitigate the costs of housing.

The study area for the Housing Element is the Grants Pass Urban Growth Boundary area, which is divided into two subareas: The City and the urbanizing area adjoining the City. In this analysis, the housing data includes housing factors, housing cost, housing density and housing need.

9.21 Housing Factors

In this section, housing factors examined include vacancy rates, tenure, housing conditions, housing demolitions and additions, and housing construction starts.

- **Vacancy Rates -** Vacancy rates for the Grants Pass area have been recently examined by a number of agencies, and the results are shown in Table 9.20.1.

TABLE 9.20.1
Vacancy Rates in the Grants Pass Area

Housing Tenure	Josephine County Comp Plan, 1978	Grants Pass Area Consumer Attitude Survey, 1979	City of Grants Pass Housing Assistance Program, 1980	H.U.D. Standard
Owner	1.9%	2.9%	2.4%	1.5%
Renter	2.1%	1.7%	4.7%	6.5%
Ratio	1.1	.6	2.0	4.3

Desired vacancy rates are those prescribed by U.S. Department of Housing and Urban Development, as needed to provide equitable market activity. Vacant dwelling units provide a housing market surplus which facilitates exchange. If the number of vacant dwelling units is low, this could indicate one or two conditions: The housing demand is greater than housing supply, and/or the housing supply is low because the housing demand is low, usually as a result of a chronic, prolonged depression in housing market activity. It is presumed that both conditions have existed at various times in the Grants Pass Urban Growth Boundary area. The significant variable appears to be tenure.

Renters comprise 26% of the households and generally experience a low vacancy rate. This vacancy-tenure relationship may be related to low supply/high demand disparity in the housing market. This hypothesis is advanced later in the data analysis when housing costs and household incomes data are related to tenure and vacancy.

The vacancy rate of owner occupied dwelling units is consistently above the H.U.D. recommended minimums, but not significantly so. This aspect of the housing market may reflect a low supply/low demand phenomena associated with a depressed housing market. Again, this hypothesis will be further explored insight of costs-income data.

Tenure - Tenure is the manner in which households occupy their dwelling units, either as owners or as renters. The latest source for this information in the Grants Pass area is the 1980 U.S. Census.

TABLE 9.20.2
Dwelling Unit Tenure

Tenure	1970 U.S. Census	1979 Grants Pass Consumer Attitude Survey	1980 U.S. Census
Owner Occupied	64%	74%	74%
Renter Occupied	35%	26%	24%
Total	100%	100%	98%

Note: The strong shift to owner occupied housing during the 1970-1980, increasing ten percentage points to 74% of the housing stock in 1980. The Fruitdale-Harbeck and Redwood areas showed even higher percentages of home ownership (82% and 92%), possibly reflecting fewer multiple unit dwellings.

Housing Conditions - The condition of the housing stock is often an indicator of the viability of the housing market and filtering of economic classes of households. A high number of dwelling units in poor repair may reveal an economically depressed community and downward filtering of neighborhood housing stocks. However, in the City of Grants Pass, there are very few dwelling units in poor repair, which may indicate a relatively stable economy, and moderate upward filtering of neighborhood housing stock represented by appreciating property values, good housing conditions, and some transition of occupancy from lower income housing units to higher income housing units.

Local housing conditions were determined by a field survey of the housing units within the City of Grants Pass. The following table depicts the results of this survey.

TABLE 9.20.3
Grants Pass Housing Condition Survey*
May, 1977

Condition	Ward 1 (NW)		Ward 2 (NE)		Ward 3 (SE)		Ward 4 (SW)		City Total	
	#	%	#	%	#	%	#	%	#	%
A (Sound)	1004	89.2	1223	92.6	616	89.0	1103	82.4	3946	88.1
B (Deter.)	120	10.7	90	6.8	71	10.3	217	16.2	498	11.1
C (Dilap.)	2	.2	8	.6	5	.7	19	1.4	34	.8
Total	**1126**		**1321**		**692**		**1339**		**4478**	

Estimates in Housing Assistance Plan. (B) Suitable for Rehab. - 487 (C) Not Suitable - 25
* Conducted by the Josephine County Housing and Community Development Council. Does not include multiple-family dwellings.

The survey included a resurvey in 1979 of units noted as deteriorated or dilapidated in 1977. (see Table 9.20.4). The resurvey revealed a 27% rehabilitation rate. If the 1977 survey percentage of deteriorated units per subarea are considered constant rates of annual deterioration, then the rate of rehabilitation effectively reduced the rate of deterioration. (see Table 9.20.5)

TABLE 9.20.4
Housing Condition Survey

Sub Area	Zone	Deteriorated 1977 Survey	Dilapidated 1977 Survey	Rehabilitated as of 10-79
Northwest	R-1-8	12	1	5
	R-1-6	44	4	26
	R-3	32	6	8
	R-4	9	0	1
	C-3	11	1	4 (two are now commercial)
	R-1-12	1	0	1
Sub Total		119	10	45 (35%)
Northeast	R-1-6	24	0	7
	R-1-8	8	0	3
	R-2	2	1	0
	R-2	3	0	0
	R-4	17	2	3
	C-3	9	2	2 (now commercial)
	M-1	3	0	0
	M-2	2	0	(both are now vacant)
Sub Total		68	5	15 (21%)
Southeast	R-1-6	5	2	2
	R-1-8	1	0	0
	R-2	1	0	0
	R-3	17	3	1
	R-4	8	1	0
	C-5	5	1	0
	C-6	1	0	0
	M-1	11	3	2
Sub Total		49	10	5 (8%)
Southwest	R-1-6	10	3	3
	R-1-8	10	1	3
	R-2	66	20	20 (many are now duplexes)
	R-3	44	7	16

	R-4 C-3 C-5 C-6 M-1 M-2	17 4 6 1 3 1	1 2 6 0 3 2	2 1 0 0 1 0
Sub Total		162	45	46 (22%)
Total for City		**398**	**70**	**111**

Net Unsound: 357

Note: The follow up survey indicates the current status of those units originally surveyed in 1977 as being deteriorated or dilapidated. It was not conducted as, nor should it be interpreted as, a complete resurvey of housing conditions.

Approximately 27% of non-standard housing was rehabilitated to “sound” conditions. In areas where zoning permits, single-family structures were demolished and multiple (2+) units were constructed. Thus, rehabilitation of housing resulted in a higher than 1:1 ratio.

Both the Northwest and Southwest wards showed the greatest number and highest percentage of rehabilitation.

TABLE 9.20.5
Deterioration/Rehabilitation Rates

Subarea	Total Annual % Deteriorated	Annual % Rehabilitated	Net % Deteriorated
Northwest	10.7%	17.0%	8.8%
Northeast	6.8%	7.2%	6.3%
Southeast	10.3%	35.0%	9.9%
Southwest	16.2%	10.4%	14.5%
City	11.1%	13.5%	9.6%

Bear in mind, the percentage of deterioration is a percent of the total single family housing stock for the subarea. The percent of rehabilitation is a percent of the deteriorated housing stock of the subarea by its relative percentage of that stock.

In light of the increasing costs of developing new dwelling units, the motivation to rehabilitate older deteriorated dwelling units may be increasing. Many older homes are constructed of "old growth" dimensional lumber and are structurally sound in that aspect. Labor costs for site preparation and framing construction are usually avoided in a rehabilitation project. Most other standard improvements can be retrofitted at costs comparable to new construction costs. In addition, a deteriorated dwelling usually has a lower assessed and market value, making the project even more cost-effective. Other improvements such as sidewalks, streets, curb cuts, sewer and water connections that sometimes add to the cost of new construction are avoided by a rehabilitation

project. These site and service improvements are purchased with the dwelling and probably have been amortized by the time of purchase. Of course, not all deteriorated dwelling units are suitable or available for rehabilitation. However, it may be important to recognize that a portion of the annual deteriorated stock can be effectively reclaimed for the housing needs of the community, and that community policies expressed in zoning and incentives can encourage or discourage the rate of rehabilitation.

Demolitions/Alterations - Housing demolitions and additions-alterations data are determined from city building department records. Demolitions reveal how many dwelling units are actually removed from the housing stock each year. It is a measure of the housing cycle whereby housing units cease to be useful to the housing market and are consequently removed to make room for new development, often higher density housing or non-residential use. A significantly high rate of demolitions may indicated a rapidly aging housing stock and shortage of buildable land suitable for housing this is not the case in Grants Pass, where the mean rate of demolitions is only .002% per year, averaging only 15 demolitions annually from 1970 to 1980. (see Table 9.20.6)

Housing additions and alterations can reveal the effects of the new housing market on the existing housing stock. Additions and alteration can traditionally be associated with routine home maintenance which should be unaffected by the activities of the housing market. However, when the valuation and frequency of addition and repairs demonstrate significant increases over time, then a cause-effect phenomena is possible. The effect is obvious: households are reinvesting in existing homes. The cause is most likely related to the housing market, which is currently depressed nationwide by high interest rates and development costs. This reinvestment is an important factor in the housing market of the community. Rather than disinvesting, which is detrimental to the housing stock, households are making major improvements in the existing housing stock and increasing the valuation of the housing stock during a period of housing market stagnation.

TABLE 9.20.6
Housing Demolitions and Additions - Alterations
City of Grants Pass, 1970-1980

Year	D.U. Removed	Average Demolitions/ Year	D.U. Altered	Average Alterations/ Year	Valuation	Mean Valuation Per D.U.
1970	19		102		$130,242	$1276
1971	10		132		$141,197	$1069
1972	13		145		$223,360	$1540
1973	17		116		$184,393	$1589
1974	17		176		$304,285	$1728
1975	18		215		$451,284	$2098

1976	14		206		$471,583	$2289
1977	12		170		$536,369	$3155
1978	18		144		$631,469	$4385
1979	7		107		$372,842	$3484
1980	18		75		$546,498	$7286
Total	**163**	**15**	**1588**	**144**	**$3,993,522**	**$2514**

Source: City of Grants Pass Building Activity Annual Reports, 1970-1981

Housing Starts - Housing construction starts data are derived from 1970-1980 building activity records of the City. That data reveals new housing activity in terms of valuation, type and frequency. (see Table 9.20.7)

The mean valuation for new single -family dwellings has increased over 114% from 1972 to 1981. The valuation for multi-family dwellings also appears to have increased over the period; however, whenever the number of multi-family units is high, the mean valuation is diluted by the benefits of economy of scale which makes it difficult to measure actual increases in cost per unit by type over time. It is also significant to note that the distribution of dwelling types was relatively equal for this recent historical period.

The trends in multi-family construction correspond with the trends in single family construction, except that the multi-family building activity seems to react more extremely to the conditions which influence the housing market. (see Graph 9.20.8) In 1974, a recession year with a fuel shortage, both single family and multi-family construction activity declined significantly. Single family building activity decreased to 45% of its 1970-1981 average, while multi-family construction decreased to 93% of its average activity for 1970-1981. Inversely, in 1977, a recovery year, single family construction increased 71% over the average, while multi-family construction activity increased 139% over the average starts. These large fluctuations in multi-family housing activity may be attributed more to financial conditions rather than to market demand. During the tough of recession, the interest rate is usually high and will have a proportionately greater impact on multi-family construction compared with single family construction because multi-family financing requires more initial capital outlay. Therefore, in the higher interest period of economic activity, single family construction provides a lower risk due to its smaller investment and shorter return period. However, both housing types decrease construction productivity in recession periods.

Until recently, local multi-family housing starts have reacted severely to high interest rates and recessionary times. However, a very noticeable upward trend in multi-family starts in 1981 is obvious on Table 9.20.7. While interest rates continue to rise to 16% and single family detached housing was continuing a long term decline which began in 1977, multi-family housing starts were rebounding upwards. Of course, the housing market in the Grants Pass area is small and slight changes can make significant statistical differences. The "bottom line" is that the total number of

multi-family dwelling units built in 1981 is almost equal to the number of single family dwelling units. This is a significant change from the 1974 recession, when, while both housing types declined in total numbers, single family starts were eight times greater than multi-family starts.

TABLE 9.20.7
Dwelling Construction Starts: City
Single Family

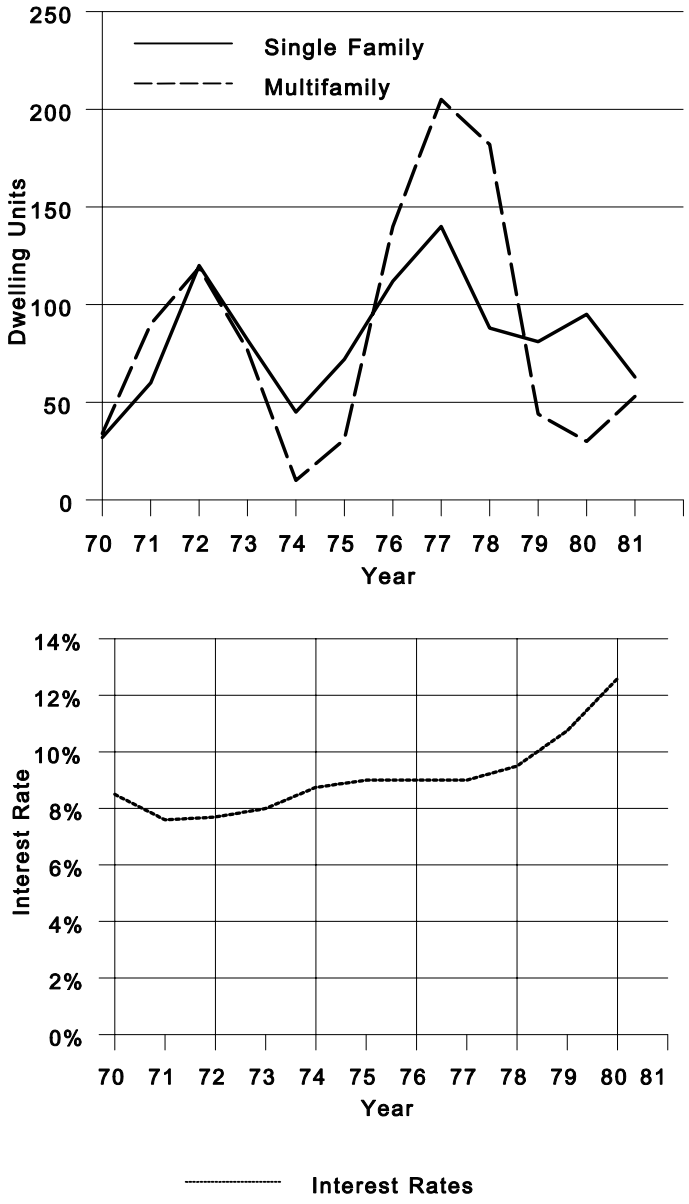
Year	D.U. Number	% Total	Mean Valuation/Unit	Prime Rate %	Mortgage Rate %
1970	34	47	$ UK	7.9	8.5
1971	59	39	$ UK	5.7	7.7
1972	123	50	$19,712	5.3	7.6
1973	85	53	$20,395	8.0	8.0
1974	46	88	$22,910	10.8	8.9
1975	69	70	$27,497	7.9	9.0
1976	112	44	$21,497	6.8	9.0
1977	142	47	$30,757	6.8	9.0
1978	93	34	$35,409	9.1	9.5
1979	78	63	$29,951	12.7	10.8
1980	97	78	$33,633	15.3	12.7
1981 (Jan - Apr.)	62	54	$42,251		
Total	1,000	50%	$28,515		

Multifamily

Year	D.U. Number	% Total	Mean Valuation/Unit	% S.F. Value
1970	38	53	$ UK	UK
1971	92	61	$ UK	UK
1972	124	50	$9,639	49%
1973	76	47	$10,880	53%
1974	6	12	$20,080	80%
1975	30	30	$13,290	48%
1976	142	56	$13,980	65%
1977	203	53	$15,268	67%
1978	181	66	$9,860 (2)	28%
1979	45	37	$14,533	49%
1980	28	22	$21,194	63%
1981 (Jan-Apr)	52	46	$41,898 (3)	99%
Totals	**1017**	**50%**	**$13,629**	**48%**

(1) Source: City of Grants Pass Building Activity Annual Reports, 1970-1981
(2) A significant cost-break is achieved when four or more multifamily dwellings are constructed on a single site. This low valuation reflects the large number of apartments built in 1978.
(3) 30 luxury condo units at $49,719/unit; 22 duplex units at $31,233

GRAPH 9.20.8
Housing Starts and Interest Rates: City



Overall, the valuation of the multi-family housing type is 50% of the valuation of the single family housing type. Of course, the amenities of both housing types are different. The single family usually has a larger living area and more accessories. The multi-family dwelling is generally smaller in floor area and more efficiently designed.

However, these are traditional amenities specific to the dwelling types that need not prevail in the development of future housing units. If householders continue to demand architectural identity, natural wood products and spacious environments in owner occupied dwellings, often the square footage cost of the dwelling and the land costs must be reduced in order to reduce the cost of the dwelling unit bundle. Therefore, the amenities of both single family and multi-family dwelling types must be combined with innovative land development and building techniques in order to reduce the cost of housing.

The multi-family dwelling unit costs less that the single family dwelling unit primarily because of economics of scale. The multi-family dwelling unit shares the land costs, construction costs and other improvements with other attached dwelling units. The living environment of the multi-family dwelling until need not be "containerized" into nondescript square rooms nor restricted to an asphalt parking lot to an asphalt parking lot instead of green spacious yard area. Both indoor and outdoor living areas can be spacious.

Development policies that encourage attached housing, cluster developments, narrow streets, increased density and more open spaces will promote the development of resident owned housing that approaches the affordability of multi-family housing values as showing in Table 9.20.7 and also provides for the amenities that are so popular in the single family dwelling unit.

Table 9.20.9 depicts the Josephine County dwelling construction starts for 1974 to 1981. It reveals the distribution of housing starts by type during that period and their valuations. Multi-family dwelling starts were relatively high in 1977 and 1978, corresponding to the high number for the City during that period. (see Table 9.20.8) It is assumed that the multi-family dwelling starts for the county declined thereafter because of inflation and high interest rates, which affect that housing type more significantly than other housing types. However, the mobile home dwelling starts, while declining, but less dramatically than other housing types, increased its proportionate share of the total housing starts during 1977-1981 period from 45% to 60%. Single family (wood frame) dwelling starts declined steadily during that period and decreased its proportionate share of the total housing starts from 52% to 39%. The reason for the increase in mobile home starts and decrease in single family wood frame dwelling starts may be affordability. (see Graph 9.20.10) The table shows the assessed valuations for wood frame single family homes and the market valuation for mobile homes. The differences in values are significant. It is also important to note that wood frame attached dwelling units (multi-family dwelling units), are comparable in unit price to mobile homes and significantly more affordable than the conventional single family detached dwelling unit. The major factor affecting the construction of attached housing units is the mortgage interest rate. However, other factors such as zoning and development ordinances can also discourage the building of that housing type.

9.22 Housing Cost and Household Income

The cost of housing affects the type and distribution of housing in the urban growth area. This section of the housing element contains data relevant to housing cost and household income which will be used to evaluate the housing types and distribution needed in the urban growth area.

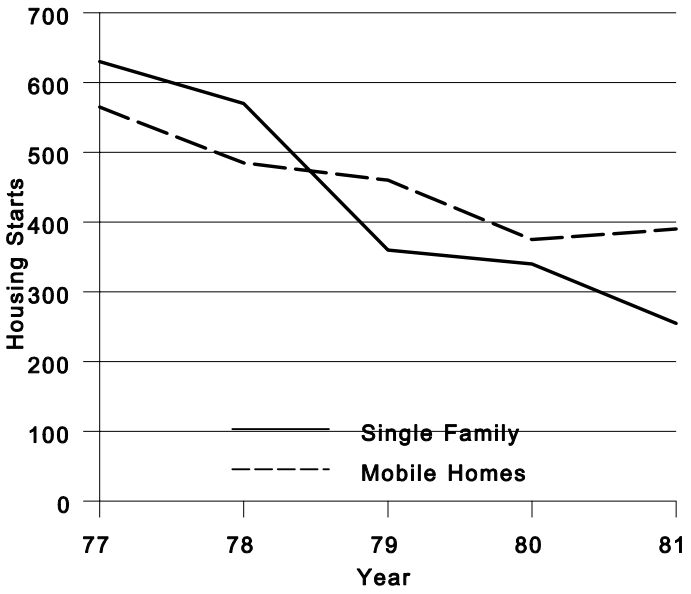
Carl Saltveit, economist with Lord and Associates, speculates that incomes historically have grown more slowly than costs and that this trend will continue into the future. The general outlook for the economic base projects lower wage levels for future light industrial employees than existing wage levels in the basic resource industries. At the same time, the cost of natural resources is expected to rise subject to the trend of decreasing supply and increasing demand. (Ibid Lord and Associates, 1980) The economic outlook predicts that the cost of raw forest product is expected to rise faster than the rate of inflation. (Ibid) In the Energy Element, it is found that the cost of natural gas has increased 250% since 1973, and the typical annual residential gas bill has increased from $175.00 to over $400.00. (Oregon Department of Energy: Fourth Annual Report, 1980.) These resource costs contribute significantly to the initial cost of housing and the continuing costs of the housing bundle. (see section 9.10.3)

TABLE 9.20.9
Dwelling Construction Starts: Josephine County
1974 - 1981

	Single Family			Mobile Home			Multifamily (2)		
Year	**DU**	**%**	**Mean Assessed Value**	**DU**	**%**	**Mean (1) Market Value**	**DU**	**%**	**Value**
1974	70		25,926	No data	--	--	--	--	--
1975	256		27,221	No data	--	--	--	--	--
1976	435		28,114	No data	--	--	--	--	--
1977	634	52%	29,175	560	45%	19,900	38	3%	$13,432
1978	569	54%	35,303	476	45%	24,489	16	1%	$15,500
1979	366	44%	43,867	461	55%	26,302	5	1%	$23,000
1980	344	48%	51,510	373	52%	31,459	--	--	--
1981	253	39%	54,442	388	60%	28,970	8	1%	$26,073
Total	2166	48%		2258	50%		67	2%	

(1) Survey of recent mean sales values, Lee's Mobile Homes, Grants Pass, Oregon.
(2) Occurring mainly within UGB.

GRAPH 9.20.10
Mobile Homes Compared to Other Single Family Starts
Josephine County



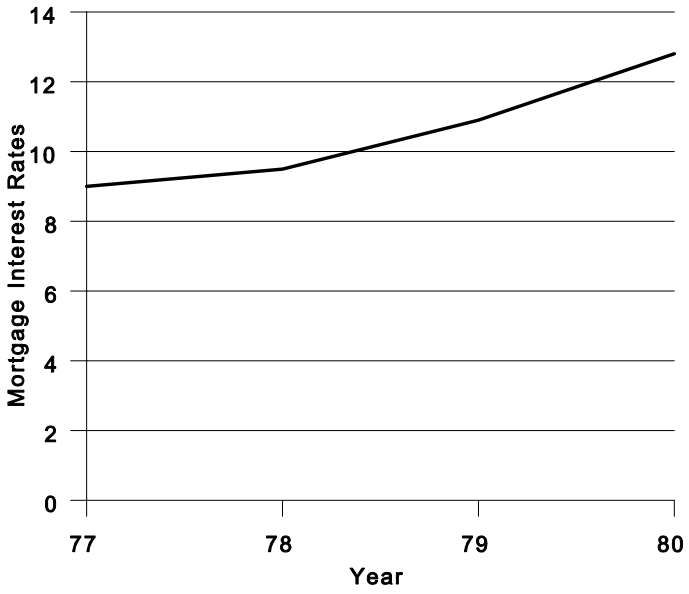


Table 9.20.11 depicting housing cost and household income reveals an increasing divergence between costs and incomes. Under the heading Owner Occupied Dwelling, the divergence is evident in the value/income ratio column of the table. The market value of housing has increased by a factor of two over the median family income during the period 1970 - 1980. This two-fold increase in cost is further depicted in the cost income column where the percent of disposal income allocated to the housing cost has more than doubled in ten years. Of course, few household can afford to spend 39% of their income on housing.

Under the heading "Renter Occupied Dwelling," the divergence between cost and incomes is expressed by the comparison of actual rent ranges with the affordable rent level. The cost/income column reveals a trend similar to owner occupied cost/income figures. However, the renter occupied category is usually comprised of a larger number of low income households which make these figures based on median family income much more significant. The fact that renter occupied monthly housing costs are less than owner occupied housing costs, maybe explained more by income levels than market demand. Specifically, rent levels may reflect the lower income levels of the renter market. A shortage of rental units, which may exist in the Grants Pass urban growth area, can contribute to higher housing costs for renters. Regardless of the reasons for existing rent levels, at least one half, if not more, of the renter households are paying almost one quarter of their disposable income for housing.

TABLE 9.20.11
Housing Cost and Household Income: City

A. Owner Occupied Dwelling

Year	(1) Median Family Annual Gross Income	Single Family Dwelling Market Value	Value/ Income Ratio	Institutional Income Requirements (4)	Monthly (9) Housing Cost	Gross Monthly Income	Cost/ Income
1970	$7,959 (2)	$15,000 (3)	1.88:1	$6,000	$108	$663	16%
1977	$13,015 (5)	$37,052	2.85:1	$14,820	$272	$1,084	25%
1980	$15,716	$54,609 (8)	3.47:1	$21,843	$505	$1309	39%

B. Renter Occupied Dwelling

Year	Median Family Annual Gross Income	Low Income (10) Household 80% of Median	Actual Rent Ranges	Affordable (14) Rent Level	Monthly Rent Level	Median Monthly Gross Income	Cost/ Income
1970	$7,959.99	$6,367	74 (11)	$132	$74 (15)	$531	14%
1977	$13,015	10,412	171-240 (12)	$216	$198 (16)	$867	23%
1980	$15,716	$12,572	203-354 (13)	$262	$264	$1047	25%

(1) Gross income= disposable income+ personal taxes (personal taxes are assigned a value of 25%).
(2) 1970 U.S. Census.
(3) 1970 U.S. Census.
(4) Requirement by lending institutions is that the ratio of housing cost to household income not exceed 2.5:1
(5) This is an extrapolation derived from a comparison of known income data for 1970, for Josephine County and Grants Pass, with known income date for 1978, for Josephine County. The unknown, Grants Pass income data for 1977, was extrapolated from the calculated rate of change in Josephine County income data from 1970 - 1978. This rate of change was 6.39% per year. This figure compares with a 1970 - 76 analysis of Josephine County income data done by the Oregon Department of Human Resources in the publication "Socio-Economic Indicators." On page 214, the annual rate of change in income is shown to be 5.68%.
(6) This is an extrapolation based on the rate of annual change for the cost of housing between 1970 and 1980. The rate of change was 13.79% per year. The 1970 value was derived from the census and the 1980 value was derived from Assessor Sales Ratio Survey, which sampled 20% of the accounts. Using 13.79% to compute annual cost change, the mean market value of a single family home in 1977 is $37,052. This value compares with the actual mean valuation of a single family home built in 1977. Grants Pass building permit records indicate that the mean valuation for single family homes in 1977 was $30,757. When builder's profit margin of 15% and Realtor's fee of 6% are added to this valuation, then the market price of the house is $37,492.
(7) 1980 Oregon Socio-Economic Indicators, Oregon Dept. Of Human Resources.
(8) Mean single family housing cost, based on County Assessor Sales Ratio Study, September 1, 1979 - August 31, 1980, of 284 sales transactions in the City of Grants Pass.
(9) This is the monthly annuity based on the following criteria: (a) Interest rate in 1977 - 8.75%, in 1980 - 16%: (b) Loan term is 20 years: (c) Down payment is 15%.
Source: Survey of Mortgage Interest Rates -1977 - 1980.

Table 9.20.11 also focuses on the affordability of the owner occupied wood frame single family dwelling unit. It depicts the increasing disparity between family income and housing cost. In 1980, more than half of the Grant Pass area households could not afford the conventional wood frame home. Perhaps this explains the dramatic increase in the share of the housing market of mobile homes as depicted in Graph 9.20.10. Mobile homes are very affordable.

TABLE 9.20.12 (A)
Cost/Income: Mobile Homes

1980 Median Family Gross Income	1980 Mobile Home Market Value (MH and 8,000 sq. ft. lot)	Value/Income Ratio	Institutional Income Requirements
$15,716	$40,970	2.61:1	$16,388

Table 9.20.12 above shows that the price of the mobile home fits well with conventional financing requirements, at least half of the Grants Pass area households can afford a mobile home on a 8,000 square foot lot (lot value at $1.50 per square foot; mobile homes value at $28,970). The mobile home value is comparable to the renter occupied value of Table 9.20.11: the cost/income ratio for mobile homes is 25% and the cost/income ratio for rentals is also 25%.

Perhaps some insights can be gained into the cost effectiveness of owner-occupied attached wood frame housing units if we assume that rental duplex was instead built as an owner duplex. In 1980, the Grants Pass Building Department valuated a duplex dwelling unit at $44, 409. That is the mean value for 12 duplexes constructed within the City in 1980. If we place that duplex on a 12,000 square foot lot at $1.50 per square foot, we have an aggregate price of $62,409.

Now, we will the duplexes for $76,076, a market price that includes a 15% builders margin and 6% Realtor fee. The cost of each attached dwelling is $38,038.

TABLE 9.20.12 (B)
Cost Income: Attached Dwelling Units

1980 Median Family Gross Income	Duplex Market Value + Lot	Value/Income Ratio	Institutional Requirements
$15,716	$38,038	2.42:1	$15,212

This compares almost identically with the cost of a mobile home on an 8,000 square foot lot (see Table 9.20.12 (A)). The open space amenities are similar. Using this renter-owner occupied parallel, we find that multi-family or attached dwelling units can be an affordable housing opportunity for half of the Grants Pass area households.

TABLE 9.20.12 (C)

	Single Family (Wood Frame)	Mobile Home	Attached Dwelling Unit
1980 Median Family Income	$15,716	$15,716	$15,716
Dwelling Unit Market Value	$54,609	$40,970	$38,038
Value/Income Ratio	3.47:1	2.61:1	2.42:1
Institutional Income Requirements	$21,843 (139%) Median	$16,888 (104% Median)	$15,212 (97% Median)
1980 Median Monthly Income	$1,309	$1,309	$1,309
Monthly Housing Cost	$505	$379	$352
Cost/Income %	39%	29%	27%

A necessary requirement for facilitating the development of both mobile homes and attached wood frame homes in the UGB is providing adequate zoning. Both housing types can potentially be developed at densities of 5.5 dwelling units per acre and greater. The mobile home can be considered a single family housing type however, and can develop at the conventional single family density of less than 5.5 dwelling units per acre. However, in a mobile home subdivision and mobile home park development, densities can range from 5.5 to 10.5 dwelling units per acre. Likewise, the attached wood frame dwelling unit can be developed at all density ranges. The above mentioned duplex on 12,000 square feet corresponds to a density of 5.5 dwelling units per acre. The attached dwelling unit types can also be developed at densities greater than 15.5 dwellings per acre. In order to provide the opportunity for affordable housing to more than half of the households of the Grants Pass area, then an adequate amount of buildable land must be designated at densities greater than 5.5 dwelling units per acre. Since half of the Grants Pass area households earn below $15,716 (1980 data) then the mobile home on 8000 square feet and the detached single family on 12,000 square feet are marginal housing opportunities for that half of the area's households. In order to assure the opportunity for affordable housing for all income groups, then a wide range of densities must be allocated throughout the UGB.

9.23 Housing Density

Density Ranges - The purpose of establishing density ranges for housing development in the community includes the following:

- to provide outright areas within the community where various types of housing can be permitted without undue hardship on adjacent neighbors

A common problem experienced by neighborhood residents is the request for a subdivision or other type of housing which is inconsistent with the existing neighborhood and would represent undue burdens on existing neighborhood residents. By carefully planning specific areas within the community where various housing types are allowed, this conflict is reduced.

- to provide an overall framework within which builders, developer, etc. can respond with types of housing to meet current and future housing demands

It is difficult to predict what kinds of housing will be built in the next ten to twenty years. Many city and county ordinances are overly restrictive in regards to the ability to respond to the changing economic conditions and resulting forms of housing.

- to plan for basic services, such as streets, sewers, schools, etc. within the community

Too often communities have experienced growth in areas of the city that have insufficient sewer, water and systems as well as the provision of adequate school and other community supported services. The allocation of densities within the community allows for the development of services adequate to meet future population demands within the community.

- to plan for other related support land uses such as neighborhood commercial centers, community facilities, parks, etc.

- the planning for the location of parks, school, and commercial districts is a long range process which requires some confidence that as areas develop they will be sufficient in size and in location to meet future residential growth.

- to buffer incompatible uses such as industrial development from residential areas, and to buffer the various types of residential development from one another.

Lot Size and Density - Density has been commonly expressed as the number of dwelling units per acre. While the term "density" has appeared into the zoning ordinances of the City and County, the effective density standard has often been lot size. The use of the lot size as a substitute for density, however, ignores the principles of efficient land use, and can result in a "cookie cutter" approach to site layout and design. A developer required to measure density only by lot size attempt to carve the maximum number of lots from the land, ignoring the natural features of the site that could create a more livable environment.

Lot size zoning not only impedes efficient land use, it specifies the housing construction type that can be located within a zone. This restricts the use of a zone and discriminates against certain housing construction types that could achieve the prescribed density but fails to meet the housing

type "test" of the zoning ordinance. Rather, it seems more equitable to use density as a zoning method in conjunction with a performance standard for residential development.

Appropriate Comp Plan Density Categories - The City's 1969 General Plan has only two plan densities appropriate for urban level development: urban medium density (3-6 du/Ac) and urban high density (6-30 du/Ac). Somewhat ambiguously, the General Plan goes on and recognizes that the urban medium density will be violated by duplex development in the R-1-6 and R-2 zones.

A more appropriate concept would be to divide the Comp Plan density groups into more categories, following the most economical groupings of various building types as follows:

Low	5.5 du/Ac
Moderate	10.5 du/Ac
High	17.5 du/Ac
High Rise	35.5 du/Ac

This concept follows the present minimum lot sizes of the urban area Zoning Ordinance closely, when allowing for streets as a percentage of development, as shown in Table 9.20.13.

TABLE 9.20.13
Comprehensive Plan Densities

Proposed Comp Plan Designation	Urban Area Zoning Ordinance Designation			Resultant Densities with Conventional Development (Dwelling Units Per Acre)			
	Zone	Housing Type	Minimum Lot Size (s.f/du)	Percentage Streets 20%	15%	10%	0%
Low 5.5 du/acre	R-1-12	Single- Family	12,000	2.9	3.1	3.3	3.6
	R-1-8	Single- Family	8,000	4.4	4.6	4.9	5.5
Moderate 10.5 du/acre	R-1-6	Single-Family 2 Family	6,000	5.8	6.2	6.5	7.3
	R-1-6	Single- Family 2 Family	5,000	7.0	7.4	7.8	8.7
	R-2		5,000	7.0	7.4	7.8	8.7
	R-2		3,750	9.3	9.9	10.5	11.6
High 17.5 du/acre	R-3	2 Family	2,500	13.9	14.8	15.7	17.4
	R-3	Multi-Family 2 Family	2,000	17.4	18.5	19.6	21.8
	R-4		2,500	13.9	14.8	15.7	17.4
High Rise 35.5 du/Acre	R-4	Multi-Family	2,500 First duplex, 1,000 thereafter	34.3	36.5	38.7	43.1

Recent developments, completed or proposed within the City in the R-1-6 and R-2 zones, ranged from 6.7 to 8.7 du/Acre in excess of the 6.0 du/Acre required by the 1969 General Plan, but well within the proposed 10.5 du/Acre Comprehensive Plan limit. These developments all utilized the Planned Unit Development concept, and the private and public streets ranged from 7% to 30% of the total developed acreage. More discussion of this concept is found in the Land Use Element.

9.24 Housing Need

Recent Trends - The preceding evaluation of housing factors and housing costs have set the stage for a determination of housing need. So far we can conclude that the Grants Pass area has a chronically low vacancy rate for renter occupied housing; the tenure preference is increasingly toward home ownership; there is an increasing attention by households to rehabilitation, addition, and alteration of existing dwelling units for outweighing demolition; the lower cost housing opportunities such as attached dwellings and mobile homes are significantly increasing their share of the total housing stock; more than half of the Grants Pass area households cannot afford the conventional wood frame single family detached home.

Factors in Assessing Need - Housing need is determined by considering facts discussed above, and in the Population Element as follows: target populations for the County and UGB area, household size, vacancy rates, "affordability" past market behavior, and buildable lands.

The year 2000 target population for the UGB area, when divided by a projected household size, yields the number of dwelling units required to house the population. Without prejudicing for or against certain housing types, affordability is approached through a consideration of density (the higher the density, the lower the costs per unit for land and infrastructure) and by paying special attention to the mobile home density range. Past market behavior is also examined. Two housing need "models" result, the Low Density Model and the High Density Model, each with differing implications for livability, affordability, and cost of providing urban services.

Target Population - The most likely target population range for Josephine County in the year 2000 was determined to be between 96,640 persons (County Comprehensive Plan) and 101,250 persons (Economic Model). The most likely target population range for the Grants Pass UGB in the year 2000 was determined to be between 38,300 and 44,750 (Urban Growth Plan) (Economic Model) persons. See Population Element for further discussion.

Household Size - Households in the United States have been decreasing in size steadily over the past several decades, and are expected to grow at more than twice the national population growth rate, during the 1980's, as the baby-boom generation moves fully into the family formation stage, and as trends of the 1970's in marriage and divorce rates and adult living arrangements continue. See Population Element for further discussion.

Further accelerating this trend to lower family size is the higher percentage of Grants Pass area residents that are of retirement age, increasing ever more within the City limits. In 1970, the portion of the City population 65 years and older was 8 percentage points higher than Oregon and 3 percentage points higher than Josephine County, while those persons 60 years and older constituted 33% of the total population. In 1980, the City's 65 years and older cohort was 7% higher than the State's, and 3% higher than the County. See Population Element for further discussion.

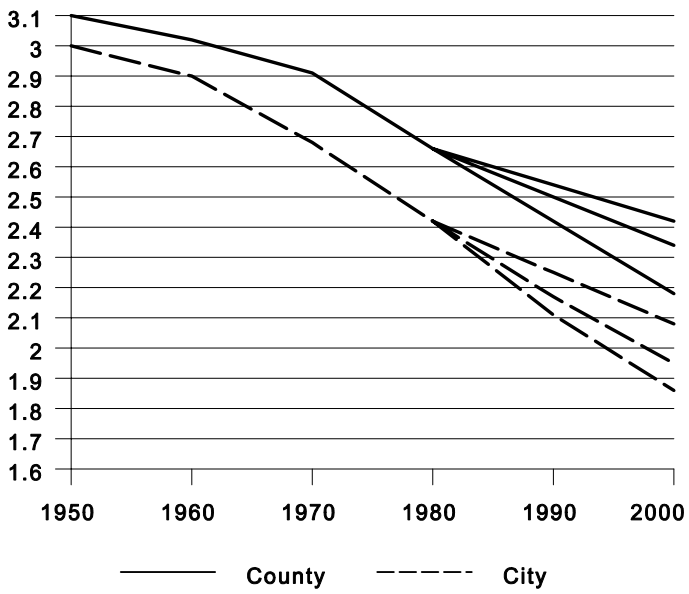
TABLE 9.20.14
Household Size, Oregon - Oregon, Josephine County, Grants Pass

	1950	1960	1970	1980	1990
Oregon	3.10	3.10	2.90	2.60	2.52
Josephine County	3.10	3.00	2.90	2.66	2.46
Grants Pass	3.00	2.90	2.70	2.42	2.34
Grants Pass State/ % Points Lower Co.	.1/.1	.2/.1	.2/.2	.18/.24	.18/.12

As the rate of decrease in household size has increased each decade, the further back one goes to establish a trend for the next two decades, the larger the projected household size becomes, City household size projections made as "least square" projections of recent trends is shown in Graph 9.20.15, and maybe summarized as follows:

Present Household Size:	2.42 persons in 1980
1950 - 1980 Trend:	2.08 persons by year 2000
1960 - 1980 Trend:	1.95 persons by year 2000
1970 - 1980 Trend:	1.86 persons by year 2000

GRAPH 9.20.15
City-County Household Size Projections



Factors down-trending the household size include improved birth control, higher cost of raising children, delayed or fewer pregnancies by women in the labor force, the present economic downturn, and a high percentage of older persons in the population. Factors up-trending include the baby boom generation entering family formation, women having children who have previously delayed, and a national post-Vietnam era inclination to have larger families.

National analysts conclude that household size will continue to fall, but not as fast, possibly bottoming out or coming back up. Projecting such a lessening decrease at the same order of magnitude as the decades of 1960-1970 and 1950-1960 results in the common "S-shaped curve" shown on Graph 9.20.16 indicating an acceptable range for the household size might be between 2.42 persons (present) and 2.08 persons (1950-1980 trend), thus softening the extreme drop of the 1970's. This argument gathers further validity when noting that the retirement "wave" will peak and recede in the 1980's, and that heightened job-growth could also result in a higher population of younger families with children.

Moving outside the city limits to the urbanizing area, the 1980 census showed the Redwood area and Fruitdale-Harbeck area household size (2.59) to be greater that the City's (2.42), but less than the County's (2.66). This urbanizing area Redwood-Fruitdale-Harbeck household size projected at the same rates of decline as the City and County household sizes for the 1950-1980 period, is summarized as follows:

Present Household Size:	2.59 persons in 1980
1950 - 1980 City Trend:	2.22 persons by 2000
1940 - 1980 County Trend:	2.36 persons by 2000

As the area within the UGB urbanizes, the trends should echo the City experience, and therefore the City trend seems most appropriate. The most probable range for households size could then be said to be as follows:

City	2.42 - 2.0 Urbanizing per household
Urbanizing area	2.59 - 2.22 persons per household

The selection of a projected household size has a pronounced effect upon the number of dwelling units required to house any given population:

$$\text{Dwelling Unit Demand} = \frac{\text{future population}}{\text{future household size}}$$

The greater the household size the fewer the new dwelling units required to house a given population. For the Grants Pass Urban Growth Boundary, the number of dwelling units required for the target population is increased by 34% to 42% when the low end of the household range is utilized. The dwelling unit requirement of the High Population-Low Household Size combination is almost double the Low Population-High Household Size combination, as shown in Table 9.20.16.

TABLE 9.20.16
New Dwelling Unit Demand by Household Size

Target Population	City/Urban Area Household Size by Year 2000	New Dwelling Units City	Urbanizing Area	Total	Increases Due to Lower Household Size
38,300	2.42/2.59 high	1,946	4,316	6,262	
	2.08/2.22 low	3,357	5,526	8,883	) 42%
44,750	2.42/2.59 high	1,946	6,916	8,862	)) 90%
	2.08/2.22 low	3,357	8,556	11,913	) 34%

Clearly caution is indicated here. This analysis concludes that utilizing the lower end of the probable range of household size represents the most likely event, this analysis developed housing need utilizing both existing and projected household sizes for the City and urbanizing area, as is shown in Tables 9.20.18 through 9.20.23

Vacancy Rate - The available housing stock at any given time should exceed demand by a certain minimum, if speculative inflation of housing cost is to be kept within an affordable range. As Table 9.20.1 shows, the vacancy rate at any given time is a factor of the market, a factor of available supply, current demand, housing cost, and household income. For this reason, the minimum vacancy rates as recommended by HUD were utilized to calculate the dwelling unit demand for any given period as follows:

Single Family	1.5%
Multi-Family	6.5%

Density Distribution Models - Housing starts in the City and County were examined, together with the character of the buildable lands within the City, in order to anticipate how the total dwelling unit demand should be allocated among various densities, as is summarized in Table 9.20.17.

TABLE 9.20.17

	Year	**up to 5.5 du/Ac**	**10.5 du/Ac+**	
City	1970	86%	14%	
City	1980	76%	24%	
County	1980	77%	23%	
2) Housing starts within City for 1970-1981				
Period	**Single Family**	**Multi-Family**	**Total**	
1970-1980	1,000	1017	2017	
	50%	50%	100%	
3) Housing starts within County, for 1974-1981				
Period	**Single Family**	**Mobile Home**	**Multi-Family**	Total
1974-1981	2166	2258	67	4491
	48%	50%	2%	100%
4) City buildable lands distribution by residential density				
	Up to 5.5 du/Ac	**10.5 du/Ac+**	**Total**	
Acres	59%	41%	100%	

Both the City and urbanizing area housing demand situations were reviewed, and a "Low Density Model" and "High Density Model" housing needs assessment were developed. First, population growth and household size were determined at five year intervals. Second, the total dwelling unit demand was determined for each interval assuming 100% occupancy. Third, the total unit demand was split into low, moderate, and high density unit demand, using a "Low Density" and a "High Density" drive, and the appropriate vacancy factors were than added to each density type.

Low Density Model - Dwelling Unit Drive - The city housing deed by density group was "driven" by splitting the total new unit demand for each five year interval into 60% low density (5.5 du/Ac) and 40% moderate to high density (10.5 du/Ac and up). This 60%-40% split is less than the 50%-50% split in housing starts in the City during the 1970-1980 decade, but recognizes the inertia built into the 59%-41% split in the zoning of the buildable lands within the City. The 60%-40% split further recognizes that the nature of most City buildable lands to be small and scattered lots, within established neighborhoods, recognizes the developing/established overlay concept (see Land Use Element), and exceeds the existing City dwelling unit count of 76% low density-23% high density. The shift in City high and low density units from 1970 to 1980 was about 10 percentage points. Continuing this shift at 8 to 10 points per decade would also result in the 60%-40% split.

The urbanizing area need was "driven" in a similar fashion, but emphasized the moderate density range (R-1-6, R-2 equivalent) as follows:

60% low density	(5.5 du/Ac)
30% moderate	(10.5 du/Ac)
10% high	(15.5 and 35.5 du/Ac)

This pattern recognizes immigrant preference for larger lots and detached housing, recognizes mobile home economy through allowing mobiles on almost all 5.5 du/Ac density and by targeting 30% -10.5 du/Ac density utilized both by mobile home parks and the duplex market, and recognizes that much of recent innovative development (PUD's, Dwelling Groups) has been designed or built at 7.5 to 9 du/Ac regardless of location in R-1-6, R-2 or R-3 zones. Clearly, the 98%/2% County building starts split between County low and low/moderate densities is inappropriate for the urbanizing area. While the County 1977-81 building starts pattern of 48% detached single family, 50% mobile homes and 2% multi-family reflects the relative lack of higher density areas with appropriate service, it also reveals a clear mobile home preference.

This model will be near the Urban Growth Plan target populations of 38,300 persons when 28% of the buildable lands inventory remains vacant (39,948 person capacity) and will be over the economic model target of 44,750 persons by less than 7% at full buildout (47,829 person capacity).

High Density Model - Dwelling Unit Drive - The City housing need by density group was "driven" by splitting the total new unit demand for each five year interval into 50% low density (5.5 du/Ac) and 50% moderate and high density (10.5 du/Ac and up), in spite of the buildable lands split of 59%/41%, recognizing the 50%/50% split in 1970-1981 housing starts. This pattern will probably require some redevelopment of existing neighborhoods with high density zoning and low density construction.

The urbanizing area housing need was "driven" by a more radical split, as follows:

45% low density (5.5 du/Ac)
25% low moderate density (10.5 du/Ac)
30% high density and up (15.5 and 35.5 du/Ac)

This pattern recognizes the "market" urban development pattern within the City limits over the last decade of 50%/14%/36%, shifting some of the lower and higher density portion of development into the moderate (R-1-6/R-2) range, recognizing the great potential of the duplex/mobile home park density range when measured by affordability and immigrant preferences for larger lots and detached housing, while at the same time providing for a very significant share of development in the high (R-3) range (30%). Where fire-flow water is not immediately available and community well systems are utilized, the full capability of the high density designations will probably not be realized.

The land use map, while derived from the Urban Growth Plan, begins to represent other urban-form options considered in the URBAN GROWTH PLAN process, showing higher densities in the Redwood and Fruitdale-Harbeck areas.

This model will exceed both the Urban Growth Plan target of 38,000 persons and the economic model target of 44,750 persons at full build-out (56,240 person capacity), and will exceed the economic model target by 3% when 28% of the buildable lands inventory remains vacant (46,090 persons capacity). Since this model could require additional "parallel" sewer mains in the Redwood Sewer District, and since the extension of fire-flow water will be a gradual process throughout the boundary area, and urban services boundary may be placed within the Urban Growth Boundary to bring the year 2000 population to be accommodated at these higher densities within the probable range of 38,300 to 44,750 persons. Those properties outside the year 2000 service boundary could then be held in 2.5 and 5 acre zoning for rural level development only until urban services were available.

These housing need models may be examined in Tables 9.20.18 to 9.20.23.

TABLE 9.20.18
Housing Need: City - Constant Household Size

Year	Projected Population	Projected Household Size	Total Dwelling Units	New Low Density Units	New Mod/High Density Units	Total New Units Required
1970	12,455	2.70	4,246	4,134	655	4,246
1980	15,032	2.42	6,462	4,897	1,565	6,462
1985	16,320	2.42	6,743	143/171	150/120	293/291
1990	17,609	2.42	7,276	271/325	284/227	555/552
1995	18,897	2.42	7,808	270/324	283/227	553/551
2000	20,186	2.42	8,341	270/325	283/227	553/552

Total New DU required 1980-2000	954/1145	1000/801	1954/1946
Total DU for year 2000	5851 / 6042 70% / 72%	2565 / 2366 30% / 28%	8416 / 8408 100%

City Population - straight lined at 1970-1980 city growth rate (infill model)
Household size - stays constant at 1980 level.
Housing need allocation by density -
50% low density (5.5 du/Ac)
50% mod. density + (10.5 du/Ac)
60% low density (5.5 du/Ac)
40% mod. density + (10.5 du/Ac +)
Vacancy Rate - Single Family = 1.5%
Multi-Family = 6.5%

TABLE 9.20.19
Housing Need: City - Decreasing Household Size

Year	Projected Population	Projected Household Size	Total Dwelling Units	New Low Density Units	New Mod/High Density Units	Total New Units Required
1970	12,455	2.70	4,246	4,134	655	4,246
1980	15,032	2.42	6,462	4,897	1,565	6,462
1985	16,320	2.34	6,974	260/312	273/218	533/530
1990	17,609	2.27	7,757	398/477	417/334	815/811
1995	18,897	2.17	8,708	478/579	507/405	985/984
2000	20,186	2.08	9,705	501/607	531/425	1032/1032
Total New DU required 1980-2000				1637/1975	1728/1382	3466/3357
Total DU for year 2000				6534/6872 66%/70%	3293/2947 33%/30%	9928/9819 100%

City Population - straight lined at 1970-1980 city growth rate (infill model)
Household size - decreasing at 1950-1980 city rate (least square)
Housing need allocation by density -
50% low (5.5 du/Ac)
50% moderate + (10.5 du/Ac +)
60% low (5.5 du/Ac)
40% moderate + (10.5 du/Ac +)

TABLE 9.20.20
Housing Need: Urbanizing Area: 38,300
Target: Constant Housing Size

Year	Projected Population	Projected Household Size	Total Dwelling Units	New Low Density Units	New Moderate Density Units	New High Density Units	Total New Units
1980	7,304	2.59	2,820	2,171	536	113	2,820
1985	10,006	2.59	3,863	476/635	278/333	333/111	1087/1079
1990	12,709	2.59	4,906	476/635	278/333	333/111	1087/1079
1995	15,411	2.59	5,950	476/635	278/333	333/111	1087/1079
2000	18,114	2.59	6,993	476/635	278/333	333/111	1087/1079
Total New DU required 1980-2000				1904/2540	1112/1332	1332/444	4348/4316
Total DU at year 2000				4075/4711 57% / 66%	1648/1868 23% / 26%	1445/557 20% / 8%	7168/7136 100%

Urbanizing area population - target population minus city population for year 2000, straight lined back to 1980.
Household size - stays constant at 1980 level for Redwood-Fruitdale-Harbeck area.
Housing need allocation by density -

45% low (5.5 du/Ac)
25% moderate (10.5 du/Ac)
30% high (15.5 du/Ac)
60% low (5.5 du/Ac)
30% moderate (10.5 du/Ac)
10% high (15.5 du/Ac)

TABLE 9.20.21
Housing Need: Urbanizing Area: 38,300
Target: Decreasing Household Size

Year	Projected Population	Projected Household Size	Total Dwelling Units	New Low Density Units	New Moderate Density Units	New High Density Units	Total New Units
1980	7,304	2.59	2,820	2,171	536	113	2,820

1985	10,006	2.50	4,002	540/720	315/378	378/126	1233/1224
1990	12,709	2.40	5,295	591/787	344/413	413/138	1348/1338
1995	15,411	2.31	6,671	628/838	366/440	440/147	1434/1425
2000	18,114	2.22	8,159	680/906	396/175	475/158	1551/1539
Total New DU required 1980-2000				2439/ 3251	1921/ 1706	1706/ 569	5566/5526
Total DU at year 2000				4610/ 5422 55%/ 65%	1957/ 2242 23%/ 20%	1819/ 682 22%/8%	8386/8346 100%

Urbanizing area population - target population minus city population for year 2000, straight lined back to 1980.
Household size - decreasing at 1950 -1980 city rate (least square).
Housing need density - group allocation -

45% low (5.5 du/Ac)
25% moderate (10.5 du/Ac)
30% high (15.5 du/Ac)

TABLE 9.20.22
Housing Need: Urbanizing Area: 44,750
Target: Constant Household Size

Year	Projected Population	Projected Household Size	Total Dwelling Units	New Low Density Units	New Moderate Density Units	New High Density Units	Total New Units
1980	7,304	2.59	2,820	2,171	536	113	2,820
1985	11,631	2.59	4,490	763/1017	445/534	534/178	1742/ 1729
1990	15,959	2.59	6,161	763/1017	445/534	534/178	1742/ 1729
1995	20,286	2.59	7,832	763/1017	445/534	534/178	1742/ 1729

2000	24,614	2.59	9,503	763/1017	445/534	534/178	1742/ 1729
Total New DU required 1980-2000				3052/ 4068	1780/ 2136	2136/712	6968/ 6916
Total DU at year 2000				5223/ 6239 53%/ 64%	2316/ 2672 24%/ 27%	2249/825 23%/8%	9788/ 9736 100%

Urbanizing area population - target population minus city population for year 2000, straight lined back to 1980.
Household size - stays constant at 1980 level for Redwood-Fruitdale-Harbeck area.
Housing need density group allocation -
45% low (5.5 du/Ac)
25% moderate (10.5 du/Ac)
30% high (15.5 du/Ac +)
60% low (5.5 du/Ac)
30% moderate (10.5 du/Ac)
10% high (15.5 du/Ac +)

Vacancy rate - Single Family = 1.5%
Multi Family = 6.5%

TABLE 9.20.23
Housing Need: Urbanizing Area: 44,750
Decreasing Household Size

Year	Projected Population	Projected Household Size	Total Dwelling Units	New Low Density Units	New Moderate Density Units	New High Density Units	Total New Units
1980	7,304	2.59	2,820	2,171	536	113	2,820
1985	11,631	2.50	4,652	837/1116	487/585	585/195	1909/ 1896
1990	15,959	2.40	6,649	912/1216	532/638	638/215	2082/ 2067
1995	20,286	2.31	8,781	974/1298	567/681	681/227	2222/ 2206

2000	24,614	2.22	11,087	1053/ 1404	614/737	736/246	2403/ 2387
Total New DU required 1980-2000				3776/ 5034	2200/ 2641	2640/ 831	8616/ 8556
Total DU at year 2000				5947/ 7205 52%/ 63%	2736/ 3177 24%/ 28%	2753/ 994 24%/9%	11,436/ 11376 100%

Urbanizing area population - target population minus city population for year 2000, straight lined back to 1980.
Household size - decreasing at 1950 - 1980 city rate (least square).
Housing need density - group allocation -
45% low (5.5 du/Ac)
25% moderate (10.5 du/Ac)
30% high (15.5 du/Ac +)
60% low (5.5 du/Ac)
30% moderate (10.5 du/ Ac)
10% high (15.5 du/Ac +)
Vacancy Rate - Single Family = 1.5%
Multi Family = 6.5%

Housing Need and Buildable Lands - Housing projected a total dwelling unit demand for the target population range of 38,300 to 44,750 persons, based also upon a range of household size fitting both the City limits and the Urbanizing Area; and having apportioned the total dwelling unit demand among the various density groups based upon numerous factors, resulting in a "low density model" and "high density model" for housing need, the two density models were compared against two Land Use Models labeled the Urban Growth Plan Land Use Model and the Service Capacity Land Use Model.

The Urban Growth Plan Land Use Model followed the adopted Urban Growth Plan as closely as possible, even though the Urban Growth Plan was not intended to be site specific. See Land Use Element for full discussion. The Service Capacity Land Use Model also followed the general tenets of the Urban Growth Plan, but evolved into more of a service capacity model, and begins to resemble some of the higher density options reviewed in preparation for the Urban Growth Plan in the Redwood and Fruitdale-Harbeck areas. Table 9.20.24 compares housing need with buildable land potential for each housing need and land use model.

TABLE 9.20.24
Housing Need and Buildable Lands: UGB at Year 2000

	Low Density Housing Needs Model Urban Growth Plan Map					High Density Housing Needs Model Service Service Capacity City Map				
Target Population and Household Size	City		Urbanizing			City		Urbanizing		
	5.5 du/ Ac	10.5 du/ Ac	5.5 du/ Ac	10.5 du/ Ac	15.5 du/ Ac	5.5 du/ Ac	10.5 du/ Ac	5.5 du/ Ac	10.5 du/ Ac	15.5 du/ Ac
Housing Drive	60%	40%	60%	30%	10%	50%	50%*	45%	25%	30%
(A) Constant Household Size	1145/ 2220	801/ 1416	2540/ 5414	1332/ 2990	444/ 809	954/ 2392	1000/ 1254	1904/ 5696	1112/ 3313	1332/ 3782
(B) Declining Household Size	1975/ 2220	1382/ 1416	3251/ 5414	1706/ 2990	569/ 809	1637/ 2392	1728/ 1254	2439/ 5696	1421/ 3313	1706/ 3782
(C) Constant Household Size	1145/ 2220	801/ 1416	4068/ 5414	2136/ 2990	712/ 809	954/ 2392	1000/ 1254	3052/ 5696	1780/ 3313	2136/ 3782
(D) Declining Household Size	1975/ 2220	1382/ 1416	5034/5 414	2641/ 2990	881/ 809	1637/ 2392	1728/ 1254	3776/ 5696	2200/ 3313	2640/ 3782

60% indicates percentage of total new housing need allocated to density group.
* Indicates where housing need exceeds 70% of potential buildable dwelling units.
Note: The potential buildable dwelling units are derived from the Buildable Lands Inventory and Neighborhood Analysis found in the Land Use Element.

TABLE 9.20.25
Housing Needs and Buildable Lands: UGB at Year 2000
Percentage Utilization of Potential Units

Target Population	Household Size	Low Density Housing Needs Model Urban Growth Plan Map					High Density Housing Need Map Service Capacity Map				
		City		Urbanizing			City		Urbanizing		
		5.5 du/Ac	10.5+ du/Ac	5.5 du/Ac	10.5 du/Ac	15.5+ du/Ac	5.5 du/Ac	10.5+ du/Ac	5.5 du/Ac	10.5 du/Ac	15.5+ du/Ac
38,300	(A) Constant	52%	57%	47%	45%	55%	40%	80%	33%	34%	35%
	(B) Declining	89%*	98% *	60%	57%	70% *	68%	138% *	43%	43%	45%
44,750	(C) Constant	52%	57%	75% *	71% *	88% *	40%	80% *	54%	54%	56%
	(D) Declining	89% *	98% *	93% *	88% *	109% *	68%	138% *	66%	66%	70% *

* Indicates housing needs in excess of 70% of potential buildable dwelling units.

Urban Growth Plan Land Use Model - This model, "low density" only by comparison to the Service Capacity Model, could accommodate just over the Urban Growth Plan target population of 38,300 persons when 28% of the buildable lands inventory now vacant remains vacant (39,948 person capacity with 28% vacancy), and could exceed the Economic Model target population of 44,750 by about 7% at full buildout (47,829 person capacity at buildout).

Using declining household size and the 38,300 target population, (see Table 9.20.25) 89% of the low density capacity within the City would be utilized, and 98% within the urbanizing area. Table 9.20.26 further shows that the UGB would need to be expanded between 1990 and 1995, when the ratio between unit demand and unit potential approaches 3 to 1, recommended as a minimum by D.L.C.D.

Using declining household size and the 44,750 target population, capacity of all density ranges would be 90% or more consumed, and high density demand in the urbanizing area would exceed capacity by 9%. Table 9.20.26 further shows that the UGB would require expansion between 1985 and 1990 (in other words, almost immediately in order to retain the desired demand/potential ratio).

The Urban Growth Plan Land Use Model, therefore, can absorb both the low and high end of the target population range of 38,300 to 44,750 persons, but will have to start expanding the UGB within 5 to 10 years in order to keep from artificially inflating land costs. As the Boundary expands, basic urban services must follow (streets, water, sewer, storm drains), adding to the housing costs.

Service Capacity Land Use Model - This model is also based upon the adopted Urban Growth Plan, and follows existing levels of development and existing densities within the established areas, but increases the densities in the developing and redeveloping areas. See Land Use Element for full discussion. This Land Use Model, with a buildout capacity of 56,240 persons, exceeds both ends of the target population range of 38,300 to 44,750 persons, and will exceed the Economic Model target (44,750) by 3% when all but 28% of the buildable lands have been developed (46,100).

Using the high target population and low household size, the only density groups approaching or exceeding 70% capacity would be the City's moderate and high density groups (capacity exceeded by 38%) and the urbanizing area's high density group (approaches 70% capacity). Table 9.20.27 shows that the low target population demand would not require Boundary expansion until sometime following 1995, with the high target population demand requiring boundary expansion sometime between 1990 and 1995, using the minimum demand/potential ratio of 3 to 1.

This Land Use Model would still have between 1/3 to ½ of its dwelling unit capacity untouched by the year 2000. Apart from the expense of some parallel secondary trunk sewer lines, little Boundary expansion would be required for 10 to 15 years, increasing the efficiency of services extensions within the Boundary, and thereby reducing housing costs.

TABLE 9.20.26
Housing Need and Buildable Lands Potential
Low Density Housing Needs Model - Urban Growth Plan Map

Target Population	Year	Needed DU	Potential Buildable DU	Ratio
38,300 declining HHS	1985	1854	12,849	6.9
	1990	2154	10,995	5.1
	1995	2409	8,841	3.6
	2000	2571	6,432	2.5
44,750 declining HHS	1985	2526	12,849	5.0
	1990	2883	9,966	3.5
	1995	3190	6,776	2.1
	2000	3419	3,586	1.0

TABLE 9.20.27
Housing Need and Buildable Lands Potential
High Density Housing Needs Model - Urban Growth Plan Map

Target Population	Year	Needed DU	Potential Buildable DU	Ratio
38,300 declining HHS	1985	1863	16,437	8.8
	1990	2164	14,574	6.7
	1995	2418	12,410	5.1
	2000	2583	9,992	3.8
44,750 declining HHS	1985	2539	16,437	6.5
	1990	2898	13,898	4.8
	1995	3206	11,000	3.4
	2000	3435	7,794	2.7

9.25 Data Base Analysis Summary

The purpose of the discussion is to review the data base analysis to gain a perspective of the housing situation in the Grants Pass Urban Growth Boundary area.

The data base analysis provides the community with a substantial amount of information about existing conditions and possible future trends. The housing factors depict a traditional situation between vacancy rates and tenure. Vacancy rates for owner occupied housing are acceptable. Accordingly, the major market preference is for owner occupation. Vacancy rates for rental housing are unacceptably low. Rental occupancy comprises a minor part of the housing market and usually contains a greater share of the low-to-moderate income households. Understandably, many households prefer rental occupancy for its convenience and flexibility. Equally understandable, many households chose renter occupancy because their financial capabilities exclude them from the ownership housing market.

The overall good condition of the housing stock and the relatively high valuation of home improvements substantiate the general well-being of existing housing in the community. Neighborhoods are sustaining their value. The transitions in land use and density, particularly in and about the downtown commercial area, are occurring in an orderly manner which protects adjacent neighborhoods from rampant disinvestment and lower property valuations. A preliminary diagnosis is that housing stocks are in good repair but lacking in numbers, especially for rental and lower cost housing. The distribution of housing starts for the past decade, 1970-1980, depicts the apparent response of the home building industry to meet the needs for rental housing. Fifty percent of the

dwelling units built between 1970-1980 was multi-family units. Most of these are assumed to be rental occupancy units since only a few condominium or planned unit development permits are recorded and no condominium conversions have been made to date. However, the construction of conventional multi-family dwelling units appears to be related directly to the fluctuations of financial interest rates. When interest rates are high, the development of multi-family housing is low. Ironically, when interest rates are high, the need for multi-family housing, both ownership and rental, is also high.

The housing-cost household-income analysis supports this correlation between the cost of money and the affordability of housing. Mortgage interest rates increased 88% from 1970 to 1980, while incomes increased 85% during the same period. However, the market value of single family housing increased 264% in the ten year span. Concurrently, the cost of home construction increased from $14.00 per square foot to between $27.00 per square foot (Grants Pass Building Division Records, 1970 and 1980). The cost of developing the dwelling unit, apart from the financing charges, is a significant reason for high housing costs. When the increased interest rate is applied to the greatly inflated value of housing the resulting mortgage payment has a corresponding inflated value.

These facts may also explain why the development of multi-family housing is low during high fluctuations in the interest rate. The initial cost associated with developing a multifamily dwelling unit are high compared with a single family home. Therefore, the debt position of the multi-family housing developer is great and the pre-development and pre-sale financing costs are correspondingly high. A seemingly small increase in the rate of interest can mean thousands of dollars in extra financing costs for the developer in this situation. Since 1978, the interest rate has increased from 9% to 16% in 1981. Consequently, 1978 marks the beginning of the most recent decline in multi-family unit construction means fewer lower cost housing opportunities are available on the housing market. At the same time, the overall inflation rate decreased the financial capabilities of most new households, requiring them to seek more moderately priced housing, either some form of multi-family attached housing or manufactured housing. The market prices for conventional single family housing units are prohibitive for most households. This is borne out by the low number of single family housing starts occurring in 1981. Consequently, the housing opportunities in the Grants Pass Urban Growth Boundary area are very limited at this time.

The housing needs analysis describes the housing needs of the Grants Pass Urban Growth Boundary area for the planning period. These needs are based primarily upon recent trends in housing type and distribution and are subject to revisions at five year intervals. According to the analysis, the community will require from 7,520 to 19,900 new dwelling units during the 20 year planning period. The dilemma is how to foster the development of adequate housing to meet this future housing need in an orderly and economic manner while concurrently preserving the integrity of the community.

In order to achieve this goal, the city should address the housing needs by promoting policies and ordinances which will affect activity in the housing market that is beneficial to all households. Specifically, the City should direct its attention to the areas of the housing market where it has most influence: density, location, housing type and development standards.

Housing density is an area of the housing market of which the City has measurable control. Via the regulatory process of density zoning, the City residential areas are divided into zones according to density. Since density is shown to be directly related to housing costs, then the application of zoning as it relates to density is an important tool for providing opportunities of lower cost housing. Provisions of the development ordinance will allow higher densities in certain residential zones will provide more lower cost housing opportunities.

Increases in density are affected through housing type. Housing types describe the kinds of dwellings which will be allowed in the various zones. Housing types vary in design but basically all types provide shelter with facilities for sleeping, eating and bathing. The significant differences in types are found in size and architecture. Generally, single family housing types are larger, detached dwelling units on separate lots and foundations. Multi-family housing types are smaller attached dwelling units often sharing common walls on one foundation, and often on the same lot. Attached housing types are shown to decrease housing costs through economy of scale.

Housing locations depend on and vary with the application of density and housing type. The location of housing types and the resultant densities have implications for urban transportation and public facilities and services. Higher densities generally create greater vehicular traffic volumes per land area than lower densities and sometimes generate a greater demand for public facilities and services. Therefore, the location of higher density housing types must be given adequate consideration in light of its impact on the carrying capacity of the area. In older, more established parts of the City the location is in keeping with the higher levels of activity associated with higher density housing. However, care must be taken to ensure that the purpose of all residential areas is preserved by the provision of adequate environmental amenities attendant to family living.

Density, type and location can be encompassed by cluster development and planned unit developments (PUD). Using these developments, housing units are adapted to landscape in an efficient manner. Density, type and location are derived from a site development analysis rather than a prescribed ordinance. The overall density should be determined from the total land area minus public roads. Location is determined by the site analysis. Cluster developments and PUD are exceptionally suitable for undeveloped urban lands and urban lands with some building constraints such as slope, wetlands, and flood prone areas. These types of development are also beneficial for the preservation of open space which is needed in the Grants Pass Urban area. Land is utilized more efficiently, densities are greater, and housing costs are potentially lower than conventional subdivisions.

The data contained in the cost mitigating measures section of the data analysis explain in detail some of the methods the City may employ in order to assure adequate provision of density, housing type and location for the benefit of the housing consumer. The preponderance of the data reveals a profound need for opportunities for lower cost housing. Obviously, the past housing pattern of single family detached units on large lots is an uneconomical housing opportunity that is currently unable to provide the housing needs for present and future households. New approaches to housing should be encouraged by City policies to that the development community can more easily make the transition from old ways to new trends.

In summary, the housing situation of the Grants Pass Urban Growth Boundary area is characterized by high costs, moderate income levels, insufficient multi-family housing and inadequate development regulation to allow for flexibility in housing type, density and location. The policies of the housing element shall address these problems in order to reconcile them with the intent of the State Housing Goal.

9.30 COST MITIGATING MEASURES

This section of the housing element presents several methods of reducing housing costs. A discussion of the merits and usefulness of each method is set forth in an itemized form for easy reference. This discussion in the data base leads directly to findings and policies derived from related findings.

Allow New Housing to be Developed at Higher Densities - A policy which allows densities to increase will allow development costs to decrease due to economies of scale. The cost of land acquisition for all densities remains relatively equal that cost is greater for higher density development, but conversely, site preparation costs decrease as density increases. A density of 9.55 du/ac incurs 46% less cost for the site preparation than a density of 4 du/Ac. (Cost Effective Site Planning, NAHB, 1976). The cost of construction also decreases as density increases. If construction costs for 4 du/Ac are used for the base when computing a cost/density relationship, then the flowing densities demonstrate their relative percent of the base cost of construction: 9.2 du/Ac is 72% of the base; 17.4 du/Ac is 56% of the base and 20 du/Ac is 51% of the base. (City of Grants Pass, Building Report. 1978) These lower development costs can mean both increasing profit for the developer and decreasing costs for the households entering the housing market.

A good example of the benefits of increasing density can be demonstrating by extrapolating data from the table Number of Dwelling Construction Starts from the Housing Factors section, Table 9.20.8. A comparison of market prices for single family and duplex ownership housing is made by adding builders' fees, lot costs and Realtor fees respectively to the mean valuation for each housing type in the year 1980.

TABLE 9.30.1
Price Income Ratios for Given Housing Types

Housing Type	Mean Valuation	Builders Profit	Lot Costs	Realtor Fees	Market Price	Price Income Ratio
Single Family	$33,633	$5,045	$16,000	$3,280	$57,958	3.7:1
Duplex	$22,204	$3,330	$8,000	$2,012	$35,546	2.2:1

Given: Builders profits = 15%; lot costs for 8,000 square foot lot at $2.00 per square foot; Realtor's fees = 6%. Income is 1980 median family income of $15,716, (see Table 9.2.11).

Under this analysis, the market price of the duplex ownership dwelling unit is 38% less than the price of the single family dwelling unit. This 38% savings in market value provides the consumer of the duplex unit with a better financing position as demonstrated by the price/income ratio. That is, the ratio which lending institutions will use in order to evaluate loan applications. Lending institutions have traditionally used the ratio of 2.5:1 as the highest acceptable ratio for a mortgage home loan. This means that the duplex ownership unit could be more marketable to resident owners because of a lower market price and better financing position.

In addition, higher density developments produce surplus revenue for the City. As the density of the development increases, the costs of facilities and services per dwelling unit decreases, while the revenues from local taxes and state revenue sharing payments increases. This can be shown by reviewing residential annexation feasibility studies for the City from May through June 1981. One of the key elements of this study is an estimate of economic costs versus revenue benefits of the proposal at full development. The estimate of costs includes facilities maintenance, fire protection, street maintenance and parks and recreation. The revenues are local property tax, franchise tax and state revenue sharing payments from the liquor, cigarette and gas taxes. Table 9.30.2 summarizes the cost/revenue analysis for five residential developments.

TABLE 9.30.2
City Revenue/Cost Ratios for Recent Development

Proposed Use	Density DU/AC	1981 Revenue	1981 Cost	Cost/Revenue
R-1-12	2.9	$21,653	$22,124	.97 (deficit)
R-1-8	4.3	$5,004	$4,409	1.13 (surplus)
R-2	9.2	$1,081	$836	1.29 (surplus)
R-3	17.4	$8,529	$6,117	1.39 (surplus)
R-3	17.4	$10,827	$6,945	1.55 (surplus)

The analysis is simple: Higher density development produces surplus dollars for the City. This net public revenue benefits local taxpayers by lowering their tax rates.

Establish Provisions in the Implementing Ordinance for Manufactured Housing - Manufactured housing are homes which are constructed off the building site and then shipped overland from the factory to the homesite. The mobile home industry supplies most of these kinds of dwelling units to the housing market. The mobile home is a moveable dwelling unit constructed on chassis and connected to utilities without the need for permanent foundation. Therefore, a factory built home is completely finished and ready for installation when it arrives on the site. Due to their uniform construction style, factory built homes are often arranged in a subdivision park with the densities ranging from 7 to 10 dwelling units per net acre. The smaller lot sizes, 2500-5000 square feet, subsequently reduce land acquisition costs. The site preparation costs are also less than a conventional home built on the site because expensive foundations are avoided and construction preparation is greatly reduced. Finally, the cost of the factory home is significantly less than the cost of an on-site built home of comparable size, with the exception of a modular housing unit, which is a hybrid of the factory-built for on-site units. The accumulation of these lower housing development costs results in a housing product which is affordable to a greater proportion of the households entering the housing market. See Table 9.2.9.

Reduce Subdivision Improvements Standards for the Curb-to-Curb Paving Width of Minor and Local Streets, and Eliminate Unnecessary Sidewalks, Curbs and Gutters - The improvement requirements for street access depend upon the street purpose and the density of development. The primary purpose of a minor and local street is to provide access to property. The movement of traffic is of secondary importance. Development which occurs in a conventional subdivision at a prescribed residential density requires a local street. Development which occurs in clusters and does not require a through street may be served by a minor street. There are two reasons which may justify a reduction in street width for minor and local streets. First, the need for narrower streets may be justified by the decreasing size of private automobiles, which provide better maneuverability and require less turning radius and shy distance. Second the lower cost of narrower streets can be passed on the housing consumer, thus developing to make housing more affordable. Table 9.30.3 depicts existing subdivision improvements standards, lot frontage for a conventional 6000 square foot lot, and existing street improvement costs of the City of Grants Pass. This information is compared with proposed improvement standards in terms of cost per lot for both minor and local streets.

TABLE 9.30.3
Simple Cost Impact of Reducing Road Width Standards

	Existing Local	Proposed Local	Existing Minor	Proposed Minor
Pavement Width	35'	26'	24'	20'
6000 sq. ft. Lot Frontage	60'	60'	60'	60'
Assessable Frontage sq. ft. (1)	1050	780	720	600
Cost/ sq. ft.	$1.20	$1.20	$1.20	$1.20
Cost/Lot	$1260	$936	$864	$720
Simple Difference	$324		$144	

* Assessable frontage is determined by multiplying ½ street width times lot frontage.

The simple difference in costs between street width does not reflect the true cost to the housing consumer. The development cost for street improvements are passed through the developer to the consumer as an increment of the total housing cost. Therefore, the simple difference becomes compounded over time according to the financial arrangements of purchasing agreement, as well as the percentage increases of Realtor fees and builders profit. The current May 1981 rate of mortgage interest is 16% and the term of the financing is 20 years. Table 9.30.4 depicts the true cost to the purchaser of each lot.

TABLE 9.30.4
True Cost Impact of Reducing Subdivision Road Width Standards

Street Type	Simple Difference	True Cost-16%/Over 20 Yrs
Minor	$144	$2,802
Local	$324	$6,305

For local access streets, a 26' wide paved surface appears to be adequate for its purpose. No apparent difference in driver convenience exists between a 26' wide and 36' wide pavement, unless the distance between the dwelling and collector street exceeds three blocks. (Residential Streets, ULI, ASCE and NAHB, 1977.)

A 20' wide paved surface is adequate for cul-de-sacs less than 300' in length, which will allow for parking on one side. It demonstrates minimum construction amortization, space and maintenance requirements. (Residential Streets, Ibid.)

Reduce the Processing Time of Development Approval Standards - Time is money, an often used cliche which is appropriate to the developer/regulator relationship. Developers who must maintain inventories and/or carry financing charges on property while waiting for their development proposal to be processed by the City and County will incur costs. In most cases, these costs will be passed thought to the housing consumer. In order to reduce the processing time, the City may choose to prioritize approval procedures according to the type, size and intensity of development. Development proposals which are minor in nature can be processed administratively with abbreviated review. Major development proposals, which need to be reviewed more thoroughly, due to their greater impact upon the City and its service system, can be allocated more employee houses in order to process the proposals more rapidly. In addition, it is essential that the approval standards be available to the public in a clear, concise, measurable form that the layperson can understand.

Provide Density Bonuses to Developer/Builders Who Provide a Percentage of the Dwelling Units of the Development for Lower Cost Housing - Density bonuses allow development densities to increase in exchange for certain conditions met by the developer. Allowing densities to increase, in itself, provides for lower cost housing. Density bonuses will encourage thoughtful consideration by the developer for methods of lowering housing costs and thereby providing lower cost housing. This is an incentive approach which may stimulate innovative thinking in the developers and builders of the area.

Allow Density Transfers for Building Sites Partially Constrained by Un-buildable Conditions - Cluster developments and Planned Unit Developments are suitable for density transfers. Density transfers allows for densities on a portion of the site which can be higher than the plan density for the zoning district, but keeps overall densities within Plan limits. Land which is more suitable for public roads, public recreation, open spaces or storm water retention can be deducted from the total acreage of the property. The remainder of the property is buildable land. The density which would have been assigned to the now non-buildable land is transferred to the buildable portion of the property. Hence, the buildable lands density factor is greater while the total density remains the same. However, because of this density factor, the design of the development may need to include attached housing, narrower streets and paring bays and provisions for a homeowners association for management of the land held in common. Cluster development and Planned Unit Developments are able to accommodate these provisions. Both development methods require comprehensive advanced planning.

Allow Single Family Attached Housing to be Mixed with Single Family Detached Housing - This is a method to increase density and reduce housing costs. In existing, conventional single family detached neighborhoods, the integration of attached and detached dwelling units should be done gradually, if at all, in order to preserve the integrity of the neighborhood. In new developments, both housing types can be equally incorporated into one large neighborhood unified by a comprehensive design, which accommodates the various needs of all housing types. The

mixture of housing types provides choice in the market place for a range of housing consumers with various financial capabilities and preferences.

Allow Zero Lot Line Construction - "Zero lot" is a term which relates to the location of dwelling unit on the building lot. It allows the dwelling unit to be constructed abutting the property lot line. The area of usable yard space is increased, thereby reducing the need for larger lots to achieve the same usable yard. Smaller lots increase density and reduce housing costs. The attractive feature about this method is that it provides for single family detached housing at a more reasonable cost. Housing costs can be further reduced if each two single family dwelling units in a development are attached along a common property lot line. The common wall between the dwelling units and the economic provision of services to the units reduces development costs. Shared garages and driveways even further reduce costs. All the amenities of single family detached housing are available with this housing type but at a lower cost.

Allow Cluster Housing and Flexible Set Back Requirements - Cluster housing is the arranging of dwelling units in groups, usually according to construction type. The buildable land of the property is developed by clustering groups of housing types on terrain suitable for the economic installation of streets, public facilities and utilities. Natural features such as wooded areas and the non-buildable land area of the property can be reserved for open space, recreation, access, and storm water retention. Density is transferred from the undeveloped portion to the developed portion of the land. The unique arrangement of housing units in clusters may require some flexibility in development standards such as setback requirements. Cluster housing can minimize development costs by using less land more efficiently. Therefore, rigid development standards which are more applicable to conventional housing may not apply to cluster housing and may, in turn, impede economic use of this approach to housing.

Cluster housing can minimize the street frontage of individual lots and even reduce the street width by the arrangement of the clusters, by providing adequate off-street parking and by designing for one-way flow of traffic. Density can be increased by providing for more attached and multi-family dwelling units within the clusters. Higher densities can lower housing costs and increase the marketability of the development. The range of housing types and costs enlarges the developer's market and provides other benefits. The lower housing costs related to lower development costs and increased density result in a faster sales pace, reduced maximum debt and lower costs, all of which can benefit the developer by providing a cushion to ride out the tight mortgage market cycles of the building industry.

Allow Planned Unit Developments (PUD) - The PUD process goes one step further than the cluster design concept. PUD requires special legal consideration: "In essence, the PUD process discards the more open process permitting the application of sound planning principles to the development of various size parcels ranging from small, cluster developments to entire new communities." (Cost Effective Site Planning, Ibid.) The governing factor over a PUD is density. The overall density for the property is allowed to be transferred to the buildable land of the property. Housing type and mix are unregulated within the PUD. Conventional development regulations like setbacks and lot dimensions are discarded. Street improvements are designed to meet the needs of the PUD and are

usually narrower and less costly than conventional street improvements. As in the cluster housing design, the PUD benefits greatly from the open space amenities created by density transfer and open space preservation. These amenities, such as parks, woodlands, trials, meadow, recreation areas and waterways, enhance the community environment and livability. In turn, the marketability of the dwelling units is improved, giving a compatibility of the dwelling units is improved, giving a competitive edge to the developer. The developer can produce a variety of dwelling types and designs at costs which proven the targeted market, making the developer less susceptible to make fluctuations. If the savings in development costs are passed through to the consumer as a straight markdown on the price of dwelling unit, it is then anticipated that the rate of sales will be accelerated further benefiting the developer. A faster rate of sale will lower the maximum debt position. The debt is retired sooner, meaning less interest is paid. Therefore, the cumulative cash position, which is net profits from the development minus interest debt, is higher than that of a conventional development.

Exhibits 9.3.1 - 9.3.2 below illustrate several of the concepts discussed above.

Exhibit 9.3.1
Typical Subdivision

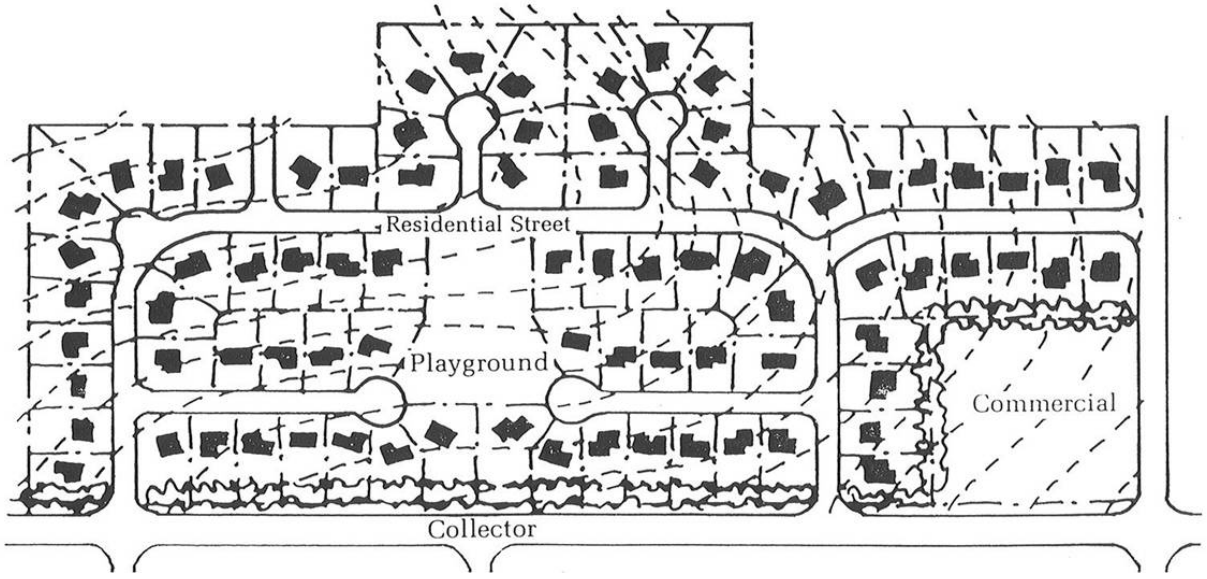
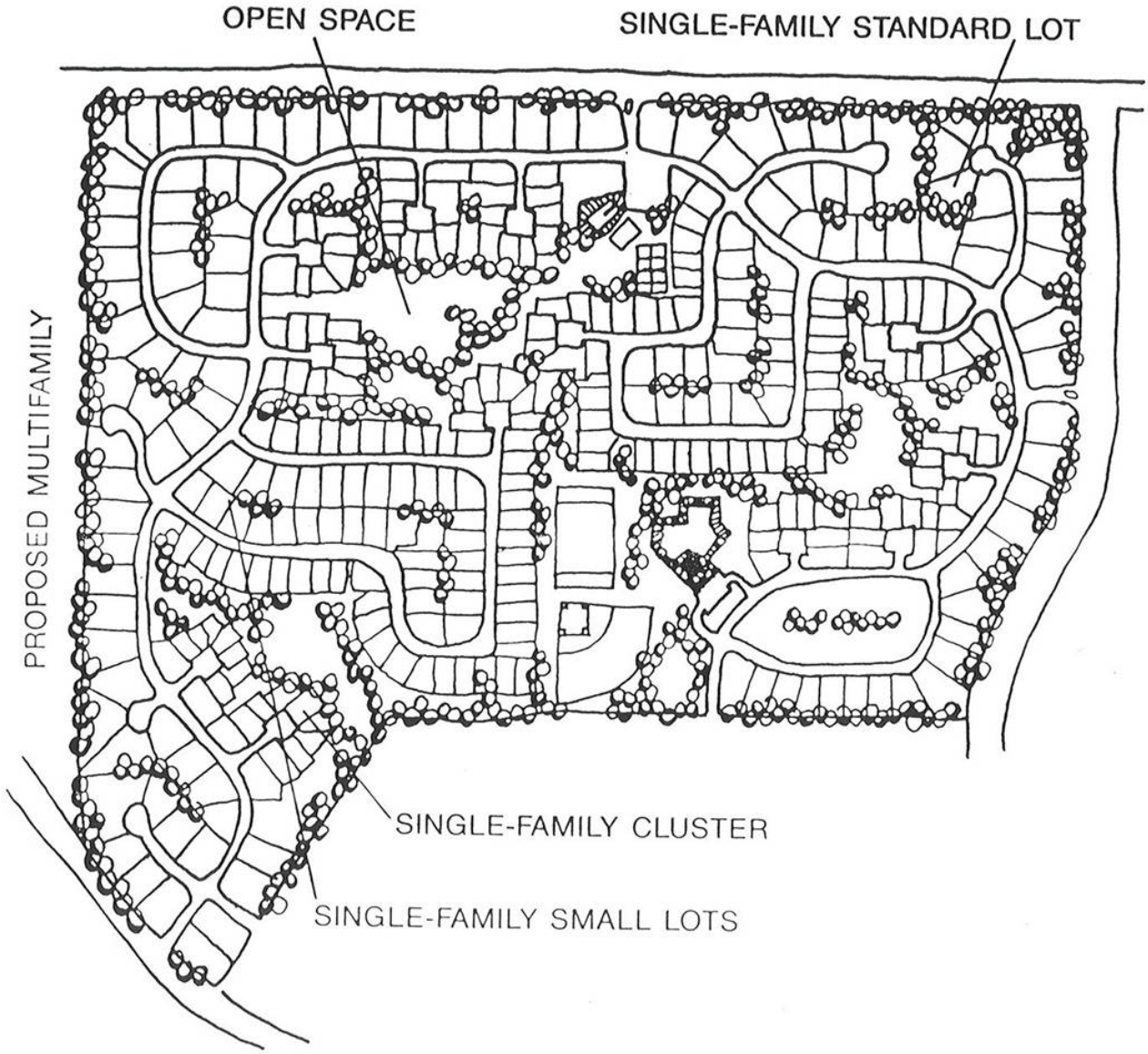


Exhibit 9.3.2
Planned Unit Development



9.40 FINDINGS

Population Growth

1. The State of Oregon is experiencing a surge of population growth due mostly to in migration, part of national trends as people move out of metropolitan to rural or small town areas, and out of the Northeast and Central states to the Southern, Western and Northwestern parts of the United States, away from harsh climates to milder climates.

2. Augmenting the immigration trends, and increasing the pressure on housing, is the demographic "wave effect" as the baby-boom generation moves into the family formation stages and the World War II generation moves into the retirement stage.

3. Households in the 1980's are expected to grow at more than twice the national population growth rate, due to the baby-boom generation moving into the family formation stage, changes in marriage and divorce rates, and changes in adult living arrangements, continuing the trends of the 1970's.

4. Josephine County and the Grants Pass area are gaining population faster than the state. Key factors for locating in the areas as found by recent surveys to include a good place to raise children, a slower pace of daily life, safety from crime and violence, the friendliness of people, less crowding and pollution, cleaner air, and better recreational opportunities. Those persons locating here were willing to "purchase" these intangibles at a mean cost of 45% of their former salary with some 28% willing to take cuts up to $20,000 per year.

5. An unusually high percentage of retired persons migrated to the area, leaving between one-quarter and one-third of the County 55 years of age or older. The County's median age was three year older than the State's in 1950, 6 years older in 1970 and 4.5 years older in 1980. By 1980, the 45-64 group was 2.5 percentage points higher than Oregon's average, and the 65 and over age group was 3.7 percentage points higher than Oregon's, while the family forming 25-44 age group was 3.2 percentage point less than Oregon's average.

6. As a result of the "wave effect," prolonged life spans, and a lower fertility rate, the 1980's will see a reduction in the retiree age groups, and a peaking out followed by reduction of the family formation age groups (by the end of the decade) and a reduction in the youth age groups, while the 1990's will see the beginning of another retiree wave, great reduction in the family formation age groups, and the beginning of another surge of the youth age groups.

7. The most probable range of population within the UGB by the year 2000 is 38,300 to 44,750 persons. Household size will continue to decline during the planning period, thus steadily increasing the need for dwelling units even if the population does not increase as rapidly as projected.

8. Continuing population growth and increasing demand for housing is placing pressure on the City and County to provide economical public facilities and services for new housing development. New industry or commerce may be discouraged in the community by the lack of adequate and affordable housing. The community needs to relate its economic planning with housing planning in order to facilitate efficient growth in these areas.

State Land Use Goals and Policies

9. Statewide Planning Goal 10, Housing states that the City shall "encourage the availability of adequate numbers of housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households, and allows for flexibility of housing location, type and density."

10. The St. Helens Housing Policy issued by D.L.C.D. states that needed housing opportunities "shall be permitted in a zone or zones with sufficiently buildable lands to satisfy that need."

Housing Stock and Tenure

11. The overall good condition of the housing stock, the high number of rehabilitations and the relatively high valuation of home improvements substantiate the general well-being of the existing housing in the community. The high number of rehabilitations and high valuation of improvements may also indicate a trend toward cost effective reinvestment in existing housing stocks. Neighborhoods are sustaining their value. The transitions in land use and density, particularly in and about the downtown commercial area, are occurring in an orderly manner which protects adjacent neighborhoods from rampant disinvestment and lower property valuations. Zoning should protect and enhance that stability.

12. The housing factors examined depict a traditional situation between vacancy rates and tenure. Vacancy rates for owner-occupied housing stay above the HUD minimum standard of 1.5% for that housing tenure. Vacancy rates for renter-occupied housing are chronically below the HUD minimum standard of 6.5% for that housing tenure.

13. Rental occupancy has significantly declined in the Grants Pass area over the last decade, reflecting both immigrant preferences available housing types, as is shown in Table 9.20.2.

Recent Trends

14. Housing starts for the City from 1970 to 1980 reveal that multi-family attached housing commanded 50% of the housing market during that period of time. The number of starts for attached housing was substantial enough to increase its share of the total housing stock to 10%.

SUMMARY TABLE 9.20.7
City Building Starts 1970-1981

Type	Starts	Percentage
Single Family	1000	50%
Multi Family	1017	50%

15. Table 9.20.7 reveals that housing starts react inversely to interest rates. As interest rates increase, starts have decreased. Multi-family starts appear to have reacted more radically to the fluctuation in interest rates and declining single family starts in 1981, multi-family housing starts showed an upward trend, due mostly however to a large, luxury condominium project.

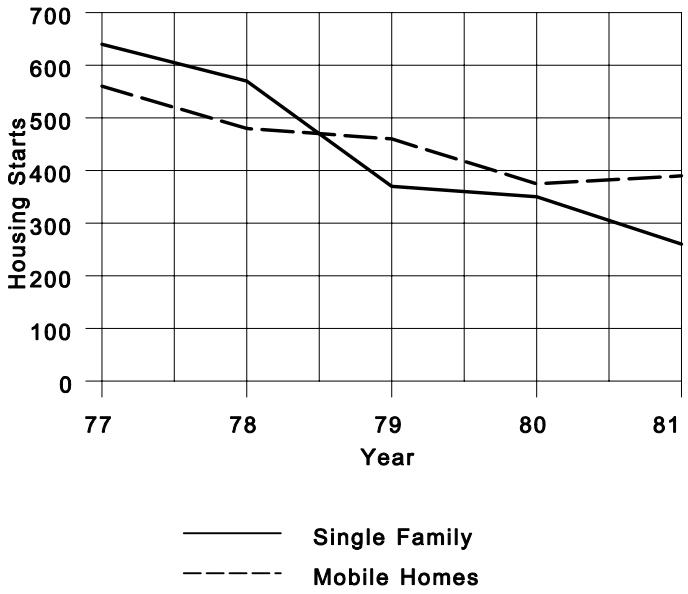
16. Housing starts for the urbanizing area from 1977 to 1981 show that mobile home starts have steadily increased their share of the new home market to a solid 60% in 1981. Single family detached wood frame home starts have declined steadily since 1977. Multi-family attached starts in the county have remained low, either from lack of demand or lack of adequate zoning services.

GRAPH 9.20.8
Housing Starts and Interest Rates: City

SUMMARY TABLE 9.20.9
County Building Starts 1974-1981

Type	Starts	Percentage
Single Family	2166	48%
Mobile Home	2258	50%
Multi Family	67	2%

GRAPH 9.20.10
Mobile Homes Compared to Other Single Family Starts: Josephine County



Affordability

17. Based on the cost/income analysis, there is an insufficient supply of affordable housing to meet the housing demand. Over half of the Grants Pass area households cannot afford the single family detached dwelling unit available on the current home market. However, at least half, and maybe more, of the area households can afford a mobile home or attached dwelling unit. Affordability appears to be a prime factor influencing the types of housing units that are developed in the Grants Pass area.

18. Housing density affects housing affordability. The fewer the dwelling units per acre of land, the greater the cost per dwelling unit.

19. The housing preference for residents of the Grants Pass area has expressed by survey is for single family dwelling on large lots. (35% preferred 1 to 2.5 acres, 36% preferred 2.5 acres or more, and 23% preferred city lots. Of those preferring city lots, only one-quarter preferred small lots. See Table 9.10.1) The location preference of the decade has been for the more rural areas of the County. Of the 23,000 persons entering the County during 1970-1980, only 11% or 2560 persons located within the City limits.

Projected Housing Needs

20. The 1970-1980 trend in City housing starts has shown a strong predilection for multi-family units, altering the City's housing type distribution by 10 percentage points. The 1974-1981 trend in the County used as a simulacrum of the urbanizing area, showed a strong predilection for mobile homes and single family detached units, with less than 2% multi-family units.

TABLE 9.40.2
Housing Starts Summary

Housing Type	1974-1981 County Housing Starts	1970-1981 City Housing Starts	Existing City Dwelling Units	
			1970	1980
Single Family (less than 5.5 du/Ac)	48%	50%	86%	74%
Mobile Homes (less than 5.5 du/Ac to 10.5 du/Ac)	50%	0%	0%	0%
Multi Family (more than 5.5 du/Ac)	2%	50%	14%	24%

21. Housing need was projected based upon the UGB target population range, household size ranges for the City and urbanizing area, HUD minimum vacancy rates, 1970-1980 housing starts by type in the City and County, the character and nature of the buildable lands of the City and urbanizing area. It resulted in two housing need models, the "Low Density Model" and the "High Density Model."

22. The "Density Models" drove housing needs in five year intervals according to the following factors:

TABLE 9.40.3
Housing Need Factors

Model	Target Population	Household Size		Housing Demand by Density Group			Vacancy Rate by Density Group	
		City	Urbanizing Area	5.5 du/Ac	10.5 du/Ac	15.5+ du/Ac	Under 5.5 du/Ac	Over 5.5 du/Ac
Low Density Model	38,300 - 44,750	2.42 - 2.08	2.59 -2.22	City 60%/ Urb. Area 60%	30%	10%	1.5%	6.5%
High Density Model	38,300 - 44,750	2.42 - 2.22	2.59 - 2.22	City 50%/ Urb. Area 45%	25%	30%	1.5%	6.5%

23. The "Low Density Model" housing needs drive for the City was 60%/40% (Low Density/Moderate-High Density), and was less than the 50%/50% split among housing starts for the City during the 1970-1980 decade, but recognized the 59%/41% split in the present densities of the City's buildable lands, recognized the nature of most of the City's buildable lands to be small and scattered lots with established neighborhoods, recognized the developing/established overlay zone proposed, and exceeds the 76%/24% present City split in low density/moderate-high density unit count. The final split under this drive would be 62%/21% low density/moderate high density, a change of about 7% per year.

The "Low Density Model" housing needs drive for the urbanizing areas was 60%/30%/10% (low/moderate/high density). This pattern recognized immigrant preference for larger lots and detached housing, recognizes mobile home economy through allowing mobiles on almost all 5.5 du/Ac density and by targeting 30% of the 10.5 du/Ac density utilized both by mobile home parks and the duplex market, and recognized that much of recent innovative development (PUD's, Dwelling Groups) has been designed or built at 7.5 to 9 du/Ac regardless of location in R-1-6, R-2 or R-3 zones. While the County 1977-81 building starts pattern of the 48% detached single family, 50% mobile homes and 2% multi-family reflected the relative lack of higher density areas with appropriate service, it also revealed a clear mobile home preference.

24. The "High Density Model" housing needs drive for the City was 50%/50% (low/moderate - high density), following the 50%/50% spit in 1970-1980 housing starts, in spite of the 59%/41% split in the present densities of the City's buildable lands. This drive presumes more extensive redevelopment in high density areas with existing low density construction than has been experienced to date.

    The "High Density Model" housing needs drive for the urbanizing area was 45%/25%/30% (low/moderate/high density). This pattern recognized the "market" urban development pattern within City limits over the last decade of 50%/14%/36%, shifting some of the lower and higher density portion of development into the moderate (R-1-6/R-2) range of the 10.5 du/Ac, recognizing the great potential of this duplex/mobile home park density range when measured by affordability and immigrant preference for larger lots and detached housing, while at the same time providing for a very significant share of development in the high (R-3, R-4) range (30%). Where fire-flow water is not immediately available and community well systems are utilized, the full capability of the high density designation will probably of the high density designation will probably not be fully realized within the planning period, and may be supplanted by moderate density development.

25. The Low and High Density Housing Needs Models, and their results by the year 2000, may be compared in Table 9.40.4.

TABLE 9.40.4
Housing Need Models Compared

	Target Population	**Total Dwelling Unit Split at Year 2000**				
		City		**Urbanizing Area**		
		5.5 du/Ac	**10.5+du/Ac**	**5.5 du/Ac**	**10.5 du/Ac**	**15.5+ du/Ac**
City 1970		86%	14%			
City 1980		76%	24%			
Low Density Model*	38,300	70%	30%	65%	20%	8%
	44,750	70%	30%	63%	28%	9%
High Density Model	38,300	66%	33%	55%	23%	22%
	44,750	66%	33%	52%	24%	24%

* Assumes decreasing household size only

26. Two Land Use models were developed, using the City's Buildable Lands Inventory.

The Urban Growth Plan Model followed the adopted Urban Growth Plan closely, and could contain the low end of the target population range (38,300 persons) when 28% of the buildable lands now vacant remain vacant (39,950 person capacity), and could contain the high end of the target population range (44,750 persons) at full buildout (47,829 person capacity).

The Service Capacity Model, while following the general and use tenets of the Urban Growth Plan, came to resemble more of a service capacity model. Following existing levels of development and existing densities within the established areas, the model increases densities to planned water, sewer, and road-way capacities in the developing and redeveloping areas. The Service Capacity Model exceeds the high end of the target population range (44,750 persons) when 28% of the buildable lands now vacant remain vacant (46,100 person capacity), and exceeds the high end of the target range by 32% at buildout (59,000 persons).

27. When the Low Density and High Density Housing Needs Models are compared with the Urban Growth Plan and Service Capacity Land Use Models, using both ends of the target population and households ranges, the Land Use Model Capacities and requirements for UGB expansion emerge. (See Table 9.20.25) In the Low Density Model, using the low target/declining household assumptions, 90% of the City's low density capacity is utilized and almost all (98%) of the City's moderate to high density capacity also, while the urbanizing area retains 30% to 40% of its capacities. Using high target/declining household assumptions, however, 90% of the entire Boundary area capacity is consumed.

In the High Density Model, using the low target/declining household assumptions, the City would underutilize its low density capacity, with demands exceeding supply by 38% for moderate - high density lands, while the urbanizing area would realize less than half of its capacity. Using high target/declining household assumptions, the City is still oversubscribed for high density, while the urbanizing area has still one-third of its capacity remaining.

28. When the Housing Needs and Land Use Models are examined by five year intervals, using only the declining household size assumption for each end of the target population range, Table 9.20.26 and 9.20.27 result.

The Low Density Model/Low Target would require Boundary expansion between 1985 and 1990, if the "market factor" of 3 to 5/1 of potential/demand housing units is kept, as is recommended by D.L.C.D.

The High Density/Low Target would require Boundary expansion between 1995 and 2000, while the High Target would require Boundary expansion between 1990 and 1995.

The earlier the Boundary must expand, the less cost effective are the required service

extensions, the costs per new household will be. On the other hand, the greater impacts of higher densities on service systems will probably require a concentric extension of full services within an "urban service boundary," restricting full urban development outside the service boundary and inside the UGB to rural levels in the interim period.

Appropriate Plan Densities

The City's 1969 General Plan has only two Plan densities appropriate for urban level development: urban medium density (3-6 du/Ac) and urban high density (6-30 du/Ac). Somewhat ambiguously, the General Plan goes on and recognizes that the urban medium density will be violated by duplex development in the R-1-6 and R-2 zones.

A more appropriate concept would be to divide the Comp Plan density groups into more economical groupings of various building types as follows:

Low	5.5 du/Ac
Moderate	10.5 du/Ac
High	17.5 du/Ac
High Rise	35.5 du/Ac

This concept follows the present minimum lot sizes of the Urban Area Zoning Ordinance closely, when allowing for streets as a percentage of development, as shown in Table 9.20.13.

Cost Mitigation Measures

29. Several Methods have been tried in recent times by Oregon communities to reduce the cost of housing.

Higher Densities - In 1976, site preparation for 9.15 du/Ac cost 46% less than 4 du/Ac, while 9.5 du/Ac construction costs were 72% of 4 du/Ac costs. Using local mean values, a single family (detached) unit market price is at 3.71/1 ratio to 1980 median family income, while a duplex (attached) unit is a 2.2/1 ratio. Higher densities result in a net surplus to the City in basic operating expenses, while lower densities break even or show a small deficit.

Provide for Manufactured Housing - The cost of a mobile home is significantly less than a "stick build" detached unit (see Table 9.20.9) and is similar in value to an attached unit.

Reduce Subdivision Road, Sidewalk, and Curb Standards - Careful design and low maximum traffic loading can assure safety, while small reductions in road width and sidewalk requirements, include interest cost passed on to the builder, can save $3,000 - $6,000 per unit. See Table 9.30.4.

Reduce Developers Review Time Developers must maintain inventories or carry financing charges while undergoing review, and an unnecessarily long processing time adds thousands to unit costs. Abbreviated review of minor proposals, clear procedures and measurable standards will shorten this review period.

Provide Density Bonuses - Density bonuses can be provided for lower cost units, dedication of park and greenway space, and solar design.

Allow Density Transfers - Density can be transferred from areas of the site constrained by slopes, boggy land, flood plains, open space dedications, and storm water retention, allowing the Plan Densities to be realized and at the same time, respecting the design constraints or opportunities of each site.

Mix Single Family Attached and Detached Housing - New developments need not be constrained by artificially imposed design standards linked with densities.

Allow Zero Lot Line Construction - Pulling the building to one lot line allows full use of smaller yards, and can still afford privacy and fire protection.

Allow Cluster Housing and Planned Unit Developments - A natural result of density transfer, mixed housing type developments and reduced subdivision standards is the PUD and cluster housing. Using the land more efficiently, with less road frontage and shorter service extensions, sensitive natural areas can be maintained and open space and play areas provided.

10.00 PUBLIC FACILITIES INDEX

10.20 WATER SERVICES INDEX

10.20.1 PURPOSE

10.20.2 WATER SOURCES

- Ground Water
- Surface Water

10.20.3 WATER RIGHTS

- Rogue River
- Grants Pass Irrigation District
- Other Potential Sources
  - Elk Creek Dam Project
  - Sexton Dam

10.20.4 CITY OF GRANTS PASS SYSTEM

- System History
- Water Availability
- Treatment Plant
- Design Factors
  - Maximum Daily Demand
  - Peak Hourly Demand
  - Storage Reservoirs
  - Service Zones
- City Water Plan
- County Water Plan

10.20.5 PRIVATE WATER UTILITIES

10.20.6 PROJECTED NEED

- Water Usage
- Water Requirement
  - Water Source Limits
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10.20.7 URBAN SERVICE POLICIES AND MANAGEMENT AGREEMENT

- Urban Service Policies
- Management Agreement
- Water Plan
- Irrigation Water Plan

10.20 WATER SERVICES

PURPOSE

The purpose of this section is to determine the domestic water demand requirements for the target UGB population through the year 2000; to assess the ability of the existing municipal water system to meet the projected requirements; to determine what capital improvements are necessary to serve the target population, and to approximate costs; to suggest alternative methods for financing the required improvements; and to propose policies for the orderly provision of the required improvements.

WATER SOURCES

Ground Water - Within the Grants Pass area, the only "alluvial deposit" geologic formation is the only reliable source of ground water. Even in this formation, however, the expected maximum yield from wells of standard construction is only in the neighborhood of 50 gallons per minute, which is insufficient for a municipal supply. Due to lack of adequate quantity, ground water in the Grants Pass area has no potential for municipal use beyond that presently developed. (City of Grants Pass Water System Study, May 1974, Brown and Caldwell)

Surface Water - In the Grants Pass area, surface waters have been in the past, and will continue to be, the only reliable source for large quantities of potable water required for municipal purposes. (Ibid.) The Rogue River is the principal supplier of surface water; however, water rights to the Rogue River are limited.

WATER RIGHTS

Rogue River - The City has three separate permits for diverting water from the Rogue River for municipal use. The first is a "perfected right" of 12.5 cubic feet per second (cfs), dated 1888. The second and third are permits for 25 cfs each dated 1960 and 1965.

In addition, the City of Grants Pass has pending Application #R41671 before the State Water Resources Department for 6700 square feet of stored water behind the Lost Creek Dam. The stored water can be released during the summer months (June through October) in order to augment the natural flow of the Rogue. In order to draw upon the requested, the City would have to acquire an additional permit to divert the released water, and would have to enter into a contract with the Army Corps of Engineers. The contract would stipulate a yearly amount to be paid by the City to the Corps, determined as a percentage of the dam construction and maintenance cost of the drain, whether or not the City utilized the water.

As water permits and rights are typically subject to cutbacks under conditions of low flow to serve parties with prior year rights, stored water can allow jurisdictions to augment flow otherwise cut back. Cutbacks during the 1977-78 drought years approached the 1965 level. Without Lost Creek Dam, cutbacks in 1981 would have reached back to the early 1900's, as released water accounted for 50% of stream flow that summer. However, since the City's point of diversion is at the Savage

Rapids Dam, and cutbacks are established by law as being those jurisdictions and individuals above the dam, there is some question as to whether the City could in fact be cut back, even under low water conditions.

The capacity of the City's present water right and water permits is shown in Table 10.20.1. The City of Grants Pass currently consumes 253 gallons per capital per day as an annual average. Since seasonal demands vary greatly and maximum demands must be utilized for design purposes, the monthly maximum day demand is used, which is 270% of the average annual daily demand, or 683 gallons per capita per day. Therefore, the population served under peak conditions could be increased from the values shown in Table 10.20.1 by either conservation measures, or increased efficiency of water use. (See Section 10.20.7 for full discussion.)

TABLE 10.20.1
Capacity of Present Water Permits in Persons Served

Water Rights	Cubic Feet Per Second*	Million Gallons Per Day	Persons Served at Monthly Maximum Day Demand
1888 Right	12.5 cfs	8.08 mgd	11,825 persons
1960 permit	25.0 cfs	16.15 mgd	23,650 persons
1965 permit	25.0 cfs	16.15 mgd	23,650 persons
TOTAL	62.5 cfs	40.38 mgd	59,125 persons

* cfs = 448.8 gallons per minute (gpm)
646,272 gallons per day (gpd)
.646 million gallons per day (mgd)
946 persons per day served at monthly maximum day demand of 683 gpdpc, including per capita commercial and industrial use.

Each Water right and permit has a specific geographical area within which the water may be used. The 1888 right stipulates "the city limits," which the City holds to be those city limits as they exist at any point in time. The 1960 permit shows an area approximating the City's 1979 Urban Growth Boundary (20 year expansion) and the 1965 permit shows an area approximating a 40 to 60 year expansion. (see Map 10.20.2)

Grants Pass Irrigation District - On February 12, 1982, the Grants Pass Irrigation District perfected a right to 96.7 cfs with a priority date of 1916. In addition, the District "transports" 83 cfs for the Department of Fish and Game after use as irrigation water for stream enhancements, and was granted a "non-consumptive" right of 800 cfs of pass through water needed to drive the water turbines that lift irrigation water to the canals. The GPID point of diversion is also at Savage Rapids Dam. The 1974 Grants Pass Water System Study by Brown and Caldwell estimated that the combined water rights of the City and GPID would be sufficient to meet the needs of both the UGB

and agricultural users outside the Boundary area. Municipal use of GPID water is a possibility for the 96.7 cfs perfected right portion of the District's permitted water use.

While recent discussions with GPID and the Josephine County Water Advisory Board touched on this possibility, the present GPID Board policy is to continue to supply water through the irrigation delivery system, even though development should occur. The District supplies water to almost all of the urbanizing area, and in fact, to much of the City, at this time. Map 10.20.3 shows the extensive system of canals and major distribution laterals.

A study by the Bureau of Reclamation (October, 1979), showed that the District served 400 acres zoned exclusive farm use utilized by commercial grower, while serving 7,000 acres of "urban-suburban" lands to irrigate laws, gardens and pastures. District officials estimate that some __*__ acres of irrigated land are actually within the UGB. Diversion of water was between 180 to 220 cfs. The Bureau of Reclamation Study indicated that urban-suburban development posed a major problem for canal maintenance and water distribution, being a prime contributor to the District's loss of 2,600 acres of formerly irrigated lands. One of the key factors contributing to maintenance problems is the silting up of those parts of the system from winter runoff, as many of the system canals and laterals also serve to carry storm drainage. The City's Storm Drainage Master Plan calls for a continuance and intensification of this practice, and will require improvements and maintenance coordination between the City and the District.

Some 15% of the District's 55 miles of major canals are lined or enclosed in pipe, the rest being unlined. The Bureau of Reclamation recommended either merger of the City and GPID into a water control district (Oregon Revised Statute 553) with both drainage and irrigation SERVICES, or some combination of improvements to the canal system to maintain or extend the provision of irrigation water through the system. The use of two-thirds of the District's perfected right, or 64 cfs, would more than double the City's present permit capacity of 59,125 persons served. Table 10.20.4 gives construction cost estimates for a variety of improvements, including interest during construction, together with an annual repayment cost per acre, given a 40 year payback.

MAP 10.20.2
Water Permit Areas for Grants Pass, Oregon

MAP 10.20.3
Grants Pass Irrigation District
Canals and Major Laterals

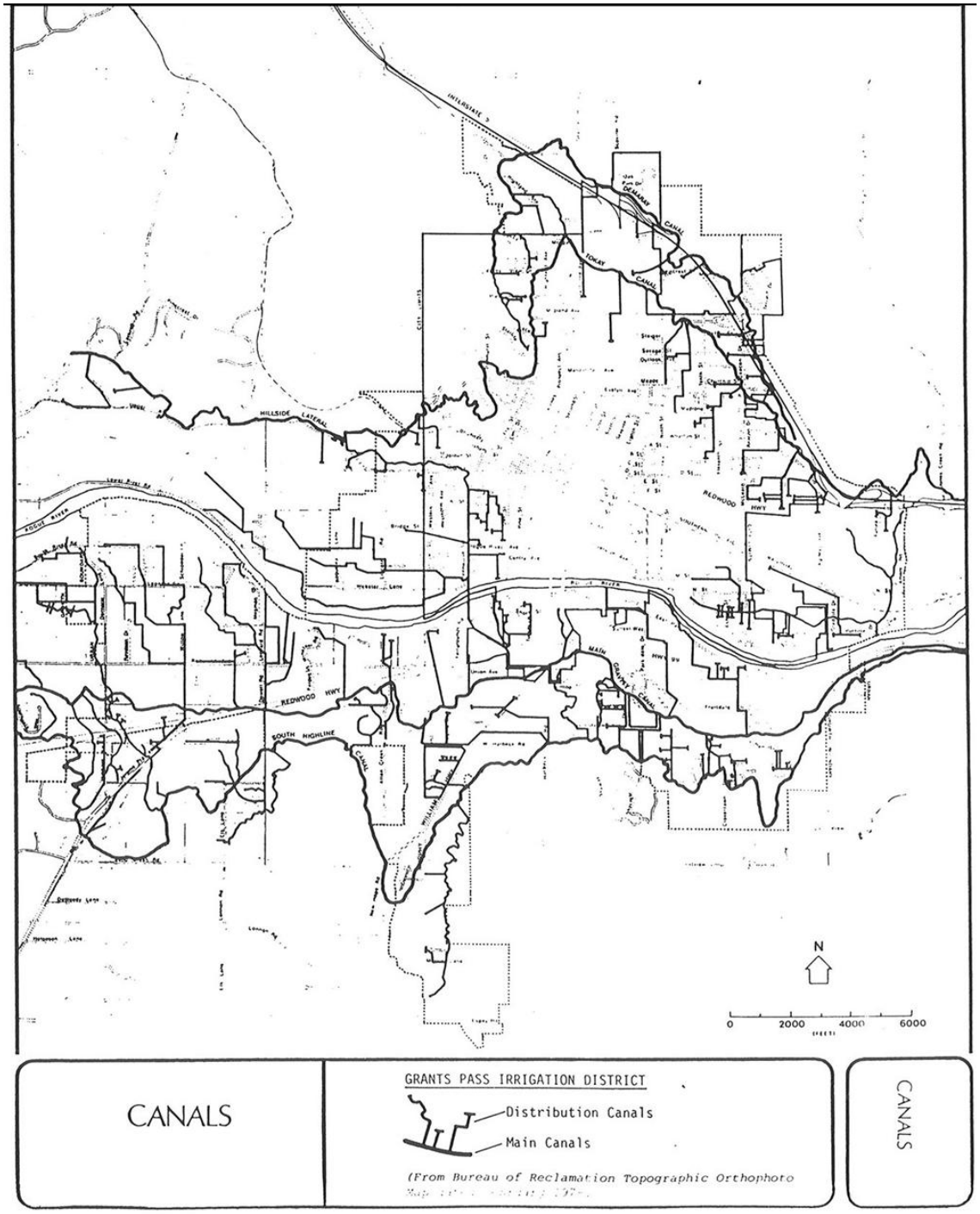


TABLE 10.20.4
GPID Estimated Improvement Costs

Option	Construction Cost	Cost Per Acre Per Year
Partial rehabilitation of major canals	$1,435,000	$9.60
Full rehabilitation of major canals	$8,485,000	$56.90
Rehabilitation of minor laterals	$5,300,000	$35.55
Replacement of minor laterals with pressure pipeline system	$28,677,000	$205.70
Expansion of service area	$3,431,000	$222.30

Source: Formulation Working Document, Grants Pass Division, Rogue River Basin Project, Oregon; Bureau of Reclamation, Pacific Northwest Region, October, 1979, Tables 3 and 4.

The District has elected to encourage the continued supply of irrigation water to urbanizing land as development proceeds within the UGB. The District feels this benefits the developer, as the cost of supplying water through a piped system does not often exceed the buy-out cost of about $500 per acre; benefits the homeowner, whose yearly water bill of $32 equals a monthly summertime water bill for city water; and benefits the City, as it saves treatment costs for irrigation water and reduces the peak per capita usage of water in the summer, thus effectively expanding the capacity of the City's permits.

Other Potential Sources - The Elk Creek project is a multi-purpose dam and reservoir located near Lost Creek Lake as shown on Map _____. Its main purpose is flood protection, but the dam also aids in stream flow enhancement during summer months and has the potential of providing municipal water in the same ratio as Lost Creek. Approximately half of the City's Lost Creek Dam stored water request would in fact be provided by the Elk Creek Project.

The proposed Sexton Dam is located north of Grants Pass at Jumpoff Joe Creek. Originally a Bureau of Reclamation project intended for irrigation purposes, it is now being sponsored primarily by Josephine County. Due to the low cost-effectiveness of the project, it does not have a high priority status. If constructed, however, then the dam will provide a usable storage of 38,000 acre feet.

CITY OF GRANTS PASS SYSTEM

System History - The City of Grants Pass is the principal purveyor of domestic water in the UGB. There are numerous private water utilities, which serve small subdivisions and rely solely upon ground water as the source of water supply.

The City began providing treated water for domestic use in 1931 with the construction of a 2.25 million gallon per day (mgd) treatment plant. The plant was expanded in 1950 to 4.5 mgd, and to 11.5 mgd (present capacity) in 1961. The plant's present capacity is hydraulically limited to 9.6 mgd due to undersizing of existing water mains. The service area is shown on Map ____ due to undersizing of existing water mains. The service area is shown on Map __*__.

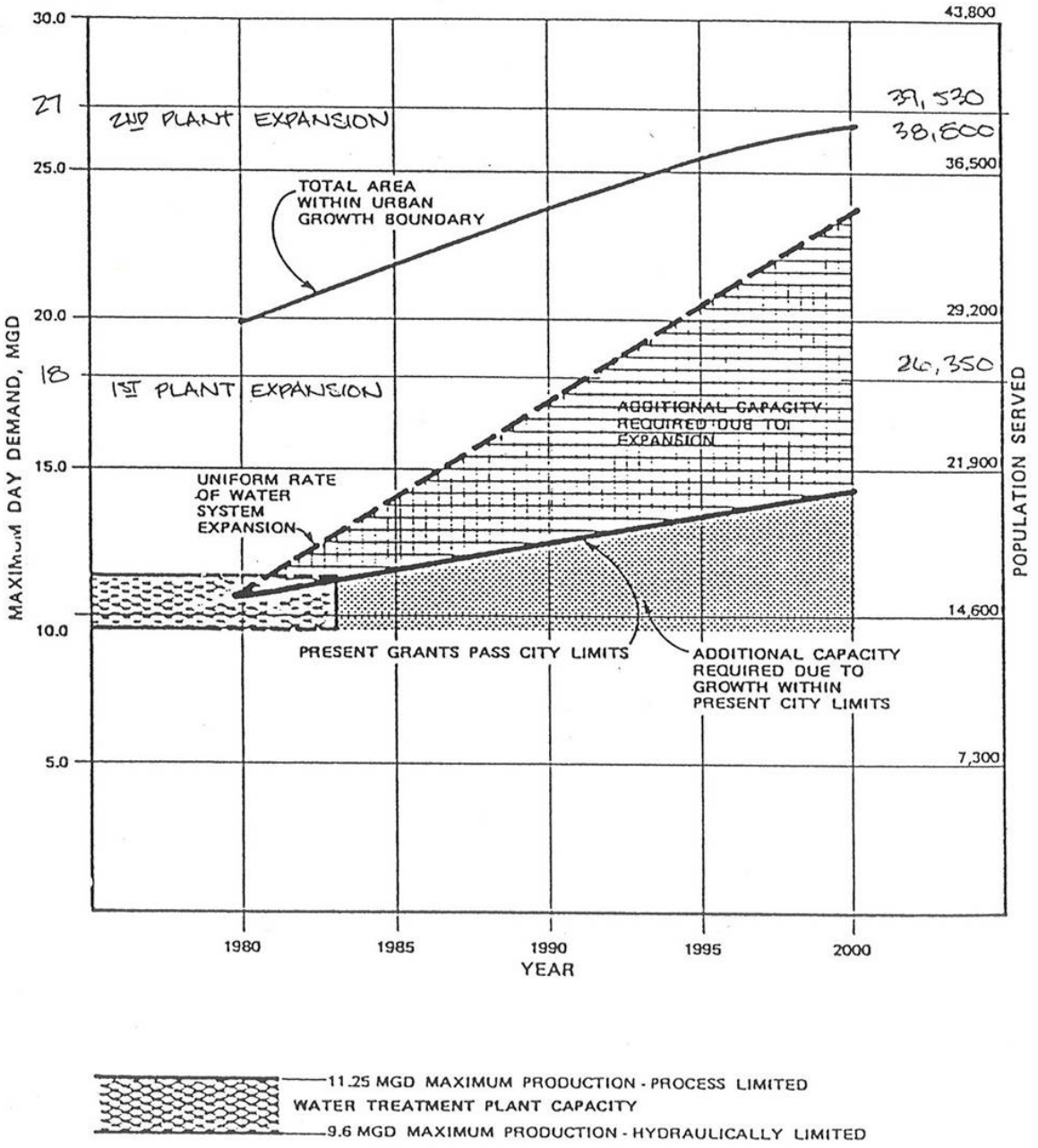
The distribution and storage system contains four major storage reservoirs and some 71 miles of pipelines. (City of Grants Pass Water System Study, 1974, Brown and Caldwell) In order to provide water service to higher elevations and to increase flow and pressure to specific areas within a zone, the system has seven pumping stations

In 1974, the City contracted with Brown and Caldwell consulting engineers to conduct a study of the City's existing water system. Results of that study are contained in the document "City of Grants Pass Water System Study, 1974." The study identified existing system deficiencies, projected those improvements to City deficiencies and to accommodate future growth, and recommended a plan to accomplish the improvements. In 1979, the City contracted with CH2M/Hill consulting engineers to develop a computerized model of the present City system, and to design and model a system that would correct deficiencies within City limits as well as provide for water service to the UGB area. A similar assessment was then made of the treatment plant capacity, and various financing mechanics were explored.[1] The study envisioned 10 additional reservoirs, modification of 5 of the 7 existing pump stations, the addition of two new pump stations, and the installation of 40 miles of new water mains, in order to fully serve the UGB, for a total of 1979 construction cost of $15.9 million.

On June 26, 1979, a special election was held in the City of Grants Pass at which time two separate measures were submitted for approval by the voters. The first measure was the authorization for issuance of $6.8 million in general obligation bonds for the construction of various water system improvements. The second measure was predicated on the approval of the first measure, and was the authorization for issuance of $4.5 million in general obligation bonds to renovate and expand the City's existing water treatment plant. Both measures were required to correct critical deficiencies within the City, and both were approved by a rate of nearly two to one in favor. The City subsequently contracted for Phase I improvements. Construction has begun, the filtration plant expansion is to be completed by August, 1982.

Treatment Plant - Graph 10.20.5 shows the target population and the required water flow to serve that population over the twenty year planning period. As shown, the plan needed immediate expansion to serve additional growth beyond the 1980 City population of 15,000. Expansion to 18.0 mgd will serve a maximum population of 26,350 and will need further expansion to 27.0 mgd (39,530 persons) to serve the lower end of the target population range (38,300 to 44,750 persons).

GRAPH 10.20.5
Treatment Plant Expansion and Service Capacity



Source: Engineering report of the Water Distribution System, Grants Pass, Oregon, CH2M Hill, February 1979.

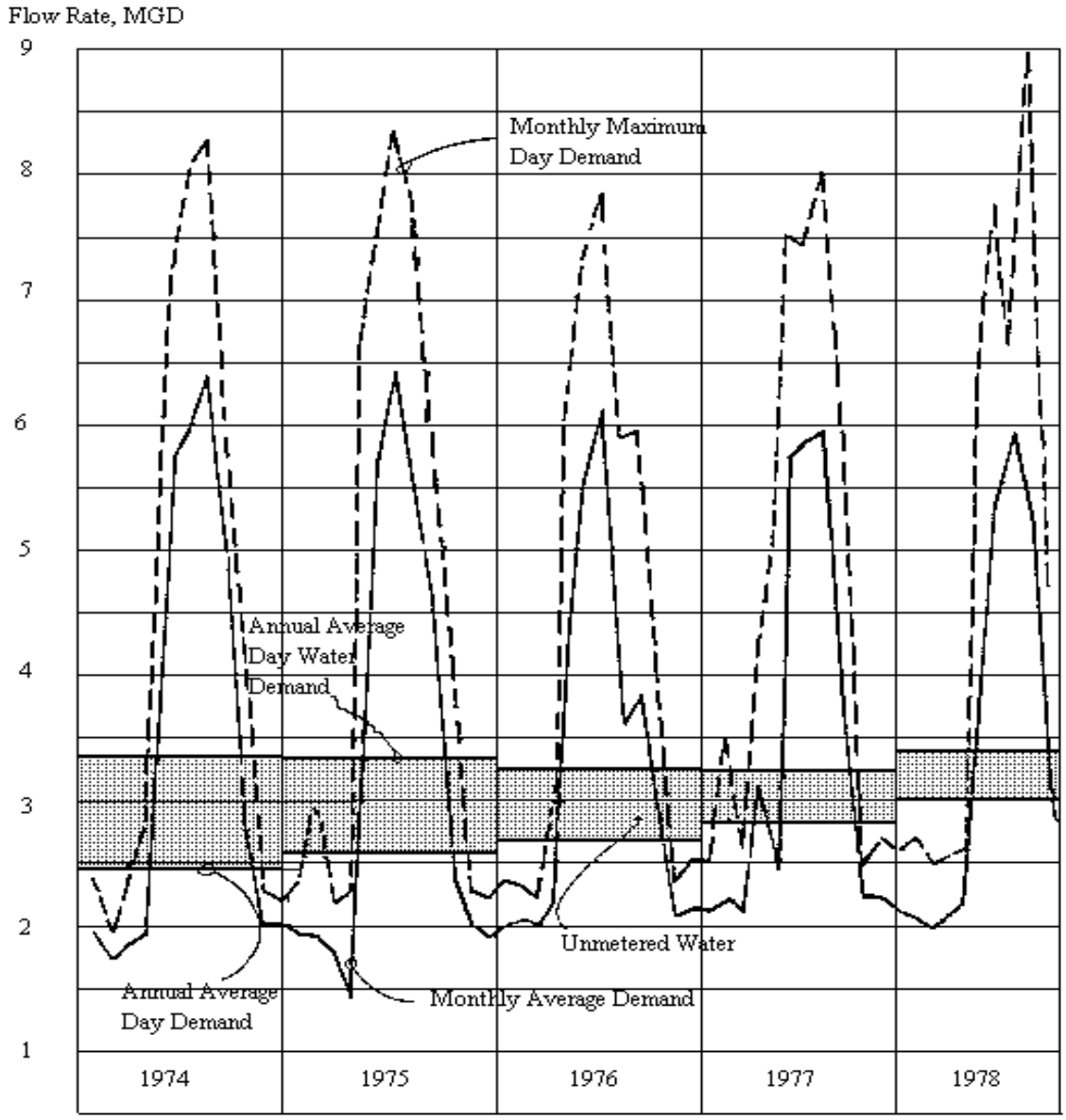
Three water usage rate variations are generally used in the design of water system facilities. These are the average annual demand, maximum day demand and peak hour demand.

The Grants Pass seasonal variation of water demand is shown from a low of 42% to a high of 193% of the annual average demand. The monthly maximum day demands, also shown in Graph 10.20.6, range from 224 to 270 percent of annual average demand. The present average annual demand is 253 gallons per day per capita.

The annual average day water production and the annual average day water metered are also shown on Graph 10.20.6. The shaded difference in these values is the amount of unmetered water, which consists of system losses such as leakage, overflow at reservoirs, park irrigation, hydrant flushing and other unaccounted for uses. The amount of unmetered water is presently near 10 percent of the water produced. This amount of unaccounted water is within the normal range for cities in the Pacific Northwest, and further reduction may not be economically justified.

The average annual per capita per day water usage and the water usage rates discussed above were used in conjunction with the design population projections of 36,600 to 46,000 persons to develop total system water requirements.

GRAPH 10.20.6



The hourly period with the greatest water demand during the "maximum day" equals "maximum hour demand." This design factor is important when establishing the distribution and storage components of the water system.

Each major reservoir contains "equalizing storage." Equalizing storage is the amount of water needed to meet varying hourly demand on the maximum day. Maximum hour demand is

approximately 150% of maximum day demand. In addition to providing equalizing storage volume, the reservoirs also store water for fire protection and emergency reserve.

Storage requirements for the Grants Pass system are based on providing the recommended fire flow by gravity to any section of the service area. It is assumed that only one fire will occur at a time, but this fire will occur on the day of maximum demand. Fire fighting reserve, therefore, is additive to equalizing storage. The largest demand for a single fire would be 1.50 million gallons for a fire in the industrial area. (Ibid.) This establishes the volume of fire fighting reserve for the UGB area. Table 10.20.7 sets forth the fire fighting reserve recommended by Insurance Service Office guidelines and CH2M/Hill engineers.

TABLE 10.20.7
Design Fire Flows

Land Use Classification	Fire Flow GPM	Duration of Flow, Hours	Volume of Water Req'd, in Millions of Gallons
Residential			
Suburban (a)	1000	2	.12
Urban, Low Density	1000	2	.12
Urban, Medium Density (b)	2500	2	.30
Urban, High Density (c)	3500	3	.63
Commercial			
Central Business District	4500	4	1.08
Tourist	3000	3	.54
Limited Commercial	3000	3	.54
Strip Commercial	2500	2	.30
Industrial	5000	5	1.50
Institutional			
Schools	3500	3	.63
Hospitals	4500	4	1.08

(a) Minimum design flow for study. (b) For a two story, four unit wood frame building. (c) For a three story, twelve unit wood frame building in close proximity to a similar building. (d) For typical mill found in the industrial area.

Emergency storage provides system reliability in the event of failure of the source of supply. The standard for system reliability selected for Grants Pass is based on maintaining normal service at the maximum day demand for 12 hours after failure of any single component of the supply system.

Equalizing storage permits the water treatment, pumping and transmission works to operate at a capacity equal to the average demand on the maximum day, with flow to meet the peak hourly demand supplied from storage.

Another design consideration is the maximum and minimum water pressures permitted in a given service area or zone. The controlling factor of pressure valves is elevation. The minimum static pressure of 40 pounds per square inch (psi) is established by locating the storage reservoir overflow 90 feet above the highest elevation served. A maximum static pressure of 100 psi is established if the lowest elevation served is 230 feet below the reservoir overflow.

The engineering consulting firm of CH2M/Hill has prepared a service zone map for the UGB as part of their Engineering Report on the City's water distribution system has five service levels, or zones, with zones 1-3 served by reservoirs. The first level, Zone 1, elevations 900 through 1020 feet above sea level, serves the largest area and has the greatest water demand. Service pressures throughout the first level, usually range from 32 psi to 90 psi; however, pressures up to 108 psi do occur during reservoir refill periods. Zones 2 and 2A serve elevations from 960' to 1140', and Zone 3 serves elevations from 1140' to 1280'. Proposed future service levels are Zone 4, serving 1220' to 1420', and Zone 5 serving 1420' to 1560'.

Urban level of development in the higher elevations will depend upon the construction of reservoirs, pipes, and pumping stations as proposed. Reservoir #6 is currently under construction and will be completed in the summer of 1982. It will provide water service for urban development at higher elevations within the City limits, and will correct low pressure conditions along Highland Avenue, Morgan Lane and Valley View Road.

City Water Plan - The City Council has approved the CH2M/Hill report of February 1969 as the basis for providing municipal water during the 20 year planning period. With voter approval to issue general obligation bonds and by successfully selling the bonds, the City has begun Phase I water system improvements, which include construction of Reservoir #6, expansion of the water treatment plant to an 18 mgd capacity, and construction of major trunk lines to adequately serve existing reservoirs. The cost of these improvements is in excess of $6 million.

Phase II improvements include additional reservoirs and main lines within the City, will cost an additional $5 million, and area also financed via general obligation bonds. Phase III improvements, almost all serving south of the Rogue, are not covered by the water bond measure and, therefore, must be financed separately. Estimated cost of South River improvements is $8 million.

County Water Plan - Josephine County also retained CH2M/Hill to do a more detailed study of water systems expansion south of the Rogue River. The study was limited to two subareas of the UGB, areas A and B, totaling some __ acres. Two reservoirs, ____ miles of water main, and an under-river crossing were included in the analysis, for a total construction cost of $__ million. (see Map 10.20.9)

The 30" under-river crossing is the key factor to fire flow water service south of the river. The present City system south of the river is extended to its limit. The crossing, estimated to cost $433,000, has been agreed to by the City and County, and 90% of the cost will be borne by the county. Construction is expected in the summer and fall of 1982. As the City treatment plant bonds were accepted by the voters solely on the basis of meeting City needs, the question of funding future plant expansion required to serve growth south of the river remains unanswered. The expanded plant, capable of serving 26,350 persons (18 mgd), will have an excess capacity over that required to serve the future needs of the present City limits of 3.65 mgd, or 5,350 persons.

MAP 10.209
Josephine County - Study Area A & B

Private Water Utilities

All domestic water SERVICES within the UGB area which are not served by the City of Grants Pass system derive their water supply from wells. Private water companies supply water through small distribution systems to subdivisions, motels, and mobile home parks. An inventory of these private water utilities is presented in Table 10.20.8.

TABLE 10.20.8
Private Water Utilities in Grants Pass UGB*

Water System	Maximum Supply Capacity mgd	Population Served 1972 Estimate
Fruitdale Water Utility		
Fruitdale System	.31	535
Rogue Lea System	.02	57
Fruitdale Heights	.02	23
Medart Subdivision	.01	38
Pardee Lane Subdivision	.01	35
Pine Creek Water Utility	.06	21

The function of these private companies has been important to the development of areas south of the Rogue River; however, as stated in the CH2M/Hill Water Distribution Study, 1979: "Several small private water systems presently exist within the 'Draft Urban Growth Boundary.' These systems rely upon wells for their supply, and their distribution piping systems consist of small diameter pipe. The system piping is undersized and cannot be sued effectively in the Grants Pass Water System."

Projected Need

Water Usage - Table 10.20.10 indicates the water demand requirements of the major land use categories. These standards are the basis for future needs over the planning period.

Water Requirement - Based on the water standards from Table 10.20.10, projected water requirements can be made. The following sets of tables project water requirements through the planning period. Tale 10.20.11 indicates water requirements for the UGB based on three different target populations. Table 10.20.12 shows five year incremental water requirements for the UGB based on a population of 39,000. Table 10.20.13 shows water requirements for the present City Limits over the 20 year planning period.

TABLE 10.20.10
Water Use - Average Daily Consumption Values

Residential Users	148 gallons per capita per day
Commercial Users	3000 gallons per acre per day
Low Water Use Industrial Land	670 gallons per acre per day
High Water Use Industrial Land	4375 gallons per acre per day
Institutional and Public Lands	1000 gallons per acre per day
Per Capita Consumption (all uses)	253 gallons per capita per day

TABLE 10.20.27*
Projected Water Demands: Year 2000
Urban Growth Boundary Service Area (5)
(in million gallons per day)

Description	(1)	(2)	(3)	(4)
Average annual demand	9.26	9.87	11.64	11.63
Average day demand during maximum month	17.87	19.05	22.47	22.45
Maximum day demand	25.00	26.65	31.43	31.40
Peak Hour Demand	37.04	39.48	46.56	46.52

1. Urban Growth Boundary psu low-range target population year 2000, 36,600 with per capita consumption values.
2. Urban Growth Boundary psu mid-range target population year 2000, 39,000 with per capita consumption values.
3. Full site development (at 1978 land-use ratios), population 46,000, with per capita consumption values.
4. Full site development (present land-use ratios), population 46,000, with unit consumption values.
5. Population values based on Urban Growth Boundary as proposed by staff July, 1978, using the various target populations derived from Portland State University's low, mid, and high range population projections for Josephine County

* Source: Engineering Report, Water Distribution System, Grants Pass, Oregon, CH2M Hill, Water Data; Grants Pass Urbanizing Area Population Projections, March 1978, Population Data.

TABLE 10.20.12*
Projected Water Demands - UGB
Five Year Increments
(in million gallons per day)

	1980	1985	1990	1995	2000
Average annual demand	7.29	8.10	8.73	9.34	9.87
Average day demand during maximum month	14.07	15.63	16.85	18.02	19.05
Maximum day demand	19.68	21.87	23.58	25.22	26.65
Peak hour demand	29.15	32.39	34.92	37.35	39.48
MID-RANGE TARGET POPULATION	28,000	32,000	34,500	36,900	39,000

TABLE 10.20.13*
Projected Water Demands: City Limits
Five Year Increments
Present Grants Pass City Limits Service Area (in million gallons per day)

	1980	1985	1990	1995	2000
Average annual demand	3.89	4.25	4.61	4.97	5.33
Average day demand during maximum month	7.51	8.20	8.90	9.59	10.29
Maximum day demand	10.50	11.48	12.45	13.42	14.39
Peak hour demand	15.56	17.00	18.44	19.88	21.32
MID-RANGE TARGET POPULATION	15,358	16,786	18,215	19,643	21,071

Table 10.20.14 summarizes and compares water use demand and water use capacities, or "limits," according to the various factors affecting water supply: source rights, treatment plant capacity and reservoir capacity. Also to be considered is the distribution system capacity (pumps and water mains), which is presumed to be extended as need requires.

Water Source Limits - Water Source (Table 10.20.14-a) appears to be ample within the planning period (1980-2000), both in terms of the amounts of water required and the areas to be served (see Map ___). The present City rights and permits will serve some 59,130 persons during maximum demand periods, which capacity exceeds the target population range of 38,300 to 44,750 persons by 54% to 32%. The right/permit capacity also exceeds the buildout capacity of the Land Use models

(47,700 to 55,700 persons) by 6% to 24%.

This analysis is based on current levels of consumption and efficiency of use, and also presumes no water credits given for sewage wastewater effluent returned to the Rogue. While such credits for the historic return may be limited, opportunity exists for future sewage treatment plant expansion. Capacity to be so credited. Efficiency and conservation of water use, major changes in sewage collection and treatment, and credits for effluent return could add significantly to the capacity of the City's water right and permits.

Another major source is the GPID waters, now eligible (as perfected right) for municipal use. One-third of the GPID water right alone could almost serve the entire estimated year 2000 population of 38,300 persons (Urban Growth Plan), and one half could serve more than the higher estimate of 44,700 persons (Economic Model). In other words, a portion of the present GPID right could serve another boundary expansion of 5,000 acres.

The Urban Growth Boundary Area does not appear to be limited by water source capacity for the next 20 to 40 years, with all surface water permits taken into account.

Treatment Plant Limits - The City has been limited by treatment plant capacity in the recent past, and will apparently continue to be parsimonious in granting water use to outside-City development until the cost of future plant capacity is determined, and some mechanism is developed to share that cost between the City, the County, developers and in-migrants, and existing residents. (See Table 10.10.14-B)

The first expansion of the water treatment plant, currently underway, will correct a significant discrepancy between existing demand and capacity within the present City limits. The economics of plant construction indicated expansion in about 9 mgd increments, or modules. The first expansion will therefore exceed present demands, as well as exceed the demand of "buildout" of the present City limits by 25%, or approximately 3.65 mgd under maximum demand conditions. This "excess capacity" can serve the equivalent of 5,350 persons at 683 gpcpd. A second expansion of treatment plant capacity will be required to serve the UGB by 1995 (Economic Model), or the year 2000 (Urban Growth Plan Model). A third expansion will be required in order to serve the buildout populations of the Boundary area, exceeding the Urban Growth Plan Land Use Model by 11% and falling short of the Service Capacity Model by 6%. A third plant expansion may require the City to acquire additional lands at the site.

The UGB does not appear immediately limited by water treatment capacity for the next 10 years, provided the City's "excess capacity" may be utilized. However, steps should be taken immediately to provide funding for the second expansion of treatment plant capacity, expected between 1995 and 2000.

Reservoir Limits - The City's present reservoir capacity of 5.45 million gallons is 40% (2.2 mg) below the needs of the City's 1980 population of 15,000 persons and in fact should only be serving under 10,000 persons, the City's population in 1960. Reservoir #6 now complete and due to be in

service by the fall of 1982, will bring the City's capacity up to 6.6 % over that required for the 1981 population of 15,630 persons. In addition, reservoirs #7 and #8 will bring the present City limits up to buildout capacity, and adding reservoirs #5 and #11 will serve the Urban Growth Plan target population of 38,300 persons. The Economic Model target population of 44,750 persons will require two further additions, reservoirs, #9 and #10. The addition of reservoir # 12 will suffice for the Urban Growth Plan Land Use Model, while the further addition of reservoirs #12, #13, and #14 will fall short of the Service Capacity Land Use Model by 6%.

The UGB would appear somewhat limited by reservoir capacity at the present time, while the addition of one reservoir south of the river, together with reservoirs planned north of the river, would carry through until 1995-2000 from the capacity point of view. However, distribution system limitations, together with desired fire flows, may require further reservoir additions south of the river.

TABLE 10.20.14 (a)
Water Use Demand and Water Use Limit
Water Use Limit by Source Capacity

Source	Model	cfs	mgd	Persons Served*
City Right and Permits		62.5	40.4	59,130**
33% GPID Right		32.2	20.8	30,490
50% GPID Right		48.4	31.2	45,730
Target Population	UGB Model	40.5	26.2	38,300
	Economic Model	47.3	30.6	44,750
Land Use Model Buildout	UGB Model	50.4	32.6	47,700
	Service Capacity Model	58.9	38.0	55,700

* Service capacity calculation at 683 gallons per capita per day, present maximum day demand.
** Assumes water flow condition in Rogue River such that 1960 and 1965 permits will not be cut back

TABLE 10.20.14 (b)
Water Use Limit by Treatment Capacity

Plant Capacity	mgd	Persons Served*	Year Required	Estimated Service Populations
Existing	9.6	14,060	1980	15,000 - city
1st Expansion	18.0	26,350	1982	15,630 - city 21,000 - city buildout
2nd Expansion	27.0	39,530	1987 1990	38,870 - UGB (economic model) 38,300 - UGB (UGB model)
(3rd Expansion)**	(36.0)	(52,710)	--- ---	47,700 - UGB buildout (UGB model) 55,700 - UGB buildout (service capacity model)

* Service capacity calculated at 683 gallons per capita per day, present maximum day demand.
** A third module of 9 mgd at the present plant site may require additional area.

TABLE 10.20.14 (c)
Water Use Limit by Reservoir Capacity

Reservoirs Required	Reservoir Capacity (Million Gallons)	Persons Served* Each Reservoir	Persons Served* Cumulative	Estimated Populations
#1 - #4 (existing)	5.45	9,800	9,800	15,000 (1980)
#6 (phase 1)	3.5	6,860	16,660	15,630 (1981)
#7 (phase 2)	1.2	2,350	19,010	
#8	2.0	3,920	22,940	21,000 (city buildout)
#5	3.5	6,860	29,790	
#11 (as needed)	4.5	8,820	38,610	38,300 UGB (UGB target)

#9	1.5	2,940	41,550	
#10	2.0	3,920	45,470	44,750 UGB (economic model target)
#12	2.0	3,920	49,390	47,700 (UGB) (UGB land use model)
#13	.25	490	49,880	
#14	.35	690	50,570	55,700 UGB (service capacity land use model)

*Service capacity calculated at 50% maximum day demand, or 1960 persons per million gallon capacity, as per Figure 3-4, Engineering Report of the Water Distribution System, Grants Pass, Oregon, CH2M Hill, February 1979.

Urban Service Policies and Management Agreement

When adopting the Grants Pass Urban Growth Boundary, the City and County also adopted Urban Service Policies as an integral part of the boundary. These policies were to guide the City and County in their Comprehensive Plan development, and were stated as follows:

Policy 28. Urban Levels of Development shall require a public water system.

Policy 29. Public water systems shall provide water at fire flow capacities.

Policy 30. The City and the County Comprehensive Plans shall contain a detailed, coordinated and site specific plan precisely establishing the responsibility for the provision of water to the Urban Growth Boundary area over time. This Plan should be based upon a careful analysis of possible water sources, the probability of water availability, and the costs and benefits of various modes of water provisions.

Management Agreement - After lengthy negotiation, the City and County adopted a Management Agreement in January, 1981. The agreement set interim development standards for the urbanizing area and called for basic service plans that would establish the extent, design, location and cost of providing water, sewer, streets, storm drainage and parks to the boundary area. The required urban levels, Exhibit "A" to the Management Agreement, set out interim development standards for the urbanizing area. Ten of these standards deal with the provision of potable water, water for fire protection, extension of the municipal system, and interim utilization of wells together with the protection of the ground water resource. See Exhibit “A,” Section 4.20.

Water Plan - The Management Agreement also required that the Water Distribution Study (February 1979) and Treatment Plant Study (March 1979) by CH2M/Hill for the City, and the Water Facilities Plan (November 1980) based on these studies by CH2M/Hill for the County, be used as

Water Facilities Plan for the UGB area, and required a Implementation Plan to be adopted within 24 months.

Construction is nearing completion on Phase I of the City's treatment plant, water main and reservoir projects, and Phase II is due to be bid in the spring of 1982 and constructed in the summer. Bonds have been authorized by the voters, and have been sold for Phase I. Added to Phase II will be a 30" river crossing from the treatment plant to provide fire flow capacity worth of the river, funded 90% by the County. Further, a City-County Capital Improvement Program (CIP) has been released for discussion. The proposed CIP contains $19.4 million slated for beyond the six year program period, for water treatment, storage and distribution faculties. The first six years include reservoirs #5, 6, 7, 8, 9 and 11 (sufficient to serve the Urban Growth Plan target population of 38,300 persons), water main replacements and installation (including the 30" river crossing at an estimated cost of $433,000) and the first treatment plant expansion.

The expenditures slated for the years beyond 1988 include reservoirs #10, 11, 12, 13, and 14, sufficient to serve the Urban Growth Boundary's buildout populations, water main installations ($5.4 million, principally throughout the urbanizing area) and the second treatment plant expansion (sufficient to serve the Urban Growth Boundary through 1995 to 2000).

Irrigation Water Plan - The Management Agreement (Section III-4) determined that urban level development would impact the GPID canal deliver system, affecting both present water users and user rates, and further noted that accommodating the existing canal and lateral delivery system would increase development costs and GPID maintenance costs.

The Management Agreement calls for an Agricultural Irrigation Water Plan to be developed within 24 months of the Agreement. The Plan is to include consideration of upgrading the present delivery system, phasing out certain GPID facilities, and the utilization by the City of a portion of the GPID water right to provide water within the Boundary area.

10.20.9 WATER SERVICES FINDINGS

Water Source

1. Groundwater from the area's alluvial deposit yields a maximum 50 gallons per minute, which is insufficient for municipal supply. Problems of salt intrusion and a dropping water table further limit the groundwater resource. The only reliable source for the large quantities of potable water required for municipal purposes is the Rogue River.

2. The Rogue River yearly flow is effectively fully subscribed, and may support additional subscriptions only by impounding winter flow behind dams for dry season release. Two such dams have been authorized by Congress, the first complete (Lost Creek Dam) and the second still undergoing cost/benefit analysis (Elk Creek Dam).

3. The City has one "perfected right" (priority date 1888) and two permits (priority dates 1960 and 1965) for withdrawing 12.5 cubic feet per second (cfs), 25 cfs and 25 cfs, respectively, from the river for municipal purposes. In addition, the City has pending Application #R41671 before the State Water Resource Department for the use of 6700 acre feet of stored water behind Lost Creek Dam. Use of stored water requires a contract with the Army Corps of Engineers, and the yearly payment of a portion of the dams construction, operation and maintenance costs for use of the water, regardless of the amount utilized. The application must be finalized within ten years of dam completion.

4. Use of the Lost Creek impoundment may be necessary to augment dry weather flow of the Rogue. As an example, some of the river's flow in summer, 1981, was released from the Lost Creek Dam. However, since the City's point of diversions at Savage Rapids Dam, and summer cutbacks take effect above the dam, there is some question as to whether the City could be cut back from its 1960 and 1965 right. As an example, some 50% of the river's flow in summer, 1981, was released from Lost Creek.

5. City permits will accommodate some 59,130 persons at maximum day demand levels, and at present per capita residential, commercial and industrial water use rates (683 gpcpd). See Table 10.20.14 (A).

6. The Grants Pass Irrigation District has a "perfected right" of 96.7 cfs with a 1916 priority date, and in addition has a Fish and Game "transport right" of 83 cfs and an "as through" right for the turbine lifts of 800 cfs, also diverted a the Savage Rapids Dam Site. The GPID perfected right may be used for municipal purposes. One-third of this right will provide for 30,490 persons, and one-half will provide for 45,730 persons at maximum day demand levels.

7. The GPID canal and delivery system serves 400 exclusive farm use acres and 7000 urban-suburban acres. The District has 55 miles of major canals an laterals of which 85% are unlined or uncovered. Many of these canals and laterals serve as major drainways of the City and urbanizing area, and have been incorporated into the Master Storm Drain Plan of the UGB area.

8. Some 2600 acres of irrigated lands have passed out of the District over the years, due mainly to urban level development and the silting and washout problems associated with winter drainage accommodation. The Bureau of Reclamation, in a 1979 study of the GPID system, estimated that the major canals would cost $8.5 million to rehabilitate, and the laterals $5.3 million, for a total cost of $92.45 per irrigated acre per year. Replacement of laterals with a pressurized pipeline would cost $28.7 million. The GPID has elected to continue supplying water through canals and laterals as development proceeds, citing as rationale that the improvements required by development often don't exceed "buy-out" costs, that the City's maximum day demand for water in the summer is thereby reduced, and that the irrigation water, begin untreated and unpressurized is cheaper for both the user and the provider.

9. The management agreement requires development of an Agricultural Irrigation Water Plan to deal with the issues of cost of developing and maintaining the system, upgrading the system and use of a portion of the GPID water right for municipal purposes.

10. Other potential sources are the proposed Elk Creek Dam and Sexton Dam, both under cost/benefit review.

Water Treatment

11. The City began providing treated water for domestic use in 1931 (2.25/mgd), with expansions in 1950 (4.5 mgd) and 1961 (11.5 mgd, hydraulically limited to 9.6 mgd).

12. A 1974 study (Brown and Caldwell) revealed system deficiencies, and in 1978 the City limited grants of water use to potential annexations. In 1979, a computer model of the distribution system was made, and a plan developed for correcting existing City deficiencies and extending fire flow water to the urbanizing area (CH2M/Hill). See Map __. The Plan envisioned 10 additional reservoirs, modification of 5 and addition of 2 pump stations, and the addition of 40 miles of new water main for a 1979 construction cost of $15.9 million, and two expansions of the City's treatment plat at a cost of $12.7 million.

13. The City's treatment plant capacity, hydraulically limited to 9.6 mgd, is 6.5% below optimum maximum day requirements for a population of 15,000 persons. The first expansion will add 9 mgd capacity, and will be able to serve 26,350 persons at maximum day demand conditions, or 25% above the present city limits buildout of 21,000 persons, generating an "excess capacity" of 3.65 mgd, or the service equivalent of 5,350 persons. The second treatment plant expansion of 9 mgd will allow the plant to serve 39,530 persons, which will accommodate the Economic Model target population to 1995 (38,870 persons) and the Urban Growth Plan target to 2000 (38,300 persons). See Table 10.20.14 (b).

A third expansion of 9 mgd would allow 52,710 persons to be served, under current water use conditions and at maximum day demand, accommodating buildout of the Urban Growth Plan Land Use Model (47,700 persons), and nearly accommodating the Service Capacity Model buildout (55,700 persons). A third expansion may require additional lands at the site.

Water Storage and Distribution

14. Waters must be stored to allow for hourly fluctuation in demand ("equalizing storage" at 25% maximum daily demand), must meet fire flow demand when normal consumption is at the maximum daily rate ("fire storage" as per ISO tables), and must provide for water supply during a major disruption ("reserve storage," at 50% maximum day demand, or a 12 hour supply under maximum use conditions and 1 1/3 days supply under average use).

15. The City's present reservoir capacity of 8.45 million gallons is 40% (2.2 mg) below the City's needs for a 1980 population of 15,000 persons. See Table 10.20.14 (c). Reservoir #6, now under construction, will bring capacity to over 6.6% of the 1981 population (15,630 persons). The addition of reservoirs #7 and #8 will serve the buildout population of the present City limits; subsequent addition of reservoirs #5 and #11 will serve the Urban Growth Plan target population (38,300), while the Economic Model target population (44,750), will require reservoirs #9 and #10. The addition of reservoir #12 will serve the buildout population of the Urban Growth Plan Land Use Model (47,700 persons).

Urban Service Policies and Management Agreement

16. The City-County Urban Service Policies, adopted with the UGB in August, 1979, require a public water system with fire flow capacities to serve urban levels of development. The management Agreement adopted January 1981, set out interim development standards to determine domestic and fire requirements for utilizing wells and storage tanks prior to municipal system extension. The Management Agreement also required a Water Facilities Implementation Plan to be adopted within 24 months of the agreement.

17. The City received voter authorization in 1979 for $11.3 million in general obligation bonds for facilities and improvements, aimed at curing existing City deficiencies and providing for future demand within the present City limits. A portion of the bonds have been sold, and Phase I improvements are nearing completion, including treatment plant expansion, reservoir #6, and "gut-line" water mains. Phase II improvements will be bid in the spring of 1982, and will include a 30" river crossing, required to deliver water at fire flow capacities south of the Rogue, and 90% funded by Josephine County.

18. A City-County Capital Improvement Program (CIP) was released for discussion in February, 1982. The six-year CIP includes $19.4 million for water treatment, storage and distribution facilities, including reservoirs #5, 6, 7, 8, 9 and 11, water main replacement and installation, the 30" river crossing ($433,000) and the first treatment plant expansion. Expenditures beyond 1988 include reservoirs #10, 11, 12, 13, and 14, water mains throughout the urbanizing area ($5.4 million) and the second treatment plant expansion.

Summary

19. Water sources seem sufficient beyond the target population range (38,300 to 44,750 persons), and sufficient for buildout of the two Land Use Models (47,700 to 55,700 persons). Treatment Plant capacity (39,530) will be within the target population with construction of the addition, while the first addition will serve buildout within the present City limits with a 3.65 mgd "excess capacity." A third expansion would be required to serve buildout for the Land Use Model range. Addition of reservoir #6 will bring the City up to current storage requirements, while the reservoirs proposed within the six-year CIP will see the UGB through the low end of the target population range. See Table 10.20.14 (b).

10.30 SANITARY SEWER SERVICES INDEX

10.30 SANITARY SEWER SERVICES

PURPOSE

The purpose of this section is to assess existing sanitary sewer service facilities and capacities, identify areas of immediate concern, project capacities needed through the planning period, examine financial methods of paying for and regulating the service, and present policies of the orderly provision of SERVICES. Within the UGB, there are three systems providing sanitary sewer service: City of Grants Pass, Harbeck-Fruitdale Sanitary Sewer Service District, and the Redwood Sanitary Sewer Service District.

CITY OF GRANTS PASS SEWER DISTRICT

The City first began providing treated sewage service in 1935, with subsequent plant additions in 1953 and 1962. In 1974, the treatment plant was renovated and expanded to its current capacity. The new system design allows for modular plant expansion.

Treatment Plant

Hydraulic Capacity - Peak Wet Weather Flow (PWWF) determines the hydraulic capacity of the treatment units, structures, and pumps. When PWWF is exceeded, sewage bypass occurs. Infiltration and storm inflow are the principal causes of increased volume of flow. That excess volume of raw sewage flow during wet weather exceeds the capacity of the influent pumping station for days at a time. The excess flow, of course, must be bypassed untreated (raw) into the Rogue River. To further complicate matters, the influent pumping station is without standby pumping capacity. The total pumping capacity of the station, slightly more than 5 mgd, is provided by two pumps. The two pumps have adequate capacity to accommodate normal dry weather flows so long as both are working properly. Whenever it is necessary to remove one pump from service for any reason, however, the remaining pump has insufficient capacity to accommodate the daily peak flow. The result is that each time a pump is removed from service during normal working hours, it is necessary to bypass raw sewage to the Rogue River. Plan flow records were checked for a two-year period ending December 31, 1967 to determine the magnitude of the problems described above. It was found that during that period raw sewage was bypassed to the river on 76 days because of a lack of hydraulic capacity, on 129 days because of a lack of standby pumping capacity, and on 49 days because of a mechanical failure in one or more plant processes. (Sewage Treatment Study, Brown and Caldwell, 1969. pg 23)

Average Dry Weather Flow (ADWF) represents flow composed primarily of domestic, commercial, and industrial sewage with little or no storm inflow; however, infiltration may be present. This value is the design factor used to size the sedimentation and biological treatment units of a treatment plant to achieve the desired removal of BOD and suspended solids. Existing hydraulic plant capacity is 3.9 mgd, or the equivalent of about 21,000 persons.

Biologic Capacity - Biologic Capacity measures the capacity of a plant to treat sewage based on the type and strength of sewage. The plant's existing capacity is 8,000 lb. per day of 5-day BOD at 20° C.

Treatment Level - The plant is designed to provide primary and secondary levels of treatment to standards equal to or exceeding those required by the Department of Environmental Quality. Existing Effluent Discharge standards for the current permit are:

Effluent Discharge:		4.0 mgd
BOD:	(Monthly Average)	
	May 1 to Oct 31:	20 mg/1/day
	Nov 1 to Apr 30:	30 mg/1/day
Suspended Solids (lbs):	(Monthly Average)	
	May 1 to Oct 31:	667 lb/day
	Nov 1 to Apr 30:	1000 lb/day
Coliform:	(Monthly Average)	
	Jan 1 to Dec 31:	200/100 ml/day

Collection System - Prior to 1927, sewer pipes were constructed of vitrified clay. From 1927 to 1964, sewers were constructed of unreinforced concrete pipe with bell and spigot joints caulked with cement mortar. Since 1964, sewers have been constructed of concrete pipe with bell and spigot joints and rubber ring gaskets. Sewers installed prior to 1964 have created serious problems with infiltration and storm inflow. City maintenance personnel report instances where large pieces of clay pipe have broken away from the interior of the sewers, resulting in excessive groundwater infiltration and allowing sand and gravel to enter the pipe. The 12-inch sewer line on Second Street near "C" Street was reported half full of sand and gravel. (Sewage Treatment and Disposal Study, 1969. Brown & Caldwell Consulting Engineers.)

The concrete pipe caulked at the joints with cement mortar presents similar problems. Over time, the cement caulking dissolves leaving the joints vulnerable to cracking and resulting in infiltration of groundwater and tree roots. In some areas, storm drains empty into the sewage collection system.

Problems in the collection system are further aggravated by the unknown locations of many manhole covers. Precise locations of some sewer lines are also unknown. A Collection System Master Plan is currently underway and proposes to identify specific problems and solutions regarding the collection system. The plan is due to publish in August, 1982.

Sludge Disposal - Resulting sludge is trucked to commercial farms at no expense to farmers. The composition of the sludge is very moist. The high water content increases the volume and weight, requiring more truck trips than would be required with dryer, thicker sludge. The cost, therefore, for sludge disposal is relatively high and requires further investigation.

TABLE 10.30.1
Rainfall, Water Demand and Sewage Flow

	Precipitation	Water Demand	Influent			Effluent		
Month	**Ave. Daily Rainfall (inches)**	**Average Daily Water Demand (millions of Gallons)***	**Average Daily Flow (Millions of Gallons)**	**Average Daily B.O.D. Loading (lbs.)**	**Average Daily Suspended solids (lbs)**	**Average Daily B.O.D. (lbs)**	**Average Daily Suspended Solids (lbs)**	**Average Daily Coloform (200/ 100Ml)**
Jan.	.09	2.2	3.7	5716	162	278	368	1
Feb.	.19	2.1	5.0	5386	121	418	380	1
Mar.	.05	2.2	4.2	4840	114	491	470	2
Apr.	.12	2.3	4.5	5261	121	413	479	3
May	.10	3.6	4.8	5611	108	281	426	4
Jun.	.01	5.8	4.3	4847	129	359	785	60
Jul.	.005	6.4	4.3	5170	143	180	436	2
Aug.	.01	5.6	4.4	5915	137	184	317	37
Sep.	.007	4.2	3.8	5077	138	95	126	4
Oct.	.20	3.1	3.8	4918	148	127	224	8
Nov.	16	2.3	4.7	5651	135	275	664	13
Dec.	.21	2.1	5.7	6140	131	428	1040	30
AVG		3.49 W= 2.2	4.43 W= 4.8	5378	132	294	476	14

*City Water Filtration Plant - 1979

Service Area - The service area primarily conforms to the City limits, with some exceptions to properties currently served under annexation agreement. The City also provides sewage treatment to the Harbeck-Fruitdale area under special contract agreement (see Harbeck-Fruitdale Sanitary Sewer Service District).

Existing Demand - From Table 10.30.1, some general observations can be made relative to plant capacity and compliance with wastewater discharge standards:

The Average Dry Weather Flow - (ADWF, or hydraulic capacity) was exceeded 75% of the time. The City therefore is in violation of its DEQ permit relative to effluent discharge volumes.

- All other discharge values are well below permit standards

- The current biologic demand (6,000 lbs/day) of the plant is 75% of its biologic processing capacity (8,000 lbs).

- The average daily flow is higher during winter months, which is an indication of storm inflow into the treatment system.

- For hydraulic analysis, water demand should equal sewage flow. The consumer water demand is higher in summer months, due to irrigation, car washing, recreational activities, etc. Therefore, winter time daily water demand is a good indication of average daily sewage generation. The winter time average daily water demand is 2.2 mgd as compared with 4.8 mgd during summer time.

- Comparing winter time average daily water demand (2.2 mgd) with winter time average daily sewage flow (4.2 mgd) indicates that the treatment plant is processing 2.0 mgd in excess of sewage generated (50% of total flow). This comparison gives a general indication of the amount and degree of Infiltration and Storm Inflow.

DEQ Notice of Violation - On August 13, 1980, the Department of Environmental Quality issued the following "Notice of Violation":

> Grants Pass Water Restoration Plan monitoring for June and July, 1980 indicate the following effluent violations of condition S4 of Permit No. 1939-J:

Date	Parameter	Measured Level	Permit Limit	Time Period
June	Flow	4.39 MGD	4.0 MGD	Monthly Av.
6/09/80	Suspended Solids	1505 lb/day	1333 lb/day	Daily Max.
6/12/80	Suspended Solids	1418 lb/day	1333 lb/day	Daily Max.
6/8-14/80	Suspended Solids	1461 lob/day	1000 lob/day	Weekly Av.
June	Suspended Solids	691 lb/day	667 lb/day	Monthly Av.
July	Flow	5.24 MGD	4.0 MGD	Monthly Av.

(July Suspended Solids Levels were within permit limits)

"The City of Grants Pass needs to take action to reduce influent flow to the treatment plant or expand treatment capacity....Plant staff have indicated that the June suspended solids violations may have been due to industrial waste problems in the influent. The City of Grants Pass may need to expand its industrial discharge monitoring program....

"Several changes were made in the mode of operation of the aeration basis in June and July in order to cope with the solids problem. July 1980 suspended solids levels were within the permit effluent limits.

"In summary, the total pounds of solids discharged from the sewage treatment plant to the Rogue River have exceeded the permit limits. It is imperative that the City address the collection system problems in a timely manner in order to prevent future violations. Continued problems caused by exceeding design capacity could eventually require plant expansion and/or sewage connection moratorium."

Existing Capacity The following is a breakout of Current BOD user demand or biologic demand for each major land use. Sewage generation factors were derived from Brown and Caldwell, consulting engineers for the City for its sewage treatment system:

Sewage Generation Standards By Land Use.	
Residential:	.2 lb per capita per day
Commercial:	6 lb per acre per day
Industrial:	4 lb per acre per day

Using these generation factors, the following demand was generated:

Residential.
1980 City Population: 15,000 x .2 = 3,000 lbs
1980 Fruitdale-Harbeck: 3,948 x .2 = 790 lbs
Subtotal: 18,948 x .2 = 3,790 lbs

1980 Commercial: 206 acres x 6 lbs = 1236 lbs
980 Industrial: 173 acres x 4 lbs = 692 lbs
Total: 5,718 lb/day

The average daily BOD influent for 1979 was 5,378 pounds, and for the first 6 months of 1980 the average was 5,642. The flow value using the land use generation factors and the actual BOD values are very close, as close as need be for confident future projections and need determinations. Since the 5,642 pounds is an average daily biologic loading, for projection purposes current BOD demand will be rounded off at 6,000 lbs per day. (In January 1980, BOD was 6,252 lbs per day.)

The current biologic capacity of the plant is 8,000 lbs per day. Thus there remains an additional 2,000 lbs per day (15%) of plant biologic capacity. Using the current land use ratios to project additional units served, the following is provided:

TABLE 10.30.2
Additional Units to be Served with Remaining Plant Capacity

Land Use Ratios	Units of Additional Capacity
Residential 66%	Population Served: 6,600 persons (1320 lbs - .2)
Commercial 22%	Commercial: 73 acres (440 lbs - 6)
Industrial 12%	Industrial: 69 acres (240 lbs -4)

As mentioned previously, the current Average Dry Weather Flow capacity has been reached and exceeded 75% of the time. To provide sewage treatment service for additional growth, the plant needs to either expand, or reduce the infiltration and storm inflow into the collection system. The following are design criteria for hydraulic capacity:

Residential = 80 gallons per capita per day

Commercial = 800 gallons per acre per day

Industrial = 1270 gallons per acre per day (Redwood District)

900 gallons per acre per day (City/Harbeck-Fruitdale District)

Applying these design factors to existing population and land use acreage, the following results:
Residential: 80 gallons x 18,948 (population)[2] = 1,515,840 per day
Commercial: 800 gallons[3] x 317 commercial acres[4] = 253,600 per day Industrial: 900[5] gallons x 250 Industrial acres[6] = 225,000 per day
Total: 1,994,440 gd

2. Josephine County Engineering Division
3. Josephine County Comprehensive Areawide Water and Sewerage Plan, 1972, Page 133.
4. 1980 Land Use Inventory (LUI), includes City and Harbeck-Fruitdale areas.
5. Sewerage Treatment and Disposal Study, Brown & Caldwell, page 41.
6. Ibid. LUI, 1980

Thus, the "expected" 1980 sewage flow is approximately 2,000,000 gallons per day. To check the degree of accuracy of this method for computing sewage generation, the resulting figure is compared with the winter time water demand of 2,200,000 gallons per day. These figures are very close and, therefore, allow for confident sewage projections.

The annual average daily flow through the plant is 4,430,000 gallons. Subtracting the 2,000,000 gallons per day attributed to land use, the resulting gallonage (2,430,000) therefore is assumed to be attributed to annual average daily infiltration and storm inflow.

Harbeck-Fruitdale Service School

This district is in unincorporated Josephine County and is governed by the Board of County Commissioners. While the service district boundary is not entirely within the UGB, the active service area is.

Prior to sewer service in this area, development evolved from rural-residential farming to urban densities without urban levels of service. As septic failures increased, the need for municipal sewage treatment increased. In 1969-1970, initial construction of the collection system began, with sewage treatment provided by the City of Grants Pass through a special contract agreement. Users of the system are charged 160% the rate of City residents. The city service area contains approximately 2500 acres with 1524 existing hookups. Using the 1980 Census figure for average households size in the Harbeck-Fruitdale area (2,59), we find that approximately 3,948 persons are served by sewer. The design capacity of the sewer collection system is 14,000 persons. (Josephine County Engineering Division)

The collection system consists of concrete pipe with rubber-ring gaskets in the joints. Infiltration and storm inflow are not considered serious problems in this area.

Redwood Service District

This district is in unincorporated Josephine County, governed by the Board of County Commissioners, and includes a service district boundary which also goes beyond the UGB; however, the active district boundary (serving approximately 1775 acres) is within the UGB. Sewage collection and treatment began in July 1978, and is now serving approximately 690 dwelling units (1797 persons). (Josephine County Engineering Division) Septic drain field failures that eventually contaminated shallow domestic water wells were the primary reasons for requiring municipal type sewage treatment for this area.

Treatment Plant - The plan provides primary and secondary levels of treatment to standards equal to or exceeding those of the Department of Environmental Quality. Existing effluent discharge standards for the current permit are:

BOD (Monthly Average)
June 1 to October 31: 20 mg/1
November 1 to May 31: 30 mg/1
Suspended Solids (Monthly Average)
June 1 to October 31: 80 lb/day
November 1 to May 31: 120 lb/day
Coliform: 200 per .100 ml/day

Table 10.30.3 indicates average daily influent and effluent values for 1979. All values are below permitted DEQ standards.

TABLE 10.30.3
Redwood Treatment Plant
Influent and Effluent Discharge Values - 1979

Month	Flow Avg. Mgd	Avg. Daily B.O.D. - lbs/day	Avg. Daily Suspended Solids (lbs)	Avg. Daily B.O.D. (lbs)	Avg. Daily Suspended Solids	Coliform Daily per 100 ml
Jan.	.17	153	(219)	(4.92)	8.9	4
Feb.	.25	234	(322)	(4.09)	9.6	10
Mar.	.19	213	(58)	(1.5)	5.1	3
Apr.	.15	188	(164)	(3.17)	6.3	4
May	.24	214	(94)	(5.01)	10	15
June	.22	188	(11)	(.08)	5.9	8.9
July	.19	164	(8)	(.08)	5.1	1.5
Aug.	.20	180	(10)	(.58)	5	12
Sept.	.18	174	(8)	(.16)	9	18.5
Oct.	.21	228	(443)	(6.51)	10	6.2
Nov.	.26	257	(186)	(5.67)	9	3.3
Dec.	.26	217	(165)	(11.18)	3	27
Average	.21	199	141	3.75	7.24	9.45

Collection System - All sewer pipes are constructed of concrete pipe with rubber-ring gasket joints. Infiltration and inflow should be a minor problem for the Redwood collection system. The collections system has a maximum hydraulic capacity of approximately 4.8 MGD PWWF. (MGD, PWWF = million gallons per day, peak wet weather flow). With a common peak wet weather flow of 300 gallons per capita per day (gpcd) the maximum allowable population would be approximately 16,000 persons within the existing service area as shown on Map 10.30.4. The allowable population is based upon the assumption that lands outside the UGB will develop at rural densities. Therefore, the future development of the Lower Redwood sub-basins and those portions of the Dowell, Willow and Darnielle sub-basins south of the UGB would be limited to the present day densities of 2.5-5 dwelling units per acre.

Density within the remaining active service area will vary among the sub-basins. Map 10.30.4 also depicts these sub-basins and the respective densities that are recommended by the Josephine County Engineering Division.

Table 10.30.5 depicts further the data relevant to each sub-basin within the active service area shown on the map.

TABLE 10.30.5
Active Redwood Service District: Density Distribution

Sub-basin	Developable Acres (80%) of Total)	Allowable Hydraulic Flow (MGD)	Peak Flow Gals/Cap/Day	Allowable Population	Allowable Density Persons/ Acre	Net Du/Ac
Lower Allen Creek	84.5	0.428	350	1,223	14.47	6.52
Upper Redwood	236.0	1.063	300	3,543	15.00	6.76
Middle Redwood	133.8	0.361	300	1,203	9.00	4.05
Dowell	141.9	0.500	350	1,428	10.07	4.54
Parkhill	50.3	0.159	350	454	9.03	4.07
Willow	157.6	0.669	300	2,230	14.15	6.37
Darnielle	336.5	1,300	300	4,333	12.88	5.80
Coutant	38.0	0.120	350	342	9.02	4.06
Subtotal	1178.6 ac w/i UGB with sewer service 4.6 w/sewer .2 w/o sewer			14,756 637		
Totals	**1475**	**4.8**		**15,393***	**10.44**	**4.70**

*Does not equal 16,000 due to use of peak flow rate of 350 gpcd in some areas.

The potential distribution of density within the active Redwood Service District in Table 10.30.5 is for a potential population of 15,393, including the population equivalents for commercial land (20 persons per acre) and industrial land (30 persons per acre). Table 10.30.5 is important when determining future land use allocation within the Redwood subarea of the UGB. The sizing of the existing collection system can accommodate predominantly low density (5.5 du/Ac) and low-moderate density (10.5 du/Ac) residential development with minimal problems related to hydraulic overloading of the sewer lines. However, a higher density residential development such as high moderate density (10.5 - 15.5 dy/Ac) located in one area of a sub-basic could cause the density of developments "downstream" from that higher development to be very low in order to avoid hydraulic overloading. Such density transfers may work to the advantage of the process of density allocation among and within the sub-basins. In any event, the capacity of the existing Redwood sewage collection system is determined to be approximately 16,000 persons for the UGB is determined in the Land Use and Urbanization Element.

Sludge Disposal - Like the City, resulting sludge is transported to commercial farms. Unlike the City's plant, however, moisture content is relatively low, volume and weight are reduced, thereby reducing truck trips and transportation expenses.

Existing Demand and Capacity - The Table 10.30.6 compares existing sewage demand with existing and future system capacities.

TABLE 10.30.6
Redwood Sewage Treatment Plant and Collection Capacity

Existing Demand 1979 Average	Hydraulic Flow (ADWF) Mgd	Biologic Loading lbs/Day	Treatment Plant Capacity in Persons Served (Total)	Collective System Capacity in Persons Served
	.21 mgd	200 lbs/day	1787 Persons	16,000 Persons
Existing Capacity	.48 mgd	800 lbs/day	4000 Persons	16,000 Persons
Future Capacity	1.92 mgd	3200 lbs/day	16,000 Persons	16,000 Persons

Analysis of the Table reveals the following:

1. Although the existing biologic demand is 25% of capacity, hydraulic demand is 50% of capacity. This indicates relatively low-strength sewage according to the Josephine county Engineering Department.
2. The existing per capita per day sewage volume is 120 gallons. At that rate, the existing plant could service an additional 2,217 persons.
3. Plant expansion can increase population served to 16,000 (excluding industrial and commercial development).

4. Plant biological demand is well below hydraulic demand. For hydraulic proposes plant expansion will be require long before biologic capacity is reached.

Like the City's treatment plant, the Redwood facility can be expanded in modules without excessive investment; however, may enlargement beyond the 16,000 person capacity may require considerable expenditure.

Urban Growth Boundary

Tables 10.30.7 - 10.30.9 show sewage service need, as measured by population served through the planning period, based upon proposed land use allocation within the UGB. The tables will consider the UGB in three geographical units: Grants Pass Sewer Service District, and two sub-areas south of the Rogue River: Harbeck-Fruitdale Sewer Service District, and the Redwood Sewer Service District.

City Treatment Plant - The City's Treatment Plant will serve the entire UGB except for the Redwood Avenue Service District. Existing hydraulic flow is exceeding the Average Dry Weather Flow (ADWF) capacity of 3.9 mgd as previously noted. Approximately 50% of the existing 4.41 mgd hydraulic flow may be attributed to "Infiltration and Storm Inflow" (I&I). If there is no effort to reduce "I&I", then plant expansion is required now. Table 10.30.8 indicates that by the year 1990, the total flow will be 5.7 mgd and by the year 2000 the flow will be 6.8 mgd.

Redwood Sewer Service District - The current hydraulic flow at the Redwood Sewer Plant is .21 mgd, and plant capacity is .48 mgd. It is projected that by the year 1990 (assuming a 25% "I&I" factor), flow will be .51 mgd. By the year 2000, flow will be .76 mgd.

TABLE 10.30.7
Projected Hydraulic Sewage Flow and Infiltration/Inflow
for Sewer Service Districts: UGB

Types of Flow	City/Harbeck Fruitdale Districts		Redwood District	
	1980 - 1990	1990 - 2000	1980 - 1990	1990 - 2000
User Flow Gal/Day	2,761,280	3,413,340	444,500	651,780
Infiltration and Inflow in Gal/Day	3,030,132	3,450,220	66,675	111,125
Total Flow Gal/Day	5,791,412	6,863,560	511,175	762,755

Notes: Assumes wastewater flow will parallel population development. The population growth rate will be higher during 1980-1990 than 1990-2000. The respective distribution of population will be 60%/40%.
Uses existing infiltration inflow of 2,400,000 for developed of City/Harbeck-Fruitdale Districts.
25% infiltration/inflow factor for buildable lands of Harbeck-Fruitdale and Redwood Districts.
II of 900 gal/ac for buildable lands north of river. Source: Josephine County Sewerage Plan, 1972, p. 135.

TABLE 10.30.8
Existing Capacities and Projected Demand:
UGB Sewer Service District

Existing Capacity			Projected Demand at Year 2000				
Sewer Service District	Sewer Plant Capacity in Population Served	Sewer Collection Capacity in Population Served	Residential		Commercial Population Equivalent = 20 Persons Per Acre (1)	Industrial Population Equivalent 16 Persons/ ac RW (2) 11 Persons /ac City (3)	Total Demand in Population Served
			Low Population 38,300	High Population 44,750			
City of Grants Pass	21,000 Persons	21,000 Persons (?)	20,186 Persons	20,186 Persons	380 Acres 7,600 Persons	419 Acres 4,609 Persons	Low Population 32,395 Persons; 17,242 High Population
Harbeck Fruitdale		14,000 Persons	11,727 Persons	12,762 Persons	224 Acres 4,480 Persons	0	16,207 Persons 17,242 Persons
Subtotal	21,000 Persons	35,000 Persons		31,913 Persons	32,948 Persons	604 Acres 12,080 Persons	410 Acres 4,609 Persons
Redwood	4,000 Persons	16,000 Persons	6,387 Persons	11,802 Persons	78 Acres 1,560 Persons	61 Acres 976 Persons	8,923 Persons 14,338 Persons
Total	25,000 Persons	51,000	38,300 Persons	44,750 Persons	682 Acres 13,640 Persons	470 Acres 5,585 Persons	57,525 Persons 63,975 Persons

Collection capacity uncertain at this time: will be determined by specific study due Aug. '82

1 Source for population equivalent is Josephine Co. Comprehensive Areawide Water and Sewerage Plan 12/72 p. 133

2 Ibid p. 133-134

3 Source: Sewage Treatment Study 1969, Brown and Caldwell page 41

TABLE 10.30.9
Projected Hydraulic Sewage Flow: UGB

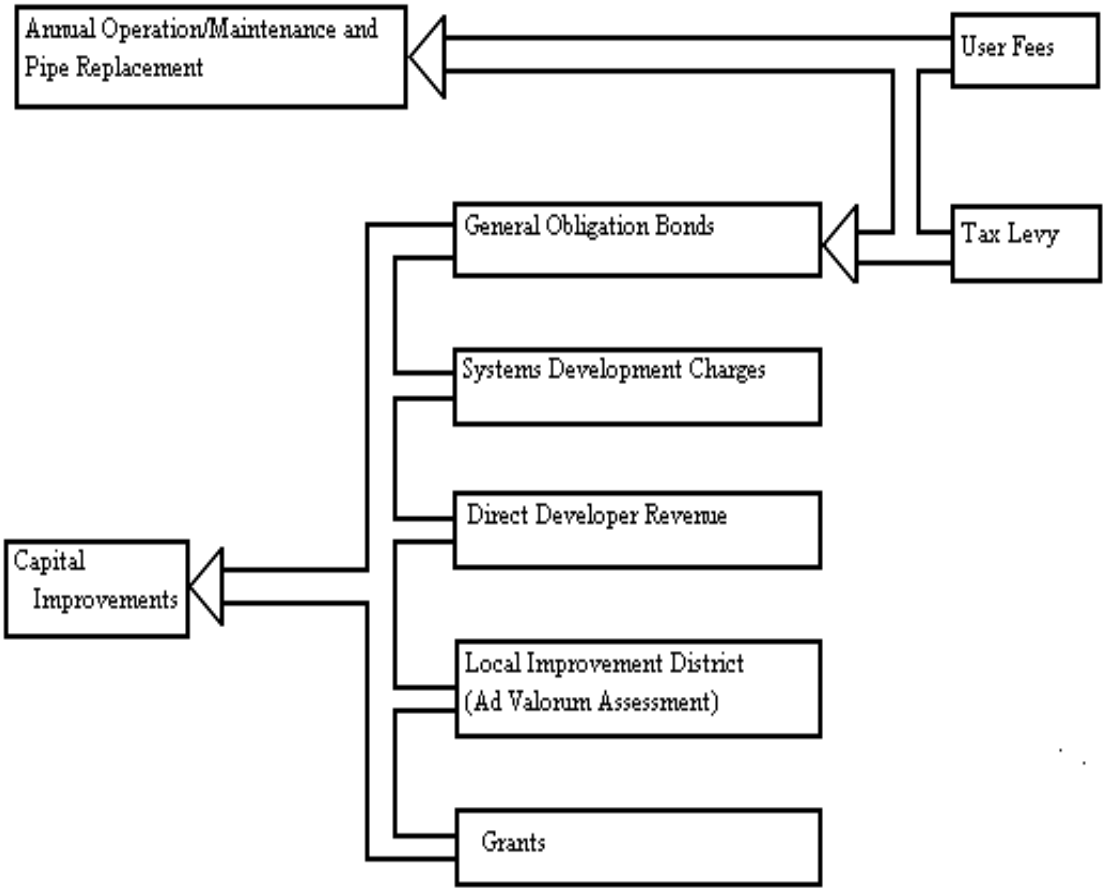
	Residential Pop. 38,300 80 gallons/ person/ day		**Commercial 800 gallons/ acre/ day (1)**		**Industrial 1270 gal/ ac/ day -Redw (2) 900 gal/ ac/ day - City (3)**		**Total Gallons Per Day**
Sewer Service District	1880 - 1990	1990 - 2000	1980 - 1990	1990 - 2000	1980 - 1990	1990 - 2000	1980 - 1990 1990 - 2000
City of Grants Pass	18,270 Persons 1,416,880 Gal.	20,186 Persons 1,614,880 Gal.	307 Acres 245,600 Gal.	380 Acres 304,000 Gal.	390 Acres 351,000 Gal.	419 Acres 377,100 Gal.	2,013,200 Gal. 2,295,980
Harbeck-Fruitdale	7,551 Persons 604,080 Gal.	11,727 Persons 938,160 Gal.	180 Acres 144,000 Gal.	224 Acres 179,200 Gal.	0	0	748,080 Gal. 1,117,360 Gal.
Subtotal	25,821 Persons 2,020,680 Gal.	31,913 Persons 2,553,040 Gal.	487 Acres 389,600 Gal.	604 Acres 483,200 Gal.	390 Acres 351,000 Gal.	419 Acres 377,000 Cal.	2,761,280 Gal. 4,413,340 Gal.
Redwood	4,400 Persons 352,000 Gal.	6,387 Persons 510,960 Gal.	68 Acres 54,400 Gal.	79 Acres 63,200 Gal.	30 Acres 38,100 Gal.	61 Acres 77,470 Gal.	444,500 Gal. 651,630 Gal.
Total	30,221 Persons 2,372,680 Gal.	38,300 Persons 3,064,000 Gal.	555 Acres 444,000 Gal.	683 Acres 546,4000 Gal.	420 Acres 389,100 Gal.	480 Acres 454,570 Gal.	3,205,780 Gal. 4,064,970 Gal.

1,2 Source: Josephine County Comprehensive Areawide Water and Sewerage Plan 12/72 p. 133,134
3 Source: Sewage Treatment Study, 1969, Brown and Caldwell, p. 41

Financing Methods

The following schematic drawing, Table 3.8.10, is derived from the proposed financing strategy for storm drainage improvements. It depicts the basic methods for financing capital improvements by most municipalities. Following the schematic drawing, there is a general description of the different financing methods. The descriptions are excerpted from two publications: Land Use and the Pipe, Tabors, D.C. Health & Co. 1976; and the Sewage Treatment and Disposal Study: City of Grants Pass, Brown and Caldwell, 1969. See Appendix 10.30.1 for full discussion.

TABLE 10.3.8
Financing Strategy



Financing Methods

There are three broad classes of revenue employed to finance sewerage: service charges, connection fees, and property value taxes. Service charges have been described by the International City Management Association (ICA) as "periodical charges to the users of a sewer system, whether owners or renters, based upon the extent of their use of the sewer system, or upon presumptive evidence of such use." In contrast, connection fees are one-time expenditures paid when the user begins service, while property value taxes may be either one-time or periodic in nature and vary with the assessed value of the property. Unlike the first two revenue mechanisms, property taxes may be levied against both users and nonusers. These three categories of revenue base employed. A number of common examples are given below.

General Revenues - Once the most common financing method, the use of general revenues was justified under the "diffused benefit" theory of public finance, and has grown less popular due to strains on local government budgets. The use of general revenues has the disadvantage of not imposing marginal costs upon users, thus decreasing loading.

Ad Valorem Assessments - Special District formation may range in size from a few homes to large regions. As an alternative form, existing local governments may set up special assessments for particular service areas. The resulting property tax within the district may be a one-time tax for capital improvements, or a recurrent tax for improvement amortization and O&M charges. Again, such taxes are not likely to be related to marginal service costs. However, by taxing raw land, excess capacity costs can be recovered, through "value added" via enhanced development potential.

Lot Size and Frontage - There is a close relationship between the physical dimensions of residential lots and the cost of providing lateral sewers, and both user charges and connection fees have been based on lot size and frontage. However, local government has set size and frontage requirements through zoning, and this approach offers no efficiency incentives.

Flat Rates - Flat rate charges offer no incentive for efficient use of collection and treatment facilities. A modified flat vote, charging different use categories according to usage, is somewhat of an improvement.

Water Use Charges - User charges may be imposed as a percentage of the water bill, directly affecting efficient use. Winter water use rates may be used to avoid penalizing residential outdoor use of water, which won't reach the sewer system. Such charges seem particularly appropriate for financing a large part of treatment and O&M costs. Capital costs of collection system extension, however, vary with land use, and this method is not equitable to finance such an extension.

Waste Surcharge - A surcharge, or credit, may be levied or granted where industrial discharge differs markedly from residential discharge. Such charges should be proportional to the differences between industrial and residential waste.

Other Bases - Factors may be used which serve a surrogates for water use, such as size of water meter or sewer connection, number of fixtures, or number of employees. While somewhat reflective of use, these charges, like the flat rate, do not induce consumers towards waste efficiencies.

Special Assessments - Local Improvement Districts are much used for system extensions, but are not considered apropos for funding regional facilities such as major trunk lines or treatment plants.

Sewerage Regulations

According to the Department of Environmental Quality, there are problems with the quality and quantity of the City's sewerage inflow. The DEQ attributes some of these problems to the inadequacy of City sewerage regulations especially for industrial sewerage flow. In addition, the Sewage Treatment and Disposal Study (1969) by Brown and Caldwell indicates that there are

inequities in the present sewerage rate schedule. The study made an analysis of the unit cost of furnishing sewerage service. It was found that the sewerage rate charged to the household waste discharges was reasonably close to the actual cost of the service rendered. However, the analysis revealed that the sewerage rates charged medium to large industrial and commercial waste dischargers were less than the actual cost of the service rendered. Therefore, those waste dischargers are being subsidizing by the general taxpayer.

One of the methods for ensuring an equitable rate structure is to change the general accounting system to a corporate accounting system for utilities. With this method, actual cost of treatment per unit of sewage can be itemized and assessed to the individual dischargers based on their relative share of that cost. In order for this method to be implemented, dischargers must be identified by the quality and quantity of sewage they discharge into the sewer system. A sewage ordinance proposed by the Brown and Caldwell study may serve as a basis for a more equitable sewage rate and charge schedule (see Appendix 10.3.2).

Urban SERVICES Policies and Management Agreement

Urban SERVICES Policies - When adopting the Grants Pass Urban Growth Boundary, the City and County also adopted Urban Service Policies as an integral part of the boundary. These policies were to guide the City and County in their Comprehensive Plan development, and were stated as follows:

Policy 31 - Urban levels of development shall require a public sanitary sewage system.

Policy 32 - The City and County Comprehensive Plan shall contain a detailed, coordinated and site specific plan precisely establishing responsibility for the provision of sewage service to the Urban Growth Boundary area over time. This plan should be based upon careful analysis of potential demand, and the costs and benefits of various methods of providing service delivery, including eventual merging of the Grants Pass and Redwood Sewer Districts under one management.

Management Agreement

After lengthy negotiation, the City and County adopted a Management Agreement in January 1981, that set interim development standards for the urbanizing area and called for basic service plans that would establish the extent, design, location, and cost of providing water, sewer, streets, storm drainage and parks to the boundary area at the required urban levels. The Management Agreement also recognized the Brown and Caldwell Plan of April, 1969, and the Stevens-Thompson-Runyan Plan of December, 1972 (County), and required adoption of a Sanitary Sewer Implementation Plan within 24 months of adoption of the Management Agreement. See Joint Urban Area SERVICES Management Agreement, Section III-2.

S**ewer Plan**

The City has since initiated an infiltration and inflow study together with a sewer treatment plant capacity analysis. This Sewer Study is due to be completed in August 1982, and will include financing recommendations. Once the infiltration and inflow results are shown, decision can be

made regarding the degree and timing of treatment plant expansion. The Redwood Sewer District has an expansion plan, and the consideration of these two plans should lead to a joint implementation agreement, should any be required beyond the Capital Improvement Program.

10.30.7 SANITARY SEWER SERVICES FINDINGS

Existing Sewer Capacity

1. There are three sewer service districts within the Grant Pass Urban Growth Boundary.

   The Grants Pass Sewer Service District has an existing sewer treatment plan capacity that can accommodate 21,000 persons. The sewer collection system has a capacity that can accommodate 21,000 persons. (The collection capacity is an assumption. There is a sewer collection system study currently underway that will specifically describe the capacity. The study is due in August, 1982.) Due to the age and type of construction material of the collection system, there is a large volume of sewer flow contributed by infiltration and inflow that causes hydraulic loading problems at the sewer plant. Raw sewage is frequently discharged into the Rogue River. Due to infiltration and inflow, the treatment plant has reached its hydraulic capacity and is in violation of its DEQ effluent discharge permit. The treatment plant discharge standard for suspended solids has also been violated in the past. It is indicated by DEQ that the violations may be due to industrial waste problems in the influent. Biologic loading at the plant is 75% of capacity. The remaining biologic capacity can serve an additional 6,600 persons. With a reduction of infiltration and inflow this remaining biologic capacity can be utilized to accommodate additional persons. Without a reduction in infiltration and inflow, the plant must be expanded now to meet the hydraulic discharge standards.

   The Harbeck-Fruitdale Sewer Service District uses the Grants Pass treatment plant for the processing of its waste. The sewer collection system has a capacity that can accommodate 14,000 persons. There are currently 3,948 persons being served by the collection system. Infiltration and inflow are not considered serious problems in this collection system.

   The Redwood Sewer Service District has an existing sewer plant capacity that can accommodate 4,000 persons. The treatment plant currently serves 1,787 persons and therefore can accommodate an additional 2,217 persons. The sewer collection system has a capacity that can accommodate 16,000 persons.

   This collection system is divided into several sub-basins that are described by allowable densities. Most sub-basins can accommodate either low (5.5 dv/Ac) or moderate (5.5-10.5 dv/Ac) densities.

Future Need

2. The population element projects a population range of between 38,300 to 44,750 persons that will reside within the Grants Pass Urban Growth Boundary by the year 2000.

3. By the year 2000, approximately 32,000 persons would reside within the sewer collection systems that serve the Grants Pass sewage treatment plant. In addition, there will be 419 acres of industrial land and 604 acres of commercial land. The per acre population equivalents of those lands are 11 persons per acre for industrial land and 20 persons per acre

for commercial land. The total population equivalents are 12,080 persons and 4,609 persons respectively. The total Grants Pass/Harbeck-Fruitdale sewer capacity needed in year 2000 must be able to accommodate approximately 48,700 person equivalents. Hydraulic capacity of the Grants Pass sewer treatment plant should be approximately 6.8 mgd.

4. By the year 2000, the high residential population for the Redwood sewer collection system may be approximately 11,000 persons. In addition, there will be 78 acres of commercial land and 61 acres of industrial land developed. The per acre population equivalents of those lands are 20 persons per acre for commercial land and 16 persons per acre for industrial land. The total population equivalents are 1,560 persons and 976 persons respectively. The total Redwood sewer capacity needed in the year 2000 must be able to accommodate approximately 13,500 person equivalents. The hydraulic capacity of the Redwood sewer treatment plant should be .76 mgd.

5. The City is currently working with a facilities financing strategy that embodies most of the accepted methods for financing capital improvements.

6. The current Grants Pass sewage regulations and rate structure seem inequitable according to recent studies. Medium to large industrial and commercial waste discharger generate greater volumes of waste with higher levels of suspended solids and BOD while the rate charged to process that waste does not cover the per unit cost of treating the waste at the municipal treatment plant.

7. The Urban SERVICES Policies, adopted concurrent with the Urban Growth Boundary, requires a public sanitary sewer system for urban levels of development, and requires the City and County to establish precise responsibility for the provision of sanitary sewer service to the boundary area. The Joint Urban Area SERVICES Management Agreement requires joint adoption of a sanitary sewer implementation plan by the City and County.

10.40 STORM DRAINAGE SERVICES INDEX

10.40.1 PURPOSE

10.40.2 EXISTING STORM DRAINAGE FACILITIES AND SYSTEMS

. Existing Storm Drainage Problems

10.40.3 AREAS OF CONCERN

. Flooding and Storm Drainage
. Natural Waterways and Storm Water Flow

10.40.4 FUTURE NEEDS ANALYSIS

. Reducing Storm Water Runoff
. Improving Capacity of Existing Facilities
. Facilities Plan and Costs

10.40.5 FINANCING METHODS

. Capital Improvement Costs
    Federal Grants
    Municipal General Obligation Bond
    Revenue Bonds
    Improvements Bonds
    Sinking Fund
. Operation and Maintenance Costs

10.40.6 FINDINGS

10.40 STORM DRAINAGE FACILITIES

PURPOSE

The purpose of this section is to assess existing storm drainage facilities, identify areas of concern, project facilities or improvements that will be needed during the planning period, examine financial methods of paying for the facilities, and propose policies for the orderly provision of facilities.

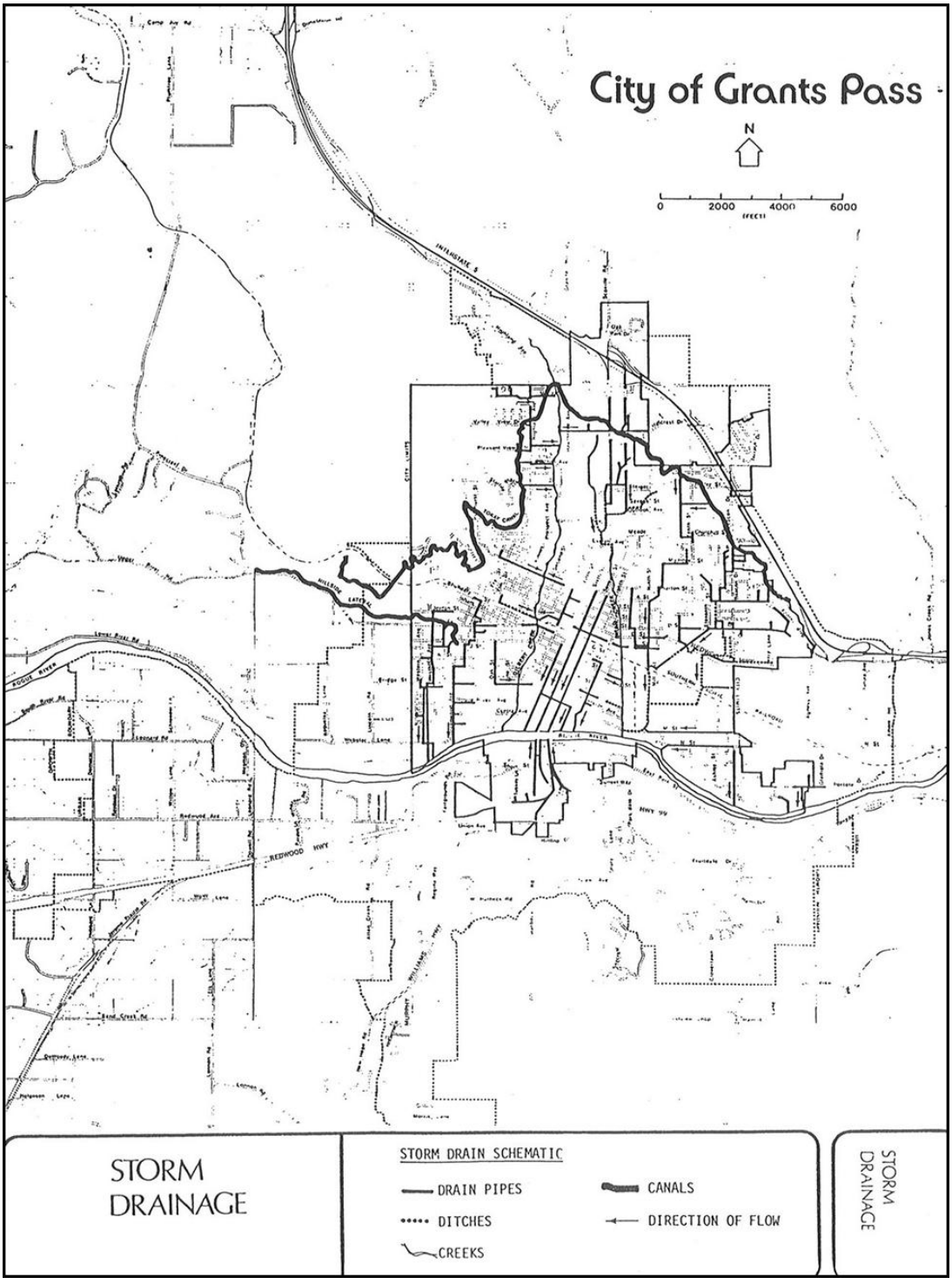
EXISTING STORM DRAINAGE FACILITIES

The City and urbanizing area are lacking adequate urban storm drainage facilities. The City is not fully served by storm drains. In some cases, the existing drainage facilities have inadequate capacity to carry the high volumes of storm runoff during peak storm conditions. (Engineering Report, 1963, CH2M/Hill Engineering Consultants)

The UGB area contains approximately 13 square miles (5+ in the City) and is part of a larger drainage basin comprising about 31 square miles. Much of this area is flat with poor surface drainage (Redwood Area), subject to flooding (west of City area), or in steep slopes draining into season creeks. Future development within the UGB area, increasing population from approximately 22,000 persons to 38,300 persons to 44,750 persons, requires serious consideration of a comprehensive drainage system.

The principal sub-basins of the larger basin are: Gilbert Creek, Skunk Creek, Fruitdale Creek, Allen Creek and Sand Creek. All of these creeks flow through the UGB and drain into the Rogue River. See Map 10.40.1. A detailed description of these sub-basin can be found in the preliminary "Master Storm Drainage Facilities and Management Plan," HGE Engineers and Planners. That plan further describes the function of each sub-basin in the storm water run-off and the conditions of the drainage facilities within each sub-basin. The following material summarizes the existing storm drainage problems within the study area, as identified by the Storm Drain Plan.

MAP 10.40.1
Sub Basins of UGB Area
(Derive from Storm Drain Plan Map)



Existing Storm Drainage Problems

1. Vegetative overgrowth along stream beds and side slopes.

   Skunk Creek: lower 2000 feet (heavy buildup)

   Mill Street drainage way: 3000 feet (heavy buildup)

   Gilbert Creek: lower 1500 feet (light buildup on side slopes)

   Fruitdale Creek: lower 2500 feet (heavy buildup on side slopes)

   Allen Creek: Redwood Highway south 2500 feet (debris and vegetative buildup on the side slopes)

   Sand Creek: lower 1000 feet (light buildup on side slope)

2. Box culverts with silt buildup causing inverted slopes.

   - Gilbert Creek Sub-basin:

   Gilbert Creek:
   "K" Street culvert crossing: 12' x 6.5' conc. arch
   "H" Street culvert crossing: 12' x 7.0' conc. arch
   "D" Street culvert crossing: 12' x 6.0' conc. arch
   "A" Street culvert crossing: 12' x 12' conc. arch
   Savage Street culvert crossing: 9'x 7' conc. arch

   - Skunk Creek Sub-basin:

   Skunk Creek:
   "J" Street culvert crossing: 9.0' x 6.5' cmp arch
   between "L" and "J" streets: 9.0' x 6.5' cmp arch
   "D" Street culvert crossing: 7.0' x 5.0' cmp arch
   "I" Street culvert crossing: 9.0' x 12.0" cmp arch

   Mill Street Drainage Way:
   "J" Street culvert crossing: 8.0' x 5.5' cmp arch

   - Allen Creek Sub-basin:

   Allen Creek
   Williams Hwy north of Arroyo Dr.:14' x 7' conc. Box

- Sand Creek Sub-basin:

Sand Creek:
Leonard Rd west of Schroeder Ln: 12' x 3' conc. box

3. Undersized or structurally unsound culverts and pipe.

   Gilbert Creek Sub-basin:

   Major culverts Numbers: 3, 4, 5, 6, 7, 8, 11, 12, 13, 19

   Skunk Creek Sub-basin:

   Major culverts Numbers: 9, 10, 11, 12, 13, 14, 16, 20, 21, 22

   Pipeline along Sixth Street south of Evelyn Avenue.

4. Silted Roadside Drainage Ditches.

   Sand Creek Sub-basin:

   a. Redwood Avenue ditches have areas of ponding water due to inverted roadside culverts and silt buildup.

5. Irrigation canal system.

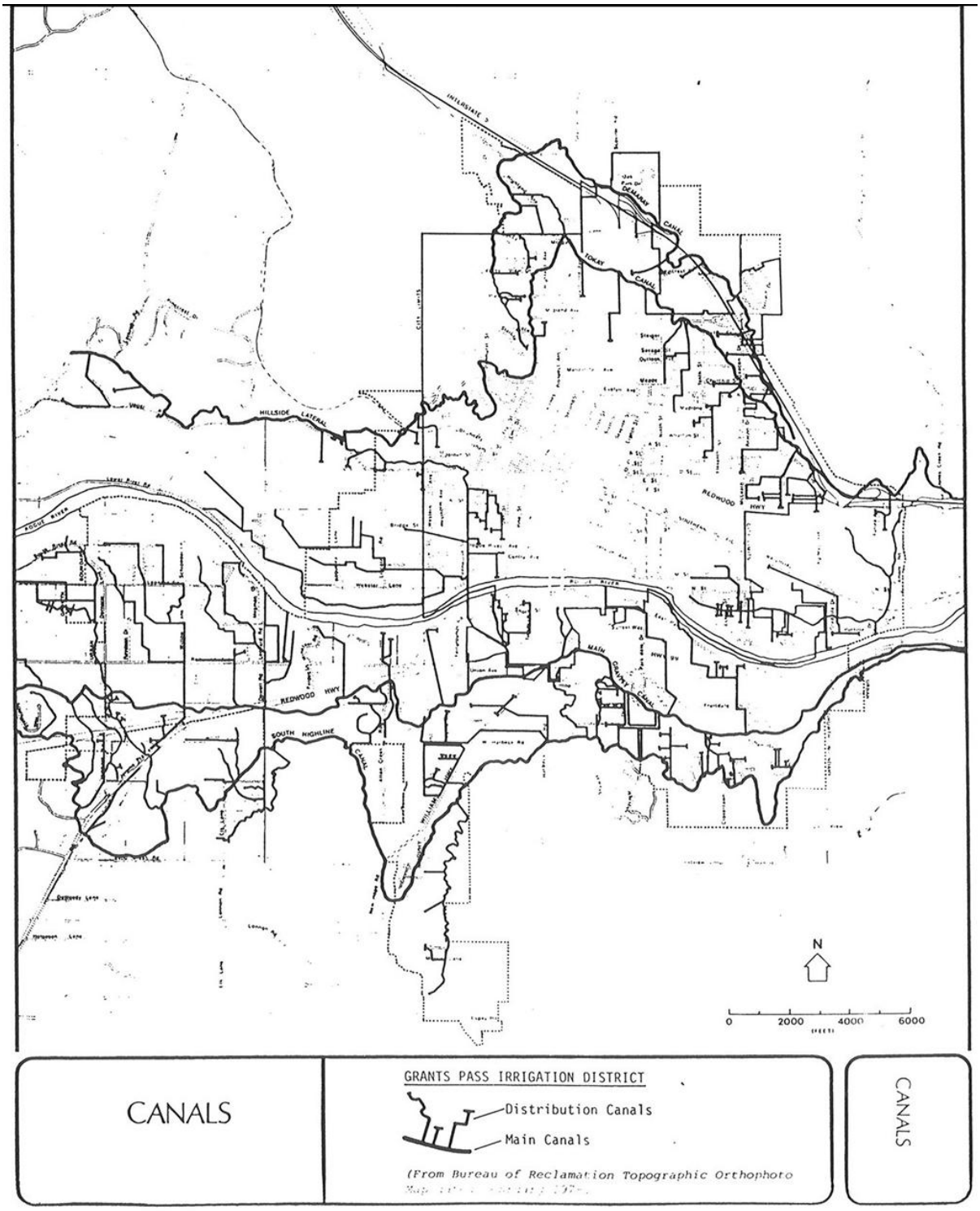
   a. A few isolated diversion structures are leaking and have debris buildup.

   b. The canal system has many areas with vegetative buildup.

   c. Soil erosion problems exist in several unlined areas of the canal.

Irrigation canals are also prominent component of the overall system. Water that is diverted from the Rogue River at Savage Rapids Dam is carried into the study area via a series of canals. The major canals that are within the UGB are: the Tokay and Demaray Canals located north of the Rogue River which divert natural storm water flows to Gilbert and Skunk Creeks; and the main gravity and high-line canals located south of the Rouge River which divert the natural storm water flows into Fruitdale, Allen and Sand Creeks. (See Map 10.40.2) The canal system is constantly plagued with erosion problems, leaking diversion structures and vegetative and debris buildup. As the canals are an integral part of the existing and proposed storm drainage system, it is appropriate that the City, County and Irrigation District work together to improve the canal system within the UGB.

MAP 10.40.2
GPID Canal Map - UGB Area



Areas of Concern

Flooding and Storm Drainage

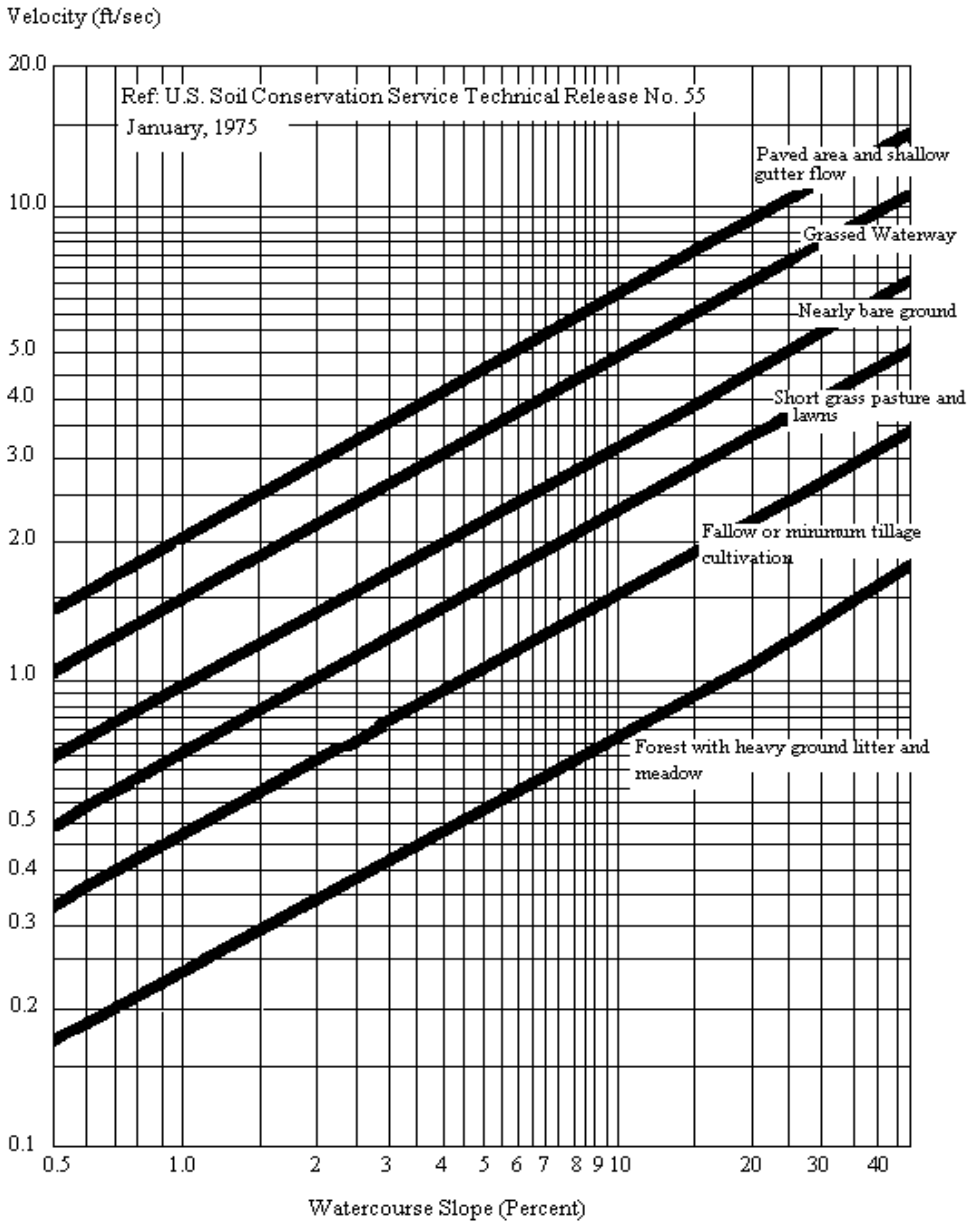
Flooding is an ever present possibility in the Rogue River Basin. There have been thirteen major floods over the past 100 years, with the last flood occurring in 1974. The record discharge flow at the Grants Pass gauging station is 152,000 cubic feet per second (cfs), occurring in December, 1964. The 1964 flood was reported to have a recurrence frequency of 50 years prior to the construction of Lost Creek Dam. (Postflood Report, January 1974. Portland District, U.S. Army Corps of Engineers.) Grants Pass has experienced flood damage as the result of inadequate drainage facilities. In October, 1950, 2.8 inches of rain fell in three hours and 5.3 inches fell in 24 hours. Nearly 11 inches fell during a four day period. A number of streets, homes, and buildings, including the Grants Pass High School suffered flood damage. In 1955, an unusually rapid run-off caused the Rogue River and Gilbert Creek to overflow their banks, flooding the City park, the sewage disposal plant, "A" Street, and homes along Greenwood Drive. Flood damage was estimated at $250,000. In February, 1956, 4.3 inches of rain fell during a 24 hour period, causing the culvert at Sixth and Evelyn Streets to fail. The Central Business District flooded as did portions of "I," "J" and "K" streets along Gilbert Creek. (A Survey of Drainage in the Grants Pass Area, 1959, Bureau of Municipal Research & SERVICES.) Following the 1950 flood, various drainage improvements were proposed by the City Council. The citizens approved a 10 year levy to finance the construction of the improvements. After subsequent floods, additional improvements were needed; the City received a federal grant to finance construction of some of these improvements. Some of the improvements to the system were also funded by Josephine County during 1972-1974. As development of the City continued, improvements to the system have occurred; however, the basic drainage problem still remains. The City and County have recently entered into contract with HGE, Inc., Engineers and Planners (August 21,1980), to have prepared a "Master Storm Drainage Facilities and Management Plan for the Grants Pass Urban Growth Area." As adopted in May, 1982, the plan will: provide the basis for sizing facilities to match expected runoff over the 20 year planning period, lay out a drainage system to meet projected growth, estimate cost of the system and propose methods for financing the facilities.

Natural Waterways and Storm Water Flow

Much of the UGB is developed to urban levels, and is consequently covered to a great extent with impervious surfaces such as streets, parking lots and buildings. Storm water runs over impervious surfaces very rapidly and can increase storm water flooding as a result. One water to help reduce levels of storm water flooding is to provide natural water retention areas such as ponds, grassed waterways, vegetative open spaces such as lawns, gardens and pasture, and forested wares with ground litter and meadow. Table 10.40.3 shows the rate of storm water overland flow on various ground surfaces and slopes. The vacant buildable lands within present City limits are found mostly along the foothills where storm water flow can be reduced by maintaining the forest cover or grass covered meadows. The vacant buildable land west of the City and north of the Rogue River is generally located on more level terrain that has some flood hazard. Storm water run off can be reduced in these areas by maintaining landscaped and turfed open spaces. The pattern of development in that area should encourage cluster housing developments that create large open spaces. Where natural ground depressions exist, it may be judicious to develop these as natural water retention areas for storm water flows, as has been done by the Rogue Lea Estates

development. In the urbanizing area south of the Rogue River, especially in the Redwood subarea, there are many acres of grassed waterways as well as pastures and lawns. Developments that preserve these natural waterways and create well planted open spaces will enhance storm water infiltration into the water table, and reduce overland storm water.

TABLE 10.40.3
Storm Water Flow on Various Surfaces



Future Need

"The Master Storm Drainage Facilities and Management Plan for the Grants Pass Urban Growth Boundary Area," adopted in May, 1982, will serve to guide the development of storm drainage facilities within the UGB from 1980 to the year 2000. The Plan addresses the methods of receding storm water run off and of improving the capacity of the existing storm water facilities.

Reducing Storm Water Run-off
The Storm Drain Plan recommends the following controls:

1. Retain trees, grass, vegetation and pervious cover wherever possible.

2. Design improvements to maximize infiltration/ recharge and minimize run-off.

3. Avoid development on slopes to minimize run-off velocities.

4. Schedule construction and development activities to minimized the duration of bare soil exposure, and control such activities in erosion-prone areas during the winter.

5. Control development in flood plains.

6. Select land that has optimum soils, topography and natural drainage for future development.

7. Select erosion prone areas for such uses as parks, open spaces and natural recreation.

8. Use temporary vegetation or mulch to protect areas under development.

9. Provide adequate drainage to storm drains, surface storage, canals or diversion structures.

10. Require that roof drainage and other on-site run-off be discharged to pervious areas or seepage pits.

11. Require on-site water detention facilities to offset potential higher run off rates.

12. Planning and design efforts should attempt to retain natural flow conditions.

13. Drainage facilities should not substantially increase or divert surface water run off without careful consideration of downstream impacts.

14. Public officials should exercise reasonable care in administering drainage improvements.

15. Planning and design of drainage improvements should be based on reasonable estimates of future urban development.

Improving Capacity of Existing Facilities

The Storm Drain Plan makes the following recommendations for improving the capacity of existing storm drain facilities:

1. A comprehensive maintenance program should be established to remove excessive vegetative over-growth in all major drainage ways.

2. All culvert crossings reported with silt buildup should be cleaned and all culverts should be annually maintained.

3. All roadside ditches should be inspected and cleaned annually if necessary.

4. The canal system should be cleaned and the deteriorating or undersized structures systematically reconstructed to eliminate distribution problems and labor intensive operation expenses relating to debris buildup.

5. A four-man staff should be used to perform annual operation and maintenance tasks associated with implementing the above program.

Facilities Plan and Cost

The 1982 Storm Drain Plan developed a computer model of the entire 22,000 acres within the drainage basin, using the Storm Water Management Model program (SWMM) developed by the Environmental Protection Agency in 1972. The model has the capability to predict the quantity and quality of runoff from a watershed, route to the runoff through a conveyance system and into storage or treatment facilities, and simulate the response of receiving waters subject to storm water loadings. In the Plan, the SWMM computer model quantity analysis was used to determine the specific areas that are surcharged under present condition and upon complete development. The Rational Method was then used to size specific improvements for each deficiency.

An important factor used in designing the master storm drain system was the concept of retention. If every impervious area receiving storm water is so designed to retain a certain portion of that water during a heavy storm, the peak flow conditions used to desiring a storm drain system can be significantly reduced, reducing costs of both the developer and the City.

The Master Storm Drain Plan assumed a 25 year frequency storm to determine surcharged areas, and established three priority classes based upon the 25 year storm surcharging, as follows:

Priority A

- Projects needed where surcharging exists or will exist by the year 1990 when analyzed using a 25 year storm condition.

- Projects that are presently in the planning phase in conjunction with proposed development.

- Projects that are major trunk lines to serve areas where development pressure is expected prior to 1990.

Priority B

- Projects needed where surcharging will exist prior to the year 2000.

- Projects serving areas where development pressures are anticipated between 1990-2000.

Priority C

- Projects directed at replacing natural drainage-ways or open ditches where no surcharging is anticipated when analyzed using a 25 year storm upon complete buildout.

- Projects serving development beyond the year 2000.

Using a target population of between 39,000 and 40,400 persons, some 46.2 miles of drainline improvements were required to meet the additional runoff demand, in addition to the needs of the existing system. Costs for the system, using an "Engineering News Record Construction Index" of 3510 (current construction costs), and including contingencies for the engineering, administration and inspection of construction, but not including financing charges, come to a total of $17.8 million. The top priority projects require over 19% of the total, or $3.5 million for 6.5 miles of line. (See Table 10.40.4) An additional annual operation, maintenance and culvert improvements cost of $265,000 per year, was also projected.

The Storm Drain Plan suggested utilizing a combination user fee/tax levy for the top priority items (1982-1988), which benefit mostly existing residents, and a sinking fund covered by system development charges for the second priority items (1988-1995), benefiting mostly new development. Assuming the uniform growth of each land use type (residential, commercial and industrial) and assuming 10% yearly capital cost inflation and assessed value increases, and assuming operation and maintenance costs to increase 8% per year, a user fee of $1.50 single family residential drainage equivalent per month would finance the first six years of improvements, including all top priority projects. Cost per land use type would be as follows:

Single Family Residence	$ 1.50 du/month
Commercial	$24.10 Ac/month
Industrial	$13.05 Ac/month

TABLE 10.40.4
UGB Drainage System Improvements Extent and Lost

Improvement Line Size	Linear Feet of Line Required			Totals
	Priority A	Priority B	Priority C	
54"	950	---	---	
48"	3,240	2,050	1,300	
42"	1,200	8,600	1,200	
36"	8,450	14,800	3,150	
30"	4,300	4,200	5,200	
27"	700	8,860	4,800	
24"	2,700	14,700	20,240	
21"	2,500	7,900	11,800	
18"	5,020	10,050	27,200	
15"	1,710	6,280	15,850	
12"	3,500	6,660	35,070	
Subtotal	6.5 miles	15.9 miles	23.8 miles	46.2 miles
Installation Cost	$3,457,200	$6,740,300	$7,623,700	$17,821,200
Recommended Implementation	1982 - 1988	1988 - 1995	Beyond 1995	1981 - 1995 and Beyond

For purposes of developing a user fee, HGE assumed that one single family residence equaled 2,500 square feet of impervious area per dwelling unit. Further, HGE assumed that 100% of commercial land was covered with imperious surface, and 50% of industrial land was covered for any given development. The SRE value for any development type may then be determined as per Table 10.40.5. A determination of SRE's for each land use type (residential, commercial and industrial) follows in Table 10.40.6. These values then may be used to compute monthly billing charges in any given area for operation and maintenance bond service.

TABLE 10.40.5
Single Family Equivalent (SRE) Values

Residential (1 SRE/dwelling unit)	1 SRE/2500 SF Impervious surface
Commercial	1 SRE/2500 SF of lot
Industrial	1 SRE/5000 SF of lot

TABLE 10.40.6
UGB Estimated SRE Units By Land Use Type

Land Use Type	Development Existing	Total SRE	Percentage
Residential	9,283 D.U.	9,283	47%
Commercial	429 acres	7,465	38%
Industrial	324 acres	2,819	15%
		19,567	100%

Financing Methods

Financing a storm water system improvement program for the UGB area requires the City and County to implement a long range financial plan. The initial phase of that plan requires that the citizenry be informed as to the needs and related financial costs associated with such a program. There are two major costs of a storm water system improvement program: a) costs for capital improvements, and b) costs for operation and maintenance of the system.

The funding of capital improvements may be accomplished by the acquisition of federal grants, the sale of general obligation bonds, special assessments, and by capital improvement (sinking) funds created by systems development charges.

Capital Improvement Costs

Federal Grants - Currently only one source of federal grants funding is applicable to the storm water system improvement needs of the Grants Pass Urban Growth Boundary: that source is the Economic Development Administration. Grants and loans are authorized under the Economic Development Act of 1965 to assist communities that are identified as being economically depressed by the Commerce Department. The program is directed toward community projects that will stimulate permanent economic development. The projects should assist increasing the opportunity for new industry and/or development, or in maintaining present levels of employment within the

community. Eligibility for the program is heavily weighted in favor of economic development.

Municipal General Obligation Bond - A general obligation bond (GOB) is backed by the full credit of the issuer (City). That credit is determined by the true cash value of the real property within the City and secured by the power to tax that real property in order to finance the bond. The credit supporting the bond is usually many times greater in value than the bond. That fact consequently implies great security and justifies a lower interest rate commensurate with the level of risk. In addition, interest earned by the bond holder is tax exempt from the IRS. However, even with these inducements, GOB's can be difficult to sell.

The bond market can be influenced by such economic factors as inflation, high interest rates and a tight money supply. When these factors work in conjunction, then the real interest rates of non-municipal bonds can then become relatively high. This high interest paid for non-municipal bonds can then compete very strongly with the tax deductive interest paid by the GOB. This means that municipal governments must then offer a higher tax deductible interest on GOB. The higher interest increases the total municipal indebtedness, and therefore increases the tax rate necessary to amortize that indebtedness. Not only does GOBs become difficult to sell to bond buyers during such times, but the GOB becomes difficult for the taxpayer to accept as well.

Revenue Bonds - A revenue bond is payable from user fees. (See discussion above) In rating revenue bonds for the bond market, bond buyer consider the economic justification for the project, the reputation of the bond issuer, the methods for billing and collection, rate structures, and the degree to which forecasts of net revenues are realistic.

Improvement Bonds - Improvement bonds, also known as Bancroft bonds, can be issued under an Oregon law called the Bancroft Act. Cities and special districts are limited to improvement bonds not exceeding three percent of the true cash value of the real property of the improvement district. All property within the improvement district is assessed on an equal basis for the specific improvement. That assessment becomes a direct lien against the property. The owner can either pay the assessment or apply for the improvement bond. The City or district then sells Bancroft bonds to finance the construction while the assessment is paid over 20 years in 40 semi-annual installments with interest. The construction of storm drainage facilities through the formation of improvement districts is viable when the properties bordering or served by the improvements are specifically benefitted.

Sinking Fund - Sinking funds are established by the municipal budget for a specific construction purpose. Revenues of the fund can either be allocated from the annual budget or derived from system development charges or serial levies.

Operation and Maintenance Costs

The funds required for operating and maintaining effective storm drainage facilities can best be obtained through establishing a user fee, based on the relative amount of impervious area. This method of apportionment is a fair and equitable way of assessing costs since it is mainly the impervious area that contributes the largest significant amount of storm water run off.

A special district could be established that could encompass the entire area within the Urban Growth Boundary area, and user fees could be collected from all property owners within this area.

10.40.6 STORM DRAINAGE SERVICES FINDINGS

1. The City and urbanizing area are lacking in adequate urban storm drainage facilities. The City is not fully served by storm drains and the existing drainage facilities are often inadequate to carry storm water run off.

2. The Master Storm Drainage Facilities and Management Plan for the Grants Pass Urban Growth Boundary area, adopted by the City in May 1982, describes the existing drainage facilities and problems. That plan also proposes improvement to the drainage system and examines the financing alternatives for those improvements.

3. Some 46.2 miles of storm drain line will be required within the UGB to serve present and future needs for the existing and target population. Total capital costs for these improvements is $17.8 million and an additional $265,000 per year is recommended for operation, maintenance and current repair.

4. The top priority projects (1982-1988), benefiting mostly the existing residents of the UGB, could be financed with a combination of a user fee and tax levy. The tax levy would vary between $0.59 and $0.62 per $1000.00 of assessed valuation and the user fee would stay at $1.50 per SRE as follows:

Single Family Residence	$ 1.50 du/month
Commercial	$24.10 Ac/month
Industrial	$13.05 Ac/month

5. A variety of financing mechanisms are available to finance capital and operating costs, and included user fees, system development charges, federal grants, municipal general obligation bonds, revenue bonds, and improvement bonds.

6. The Grants Pass Irrigation Canals are identified as an important part of the overall storm drainage system for the UGB. The existing canals are in need of repair and maintenance.

7. Flooding is a major problem for the existing storm drainage system for the UGB. The existing canals are in need of repair and maintenance.

8. Natural waterways can help reduce the rate of storm water run off. Surfaces which allow the water to infiltrate into the soil such as grass covered or forest covered open spaces also help recede the area of storm water run off. Retention is an important tool for use in reducing run off. Buildings, streets and parking lots have imperious surfaces and greatly increase the rate of storm water run off.

9. The undeveloped land area of the UGB has areas that are suitable for storm water retention such as grassed waterways, pastures, forested areas and natural land depressions. These areas also serve as recharge areas for the water aquifer of the UGB.

10. Developed areas can be designed to retain some portion of storm water, thus reducing the

peak design flow of the drainage system resulting in cost savings for both the developer and the City.

10.50 SOLID WASTE SERVICES INDEX

10.50.1 PURPOSE

10.50.2 EXISTING CONDITIONS
. Present Waste Volume
. Disposal Service and Capacity

10.50.3 AREAS OF CONCERN
. Soil Properties
. Subsurface Water
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10.50.4 PROJECTED LANDFILL NEED

10.50.5 ALTERNATIVES TO LANDFILL DISPOSAL OF SOLID WASTE
. Transfer Sites
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10.50.6 FINANCING METHODS
. Ongoing Financing
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10.50.7 MANAGEMENT AGREEMENT

10.50.8 FINDINGS

10.50 SOLID WASTE SERVICES

PURPOSE

The purpose of this section is to assess existing volumes of solid waste production and disposal capacity, identify areas of concern, project capacities needed through the planning period, examine alternatives to conventional solid waste disposal, evaluate financial methods of paying for the service, and present policies for the provision of solid waste disposal service.

EXISTING CONDITIONS

Present Waste Volume - Solid waste, by definition, is any waste in solid or semi-solid form. It is defined by Oregon Administrative Rules, (OAR) as "putrescible and non-putrescible wastes, including but not limited to garbage, rubbish, refuse, ashes, waste paper and cardboard; sewage sludge, septic tank and cesspool pumping or other sludge; commercial, industrial, demolition and construction wastes; discarded or abandoned vehicles or parts thereof; discarded home and industrial appliances; manure, vegetable or animal solid and semi-solid wastes, dead animals and other wastes."

The state of solid waste as it is originally discarded is termed "loose density" waste. Loose density waste has an average density of 200 pounds per cubic yard (200 lbs/cy). Table 10.50.1 depicts the loose density waste volumes from 1974 to 1980 for the Grants Pass Service District.

TABLE 10.50.1
Loose Density Waste Volumes: Merlin Refuse Site

Year	Waste Volume in Cubic Yards *
1974	189,680
1975	188,400
1976	187,933
1977	220,022
1978	248,104
1979	254,801
1980	232,150

According to the Solid Waste Management Plan for Josephine County, approximately 45% of the solid waste volumes of the Merlin Refuse Site are generated by the Grants Pass Urban Growth Boundary Area. (Solid Waste Management Plan. Stevens, Thompson and Runyan, Inc. 1975, page 111-45, Figure III-9 Merlin Site.) That means that the proportionate volume of solid waste for the UGB was approximately 105,000 cubic yards in 1980. In 1980, the estimate of population for the UGB was 22,000 persons. Therefore, the solid waste per capita figure was 4.77 cubic yards per person per year in 1980. A loose density of 200 lbs/cy, which equates to 954 pounds of solid waste per capita per year in 1980. That figure includes per capita waste for commercial and industrial waste generators.

Disposal Service and Capacity - Currently, solid waste generated by the Grants Pass Urban Growth Boundary area is disposed of at the Grants Pass Sanitary Landfill Site, which is located at Merlin, four mile north of the City of Grants Pass. Since 1967, the City has leased approximately 100 acres from the Bureau of Land Management to be utilized for a sanitary landfill under a franchise arrangement with the Grants Pass Sanitation Service. Grants Pass Sanitation Service is in partnership with Pat's Sanitary Service for operation of the site.

Collection of solid wastes in the UGB is accomplished primarily by commercial collection SERVICES utilizing 20 cubic yard compactor trucks, and drop boxes of various sizes. Two privately owned and operated companies provide collection service within the UGB.

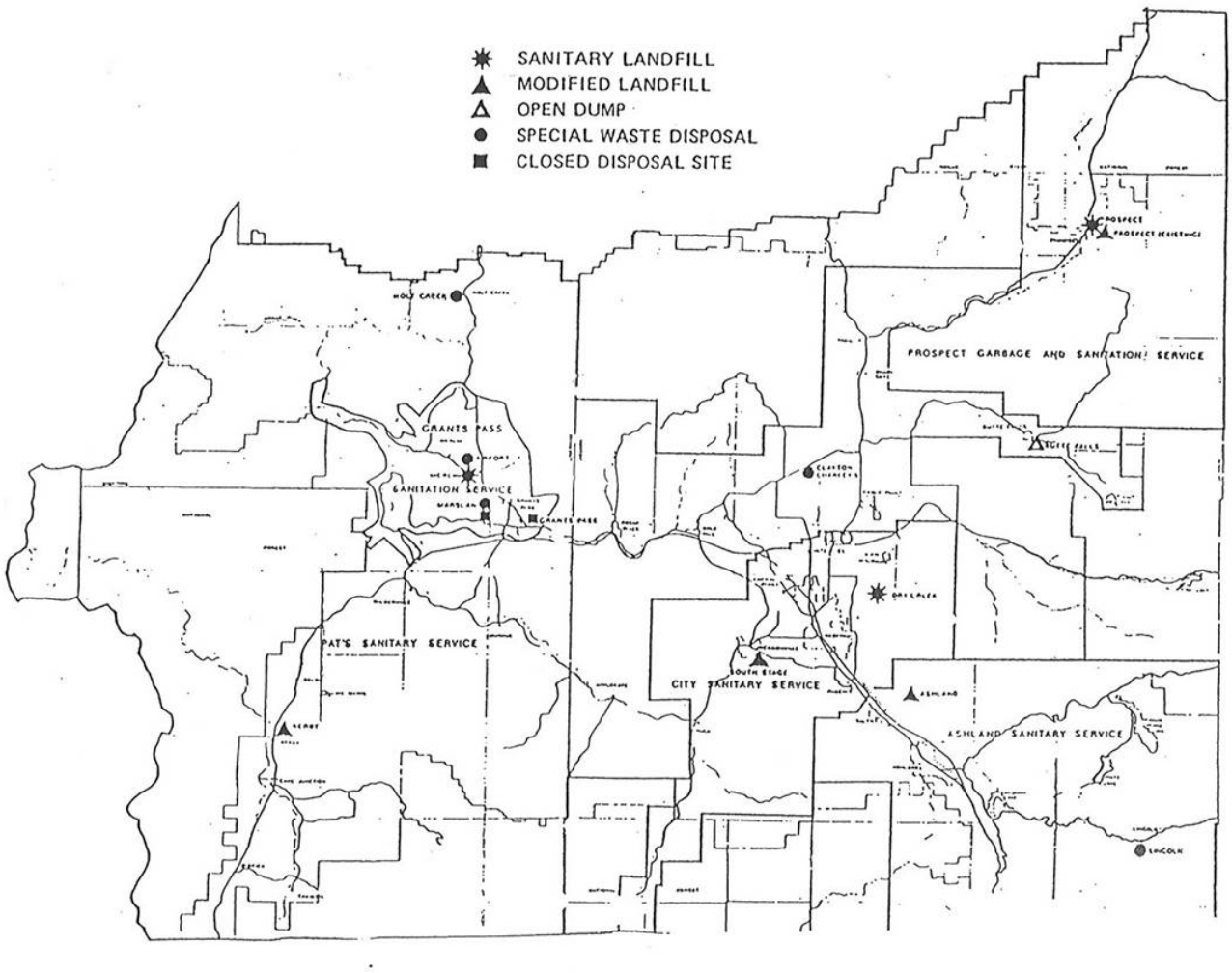
Grants Pass Sanitation Service - The City of Grants Pass has a franchise agreement with the company to perform solid waste collection service within the City limits. Collection of waste is voluntary with an estimated _____ accounts in 1982. (Henry Turk, owner/operator of Grants Pass Sanitation Service.) The unincorporated UGB north of the Rogue River is also served by the company.

Pat's Sanitary Service - This company serves the remaining UGB south of the Rogue River and has a franchise agreement with Josephine County to serve this area. (See Map 10.50.1 for service districts.)

The Merlin site is considered to be a sanitary landfill with daily compaction and cover during the summer months. During wet weather, compaction and cover are provided to the maximum extent possible. The site receives household wastes, wood residues, slash, demolition material, tires and appliances. Dead animals are occasionally received from the Josephine County Animal Shelter, three veterinary clinics, and highway pickup. About 2 cubic yards and 10 cubic yards of solid wastes are collected weekly from Southern Oregon Hospital and Josephine Memorial Hospital, respectively. Automobiles and sludge are not handled in any way at the Merlin site. Digested sewage sludge may be disposed of at the Merlin site, on an emergency basis, from the City of Grants Pass.

There are six pre-selected landfill operation areas at the Grants Pass Sanitary Landfill. The first four areas have a total estimated capacity of 445,000 compacted cubic feet. Compacted density waste is 3 1/2 times denser than loose density waste. Therefore, the four areas have the capacity to receive 1,592,500 cy of loose density waste. These areas will require minimal site preparation costs.

MAP 10.50.1
Existing Regional Service Areas and Site Locations



In addition, the two remaining areas which will be more costly to develop for solid waste disposal, are three to four times larger than the total of the first four areas. (Josephine County Public Works Dept., 1982) If we choose the low value of three times the capacity of the first four areas, then the additional loose density waste capacity for the two remaining areas is 4,777,500 cy. Therefore, the total loose density waste capacity of the Grants Pass Sanitary Landfill at Merlin is estimated to be 6,370,000 cy.

Areas of Concern

Soil Properties - There are two predominant soil types in the landfill area: Holland clay loam and Siskiyou gravelly sand loam. Both soils are underlain by a weathered granitic bedrock. The Holland clay loam has a high erosion hazard and a consequent channeling of waste leachate through the soil covering the waste. Leachate is the liquid that emerges from solid waste, either buried or exposed, and which contains objectionable impurities, including but not limited to organic, metals, microorganisms, such as bacteria and viruses, minerals (primarily nitrates and sulfates) and dissolved gases (primarily methane and hydrogen sulfide). (Solid Waste Management Plan, 1975. pg. a-i, Glossary 8.)

Soil erosion of the old landfill final cover has been a continuing problem. Seeding the final cover with grasses has been marginally successful due to the low fertility and high erosion hazard of the Holland clay loam soil type.

The Siskiyou gravelly sand loam soil type is excessively permeable and may readily transmit rainfall and surface water downward into the refuse. Such a high permeability may saturate the refuse and lead to the production of large quantities of leachate. These soil properties indicate that the important of more suitable final cover material may be required for the active fill areas.

Subsurface Water - Subsurface water flows beneath the ground surface and is a localized phenomenon. In the permeable soils of the Siskiyou gravelly sand loams, subsurface water may be a source of water causing saturation of the refuse and production of leachate. It is likely that rainfall on slopes uphill from the active fill area percolates rapidly below the ground surface and flows downhill through the soil structure into the refuse. A deep interceptor trench either open or with a tile bottom and gravel backfill may be necessary to intercept subsurface water flow and carry it away from the refuse site to a natural drainage way.

Leachate - The causes of leachate have been previously discussed in soil properties and subsurface water. The quantity of leachate produced at the Merlin site is unknown, but it does occur in significant amount during the wet season. (Solid Waste Management Plan, 1975, page 111-52 Leachate)

Projected Landfill Need

The Population Element projects that the population of the UGB will be between 38,300 and 44,750 persons by the year 2000. The following table depicts the Distribution of that population during the planning period in five year increments.

TABLE 10.50.2
Estimated Population Growth During Planning Period

Year	Population Range	
	low	high
1985	26,326	27,951
1990	30,318	33,568
1995	34,308	39,183
2000	38,300	44,750

Under subsection 10.50.2, the solid waste volumes per capita per year were determined from the existing population and water volumes. The per capita loose density waste volume was determined to be 4.77 cy or 954 pounds per person. In order to project an approximate need for waste disposal service for the UGB, one must determine the projected waste of the population of the UGB, and also project the rate of growth of volume of waste for the UGB. That can be approximately by multiplying the per capita waste factor of 4.77 cy times the projected populations for each five year increment of the planning period. The rate of growth of discarded waste can be determined from the differences in volume overtime. Table 10.50.3 depicts total discarded waste overtime for the UGB for selected five year increments of the planning period.

TABLE 10.50.3
Solid Waste Projections for the UGB: Loose Density

Year	Population		Per Capita Waste Factor	Total Solid Waste	
	low	high		low	high
1980	22,000		4.77	104,940	
1985	26,326	27,951	4.77	125,575	133,326
1990	30,318	33,568	4.77	144,616	160,119
1995	34,308	39,183	4.77	163,646	186,902
2000	38,300	44,750	4.77	182,691	213,457

From the above table we can calculate that the annual rate of growth in total solid waste from 1980 to 2000 is 2.8% for the low population and 3.6% for the high population. If we add the solid waste produced by annual growth rates, the 1980 total solid wastes of the UGB and continue to do so for each subsequent year of the twenty year planning period, then the total solid waste of the UGB at year 2000 for each target population is as follows:

TABLE 10.50.4
Total Cumulative Low Density Solid Waste for the Merlin Site:
Year 2000 (in cubic yard)

	Year	Low Population (38,300)	High Population (44,750)
UGB	2000	2,840,465 cy	2,989,593 cy
TOTAL	2000	4,402,720 cy	4,633,869 cy

It is assumed the UGB will continue to maintain 45% of its relative share of the total waste disposed of at the Merlin site. Therefore, the total figure in Table 10.50.4 represents projection of the total waste to be generated by the UGB and the area outside the UGB but within the Grants Pass Solid Waste Service District.

As stated in subsection 10.50.2, the loose density waste capacity of the first four selected landfill operation areas is 1,592,500 cubic yards. The two remaining operations areas have a capacity of 5,573,750 cubic yards. Therefore, the total capacity of the Merlin site is 6,370,000 cubic yards. According to the above analysis, by the year 2000 approximately 27% of the capacity of the Merlin site will remain as excess capacity for solid waste disposal after the planning period.

Alternatives to Landfill Disposal of Solid Waste

As the County and its cities continue to develop, the need for additional solid waste disposal capacities will increase. The Solid Waste Management Plan (1975) discussed a long range alternative for waste disposal. Inherent in the alternative is the concept of a "transfer station," where residents and collection vehicles bring local waste to centrally located "drop box" stations. When full, the drop boxes would be hauled to the transfer station where "transfer trucks" would then haul the refuse to a resource recovery center. It was suggested that such a center be located either in White City or the south Grants Pass industrial area.

Transfer Sites - The alternative suggested developing the Merlin Landfill site into a transfer site for mixed refuse. The refuse would be hauled to White City for regional resource recovery and final disposal. Josephine County, through a Solid Waste Advisory Committee, did adopt the Solid Waste Management Plan that incorporated the concept of a transfer site and resource recovery center.

The time frame for implementation of the plan's alternatives will realistically occur when the demand for replacement facilities increases and when such facilities can be commercially justified.

Resource Recovery - Resource Recovery is defined as the extraction and utilization of materials and energy from solid waste components. Objectives of resource recovery are twofold: first, to recover materials that have an economic value as a substitute for virgin raw material or for use as fuel; and second, to reduce the weight and volume of the solid wastes that will ultimately be disposed.

There are two approaches to resource recovery. One is source separation in which individual recyclable components such as paper, metals, and glass are segregated and collected separately. Though this is a labor intensive undertaking, many municipalities, companies, and volunteer groups conduct successful programs of source separation. The second involves mechanical separation and, although not labor intensive, requires substantial capital investment. This method is considered feasible for larger metropolitan centers.

There are two low level recycling operations occurring in the Grants Pass community: The Grants Pass Boys Club which collects glass containers, newspapers, paper bags, and used motor oil; and the Adult Retarded Activity Center which collects newspapers, cardboard and aluminum.

Energy Recovery Energy can be recovered from municipal solid wastes either directly by burning raw "as-received" waste, or by first upgrading the raw refuse by mechanical, thermal or other processes to enhance its usefulness as a fuel: of the existing technologies, Direct Combustion (i.e., the Waterwall combustion furnace widely used in Europe and Japan), Mechanical Separation (Fluff Refuse Derived Fuel), Pyrolysis (heat application in oxygen deficient atmosphere) and Bioconversion (breakdown of organic waste through action of living organisms to methane gas) are the most practical and marketable methods. Certainly, a larger population than Grants Pass is required to feasibly consider most of these methods; however, as existing fuel costs increase the possibility of using one or more of these methods may be more practical.

Financing Methods

Ongoing Financing - The Grants Pass Solid Waste District is currently served by two commercial franchises for the collection and disposal of solid waste. The operations and maintenance of the Merlin site are financed from the revenues of the primary franchise, Grants Pass Sanitary Service. Josephine County provides in-kind service to the franchise service in the form of paperwork for disposal applications, and surveying the gradework of the public access road to the landfill. The franchise agreement between the City and the contractor specifies the schedule of charges and SERVICES to be provided during the term of the agreement.

Capital Improvement Financing - Financing for long range capital improvements of disposal sites and transfer stations should be by a combination of private and public funds to enable the use of state grants and low interest loans. The following items are excerpts from the Solid Waste Management Plan 1975 concerning possible sources of funds for capital improvements such as a new landfill site on a waste recovery center.

U.S. Environmental Protection Agency - At the present time, no EPA grants or loans are authorized for implementation of solid waste projects. Some grants have been provided in the past for solid waste planning, but these funds are not longer available. It is unlikely EPA funds will be available for future implementation of the plan unless a unique process were to be demonstrated within the system.

Oregon Department of Environmental Quality - Grants and loans for implementation of solid waste transfer, processing and disposal systems are available from the DEQ pollution control bonds fund. Generally, the funds can only be disbursed to a public body such as a city, county or special district. Portions of a project which are eligible for these funds have not been formally defined but are expected to include both improvements and equipment for solid waste facilities. Land costs have not been included in past funding of sewerage works so there is some question whether land would be an eligible cost for solid waste projects. It is likely grants and loans will also be available for land purchase for long-range facilities, such as a resource recovery center. Equipment replacement will not be eligible for loan or grant funds.

Thirty percent of the eligible costs could be financed through a grant, but the remaining 70% must be repaid over a 20 year period at approximately 5% interest. Equipment life of less than 20 years will reduce the period of repayment. An adequate financial program must be established to assure repayment of the bonds. Any facilities may be leased or franchised or private enterprise for operation. Of the 30% grant, deductions are made for planning grants previously given to a public body if the portion of the funds previously spent on a given project can be identified. The Solid Waste management plan, 175 (considered Phase I planning) was financed through a DEQ grant. Phase II (advanced planning) funds are also available for 100% funding of more specific solid waste system plans.

Facilities eligible for DEQ grants and loans include rural transfer stations at Murphy and Kerby, an urban transfer station at Grants Pass, site development at the present Kerby and Merlin landfills, site development at a bulky waste concentration point at Grants Pass and the regional resource recovery center.

Management Agreement

After lengthy negotiation, the City and County adopted a Management Agreement in January 1981 that set interim development standards for the urbanizing area, and called for basic service plans to be developed for the provision of water, sewer, streets, storm drainage and parks. The Management Agreement acknowledged the Solid Waste Management Pan (1975) adopted by the County, and required the City and County to adopt an implementation plan, including the financing of and joint participation in the siting of regional solid waste facilities within 24 months of the Management Agreement. (See Joint Urban Area SERVICES Management Agreement, Section III-7) No such implementation plan has been initiated to date.

10.50.8 SOLID WASTE SERVICES FINDINGS

1. Solid waste generated by the Grants Pass Urban Growth Boundary area is disposed of at the Grants Pass Sanitary Landfill which is located at Merlin, four miles north of the City.

2. The Merlin site serves as the landfill area for the Grants Pass Solid Waste Service District. The UGB's proportionate share of the total volume of loose density solid waste of the District is 45%

3. Solid waste is collected by commercial collection SERVICES that serve the City and UGB. Compactor trucks and drop boxes are utilized for the collection of the waste.

4. There are six landfill operation areas at the Grants Pass Sanitary Landfill. The first four areas have a total loose density waste capacity of 1,592,500 cy. The two remaining areas, which will require costly site preparation, have a loose density waste capacity of 4,777,500 cy. Therefore, the total loose density waste capacity at the Merlin site is 6,370,000 cy.

5. There are three areas of concern at the Merlin site:
   - The soil properties are such that erosion of the fill cover and water infiltration into the waste both affect the formation and distribution leachate, a liquid that emerges from solid waste and which contains objectionable impurities.
   - Subsurface water infiltration into the cover waste causes saturation of the refuse and production of leachate.
   - Leachate occurs in significant quantities during the wet season.

6. The volume of loose density solid waste disposed of by the population of the Urban Growth Boundary area in 1980 as 105,000 cubic yards. The estimated population of the UGB in 1980 was 22,000 persons, computing to a loose density solid waste disposal per capita of 4.77 cubic yards per person per year. Loose density waste is valued at 200 pounds per cubic yard (lb/cy). The pounds of solid waste per capita was 954 pounds per year, including commercial and industrial generators of waste.

7. The Population Element projects that the population of the UGB will be between 38,300 to 44,750 persons by the year 2000. The annual growth rates of total volumes of solid waste produced by the population of the UGB are 2.8% for the low population of 38.300 persons and 3.6% for the high population of 44,750 persons. The cumulative low density volume of solid waste produced by the UGB by the year 2000 is as follows:

TABLE 10.50.5

	Year	Low Population (38,300)	High Population (44,750)
UGB	2000	2,840,465 cy	2,989,593 cy
TOTAL*	2000	4,402,720 cy	4,633,869 cy

*Total loose density solid waste of Grants Pass Solid Waste Service District. The UGB population's proportionate share of the total waste is 45%.

8. By the year 2000, approximately 27% of the total loose density waste capacity of the Merlin site will remain for future use.

Year 2000	
Capacity	6,370,000
Need	4,633,869
Excess	1,736,131

9. Resource recovery is an alternative to the disposal of solid waste in landfills. Objectives of resource recovery are twofold: first, to recover materials that have an economic value as a raw material or fuel; and second, to reduce the volume of solid waste that will be disposed of at a land fill. A resource recovery site in the UGB has been identified in the Josephine County Solid Waste Management Plan. The site is located in the south Grants Pass industrial area. It is assumed that when resource recovery becomes economically feasible then the site will be developed.

10. Energy recovery of the potential caloric value of the solid waste is cost-effective either when the population is of a metropolitan size (50,000) and/or when the cost of imported energy is greater than domestic (city produced) energy. Neither of these situations exist at this time.

11. Josephine County as adopted a Solid Waste Management Plan that has objectives which affect the management of solid waste within the UGB. These objectives are as follows:

    - Both the Short and Long-Range Plans presume that Jackson and Josephine County's will develop a Regional Resource Recovery Center as proposed. If, for some reason the plans for this facility do not come to fruition, then the Kerby and Merlin landfills established in the Short-Range Plan will carry forward through 1994 with additional lands being purchased and developed if needed. The possibility will exist to initiate and Illinois Valley Transfer Station with refuse going to the Merlin Landfill if for some reason the continuation of the Kerby Landfill becomes unfeasible. Development of financial programs should be accomplished, when applicable, through a combination of state grants and loans, municipal and County funds and private capita. Plans should be coordinated with the DEQ on all solid waste transfer, processing and disposal systems.

- The Kerby and Merlin landfill sites will be upgraded to meet proper operational and environmental standards. This work would be coordinated with the DEQ in order to obtain permits that are workable while providing for adequate protection of the quality of the environment. Also state grants and/or loans would be sought for financing site development.

- An urban transfer station in the South Grants Pass area would not be established during this planning period. As a practical matter, the design and construction of the urban transfer station should be somewhat concurrent with that of the Resource Recovery Center. (It should be noted that a potential Grants Pass Transfer Station site is owned by a firm presently engaged in the County's Solid Waste Sanitary Service.)

- The Marlsan Sludge Pond will be phased out and replaced with a receiving facility at the Redwood or the Grants Pass Sewage Treatment Plant.

10.60 POLICE PROTECTION SERVICES INDEX

10.60.1 PURPOSE

10.60.2 EXISTING SERVICE LEVELS

. Grants Pass Police Department
- Personnel and Equipment
- Cost of Protection
- Response Time

. Josephine County Sheriff's Office
- Personnel and Equipment
- Cost of Protection
- Response Time
- Juvenile Detention Center

10.60.3 CRIME LEVELS

. Regional

. Local

10.60.4 PROJECTED NEED

10.60.5 FINDINGS

10.60 POLICE PROTECTION SERVICES

PURPOSE

The purpose of this section is to assess the existing level of police protection SERVICES within the UGB, determine additional needs through the planning period, and estimate the cost of providing the required service.

EXISTING SERVICE LEVELS

The Planning area is served by two law enforcement agencies: the Grants Pass Police Department and the Josephine County Sheriff's Office.

Grants Pass Police Department

This Department provides municipal police protection to the corporate City limits, and has 39 employees, as follows:

1	Police Chief	
1	Police Captain	
2	Lieutenants	
5	Sergeants)	
6	Corporals)	field officers
15	Patrol Officers)	
1	Secretary	
4	Clerks	
4	Dispatchers	
Total 39		

Thus, using a population figure of 15,032, the ratio of field enforcement officers is 1.73 per thousand, or one officer per 578 persons; however, three of these field positions are federally funded, leaving a permanent employee ratio of 1.53 per thousand, or one officer per 654 persons.

The police station is located in Building County Law Enforcement Building, behind the Courthouse, where 5,168 square feet of office space is leased from Josephine County. The Department has a total inventory of 18 vehicles, three of which are motorcycles, and one radar unit.

Cost of Protection - The City allocated $886,507 in 1979-1980 budget for police SERVICES. The total 1980 true cash value of residential, commercial, and industrial lands within the City limits is $380,833,436. (Josephine County Assessor's Office, October 1980) Thus, police service cost is $2.27 per $1,000 of assessed valuation. Cost for police protection per Grants Pass resident is $57.76 ($886,507 ÷ 15,000 persons).

Response Time - The goal of the Department is to achieve a two minute average response time to emergency situations. Factors affecting response time are street network, area of coverage, size and shape of the area, topography, day of week and time of day, number of available on-duty personnel, and type of land occupancy. According to the Grants Pass Police Chief, the Department does maintain an average two minute response time for emergency situations within the current City

limits; however, with the current police force size and street network, average response times will be higher without additional personnel in areas adjacent to the City limits that may be annexed in the near future. Thus to maintain the fast response time, additional personnel, vehicles, and an upgraded circulation network will be required as the City limits are extended.

Josephine County Sheriff's Office

The County Sheriff's Office is primarily responsible for law enforcement to all Josephine County areas outside the Grants Pass City limits. Thus, the Sheriff's Office currently protects the unincorporated Grants Pass UGB area.

Personnel and Equipment - The Sheriff's Office budgets the following positions:

29	Uniformed Deputies
5	Detectives
22	Jail Personnel
3	Special SERVICES
6	Administration
3	Traffic Control
16	Clerical
Total 84	

The ratio of active deputies to population is 1 deputy per 1,242 persons. The vehicle inventory consists of 30 vehicles, two boats and two trail bikes. The main Sheriff's station is located at 5th and "B" Street, which includes a 70 bunk jail with holding area, a 24 bunk work-out area, a detoxification area, and a photography lab.

Cost of Protection – The County's 1980 budget allocated $1,972,794 for law enforcement. The 1980 total taxable assessed valuation in unincorporated Josephine County was $852,152,846. The 1980 cost, therefore, for police protection is $2.31 per $1,000 of assessed valuation. Currently, revenue for law enforcement is derived from Oregon and California timber receipts, and not from local property taxes. With a total 1980 population of 43,823 (does not include Grants Pass), the cost per person for police protection is $45.02.

Response Time - According to the County Under-Sheriff, the Sheriff's Office averages five to six minutes in responding to emergency situations in the unincorporated UGB. Patrol coverage for this area is accomplished by two roving patrolmen; however, patrol coverage is not exclusively limited to this areas, but rater includes a much larger unincorporated area. Therefore, response time depends heavily upon the location of the patrolman at the time the emergency call is received.

Juvenile Detention Center - By state law, the County is required to separate juvenile offenders from adult offenders. To comply with this law, Josephine County has proposed the construction of a center for juveniles to accommodate a maximum of 22 persons. Projected construction completion of this facility was mid-1982, but funding was rejected by County voters on November 3, 1981.

CRIME LEVELS

Regional Crime Levels

Josephine County is grouped with Jackson County as Administrative District #8 by the Oregon Law Enforcement Council for the purpose of crime reporting. The following data is extracted from their report.

Analysis of Crime in Oregon, 1979 - Of the 36 Oregon Counties, Josephine County ranks 13th in total population; however, in terms of crime, the County has consistently ranked much lower than its total population ranking. For example, in 1979 Josephine County ranked 23rd in Part I crimes (murder, rape, burglary, assault, robbery, etc.), while neighboring Jackson County (ranks 6th in total population) ranked 6th in Part I crimes. Possibly contributing to this low ranking status in Part I crimes could be the fact that Josephine County population is less dense, 36 persons per square mile, than Jackson County, 44 persons per square mile. Crime is generally expected to rise with greater concentrations of population. Also, the fact that 30% of the County's population is over 50 years of age tends to bring down crime rates. The following table shows crime characteristics for Josephine County taken over a five year period, 1975-1979.

TABLE 10.60.1
Josephine County Crime Rates
Compared with Other Oregon Counties

Year	Index Crime	Violent Crime	Property Crime	% of Index Crime by Juveniles
1975	17th	12th	16th	n/a
1976	16th	23rd	17th	44%
1977	18th	25th	18th	46%
1978	21st	28th	18th	42%
1979	23rd	32nd	20th	47%

As illustrated, Josephine County consistently ranks below its population ranking (13th) for crime rate. Also, noted this five-year period a pattern emerges showing a steady decline in crime rate ranking (i.e., for Index crime from 17th in 1975 to 23rd in 1979). This either suggests that crime in Josephine County is declining, or crime for other areas of the state is increasing, or both.

Local Crime Levels - The City of Grants Pass participates in the Oregon Uniform Crime Reporting (OUCR) system. Crime information is collected and processed into a computer. Monthly, biannual, and annual reports are products of that system which summarize crime data for the agency. The following is information extracted from the annual reports for 1975, 1978, 1979 and 1980 (1980 is for a six month reporting period). The information presented lists Part I crimes reported each year.

TABLE 10.60.2
Crimes Reported

Year	Homicide	Assault	Rape	Robbery	Burglary	Larceny	TOTAL
1975	0	52	5	15	252	958	1,282
1978	1	85	5	22	227	831	1,171
1979	1	106	1	6	234	960	1,308
1980	0	82	0	3	144	576	805
TOTAL	2	325	11	46	857	3,325	4,566

This information indicates a decrease has occurred for some crimes (i.e., assault, larceny, etc.), while some crimes have remained fairly constant (i.e. homicide, burglary, etc.). During this five year period, the City has increased in population by an average of 255 persons per year. Thus, the Part I crime rate for the City in 1975 was one reported crime for every 10.7 persons. In 1979, the rate was 1:11.2.

Projected Need

The City Police Chief has reviewed the projected target population range for the UGB and has determined the following needs. Most of the projected need will be required south of the Rogue River as follows:

Additional Need Required for Personnel

38,300 Population	44,750 Population
1 Sergeant	1 Sergeant
3 Corporals	3 Corporals
2 Detectives	4 Detectives
16 Patrolmen	22 Patrolmen
4 Clerks	5 Clerks
	1 Crime Prevention Officer
26 Additional Personnel	36 Additional Personnel

- **Equipment**: 7 vehicles, 7 radios, 1 radar unit, 2 typewriters, 1 computer terminal
- **Office Area:** 1,000 square feet, located south of the river and protected 24 hours per day. Location within a fire department building would suffice.

The additional personnel would result in a ratio of 1.70 field officers per thousand persons (1 officer per 588 persons) at 38.300 population, and 1.67 officers per thousand persons (1 officer for 595 persons) at 44,750 population. These ratios are deemed to be sufficient levels of enforcement considering that response time is the most important factor.

10.60.5 POLICE PROTECTION SERVICES FINDINGS

1. Josephine County, while 13th in the state total population (1979), has constantly ranked below its population for crime rate (1975 to 1979). See Table 10.60.1.

2. The total number of crimes committed has maintained at a steady level for each year, despite the increasing population. Certain crimes (such as rape and robbery) have decreased, while the crimes (such as assault and larceny) have increased.

3. The Part I crime rate for the City in 1975 as one reported crime for every 10.7 persons, while for 1979 the rate was one reported crime for every 11.2 persons.

4. Expanding police protection service to include the urbanizing area over time as development occurs will require from 26 to 36 additional enforcement officers, together with support personnel. In addition, office space must be found or constructed south of the Rogue River.

5. The resulting enforcement officer/population ratio will range from one officer to every 588 to 595 persons by the year 2000. This is deemed adequate protection, even though lower than the urban level ratio of 1:600 required by the Management Agreement.

6. Residential development to urban levels within the Urban Growth Boundary may be scattered, due to the presence of existing sanitary sewer systems and the interim use of wells. Protection of this population by the County Sheriff's Department at a Management Agreement ratio is 1 officer per 1,240 persons.

10.70 FIRE PROTECTION SERVICES INDEX

10.70.1 PURPOSE

10.70.2 FIRE PROTECTION FACTORS

. Water Availability
. Fire Flow
. Personnel and Equipment
. Response Time
. Fire Rating

10.70.3 EXISTING SERVICE LEVELS

. Grants Pass Fire Department
    Facilities and Personnel
    Cost of Protection
    Response Time
    City Fire Flow Capability
. Valley Fire Service
. Grants Pass Rural Fire Department

10.70.4 PROJECTED NEED

10.70.5 MANAGEMENT AGREEMENT

10.70.6 FINDINGS

10.70 FIRE PROTECTION SERVICES

PURPOSE

The purpose of this section is to describe existing fire protection SERVICES within the UGB, determine minimum fire protection standards for the various land use allocations, project future needs, identify existing deficiencies and estimate the cost of providing the required service.

FIRE PROTECTION FACTORS

An effective fire protection program is primarily concerned with the following factors:

Water Availability - The critical ingredient in combating fire is the application of water at sufficient volumes, pressure and duration. Thus, any fire protection program must have adequate access to water at required fire flow capacities.

Fire Flow - Fire flow is an expression of the amount of water, in gallons per minute (gpm), which should be available and applied to control and extinguish a fire. The total fire flow required for combating a fully developed fire is a function of construction, fire loading material, type of occupancy, area, height, and distance from other buildings. The density and type of development, therefore, affects degree of fire flow required. As part of the overall water development plan for the Grants Pass UGB area, the Insurance SERVICES office recommended the following fire flow standards:

TABLE 10.70.1
Recommended Fire Flow Standards

Land Use Type	Fire Flow (gpm)	Duration of Flow (hours)	Volume of Water Required (million gpd)
Residential			
Suburban	1000	2	0.12
Urban (low density)	1000	2	0.12
Urban (medium density)	2500	2	0.30
Urban (high density)	3500	3	0.63
Commercial			
Central Business District	4500	4	1.08
Tourist	3000	3	0.54
Limited	3000	3	0.54
Strip	2500	2	0.30
Industrial	5000	5	1.50
Hospitals	4500	4	1.08
Institutional Schools	3500	3	0.63

Source: Insurance SERVICES office, Engineering Report of the Water Distribution System, Grants Pass, Oregon, CH2M Hill, February 1979, Table III-2.

Personnel and Equipment - The number of trained persons available to apply fire flow is another critical component of a system's ability to suppress fire. Generally, the larger the required fire flow, the more personnel and equipment needed to apply water. This component of the system usually comes up first when a municipality considers budgetary cutbacks; however, the effectiveness of fire suppression depends heavily upon the number of persons and equipment to apply water. Communities requiring sprinkler systems in industrial and most commercial structures generally have more flexibility in determining minimum personnel requirements.

Modern fire fighting equipment enables fire departments to suppress fires under most conditions. Thus, the type, condition and quality of equipment is essential to effective systems.

Response Time - This is the period within which required numbers of personnel and equipment can be marshaled to a fire to effect rescue and/or fire suppression. Thus location of fire stations, transportation networks, and fire coverage area are significant factors in determining response time.

Fire Rating - The Insurance Service Office (ISO) grades individual fire suppression departments in determining fire insurance premium rates for a given service area. The grading system is primarily concerned with the quality of a system's individual components (i.e., water availability, equipment, etc.) and does not necessarily include the system's general fire suppression effectiveness. The rating is important as it sets homeowner's insurance rates for the service area. For example, the following are 1980 homeowner insurance rates for each of the fire departments serving the UGB, based on an appraised residential structure of $50,000:

TABLE 10.70.2
ISO Ratings and Residential Insurance Premiums

Fire Department	ISO Residential Rating 1 = Excellent 10 = Unprotected	Annual Premium*
City of Grants Pass Fire Dept.	5	$152.00
Valley Fire Department	8**	$182.00
Grants Pass Rural Fire Dept.	9	$264.00
No Fire Service (unprotected)	10	$331.00

** Valley Fire Service has an 8 residential rating only within 5 road miles of their stations. All other areas are rated 9 at this time.

Comparing insurance cost of commercial/industrial properties reveals a significant savings to properties protected by the City Fire Department. Valley Fire Service and Grants Pass Rural are rated "9" for commercial/industrial property while the City is rated "5." The following 1980 costs are based on a retail structure less than 5,000 square feet of floor area with an assessed valuation of $130,000. (Bob Hart Insurance, September 26, 1980.)

TABLE 10.70.3
ISO Rating and Commercial Industrial Insurance Premiums

Fire Department	Commercial/Industrial ISO Rating	Annual Premium
City of Grants Pass Fire	5	$1,196
Valley Fire Service	9	$1,976
Grants Pass Rural	9	$1,976
Unprotected	10	$2,106

As shown, the 9 rating for Valley Fire and Grants Pass Rural increase insurance rates for commercial-industrial properties by 60%.

Cost of Protection - In the 1979-1980 City Budget, 16% of the total general fund budget ($673,471) was allocated to fire suppression and prevention. In the same year, Josephine County contributed $40,000 per year for the protection of the County Fairgrounds and other public structures within the UGB, but contributed only $15,000 the following year.

Existing Service Levels

The UGB is served by three fire protection companies: City of Grants Pass Fire Department, Grants Pass Rural Fire Department and Ambulance, and Valley Fire Service. See Map 10.70.4.

MAP 10.70.4
Fire Station Locations: UGB Area

City of Grants Pass Fire Department

The City Fire Department was created in 1891 and provides protection to: City corporate area, certain properties under annexation agreement, and to some public structures south of the Rogue River within the UGB. The total service area is estimated to have a population of 18,000 persons. (Office of State Fire Marshal- Annual Statistics Report for 1979.)

Facilities and Personnel - Two fire stations serve the total service area, with 24 full time, paid personnel, and 40 paid volunteers. There are five pumpers, two tankers and one aerial apparatus available for fire response duty. The department has no ambulance service. Mutual aid agreements exist with the City of Rogue River, Williams, Illinois Valley, Jackson County Rural #3, and the State Forestry Department. In 1979, the department responded to 383 alarms, of which 162 were fires (42%). In 1980, 400 alarms, of which 180 were fires (45%). In 1981, 417 alarms of which 204 were fires (49%). Not only are the number of fires increasing (21 additional fires per year), but also the percentage of alarms that are fires is also increasing. With an estimated population of 18,000 persons, the 1979 per capita fire protection service cost was $39.63. Most of the cost was allocated for wages and salaries for the department's full time personnel and paid volunteers.

Response Time - Map 10.70.5 shows the location of the existing fire stations within the City. Also mapped are response time zones, the time generally needed to respond to a first alarm. The quickest response zones are those areas adjacent to or near the fire stations. It is noteworthy that each station is north of the Rogue River and west of Sixth Street. As expected, the worst response zones are south of the river and in the eastern portions of the City. There is some consideration of moving the City's southerly station from Fourth and “H” streets to Eighth and “M” streets in order to locationally balance the City's fire protection service.

Fire Flow Capacities - A water distribution system must be capable not only of meeting domestic, commercial and industrial needs, but also of providing water in adequate quantities and at adequate pressures to meet any fire fighting requirement. In 1977, the Oregon Insurance Rating Bureau evaluated the City's water distribution system. Fire flow tests were conducted and revealed varying deficiencies at eight out of 14 tests locations. A deficiency doesn't necessarily mean that system is incapable of fighting a fire, but rather the fire fighting conditions are not considered ideal. Partly based on the findings of the Bureau, the City contracted for a complete water improvement plan which is currently under construction, with Phase I expected to be completed in early to mid 1981. When completed, Phase I will provide water storage and fire flow pressures to all areas of the City based on the maximum daily water demand, improving the City's ISO rating to a 4, and quite possibly a 3.

Valley Fire Service

Refer to Map 10.70.4 for station locations. Although primarily a rural fire service, Valley Fire serves a significant area within the unincorporated UGB. Service is provided by individual subscription, with an estimated total service district population of 30,000 persons.

In 1979 Valley responded to 137 alarms, of which 100 were fires (73%), and assisted in 12 mutual aid responses. Currently, they have 12 paid, full-time personnel, and 16 volunteers. Equipment inventory includes three pumpers, tow tankers, and no aerial apparatus. Water supply is via ground water wells, ponds, etc. Maximum water storage capability is 5,200 gallons.

Valley Fire has the potential to assist in urban fire protection; however, due to the extensive fire protection area they are responsible for (approximately 160 square miles), mutual aid assistance may not be cost-effective for the City's fire department.

MAP 10.70.5
City Fire Response Time Zones

Grants Pass Rural Fire Department

This department is located in the Redwood area, serves some residences within the UGB, but primarily serves rural subscribers. Their source of water is from ground water wells. Due to their limited facilities, urban level protection is not considered feasible for this department.

Projected Need
The City Fire Chief has reviewed the projected target populations of the UGB and has determined the following needs:

Personnel	3 Lieutenants 3 Firefighters 1 Fire Prevention Specialist = **7 Persons** total
Equipment	1 Tanker (3,000 gallons)
Station	Capacity for two vehicles, bunk room, kitchen, office.

The additional equipment, personnel and station will be located south of the Rogue River to serve Fruitdale-Harbeck, Redwood and the Williams Highway corridor. In the case of Grants Pass, the amount of equipment and personnel required for a given ISO rating is more a function of the commercial/industrial requirements, the availability of water, and the location of equipment stations, rather than the number of persons within the Boundary area, in contrast to police protection needs (see Section 10.60.4). For this reason the projected need is the same for the entire projected population range of 38,300 to 44,750 persons.

Financing of the required improvements and equipment could occur by many methods, of which several are outlined below:

Upon Annexation Agreement:

a. City finance capital costs with voter approval of a special levy to cover both capital and ongoing costs.
b. City advance finance capital costs, with payback by benefiting properties as a system development charge.
c. County advance finance capital costs with payback by benefiting properties, ongoing costs to be shared by City and County until sufficient revenue is generated by benefiting properties.

Upon establishment of a special district to include areas committed to urban level development:

a. City advance finance capital costs for urbanizing area, with special district assessed for 10 year payback, or
b. County advance finance capital costs in a similar fashion.

Management Agreement

Scattered urban level residential development either without any fire flow capacity, or using wells and storage tanks to store fire flow water, is permitted by the Management Agreement within the urbanizing area outside City limits. Regardless of the agency providing fire protection, a uniform set of standards determining the amount of storage and the nature of access to fire flow water is required to assure adequate protection of the developing areas within the Urban Growth Boundary.

FIRE PROTECTION SERVICES FINDINGS

1. In spite of a relatively low population growth over the last several years when compared to the County's population growth, the number of alarms and fires within City limits shows a steady increase, averaging 17 more fires each year.

2. Fires as a percentage of alarms also have increase, averaging 3.5 additional percentage points per year.

3. At the present time, fire protection SERVICES are provided within the City limits exclusively by the Grants Pass Fire Department, while in the urbanizing area fire protection is provided by the Grants Pass City, Valley and Grants Pass Rural department.

4. The City requires City fire protection when municipal fire flow water is extended, while the City-County Management Agreement, governing the extension of service within the urbanizing area, allows urban level residential development with either reduced fire flow requirement, or water storage requirement, or both.

5. Minimum levels of fire protection for urban level development are required to safeguard life and property within the urbanizing area, as the area develops over time.

6. Although most of the urbanizing area is presently served by a sanitary sewer system, and ground water is available to a certain degree, virtually none of the urbanizing area is served by a municipal water system at fire flow capabilities. The availability of fire flow water in sufficient qualities on demand is a critical part of any fire suppression system, a basic fact reflected in fire insurance premium rates and the ISO rating system. However, extending fire flow water throughout the urbanizing area at this time would be prohibitively expensive, and some alternate methods of providing fire flow water for residential development is desirable.

10.80 SCHOOL SERVICES INDEX

10.80.1 PURPOSE

10.80.2 HISTORICAL PERSPECTIVE

10.80.3 EXISTING SCHOOL DISTRICTS AND EVALUATION CHARACTERISTICS

10.80.4 DISTRICT STRUCTURE
. Grants Pass School District No. 7
. Josephine County School District No. 35

10.80.5 ATTENDANCE BOUNDARIES
. District No. 7
. County Unit

10.80.6 FACILITIES, CAPACITIES, AND POTENTIAL EXPANSION
. District No. 7
. County Unit

10.80.7 ROGUE COMMUNITY COLLEGE

10.80.8 PRIVATE SCHOOLS

10.80.9 EDUCATIONAL QUALITY
. District No. 7
. County Unit

10.80.10 PROJECTED FACILITY DEMAND
. Student Ratio
. Student Demand
. District No. 7
. County Unit

10.80.11 PROJECTED NEED
. Urban Growth Boundary
. District No. 7
. County Unit

10.80.12 COST OF PROVIDING FACILITIES

10.80.13 REVENUE SOURCES
10.80.14 FINDINGS

10.80 SCHOOL SERVICES SECTION

PURPOSE

The purpose of this section is to assess existing student demand, levels of service, and existing capacities, and project future student demand and facility requirement based on the projected target population range of the Urban Growth Boundary area. The section will review the following:

- projected student demand over the planning period.
- ability to meet demand, what additional facilities are required, and estimated facility costs.
- the role of the City of Grants Pass in providing for public education.

HISTORICAL PERSPECTIVE

The Grants Pass UGB is now served by two school districts, Grants Pass School District No. 7 and Josephine County School District No. 35. Combined, these two districts administer 25 public schools, elementary, middle and high, for the entire Josephine County area.

Prior to 1944, 60 public school and districts existed. Most of the schools were one room structures serving small individual communities. In 1945, the County school system reorganized into the "unit" system. The reorganization resulted in the basic structure which exists today.

The introduction of the school bus into Josephine County was significant as it reduced the number of schools to 18. The resulting schools have become large facilities, serving larger areas and numerous communities.

From 1960 to 1980, change has occurred more rapidly in the County Unit than District 7. The in-migration of persons to rural Josephine County has been dramatic, bringing with it new types of problems and challenges. Some of the problems are associated with the economy while others relate to the demographic profile. Southern Oregon is experiencing a large in-migration of retired and semi-retired persons. It is estimated that 21% of the existing population is 60 and over and 27% are over the age of 55. (U.S. Census, 1980, preliminary results.)

Southern Oregon also experiences high numbers of transient, migratory people. As these people "pass through" the region, the general attractiveness of the environment and climate lures them to seek jobs and permanent residence. It is estimated that 60% of the persons in today's labor force who choose to locate in Josephine County do so without committed employment. (Joe Stevens, The Demand for Public Goods..., Academic Press.) However, due to the scarcity of employment in this area, little time passes before many of these people have to seek employment elsewhere (i.e., Seattle, Portland, San Francisco). As a consequence, schools in Josephine County, elementary schools in particular, experience a high degree of fluctuating attendance. However, their overall attendance remains high as there appears to be a steady immigration and out migration of people. A survey of transfer student conducted in 1978 by the County School Unit indicated that of the total 1,082, 43% were from out-of-state; and although the District had 860 new students, some 690 moved out of the

District. For the year 1978, the district had a net gain of 170 students.

The Economic Element of this Comprehensive Plan lists the significance of income contribution by the various sectors of the economy. Of special interest is the fact that transfer payment income (out of region money brought into the community via pensions, retirement funds, and public assistance programs) has increased over the last 20 years from 13% to 23%. (Lord & Associates, Economic Base for Josephine County, 1980) This generally indicates that retired and semi-retired people have become a larger portion of the Grants Pass population. Lower fertility rates, smaller family sizes, changes in marriage and divorce rates and in adult living arrangements have all contributed to a decline in household size throughout the nation. Comparing household size over time for the City of Grants Pass indicates a steady decline in family size.

TABLE 10.80.1
Grants Pass Household Size

1970	1980	1990
2.90	2.73	2.42

Thus, the recent population profile for Grants Pass and urbanizing areas shows a high percentage of older persons and a decline in household size.

Existing School Districts & Enrollment Characteristics

As shown on Map 10.80.2, most of the Grants Pass Urban Growth Boundary areas is served by Grants Pass District No. 7. At present, the entire City Limits is served by District No 7; however, the two boundaries (City and District No. 7) are not contiguous. The County Unit School District serves a comparatively small portion of the Urban Growth Boundary: the unincorporated area north of the Rogue River and west of the City Limits.

The following Table illustrates population and student enrollment changes over the last 20 years for the City of Grants Pass, Josephine County, School District No. 7, and Josephine County Unit School District:

TABLE 10.80.3
Population Change and Student Enrollment

Population Change						Student Enrollment Change				
Year	City of Grants Pass	% of Total	Remainder Josephine County	% of Total	Total	District No. 7	% of Total	County Unit District	% of Total	Total
1960	10,125	34	19,774	66	29,900	3,720	60	2,470	40	6,190
1970	12,400	35	22,900	65	35,300	4,375	56	3,435	44	7,810
1980	15,032	26	43,823	74	58,855	3,870	37	6,645	63	10,515

As shown, the City accounted for 34% of the total population in 1960; whereas in 1980 only 26% was attributed to the City. Thus, recent new growth occurred primarily in rural, unincorporated areas. In 1960, District No. 7 accounted for 60% of all students, but in 1980 the percentage was only 37%. In this 20 year period, the District 7 student count remained virtually constant, while the county unit student count increased by 70%. Not only were more people settling in the rural areas, but also more people with families and children of school age were settling in the non-urban areas. The result of the large increase in student enrollment within the County Unit District has been larger classrooms and student/teacher ratios, expansion of existing facilities to capacity, additional expansion requiring large sums of money to augment existing core facilities, and the need to seek new serial levies and/or tax base to meet additional demand. In 1980, the County Unit District sought a new tax base during two separate elections. Both were defeated.

The following describes each school district's relationship to the planning areas, focusing on existing level of service and capacity to accommodate future growth.

District Structures

District No. 7. The following table shows the enrollment structure of Grants Pass School District No. 7:

TABLE 10.80.4
District No. 7 Enrollment

School Type	Grades	# of Schools	April 1980 Enrollment
Elementary	1-5	5	1,653
Middle	6-8	2	952
High	9-12	1	1,273
Total		8	3,878

Of the eight existing schools, five are located north of the Rogue River and within the City Limits. Of these, three are elementary schools, with the remaining two being North Middle School and Grants Pass High. It is noteworthy that of the five schools within the City, all but one are located in the northwest and northeast ward areas. The remaining school is in the southeast area, with no school facilities in the southwest area.

In the unincorporated UGB area served by District No. 7, three schools exist: two elementary and one middle school. All of these schools are located south of the Rogue River. Thus, District No. 7 residents are served by one high school, two middle schools and five elementary schools.

Josephine County Units - The following is the enrollment of the County Unit District:

TABLE 10.80.5
Josephine County Unit Enrollment

School Type	Grades	# of Schools	March 1980 Enrollment
Elementary	1-5	12	2,843
Middle	6-8	3	1,677
High	9-12	3	2,125
Total		18	6,645

The schools which are directly or indirectly affected by the UGB are Fort Vannoy and Fruitdale Elementary schools; Lincoln Savage and Fleming Middle schools; and North Valley and Hidden Valley High schools.

Only Fruitdale Elementary School is physically located within the Urban Growth Boundary. Thus residents living within the UGB who are served by the County Unit travel to outlying schools, except Fruitdale Elementary.

Attendance Boundaries

District No. 7
As of January 1, 1980, Map 10.80.6 reflects attendance boundaries for District No. 7. Generally, attendance boundaries relate to type of school (elementary, middle, high), land use, population, capacity of school, and natural or man-made features such as rivers or roads. The attendance boundaries are adjusted as required each year, and are shown here as an indication of their function only.

For District No. 7 elementary schools, the boundaries relate to the Rogue River the Southern Pacific Railroad tracks, 6th Street and Allen Creek. The most notable exception to this pattern is the area south of the Rogue River. Also, to the west of this area, from Pine Street to the western City Limits, students attend Riverside School. This area is geographically separated from the main Riverside School attendance area.

For middle schools, the Southern Pacific Railroad is the basic boundary. North Middle serves north of the tracks and South Middle serves south of the tracks. Note that students living south of the railroad tracks between Pine Street and the west City Limits attend North Middle School.

The high school boundary is simple. All students in District No. 7 attend Grants Pass High School.

Josephine County School District

Map 10.80.6 illustrates school attendance for the County Unit. As shown, the attendance boundaries conform to the Rogue River and School District No. 7 boundary.

Students living within the UGB, south of the Rogue River and not in District No. 7, attend Fort Vannoy Elementary School, Fleming Middle School, and North Valley High School. Many of those students travel five to six miles by bus to attend school.

Facilities, Capabilities, and Potential Expansion

The purpose of this subsection is to assess each school's existing enrollment demand and compare it to the school's design capacity. From this comparison, we may determine how much additional student enrollment, if any, the facility can absorb and the costs in both dollars and educational quality.

TABLE 10.80.7
District No. 7 Facility Capacity

School Attendance Boundary	1980 Student Enrollment	Practical Design* Capacity	No. Of Classrooms	Student Teacher Ratio	Potential Enlargement No. Of Classrooms	Original Construction Date	Dates of Additions
Elementary							
Allendale	298	321	16	20:1	0	1965	0
Highland	350	360	18	23:1	0	1956	1959, 1960
Lincoln	322	440	18	23:1	0	1951	1952, 1962
Redwood	335	445	20	25:1	0	1951	1957
Riverside	328	378	17	23:1	0	1966	0
Subtotal	**1,633**	**1,948**	**90**	**22:9:1**	**0**		
Middle School							
South	433	616	25	23:1	0	1958	1968
North	519	747	36	27:1	0	1965	0
Subtotal	**1,633**	**1,948**	**90**	**22:9:1**			
High School							
Grants Pass High School	1,302	2,007	80	24:1	0	1948	1948, 1950, 1952, 1953, 1954, 1955, 1956, 1958, 1959, 1962, 1963, 1966, 1969

TABLE 10.80.8
County Unit UGB Facility Capacity

Grade School Attendance Boundary	1980 Student Enrollment	Operating Design Capacity*	No. Of Classrooms	Student Teacher Ratio	Potential Enlargement No. Of Classrooms	Original Construction Date	Dates of Additions
Fruitdale	232	248	13	25:1	2	1947	1948,1951, 1953, 1955, 1963, 1972
Fort Vannoy	338	338	15	27:1	0	1949	1955, 1952, 1953, 1962, 1967, 1979
Total	617	586	18	26.1	2		
Middle School							
Lincoln Savage	670	598	27	27:1	0	1962	1967, 1975, 1976, 1979
Flemming	637	637	24	27:1	0	1962	1979 (new wing)
Total	1,307	1,235	51	27:1	0		
High School							
Hidden Valley	951	900	50	2.5:1	2	1978	0
North Valley	836	720	35	18.67:1	4	1978	0
Total	1,787	1,620	85		6		

*Operating capacity is 90% of design capacity.

Rogue Community College

Rogue Community College is the only public institution for higher education in Josephine County. Opened in 1971 with a student enrollment of 2,276, the college has experienced a steady increase in enrollment to a high in 1980 of 6,315 students. The college is located at the most southwesterly corner of the Urban Growth Boundary and serves all of Josephine County.

Enrollment profile indicates that the age distribution of student population generally reflects that of

the County with ages ranging from 17 to 75. The college anticipates an enrollment of ___ by __.

Private Schools

Although private schools account for only 45% of the total enrolled students in Josephine County there is a national trend showing a substantial increase in private school enrollment. (Demographic School Facility Studies for Jackson and Josephine County Education Service Districts.) According to information published by Association of Christian Schools International, for the years 1978-1979, three new private schools opened for instruction each day.

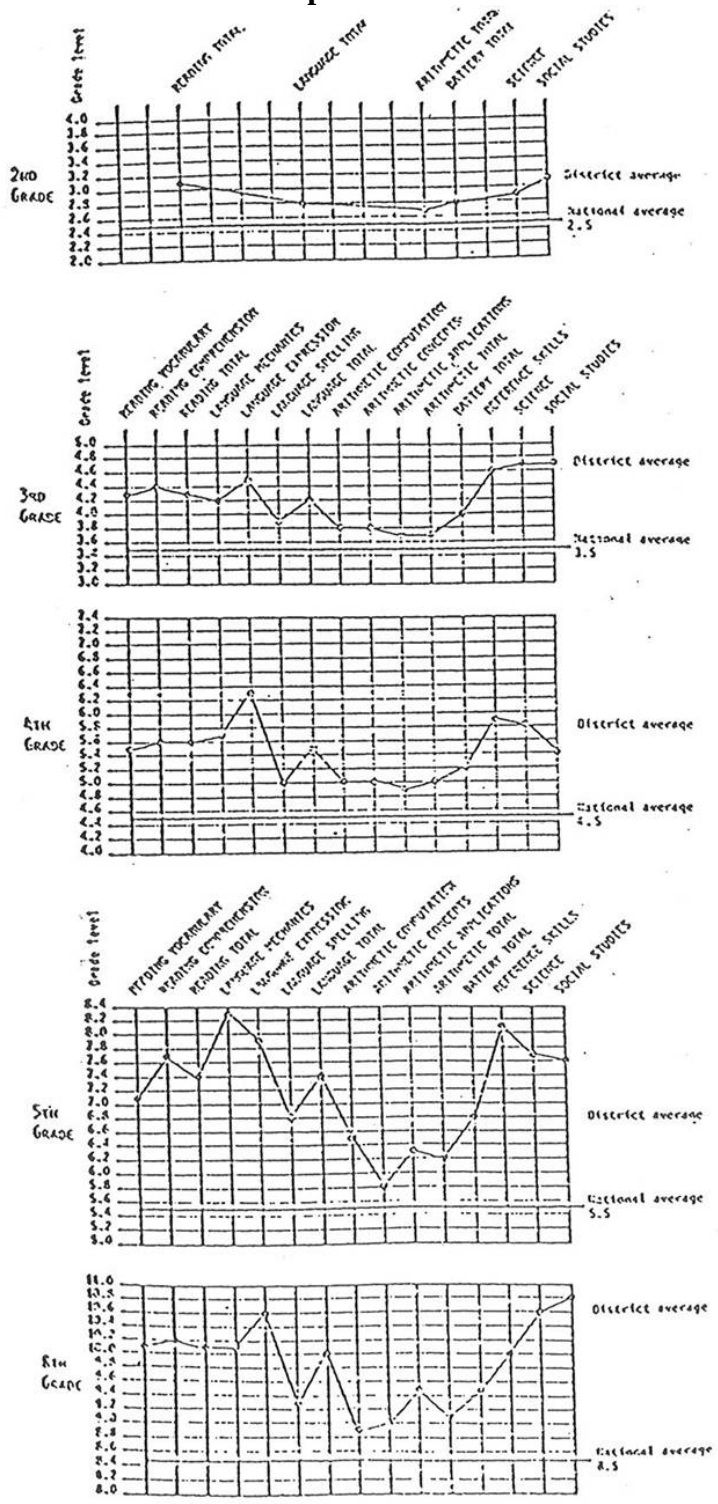
In the Grants Pass Urbanizing Area, there are three parochial schools providing instruction for grades 1-12. The 1980 student enrollment was 700 students.

Educational Quality

Measuring academic progress is normally determined by administering standardized test to individual students. Results are computed, compiled and compared to the "national norm." School District No. 7 and Josephine County Unit administer these "achievement" tests; however, each district used a different test so strict comparison between test results are not valid. The results indicate the academic progress of each district as compared to the national norm of other districts taking the same test.

District No. 7 - Tests used in this are the "Comprehensive Tests of Basic Skills" and the "Short Form Test of Academic Aptitude." These tests were administered in February, 1980 to all second, third, fourth, fifth and eighth grade students. "The scores were well above the national average for all skill areas." The following graphs compare each grade level tested to the national norm. Figures along the left of each graph refer to grade level in years and months. For example, the number 8.0 refers to the beginning of the eighth grade; 8.5 is the fifth month into the eighth grade. The heavy line across each chart is the national average and the broken line shows the average in each test for the Grants Pass Public Schools.

GRAPH 10.80.9
District No. 7 Comprehensive Skills Test 1980



Test results for high school level students were not available.

The results indicate progress exceeding the national norm for all grades, especially in language and reading skills. Scores were lower for math, although still above the national average.

Josephine County Unit School District - The County Unit School District uses the "California Achievement Test" for measuring academic progress. In 1979, all grades were administered the test. The following table and graph compare the results of test taken by third, fifth, seventh, ninth and eleventh grades to the national average of other districts taking the same test. (Summary of Student Performance Northwest Regional Educational Laboratory 1979)

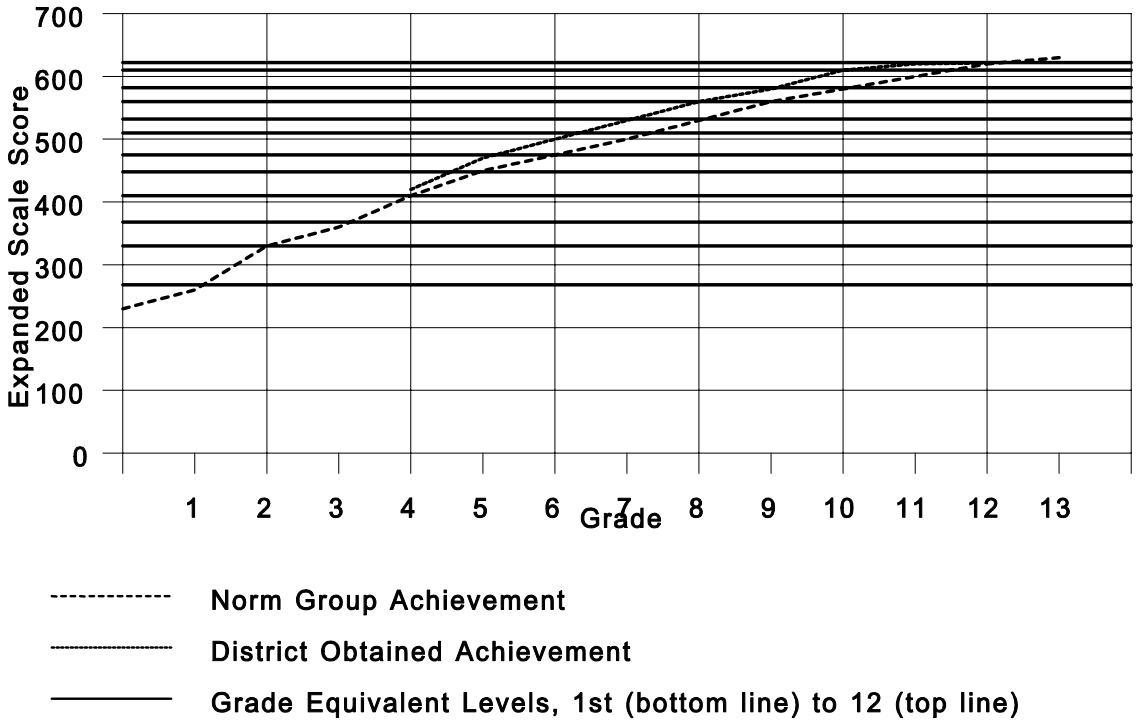
TABLE 10.80.10
Josephine County Unit Achievement Test 1981

Titles		**3**	**5**	**7**	**9**	**11**
Total Reading	MNSS	420	500	554	608	634
	SGE	4.1	6.7	8.7	11.1	12.8
	SNP	63	67	66	66	56
	SNCE	57	59	58	59	53
No. Of Students Tested		**503**	**601**	**551**	**507**	**464**
Spelling	MNSS	465	533	574	609	628
	SGE	4.1	6.8	9.5	11.5	12.5
	SNP	59	62	64	62	54
	SNCE	55	56	58	57	52
No. Of Students Tested		**502**	**600**	**554**	**509**	**450**
Total Language	MNSS	461	536	572	600	617
	SGE	4.1	7.4	9.2	10.7	11.6
	SNP	60	69	66	60	50
	SNCE	55	60	59	55	50
No. Of Students Tested		**502**	**600**	**555**	**508**	**437**
Total Math	MNSS	396	471	541	601	615
	SGE	3.7	6.0	8.1	10.7	11.8
	SNP	51	55	62	60	50
	SNCE	51	53	57	56	50

No. Of Students Tested		**498**	**600**	**547**	**507**	**458**
Total Battery	MNSS	408	486	547	602	624
	SGE	3.8	6.4	8.4	10.8	12.1
	SNP	56	63	64	63	52
	SNCE	53	57	58	57	51
No. Of Students Tested		497	600	542	494	429
Reference Skills	MNSS		518	548	576	623
	SGE		7.0	8.3	10.0	11.9
	SNP		64	60	53	50
	SNCE		58	55	51	50
No. Of Students Tested		**0**	**599**	**548**	**509**	**460**

MNSS = Mean of Achievement Scale Scores
SGE = Grade Equivalent of Mean of Achievement Scale Scores
SNP = National Percentile of Mean of Achievement Scale Scores
SNCE = Normal Curve Equivalent of Mean of Achievement Scale Scores

TABLE 10.80.11
Josephine County Unit Achievement Test 1981



Grade	1	2	3	4	5	6	7	8	9	10	11	12
Obtained Achievement			3.8		6.4		8.4		10.8		12.1	
Norm Group Achievement			3.7		5.7		7.7		9.7		11.7	

Josephine County Unit scores consistently higher than the national average, especially in reading and language. Math skill performance is lower, although still above the national average.

Summary - Both school districts show high performance testing as compared with other districts in the nation taking the same test. Emphasis appears to be higher for reading and language skills than for mathematics. The exceptions test scores for both districts can be attributed to many factors: quality of program, teachers, equipment, material, classroom size, stable family life, etc.

One factor normally accepted as a good indicator of educational quality is class size. In District 7, average class sizes are:

Elementary	22
Middle School	25
High School	24
In the County Unit:	
Elementary	26
Middle School	27
High School	23

Class sizes are somewhat higher in the County Unit, but still quite manageable and acceptable. In District No. 7, class sizes are very good, especially for public schools.

Forty percent of the County's 1980 population arrived after 1970. These in-migrants considered the quality of schools as an important factor for relocating in Oregon. The level of education, then, is a significant policy decision which the community and school districts must address as the community becomes larger. What is the threshold class size at which time a new classroom or school is justified? At what point in time should this be considered?

Projected Facilities Demand

The following "needs assessment" is based on the projected population range of between 38,300 and 44,750 persons for the Grants Pass Urban Growth Boundary. In determining residential land use allocations for the UGB, two factors for family size were used: existing and projected. As documented elsewhere, family size within the City Limits is declining. (See Population and Housing Elements.)

Student Household Ratio - The 1980 Census estimates the "average" city family size to be 2.42 persons per household. Using the previous three decades census information (1960, 1970, 1980) a family size trend was established. The estimated family size for the year 2000, therefore, was established to be 2.08 persons per household for the City limits and 2.22 for the urbanizing area. Thus, the average is 2.15 persons per household. In establishing the average number of students per household, the number of students enrolled in District No. 7 was divided by the number of existing dwelling units within the District in 1980:

3803 students ÷ 6770 dwelling units = 0.56 students per household

This information was derived from land use information within the boundary of District No. 7, and was applied throughout the UGB.

To estimate the average number of students per household for the year 2000, it was assumed that the ratio of students to household size would remain constant and therefore, any decline in overall household size would reduce the student size proportionately. Thus, the current average household size for the UGB is 2.51 persons; and the current average number of students per household is 0.56 or 22% of the household. In the year 2000, the average household size is projected to be 2.15, and therefore, the average number of students per household would be 0.47.

Student Demand - Projecting the number of students within the UGB over the 20 year planning period was accomplished by using two sets of data: current family size and students per household, and projected family size and students per household. These factors were then applied to the proposed new households for the UGB. The following table illustrates these calculations:

TABLE 10.80.12
Projected Population of Students Within UGB by 2000

Population Range	1980 Existing UGB Population	2000 Net New Population	Year 2000 Avg. Household Size	Year 2000 Students Per Household	New Households	New Students	Estimated Existing Students Within UGB (1)	Total Future Students Within UGB
Low 38,300	22,000	16,300	2.15	.47	7,581	3,516	5,361	8,977
High 44,750	22,000	22,750	2.15	.47	10,581	4,973	5,361	10,334

1. Based on City population of 15,000, HHS of 2.42, and .56 students/HH and on urbanizing population of 7,000, HHS of 2.59 and .56 students/HH.

District No. 7 - The following data is compiled by total students within the UGB by the year 2000, using existing distribution percentages of students by school type. Existing distribution is the same for both school districts: 43% elementary, 25% middle school, and 32% high school. Therefore, the tables show the proportionate contribution of new students from the UGB to the respective schools by type in the year 2000.

TABLE 10.80.13
Elementary Student Demand

Pop.	Allendale	Highland	Lincoln	Redwood	Riverside	Total
38,300	348	212	181	318	106	1165
44,750	474	288	247	433	144	1586

TABLE 10.80.14
Middle School Student Demand

Population	North	South	Total
38,300	264	413	677
44,750	373	584	957

TABLE 10.80.15
High School Student Demand

Population	Grants Pass High School
38,300	866
44,750	1255

Josephine County Unit School District:

TABLE 10.80.16
Elementary Student Demand

Population	Fort Vannoy	Fruitdale	Total
38,300	151	196	347
44,750	124	162	286

TABLE 10.80.17
Middle School Student Demand

Population	Flemming	Lincoln Savage	Total
38,300	88	114	202
44,750	124	162	286

TABLE 10.80.18
High School Student Demand

Population	Hidden Valley	North Valley	Total
38,300	146	112	258
44,750	207	159	365

Thus, the proposed land use allocation will generate the following number of students for each school type, based on 0.47 students per household (includes both districts):

TABLE 10.80.19
Total Student Demand

School Type	38,300 Population	44,750 Population
	Number of Students	Number of Students
Elementary	1,512	2,060
Middle	879	1,243
High	1,125	1,590
TOTAL	**3,516**	**4,893**

Projected Need

In determining "need" based on projected student demand, existing and future policy decision can affect any "deeds assessment" conclusion. Thus, some of the potential policy strategies dealing with meeting future need will be discussed. However, for calculation purposes, existing policy positions will be assumed and projected over the planning period. The reader is referred to Subsection 10.80.6 of this Element for discussion of existing facilities capacities.

Urban Growth Boundary -The area wide need of the UGB can be demonstrated by comparing projected student demand of the UGB to actual student enrollment of District No. 7. District No. 7 is selected as existing population counts and projected population figures are similar. By adding in existing enrollment figures for the two County Unit Schools, Fruitdale and Fort Vannoy, total UGB existing enrollment ins 4,504. The projected student population could increase 146%-170% within the next 20 years.

TABLE 10.80.20
District No. 7 Enrollment

School Type	Existing Enrollment October 1980	Year 200 Total Student Demand	
Elementary	1,633	2,798	3,219
Middle	952	1,629	1,909
High	1,302	2,168	2,527
TOTAL	**3,887**	**6,595**	**7,655**

District No. 7
Discussion with District No. 7 officials and research of the literature indicates the following potential to accommodate additional student enrollment, either by existing classrooms capacity or by adding classrooms to existing school facilities. This information does not relate to "optimum" classroom size, rather it relates to "practical" design capacity.

Elementary Schools - Three hundred and fifteen additional students can be enrolled to practical design capacity. Existing mean classroom size is 23. The additional 315 students would increase the mean size to 24. School District officials indicate that all existing schools are at capacity with no potential for expansion. Therefore, enrollment increase beyond practical design capacity will necessitate a strategic move by the District to absorb the increase, either by attendance boundary adjustment, combining schools, or a new facility. The additional students to be accommodated are between 850 and 1,271. Using an average class size of 24, the 36 to 53 additional classrooms will be needed during the planning period.

Middle Schools

North Middle School - Practical design capacity will accommodate an additional 228 students. The existing mean classroom size is 27 and with 228 more students the classroom size would increase to 38, bringing the school to its practical design capacity. An additional 36-114 students will need to be accommodated during the planning period. That equates to an additional 1-4 classrooms.

South Middle School -The practical design capacity is 615 with existing enrollment at 433, leaving additional capacity for 183 students. The mean classroom size is 23 students. At practical design capacity, the classroom size will be 33 students. The net projected student demand is between 230 and 401. Using a classroom size of 33 students, that equates to 7 to 13 additional classrooms needed during the planning period.

With respect to Middle Schools, the District appears to have three choices:

(1) Build another school
(2) Research further to determine if existing sites can accommodate additional classrooms, or
(3) Increase class sizes at both Middle schools, and redesign attendance boundaries.

Grants Pass High School - The practical design capacity is 2007 and 1980 enrollment was 1,302. The school would accommodate 705 new students. Projected student demand is between 866 and 1,226, leaving between 161 and 520 students unaccommodated. No additional classrooms can be built. Thus, the District needs to consider providing for the projected additional students. With a design capacity class size of 30, between 6 and 18 classrooms will be needed during the planning period.

The District appears to have three choices:

(1) Increase class size.
(2) Build another school, perhaps south of the Rogue River.
(3) Investigate expanding the present school site through property acquisition.

Josephine County Unit School District

Fruitdale Elementary School - Operating capacity for this school is 248; 1980 enrollment was 232. The school can absorb 16 additional students. Two classrooms can be added at an average size of 26 students, resulting in an added student capacity of 52. Thus, the school can accommodate a total of 62 additional students. Projected student demand for this school is between 196 and 268, leaving between 128 and 200 students unaccommodated. That equates to an additional 5 to 8 classrooms needed during the planning period.

Fort Vannoy Elementary School - Design capacity for this school is 338 students enrolled in 1980. No additional students can be accommodated as no new classrooms can be added. Projected student demand is between 151 and 206. The operating capacity class size is 27. Therefore, between 6 and 8 additional classrooms are needed to accommodate these students.

Fleming Middle School - Existing enrollment is at design capacity of 647 students. No additional classrooms can be added. Projected student demand generated by the UGB is between 83 and 124. Thus, the operating capacity average class size is 27. Therefore, between 4 and 6 additional classrooms are needed to accommodate these students.

Lincoln Savage Middle School - This school exceeds the operating capacity by 72 students, with no additional classrooms able to be added. Between 114 and 162 additional students will be generated by the UGB. With an average class size of 25, between 8 and 10 additional classes will be needed to accommodate these students.

Hidden Valley High School - Current enrollment exceeds the operating capacity by 2 students. Projected additional demand is between 146 and 207 students. Two classrooms can be added to the school. With an operating capacity average class size of 23, 46 more students could be accommodated within existing capacity. The remaining number of potential future students is between 152 and 213. The additional number of classrooms needed is between 7 and 10

North Valley High School - Current enrollment exceeds the operating capacity by 113 students. Four additional classrooms can be added. The average class size is 24. A total of 96 additional students can be accommodated by existing capacity. Projected additional demand is between 129 and 176. That equates to an additional classroom need between 6 and 8.

The District should consider these impacts in addition to other projected impacts which may occur from rural residential growth outside of the UGB.

TABLE 10.80.22
Facilities Needed in Number of Classrooms

School Type	Facilities Needed in # Classrooms					
	District #7		County Unit		Total	
	Low	High	Low	High	Low	High
Elementary	36	53	11	16	47	73
Middle	8	17	12	16	20	33
High	6	18	13	18	19	36
	50	88	36	50	86	142

Summary

It's not known definitely to what degree any of the existing schools can accommodate additional classrooms given site layout and core facility considerations since considerations of "crowding" are partly matters of policy. It appears, however, that new elementary schools will be needed in both schools districts to insure desire education levels and management efficiency.

Existing Middle Schools in District No. 7 may be able to absorb some of the projected demand, but will probably need a new facility or major expansion at the existing sites. The High School appears able to accommodate only a portion of projected demand, leaving at least 21 classrooms to be provided. The District may want to consider conducting an in-depth analysis of service provision at the Middle and High School levels to determine site limitations more precisely.

Cost of Providing Facilities

The cost of providing public education is affected by many policy decisions (i.e. size of classrooms, double sessions, year-round curriculum, etc.); however, these issues are intangible when projecting cost over a long term period. Therefore, the following "cost" information relates to tangible factors, as they exist in 1980:

- Cost of construction of an "add on" classroom, fully equipped.
- Cost of "new" construction per classroom, fully equipped. New construction includes all associated "core facilities."
- Existing level of education is assumed and linked to existing classroom size.
- Cost of land is not included. Both school districts have vacant land available, however if a new site is required.

1. Cost of Add-on Classroom

Classroom	$40,000
Furnishings	4,000
	$44,000

(a) District No. 7 Need: 0 classrooms x $44,000 = $0
(b) County Unit Need: 8 classrooms x $44,000 = $352,000

$352,000

2. Cost of New Construction

Classrooms	$50,000
Furnishings	4,000
	$54,000

(a) District No. 7 Need: 91 classrooms x $54,000 = $4,914,000
(b) County Unit Need: 27 classrooms x $54,000 = $1,458,000

Sub-total $6,372,000

Total $6,724,000

(Includes all core facilities. School District No. 7 staff, 1980)

3. Cost by School District

(a)	District No. 7	$4,914,000
(b)	County Unit	1,210,000
	Total	$6,724,000

Revenue Sources

The most widely used means of financing public school is through the local property tax. Except for federal and state mandated programs (i.e., Special Education for Mentally Handicapped) and property tax relief, all school revenues in Josephine County are generated through property tax. It appears, therefore, that the property tax will be the primary tool for financing the future; however, there are other potential revenue sources which could supplement property tax:

1. Revenues derived from the sale of timber on federally owned property.
2. Dedication of property by developers at the time of development or payment of fees for land acquisition in lieu of dedication.

SCHOOL SERVICES FINDINGS

1. The Grants Pass Urban Growth Boundary area is served by two school districts: Grants Pass School District No. 7, and Josephine County Unit School District No. 35. These two districts administer 14 schools that enroll students from the UGB area. The County Unit School District serves a proportionately smaller area within the UGB; the unincorporated Fruitdale area, and the unincorporated area north of the Rogue River and west of the city limits. The population is increasing more rapidly in the urbanizing areas than in the incorporated urban area of the City. (See Population Element.)

2. The population profile for the Grants Pass Urban Growth Boundary area shows a high percentage of older persons, a decline in household size, and a significant increase in student enrollment for the Josephine County Unit School District.

3. The Grants Pass School District No. 7 administers 8 schools within the UGB area. Five schools are located north of the Rogue River and within the City limits: three are elementary schools, North Middle School and Grants Pass High School. Four of these schools are located in the Northwest and Northeast subareas, one in the southeast subarea, and none in the southwest subarea. Three schools, two elementary and one middle school, are located south of the Rogue River within the urbanizing area.

4. Generally, attendance boundaries relate to type of school (elementary, middle, high), land use, population, capacity of school, and natural man-made features (such as rivers, roads, etc) and are adjusted from time to time as necessary.

5. For District No. 7 elementary schools, the boundaries relate to the Rogue River, the Southern Pacific Railroad tracks, 6th Street, and Allen Creek. The most notable exception to this pattern is the area south of the railroad tracks, between Pine Street and Mill street. Students living in this area attend either Redwood or Allendale which are south of the Rogue River. Also, to the west of this area (from Pine Street to the west City limits) students attend Riverside School. All students in District 7 attend Grants Pass High School.

6. The Josephine County Unit attendance boundaries conform to the Rogue River and School District No. 7 boundary. Students living within the UGB, south of the Rogue River and not in District No. 7, attend Fruitdale Elementary School, Lincoln Savage Middle School, and Hidden Valley High School. Students living within the UGB, north of the Rogue River and not within School District No. 7 attend Fort Vannoy Elementary School, Fleming Middle School, and North Valley High School. Many of those students travel five to six miles by school bus to attend school. (See Map 10.80.6)

7. Rogue Community College is the only public institution of higher education in Josephine County. Opened in 1971 with student enrollment of 2,276, the college has experienced a steady increase in enrollment to a high in 1980 of 6,315 students. The college is located at the most southwesterly corner of the UGB, and served all of Josephine County.

8. In the Grants Pass Urban Growth Boundary area, there are three parochial school providing instruction for grades 1 through 12. The total student enrollment is 700.

9. Measuring academic progress is normally determined by administering standardized tests to individual students. Results are computed, compiled, and compared to the "national norm." School District and Josephine County Unit administer these "achievement" tests; however, each district uses a different test so strict comparison of the test results are not valid. The results do indicate the academic progress of each district as compared to the national norm of other districts taking the same test.

10. Both school districts show high performance testing as compared with other district in the nation taking the same test. Emphasis appears to be higher for reading and language skills than for mathematics. (see graphs 10.80.9 and 10.80.10) The exceptional test scores for both districts can be attributed to many factors: quality of program, teachers, equipment, material, classroom size, stable family life, etc.

11. One factor normally accepted as a good indicator of educational quality is class size. In District 7, average class sizes are: elementary 22, middle 25, high school 24. In the County Unit, class sizes are: elementary 26, middle 27, high school 23.

    Class sizes are somewhat higher in the County Unit but still quite manageable and acceptable. In District No. 7, class sizes are very good, especially for public schools.

12. In the year 2000, the projected household size for the City is 2.08 and 2.22 for the urbanizing area. The current average number of students per household in the UGB area is .56. An average projected household size for the UGB area by year 2000 is 2.15. If the ratio of students to household size remains constant over time, then a decline in household size would decrease the number of students per household. Therefore, the average number of students per household in the year 2000 would be .47.

13. The "Projected Population of Students" is based on the projected population range of between 38,300 and 44,750 persons for the Grants Pass Urban Growth Boundary. In determining residential land use allocation of the UGB, two factors for family size were used: existing and projected. As previously documented in the Population Element, family size within the UGB is declining.

14. The following table depicts the number of new students by school type that would be generated from the extremes of the population range projected for the UGB by the year 2000.

TABLE 10.80.24
Total Student Demand

School Type	38,300 Population	44,750 Population
	Number of Students	Number of Students
Elementary	1,512	2,060
Middle	879	1,243
High	1,125	1,590
TOTAL	**3,516**	**4,893**

15. The following table depicts the number by school type for 1980 enrollment and for the future (2000) enrollment, using the low and high population projections.

TABLE 10.80.25
District No. 7 Enrollment

School Type	Existing Enrollment October 1980	Year 2000 Total Student Demand	
Elementary	1,633	2,798	3,219
Middle	952	1,629	1,909
High	1,302	2,168	2,527
TOTAL	**3,887**	**6,595**	**7,655**

16. The following table depicts the relationship between the practical design capacity of school types within School District No. 7 and the projected new student demand. The result of that relationship creates the needed student capacity by the year 2000.

Table 10.80.26
District 7: Projected Needed Student Capacity

School Type	Existing Student Enrollment	Practical Design Student Capacity	Net Excess Student Capacity	Projected New Student Demand		Projected Shortfall	
Elementary	1633	1948	315	1165	1586	850	1271
Middle	952	1363	411	677	957	266	546
High	1302	2007	705	866	1225	161	520
Total	3887	5318	1431	2708	3768	1277	2337

"Low/high" refers to the low population projection of 38,300 persons and the high population projection of 44,750 persons. The numbers under these headings depict number of students that will be generated by the respective population.

17. The following table depicts the facilities needed in number of classrooms by school types for each school district and low/high population range of 38,300 to 44,750 persons by the year 2000.

TABLE 10.80.27
Facilities Needed in Number of Classrooms

School Type	Facilities Needed in Classrooms				Total	
	District No. 7		County Unit			
	Low	High	Low	High	Low	High
Elementary	36	53	11	16	47	73
Middle	8	17	12	16	20	33
High	6	18	13	18	19	36
	50	88	36	50	86	142

18. The cost of providing public education is affected by many policy decisions, such as classroom size, use of double-sessions, year round curriculum, etc, all possibly affecting the equality of education. Assuming that the present classroom sizes, support facilities and student-teacher ratios are linked to the high performance of the school districts at present, the following depicts the number and 1980 cost of additional facilities required to maintain present facility ratios, using the low end of the expected population range.

TABLE 10.80.28
Additional Facilities Required for 38,300 Projected Population*

School District	Add-On Classrooms		New Classrooms With Core Facilities	
	Number	Price	Number	Price
Grants Pass	---	---	50	$2,700,000
County Unit	8	$352,000	28	$1,512,000
Total	8	$352,000	78	$6,724,000

*Assumes "add on" classrooms at 1980 cost of $44,000 and new classrooms (with pro-rated share of core facilities at 1980 cost of $54,00 each. Costs include furnishings, but do not include land acquisition or financing costs.

[1]Engineering report of the water Distribution System, Grants Pass Oregon, CH2M/Hill, February, 1979. Summary of Water Supply and Treatment Facilities Study, (CH2M/Hill) April, 1979. Revenue Requirements and Financial Aspects of Capital Improvements Program, CH2M/Hill, April, 1979.

Grants Pass
Urban Area

Master Transportation Plan

Adopted
December 1997

Revised by Ordinance 5022
September 25, 2000

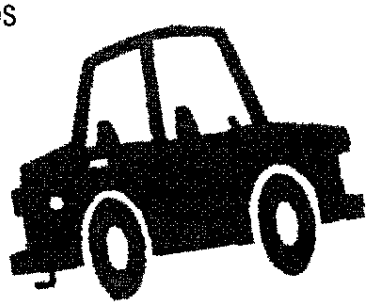
Grants Pass Urban Area

Master Transportation Plan

Mission Statement

The Grants Pass Area Master Transportation Plan has been developed to meet the current and future transportation needs of the Grants Pass Urban Area in ways that:

- Enable the safe, convenient, and efficient movement of people and goods
- Preserve the quality of life, area amenities, local neighborhoods and the natural environment
- Provide for a complete transportation system that allows for choices of travel by walking, bicycle, public transit, and private vehicles
- Ensure the wise use of public and private investments in transportation facilities and services



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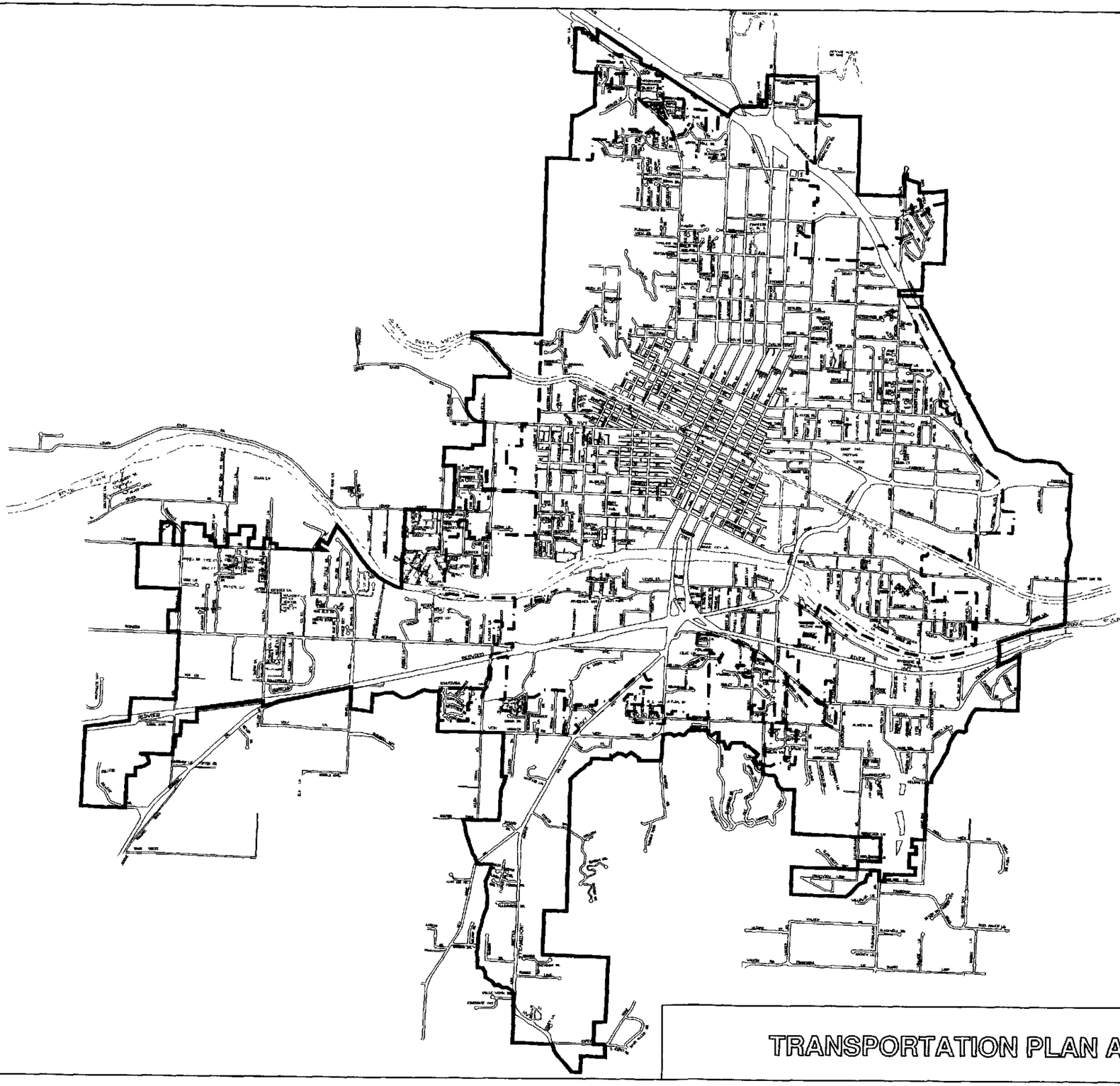


Legend

Urban Growth Boundary

City Limits

TRANSPORTATION PLAN AREA

Figure 1-1

Grants Pass Urban Area Transportation Plan

1. INTRODUCTION TO THE GRANTS PASS URBAN AREA MASTER TRANSPORTATION PLAN

This chapter provides an introduction to *the Grants Pass Urban Area Master Transportation Plan (MTP).* It includes a brief description of the planning area, information about why the plan was done, how it was done and who was involved, a summary of the contents and organization of the plan document, and a summary of how the plan complies with the requirements of Oregon's "Transportation Planning Rule."

A View of the Grants Pass Urban Area

Grants Pass, the county seat for Josephine County, is the hub of a large geographic area and the transportation system serving that area. The city (and its immediately surrounding area) contains more than half of the county's population, and is a major service, financial and retail center for people in the County and throughout the Rogue Valley. Grants Pass is located along Interstate 5 at the junction of I-5 and the Redwood Highway, which links I-5 with the Pacific Coast and the heavily traveled US 101 corridor. Figure 1-1 shows the Study Area Boundary, the city limits for Grants Pass and the Grants Pass Urban Area Boundary.

Until the recession of the late 1980's this area experienced rapid population growth. Many of the people who moved to the area in the late 1970's and early 80's were retirees, drawn by the area's livability, recreational opportunities, mild climate and relatively low cost of living. Business and employment opportunities also drew new people into the area during this period.

The Rogue River, which runs through town, offers numerous scenic and recreational opportunities and is known as one of America's finest white water rivers. The Rogue offers excellent fishing opportunities year round, in addition to jet boats, rafting, hiking and backpacking. Grants Pass is near the Siskiyou National Forest, and the lands to the west of town are mostly forested. The combination of resources attracts large numbers of tourists to the area.

The economy in the County is based on timber and wood products, manufacturing, agriculture and tourism. Although historically a timber-based economy, the area has actively worked to diversify the local economy, and has fared better than many other northwest communities that were dependent on timber. Over the last decade, efforts by local business and community leaders to bring a better economic balance and diversity to the area have paid off. Josephine County now has over 20 high tech firms (over half of which have relocated from California), along with new manufacturing, retail, and other businesses.

The local economy is also dependent on the freeway and Redwood Highway tourist traffic that supports restaurant, motel, retail, service and other tourist related businesses centered near the two interchanges with I-5. In the long term, Grants Pass will continue to be the trade and financial center of the County, and the timber and tourist related industries will continue to be important parts of the local economy. Population is likely to continue to grow as new residents are attracted to the area.

The continued growth and diversification of the entire Rogue Valley, along with the state's efforts to promote tourism and other economic growth, will help the area's long term economic health. However, this growth, along with changes in travel needs, will result in increased travel demand. This will place greater demands on the area's transportation system and finances.

Why the Grants Pass Urban Area Master Transportation Plan (MTP) Was Prepared

The MTP will provide a long range "blueprint" for the development of the Grants Pass urban area transportation system to meet the changing transportation needs of the area. The last transportation plan for the community was completed in 1981. Since that time there have been many changes in the area, its economy, local transportation conditions and needs. After the economic downturn of the 1980's, the Grants Pass area has begun growing again. New businesses, residents, and visitors contribute to increased needs for improved transportation facilities and services. Concerns about traffic congestion, travel safety, and the wise investment of resources in the area's transportation system all contributed to the desire to update the transportation plan.

In addition, there have been significant changes in state and federal requirements related to the planning and provision of transportation. Transportation plans, which formerly consisted of road building programs, must now consider transit, transportation systems management, ridesharing and other forms of travel demand management, provisions for travel by non-motorized transportation modes, and the relationship between land development and transportation needs.

The State of Oregon (through the "Transportation Planning Rule") now requires that local areas prepare transportation plans that are directly linked with local land use plans. The federal Intermodal Surface Transportation Efficiency Act (ISTEA) imposes new planning rules and requires multimodal strategies to address transportation problems in the most efficient and cost effective manner. The federal Clean Air Act (CAA) provides yet another incentive to revise transportation strategies to encourage the use of efficient travel modes (e.g., carpooling, transit, bicycling and walking), encourage the reduction in use of the single occupant vehicle, and encourage the reduction of the total vehicle miles traveled (VMT) in the area.

This type of legislation was enacted to try to avoid some of the problems caused by suburban sprawl. Low density land development results in less efficient use of land and the public infrastructure (e.g., water systems, sewers and other utilities, and roads) built to support it. Careful integration of land use and transportation decisions and investments will ensure better use of limited resources and a better return on public investments in community services and facilities.

How the Plan Was Prepared and Who Was Involved

The City of Grants Pass, Josephine County, the Oregon Department of Transportation (ODOT), and the Rogue Valley Council of Governments (RVCOG), worked together to develop this plan. Representatives from each of these agencies formed the Management Team for the Plan. The Management Team worked closely with the community to identify community needs and priorities, and to develop a plan that responds to the community's input. A Transportation Public Advisory Committee was actively involved throughout the development of the plan to provide information and guidance; the Committee included representatives from area neighborhoods, the business community, and special transportation interests such as public transit and bicyclists. Several public meetings were held during the development of the Plan to discuss various aspects of the plan with the larger community; a project newsletter was widely distributed, and project staff met with members of the community to discuss various issues during the plan development.

Work began on this plan in December, 1993, with an initial identification of transportation problems and issues, collection of available data and information about the transportation system, organization of the Management Team and the Transportation Public Advisory Committee (TPAC), and development of the project's work plan and schedule. The work was organized into four major phases, each of which concluded with a major product or report. These phases included:

Phase I - Laying the Foundation - The purpose of Phase I was to complete a "strategic assessment" of the current transportation situation in the Grants Pass Urban Area. This phase included: reviewing existing plans and policies of the participating agencies, summarizing existing data and information, documenting federal, state and local planning requirements, designing the community involvement process and other key tasks, and identifying transportation issues in the study area.

Phase II - Building the Plan Framework - Phase II included the development of the planning tools, information and procedures needed to complete the Plan. Specific tasks in this phase included: collecting and analyzing additional data, developing the travel demand forecasting model (Figure 1-2), inventorying and analyzing the operation of the current transportation system, and identifying current and future transportation needs for the area.

Phase III - Testing the Options - Work in Phase III concentrated on the development and evaluation of potential transportation improvements to address the needs identified in Phase II. A range of transportation improvements were considered to address traffic congestion, safety, "missing links" in the transportation system, travel demand management, and transportation system management.

Phase IV - Completing the Plan - In Phase IV the draft and final versions of the MTP were completed, along with necessary documentation and environmental analysis of the proposed improvements.

Figure 1-2: Travel Demand Forecasting Model

The Gravity Model

There are two basic components of a traffic model:

- Transportation Network - Arterial and Collector Streets, Geometry, Function, Transportation Analysis Zones (TAZ)
- Land Use Data - Dwelling Units and Employment

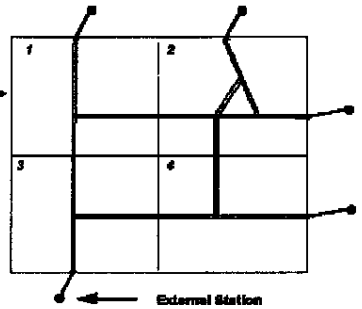
Current Inventories and Forecasts are Developed by TAZ

- Productions: Dwelling Units - Single Family, Apartments, etc.
- Attractions: Employment - Retail, Industrial, Service, etc.

The model assigns trips to roadways, and evaluates travel:

- Within each zone
- Between zones
- Between this system and the "outside"

Large establishments with numerous employees (ie. Fred Meyer) have more weight, and attract more trips than smaller businesses with fewer employees.



Trip distribution is influenced by:

- Distance
- Friction (Traffic Signals, Speed, Access)
- Intervening Opportunities

Uses of the Gravity Model:

- Evaluation of future road construction projects, from the addition of a new traffic signal to the construction of new roads
- Identify the impact of future development on the transportation system.
- Air quality emissions analysis.

What a travel forecasting model can do:

- Indicate trends for traffic growth
- Serve as a tool for evaluating system alternatives

What a travel forecasting model cannot do:

- Precisely replicate all traffic counts
- Project with certainty the exact future traffic for individual roads

Summary of the Master Transportation Plan

The Master Transportation Plan covers the various topics required under state legislation for the transportation plan. The technical data used to prepare this plan are in separate documents. The Transportation Plan is divided into eight chapters which cover the various topics required under state legislation; these are described below.

Chapter 1: Introduction to the Grants Pass Urban Area Master Transportation Plan includes background information about the Grants Pass Urban Area, the development of the transportation plan, and a summary of how the plan complies with the requirements of Oregon's Transportation Planning Rule.

Chapter 2: Transportation Today and Tomorrow in the Grants Pass Urban Area includes a description of the existing transportation system and its utilization, a summary of projected growth in employment and population in the study area, forecasts of future travel demand, and a summary of current and future transportation needs and deficiencies.

Chapter 3: Goals and Policies includes the goals and policies for the Master Transportation Plan. These goals and policies are organized around seven major themes or cornerstones of the plan.

Chapter 4: Roadway Element includes a map identifying the new functional classifications for the roadways in the study area, descriptions of the planned transportation improvements, and street design guidelines for the study area.

Chapter 5: Non-Motorized Element describes the improvements planned to serve bicyclists and pedestrians in the study area.

Chapter 6: Other Transportation Modes describes the public transit services available in the area, along with information about air service, intercity rail and bus utilities.

Chapter 7: Managing Transportation includes information about managing transportation demand to foster more efficient travel modes, and managing the transportation system (through access management strategies and other system management techniques) to ensure the efficient use of transportation facilities and services.

Chapter 8: Financing the Plan includes an assessment of costs to implement the plan, a summary of financial resources, and financing strategies to implement the plan.

How the Master Transportation Plan Will be Used

The MTP will provide guidance for a variety of decisions that public agencies and private developers will make. It includes a specific set of transportation system improvements that need to be implemented to serve current and anticipated transportation needs in the Grants Pass Urban Area. As funds become available, the City, County and State will implement the planned improvements. The MTP also provides a good basis to coordinate the actions of different public agencies to address transportation needs in the most efficient and cost effective way.

In addition, the MTP provides guidance for private developers. As development occurs, transportation system improvements will be made in accordance with the long range transportation system plan, using a common set of design standards. The MTP provides

advance information for developers to help in the design and financial planning for their developments. The City and County can use the MTP to ensure that there is consistency between land use and transportation decisions as the long range transportation system plan and Comprehensive Plan are carried out.

Compliance with Oregon's Transportation Planning Rule

In April 1991, the Oregon Land Conservation and Development Commission (LCDC), with the concurrence of the Oregon Department of Transportation (ODOT), adopted the Transportation Planning Rule (TPR) to implement the Statewide Planning Goal 12. The basic purpose of the TPR is *"to provide and encourage a safe, convenient and economic transportation system"* in Oregon. Underlying objectives of the TPR are to:

- Reduce the reliance of travelers on the private automobile,
- Encourage the use of other modes of travel,
- Get the maximum use out of transportation facilities and services through efficient transportation system management, and
- Reduce and manage the demand for travel through more efficient forms of development that reduce the need for travel and better integrate land use and transportation decisions.

The TPR requires local jurisdictions to prepare and adopt a Transportation Systems Plan by May 8, 1997 (Section 660-12-055 (2)). The Plan must identify transportation facilities and services adequate to meet identified state, regional and local transportation needs for the next 20 years. The TPR includes very specific requirements, along with recommendations for the preparation of these transportation plans. Requirements vary depending on the size of the community, whether the study area is part of a Metropolitan Planning Organization (MPO), and whether there is public transportation. The TPR requirements described below are for an urban area: (1) with population greater than 25,000, (2) that is not part of a Metropolitan Planning Organization, and (3) does not have a public transportation system.

Specific requirements for the Grants Pass Urban Area Transportation Plan are listed below in Table 1-1, along with a description of how this Plan complies with the requirements. A copy of the TPR is included in Appendix A of this plan; this copy includes amendments to the TPR adopted on September 11, 1995.

Table 1-1: Compliance with TPR Requirements

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-015 Preparation and Coordination of a Transportation Systems Plan	
(3) Cities and counties shall prepare, adopt and amend local TSP's for lands within their planning jurisdiction in compliance with this division	Upon adoption by the City of Grants Pass and Josephine County this Transportation Plan will meet the requirements of this section.
(a) Local TSPs shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP	Local, regional and state transportation plans were reviewed as part of the development process for this transportation plan. (See Appendix G: Summary of Existing Plans and Policies.) The recommendations in this plan are consistent with the plans of other agencies.
(b) Where the regional TSP or element of the state TSP have not been adopted, the city or county shall coordinate the preparation of the local TSP with the regional transportation planning body and ODOT to assure that regional and state transportation needs are accommodated	Upon its adoption, the Transportation Plan will be incorporated as the transportation element of the affected jurisdictions' comprehensive plans.
(4) Cities and counties shall adopt regional and local TSPs required by this division as part of their comprehensive plans...	This Plan was coordinated through a Project Management Team that included representatives from the City, County, ODOT, and Rogue Valley Council of Governments. In addition a Transportation Public Advisory Committee was established to help guide the development of the plan. This Committee included representatives of the community, including the current (private) provider of public transit services, and taxi service.
(5) The preparation of TSPs shall be coordinated with affected state and federal agencies, local governments, special districts, and private providers of transportation services	

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-020 Elements of Transportation Systems Plans	
(2) The TSP shall include the following elements: (a) A determination of transportation needs (b) A road plan for a (network) system of arterial and collectors and standards for the layout of local streets and other important non-collector street connections... consistent with ...state and regional TSP's...standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation...new connections to arterial and state highways shall be consistent with designated access management categories... (c) A public transportation plan which: (A) describes public transportation services for the transportation disadvantaged and identifies service inadequacies, (B) describes intercity bus and passenger rail service...(C) for areas within an urban growth boundary which have public transit services, identifies existing and planned transit trunk routes... (d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area...	This Plan includes a description of the existing transportation system for the Grants Pass Urban Area in Chapter 2, along with a determination of transportation needs and deficiencies. The Plan includes recommended transportation system improvements and upgrades in Chapter 4, along with the functional classifications for the roadways in the Urban Area, and guidelines for street classification and design. Public transportation is addressed in Chapter 6, along with intercity bus and rail connections, aviation, and pipelines and utilities. Currently public transportation is provided by Rogue Valley Transit, a privately owned and operated entity. They also provide taxi service, and shuttle service to the airport in Medford. Special transportation services for the disadvantaged are provided by the Josephine County Community Services. There does not appear to be a feasible way to finance and implement a public transit system to serve the Grants Pass Urban Area. Consequently the community will have to rely on existing services. The non-motorized element of the plan is included in Chapter 5. This identifies existing and planned improvements for bicyclists and pedestrians.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-020 Elements of Transportation Systems Plans (continued)	
(e) An air, rail, water and pipeline transportation plan... (f) For areas within an urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management. (h) Policies and land use regulations for implementing the TSP... (i) For areas within an urban growth boundary containing a population greater than 2500 persons, a transportation financing program	Chapter 7 of the Plan includes the transportation system management and transportation demand management elements of the Plan. Chapter 3 of the Plan includes goals and policies addressing a wide range of topics, including integration of land use and transportation decisions, and implementation of the plan. Chapter 9 includes a financial analysis and strategies for implementing the plan.
(3) Each element identified in subsection (2)(b)-(d) of this section shall contain (a) an inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition. (b) A system of planned transportation facilities, services and major improvements...functional classifications of planned facilities and services and their planned capacities and levels of service (c) A description of the location of planned facilities, services and major improvements, establishing the general corridor within which the ...improvements may be sited... (d) Identification of the provider of each transportation facility or service	Chapter 2 of the Plan includes a description of the existing transportation system in the study area, along with information about current operating conditions, an analysis of future travel demand (for 20 years), and the identification of current and future deficiencies. Chapter 4 includes tables and maps describing the planned improvements, and indicating their location, the primary beneficiaries of the improvements, and the primary and secondary funding sources expected to be used for each improvement.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-025. Complying with the Goals in Preparing Transportation System Plans	
(1) Except as provided in subsection (3) of this section, adoption of a TSP shall constitute the land use decision regarding the need for transportation facilities, services, and major improvements and their function mode, and general location. (2) Findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies and land use regulations shall be developed in conjunction with the adoption of the TSP. (3) A local government or MPO may defer decisions regarding function, general location or mode of a refinement plan...	The goals and policies for the Grants Pass Urban Area Master Transportation Plan were developed to be compatible with those in the Oregon Statewide Plan, as well as local and regional transportation and land use goals and policies. The MTP specifically address statewide goals such as reducing the reliance on private automobiles, encouraging other modes of travel, coordinating among multiple jurisdictions, and integrating land use and transportation decisions.
660-12-030 Determination of Transportation Needs	
(1) The TSP shall identify transportation needs relevant to the planning area and the scale of the transportation network being planned including: (a) State, regional, and local transportation needs. (b) Needs of the transportation disadvantaged. (c) Needs for movement of goods and services... (2) ...Local governments preparing local TSPs shall rely on the analyses of state and regional transportation needs in adopted elements of the state TSP and adopted regional TSPs.	Chapter 2 of the Plan includes an identification of needs and deficiencies related to congestion and capacity, safety, accessibility and transportation system connectivity, functional classifications and sub standard facility needs, public transportation and special transportation services, non-motorized transportation, aviation, rail, and trucks.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-030 Determination of Transportation Needs (continued)	
(3) Within urban growth boundaries, the determination of local and regional transportation needs shall be based upon: (a) Population and employment forecasts and distributions which are consistent with the acknowledged comprehensive plan...forecasts and distributions shall be for 20 years... (b) Measures adopted pursuant to 660-12-045 to encourage reduced reliance on the automobile	In preparing the plan land use and transportation documents and plans from state, regional, and local governments were reviewed, and relevant findings were incorporated into interim documents and reports prepared for the MTP. Travel demand forecasts were prepared by the RVCOG for a 20 year planning horizon based on the population and employment forecasts derived from adopted comprehensive plans.
660-12-035 Evaluation and Selection of Transportation System Alternatives	
(1) The TSP shall be based upon evaluation of potential impacts of system alternatives that can reasonably be expected to meet the identified transportation needs in a safe manner and at a reasonable cost with available technology. The following shall be evaluated as components of system alternatives: (a) Improvements to existing facilities or services (b) New facilities and services, including different modes or combinations of modes... (c) Transportation system management measures; (d) Demand management measures; and	A series of alternatives were developed to respond to the needs and deficiencies identified in Chapter 2. These included a no action alternative, as well as seven different action alternatives. The action alternatives included a mix of improvements to existing facilities and new facilities.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-035 Evaluation and Selection of Transportation System Alternatives (continued)	
(e) A no-build alternative... (3) The following standards shall be used to evaluate and select alternatives. (a) The transportation system shall support urban and rural development by providing types and levels of transportation facilities and services appropriate to serve the land uses identified in the acknowledged comprehensive plan. (b) The transportation system shall be consistent with state and federal standards for protection of air, land and water quality... (c) The transportation system shall minimize adverse economic, social, environmental and energy consequences. (d) the transportation system shall minimize conflicts and facilitate connections between modes of travel. (e) The transportation system shall avoid principal reliance on any one mode of transportation and shall reduce principal reliance on the automobile... (8) Where existing and committed transportation facilities and services have adequate capacity to support the land uses in the acknowledged comprehensive plan, the local government shall not be required to evaluate alternatives as provided in this section.	Chapter 5 includes a list of the evaluation criteria used to evaluate the alternatives. These include criteria such as: Performance (congestion relief, safety, network completion, encouraging other travel modes), Impacts (on the natural and built environments and construction impacts), Financial Considerations (cost effectiveness and funding feasibility), Engineering/Design Feasibility (technical elements, and required structures), and Community Support (compatibility with plans, and degree of community support).

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-040 Transportation Financing Program	
(1) For areas within an urban growth boundary containing a population greater than 2,500 persons, the TSP shall include a transportation financing program (2) A transportation financing program shall include: (a) a list of planned transportation facilities and major improvements; (b) A general estimate of the timing for planned transportation facilities and major improvements; (c) Determination of rough cost estimates for the transportation facilities and major improvements identified in the TSP	Chapter 8 of the Plan includes a financial strategy and the full report on the financial analysis done for the Plan. Chapter 4 of the Plan includes a table identifying all of the planned improvements, their planning level cost estimates, priority, timing for construction, beneficiaries, and primary and secondary funding sources.
(3) The determination of rough cost estimates is intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan and allow jurisdictions to assess the adequacy of existing and possible alternative funding mechanisms ...the transportation financing plan shall include a discussion of the facility provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of ...improvements.	Information about current and past funding trends is included in the financial report in Chapter 8, along with forecasts and an assessment of likely future income for transportation purposes.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-040 Transportation Financing Program (continued)	
(5) The transportation financing program shall implement comprehensive plan policies which provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities which would cause premature development of urbanizable areas or conversion of rural lands to urban uses.	
660-12-045 Implementation of the Transportation System Plan	
(1) Each local government shall amend its land use regulations to implement the TSP. (2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulation shall include: (a) Access control measures...consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities; (b) Standards to protect future operation of roads, transitways and major transit corridors; (c) Measures to protect public use airports... (d) A process for coordinated review of future land use decisions affecting transportation...	The Transportation Plan will be adopted as an element of the comprehensive plan. Additional local ordinances will be prepared consistent with TPR requirements.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-045 Implementation of the Transportation System Plan (continued)	
(e) A process to apply conditions to development proposals to minimize impacts and protect transportation facilities, corridors or sites. (f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs and ODOT of: (A) land use applications that require public hearings; (B) Subdivision and partition applications; (C) Other applications which affect private access to roads; and (D) Other applications...which affect airport operations. (g) Regulations assuring the amendments to land use designations are consistent with...the TSP. (3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities...to provide for safe and convenient pedestrian, bicycle and vehicular circulation... (a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park and ride lots.	The Transportation Plan will be adopted as an element of the comprehensive plan. Additional local ordinances will be prepared consistent with TPR requirements.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-045 Implementation of the Transportation System Plan (continued)	
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new...developments...to adjacent residential areas and transit stops, and to neighborhood activity centers... (c) Where off site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors. (6) In developing a bicycle and pedestrian circulation plan...local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas... (7) Local government shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility...consider and reduce excessive standards for local streets...to reduce the cost...provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation...	The Transportation Plan will be adopted as an element of the comprehensive plan. Additional local ordinances will be prepared consistent with TPR requirements.

TPR Requirements/Recommendations	Grants Pass Urban Area MTP Compliance
660-12-050 Transportation Project Development	
(2) Regional TSPs shall provide for coordinated project development among affected local governments...	Policies in Chapter 3 address interagency coordination in planning and implementing transportation improvements
660-12-055 Timing of Adoption and Update of Transportation System Plan; Exemptions	
(2) for areas outside an MPO, cities and counties shall complete and adopt regional and local TSPs and implementing measures by May 8, 1997.	Adopted on December 3, 1997.
(3) Within two years of adoption of this rule affected cities and counties shall, for urban areas of 25,000 or more, adopt land use and subdivision ordinances or amendments...	Additional ordinances and subdivision amendments will be developed following adoption of the transportation plan.
(4)(b) Affected cities and counties that do not have acknowledged plans and land use regulations (that comply with this rule as of April 12,1995) shall apply relevant sections of this rule to land use decisions....	
(5) Cities and counties shall update their TSPs and implementing measures as necessary to comply with this division at each periodic review subsequent to initial compliance with this division...	The policies in Chapter 3 include provisions to update the transportation plan on a regular basis.
660-12-060 Plan and Land Use Regulation Amendments	
(1) Amendments to functional plans, acknowledged comprehensive plans, and land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and level of service of the facility...	The Master Transportation Plan will be incorporated into the Comprehensive Plan for Grants Pass, and appropriate revisions will be made to the Josephine County Plan, as well as other local planning documents and regulations.

2. TRANSPORTATION TODAY AND TOMORROW IN THE GRANTS PASS URBAN AREA

This chapter includes a description of the existing transportation system in the study area, and information about current travel patterns and operating conditions for this system. Information about current levels of congestion (or "Level of Service") is included on major roadways and at major intersections, along with the information about accidents. Major traffic generators in the study area are identified, along with areas where future growth is expected. In addition, this chapter includes a summary of transportation system needs and deficiencies related to: functional classification revisions, substandard facilities, high accident locations, missing links in the roadway system, public transportation, nonmotorized travel (bicycles and pedestrians), aviation, rail, and truck.

Existing Transportation System in the Grants Pass Urban Area

The transportation system in the study area is made up of several discrete elements, including roadways, public transit services, sidewalks, trails and other facilities for bicyclists and pedestrians, facilities and services for rail and aviation, and pipelines. The following sections and figures provide a summary of the study area transportation system.

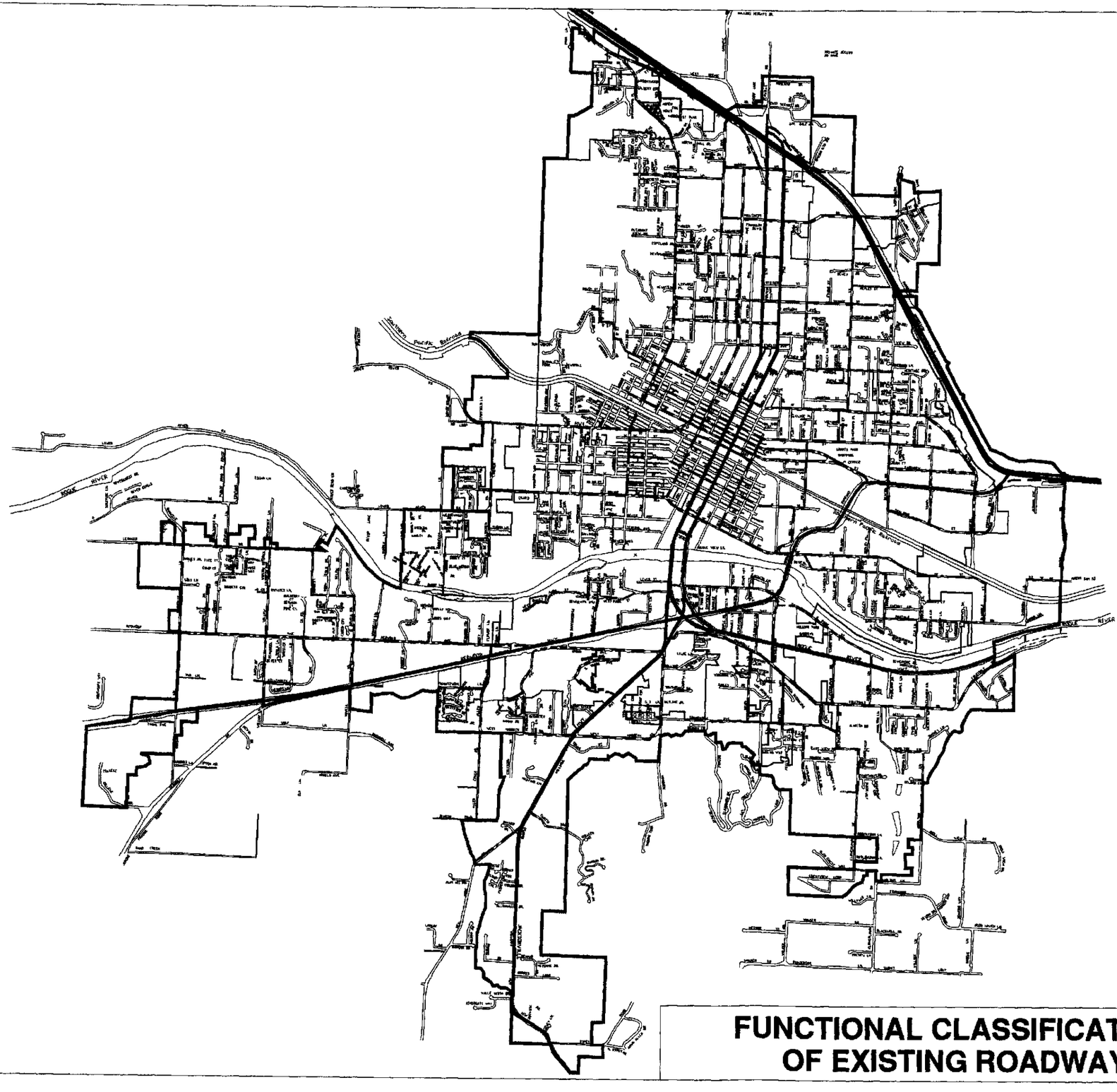
Functional Street Classification

The street and highway system is composed of a hierarchy of streets designed to provide for mobility (or the movement of people and goods), and access to adjacent properties in an efficient manner. The classification of streets is done to determine the degree to which individual streets (or segments of streets) should emphasize mobility versus property access, two functions which are potentially in conflict. Providing a high degree of access to property (which means allowing for traffic to leave/enter the roadway freely) impedes the ability of the roadway to move traffic; providing for large volumes of moving traffic, and/or high speeds for travel impedes access to properties.

Depending on the function of the roadway, it will be designed and operated differently to facilitate through movement of traffic or traffic entering/leaving the roadway. The Grants Pass Urban Area functional classification system is currently comprised of five different types of facilities. They are described in Table 2-1. A map showing the current functional classification of the roadways in the study area is included in Figure 2-1, and detailed descriptions of the roadways are included in Appendix B to this Plan. It should be noted that Figure 2-1 does not include proposed roadway extensions.

Table 2-1: Functional Classification of Roadways

Facility Type	Function or Emphasis - Mobility vs Property Access
State Highways (includes freeways, highways, and principal state routes)	Mobility - with no direct access to adjacent properties from the roadway, and limited access to arterial streets - generally serves intercity travel at relatively high travel speeds - right of way (ROW) between 60-230 feet, 2-6 travel lanes varies
Arterial Streets 6000+ ADT	Mobility - with access to other arterials and minimal direct property access - generally continuous for long distances providing connections with highways, major destinations and other arterials - serves longer trips (5+ miles) - speeds of 40-45 mile per hour - ROW from 60-100 feet, 2-4 travel lanes
Collector Street 3000-6000 ADT	Mobility - connecting neighborhoods to each other and to major arterials and/or freeways - generally continuous facilities for moderate distances, serving shorter trips of 2-5 miles in length, providing a moderate level of access to adjacent properties - ROW 50-80 feet with 2 travel lanes
Local Collector Streets 1000-3000 ADT	Access - and local circulation within neighborhoods to "collect" and "distribute" trips and connect to higher level arterials - providing a relatively high level of access to adjacent properties - typically 2 lanes with 50-60 feet of ROW
Local Access Streets <1000 ADT	Access - to adjacent properties - designed for short trips within neighborhoods connecting to collectors and higher level arterials - 2 lanes with ROW up to 60 feet



Functional Classifications

- State Highway
- Arterial
- Collector
- Local Collector
- Local
- Private

FUNCTIONAL CLASSIFICATIONS OF EXISTING ROADWAYS

Figure 2-1

Grants Pass Urban Area Transportation Plan

8-25-00

Major Traffic Generators

Existing average daily traffic (ADT) volumes for roadways in the study area were obtained from the Oregon Department of Transportation's (ODOT) Traffic Engineering Section and Transportation System Monitoring Unit, the Josephine County Public Works Department, and from the City of Grants Pass Engineering Division. The counts were obtained over the period from 1991 to 1993. ADT for individual facilities that were counted during this period is included in Appendix B.

As shown in that table, traffic volumes vary greatly by facility, and in some cases, by sections of facility. This is due in part to the location and characteristics of major "traffic generators", i.e., land uses that tend to generate or attract lots of traffic. Major traffic generators within the study area are shown in Figure 2-2. They tend to be concentrated along the four state highway corridors , as described below.

- **Highway 99** (6th and 7th Streets) - strip commercial area, business park, and hospital between Morgan Lane and Midland Avenue; medical services between Midland Avenue and Manzanita Avenue; downtown commercial and business area between A Street and M Street.
- **Redwood Highway** - strip commercial area, business park, and County Fairgrounds between Highway 99 and Allen Creek Road; industrial area in the vicinity of Dowell Road.
- **Grants Pass Parkway** - commercial area between Agness Avenue and Beacon Drive; industrial area north and south of the railroad tracks and west of Grants Pass Parkway.
- **Rogue River Highway** - strip commercial area between Maple Lane and Carnahan Drive.

Truck Traffic

There are no designated truck routes within the Grants Pass Urban Area. With the exception of local deliveries, most of the truck traffic can be classified as through or inter-regional trips that must utilize portions of the local street system for travel between state highways and I-5. Truck volume data was obtained from ODOT's Traffic Engineering Section and Transportation System Monitoring Unit, based on vehicle classification counts performed between 1991 and 1993.

Average daily truck volumes on **Redwood Highway/6th Street** traveling southbound between I-5 and A Street are around 550 trucks per day; this accounts for about 3.6 percent of total daily traffic volume. Between A and D Streets the volumes of trucks is about the same, but accounts for only 2.7 percent of the daily traffic volumes in this area

(due to higher total traffic volumes in this location.) In the vicinity of Harbeck Road and Jacksonville Highway (where there is two way traffic) truck volumes are approximately 550/day, accounting for about 2.5 percent of daily traffic. On the northbound segment (7th Street), there are about 500 trucks/day between M and E streets (2.1 percent of daily traffic), and between A Street and I-5 there are around 520 trucks/day, representing about 3.5 percent of daily traffic volumes.

On **Grants Pass Parkway** there are about 350 trucks/day between Rogue River Highway and M Streets (around 3.5 percent of daily traffic.) There are about 400 trucks/day on **Rogue River Highway**, which is about 2.1 percent of total daily traffic.

Public Transportation

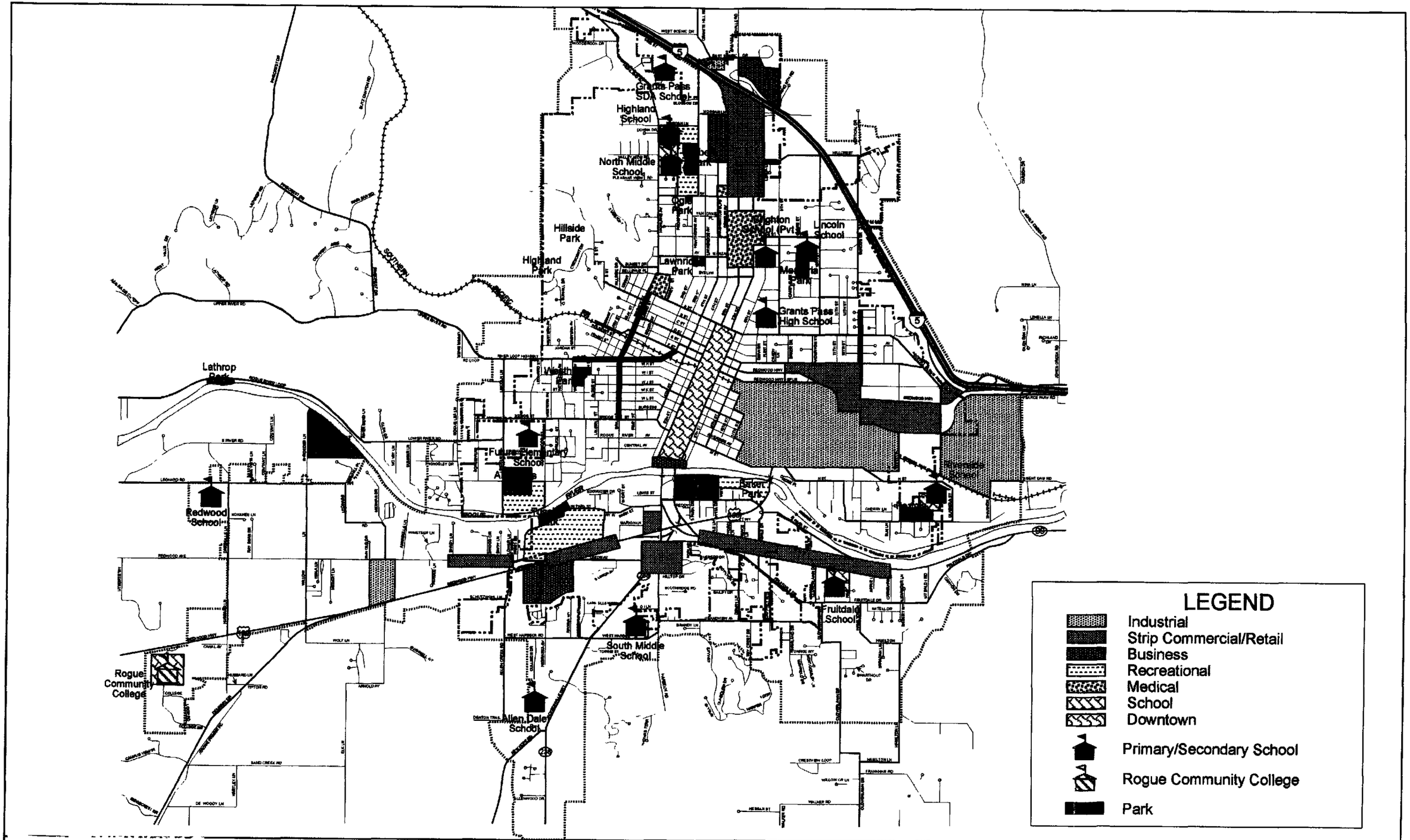
Public transportation within the Grants Pass Urban Area is currently provided by the Rogue Transit System. This is operated by a private operator (Rogue Transportation, Inc.), which also provides local taxi service and shuttle service to the airport in Medford. There is only one transit route in the area, configured as a continuous loop. Figure 2-3 shows the current route. It operates along Highway 99 from Morgan Lane through the downtown area to Redwood Highway, then along Redwood Highway to the Rogue Community College, and along A, D and F Streets between the downtown and Beacon Drive.

Service is provided Monday through Friday between 6:00 a.m. and 6:00 p.m., and on Saturday between 8:00 a.m. and 5:00 p.m.. The minimum headway (or time between buses) is one hour. The fare is one dollar. Existing ridership on the Rogue Transit System is around 100 passengers/day.

There is a strong community interest in providing public transit services, especially to meet the transportation needs of people who do not, or cannot, provide their own transportation (such as the young, the elderly, disabled people and people without access to a private vehicle.)

The current situation in Grants Pass is unique due to the fact that transit service is being provided by a private, rather than public agency. Since the transit service is provided by a private "for profit" operator, this limits the types of public funds that could potentially be used to finance transit service. The operator must rely on fares and other revenue to operate the system, which limits the amount of service that can be provided to the community, and impacts the long term prospects for continued public transit services in the area.

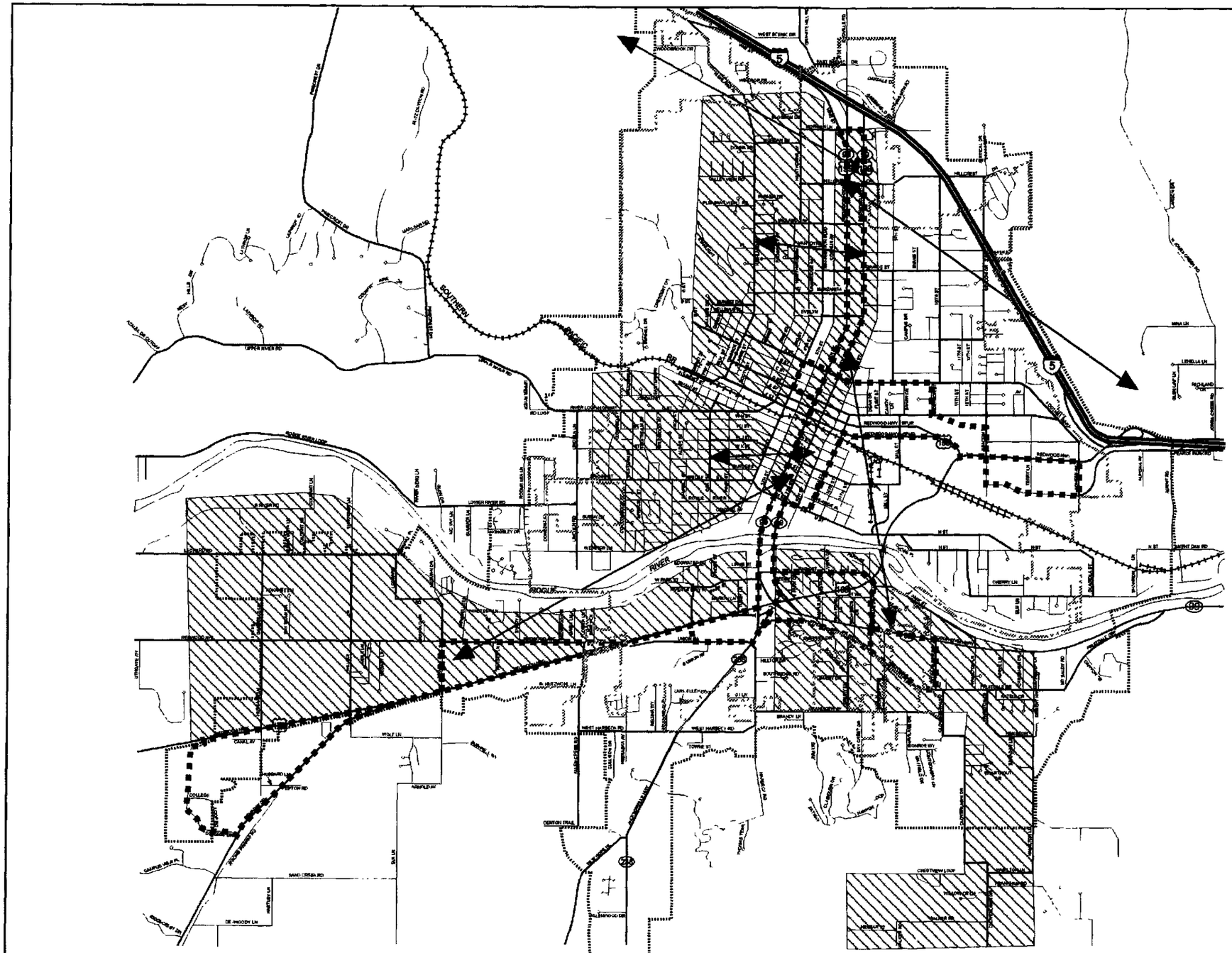
In addition to the public transit service, other transportation services are provided by some social service agencies, and by private tourist operations. However, these services are restricted to the clients of the agency (or business) providing the service and are usually limited to specific trip purposes and/or locations. Regularly scheduled transportation services operating in the area include:



Existing Major Traffic Generators

Figure 2-2

Grants Pass Urban Area Transportation Plan



Transit Route and Markets

Figure 2-3

Grants Pass Urban Area Transportation Plan

- **Grants Pass Taxi** - operating five round trips per day between Grants Pass, Rogue River and Medford - $12.00 fare each way - primary market is trips to/from the Medford/Jackson Airport
- **Greyhound/Trailways** - operating four trips/day in each direction between Grants Pass and Medford, with connections to point beyond - $5.50 fare each way;
- **Josephine County Community Services** - provides transportation for eligible individuals over the age of 60 who cannot drive or have no access to an automobile - recipients receive one trip/month between Grants Pass and Medford for a $3.00 fare - they can schedule two trips/month to the VA Hospital in Roseburg for a $5.00 fare;
- **Western Transportation Lines** - operates morning and afternoon shuttle services between Medford, Gold Hill, Rogue River, Grants Pass and Cave Junction - fares range from $4.00 - $8.00 - principal market is students going to/from Rogue Community College.

It is likely that community needs for public transit will increase due to: (1) overall growth in the area's population; (2) changes in the composition of the population, with more people becoming dependent on public transit (especially the elderly); (3) increased emphasis on travel by means other than the private automobile to reduce congestion and total VMT (vehicle miles traveled); and (4) requirements to improve air quality and address other environmental problems related to automobile use.

Nonmotorized Travel Modes

Bicycles

Given the large number of tourists visiting the area, the numerous area attractions, and the relatively flat terrain, there is a lot of potential for bicycle travel within the study area. Many roadways within the Grants Pass Urban Area are suitable for bicycle travel. State highways and many arterial routes generally have adequate shoulders for bicycles or sufficient pavement width to accommodate bicyclists safely. On most collector streets and lower classification roadways there is generally less pavement width; however, traffic volumes are less and there is not as much competition between motorized and nonmotorized travel modes.

There are some designated bike routes within the study area that have been striped on the pavement and/or signed to identify their presence and location. Routes considered the most desirable for bicycle travel according to the 1992 Josephine County Bicycle Guide are shown in Figure 2-4. In the Guide, routes are divided into four categories, defined by the Josephine County Bikeway Advisory Committee: (1) paved roads with minimal or no shoulders, (2) paved shoulders outside the "fog line" 2-4 feet wide, (3) paved shoulders 4 feet and wider with possible bike lane designation, and (4) separated bike path.

One of the largest generators of bicycle traffic in the area is the Rogue Community College. It is served by a separated bike path or wide shoulders on street until the 6th and 7th Street bridges over the Rogue River. At that point bicyclists must share the travel lanes with vehicular traffic. There are separate bike paths along the 7th Street/Jacksonville Highway

(between Park Street and Union Avenue).

Pedestrians

Figure 2-5 illustrates the system of sidewalks in the Grants Pass Urban Area. Pedestrian facilities in the area consist of sidewalks along one or both sides of the roadway. The sidewalk system is the most complete in the downtown core and along the major commercial corridors. In the older residential neighborhoods sidewalks are limited, or non-existent. A more extensive system of sidewalks exists in newer residential tracts and neighborhoods, but there are few pedestrian connections between neighborhoods.

Pipelines

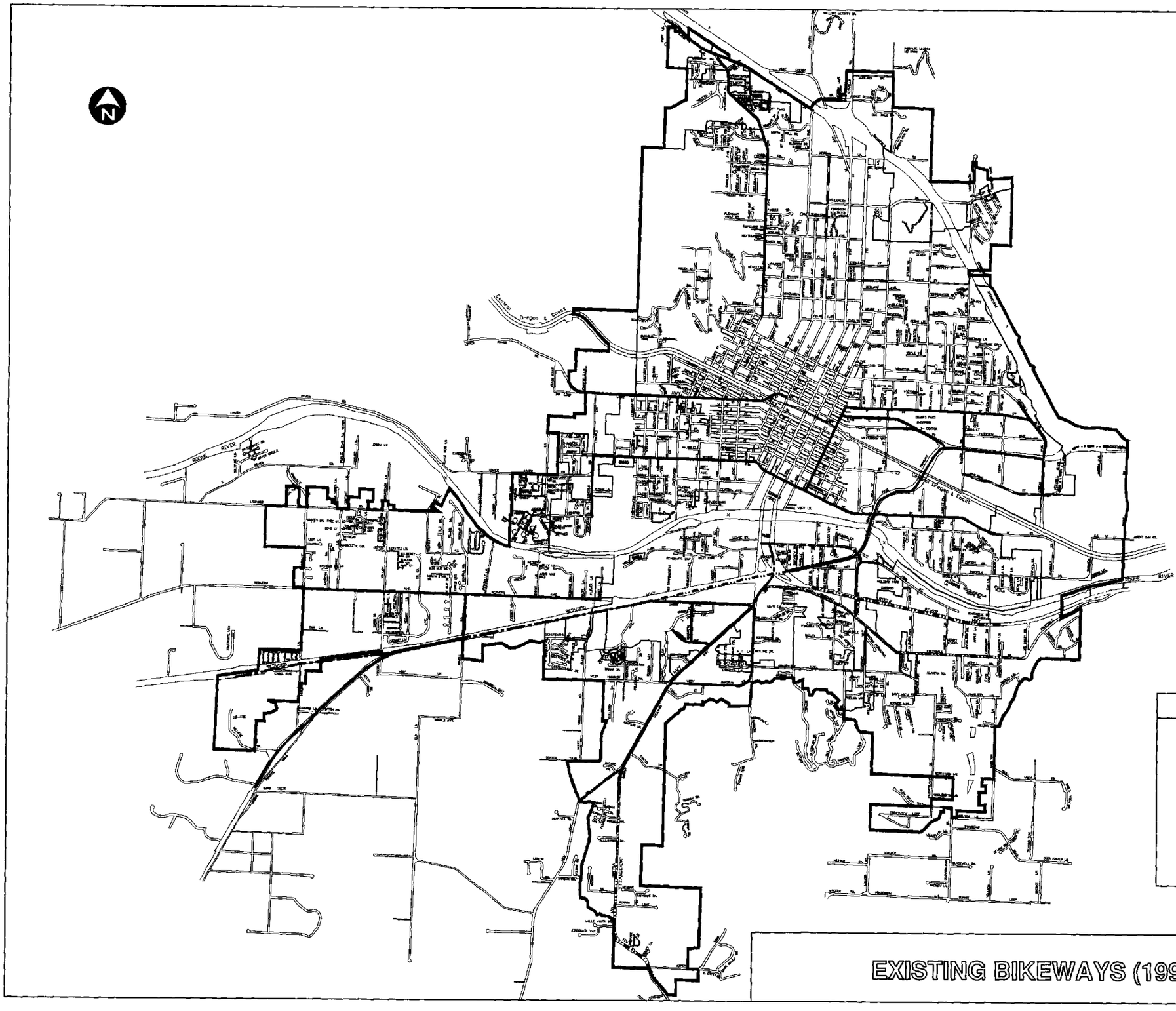
Within the Grants Pass Urban Area there are two natural gas pipelines. One natural gas transmission line is operated by the Northwest Pipeline Corporation and originates in Eugene, Oregon. This line is used to transport natural gas over long distances to local utilities and distributors.

The second pipeline is classified as a natural gas distribution utility line and is operated by W. P. Natural. It runs between Grants Pass and Ashland, Oregon, providing for distribution of natural gas to these local communities.

Aviation

Grants Pass Airport is located six miles northwest of Grants Pass, located on approximately 200 acres. Access to the airport is via Merlin Road, Monument Drive and Brookside Boulevard, which connect to I-5. The airport is classified by the Federal Aviation Administration at a "General Utility" general aviation airport, serving business, commercial, instructional and personal aircraft uses. The airport, owned and operated by Josephine County, has one paved runway (75 feet by 4000 feet). There are no scheduled commercial air services at the Grants Pass Airport. The closest airport providing commercial passenger service is located in Medford, about 30 miles south/east of Grants Pass.

In 1990-91 there were approximately 100 aircraft based at the Grants Pass Airport. These aircraft are generally small, single-engine, and multi-engine, fixed-wing aircraft. Aircraft activity was last recorded during the calendar year 1986, when there was an estimated 24,500 "aircraft operations." Of this, single engine aircraft operations activity accounted for around 97 percent of total operations, with multi-engine aircraft accounting for the balance.



Bikeway Classifications

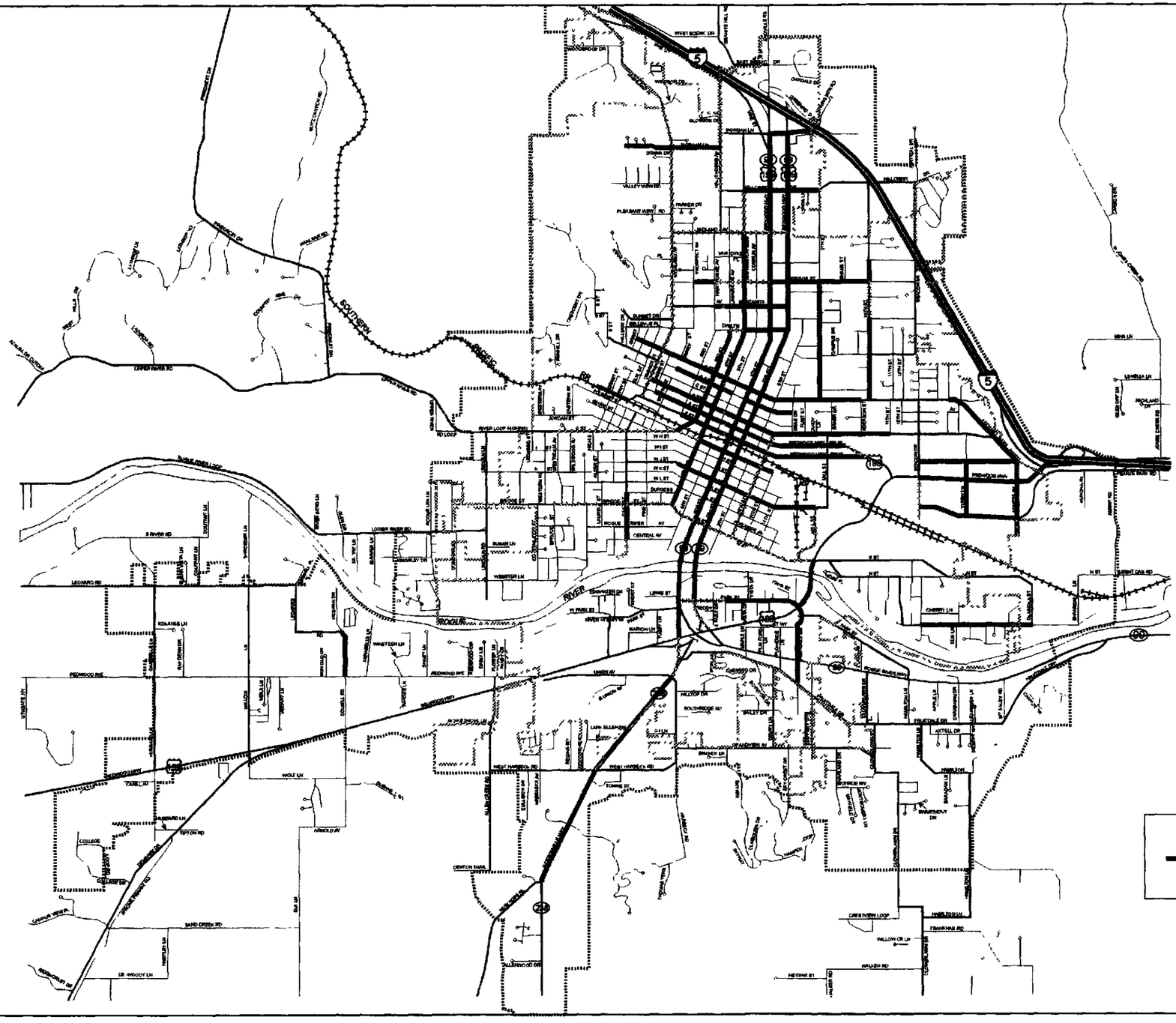
Existing

- Bike Lane
- Multi-Use Path
- Shoulder Bikeway
- Wide Outside Lane
- Bicycle Route

EXISTING BIKEWAYS (1995)

Figure 2-4

Grants Pass Urban Area Transportation Plan



Current Sidewalk Locations

Figure 2-5

Grants Pass Urban Area Transportation Plan

Rail

Since 1994 rail transportation in the Grants Pass Urban Area has been operated by RailTex, and is limited to the movement of freight. Runs originating in Grants Pass serve destinations between Eugene and Medford. There is one run per day (Monday through Saturday) from: Eugene to Medford, Medford to Eugene, and Grants Pass to White City; there is one run per day (Monday through Friday) from Grants Pass to Merlin and Glendale.

Passenger rail service to the area has not operated since 1953, when Southern Pacific (the operator at that time) terminated its passenger service operations between Roseburg, Oregon and Dunsmuir, California. The only passenger service in Southern Oregon is operated by Amtrak via its Coast Starlight service; however the closest station is in Klamath Falls. This service operates on a daily basis with a single northbound and southbound train, and is oriented towards long distance travel.

Existing Operating Conditions

This section provides information on the existing operating conditions for the transportation system in the study area. It includes information on roadway and intersection "levels of service" (a measure of the degree of congestion), safety, accessibility, and system connectivity.

Roadway and Intersection Level of Service

Level of service (LOS) provides an indication of the quality of traffic operations at an intersection or roadway segment. It measures the degree of congestion and/or delay experienced by vehicles at that location. LOS ranges from "A" (excellent operating condition) to "F" (severe congestion). LOS analysis is done for either daily or peak hour periods. Daily LOS was used for the analysis of roadway sections; and peak hour LOS was used for the intersection analysis. For planning purposes, LOS of "A", "B", or "C", is regarded as acceptable, with only minor and/or occasional delays being experienced by motorists. LOS "D" represents fair roadway operations, with moderate levels of congestion. LOS "D" is often used as the minimum acceptable standard to identify when congestion related problems exist, and is used for the planning and design of transportation facilities. Facilities or intersections operating at LOS "E" or "F" represent unstable traffic flow conditions where improvements will be needed.

In addition to LOS, another measure of operating conditions for traffic is the V/C Ratio which measures the volume of traffic on a given roadway segment against the "design capacity" of that roadway. The capacity of a roadway is measured by the number of travel lanes, posted speed limit, and operating characteristics (e.g. presence/absence of traffic signals, turn lanes, driveways, etc.). A V/C ratio of .70 means that the roadway is carrying 70 percent of its maximum design capacity, and is operating at LOS "C".

Roadway Level of Service

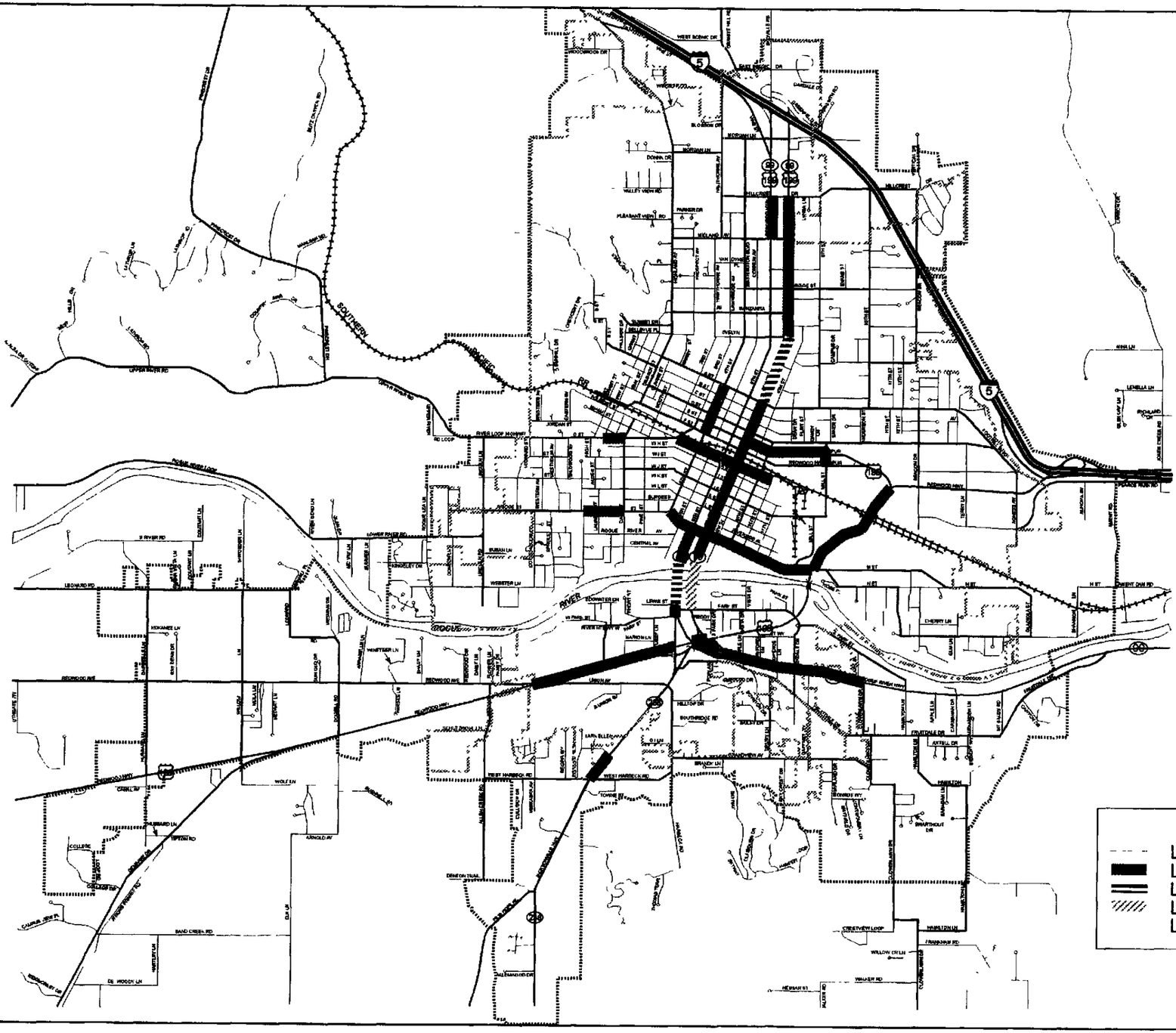
Table 2-2 summarizes the general operating characteristics and volume to capacity ratio associated with each level of service for roadways. Figure 2-6 shows the existing LOS for roadways in the study area. As can be seen, the majority of the roadways operate at LOS "B" or better. Segments operating at LOS "C" include 7th Street between A Street and Evelyn Street, and the Rogue River Highway from Redwood Highway to Florence Lane. Currently only one road is operating at LOS "D", 7th Street between Voorhies Avenue and Lewis Street, which is the bridge crossing the Rogue River.

Table 2-2: Level of Service Definitions

LOS	Description of Conditions	Ratio of Traffic Volume to Roadway Capacity
A	Free flowing traffic conditions with no delays for motorists	less than 0.40
B	Acceptable traffic conditions with minor and/or infrequent delays for motorists	0.41-0.66
C	Moderate traffic flow, acceptable conditions with relatively minor and/or short term delays for motorists	0.67-0.80
D	Generally stable traffic conditions with moderate and/or occasional delays for motorists - Standard used for the Grants Pass Urban Area MTP	0.81-0.90
E	Moderate to serious traffic congestion with frequent delays for motorists	0.91-0.99
F	Serious traffic congestion, unstable traffic flow, and lengthy delays for motorists	Greater than 1.00

Intersection Level of Service

The intersection analysis used for this study was based on the methodologies described in *the Highway Capacity Manual (HCM) Special Report 209.* The common measure of effectiveness for signalized intersections is "average stopped delay", which is the total time vehicles are stopped at an intersection approach, during a specified time period, divided by the number of vehicles departing from the approach in the same time period. Table 2-3 provides information on the traffic conditions and vehicle delay for each LOS.



1994 Roadway Levels of Service - Daily

Figure 2-6

Grants Pass Urban Area Transportation Plan

Table 2-3: Intersection Level of Service Descriptions - Signalized Intersections

LOS	Vehicle Delay Range (seconds/vehicle)	Description of Conditions
A	0.0-4.9	Traffic is light - most vehicles arrive when light is green and don't stop at all
B	5.0-14.9	Conditions are similar to A, but more vehicles are forced to slow and/or stop for the light
C	15.0-24.9	Significant number of vehicles must stop, but intersection clears for most signal cycles
D	25.0-39.9	Longer delay, poor traffic progression, intersection may not clear with signal cycles forcing motorists to wait through multiple cycles
E	40.0-59.9	Cycle failures become frequent with motorists having to wait through multiple signal cycles
F	60.0 or Greater	Lengthy delays at signals with motorists waiting through several cycles to get through intersection

For the analysis of unsignalized intersections, *the 1985 Highway Capacity Manual* procedures were used. This procedure involves a sequential analysis based on "gaps" in the major traffic stream that would allow for movement through the intersection. Once all of the traffic impedance and gap utilization have been subtracted from the potential capacity for the approach, the remainder is termed "reserved capacity", i.e. an indication of the number of additional vehicles that could get through the intersection. Table 2-4 provides information on characteristics of the LOS for unsignalized intersections; Figure 2-6 illustrates the existing LOS for roadways, and Figure 2-7 shows LOS for intersections in the study area.

Table 2-4: Unsignalized Intersections

LOS	Reserve Capacity	Expected Delay for Minor Street Traffic
A	> 400	Little or no delays
B	300-399	Short traffic delays through intersection
C	200-299	Average delays for traffic through the intersection
D	100-199	Moderate to long delays for traffic through the intersection
E	0-99	Long delays for traffic through the intersection
F	0	Extreme delays for traffic with severe congestion or backup at the intersection, this may warrant consideration of a signal for the intersection

Twenty six intersections were selected for evaluation for this study. Of these, 24 are signalized and two are controlled by stop signs. Table 2-6 shows the 1994 existing LOS and future year 2015 LOS at each of these intersections. As shown in the table, most of the signalized intersections operate at LOS "C" or better during the evening peak hour. The only exceptions are the intersection of Grants Pass Parkway/Beacon Drive and Redwood Highway/Jacksonville Highway (LOS "F"). All of the unsignalized intersections operate at LOS "F". Table 2-7 shows the turning movement level of service for existing and future conditions at all of the twenty six intersections analyzed.

Safety

Equally important to the movement of people is the safety of the transportation system they are using. The City of Grants Pass, Josephine County, and ODOT keep extensive accident records for the roadways within their respective jurisdictions. Two standard "measures" of traffic safety includes vehicular accidents per million vehicles entering intersections (MEV) for intersections, and accidents per million vehicle miles traveled (MVM) for roadway segments. Using data supplied by the local agencies, annualized accident rates were determined for intersections and roadways in the study area. Figure 2-8 illustrates the high accident locations in the study area.

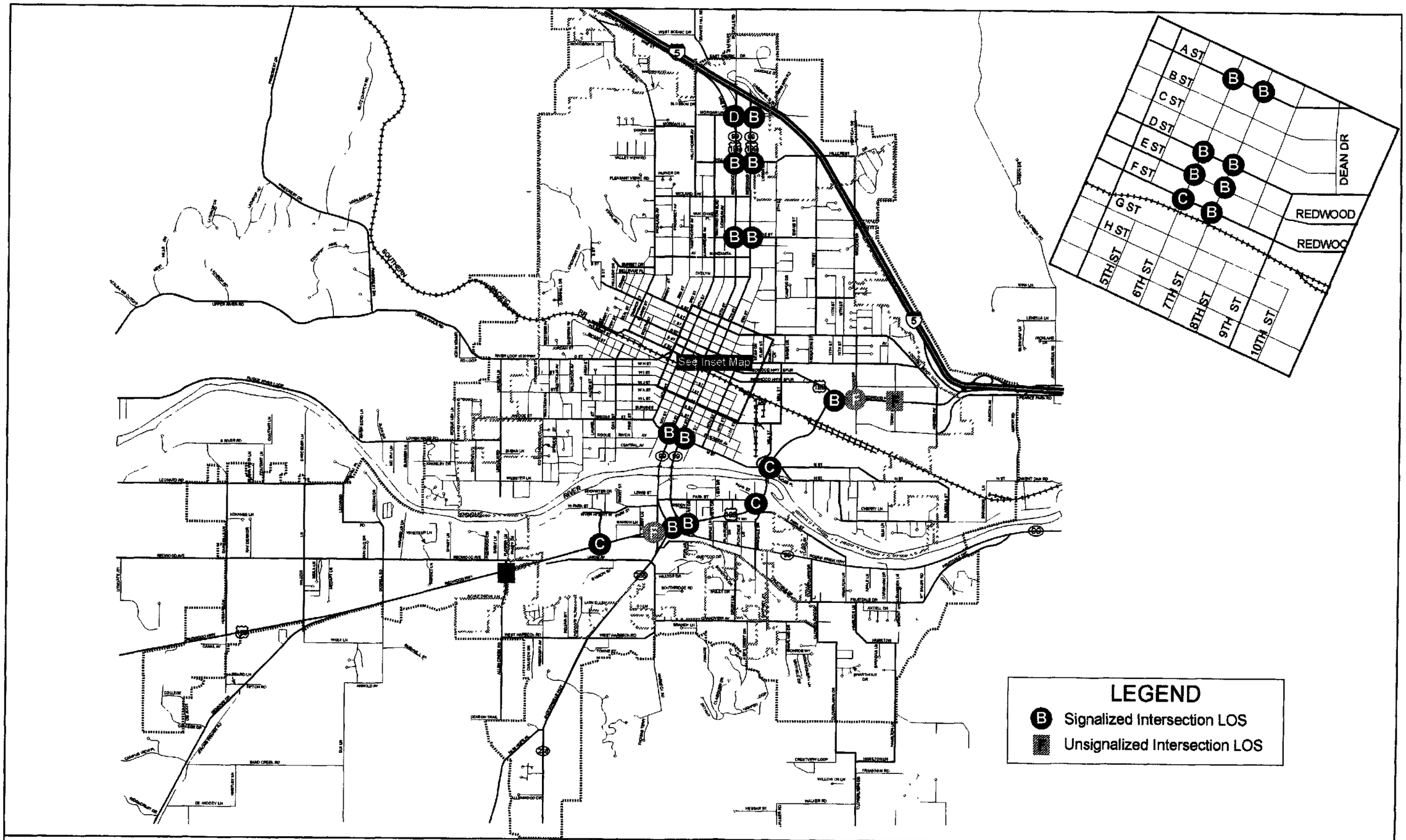
The highest accident locations were identified based on locations with accident rates one standard deviation above the average for the urban area. The highest annual accident rate for roadway segments occurs on F Street between 6th and 7th Streets, followed by J Street from 7th to 9th Streets. Redwood Highway from Ringuette to Willow had the highest number of actual accidents per year, but the higher traffic volumes resulted in lower accident rates. Intersections with the highest accident rate and largest number of accidents occurs at the intersection of 6th Street and D Street.

Transportation Needs and Deficiencies

A complete list of transportation needs and deficiencies was prepared at the beginning of this project. This provided the basis for the identification of potential transportation improvements to be included in the Master Transportation Plan. The results of the needs analysis are summarized in this section according to: congestion and capacity, safety, accessibility, system connectivity, functional classification and sub-standard facilities, public transportation, nonmotorized transportation, aviation, rail, and truck.

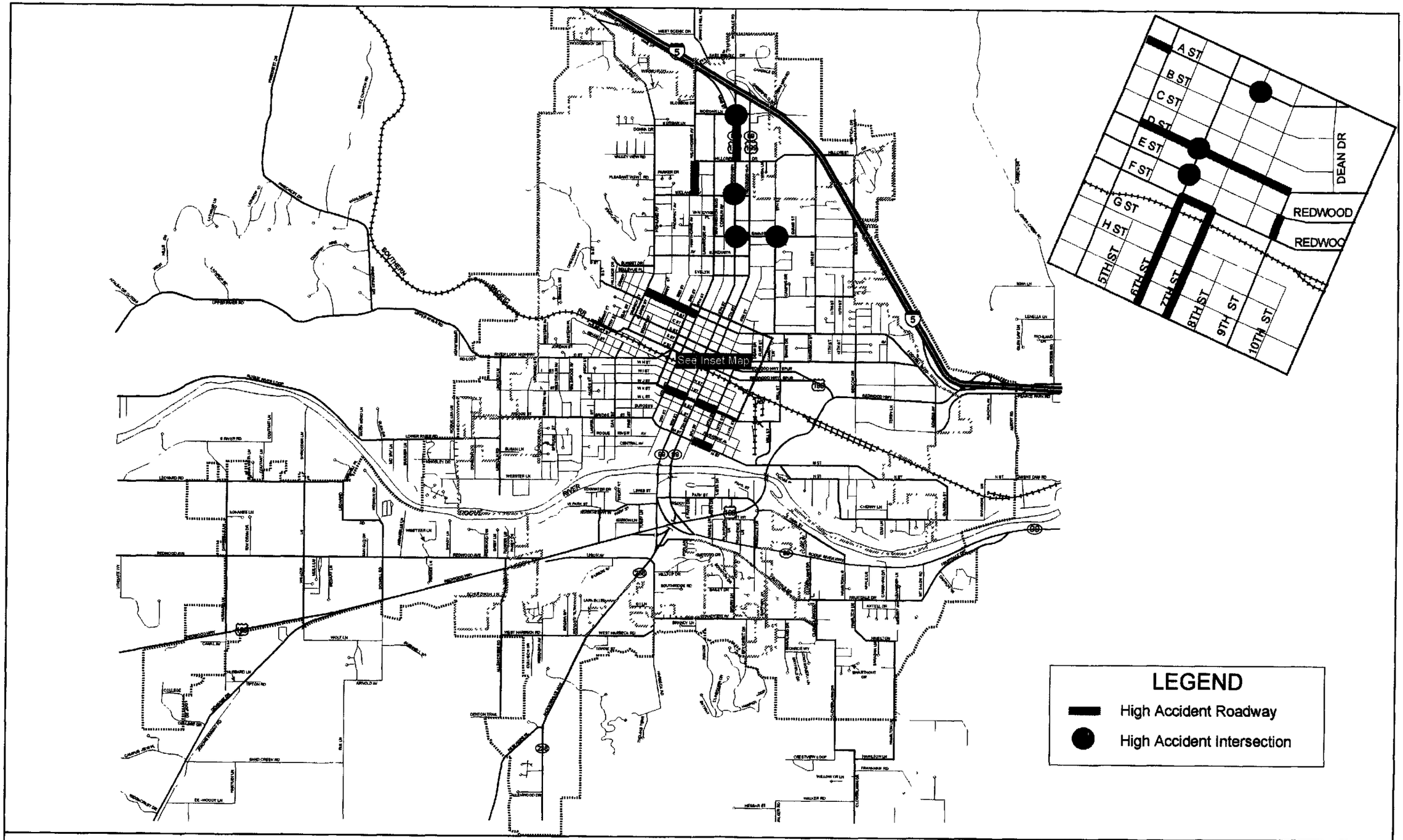
Congestion and Capacity Needs and Deficiencies

The Grants Pass Urban Area roadway system is currently operating at a good level of service with the majority of roadway segments operating at LOS "B" or better. Two roadway segments operate as LOS "C" (7th Street between A Street and Savage Street and the Rogue



1994 Intersection Level of Service - Peak Hour

Figure 2-7	Grants Pass Urban Area Transportation Plan



Existing High Accident Locations

Figure 2-8

Grants Pass Urban Area Transportation Plan

River Highway from Redwood Highway to Florence Lane.) Only one roadway segment operates at LOS "D", the bridge crossing the Rogue River on 7th Street.

Of the 32 intersections evaluated for this study, the majority operate at LOS "C" or better The only exceptions are the Redwood Highway southbound at Morgan Lane intersection (LOS "D"), and the intersection of 7th Street and Redwood Highway (LOS "E"). All unsignalized intersections are operating at LOS "A".

Travel Demand Forecast - 2015

As the area grows travel demand will increase and congestion will become worse in some locations. To assess future congestion and capacity deficiencies travel demand forecasts were prepared. The year 2015 was chosen as the planning horizon for the master plan to identify future demographic trends from which the travel forecasts were derived. A 20 year time span was chosen because beyond this time line population, employment and future travel patterns become much more difficult to predict and subsequently generate less reliable travel demand forecasts.

Future year (2015) traffic conditions were determined by adding the estimated number of vehicle trips generated by future land uses within the Grants Pass Urban Area to the existing traffic volumes. New trips generated by future land uses were distributed to destinations within and outside the Grants Pass Urban Area. They were then assigned to the street and highway system. This was done through the use of the RVCOG travel forecasting model for the Grants Pass Urban Area. The travel forecasts were calculated for daily trips, and all travel model data was summarized by traffic analysis zone.

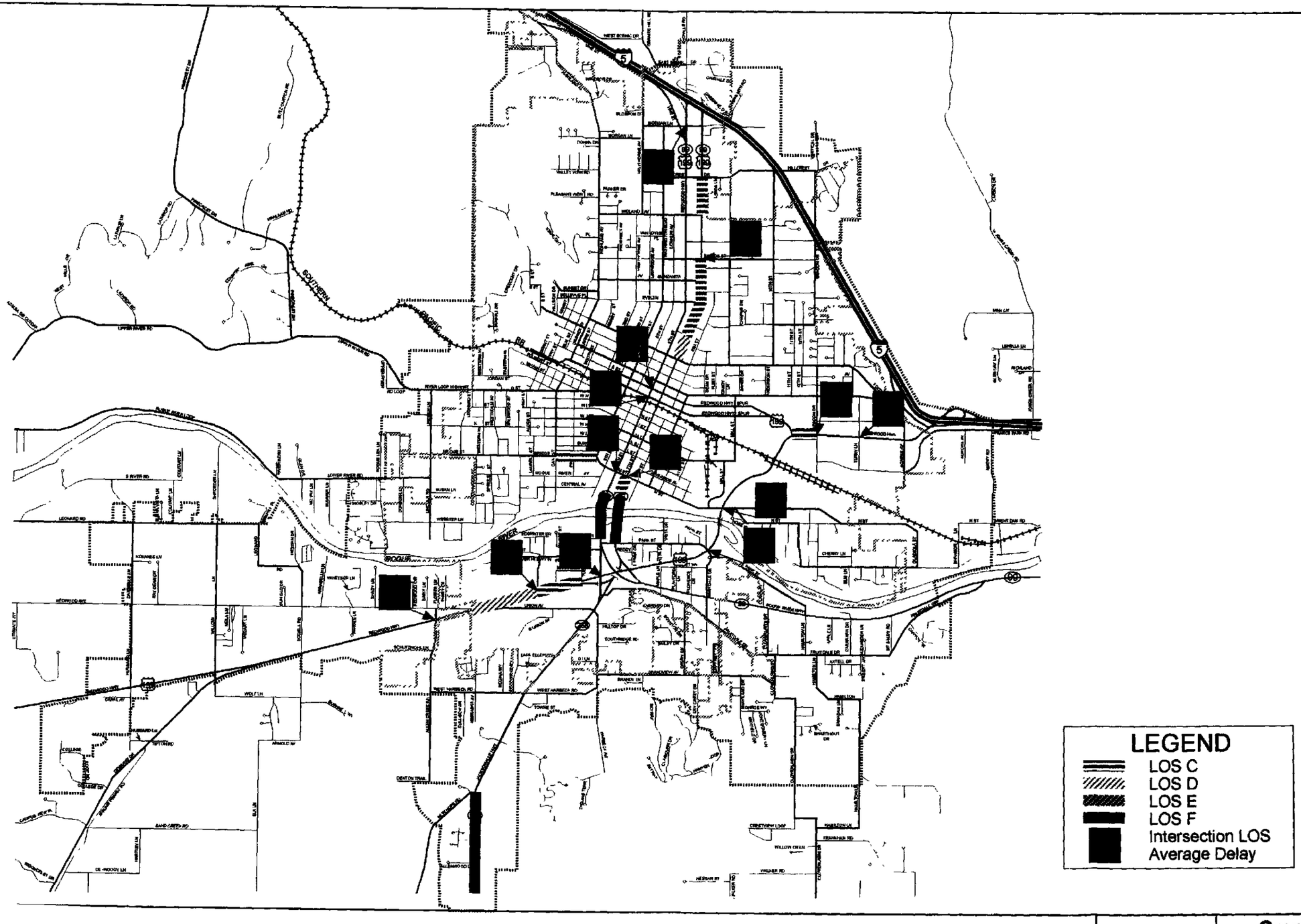
The future daily traffic forecasts were assigned to the "no-build" alternative to identify future congestion. The "no-build" alternative includes the existing transportation system, plus any additions or improvements that are funded at this time. The "no-build" provides a base to be used to assess future conditions and a point of comparison for the evaluation of proposed action alternatives. After a check of the initial assignments for "reasonableness" the level of service was calculated for the area roadway network, and changes in the LOS between existing conditions and the forecast conditions in 2015 were identified.

Figure 2-9 illustrates the levels of service associated with the no-build alternative. Under this alternative several roadway segments will operate at LOS "C" or worse by 2015. These locations have been summarized in Table 2-5. Traffic conditions in the future show a heavy orientation of east-west traffic on Redwood Highway and the Grants Pass Parkway for east-west travel; and on 6th Street and 7th Street for north-south travel. Because of the limited capacity of these facilities (and the resulting heavy congestion on the 6th and 7th Street bridges across the Rogue River) much of the traffic that might have been destined to the downtown area, or traveling beyond it via 6th and 7th Streets, appears to be diverted to I-5 and the Grants Pass Parkway. The traffic congestion on the Jacksonville Highway south of New Hope Road is caused by a roadway capacity reduction as the roadway narrows from four lanes to two lanes at this point.

Table 2-5: "No Build" Alternative - Roadway LOS in the Year 2015

Location	Level of Service (LOS)
Redwood Highway - Fairgrounds Road to Ringuette Street	D
Bridge Street - Oak Street to 4th Street	C
Grants Pass Parkway - Highway 199 Spur to Beacon Drive	C
7th Street - Hillcrest Lane to Midland Avenue	C
7th Street - Savage Street to Jackson Street	C
7th Street - "M" Street to Voorhies Avenue	C
Redwood Highway - Redwood Avenue to Ringuette Street	D
7th Street - Jackson Street to "A" Street	D
Jacksonville Highway - New Hope Road to Study Area Boundary	F
6th Street - Voorhies Avenue to Lewis Avenue	F
7th Street - Voorhies Avenue to Park Street	F

Of the twenty-six intersections evaluated in this analysis, eleven would have a degradation in the LOS. These include: 6th Street/"M" Street, 6th Street/Redwood Highway, 7th Street/"M" Street, and Jacksonville Highway/Redwood Highway. Table 2-6 includes a summary of existing intersection LOS and forecasted LOS in the year 2015.



Future Congestion 2015 - No Build Scenario

Figure 2-9

Grants Pass Urban Area Transportation Plan

Table 2-6: "No Build Alternative" - LOS at Intersections - Existing & Year 2015

Location	Existing LOS	2015 LOS
6th/Morgan Lane	D	F
7th/Morgan Lane	B	B
6th Street/"E" Street	B	C
7th Street/"E" Street	B	B
7th Street/"F" Street	B	B
6th Street/"M" Street	B	C
7th Street/"M" Street	B	F
6th Street/Redwood Highway	B	C
7th Street/Redwood Highway	B	B
Grants Pass Parkway/Redwood Highway Spur	B	B
Jacksonville Highway/Redwood Highway	B	F
Redwood Highway/Allen Creek Road	A	E
Redwood Highway/Ringuette	C	F
Grants Pass Parkway/E. Park Street	C	D
Grants Pass Parkway/"M" Street	C	C
Grants Pass Parkway/Beacon	F*	F
Grants Pass Parkway/Terry	F*	F
6th Street/"F" Street	C	D
7th Street/Savage	B	C

* (Unsignalized condition)

Safety Needs and Deficiencies

In terms of traffic safety, the majority of high accident locations are at intersections along Redwood Highway and the Rogue River Highway. This is due to the relatively high volumes of traffic and the variety of activities occurring in these areas which result in conflicts between through traffic, turning traffic, and various travel modes.

Table 2-8 summarizes the high accident locations. Accidents rates for roadways are expressed in MVM (accidents per million vehicle miles); accident rates for intersections are expressed in MEV (accidents per million entering vehicles). Collisions per MEV is a measure that reflects the number of vehicles traveling through an intersection. In general, intersections with an accident rate below 2.0 accidents per MEV are not considered high accident locations.

Table 2-7: Turning Movement LOS

			Existing		2015 NO BUILD			2015 BUILD		
INTERSECTION	Approach	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS
6th	EB TR	0.242	27.5	D	0.274	22.6	C	0.247	22.3	C
at Morgan Lane	WB LT	0.712	35.6	D	2.04			0.564	26.4	D
	NB DFL	0.032	15.9	C						
	NB LTR				0.666	32.3	D	1.061	*	
	NB TR	0.521	20.6	C						
	SB DFL	0.038	26	D				1.055	*	
	SB LTR				0.753	29.2	D			
	SB TR	0.57	31.4	D						
7th	EB LT	0.199	12	B	0.704	17.5	C	0.196	12	B
at Morgan Lane	NB DFL	0 294	5.6	B						
	NB TR	0.605	7 5	B						
	NB LTR				0.741	8.6	B	0.732	8.5	B
6th	EB T	0.032	10.9	B	0.092	11.2	B	0.054	11	B
at Hillcrest Avenue	EB R	0.116	11.3	B	0.327	12.5	B	0.189	11.7	B
	WB L	0.171	11 6	B	0.369	12.8	B	0.311	12.4	B
	WB T	0.057	11	B	0.397	11.3	B	0 1	11.2	B
	SB DFL	0.092	5.1	B						
	SB TR	0 532	7.1	B						
	SB LTR				0.539	6.9	B	0 467	6.5	B
7th	EB L	0 23	11.9	B	0.32	12.4	B	0 3	12 3	B
at Hillcrest Avenue	EB T	0.03	10.9	B	0.19	11.7	B	0 17	11.6	B
	WB T	0.04	10.9	B	0.08	11.1	B	0.09	11.2	B
	WB R	0.06	11	B	0.07	11.1	B	0.08	11.1	B
	NB LT	0.77	10.3	B	0.86	13.5	B	0.81	12.2	B
	NB R	0.02	0	A	0.05	0	A	0.05	0	A
6th	EB TR	0.166	11.5	B	0.18	11.6	B	0.25	12	B
at Savage Street	WB LT	0.553	14.7	B	0.57	14.8	B	0.16	11.5	B
	SB DFL	0.077	5	A						
	SB TR	0.525	6.8	B						
	SB LTR				0.53	6 7	B	0 5	6 6	B
7th	EB LT	0.25	12	B	0.28	12.2	B	0.25	12	B
at Savage Street	WB TR	0.3	12.3	B	0.28	12.1	B	0.17	11.6	B
	NB LT	0.79	10.6	B	1	27.1	D	1.01	29.6	D
	NB R	0.03	0	A	0.04	0	A	0.04	0	A
6th	EB T	0 288	12.2	B	0 3	12.3	B	0 22	11.8	B
at A Street	EB R	0 296	12.3	B	0.31	12.4	B	0.22	11 8	B
	WB L	0 473	14	B	1.02	63.2	F	0.41	13 3	B
	WB T	0.424	13.2	B	0.75	18.3	C	0.4	13	B
	SB DFL	0.139	5.2	B						
	SB TR	0.774	8.9	B						
	SB LTR				0.75	9 5	B	0.71	9.1	B
7th	EB L	0.19	11.7	B	0.36	12.9	B	0.17	11 6	B
at A Street	EB T	0.44	13.4	B	0 79	19.8	C	0.43	13 2	B
	WB T	0.41	13.1	B	0.44	13.3	B	0.39	12 9	B
	WB R	0.08	0	A	0.08	0	A	0.08	0	A
	NB LTR	0.71	9.2	B	0.82	11.8	B	0 74	9 5	B

			Existing		2015 NO BUILD			2015 BUILD		
INTERSECTION	Approach	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS
6th	EB TR	0.224	11.8	B	0.26	12.1	B	0.25	12	B
at D Street	WB LT	0.293	12.3	B	0.32	12.4	B	0.31	12.3	B
	SB DFL	0.098	5.1	B						
	SB TR	0.715	8.2	B						
	SB LTR				0.64	8.5	B	0.62	8.3	B
7th	EB LT	0.366	12.8	B	0.41	13.1	B	0.36	12.7	B
at D Street	WB TR	0.326	12.5	B	0.38	12.8	B	0.34	12.6	B
	NB DFL	0.057	5	A						
	NB TR	0.807	9.8	B						
	NB LTR				0.067	8.8	B	0.6	8.2	B
6th Street	WB L	0.538	11.8	B	0.83	17.8	C	0.85	19.1	C
at E Street	WB LT	0.54	11.8	B	0.55	9.1	B	0.56	9 2	B
	SB TR	0.592	4.8	A	0.69	6.4	B	0.62	5.9	B
7th Street	WB TR	0.762	13.9	B	1.01	32.9	D	0.95	23.1	C
at E Street	NB DFL	0.212	3.6	A						
	NB T	0.759	6 3	B						
	NB LT				0 65	6.2	B	0.6	5 1	B
6th Street	EB T	0.146	6.6	B	0 159	6.7	B	0.171	6 7	B
at F Street	EB R	0.382	18.2	C	0.418	18.6	C	0.447	18 9	C
	SB TR	0.956	24.6	C						
	SB LT				1 204	*	*	1 066	*	*
7th Street	EB DFL	0 166	7 9	B						
at F Street	EB LT				0.42	7.2	B	0 422	8 9	B
	EB T	0.604	10 4	B						
	NB TR	0.651	6.8	B	0.73	7.9	B	0.684	7	B
6th Street	EB T	0.209	11.8	B	0.22	11.8	B	0 16	11 5	B
at M Street	EB R	0.606	15.4	C	0.62	15.6	C	0 45	13 5	B
	WB L	0.332	12.6	B	1 13	120.2	F	0.72	20.3	C
	WB T	0.709	17.2	C	1.15	105.5	F	1.13	91.1	F
	SB DFL	0.095	5.1	B						
	SB TR	0.597	7 2	B						
	SB LTR				0.59	7.1	B	0 53	607	B
7th Street	EB T	0.32	12.4	B	0 53	14.2	B	0.52	14 1	B
at M Street	EB L				2.74	0.4	*	3.07	*	*
	WB T	0.47	13.6	B	0.48	13.7	B	0.52	14.1	B
	WB R	0 1	0	A	0.1	0	A	0.11	0	A
	NB LTR	0 72	9 4	B	0.79	10 3	B	0 8	10 4	B
6th Street	EB TR	0.46	12.3	B	0.51	12.7	B	0.65	14.4	B
at Redwood Highway	WB T	0.619	13.9	B	0.73	15.5	C	0.91	22.1	C
	SB DFL	0.053	9 8	B						
	SB T	0.743	17	C						
	SB LTR				0.54	13	B	0.47	12 4	B
7th Street at	EB T	0.37	11.16	B	0 44	12.2	B	0.56	13.2	B
Redwood Highway	WB T	0.46	12.2	B	0.61	13.8	B	0 6	13 7	B
	WB R	0	0	A	0	0	A	0	0	A
	NB L	0.35	11 5	B	0.34	11.4	B	0 3	11 1	B
	NB TR	0.29	11.1	B	0.3	11.1	B	0.25	10 8	B

			Existing		2015 NO BUILD			2015 BUILD		
INTERSECTION	Approach	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS
Beacon at Grants Pass Parkway	EB T	0.466	20.4	C	0.97	37.1	D	0.36	19.5	C
	EB R	0.169	2.2	A	0.17	2.2	A	0.13	2.1	A
	WB L	0.486	28.3	D	0.63	36	D	0.56	34.3	D
	WB T	0.914	32.1	D	0.73	14.5	B	0.64	13.2	B
	NB L	0.077	25.4	D	0.08	29.9	D	0.08	29.9	D
	NB T	0.821	35.4	D	0.82	33.8	D	0.83	34.6	D
	NB R	0.042	2.5	A	0.04	2.5	A	0.04	2.5	A
	SB L	0.142	25.7	D	0.14	30.2	D	0.14	30.2	D
	SB T	1.518	*	*	1.51	*	*	1.54	*	*
	SB R	0.075	2.5	A	0.07	2.5	A	0.08	2.5	A
Grants Pass Parkway at Redwood Hwy. Spur	EB L	0.403	13.4	B	0.63	20.5	C	0.62	20.3	C
	EB R	0.331	13	B	0.5	16.5	C	0.49	16.4	C
	NB L	0.44	18.7	C	0.49	22.5	C	0.42	21.7	C
	NB T	0.285	6.2	B	0.29	4.7	A	0.24	4.5	A
	SB T	0.701	18.5	C	0.8	18.2	C	0.63	15.3	C
	SB R	0.452	3.9	A	0.62	5.1	B	0.49	4.1	A
Grants Pass Parkway at M Street	EB L	0.295	31.4	D	0.38	37.7	D	0.32	37.1	D
	EB T	0.389	26 8	D	0.5	28	D	0.43	27.1	D
	EB R	0.079	1.8	A	0.1	1.8	A	0.09	1.8	A
	WB L	0.532	34	D	0.7	44.3	E	0.58	40.8	E
	WB T	0.541	28.7	D	0.71	31.9	D	0.59	29.3	D
	WB R	0 033	1 7	A	0 04	1 8	A	0 04	1 7	A
	NB L	0.39	32.1	D	0.53	39.6	D	0.51	39.3	D
	NB T	0.385	20.1	C	0.52	21.4	C	0.5	21.2	C
	NB R	0.085	2.3	A	0.11	2.3	A	0.11	2 3	A
	SB L	0.361	31.9	D	0.4	37.9	D	0.34	37.3	D
	SB T	0.444	20.7	C	0.5	21.2	C	0.42	20.4	C
	SB R	0.079	2.2	A	0.09	2.3	A	0.08	2.2	A
Grants Pass Parkway at Park Street	EB LT	0.142	17.9	C	0.2	18.2	C	0.218	24.8	C
	EB R	0.01	0	A	0.013	0	A	0.015	0.8	A
	WB LT	0.106	17.7	C	0.14	17.9	C	0.152	24 3	C
	WB R	0.118	0	A	0.156	0	A	0.179	0.9	A
	NB L	0.063	22.8	C	0.081	22.9	C	0.195	37.8	D
	NB T	0.303	12.7	B	0.4	13.4	B	0.444	19.7	C
	NB R	0.009	2.1	A	0.012	2.1	A	0.013	4.3	A
	SB L	0.871	41.8	E	1.147	*	*	0.829	38.8	D
	SB T	0.3	12.6	B	0.395	13.3	B	0.298	9.6	B
	SB R	0.026	2.1	A	0.033	2.1	A	0.029	0.8	A
Fairgrounds Road at Grants Pass Parkway	EB L	0.021	18.3	C	0.03	21.6	C	0.03	21.5	C
	EB T	0.556	12.1	B	0.77	14.9	B	0.67	13.3	B
	EB R	0 131	2 6	A	0 18	2 7	A	0 16	2.7	A
	WB L	0.117	18.7	C	0 14	22.1	C	0.12	22	C
	WB TR	0.984	29.5	D	1.19	106.8	F	1.06	46.6	E
	NB LT	0.732	26.5	D	0.87	33.4	D	0.75	26.2	D
	NB R	0.149	18.3	C	0.18	18.5	C	0.16	18.4	C
	SB LT	0.102	18.1	C	0.42	21.2	C	0.37	20.4	C
	SB R	0.022	17.8	C	0.03	17.8	C	0.02	17.8	C

			Existing		2015 NO BUILD			2015 BUILD		
INTERSECTION	Approach	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS
Jacksonville Highway	EB L	0.023	18	C	0.03	21.2	C	0.381	54.2	E
at Redwood Highway	EB T	0.466	13.3	B	0.51	13.6	B	0.941	53.5	E
	EB R	0.064	2.5	A	0.07	2.5	A	0.072	5	A
	WB L	1.108	96.7	F	1.23	*	*	1.055	86.9	F
	WB TR	0.415	13	B	0.46	13.3	B	0.402	18.5	C
	NB L	2.049	*	*	2.36	*	*	0.93	75.4	F
	NB TR	0.531	18.6	C	0.61	19.7	C			
	NB R							0.479	25.7	D
	SB DFL	0.125	15.6	C						
	SB T	1.905	*	*				1.047	68	F
	SB R	0.518	0.3	A						
	SB L							0.198	44.7	E
	SB LT				1.2	114.3	F			
Redwood Highway	EB L		5.6	B	7.1	B		6.2	B	
at Allen Creek Road	WB L		5	B	7.4	B		6.1	B	
	NB LTR		37.2	E	988.5	F		109.1	F	
	SB LTR		16.7	C	59.0	F		27.2	D	
Redwood Highway	EB L		4.3	A	5.4	B		4.8	A	
at Terry Lane	WB L		4.3	A	10.4	C		3.8	A	
	NB L		536 7	F	*	F		347.8	F	
	NB TR		7.7	B	23 6	D		6 7	B	
	SB L		27 9	D	112.5	F		24 5	D	
	SB TR		6.1	B	12.6	C		5.9	B	

Table 2-8: High Accident Locations

LOCATION	Accident Rates
Roadway Segments	
F Street - 6th to 7th	17.27 MVM
J Street 7th to 9th	12.23 MVM
J Street 4th to 7th	10.87 MVM
A Street - 7th to 9th	9.12 MVM
Willow Lane - Redwood Highway to Redwood	7.02 MVM
D Street - 6th to 9th	6.68 MVM
6th Street - F to J	6.64 MVM
6th Street - Morgan to Hillcrest	5.95 MVM
7th Street - F to J	5.95 MVM
Intersections	
6th Street/E Street	1.02 MEV
9th Street/Savage Street	0.94 MEV
6th Street/Morgan Lane	0.90 MEV
6th Street/D Street	0.68 MEV
9th Street/E Street	0.66 MEV
7th Street/A Street	0.62 MEV
6th Street/Savage Street	0.56 MEV
F Street/Mill Street	0.55 MEV
6th Street/A Street	0.52 MEV
6th Street/Midland Avenue	0.50 MEV
7th Street/Manzanita Avenue	0.41 MEV
7th Street/Hillcrest Drive	0.40 MEV
7th Street/Savage Street	0.40 MEV
6th Street/Manzanita	0.30 MEV
7th Street/E Street	0.27 MEV

(MVM) - Million vehicle miles.
(MEV) - Million entering vehicles.

Accessibility and Transportation System Connectivity Needs and Deficiencies

In general, accessibility is good throughout Grants Pass, but in some locations access is restricted due to a lack of through connections. This results in circuitous routings, increased travel times and increased total VMT (vehicle miles traveled). As a result there may be unnecessary congestion of those facilities that do exist and delay for motorists. This impacts overall mobility and impacts air quality. The following sub areas were identified as having access problems that warrant attention:

- **West of Dowell Road and South of the Rogue River** - New development in this area, combined with an incomplete road network have increased congestion and created a need for better north/south connections.
- **Fairgrounds/Riverfront Area** - To reach the downtown area residents of this area must use the Redwood Highway and 7th Street. Increases in traffic due to the recent commercial and residential development in this area have placed additional strain on Redwood Highway, and 6th and 7th Streets.
- **West of Highland Avenue** - New development in the area has placed a strain on the limited number of connections from this area to Highland Avenue.
- **South of Fruitdale Drive** - Cloverlawn Drive and Hamilton Lane are the only through roads south of Fruitdale Drive. Both are somewhat circuitous, resulting in indirect connections to Fruitdale and the rest of the arterial network.
- **South of Jacksonville Highway and the New Hope Road Junction** - Jacksonville Highway is the only through road south of New Hope Road. Recent development adjacent to Jacksonville Highway has resulted in increased travel demand in this area.
- **North of I-5/6th and 7th Street Interchange** - the congestion at the interchange makes it difficult to access the roadways north of I-5. Currently there is no alternative roadway in the area, forcing travelers north of the freeway to negotiate their way through the interchange congestion.
- **Lincoln Road Area** - future growth is planned for the western portion of the urban area. River crossings are limited and are typically the most congested locations in the transportation system. Additional ability to cross the river west of the existing bridges is needed to serve this area.

Missing Links

Gaps (or missing links) in the street system (arterial, collector and local collector) were identified in numerous parts of the urban area. Completion of these links would provide for better local traffic circulation and help to balance out traffic flow over the entire street system.

Physical Barriers

Natural and man-made barriers inhibit travel by car, bicycle and on foot. The major barriers are the Rogue River and the RailTex Railroad tracks, which severely limit north/south movement in the study area. There are only three bridges crossing the river and eight railroad crossings. A special bridge for pedestrians and bicyclists is proposed for construction in the vicinity of the All Sports Park, which will provide better accessibility for travelers using nonmotorized modes in this area. However, the limited number of crossings results in circuitous routing for travelers and congestion on the river crossings of three bridges and eight railroad crossings.

Functional Classifications and Sub Standard Facility Needs and Deficiencies

Based on observations of traffic volumes and flow patterns and on roadway design, several local roadways were improperly classified in the previous transportation plan. These are listed below, along with recommended changes in functional classification:

- **3rd Street** - Downgrade to Local Street from "G" Street to "J" Street.
- **9th Street** - Downgrade from Collector to Local Collector from Savage Street to Madrone Street. Downgrade from Collector to Local Street from Madrone Street to "A" Street.
- **Anderson Street** - Upgrade from Local Street to Collector.
- **Drury Lane** - Downgrade from Collector to Local Collector.
- **Fairview Avenue** - Downgrade to Local Collector to match current street construction.
- **Florer Drive** - Downgrade from Local Collector to Local Street due to wetlands in area.
- **Greenfield Road** - Upgrade from Local Street to Collector in conjunction with the extension to Hillcrest Drive.
- **Madrone Street** - Upgrade to Local Collector from 9th Street to 10th Street to capture traffic diverted from the 9th Street closure.
- **Manzanita Avenue** - Downgrade from Collector to Local Collector from 7th Street to Highland due to lower traffic volumes.
- **Redwood Area Collector System** - Upgrade Raydean Drive, Kellenbeck Avenue, Angler Lane, and George Tweed Blvd. from Local Collectors to Collectors.
- **Savage Street** - Upgrade to Collector east of 10th Street as it is the only through connection between Beacon Drive and Highland Avenue in this area.

- **Scenic Drive and Scoville Road** - Upgrade to Collector Streets to reflect elimination of plan to reroute Granite Hill Road to the I-5 interchange.
- **Spruce Street and Webster Lane** - Downgrade from Local Collector to Local Street due to vacation east of Lincoln Road, and closure of road at western end.
- **Vine Street** - Downgrade from Arterial to Local Street from Morgan Lane to 6th Street to reflect change to one-way street in the area.
- **West Park Street** - Upgrade from Local Street to Local Collector to reflect plan to connect the road to Lincoln Road.

Based on existing City and County design standards for urban and rural roads several substandard facilities were identified. Their design deficiencies include one or more of the following: insufficient right of way, inadequate roadway or lane width, and lack of curbs. These facilities include:

- **10th Street** - Hillcrest Dr. to Dewey Dr.,
- **Allen Creek Road** - Redwood Ave. to Denton Trail,
- **Ament Road** - Foothill Blvd. to "N" St.,
- **Beacon Drive** - Madrone to Hillcrest Dr.,
- **Cloverlawn Drive** - Grandview Ave. to Hamilton Ln.,
- **Curtis Drive** - Jacksonville Hwy. to Coach Dr.,
- **Darneille Lane** - Redwood Ave. to Leonard Dr.,
- **Dimmick Street** - "C" St. to "G" St.,
- **Dowell Road** - Redwood Ave. to Schutzwohl Ln.,
- **Drury Lane** - Grandview Ave. to Fruitdale Dr.,
- **East Park Street** - Gold River Ln. to Hamilton Ln.,
- **Fairgrounds Road** - Redwood Hwy. to Union Ave.,
- **Flower Lane** - From north end of road to Redwood Ave.,
- **Foothill Blvd.** - Spalding Ave. to Ament Rd.,
- **Fruitdale Drive** - Jacksonville Hwy. to Rogue River Hwy.,
- **"G" Street** - Lincoln Rd. to Leoard St.,
- **G.I. Lane** - Harbeck Rd. to 450 ft. west,
- **Gladiola St.** - "N" St. to Portola Dr.,

- **Grandview Ave.**- Cloverlawn Dr. to Harbeck Rd.,
- **Greenfield Road.** - Scoville Rd. to Spring Mountain Dr.,
- **Hamilton Lane** - East Park St. to Rogue River Hwy., and Overland Dr. to Cloverlawn Dr.,
- **Harbeck Road** - Jacksonville Hwy. to West Harbeck Rd.,
- **Haviland Drive** - Grandview Ave. to Highline Canal,
- **Highland Avenue** - UGB to Carol Dr.,
- **Hillcrest Drive** - 9th St. to Beacon Dr.,
- **Hubbard Lane** - Redwood Ave. to Redwood Hwy.,
- **Jacksonville Highway** - New Hope Rd. to UGB,
- **Leonard Road** - UGB to Mesman Dr.,
- **Lincoln Road** - "G" St. to Webster Ln.,
- **Lower River Road** - UGB to Lincoln Rd.,
- **Morgan Lane** - Highland Ave. to Hawthorne Ave.,
- **"N" Street** - Camelot Dr. to Gladiola St.,
- **Nebraska Avenue** - Ramsey Ave. to McCarter Dr.,
- **Portola Drive** - Harvey Dr. to Gladiola St.,
- **Raydean Drive** - Redwood Avenue to end,
- **Redwood Avenue** - UGB to Redwood Cir.,
- **Ringuette Street** - West Park St. to canal,
- **Rogue River Highway** - Redwood Hwy. to Fruitdale Dr.,
- **Savage Street** - 10th St. to Beacon Dr.,
- **Scenic Drive** - UGB to Scoville Rd.,
- **Schutzwohl Lane** - West Harbeck Rd. to Allen Creek Rd.,
- **Union Avenue** - Nebraska Ave. to Jacksonville Hwy.,
- **Upper River Road** - Upper River Road Lp. to Lincoln Rd.,
- **Vine Street** - Highland Ave. to Morgan Ln.,

- **West Harbeck Road** - Allen Creek Rd. to Harbeck Rd.,
- **West Park Street** - Lincoln Rd. to 6th St.,
- **Willow Lane** - Leonard Rd. to Redwood Hwy.

Public Transportation and Special Transportation Services Needs and Deficiencies

Rogue Transit (a privately owned and operated transit service) is currently providing service on one transit route, using one bus service operated on a continuous loop with one hour headways. The circuitous routes and long time between buses make the use of transit inconvenient for passengers. Existing ridership on the system is about 100 passengers per day, which averages eight passengers per trip and per revenue hour.

Although current ridership is small, the community has expressed a strong desire to have public transit service. In addition to serving the transportation needs of the "transit dependent" (those people who have no other means of transportation), public transit will be called on to serve "transit choice" riders in order to reduce the use and impacts of private automobiles. Based on the analysis done for the RVCOG in 1993, it is estimated that about 24 percent of the Rogue Valley's population is considered to be transit dependent. (*Rogue Valley Community Transportation Needs Survey - Eagle Point, Gold Hill, Grants Pass, and Rogue River*, 1993, RVCOG.)

As the population increases, and as it ages, the demand for alternatives to private automobiles is likely to increase. This presents a dilemma for the community. Financial resources to support public transit are very limited. Without a stable financial base it will be very difficult to expand (or possibly maintain) public transit service levels in the community.

Nonmotorized Transportation Needs and Deficiencies

Bicycles

Unlike some of the motorized travel modes, it is difficult to clearly identify where deficiencies exist for bicyclists because precise measures for demand and deficiencies have not been developed. The kinds of issues identified for the study area related to bicycle deficiencies include:

- Inadequate roadway shoulders, especially on higher volume, higher speed roadways,
- Obstructions such as signs, driveways and/or parked vehicles on roadway shoulders,
- Drainage grates along the curb or edge of the roadway that are not aligned perpendicular to the direction of bicycle travel,
- Inaccessibility to many destinations due to heavy traffic volumes and inadequate facilities,

- Inadequate facilities for bicycle storage at commercial establishments, businesses and other destinations, and
- Lack of shower facilities at places of employment.

Two of the major types of destinations for bicyclists are schools and parks. With the exception of Rogue Community College, none of the schools in the area is served by dedicated bicycle lanes or off road bike paths. The following schools are partially served by paved roads with minimal shoulders: Highland, North Middle, Lincoln, Grants Pass High, Riverside, Fruitdale, South Middle, Allen Dale and Brighton.

There are a number of parks in the Grants Pass Urban Area where access via bike routes is limited in length or coverage, or access by bicycle is simply impractical. Parks served by bike routes on paved roads with narrow or no shoulders include: Gilbert, Ogle, Riverside, Lathrop, Westholm and All Sports. Four parks not directly served by any bike routes (i.e. designated bike routes are several blocks away) include Memorial, Portola, Tussing and Schroeder.

In addition to schools and parks, bicycling can be a viable form of transportation for work and shopping trips along flat terrain and in good weather. However, as currently configured, the local bike route system does not serve the major commercial corridors adequately, or the many other business sites in the study area. Due to the lack of bicycle facilities and improvements (on the transportation network and at destinations) this mode of transportation is less attractive as an alternative means of transportation. This is an important issue given the emphasis at the federal and state levels on providing for, and encouraging alternatives to the private automobile for travel. In addition to the need for physical improvements, there is a need to educate the traveling public about the benefits for them and their community of travel by nonmotorized travel modes. There is also a need for policies and programs to encourage the use of bicycles and walking as viable means of transportation, as well as recreation.

Specific locations where bicycle improvements are needed (e.g., signage, pavement striping, traffic control, and/or separated lanes or paths) include:

- **Bike Pedestrian Bridge over Rogue River** - Construct bike/pedestrian bridge from the All Sports Park to Tussing Park. Include bike connections on West Park Street, through the Fairgrounds and the All Sports Park, and on Cottonwood Street.
- **North Middle School/Gilbert Creek Park** - Construct new multi-use path through the park and school
- **Riverside School** - Construct new multi-use path from "N" St. to Harvey Dr. through the school.
- **Rogue Community College** - Construct new multi-use path from Redwood Hwy. to Demaray Dr. through the school.
- **Midland Avenue** - Include multi-use path from 7th St. to 9th St.
- **3rd Street** - "E" St. to "F" St.

- **4th Street** - "A" St. to Bridge St.
- **6th Street** - Morgan Ln. to "A" St.
- **7th Street** - Park St. to Morgan Ln.
- **10th Street** - Hillcrest Dr. to "A" St.
- **"A" Street** - Dimmick St. to Foothill Blvd.
- **Allen Creek Road** - Redwood Ave. to Jacksonville Hwy.
- **Ament Road** - Agness Avenue east toward Tom Pierce Park.
- **Beacon Drive** - Hillcrest Dr. to "D" St.
- **Cloverlawn Drive** - Fruitdale Dr. to Hamilton Ln.
- **Darneille Lane** - Redwood Ave. to Leonard Dr.
- **Dimmick Street** - Bellevue to "G" St.
- **Dowell Road** - Redwood Hwy. to Schutzwohl Ln.
- **"E" Street** - 3rd St. to 9th St.
- **"F" Street** - "G" St. to Mill St.
- **Fairgrounds Rd.** - Redwood Hwy. to Union Ave.
- **Foothill Blvd.** - I-5 to Ament Rd.
- **Fruitdale Drive** - Jacksonville Hwy. to Rogue River Hwy.
- **"G" Street** - Lincoln Rd. to Leonard Road.
- **G.I. Lane** - Jacksonville Hwy. to Harbeck Rd.
- **Grandview Ave.** - Harbeck Rd. to Cloverlawn Dr.
- **Grants Pass Parkway** - Agness Ave. to east with connection to Foothill Blvd.
- **Greenfield Road** - Scoville Rd. to Hillcrest Dr.
- **Hawthorne Avenue** - Morgan Ln. to Hillcrest Dr.
- **Hillcrest Drive** - Hawthorne Ave. to Beacon Dr.
- **Hubbard Lane** - Redwood Ave. to Redwood Hwy.
- **Jacksonville Highway** - New Hope Road to UGB.
- **Leonard Road** - UGB to Willow Ln.
- **Lincoln Road** - "G" St. to Redwood Hwy., including the Fourth Bridge
- **Lower River Road** - UGB to Lincoln Rd.
- **Midland Avenue** - Highland Ave. to 7th St.
- **Morgan Lane** - Candler Ave. to 7th St.

- **"N" Street** - Riverwood Apts. to Gladiola St.
- **Oak Street** - "G" St. to Bridge St.
- **Redwood Area Collector Streets** - Improvements to Angler Lane, Raydean Drive, George Tweed Blvd., and Kellenbeck Ave.
- **Redwood Avenue** - UGB to Raydean Dr.
- **Redwood Highway** - Redwood Ave. to South "Y"
- **Ringuette Street** - West Park St. to Union Ave.
- **Rogue River Highway** - Park St. to Fruitdale Dr.
- **Savage Street** - Highland Ave. to Beacon Dr.
- **Scenic Drive/Scoville Road.** - I-5 to UGB
- **Schutzwohl Lane** - Allen Creek Rd. to Dowell Rd.
- **Spalding Avenue** - Grants Pass Parkway to Agness Ave.
- **Vine Street** - Highland Ave. to Morgan Ln.
- **Washington Blvd.** - Midland Ave. to Evelyn St.
- **West Harbeck Road** - Allen Creek Rd. to Jacksonville Hwy.
- **Willow Lane** - Leonard Dr. to Redwood Hwy.

Pedestrian

The primary pedestrian system deficiency identified for the area is the general lack of sidewalks within the city of Grants Pass and the rest of the urban area. While the downtown core is well served by sidewalks, the areas outside the core (particularly southwest and southeast Grants Pass) have little, if any, sidewalks. This is a particular problem in the commercial areas near the fairgrounds, and west of the South "Y" intersection. With the recent residential and commercial growth in these areas, the availability of sidewalks has grown in importance.

In addition to the importance of sidewalks in the business community, sidewalks provide a vital community linkage to schools and recreation facilities. Some of the local schools are only partially served with sidewalks, and others have no sidewalks at all. Another issue is related to barriers for pedestrians that limit accessibility. These barriers may be natural (such as the Rogue River), or man-made (such as major arterials with high traffic volumes and limited pedestrian crossings, or developments that encroach or cut off pedestrian routes.)

Aviation Needs and Deficiencies

The Grants Pass airport, located six miles northwest of Grants Pass, is a general utility airport serving private aircraft. There is no scheduled passenger service from this airport. An airport master plan for the Grants Pass airport, completed in 1992, concluded the following:

- The existing length of Runway 12-30 is adequate to accommodate the majority of general aviation aircraft under most conditions; however, providing additional runway length has been identified as a requirement to accommodate the business aviation segment of the general aviation fleet.
- The runway and taxiway system has adequate capacity to accommodate forecast activity through the 20 year master plan period and beyond.
- The existing parallel taxiway located to the west side of Runway 12-30 does not meet FAA design standards for runway separation. The current separation of 150 feet does not meet the Airplane Design Group II standard of 240 feet.
- The length of runway 12-30 and the absence of an instrument approach to the airport are constraints towards allowing the operation of larger twin-turbine aircraft.

The presence of a full service airport in Medford (only 30 miles away), in combination with the local general aviation airport, appear to meet the needs and demand for aviation for the Grants Pass Urban Area.

Rail Needs and Deficiencies

Rail service in the study area is limited to freight operations, operating on a limited schedule. The low frequency of service through the area does not create any adverse impacts on traffic operations, and appears to meet local needs. Intercity passenger service is available through Trailways/Greyhound bus service, and through privately provided taxi and shuttle services. Goods movement is accommodated through existing rail service and trucking.

Truck Traffic Needs and Deficiencies

A summary of truck traffic on key facilities in the Grants Pass Urban Area was presented earlier in this Chapter. Trucks account for somewhere between two and four percent of total traffic on roadways within the study area. The analysis of general operating characteristics showed that almost all of the roadway segments in the study area are operating at good levels of service. They appear to be adequate in terms of roadway design, turning movements, sight distance and grade. As such, there do not appear to be any significant needs or deficiencies for trucks operating within the study area. There are a few isolated locations where there is some concern regarding the use of curb space for trucks loading and unloading.

However, there are issues associated with the impacts of trucks operating on local streets. The biggest issue currently is related to large trucks passing through the downtown core. The lanes are narrow on 6th and 7th Streets, and there are many competing uses for the roadway, including: through traffic in automobiles, local traffic destined for businesses along the roadway, pedestrians and bicyclists, and on street parking. Through truck traffic needs to be routed around the business and residential neighborhoods in the downtown area to reduce negative impacts such as noise, air pollution, damage to pavement, and conflicts with other transportation needs in this area.

However, as the commercial/industrial base of the area grows in the future, an increased

amount of truck traffic can be expected. As congestion develops on the arterial system, trucks may detour through local neighborhoods resulting in negative impacts on these neighborhoods and the local streets. In order to minimize neighborhood disruption and impacts on the roadway surface it may be desirable to designate a truck route system for the area.

Summary of Needs and Deficiencies

Table 2-9 includes a comprehensive summary of the needs and deficiencies described above. Specific locations are listed, and the nature of the deficiencies at these locations is indicated.

Table 2-9: Summary of Deficiencies

Location	Congestion (LOS)	Safety (Accidents)	Connectivity & Accessibility	Functional Classification	Roadway Design	Non-motorized
3rd Street				X		X
4th Street: A St. to Bridge St.						X
6th Street/A Street		X				
6th Street/D Street		X				
6th Street/E Street		X				
6th Street/Manzanita Avenue		X				
6th Street/Midland Avenue		X				
6th Street/Morgan Lane		X				
6th Street/Savage Street		X				
6th Street: Morgan Ln. to Hillcrest Dr.		X				X
6th Street: Hillcrest Dr. to A St.						X
6th Street: F St. to J St.		X				
6th Street: Voorhies Ave. to Lewis Ave.	X					X
7th Street/A Street		X				
7th Street/E Street		X				
7th Street/Hillcrest Drive		X				
7th Street/Manzanita Avenue		X				
7th Street/Savage Street		X				

Table 2-9: Summary of Deficiencies

Location	Congestion (LOS)	Safety (Accidents)	Connectivity & Accessibility	Functional Classification	Roadway Design	Non-motorized
7th Street: Park St. to Voorhies Ave.	X					X
7th Street: Voorhies Ave. to M St.	X					X
7th Street: M St. to J St.						X
7th Street: J St. to F St.		X				X
7th Street: F St. to A St.						X
7th Street: A St. to Savage St.	X					X
7th Street: Savage St. to Midland Ave.						X
7th Street: Midland Ave. to Hillcrest Dr.	X					X
7th Street: Hillcrest Drive to Morgan Ln.						X
9th Street/E Street		X				
9th Street/Savage Street		X				
9th Street: Savage St. to A St.				X		
9th Street: F St. to M St.						X
10th Street					X	X
A Street						X
A Street: 7th St. to 9th St.		X				
Agness Avenue			X			
Allen Creek Road			X		X	X
Ament Road			X		X	X
Anderson Street				X		
Angler Lane			X			X
B Street			X			X

Table 2-9: Summary of Deficiencies

Location	Congestion (LOS)	Safety (Accidents)	Connectivity & Accessibility	Functional Classification	Roadway Design	Non-motorized
Beacon Drive: Olson Dr. to Spalding Ave.						X
Bridge Street						X
Bridge Street: Oak St. to Division St,	X					
Cloverlawn Drive: Rogue River Hwy. to East View						X
Cloverlawn Drive: East View to Hamilton Ln.					X	X
Cottonwood Street						X
Curtis Drive					X	X
D Street: 6th St. to 9th St.		X				
D Street: 11th St. to Foothill Blvd.						X
Darneille Lane					X	X
Dimmick Street			X		X	X
Dowell Road: Leonard Dr. to Redwood Ave.						X
Dowell Road: Redwood Hwy. to Schutzwohl Ln.					X	X
Drury Lane				X	X	X
E Street						X
East Park Street: Gold River Ln. to Hamilton Ln.					X	X
F Street/Mill Street						
F Street: G St. to Elm St.			X		X	X
F Street: Elm St. to Mill St.						X
F Street: 6th St. to 7th St.		X				
Fairgrounds Road					X	X
Fairgrounds/Riverfront Area			X			

Table 2-9: Summary of Deficiencies

Location	Congestion (LOS)	Safety (Accidents)	Connectivity & Accessibility	Functional Classification	Roadway Design	Non-motorized
Fairview Avenue				X		
Flower Lane: North end of road to Redwood Ave.					X	X
Florer Drive				X		
Foothill Blvd.: A St. to 760 ft. SE						X
Foothill Blvd.: Spalding Ave. to Ament Rd.					X	X
Fruitdale Area			X			
Fruitdale Drive					X	X
G Street: Leonard Rd. to Lincoln Rd.					X	X
G.I. Lane			X		X	X
Gladiola Street					X	X
Grandview Avenue			X		X	X
Grants Pass Parkway: Agness to I-5						X
Grants Pass Parkway: F Street to Beacon Dr.	X					
Greenfield Road			X	X	X	X
Hamilton Lane					X	X
Harbeck Road					X	X
Haviland Drive			X		X	X
Hawthorne Avenue						X
Highland Avenue: UGB to Carol Dr.					X	X
Highland Avenue: Carol Dr. to Bellevue Ave.						X
Hillcrest Drive: Hawthorne to 9th St.						X

Table 2-9: Summary of Deficiencies

Location	Congestion (LOS)	Safety (Accidents)	Connectivity & Accessibility	Functional Classification	Roadway Design	Non-motorized
Hillcrest Drive: 9th St. to Beacon Dr.					X	X
Hubbard Lane					X	X
J Street: 4th St. to 7th St.		X				
J Street: 7th St. to 9th St.		X				
J Street: 11th St. to Mill St.						X
Jacksonville Highway: New Hope Rd. to UGB	X				X	X
Jacksonville Highway Area			X			
Leonard Road					X	X
Lincoln Road			X		X	X
Lincoln Road Area			X			
Lower River Road					X	X
M Street: 11th St. to M St.						X
Madrone Street				X		X
Manzanita Avenue			X	X		X
Midland Avenue						X
Mill Street						X
Morgan Lane						X
Morgan Lane: Highland Ave. to Hawthorne Ave.					X	X
N Street: M St. to Camelot Dr.						X
N Street: Camelot Dr. to Gladiola St.					X	X
Nebraska Avenue			X			X
North of I-5/6th and 7th Street Interchange Area			X			
Oak Street						X
Overland Drive			X			

Table 2-9: Summary of Deficiencies

Location	Congestion (LOS)	Safety (Accidents)	Connectivity & Accessibility	Functional Classification	Roadway Design	Non-motorized
Parkdale Drive						
Portola Drive: Harvey Dr. to Gladiola St.					X	X
Ramsey Avenue			X			
Raydean Drive			X		X	X
Redwood Area			X	X	X	X
Redwood Avenue					X	X
Redwood Highway						X
Redwood Hwy.: Fairgrounds Rd. to Tussy Ln.	X					
Redwood Hwy.: Redwood Ave. to Fairgrounds Rd.	X					
Redwood Hwy.: South "Y" Interchange						X
Ringuette Street			X		X	X
Rogue Drive						X
Rogue River Highway					X	X
Savage Street: Highland Ave. to Washington Blvd.				X		X
Savage Street: Washington Blvd. to 10th St.						X
Savage Street: 10th St. to Beacon Drive				X	X	X
Scenic Drive				X	X	X
Schutzwohl Lane			X		X	X
Scoville Road				X	X	X
Spalding Avenue			X			X
Spruce Street				X		
Union Avenue					X	X

Table 2-9: Summary of Deficiencies

Location	Congestion (LOS)	Safety (Accidents)	Connectivity & Accessibility	Functional Classification	Roadway Design	Non-motorized
Upland Drive			X			
Upper River Road					X	X
Vine Street					X	X
Vine Street: Morgan Ln. to 6th St.				X		
Washington Blvd.						X
Webster Lane				X		
West Harbeck Road			X		X	X
West Park Street			X	X	X	X
Willow Lane		X			X	X

3. GOALS AND POLICIES FOR THE MASTER TRANSPORTATION PLAN

This chapter includes the goals and policies for the MTP. These goals and policies are organized around seven major themes listed in Table 3-1 below. Policies are identified to implement each goal. These goals and policies were developed from a number of sources, including prior planning documents developed by the participating agencies, community input, and discussions with the various project participants and committees. The goals and policies are intended to guide future decisions regarding transportation improvements, investments, programs and services for the Grants Pass Urban Area. The following sections provide brief discussions for each of the goals and specific policies designed to help the City of Grants Pass, Josephine County and ODOT meet these goals.

Table 3-1: Transportation Goals and Objectives

Transportation Goals	Supporting Objectives
Goal 1: Provide a Comprehensive Transportation System	Complete the Transportation System
	Provide Adequate Mobility for All Travelers
	Establish and Maintain Balance in Transportation Investments
	Provide Safety for All Travelers
	Provide a Multimodal Transportation System
	Ensure Accessibility to Transportation for All Travelers
Goal 2: Work Together to Meet Transportation Needs	Encourage Interagency Coordination
	Include the Community in Transportation Decisions
	Encourage Public/Private Partnerships to Meet Transportation Needs
	Integrate Land Use and Transportation Decisions

Table 3-1: Transportation Goals and Objectives (continued)

Transportation Goals	Supporting Objectives
Goal 3: Protect Public Investments in Transportation	Manage the Transportation System Effectively
	Maintain, Preserve and Rehabilitate Transportation Facilities
	Preserve Future Transportation Corridors
	Protect Existing Transportation Facilities
Goal 4: Support Economic Development and Vitality	Stimulate Desired Economic Development
	Support Tourism
	Provide for Goods Movement
Goal 5: Protect and Preserve the Natural and Built Environment	Conserve Energy Resources
	Enhance Community Aesthetics
	Protect Neighborhoods
	Protect Air Quality
	Provide for Safe Movement of Hazardous Materials
	Mitigate Negative Impacts
Goal 6: Ensure Financial Stability	Secure Adequate Transportation Funding
	Assure Equity in Financing Transportation Facilities and Services
	Encourage Private Initiatives
Goal 7: Implement Planned Transportation Improvements	Set Priorities
	Construct Needed New Facilities
	Preserve and Acquire Future Transportation Corridors
	Keep Transportation Plan Current
	Encourage Private Sector Participation in Implementation

Goal 1: Provide a Comprehensive Transportation System

The *Grants Pass Urban Area Master Transportation Plan* is designed to provide for the safe and efficient accommodation of travel through a variety of transportation modes, including private vehicles, public transportation, bicycles, and walking. In keeping with transportation policies and directives from the federal and state levels, this plan emphasizes a comprehensive, multimodal transportation system that provides choices for travelers; and it

identifies specific methods to encourage the reduction of the use of the private automobile for travel.

The policies included in this section address issues related to: a complete transportation system for the urban area, adequate mobility for people and goods, maintaining a balance in expenditures, safety for all travelers, and accessibility to transportation facilities and services for all travelers.

Objective 1.1: Complete the Transportation System

Policy 1.1.1: Complete the missing links in the arterial and collector network in the urban area to improve accessibility to all parts of the area and improve the efficiency of the street network.

Policy 1.1.2: Support the provision of public transit services for those people who cannot provide their own private transportation due to age (too young or too old to drive), physical limitations, or economic circumstances.

Policy 1.1.3: Provide facilities for bicyclists and pedestrians for safe and convenient travel by non motorized travel modes.

Policy 1.1.4: Facilitate convenient connections between local and intercity travel.

Policy 1.1.5: Provide adequate facilities to meet the needs for goods movement within the urban area and to and from the Grants Pass urban area by:

- Identifying and designating regional truck routes,
- Designing and constructing designated routes to accommodate truck travel, and
- Maintaining adequate levels of rail service and facilities for freight movement.

Policy 1.1.6: Encourage and support the provision of acceptable levels of intercity transportation services.

Objective 1.2: Provide Adequate Mobility for All Travelers

Policy 1.2.1: Maintain Level of Service (LOS) "D" or better for all arterials and collectors.

Policy 1.2.2: Maintain minimum level of public transportation services for those people who cannot or who choose not to travel by private vehicle.

Policy 1.2.3: Encourage and support the provision of public transit services, and/or provide subsidies or other types of support for travelers to use taxis or other privately provided transportation services.

Objective 1.3: Establish and Maintain Balance in Transportation Investments

Policy 1.3.1: Establish a balance in expenditures for improvements to facilities and services for automobiles, bicyclists, pedestrians, trucks, and other transportation modes.

Policy 1.3.2: Balance expenditures for transportation relative to expenditures on other types of public services and facilities.

Policy 1.3.3: Balance short and long term expenditures on transportation facilities and services in relation to revenues that will be available for transportation.

Policy 1.3.4: Balance expenditures for transportation system expansion and improvement in relation to expenditures necessary to maintain the transportation system.

Objective 1.4: Provide Safety for all Travelers

Policy 1.4.1: Provide a safe transportation system for all travel modes by including safety considerations in the design, construction, operation and maintenance of all transportation facilities and services.

Policy 1.4.2: Minimize conflicts between motorized vehicles and bicyclists and pedestrians.

Policy 1.4.3: Minimize conflicts between through traffic and turning traffic through appropriate facility design, construction and operation.

Objective 1.5: Provide a Multimodal Transportation System

Policy 1.5.1: Provide transportation choices for the movement of people and goods.

Policy 1.5.2: Encourage the use of alternatives to single occupant automobiles and reduce travelers' dependency on this travel mode.

Policy 1.5.3: Provide for easy connections and transfers between different transportation modes.

Policy 1.5.4: Provide for the coordination and integration of local and intercity transportation options for moving people and goods.

Objective 1.6: Ensure Accessibility to Transportation for All Travelers

Policy 1.6.1: Ensure full compliance with the requirements of the Americans With Disabilities Act (ADA).

Policy 1.6.2: Coordinate transportation services for the disabled provided by the public and private sectors.

Policy 1.6.3: Support the provision of public transportation services for travelers who cannot provide their own private transportation due to age (too young or too old to drive), physical disability, economic circumstances, or lack of access to private transportation.

Goal 2: Working Together to Meet Transportation Needs

It has become increasingly important for jurisdictions and agencies to work together to develop a unified approach to address transportation issues and provide for future transportation needs. Transportation needs transcend jurisdictional boundaries and require combined efforts to make the best use of resources. The City of Grants Pass, Josephine County and the Oregon Department of Transportation have joined together to develop this

transportation plan, and will continue to work together to implement it. Individual decisions of each jurisdiction will be coordinated; and the agencies will work together to solve issues and projects of regional significance.

The policies in this section address issues such as: interagency coordination, including the community in transportation planning and decision making, coordination of public and private efforts, and integrating land use and transportation decisions.

Objective 2.1: Encourage Interagency Coordination

Policy 2.1.1: Encourage interagency cooperation and coordination in the planning, design, construction, operation and maintenance of transportation facilities and services in the Grants Pass urban area.

Policy 2.1.2: Look for opportunities to combine resources to meet transportation needs shared by more than one agency.

Objective 2.2: Include the Community in Transportation Decisions

Policy 2.2.1: Make information about transportation options and decisions available to the public in a timely manner and in a form that is understandable to the general public so that they can participate in decision making.

Policy 2.2.2: Include the public in the identification of transportation needs, the identification and evaluation of potential transportation solutions, and in the establishment of priorities for transportation investments.

Policy 2.2.3: Provide education about transportation options such as transit, carpooling, bicycling and walking, and their implications, to help travelers choose more efficient travel modes.

Policy 2.2.4: Involve the Grants Pass area community as a full partner in implementing the transportation plan recommendations, educating the community about transportation options, and encouraging the use of alternatives to the private automobile.

Objective 2.3: Encourage Public and Private Partnerships to Meet Transportation Needs

Policy 2.3.1: Encourage the private sector to help to meet the transportation needs of the urban area through the provision of transportation services and facilities.

Policy 2.3.2: Coordinate publicly and privately provided transportation services to minimize duplication and facilitate use by travelers.

Policy 2.3.3: Look for opportunities for the private sector to implement the transportation improvements included in the *Grants Pass Urban Area Master Transportation Plan.*

Objective 2.4: Integrate Land Use and Transportation Decisions

Policy 2.4.1: Integrate decisions about development and transportation investments to ensure the best fit between development in the urban area and the transportation facilities and services needed to serve it.

Policy 2.4.2: Encourage more efficient land development patterns in the urban area through infill on undeveloped or underdeveloped properties in the urban area, and containment of sprawl outside of the urban area in order to reduce transportation needs.

Policy 2.4.3: Include a consistent and detailed review of transportation implications as part of the development review and permitting process for the Grants Pass Urban Area.

Policy 2.4.4: Coordinate the work of transportation, public works, utilities and planning departments of the City of Grants Pass, Josephine County and the Oregon Department of Transportation.

Goal 3: Protect Public Investments in Transportation

Investments in the community's transportation system represent one of the largest expenditures by the City and County. Over time, millions of dollars have been invested by the City, the County and ODOT in the design, construction, improvement and maintenance of the area's roads, trails, and other transportation facilities and services. In order to get the best return on the public's investment, it is critical that the transportation system be adequately maintained to extend its useful life, and that it be operated as efficiently as possible.

Policies in this section address issues such as managing transportation demand to reduce total demand and achieve a better balance in the use of the entire transportation system; and managing the transportation system to get the most efficient use of existing facilities and services. Policies also address maintenance and preservation of the system, preservation of future transportation corridors, and protecting existing transportation facilities.

Objective 3.1: Manage the Transportation System Effectively

Policy 3.1.1: Use Transportation System Management (TSM) techniques to preserve and enhance the capacity of transportation facilities in the urban area, including (but not limited to):

- Channelization techniques to separate turning traffic from through traffic,
- Effective management of left and right turns on and off of arterials and collectors,
- Signal coordination and timing, and
- Effective management of on street parking to maintain needed traffic capacity.

Policy 3.1.2: Use Transportation Demand Management (TDM) techniques to encourage people to reduce the demand for travel and obtain more efficient use of transportation facilities and services. Use TDM techniques to change the:

- Total amount of demand (by reducing the number and/or length of trips),
- Timing of demand (by reducing the concentration of trips during peak hours and distributing travel more evenly throughout the day),
- Location of demand (from congested facilities to less congested facilities), or
- Mode of travel (from single occupant vehicles to public transit, carpools, bicycling or walking.)

Objective 3.2: Maintain, Preserve and Rehabilitate Transportation Facilities

Policy 3.2.1: Provide regular preventative maintenance of transportation facilities to prevent facility deterioration, extend the useful life of transportation facilities, and improve safety and comfort for travelers.

Policy 3.2.2: Improve existing facilities through facility management and enhancements to postpone or eliminate the need to build new facilities.

Objective 3.3: Preserve Future Transportation Corridors

Policy 3.3.1: Identify future transportation corridors and preserve right-of-way from encroachment by development.

Policy 3.3.2: Acquire needed right-of-way in advance to preserve it and reduce ultimate costs for transportation facilities.

Policy 3.3.3: Obtain adequate property setbacks from developers to provide for future public right-of-way needs.

Objective 3.4: Protect Existing Transportation Facilities

Policy 3.4.1: Ensure sufficient roadway strength, turning radii and other geometrics to accommodate trucks on arterials and collectors.

Policy 3.4.2: Establish bypass routes to keep through traffic and trucks off of local roads.

Goal 4: Support Economic Development and Vitality

Adequate transportation infrastructure is a critical component in the economic development and vitality of the community. Accessibility to jobs, acceptable levels of traffic congestion, and adequate facilities for goods movement are all important in attracting and maintaining a successful economic base for the Grants Pass Urban Area. Provision of new facilities can open up areas for commercial and residential development, and relieve congestion that may be adversely affecting economic activities in other areas. Attractive and convenient transportation is important to maintaining and increasing the attraction of the area for tourists. Adequate transportation facilities are also important for the efficient and economical movement of goods to/from and within the Grants Pass urban area.

Policies in this section address issues related to stimulating economic development in the area, supporting tourism, providing for goods movement, and protecting the downtown business area from traffic impacts.

Objective 4.1: Stimulate Desired Economic Development

Policy 4.1.1: Coordinate land use and transportation decisions to promote accessibility to employment, commercial, retail, and visitor destinations and support economic development.

Policy 4.1.2: Use public investments in transportation and other infrastructure to stimulate desired economic development in the urban area.

Objective 4.2: Support Tourism

Policy 4.2.1: Support and encourage tourism through the provision of attractive and easily accessible transportation facilities and services for motorists, bicyclists, and pedestrians.

Policy 4.2.2: Provide better signing and information to help tourists locate local attractions easily.

Objective 4.3: Provide for Goods Movement

Policy 4.3.1: Provide adequate transportation facilities and services for the efficient movement of goods to/from and within the urban area.

Goal 5: Protect and Preserve the Natural and Built Environment

The lovely environment in the Grants Pass area is one of the major attractions for tourists, residents and businesses. Preserving and enhancing the physical surroundings is important to maintaining the high quality of life in the area. Transportation facilities and transportation related activities can negatively impact the natural and the built environment through congestion, and impacts on air quality, noise and water quality. In addition, federal and state laws and regulations have established specific targets for air quality and treatment of surface runoff and other environmentally related issues.

Policies in this section address issues related to: energy consumption, enhancing aesthetics, protecting residential and business neighborhoods from traffic impacts, air quality, movement of hazardous materials, and mitigating negative impacts.

Objective 5.1: Conserve Energy Resources

Policy 5.1.1: Protect the local environment and conserve energy resources by encouraging alternatives to the private automobile and reducing total VMT (vehicle miles traveled) per capita.

Policy 5.1.2: Pursue the use of more fuel efficient vehicles for public agencies to conserve fuel.

Policy 5.1.3: Encourage the use of more fuel efficient modes of travel such as carpools, bicycling and walking.

Objective 5.2: Enhance Community Aesthetics

Policy 5.2.1: Improve the attractiveness of transportation facilities through landscaping in the public right-of-way when possible.

Policy 5.2.2: Require landscaping and buffering along the public right-of-way for new developments.

Policy 5.2.3: Provide a safe, attractive and welcoming environment for bicyclists and pedestrians through the provision of special facilities such as:

- Bicycle lanes, paths and/or trails,
- Pedestrian walkways or trails, and
- Buffering of facilities for pedestrians and bicyclists from traffic.

Objective 5.3: Protect Neighborhoods

Policy 5.3.1: Keep through traffic off of residential streets through the provision of an adequate network of arterials and collectors, and consideration of neighborhood traffic control devices.

Policy 5.3.2: Keep trucks out of neighborhoods through the designation and enforcement of truck routes in the Grants Pass urban area.

Objective 5.4: Protect Air Quality

Policy 5.4.1: Meet the federal Clean Air Act (CAA) requirements for air quality.

Policy 5.4.2: Meet the Oregon Benchmarks targets for air quality.

Objective 5.5: Provide for Safe Movement of Hazardous Materials

Policy 5.5.1: Identify specific routes through the urban area for the movement of hazardous materials.

Policy 5.5.2: Implement a standard "incident management" program for hazardous materials.

Policy 5.5.3: Coordinate with state and federal agencies in developing programs and regulations for the safe movement of hazardous materials through the Grants Pass Urban Area.

Objective 5.6: Mitigate Negative Impacts

Policy 5.6.1: Mitigate negative environmental impacts associated with the construction, operation and maintenance of transportation facilities.

Goal 6: Ensure Financial Stability

Financing the recommended transportation improvements will be a major challenge. Costs have increased significantly for the construction of facilities due to inflation, and increased

requirements to meet safety and environmental regulations. In addition, the competition for transportation funds has increased at local, state and federal levels; and competition has increased between transportation and other publicly provided facilities and services such as parks, police, fire and education. Stable financing sources need to be available to carry out the transportation plan and to conduct ongoing maintenance and operation of the transportation system.

Policies in this section address issues related to the adequacy of funds for transportation improvements, equity in the collection and expenditure of funds, and encouraging the private sector to participate in the provision of transportation facilities and services.

Objective 6.1: Secure Adequate Transportation Funding

Policy 6.1.1: Identify and secure sufficient funding resources to implement the *Grants Pass Urban Area Master Transportation Plan.*

Policy 6.1.2: Secure sufficient resources to support an adequate ongoing maintenance program for transportation facilities in the Grants Pass Urban Area.

Policy 6.1.3: Stay apprised of special purpose funds that may be available for transportation facilities and/or services and aggressively pursue grants from state, federal, and other sources for transportation improvements.

Policy 6.1.4: Support legislative initiatives at the state and federal level to provide funds for transportation.

Objective 6.2: Assure Equity in Financing Transportation Facilities and Services

Policy 6.2.1: Assess costs for transportation facilities and services in relation to the benefits received.

Policy 6.2.2: Explore options for local funding of transportation improvements such as Local Improvement Districts, development impact fees, and system development charges.

Objective 6.3: Encourage Private Initiatives

Policy 6.3.1: Provide incentives to stimulate private investment in transportation facilities and services.

Policy 6.3.2: Encourage the private sector to do as much as possible to meet the needs for transportation facilities and services in the Grants Pass Urban Area.

Goal 7: Implement Planned Transportation Improvements

The ultimate test of any plan is whether or not its recommendations can be implemented successfully. Since a plan is useful only to the extent that it result in improved conditions, a strong implementation element is critical to the *Grants Pass Urban Area Master Transportation Plan.* In addition to financial strategies, implementation requires the identification of implementation responsibilities, schedule, and other implementation

activities. Some of these actions are "one time only", others involve ongoing actions and policies to systematically improve the transportation system as opportunities arise. Policies in this section address issues such as: setting priorities for transportation expenditures, project construction, preservation of future right-of-way, updating the transportation plan, and involving the private sector in improvements for the transportation system.

Objective 7.1: Set Priorities

Policy 7.1.1: Establish a clear process and criteria to determine funding priorities for transportation expenditures based on:

- Safety,
- Capacity,
- Encouraging alternatives to SOV's (Single Occupant Vehicles),
- Transportation system completion,
- Financial feasibility,
- Community support,
- Economic stimulation and support, and
- Environmental enhancement.

Policy 7.1.2: Maintain sufficient flexibility in plan implementation to take advantage of special opportunities that may arise and respond to conditions as they change.

Objective 7.2: Construct Needed New Facilities

Policy 7.2.1: Complete the planned transportation network to evenly distribute traffic and reduce traffic impacts on congested locations.

Policy 7.2.2: Provide for a fourth bridge to support the development of the south and western portions of the urban area as provided for in the Comprehensive Plan.

Policy 7.2.3: Include provisions for bicycles and pedestrians in major maintenance and improvement projects for roadways.

Policy 7.2.4: Establish on going spot improvement program for the systematic elimination of hazards for bicycles and pedestrians.

Policy 7.2.5: Update the implementation portion of the *Grants Pass Urban Area Master Transportation Plan* in coordination with preparation of Capital Improvement Programs for the City, County and State, to respond to changing conditions.

Objective 7.3: Preserve and Acquire Future Transportation Corridors

Policy 7.3.1: Identify future transportation corridors and prohibit development and/or encroachment on needed right-of-way.

Policy 7.3.2: Obtain dedicated right-of-way and/or easements for roads, trails and utilities during the development review and permitting process.

Objective 7.4: Keep Transportation Plan Current

Policy 7.4.1: Maintain an adequate data base to monitor the transportation system performance and provide for future transportation and land use planning efforts.

Policy 7.4.2: Conduct regular assessment of the plan and prepare reports on transportation conditions in the urban area, the status of key indicators (such as traffic volumes, Level of Service on key roadways, air quality, financial conditions and project implementation status), and progress toward the goals and policies in the transportation plan.

Policy 7.4.3: Complete updates of the *Grants Pass Urban Area Master Transportation Plan* as part of the periodic review of the Urban Area Comprehensive Plan.

Objective 7.5: Encourage Private Sector Participation in Implementation

Policy 7.5.1: Encourage private sector participation in implementation of the projects, programs and policies included in the transportation plan.

Policy 7.5.2: Encourage and support private entrepreneurs who want to provide transportation facilities and services in the urban area.

Policy 7.5.3: Provide positive incentives as well as exactive requirements for the private sector to assist in meeting the transportation needs of the Grants Pass urban area.

Policy 7.5.4: Encourage new developments to extend/connect roads, trails, paths adjacent to their developments.

4. ROADWAY ELEMENT

This chapter includes the planned transportation improvements for the Grants Pass Urban Area. The first section describes the process used to identify and evaluate proposed improvements for the transportation system in the urban area. The second section describes the planned capital improvement program, which includes transportation system improvement projects (new facilities or expansions of existing facilities), and transportation system upgrades for existing city, county, and state facilities. The planned improvements are described in tables and shown on maps included in this section. Individual projects have been prioritized, and scheduled for implementation over the next 20 years. A new functional classification map is also included in this section. The third section of this chapter includes roadway design guidelines for facilities within the Grants Pass Urban Area.

Developing the Capital Improvement Program

Following the identification of current and future needs and deficiencies a series of improvement alternatives were developed. These included a "no build" alternative, as well as eight different action alternatives. The action alternatives differed in the mix of individual improvements that were included. Each of the alternatives was "modeled" to test their effectiveness in meeting the identified deficiencies. These alternatives were evaluated using the criteria shown in Table 4-1. The results of the evaluation were reviewed with the Management Team, the Transportation Public Advisory Committee and the general public. Descriptions of the alternatives, along with the results of the model evaluation are included in Appendix C of this Plan.

Based on the evaluation, Alternative 8 was selected as the preferred option, and provided the basis for the Capital Improvement Program. This alternative was subsequently refined to respond to comments received during the review. Planning level cost estimates were developed for each of the projects in order to assess the fiscal requirements for the transportation improvements needed to serve the adopted land use plan. Individual projects were assigned a priority (high, medium or low) to reflect their relative importance, and assigned to a construction time period.

An assessment was made of the primary beneficiaries of each project (local, areawide, existing development and/or new development), and potential funding sources were identified for each project related to the identified beneficiaries. Possible funding sources included state and federal funds, city general funds, county road fund, private developers, local improvement districts (LIDs), system development charges (SDCs), and other (e.g., schools, and Grants Pass Parkway Redevelopment Agency.) A complete copy of the financial analysis is included in Chapter 8 of this Plan.

Table 4-1: Evaluation Criteria for Transportation Improvements

Evaluation Criteria	Description
Project Performance	
Congestion Relief	Extent to which the project relieves congestion and/or improves LOS (level of service) at project location and/or elsewhere
Safety	Potential for project to improve safety for travelers using motorized or non-motorized modes of travel
Roadway/Network Completion	Does the project/improvement fill in an important missing link in the roadway or transportation system
Encouraging Travel Modes Other than the Private Automobile	Potential for the project to encourage travel by transit, walking, bicycle, and/or the potential of the project to reduce total VMT (vehicle miles traveled) through more direct connections
Impacts of the Project	
Natural Environment	Potential impact of the project on air and water quality, wetlands and natural vegetation, and ability to mitigate adverse impacts
Built Environment	Potential impacts of project on neighborhoods, businesses, parks and recreational sites, and historical and cultural sites
Construction Impacts	Potential short-term impacts on the natural and built environment during project construction
Financial Feasibility	
Cost Effectiveness	Total project cost in relation to expected benefits of the project
Funding Feasibility	How reasonable is it to expect that funds can be secured for implementation, will the project qualify for special funding
Engineering Feasibility	
Technical Elements	Are there any difficult or unique technical issues to be addressed in the design/construction of the project
Required Structures	Are there any structures required that will significantly increase the technical complexity and cost of the project
Community Support	
Compatibility with Plans	Is the project compatible with adopted plans for the City of Grants Pass, Josephine County and ODOT
Community Support	To what degree does the community support/oppose the project

Capital Improvement Program

Projects for the long range capital improvement program for the Grants Pass Urban Area are divided into two categories: System Improvements and Urban Upgrades. System Improvement projects include new roadways or sections of roadways, and expansions of existing facilities to provide additional capacity and/or additional improvements for bicycles and/or pedestrians. Urban Upgrade projects involve improvements to existing facilities to bring them up to the design standards for their functional classification within the urban area. Upgrade projects are shown separately for city, county and state facilities. Functional classifications for all of the roadways is shown in Figure 4-1; design guidelines for each of these classifications is included in the last section of this chapter.

Transportation System Improvements

Planned transportation system improvements are described in Table 4-2, and are shown in Figures 4-2 to 4-4. A detailed list of planned improvements per facilitiy is located in Appendix F. These improvements include new roads, a new bridge crossing the Rogue River in the vicinity of Lincoln Road, extensions of existing roadways, and street widening and other improvements. The underlying rationale for the set of improvements included in the Plan is based on the three objectives described below.

- *Provide north/south routes in the western and eastern portions of the urban area, as well as the center route along 6th and 7th Streets. This will provide for better circulation within the urban area to support the approved land use plan. In addition it will help to distribute traffic more evenly throughout the urban area, relieving congestion in the downtown core and reducing unnecessary circuitous routing for travelers.*
- *Complete critical "missing links" in the roadway system. This will allow for more direct routing, and a more even distribution of traffic over the entire arterial network;*
- *Bring roadways within the urban area up to urban standards. This will improve safety and convenience for all travel modes, including bicycle and pedestrian.*

The highest priority projects included in the list of System Improvements are described below.

Fourth Bridge (Project 1) - The selected location for a fourth bridge across the Rogue River would connect Allen Creek Road/Flower Lane and Lincoln Road. The existing river crossings are becoming more congested, and will continue to get worse as the area grows. An additional bridge will provide additional north/south capacity across the river, and a more convenient connection for traffic on the western side of the urban area. This is consistent with the adopted land use plan which calls for substantial additional growth in this portion of the urban area. A new bridge in this area will eliminate some circuitous routing and travel on east/west streets as traffic uses the new bridge rather than traveling out of the way to reach existing bridges. The useful lifespan of a bridge is 40-50 years. Therefore this bridge is planned to be four lanes wide to provide sufficient width for long term needs. The roadway

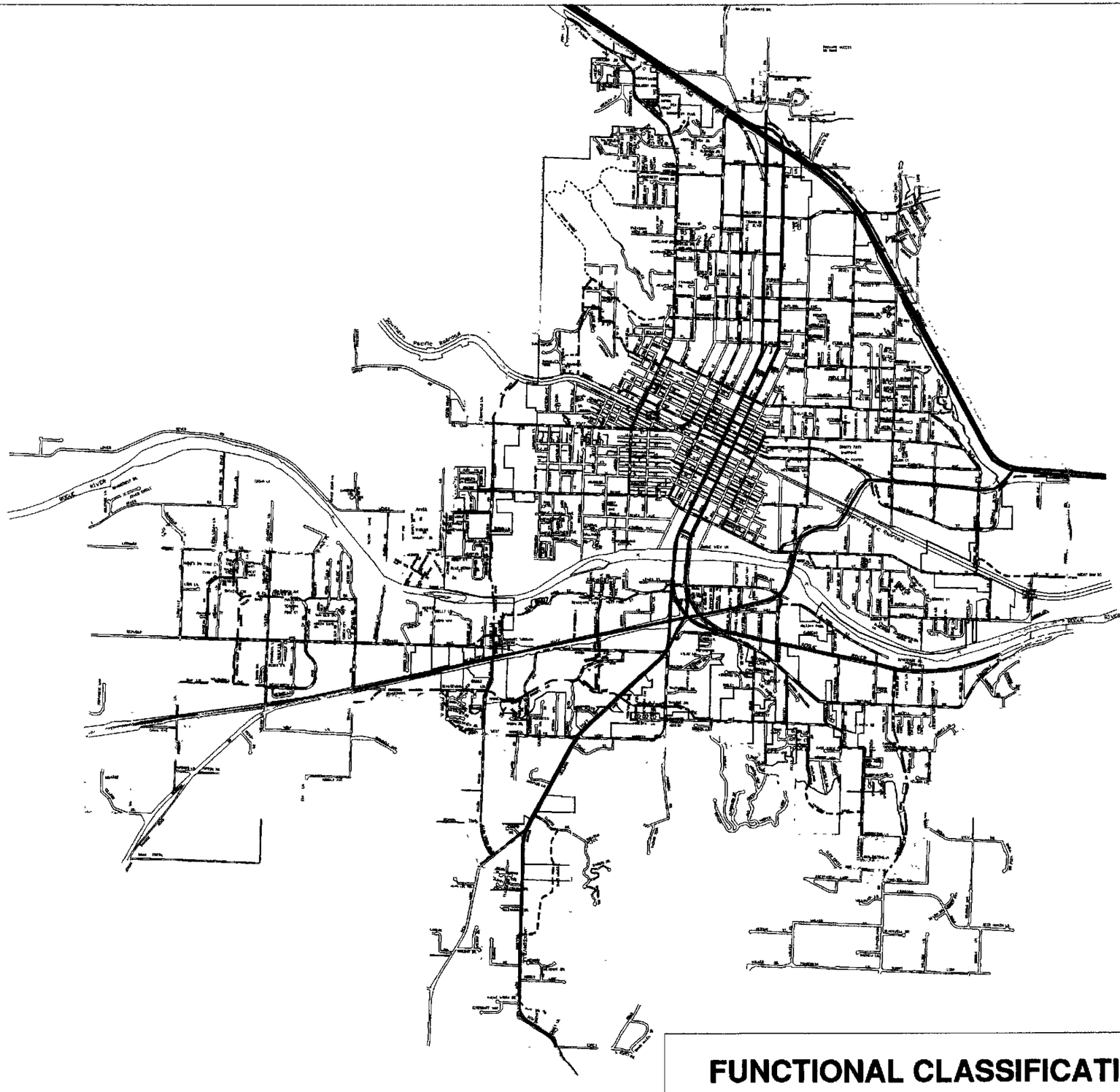
leading to/from the bridge could be two to five lanes depending on the travel demand for the roadway. The estimated cost for the bridge is $15.7 million; it is scheduled for construction in the period from 2006 to 2015.

Lincoln Road Widening (Webster Road to "G" Street) (Project 2) - The existing section of Lincoln Road between Webster Road and G Street would be widened to three lanes and upgraded to meet the design guidelines for an arterial street. This project is related to the fourth bridge. The estimated cost for this improvement is $2.1 million; it is scheduled for construction in the period from 2006-2015

"F" Street Extension (Elm Street to Sunhill Drive) (Project 3) - In this project "F" Street would be extended from its current terminus to the northwest along the railroad right-of-way, to connect with Sunhill Drive. The resulting collector roadway would provide better access to properties north of the railroad tracks. This project provides a critical link to serve the growing residential areas in the northwest portion of the urban area. This project is linked to Project 7 (a new local access road from Morgan Lane to "F: Street - Low priority), Project 19 (a new road from Upland Drive to Manzanita Street - Low priority), and Project 4 (a new road extending "F" street from Sunhill Drive to "G" Street/Lincoln Road - Medium priority). The estimated cost for this improvement is $2.1 million; it is scheduled for construction in the period from 2006 to 2015.

Urban Upgrades

In addition to system improvements, numerous locations were identified where upgrades are needed to bring existing facilities into compliance with design guidelines for the roadways within the Grants Pass Urban Area. Upgrades could include widening of lanes to meet standards, installation of enclosed drainage, improved traffic signals, installation of bicycle lanes and/or sidewalks, and other types of improvements. Upgrade projects for City and State facilities are shown in Figure 4-3, and upgrade projects for county facilities are shown in Figure 4-4. They are described in Table 4-2 and more fully in Appendix F. The highest priority upgrade projects are summarized in Table 4-3.



SCALE: 1" = 2000'

Functional Classifications

Existing		Proposed
———	State Highway	———
—·—·—	Arterial	—·—·—
– – – –	Collector	– – – –
----------	Local Collector	----------
═══	Local	.....
	Private	.....

FUNCTIONAL CLASSIFICATION PLAN

Figure 4-1

Grants Pass Urban Area Transportation Plan

9-25-00

Key
H : High Priority
M : Medium Priority
L : Low Priority
PRA : Parkway Redevelopment Agency
RR Xing: Railroad Crossing
TWLTL : Two-way left turn lane

Table 4-2: Planned Transportation Projects

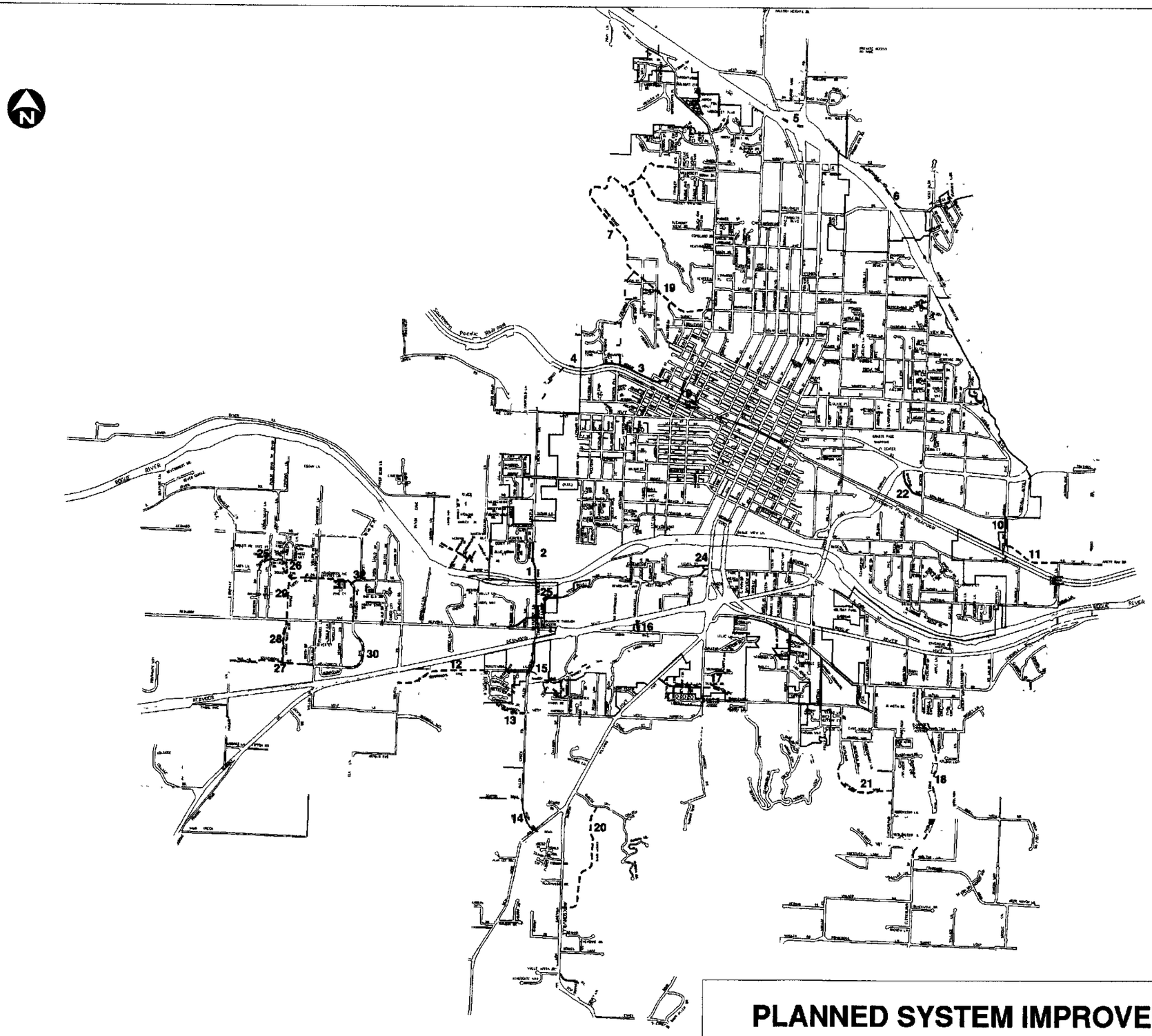
Code Number	Improvement Project	Description	Estimated Cost	Construction Timing	Primary Beneficiaries: Local	Area-wide	Existing Devt.	New Devt.	Potential Funding Sources (Primary (P) or Secondary (S)): Priority (H,M,L)	State/ Fed.	City Gen.	County Road	Private Devt.	LID	SDC	Other
	System Improvements															
1	Fourth Bridge: Redwood Avenue to Webster Road	New Bridge	$15,727,118	2006 to 2015	X	X	X	X	H	P	S	S			S	
2	Lincoln Road: Webster Road to G Street	Widen to three lanes	$2,101,111	2006 to 2015	X	X	X	X	H	S	S	S			S	
3	F Street: Elm Street to Sunhill Drive	New Extension, RR Xing	$2,089,747	2006 to 2015	X	X	X	X	H		S			P		
4	F Street: Sunhill Drive to G Street	New Extension, RR Xing	$2,064,863	2006 to 2015	X	X	X	X	M		S			P		
5	I-5 North Interchange Improvements	New Ramps	$1,817,098	2006 to 2015	X	X	X	X	M	S			P			
6	Service Road: Hillcrest Drive to Greenfield Road	New two lane road	$1,000,722	2006 to 2015	X	X	X	X	M	S	S	S		S		
7	Crown Street: Morgan Lane to F Street*	New local access	$3,682,166	2006 to 2015	X		X	X	L				P	S		
9	Dimmick Street: Foundry Street to F Street	New Extension, RR Xing	$718,762	2006 to 2015	X	X	X	X	M		S			P	S	
10	Agness Avenue: Spalding to N Street	New Extension, RR Xing	$1,278,824	2006 to 2015		X	X	X	M	S	S	S		S	S	
11	Ament Road: Shannon Lane to Agness Avenue	New Extension	$714,046	2015 +	X		X	X	L				P	S		
12	Schutzwohl Lane: West Harbeck Road to Dowell Road	New collector road	$1,798,770	2006 to 2015	X	X	X	X	L				P	S		
13	West Harbeck Road: Forestview Drive to Allen Creek	New collector road	$270,435	2006 to 2015	X	X	X	X	L				P	S		
14	Allen Creek Road: Denton Trail to New Hope Road*	New Extension	$1,239,746	2006 to 2015	X	X	X	X	M	S		S	P	S	S	
15	Ramsey Road: Allen Creek Road to Meridian Way	New Extension	$1,771,283	2006 to 2015	X	X	X	X	M				S	P		PRA
16	Ringuette Road: Redwood Highway to Union Avenue	New Extension	$471,863	2006 to 2015	X		X	X	M	P				S		PRA
17	GI Lane: Jacksonville Highway to Grandview Avenue	New Extension	$1,081,739	2006 to 2015	X		X	X	L				P	S		PRA
18	Overland Drive: Rogue River Highway to Cloverlawn	New Extension	$3,693,953	2002 to 2005	X		X	X	M			S	S	P		
19	New Road: Upland Drive to Manzanita Street	New Extension	$716,605	2006 to 2015	X			X	L				P	S		
20	Coach Drive: Curtis Drive to Williams Highway	New Extension	$2,587,713	1998 to 2006	X			X	L				P	S		
21	Haviland Drive: Highline Canal to Cloverlawn Drive	New Extension	$1,072,092	2006 to 2015	X			X	L				P			
22	Spalding Avenue: Beacon Drive to Grants Pass Parkway	New Extension	$550,711	1998 to 2006	X	X	X	X	H	S			S	P		PRA
23	West Park Street: Allen Creek to Pansy Lane	New Extension	$630,615	2015 +		X			L					P		
24	West Park/Lewis Avenue	Intersection improvements	$479,613	2006 to 2015	X	X	X	X	M			S	S	P		
25	Raydean Drive: Raydean Drive to Angler Lane	New Extension	$402,886	2015 +					L			S	P			
26	Angler Lane: Angler Lane to George Tweed-North	New Extension	$331,788	2015 +					L			S	P			
27	Kellenbeck Avenue-West: Hubbard Lane to Willow Lane	New Extension	$1,184,959	2015 +					L			S	P			
28	George Tweed Blvd-South: Kellenbeck-West to Redwood	New Extension	$592,479	2015 +					L			S	P			
29	George Tweed Blvd-North: Redwood to Willow Lane	New Extension	$900,569	2015 +					L			S	P			
30	Kellenbeck Avenue-South: Redwood to Willow Lane	New Extension	$450,284	2015 +					L			S	P			
31	Kellenbeck Avenue-North: Redwood to Willow Lane	New Extension	$995,365	2015 +					L			S	P			
32	Leonard Road: Leonard Road to Kellenbeck-North	New Extension	$142,195	2015 +					L	S		S	P	P	S	
		Total System Improvement	$52,560,120													
	Urban Upgrades: City															
33	Dimmick Street: Bellevue to C Street	Restripe for bike lanes	$19,964	2006 to 2015		X			M		S			P		
34	Dimmick Street: C Street to RR Crossing	Widen for TWLTL, bikes	$179,496	2006 to 2015		X			M		S			P		
35	Dimmick Street: RR Crossing to G Street	Widen for TWLTL, bikes	$15,608	2006 to 2015		X			M		S			P		
36	Oak Street: G Street to Bridge Street	Restripe for bike lanes	$32,984	2006 to 2015		X			M		S					
37	G Street: Leonard Road to 3rd Street	Widen for TWLTL, bikes	$499,466	2006 to 2015		X			H		P					
38	B Street/Crescent Drive: Olmar to New Local Collector	Curb, Gutter, Sidewalk	$45,565	2006 to 2015	X		X	X	L				S	P		
39	Beacon Drive: A Street to D Street	Restripe for bike lanes	$14,756	2006 to 2015		X			H		S					
40	Hillcrest Drive: 6th to 7th Street	Restripe for bike lanes	$9,548	2015 +		X			L		P					
41	Hillcrest Drive: 7th to 9th Street	Restripe for bike lanes	$13,020	2015 +		X			L		P					
42	Savage Street: Beacon Drive to 10th Street	Full Reconstruction	$99,537	2006 to 2015	X	X		X	M					P		
		Total City Upgrades	$929,944													

* Revised by Ord. 5022 - Estimated Costs not revised.

Urban Upgrades: County

43	A Street: Tenth Street to Foothill Boulevard	Overlay, 5' sidewalks (2)	$119,470	2015+					M				S	P		
44	Allen Creek Road: Redwood Avenue to Denton Trail	Full Reconstruction	$2,369,917	2006-2015					M	S		S	S	P	S	
45	Beacon Drive: Spalding Avenue to Railroad Right-of-Way	Full Reconstruction	$189,593	2015+					L				P	S		
46	Bridge Street: Lincoln Road to East Line Section 13	Overlay, 5' sidewalks (2)	$66,372	2006-2015					M				S	P		
47	Cloverlawn Drive: Rogue River Highway to Eastview Place	Overlay, 5' sidewalks (2)	$74,962	2006-2015					L				S	P		
48	Cloverlawn Drive: Eastview Place to Hamilton Lane	Full Reconstruction	$2,369,917	2015+					L	S		S	S	P	S	
49	Damielle Lane: Redwood Avenue to Leonard Road	Full Reconstruction	$1,184,959	2015+					M	S		S	S	P	S	
50	Dowell Road: Redwood Highway to Schutzwol Lane Extension	Full Reconstruction	$248,842	2006-2015					L				S	P		
51	Dowell Road: Redwood Avenue to Leonard Road	5' sidewalks (2)	$66,372	2006-2015					M			S	S	P	S	
52	Drury Lane: Fruitdale Drive to Grandview Avenue	Full Reconstruction	$947,967	2006-2015					M				S	P		
53	Fairgrounds Road: Redwood Highway to Union Avenue	Full Reconstruction	$47,398	2015+					M	S		S	S	P	S	
54	Foothill Boulevard: A Street to 760 Feet Southeast	Overlay, 5' sidewalks (2)	$37,168	2015+					M	S		S		P	S	
55	Fruitdale Drive: Jacksonville Highway to Parkdale Drive	Full Reconstruction	$1,421,950	1999-2005					M	S		S	S	P	S	
56	Fruitdale Drive: Parkdale Drive to Overland Drive	Full Reconstruction	$1,777,438	2006-2015					M	S		S	S	P	S	
57	Fruitdale Drive: Overland Drive to Rogue River Highway	Full Reconstruction	$2,488,413	2015+					M	S		S	S	P	S	
58	G Street: Third Street to Fourth Street	Overlay, 5' sidewalks (2)	$29,204	1999-2005					H				P	S		
59	G Street: Lincoln Road to Leonard Street	Full Reconstruction	$622,105	1999-2005					H	S		S	S	P	S	
60	Gladiola Avenue: N Street to Portola Drive	Full Reconstruction	$516,763	2006-2015					M	S			S	P	S	
61	Grandview Avenue: Harbeck Road to Cloverlawn Drive	Full Reconstruction	$2,369,917	2006-2015					H	S		S	S	P	S	
62	Hamilton Lane: Park Street, East to Rogue River Highway	Full Reconstruction	$149,305	2015+					M					P	S	
63	Hamilton Lane: Overland Drive to Cloverlawn Drive	Full Reconstruction	$2,836,801	2015+					L				S	P	S	
64	Harbeck Road: Jacksonville Highway to Grandview Avenue	Overlay, 5' sidewalks (2)	$100,886	2015+					M				P	S		
65	Harbeck Road, West:Jacksonville Highway to Allen Creek Road	Full Reconstruction	$1,184,959	2006-2015					M	S		S	S	P	S	
66	Haviland Drive: Grandview Avenue to Highline Canal	Full Reconstruction	$805,772	2015+					L				S	P		
67	Hawthorne Avenue: Midland Avenue to Morgan Lane (West)	Overlay, 5' sidewalks (2)	$114,160	1998 to 2000					L				S	P		
68	Highland Avenue: South Line Section 6 to Northwest UGB	Full Reconstruction	$2,015,621	1999-2005					M			S	S	P	S	
69	Hillcrest Drive: Hawthorne Avenue to Sixth Street	Overlay, 5' sidewalks (2)	$66,372	1999-2005					L				S	P		
70	Hillcrest Drive: Ninth Street to Tenth Street	Full Reconstruction	$671,874	2015+					M	S		S	S	P	S	
71	Hillcrest Drive: Tenth Street to Beacon Drive	Full Reconstruction	$622,105	2015+					M				S	P	S	
72	Hubbard Lane: Redwood Highway to Redwood Avenue	Full Reconstruction	$1,066,463	2015+					M	S		S	S	P	S	
73	Leonard Road: Willow Lane to Redwood School (UGB)	Full Reconstruction	$1,777,438	2015+					M	S		S	S	P	S	
74	Leonard Road: Dowell Road to Willow Lane	Full Reconstruction	$1,777,438	2015+					M				S	P	S	
75	M Street: Skunk Creek to East 1/16 Line Section 20	Overlay, 5' sidewalks (2)	$111,505	2015+					L				S	P		
76	M Street: West Line Section 21 to N Street	Overlay, 5' sidewalks (2)	$42,478	2015+					L				S	P		
77	Morgan Lane: Hawthorne Avenue to Vine Street	Overlay, 5' sidewalks (2)	$53,098	1999-2005					L				S	P		
78	Morgan Lane: Highland Avenue to Hawthorne Avenue	Full Reconstruction	$622,105	1999-2005					M	S		S	S	P	S	
79	N Street: East 1/16 Line Section 20 to Rogue Drive	Overlay, 5' sidewalks (2)	$55,753	2015+					L				S	P		
80	N Street: M Steet to Agness Avenue Extension	Full Reconstruction	$798,633	2006-2015					M	S		S	S	P	S	
81	N Street: Agness Avenue Extension to Gladiola Avenue	Full Reconstruction	$211,403	2006-2015					M							
82	Nebraska Avenue: West Harbeck Road to McCarter Drive	Overlay, 5' sidewalks (2)	$14,698	2015+					L	S			S	P	S	
83	Nebraska Avenue: McCarter Drive to South Union Avenue	Half Reconstruction	$236,992	1999-2005					M				S	P		
84	Nebraska Avenue: South Union Avenue to Union Avenue	Overlay, 5' sidewalks (2)	$36,746	1999-2005					L			S	P	S		
85	Park Street, East: Gold River Lane to Clara Avenue	Full Reconstruction	$597,221	2006-2015					M				S	P	S	
86	Park Street, East: Clara Avenue to Hamilton Lane	Full Reconstruction	$696,758	2015+					M				S	P	S	
87	Park Street, West: Sixth Street to Ringuette Street	Full Reconstruction	$947,967	1999-2005					L	S		S	S	P	S	
88	Park Street, West: Ringuette Street to Pansy Lane	Full Reconstruction	$2,132,926	2015+					M				S	P	S	
89	Portola Drive: 450 Feet west of Gladiola Avenue	Full Reconstruction	$211,403	1999-2005					M	S			S	P	S	
90	Portola Drive: Gladiola Avenue to Shannon Lane	Full Reconstruction	$489,764	2015+					M	S			S	P	S	
91	D Street: Beacon Drive to 1500 Feet East	Overlay, 5' sidewalks (2)	$74,337	2015+					M				S	P		
92	Redwood Avenue: Redwood Highway to Daisy Lane	Full Reconstruction	$473,983	2006-2015					H	S		S	S	P	S	
93	Redwood Avenue: Daisy Lane to Dowell Road	Full Reconstruction	$1,682,641	2006-2015					H	S		S	S	P	S	
94	Redwood Avenue: Dowell Road to 450 Feet West of Darneille La	Full Reconstruction	$2,441,015	2015+					H	S		S	S	P	S	
95	Foothill Boulevard: City Limits to Ament Road	Full Reconstruction	$995,369	2015+					M	S		S	S	P	S	
96	Ringuette Street: Redwood Highway to Canal Street	Overlay, 5' sidewalks (2)	$29,204	1999-2005					L				S	P		

97	Ringuette Street: Canal to West Park Street	Full Reconstruction	$189,593	1999-2005					L			S	S	P	S	
98	Scenic Drive, West: Granite Hill Road to Scoville Road	Full Reconstruction	$726,639	2006-2015					L	S		S	S	P	S	
99	Schutzwohl Lane: West Harbeck Road to Allen Creek Road	Reconstruction	$622,105	1999-2005					L			S	P	S		
100	Scoville Road: Greenfield Road to Scenic Drive	Full Reconstruction	$208,343	2006-2015					L	S		S	S	P	S	
101	Shannon Lane: Portola Drive to North Railroad (ROW)	Full Reconstruction	$352,338	2015+					L	S			S	P	S	
102	Tenth Street: Hillcrest Drive to South 940 Feet	Full Reconstruction	$447,916	2015+					L	S		S	S	P	S	
103	Union Avenue: Jacksonville Highway to Ringuette Street Extensi	Full Reconstruction	$876,869	2006-2015					M	S		S	S	P	S	
104	Union Avenue: Ringuette Street Extension to Nebraska Avenue	Full Reconstruction	$805,772	2015+					M	S		S	S	P	S	
105	Upper River Road: Lincoln Road to UGB West	Overlay, 5' sidewalks (2)	$50,443	2015+					M				S	P		
106	Vine Street: Highland Avenue to Hawthorne Avenue	Full Reconstruction	$1,354,231	2015+					L			S	S	P	S	
107	Willow Lane: Redwood Highway to Redwood Avenue	Full Reconstruction	$971,666	2006-2015					M	S		S	S	P	S	
108	Willow Lane: Redwood Avenue to Leonard Road (UGB)	Full Reconstruction	$1,184,959	2006-2015					M	S		S	S	P	S	
109	Harbeck Road, West: Grandview Avenue to Jacksonville Highwa	Full Reconstruction	$1,327,154	2015+					M	S			S	P	S	
110	Pansy Lane: Redwood Avenue to North End	Full Reconstruction	$236,992	2015+					L				S	P	S	
		Total County Upgrades	$52,448,940													
	Urban Upgrades: State															
111	Grants Pass Pedestrian/Bikeway Bridge	New Bridge	$1,259,000	1998 to 2002	X				H	P	S	S				
112	Redwood Highway at Rogue River Highway	Needs Assessment	$27,000	1997	X	X	X	X	H	P						
113	Redwood Highway, MP 0.3 to 6.9: 6th Street to 7 miles west	Widen and Overlay	$3,561,000	1996	X	X			H	P						
114	Redwood Highway at Dowell Road	Install Traffic Signal	$184,000	1997	X		X	X	H	P		S				
115	Redwood Highway at Allen Creek Road	Install Traffic Signal	$184,000	1999	X		X	X	H	P		S				
116	6th Street/7th Street Couplet:North I-5 interchange to Park Street	Reconstruction	$14,000,000	1999 to 2001	X	X		X	H	P						
117	Jacksonville Highway: New Hope to UGB	Widen to four lanes	$2,140,000	2002 to 2005	X	X		X	H	P						
118	Lower River Road: Lincoln Road to UGB	Full Reconstruction	$315,000	2002 to 2005	X		X		M	S				P		
119	Rogue River Highway: Redwood Highway to UGB	Access mgt, CG	$4,000,000	2006 to 2015	X	X	X		M	P	S	S				
120	Redwood Highway at Willow Lane	Install Traffic Signal	$184,000	2006 to 2015	X		X	X	M	P		S				
		Total State Uprades	$25,854,000													
	Grand Total		**$131,793,004**													



Priority

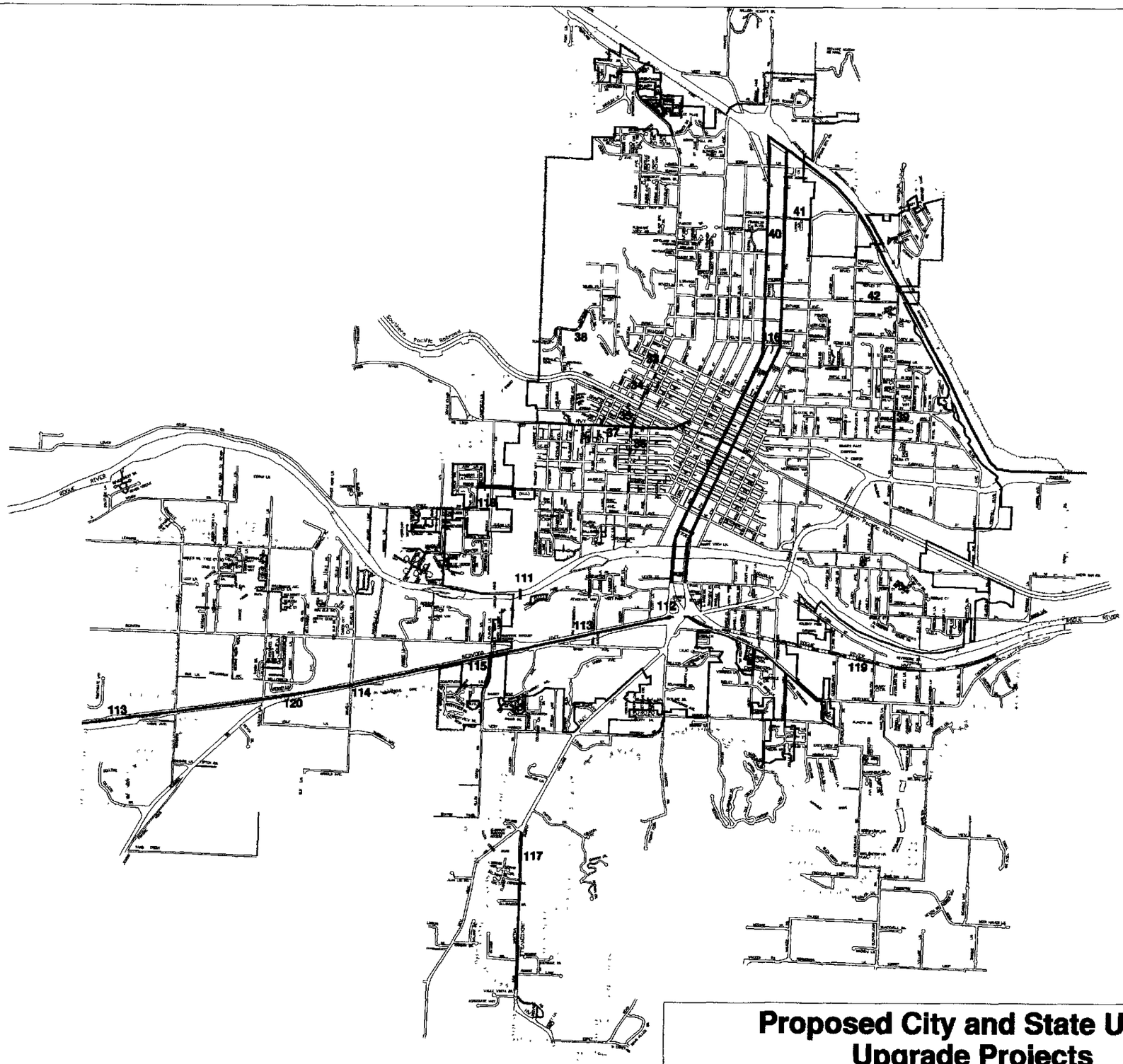
High Priority	———
Medium Priority	- - - - - -
Low Priority	----------

PLANNED SYSTEM IMPROVEMENTS

Figure 4-2

Grants Pass Urban Area Transportation Plan

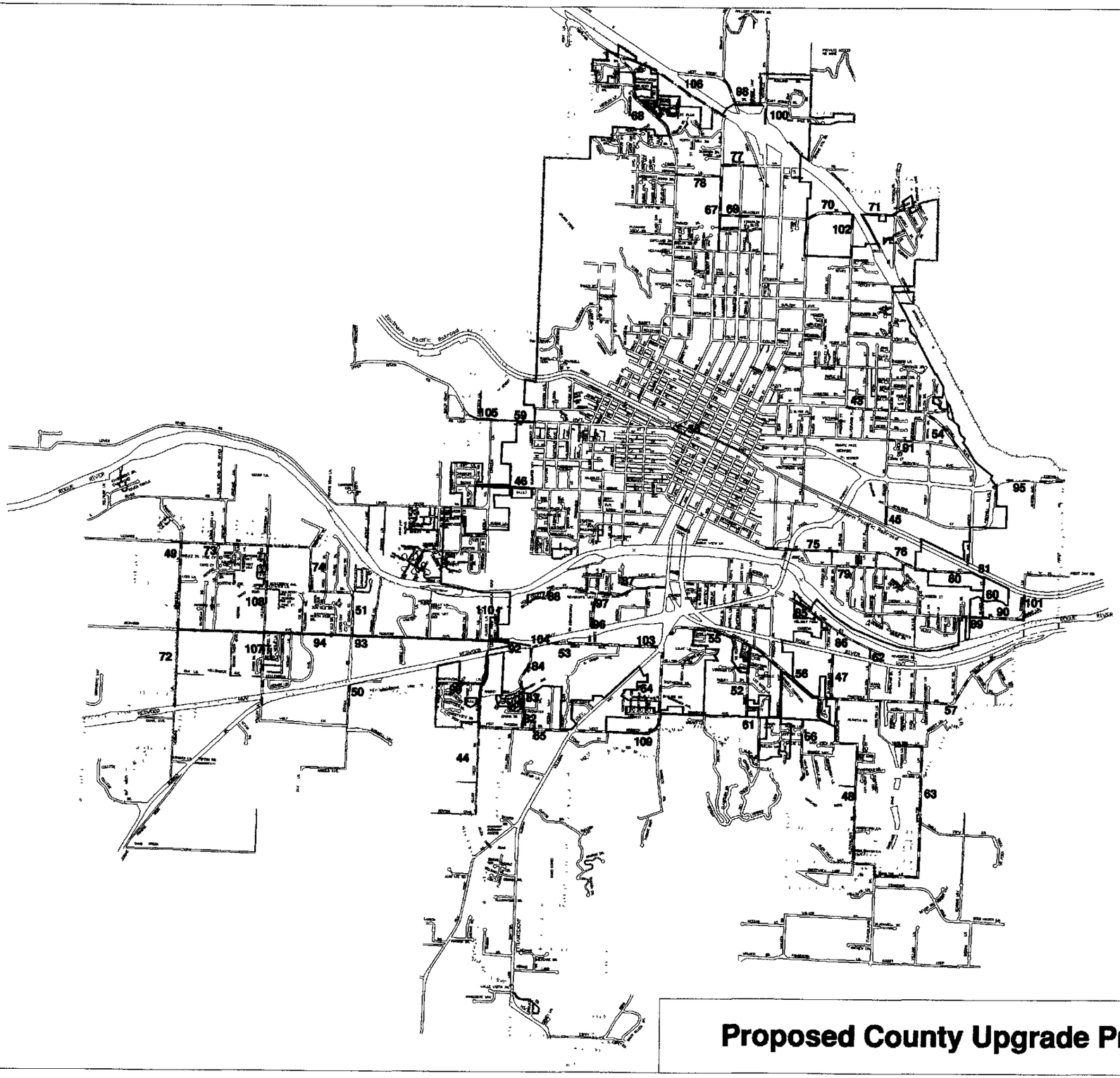
9-25-90



Proposed City and State Urban Upgrade Projects

Figure 4-3

Grants Pass Urban Area Transportation Plan



LEGEND

- High Priority
- Medium Priority
- Low Priority
- City Limits
- UGB

Proposed County Upgrade Projects

Figure 4-4

Grants Pass Urban Area Transportation Plan

Table 4-3: High Priority Urban Upgrade Projects

Project #	Location	Limits
City		
37	"G" Street	Leonard Road to 3rd Street
39	Beacon Drive	"A" Street to "D" Street
County		
58	"G" Street	3rd Street to 4th Street
59	"G" Street	Lincoln Road to Leonard Street
61	Grandview Avenue	Harbeck Road to Cloverlawn Drive
92	Redwood Avenue	Redwood Highway to Daisy Lane
93	Redwood Avenue	Daisy Lane to Dowell Road
94	Redwood Avenue	Dowell Road to 450 feet west of Darneille
State		
111	Pedestrian/Bikeway Bridge	Vicinity of All Sports Park
112	Redwood Highway	At Rogue River Highway
113	Redwood Highway	Milepost 0.3 to 6.9 (6th street to 7 miles west)
114	Redwood Highway	At Dowell Road
115	Redwood Highway	At Allen Creek Road
116	6th/7th Street Couplet	North I-5 Interchange to Park Street
117	Jacksonville Highway	New Hope Road to Urban Growth Boundary

Planning Criteria and Design Standards

This section includes general descriptions and guidelines for roadway design within the Grants Pass Urban Area. Table 4-4 includes descriptions of the general functions and characteristics for different functional classifications. Figure 4-5 includes typical cross section diagrams for these types of roadways. These illustrations are for typical facilities within each of the distinct functional classifications. There may be valid reasons for the city, county or state to deviate from these guidelines in response to unique conditions at a particular location.

In general the City of Grants Pass, Josephine County, and the Oregon Department of Transportation will follow current versions of recognized design standards when designing and constructing improvements for transportation facilities within the Grants Pass Urban Area. These include:

- *AASHTO (American Association of State Highway and Transportation Officials) Standards for roadway design, and for design of bicycle and pedestrian facilities;*
- *MUTCD (Manual on Uniform Traffic Control Devices), and Oregon Supplements to the MUTCD for traffic signals and other traffic control devices and for roadway signage;*
- *ODOT (Oregon Department of Transportation) Design Manual;*
- *City of Grants Pass Department of Engineering Standard Plans; and*
- *Josephine County Standards and Specifications for Design and Construction of County Roads.*

Table 4-4: Design Guidelines and Characteristics for Urban Streets

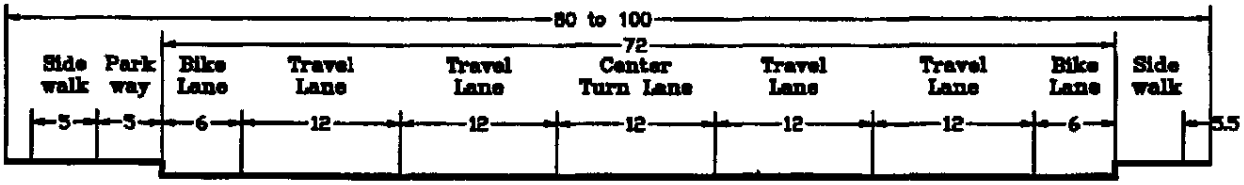
Features	State Highways	Major and Minor Arterial Streets	Collector Streets	Local Collectors	Local Streets
General Function	Generally serves intercity travel at relatively high travel speeds	Serves longer distance trips between neighborhoods and activity centers, connections to highways and other arterials	Connects neighborhoods to each other and to arterials and highways	Access and local circulation within neighborhoods	Access to adjacent properties, short trips within neighborhoods
Emphasis	Mobility	Mobility	Mobility and Local Circulation	Access and Local Circulation	Property Access
Typical Spacing	NA	1 mile	1/2 mile	1/4 mile	1 block
Typical Right of Way	60-230 feet	60-100 feet	50-80 feet	50-60 feet	Up to 50 feet
# of Travel Lanes	2-6	2-4	2	2	1-2
Travel Lane Width	12 feet	12 feet	12 feet	10-12 feet	10-12 feet
Median Left Turn Lane Width	14 feet	12-14 feet	12 feet	NA	NA
On Street Parking	Limited - to preserve capacity and operational efficiency	Limited	Limited - Generally one side only	Generally allowed	Generally allowed
Typical Design Speed	45-70 mph	45 mph Standard as minimum	40 mph	30-40 mph	30 mph
Typical Posted Speed	45 - 55 mph	40 mph	35 mph	30 mph	25 mph

Features	State Highways	Major and Minor Arterial Streets	Collector Streets	Local Collectors	Local Streets
Horizontal Curve (degrees)		6-10	10-12	14-22	40
Stopping Sight Distance		350 feet	315 feet	275 feet	150 - 250 feet
Maximum Grade (percent)		8-10	10	15	15-18 percent
Design ADT (average daily traffic) volume		7,000-20,000	7,000-11,000	6,000	4,000
Sidewalk Width	5 - 6 feet where installed	5 feet	5 feet	5 feet	5 feet
Bicycle Facilities	Separated Multi-use Path, Bike Lanes, or Shoulder Bikeway	Bike Lanes	Bike Lanes	Shared Roadway, may be signed as a Bicycle Route, or have bike lanes	Shared Roadway, may be signed as a Bicycle Route
Access Control Strategy*	Very limited access except at interchanges and/or intersections, Driveways and other curb cuts generally prohibited	Curb cuts and driveways limited to preserve operational capacity and efficiency, prohibited near intersections or where it will interfere with signal progression	Some restrictions on access to maintain satisfactory street operation	Relatively little access control, more driveways allowed to provide easy access to property	Virtually no limits on access, frequent driveways to allow full access to adjacent properties

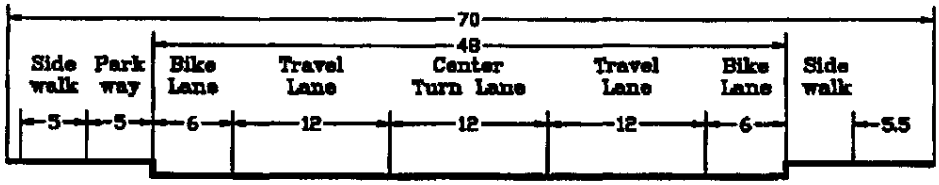
* - See Table 7-5 for details - "Access Management Guidelines for Grants Pass Urban Area"

Figure 4-5: Cross Sections of Major Streets

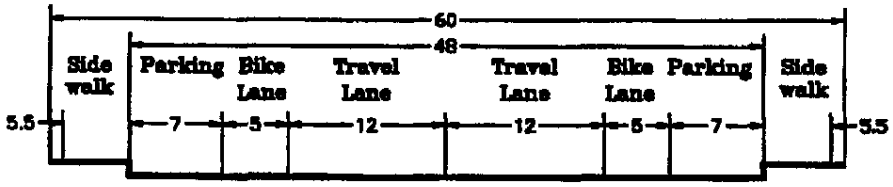
Major Arterial

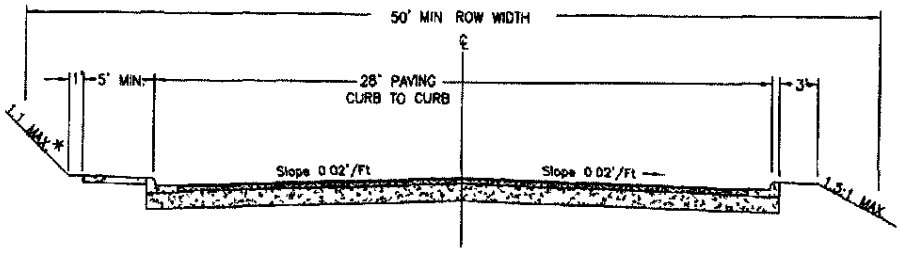


Minor Arterial (or Collector)



Minor Arterial (or Collector): Options



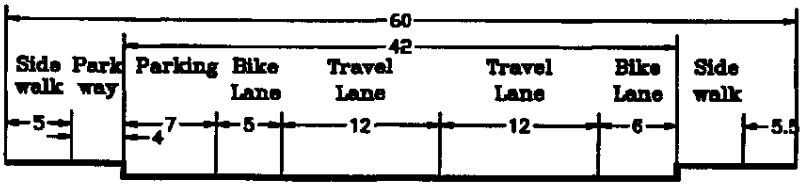


HILLSIDE STREET STANDARD FOR
LOCAL COLLECTOR STREETS

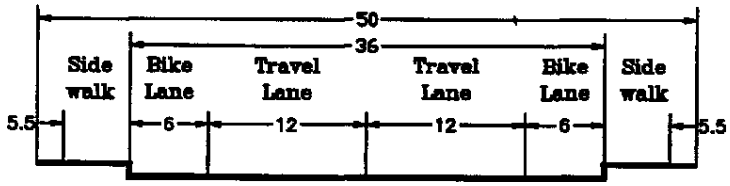
2 - 14 TRAVEL LANES, SIGNED FOR BICYLISTS

(Amended by Ordinance 5022)

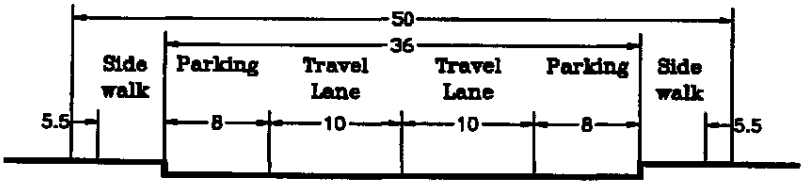
Collector Option 1



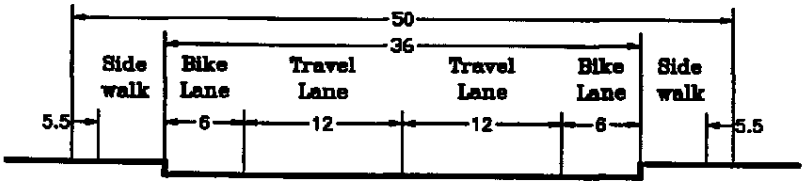
Collector Option 2



Local Collector



Local Collector Option



5. NONMOTORIZED ELEMENT

This chapter includes the planned transportation system to serve bicyclists and pedestrians in the Grants Pass Urban Area. Specific capital improvements are included, along with the design guidelines for facilities for nonmotorized travel. Supporting programs and policies are identified to promote and enhance the use of nonmotorized travel modes in the urban area.

Bicycle Element

Bicycling is now recognized as an important element of a multimodal transportation system. It provides a viable transportation option for people who cannot or who choose not to use private automobiles. It helps to reduce traffic congestion and air pollution, helps to conserve energy resources, and is an increasingly popular form of recreation and exercise.

Bicycling was a useful mode of transportation in the early part of the 20th century when communities were smaller and travel distances shorter. As the automobile became increasingly available, and vast sums of money were invested in the roadway network in communities across America, cycling became less practical and less attractive as a means of transportation.

Increasing traffic demand and its associated impacts on communities has led to renewed interest in bicycling as a means of transportation, as well as recreation. Recent legislation such as ISTEA and the Oregon Transportation Planning Rule, has once again elevated the importance of bicycling (as well as other alternatives to the private automobile) in transportation system planning and improvements. Bicycles are viewed as a viable way to meet a portion of the travel demand in communities, and an attractive alternative to private automobiles.

Today, people use bicycles for a wide variety of trips, including commutes to work, personal business (e.g., shopping or banking), school, and recreation. It is a critical transportation mode for those people too young to drive, and an increasingly popular mode for all other travelers. The relatively flat terrain in the Grants Pass Urban Area, combined with the mild climate make this travel mode a good option in this area.

The bicycle element of the Grants Pass Urban Area MTP is based on several sources of information. The *1982 Josephine County Bikeways Master Plan Proposal* provided an inventory of what had been proposed in the past for the area. Information gathered about the local transportation system and its current utilization helped in the analysis of the status of the proposed improvements, as well as information about the current environment for travel by nonmotorized travel modes, and the *ODOT Bicycle and Pedestrian Plan* provided guidance for design guidelines for proposed improvements.

Bicycle System Facilities

A complete bicycle system consists of several different types of facilities or improvements to accommodate travel by bicycle safely and efficiently. The challenge for local governments is to provide facilities for bicycles that adequately meet the needs of experienced and inexperienced cyclists within the area's financial constraints. Inexperienced and less stable riders usually feel more secure when there is some physical separation from automobile traffic. More experienced riders may need only a little extra pavement along the side of the road that is properly maintained. The impact of bicyclists on traffic is also an important consideration, especially in congested locations where they must compete for limited space. Table 5-1 includes a summary of the major types of facilities and a brief description of their key characteristics.

Table 5-1: Types of Bikeways

Facility Type	Description
Multi-Use Paths	A path physically separated from motor vehicle traffic by an open space or barrier and either within the roadway right-of-way or within an independent right-of-way. These are typically used by bicyclists, pedestrians, joggers, skaters and other non-motorized travelers. Multi-use paths are appropriate in corridors not well served by the street system (if there are few intersecting roadways), to create short cuts that link designation and origin points, or as an element of a community trail plan. ODOT recommends that paths be a minimum 10 feet wide, and, if next to a roadway, be separated from the edge of pavement by a minimum of 5 feet.
Bike Lane	A portion of a roadway which has been designated by striping and pavement markings for the preferential or exclusive use by bicyclists. Bike lanes are appropriate on urban arterials and major collectors. Bike lanes must always be well marked to call attention to their preferential use by bicyclists. ODOT recommends that bicycle lanes be six (6) feet in width (for one way); with a minimum width of four (4) feet. Exceptions may be made in situations where the lane is next to curbs, parking, or guardrails (5 feet); or open shoulders (4 feet).

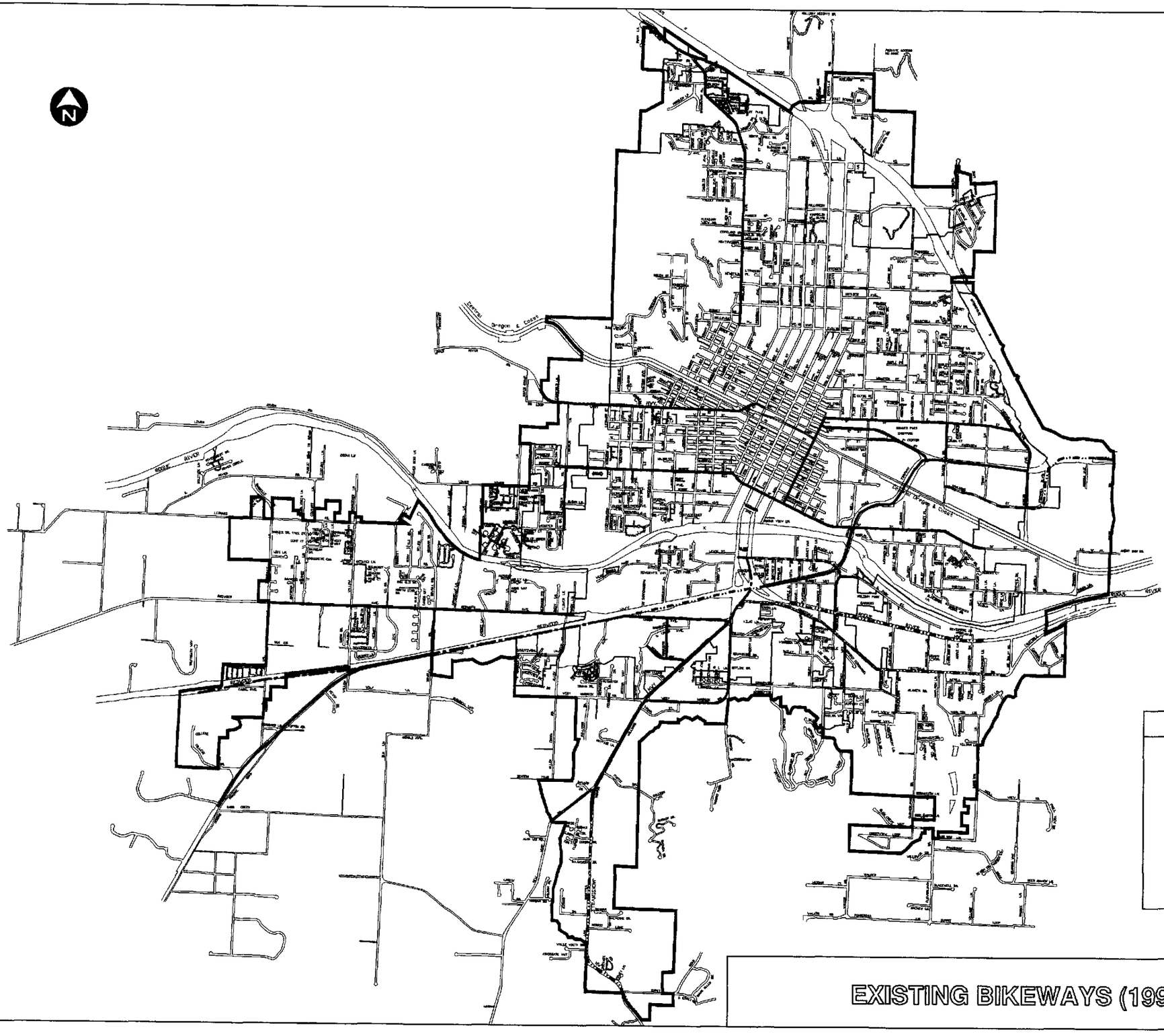
Table 5-1: Types of Bikeways (continued)

Facility Type	Description
Shared Roadway	A type of bikeway where bicyclists and motor vehicles share a travel lane. A motorist will usually have to cross over into the adjacent travel lane to pass a bicyclist. The majority of roads in the Grants Pass Urban Area falls into this category. There are no special provisions or signing for bicyclists, and no prohibitions on bicycle use of the roadway.
Shared Roadway - Wide Outside Lane	A wider than normal curbside travel lane that is provided for ease of bicycle operation where there is insufficient room for a bike lane or shoulder bikeway. ODOT recommends an additional two (2) feet beyond normal lane width to provide additional space for bicyclists. For a standard roadway this would mean a 14 foot minimum width. Depending on local circumstances it may be desirable to remove on-street parking and/or reduce traffic speeds to create a safer and more comfortable space for cyclists.
Shared Roadway - Bike Route	A shared roadway that does not necessarily include any special physical provisions for cyclists, but is usually signed and included on maps. A bike route serves to show cyclists where good facilities and/or conditions exist, and to alert motorists of the potential for higher than normal volumes of bicycle traffic.
Shoulder Bikeway	A type of bikeway where bicyclists travel on a paved shoulder. Paved roadway shoulders on rural roadways provide a suitable area for bicycling, with few conflicts with faster motor vehicle traffic. Most rural bicycle travel on the state highway system is accommodated on shoulder bikeways. While some roadways in the urban area currently have shoulder bikeways, striped bike lanes are normally more appropriate urban bike facilities.

ODOT has developed guidelines and criteria to determine the appropriate treatment for bicycles and pedestrians for different types of roadways. Table 5-2 presents a summary of the ODOT guidelines. Figure 5-1 depicts the current bikeways within the urban area. Currently there are 16 miles of designated bikeways inside the urban growth boundary.

Table 5-2: Appropriate Facilities for Urban Bikeways and Walkways
Oregon Bicycle and Pedestrian Plan

Street Type	Bikeway	Walkway
Arterials and Collectors	The appropriate facilities are bike lanes. *On retrofit projects*, where it is not physically possible to provide bike lanes due to constraints, a wide outside lane may be substituted. A wide outside lane should only be considered after other options have been pursued, such as narrowing or removing travel lanes or parking. Effectively reducing running (actual) speeds to less than 25 MPH creates a more comfortable environment for bicycling where there is insufficient width for bike lanes. This may be appropriate for Central Business Districts.	Sidewalks must be provided on both sides of all arterial and collector streets, unless there are physical limitations and land use characteristics that render a sidewalk unsuitable on one side. In these situations, safe and convenient crossing opportunities must be provided to allow pedestrians to proceed on the side with sidewalks.
Local Collectors and Local Streets	The appropriate facilities for bicyclists are shared roadways. Bike lanes are appropriate on local collectors with high average running speeds (above 25 MPH) or high traffic volumes (ADT over 3000). Local conditions may dictate different thresholds. Bike lanes on local collectors are also appropriate to connect up with other bike lanes or to extend bike lanes to destination points that generate high bicycle use, such as schools, parks and multi-family housing units.	Sidewalks on both sides of the street are the appropriate facility. There is a point below which sidewalks on both sides of a local street may not be critical: e.g. on short dead-end streets with few potential residences and with no access to other facilities.



EXISTING BIKEWAYS (1995)

Figure 5-1

Grants Pass Urban Area Transportation Plan

Planned Bicycle System

Figure 5-2 presents the planned bicycle system for the Grants Pass urban area. The planned system utilizes most of the existing facilities as part of the major bicycle routes within the City, augmented with additional connections to major parks and schools in the area. The following section describes the planned bicycle system in more detail; it is organized into four major topics covering the area north of the Rogue River, the Redwood Area (south of the Rogue River and west of Allen Creek), the Fruitdale-Harbeck Area (south of the Rogue River and east of Allen Creek), and connections across the Rogue River.

1. North of the Rogue River

General: Very good opportunities exist for bicycle travel in the neighborhoods north of the Rogue River. The area has slopes mostly under two percent. The area also has a good network of local streets and collectors that provide for safe and convenient bicycle access through the area. Many of the streets are 36 feet wide curbed streets, which provides adequate room for both vehicles and bicycles to share the roadway.

North-South Travel: The major facilities for north-south travel for the area north of the Rogue River are: Highland Avenue, 6th Street/7th Street, and Beacon Drive.

Highland Avenue provides access to a large residential area and two schools. Bike lanes are in place from the UGB to Bellevue Place. Construction of a rail crossing at Dimmick Street and installation of bike lanes on Dimmick Street and Oak Street will provide a continuous bike lane all the way to Bridge Street.

6th Street and 7th Street are a pair of one-way streets that serve the adjacent commercial areas. As part of its improvement plan, ODOT plans to provide bike lanes on one side of 7th Street. 6th Street is planned to have a bike lane from Morgan Lane to "A" Street. Due to narrow lane widths and the importance of on-street parking in the central business district, a bike lane is not planned on 6th Street south of "A" Street. Instead, a parallel bike route is planned on 4th Street, between "A" Street and Bridge Street, with a connecting link on "A" Street. On-street parking will have to be removed to accommodate the lanes of 4th Street.

Beacon Drive provides a continuous north-south route from Hillcrest Drive to the Grants Pass Parkway. The section from Madrone Street to Olson Drive is currently a multi-use path. A plan to connect Greenfield Road with Hillcrest Drive makes this an attractive north-south route for bicyclists crossing I-5 and/or accessing the east Grants Pass commercial areas. Currently, the roadway from Hillcrest Drive to Madrone Street has very narrow shoulders and needs to be widened to improve bicycle safety.

East-West Travel: The major facilities for east-west travel north of the Rogue River are the "G" Street/"E" & "F" Street/Grant Pass Parkway/"D" Street combination, and Bridge Street/"M" Street.

"G" Street, "E" Street, "F" Street, the Grants Pass Parkway, and "D" Street together provide for continuous east-west travel across the width of the urban area. "G" Street connects to Upper River Road and the areas west of the UGB. A continuous bike lane on "G" Street is provided easterly and across the railroad tracks to connect to the "E" Street/"F" Street one-

way couplet. The planned extension of "F" Street between "G" Street and Elm Street would also provide a good east-west connection. Bike lanes currently do not connect through the downtown area, and should be installed to connect the "G" Street bike lanes to east Grants Pass. East of 9th Street, east-west bicyclists have a choice of facilities. Bicyclists can use the "E" Street/"F" Street couplet which connects with the bike lanes on the Grants Pass Parkway. Bicyclists can also use "D" Street, a lower speed and volume street which has striped bike lanes and connects to Agness Avenue. The street network plan provides for the continuation of "F" Street to Spalding Avenue. This street connection would provide a good opportunity for bicyclists to use Spalding Avenue and Foothill Boulevard to access the east Grants Pass commercial area and to continue east towards Tom Pearce Park. Bike lanes need to be striped on these roadways.

Bridge Street/"M" Street also provides a good east-west route across the urban area. Bike lanes are striped from Lincoln Road near the All Sport Park, east across 6th and 7th Streets and the Grants Pass Parkway, and to "N" Street near Riverwood Apartments.

Other travel: Opportunities also exist to continue "N" Street eastward with a rail crossing at Agness Avenue, a connection to Ament Road, and a possible trail east to Tom Pearce Park.

The hills in the northwest area of the City are an attractive destination for mountain bikers. Upland Drive, a local collector street, is planned to serve this area. Because of the steeper slopes and the attractiveness both for mountain bikers and recreational bikers seeking good views, bike lanes would be appropriate on this facility.

2. Redwood Area

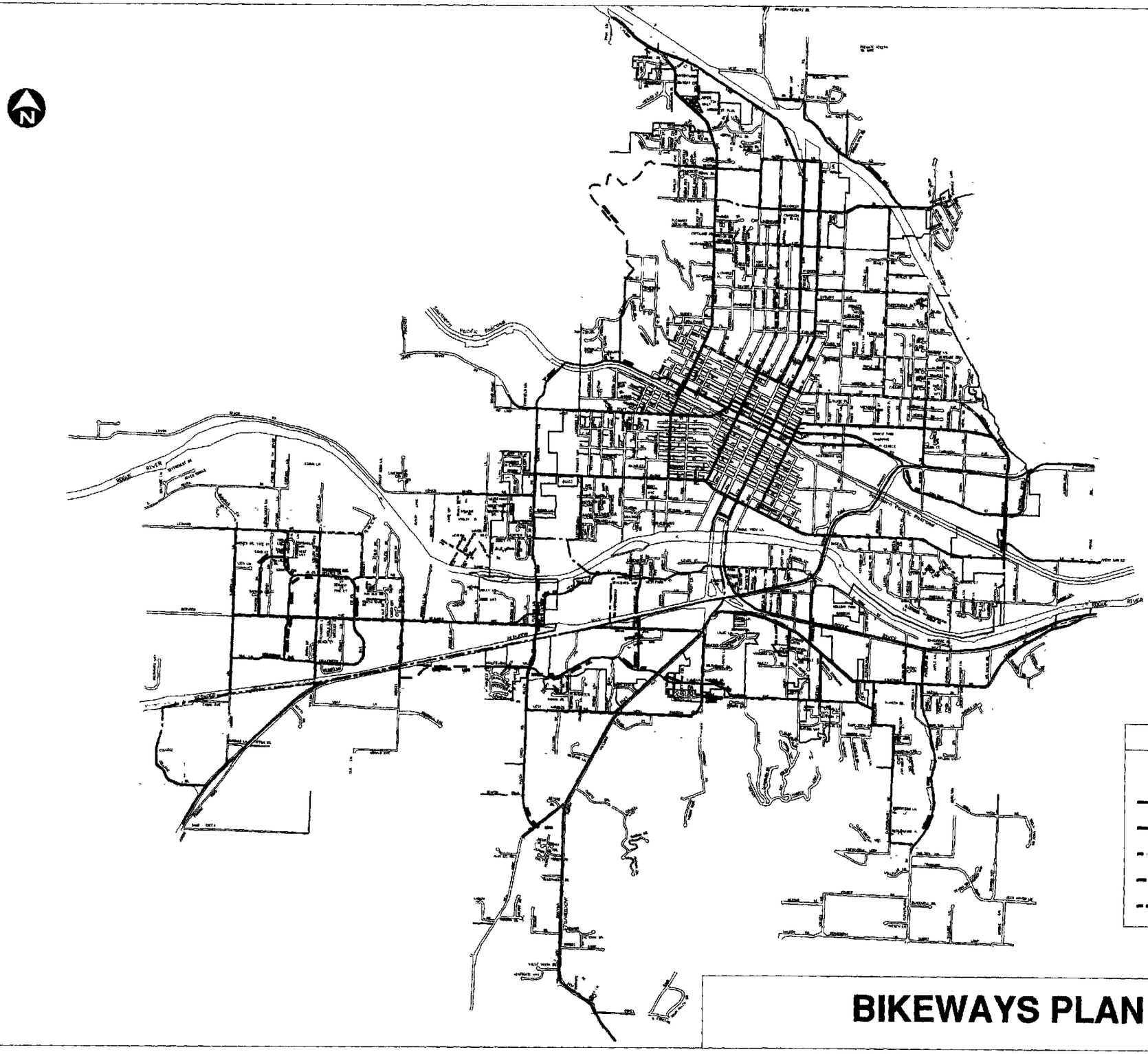
General: Bicycle destinations in this area include Rogue Community College, Redwood Elementary, a strip commercial area, and moderate density residential development. This area is very flat, and could provide good opportunities for bicycle travel. However, many of the existing roadways in the area are narrow rural standard roadways with minimal shoulders. Increases in development and traffic in this area will bring a need to provide bike lanes on the collector street network.

North-South travel: Virtually no adequate bicycle facilities exist for good north-south travel in the area. Bike lanes on Hubbard Lane/Darneille Lane would provide a connection from Redwood Elementary School to Rogue Community College. Bike lanes on Willow Lane would provide access from Redwood Highway to Schroeder Park.

East-West travel: Two major east-west facilities are provided in this area: Redwood Avenue and the path adjacent to Redwood Highway.

Redwood Avenue currently has striped bike lanes. This provides access across the Redwood area, to the strip commercial area, and to the Josephine County Fairgrounds.

A multi-use path parallels Redwood Highway from the Fairgrounds to Rogue Community College. This path provides good access for college students, though maintenance is an ongoing issue. This path does connect to the bike lanes on Union Avenue.



BIKEWAYS PLAN

Figure 5-2

Grants Pass Urban Area Transportation Plan

9-25-00

3. Fruitdale-Harbeck Area

General: The Fruitdale-Harbeck area also provides fairly level ground for biking. Good bicycle destinations in the area include shopping areas, the Josephine County Fairgrounds, three schools, Riverside Park and Baker Park. Many streets in this area are rural standard with narrow shoulders, and require upgrading to provide better bicycle access. State highways provide continuous access in this area, but many facilities have high speeds, poor shoulders, and either no access to destinations, or too many conflicting access points.

North-South Travel: The main north-south routes in the Fruitdale-Harbeck Area are Jacksonville Highway, Cloverlawn Drive, and the planned Overland Drive.

Jacksonville Highway provides a bike lane from Union Avenue to New Hope Road. A multi-use path provides a crossing at the South "Y". The bike lane stops just south of New Hope Road, where Jacksonville Highway becomes a two-lane facility. Increased development in this area, increased traffic volumes, and high speeds on the highway create a significant need for bike lanes on this facility.

Bike lanes are needed on Cloverlawn Drive to provide good north-south travel. In addition, the planned Overland Drive would provide an excellent route from Rogue River Highway south, plus provide a good recreational opportunity because the route would parallel Fruitdale Creek.

East-West Travel: The main east-west facilities in the area are Rogue River Highway and Fruitdale Drive. A good opportunity also exists to provide east-west travel on Park Streets.

Rogue River Highway currently has a shoulder bikeway of various widths. The highway provides a connection from the South "Y" to the east UGB. However, the high travel speeds and frequent access points make this an unattractive facility for most riders.

Fruitdale Drive provides a better facility for many east-west travelers. The facility has a wide shoulder bikeway in most places and moderate travel speeds. Installation of sidewalks and bike lanes would improve east-west travel on this facility.

East-west travel is possible along Redwood Highway/Grants Pass Parkway from the Fairgrounds to the Third Bridge. However, high travel speeds, lack of abutting destinations, lack of bike lanes from the Fairgrounds to the South "Y", and general confusion at the South "Y" make this an unattractive option for many riders. A good option exists to provide a continuous bike route on East and West Park Streets. This facility could provide connections to the Fairgrounds, the bicycle/pedestrian bridge, Riverside Park, Baker Park, and the Third Bridge. This route would also avoid the South "Y". Street widening and installation of bike lanes are needed on West Park Street.

4. Connections across the Rogue River

Third Bridge: The Third Bridge provides a connection between the Fruitdale-Harbeck area and the east Grants Pass area. A continuous bike lane exists on the Grants Pass Parkway. The facility provides close connections to Riverside Park and Baker Park.

6th and 7th Street Bridges: 6th and 7th Street Bridges provide connections between downtown and the area south of the Rogue River, including Riverside Park and commercial areas. However, there are several constraints that make this a less effective bike route. First, no bike lanes currently exist on either 6th or 7th Street to provide good access to the bridges. Second, the bridges themselves are narrow. The 6th Street Bridge is 27 feet wide, and the 7th Street Bridge is 30 feet wide. Extra shy distance is normally required for a bike lane crossing a bridge. The shy distance is increased on the 6th Street Bridge, where the bridge arches make the roadway feel narrower. Neither bridge contains bike lanes. Third, the bridges connect to the South "Y" intersection. This confusing intersection provides poor access for bicyclists. Currently, a multi-use path connects the route from Jacksonville Highway to the 7th Street Bridge. However, no good connections are available at the end of the 6th Street Bridge.

This plan would include a bike lane on 6th Street from "M" Street to the Bridge. The bike lane would terminate at the bridge. On 7th Street, a wide outside lane would be provided from Park Street to 300 feet south of "M" Street, where a bike lane would start.

Bicycle/Pedestrian Bridge: A special bike-pedestrian bridge is planned to cross the Rogue River in the vicinity of All Sports Park (on the north side of the river) and Tussing Park (on the south side of the river.) On the north side of the river, a bike path would be constructed through the All Sports Park with connections to Lincoln Road and Cottonwood Street. Bike lanes would be installed on Cottonwood Street, and completed on Lincoln Road.

On the south side of the river, bike lanes would be constructed on West Park Street. West Park Street would also be continued to the west to connect to Flower Lane. A bike path would be provided through the Josephine County Fairgrounds, and on Ringuette Street. Good connections from this special bike/pedestrian bridge to the rest of the bicycle/pedestrian system are essential and may eliminate the need to include bike lanes on the proposed fourth bridge (described in the Roadway Element of this plan.)

Pedestrian Element

The downtown area of Grants Pass is well served by sidewalks, but the areas outside of the downtown core (especially southwest and southeast of the downtown) have little, if any, sidewalks. This is a special problem in the commercial areas near the fairgrounds and west to the South "Y" interchange. With the recent residential and commercial growth in these areas, the need for sidewalks has increased in importance. As growth continues this will become even more important.

In addition to the importance of sidewalks to the business community, and for the enhancement of residential neighborhoods, they provide vital linkages to area schools and recreation facilities. Some of the schools in the Grants Pass Urban Area are only partially served by sidewalks. In these cases, sidewalks may be on one side of the street only, or they may not be continuous from block to block. Schools where this occurs include Highland, North Middle, Grants Pass High School, Lincoln, and Brighton. Some schools have essentially no sidewalk facilities; these include Riverside, Fruitdale and the Rogue Community College. Parks with no sidewalk access include Lathrop, Schroeder, All Sports, and Memorial; and parks with limited sidewalk access include Westholm, Gilbert, Ogle, Tussing, and Portola.

Provision of pedestrian connector routes is also important to encourage pedestrian travel by reducing walking distances where other routes are excessively long. The connector routes also provide shorter routes for bicycle travel, though some may require the cyclist to dismount prior to passing.

Providing New Pedestrian Facilities

The *Grants Pass and Urbanizing Area Comprehensive Community Develpment Plan* encourages developers of residential and commercial projects to provide safe and convenient facilities for pedestrians in accordance with state and local design standards along their property frontages. In addition, this Master Plan recommends incorporating sidewalks into all new roadways and into upgrades for existing roadways. In locations where there are no development or roadway improvements planned, sidewalk improvements will have to be coordinated with local property owners to develop satisfactory financing and implementation. The only funding sources currently available for such improvements are LIDs (Local Improvement Districts), gas tax funds, or the general fund for the City and/or County. These "in-fill" projects must compete with all other local street and drainage projects for the same limited funds. A new funding source, such as local gas tax or a street utility, would greatly increase the ability of the City and County to fund these types of improvements, as well as other transportation system upgrade or improvement projects. Lacking a substantial increase in funding, it will take a long time before sidewalks can be provided throughout the urban area.

This Plan does not include a separate map showing the location for new sidewalks. The list of urban upgrades for city, county and state facilities included in Chapter 4 identifies numerous projects throughout the entire Grants Pass Urban Area. These projects would include provisions for pedestrians consistent with the design guidelines and standards for urban arterials and collectors, and for local roads. Pedestrian improvements would be included as the upgrades are implemented.

Supporting Programs and Actions

In addition to providing physical facilities to accommodate pedestrians and bicyclists safely and comfortably, it is necessary to include additional elements to have a successful program for nonmotorized travel. Additional key elements are summarized below.

Supporting Facilities

If people are to use bicycles for transportation purposes they need to be assured of safe and convenient parking for their bicycles. Depending on the circumstances at individual locations this could consist of a simple bicycle rack where people could park and secure their bicycles. In some other cases it might include covered parking to protect them from the elements, and more secure parking facilities for the bicycles such as bicycle lockers or supervised/staffed parking areas.

For people who commute by bicycle an important factor is the availability of showers and personal lockers at the work site. For people who use bicycles for shopping or other personal business, some form of delivery service might be desirable to transport items too bulky or fragile to be carried by the bicyclist.

Street Maintenance

Adequate street maintenance is particularly important for bicyclists and pedestrians. Loose gravel can cause a bicyclist to lose control of their bicycle and could be thrown up by passing vehicles and hit bicyclists or pedestrians. While potholes or other "minor" roadway deterioration may not pose a danger for motorists they can be dangerous for bicyclists and pedestrians.

Education

Education programs about travel by nonmotorized travel modes should include three key components. The first component is directed toward the general public to educate them about the value of bicycling and walking for them, and for their community. Health benefits for individuals and for the community at large (less congestion, less pollution, and less paving over of the landscape to accommodate motorized vehicles) should be stressed. The second education component is directed toward drivers to enhance their awareness of bicyclists and pedestrians, teach them how to cooperate and coexist with bicyclists and pedestrians, and improve the overall safety of the roadways for all travelers, regardless of their chosen travel mode. The third component of education is directed toward bicyclists and pedestrians to teach them how to travel safely and in cooperation with motorized vehicles.

6. OTHER TRANSPORTATION MODES

This chapter includes the plan for other transportation modes, including: public transit, air, rail and intercity connections, and utilities. These transportation services are not provided by the City, County, or State and thus are not under the direct control of these agencies. The City and County should study transit needs and service before the end of the planning period (2015). The public agencies responsible for transportation in the Grants Pass urban area will coordinate with the providers of these kinds of transportation to assure the best possible services for the urban area.

Public Transportation

Public transportation within the Grants Pass Urban Area is currently provided by the Rogue Transit System. This is operated by Rogue Transportation, Inc. (a private, for profit organization.) In addition to the regularly scheduled bus service, Rogue Transportation provides taxi service and shuttle service to the airport in Medford. Figure 2-3 in Chapter 2 illustrates the existing transit routes and transit supportive markets in the urban area. Additional transportation services are provided by Josephine County Community Services for eligible individuals over the age of 60 who cannot drive, or who do not have access to a private automobile. Service is very limited in terms of the quantity provided for the community, and the trip purposes served.

It is likely that community needs for public transit will increase in the future. This is due to: (1) overall growth in the population of the area; (2) changes in the composition of the population with more people becoming dependent on public transit (especially the elderly); (3) increased emphasis on travel by means other than private automobiles to reduce congestion and the need for costly expansions to the local transportation system; and (4) requirements to improve air quality and address other environmental problems related to automobile use.

The current situation in Grants Pass related to the provision of public transit service is rather unique. Very few private operators provide public transit services. Typical market conditions and operating costs do not result in profitable operations, and public transit normally requires some degree of public subsidy. Since the local transit service is provided by a private operator, this limits the types of public funds that could be used to finance transit service. Financial constraints also limit the amount of service that the operator can provide.

The Grants Pass community has shown a strong interest in providing public transportation for those members of the community who do not or cannot provide their own transportation, such as the young, the elderly, the disabled, and people without access to private transportation. The need for public transit was cited repeatedly in the interviews and public meetings conducted as part of this planning process.

It may be possible to find some funds to provide for capital equipment and facilities, and or some types of service in the short run. However the question of long term transit service provision depends on the willingness of the local community to provide a long term, stable funding source. The basic funding for public transit in Oregon is limited and the local

atmosphere regarding taxation and public expenditures make this a challenging issue to address.

Maintaining reasonable expectations about public transit service for the Grants Pass Urban Area is key, along with assessing long term implications of short term actions. There may be ways to make existing resources go further through better coordination of the services that do exist and pooling of resources from multiple sources. There may be some potential for outside funds for "demonstration" of creative public/private partnerships to provide transportation services. However, these are short term or one-time-only sources that cannot be counted on for long term service provision. There may be ways to provide public support directly to individuals that would allow them to "purchase" service from private providers. These options need to be explored further to determine which, if any, of them are appropriate for this community.

In the meantime, it appears that local public transportation will continue to be provided by the private sector, through a variety of general purpose transportation services (the bus or taxi), special purpose transportation (such as the Josephine County Community Services), and special services associated with tourist operations.

A related issue is that the provision of transit service (even if provided at a relatively high level) will not eliminate the need for the roadway improvements included in Chapter 4. Even with very good transit service, it is unlikely that a large percentage of travelers in Grants Pass would use public transit rather than private automobiles. Many of the improvements included in Chapter 4 are needed to complete the local arterial and collector network, which is critical regardless of the transportation mode used by travelers. Other improvements are needed to deal with significant existing or projected congestion problems that would not be eliminated through transit service provision.

Intercity Bus and Rail Connections

Regularly scheduled intercity passenger transportation is provided by Greyhound/Trailways and Western Transportation Lines. Greyhound/Trailways provides four trips per day in each direction between Grants Pass and Medford, with connections to points beyond. Western Transportation Lines operates morning and afternoon shuttle services between Medford, Gold Hill, Rogue River, Grants Pass and Cave Junction. There are no changes expected in the current operation of either of these services. However, since these are provided by private sector operators, they may choose to change services in the future to meet market conditions.

Rail service in the urban area is operated by the RailTex, which bought out Southern Pacific in 1994. Service is limited to the movement of freight; passenger service has not been provided to this area since 1953. The current level of service appears adequate to meet local needs, and does not create any adverse impacts on local traffic operations. Additional intercity goods movement is provided by trucking companies. Figure 6-1 shows the location of proposed truck routes through the Grants Pass Urban Area. The map designates through routes for trucks, through routes for vehicles with 3 axles or less, local delivery routes, and signed truck routes.

Designation of truck routes is important for the design, operation and maintenance of the street network. Because of the weight and size of trucks special attention must be paid to

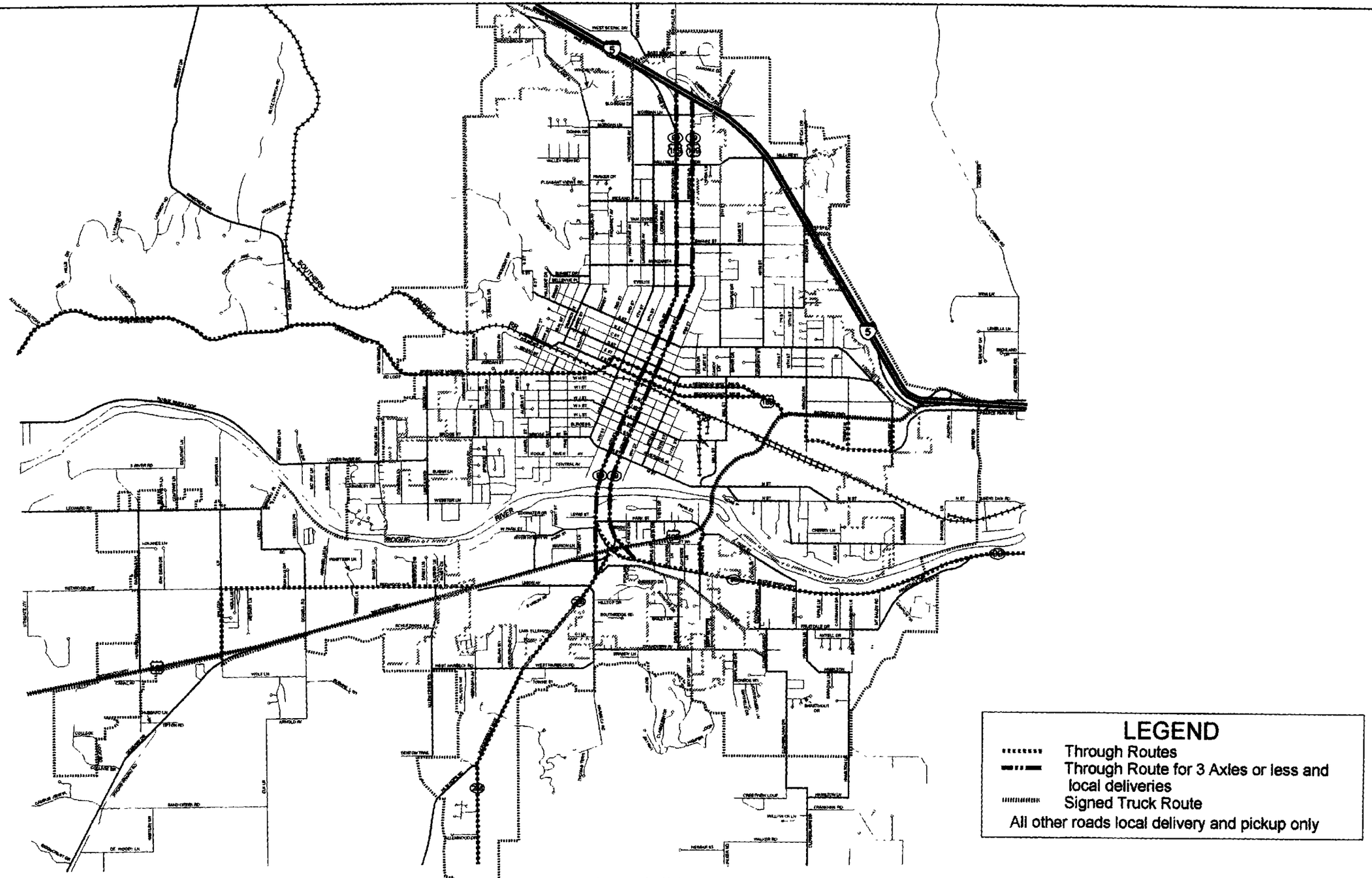
pavement strength, turning radii at intersections, roadway width, and the height of overhead obstructions. In addition, minimizing the impacts of truck traffic on residential neighborhoods is important.

Aviation

Grants Pass Airport is located six miles northwest of Grants Pass. This is classified by the FAA as a "General Utility," general aviation airport serving private aircraft. Commercial passenger service is provided at the Rogue Valley International Airport in Medford (30 miles south of Grants Pass). The Merlin Airport Master Plan, completed in 1992, identifies some constraints on the current operations due to the length of the runway and the absence of an instrument approach. However, the airport, in combination with the full service airport at Medford, appears to meet the needs and demand for aviation for the Grants Pass urban area.

Pipelines and Utilities

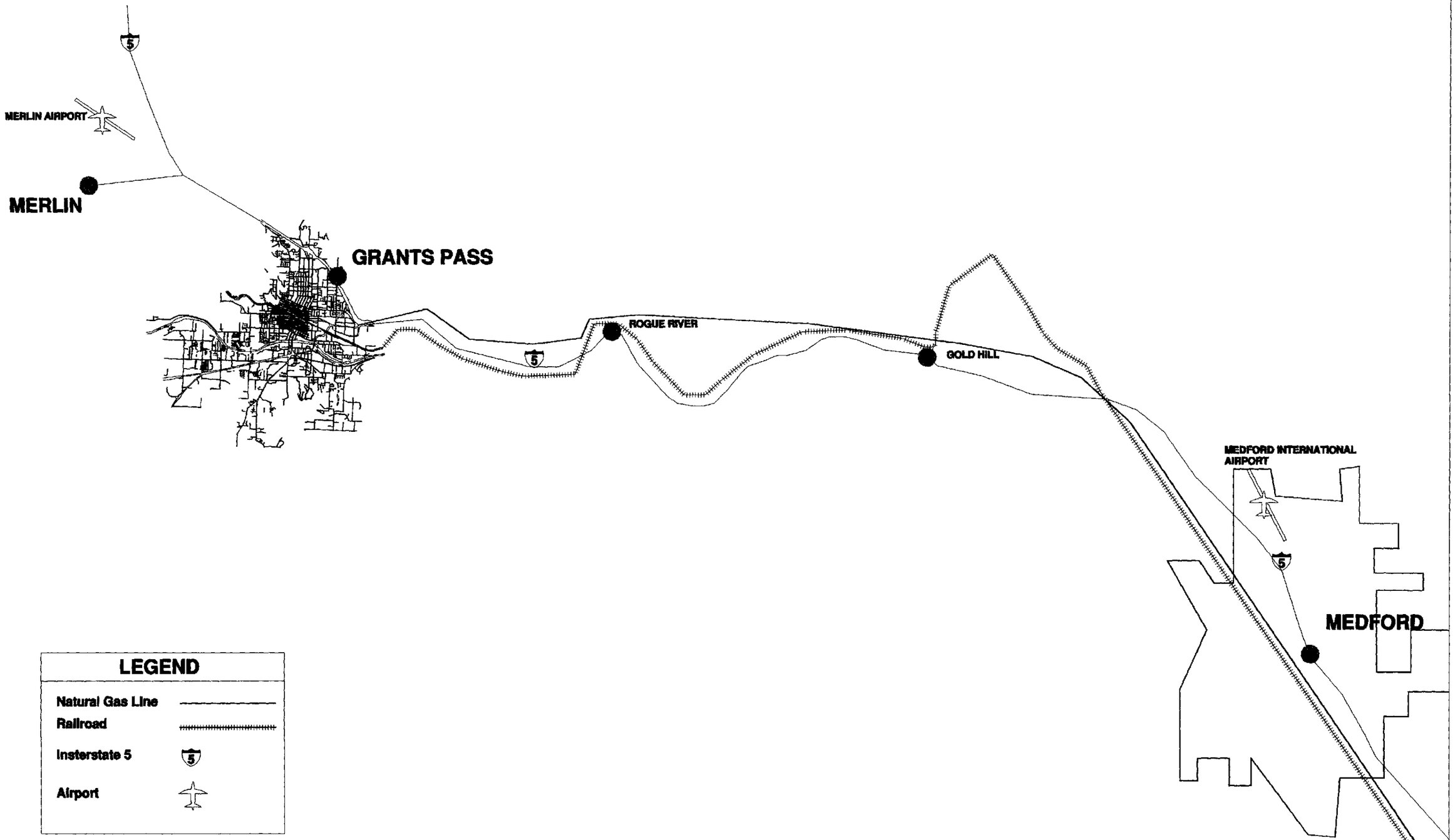
Within the Grants Pass Urban Area there are two natural gas pipelines. The Northwest Pipeline Corporation operates one of the lines, which is used to transport natural gas over long distances to local utilities and distributors. The second pipeline, operated by W.P. Natural, provides for the distribution of natural gas to Grants Pass and Ashland. These appear to be adequate for the area and there are no plans for additional pipelines.



Proposed Truck Routes

Figure 6-1

Grants Pass Urban Area Transportation Plan



LEGEND

- Natural Gas Line
- Railroad
- Insterstate 5
- Airport

N

SCALE: 1" = 2.5 MILES

AIR AND RAIL TRANSPORTATION

Figure 6-2

Grants Pass Urban Area Transportation Plan

7. MANAGING TRANSPORTATION

The streets, highways, and other transportation facilities and services in the Grants Pass Urban Area represent an important public resource and a major investment of public dollars. In order to get the best return on the public's investment, the transportation system needs to be managed effectively. Good management of the transportation system will result in more efficient utilization of existing and future facilities, safer travel conditions, the postponement or elimination of the need to add new facilities and/or capacity to the transportation system, and a better overall return on the investment in the area's transportation system .

Transportation management includes two major elements: (1) managing the transportation system to obtain the maximum efficiency and capacity out of transportation facilities and (2) managing travel demand to better balance demand for travel with the supply of transportation facilities and services.

This chapter describes strategies and techniques that can be used in the Grants Pass Urban Area to manage the transportation system more effectively. The first section on transportation system management (TSM) includes general information on TSM, and more specific information on access management and residential traffic management. The second section on travel demand management (TDM) includes information on strategies and techniques that can be used to manage demand (reduce total demand and move demand to other locations, or times of day).

Transportation System Management

Transportation System Management (TSM) focuses on improving the safety and efficiency of the existing transportation system through the application of relatively low-cost improvements and enhancements, as opposed to high-cost improvements such as building new facilities, or adding lanes to a highway or arterial street. The rising costs of providing major capacity improvements has forced federal, state and local agencies to do more with existing resources. Typical TSM strategies include:

- Geometric improvements to facilitate traffic operations (e.g., turn lanes at high volume intersections),
- Traffic control improvements to better manage traffic flow (e.g., interconnected traffic signals),
- Access management strategies to reduce conflicts between through traffic and local traffic entering/leaving the roadway (e.g., restrictions on driveway number and locations), and
- Safety enhancements to reduce the number and severity of accidents and provide a more pleasant environment for travelers using motorized and non-motorized travel modes (e.g., traffic "calming" and residential traffic management).

Each of these types of strategies is discussed briefly in the sections below, along with the identification of some locations where these applications could be beneficial. Many of the

benefits are related to one another. For instance, all types of improvements which reduce traffic delays will also result in lower fuel consumption and lower vehicle emissions, and better air quality. Typical benefits of TSM improvements include:

- Fewer accidents and reduced conflicts among vehicles, bicycles and pedestrians,
- Reduced delays and improved overall travel speeds (especially for buses, and car/van pools),
- Reduced number of stops,
- Reduced fuel consumption and lower vehicle emissions, and
- Increased through-put at congestion points in the transportation network.

Geometric Improvements

"Geometric improvements" are those projects which "re-shape" the physical layout of streets and intersections. As listed in Table 7-1, they are generally isolated improvements at problem spot locations which are designed to improve traffic flow and increase the safety for vehicles, pedestrians and bicyclists. Constructing exclusive turn lanes at congested intersections is generally much less costly than providing additional through travel lanes for long stretches of streets and highways. In addition, turn lanes at intersections can significantly improve overall roadway capacity by improving the efficiency of left and right turning movements, and removing them from the travel lanes for through traffic. Finally, turn lanes can significantly reduce rear-end collisions at signalized intersections by separating through movements from turning movements.

Table 7-1: Geometric TSM Improvements

Type of Improvement	Application	Benefits
Channelization	Intersections	Guide traffic movements, reduce delays to through traffic, increase safety, facilitate truck turning movements, provide refuge island for pedestrians at high volume intersections
Exclusive turn lanes	Intersections	Reduce delays to through traffic, reduce rear-end collisions, facilitate efficient signal operations
Additional through travel lanes	Intersections	Increase intersection through-put if adequate lane tapers are provided on the downstream side of the intersection
Two-way left turn lane	Arterial mid-block section	Reduce delays to through traffic, reduce rear end collisions, provide refuge for left turning traffic entering/leaving the roadway
Bus pullouts	Arterials	Reduce delays for through traffic
Loading bays for Trucks	CBD Streets, Arterials in Industrial Areas	Reduce delays to through traffic, increase safety of loading/unloading operations for trucks

Traffic Control Improvements

Since the vast majority of traffic delays and traffic accidents occur at signalized intersections, traffic control improvements can be an effective strategy to improve efficiency and safety without resorting to major roadway widening. As listed in Table 7-2, these improvements include virtually no-cost regulatory changes, such as turn prohibitions and peak-hour parking removal, as well as relatively low cost improvements such as traffic signal upgrades. Another category of traffic control improvements is the implementation of one-way streets (which is used for the 6th/7th Street couplet in the downtown area). While this strategy may result in increased through capacity with the existing number of traffic lanes, it represents a significant change in traffic patterns; this may require some geometric improvements and additional access management strategies to be successful.

Table 7-2: Traffic Control TSM Strategies

Type of Improvement	Application	Benefits
Turn prohibitions (all day or peak hour only)	Key intersections	Reduce delays to through traffic, fewer right-angle and rear-end accidents
Parking removal (all day or peak hour only)	Arterial sections	Increase capacity of roadway by one to two lanes of traffic, often used on CBD streets to provide right turn lane or bus only lane during peak hour
All-way stop signs	Intersections	Reduce delays to side-street traffic, increase safety for all turning movements; often used as an interim measure before installing a traffic signal
Traffic signal upgrade (fixed time signal changes to traffic actuated signal)	Intersections	Reduced delays to major traffic movements
Arterial signal system (inter-connection and coordinated signal timing patterns)	Series of arterial intersections	Greatly improve capacity for traffic flow through a series of intersections, control speeds to desired level through traffic progression, reduce rear-end collisions
Areawide signal system	Series of signals	Reduce travel times and delays for north/south and east/west traffic flows, improve system throughput, control travel speeds to desired levels through traffic progression

Access Management

Access management involves a set of techniques and strategies used by public agencies to improve safety and traffic flow along roadways by "controlling" the movement of vehicles on and off of roadways. This results in :

- Less traffic congestion due to improved traffic flow and travel speeds along the roadway;
- Improved safety for all travelers by minimizing the conflicts between turning traffic and through traffic, and decreasing the potential for accidents; and
- Decreased need for roadway expansion and/or modifications through more efficient use of existing facilities.

Access management strategies are designed to maintain the necessary balance between accommodating through traffic on roadways, while providing access to adjacent homes, businesses and other properties. This is done through such things as controlling the number and spacing of driveways and intersections, and providing turn lanes and other provisions to separate turning traffic from through traffic. Table 7-3 includes a summary of typical access management strategies used to address traffic management issues.

Table 7-3: Access Management Strategies

Traffic Management Objective	Access Management Techniques
Reduction of access points on/off roadway	• Consolidate driveways to reduce number of driveways • Restrict access on to the roadway to public roads only (i.e., no private driveways)
Left turn management	• Provide turn pockets/lanes at intersections to remove turning vehicles from traffic flow • Provide center two-way-left-turn lanes to remove turning vehicles from traffic flow • Allow "U" turns at intersections and limit left turns between intersections • Install raised and/or landscaped medians to prevent turns • Use paint, "C" curb or other barriers to prevent left turns
Intersection Management	• Prohibit driveways close to intersections to reduce conflicts and interference with turning vehicles • Establish minimum spacing between intersections to reduce number of point of conflict and congestion • Use signals and other traffic control devices at intersections (as warranted to meet specific) conditions to improve traffic operations at intersections

Traffic Management Objective	Access Management Techniques
Separating through traffic from turning traffic	• Provide frontage roads to separate local and through traffic • Provide alleys for property access • Provide internal property circulation systems to remove local traffic from through traffic
Traffic Merging	• Provide acceleration/deceleration lanes to separate slower moving traffic from through traffic • Restrict outside lane(s) to turning traffic to separate local and through traffic movements

Access Management Guidelines

The State and local governments responsible for transportation facilities within the Grants Pass Urban Area have their own access management guidelines and standards. While they are similar in purpose and in many characteristics, there are some differences in how such standards would be applied to the facilities under the control of the respective jurisdictions.

Oregon Department of Transportation Access Management Standards

ODOT's Access Management Policy provides a framework to guide access management decisions for individual state highways so that they are consistent with the intended functions, key characteristics and operational conditions of that state highway within the Grants Pass Urban Area. The function, characteristics and operational conditions for state highways are defined in ODOT's "Level of Importance (LOI) Policy". Under the LOI policy, state highways are placed into one of four categories: Interstate, Statewide, Regional or District. Level of service standards are assigned for each highway segment based on the LOI classification, and the degree of urbanization of the area served by the highway segment. LOI classified highways in the Grants Pass Urban Area include Interstate 5 (Interstate), US 199 (Statewide), Highways 99, 238, and the Rogue River Loop (District).

Consistency with the LOI policy is achieved by assigning highway segments to one of six access management categories and then applying the specific access management standards developed for that category. Assignment of a highway segment to an access management category typically is done during the development of corridor plans for state facilities; but may be done for shorter segments in coordination with affected local governments.

Several factors are considered when making assignments to access management categories, including:

- Existing and proposed roadside development patterns,
- Regional and local transportation system plans and comprehensive plans,

- The potential for increasing the use of local roads to provide property access and local circulation,
- Topography, drainage and other land characteristics,
- Existing access agreements between ODOT and local jurisdictions, and
- Other operational aspects of access.

The six highway access management categories are described below in Table 7-4.

Table 7-4: ODOT Highway Access Management Categories

Access Management Category	Facility Characteristics
Category 1 Interstate 5 is in this category	Provides for high speed, high volume traffic. Standards include: • Full access control • Grade separated interchanges • Full median • No direct access to adjacent land • Access spacing is 2-3 miles (urban) and 3-8 miles (rural)
Category 2	Provides for high speed, high volume traffic. Standards include: • Full access control • At grade intersections allowed when designed to minimize impacts on mainline traffic • Full median • No direct access to adjacent land • Access spacing is 1/2-2 miles (urban), 1-5 miles (rural)
Category 3 Segments of US 199 (west of Highway 99) are in this category	Provides for medium to high speed, medium to high volume traffic. Standards include: • Limited access control • At-grade intersections • Partial median • Direct access to adjacent land through right turns in/out • Access spacing is 1/2-1 miles (urban), 1-3 miles (rural)

Access Management Category	Facility Characteristics
Category 4 Segments of the combined US 199 and Highway 99 are in this category	Provides for medium to high-speed, medium to high-volume traffic. Standards include: • Limited access control • At-grade intersections • Partial or no median • Direct access to adjacent land through right and left turns • Access spacing is 1/4 mile (urban), 1 mile (rural)
Category 5 Highway 238 is in this category	Provides for medium speed, medium to high volumes of traffic. Standards include: • Partial access control • At grade intersections, • No median • Direct access to adjacent land through right and left turns • Access spacing is 1/4 mile (urban), 1/2 mile (rural)
Category 6 Rogue River Loop is in this category	Provides for slow to medium speed and low to high volume traffic. Standards include: • Partial access control • At-grade intersections • No median • Direct access to adjacent land through right and left turns • Access spacing is 500 feet (urban) and 1/4 mile (rural)

ODOT's standards for access management are included in Table 7-4, along with guidelines for arterials and collectors for the Grants Pass Urban Area. Access control regulations for the City of Grants Pass are included in the City's Development Code. Some of the city's current regulations are less restrictive than ODOT's, e.g., the current City regulations allow closer spacing between private driveways (five feet for dwellings, and up to 22 feet for commercial and industrial uses). The City currently allows more access points for properties with frontage in excess of minimum lot sizes (e.g., properties of less than 100 feet of frontage are limited to two access lanes, and properties exceeding 100 feet of frontage are limited to two access lanes per 100 feet of frontage.) While the City's regulations are generally less restrictive than ODOT's, the City regulations state that the more restrictive ODOT requirements will apply on ODOT highways within the city.

Table 7-5 presents guidelines for the average situation. Exceptions may be justified for more restrictive, or less restrictive, access control based on the conditions at specific locations. When making a determination of the type and extent of access control to implement, the factors described below should be taken into consideration.

Existing Conditions - Development along individual roadways which has occurred over a long period of time under current regulations may not meet these access management guidelines. Trying to retrofit roadway facilities to meet new guidelines may not be

technically or politically feasible. These guidelines should serve as a target for ultimate access control for the facility, to be achieved over time as properties are developed or redeveloped.

Minimums versus Maximums - These guidelines provide a minimum level of access control for various types of facilities. More stringent levels of access control may be required to address safety issues (especially in the vicinity of intersections or major traffic generators), or to address congestion and capacity issues. Sub-standard spacing of intersections and/or driveways should be considered only where safe and effective traffic operations can be maintained on the roadway based on traffic analysis of the specific location.

One Size Does Not Fit All - Special access control standards may need to be established for individual facilities based on the results of ODOT corridor planning projects and/or local plans.

Retrofitting Versus New Development - These standards are most successful when applied to new development, when it is possible to design the most appropriate forms of access control before the construction of private properties, and/or transportation facilities begins. However, they should be used to "retrofit" existing roadways as opportunities occur in the process of property development, and/or facility improvements and upgrades.

Legal Rights to Access - Properties must be provided with some reasonable access to the public roadway system. Exceptions to the guidelines may be necessary in individual circumstances where properties have limited options for roadway access. Efforts should be made to find reasonable alternatives to direct connections from private properties to state highways and arterials. Access may be restricted to a lower classified roadway if the property is served by more than one roadway.

Access for Large Developments - For large properties with frontage that exceeds minimum spacing standards for private driveways, internal circulation options should be explored to minimize the number of access connections to the public roadways. The total number of access connections permitted may be less than the driveway spacing standards would indicate.

Design of Connections - Permitted connections must be designed and managed to be consistent with the function and purpose of the roadway. This means that they should be of sufficient width and turning radii to safely accommodate the level and type of traffic that will be using them. It may be desirable to provide acceleration and/or deceleration lanes (on the private property) to ensure that traffic entering/leaving the property does not impede traffic operations on the roadway.

Table 7-5 Access Management Guidelines for Grants Pass Urban Area

Facility	Access Treatment	ADT per lane	Access Spacing		Turn Management	Signal Spacing	Median Treatment
			Public Road	Driveway			
ODOT Cat 1 Interstate	Full control	n/a	2-3 miles (interchange)	None allowed	Ramps	None	Full
ODOT Cat 2 Statewide LOI	Full control	n/a	1/2 - 2 miles (at grade)	None allowed	High-type design turn channelization	1/2-2 miles	Full
ODOT Cat 3 Statewide LOI	Limited control	n/a	1/2 - 1 mile (at grade)	800 feet	Left and/or right turn lanes	1/2-1 mile	Partial
ODOT Cat 4 Statewide or Regional LOI	Limited control	n/a	1/4 mile (at grade)	500 feet	Left and/or right turn lanes	1/2 mile	Partial or none
ODOT Cat 5 Regional/Dist. LOI	Partial control	n/a	1/4 mile (at grade)	300 feet	Left and/or right turn lanes	1/4 mile	None
ODOT Cat 6 District LOI	Partial control	n/a	500 feet	150 feet	Left turn lanes	1/4 mile	None
Arterial	Partial control	3,000 to 6,000	500 feet	150 feet	turn lanes or turn pockets	600 feet	None
Collector	Partial control	1,500 to 3,000	300 feet	100 feet	short turn pockets	600 feet	None
Local collector	No control	500 to 1,500	250 feet	50 feet	None	None	None
Local residential	No control	0 to 500	200 feet	20 feet	None	None	None

Access Management Strategies for Facilities in the Grants Pass Urban Area

This section presents specific access management strategies aimed at managing access along local highways and arterials within the study area. Thirteen roadways and one complex interchange area were studied for the Grants Pass Urban Area MTP. Nine "hot spots" were identified which could benefit immediately by implementing access control measures. Existing access conditions were reviewed for the roadways and interchanges within the study area described in Table 7-6. Several of these roadways have segments with poor access control, which results in traffic flow and other operational problems, as well as safety issues.

Table 7-6 describes the roadway segments where access control problems were identified, along with the identification of potential access management techniques that could be used to address the identified problems in these locations. In looking at potential access management improvements, four major strategies were considered: (1) limiting the number of conflict points, (2) separating the basic conflict areas, (3) limiting deceleration requirements, and (4) removing turning vehicles from through traffic lanes. There are numerous specific techniques that can be used to implement these strategies. For this plan the techniques were grouped into the twelve major categories included in Table 7-6. Description of these twelve strategies are provided below.

1. Median Barriers - Installing a raised median barrier (concrete safety shape barrier a curbed non-traverseable median, or a landscaped median) can be used to prohibit left-turns to/from adjacent properties along a roadway. Left-turns are allowed at intersections or at upstream/downstream turn pockets where left and "U" turns are allowed. This technique is effective along roadway segments with high numbers of mid-block accidents (turning and or rear-end accidents), where roadway speeds are over 40 mph, or where the development level exceeds 30 driveways per mile of roadway. A center median barrier is currently used along Grants Pass Parkway. Installation of a median barrier along Redwood Avenue (Redwood Circle to Daisy Lane) would eliminate traffic weaving for left turns to/from the frequent driveways along both sides of the roadway.

2. Channelization and Delineation - Physical channelization and pavement delineation is used to align motorists with a preferable travel path or to discourage use of a route. Channelization can consist of a raised or otherwise delineated channelization island or other measures to provide adequate safety areas for merging vehicles and/or to eliminate bottleneck traffic conditions. Channelization can also consist of providing raised curbing, barriers or landscaping to separate the roadway from abutting parking areas. Such channelization could be very effective in controlling access along roadways such as the Rogue River Highway.

3. Signalization of Intersections - If properly designed, installed and maintained, traffic signals can reduce right-angle collisions, vehicular/pedestrian accidents, and opposing left turn collisions. However, rear-end collisions can increase. A driveway should be considered for signalization only if the signal would be "warranted" according to the standards in the *Manual on Uniform Traffic Control Devices* (MUTCD), and if the signal would not interfere with traffic progression and operation on the roadway. Currently there are signals along

Grants Pass Parkway to allow access to/from major commercial areas. Additional signals could be warranted to consolidate access from private properties to side streets such as "E" and "F" and then on to the Parkway.

4. Driveway Treatment - Driveway consolidation (to reduce the total number of access points) and driveway narrowing have wide potential application to the urban area roadways. There are several specific techniques that could be considered, including one way driveways, driveway consolidation and provision of on-site circulation systems, and closing of open fronted properties to consolidate entry/exit at one driveway location. One of the most common access problems in the Grants Pass area is the presence of many abutting parking lots along roadways. Driveways and channelization could be implemented to provide better control of entry/exit to these lots without impacting the availability and convenience of parking.

5. Side Street Access - Providing access to the road network via side streets instead of major arterials is aimed at maintaining the traffic movement function of the major roadway by locating private driveways on collector and/or local side streets and consolidating access to the arterials and/or highways at fewer points. The measure reduces the number of locations for conflict and potential interference of traffic flow and improves safety, by diverting some or all driveway vehicles to the side street location where traffic volumes and speeds are lower. An example of where this technique could be used is along "E" street where access could be provided via Mill Street rather than from driveways along "E" Street.

6. Provisions for Pedestrians and Bicycles - Providing facilities for non-motorized travel can improve safety and traffic operations. Along segments where the volume of pedestrians and/or bicyclists is high, and/or there is high volume and/or high speed traffic, it may be appropriate to provide one or more of the following types of improvements: (1) continuous or spot bicycle lanes to keep slower moving bicycle out of the traffic flow, (2) sidewalks or other facilities for pedestrians along the roadway; and (3) signalized crossings between intersections to allow pedestrian and/or bicyclists to cross the roadway safely. In some cases, it may be appropriate to install barriers to prevent pedestrians from crossing critical roadway links.

7. Removing On-Street Parking - The removal of on-street parking provides additional capacity for through movement of vehicles. In addition it may help with the movement of vehicles to/from adjacent properties by removing obstacles from the vicinity of driveways, and improving sight distance for motorists and travelers using non-motorized travel modes. Accident frequency and/or severity may be reduced because turning vehicles do not have to slow down so much and the speed differential between turning and through movement is reduced. On-street parking near driveways exists at several locations along "E", "F", 6th and 7th Streets.

8. Improving Sight Distance - Improving sight distance at driveways and intersections allows drivers of turning vehicles a better view of the roadway so they can identify acceptable gaps in traffic. In addition it allows drivers of through vehicles better perception of turning vehicles and better reaction and braking distances which helps them to avoid accidents. There are numerous locations where sight distance is impeded by roadway

alignment, buildings too near the roadway, topography, foliage and other landscaping, parked vehicles and other physical features. In some locations commercial establishments with insufficient setback distances and on-site parking and circulation use unpaved portions of the highway right-of-way for parking, e.g., Rogue River Highway. Enforcing regulations against such use would help to improve traffic flow and safety.

9. Acceleration/Deceleration Lanes - Installing special lanes for acceleration and/or deceleration for turning traffic allows slower moving vehicles to get out of the traffic stream. This improves overall traffic flow for through vehicles and reduces the potential for accidents. This technique is especially helpful in reducing "diverge", "merge" and "rear-end" accidents, and in improving perception times for drivers. Grants Pass Parkway and parts of Redwood Highway provide right-turn deceleration lanes. Acceleration/deceleration lanes should be considered along the Jacksonville Highway, particularly southwest of the 99/199/238 interchange.

10. Left-Turn Lanes - Left-turn lanes can be provided in several ways, including: continuous two-way-left-turn lane (TWLTL), as an alternating left-turn lane, or as an isolated left turn lane at or between intersections. Continuous TWLTL are applicable on roadways with adjacent strip development and low volume driveways; they are compatible with the function of collector streets and some minor arterials serving commercial and industrial and multi-family residential areas. They provide a level of access that may not be compatible with high volume, higher speed roadways. Alternating and isolated left-turn lanes are effective in reducing the frequency and severity of rear-end collisions by allowing slower moving and stopped vehicles to get out of the traffic flow. Continuous TWLTL exist along segments of Foothill Boulevard, Grants Pass Parkway, Rogue River Highway and Jacksonville Highway. Installation of additional TWLTLs should be considered along a segment of Redwood Avenue. Individual left-turn lanes could be justified along several area roadways.

11. Right Turn Lanes - Isolated right-turn lanes and continuous right-turn lanes provide a means of separating slower moving turning traffic from faster moving through traffic. They allow turning traffic to get out of the traffic stream and enter/leave adjacent properties. Continuous right-turn lanes are essentially a combination of a right-turn acceleration/deceleration lane that is extended to accommodate several nearby driveways. They are appropriate on high volume roadways with adjacent strip development that generates high volumes of turning traffic. This technique improves traffic flow and reduces the potential for rear-end and turning accidents.

12. Internal Driveways - Providing internal driveways between abutting parking lots or developments could remove local traffic from the roadway, and reduce the interference between turning vehicles and through traffic. The strategy for implementing this technique is to encourage adjacent property owners to permit property-to-property movements off of the highway, thus reducing the use of the highway for short trips between adjacent properties. This technique may be appropriate of several area roadways, including "E", "F", 6th and 7th Streets.

Table 7-6: Potential Access Management Strategies

Roadway Problem Locations	Segment	Description	Median Barrier	Channel-ization	Signal-ization	Driveway Treatment	X-Street Access	Bike/Ped Mngmnt	Restrict Parking	Sight Distance	Accel/Del Lane(s)	Left-turn Lane(s)	Right-turn Lane(s)	Internal Driveways
A Street	Highland to 6th/7th 6th/7th to Foothill	2-lanes w/pkg. No turn lanes. 25 mph. All residential except near Chevron and hospital. 2-lanes w/parking. No turn lanes. 25 mph. Mostly residential, few apartments, convenience store and high school.	X	X		X		X	X			X		
E Street	G.P. Pkwy. to 6th/7th	2-lane westbound, w/parking on left side from Mill to west, on right from 8th to west. No turn lanes. 35 mph to east of Skunk Cr., 20 mph to west Comm. and retail with numerous and close driveways.		X	X	X	X	X	X	X		X	X	X
F Street	6th/7th to G.P. Pkwy.	2-lane eastbound, w/parking isolated on both sides, including head-on and parallel. No turn lanes. 20 mph to west of Skunk Cr., 35 mph to east. Commercial and retail with numerous and close driveways.		X	X	X	X	X	X	X		X	X	X
Foothill Blvd.	A St to Agness	East end has 3-lanes (includes 2WLTL), west end has 2-lanes. 25 mph. Residential including apartments.												
Grants Pass Pkwy.	Hwy 99 to I-5	4 to 5 lanes (2WLTL in 5-lane segments) w/out parking, left turn lanes with right-turn deceleration lanes. 50 mph Bike lanes. No private driveways with uncontrolled access Well-spaced signals at public cross-streets.												
Hwy. 99/199/238	Vicinity of the south "Y"	5+ legged interchange of Highways 99, 199 and 238. Commercial and retail land uses within interchange area. Some driveways are close to key intersections.	X	X		X			X					
M Street	4th to 6th/7th 6th/7th to G P Pkwy.	2-lanes w/out parking. Left turn lanes. 25mph. Retail uses. 2-lanes w/parking and bike lanes. Only left-turn lane at 9th. 30 mph All residential.				X						X		
Redwood Ave.	Darneille to Dowell Dowell to Redwood Hwy.	2-lanes w/bike lanes. No turn lanes. 45 mph. Residential with 50'-100' minimum driveway spacing. 2-lanes w/bike lanes. No turn lanes. 35 mph. Commercial uses. Parking lots abut roadway, numerous access points, wide driveways.	X	X		X	X					X		X
Redwood Hwy.	Willow Lane to Redwood Ave. Redwood Ave. to Hwy. 99	4-lanes w/out parking. Left turn lanes with right-turn deceleration lanes. 50 mph. Striped median. No private access from parkway. Vacant land. 4-lanes w/out parking Left-turn lanes with right-turn deceleration lanes. 45 mph. Divided median with left-turns only at public roadways.		X		X	X							X
Rogue River Loop Hwy. ("G" St.)	Lincoln Rd. to 3rd St.	2-lanes w/parking and bike lanes. No turn lanes. 35 mph. All residential with few vacant lots.	X	X	X	X		X				X		

Table 7-6: Potential Access Management Strategies (continued)

Roadway Problem Locations	Segment	Description	Median Barrier	Channel-ization	Signal-ization	Driveway Treatment	X-Street Access	Bike/Ped Mngmnt	Restrict Parking	Sight Distance	Accel/Del Lane(s)	Left-turn Lane(s)	Right-turn Lane(s)	Internal Driveways
Rogue River Hwy	G.P. Pkwy. To Hamilton	3-lanes (includes continuous 2WLTL) w/out parking. Has shoulders. 40 mph. Commercial & retail uses w/abutting parking lots.	X	X	X	X		X	X			X		X
	Hamilton to Mt. Baldy	2-lanes w/out pkg. No turn lanes. Gravel and paved shoulders. Commercial, retail and vacant uses w/abutting parking lots.		X		X						X		
Sixth St	I-5 to Midland	2-lanes southbound, w/parking isolated on both sides. No turn lanes. 35 mph Commercial and retail. Some close driveway spacing.				X	X		X					
	Midland to G.P. Pkwy.	4-lanes southbound, w/parking on both sides. No turn lanes. 30 to 25 mph. Commercial and retail. Some close driveway spacing.				X	X						X	X
Seventh St.	Midland to I-5	2-lanes northbound, w/parking on both sides. No turn lanes. 35 mph. Commercial and retail. Some close driveway spacing.				X	X		X	X				X
	G P. Pkwy. To Midland	3-lanes northbound s/o Jackson, w/out parking. 2-lanes, w/out parking n/o Jackson. No turn lanes. 25 to 30 mph. Commercial and retail. Some close driveway spacing.				X	X							X
Jacksonville Hwy.	Shadow Mtn. Way to New Hope	2-lanes w/narrow shouldersand no turn lanes. 55 mph Golf course.				X	X	X		X		X	X	
	New Hope to Meridian Way	5-lanes (includes continuous 2WLTL) w/out parking. Has curbs, bike lanes. 40 mph. Residential uses with limited commercial activity. School. Few vacant parcels.	X	X		X	X							
	Meridian Way to G.P. Pkwy.	5-lanes (includes continuous 2WLTL) w/out parking. Has curbs, bike lanes, 30 mph. Shopping centers prevail.	X	X		X					X			X

Residential Traffic Management (RTM)

Traffic in residential areas is an issue in many parts of the Grants Pass Urban Area. Appendix D to this Plan includes excerpts from *A Guidebook for Residential Traffic Management*, prepared for the Washington State Department of Transportation. Copies of the complete document can be obtained from ODOT's Technology Transfer Office, or directly from the Washington State Department of Transportation.

Programs and practices to manage traffic in residential areas have many names: "neighborhood traffic control (NTC)," "traffic restraint", "traffic calming", "local area traffic management", and "environmental traffic management (ETM)." The key words are "calming", "restraint," and "management." Nearly all RTM programs seek to make residential streets safer, and to reduce traffic intrusion into neighborhoods by reducing traffic speeds, traffic noise, visual impacts, and traffic volumes.

RTM programs accomplish these objectives through several tactics including: physical, psychological, visual, social and legal (regulatory and enforcement) methods. Table 7-7 highlights some of the more common actions included in RTM programs. Table 7-8 includes a more comprehensive listing and description of RTM techniques.

It would be best to address specific neighborhood issues in the Grants Pass area in a systematic manner in order to ensure consistency throughout the urban area, allocate limited funds to the most serious problem locations, and ensure equity in the expenditure of funds for neighborhood traffic control. Part E of Appendix Dincludes a section on "Setting Up a Self Managed Program in Small Communities."

This has been briefly summarized below to provide an example of how the Grants Pass area could address neighborhood traffic issues.

- Step 1 - Determine the legal authority of the City of Grants Pass and Josephine County to implement a RTM program.
- Step 2 - Establish specific goals and objectives for the local RTM program.
- Step 3 - Identify needs in a consistent and equitable manner for neighborhoods throughout the Grants Pass Urban Area, using complaints from residents, and factual information about existing conditions.
- Step 4 - Assess identified problems to understand the nature of problems, and their complexity, magnitude and origin(s).
- Step 5 - Develop alternative solutions to address the identified problem(s) in the specific location(s) where it exists.
- Step 6 - Evaluate alternative solutions to determine the best approach.
- Step 7 - Select a preferred alternative based on the evaluation of the strengths and weaknesses of the various alternatives.
- Step 8 - Implement the selected alternative using either temporary or permanent devices or programs to control traffic.

- Step 9 - Evaluate the results to determine how effective the solution is in achieving its objectives, and make appropriate modifications if needed.

Table 7-7: Residential Traffic Management Strategies

Goals	General Strategy	Examples
Reduce Through Volume	Physical Means	Traffic circles, speed humps, traffic diverters, street closures
Reduce Vehicle Noise	Psychological Means	Variable-spaced paint stripes
Reduce Visual Impacts	Visual Means	Landscaping to block through views
Reduce Traffic Speeds	Social Means	Neighborhood "Speed Watch" programs
Reduce Accidents	Legal Means	Strict speed and traffic enforcement

Individual RTM programs are defined largely by their goals and objectives, and the tools that communities select to achieve them. The goals typically include the kinds of goals included in Table 7-7, with some variation in content and emphasis by community. The tools used to achieve these goals fall into four major categories:

- Education and enforcement programs such as "emphasis patrols" by local police to catch speeders, elementary school programs to teach and reinforce "defensive walking and biking" habits, or "speed watch" programs conducted by local residents;
- Laws and ordinances prohibiting through traffic and/or trucks in residential areas, posting speed limits in residential areas, and on-street parking restrictions;
- Traffic control devices ranging from turn prohibitions at key entry points to a succession of stop signs; and
- Geometric design features such as physical restrictions to induce low speed travel such as narrow streets, traffic circles or speed humps, and even traffic diverters and street closures.

Table 7-8: A Catalog of RTM Actions

Device	Definition	Volume Reduction	Speed Reduction	Change in % trucks	Environment/Pollution Changes in conditions		Safety			Emergency/ Service Vehicle Access/Delay	Dependence on Police Enforcement	Level of Violation	Type/ Classification of Street			Impact on Adjacent Arterial	Use on Bus Route	Use with Driveways On Street	Use with Curbs & Gutters	Construct Cost/ Problems	Maintenanc Cost/ Proble	Aesthetics/ Landscapin Potential	Useful for Spot/Areawic Problems
					Noise	Air	Vehicle Conflicts	Pedestrian	Bicyclist				Collector Commercial	Local Streets Neighborhood Collector	Local Streets Local Access								
Bicycle Lanes	Lanes reserved for bicycles	No	No	No	No change	No change	-	-	Improved	No effect	-	Low	Yes	Yes	Yes	No	Yes	Plan with care	-	Low	Low	-	Both
Crosswalks	Painted pedestrian crossing areas mid-block or at intersections	No	No	No	No change	No change	No change	No change	No change	-	-	Low	Yes	Yes	Yes	No	Yes	Yes	Yes	Low	Low	No	Both
Curb Extensions (Entry, Exit, Mid Block)	Extension of the curb into the roadway to create a narrower travel lane to protect parking strip or shorten pedestrian crossing distance	No	Slight	No	Slight Improvement	No change	No effect	Improved	Plan with care	No problems	-	-	Yes	Yes	Yes	No	No	Yes	Yes	Moderate	Low to Moderate	Yes	Both
Diagonal Diverters	Barrier placed diagonally across an intersection to force drivers to make a sharp turn but not allow other movements	Yes	Likely	Yes	Reduction	Improved	Improved	Varies	Varies	Minor Constraint	Self Enforcing	-	No	Avoid	Yes	Yes	Plan with care	Yes	Yes	Low	Moderate	Yes	Usually Areawide
Enforcement (Visible & active police presence)	Extensive traffic enforcement, "emphasis patrols."	Not likely	Yes, temporary	Not likely	Possible reduction	No change	-	Improved	Improved	-	High	Low	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Moderate	-	Both
Forced Turn Islands, Barriers, Channelization	Traffic islands or curbs specifically designed to prevent traffic from executing specific movements at an intersection	Yes	Likely	Yes	Reduction	No change	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	Yes	No Major Effect	Yes	Yes	Can be complex	Low	Optional, Depends upon priority	Both
Median Barriers	Barrier along the center line of a roadway to prohibit left turns or cross traffic	Yes	No	Possible	reduction	Decrease	Improved	Varies	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	Possible	Plan with care	Yes	Complex	Varies	Varies	Both
Median Entry/Exit Islands	Traffic islands used to create narrower roadway at entry/exit point	Possible	No	Possible	Possible reduction	Possible Decrease	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	No	Yes	Yes	Low	Varies	Yes	Both
Median Mid Block Islands	Traffic islands between intersections to create a narrower roadway or provide refuge for crossing pedestrians	No	Slight	Slight	No change	No change	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	Possible	Plan with care	Yes	Low	Low	Varies	Both
Mid-Block Slow points, Chicanes	Curbed islands or curb extensions protruding into the roadway, leaving a single-lane or narrow two-lane gap, often at an angle to the centerline	Yes	Yes	Likely	Reduction	Decrease	Improved	Improved	Questionable	Minor constraint	Self Enforcing	-	Yes	Yes	Yes	No	Yes	Avoid near driveways	Yes	Moderate	Moderate to High	Yes	Both
Neighborhood Traffic Safety/Campaign Program (Education)	Distribute safety information, special pedestrian safety clases for children	No	Not likely	Not likely	No change	No change	-	Possible Improvement	Possible Improvement	-	-	-	-	-	-	-	-	-	-	-	-	-	Both
Neotraditional Neighborhood Design	Integrated land use and transportation design to increase transit and non-motorized travel to non-residential destinations within the neighborhood	Likely	Likely	Likely	Likely reduction	Unknown	Improved	Improved	Improved	No constraint	-	Low	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can be high	Varies	High	Area
Novelty signs	"Slow - Nudist Crossing", etc.	No	No	No	No change	No change	No change	No change	No change	-	-	High	No	No	Yes	-	-	-	-	Low	High	No	Spot
Odd speed limit signs	"13 MPH", etc	No	No	No	No change	No change	No change	No change	No change	-	High	High	No	Yes	Yes	-	-	-	-	Low	High	No	Spot
One-Way Entry/Exit Chokers, Half closures, Semi-Diverters	A barrier to traffic in one direction of a street which permits traffic in the opposite direction to pass through	Possible	Yes	Not likely	Reduction	No change	Improved	Improved	Improved	Minor constraint	Initially high	Varies	Avoid	Avoid	Yes	Possible	Plan with care	Yes	Yes	Low	Moderate	Yes	Both
One-Way streets and signs	Restricted entry/exits to/from neighborhoods, one-way street patterns	Yes	Varies	Possible	Reduction	Improved	Improved	Improved	Improved	Plan with care	Low	Low	Yes	Yes	Yes	Yes	Plan with care	Yes	-	Low	Low	-	Usually Areawide
Parking Variants Class I (Zones, Signs, Striping, timed, resident restricted)	Parking areas create narrower roadways and increased activity leading to increased attention by drivers	Possible	Likely	Likely	Possible reduction	No change	Possible Improvement	Possible Improvement	-	No effect	Low	Varies	Yes	Yes	Yes	Yes	Yes	Yes	-	Low	Low	-	Both
Parking Variants, Class II (Shifting Traveled Way)	Alternating parking from one side of street to the other, parallel or diagonal	Possible	Likely	Not likely	Possible reduction	No change	Increased conflicts	Possible Improvement	Varies	No effect	-	-	Yes	Yes	Yes	No	No	Yes	Yes	Low	Low	Yes	Spot

Table 7-8: A Catalog of RTM Actions (continued)

Device	Definition	Volume Reduction	Speed Reduction	Change in % trucks	Environment/Pollution Changes in conditions		Safety			Emergency/ Service Vehicle Access/Delay	Dependence on Police Enforcement	Level of Violation	Type/ Classification of Street			Impact on Adjacent Arterial	Use on Bus Route	Use with Driveways On Street	Use with Curbs & Gutters	Construct Cost/ Problems	Maintenanc Cost/ Proble	Aesthetics/ Landscapin Potential	Useful for Spot/Areawic Problems
					Noise	Air	Vehicle Conflicts	Pedestrian	Bicyclist				Collector Commercial	Local Streets Neighborhood Collector	Local Streets Local Access								
Pavement Treatment, Class II (Texture/Composition, Patterns, Color)	Special pavement compositions and markings to alert drivers of special conditions	Not likely	Possible	Possible	Possible reduction	No change	-	Possible Improvement	Varies	No constraint	-	-	Yes	Yes	Yes	No	Yes	Yes	-	Low	Low	-	Both
Pavement Treatments, Class I Marking and Striping & Color	Special pavement markings at entries, hazard locations or crosswalks to alert drivers of special conditions	No	Possible	Not likely	No change	No change	-	Possible Improvement	-	No effect	-	-	Yes	Yes	Yes	No	Yes	Yes	-	Low	Low	Yes	Both
Raised Crosswalks	Crosswalks raised transversely across the pavement	Possible	Yes	Not likely	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Moderate	Low to Moderate	Yes	Site
Speed Alert w/Warning	Residents use radar to clock speeds, record license plate numbers, police send notice to drivers	No	Varies	Not likely	Slight, temporary, reduction	No change	-	Slight, temporary, improvement	No change	-	High	-	Yes	Yes	Yes	No	Yes	Yes	-	-	Low	-	Both
Speed Bumps (about 3 5"h X 6")	Short strips of raised pavement, avoid using on public streets	Possible	Varies	Yes	Increased noise	Increase	Safety problem	Improved	Plan with care	Significant problems	Self Enforcing	-	No	No	No	-	No	-	-	Low	High	-	Spot
Speed Humps (about 2.75-4"h X 12')	Raised sections of pavement across the traveled way with curved transitions	Possible	Yes	Possible	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Yes	Yes	Yes	Low	Low to Moderate	Yes	Both
Speed limit signs	"25 MPH in residential areas", etc	No	No	No	No change	No change	No change	No change	No change	-	High	High	Yes	Yes	Yes	No	-	-	-	Low	Low	No	Both
Speed Tables (3-4"h X 22')	Speed humps with a long flat section, often used as crosswalks	Possible	Yes	Possible	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Moderate	Low to Moderate	Yes	Both
Speed Watch	Illuminated display shows actual speed to passing drivers	No	Varies	Not likely	Slight, temporary, reduction	No change	-	Slight, temporary, improvement	No change	-	None	-	Yes	Yes	Yes	No	Yes	Yes	-	-	Low	-	Spot
Stop Signs	Stop signs, two way or four way, used to assign right-of-way at intersections	Seldom	Varies	Not likely	Increased noise	Increase	Varies	Varies	Varies	No constraint	Low	Varies	Follow MUTCD guidelines	MUTCD guidelines	MUTCD guidelines	No	Yes	Yes	-	Low	Low	-	Both
Street Closures, Cul-De-Sacs	A complete barricade of a street at an intersection or a dead end street	Yes	Yes	Yes	Reduction	Improved	No	Improved	Improved	Significant constraints	-	-	No	No	Yes	Yes	No	Yes	-	Moderate	Moderate to High	Yes	Both
Traffic Circles	These geometric design features force traffic at intersections into circular maneuvers	Possible	Yes, near circle	Yes	No change	No change	Improved	Varies	Varies	Minor Constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Low	Moderate	Yes	Both
Traffic signals	Vehicle or pedestrian actuated	No	Possible	No	Increase	Increase	Improved	Improved	Improved	-	-	Low	Yes	Avoid	No	No	-	-	-	Moderate	Low	No	Both
Truck prohibitions	"No trucks over 10,000 lbs ", etc	Minor	No	Yes	Likely reduction	Slightly improved	Improved	Improved	Improved	-	-	Low	No	Yes	Yes	Yes	-	-	-	Low	Low	No	Area
Turn Prohibition sign	Regulatory signs at intersections	Yes	Likely	Possible	Reduction	No change	Improved	Varies	Varies	No effect	Low	Varies	Yes	Yes	Yes	Yes	Yes	Yes	-	Low	Low	-	Both
Woonerf	Traffic calmed residential area where the street is an extension of the front yards and vehicles share street space with bikes and pedestrians	Yes	Yes	Yes	Significant reduction	Improved due to lower vol	Improved	Improved	Improved	No constraint	-	Low	No	No	Yes	No	No	Yes	Yes	High	Varies	High	Spot

Travel Demand Management

In addition to managing the transportation system to achieve better operating efficiencies, it is equally important to manage the demand for travel. Travel demand strategies focus on one or more of the following objectives:

- Reducing the total amount of travel demand (i.e. eliminating trips or shortening the travel distance),
- Changing the modes of travel from the single occupant vehicle to more efficient travel modes such as carpooling, public transit, walking or bicycling,
- Relocating travel from congested corridors to less congested ones to balance the use of transportation facilities more efficiently, or
- Redistributing travel from peak periods (when the worst congestion occurs) to non peak times when there is more capacity available in the transportation system.

There are a wide variety of specific techniques that can be used to accomplish these objectives. A summary of such techniques is included in Table 7-9. The techniques are rated according to their relative effectiveness in inducing changes in travel mode from private automobile to ridesharing or non-motorized travel, (high, medium, or low); and in their relative costs for implementation (high, medium or low). It is important to maintain reasonable expectations about the potential effectiveness of TDM measures in communities like Grants Pass. Given the current situation regarding development patterns, alternatives to the private automobiles for travel, and the relative ease of driving and parking in the Grants Pass Urban Area it may be difficult to effect a significant change in the mode of travel selected by area residents and visitors.

There are five keys to successful travel demand management:

- Careful integration of land use and transportation decisions to provide for more compact development, minimization of sprawl, and provision of reasonable opportunities for travel by walking, bicycling and/or public transit;
- Provision of reasonable and attractive alternatives to traveling by private automobile, especially during the peak hour;
- Sufficient incentives and disincentives to encourage people to change their travel from less efficient to more efficient travel patterns;
- Coordination and integration of TDM programs and policies with other transportation decisions to ensure that facilities are designed to accommodate travel by means other than the private automobile, and
- Active support and implementation of TDM strategies by the private sector, particularly employers.

Table 7-9: Potential TDM Strategies

Strategy or Technique	Relative Effectiveness	Relative Cost
Carpool, Vanpool Program	Medium	Medium
Public Transportation System	Medium	High
Car/vanpool Preferential Parking (location and/pricing)	High	Low
Ridesharing Education and Promotion	Medium	Low
Guaranteed Ride Home Program	Low	Low
Flextime- Adjustable Working Schedules	Medium	Low
Transportation/Parking Management Association	Medium	Medium
Bicycle Facilities (on and off road)	High	Medium

There are fewer opportunities to manage travel demand in the Grants Pass Urban Area than in a more densely developed city such as Portland. So far, travel by private automobile is relatively easy. There is little congestion which would deter some drivers; parking is readily available throughout the urban area and largely free, and public transit alternatives are fairly limited. For those people who have access to a private vehicle, there are few disincentives to using it. However, the community can work towards reducing travel per capita as specified in the goals and policies element of this plan through:

- Consideration of the travel implications of proposed development,
- Encouraging developers to provide facilities for bicyclists and pedestrians,
- Supporting the provision of public transit services for "transit dependent" and for "transit choice" travelers,
- Educating the community about the benefits of travel demand management, and encouraging people to "share the ride" and/or use alternatives to the private automobile for their travel needs, and
- Implementing parking management strategies that reward those who travel by carpool rather than single occupant vehicles.

transportation revenues for cities come from federal sources (around four percent), with 96 percent of transportation revenues for cities derived from local and state sources. Counties and cities rely heavily on local property taxes, gasoline taxes, and local assessment and fees for transportation funding.

Transportation Funding for Josephine County

The funding for Josephine County roads (known as the "County Road Fund") historically has come from two main sources: (1) the County's Oregon Highway Fund apportionment, and (2) the County's share of U.S. Forest Service timber receipts. An interest earning reserve is kept to respond to historical fluctuations in timber receipts, and to provide some cushion in case revenues decline unexpectedly.

County Road Fund Revenues and Expenditures

For the past ten years, state and federal revenues distributed to Josephine County have contributed approximately 95 percent of the County Road Fund revenues. The remaining revenues come from local fees and reimbursements, and interest. Prior to 1980 the County Road Fund's major source of revenue was receipts from timber sales on the national forests in Josephine County. The U.S. Forest Service revenues have been used by the County to make significant capital improvements to its road system.

Federal revenue from timber sales has declined in recent years to around 25 percent of total revenue ($1.6 million.) Reserve fund revenue has been used to make up for the reduced federal revenue, but the County has indicated that it intends to reduce future expenditures for capital transportation improvements so that the County Road Fund will not rely on reserve revenue as a regular funding source. In fiscal year 1994 reserve funds constituted 10 percent of total revenue, or $650,000.

Shared revenues from the Oregon Highway Fund contributed $3.7 million to the County Road Fund in FY 1994, or 60 percent of the total revenue. The County generally uses these funds for the operation and maintenance needs of the County's roadways.

Local revenue sources for the County Road Fund are limited to interfund charges and reserve revenue. Josephine County has not levied property taxes or other local taxes for roads since 1981.

Outlook for County Road Fund Revenues

ODOT expects some growth in the State Highway Fund through fiscal year 98. Josephine County's share of the State Highway Fund is projected to grow at a rate of one to four percent per year. The increased revenue will probably be offset by inflation. However, this revenue source provides a reasonably reliable source of funds for roadway maintenance and operation. Given the ongoing needs for maintenance and the slow rate of growth it is unlikely that this source will provide significant funds for any capital improvements.

The County's share of forest revenues is no longer tied directly to the level of timber sales due to the "spotted owl compromise" legislation approved by Congress. Under the terms of

this legislation counties are guaranteed timber receipt payments on a schedule set by Congress. Under this legislation timber payments to the County road fund will decline from $1.6 million in FY 1994 to $1.4 million in FY 1998. Unless timber receipts produce payments larger than the guaranteed minimum, payments to the County are expected to decline from $1.4 million in FY 1999 to $1.1 million in FY 2003. While this is a fairly stable and reliable funding source, the amount of funds available to the County for capital improvements from this source is declining at a time when needs are increasing.

Other potential sources of revenue for transportation improvements include payments by developers to mitigate transportation impacts of new developments, and dedication of right of way for public use. While this could help with transportation facilities serving new development, it will not provide much help for transportation improvements to serve existing development. In addition, it is not possible to predict the amount or timing of such funding.

Transportation Funding for Grants Pass

The City of Grants Pass budgeted $2.25 million in FY 1995, and $1.79 million in FY 1996 for transportation purposes. The largest source of revenue for transportation purposes is the State Highway Fund, which contributed $844,000 in FY 1995 (35 percent of total revenue), and $870,000 in FY 1996 (42 percent of total revenue). This funding source has grown at a rate of four to five percent per year for the past five fiscal years. While this is a relatively slow rate of growth (likely less than the rate of inflation), it is a stable and predictable funding source. The only other source of state funding for transportation in Grants Pass during FY 1995 and FY 1996 is a $64,000 Regional Strategy Grant funded by the Oregon Lottery.

Other sources of revenue for transportation come from local sources. These include Special Assessments collected from property owners for improvements that directly benefit their properties (which contributed $761,000 over the two years for which data was available), $782,000 in FY 1995 from the Grants Pass Parkway Redevelopment Agency (an urban renewal district funded by an incremental property tax assessed in the district), and the City's General Fund. The City does not use property tax revenue for transportation purposes. Funds transferred from the General Fund are generated from franchise fees, business license taxes, permit and license fees, fees for services, and the state per capita payments from alcohol and cigarette taxes.

The City spends over half of its transportation budget on capital improvements. In FY 1995, 67 percent of the $2.25 million budget was used for transportation capital improvements. The remaining 33 percent was used for maintenance and operation of the transportation system. In FY 1996, 57 percent of the $1.79 million budget is for capital improvements, and the remainder is for maintenance and operation.

Outlook for Existing Transportation Revenue Sources in Grants Pass

The City of Grants Pass currently allocates the majority of their transportation budget for capital improvements (57 percent in FY 1995 and 67 percent in FY 1996.) A major source of the funds for capital improvements comes from special sources linked to specific

transportation improvements, e.g., the Grants Pass Parkway Redevelopment Agency and Special Assessments. If funding continues to be available from these sources at the current level the City will continue to make significant investments in capital improvements. However these funding sources are not predictable, and do not contribute funds for general capital improvement needs.

The City appears to be deferring some needed maintenance (possibly due to the limited gas tax funds available to the City) and upgrades to existing facilities. The list of needed improvements included in Chapter 4 identifies many locations where roadways do not have shoulders, there is insufficient right-of-way and/or land width to meet current roadway design standards, and other physical deficiencies in the transportation facilities.

The City will need additional resources to complete these upgrade projects, properly maintain the transportation system, and to implement the identified capital improvement projects. The City must establish a stable funding base to cover the increasing maintenance costs, and provide for future capital projects. A street utility and/or local gas tax are two possible options that should be pursued as soon as possible.

State and Federal Revenues for Grants Pass

According to estimates by ODOT, the State Highway Fund should grow faster than inflation for the next ten years, then decline in real terms through the following decade. It is reasonable to expect Grants Pass to experience similar trends. While this does not allow any significant increase in funds available to expand maintenance or capital budgets, it is a reliable and predictable source for the City.

Grant revenue from Regional Strategy Funds, and other state and federal sources are awarded on a case-by-case basis for economic development and other purposes. These grant programs are very competitive and the City cannot count on receipt of grant funds on a regular or predictable basis. While they could provide funding for some special projects, they will not be a very good source for implementation of the list of capital improvements identified in Chapter 4.

Transfers from the City's General Fund

Transfers from the General Fund are from relatively stable sources of revenue. These funds contribute about $200,000 per year for maintenance, and provide a source for capital improvements ($111,000 in FY 1996). General Fund money can be used for any expenditure the City chooses, so this source is open to many competing demands. While the General Fund will continue to be a stable source for maintenance, it provides only a quarter of the funds used for maintenance of the transportation system. Contributions from the General Fund for capital improvements are very limited and less certain; but it appears that these funds can be tapped occasionally for high priority projects for the City for which there is no other funding source, or to provide local match for state and federal funds.

Special Assessment Districts

A special assessment district is created to fund a specific transportation project that benefits a designated geographic area. The district can levy taxes, collect charges for services and issue debt independently of other local governmental units. Special districts typically are formed to carry out local improvements or to provide public services for the benefit of property owners within the district boundaries. Local improvement districts (LIDs) commonly are used for transportation improvements by municipalities.

Grants Pass generates significant revenues from LIDs. However the revenue from this source is tied to specific projects and cannot be used for other transportation purposes. Future revenue from this source is tied to the successful formation of additional LIDs, so future revenues from this source will be highly variable and difficult to predict. However, this approach could be used to finance some of the improvements identified in Chapter 4, including urban upgrade projects.

The Grants Pass Parkway Redevelopment Agency can provide funds for transportation projects within the district that support the mission of the agency (economic development). Future revenue from this source will depend on development interest in the area and revenues generated by the agency; expenditures of funds from the Redevelopment Agency will be tied to projects that benefit the district.

Right-of-Way Dedications and Developer Improvements

Grants Pass requires developers to provide right-of-way dedications and to construct transportation improvements to support new developments. The City's Development Code contains several articles which require developers to provide streets and sidewalks within new developments in accordance with the City's design standards for such facilities. The City's development standards ensure that local streets built within new subdivisions and sidewalks on arterials and collectors will be improved to City standards as property is developed. The City will not need new revenue for these types of improvements, as they will be built along with any new development.

Standards also exist for roadway improvements in the area between the City limits and the Urban Growth Boundary. Josephine County adopted road standards (including urban street standards) for this area. Developments within this area would be required to meet these standards as part of their development.

Future Transportation System Improvements

Chapter 4 includes the list of transportation improvements identified for the Grants Pass Urban Area. These include capital improvements to complete important links in the transportation system and provide for anticipated growth, and urban upgrade projects to bring existing facilities up to current design standards for the City and County. The list of improvements in Table 4-2 includes 31 transportation system improvement projects to be implemented over the next 20-25 years. The total cost for these improvements is estimated to be nearly $53 million in 1995 dollars.

Table 8-1 summarizes the estimated costs for these projects according to their priority (high, medium or low), and their estimated timing for construction (1998-2005, 2006-2015, and 2015+). Project costs were estimated by developing "unit costs" for individual project components (e.g., lane feet of asphalt and square feet of sidewalk, traffic signals, etc.), identifying the individual components for each project, and then summing the total for each project. These costs are estimated in 1995 dollars, which have not been inflated to reflect actual dollar costs in the future.

Table 8-1 Cost Summary for Transportation System Improvements - 1995 Dollars

Timing	High Priority	Medium Priority	Low Priority
1998-2005	$550,711	$3,693,953	$2,587,713
2006-2015	$19,917,976	$10,842,774	$8,621,807
2015+			$6,345,186
Total	**$20,468,687**	**$14,536,727**	**$17,554,706**

In addition to transportation system improvements 88 urban upgrade projects were identified to improve existing roadways within the urban area. Of these, 10 are City of Grants Pass projects ($929,944), 68 are Josephine County projects ($52,448,940), and 10 are ODOT projects ($25,854,000). Table 8-2 summarizes these projects by agency, timing and priority.

Table 8-2 - Cost Summary for Urban Upgrade Projects - 1995 Dollars

Timing	High Priority	Medium Priority	Low Priority
1998-2005			
City of Grants Pass	$0	$0	$0
Josephine County	$651,309	$4,508,071	$2,059,245
ODOT	$21,355,000	$315,000	$0
Subtotal	***$22,006,309***	***$4,823,071***	***$2,059,245***
2006-2015			
City of Grants Pass	$514,222	$347,589	$45,565
Josephine County	$4,526,541	$11,570,539	$1,258,786
ODOT	$0	$4,184,000	$0
Subtotal	***$5,040,763***	***$16,102,128***	***$1,304,351***
2015+			
City of Grants Pass	$0	$0	$22,568
Josephine County	$2,441,015	$16,615,440	$8,817,994
ODOT	$0	$0	$0
Subtotal	***$2,441,015***	***$16,615,440***	***$8,840,562***
Total	**$29,488,087**	**$37,540,639**	**$12,204,158**

Device	Definition	Volume Reduction	Speed Reduction	Change in % trucks	Environment/Pollution Changes in conditions		Safety			Emergency/ Service Vehicle Access/Delay	Dependence on Police Enforcement	Level of Violation	Type/ Classification of Street			Impact on Adjacent Arterial	Use on Bus Route	Use with Driveways On Street	Use with Curbs & Gutters	Construct Cost/ Problems	Maintenanc Cost/ Proble	Aesthetics/ Landscapin Potential	Useful for Spot/Areawic Problems
					Noise	Air	Vehicle Conflicts	Pedestrian	Bicyclist				Collector Commercial	Local Streets Neighborhood Collector	Local Streets Local Access								
Bicycle Lanes	Lanes reserved for bicycles	No	No	No	No change	No change	-	-	Improved	No effect	-	Low	Yes	Yes	Yes	No	Yes	Plan with care	-	Low	Low	-	Both
Crosswalks	Painted pedestrian crossing areas mid-block or at intersections	No	No	No	No change	No change	No change	No change	No change	-	-	Low	Yes	Yes	Yes	No	Yes	Yes	Yes	Low	Low	No	Both
Curb Extensions (Entry, Exit, Mid Block)	Extension of the curb into the roadway to create a narrower travel lane to protect parking strip or shorten pedestrian crossing distance	No	Slight	No	Slight Improvement	No change	No effect	Improved	Plan with care	No problems	-	-	Yes	Yes	Yes	No	No	Yes	Yes	Moderate	Low to Moderate	Yes	Both
Diagonal Diverters	Barrier placed diagonally across an intersection to force drivers to make a sharp turn but not allow other movements	Yes	Likely	Yes	Reduction	Improved	Improved	Varies	Varies	Minor Constraint	Self Enforcing	-	No	Avoid	Yes	Yes	Plan with care	Yes	Yes	Low	Moderate	Yes	Usually Areawide
Enforcement (Visible & active police presence)	Extensive traffic enforcement, "emphasis patrols,"	Not likely	Yes, temporary	Not likely	Possible reduction	No change	-	Improved	Improved	-	High	Low	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Moderate	-	Both
Forced Turn Islands, Barriers, Channelization	Traffic islands or curbs specifically designed to prevent traffic from executing specific movements at an intersection	Yes	Likely	Yes	Reduction	No change	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	Yes	No Major Effect	Yes	Yes	Can be complex	Low	Optional, Depends upon priority	Both
Median Barriers	Barrier along the center line of a roadway to prohibit left turns or cross traffic	Yes	No	Possible	reduction	Decrease	Improved	Varies	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	Possible	Plan with care	Yes	Complex	Varies	Varies	Both
Median Entry/Exit Islands	Traffic islands used to create narrower roadway at entry/exit point	Possible	No	Possible	Possible reduction	Possible Decrease	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	No	Yes	Yes	Low	Varies	Yes	Both
Median Mid Block Islands	Traffic islands between intersections to create a narrower roadway or provide refuge for crossing pedestrians	No	Slight	Slight	No change	No change	Improved	Improved	Varies	Minor constraints	-	Low	Yes	Yes	Yes	No	Possible	Plan with care	Yes	Low	Low	Varies	Both
Mid-Block Slow points, Chicanes	Curbed islands or curb extensions protruding into the roadway, leaving a single-lane or narrow two-lane gap, often at an angle to the centerline	Yes	Yes	Likely	Reduction	Decrease	Improved	Improved	Questionable	Minor constraint	Self Enforcing	-	Yes	Yes	Yes	No	Yes	Avoid near driveways	Yes	Moderate	Moderate to High	Yes	Both
Neighborhood Traffic Safety/Campaign Program (Education)	Distribute safety information, special pedestrian safety clases for children	No	Not likely	Not likely	No change	No change	-	Possible Improvement	Possible Improvement	-	-	-	-	-	-	-	-	-	-	-	-	-	Both
Neotraditional Neighborhood Design	Integrated land use and transportation design to increase transit and non-motorized travel to non-residential destinations within the neighborhood	Likely	Likely	Likely	Likely reduction	Unknown	Improved	Improved	Improved	No constraint	-	Low	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can be high	Varies	High	Area
Novelty signs	"Slow - Nudist Crossing", etc.	No	No	No	No change	No change	No change	No change	No change	-	-	High	No	No	Yes	-	-	-	-	Low	High	No	Spot
Odd speed limit signs	"13 MPH", etc.	No	No	No	No change	No change	No change	No change	No change	-	High	High	No	Yes	Yes	-	-	-	-	Low	High	No	Spot
One-Way Entry/Exit Chokers, Half closures, Semi-Diverters	A barrier to traffic in one direction of a street which permits traffic in the opposite direction to pass through	Possible	Yes	Not likely	Reduction	No change	Improved	Improved	Improved	Minor constraint	Initially high	Varies	Avoid	Avoid	Yes	Possible	Plan with care	Yes	Yes	Low	Moderate	Yes	Both
One-Way streets and signs	Restricted entry/exits to/from neighborhoods, one-way street patterns	Yes	Varies	Possible	Reduction	Improved	Improved	Improved	Improved	Plan with care	Low	Low	Yes	Yes	Yes	Yes	Plan with care	Yes	-	Low	Low	-	Usually Areawide
Parking Variants Class I (Zones, Signs, Striping, timed, resident restricted)	Parking areas create narrower roadways and increased activity leading to increased attention by drivers	Possible	Likely	Likely	Possible reduction	No change	Possible Improvement	Possible Improvement	-	No effect	Low	Varies	Yes	Yes	Yes	Yes	Yes	Yes	-	Low	Low	-	Both
Parking Variants, Class II (Shifting Traveled Way)	Alternating parking from one side of street to the other, parallel or diagonal	Possible	Likely	Not likely	Possible reduction	No change	Increased conflicts	Possible Improvement	Varies	No effect	-	-	Yes	Yes	Yes	No	No	Yes	Yes	Low	Low	Yes	Spot

Table 4-1 A Catalog of RTM Actions

Device	Definition	Volume Reduction	Speed Reduction	Change in % trucks	Environment/Pollution Changes in conditions		Safety			Emergency/ Service Vehicle	Dependence on Police	Level of Violation	Type/ Classification of Street			Impact on Adjacent	Use on Bus	Use with Driveways	Use with Curbs &	Construct Cost/	Maintenanc Cost/	Aesthetics/ Landscapin	Useful for Spot/Areawic
					Noise	Air	Vehicle Conflicts	Pedestrian	Bicyclist	Access/Delay	Enforcement		Collector	Local Streets		Arterial	Route	On Street	Gutters	Problems	Proble	Potential	Problems
													Commercial	Neighborhood Collector	Local Access								
Pavement Treatment, Class II (Texture/Composition, Patterns, Color)	Special pavement compositions and markings to alert drivers of special conditions	Not likely	Possible	Possible	Possible reduction	No change	-	Possible Improvement	Varies	No constraint	-	-	Yes	Yes	Yes	No	Yes	Yes	-	Low	Low	-	Both
Pavement Treatments, Class I Marking and Striping & Color	Special pavement markings at entries, hazard locations or crosswalks to alert drivers of special conditions	No	Possible	Not likely	No change	No change	-	Possible Improvement	-	No effect	-	-	Yes	Yes	Yes	No	Yes	Yes	-	Low	Low	Yes	Both
Raised Crosswalks	Crosswalks raised transversely across the pavement	Possible	Yes	Not likely	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Moderate	Low to Moderate	Yes	Site
Speed Alert w/Warning	Residents use radar to clock speeds, record license plate numbers, police send notice to drivers	No	Varies	Not likely	Slight, temporary, reduction	No change	-	Slight, temporary, improvement	No change	-	High	-	Yes	Yes	Yes	No	Yes	Yes	-	-	Low	-	Both
Speed Bumps (about 3.5"h X 6')	Short strips of raised pavement, avoid using on public streets	Possible	Varies	Yes	Increased noise	Increase	Safety problem	Improved	Plan with care	Significant problems	Self Enforcing	-	No	No	No	-	No	-	-	Low	High	-	Spot
Speed Humps (about 2.75-4"h X 12')	Raised sections of pavement across the traveled way with curved transitions	Possible	Yes	Possible	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Yes	Yes	Yes	Low	Low to Moderate	Yes	Both
Speed limit signs	"25 MPH in residential areas", etc	No	No	No	No change	No change	No change	No change	No change	-	High	High	Yes	Yes	Yes	No	-	-	-	Low	Low	No	Both
Speed Tables (3-4"h X 22')	Speed humps with a long flat section, often used as crosswalks	Possible	Yes	Possible	No change	No change	-	Improved	Plan with care	Minor constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Moderate	Low to Moderate	Yes	Both
Speed Watch	Illuminated display shows actual speed to passing drivers	No	Varies	Not likely	Slight, temporary, reduction	No change	-	Slight, temporary, improvement	No change	-	None	-	Yes	Yes	Yes	No	Yes	Yes	-	-	Low	-	Spot
Stop Signs	Stop signs, two way or four way, used to assign right-of-way at intersections.	Seldom	Varies	Not likely	Increased noise	Increase	Varies	Varies	Varies	No constraint	Low	Varies	Follow MUTCD guidelines	MUTCD guidelines	MUTCD guidelines	No	Yes	Yes	-	Low	Low	-	Both
Street Closures, Cul-De-Sacs	A complete barricade of a street at an intersection or a dead end street	Yes	Yes	Yes	Reduction	Improved	No	Improved	Improved	Significant constraints	-	-	No	No	Yes	Yes	No	Yes	-	Moderate	Moderate to High	Yes	Both
Traffic Circles	These geometric design features force traffic at intersections into circular maneuvers	Possible	Yes, near circle	Yes	No change	No change	Improved	Varies	Varies	Minor Constraint	Self Enforcing	-	Plan with care	Yes	Yes	Yes	Plan with care	Yes	Yes	Low	Moderate	Yes	Both
Traffic signals	Vehicle or pedestrian actuated	No	Possible	No	Increase	Increase	Improved	Improved	Improved	-	-	Low	Yes	Avoid	No	No	-	-	-	Moderate	Low	No	Both
Truck prohibitions	"No trucks over 10,000 lbs.", etc	Minor	No	Yes	Likely reduction	Slightly improved	Improved	Improved	Improved	-	-	Low	No	Yes	Yes	Yes	-	-	-	Low	Low	No	Area
Turn Prohibition sign	Regulatory signs at intersections	Yes	Likely	Possible	Reduction	No change	Improved	Varies	Varies	No effect	Low	Varies	Yes	Yes	Yes	Yes	Yes	Yes	-	Low	Low	-	Both
Woonerf	Traffic calmed residential area where the street is an extension of the front yards and vehicles share street space with bikes and pedestrians	Yes	Yes	Yes	Significant reduction	Improved due to lower vol.	Improved	Improved	Improved	No constraint	-	Low	No	No	Yes	No	No	Yes	Yes	High	Varies	High	Spot

Table 4-1. A Catalog of RTM Actions

Funding Needed Transportation Projects

The projected revenues for the City of Grants Pass and Josephine County for transportation purposes described earlier in this chapter are nowhere near the estimated costs for the identified transportation projects. Therefore the City and County will need to pursue additional funding options in order to implement the Master Transportation Plan. The City and County may want to pursue additional funding sources in the following order:

- Use federal or state funds first. Try to get more funds and/or grants from federal and state programs, or tie what might otherwise be local (City and/or County) projects (such as urban upgrades) to federal or state highway projects.
- For projects that the federal or state agencies will not fund, be sure the projects are needed and that the design options have considered lower-cost alternatives to address the problems.
- For the remaining projects that primarily serve new development, or specific properties, charge new development (through system development charges) and property owners (through LIDs or urban renewal districts) where possible and appropriate. Continue to require developers to provide local streets needed within new developments consistent with urban area design standards.
- For remaining needed, but unfunded projects, charge all residents regardless of their use of the transportation system through locally generated taxes such as property taxes, business license fees, or a sales tax. The City or County could issue general obligation or revenue bonds, backed by the revenue generated through such fees or taxed to finance transportation improvements.

The summary of planned transportation improvements in Table 4-2 includes preliminary information about potential primary and secondary funding sources for each of the planned improvements. These sources include: State/Federal, City General Funds, County Road Fund, Private Development, LID (Local Improvement District), SDC (System Development Charge), and Other. This is simply a "first cut" at identifying appropriate sources to pursue for each of the projects. The final funding package for the projects could include a different mix from the identified sources, or potential new sources that are not included in the table. By doing the initial assessment it is possible to identify general amounts of funds that would be needed from each of the major funding sources over the next 20-25 years in order to implement the planned improvements.

Federal and State Sources

All federal funding is handled through ODOT's funding process. Federal funds are administered by the state for a variety of purposes at the state, regional, county and local levels. The City of Grants Pass and Josephine County would apply for such funds through the regular ODOT process, beginning with ODOT staff in Region 3. The key factor for federal funding of major transportation improvements is to get them included as part of the Statewide Transportation Improvement Program (STIP) which is updated and adopted every

two years. The process for the next STIP (covering the period from 1998-2001) began in the Spring of 1996.

ODOT is the primary funding source for the interstate and state highways it maintains. In the Grants Pass Urban Area that includes: I-5, Highway 99 (Rogue River Highway), Highway 199 (Redwood Highway), and Highway 238 (Jacksonville Highway). Federal/State funds are indicated as the primary funding source for eight projects in the years 1-10, and four projects in the years 11-20. Several of these projects are included in the current STIP.

Funding for the Fourth Bridge across the Rogue River is not included in the current STIP. Funding for this project with state or federal funds may be difficult since the bridge would not be part of a federal or state highway.

Federal/State funding is indicated as a secondary funding source for more than 40 projects included in this Plan. Such funding for these projects is speculative. The City and County should have an aggressive program to secure federal and state sources, but should not count on receipt of sufficient funds from these sources to finance the planned improvements.

One project that directly involves a federal highway that does not identify any federal/state funds as the primary funding source is the I-5 interchange anticipated in years 11-20. This project is estimated to cost $1.8 million. Since the interchange is needed to serve proposed new development, the primary funding source at this time is from private development.

There may be other projects in the list of planned improvements that would reduce congestion or otherwise improve traffic flow on state highways because of improvements to the arterial system. The City and County should seek to link such improvements to arterials with improvements on state highways to increase the chances for state funding.

Federal programs authorized by ISTEA pay for selected transportation projects that meet the specific criteria of individual federal programs. To receive ISTEA funding from these programs a project must meet the federal program criteria, and must be included in the current STIP. The City and County should work with Region 3 of ODOT to identify which of the planned improvements included in Chapter 4 would be eligible for ISTEA funds and ensure that these projects are included in ODOT's STIP.

Josephine County Sources

Currently Josephine County does not share funds with the City of Grants Pass for transportation improvements. The County is responsible for maintenance of roadways in the urbanizing area and some roads within the city limits that remain under County jurisdiction. It might seem that the County should fund improvements in the unincorporated areas within the UGB. As a practical matter, the City will need to take a large role (or the lead at times) in funding improvements in this area for several reasons: (1) the County's ability to fund transportation projects is limited by the County's charter restrictions; (2) transportation revenues at the County level are declining (due in part to declining revenue from timber sales); and (3) as the City annexes areas within the UGB, projects currently outside the City limits may be inside the City by the time they are needed, or scheduled for implementation.

The City of Grants Pass and Josephine County occasionally participate in cost sharing on individual projects. There is no on-going formal process to jointly fund transportation improvements; decisions are made on a project-by-project basis. In any case the City and County should work together to develop the best approach to funding needed improvements that serve City and County interests, particularly in the unincorporated area within the UGB.

City of Grants Pass Sources

While federal, state and county funds will continue to be important sources of funding to implement the transportation plan, these sources obviously will not provide sufficient funds for all of the projects included in the plan. Most projects that are expected to be funded through these sources will require local matching funds. City sources will be needed for match, and to pay for improvements that cannot be funded through other sources.

The City of Grants Pass should follow the general strategy for project funding described earlier in this chapter, through careful matching of projects to funding sources so that those who benefit most from the improvements contribute the most to their costs. If property owners are unwilling to contribute to transportation improvements that benefit them (through LID, SDCs or other special assessments) the City must then decide whether to use general funds for the project or whether to eliminate the project.

Projects that serve people throughout the Urban Area can be financed from sources generated throughout the area. This includes existing funding sources or potential new sources tied to the use of the particular transportation improvements.

Private Funding Sources

The City of Grants Pass Development Code and the Josephine County Ordinances require developers to provide right-of-way dedications for public roads that serve the development and require that transportation facilities within the developments meet City and County design standards. The City Code and County Ordinances specify standards for new streets, sidewalks and paths. Private Development is indicated as the primary funding source for 23 of the projects included in Table 4-2. These projects would serve primarily new development areas. The secondary funding sources identified for these projects are mostly LIDs or the County Road Fund. Implementation of these projects is dependent on the development taking place and funding being provided by the private sector.

Local Improvement Districts

A Local Improvement District (LID) is a special governmental entity created to fund a specific project within a specified geographic area. The LID can levy taxes for its support, collect charges for its services and issue debt independently of other governmental units. LIDs typically are formed for the purpose of carrying out local improvements or providing public services for the direct benefit of property owners within the district boundaries and are rarely used for larger transportation projects serving regional traffic.

Over seventy of the projects included in Table 4-2 indicate LIDs as the primary funding source for implementation. The large number of projects and their associated cost, account

for more than 40 percent of the total cost for all of the projects included in this Plan. This is a larger total than for any of the other funding sources listed in Table 4-2. LIDs were selected as the primary potential funding source for these projects because they would serve relatively limited geographic areas. The secondary funding sources identified for these projects include private development, SDCs, County Road Fund and Federal/State funds. While these projects primarily benefit nearby property owners, some of them will have wider impacts and benefits that would justify using funds from these secondary sources.

If all of these projects are to be constructed, it would require revenues of about $1.1 million/year for years 1-10, $2.8 million/year for year 11-20, and $6.1 million per year for years beyond 2015 (assuming five years in this period.) LID funded expenditures were budgeted at $50,000 in FY 1995, and $700,000 in FY 1996. The amount needed to implement the LID type projects included in this Plan for the next ten years far exceeds the level of LID revenue and expenditure in recent years. The level of expenditure indicated for the following decade far exceeds the level of all transportation capital expenditures funded by all revenue sources in the last two years. The level of expenditure needed for LID type expenditures beyond the next two decades is so high that the City will be faced with the choice of either implementing new fees or taxes to pay for the projects or simply doing without them.

System Development Charges (SDCs)

SDCs are fees paid by land developers to governmental entities in association with new development. SDC generated income is used to pay for capital improvements required to serve the new development, such as streets, water lines, and sewer service. Neither the City of Grants Pass nor Josephine County currently collect SDCs for transportation. This Plan does not identify any projects with SDCs as the primary potential funding source, but does identify SDCs as a potential secondary source for several projects, especially projects to be funded through LIDs.

Other Funding Sources

Other funding sources includes special purpose funding that may become available such as grants from the school district or the Grants Pass Parkway Redevelopment Agency. Four of the projects included in Table 4-2 identify the Redevelopment Agency as the primary potential funding source. The Redevelopment Agency would use urban renewal funds generated through a special property tax levied in the redevelopment district to fund these improvements. The secondary sources identified for these projects include LIDs and Private Development. These projects are not anticipated to receive any other local funding.

These four projects (medium and low priority) are estimated to require $550,000 in years 1-10 and $3.3 million in years 11-20.

City of Grants Pass General Funds

Three of the projects included in Table 4-2 identify City General Funds as the primary potential funding source; a secondary funding source was not identified for these projects.

The total estimated cost for these three projects is $522,034; the majority of which is for one of the projects designated as high priority to be constructed within the next ten years.

An additional 14 projects identify City General Funds as a secondary funding source. The City's General Funds will be required to implement these projects as match for outer funds, or to replace funding that may not come for the other identified sources. In addition, there may be additional projects included in Table 4-2 that will require City General Funds if their identified funding sources do not provide sufficient funds for the projects.

The City currently spends $1-1.5 million per year for transportation-related capital construction. In the most optimistic scenario this would be sufficient to meet these identified needs. However, this conclusion is based on several key assumptions, including:

- Projects for which Federal/State is the primary funding source are fully funded from these sources, and the City will not need to provide matching funds. (These projects include the planned Fourth Bridge.)
- The City will implement SDCs, and this revenue source will contribute sufficient revenues to fund those projects identified for this source.
- All transportation projects within new developments are fully funded by private developers, LIDs, and/or SDCs, thus requiring no funds from the General Fund.
- LID funded projects that are not at least 60 percent funded by other sources will not be built; i.e., the City will not provide more than 40 percent of the funding for these projects.
- Projects identified with "Other" as the primary funding source will be fully funded by the school district, the Grants Pass Parkway Redevelopment Agency, or some other source, and will not require General Funds.

If these assumptions hold true, the City may be able to avoid raising additional revenue for transportation. However, it must pursue funding from Federal/State sources aggressively, implement SDCs, require developers to pay for transportation projects associated with new development, and refuse to build projects for which sufficient outside funding cannot be secured. In reality, these assumptions will be extremely difficult to achieve. There are several reasons to question them, as described below.

- Federal and state funding for the Fourth Bridge may be extremely difficult to secure because: (1) this bridge would not be on a federal or state facility; and (2) state and federal funds are limited and highly competitive. Even if federal or state funds become available for this project, a substantial local contribution would be required as match. This is an important project for the Urban Area. It is designated as High Priority and scheduled for implementation between 2006 and 2015.
- Developers and property owners may resist paying for transportation improvements and apply political pressure to use other sources to fund projects they want. The City may find it difficult to avoid using General Fund revenues to build some of the projects indicated to be funded from private sources such as SDCs, LIDs and Private Development.

- Increasing maintenance needs and inflation will erode the spending power of funds available for capital improvements for the transportation system. As the system ages, and as it expands to include new facilities, maintenance costs will increase faster than inflation. As maintenance costs increase, they may consume a larger proportion of the total funds available for transportation, thus reducing the amount available for capital improvements.

Currently there are no funding programs administered through the State that provide funds for new bridge construction. To secure federal funding, the Fourth Bridge project would need to be specifically funded by Congress as a special project when it reauthorizes the ISTEA legislation. Congressionally mandated project funding is highly speculative at this time. Even if Congress would authorize funds for this project, these funds would not cover the full costs. Additional City and County General Funds probably would be required, and the amount is likely to be substantial

The possibility for state funding may be slightly better since the Fourth Bridge may help traffic conditions on other state facilities (i.e. 6th and 7th Street through the downtown core.) However, state funds are very limited and the list of projects applying for these funds is long. In any case the City and County need to participate in ODOT's process to develop and update the STIP (Statewide Transportation Improvement Program.) to secure state funding for this project.

The Fourth Bridge is an important project for the area (designated as high priority) to be constructed sometime between 2006 and 2015. It is an expensive project, estimated to cost $16 million in 1995 dollars. The most optimistic assumption is that federal and state funds would contribute 80 percent of the cost, which would require a local match of $3.2 million. A more pessimistic assumption is that federal and state funds could contribute less than half of the costs. This represents a major difficulty for the City and County to raise the funds needed to implement the project. Even if the project were financed through bonds, the City and County would have to have some new revenue source to generate funds to pay off the bonds.

Additional Revenue Sources for Transportation Plan Implementation

In summary, it is likely that the City of Grants Pass and Josephine County will have to find additional funding sources that will generate substantial amounts of revenue in order to implement this Transportation Plan. It is unlikely that sufficient federal, state, private, and other funds will be available to finance the projects indicated for funding from these identified sources. The level of expenditure needed to implement the planned system improvements and the long list of urban upgrades is way beyond the historical level of expenditure for the City, County and State for transportation purposes in this area.

In general, the City and County should seek revenue sources that charge travelers based on their use of the transportation system. However, it is difficult, if not impossible, to determine appropriate charges and to implement them successfully. Consequently the City and County

will need to look at revenue sources collected from the general population (residents and visitors) that are less directly tied to transportation usage.

System Development Charges (SDC)

It is recommended that the City of Grants Pass and Josephine County adopt an SDC program for transportation, which is sometimes referred to as Transportation Impact Fees (TIF). These types of charges are widely used in Oregon, and elsewhere, to help to finance transportation improvements needed to support new development. The national average for TIFs is $1,329/residential unit. In 1994 Grants Pass issued 190 permits for new residential units (159 single family residences, 23 duplexes, and eight for apartment buildings.) Using the national average, local TIFs would have generated over $250,000 for the City. Once it is established, a TIF program could be indexed to inflation or some other measure to ensure that it kept up with costs.

Local Street Utility

Even with a TIF, additional funding sources will be needed for the City and County. There are numerous projects that need to be implemented that are not related to new development and could not be funded through SDCs. Another possibility is to create a Street Utility. The utility could charge property owners a fee based on the amount of transportation "consumed" by the residence or business (possibly based on national trip generation rates for different types of land development). It might even be possible to charge "hook up" fees for new development.

As an example, a fee of $2/month for each residential household, plus some charge to commercial properties could generate $300,000 to $400,000 annually for the City of Grants Pass. Revenue from this source would increase as the number of households and businesses increased, and it could be indexed to increase with inflation. In spite of the fact that this a fee based on use (rather than a general local tax) street utilities are not popular and are difficult to implement.

The City of Grants Pass and Josephine County will participate in the study of a transportation utility for the purpose of financing the development and maintenance of streets and storm drains within the above jurisdictions. The user fees are to be based on the number of parking spaces per unit of development with a minimum of one per living or commercial unit.

Local Option Gas Tax

Implementing a "local option" gas tax appears politically attractive because it charges travelers (presumably in some proportion to their use), places some of the transportation financing burden on non-residents, and a 1-2 cent/gallon gas tax probably would have little effect on the profits for local gasoline dealers. This revenue source could generate about $140,000/year for each penny of tax. It is relatively easy to administer, does not cost much to collect, and provides a long term stable funding source.

However, a local option gas tax may require county-wide voter approval. Almost every proposed local option gas tax in Oregon has been defeated by voters. Given the general anti-tax sentiment in Josephine County, a local option gas tax would be a "hard sell" at the polls.

Transportation System Tolls

Another possible funding source is to levy tolls to directly charge users of specific facilities. This is particularly applicable to bridges, and should be considered for a Fourth Bridge. If a toll were applied to a new bridge, it would have to be applied to all river crossings so that travelers would not simply use the "free" facility in order to avoid paying a toll on the new facility. Based on 1994 average daily traffic on the 6th/7th Street bridged over the Rogue River (41,600), a 25 cent toll would generate over $3 million annually (charging travelers in both directions). There are legal issues to be explored (especially whether a toll could be imposed on an existing state facility (6th and 7th Streets), as well as a thorough economic analysis to determine the relative merit of a toll. Such analysis should certainly be included in any future work related to the Fourth Bridge.

Local Property Tax

As a last resort the City and County may want to explore the use of property tax revenue to pay for improvements directly or to be used to pay off bonds issues to cover transportation improvement costs. Given the projected population growth in the Grants Pass Urban Area, there will be many competing demands for use of property tax revenue. The City and County will need to assess their overall needs for property tax revenues and the best way to allocate such resources.

General Obligation Bonds could be used to pay for transportation improvements. These bonds could be backed by existing revenue sources or by some new tax. GO bonds would require voter approval. There are several reasons why they may have a better chance of winning voter approval than some of the other revenue sources described above, including:

- GO bonds could rely on existing tax revenue rather than requiring a new tax source;
- GO bonds would be tied to a specific package of projects that the public could support, while other fees and taxes would not be directly tied to identified and approved projects (i.e. the voter would see what they are buying in advance).

Washington County has passed three bond levies to fund specific transportation improvements; the most recent levy funded a package of projects with a total cost of $130 million.

Summary of Transportation Funding Options

Governments at all levels are under pressure to maintain current levels of service without raising taxes. If the City and County are to implement the transportation improvements included in the Master Transportation Plan they will need do several things, including:

- Aggressively pursue federal and state funding for transportation improvements;

- Require that developers provide infrastructure improvements within new development and pay for improvements to the surrounding transportation system necessitated by the impact of new development;
- Charge property owners for transportation improvements that benefit their properties;
- Refuse to build projects which do not have sufficient funding from federal, state, private and other sources (as indicated in the financing options in Table 4-2 of this Plan); and
- Consider implementation of additional local funding sources to pay for the substantial list of transportation improvements identified for the Grants Pass Urban Area.

APPENDIX A: OREGON TRANSPORTATION PLANNING RULE

Adopted Amendments to the Transportation Planning Rule
September 11, 1995

Note: Adopted amendments are shown in bold for new language and deletions are in brackets.

Requirement for Reduced System Development Charges (SDCs) for Bicycle Pedestrian and Transit Friendly Developments

OAR 660-12-040(6) has been deleted:

[(6) Local governments which have or adopt impact fees or system development charges to fund construction of improvements to transportation facilities shall establish lesser fees or charges for developments located in transit-oriented developments, pedestrian districts, and other developments which, through enhanced pedestrian, bicycle or transit facilities or related design features, or demand management measures, are demonstrated to reduce vehicle trip generation.]

Requirement for Bikeways on Arterial and Major Collector Streets

OAR 660-12-045(3)(b)(B) is amended as follows:

(B) **Bikeways shall be required along arterials and major collectors.** Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways.

1995 Amendments

This version of the Transportation Planning Rule (TPR) shows amendments to the rule adopted by the Land Conservation and Development Commission in March and April 1995. New language added to the rule is shown in **bold**. Deletions are shown in brackets.

DIVISION 12

660-12-000 Purpose

The purpose of this division is to implement Statewide Planning Goal 12 (Transportation). It is also the purpose of this division to explain how local governments and state agencies responsible for transportation planning demonstrate compliance with other statewide planning goals and to identify how transportation facilities are provided on rural lands consistent with the goals. The division sets requirements for coordination among affected levels of government for preparation, adoption, refinement, implementation and amendment of transportation system plans. Transportation system plans adopted pursuant to this division fulfill the requirements for public facilities planning required under ORS 197.712(2)(c), Goal 11 and OAR Chapter 660, Division 11, as they relate to transportation facilities. Through measures designed to reduce reliance on the automobile, the rule is also intended to asure that the planned transportation system supports a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country. The rules in this Division are not intended to make local government determinations "land use decisions" under ORS 197.015(10). The rules recognize, however, that, under existing statutory and case law, many determinations relating to the adoption and implementation of transportation plans will be land use decisions.

660-12-005 Definitions

For the purposes of this division, the definitions in ORS 197.015, the Statewide Planning Goals and OAR Chapter 660 shall apply. In addition the definitions listed below shall apply.

(1) Access Management: means measures regulating access to streets, roads and highways from public roads and private driveways. Measures may include but are not limited to restrictions on the siting of interchanges, restrictions on the type and amount of access to roadways, and use of physical controls, such as signals and channelization including raised medians, to reduce impacts of approach road traffic on the main facility.

(2) Accessway: means a walkway that provides pedestrian and or bicycle passage either between streets or from a street to a building or other destination such as a school, park, or transit stop. Accessways generally include a walkway and additional land on either side of the walkway, often in the form of an easement or right-of-way, to provide clearance and separation between the walkway and adjacent uses. Accessways through parking lots are generally physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices and include landscaping, trees and lighting. Where accessways cross driveways, they are generally raised, paved or marked in a manner which provides convenient access for pedestrians.

([2]3) Affected local government: means a city, county or metropolitan service district that is directly impacted by a proposed transportation facility or improvement.

(4) At or near a major transit stop: "At" means a parcel or ownership which is adjacent to or includes a major transit stop generally including portions of such parcels or ownerships that are within 200 feet of a transit stop. "Near" generally means a parcel or ownership that is within 300 feet of a major transit stop. The term "generally" is intended to

allow local governments through their plans and ordinances to adopt more specific definitions of these terms considering local needs and circumstances consistent with the overall objective and requirement to provide convenient pedestrian access to transit.

([3]5) Committed Transportation Facilities: means those proposed transportation facilities and improvements which are consistent with the acknowledged comprehensive plan and have approved funding for construction in a public facilities plan or the Six-Year Highway or Transportation Improvement Program.

([4]6) Demand Management: means actions which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity. Methods may include but are not limited to the use of alternative modes, ride-sharing and vanpool programs, and trip-reduction ordinance.

(7) Local Street Standards: include but are not limited to standards for right-of-way, pavement width, travel lanes, parking lanes, curb turning radius, and accessways.

([5]8) Major: means, in general, those facilities or developments which, considering the size of the urban or rural area and the range of size, capacity or service level of similar facilities or developments in the area, are either larger than average, serve more than neighborhood needs or have significant land use or traffic impacts on more than the immediate neighborhood.

"Major" as it modifies transit corridors, stops, transfer stations and new transportation facilities means those facilities which are most important to the functioning of the system or which provide a high level, volume or frequency of service.

"Major" as it modifies industrial, institutional and retail development means such developments which are larger than average, serve more than neighborhood needs or which have traffic impacts on more than the immediate neighborhood.

Application of the term "major" will vary from area to area depending upon the scale of transportation improvements, transit facilities and development which occur in the area. A facility considered to be major in a smaller or less densely developed area may, because of the relative significance and impact of the facility or development, not be considered a major facility in a larger or more densely developed area with larger or more intense development or facilities.

(9) "Major transit stop" means:

(a) Existing and planned light rail stations and transit transfer stations, except for temporary facilities,

(b) Other planned stops designated as major transit stops in a transportation system plan and existing stops which:

(A) Have or are planned for an above average frequency of scheduled, fixed-route service when compared to region wide service. In urban areas of 1,000,000 or more population major transit stops are generally located along routes that have or are planned for 20 minute service during the peak hour; and

(B) Are located in a transit oriented development or within 1/4 mile of an area planned and zoned for:

(i) medium or high density residential development; or,

(ii) intensive commercial or institutional uses within 1/4 mile of (i); or

(iii) uses likely to generate a relatively high level of transit ridership.

([6]10) Metropolitan Planning Organization (MPO): an organization located within the State of Oregon and designated by the Governor to coordinate transportation planning in an urbanized area of the state including such designations made subsequent to the adoption of this rule. The Longview-Kelso-Rainier MPO is not considered an MPO for the purposes of this rule.

([7]11) ODOT: means the Oregon Department of Transportation.

([8]12) Parking spaces: means on and off street spaces designated for automobile parking in areas planned for industrial, commercial,

institutional or public uses. The following are not considered parking spaces for the purposes of 660-12-045(5)(c): park and ride lots, handicapped parking, and parking spaces for carpools and vanpools.

(13) Pedestrian connection: means a continuous, unobstructed, reasonably direct route between two points that is intended and suitable for pedestrian use. Pedestrian connections include but are not limited to sidewalks, walkways, accessways, stairways and pedestrian bridges. On developed parcels, pedestrian connections are generally hard surfaced. In parks and natural areas, pedestrian connections may be soft-surfaced pathways. On undeveloped parcels and parcels intended for redevelopment, pedestrian connections may also include rights of way or easements for future pedestrian improvements.

(14) Pedestrian district: means a comprehensive plan designation or implementing land use regulations, such as an overlay zone, that establish requirements to provide a safe and convenient pedestrian environment in an area planned for a mix of uses likely to support a relatively high level of pedestrian activity. Such areas include but are not limited to:

(a) Lands planned for a mix of commercial or institutional uses near lands planned for medium to high density housing, or,

(b) Areas with a concentration of employment and retail activity, and;

(c) Which have or could develop a network of streets and accessways which provide convenient pedestrian circulations.

(15) Pedestrian plaza: means a small semi-enclosed area usually adjoining a sidewalk or a transit stop which provides a place for pedestrians to sit, stand or rest. They are usually paved with concrete, pavers, bricks or similar material and include seating, pedestrian scale lighting and similar pedestrian improvements. Low walls or planters and landscaping are usually provided to create a semi-enclosed space and to buffer and separate the plaza from adjoining parking lots and vehicle maneuvering areas. Plazas are generally located at a transit stop, building entrance or an intersection and connect directly to adjacent sidewalks, walkways, transit stops and buildings. A plaza including 150-250 square feet would be considered "small".

(16) Pedestrian scale: means site and building design elements that are dimensionally less than those intended to accommodate automobile traffic, flow and buffering. Examples include ornamental lighting of limited height; bricks, pavers or other modules of paving with small dimensions; a variety of planting and landscaping materials; arcades or awnings that reduce the height of walls; and signage and signpost details that can only be perceived from a short distance.

([9]17) Planning Period: means the twenty year period beginning with the date of adoption of a TSP to meet the requirements of this rule.

([10]18) Preliminary Design: means an engineering design which specifies in detail the location and alignment of a planned transportation facility or improvement.

(19) Reasonably direct: means either a route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.

([11]20) Refinement Plan: an amendment to the transportation system plan, which resolves, at a systems level, determinations on function, mode or general location which were deferred during transportation system planning because detailed information needed to make those determinations could not reasonably be obtained during that process.

([12]21) Roads: means streets, roads and highways.

([13]22) Transit-oriented development (TOD): means a mix of residential, retail and office uses and a supporting network of roads, bicycle and pedestrian ways focused on a major transit stop designed to support a high level of transit use. The key features of transit oriented development include:

(a) a mixed use center at the transit stop, oriented principally to transit riders and pedestrian and bicycle travel from the surrounding area;

(b) high density of residential development proximate to the transit stop sufficient to support transit operation and neighborhood commercial uses within the TOD.

(c) a network of roads, and bicycle and pedestrian paths to support high levels of pedestrian access within the TOD and high levels of transit use.

([14]23) Transportation facilities: means any physical facility that moves or assists in the movement of people and goods including facilities identified in 660-12-020 but excluding electricity, sewage and water systems.

([15]24) Transportation system management measures: means techniques for increasing the efficiency, safety, capacity or level of service of a transportation facility without increasing its size. Examples include, but are not limited to, traffic signal improvements, traffic control devices including installing medians and parking removal, channelization, access management, ramp metering, and restriping for high occupancy vehicle (HOV) lanes.

([16]25) Transportation Needs: means estimates of the movement of people and goods consistent with acknowledged comprehensive plan and the requirements of this rule. Needs are typically based on projections of future travel demand resulting from a continuation of current trends as modified by policy objectives, including those expressed in Goal 12 and this rule, especially those for avoiding principal reliance on any one mode of transportation.

([17]26) Transportation Needs, Local: means needs for movement of people and goods within communities and portions of counties and the need to provide access to local destinations.

([18]27) Transportation Needs, Regional: means needs for movement of people and goods between and through communities and accessibility to regional destinations within a metropolitan area, county or associated group of counties.

([19]28) Transportation Needs, State: means needs for movement of people and goods between and through regions of the state and between the state and other states.

([20]29) Transportation Project Development: means implementing the transportation system plan (TSP) by determining the precise location, alignment, and preliminary design of improvements included in the TSP based on site-specific engineering and environmental studies.

([21]30) Transportation Service: means a service for moving people and goods, such as intercity bus service and passenger rail service.

([22]31) Transportation System Plan (TSP): means a plan for one or more transportation facilities that are planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas.

([23]32) Urban Area: means lands within an urban growth boundary or two or more contiguous urban growth boundaries.

([24]33) Urban fringe: means (a) Areas outside the urban growth boundary that are within 5 miles of the urban growth boundary of an MPO area; and (b) Areas outside the urban growth boundary within 2 miles of the urban growth boundary of an urban area containing a population greater than 25,000.

(34) Walkway: means a hard surfaced area intended and suitable for use by pedestrians, including sidewalks and surfaced portions of accessways.

660-12-010 Transportation Planning

(1) As described in this division, transportation planning shall be divided into two phases: transportation system planning and transportation project development. Transportation system planning establishes land use controls and a network of facilities and services to meet overall transportation needs. Transportation project development implements the TSP by determining the precise location, alignment, and preliminary design of improvements included in the TSP.

(2) It is not the purpose of this division to cause duplication of or to supplant existing applicable transportation plans and programs. Where all or part of an acknowledged comprehensive plan, TSP either of the local government or appropriate special district, capital improvement program, regional functional plan, or similar plan or combination of plans meets all or some of the requirements of this division, those plans or programs may be incorporated by reference into the TSP required by this division. Only those referenced portions of such documents shall be considered to be a part of the TSP and shall be subject to the administrative procedures of this division and ORS Chapter 197.

(3) It is not the purpose of this division to limit adoption or enforcement of measures to provide convenient bicycle and pedestrian circulation or convenient access to transit that are otherwise consistent with the requirements of this division.

660-12-015 Preparation and Coordination of Transportation System Plans

(1) ODOT shall prepare, adopt and amend a state TSP in accordance with ORS 184.618, its program for state agency coordination certified under ORS 197.180, and OAR 660-12-030, 035, 050, 065 and 070. The state TSP shall identify a system of transportation facilities and services adequate to meet identified state transportation needs.

(a) The state TSP shall include the state transportation policy plan, modal systems plans and transportation facility plans as set forth in OAR 731, Division 15.

(b) State transportation project plans shall be compatible with acknowledged comprehensive plans as provided for in OAR 731, Division 15. Disagreements between ODOT and affected local governments shall be resolved in the manner established in that division.

(2) MPOs and counties shall prepare and amend regional TSPs in compliance with this division. MPOs shall prepare regional TSPs for facilities of regional significance within their jurisdiction. Counties shall prepare regional TSPs for all other areas and facilities.

(a) Regional TSPs shall establish a system of transportation facilities and services adequate to meet identified regional transportation needs and shall be consistent with adopted elements of the state TSP.

(b) Where elements of the state TSP have not been adopted, the MPO or county shall coordinate the preparation of the regional TSP with ODOT to assure that state transportation needs are accommodated.

(c) Regional TSPs prepared by MPOs other than metropolitan service districts shall be adopted by the counties and cities within the jurisdiction of the MPO. Metropolitan service districts shall adopt a regional TSP for areas within their jurisdiction.

(d) Regional TSPs prepared by counties shall be adopted by the county.

(3) Cities and counties shall prepare, adopt and amend local TSPs for lands within their planning jurisdiction in compliance with this division.

(a) Local TSPs shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP.

(b) Where the regional TSP or elements of the state TSP have not been adopted, the city or county shall coordinate the preparation of the local TSP with the regional transportation planning body

and ODOT to assure that regional and state transportation needs are accommodated.

(4) Cities and counties shall adopt regional and local TSPs required by this division as part of their comprehensive plans. Transportation financing programs required by OAR 660-12-040 may be adopted as a supporting document to the comprehensive plan.

(5) The preparation of TSPs shall be coordinated with affected state and federal agencies, local governments, special districts, and private providers of transportation services.

(6) Mass transit, transportation, airport and port districts shall participate in the development of TSPs for those transportation facilities and services they provide. These districts shall prepare and adopt plans for transportation facilities and services they provide. Such plans shall be consistent with and adequate to carry out relevant portions of applicable regional and local TSPs. Cooperative agreements executed under ORS 197.185(2) shall include the requirement that mass transit, transportation, airport and port districts adopt a plan consistent with the requirements of this section.

(7) Where conflicts are identified between proposed regional TSPs and acknowledged comprehensive plans, representatives of affected local governments shall meet to discuss means to resolve the conflicts. These may include:

(a) Changing the draft TSP to eliminate the conflicts; or

(b) Amending acknowledged comprehensive plan provisions to eliminate the conflicts;

For MPOs which are not metropolitan service districts, if conflicts persist between regional TSPs and acknowledged comprehensive plans after efforts to achieve compatibility, an affected local government may petition the Commission to resolve the dispute.

660-12-020 Elements of Transportation System Plans

(1) A TSP shall establish a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs.

(2) The TSP shall include the following elements:

(a) A determination of transportation needs as provided in 660-12-030.

(b) A road plan for a [network] system of arterials and collectors **and standards for the layout of local streets and other important non-collector street connections.** Functional classifications of roads in regional and local TSPs shall be consistent with functional classifications of roads in state and regional TSPs and shall provide for continuity between adjacent jurisdictions. **The standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-12-045(3)(b). New connections to arterials and state highways shall be consistent with designated access management categories. The intent of this requirement is to provide guidance on the spacing of future extensions and connections along existing and future streets which are needed to provide reasonably direct routes for bicycle and pedestrian travel. The standards for the layout of local streets shall address:**

(A) Extensions of existing streets;

(B) Connections to existing or planned streets, including arterials and collectors; and

(C) Connections to neighborhood destinations.

(c) A public transportation plan which:

(A) Describes public transportation services for the transportation disadvantaged and identifies service inadequacies.

(B) Describes intercity bus and passenger rail service and identifies the location of terminals

(C) For areas within an urban growth boundary which have public transit service, identifies existing and planned transit trunk routes, exclusive transit ways, terminals and major transfer stations, **major transit stops, and park-and-ride stations. Designation of stop or station locations may allow for minor adjustments in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.**

(D) For areas within an urban area containing a population greater than 25,000 persons, not currently served by transit, evaluates the feasibility of developing a public transit system at buildout. Where a transit system is determined to be feasible, the plan shall meet the requirements of subsection 2(c)(C) of this section.

(d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514.

(e) An air, rail, water and pipeline transportation plan which identifies where public use airports, mainline and branchline railroads and railroad facilities, port facilities, and major regional pipelines and terminals are located or planned within the planning area. For airports, the planning area shall include all areas within airport imaginary surfaces and other areas covered by state or federal regulations.

(f) For areas within an urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management.

(g) A parking plan in MPO areas as provided in 660-12-045(5)(c).

(h) Policies and land use regulations for implementing the TSP as provided in 660-12-045.

(i) For areas within an urban growth boundary containing a population greater than 2500 persons, a transportation financing program as provided in 660-12-040.

(3) Each element identified in subsection (2)(b)-(d) of this section shall contain:

(a) An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition.

(A) The transportation capacity analysis shall include information on:

(i) The capacities of existing and committed facilities;

(ii) The degree to which those capacities have been reached or surpassed on existing facilities; and,

(iii) The assumptions upon which these capacities are based.

(B) For state and regional facilities, the transportation capacity analysis shall be consistent with standards of facility performance considered acceptable by the affected state or regional transportation agency.

(C) The transportation facility condition analysis shall describe the general physical and operational condition of each transportation facility (e.g. very good, good, fair, poor, very poor).

(b) A system of planned transportation facilities, services and major improvements. The system shall include a description of the type or functional classification of planned facilities and services and their planned capacities and levels of service.

(c) A description of the location of planned facilities, services and major improvements, establishing the general corridor within which the facilities, services or improvements may be sited. This shall include a map showing the general location of proposed transportation improvements, a description of facility parameters such as minimum and maximum road right of way width and the number and size of lanes, and any other additional description that is appropriate.

(d) Identification of the provider of each transportation facility or service.

660-12-025. Complying with the Goals in Preparing Transportation System Plans; Refinement Plans

(1) Except as provided in subsection (3) of this section, adoption of a TSP shall constitute the land use decision regarding the need for transportation facilities, services and major improvements and their function, mode, and general location.

(2) Findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies and land use regulations shall be developed in conjunction with the adoption of the TSP.

(3) A local government or MPO may defer decisions regarding function, general location and mode of a refinement plan if findings are adopted which:

(a) Identify the transportation need for which decisions regarding function, general location or mode are being deferred;

(b) Demonstrate why information required to make final determinations regarding function, general location, or mode cannot reasonably be made available within the time allowed for preparation of the TSP;

(c) Explain how deferral does not invalidate the assumptions upon which the TSP is based or preclude implementation of the remainder of the TSP;

(d) Describe the nature of the findings which will be needed to resolve issues deferred to a refinement plan; and

(e) Demonstrate that the refinement effort will be completed within three years or prior to initiation of the periodic review following adoption of the TSP.

(4) Where a Corridor Environmental Impact Statement (EIS) is prepared pursuant to the requirements of the National Environmental Policy Act of 1969, the development of the refinement plan shall be coordinated with the preparation of the Corridor EIS. The refinement plan shall be adopted prior to the issuance of the Final EIS.

660-12-030 Determination of Transportation Needs

(1) The TSP shall identify transportation needs relevant to the planning area and the scale of the transportation network being planned including:

(a) State, regional, and local transportation needs.

(b) Needs of the transportation disadvantaged.

(c) Needs for movement of goods and services to support industrial and commercial development planned for pursuant to OAR 660-09 and Goal 9 (Economic Development).

(2) Counties or MPOs preparing regional TSPs shall rely on the analysis of state transportation needs in adopted elements of the state TSP. Local governments preparing local TSPs shall rely on the analyses of state and regional transportation needs in adopted elements of the state TSP and adopted regional TSPs.

(3) Within urban growth boundaries, the determination of local and regional transportation needs shall be based upon:

(a) Population and employment forecasts and distributions which are consistent with the acknowledged comprehensive plan, including those policies which implement Goal 14, including Goal 14's requirement to encourage urban development on urban lands prior to conversion of urbanizable lands. Forecasts and distributions shall be for 20 years and, if desired, for longer periods.

(b) Measures adopted pursuant to 660-12-045 to encourage reduced reliance on the automobile.

(4) In MPO areas, calculation of local and regional transportation needs also shall be based upon accomplishment of the requirement in 660-12-035(4) to reduce reliance on the automobile.

660-12-035 Evaluation and Selection of Transportation System Alternatives

(1) The TSP shall be based upon evaluation of potential impacts of system alternatives that can reasonably be expected to meet the identified transportation needs in a safe manner and at a reasonable cost with available technology. The following shall be evaluated as components of system alternatives:

(a) Improvements to existing facilities or services;

(b) New facilities and services, including different modes or combinations of modes that could reasonably meet identified transportation needs;

(c) Transportation system management measures;

(d) Demand management measures; and

(e) A no-build system alternative required by the National Environmental Policy Act of 1969 or other laws.

(2) Local governments in MPO areas of larger than 1,000,000 population shall and other governments may also evaluate alternative land use designations, densities and design standards to meet local and regional transportation needs. Local governments preparing such a strategy shall consider:

(a) Increasing residential densities and establishing minimum residential densities within one quarter mile of transit lines, major regional employment areas and major regional retail shopping areas;

(b) Increasing densities (i.e. minimum floor area ratios) in new commercial office and retail developments;

(c) Designating lands for neighborhood shopping centers within convenient walking and cycling distance of residential areas;

(d) Designating land uses to provide a better balance between jobs and housing considering:

(A) The total number of jobs and total of number of housing units expected in the area or subarea;

(B) The availability of affordable housing in the area or subarea; and,

(C) Provision of housing opportunities in close proximity to employment areas.

(e) Establishing maximum parking limits for office and institutional developments consistent with 660-12-045(5)(c) which reduce the amount of parking available at such developments.

(3) The following standards shall be used to evaluate and select alternatives:

(a) The transportation system shall support urban and rural development by providing types and levels of transportation facilities and services appropriate to serve the land uses identified in the acknowledged comprehensive plan.

(b) The transportation system shall be consistent with state and federal standards for protection of air, land and water quality including the State Implementation Plan under the Federal Clean Air Act and the State Water Quality Management Plan;

(c) The transportation system shall minimize adverse economic, social, environmental and energy consequences.

(d) The transportation system shall minimize conflicts and facilitate connections between modes of transportation.

(e) The transportation system shall avoid principal reliance on any one mode of transportation and shall reduce principal reliance on the automobile In MPO areas this shall be

accomplished by selecting transportation alternatives which meet the requirements in 660-12-035(4).

(4) In MPO areas, regional and local TSPs shall be designed to achieve the following objectives for reducing automobile vehicle miles travelled (VMT) per capita for the MPO area:

(a) No increase within 10 years of adoption of a plan as required by OAR 660-12-055(1);

(b) A 10% reduction within 20 years of adoption of a plan as required by OAR 660-12-055(1); and,

(c) Through subsequent planning efforts, a 20% reduction within 30 years of adoption of a plan as required by OAR 660-12-055(1).

(5) Regional TSPs shall specify measurable objectives for each of the following and demonstrate how the combination selected will accomplish the objectives in subsection 4:

(a) An increase in the modal share of non-automobile trips (i.e. transit, bicycle, pedestrian); for example, a doubling of the modal share of non-automobile trips;

(b) An increase in average automobile occupancy (i.e. persons per vehicle) during; for example, an increase to an average of 1.5 persons per vehicle; and,

(c) Where appropriate, a decrease in the number or length of automobile vehicle trips per capita due to demand management programs, rearranging of land uses or other means.

(6) Regional and local TSPs shall include interim benchmarks to assure satisfactory progress towards meeting the requirements of this section at five year intervals over the planning period. MPOs and local governments shall evaluate progress in meeting interim benchmarks at five year intervals from adoption of the regional and local TSPs. Where interim benchmarks are not met, the relevant TSP shall be amended to include new or additional efforts adequate to meet the requirements of this section.

(7) The Commission shall, at five year intervals from the adoption of this rule, evaluate the results of efforts to achieve the reduction in VMT and the effectiveness of the standard in achieving the objective of reducing reliance on the automobile. **This shall include evaluating the requirements for parking plans and a reduction in the number of parking spaces per capita.**

(8) Where existing and committed transportation facilities and services have adequate capacity to support the land uses in the acknowledged comprehensive plan, the local government shall not be required to evaluate alternatives as provided in this section.

(9) Transportation uses or improvements listed in OAR 660-12-065(3(d) to (g) and (o) and located in an urban fringe may be included in a TSP only if the improvement project identified in the Transportation System Plan as described in section (11) of this rule, will not significantly reduce peak hour travel time for the route as determined pursuant to subsection (10) of this rule, or the jurisdiction determines that the following alternatives can not reasonably satisfy the purpose of the improvement project:

(a) Improvements to transportation facilities and services within the urban growth boundary;

(b) Transportation system management measures that do not significantly increase capacity; or

(c) Transportation demand management measures. The jurisdiction needs only to consider alternatives that are safe and effective, consistent with applicable standards and that can be implemented at a reasonable cost using available technology.

(10) An improvement project significantly reduces peak hour travel time when, based on recent data, the time to travel the route is reduced more than 15% during weekday peak hour conditions over the length of the route located within the urban fringe. For purposes of measuring travel time, a route shall

be identified by the predominant traffic flows in the project area.

(11) A "transportation improvement project" described in subsection (9) of this rule:

(a) Is intended to solve all of the reasonably foreseeable transportation problems within a general geographic location, within the planning period; and

(b) Has utility as an independent transportation project.

660-12-040 Transportation Financing Program

(1) For areas within an urban growth boundary containing a population greater than 2,500 persons, the TSP shall include a transportation financing program.

(2) A transportation financing program shall include:

(a) A list of planned transportation facilities and major improvements;

(b) A general estimate of the timing for planned transportation facilities and major improvements.

(c) Determination of rough cost estimates for the transportation facilities and major improvements identified in the TSP.

(3) The determination of rough cost estimates is intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan and allow jurisdictions to assess the adequacy of existing and possible alternative funding mechanisms. In addition to including rough cost estimates for each transportation facility and major improvement, the transportation financing plan shall include a discussion of the facility provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each transportation facility and major improvement. These funding mechanisms may also be described in terms of general guidelines or local policies.

(4) Anticipated timing and financing provisions in the transportation financing program are not considered land use decisions as specified in ORS 197.712(2)(e) and, therefore, cannot be the basis of appeal under ORS 197.610(1) and (2) or ORS 197.835(4).

(5) The transportation financing program shall implement comprehensive plan policies which provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities which would cause premature development of urbanizable areas or conversion of rural lands to urban uses.

(6) Local governments which have or adopt impact fees or system development charges to fund improvements to transportation facilities shall establish lesser fees or charges for developments located in transit-oriented developments, pedestrian districts, and other developments which, through enhanced pedestrian, bicycle or transit facilities or related design features, or demand management measures, are demonstrated to reduce vehicle trip generation.

660-12-045 Implementation of the Transportation System Plan

(1) Each local government shall amend its land use regulations to implement the TSP.

(a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use:

(A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals;

(B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and

objective dimensional standards;

(C) Uses permitted outright under ORS 215.213(1)(m) through (p) and ORS 215.283(1)(k) through (n), consistent with the provisions of 660-12-065; and,

(D) Changes in the frequency of transit, rail and airport services.

(b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment.

(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with 660-12-050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.

(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:

(a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;

(b) Standards to protect future operation of roads, transitways and major transit corridors;

(c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation.

(d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;

(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites.

(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of:

(A) Land use applications that require public hearings;

(B) Subdivision and partition applications;

(C) Other applications which affect private access to roads; and

(D) Other applications within airport noise corridors and imaginary surfaces which affect airport operations.

(g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and levels of service of facilities identified in the TSP.

(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities [to require:] **as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.**

(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional

developments, and all transit transfer stations and park and ride lots.

(b) [Facilities providing safe and convenient pedestrian and bicycle access within and from new subdivisions, planned developments, shopping centers and industrial parks to nearby residential areas, transit stops, and neighborhood activity centers, such as schools, parks and shopping. This shall include:] **On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.**

(A) [Sidewalks along arterials and collectors in urban areas;] **"Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers.**

(B) [Bikeways along arterials and major collectors;] **Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways.**

(C) [Where appropriate, separate bike or pedestrian ways to minimize travel distances within and between the areas and developments listed above.] **Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section.**

(D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel.

(E) Streets and accessways need not be required where one or more of the following conditions exist:

(i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided.

(ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or

(iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995 which preclude a required street or accessway connection.

(c) Where off site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors.

([c]d) For purposes of subsection (b) "safe[,] and convenient [and adequate]" means bicycle and pedestrian routes, facilities and improvements which:

(A) Are reasonably free from hazards, particularly types or levels of automobile traffic which would interfere with or discourage pedestrian or cycle travel for short trips.

(B) Provide a reasonably direct route of travel between destinations such as between a transit stop and a store; and,

(C) Meet travel needs of cyclists and pedestrians considering destination and length of trip; **and considering that the optimum trip length of pedestrians is generally 1/4 to 1/2 mile.**

([d]e) [Provision of i]Internal pedestrian circulation [in] within new office parks and commercial developments shall be provided

through clustering of buildings, construction of [pedestrian ways, skywalks, where appropriate,] accessways, walkways and similar techniques.

(4) To support transit in urban areas containing a population greater than 25,000, where the area is already served by a public transit system or where a determination has been made that a public transit system is feasible, local governments shall adopt land use and subdivision regulations [to require:] as provided in (a)-(f) below.

(a) [Design of t]Transit routes and transit facilities shall be designed to support transit use through provision of bus stops, pullouts and shelters, optimum road geometrics, on-road parking restrictions and similar facilities, as appropriate.

(b) New retail, office and institutional buildings at or near [existing or planned] major transit stops [to] shall provide for [preferential] convenient pedestrian access to transit through the [following] measures[:] listed in (A) and (B) below.

(A) [Orienting building entrances to the transit stop or station;] Walkways shall be provided connecting building entrances and streets adjoining the site.

(B) [Clustering buildings around transit stops; and,] Pedestrian connections to adjoining properties shall be provided except where such a connection is impracticable as provided for in OAR 660-12-045(3)(b)(E). Pedestrian connections shall connect the on site circulation system to existing or proposed streets, walkways, and driveways that abut the property. Where adjacent properties are undeveloped or have potential for redevelopment, streets, accessways and walkways on site shall be laid out or stubbed to allow for extension to the adjoining property.

(C) [Locating buildings as close as possible to transit stops.]In addition to (A) and (B) above, on sites at major transit stops provide the following:

(i) Either locate buildings within 20 feet of the transit stop, a transit street or an intersecting street or provide a pedestrian plaza at the transit stop or a street intersection;

(ii) A reasonably direct pedestrian connection between the transit stop and building entrances on the site;

(iii) A transit passenger landing pad accessible to disabled persons;

(iv) An easement or dedication for a passenger shelter if requested by the transit provider; and,

(v) Lighting at the transit stop.

(c) Local governments may implement 4(b)(A) and (B) above through the designation of pedestrian districts and adoption of appropriate implementing measures regulating development within pedestrian districts. Pedestrian districts must comply with the requirement of 4(b)(C) above.

([c]d) [New industrial and commercial developments to] Designated employee parking areas in new developments shall provide preferential parking for carpools and vanpools.

([d]e) [An opportunity for e]Existing development shall be allowed to redevelop a portion of existing parking areas for transit oriented uses, including bus stops and pullouts, bus shelters, park and ride stations, transit oriented developments, and similar facilities, where appropriate.

([e]f) Road systems for new development [which] shall be provided that can be adequately served by transit, including provision of pedestrian access to existing and identified future transit routes. This shall include, where appropriate, separate [bicycle and pedestrian ways] accessways to minimize travel distances.

([f]g) Along existing or planned transit routes, designation of types and densities of land uses adequate to support transit.

(5) In MPO areas, local governments shall adopt land use and subdivision regulations to reduce reliance on the automobile which:

(a) Allow transit oriented developments (TODs) on lands along transit routes;

(b) Implements a demand management program to meet the measurable standards set in the TSP in response to 660-12-035(4).

(c) Implements a parking plan which:

(A) Achieves a 10% reduction in the number of parking spaces per capita in the MPO area over the planning period. This may be accomplished through a combination of restrictions on development of new parking spaces and requirements that existing parking spaces be redeveloped to other uses;

(B) Aids in achieving the measurable standards set in the TSP in response to 660-12-035(4);

(C) Includes land use and subdivision regulations setting minimum and maximum parking requirements; and,

(D) Is consistent with demand management programs, transit-oriented development requirements and planned transit service.

(d) Require all major industrial, institutional, retail and office developments to provide either a transit stop on site or connection to a transit stop along a transit trunk route when the transit operator requires such an improvement.

(6) In developing a bicycle and pedestrian circulation plan as required by 660-12-020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e. schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.

(7) Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Not withstanding subsection (1) or (3) of this section, local street standards adopted to meet this requirement need not be adopted as land use regulations.

660-12-050 Transportation Project Development

(1) For projects identified by ODOT pursuant to OAR 731, Division 15, project development shall occur in the manner set forth in that Division.

(2) Regional TSPs shall provide for coordinated project development among affected local governments. The process shall include:

(a) Designation of a lead agency to prepare and coordinate project development;

(b) A process for citizen involvement, including public notice and hearing, if project development involves land use decision-making. The process shall include notice to affected transportation facility and service providers, MPOs, and ODOT.

(c) A process for developing and adopting findings of compliance with applicable statewide planning goals, if any. This shall include a process to allow amendments to acknowledged comprehensive plans where such amendments are necessary to accommodate the project;

(d) A process for developing and adopting findings of compliance with applicable acknowledged comprehensive plan policies and land use regulations of individual local governments, if any. This shall include a process to allow amendments to acknowledged comprehensive plans or land use regulations where such amendments are necessary to accommodate the project.

(3) Project development involves land use decision-making to the extent that issues of compliance with applicable requirements remain outstanding at the project development phase. Issues may include, but are not limited to, compliance with regulations protecting or regulating development within floodways and other hazard areas, identified Goal 5 resource areas, estuarine and coastal shoreland areas, and the Willamette River Greenway. Where project development involves land use decisionmaking, all unresolved issues of compliance with applicable acknowledged comprehensive plan policies and land use regulations shall be addressed and findings of compliance adopted prior to project approval. To the extent compliance has already been determined during transportation system planning, including adoption of a refinement plan, affected local governments may rely on and reference the earlier findings of compliance with applicable standards.

(4) Where an Environmental Impact Statement (EIS) is prepared pursuant to the National Environmental Policy Act of 1969, project development shall be coordinated with the preparation of the EIS. All unresolved issues of compliance with applicable acknowledged comprehensive plan policies and land use regulations shall be addressed and findings of compliance adopted prior to issuance of the Final EIS.

(5) If a local government decides not to build a project authorized by the TSP, it must evaluate whether the needs that the project would serve could otherwise be satisfied in a manner consistent with the TSP. If identified needs cannot be met consistent with the TSP, the local government shall initiate a plan amendment to change the TSP or the comprehensive plan to assure that there is an adequate transportation system to meet transportation needs.

(6) Transportation project development may be done concurrently with preparation of the TSP or a refinement plan.

660-12-055 Timing of Adoption and Update of Transportation System Plans; Exemptions

(1) MPOs shall complete regional TSPs for their planning areas [within four years following the effective date of this division] by May 8, 1996. For those areas within an MPO, cities and counties shall adopt local TSPs and implementing measures within one year following completion of the regional TSP. Urban areas designated as MPOs subsequent to the adoption of this rule shall adopt TSPs in compliance with applicable requirements of this rule within three years of designation.

(2) For areas outside an MPO, cities and counties shall complete and adopt regional and local TSPs and implementing measures [within five years of the effective date of this division] by May 8, 1997.

(3) Within two years of adoption of this rule affected cities and counties shall, for urban areas of 25,000 or more, adopt land use and subdivision ordinances or amendments required by 660-12-045(3),(4)(a)-([e]f) and (5)(d).

(4)(a) Affected cities and counties that either:

(A) Have acknowledged plans and land use regulations that comply with this rule as of May 8, 1995, may continue to apply those acknowledged plans and land use regulations, or

(B) Have plan and land use regulations adopted to comply with this rule as of April 12, 1995, may continue to apply the provisions of this rule as they existed as of April 12, 1995, and may continue to pursue acknowledgment of the adopted plans and land use regulations under those same rule provisions provided such adopted plans and land use regulations are acknowledged by April 12, 1996. Affected cities and counties that qualify and make this election under this subsection shall update their plans and land use regulations to comply with the 1995 amendments to section 660-12-045 as part of their transportation system plans.

(b) Affected cities and counties that do not have acknowledged plans and land use regulations as provided in (a) above, shall apply relevant sections of this rule to land use decisions and limited land use decisions until land use regulations complying with this amended rule have been adopted.

([4]5) Cities and counties shall update their TSPs and implementing measures as necessary to comply with this division at each periodic review subsequent to initial compliance with this division. This shall include a reevaluation of the land use designations, densities and design standards in the following circumstances:

(a) If the interim benchmarks established pursuant to 660-12-035(6) have not been achieved; or,

(b) If a refinement plan has not been adopted consistent with the requirements of 660-12-025(3).

([5]6) The director may grant a whole or partial exemption from the requirements of this division to cities under 2,500 population outside MPO areas and counties under 25,000 population. Eligible jurisdictions may, within five years following the adoption of this rule or at subsequent periodic reviews, request that the director approve an exemption from all or part of the requirements in this division until the jurisdiction's next periodic review.

(a) The director's decision to approve an exemption shall be based upon the following factors:

(A) Whether the existing and committed transportation system is generally adequate to meet likely transportation needs;

(B) Whether the new development or population growth is anticipated in the planning area over the next five years;

(C) Whether major new transportation facilities are proposed which would affect the planning areas;

(D) Whether deferral of planning requirements would conflict with accommodating state or regional transportation needs; and,

(E) Consultation with the Oregon Department of Transportation on the need for transportation planning in the area, including measures needed to protect existing transportation facilities.

(b) The director's decision to grant an exemption under this section is appealable to the Commission as provided in OAR 660-02-020 (Delegation of Authority Rule).

([6]7) Portions of TSPs and implementing measures adopted as part of comprehensive plans prior to the responsible jurisdiction's periodic review shall be reviewed pursuant to OAR 660, Division 18, Post Acknowledgement Procedures.

[redacted]

(1) Amendments to functional plans, acknowledged comprehensive plans, and land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the identified function, capacity, and level of service of the facility. This shall be accomplished by either:

(a) Limiting allowed land uses to be consistent with the planned function, capacity and level of service of the transportation facility;

(b) Amending the TSP to provide transportation facilities adequate to support the proposed land uses consistent with the requirements of this division; or,

(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.

(2) A plan or land use regulation amendment significantly affects a transportation facility if it:

(a) Changes the functional classification of an existing or planned transportation facility;

(b) Changes standards implementing a functional classification system;

(c) Allows types or levels of land uses which would result in levels of travel or access which are inconsistent with the functional classification of a transportation facility; or

(d) Would reduce the level of service of the facility below the minimum acceptable level identified in the TSP

(3) Determinations under subsections (1) and (2) of this section shall be coordinated with affected transportation facility and service providers and other affected local governments.

(4) The presence of a transportation facility or improvement shall not be a basis for an exception to allow residential, commercial, institutional or industrial development on rural lands under this division or OAR 660-04-022 and 028.

660-12-065 Transportation Improvements on Rural Lands

(Note: This section of the rule was completely replaced by new language as part of amendments adopted in March 1995. To save space the text of the unamended rule has not been included here.)

(1) This rule identifies transportation facilities, services and improvements which may be permitted on rural lands consistent with Goals 3, 4, 11 and 14 without a goal exception.

(2) For the purposes of this rule, the following definitions apply:

(a) "Access roads" means low volume public roads that principally provide access to property or as specified in an acknowledged comprehensive plan.

(b) "Collectors" means public roads that provide access to property and that collect and distribute traffic between access roads and arterials or as specified in an acknowledged comprehensive plan.

(c) "Arterials" means state highways and other public roads that principally provide service to through traffic between cities and towns, state highways and major destinations or as specified in an acknowledged comprehensive plan.

(d) "Accessory transportation improvements" means transportation improvements that are incidental to a land use to provide safe and efficient access to the use.

(e) "Channelization" means the separation or regulation of conflicting traffic movements into definite paths of travel by traffic islands or pavement markings to facilitate the safe and orderly movement of both vehicles and pedestrians. Examples include, but are not limited to, left turn refuges, right turn refuges including the construction of islands at intersections to separate traffic, and raised medians at driveways or intersections to permit only right turns. "Channelization" does not include continuous median turn lanes.

(f) "Realignment" means rebuilding an existing roadway on a new alignment where the new centerline shifts outside the existing right of way, and where the existing road surface is either removed, maintained as an access road or maintained as a connection between the realigned roadway and a road that intersects the original alignment. The realignment shall maintain the function of the existing road segment being realigned as specified in the acknowledged comprehensive plan.

(g) "New road" means a public road or road segment that is not a realignment of an existing road or road segment.

(3) The following transportation improvements are consistent with goals 3, 4, 11, and 14 subject to the requirements of this rule:

(a) Accessory transportation improvements for a use that is allowed or conditionally allowed by ORS 215.213, 215.283 or OAR 660-Division 6 (Forest Lands);

(b) Transportation improvements that are allowed or conditionally allowed by ORS 215.213, 215.283 or OAR 660-Division 6 (Forest Lands);

(c) Channelization not otherwise allowed under subsections (a) or (b) of this section;

(d) Realignment of roads not otherwise allowed under subsection (a) or (b) of this section;

(e) Replacement of an intersection with an interchange;

(f) Continuous median turn lane;

(g) New access roads and collectors within a built or committed exception area, or in other areas where the function of the road is to reduce local access to or local traffic on a state highway. These roads shall be limited to two travel lanes. Private access and intersections shall be limited to rural needs or to provide adequate emergency access.

(h) Bikeways, footpaths and recreation trails not otherwise allowed as a modification or part of an existing road;

(i) Park and ride lots;

(j) Railroad mainlines and branchlines;

(k) Pipelines;

(l) Navigation channels;

(m) Replacement of docks and other facilities without significantly increasing the capacity of those facilities;

(n) Expansions or alterations of public use airports that do not permit service to a larger class of airplanes; and

(o) Transportation facilities, services and improvements other than those listed in this rule that serve local travel needs. The travel capacity and level of service of facilities and improvements serving local travel needs shall be limited to that necessary to support rural land uses identified in the acknowledged comprehensive plan or to provide adequate emergency access.

(4) Accessory transportation improvements required as a condition of development listed in subsection (3)(a) of this rule shall be subject to the same procedures, standards and requirements applicable to the use to which they are accessory.

(5) For transportation uses or improvements listed in subsection (3)(d) to (g) and (o) of this rule within an exclusive farm use (EFU) or forest zone, a jurisdiction shall, in addition to demonstrating compliance with the requirements of ORS 215.296:

(a) Identify reasonable build design alternatives, such as alternative alignments, that are safe and can be constructed at a reasonable cost, not considering raw land costs, with available technology. Until adoption of a local TSP pursuant to the requirements of OAR 660-12-035, the jurisdiction shall consider design and operations alternatives within the project area that would not result in a substantial reduction in peak hour travel time for projects in the urban fringe that would significantly reduce peak hour travel time. A determination that a project will significantly reduce peak hour travel time is based on OAR 660-12-035(10). The jurisdiction need not consider alternatives that are inconsistent with applicable standards or not approved by a registered professional engineer.

(b) Assess the effects of the identified alternatives on farm and forest practices, considering impacts to farm and forest lands, structures and facilities, considering the effects of traffic on the movement of farm and forest vehicles and equipment and considering the effects of access to parcels created on farm and forest lands; and

(c) Select from the identified alternatives, the one, or combination of identified alternatives that has the least impact on lands in the immediate vicinity devoted to farm or forest use.

(6) Notwithstanding any other provision of this division, if a jurisdiction has not met the deadline for TSP adoption set forth in OAR 660-12-055, or any extension thereof, a transportation improvement that is listed in section (5) of this rule and that will significantly reduce peak hour travel time as provided in

OAR 660-12-035(10) may be allowed in the urban fringe only if the jurisdiction applies either:

(a) the criteria applicable to a "reasons" exception provided in Goal 2 and OAR 660, Division 4; or

(b) the evaluation and selection criteria set forth in OAR 660-12-035.

660-12-070 Exceptions for Transportation Improvements on Rural Land

(1) Transportation facilities and improvements which do not meet the requirements of 660-12-065 require an exception to be sited on rural lands.

(2) Where an exception to Goals 3, 4, 11, or 14 is required, the exception shall be taken pursuant to ORS 197.732(1)(c), Goal 2, OAR 660, Division 4 and this division.

(3) An exception adopted as part of a TSP or refinement plan shall, at a minimum, decide need, mode, function and general location for the proposed facility or improvement.

(a) The general location shall be specified as a corridor within which the proposed facility or improvement is to be located, including the outer limits of the proposed location. Specific sites or areas within the corridor may be excluded from the exception to avoid or lessen likely adverse impacts.

(b) The size, design and capacity of the proposed facility or improvement shall be described generally, but in sufficient detail to allow a general understanding of the likely impacts of the proposed facility or improvement. Measures limiting the size, design or capacity may be specified in the description of the proposed use in order to simplify the analysis of the effects of the proposed use.

(c) The adopted exception shall include a process and standards to guide selection of the precise design and location within the corridor and consistent with the general description of the proposed facility or improvement. For example, where a general location or corridor crosses a river, the exception would specify that a bridge crossing would be built but would defer to project development decisions about precise location and design of the bridge within the selected corridor subject to requirements to minimize impacts on riparian vegetation, habitat values, etc.

(d) Land use regulations implementing the exception may include standards for specific mitigation measures to offset unavoidable environmental, economic, social or energy impacts of the proposed facility or improvement or the assure compatibility with adjacent uses.

(4) To address Goal 2, Part II(c)(1) the exception shall demonstrate that there is a transportation need identified consistent with the requirements of 660-12-030 which cannot reasonably be accommodated through one or a combination of the following measures not requiring an exception:

(a) Alternative modes of transportation;

(b) Traffic management measures; and

(c) Improvements to existing transportation facilities.

(5) To address Goal 2, Part II(c)(2), the exception shall demonstrate that non-exception locations cannot reasonably accommodate the proposed transportation improvement or facility.

(6) To determine the reasonableness of alternatives to an exception under subsections (4) and (5) of this section, cost, operational feasibility, economic dislocation and other relevant factors shall be addressed. The thresholds chosen to judge whether an alternative method or location cannot reasonably accommodate the proposed transportation need or facility must be justified in the exception.

(7) To address Goal 2, Part II(c)(3), the exception shall:

(a) Compare the economic, social, environmental and energy consequences of the proposed location and other alternative locations requiring exceptions.

(b) Determine whether the net adverse impacts associated with the proposed exception site are significantly more adverse than the net impacts from other locations which would also require an exception. A proposed exception location would fail to meet this requirement only if the affected local government concludes that the impacts associated with it are significantly more adverse than the other identified exception sites.

(c) The evaluation of the consequences of general locations or corridors need not be site-specific, but may be generalized consistent with the requirements of 660-12-070(3).

(8) To address Goal 2, Part II(c)(4), the exception shall:

(a) Describe the adverse effects that the proposed transportation improvement is likely to have on the surrounding rural lands and land uses, including increased traffic and pressure for nonfarm or highway oriented development on areas made more accessible by the transportation improvement.

(b) Adopt as part of the exception, facility design and land use measures which minimize accessibility of rural lands from the proposed transportation facility or improvement and support continued rural use of surrounding lands.

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Appendix B: Description of Study Area Roadways

(Counts of Average Daily Traffic were obtained between 1991 and 1993)

Facility	Size	Average Daily Traffic	Comments
Highways			
Redwood Highway (Highway 199)	4 lanes	11,000 (Dawn Dr. to Allen Creek Rd.), 28,000 (Allen Creek Rd to Highway 238), 19,000 (Highway 238 to Parkdale Dr.)	Operates as one-way couplet through downtown (6th Street and 7th Street)
Rogue River Highway (State Route 99)	2 lanes, 3 lanes (Maple to Hamilton)	18,500 (Redwood Highway and Cloverlawn Dr.), 11,800 (Cloverlawn Dr. and Fruitdale Dr.), 9,500 (Fruitdale Dr. to Peckerwood Lane)	
Jacksonville Highway (State Route 238)	5 lanes (Redwood Hwy. to New Hope) then 2 lanes	17,200 (Redwood Hwy., to New Hope Rd.), 10,700 south of New Hope Rd.	
Arterial Streets			
A Street - extends from Dimmick to Foothill Blvd.	2 lanes	4,900 (Grants St. to 4th St.), 6,700 (just east of 4th Street), 11,100 (between 8th and 9th Street.)	Pavement width 36 feet, right of way generally 60 feet
Allen Creek Rd - extends from Denton Trail to Redwood Ave.	2 lanes	1,700	Pavement width of 22 feet, in 60 foot right of way
Agness Avenue - extends south from Fairview Ave./Foothill Blvd. to RailTex Tracks	2 lanes	4,800	50 feet right of way
Bridge Street - extends from 4th St. to Lincoln Rd.	2 lanes	4,600 (Lincoln Ln. to Way Spruce St.), 7,500 Way Spruce St. to Oak St.), 11,100 east of Oak	Pavement width of 44 feet, varying right of way up to 60 feet
Dimmick Street - extends from “G” St. to Foundry, and “F” St. to Bellevue Place	2 lanes		Discontinuous facility at RR tracks, varying pavement width in 60 foot right of way

Facility	Size	Average Daily Traffic	Comments
Dowell Road - extends from Leonard Road to Arnold Ave.	2 lanes	1,500	22 foot pavement with right of way of 40-60 feet s/o Hwy. 199, 48 feet Redwood Hwy. to Redwood Ave.
"E" Street - extends from Grants Pass Parkway to Grant St.	2 lanes	4,000 except for segment between 6th St. and 7th St. which carried 8,400	Part of one-way couplet with "F" St., running west from Grants Pass Parkway to 4th St.
"F" Street - extends from Grant St. to Grants Pass Parkway	2 lanes	1,800 (Dimmick St. to 3rd St.), 4,400 (just east of 3rd St., 6,800 (between 6th and 7th Streets)	Part of one-way couplet with "E" St., running east, 36-40 feet of pavement in 60 foot right of way
"G" Street - extends from Lincoln Rd. to 10th St.	2 lanes	9,900	24 feet of pavement in 60 foot of right of way
Highland Ave. - extends from Vine St. to Bellevue Pl.	2 lanes	2,500 (Vine St. to Morgan Ln.) 5,800 near Midland Ave., 4,900 (Midland to Bellevue Pl.)	
Lincoln Road - extends from Webster Ln. to Upper River Rd./ "G" St.	2 lanes		20 feet of pavement in 40 foot right of way (wider pavement between Bridge and Webster)
"M" Street - extends from 4th St. to "N" St.	2 lanes	9,000 except for segment between 6th and 9th St. with volumes of 12,000	36-40 feet of pavement in a 60 foot right of way
Oak Street - extends from "G" St. to River Oaks	2 lanes	400	36 foot of pavement in a 60 foot right of way
Redwood Avenue - extends west from Highway 199 beyond edge of study area	2 lanes	4,200 (west of Dowell Rd., 11,400 (Dowell Rd. to Hwy. 199)	22 feet of pavement in 60 foot right of way (wider at Dowell)
Upper River Road - extends from Lincoln Rd. west beyond study area boundary	2 lanes		60 foot right of way
Vine Street - extends west from Morgan Ln. to Highland Ave.	2 lanes		22 feet of pavement in 60 foot right of way
Willow Lane - extends from Wolf Ln. to Leonard Rd.	2 lanes	1,600-2,000	22 feet of pavement in 40 foot right of way

Facility	Size	Average Daily Traffic	Comments
Collector Streets			
Ament Dam Road - extends from Foothill Blvd. to "N" St.	2 lanes		20 feet of pavement in 40 foot right of way
Beacon Drive - extends from RR tracks to Olson Drive, and from Madrone St. to Hillcrest Dr.	2 lanes	8,300 south of Grants Pass Parkway, 7,000 at A St.	Discontinuous street, 36 feet of pavement in 50-60 foot right of way, narrower between Madrone and Hillcrest, (collector from RR tracks to "A" St.)
Cloverlawn Drive - extends south from Rogue River Hwy. beyond southern boundary of study area	2 lanes	4,000 (Alanita Rd to Hamilton Ln.), 600 south of Hamilton Ln.	Pavement of 22-36 feet in right of way of 40-60 feet
D Street - extends west from Foothill Blvd. to Fry St.	2 lanes	5,100 east of Mill St., 3,000 east of 5th St.	30-36 feet of pavement in 50-60 feet of right of way
Darnielle Lane - extends from S. River Road to Redwood Ave.	2 lanes	1,000	pavement of 22-24 feet in 60 foot right of way
Drury Lane - extends from Fruitdale Dr. to Grandview Ave.	2 lanes	1,100	22 feet of pavement in 50 foot right of way
East Park Street - extends from Grants Pass Parkway to Rogue River Hwy.	2 lanes	900 east of Clara Ave. and 300 west of Clara Ave.	22 feet of pavement in 40 foot right of way
Evelyn Street - extends from 2nd St. to 8th St.	2 lanes		30-36 feet of pavement in 40-60 foot right of way
Foothill Boulevard - extends from Agness Ave. to Ament Rd.	2 lanes		36-40 feet of pavement in 50-80 foot right of way
Fruitdale Drive - extends from Jacksonville Hwy. to Rogue River Hwy.	2 lanes	3,200 (Jacksonville Hwy - to Cloverlawn Dr.), 2,600 (Cloverlawn Dr. to Alexander Ln.), 900 (Alexander Ln. to Rogue River Hwy.)	Generally 22 feet of pavement in 60 foot right of way
G.I. Lane - extends west from Harbeck	2 lanes		20 feet of pavement in a 24 foot right of way

Facility	Size	Average Daily Traffic	Comments
Grandview Avenue - extends from Harbeck Rd. to Cloverlawn Dr.	2 lanes	2,300	Pavement width of 20-28 feet in 50 foot right of way
Harbeck Road - extends south from Union Ave. to Highway 238	2 lanes	4,600 (noth of G.I. Lan), 1,500 south to Hwy. 238	24 feet of pavement in 50-60 foot right of way (wider from Union to Grandview)
Hawthorne Ave - extends from Vine St. to Midland Ave.	2 lanes	2,000	30-40 feet of pavement in 45-60 feet of right of way
Hillcrest Drive- extends from Hawthorne Ave. to Sunset Ln.	2 lanes	2,100 except for 6,300 (between 6th and 7th St.)	20-44 feet of pavement in 50-60 feet of right of way
Hubbard Lane - extends from Redwood Ave. to Tipton Rd.	2 lanes	500	22 feet of pavement in 40 foot right of way
J Street - extends from Mill St. to Alder St.	2 lanes	1,600	36-44 feet of pavement in 50-60 foot right of way
Leonard Road - extends west from Dowell Rd.	2 lanes	700	20-22 feet of pavement in a 40 foot right of way
Lower River Road - extends west from Lincoln Ln. To River Bend Ln. becomes Rogue River Loop	2 lanes		22 feet of pavement in 50-60 foot right of way
Manzanita Avenue - extends from Highland to 7th St.	2 lanes	2,200	36 feet of pavement in 60 feet of right of way
Midland Avenue - extends from Highland Ave. to Redwood Hwy./ 7th St.	2 lanes	4,000	50-60 feet of right of way
Mill Street - extends from east D St. to M St.	2 lanes	2,200	22 feet of pavement in 40-50 foot right of way

Facility	Size	Average Daily Traffic	Comments
Morgan Lane - extends from Chandler Ave. to 7th St.	2 lanes	2,100 (Chandler Ave to Washington Blvd., 2,700 (east of Washington Blvd.), 3,700 (between 6th and 7th St.)	22-36 feet of pavement in 50-80 foot right of way
New Hope Road - extends south from Jacksonville Hwy.	2 lanes		40 feet of pavement in 60 foot right of way
Ringuette Street - extends from River Heights Way to Meridian	2 lanes		30-36 feet of pavement of 60-64 feet of right of way
Savage Street - extends from Highland Ave. to Beacon Dr.	2 lanes	2,500 (Highland Ave. to Conklin Ave.) 4,400 (6th to 7th St.), 2,800 (7th St. to Beacon Dr.)	36-44 feet of pavement in 40-60 foot right of way
Schultzwohl Lane - extends west from Allen Creek Rd.	2 lanes		22 feet of pavement in 40 foot right of way
Ramsey Lane - extends south from Union Ave. to Meridian Way	2 lanes		36 feet of pavement in 60 foot right of way
Union Avenue - extends from Nebraska to Jacksonville Hwy.	2 lanes	5,200	Generally 20 feet of pavement in 60 foot right of way (wider in some sections)
Washington Blvd. - extends from Morgan Ln. to Evelyn Ave.	2 lanes	2,000 - 2,300	Divided roadway between Savage St. and Evelyn Ave., 40-70 feet of pavement on 60-100 foot right of way
West Harbeck Road - extends from Allen Creek Rd. to Harbeck Rd.	2 lanes	1,500	24 feet of pavement in 40 foot right of way
West Park Street - extends from Ringuette St. to Short St.	2 lanes	650	22 feet of pavement in 40 foot right of way
4th Street - extends from Evelyn Ave. to Bridge St.	2 lanes	6,000 (between A and D St.), 7,200 (between D and F St.), 5,600 (between G and J St.), 4,000 (J St. to Bridge St.)	36 feet of pavement in 60 foot right of way

Facility	Size	Average Daily Traffic	Comments
9th Street - extends from M St. to D St., and A St. to Hillcrest	2 lanes	3,800 (between M and J St.), 6,100 (between J and F St.) 3,200 (north of F St.), 6,100 (Savage St. to Hillcrest Dr.)	Discontinuous street, 36 feet of pavement on 60 feet right of way
10th Street - extends from M St. to G St. and A St. to Hillcrest Dr.	2 lanes	1,500 to 3,600	Discontinuous street, 20-36 feet of pavement on 50-60 feet of right of way
Local Collector Streets			
B Street - extends from Dean Dr. to 5th St. and from 6th St. to Ponderosa St.	2 lanes		20 feet of pavement in 40 foot right of way
East Park Street - extends from Parkdale Dr. to Hamilton Ln.	2 lanes	900	22 feet of pavement in 50 foot right of way
Gladiola Ave. - extends from "N" St. to Portola Dr.	2 lanes		36 feet of pavement in 50 foot right of way
Hamilton Lane - extends from Rogue River Hwy. to Cloverlawn Dr.	2 lanes	1,400 (south of Fruitdale Dr.)	22 feet of pavement on 40 foot right of way
Haviland Drive - extends south from Grandview Ave.	2 lanes	900	26 feet of pavement on 50 foot right of way
"N" Street - extends from "M" St. to Gladiola St.	2 lanes		36 feet of pavement on 50 foot right of way
Madrone Street - extends from 9th St. to Beacon Dr.	2 lanes		22 feet of pavement on 60 foot right of way
Nebraska Avenue. - extends south from McCarter	2 lanes		20 feet of pavement on 40-50 foot right of way
South River Road - extends from Leonard Rd. to Coutant Ln.	2 lanes		22 feet of pavemnt on 40-50 foot right of way

Facility	Size	Average Daily Traffic	Comments
Spruce Street - extends from Webster Ln.	2 lanes		22 feet of pavement on 60 foot right of way
Webster Road - extends west from Lincoln Rd.	2 lanes	200	20 feet of pavement on 30-40 foot right of way

APPENDIX C - ALTERNATIVES CONSIDERED

K J S Associates, Inc.

MEMORANDUM

DATE: April 14, 1995

TO: Paula Brown, RVCOG
Kevin Wallace, RVCOG

FROM: Joel Falter, KJS Associates
Jeffrey Ream, KJS Associates

SUBJECT: Revised Roadway Network Development and Analysis

This revised memorandum is based on the comments and direction received at the March 7th Management Committee meeting and summarizes the findings of our analysis of the testing of additional highway improvements as part of the development of the Grants Pass Urban Area Master Plan.

Results of Alternative Networks Development and Testing

Introduction

Long-term transportation improvements for the Grants Pass Urban area will include physical roadway improvements via the enhancement of capacity on existing roads or new roadway construction, improved transit service and the expansion and development of non-motorized transportation facilities such as sidewalks and bike facilities. This memorandum addresses the development and analysis of the streets and highways component of the master plan. It is based on the results of the operation analysis that was prepared in Phase II of the study, the travel demand forecasts for the future land use plan for the area, as well as direction from the management team, and input received from residents at public open house meetings.

One no-build and eight construction alternatives were developed in an effort to enhance mobility and reduce congestion within the urban-area growth boundary by 2015. These eight build-alternatives were analyzed using RVCOG's traffic forecast model for the Grants Pass Urban Area.

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The following sections summarize the details of each alternative and an assessment of their overall benefits and impacts.

Future Land Use - Demographics

The year 2015 was chosen as the planning horizon for the master plan to identify future demographic trends from which the travel forecasts were derived. A 20 year time span was chosen because beyond this time line population, employment and future travel patterns become much more difficult to develop and subsequently generate less reliable travel forecasts.

Future Traffic Conditions

Future year (2015) traffic conditions were determined by adding the estimated number of vehicle trips generated by future land uses within the Grants Pass Urban Area to the existing traffic volumes. New trips generated by future land uses were distributed to destinations both within the Grants Pass urban area as well as those outside of it, such as Medford or Jacksonville, for example, and then assigned to the street and highway system. This was accomplished through the use and application of RVCOG's travel forecasting model for the Grants Pass Urban Area. The travel model trip generation, distribution and assignment assumptions were calculated for daily trip purposes. For the purposes of calculating trip generation, distribution and travel assignment, all travel model data was summarized by traffic analysis zone.

Future Transportation System Alternatives

The future daily traffic assignments were developed for each of the eight roadway alternatives described below using the travel demand model developed by RVCOG. After a reasonableness check of the assignments, the level of service for the major roadways and key intersection in the area was calculated, and any changes in level of service or levels of congestion identified. The alternatives were then ranked based on the overall reduction in congestion each one resulted in. Table 1 summarizes the roadway level of service for each alternative tested. Table 2 summarizes the level of service at eleven key intersections.

Street Name	Segment Name (From)	Segment Name (To)	2015 Alternative Run Assignments																									
			No Build Alternative			Alternative 1			Alternative 2			Alternative 3			Alternative 4			Alternative 5			Alternative 6			Alternative 7			Alternative 8		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Pine Crest Dr.	Blitz Canyon Rd.	Upper River Road	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A
Upper River Road	Lathrop	Pinecrest	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A
Upper River Road	Pinecrest	Leonard St.	8,574	0.40	A	8,709	0.41	A	8,774	0.41	A	15,248	0.32	A	8,799	0.41	A	8,686	0.19	A	8,574	0.40	A	8,809	0.41	A	8,809	0.41	A
Upper River Road	Leonard St.	Wildwood Ave	11,840	0.59	B	10,653	0.35	A	15,753	0.73	C	17,823	0.39	A	11,312	0.53	B	12,535	0.27	A	10,695	0.51	B	11,005	0.51	B	11,004	0.51	B
Upper River Road	Wildwood Ave	Oak St	10,421	0.49	B	10,520	0.34	A	16,373	0.76	C	18,012	0.38	A	11,709	0.54	B	13,122	0.28	A	9,585	0.44	B	11,472	0.53	B	11,514	0.53	B
Upper River Road	Oak St	Pine St	11,422	0.53	B	10,781	0.40	A	17,904	0.83	D	19,543	0.41	B	13,340	0.61	B	14,653	0.31	A	10,679	0.50	B	13,009	0.60	B	13,059	0.60	B
Upper River Road	Pine St	Foundry St	11,771	0.54	B	10,780	0.42	B	19,587	0.91	D	20,514	0.43	B	14,088	0.65	B	14,088	0.30	A	11,293	0.53	B	13,916	0.64	B	10,552	0.49	B
Redwood Hwy.	Dawn Dr.	Hubbard Ln.	14,995	0.32	A	15,000	0.32	A	15,000	0.32	A	15,000	0.32	A	15,000	0.32	A	15,000	0.32	A	14,995	0.32	A	15,000	0.32	A	15,000	0.32	A
Redwood Hwy.	Hubbard Ln.	Willow Ln.	15,684	0.33	A	17,458	0.37	A	17,500	0.37	A	18,790	0.33	A	17,610	0.37	A	15,674	0.33	A	17,502	0.37	A	17,767	0.38	A	17,662	0.37	A
Redwood Hwy.	Willow Ln.	Demeray Dr.	22,272	0.47	B	22,502	0.48	B	22,585	0.48	B	18,370	0.39	A	22,634	0.48	B	16,553	0.35	A	22,376	0.47	B	22,833	0.48	B	22,733	0.48	B
Redwood Hwy.	Demeray Dr.	Dowel Rd.	29,499	0.60	B	29,283	0.62	B	29,452	0.62	B	23,721	0.50	B	29,615	0.63	B	22,219	0.47	B	28,607	0.61	B	28,900	0.63	B	29,855	0.63	B
Redwood Hwy.	Dowel Rd.	Allen Creek Rd.	30,359	0.64	B	31,440	0.67	B	31,500	0.67	B	25,705	0.55	B	31,071	0.67	C	24,239	0.51	B	30,558	0.65	B	32,122	0.68	C	32,050	0.68	C
Redwood Hwy.	Allen Creek Rd.	Redwood Ave.	25,789	0.55	B	21,561	0.46	B	21,783	0.46	B	22,108	0.47	B	19,244	0.41	A	20,680	0.44	B	21,000	0.44	B	18,922	0.40	A	18,390	0.39	A
Redwood Hwy.	Redwood Ave.	Fairgrounds Rd.	41,334	0.88	D	34,946	0.74	C	34,406	0.73	C	34,152	0.72	C	33,033	0.70	C	32,004	0.68	C	42,006	0.89	D	31,790	0.67	C	31,781	0.67	C
Redwood Hwy.	Fairgrounds Rd.	Rinquette St.	36,276	0.77	C	30,774	0.65	B	30,256	0.64	B	30,102	0.64	B	28,541	0.60	B	28,340	0.60	B	37,000	0.79	C	29,304	0.62	B	29,565	0.63	B
Redwood Hwy.	Rinquette St.	Tussy Ln.	36,432	0.77	C	30,614	0.65	B	30,109	0.64	B	30,170	0.64	B	28,808	0.61	B	28,268	0.60	B	37,251	0.79	C	27,838	0.59	B	27,715	0.59	B
Redwood Hwy.	Tussy Ln.	6th St	25,004	0.84	B	21,018	0.45	B	21,354	0.45	B	20,950	0.44	B	19,817	0.42	B	19,606	0.42	B	27,333	0.58	B	19,119	0.41	A	19,568	0.28	A
Redwood Hwy.	6th St	Hwy 238 6th/7th Interch	27,035	0.57	B	24,020	0.51	B	24,089	0.51	B	23,936	0.51	B	23,567	0.50	B	23,489	0.50	B	28,347	0.60	B	23,020	0.49	B	22,992	0.49	B
Redwood Hwy.	Hwy 238 6th/7th Interchang	Interchange to 7th St.	26,910	0.61	B	24,205	0.51	B	24,434	0.52	B	24,257	0.51	B	23,667	0.50	B	23,631	0.51	B	30,316	0.64	B	23,109	0.49	B	23,081	0.49	B
Willow Ln.	Jerome Prairie Rd.	Redwood Ave.	2,370	0.15	A	2,254	0.14	A	2,294	0.14	A	6,233	0.38	A	2,185	0.13	A	8,687	0.54	B	2,232	0.14	A	2,182	0.13	A	2,178	0.13	A
Willow Ln.	Redwood Ave.	Leonard Ln.	2,332	0.14	A	2,198	0.14	A	2,582	0.16	A	4,819	0.30	A	2,526	0.16	A	7,501	0.48	B	2,422	0.15	A	1,137	0.07	A	2,828	0.18	A
Allen Creek Rd.	Redwood Ave.	Redwood Hwy.	2,678	0.12	A	10,165	0.47	B	10,032	0.46	B	3,434	0.16	A	13,516	0.63	B	3,404	0.16	A	2,641	0.12	A	16,221	0.34	A	15,577	0.33	A
Allen Creek Rd.	Redwood Hwy.	Dorton Trail	5,328	0.24	A	5,350	0.25	A	5,247	0.25	A	5,107	0.24	A	5,839	0.27	A	5,033	0.23	A	4,911	0.23	A	11,299	0.24	A	10,172	0.22	A
Jacksonville Hwy.	Lark Ellen Way	West Harbeck Rd.	24,651	0.82	B	22,895	0.49	B	22,957	0.49	B	23,067	0.49	B	22,392	0.47	B	23,121	0.49	B	24,047	0.51	B	22,742	0.48	B	22,106	0.47	B
Jacksonville Hwy.	West Harbeck Rd.	Mayfair Ln.	25,940	0.55	B	26,102	0.55	B	26,092	0.55	B	26,062	0.55	B	26,074	0.55	B	26,074	0.55	B	25,990	0.55	B	19,723	0.25	A	19,983	0.42	B
Jacksonville Hwy.	Mayfair Ln.	New Hope Rd.	25,218	0.53	B	25,314	0.54	B	25,302	0.54	B	25,295	0.54	B	25,300	0.54	B	25,299	0.54	B	25,229	0.53	B	25,800	0.55	B	19,179	0.41	A
Jacksonville Hwy.	New Hope Rd.	Allenwood Dr.	17,443	1.58	F	17,501	1.57	F	17,493	1.57	F	17,493	1.57	F	17,491	1.57	F	17,491	1.57	F	17,441	1.58	F	17,825	1.60	F	10,045	0.90	D
Jacksonville Hwy.	Allenwood Dr.	Extends beyond study ar	16,210	1.45	F	16,328	1.46	F	16,326	1.46	F	16,320	1.46	F	16,354	1.47	F	16,324	1.46	F	16,310	1.46	F	16,440	1.47	F	16,980	1.52	F
Bridge St.	Lincoln Ln.	Way Spruce St.	8,494	0.39	A	8,131	0.26	A	8,569	0.26	A	5,746	0.27	A	4,951	0.23	A	6,512	0.30	A	8,031	0.42	B	5,841	0.26	A	5,259	0.24	A
Bridge St.	Way Spruce St.	Greenwood Ave.	11,781	0.53	B	7,493	0.35	A	8,930	0.32	A	7,836	0.26	A	8,054	0.29	A	7,807	0.37	A	12,284	0.57	B	5,900	0.27	A	5,893	0.26	A
Bridge St.	Greenwood Ave.	Oak St.	11,841	0.55	B	7,540	0.35	A	8,986	0.32	A	8,000	0.37	A	8,124	0.29	A	7,905	0.37	A	12,197	0.56	B	5,819	0.26	A	5,398	0.25	A
Bridge St.	Oak St.	Division St	14,757	0.68	C	9,560	0.44	B	9,257	0.43	B	10,492	0.49	B	8,289	0.38	A	11,852	0.55	B	14,864	0.69	C	7,751	0.36	A	10,818	0.50	B
Highland Ave.	Valley View Rd.	Midland Ave.	7,108	0.33	A	7,128	0.33	A	7,352	0.34	A	7,107	0.33	A	3,037	0.14	A	2,047	0.09	A	7,163	0.33	A	2,836	0.13	A	3,546	0.16	A
Highland Ave.	Midland Ave.	Starlite Pl.	5,439	0.25	A	5,542	0.26	A	5,767	0.27	A	5,492	0.25	A	4,001	0.19	A	3,059	0.14	A	5,559	0.26	A	3,819	0.18	A	4,538	0.21	A
Highland Ave.	Starlite Pl.	Savage St.	5,422	0.25	A	5,676	0.26	A	5,982	0.27	A	5,587	0.26	A	3,302	0.15	A	2,520	0.12	A	5,673	0.26	A	3,121	0.14	A	4,150	0.19	A
Highland Ave.	Savage St.	Bellevue Pl.	5,473	0.25	A	5,836	0.26	A	5,833	0.27	A	5,527	0.26	A	3,284	0.15	A	2,510	0.12	A	5,579	0.26	A	3,114	0.14	A	4,586	0.21	A
Morgan Ln.	Chandler Way	Washington Blvd.		0.00	A		0.00	A		0.00	A		0.00	A	13,994	0.84	D		0.00	A		0.00	A	13,281	0.82	D	11,790	0.73	C
Morgan Ln.	Washington Blvd.	Vine St.	5,776	0.26	A	5,577	0.34	A	6,263	0.33	A	5,343	0.33	A	12,117	0.75	C	8,728	0.60	B	6,139	0.82	A	11,787	0.73	C	11,586	0.72	C
Morgan Ln.	Vine St.	6th St	7,256	0.45	B	7,018	0.43	B	6,901	0.43	B	7,271	0.45	B	12,798	0.79	C	10,209	0.63	B	6,741	0.42	B	12,344	0.76	C	11,849	0.73	C
Morgan Ln.	6th St.	7th St	5,591	0.35	A	4,875	0.30	A	4,858	0.30	A	5,784	0.36	A	7,290	0.45	B	5,807	0.36	A	5,174	0.32	A	6,816	0.42	B	6,352	0.39	A
Morgan Ln.	7th St	Interstate 5	4,459	0.28	A	4,253	0.27	A	4,212	0.27	A	4,448	0.27	A	4,228	0.26	A	4,200	0.26	A	4,367	0.27	A	4,247	0.26	A	4,225	0.26	A
Hillcrest Dr.	Washington Blvd.	6th St	3,900	0.24	A	3,804	0.23	A	3,930	0.24	A	3,841	0.24	A	3,859	0.24	A	4,104	0.25	A	3,900	0.24	A	3,869	0.24	A	3,787	0.23	A
Hillcrest Dr.	6th St	7th St	5,222	0.33	A	5,200	0.33	A	5,278	0.33	A	5,247	0.32	A	5,948	0.37	A	9,447	0.34	A	5,852	0.36	A	6,156	0.38	A	6,184	0.26	A
Hillcrest Dr.	7th St	8th St	3,414	0.21	A	3,058	0.19	A	3,169	0.20	A	3,084	0.19	A	3,068	0.19	A	2,704	0.17	A	2,970	0.18	A	3,082	0.19	A	3,071	0.19	A
Hillcrest Dr.	8th St	10th St	3,509	0.22	A	3,164	0.20	A	3,274	0.20	A	3,190	0.20	A	3,192	0.20	A	2,702	0.17	A	3,067	0.19	A	3,184	0.20	A	3,198	0.20	A
Hillcrest Dr.	10th St	Sunset Ln	2,250	0.14	A	2,180	0.13	A	2,179	0.13	A	2,172	0.13	A	2,154	0.13	A	2,132	0.13	A	2,126	0.13	A	2,094	0.13	A	2,117	0.13	A
Savage St.	Washington Blvd	6th St	3,039	0.19	A	1,999	0.12	A	2,578	0.16	A	2,930	0.18	A	2,701	0.17	A	1,924	0.12	A	2,657	0.16	A	2,452	0.15	A	3,094	0.19	A
Savage St.	6th St	7th St	5,298	0.33	A	4,773	0.29	A	4,874	0.30	A	4,969	0.31	A	4,761	0.30	A	5,195	0.32	A	5,096	0.31	A	4,556	0.28	A	4,890	0.30	A
Savage St.	7th St	9th St	3,804	0.24	A	3,749	0.23	A	3,694	0.23	A	3,718	0.23	A	3,639	0.22	A	4,124	0.25	A	3,837	0.24	A	3,657	0.23	A	3,653	0.23	A
Savage St.	9th St	10th St	2,027	0.13	A	2,071	0.13	A	2,082	0.13	A	2,063	0.13	A	2,020	0.12	A	1,918	0.12	A	2,004	0.12	A	2,025	0.12	A	2,023	0.12	A
A St	Grant St	Kinney St	5,479	0.25	A	5,636	0.26	A	5,833	0.27	A	5,527	0.26	A	3,284	0.15	A	2,510	0.12	A	5,573	0.26	A	3,114	0.14	A	491	0.02	A
A St	Kinney St	4th St	6,079	0.28	A	6,094	0.28	A	6,058	0.31	A	5,883	0.28	A	3,659	0.17	A	3,091	0.14	A	6,128	0.28	A	3,851	0.18	A	1,795	0.08	A
A St	4th St	6th St	7,998	0.37	A	6,737	0.31	A	5,849	0.28	A	7,225	0.33	A	5,733	0.27	A	8,041	0.23	A	7,782	0.36	A	5,479	0.25	A	3,811	0.18	A
A St	6th St	7th St	8,915	0.41	B	8,740	0.40	A	8,771	0.41	A	8,895	0.42	B	8,413	0.39	A	8,123	0.38	A	9,073	0.42	B	8,196	0.38	A	7,991	0.37	A
A St	7th St	Dean Dr	9,053	0.41	B	9,459	0.44	B	9,389	0.43	B	9,324	0.43	B	9,378	0.43	B	8,420	0.39	A	8,904	0.41	B	8,496	0.44	B	9,568	0.44	B
A St	Dean Dr	9th St	7,728	0.36	A	8,249	0.38	A	8,163	0.38	A	8,135	0.38	A	8,159	0.38	A	7,041	0.33	A	7,894	0.36	A	8,281	0.38	A	8,354	0.29	A
A St	9th St	North 10th St	6,433	0.30	A	6,294	0.29	A	5,935	0.27	A	6,273	0.29	A	5,531	0.26	A	6,400	0.30	A	6,382	0.30	A	5,584	0.26	A	5,519	0.26	A
A St	North 10th St	Beacon Dr	6,155	0.29	A	5,295	0.25	A	5,013	0.23	A	5,436	0.25	A	4,611	0.21	A	5,840	0.29	A	6,084	0.28	A	4,558	0.21	A	4,377	0.20	A
A St	Beacon Dr	Foothill	2,631	0.12	A	2,593	0.12	A	2,424	0.11	A	2,399	0.11	A	2,284	0.11	A	2,204	0.10	A	2,552	0.12	A	2,238	0.10	A	2,294	0.11	A
E St	Grant St	4th St	4,579	0.23	A	8,706	0.40	A	8,035	0.37	A	9,029	0.42	B	4,722	0.20	A	5,340	0.25	A	4,845	0.22	A	4,211	0.19	A	4,156	0.19	A
E St	4th St	6th St	8,638	0.36	A	7,112	0.33	A	8,787	0.31	A	8,779	0.31	A	4,506	0.31	A	9,452	0.33	A	8,940	0.37	A	4,412	0.20	A	4,404	0.20	A
E St	6th St	7th St	7,562	0.35	A	6,186	0.29	A	7,514	0.35	A	7,770	0.36	A	7,416	0.34	A	7,944	0.36	A	7,820	0.35	A	7,402	0.34	A	7,845	0.35	A
E St	7th St	9th St	8,078	0.45	B	7,606	0.43	B	8,217	0.46	B	8,056	0.45	B	8,348	0.47	B	8,950	0.50	B	7,849	0.45	B	8,132	0.46	B	8,682	0.49	B
E St	9th St	Mill St	8,477	0.42	B	7,978	0.40	A	8,057	0.40	A	8,313	0.42	B	8,276	0.41	B	8,459	0.42	B	8,481	0.42	B	8,296	0.41	B	8,157	0.41	A
E St	Mill St	F St	11,945	0.60	B	11,695	0.58	B	11,766	0.59	B	11,812	0.59	B	12,050	0.60	B	11,956	0.60	B	11,998	0.60	B	12,061	0.60	B	12,163	0.61	B
F St	3rd St	6th St	6,033	0.28	A	7,707	0.39	A	7,391	0.34	A	8,269	0.38	A	4,901	0.23	A	5,715	0.26	A	6,365	0.29	A	4,707	0.22	A	4,628	0.21	A
F St	6th St	7th St	8,037	0.40	A	8,941	0.41	A	10,078	0.47	B	10,877	0.50	B	7,075	0.33	A	8,102	0.38	A	8,645	0.40	A	7,378	0.34	A	7,044	0.33	A
F St	7th St	9th St	7,520	0.42	B	7,018	0.39	A	7,185	0.40	A	7,867	0.41	B	7,044	0.40	B	7,815	0.44	B	7,175	0.40	A	7,394	0.41	B	7,089	0.40	B
F St	9th St	Mill St	7,628	0.36	A	7,785	0.39	A	7,935	0.40	A	8,029	0.40	A	7,833	0.39	A	7,915	0.40	A	7,821	0.39	A	7,733	0.39	A	7,748	0.39	A
F St	Mill St	E St	8,514	0.43	B	8,954	0.43	B	8,724	0.44	B	8,798	0.44	B	8,818	0.44	B	8,949	0.45	B	8,896	0.42	B	8,685	0.43	B	8,831	0.44	B
M St	4th St	6th St	11,664	0.55	B	7,783	0.39	A	8,000	0.37	A	9,356	0.43	B	8,247	0.38	A	10,183	0.47	B	12,020	0.56	B	8,189	0.38	A	9,029	0.42	B
M St	6th St	7th St	11,798	0.54	B	10,230	0.47	B	10,424	0.48	B	10,748	0.50	B	10,721	0.50	B	11,441	0.53	B	11,789	0.54	B	10,369	0.48	B	10,944	0.51	B
M St	7th St	9th St	8,549	0.40	A	10,897	0.50	B	10,529	0.49	B	10,061	0.47	B	10,491	0.49	B	8,940	0.32	A	8,243	0.39	A	9,895	0.46	B	10,157	0.47	B
M St	9th St	10th St	8,002	0.37	A	7,917	0.36	A	7,774	0.36	A	7,831	0.36	A	7,929	0.37	A	7,998	0.37	A	7,783	0.36	A	8,059	0.37	A	8,000	0.37	A
M St	10th St	12th St	7,101	0.33	A	7,497	0.35	A	7,486	0.35	A	7,487	0.35	A	7,709	0.36	A	7,630	0.35	A	7,740	0.36	A	7,770	0.36	A	7,775	0.36	A
M St	12th St	N St	11,457	0.53	B	11,459	0.53	B	11,465	0.53	B	11,461	0.53	B	11,465	0.53	B	11,456	0.53	B	11,459	0.53	B	11,467	0.53	B	11,477	0.53	B
M St	N St	N St	9,847	0.46	B	9,847	0.46	B	9,851	0.46	B	9,849	0.46	B	9,851	0.46	B	9,847	0.46	B	9,837	0.46	B	9,851	0.46	B	9,857	0.46	B
Grants Pass Parkw	7th St	Parkdale Dr	23,153	0.49	B	20,028	0.42	B	19,883	0.42	B	20,123	0.43	B	18,870	0.40	A	19,643	0.42	B	23,070	0.49	B	19,799	0.40	A	19,709	0.40	A

Street Name	Segment Name (From)	Segment Name (To)	2015 Alternative Run Assignments: No Build Alternative			Alternative 1			Alternative 2			Alternative 3			Alternative 4			Alternative 5			Alternative 6			Alternative 7			Alternative 8		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Grants Pass Parkw	Parkdale Dr	M St	26,823	0.61	B	25,224	0.53	B	25,256	0.54	B	25,630	0.54	B	23,620	0.50	B	25,799	0.55	B	28,830	0.61	B	23,625	0.50	B	23,524	0.50	B
Grants Pass Parkw	M St	Hwy 199 Spur	26,963	0.57	B	25,810	0.55	B	25,815	0.55	B	25,916	0.55	B	24,347	0.52	B	26,020	0.55	B	26,954	0.57	B	24,521	0.52	B	23,956	0.51	B
Grants Pass Parkw	Hwy 199 Spur	Beacon Dr	36,103	0.76	C	34,950	0.74	C	34,984	0.74	C	35,146	0.74	C	33,898	0.72	C	34,772	0.74	C	36,014	0.76	C	34,027	0.72	C	33,659	0.71	C
Grants Pass Parkw	Beacon Dr	Terry Ln	27,072	0.57	B	26,854	0.57	B	27,381	0.58	B	27,027	0.57	B	26,232	0.56	B	26,399	0.56	B	27,076	0.57	B	26,224	0.56	B	26,104	0.55	B
Grants Pass Parkw	Terry Ln	Agnes Ave	22,325	0.47	B	22,032	0.47	B	22,191	0.47	B	22,057	0.47	B	21,323	0.45	B	20,871	0.44	B	22,249	0.47	B	21,153	0.45	B	20,878	0.44	B
Grants Pass Parkw	Agnes Ave	I-5	28,763	0.61	B	27,605	0.58	B	27,700	0.59	B	27,860	0.59	B	26,259	0.56	B	26,470	0.56	B	29,065	0.62	B	26,350	0.56	B	26,097	0.55	B
6th St	Begins at I-5	Vine St	17,231	0.37	A	17,095	0.36	A	17,095	0.36	A	17,130	0.36	A	17,462	0.37	A	17,389	0.37	A	16,481	0.35	A	17,478	0.37	A	17,549	0.37	A
6th St	Vine St	Hillcrest Ln	15,106	0.62	B	15,509	0.64	B	15,429	0.64	B	15,462	0.64	B	13,025	0.54	B	13,529	0.56	B	14,787	0.61	B	12,863	0.53	B	12,822	0.53	B
6th St	Hillcrest Ln	Midland Ave	16,197	0.67	B	16,793	0.69	C	16,726	0.69	C	16,748	0.69	C	14,281	0.59	B	15,274	0.63	B	16,034	0.66	B	14,287	0.59	B	14,241	0.59	B
6th St	Midland Ave	Savage St	18,531	0.39	A	18,841	0.40	A	18,779	0.40	A	18,983	0.40	A	14,863	0.31	A	15,890	0.34	A	18,436	0.39	A	14,920	0.32	A	14,818	0.31	A
6th St	Savage St	Manzanita Ave	17,229	0.37	A	18,578	0.39	A	18,130	0.38	A	18,095	0.38	A	14,220	0.30	A	15,151	0.32	A	17,839	0.38	A	14,257	0.30	A	13,731	0.29	A
6th St	Manzanita Ave	A St	20,190	0.43	B	21,138	0.45	B	20,636	0.44	B	20,703	0.44	B	16,931	0.36	A	18,416	0.39	A	20,265	0.43	B	16,885	0.36	A	16,561	0.35	A
6th St	A St	D St	22,234	0.47	B	23,189	0.49	B	22,680	0.48	B	22,919	0.49	B	18,991	0.40	A	18,140	0.38	A	22,313	0.47	B	18,869	0.40	A	17,580	0.37	A
6th St	E St	F St	22,024	0.47	B	20,429	0.43	B	19,797	0.42	B	20,532	0.44	B	18,304	0.39	A	17,952	0.38	A	21,894	0.46	B	18,742	0.40	A	17,797	0.38	A
6th St	F St	H St	21,341	0.45	B	19,535	0.41	B	19,034	0.40	A	19,862	0.42	B	18,047	0.38	A	17,487	0.37	A	21,407	0.45	B	17,993	0.38	A	17,243	0.37	A
6th St	H St	M St	20,959	0.44	B	18,515	0.39	A	17,929	0.38	A	18,507	0.39	A	17,218	0.36	A	16,627	0.35	A	20,728	0.44	B	17,105	0.36	A	16,567	0.35	A
6th St	M St	Voorhies Ave	24,669	0.52	B	20,245	0.43	B	20,202	0.43	B	21,199	0.45	B	19,517	0.41	B	20,048	0.42	B	24,639	0.52	B	19,247	0.41	A	19,436	0.41	B
6th St	Voorhies Ave	Lewis Ave	26,080	1.08	F	21,904	0.91	D	21,844	0.90	D	22,535	0.93	E	21,175	0.88	D	21,597	0.89	D	26,106	1.08	F	20,890	0.86	D	21,094	0.87	D
6th St	Lewis Ave	West Park St	26,962	0.57	B	22,772	0.48	B	22,721	0.48	B	23,401	0.50	B	21,909	0.46	B	22,442	0.48	B	27,002	0.57	B	21,987	0.46	B	21,816	0.46	B
6th St	West Park St	Redwood Hwy	18,713	0.40	A	14,477	0.31	A	14,386	0.30	A	14,967	0.32	A	13,475	0.29	A	13,772	0.29	A	18,671	0.40	A	13,155	0.28	A	13,342	0.28	A
6th St	Redwood Hwy	Fruitdale Dr	12,600	0.27	A	12,919	0.27	A	12,841	0.27	A	13,136	0.28	A	12,017	0.25	A	13,060	0.28	A	12,880	0.27	A	10,669	0.23	A	10,999	0.23	A
7th St	Morgan Ln	Hillcrest Dr	12,936	0.53	B	12,217	0.50	B	12,134	0.50	B	12,292	0.51	B	11,399	0.47	B	11,149	0.46	B	12,016	0.50	B	11,197	0.46	B	11,509	0.48	B
7th St	Hillcrest Dr	Midland Ave	16,433	0.68	C	16,874	0.70	C	16,721	0.69	C	16,766	0.69	C	15,352	0.63	B	15,512	0.64	B	16,218	0.67	C	15,156	0.63	B	15,295	0.63	B
7th St	Midland Ave	Savage St	16,148	0.67	B	16,469	0.68	C	16,391	0.68	C	16,486	0.68	C	14,850	0.61	B	15,025	0.62	B	16,209	0.67	B	14,628	0.60	B	14,772	0.61	B
7th St	Savage St	Outlook Ave	17,466	0.72	C	18,131	0.75	C	18,114	0.75	C	18,207	0.75	C	16,033	0.66	B	16,794	0.69	C	17,765	0.73	C	16,031	0.66	B	15,821	0.65	B
7th St	Outlook Ave	Evelyn Ave	17,851	0.74	C	18,717	0.77	C	18,495	0.76	C	18,740	0.77	C	16,033	0.66	B	16,809	0.69	C	18,094	0.75	C	15,759	0.65	B	15,359	0.63	B
7th St	Evelyn Ave	Jackson St	19,151	0.79	C	20,017	0.83	D	19,705	0.82	D	20,040	0.83	D	17,339	0.72	C	18,106	0.75	C	19,394	0.80	C	17,059	0.70	C	16,659	0.69	C
7th St	Jackson St	A St	20,327	0.84	D	21,430	0.89	D	20,222	0.84	D	20,969	0.87	D	16,922	0.70	C	17,189	0.71	C	20,103	0.83	D	17,182	0.71	C	16,095	0.67	B
7th St	A St	E St	20,651	0.56	B	21,920	0.61	B	20,928	0.59	B	21,799	0.61	B	17,403	0.49	B	16,842	0.47	B	20,865	0.59	B	17,207	0.48	B	16,067	0.45	B
7th St	E St	F St	21,899	0.61	B	23,617	0.66	B	21,487	0.60	B	22,758	0.64	B	17,749	0.50	B	17,577	0.49	B	22,099	0.62	B	17,547	0.49	B	16,363	0.46	B
7th St	F St	J St	20,750	0.58	B	19,554	0.55	B	18,603	0.52	B	19,225	0.54	B	17,510	0.49	B	16,879	0.47	B	20,595	0.58	B	17,345	0.49	B	16,791	0.47	B
7th St	J St	M St	19,250	0.54	B	17,200	0.48	B	16,270	0.46	B	16,787	0.47	B	15,667	0.44	B	15,209	0.43	B	19,272	0.54	B	15,781	0.44	B	15,292	0.43	B
7th St	M St	Voorhies Ave	25,799	0.72	C	21,870	0.62	B	21,549	0.60	B	22,527	0.63	B	21,399	0.60	B	21,799	0.61	B	25,779	0.72	C	20,987	0.59	B	21,349	0.60	B
7th St	Voorhies Ave	Park St	25,031	1.03	F	21,353	0.88	D	20,909	0.86	D	21,587	0.89	D	20,749	0.86	D	21,070	0.87	D	25,099	1.04	F	20,354	0.84	D	20,731	0.86	D
7th St	Park St	Redwood Hwy	11,379	0.24	A	8,384	0.18	A	8,749	0.19	A	8,956	0.19	A	9,133	0.19	A	8,891	0.19	A	12,147	0.26	A	8,800	0.19	A	8,700	0.18	A
9th St	Hillcrest Dr	Savage St	605	0.04	A	648	0.04	A	651	0.04	A	654	0.04	A	672	0.04	A	696	0.04	A	632	0.04	A	671	0.04	A	672	0.04	A
9th St	Savage St	Madrone St	3,313	0.20	A	3,119	0.19	A	2,994	0.18	A	3,097	0.19	A	3,051	0.19	A	3,449	0.21	A	3,265	0.20	A	3,064	0.19	A	3,062	0.19	A
9th St	Madrone St	A St	3,497	0.22	A	4,749	0.29	A	4,301	0.27	A	4,045	0.25	A	4,162	0.26	A	0	0.00	A	3,539	0.22	A	4,324	0.27	A	4,399	0.27	A
9th St	D St	E St	3,696	0.23	A	4,299	0.27	A	4,135	0.26	A	4,382	0.27	A	3,924	0.24	A	3,960	0.25	A	3,499	0.22	A	4,265	0.26	A	3,259	0.20	A
9th St	E St	F St	4,361	0.27	A	4,609	0.29	A	4,891	0.30	A	4,699	0.29	A	4,511	0.28	A	4,475	0.28	A	4,355	0.27	A	4,651	0.29	A	4,209	0.26	A
9th St	F St	J St	5,309	0.33	A	5,632	0.35	A	5,292	0.33	A	4,968	0.31	A	4,977	0.31	A	4,543	0.28	A	5,828	0.36	A	4,854	0.30	A	4,547	0.28	A
9th St	J St	M St	3,761	0.23	A	4,799	0.30	A	4,484	0.28	A	4,210	0.26	A	4,280	0.26	A	3,690	0.23	A	3,739	0.23	A	4,146	0.26	A	3,832	0.24	A
10th St	Hillcrest Dr	Dewey Dr	2,263	0.14	A	2,379	0.15	A	2,470	0.15	A	2,415	0.15	A	2,317	0.14	A	1,801	0.11	A	2,272	0.14	A	2,309	0.14	A	2,280	0.14	A
10th St	Dewey Dr	Savage St	2,818	0.17	A	2,932	0.18	A	3,019	0.19	A	2,963	0.18	A	2,909	0.18	A	2,257	0.14	A	2,834	0.17	A	2,851	0.18	A	2,836	0.18	A
10th St	Savage St	Josephine St	4,339	0.27	A	4,463	0.28	A	4,588	0.28	A	4,498	0.28	A	4,351	0.27	A	3,629	0.22	A	4,340	0.27	A	4,341	0.27	A	4,324	0.27	A
10th St	Josephine St	A St	5,090	0.31	A	4,416	0.27	A	4,261	0.26	A	4,524	0.28	A	4,329	0.27	A	6,977	0.43	B	4,999	0.31	A	4,229	0.26	A	4,106	0.25	A
Fruitdale Dr	Jacksonville Hwy	Popular Dr	4,794	0.30	A	5,061	0.31	A	4,941	0.31	A	4,774	0.29	A	4,769	0.29	A	4,737	0.29	A	4,706	0.29	A	4,800	0.30	A	4,940	0.30	A
Fruitdale Dr	Popular Dr	Drury Ln	4,794	0.30	A	5,061	0.31	A	4,941	0.31	A	4,774	0.29	A	4,769	0.29	A	4,737	0.29	A	4,706	0.29	A	4,800	0.30	A	4,940	0.30	A
Fruitdale Dr	Drury Ln	Parkdale Dr	4,444	0.27	A	4,069	0.25	A	4,204	0.26	A	4,060	0.25	A	3,627	0.22	A	3,697	0.23	A	3,762	0.23	A	3,804	0.23	A	3,805	0.23	A
Fruitdale Dr	Parkdale Dr	Alexander Ln	5,392	0.33	A	5,660	0.35	A	5,693	0.35	A	5,027	0.31	A	5,565	0.34	A	5,533	0.34	A	5,233	0.32	A	5,472	0.34	A	5,591	0.35	A
Grandview Ave	Harbeck Rd	Drury Ln	5,404	0.33	A	5,100	0.31	A	5,105	0.32	A	5,219	0.32	A	5,223	0.32	A	5,224	0.32	A	5,290	0.33	A	5,185	0.32	A	5,339	0.33	A
Grandview Ave	Drury Ln	Gaffney Way	5,496	0.34	A	5,199	0.32	A	5,209	0.32	A	5,319	0.33	A	5,336	0.33	A	5,329	0.33	A	5,390	0.33	A	5,296	0.33	A	5,455	0.34	A
Grandview Ave	Gaffney Way	Cloverlawn Dr	4,592	0.28	A	4,292	0.26	A	4,312	0.27	A	4,417	0.27	A	4,442	0.27	A	4,433	0.27	A	4,482	0.28	A	4,430	0.27	A	4,545	0.28	A
Cloverlawn	Rogue River Hwy	Fruitdale Dr	5,929	0.37	A	4,774	0.29	A	4,600	0.28	A	5,565	0.34	A	3,650	0.23	A	4,572	0.28	A	5,929	0.37	A	4,249	0.26	A	4,052	0.25	A
Cloverlawn	Fruitdale Dr	Alanita Rd	7,539	0.47	B	7,551	0.47	B	7,413	0.46	B	7,450	0.46	B	7,166	0.44	B	7,400	0.46	B	7,475	0.46	B	6,571	0.41	A	6,527	0.40	A
Cloverlawn	Alanita Rd	Hamilton Ln	7,756	0.48	B	8,784	0.54	B	8,769	0.54	B	8,780	0.54	B	8,770	0.54	B	8,776	0.54	B	8,780	0.54	B	8,786	0.54	B	8,746	0.54	B
Rogue River Hwy	Redwood Hwy	Maple Ln	17,998	0.59	B	18,189	0.60	B	17,966	0.59	B	18,149	0.60	B	18,566	0.61	B	18,453	0.61	B	17,926	0.59	B	18,478	0.61	B	18,414	0.61	B
Rogue River Hwy	Maple Ln	Parkdale Dr	18,622	0.61	B	18,724	0.62	B	18,466	0.61	B	18,666	0.62	B	19,110	0.63	B	18,883	0.62	B	18,619	0.61	B	19,079	0.63	B	18,950	0.63	B
Rogue River Hwy	Parkdale Dr	Cloverlawn Dr	16,017	0.53	B	16,157	0.53	B	16,143	0.53	B	16,675	0.55	B	16,162	0.53	B	17,166	0.57	B	16,269	0.54	B	16,209	0.54	B	16,039	0.53	B
Rogue River Hwy	Cloverlawn Dr	Mt Baldy Rd	10,452	0.34	A	10,370	0.34	A	10,468	0.35	A	10,527	0.35	A	10,536	0.35	A	10,483	0.35	A	10,425	0.34	A	10,316	0.34	A	10,426	0.34	A
Rogue River Hwy	Mt Baldy Rd	Fruitdale Dr	9,226	0.38	A	9,143	0.38	A	9,241	0.38	A	9,300	0.38	A	9,310	0.38	A	9,257	0.38	A	9,199	0.38	A	9,089	0.38	A	9,193	0.38	A
Rogue River Hwy	Fruitdale Dr	Packerwood Ln	12,401	0.51	B	12,407	0.51	B	12,427	0.51	B	12,411	0.51	B	12,427	0.51	B	12,411	0.51	B	12,361	0.51	B	12,409	0.51	B	12,423	0.51	B
4th St	Evelyn Ave	A St	7,609	0.47	B	7,231	0.45	B	7,758	0.48	B	7,600	0.47	B	7,163	0.44	B	7,856	[illegible]	B	6,960	0.43	B	7,311	0.45	B	7,606	0.47	B
4th St	A St	E St	8,165	0.50	B	8,744	0.54	B	7,119	0.44	B	8,859	0.55	B	6,076	0.38	A	6,213	0.38	A	8,019	0.49	B	6,072	0.37	A	5,002	0.31	A
4th St	E St	F St	7,139	0.44	B	6,652	0.41	B	6,409	0.40	A	6,461	0.40	A	6,745	0.42	B	6,419	0.40	A	7,677	0.47	B	6,727	0.42	B	6,157	0.38	A
4th St	F St	J St	7,153	0.44	B	4,515	0.28	A	4,794	0.30	A	4,479	0.28	A	5,710	0.35	A	5,399	0.33	A	7,299	0.45	B	5,729	0.35	A	5,179	0.32	A
4th St	J St	Bridge St	4,057	0.25	A	4,303	0.27	A	4,610	0.28	A	4,554	0.28	A	4,659	0.29	A	4,104	0.25	A	4,990	0.31	A	4,631	0.29	A	3,865	0.24	A
Harbeck Rd	Union Ave	GI Ln	6,732	0.42	B	7,457	0.46	B	7,530	0.46	B	7,566	0.47	B	7,236	0.45	B	7,432	0.46	B	7,938	0.49	B	6,042	0.37	A	5,789	0.36	A
Harbeck Rd	GI Ln	Grandview Ave	2,848	0.18	A	2,707	0.17	A	2,802	0.17	A	2,831	0.17	A	2,909	0.18	A	2,794	0.17	A	2,812	0.17	A	3,273	0.20	A	3,254	0.20	A
Harbeck Rd	Grandview Ave	West Harbeck Rd	3,187	0.20	A	3,003	0.19	A	2,913	0.18	A	3,000	0.19	A	2,835	0.18	A	3,042	0.19	A	3,095	0.19	A	2,524	0.16	A	2,697	0.17	A
West Harbeck Rd	Allen Creek Rd	Williams Hwy	5,076	0.31	A	5,200	0.32	A	5,197	0.32	A	4,957	0.31	A	5,698	0.35	A	4,863	0.30	A	4,761	0.29	A	757	0.05	A	48	0.00	A
West Harbeck Rd	Williams Hwy	Towne St	2,621	0.17	A	2,656	0.16	A	2,590	0.16	A	2,656	0.16	A	2,687	0.16	A	2,699	0.17	A	2,746	0.17	A	2,237	0.14	A	2,392	0.15	A
West Harbeck Rd	Towne St	Harbeck Rd	3,187	0.20	A	3,003	0.19	A	2,913	0.18	A	3,000	0.19	A	1,935	0.12	A	3,042	0.19	A	3,095	0.19	A	2,524	0.16	A	2,697	0.17	A

INTERSECTION	Existing Delay	NO BUILD	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	ALT 7	ALT 8
6th at Morgan Lane	26	37	31	31	39	>60	52	32	>60	>60
	D	D	D	D	D	F	E**	D	F	F***
7th at Morgan Lane	7	10	9	9	10	10	9	9	9	9
	B	B	B	B	B	B	B	B	B	B
6th Street at E Street	6	8	7	8	8	7	7	8	7	7
	B	B	B	B	B	B	B	B	B	B
7th Street at E Street	8	10	10	11	10	10	13	10	10	12
	B	B	B	B	B	B	B	B	B	B
7th Street at F Street	7	8	8	8	8	7	7	8	7	7
	B	B	B	B	B	B	B	B	B	B
6th Street at M Street	10	18	10	10	10	10	11	>60	10	10
	B	C	B	B	B	B	B	F	B	B
7th Street at M Street	9	>60	>60	>60	>60	>60	>60	>60	>60	>60
	B	F	F	F	F	F	F*	F	F	F*
6th Street at Redwood Highway	13	17	14	14	14	14	14	N/A	14	14
	B	C	B	B	B	B	B		B	B
7th Street at Redwood Highway	12	14	13	13	13	13	13	N/A	12	13
	B	B	B	B	B	B	B		B	B
Grants Pass Parkway at Redwood Hwy. Spur	12	13	13	13	13	13	12	13	13	13
	B	B	B	B	B	B	B	B	B	B
Jacksonville Highway at Redwood Highway	44	>60	>60	>60	>60	>60	>60	N/A	>60	>60
	E	F	F	F	F	F	F		F	F

* LOS C could be achieved through minor signal timing change

** LOS D could be achieved through minor signal timing change

*** LOS E could be achieved through minor signal timing change

No Build Alternative

The no-build or "do nothing" alternative assumes there will be no new roadway construction or other major capital investments made over the next 20 years, outside of projects already scheduled in the six year TIP.

Figure 1 illustrates the levels of service associated with the no-build alternative. Under the no-build alternative, the following seven roadway segments will operate at Level of Service (LOS) C in 2015:

- **Redwood Highway:** Fairgrounds Road to Tussy Lane;
- **Bridge Street:** Oak Street to Division Street;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive; and
- **7th Street:** Hillcrest Lane to Midland Avenue, Savage Street to Jackson Street, M Street to Voorhies Avenue.

Two roadway segments will operate at LOS D in 2015 including:

- **Redwood Highway:** Redwood Avenue to Fairgrounds Road; and
- **7th Street:** Jackson Street to A Street.

No roadway segments will operate at LOS E in 2015 in the No Build Alternative.

Three roadway segments will operate at LOS F in 2015:

- **Jacksonville Highway:** New Hope Road to the study area boundary;
- **6th Street:** Voorhies Avenue to Lewis Avenue; and
- **7th Street:** Voorhies Avenue to Park Street.

The primary highlights of future traffic conditions under this alternative shows a heavy orientation of east-west traffic on Redwood Highway and Grants Pass Parkway for east-west travel and on 6th Street and 7th Street for north-south travel. Because of the limited capacity and resultant heavy congestion on the 6th and 7th Street bridges, much of the traffic that might

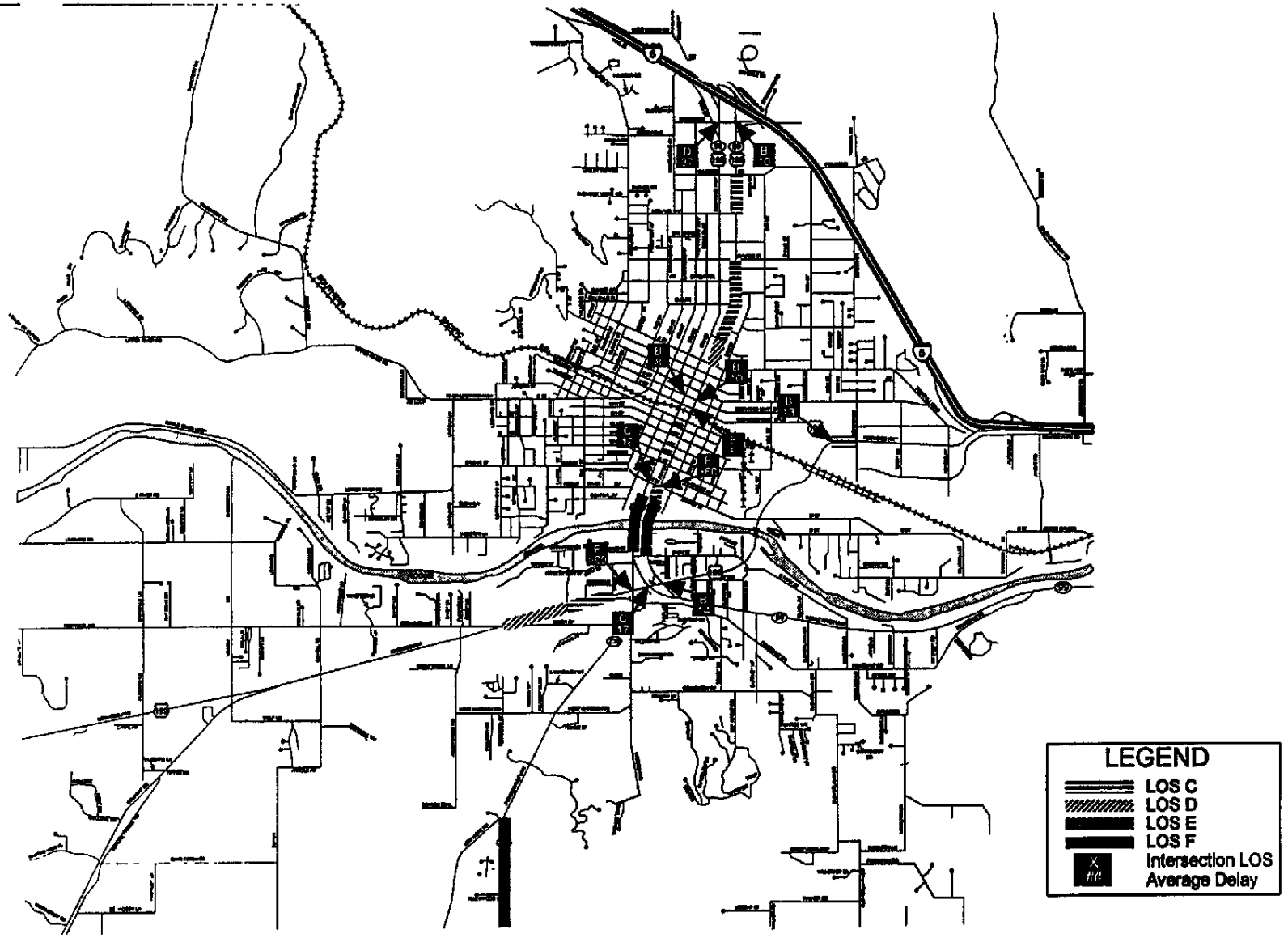

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Figure 1 - Congestion in the No Build Alternative

Grants Pass
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have otherwise be destined to the downtown area or traveling beyond it via 6th and 7th Streets, appears to be being diverted to I-5 and Grants Pass Parkway. The traffic congestion on the Jacksonville Highway south of New Hope Road is caused by a roadway capacity reduction from four lanes to two lanes at that point.

Of the eleven intersections evaluated four would have a degradation in their associated levels of service.

- The LOS would decrease from B to C at the 6th Street and M Street intersection.
- The LOS would decrease from B to C at the 6th Street and Redwood Highway intersection.
- The LOS would decrease from B to F at the 7th Street and M Street intersection.
- The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Alternative 1

Alternative 1 includes the roadway improvement assumptions listed below which are also illustrated in Figure 2:

- The addition of a fourth bridge that extends north from the Flower Lane roadway alignment on the south side of the Rogue River to the Lincoln Lane alignment on the north side of the river;
- Widening of Flower Lane and Lincoln Road from two to four lanes;
- Widening of River Loop Highway/G Street from two to four lanes;
- Extending Union Avenue west to the intersection of Redwood Avenue and the Redwood Highway;
- Addition of a new northbound on-ramp to I-5 from Scoville Road, consistent with the planned roadway improvements for the factory outlet center project; and

Creation of a new service road on the north side of I-5 from Hillcrest Drive to Greenfield Road.

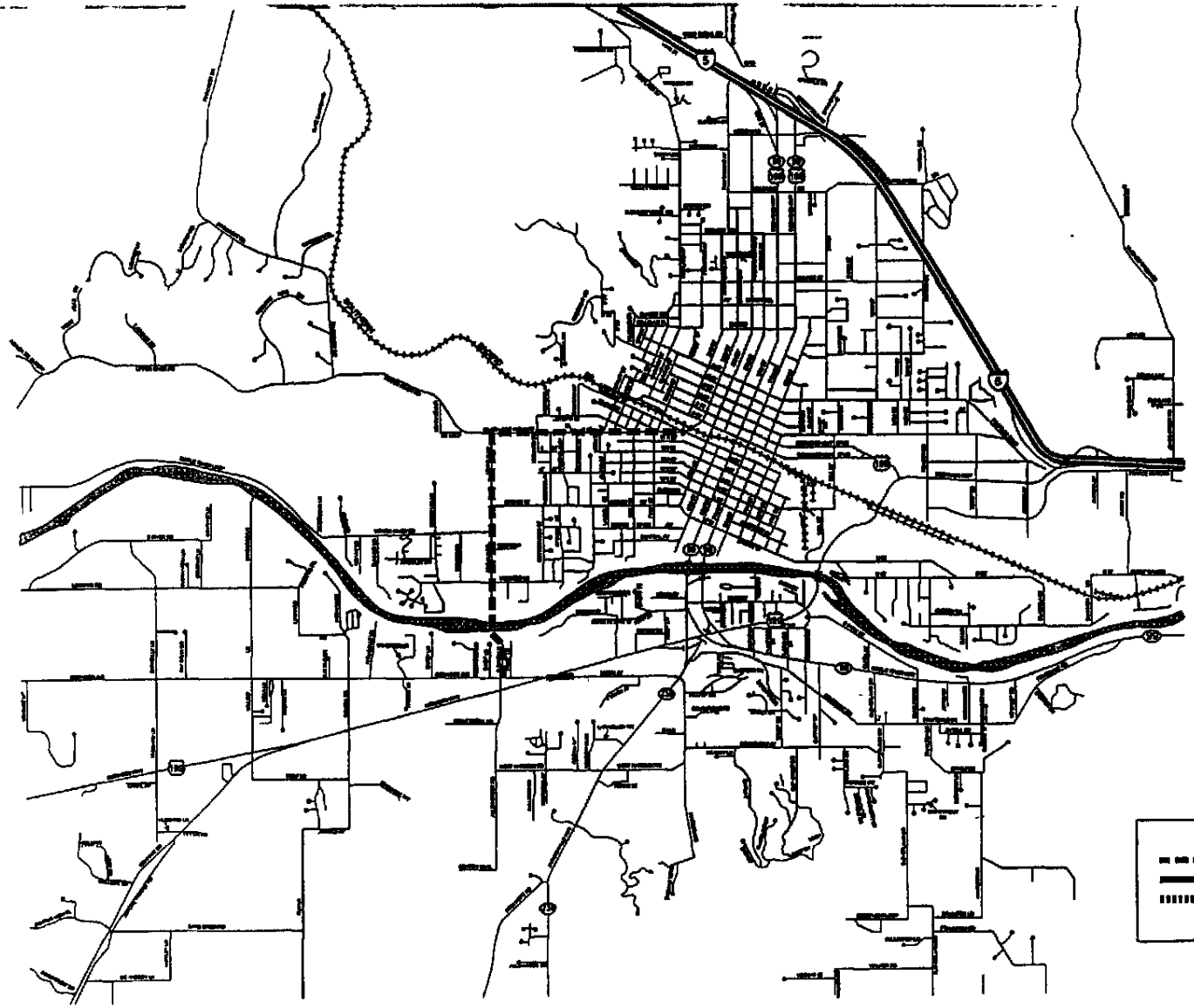

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Figure 2 - Improvements Included in Alternative 1

Grants Pass
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Figure 3 illustrates the level of service associated with Alternative 1 improvements. Under the Alternative 1 scenario, the following four roadway segments will operate at LOS C in 2015:

- **Redwood Highway:** Redwood Avenue to Fairgrounds Road;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive;
- **6th Street:** Hillcrest Drive to Midland Avenue; and
- **7th Street:** Hillcrest Lane to Evelyn Avenue.

Two roadway segments will operate at LOS D in 2015:

- **6th Street:** Voorhies Avenue to Lewis Avenue.
- **7th Street:** Evelyn Avenue to A Street, Voorhies Avenue to Park Street.

One roadway segment will operate at LOS F in 2015:

- **Jacksonville Highway:** New Hope Road to the study area boundary.

No roadway segments will operate at LOS E in 2015 in Alternative 1.

The improvements associated with Alternative 1 result in a reduction in congestion on Redwood Highway between Redwood Avenue and the "Y" interchange, as well as on the 6th and 7th Street bridges. However, congestion increases on 6th and 7th Street north of the downtown area. This increase in congestion may be due in part to the additional capacity across the river created by the addition of a fourth bridge. This is because traffic that under the No-build alternative accessed the area south of the Rogue River via I-5 and Grants Pass Parkway, may now be using 6th and 7th Street to access the new bridge. This shift in travel patterns is evidenced by the approximately 3,500 vehicles per day decrease in volume on Grants Pass Parkway and the approximately 1,000 vehicles per day increase in volume on both 6th and 7th Streets at the north end of the city. There area also volume reductions on A, E, an F Streets in the vicinity of Grants Pass Parkway that appear to be related to the remaining 1,500 vehicle trip reduction on Grants Pass Parkway that appears to now be using the fourth bridge. The other notable traffic pattern change involves

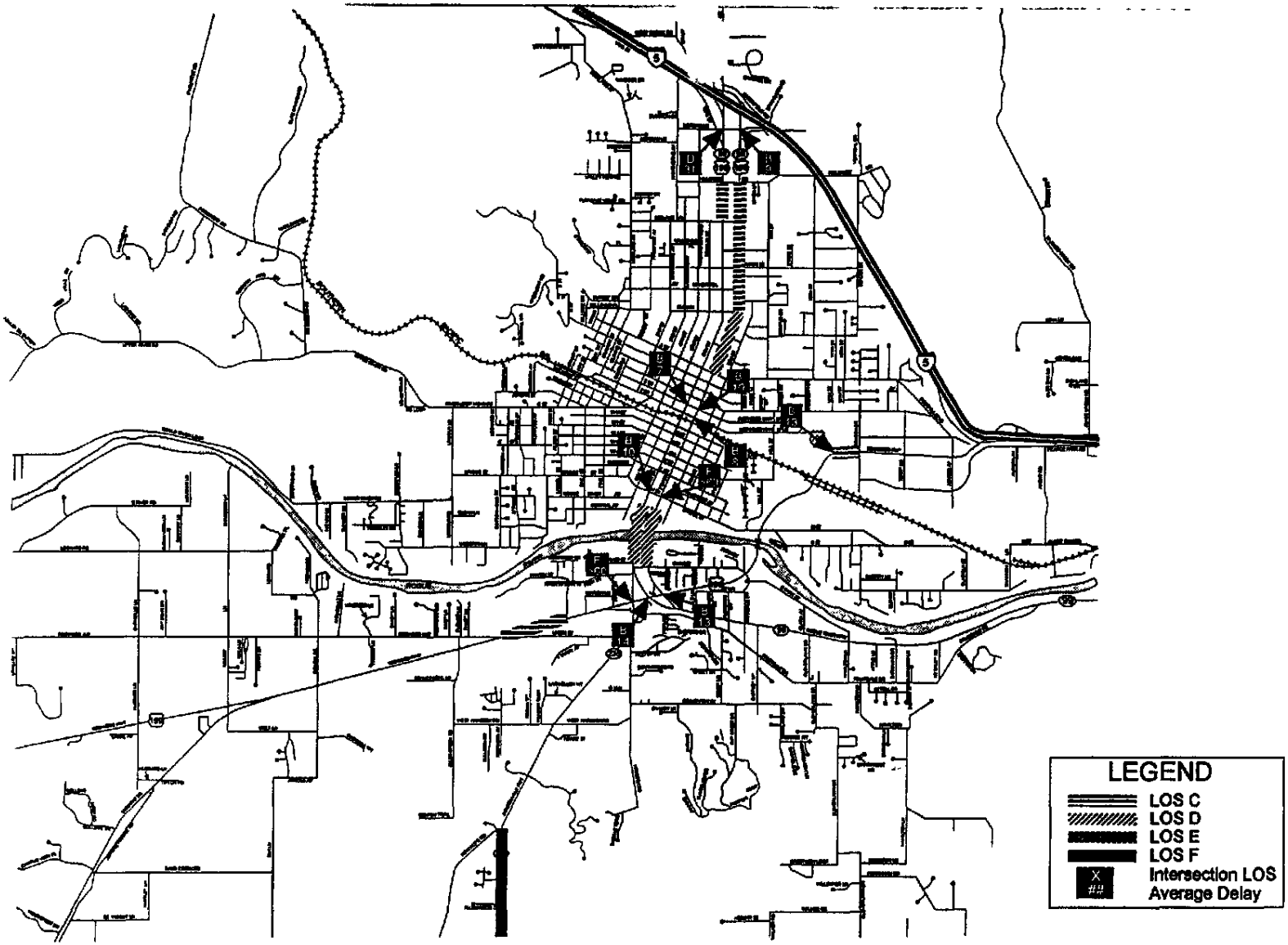

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Figure 3 - Congestion in Alternative 1

Grants Pass
Urban Area
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approximately 4,000 vehicles per day shifting to the new bridge from the each of the 6th and 7th Street bridges.

Of the eleven intersections evaluated, two would have a degradation in their associated levels of service.

- The LOS would decrease from B to F at the 7th Street and M Street intersection.
- The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Alternative 2

The roadway improvements included in Alternative 2, which are illustrated in Figure 4, are the same as in Alternative 1 with the following enhancements:

- Extend Lincoln Road north across the railroad tracks; and
- Widen Foundry Street to four lanes from 3rd Street west and extend it so that it connects with the northern extension of Lincoln Street.

Figure 5 illustrates the level of service associated with Alternative 2 improvements. Under this scenario the following five roadway segments will operate at LOS C in 2015:

- **Redwood Highway:** Redwood Avenue to Fairgrounds Road;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive;
- **River Loop Highway/G Street:** Lincoln Street to Oak Street;
- **6th Street:** Hillcrest Drive to Midland Avenue; and
- **7th Street:** Hillcrest Lane to Evelyn Avenue.

Two roadway segments will operate at LOS D in 2015 including:

- **6th Street:** Voorhies Avenue to Lewis Avenue; and

7th Street: Evelyn Avenue to A Street, Voorhies Avenue to Park Street.

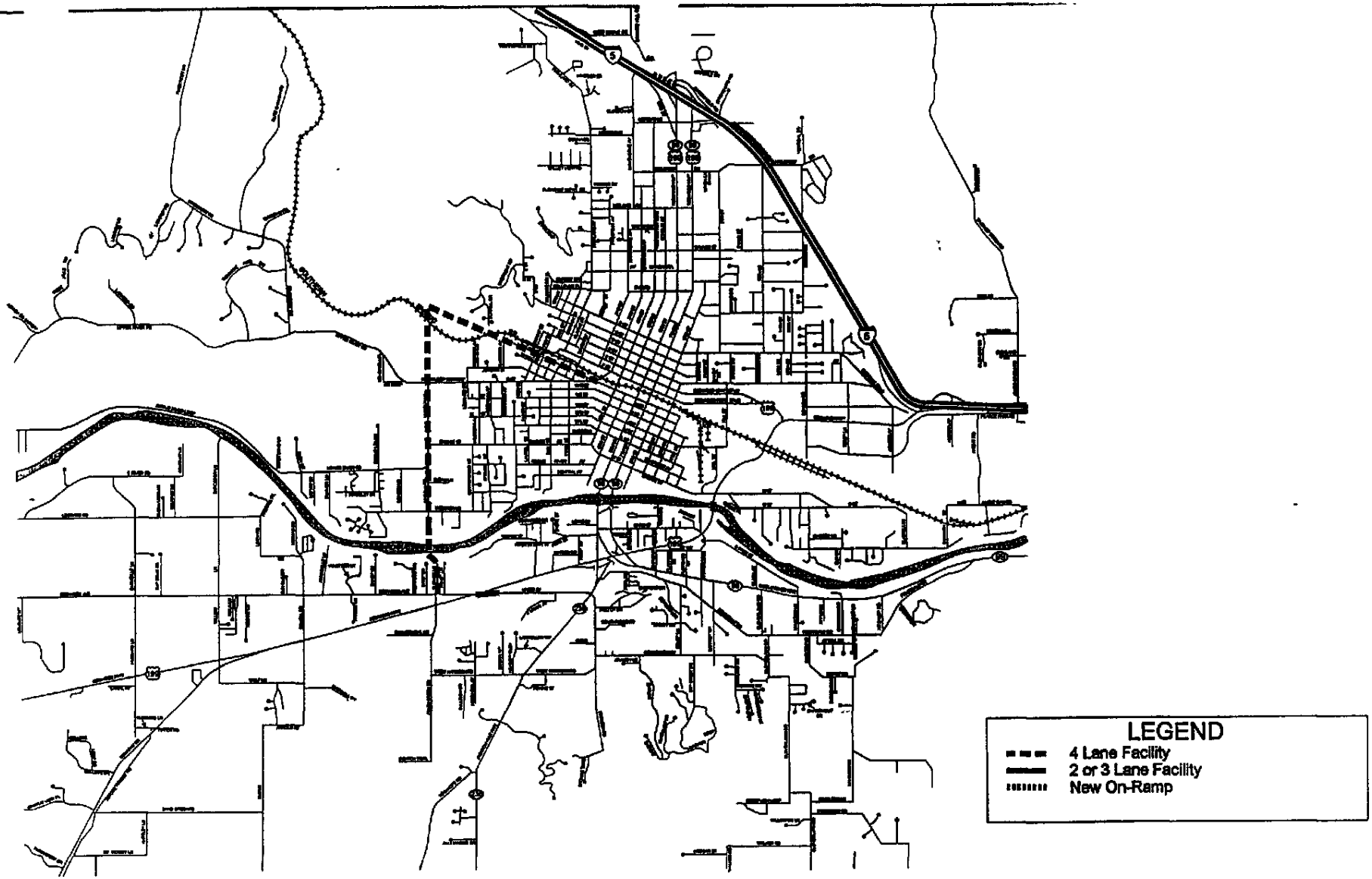

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Figure 4 - Improvements Included in Alternative 2

Grants Pass
Urban Area
Transportation Plan

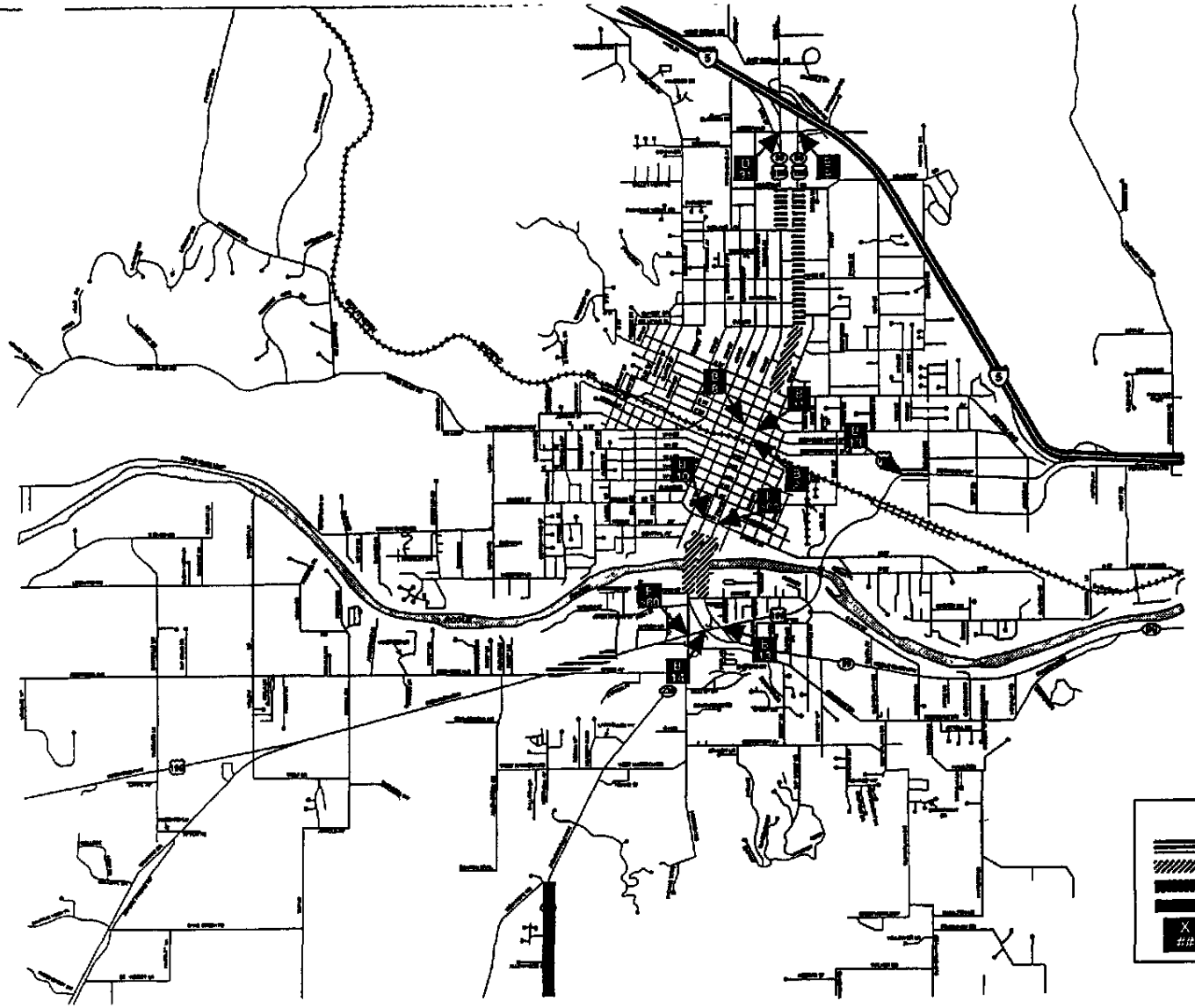

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Figure 5 - Congestion in Alternative 2

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The following roadway segments will operate at LOS F in 2015:

- **Jacksonville Highway:** New Hope Road to the study area boundary.

No roadway segments will operate at LOS E in 2015 in Alternative 2.

The congestion related improvements associated with Alternative 2 are essentially the same as those identified with Alternative 1 with one exception. Under the Alternative 2 scheme higher congestion levels on River Loop Highway/G Street are realized. This is probably because the extension of Lincoln Street and Foundry Street creates a connection to the downtown area that is more circuitous than River Loop Highway/G Street, attracting only approximately 2,200 vehicles per day. Of these, it appears that only approximately 1,000 vehicles per day are diverted from River Loop Highway.

The remaining traffic pattern shifts that were outlined in the discussion for Alternative 1, also hold true for this alternative as well. Approximately 1,000 vehicles per day shift from I-5 and Grants Pass Parkway to 6th and 7th Street, a total of approximately 3,500 vehicles per day shift from Grants Pass Parkway to the new bridge, and approximately 4,000 vehicles per day shift to the new bridge from the 6th and 7th Street bridges.

Of the eleven intersections evaluated two would have a degradation in their associated levels of service.

- The LOS would decrease from B to F at the 7th Street and M Street intersection.

- The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Alternative 3

Figure 6 illustrates the roadway improvement associated with Alternative 3 which includes the following:

- The addition of a fourth bridge that extends north from the Willow Lane/Schroeder Lane roadway alignment on the south side of the Rogue River to align with Pinecrest Drive on the north side of the river;

- Widening of Willow Lane/Schroeder Lane and Lincoln Road from two to four lanes from Redwood Avenue to Pinecrest Drive;

- Widening of Upper River Road/River Loop Highway/G Street from two to four lanes from Pinecrest Drive to the Foundry Street/3rd Street intersection;

- Extending Union Avenue west to the intersection of Redwood Avenue and the Redwood Highway;

- Addition of a new northbound on-ramp to I-5 from Scoville Road, consistent with the planned roadway improvements for the factory outlet center project; and

- Creation of a new service road on the north side of I-5 from Hillcrest Drive to Greenfield Road.

Figure 7 illustrates the level of service associated with Alternative 3. Under this alternative, four roadway segments will operate at LOS C in 2015:

- **Redwood Highway:** Redwood Avenue to Fairgrounds Road;

- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive;

- **6th Street:** Hillcrest Drive to Midland Avenue; and

- **7th Street:** Hillcrest Lane to Evelyn Avenue.

One roadway segment will operate at LOS D in 2015:

- **7th Street:** Evelyn Avenue to A Street, Voorhies Avenue to Park Street.

One roadway segment will operate at LOS E in 2015:

- **6th Street:** Voorhies Avenue to Lewis Avenue.

One roadway segment will operate at LOS F in 2015:

- **Jacksonville Highway:** New Hope Road to the study area boundary.

The improvements associated with Alternative 3 are essentially the same as Alternative 1 with one exception. Under the Alternative 3 scenario

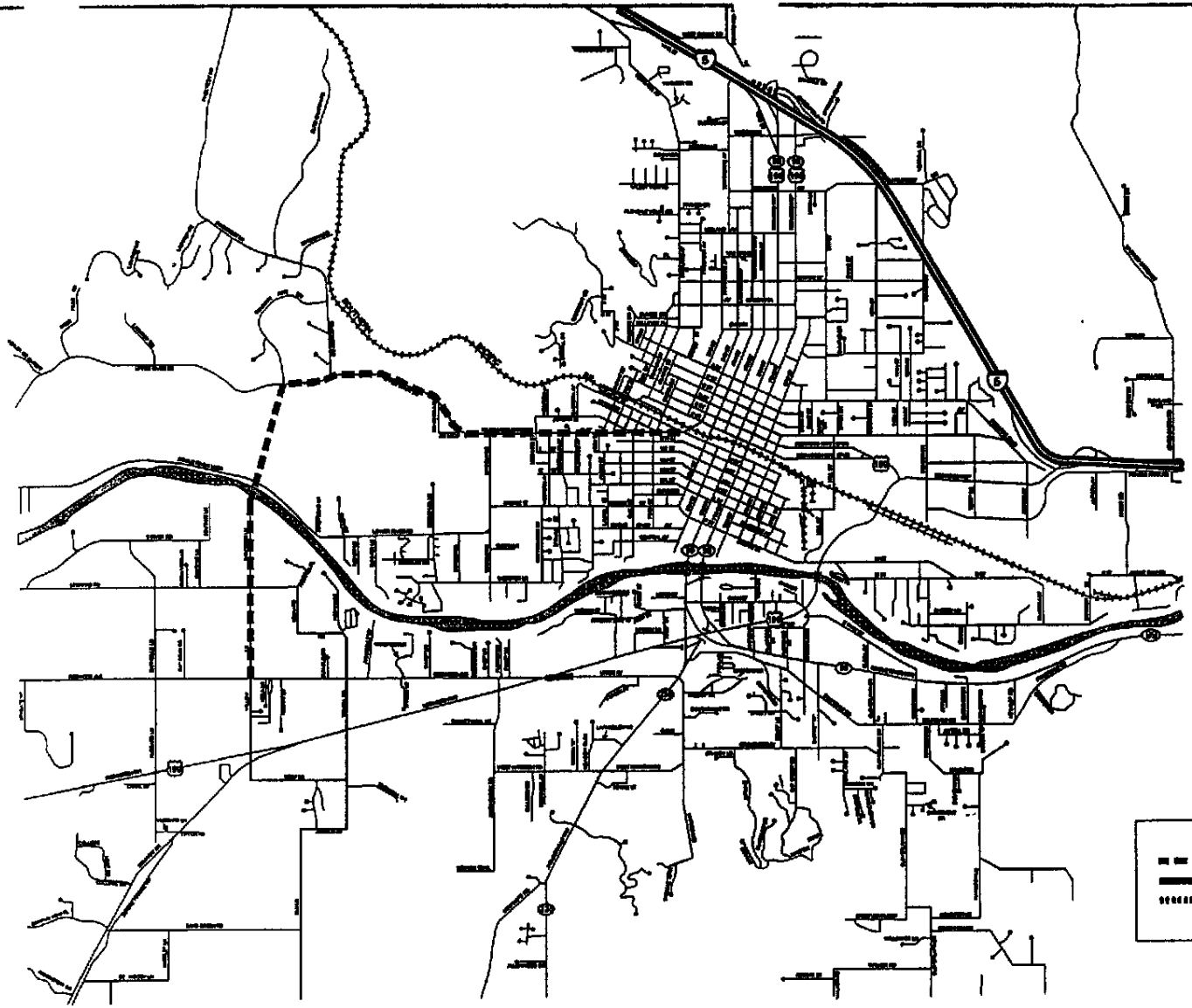

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Figure 6 - Improvements Included in Alternative 3

Grants Pass
Urban Area
Transportation Plan

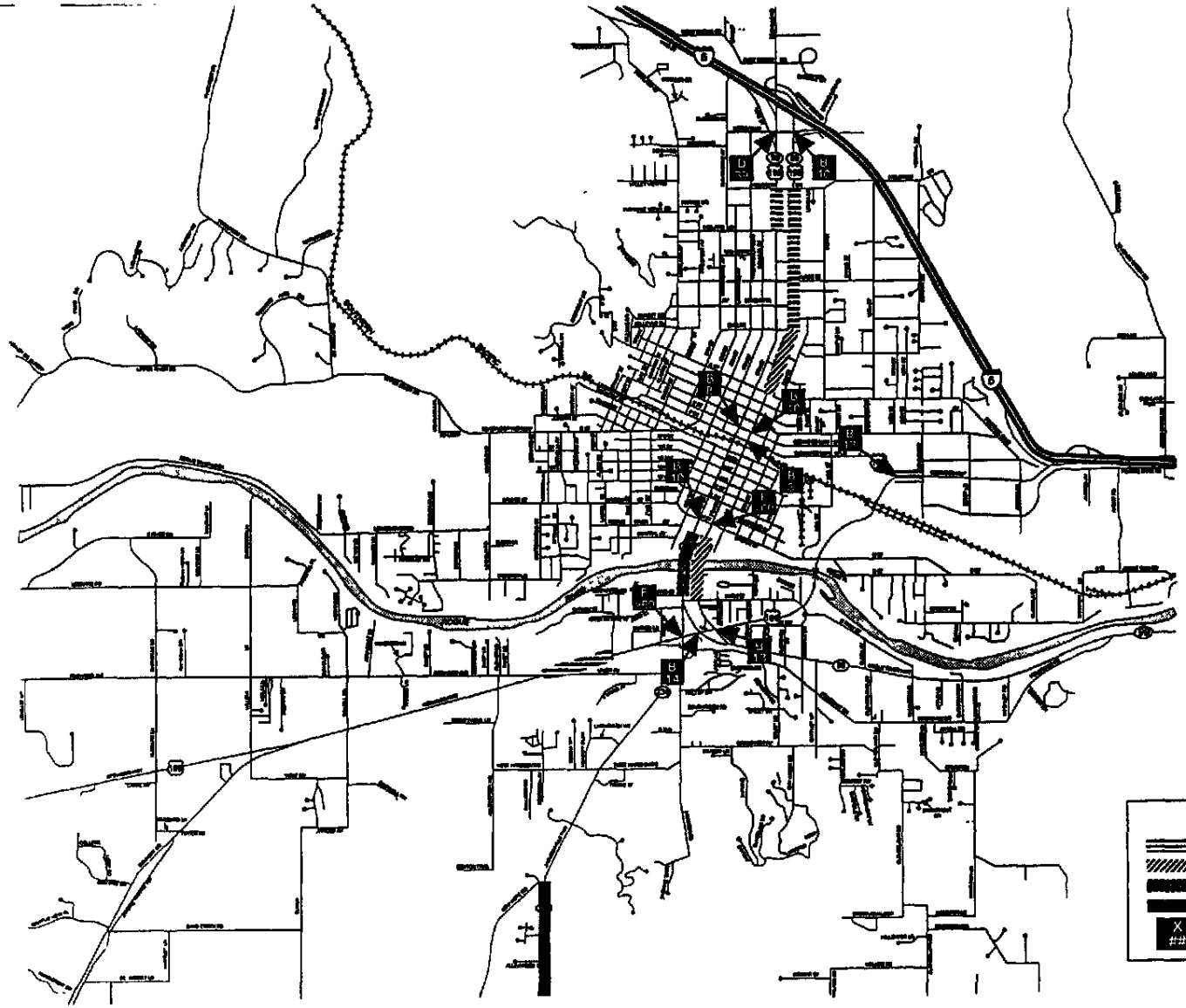

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Figure 7 - Congestion in Alternative 3

Grants Pass
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congestion on the 6th Street bridge is reduced only to LOS E, while under the Alternative 1 scenario, the improvements result in a reduction in congestion to LOS D. This lower LOS improvement appears to be due to a smaller shift in traffic from 6th Street to the new bridge due to its location much further to the west of the CBD. The analysis shows that approximately 3,500 vehicles per day shift to the new bridge from the 6th and 7th Street bridges, versus approximately 4,000 vehicles per day switching to the Lincoln Street bridge alignment under Alternative 1.

Also, as with the previous alternatives discussion, approximately 1,000 vehicles per day shift from I-5 and Grants Pass Parkway to 6th and 7th Street, and a total of about 3,500 vehicles per day shift from Grants Pass Parkway to the fourth bridge.

It should also be noted that the location of the fourth bridge in this alternative, further west of the city, and the lack of an existing access road leading to it on the north side of the river, may make this alternative more costly both in terms of construction and environmental impacts than the other bridge alignment. However, it is clear that further detailed studies would need to be undertaken to verify this assertion.

Of the eleven intersections evaluated two would have a degradation in their associated levels of service.

- The LOS would decrease from B to F at the 7th Street and M Street intersection.
- The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Alternative 4

Alternative 4 includes the same roadway improvements, illustrated in Figure 8, as in Alternative 2, but adds the following enhancement:

- Create a loop road by extending Morgan Lane west and then south to form an intersection with the Lincoln Road/Foundry Street intersection.
- Figure 9 illustrates the level of service associated with Alternative 4 improvements. Under the Alternative 4 scheme, the following four roadway segments will operate at LOS C in 2015:

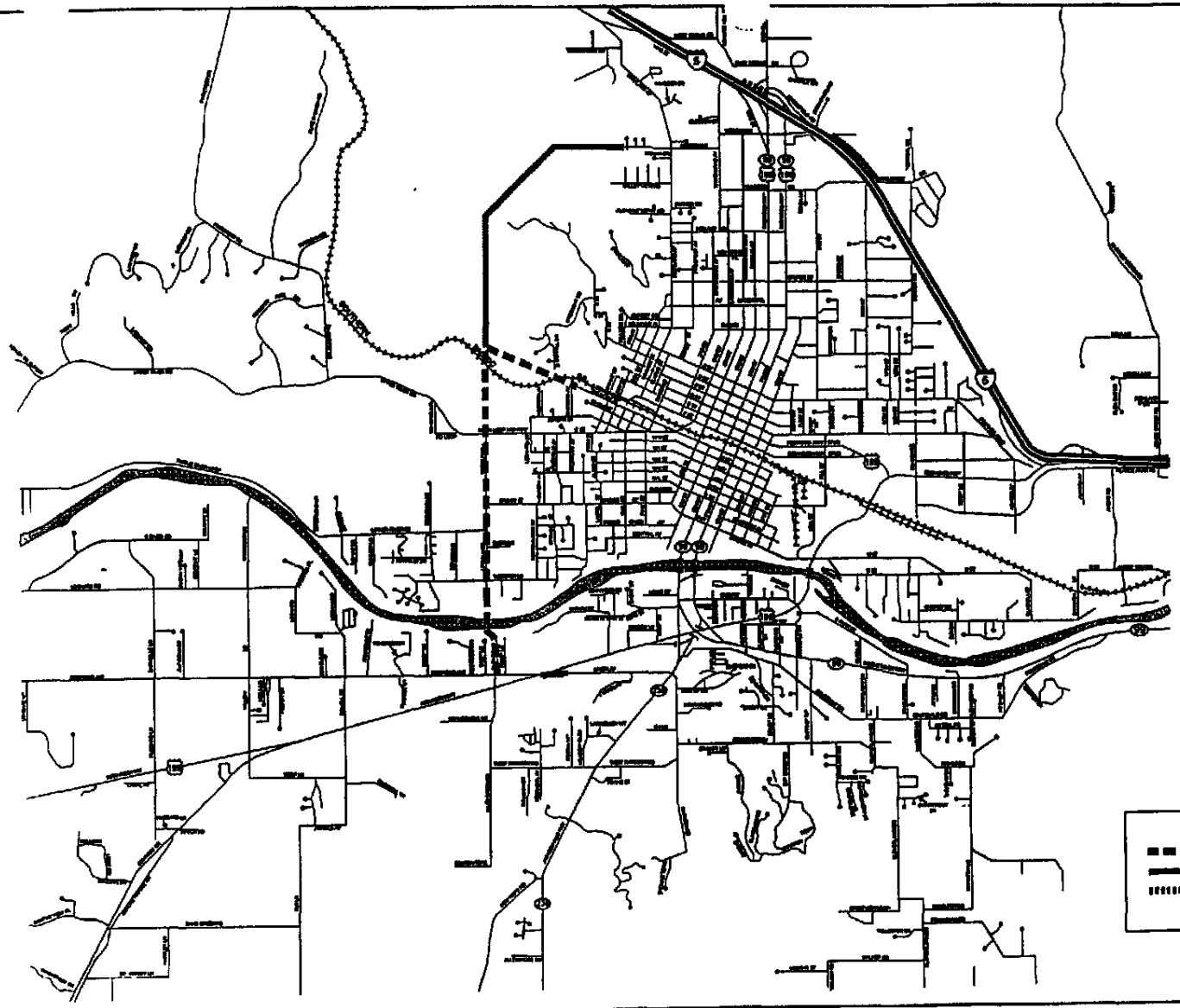

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Figure 8 - Improvements Included in Alternative 4

Grants Pass
Urban Area
Transportation Plan

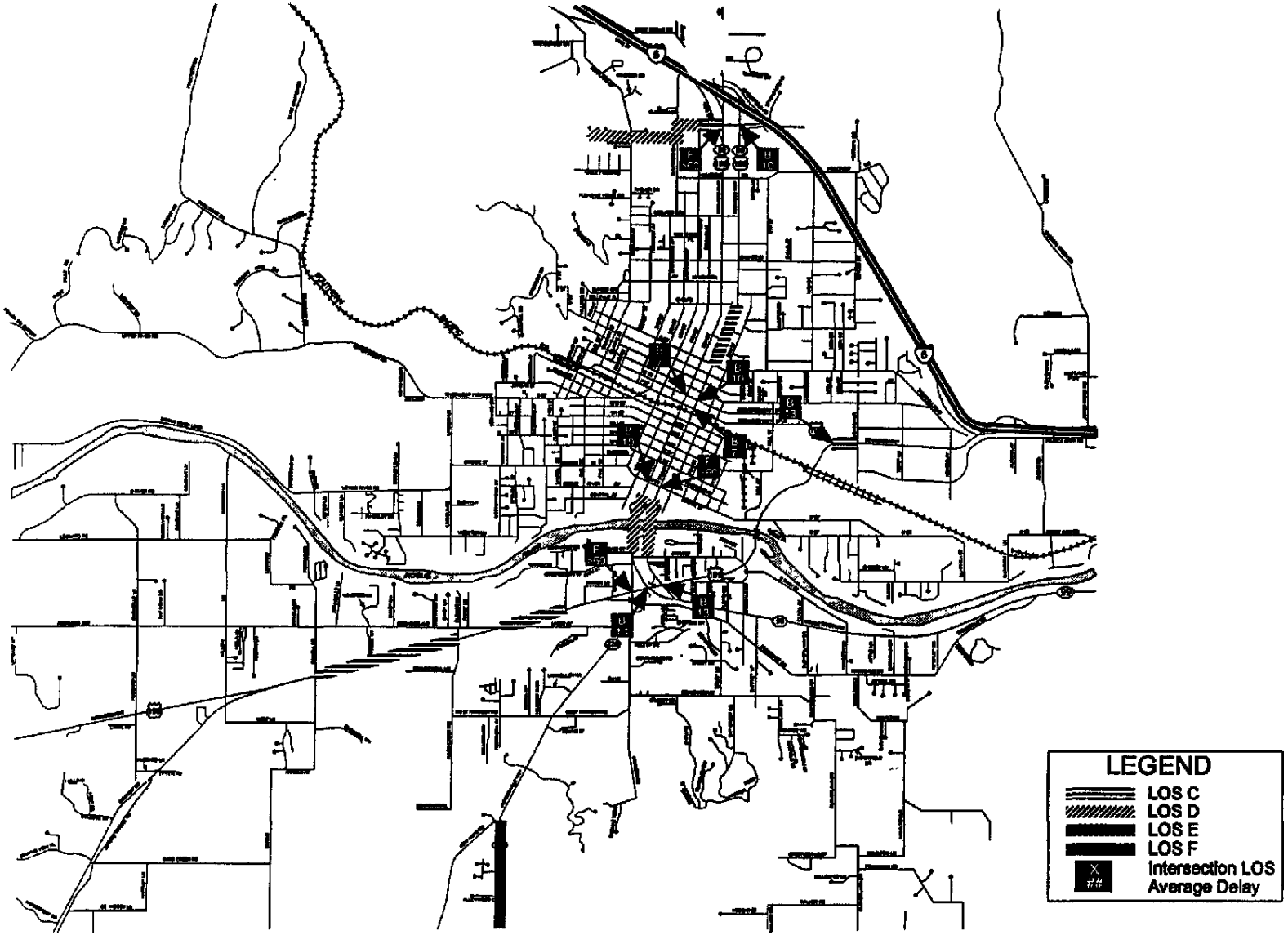

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Figure 9 - Congestion in Alternative 4

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Redwood Highway: Dowell Road to Allen Creek Road, Redwood Avenue to Fairgrounds Road;

- **Morgan Lane:** Chandler Way to Highland Avenue, Washington Boulevard to 6th Street;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive; and
- **7th Street:** Evelyn Avenue to A Street.

Three roadway segments will operate at LOS D in 2015:

- **Morgan Lane:** Highland Avenue to Washington Boulevard;
- **6th Street:** Voorhies Avenue to Lewis Avenue; and
- **7th Street:** Voorhies Avenue to Park Street.

One roadway segments will operate at LOS F in 2015:

- **Jacksonville Highway:** New Hope Road to the study area boundary.

No roadway segments will operate at LOS E in 2015 in Alternative 4.

The improvements associated with this alternative result in a better levels of congestion reduction on the north end of 6th and 7th Street than the three previous alternatives. Only the 7th Street segment from Evelyn Avenue to A Street operates worse than LOS B, because the new loop road helps to divert more traffic away from 6th and 7th Street. Approximately 3,500 vehicles per day are diverted from 6th Street and approximately 1,500 vehicles per day are diverted from 7th Street to the new loop road. The forecasts indicate that approximately 12,000 vehicles per day would be attracted to the loop road. However, the increase in traffic on the new loop roadway, causes the existing sections of Morgan Lane to experience increased levels of congestion, however.

Approximately 5,000 vehicles per day are predicted to shift from I-5 and Grants Pass Parkway to the new road and new bridge, with an additional 5,000 vehicles per day shift to the new bridge from the 6th Street bridge and an additional 4,000 vehicles per day shifting from the 7th Street bridge.

The traffic volume projections on the Morgan Lane extension suggest that it may need to be improved to at least 3 lanes to accommodate the projected traffic volumes, as well as any increase in traffic volume beyond 2015.

Of the eleven intersections evaluated three would have a degradation in their associated levels of service.

- The LOS would decrease from D to F at the 6th Street and Morgan Lane intersection.
- The LOS would decrease from B to F at the 7th Street and M Street intersection.
- The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Alternative 5

The improvements associated with Alternative 5 are illustrated in Figure 10. The roadway improvements in this scenario are the same as in Alternative 3, with the following enhancement:

- Create a loop road by extending Morgan Lane west and then south to form an intersection with the Lincoln Road/River Loop Highway/G Street intersection.

Figure 11 illustrates the level of service associated with Alternative 5 improvements. Under Alternative 5, three roadway segments will operate at LOS C in 2015:

- **Redwood Highway:** Redwood Avenue to Fairgrounds Road;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive; and
- **7th Street:** Savage Street to A Street.

Two roadway segments will operate at LOS D in 2015:

- **6th Street:** Voorhies Avenue to Lewis Avenue; and

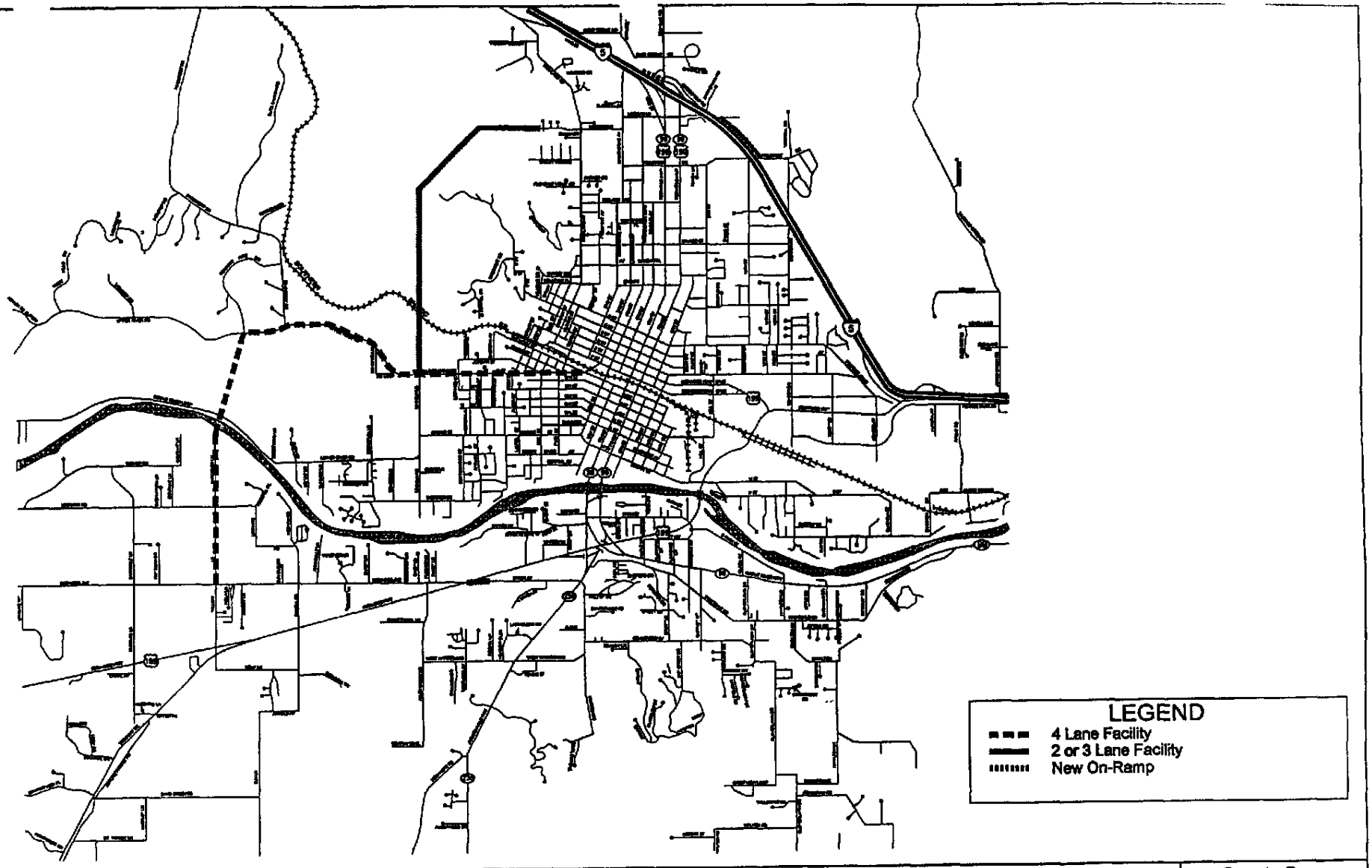

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Figure 10 - Improvements Included in Alternative 5

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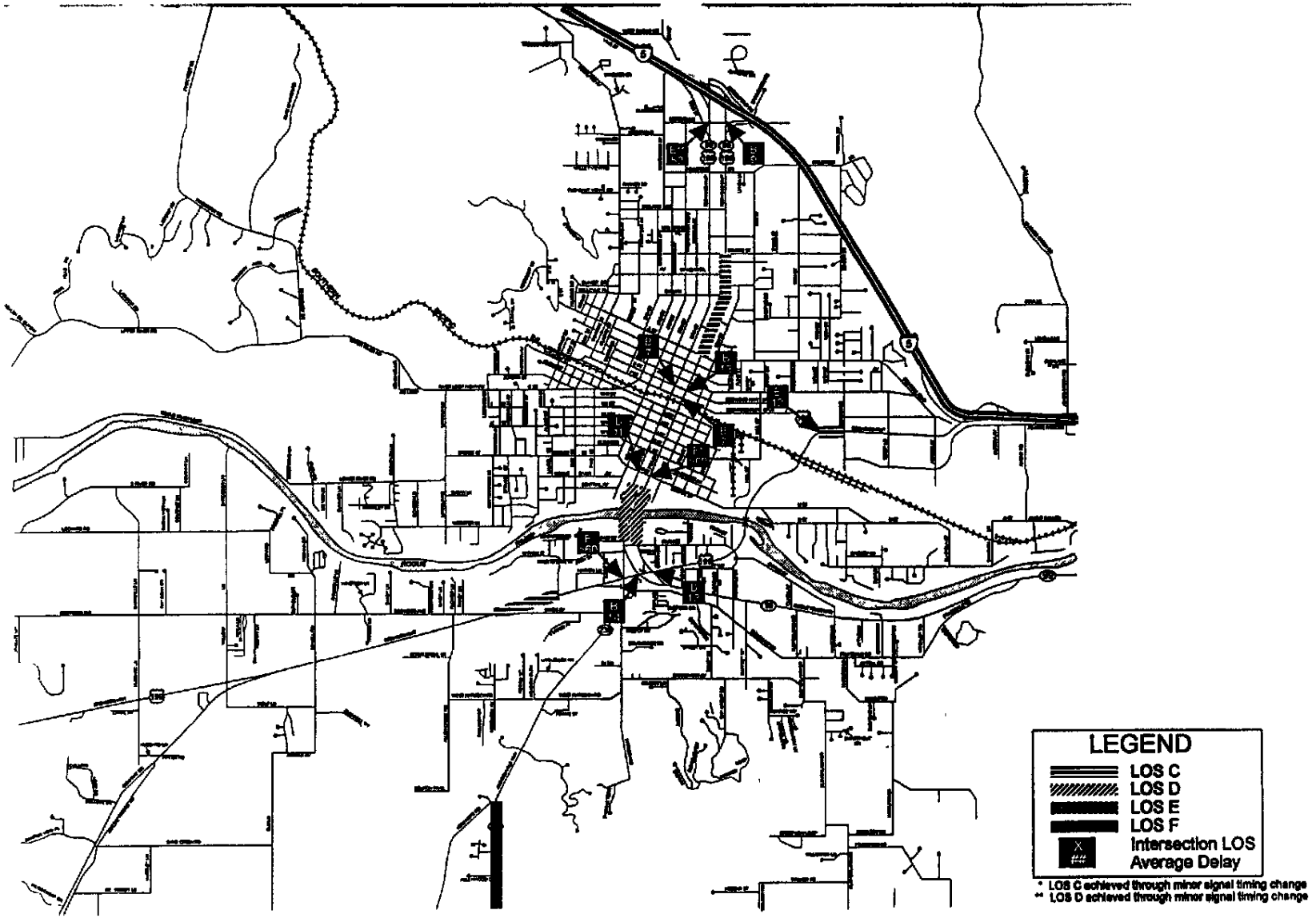

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Figure 11 - Congestion in Alternative 5

Grants Pass
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➢ **7th Street:** Voorhies Avenue to Park Street.

One roadway segment will operate at LOS F in 2015:

➢ **Jacksonville Highway:** New Hope Road to the study area boundary.

No roadway segments will operate at LOS E in 2015 in Alternative 5.

This alternative results in some better levels of congestion reduction than are realized in Alternative 4. Although 7th Street operates at LOS C over a slightly longer segment--Savage Street to A Street in this alternative, versus LOS C from Evelyn Avenue to A Street in alternative 4--the LOS on Morgan Lane does not deteriorate beyond LOS B. The improvements to River Loop Highway/G Street in this alternative cause a shift in higher number of vehicles than the Foundry Street improvements associated with Alternative 4. As a result Morgan Lane and the new extension have lower traffic volumes and less congestion in this alternative. Approximately 1,000 fewer vehicles are diverted from the north sections of 6th and 7th Street to the Morgan Lane extension, accessing the new bridge instead via the improved River Loop Highway/G Street.

Approximately 4,000 vehicles per day shift from I-5 and Grants Pass Parkway to the new road/new bridge, while approximately 4,500 vehicles per day shift to the new bridge from the 6th Street bridge and approximately 4,000 vehicles per day shift from the 7th Street bridge.

As with Alternative 4, the traffic volume projections on the Morgan Lane extension suggest that it may need to be improved to at least 3 lanes to accommodate the projected traffic volumes, as well as any increase in traffic volume beyond 2015.

Of the eleven intersections evaluated three would have a degradation in their associated levels of service.

➢ The LOS would decrease from D to E at the 6th Street and Morgan Lane intersection. However, this can be mitigated through signal timing optimization as shown in Table 2.

➢ The LOS would decrease from B to F at the 7th Street and M Street intersection. However, this can be mitigated through signal timing optimization as shown in Table 2.

➢ The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Alternative 6

Alternative 6 includes the roadway assumptions listed below which are also illustrated in Figure 12:

- Reconfigure the Redwood Highway at 6th and 7th Streets such that the south "Y" interchange is grade separated;
- Extending Union Avenue west to the intersection of Redwood Avenue and the Redwood Highway;
- Addition of a new northbound on-ramp to I-5 from Scoville Road, consistent with the planned roadway improvements for the factory outlet center project; and
- Creation of a new service road on the north side of I-5 from Hillcrest Drive to Greenfield Road.

Figure 13 illustrates the level of service associated with Alternative 6 improvements. Under this scheme the following four roadway segments will operate at LOS C in 2015:

- **Redwood Highway:** Fairgrounds Road to Tussy Lane;
- **Bridge Street:** Oak Street to Division Street;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive; and
- **7th Street:** Hillcrest Lane to Midland Avenue, Savage Street to Jackson Street, M Street to Voorhies Avenue.

Two following roadway segments will operate at LOS D in 2015:

- **Redwood Highway:** Redwood Avenue to Fairgrounds Road; and
- **7th Street:** Jackson Street to A Street.

Three roadway segments will operate at LOS F in 2015:

- **Jacksonville Highway:** New Hope Road to the study area boundary;

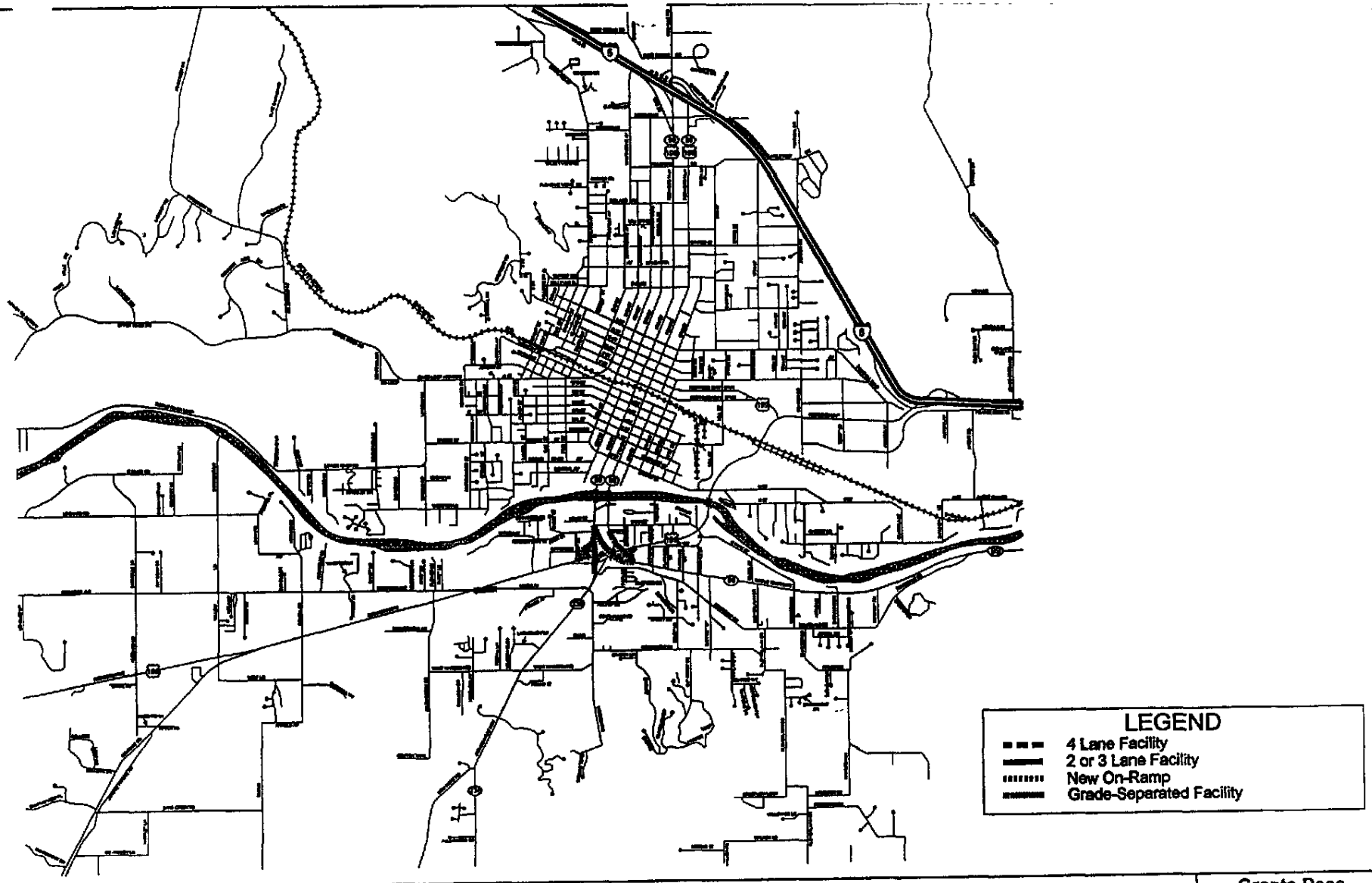

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Figure 12 - Improvements Included in Alternative 6

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Urban Area
Transportation Plan

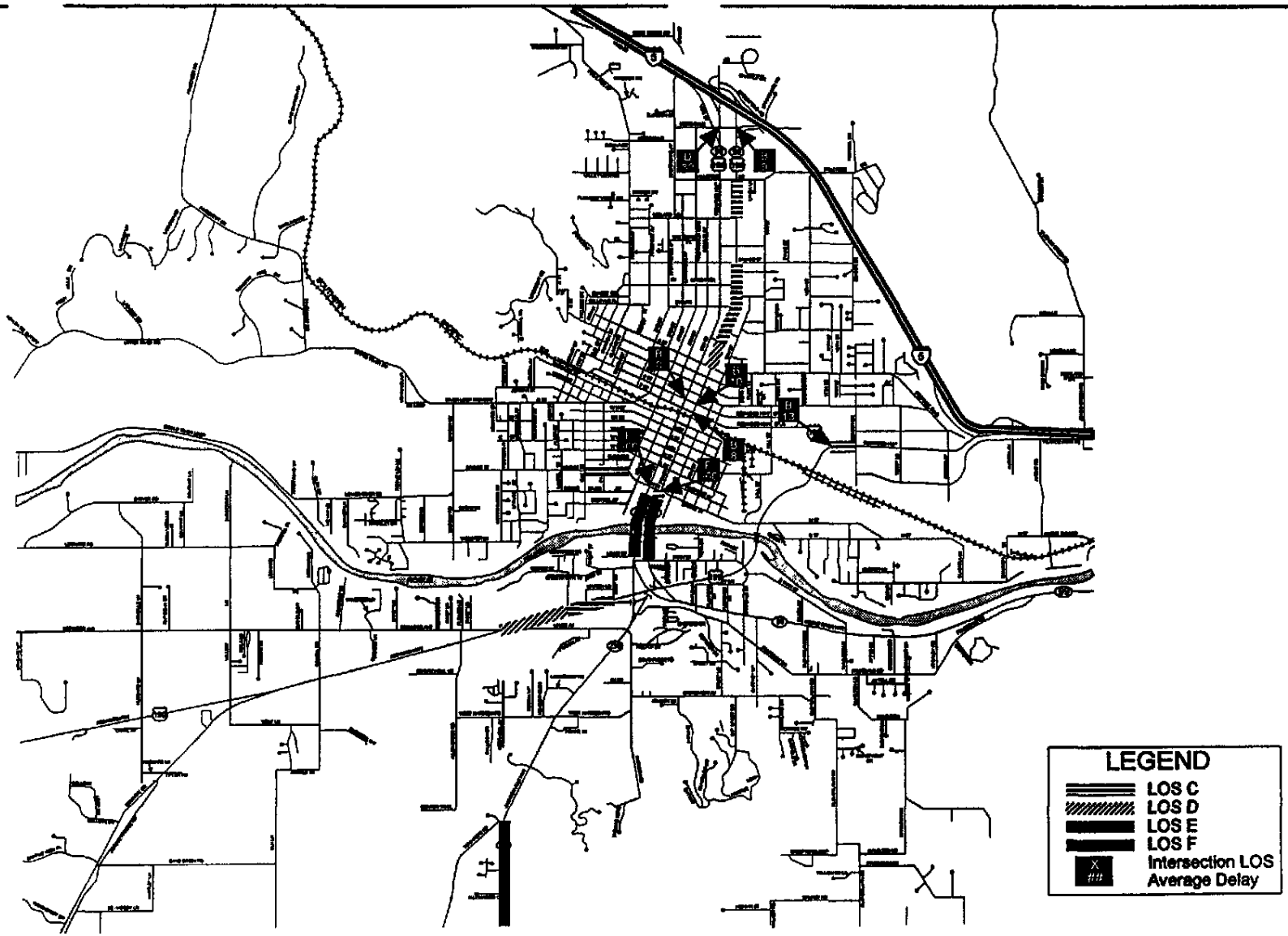

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Figure 13 - Congestion in Alternative 6

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6th Street: Voorhies Avenue to Lewis Avenue; and

- **7th Street:** Voorhies Avenue to Park Street.

No roadway segments will operate at LOS E in 2015 in Alternative 6.

The improvements associated with Alternative 6 improvements are very similar to the No-Build Alternative because Alternative 6 does not add additional roadway capacity across the Rogue River. Though the improvements to the south "Y" interchange will improve traffic operations in that area, its effect on traffic volume shifts on roadways throughout the urban area are minimal. Volumes on Grants Pass Parkway, 6th, and 7th Street are virtually unchanged from the No Build Alternative.

Of the eleven intersections evaluated two would have a degradation in their associated levels of service.

- The LOS would decrease from B to F at the 6th Street and M Street intersection.
- The LOS would decrease from B to F at the 7th Street and M Street intersection.

Alternative 7

The roadway improvements in Alternative 7, which are illustrated in Figure 14, are the same as those included in Alternative 4 with the following enhancements:

- Widening of Allen Creek Road from two to four lanes from Redwood Avenue to the vicinity of Schutzwohl Lane; and
- Construction of a new four lane road from the vicinity of Schutzwohl Lane to Jacksonville Highway in the vicinity of Mayfair Lane.
- Figure 15 illustrates the level of service associated with Alternative 7 improvements. Under this scheme, four roadway segments will operate at LOS C in 2015:

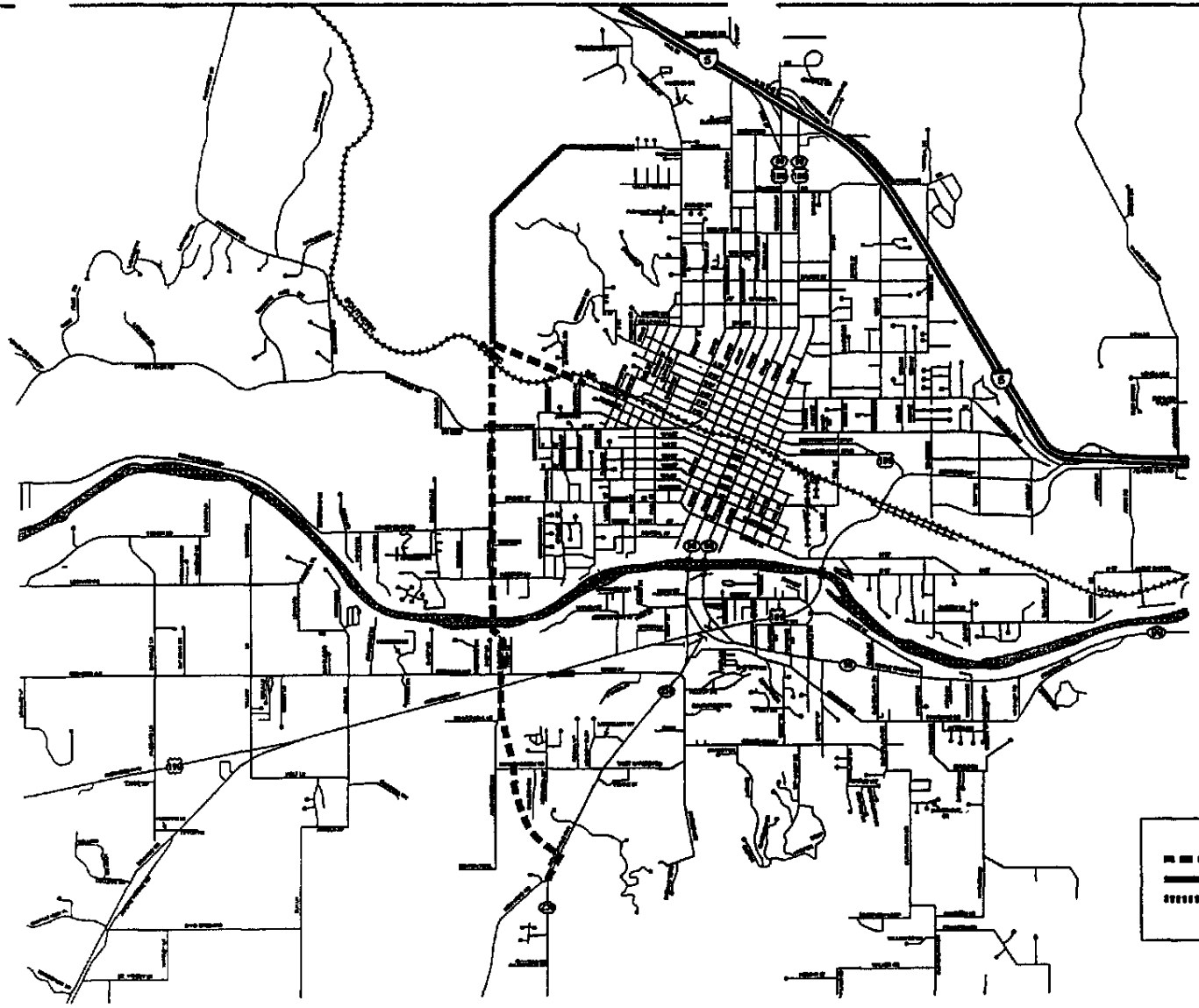

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Figure 14 - Improvements Included in Alternative 7

Grants Pass
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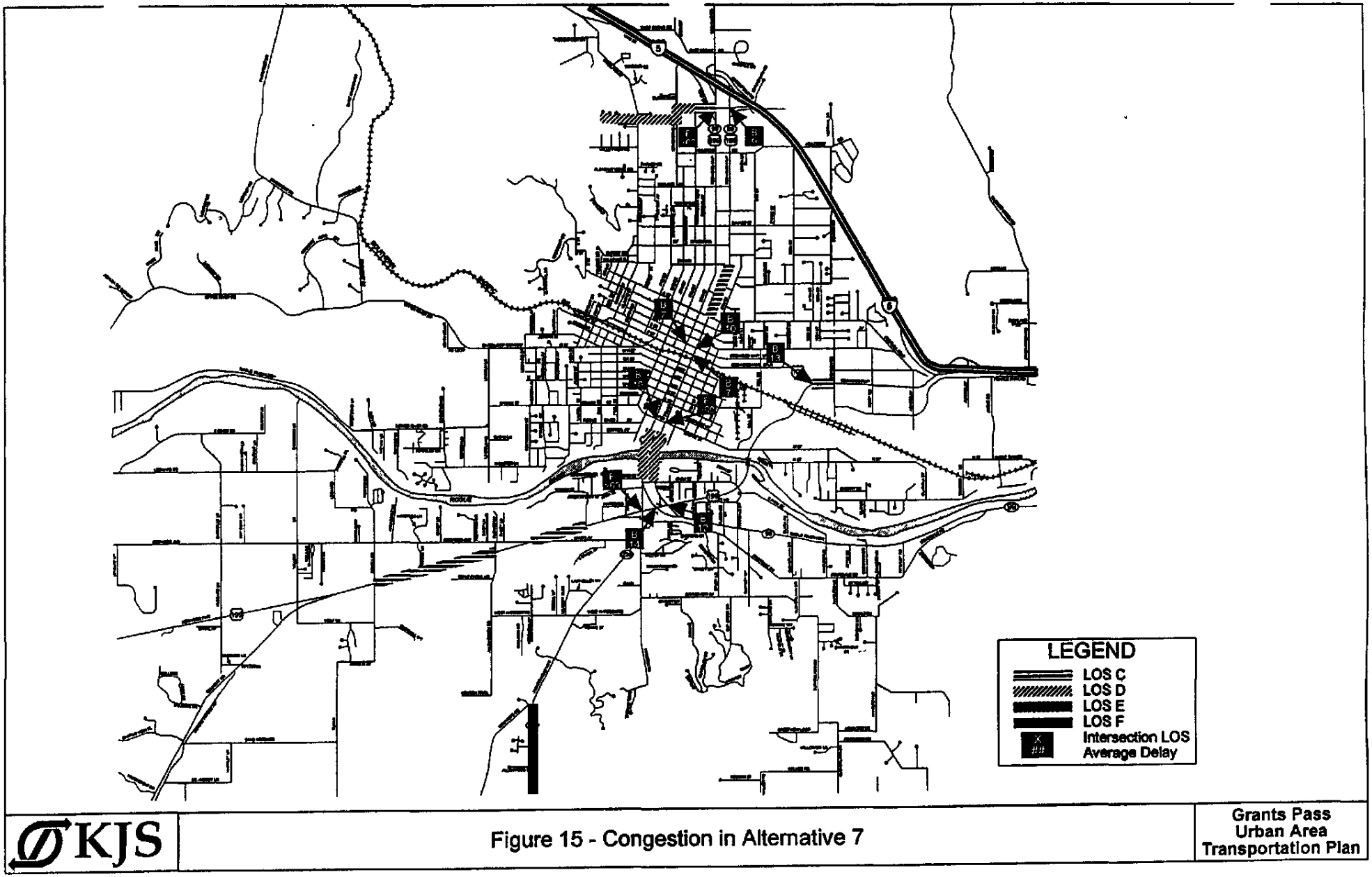

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Figure 15 - Congestion in Alternative 7

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Redwood Highway: Dowell Road to Allen Creek Road, Redwood Avenue to Fairgrounds Road;

- **Morgan Lane:** Chandler Way to Highland Avenue, Washington Boulevard to 6th Street;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive; and
- **7th Street:** Evelyn Avenue to A Street.

Three roadway segments will operate at LOS D in 2015:

- **Morgan Lane:** Highland Avenue to Washington Boulevard;
- **6th Street:** Voorhies Avenue to Lewis Avenue; and
- **7th Street:** Voorhies Avenue to Park Street.

One roadway segments will operate at LOS F in 2015:

- **Jacksonville Highway:** New Hope Road to the study area boundary.

No roadway segments will operate at LOS E in 2015 in Alternative 4.

The reductions in congestion in this alternative are nearly identical to those that would be realized with the improvements tested in Alternative 4. The trips and associated traffic volumes on roadways throughout the urban area are projected to be within a few hundred vehicles of the projections identified under Alternative 4.

The improvements associated with this alternative result in a better levels of congestion reduction on the north end of 6th and 7th Street. Only the 7th Street segment from Evelyn Avenue to A Street operates worse than LOS B, because the new loop road helps to divert more traffic away from 6th and 7th Street. Approximately 3,500 vehicles per day are diverted from 6th Street and approximately 1,500 vehicles per day are diverted from 7th Street to the new loop road. The forecasts indicate that approximately 12,000 vehicles per day would be attracted to the loop road. However, the increase in traffic on the new loop roadway, causes the existing sections of Morgan Lane to experience increased levels of congestion, however. Environmental concerns may be encountered in this alternative due to a creek located in the proximity of the extension of Allen Creek Road to the Jacksonville Highway.

As was shown under Alternative 4, approximately 5,000 vehicles per day shift from I-5 and Grants Pass Parkway to the new road and new bridge,

with an additional 5,000 vehicles per day shift to the new bridge from each of the 6th and 7th Street bridges.

Of the eleven intersections evaluated three would have a degradation in their associated levels of service.

- The LOS would decrease from D to F at the 6th Street and Morgan Lane intersection.
- The LOS would decrease from B to F at the 7th Street and M Street intersection.
- The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Alternative 8

The roadway improvements in Alternative 8, which are illustrated in Figure 16, include the following:

- Create a loop road by extending Morgan Lane west and then south to form an intersection with the Lincoln Road/Foundry Street intersection.
- Construct a fourth bridge that extends north from the Flower Lane roadway alignment on the south side of the Rogue River to the Lincoln Lane alignment on the north side of the river;
- Widen Flower Lane and Lincoln Road from two to four lanes;
- Extend Allen Creek Road south to New Hope Road, then west to Jacksonville Highway;
- Construct a new 2 lane road from the Schutzwohl Lane/Allen Creek Road intersection east to GI Lane;
- Extend Ringuette Street south from Redwood Highway to the east-west road linking Schutzwohl Lane and GI Lane;

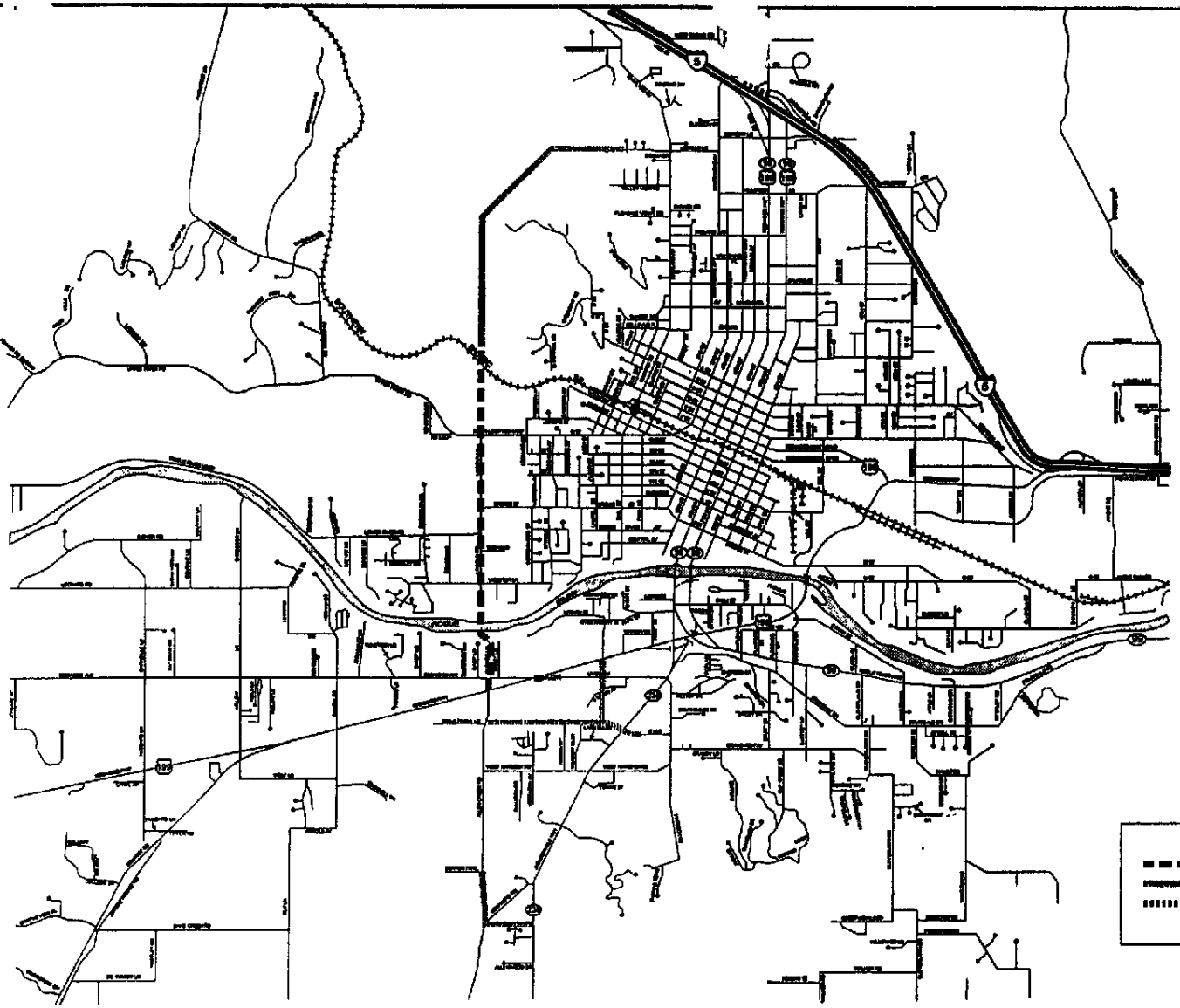

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Figure 16 - Improvements included in Alternative 8

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- Extend Dimmick Street south across the railroad tracks to Foundry Street;
- Extend Union Avenue west to the intersection of Redwood Avenue and the Redwood Highway;
- Add a new northbound on-ramp to I-5 from Scoville Road, consistent with the planned roadway improvements for the factory outlet center project; and
- Create a new service road on the north side of I-5 from Hillcrest Drive to Greenfield Road.

Figure 17 illustrates the level of service associated with Alternative 8 improvements. Under the Alternative 8 scheme, the following four roadway segments will operate at LOS C in 2015:

- **Redwood Highway:** Dowell Road to Allen Creek Road, Redwood Avenue to Fairgrounds Road;
- **Morgan Lane:** Chandler Way to 6th Street;
- **Grants Pass Parkway:** Highway 199 Spur to Beacon Drive; and
- **7th Street:** Evelyn Avenue to Jackson Street.

Three roadway segments will operate at LOS D in 2015 including:

- **Jacksonville Highway:** New Hope Road to Allenwood Drive;
- **6th Street:** Voorhies Avenue to Lewis Avenue; and
- **7th Street:** Voorhies Avenue to Park Street.

One roadway segment is projected to operate at LOS F in 2015:

- **Jacksonville Highway:** Allenwood Drive to the study area boundary.

No roadway segments are projected to operate at LOS E in 2015 with the improvements included in Alternative 8.

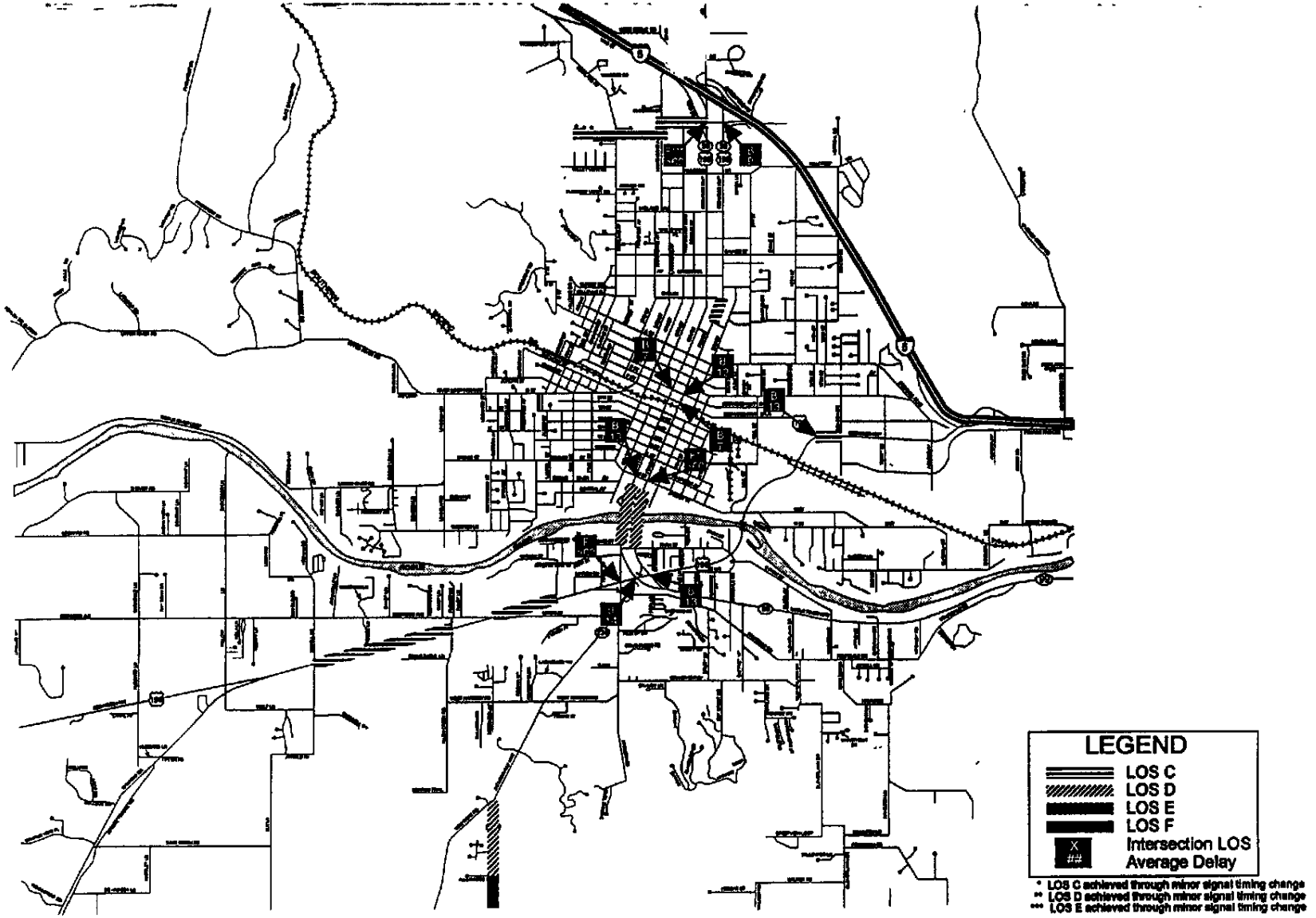

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Figure 17 - Congestion in Alternative 8

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The improvements associated with this alternative result in less congestion and a higher degree of mobility than Alternative 5. This is particularly evident on Jacksonville Highway from the intersection of New Hope Road to Allenwood Drive and is due to the extension of Allen Creek Road itself. However, environmental difficulties may be encountered in association with the improvements recommended in this alternative due to the close proximity of the roadway alignment to the Highline Canal and Allen Creek.

The travel demand projections indicate approximately 5,000 vehicles per day would shift from I-5 and Grants Pass Parkway to the new road and new bridge combination, with an additional shift of about 5,000 vehicles per day from each of the 6th and 7th Street bridges.

Of the eleven intersections evaluated three would have a degradation in their associated levels of service.

- The LOS would decrease from D to F at the 6th Street and Morgan Lane intersection. However, this can be mitigated through signal timing optimization as shown in Table 2.
- The LOS would decrease from B to F at the 7th Street and M Street intersection. However, this can be mitigated through signal timing optimization as shown in Table 2.
- The LOS would decrease from E to F at the Jacksonville Highway and Redwood Highway intersection.

Conclusions

The evaluation of the null and eight build alternatives, from a strictly vehicular traffic/congestion reduction perspective, do allow for a ranking of which provide the greatest level of this type of benefit. However, the full impact of each alternative in terms of feasibility, costs, public acceptance and likelihood of funding have not been assessed. However, this preliminary analysis does provide guidance on which alternatives should be carried into the next level of project evaluation and plan development. Based on the analysis discussed in the preceding sections the eight build alternatives are ranked as follows from best to worst.

1. Alternative 8;
2. Alternative 5
3. Alternative 4
4. Alternative 7 (tie with Alternative 4)
5. Alternative 1
6. Alternative 3 (tie with Alternative 1)
7. Alternative 2
8. Alternative 6

			2015 Alternative Run Assignments																													
			No Build Alternative			Alternative 1			Alternative 2			Alternative 3			Alternative 4			Alternative 5			Alternative 6			Alternative 7			Alternative 8					
Street Name	Segment Name (From)	Segment Name (To)	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS			
Pine Crest Dr.	Blitz Canyon Rd.	Upper River Road	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A	4,603	0.21	A			
Upper River Road	Lathrop	Pinecrest	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A	4,729	0.22	A			
Upper River Road	Pinecrest	Leonard St.	8,574	0.40	A	8,768	0.41	A	8,774	0.41	A	15,248	0.32	A	8,799	0.41	A	5,988	0.13	A	8,574	0.40	A	8,808	0.41	A	8,806	0.41	A			
Upper River Road	Leonard St.	Wildwood Ave	11,540	0.53	B	16,653	0.35	A	15,753	0.73	C	17,823	0.38	A	11,313	0.52	B	12,535	0.27	A	10,985	0.51	B	11,085	0.51	B	11,004	0.51	B			
Upper River Road	Wildwood Ave	Oak St	10,421	0.48	B	16,230	0.34	A	16,373	0.76	C	18,012	0.38	A	11,709	0.54	B	13,122	0.28	A	9,555	0.44	B	11,472	0.53	B	11,514	0.53	B			
Upper River Road	Oak St	Pine St	11,422	0.53	B	16,761	0.40	A	17,904	0.83	D	19,543	0.41	B	13,240	0.61	B	14,853	0.31	A	10,876	0.50	B	13,003	0.60	B	13,058	0.60	B			
Upper River Road	Pine St	Foundry St	11,771	0.54	B	18,760	0.42	B	19,587	0.91	D	20,514	0.43	B	14,068	0.65	B	14,069	0.30	A	11,353	0.53	B	13,916	0.64	B	10,552	0.49	B			
Redwood Hwy.	Dawn Dr.	Hubbard Ln.	14,996	0.32	A	15,000	0.32	A	15,000	0.32	A	15,000	0.32	A	15,000	0.32	A	15,000	0.32	A	14,996	0.32	A	15,000	0.32	A	15,000	0.32	A			
Redwood Hwy.	Hubbard Ln.	Willow Ln.	15,884	0.33	A	17,458	0.37	A	17,500	0.37	A	15,790	0.33	A	17,810	0.37	A	15,574	0.33	A	17,502	0.37	A	17,747	0.38	A	17,852	0.37	A			
Redwood Hwy.	Willow Ln.	Demaray Dr.	22,272	0.47	B	22,502	0.48	B	22,565	0.48	B	18,370	0.39	A	22,634	0.48	B	16,553	0.35	A	22,376	0.47	B	22,633	0.48	B	22,733	0.48	B			
Redwood Hwy.	Demaray Dr.	Dowell Rd.	28,469	0.60	B	29,363	0.62	B	29,452	0.62	B	23,721	0.50	B	29,615	0.63	B	22,219	0.47	B	28,667	0.61	B	29,960	0.63	B	29,856	0.63	B			
Redwood Hwy.	Dowell Rd.	Allen Creek Rd.	30,358	0.64	B	31,440	0.67	B	31,560	0.67	B	25,785	0.55	B	31,671	0.67	C	24,233	0.51	B	30,558	0.65	B	32,122	0.68	C	32,050	0.68	C			
Redwood Hwy.	Allen Creek Rd.	Redwood Ave.	25,789	0.55	B	21,581	0.46	B	21,793	0.46	B	22,168	0.47	B	19,244	0.41	A	20,680	0.44	B	21,000	0.44	B	19,023	0.40	A	18,360	0.39	A			
Redwood Hwy.	Redwood Ave.	Fairgrounds Rd.	41,334	0.88	D	34,946	0.74	C	34,406	0.73	C	34,152	0.72	C	33,033	0.70	C	32,084	0.68	C	42,006	0.89	D	31,790	0.67	C	31,781	0.67	C			
Redwood Hwy.	Fairgrounds Rd.	Rinquette St.	36,276	0.77	C	30,774	0.65	B	30,256	0.64	B	30,102	0.64	B	28,541	0.60	B	28,240	0.60	B	37,060	0.79	C	29,304	0.62	B	29,565	0.63	B			
Redwood Hwy.	Rinquette St.	Tussy Ln.	36,432	0.77	C	30,614	0.65	B	30,109	0.64	B	30,170	0.64	B	28,608	0.61	B	28,263	0.60	B	37,251	0.79	C	27,838	0.59	B	27,715	0.59	B			
Redwood Hwy.	Tussy Ln.	6th St	25,604	0.54	B	21,019	0.45	B	21,354	0.45	B	20,950	0.44	B	19,917	0.42	B	19,666	0.42	B	27,233	0.58	B	19,119	0.41	A	18,588	0.39	A			
Redwood Hwy.	6th St	Hwy 238 6th/7th Interc	27,055	0.57	B	24,020	0.51	B	24,086	0.51	B	23,936	0.51	B	23,587	0.50	B	23,489	0.50	B	29,247	0.62	B	23,020	0.49	B	22,892	0.49	B			
Redwood Hwy	Hwy 238 6th/7th Interchan	Interchange to 7th St.	28,810	0.61	B	24,205	0.51	B	24,434	0.52	B	24,257	0.51	B	23,667	0.50	B	23,931	0.51	B	30,316	0.64	B	23,109	0.49	B	23,081	0.49	B			
Willow Ln	Jerome Prairie Rd.	Redwood Ave.	2,370	0.15	A	2,254	0.14	A	2,264	0.14	A	6,233	0.38	A	2,185	0.13	A	8,687	0.54	B	2,332	0.14	A	2,182	0.13	A	2,178	0.13	A			
Willow Ln.	Redwood Ave.	Leonard Ln.	2,332	0.14	A	2,198	0.14	A	2,582	0.16	A	4,813	0.30	A	2,526	0.16	A	7,501	0.46	B	2,422	0.15	A	1,137	0.07	A	2,628	0.16	A			
Allen Creek Rd	Redwood Ave	Redwood Hwy.	2,679	0.12	A	10,165	0.47	B	10,032	0.46	B	3,434	0.16	A	13,518	0.63	B	3,404	0.16	A	2,641	0.12	A	16,221	0.34	A	15,577	0.33	A			
Allen Creek Rd.	Redwood Hwy.	Denton Trail	5,226	0.24	A	5,350	0.25	A	5,347	0.25	A	5,107	0.24	A	5,839	0.27	A	5,033	0.23	A	4,911	0.23	A	11,299	0.24	A	10,172	0.22	A			
Jacksonville Hwy	Lark Ellen Way.	West Harbeck Rd.	24,651	0.52	B	22,865	0.48	B	22,957	0.49	B	23,067	0.49	B	22,392	0.47	B	23,121	0.49	B	24,047	0.51	B	22,742	0.48	B	22,108	0.47	B			
Jacksonville Hwy	West Harbeck Rd.	Mayfair Ln.	25,940	0.55	B	26,102	0.55	B	26,092	0.55	B	26,062	0.55	B	26,074	0.55	B	26,074	0.55	B	25,960	0.55	B	16,723	0.35	A	19,983	0.42	B			
Jacksonville Hwy	Mayfair Ln.	New Hope Rd	25,218	0.53	B	25,314	0.54	B	25,302	0.54	B	25,286	0.54	B	25,300	0.54	B	25,295	0.54	B	25,225	0.53	B	25,906	0.55	B	19,179	0.41	A			
Jacksonville Hwy.	New Hope Rd	Allenwood Dr.	17,443	1.58	F	17,501	1.57	F	17,493	1.57	F	17,483	1.57	F	17,491	1.57	F	17,491	1.57	F	17,441	1.56	F	17,825	1.60	F	10,045	0.90	D			
Jacksonville Hwy	Allenwood Dr.	Extends beyond study	16,210	1.45	F	16,328	1.46	F	16,326	1.46	F	16,320	1.46	F	16,354	1.47	F	16,324	1.46	F	16,310	1.46	F	16,440	1.47	F	16,980	1.52	F			
Bridge St.	Lincoln Ln.	Way Spruce St.	8,494	0.39	A	6,131	0.28	A	5,566	0.26	A	5,746	0.27	A	4,951	0.23	A	6,512	0.30	A	9,031	0.42	B	5,541	0.26	A	5,259	0.24	A			
Bridge St.	Way Spruce St.	Greenwood Ave	11,781	0.55	B	7,453	0.35	A	6,930	0.32	A	7,836	0.36	A	6,054	0.28	A	7,907	0.37	A	12,284	0.57	B	5,866	0.27	A	5,693	0.26	A			
Bridge St.	Greenwood Ave.	Oak St.	11,841	0.55	B	7,540	0.35	A	6,986	0.32	A	8,000	0.37	A	6,124	0.28	A	7,905	0.37	A	12,187	0.56	B	5,618	0.26	A	5,398	0.25	A			
Bridge St.	Oak St.	Division St	14,757	0.68	C	9,560	0.44	B	9,257	0.43	B	10,492	0.49	B	8,269	0.38	A	11,852	0.55	B	14,864	0.69	C	7,731	0.36	A	10,818	0.50	B			
Highland Ave	Valley View Rd.	Midland Ave.	7,169	0.33	A	7,128	0.33	A	7,352	0.34	A	7,107	0.33	A	3,037	0.14	A	2,047	0.09	A	7,152	0.33	A	2,836	0.13	A	3,546	0.16	A			
Highland Ave.	Midland Ave.	Starlite Pl.	5,435	0.25	A	5,542	0.26	A	5,767	0.27	A	5,462	0.25	A	4,001	0.19	A	3,059	0.14	A	5,556	0.26	A	3,816	0.18	A	4,536	0.21	A			
Highland Ave.	Starlite Pl.	Savage St.	5,422	0.25	A	5,676	0.26	A	5,882	0.27	A	5,587	0.26	A	3,302	0.15	A	2,520	0.12	A	5,672	0.26	A	3,121	0.14	A	4,150	0.19	A			
Highland Ave.	Savage St.	Bellevue Pl.	5,473	0.25	A	5,636	0.26	A	5,833	0.27	A	5,527	0.26	A	3,294	0.15	A	2,510	0.12	A	5,573	0.26	A	3,114	0.14	A	4,586	0.21	A			
Morgan Ln.	Chandler Way	Washington Blvd.		0.00	A		0.00	A		0.00	A		0.00	A	13,564	0.94	D		0.00	A		0.00	A	13,261	0.82	D	11,790	0.73	C			
Morgan Ln.	Washington Blvd.	Vine St.	5,776	0.36	A	5,577	0.34	A	5,283	0.33	A	5,343	0.33	A	12,117	0.78	C	9,728	0.60	B	5,139	0.32	A	11,787	0.73	C	11,588	0.72	C			
Morgan Ln.	Vine St.	6th St	7,256	0.45	B	7,019	0.43	B	6,901	0.43	B	7,271	0.45	B	12,798	0.79	C	10,209	0.63	B	6,741	0.42	B	12,344	0.76	C	11,846	0.73	C			
Morgan Ln.	6th St	7th St	5,591	0.35	A	4,875	0.30	A	4,858	0.30	A	5,784	0.36	A	7,260	0.45	B	5,907	0.36	A	5,174	0.32	A	6,816	0.42	B	6,352	0.39	A			
Morgan Ln.	7th St	Interstate 5	4,469	0.28	A	4,453	0.27	A	4,412	0.27	A	4,448	0.27	A	4,239	0.26	A	4,200	0.26	A	4,367	0.27	A	4,247	0.26	A	4,225	0.26	A			
Hillcrest Dr.	Washington Blvd.	6th St	3,960	0.24	A	3,804	0.23	A	3,930	0.24	A	3,941	0.24	A	3,859	0.24	A	4,164	0.26	A	3,960	0.24	A	3,889	0.24	A	3,787	0.23	A			
Hillcrest Dr.	6th St	7th St	5,322	0.33	A	5,300	0.33	A	5,376	0.33	A	5,247	0.32	A	5,949	0.37	A	5,447	0.34	A	5,852	0.36	A	6,156	0.38	A	4,194	0.26	A			
Hillcrest Dr	7th St	9th St	3,414	0.21	A	3,058	0.19	A	3,169	0.20	A	3,084	0.19	A	3,068	0.19	A	2,704	0.17	A	2,870	0.18	A	3,062	0.19	A	3,071	0.19	A			
Hillcrest Dr.	9th St	10th St	3,509	0.22	A	3,164	0.20	A	3,274	0.20	A	3,190	0.20	A	3,192	0.20	A	2,702	0.17	A	3,067	0.19	A	3,184	0.20	A	3,196	0.20	A			
Hillcrest Dr.	10th St	Sunset Ln	2,250	0.14	A	2,180	0.13	A	2,179	0.13	A	2,172	0.13	A	2,154	0.13	A	2,132	0.13	A	2,126	0.13	A	2,084	0.13	A	2,117	0.13	A			
Savage St.	Washington Blvd	6th St	3,039	0.19	A	1,989	0.12	A	2,576	0.16	A	2,930	0.18	A	2,701	0.17	A	1,924	0.12	A	2,657	0.16	A	2,462	0.15	A	3,084	0.19	A			
Savage St.	6th St	7th St	5,298	0.33	A	4,773	0.29	A	4,874	0.30	A	4,969	0.31	A	4,781	0.30	A	5,196	0.32	A	5,096	0.31	A	4,556	0.28	A	4,890	0.30	A			
Savage St.	7th St	9th St	3,904	0.24	A	3,756	0.23	A	3,654	0.23	A	3,718	0.23	A	3,638	0.22	A	4,124	0.25	A	3,837	0.24	A	3,667	0.23	A	3,653	0.23	A			
Savage St.	9th St	10th St	2,027	0.13	A	2,071	0.13	A	2,092	0.13	A	2,063	0.13	A	2,020	0.12	A	1,918	0.12	A	2,004	0.12	A	2,025	0.13	A	2,023	0.12	A			
A St	Grant St	Kinney St	5,473	0.25	A	5,636	0.26	A	5,833	0.27	A	5,527	0.26	A	3,294	0.15	A	2,510	0.12	A	5,573	0.26	A	3,114	0.14	A	481	0.02	A			
A St	Kinney St	4th St	6,078	0.28	A	6,084	0.28	A	6,658	0.31	A	6,993	0.28	A	3,658	0.17	A	3,061	0.14	A	6,128	0.28	A	3,551	0.16	A	1,795	0.08	A			
A St	4th St	6th St	7,968	0.37	A	6,737	0.31	A	6,948	0.28	A	7,225	0.33	A	5,733	0.27	A	5,041	0.23	A	7,782	0.36	A	5,479	0.25	A	3,811	0.18	A			
A St	6th St	7th St	8,916	0.41	B	8,740	0.40	A	8,771	0.41	A	8,995	0.42	B	8,413	0.39	A	8,123	0.38	A	9,073	0.42	B	8,196	0.38	A	7,991	0.37	A			
A St	7th St	Dean Dr	8,953	0.41	B	9,459	0.44	B	9,389	0.43	B	9,324	0.43	B	9,376	0.43	B	8,420	0.39	A	8,904	0.41	B	9,498	0.44	B	9,568	0.44	B			
A St	Dean Dr	9th St	7,728	0.36	A	8,248	0.38	A	8,183	0.38	A	8,135	0.38	A	8,159	0.38	A	7,041	0.33	A	7,684	0.36	A	8,281	0.38	A	8,354	0.39	A			
A St	9th St	North 10th St	6,433	0.30	A	6,294	0.29	A	5,935	0.27	A	6,273	0.29	A	5,531	0.26	A	6,400	0.30	A	6,362	0.30	A	5,684	0.26	A	5,516	0.26	A			
A St	North 10th St	Beacon Dr	6,155	0.28	A	5,385	0.25	A	5,013	0.23	A	5,436	0.25	A	4,611	0.21	A	5,640	0.26	A	6,064	0.28	A	4,556	0.21	A	4,377	0.20	A			
A St	Beacon Dr	Foothill	2,631	0.12	A	2,533	0.12	A	2,424	0.11	A	2,399	0.11	A	2,284	0.11	A	2,204	0.10	A	2,552	0.12	A	2,236	0.10	A	2,294	0.11	A			
E St	Grant St	4th St	4,879	0.23	A	8,706	0.40	A	8,036	0.37	A	9,036	0.42	B	4,222	0.20	A	5,340	0.25	A	4,645	0.22	A	4,211	0.19	A	4,158	0.19	A			
E St	4th St	6th St	5,638	0.26	A	7,112	0.33	A	6,797	0.31	A	6,779	0.31	A	4,508	0.21	A	5,452	0.25	A	5,840	0.27	A	4,412	0.20	A	4,404	0.20	A			
E St	6th St	7th St	7,562	0.35	A	6,186	0.29	A	7,514	0.35	A	7,770	0.36	A	7,418	0.34	A	7,844	0.36	A	7,620	0.35	A	7,402	0.34	A	7,645	0.35	A			
E St	7th St	9th St	8,076	0.45	B	7,605	0.43	B	8,217	0.46	B	8,056	0.45	B	8,348	0.47	B	8,950	0.50	B	7,948	0.45	B	8,132	0.46	B	8,682	0.49	B			
E St	9th	Mill St	8,477	0.42	B	7,976	0.40	A	8,057	0.40	A	8,213	0.42	B	8,276	0.41	B	8,459	0.42	B	8,451	0.42	B	8,236	0.41	[illegible]	8,157	0.41	A			

			2015 Alternative Run Assignments																									
			No Build Alternative			Alternative 1			Alternative 2			Alternative 3			Alternative 4			Alternative 5			Alternative 6			Alternative 7			Alternative 8		
Street Name	Segment Name (From)	Segment Name (To)	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
E St	Mill St	F St	11,945	0.60	B	11,695	0.58	B	11,756	0.59	B	11,612	0.58	B	12,050	0.60	B	11,956	0.60	B	11,996	0.60	B	12,081	0.60	B	12,163	0.61	B
F St	3rd St	6th St	6,033	0.28	A	7,707	0.36	A	7,391	0.34	A	6,285	0.38	A	4,601	0.22	A	5,715	0.26	A	6,355	0.29	A	4,707	0.22	A	4,628	0.21	A
F St	6th St	7th St	8,637	0.40	A	8,841	0.41	A	10,076	0.47	B	10,677	0.50	B	7,675	0.36	A	8,102	0.38	A	8,645	0.40	A	7,378	0.34	A	7,044	0.33	A
F St	7th St	9th St	7,526	0.42	B	7,016	0.39	A	7,185	0.40	A	7,367	0.41	B	7,644	0.43	B	7,815	0.44	B	7,175	0.40	A	7,394	0.41	B	7,689	0.43	B
F St	9th St	Mill St	7,629	0.36	A	7,785	0.39	A	7,935	0.40	A	8,029	0.40	A	7,833	0.39	A	7,915	0.40	A	7,521	0.38	A	7,733	0.39	A	7,748	0.39	A
F St	Mill St	E St	8,514	0.43	B	8,654	0.43	B	8,724	0.44	B	8,758	0.44	B	8,816	0.44	B	8,949	0.45	B	8,398	0.42	B	8,685	0.43	B	8,831	0.44	B
M St	4th St	6th St	11,854	0.55	B	7,733	0.36	A	8,066	0.37	A	9,356	0.43	B	8,247	0.38	A	10,183	0.47	B	12,020	0.56	B	8,189	0.38	A	9,026	0.42	B
M St	6th St	7th St	11,789	0.54	B	10,230	0.47	B	10,424	0.48	B	10,748	0.50	B	10,721	0.50	B	11,441	0.53	B	11,758	0.54	B	10,383	0.48	B	10,944	0.51	B
M St	7th St	9th St	8,549	0.40	A	10,897	0.50	B	10,529	0.49	B	10,061	0.47	B	10,491	0.49	B	6,940	0.32	A	8,343	0.39	A	9,895	0.46	B	10,157	0.47	B
M St	9th St	10th St	8,002	0.37	A	7,817	0.36	A	7,774	0.36	A	7,831	0.36	A	7,959	0.37	A	7,998	0.37	A	7,783	0.36	A	8,059	0.37	A	8,000	0.37	A
M St	10th St	12th St	7,101	0.33	A	7,467	0.35	A	7,466	0.35	A	7,487	0.35	A	7,709	0.36	A	7,630	0.35	A	7,740	0.36	A	7,770	0.36	A	7,775	0.36	A
M St	12th St	N St	11,457	0.53	B	11,459	0.53	B	11,465	0.53	B	11,461	0.53	B	11,465	0.53	B	11,456	0.53	B	11,439	0.53	B	11,467	0.53	B	11,477	0.53	B
M St	N St	N St	9,847	0.46	B	9,847	0.46	B	9,851	0.46	B	9,849	0.46	B	9,851	0.46	B	9,847	0.46	B	9,837	0.46	B	9,851	0.46	B	9,857	0.46	B
Grants Pass Park	7th St	Parkdale Dr	23,153	0.49	B	20,026	0.42	B	19,663	0.42	B	20,123	0.43	B	18,870	0.40	A	19,643	0.42	B	23,070	0.49	B	18,769	0.40	A	18,709	0.40	A
Grants Pass Park	Parkdale Dr	M St	26,823	0.61	B	25,224	0.53	B	25,256	0.54	B	25,630	0.54	B	23,820	0.50	B	24,799	0.53	B	26,830	0.61	B	23,625	0.50	B	23,624	0.50	B
Grants Pass Park	M St	Hwy 199 Spur	26,963	0.57	B	25,810	0.55	B	25,815	0.55	B	25,916	0.55	B	24,347	0.52	B	25,020	0.53	B	26,954	0.57	B	24,521	0.52	B	23,956	0.51	B
Grants Pass Park	Hwy 199 Spur	Beacon Dr	36,103	0.76	C	34,950	0.74	C	34,984	0.74	C	35,146	0.74	C	33,899	0.72	C	34,772	0.74	C	36,014	0.76	C	34,027	0.72	C	33,659	0.71	C
Grants Pass Park	Beacon Dr	Terry Ln	27,072	0.57	B	26,854	0.57	B	27,361	0.58	B	27,027	0.57	B	26,232	0.56	B	26,399	0.56	B	27,076	0.57	B	26,224	0.56	B	26,164	0.55	B
Grants Pass Park	Terry Ln	Agnes Ave	22,325	0.47	B	22,032	0.47	B	22,191	0.47	B	22,057	0.47	B	21,223	0.45	B	20,871	0.44	B	22,346	0.47	B	21,153	0.45	B	20,878	0.44	B
Grants Pass Park	Agnes Ave	I-5	28,763	0.61	B	27,605	0.58	B	27,700	0.59	B	27,860	0.59	B	26,259	0.56	B	26,470	0.56	B	29,065	0.62	B	26,350	0.56	B	26,097	0.55	B
6th St	Begins at I-5	Vine St	17,231	0.37	A	17,095	0.36	A	17,095	0.36	A	17,130	0.36	A	17,462	0.37	A	17,388	0.37	A	16,481	0.35	A	17,478	0.37	A	17,548	0.37	A
6th St	Vine St	Hillcrest Ln	15,106	0.62	B	15,508	0.64	B	15,429	0.64	B	15,462	0.64	B	13,025	0.54	B	13,529	0.56	B	14,787	0.61	B	12,863	0.53	B	12,822	0.53	B
6th St	Hillcrest Ln	Midland Ave	16,197	0.67	B	16,793	0.69	C	16,725	0.69	C	16,748	0.69	C	14,261	0.59	B	15,274	0.63	B	16,034	0.66	B	14,267	0.59	B	14,241	0.59	B
6th St	Midland Ave	Savage St	18,531	0.39	A	18,841	0.40	A	18,779	0.40	A	18,983	0.40	A	14,863	0.31	A	15,880	0.34	A	18,436	0.39	A	14,920	0.32	A	14,818	0.31	A
6th St	Savage St	Manzanita Ave	17,229	0.37	A	18,578	0.39	A	18,130	0.38	A	18,095	0.38	A	14,220	0.30	A	15,151	0.32	A	17,833	0.38	A	14,257	0.30	A	13,731	0.29	A
6th St	Manzanita Ave	A St	20,196	0.43	B	21,138	0.45	B	20,636	0.44	B	20,703	0.44	B	16,931	0.36	A	18,415	0.39	A	20,285	0.43	B	16,685	0.36	A	16,561	0.35	A
6th St	A St	D St	22,234	0.47	B	23,199	0.49	B	22,680	0.48	B	22,919	0.49	B	18,991	0.40	A	18,140	0.38	A	22,313	0.47	B	18,669	0.40	A	17,580	0.37	A
6th St	E St	F St	22,024	0.47	B	20,426	0.43	B	19,797	0.42	B	20,532	0.44	B	18,304	0.39	A	17,952	0.38	A	21,894	0.46	B	18,742	0.40	A	17,797	0.38	A
6th St	F St	H St	21,341	0.45	B	19,535	0.41	B	19,034	0.40	A	19,862	0.42	B	18,047	0.38	A	17,487	0.37	A	21,467	0.45	B	17,993	0.38	A	17,243	0.37	A
6th St	H St	M St	20,859	0.44	B	18,515	0.39	A	17,928	0.38	A	18,507	0.39	A	17,218	0.36	A	16,627	0.35	A	20,736	0.44	B	17,105	0.36	A	16,567	0.35	A
6th St	M St	Voorhies Ave	24,569	0.52	B	20,245	0.43	B	20,202	0.43	B	21,199	0.45	B	19,517	0.41	B	20,048	0.42	B	24,539	0.52	B	19,247	0.41	A	19,436	0.41	B
6th St	Voorhies Ave	Lewis Ave	26,060	1.08	F	21,904	0.91	D	21,844	0.90	D	22,535	0.93	E	21,175	0.88	D	21,597	0.89	D	26,106	1.08	F	20,890	0.86	D	21,094	0.87	D
6th St	Lewis Ave	West Park St	26,962	0.57	B	22,772	0.48	B	22,721	0.48	B	23,401	0.50	B	21,903	0.46	B	22,442	0.48	B	27,002	0.57	B	21,587	0.46	B	21,816	0.46	B
6th St	West Park St	Redwood Hwy	16,713	0.40	A	14,477	0.31	A	14,386	0.30	A	14,967	0.32	A	13,476	0.29	A	13,772	0.29	A	16,671	0.40	A	13,155	0.28	A	13,342	0.28	A
6th St	Redwood Hwy	Fruitdale Dr	12,600	0.27	A	12,919	0.27	A	12,841	0.27	A	13,136	0.28	A	12,017	0.25	A	13,060	0.28	A	12,880	0.27	A	10,669	0.23	A	10,999	0.23	A
7th St	Morgan Ln	Hillcrest Dr	12,936	0.53	B	12,217	0.50	B	12,134	0.50	B	12,292	0.51	B	11,399	0.47	B	11,148	0.46	B	12,016	0.50	B	11,197	0.46	B	11,509	0.48	B
7th St	Hillcrest Dr	Midland Ave	16,433	0.68	C	16,874	0.70	C	16,721	0.69	C	16,766	0.69	C	15,352	0.63	B	15,512	0.64	B	16,318	0.67	C	15,156	0.63	B	15,285	0.63	B
7th St	Midland Ave	Savage St	16,148	0.67	B	16,463	0.68	C	16,391	0.68	C	16,486	0.68	C	14,850	0.61	B	15,025	0.62	B	16,209	0.67	B	14,628	0.60	B	14,772	0.61	B
7th St	Savage St	Outlook Ave	17,486	0.72	C	18,131	0.75	C	18,114	0.75	C	18,267	0.75	C	16,033	0.66	B	16,784	0.69	C	17,765	0.73	C	16,031	0.66	B	15,821	0.65	B
7th St	Outlook Ave	Evelyn Ave	17,851	0.74	C	18,717	0.77	C	18,465	0.76	C	18,740	0.77	C	16,033	0.66	B	16,606	0.69	C	18,094	0.75	C	15,769	0.65	B	15,358	0.63	B
7th St	Evelyn Ave	Jackson St	19,151	0.79	C	20,017	0.83	D	19,765	0.82	D	20,040	0.83	D	17,333	0.72	C	18,106	0.75	C	19,394	0.80	C	17,059	0.70	C	16,658	0.69	C
7th St	Jackson St	A St	20,327	0.84	D	21,430	0.89	D	20,222	0.84	D	20,999	0.87	D	16,922	0.70	C	17,189	0.71	C	20,103	0.83	D	17,182	0.71	C	16,095	0.67	B
7th St	A St	E St	20,851	0.86	B	21,920	0.91	B	20,928	0.86	B	21,799	0.91	B	17,403	0.49	B	18,842	0.47	B	20,885	0.59	B	17,207	0.48	B	16,067	0.45	B
7th St	E St	F St	21,899	0.91	B	23,617	0.98	B	21,487	0.90	B	22,758	0.94	B	17,748	0.50	B	17,577	0.49	B	22,099	0.62	B	17,547	0.49	B	16,363	0.46	B
7th St	F St	J St	20,750	0.86	B	19,564	0.85	B	18,603	0.82	B	19,225	0.84	B	17,510	0.49	B	18,879	0.47	B	20,595	0.58	B	17,345	0.49	B	16,791	0.47	B
7th St	J St	M St	19,350	0.84	B	17,200	0.48	B	16,270	0.46	B	16,787	0.47	B	15,667	0.44	B	15,309	0.43	B	18,372	0.51	B	15,781	0.44	B	15,292	0.43	B
7th St	M St	Voorhies Ave	25,796	0.72	C	21,970	0.62	B	21,549	0.60	B	22,527	0.63	B	21,366	0.60	B	21,796	0.61	B	25,776	0.72	C	20,987	0.59	B	21,349	0.60	B
7th St	Voorhies Ave	Park St	25,031	1.03	F	21,353	0.88	D	20,909	0.86	D	21,567	0.89	D	20,748	0.86	D	21,070	0.87	D	25,089	1.04	F	20,354	0.84	D	20,731	0.86	D
7th St	Park St	Redwood Hwy	11,379	0.24	A	8,394	0.18	A	8,749	0.19	A	8,956	0.19	A	9,133	0.19	A	8,891	0.19	A	12,147	0.26	A	8,900	0.19	A	8,700	0.18	A
9th St	Hillcrest Dr	Savage St	605	0.04	A	646	0.04	A	651	0.04	A	654	0.04	A	672	0.04	A	696	0.04	A	632	0.04	A	671	0.04	A	672	0.04	A
9th St	Savage St	Madrona St	3,313	0.20	A	3,118	0.19	A	2,994	0.18	A	3,087	0.19	A	3,051	0.19	A	3,446	0.21	A	3,265	0.20	A	3,084	0.19	A	3,082	0.19	A
9th St	Madrona St	A St	3,497	0.22	A	4,748	0.29	A	4,301	0.27	A	4,045	0.25	A	4,162	0.26	A	0	0.00	A	3,529	0.22	A	4,324	0.27	A	4,396	0.27	A
9th St	D St	E St	3,696	0.23	A	4,299	0.27	A	4,135	0.26	A	4,382	0.27	A	3,924	0.24	A	3,980	0.25	A	3,499	0.22	A	4,295	0.26	A	3,259	0.20	A
9th St	E St	F St	4,381	0.27	A	4,609	0.28	A	4,881	0.30	A	4,689	0.29	A	4,511	0.28	A	4,475	0.28	A	4,355	0.27	A	4,651	0.29	A	4,209	0.26	A
9th St	F St	J St	5,309	0.33	A	5,532	0.35	A	5,292	0.33	A	4,969	0.31	A	4,977	0.31	A	4,543	0.28	A	5,528	0.35	A	4,854	0.30	A	4,547	0.28	A
9th St	J St	M St	3,781	0.23	A	4,796	0.30	A	4,484	0.28	A	4,210	0.26	A	4,280	0.26	A	3,690	0.23	A	3,738	0.23	A	4,146	0.26	A	3,832	0.24	A
10th St	Hillcrest Dr	Dewey Dr	2,263	0.14	A	2,379	0.15	A	2,470	0.15	A	2,415	0.15	A	2,317	0.14	A	1,901	0.11	A	2,273	0.14	A	2,303	0.14	A	2,286	0.14	A
10th St	Dewey Dr	Savage St	2,818	0.17	A	2,932	0.18	A	3,019	0.19	A	2,963	0.18	A	2,866	0.18	A	2,257	0.14	A	2,834	0.17	A	2,851	0.18	A	2,836	0.18	A
10th St	Savage St	Josephine St	4,336	0.27	A	4,483	0.28	A	4,588	0.28	A	4,498	0.28	A	4,351	0.27	A	3,629	0.22	A	4,340	0.27	A	4,341	0.27	A	4,324	0.27	A
10th St	Josephine St	A St	5,080	0.31	A	4,416	0.27	A	4,261	0.26	A	4,524	0.28	A	4,329	0.27	A	6,677	0.42	B	4,999	0.31	A	4,229	0.26	A	4,108	0.25	A
Fruitdale Dr	Jacksonville Hwy	Popular Dr	4,794	0.30	A	5,081	0.31	A	4,941	0.31	A	4,774	0.29	A	4,768	0.29	A	4,737	0.29	A	4,706	0.29	A	4,900	0.30	A	4,940	0.30	A
Fruitdale Dr	Popular Dr	Drury Ln	4,794	0.30	A	5,081	0.31	A	4,941	0.31	A	4,774	0.29	A	4,768	0.29	A	4,737	0.29	A	4,706	0.29	A	4,900	0.30	A	4,940	0.30	A
Fruitdale Dr	Drury Ln	Parkdale Dr	4,444	0.27	A	4,088	0.25	A	4,204	0.26	A	4,060	0.25	A	3,627	0.22	A	3,897	0.23	A	3,782	0.23	A	3,804	0.23	A	3,805	0.23	A
Fruitdale Dr	Parkdale Dr	Alexander Ln	5,392	0.33	A	5,666	0.35	A	5,693	0.35	A	5,027	0.31	A	5,565	0.34	A	5,533	0.34	A	5,233	0.32	A	5,472	0.34	A	5,591	0.35	A

			2015 Alternative Run Assignments																											
			No Build Alternative			Alternative 1			Alternative 2			Alternative 3			Alternative 4			Alternative 5			Alternative 6			Alternative 7			Alternative 8		
Street Name	Segment Name (From)	Segment Name (To)	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Grandview Ave	Harbeck Rd	Drury Ln	5,404	0.33	A	5,100	0.31	A	5,105	0.32	A	5,219	0.32	A	5,233	0.32	A	5,224	0.32	A	5,296	0.33	A	5,185	0.32	A	5,339	0.33	A
Grandview Ave	Drury Ln	Gaffney Way	5,498	0.34	A	5,199	0.32	A	5,206	0.32	A	5,319	0.33	A	5,335	0.33	A	5,328	0.33	A	5,396	0.33	A	5,296	0.33	A	5,455	0.34	A
Grandview Ave	Gaffney Way	Cloverlawn Dr	4,592	0.29	A	4,292	0.26	A	4,312	0.27	A	4,417	0.27	A	4,442	0.27	A	4,433	0.27	A	4,482	0.28	A	4,430	0.27	A	4,545	0.28	A
Cloverlawn	Rogue River Hwy	Fruitdale Dr	5,929	0.37	A	4,774	0.29	A	4,800	0.28	A	5,585	0.34	A	3,650	0.23	A	4,572	0.28	A	5,925	0.37	A	4,248	0.26	A	4,052	0.25	A
Cloverlawn	Fruitdale Dr	Alanita Rd	7,536	0.47	B	7,551	0.47	B	7,413	0.46	B	7,450	0.46	B	7,166	0.44	B	7,460	0.46	B	7,475	0.46	B	6,571	0.41	A	6,527	0.40	A
Cloverlawn	Alanita Rd	Hamilton Ln	7,756	0.48	B	8,764	0.54	B	8,788	0.54	B	8,780	0.54	B	8,770	0.54	B	8,778	0.54	B	8,780	0.54	B	8,786	0.54	B	8,748	0.54	B
Rogue River Hwy	Redwood Hwy	Maple Ln	17,998	0.59	B	18,188	0.60	B	17,966	0.59	B	18,149	0.60	B	18,566	0.61	B	18,453	0.61	B	17,928	0.59	B	18,476	0.61	B	18,414	0.61	B
Rogue River Hwy	Maple Ln	Parkdale Dr	18,622	0.61	B	18,724	0.62	B	18,488	0.61	B	18,668	0.62	B	19,116	0.63	B	18,983	0.56	B	18,518	0.61	B	19,079	0.63	B	18,950	0.63	B
Rogue River Hwy	Parkdale Dr	Cloverlawn Dr	16,017	0.53	B	16,157	0.53	B	16,143	0.53	B	16,675	0.55	B	16,162	0.53	B	17,166	0.57	B	16,266	0.54	B	16,268	0.54	B	16,039	0.53	B
Rogue River Hwy	Cloverlawn Dr	Mt Baldy Rd	10,452	0.34	A	10,370	0.34	A	10,468	0.35	A	10,527	0.35	A	10,536	0.35	A	10,483	0.35	A	10,425	0.34	A	10,315	0.34	A	10,426	0.34	A
Rogue River Hwy	Mt Baldy Rd	Fruitdale Dr	9,226	0.35	A	9,143	0.38	A	9,241	0.38	A	9,300	0.38	A	9,310	0.38	A	9,257	0.38	A	9,199	0.38	A	9,088	0.38	A	9,193	0.38	A
Rogue River Hwy	Fruitdale Dr	Peckerwood Ln	12,401	0.51	B	12,407	0.51	B	12,427	0.51	B	12,411	0.51	B	12,427	0.51	B	12,411	0.51	B	12,381	0.51	B	12,409	0.51	B	12,423	0.51	B
4th St	Evelyn Ave	A St	7,609	0.47	B	7,231	0.45	B	7,756	0.48	B	7,600	0.47	B	7,183	0.44	B	7,656	0.48	B	6,990	0.43	B	7,311	0.45	B	7,606	0.47	B
4th St	A St	E St	8,165	0.50	B	8,744	0.54	B	7,119	0.44	B	8,859	0.55	B	6,076	0.38	A	6,213	0.38	A	8,016	0.49	B	6,072	0.37	A	5,002	0.31	A
4th St	E St	F St	7,139	0.44	B	6,652	0.41	B	6,409	0.40	A	6,461	0.40	A	6,745	0.42	B	6,419	0.40	A	7,677	0.47	B	6,727	0.42	B	6,157	0.38	A
4th St	F St	J St	7,153	0.44	B	4,615	0.28	A	4,784	0.30	A	4,478	0.28	A	5,710	0.35	A	5,298	0.33	A	7,288	0.45	B	5,726	0.36	A	5,179	0.32	A
4th St	J St	Bridge St	4,057	0.25	A	4,303	0.27	A	4,615	0.29	A	4,554	0.28	A	4,559	0.28	A	4,164	0.26	A	4,280	0.26	A	4,531	0.28	A	3,885	0.24	A
Harbeck Rd	Union Ave	Gl Ln	6,732	0.42	B	7,457	0.46	B	7,530	0.46	B	7,565	0.47	B	7,236	0.45	B	7,432	0.46	B	7,038	0.43	B	6,043	0.37	A	5,788	0.36	A
Harbeck Rd	Gl Ln	Grandview Ave	2,848	0.18	A	2,707	0.17	A	2,802	0.17	A	2,831	0.17	A	2,909	0.18	A	2,794	0.17	A	2,812	0.17	A	3,273	0.20	A	3,264	0.20	A
Harbeck Rd	Grandview Ave	West Harbeck Rd	3,167	0.20	A	3,003	0.19	A	2,913	0.18	A	3,000	0.19	A	2,935	0.18	A	3,042	0.19	A	3,096	0.19	A	2,524	0.16	A	2,697	0.17	A
West Harbeck Rd	Allen Creek Rd	Williams Hwy	5,078	0.31	A	5,200	0.32	A	5,197	0.32	A	4,957	0.31	A	5,698	0.35	A	4,883	0.30	A	4,761	0.29	A	757	0.05	A	48	0.00	A
West Harbeck Rd	Williams Hwy	Towne St	2,821	0.17	A	2,659	0.16	A	2,580	0.16	A	2,656	0.16	A	2,587	0.16	A	2,699	0.17	A	2,746	0.17	A	2,237	0.14	A	2,392	0.15	A
West Harbeck Rd	Towne St	Harbeck Rd	3,167	0.20	A	3,003	0.19	A	2,913	0.18	A	3,000	0.19	A	1,935	0.12	A	3,042	0.19	A	3,096	0.19	A	2,524	0.16	A	2,697	0.17	A
LOS Definitions				0.46	B		0.44	B		0.45	B		0.44	B		0.42	B		0.41	A		0.46	B		0.42	B		0.41	A

Alternative Construction Projects

Facility	Limits From	Limits To	Length (mi)	GRAND TOTAL	Notes
Fourth Bridge	Schroeder Lane	Lower River Road	0.11	8,460,000	Cost based on $11,750/linear foot for bridge construction
	Lower River Road	Upper River Road	0.63	2,246,480	
Willow Lane/Schroeder Lane	Redwood Avenue	New Bridge	0.95	2,446,947	
Foundry Street	F Street	Lincoln Road	1.01	3,337,351	Includes at-grade railroad crossing
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	2.05	5,825,630	Extensive grading work required (2x cost), likely to have 2 stream crossings
G Street	Lincoln Road	Foundry St.	1.04	2,602,239	
Upper River Road	Pinecrest Drive	Lincoln Road	0.91	2,137,072	
I-5 Northbound On-Ramp	Scoville Road	I-5	0.80	1,817,098	Project consistent with outlet mall improvements
New Service Road	Hillcrest Drive	Greenfield Road	0.32	1,000,722	Improved access to area north of I-5, likely to cross canal
			Subtotal w/ G Street	29,873,539	
			Subtotal w/o G Street	27,271,300	
Tier Two Projects					
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	1.14	3,162,438	Extensive grading work required (2x cost), likely to have 2 stream crossings
Midland Avenue	7th Street	9th Street	0.15	686,185	Study suggests that improvement is not recommended, offset intersection
Beacon Drive	Madrone Street	Heritage Drive	0.06	161,365	Improve neighborhood circulation, provide new access to north of I-5
9th Street	Wharton Street	A Street	0.04	7,924	Vacate roadway to allow for High School expension
Dimmick Street	Foundry Street	F Street	0.04	718,762	More efficient circulation and emergency access, 1 railroad crossing
Lincoln Road @ Lower River Rd	Intersection Improvements			210,877	Increase efficiency and safety, exact improvements unknown
Susan Lane Extension	Terminus	Cottonwood Street	0.16	369,181	New access for future school project
New Road	Bridge Street	Susan Lane	0.21	496,548	New access for future school project
Agness Avenue Extension	Terminus	N Street	0.19	1,065,997	More efficient circulation and emergency access, 1 railroad crossing
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	0.30	714,046	More efficient circulation and emergency access
New Road	Darnelle Lane	Leonard Road	0.63	1,504,782	New collector road to support future development, encroaches on housing
New Road	Hubbard Lane	Leonard Road	0.76	2,207,924	New collector road, part is constructed, canal crossing
New Road	Leonard Road	New Hubbard-Leonard connection	0.27	632,891	New collector road to support future development in the area
New Road	Ray Dean Drive	New Hubbard-Leonard connection	0.27	631,765	New collector road to support future development in the area
New Road	West Harbeck Road	Dowell Road	0.76	1,798,770	New collector road to support future development in the area
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	0.11	270,435	New collector road to support future development in the area
Allen Creek Road	Denton Trail	Jacksonville Hwy	0.42	1,239,746	Reduces congestion on Jacksonville Highway, crosses creek, housing
New Road	Schutzwohl Lane	GI Lane	0.59	1,771,283	More efficient circulation and emergency access, housing on Jack. Hwy
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	0.21	533,477	More efficient circulation and emergency access
Ringuette Road Extension	Redwood Highway	Union Avenue	0.07	471,863	More efficient circulation and emergency access
GI Lane Extension	Harbeck Road	Grandview Avenue	0.45	1,081,739	More efficient circulation
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	1.18	3,693,953	New road would support future growth, 2 creek crossings
			Tier Two Total	20,269,512	
			Grand Total w/ G Street	50,143,052	
			Grand Total w/o G Street	47,540,813	

Alternative 3 Construction Projects

	Limits								
Facility	From	To	Lanes	Lane Miles	Location	ROW	Asphalt	Subgrade	Excavation
Fourth Bridge	Schroeder Lane	Lower River Road	4	0.45	UGB				
	Lower River Road	Upper River Road	4	2.50	UGB	398,129	126,720	96,624	63,360
Willow Lane/Schroeder Lane	Redwood Avenue	New Bridge	2	1.90	UGB	605,638	96,384	73,493	48,192
Foundry Street	F Street	Lincoln Road	2	2.02	City	644,245	102,528	78,178	51,264
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	2	4.09	City	1,302,967	207,360	158,112	207,360
G Street	Lincoln Road	Foundry St.	2	2.08	City	663,548	105,600	80,520	52,800
Upper River Road	Pinecrest Drive	Lincoln Road	2	1.82	UGB	579,096	92,160	70,272	46,080
I-5 Northbound On-Ramp	Scoville Road	I-5	1	0.80	City	506,709	40,320	30,744	20,160
New Service Road	Hillcrest Drive	Greenfield Road	2	0.64	UGB	205,097	32,640	24,888	16,320
					Su				
Tier Two Projects					Subt				
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	2	2.27	City	723,870	115,200	87,840	115,200
Midland Avenue	7th Street	9th Street	2	0.30	City	96,516	15,360	11,712	7,680
Beacon Drive	Madrone Street	Heritage Drive	2	0.13	City	41,019	6,528	4,978	3,264
9th Street	Wharton Street	A Street	2	0.08	City				
Dimmick Street	Foundry Street	F Street	2	0.08	City	24,129	3,840	2,928	1,920
Lincoln Road @ Lower River Rd	Intersection Improvements			0.00	UGB				
Susan Lane Extension	Terminus	Cottonwood Street	2	0.31	UGB	98,929	15,744	12,005	7,872
New Road	Bridge Street	Susan Lane	2	0.42	UGB	132,710	21,120	16,104	10,560
Agness Avenue Extension	Terminus	N Street	2	0.38	UGB	120,645	19,200	14,640	9,600
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	2	0.61	UGB	193,032	30,720	23,424	15,360
New Road	Damelle Lane	Leonard Road	2	1.27	UGB	402,955	64,128	48,898	32,064
New Road	Hubbard Lane	Leonard Road	2	1.52	UGB	484,993	77,184	58,853	38,592
New Road	Leonard Road	New Hubbard-Leonard connection	2	0.53	UGB	168,903	26,880	20,496	13,440
New Road	Ray Dean Drive	New Hubbard-Leonard connection	2	0.53	UGB	168,903	26,880	20,496	13,440
New Road	West Harbeck Road	Dowell Road	2	1.52	UGB	482,580	76,800	58,560	38,400
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	2	0.23	UGB	72,387	11,520	8,784	5,760
Allen Creek Road	Denton Trail	Jacksonville Hwy	2	0.83	UGB	265,419	42,240	32,208	21,120
New Road	Schutzwohl Lane	GI Lane	2	1.17	City	374,000	59,520	45,384	29,760
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	2	0.42	City	135,122	21,504	16,397	10,752
Ringuette Road Extension	Redwood Highway	Union Avenue	2	0.14	City	43,432	6,912	5,270	3,456
GI Lane Extension	Harbeck Road	Grandview Avenue	2	0.91	City	289,548	46,080	35,136	23,040
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	2	2.36	UGB	752,825	119,808	91,354	59,904
					Grand				
					Grand T				

Alternativ Construction Projects

Facility	Limits From	To	Storm Drainage	Channelization	Striping	Landscaping	Curb & Gutter	5' Sidewalk	5' Bike lane	Street Lighting
Fourth Bridge	Schroeder Lane	Lower River Road								
	Lower River Road	Upper River Road	357,324	84,250	3,250	105,438	18,975	55,110	59,730	
Willow Lane/Schroeder Lane	Redwood Avenue	New Bridge	543,566	64,081	2,472	160,393	28,865	83,834	90,862	
Foundry Street	F Street	Lincoln Road	578,215	68,166	2,630	170,617	30,705	89,178	96,654	113,778
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	1,169,424	137,864	5,318	345,068	62,100	180,360	195,480	230,114
G Street	Lincoln Road	Foundry St.	595,540	70,208	2,708	175,729	31,625	91,850	99,550	117,188
Upper River Road	Pinecrest Drive	Lincoln Road	519,744	61,273	2,364	153,364	27,600	80,160	86,880	
I-5 Northbound On-Ramp	Scoville Road	I-5	454,776	26,807	1,034	134,193				
New Service Road	Hillcrest Drive	Greenfield Road	184,076	21,701	837	54,316	9,775	28,390	30,770	36,222
				Su						
Tier Two Projects				Subt						
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	649,680	76,591	2,955	191,705	34,500	100,200		127,841
Midland Avenue	7th Street	9th Street	86,624	10,212	394	25,561	4,600	13,360	14,480	17,045
Beacon Drive	Madrone Street	Heritage Drive	36,815	4,340	167	10,863	1,955	5,678	6,154	7,244
9th Street	Wharton Street	A Street				6,390				
Dimmick Street	Foundry Street	F Street	21,656	2,553	98	6,390	1,150	3,340	3,620	4,261
Lincoln Road @ Lower River Rd	Intersection Improvements									
Susan Lane Extension	Terminus	Cottonwood Street	88,790	10,467	404	26,200	4,715	13,694		17,472
New Road	Bridge Street	Susan Lane	119,108	14,042	542	35,146	6,325	18,370		23,436
Agness Avenue Extension	Terminus	N Street	108,280	12,765	492	31,951	5,750	16,700	18,100	
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	173,248	20,424	788	51,121	9,200	26,720	28,960	
New Road	Darnelle Lane	Leonard Road	361,655	42,636	1,645	106,718	19,205	55,778		71,165
New Road	Hubbard Lane	Leonard Road	435,286	51,316	1,980	128,442	23,115	67,134		85,653
New Road	Leonard Road	New Hubbard-Leonard connection	151,592	17,871	689	44,731	8,050	23,380		29,830
New Road	Ray Dean Drive	New Hubbard-Leonard connection	151,592	17,871	689	44,731	8,050	23,380		29,830
New Road	West Harbeck Road	Dowell Road	433,120	51,061	1,970	127,803	23,000	66,800		85,227
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	64,968	7,659	295	19,170	3,450	10,020		12,784
Allen Creek Road	Denton Trail	Jacksonville Hwy	238,216	28,083	1,083	70,292	12,650	36,740	39,820	46,875
New Road	Schutzwohl Lane	GI Lane	335,668	39,572	1,527	99,047	17,825	51,770	56,110	66,051
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	121,274	14,297	552	35,785	6,440	18,704	20,272	23,864
Ringuette Road Extension	Redwood Highway	Union Avenue	38,981	4,595	177	11,502	2,070	6,012		7,670
GI Lane Extension	Harbeck Road	Grandview Avenue	259,872	30,636	1,182	76,682	13,800	40,080		51,136
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	675,667	79,655	3,073	199,373	35,880	104,208	112,944	
				Grand						
				Grand T						

Alternative 5 Construction Projects

Non-Costable

Facility	Limits From	Limits To	Signage	Wheelchair Ramps #		Comm. Driveway Ft		GP Traffic Signal #		ODOT Traffic Signal #		Wetland Mitigation
Fourth Bridge	Schroeder Lane	Lower River Road			0		0		0		0	
	Lower River Road	Upper River Road	2,125	16	3,632		0	2	337,400		0	
Willow Lane/Schroeder Lane	Redwood Avenue	New Bridge	3,233	16	3,632		0	1	168,700		0	
Foundry Street	F Street	Lincoln Road	3,439	8	1,816		0		0		0	
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	6,955	4	908		0	1	168,700		0	
G Street	Lincoln Road	Foundry St.	3,542	36	8,172		0		0		0	
Upper River Road	Pinecrest Drive	Lincoln Road	3,091	6	1,362		0		0		0	
I-5 Northbound On-Ramp	Scoville Road	I-5	2,705	2	454		0		0	1	247,500	
New Service Road	Hillcrest Drive	Greenfield Road	1,095	4	908		0		0		0	
					Su							
Tier Two Projects					Subt							
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	3,864	4	908		0		0		0	
Midland Avenue	7th Street	9th Street	515	8	1,816		0		0	1	247,500	
Beacon Drive	Madrone Street	Heritage Drive	219	4	908		0		0		0	
9th Street	Wharton Street	A Street			0		0		0		0	
Dimmick Street	Foundry Street	F Street	129	16	3,632		0		0		0	
Lincoln Road @ Lower River Rd	Intersection Improvements			6	1,362		0	1	168,700		0	
Susan Lane Extension	Terminus	Cottonwood Street	528	4	908		0		0		0	
New Road	Bridge Street	Susan Lane	708	10	2,270		0		0		0	
Agness Avenue Extension	Terminus	N Street	644	4	908		0		0		0	
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	1,030	8	1,816		0		0		0	
New Road	Darneille Lane	Leonard Road	2,151	20	4,540		0		0		0	
New Road	Hubbard Lane	Leonard Road	2,589	24	5,448		0		0		0	
New Road	Leonard Road	New Hubbard-Leonard connection	902	16	3,632		0		0		0	
New Road	Ray Dean Drive	New Hubbard-Leonard connection	902	12	2,724		0		0		0	
New Road	West Harbeck Road	Dowell Road	2,576	12	2,724		0		0		0	
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	386	4	908		0		0		0	
Allen Creek Road	Denton Trail	Jacksonville Hwy	1,417	16	3,632		0		0		0	
New Road	Schutzwohl Lane	GI Lane	1,996	12	2,724		0		0	1	247,500	
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	721	20	4,540		0		0		0	
Ringuette Road Extension	Redwood Highway	Union Avenue	232	12	2,724		0		0	1	247,500	
GI Lane Extension	Harbeck Road	Grandview Avenue	1,545	16	3,632		0		0		0	
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	4,018	18	4,086		0	1	168,700	1	247,500	
					Grand							
					Grand T							

A native 5 Construction Projects

	Limits		Add-Ons				20%
			At-Grade	Bridge/Structure			D,CM,
Facility	From	To	RR Crossing	LF	Cost	SUBTOTAL	Permits
Fourth Bridge	Schroeder Lane	Lower River Road		600	7,050,000	7,050,000	1,410,000
	Lower River Road	Upper River Road		100	160,000	1,872,066	374,413
Willow Lane/Schroeder Lane	Redwood Avenue	New Bridge				1,973,344	473,603
Foundry Street	F Street	Lincoln Road	500,000	100	160,000	2,691,412	645,939
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.		200	320,000	4,698,089	1,127,541
G Street	Lincoln Road	Foundry St.				2,098,580	503,659
Upper River Road	Pinecrest Drive	Lincoln Road				1,723,445	413,627
I-5 Northbound On-Ramp	Scoville Road	I-5				1,465,402	351,696
New Service Road	Hillcrest Drive	Greenfield Road		100	160,000	807,034	193,688
			Su				Subtotal w/ G Street
Tier Two Projects			Subt				Subtotal w/o G Street
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.		200	320,000	2,550,353	612,085
Midland Avenue	7th Street	9th Street				553,375	132,810
Beacon Drive	Madrone Street	Heritage Drive				130,133	31,232
9th Street	Wharton Street	A Street				6,390	1,534
Dimmick Street	Foundry Street	F Street	500,000			579,647	139,115
Lincoln Road @ Lower River Rd	Intersection Improvements					170,062	40,815
Susan Lane Extension	Terminus	Cottonwood Street				297,727	71,454
New Road	Bridge Street	Susan Lane				400,442	96,106
Agness Avenue Extension	Terminus	N Street	500,000			859,675	206,322
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension				575,844	138,203
New Road	Dameille Lane	Leonard Road				1,213,534	291,248
New Road	Hubbard Lane	Leonard Road		200	320,000	1,780,584	427,340
New Road	Leonard Road	New Hubbard-Leonard connection				510,396	122,495
New Road	Ray Dean Drive	New Hubbard-Leonard connection				509,488	122,277
New Road	West Harbeck Road	Dowell Road				1,450,621	348,149
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.				218,093	52,342
Allen Creek Road	Denton Trail	Jacksonville Hwy		100	160,000	999,795	239,951
New Road	Schutzwohl Lane	GI Lane				1,428,454	342,829
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road				430,223	103,254
Ringuette Road Extension	Redwood Highway	Union Avenue				380,535	91,328
GI Lane Extension	Harbeck Road	Grandview Avenue				872,370	209,369
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy		200	320,000	2,978,994	714,959
							Subtotal
			Grand				Grand Total w/ G Street
			Grand T				Grand Total w/o G Street

Alternative (nstruction Projects

Facility	Limits From	Limits To	Length (mi)	GRAND TOTAL	Notes
Fourth Bridge	Flower Lane	Lincoln Road/Foundry St.	0.18	13,987,200	Cost based on $11,750/linear foot for bridge construction
Flower Lane	Redwood Highway	New Bridge	0.20	1,029,587	
Lincoln Road	New Bridge	Terminus	0.11	324,958	
Lincoln Road	Terminus	G Street	0.76	2,101,111	
G Street	Lincoln Road	Foundry St.	1.04	2,602,239	
Foundry Street	F Street	Lincoln Road	1.01	3,337,351	Includes at-grade railroad crossing
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	2.05	5,825,630	Extensive grading work required (2x cost), likely to have 2 stream crossings
I-5 Northbound On-Ramp	Scoville Road	I-5	0.80	1,817,098	Project consistent with outlet mall improvements
New Service Road	Hillcrest Drive	Greenfield Road	0.32	1,000,722	Improved access to area north of I-5, likely to cross canal
			Subtotal w/ G Street	32,025,898	
Tier Two Projects			Subtotal w/o G Street	29,423,659	
Morgan Lane Extension	Mogan Lane Terminus	B Street	1.14	3,162,438	Extensive grading work required (2x cost), likely to have 2 stream crossings
Midland Avenue	7th Street	9th Street	0.15	686,185	Study suggests that improvement is not recommended, offset intersection
Beacon Drive	Madrone Street	Heritage Drive	0.06	161,365	Improve neighborhood circulation, provide new access to north of I-5
9th Street	Wharton Street	A Street	0.04	7,924	Vacate roadway to allow for High School expansion
Dimmick Street	Foundry Street	F Street	0.04	718,762	More efficient circulation and emergency access, 1 railroad crossing
Lincoln Road @ Lower River Rd	Intersection Improvements			210,877	Increase efficiency and safety, exact improvements unknown
Susan Lane Extension	Terminus	Cottonwood Street	0.16	369,181	New access for future school project
New Road	Bridge Street	Susan Lane	0.21	496,548	New access for future school project
Agness Avenue Extension	Terminus	N Street	0.19	1,065,997	More efficient circulation and emergency access, 1 railroad crossing
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	0.30	714,046	More efficient circulation and emergency access
New Road	Darnelle Lane	Leonard Road	0.63	1,504,782	New collector road to support future development, encroaches on housing
New Road	Hubbard Lane	Leonard Road	0.76	2,207,924	New collector road, part is constructed, canal crossing
New Road	Leonard Road	New Hubbard-Leonard connection	0.27	632,891	New collector road to support future development in the area
New Road	Ray Dean Drive	New Hubbard-Leonard connection	0.27	631,765	New collector road to support future development in the area
New Road	West Harbeck Road	Dowell Road	0.76	1,798,770	New collector road to support future development in the area
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	0.11	270,435	New collector road to support future development in the area
Allen Creek Road	Denton Trail	Jacksonville Hwy	0.42	1,239,746	Reduces congestion on Jacksonville Highway, crosses creek, housing
New Road	Schutzwohl Lane	GI Lane	0.59	1,771,283	More efficient circulation and emergency access, housing on Jack. Hwy
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	0.21	533,477	More efficient circulation and emergency access
Ringuette Road Extension	Redwood Highway	Union Avenue	0.07	471,863	More efficient circulation and emergency access
GI Lane Extension	Harbeck Road	Grandview Avenue	0.45	1,081,739	More efficient circulation
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	1.18	3,693,953	New road would support future growth, 2 creek crossings
			Tier Two Total	20,269,512	
			Grand Total w/ G Street	52,295,410	
			Grand Total w/o G Street	49,693,171	

Alternative o Construction Projects

	Limits								
Facility	From	To	Lanes	Lane Miles	Location	ROW	Asphalt	Subgrade	Excavation
Fourth Bridge	Flower Lane	Lincoln Road/Foundry St.	4	0.73	UGB				
Flower Lane	Redwood Highway	New Bridge	2	0.41	UGB	130,297	20,736	15,811	10,368
Lincoln Road	New Bridge	Terminus	4	0.45	UGB	72,387	23,040	17,568	11,520
Lincoln Road	Terminus	G Street	2	1.52	UGB	482,580	76,800	58,560	38,400
G Street	Lincoln Road	Foundry St.	2	2.08	City	663,548	105,600	80,520	52,800
Foundry Street	F Street	Lincoln Road	2	2.02	City	644,245	102,528	78,178	51,264
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	2	4.09	City	1,302,967	207,360	158,112	207,360
I-5 Northbound On-Ramp	Scoville Road	I-5	1	0.80	City	506,709	40,320	30,744	20,160
New Service Road	Hillcrest Drive	Greenfield Road	2	0.64	UGB	205,097	32,640	24,888	16,320
					Su				
Tier Two Projects					Subt				
Morgan Lane Extension	Mogan Lane Terminus	B Street	2	2.27	City	723,870	115,200	87,840	115,200
Midland Avenue	7th Street	9th Street	2	0.30	City	96,516	15,360	11,712	7,680
Beacon Drive	Madrone Street	Heritage Drive	2	0.13	City	41,019	6,528	4,978	3,264
9th Street	Wharton Street	A Street	2	0.08	City				
Dimmick Street	Foundry Street	F Street	2	0.08	City	24,129	3,840	2,928	1,920
Lincoln Road @ Lower River Rd	Intersection Improvements			0.00	UGB				
Susan Lane Extension	Terminus	Cottonwood Street	2	0.31	UGB	98,929	15,744	12,005	7,872
New Road	Bridge Street	Susan Lane	2	0.42	UGB	132,710	21,120	16,104	10,560
Agness Avenue Extension	Terminus	N Street	2	0.38	UGB	120,645	19,200	14,640	9,600
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	2	0.61	UGB	193,032	30,720	23,424	15,360
New Road	Damelle Lane	Leonard Road	2	1.27	UGB	402,955	64,128	48,898	32,064
New Road	Hubbard Lane	Leonard Road	2	1.52	UGB	484,993	77,184	58,853	38,592
New Road	Leonard Road	New Hubbard-Leonard connection	2	0.53	UGB	168,903	26,880	20,496	13,440
New Road	Ray Dean Drive	New Hubbard-Leonard connection	2	0.53	UGB	168,903	26,880	20,496	13,440
New Road	West Harbeck Road	Dowell Road	2	1.52	UGB	482,580	76,800	58,560	38,400
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	2	0.23	UGB	72,387	11,520	8,784	5,760
Allen Creek Road	Denton Trail	Jacksonville Hwy	2	0.83	UGB	265,419	42,240	32,208	21,120
New Road	Schutzwohl Lane	GI Lane	2	1.17	City	374,000	59,520	45,384	29,760
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	2	0.42	City	135,122	21,504	16,397	10,752
Ringuette Road Extension	Redwood Highway	Union Avenue	2	0.14	City	43,432	6,912	5,270	3,456
GI Lane Extension	Harbeck Road	Grandview Avenue	2	0.91	City	289,548	46,080	35,136	23,040
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	2	2.36	UGB	752,825	119,808	91,354	59,904
					Grand				
					Grand T				

Alternativ Construction Projects

Facility	Limits From	To	Storm Drainage	Channelization	Striping	Landscaping	Curb & Gutter	5' Sidewalk	5' Bike lane	Street Lighting
Fourth Bridge	Flower Lane	Lincoln Road/Foundry St.								
Flower Lane	Redwood Highway	New Bridge	116,942	13,786	532	34,507	6,210	18,036	19,548	23,011
Lincoln Road	New Bridge	Terminus	64,968	15,318	591	19,170	3,450	10,020	10,860	12,784
Lincoln Road	Terminus	G Street	433,120	51,061	1,970	127,803	23,000	66,800	72,400	85,227
G Street	Lincoln Road	Foundry St.	595,540	70,206	2,706	175,729	31,625	91,850	99,550	117,188
Foundry Street	F Street	Lincoln Road	578,215	68,166	2,630	170,617	30,705	89,178	96,654	113,778
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	1,169,424	137,864	5,318	345,068	62,100	180,360	195,480	230,114
I-5 Northbound On-Ramp	Scoville Road	I-5	454,776	26,807	1,034	134,193				
New Service Road	Hillcrest Drive	Greenfield Road	184,078	21,701	837	54,316	9,775	28,390	30,770	36,222
					Su					
Tier Two Projects					Subt					
Morgan Lane Extension	Mogan Lane Terminus	B Street	649,680	76,591	2,955	191,705	34,500	100,200		127,841
Midland Avenue	7th Street	9th Street	86,624	10,212	394	25,561	4,600	13,360	14,480	17,045
Beacon Drive	Madrone Street	Heritage Drive	36,815	4,340	167	10,863	1,955	5,678	6,154	7,244
9th Street	Wharton Street	A Street				6,390				
Dimmick Street	Foundry Street	F Street	21,656	2,553	98	6,390	1,150	3,340	3,620	4,261
Lincoln Road @ Lower River Rd	Intersection Improvements									
Susan Lane Extension	Terminus	Cottonwood Street	88,790	10,467	404	26,200	4,715	13,694		17,472
New Road	Bridge Street	Susan Lane	119,108	14,042	542	35,146	6,325	18,370		23,438
Agness Avenue Extension	Terminus	N Street	108,280	12,765	492	31,951	5,750	16,700	18,100	
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	173,248	20,424	788	51,121	9,200	26,720	28,960	
New Road	Damelle Lane	Leonard Road	361,655	42,636	1,645	106,716	19,205	55,778		71,165
New Road	Hubbard Lane	Leonard Road	435,286	51,316	1,980	128,442	23,115	67,134		85,653
New Road	Leonard Road	New Hubbard-Leonard connection	151,592	17,871	689	44,731	8,050	23,380		29,830
New Road	Ray Dean Drive	New Hubbard-Leonard connection	151,592	17,871	689	44,731	8,050	23,380		29,830
New Road	West Harbeck Road	Dowell Road	433,120	51,061	1,970	127,803	23,000	66,800		85,227
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	64,968	7,659	295	19,170	3,450	10,020		12,784
Allen Creek Road	Denton Trail	Jacksonville Hwy	238,216	28,083	1,083	70,292	12,650	36,740	39,820	46,875
New Road	Schutzwohl Lane	GI Lane	335,668	39,572	1,527	99,047	17,825	51,770	56,110	66,051
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	121,274	14,297	552	35,785	6,440	18,704	20,272	23,864
Ringuette Road Extension	Redwood Highway	Union Avenue	38,981	4,595	177	11,502	2,070	6,012		7,670
GI Lane Extension	Harbeck Road	Grandview Avenue	259,872	30,636	1,182	76,682	13,800	40,080		51,136
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	675,667	79,655	3,073	199,373	35,880	104,208	112,944	
					Grand					
					Grand T					

Alternative 8 Construction Projects

Non-Costable

Facility	Limits From	To	Signage	Wheelchair Ramps #		Comm. Driveway Ft		GP Traffic Signal #		ODOT Traffic Signal #		Wetland Mitigation
Fourth Bridge	Flower Lane	Lincoln Road/Foundry St.			0		0		0		0	
Flower Lane	Redwood Highway	New Bridge	695	16	3,632		0	1	168,700	1	247,500	
Lincoln Road	New Bridge	Terminus	386		0		0		0		0	
Lincoln Road	Terminus	G Street	2,576	24	5,448		0	1	168,700		0	
G Street	Lincoln Road	Foundry St.	3,542	36	8,172		0		0		0	
Foundry Street	F Street	Lincoln Road	3,439	8	1,816		0		0		0	
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.	6,955	4	908		0	1	168,700		0	
I-5 Northbound On-Ramp	Scoville Road	I-5	2,705	2	454		0		0	1	247,500	
New Service Road	Hillcrest Drive	Greenfield Road	1,095	4	908		0		0		0	
				Su								
Tier Two Projects				Subt								
Morgan Lane Extension	Mogan Lane Terminus	B Street	3,864	4	908		0		0		0	
Midland Avenue	7th Street	9th Street	515	8	1,816		0		0	1	247,500	
Beacon Drive	Madrone Street	Heritage Drive	219	4	908		0		0		0	
9th Street	Wharton Street	A Street			0		0		0		0	
Dimmick Street	Foundry Street	F Street	129	16	3,632		0		0		0	
Lincoln Road @ Lower River Rd	Intersection Improvements			6	1,362		0	1	168,700		0	
Susan Lane Extension	Terminus	Cottonwood Street	528	4	908		0		0		0	
New Road	Bridge Street	Susan Lane	708	10	2,270		0		0		0	
Agness Avenue Extension	Terminus	N Street	644	4	908		0		0		0	
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	1,030	8	1,816		0		0		0	
New Road	Darnelle Lane	Leonard Road	2,151	20	4,540		0		0		0	
New Road	Hubbard Lane	Leonard Road	2,589	24	5,448		0		0		0	
New Road	Leonard Road	New Hubbard-Leonard connection	902	16	3,632		0		0		0	
New Road	Ray Dean Drive	New Hubbard-Leonard connection	902	12	2,724		0		0		0	
New Road	West Harbeck Road	Dowell Road	2,576	12	2,724		0		0		0	
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	386	4	908		0		0		0	
Allen Creek Road	Denton Trail	Jacksonville Hwy	1,417	16	3,632		0		0		0	
New Road	Schutzwohl Lane	GI Lane	1,996	12	2,724		0		0	1	247,500	
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	721	20	4,540		0		0		0	
Ringuette Road Extension	Redwood Highway	Union Avenue	232	12	2,724		0		0	1	247,500	
GI Lane Extension	Harbeck Road	Grandview Avenue	1,545	16	3,632		0		0		0	
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	4,018	18	4,086		0	1	168,700	1	247,500	
				Grand								
				Grand T								

Alternat 8 Construction Projects

Facility	Limits From	Limits To	Ons At-Grade RR Crossing	Bridge/Structure LF	Bridge/Structure Cost	SUBTOTAL	20% for D,CM, & Permits	GRAND TOTAL
Fourth Bridge	Flower Lane	Lincoln Road/Foundry St.		960	11,280,000	11,280,000	2,707,200	13,987,200
Flower Lane	Redwood Highway	New Bridge				830,312	199,275	1,029,587
Lincoln Road	New Bridge	Terminus				262,063	62,895	324,958
Lincoln Road	Terminus	G Street				1,694,445	406,667	2,101,111
G Street	Lincoln Road	Foundry St.				2,098,580	503,659	2,602,239
Foundry Street	F Street	Lincoln Road	500,000	100	160,000	2,691,412	645,939	3,337,351
Morgan Lane Extension	Mogan Lane Terminus	Lincoln Rd./Foundry St.		200	320,000	4,698,089	1,127,541	5,825,630
I-5 Northbound On-Ramp	Scoville Road	I-5				1,465,402	351,696	1,817,098
New Service Road	Hillcrest Drive	Greenfield Road		100	160,000	807,034	193,688	1,000,722
			Su				Subtotal w/ G Street	32,025,898
Tier Two Projects			Subt				Subtotal w/o G Street	29,423,659
Morgan Lane Extension	Mogan Lane Terminus	B Street		200	320,000	2,550,353	612,085	3,162,438
Midland Avenue	7th Street	9th Street				553,375	132,810	686,185
Beacon Drive	Madrone Street	Heritage Drive				130,133	31,232	161,365
9th Street	Wharton Street	A Street				6,390	1,534	7,924
Dimmick Street	Foundry Street	F Street	500,000			579,647	139,115	718,762
Lincoln Road @ Lower River Rd	Intersection Improvements					170,062	40,815	210,877
Susan Lane Extension	Terminus	Cottonwood Street				297,727	71,454	369,181
New Road	Bridge Street	Susan Lane				400,442	96,106	496,548
Agness Avenue Extension	Terminus	N Street	500,000			859,675	206,322	1,065,997
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension				575,844	138,203	714,046
New Road	Dameille Lane	Leonard Road				1,213,534	291,248	1,504,782
New Road	Hubbard Lane	Leonard Road		200	320,000	1,780,584	427,340	2,207,924
New Road	Leonard Road	New Hubbard-Leonard connection				510,396	122,495	632,891
New Road	Ray Dean Drive	New Hubbard-Leonard connection				509,488	122,277	631,765
New Road	West Harbeck Road	Dowell Road				1,450,621	348,149	1,798,770
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.				218,093	52,342	270,435
Allen Creek Road	Denton Trail	Jacksonville Hwy		100	160,000	999,795	239,951	1,239,746
New Road	Schutzwohl Lane	GI Lane				1,428,454	342,829	1,771,283
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road				430,223	103,254	533,477
Ringuette Road Extension	Redwood Highway	Union Avenue				380,535	91,328	471,863
GI Lane Extension	Harbeck Road	Grandview Avenue				872,370	209,369	1,081,739
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy		200	320,000	2,978,994	714,959	3,693,953
							Subtotal	20,269,512
			Grand				Subtotal w/ G Street	52,295,410
			Grand T				Subtotal w/o G Street	49,693,171

Tier Two Construction Projects Only

	Limits			GRAND	
Facility	From	To	Length (mi)	TOTAL	Notes
Morgan Lane Extension	Mogan Lane Terminus	B Street	1.14	3,162,438	Extensive grading work required (2x cost), likely to have 2 stream crossings
Midland Avenue	7th Street	9th Street	0.15	686,185	Study suggests that improvement is not recommended, offset intersection
Beacon Drive	Madrone Street	Heritage Drive	0.06	161,365	Improve neighborhood circulation, provide new access to north of I-5
9th Street	Wharton Street	A Street	0.04	7,924	Vacate roadway to allow for High School expansion
Dimmick Street	Foundry Street	F Street	0.04	718,762	More efficient circulation and emergency access, 1 railroad crossing
Lincoln Road @ Lower River Rd	Intersection Improvements			210,877	Increase efficiency and safety, exact improvements unknown
Susan Lane Extension	Terminus	Cottonwood Street	0.16	369,161	New access for future school project
New Road	Bridge Street	Susan Lane	0.21	496,548	New access for future school project
Agness Avenue Extension	Terminus	N Street	0.19	1,065,997	More efficient circulation and emergency access, 1 railroad crossing
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	0.30	714,046	More efficient circulation and emergency access
New Road	Damelle Lane	Leonard Road	0.63	1,504,782	New collector road to support future development, encroaches on housing
New Road	Hubbard Lane	Leonard Road	0.76	2,207,924	New collector road, part is constructed, canal crossing
New Road	Leonard Road	New Hubbard-Leonard connection	0.27	632,891	New collector road to support future development in the area
New Road	Ray Dean Drive	New Hubbard-Leonard connection	0.27	631,765	New collector road to support future development in the area
New Road	West Harbeck Road	Dowell Road	0.76	1,798,770	New collector road to support future development in the area
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	0.11	270,435	New collector road to support future development in the area
Allen Creek Road	Denton Trail	Jacksonville Hwy	0.42	1,239,746	Reduces congestion on Jacksonville Highway, crosses creek, housing
New Road	Schutzwohl Lane	GI Lane	0.59	1,771,283	More efficient circulation and emergency access, housing on Jack. Hwy
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	0.21	533,477	More efficient circulation and emergency access
Ringuette Road Extension	Redwood Highway	Union Avenue	0.07	471,863	More efficient circulation and emergency access
GI Lane Extension	Harbeck Road	Grandview Avenue	0.45	1,081,739	More efficient circulation
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	1.18	3,693,953	New road would support future growth, 2 creek crossings
			Grand Total	20,269,512	

Tier Two Construction Projects Only

	Limits								
Facility	From	To	Lanes	Lane Miles	Location	ROW	Asphalt	Subgrade	Excavation
Morgan Lane Extension	Mogan Lane Terminus	B Street	2	2.27	City	723,870	115,200	87,840	115,200
Midland Avenue	7th Street	9th Street	2	0.30	City	96,516	15,360	11,712	7,680
Beacon Drive	Madrone Street	Heritage Drive	2	0.13	City	41,019	6,528	4,978	3,264
9th Street	Wharton Street	A Street	2	0.08	City				
Dimmick Street	Foundry Street	F Street	2	0.08	City	24,129	3,840	2,928	1,920
Lincoln Road @ Lower River Rd	Intersection Improvements			0.00	UGB				
Susan Lane Extension	Terminus	Cottonwood Street	2	0.31	UGB	98,929	15,744	12,005	7,872
New Road	Bridge Street	Susan Lane	2	0.42	UGB	132,710	21,120	16,104	10,560
Agness Avenue Extension	Terminus	N Street	2	0.38	UGB	120,645	19,200	14,640	9,600
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	2	0.61	UGB	193,032	30,720	23,424	15,360
New Road	Darnelle Lane	Leonard Road	2	1.27	UGB	402,955	64,128	48,898	32,064
New Road	Hubbard Lane	Leonard Road	2	1.52	UGB	484,993	77,184	58,853	38,592
New Road	Leonard Road	New Hubbard-Leonard connection	2	0.53	UGB	168,903	26,880	20,496	13,440
New Road	Ray Dean Drive	New Hubbard-Leonard connection	2	0.53	UGB	168,903	26,880	20,496	13,440
New Road	West Harbeck Road	Dowell Road	2	1.52	UGB	482,580	76,800	58,560	38,400
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	2	0.23	UGB	72,387	11,520	8,784	5,760
Allen Creek Road	Denton Trail	Jacksonville Hwy	2	0.83	UGB	265,419	42,240	32,208	21,120
New Road	Schutzwohl Lane	GI Lane	2	1.17	City	374,000	59,520	45,384	29,760
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	2	0.42	City	135,122	21,504	16,397	10,752
Ringuette Road Extension	Redwood Highway	Union Avenue	2	0.14	City	43,432	6,912	5,270	3,456
GI Lane Extension	Harbeck Road	Grandview Avenue	2	0.91	City	289,548	46,080	35,136	23,040
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	2	2.36	UGB	752,825	119,808	91,354	59,904

Tier Two Construction Projects Only

	Limits		Storm				Curb &			Street
Facility	From	To	Drainage	Channelization	Striping	Landscaping	Gutter	5' Sidewalk	5' Bike lane	Lighting
Morgan Lane Extension	Mogan Lane Terminus	B Street	649,680	76,591	2,955	191,705	34,500	100,200		127,841
Midland Avenue	7th Street	9th Street	86,624	10,212	394	25,561	4,600	13,360	14,480	17,045
Beacon Drive	Madrone Street	Heritage Drive	36,815	4,340	167	10,863	1,955	5,678	6,154	7,244
9th Street	Wharton Street	A Street				6,390				
Dimmick Street	Foundry Street	F Street	21,656	2,553	98	6,390	1,150	3,340	3,620	4,261
Lincoln Road @ Lower River Rd	Intersection Improvements									
Susan Lane Extension	Terminus	Cottonwood Street	88,790	10,467	404	26,200	4,715	13,694		17,472
New Road	Bridge Street	Susan Lane	119,108	14,042	542	35,146	6,325	18,370		23,438
Agness Avenue Extension	Terminus	N Street	108,280	12,765	492	31,951	5,750	16,700	18,100	
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	173,248	20,424	788	51,121	9,200	26,720	28,960	
New Road	Damelle Lane	Leonard Road	361,655	42,636	1,645	106,716	19,205	55,778		71,165
New Road	Hubbard Lane	Leonard Road	435,286	51,316	1,980	128,442	23,115	67,134		85,653
New Road	Leonard Road	New Hubbard-Leonard connection	151,592	17,871	689	44,731	8,050	23,380		29,830
New Road	Ray Dean Drive	New Hubbard-Leonard connection	151,592	17,871	689	44,731	8,050	23,380		29,830
New Road	West Harbeck Road	Dowell Road	433,120	51,061	1,970	127,803	23,000	66,800		85,227
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	64,968	7,659	295	19,170	3,450	10,020		12,784
Allen Creek Road	Denton Trail	Jacksonville Hwy	238,216	28,083	1,083	70,292	12,650	36,740	39,820	46,875
New Road	Schutzwohl Lane	GI Lane	335,668	39,572	1,527	99,047	17,825	51,770	56,110	66,051
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	121,274	14,297	552	35,785	6,440	18,704	20,272	23,864
Ringuette Road Extension	Redwood Highway	Union Avenue	38,981	4,595	177	11,502	2,070	6,012		7,670
GI Lane Extension	Harbeck Road	Grandview Avenue	259,872	30,636	1,182	76,682	13,800	40,080		51,136
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	675,667	79,655	3,073	199,373	35,880	104,208	112,944	

Tier Two Construction Projects Only

Non-Costable

Facility	Limits From	Limits To	Signage	Wheelchair Ramps #		Comm. Driveway Ft		GP Traffic Signal #		ODOT Traffic Signal #		Wetland Mitigation
Morgan Lane Extension	Mogan Lane Terminus	B Street	3,864	4	908		0		0		0	
Midland Avenue	7th Street	9th Street	515	8	1,816		0		0	1	247,500	
Beacon Drive	Madrone Street	Heritage Drive	219	4	908		0		0		0	
9th Street	Wharton Street	A Street			0		0		0		0	
Dimmick Street	Foundry Street	F Street	129	16	3,632		0		0		0	
Lincoln Road @ Lower River Rd	Intersection Improvements			6	1,362		0	1	168,700		0	
Susan Lane Extension	Terminus	Cottonwood Street	528	4	908		0		0		0	
New Road	Bridge Street	Susan Lane	708	10	2,270		0		0		0	
Agness Avenue Extension	Terminus	N Street	644	4	908		0		0		0	
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension	1,030	8	1,816		0		0		0	
New Road	Darnelle Lane	Leonard Road	2,151	20	4,540		0		0		0	
New Road	Hubbard Lane	Leonard Road	2,589	24	5,448		0		0		0	
New Road	Leonard Road	New Hubbard-Leonard connection	902	16	3,632		0		0		0	
New Road	Ray Dean Drive	New Hubbard-Leonard connection	902	12	2,724		0		0		0	
New Road	West Harbeck Road	Dowell Road	2,576	12	2,724		0		0		0	
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.	386	4	908		0		0		0	
Allen Creek Road	Denton Trail	Jacksonville Hwy	1,417	16	3,632		0		0		0	
New Road	Schutzwohl Lane	GI Lane	1,996	12	2,724		0		0	1	247,500	
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road	721	20	4,540		0		0		0	
Ringuette Road Extension	Redwood Highway	Union Avenue	232	12	2,724		0		0	1	247,500	
GI Lane Extension	Harbeck Road	Grandview Avenue	1,545	16	3,632		0		0		0	
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy	4,018	18	4,086		0	1	168,700	1	247,500	

Tier Two Construction Projects Only

	Limits		Add-Ons				20% for	
			At-Grade	Bridge/Structure			D,CM, &	GRAND
Facility	From	To	RR Crossing	LF	Cost	SUBTOTAL	Permits	TOTAL
Morgan Lane Extension	Mogan Lane Terminus	B Street		200	320,000	2,550,353	612,085	3,162,438
Midland Avenue	7th Street	9th Street				553,375	132,810	686,185
Beacon Drive	Madrone Street	Heritage Drive				130,133	31,232	161,365
9th Street	Wharton Street	A Street				6,390	1,534	7,924
Dimmick Street	Foundry Street	F Street	500,000			579,647	139,115	718,762
Lincoln Road @ Lower River Rd	Intersection Improvements					170,062	40,815	210,877
Susan Lane Extension	Terminus	Cottonwood Street				297,727	71,454	369,181
New Road	Bridge Street	Susan Lane				400,442	96,106	496,548
Agness Avenue Extension	Terminus	N Street	500,000			859,675	206,322	1,065,997
Ament Dam Road Extension	Shannon Lane	Agness Avenue Extension				575,844	138,203	714,046
New Road	Darnellie Lane	Leonard Road				1,213,534	291,248	1,504,782
New Road	Hubbard Lane	Leonard Road		200	320,000	1,780,584	427,340	2,207,924
New Road	Leonard Road	New Hubbard-Leonard connection				510,396	122,495	632,891
New Road	Ray Dean Drive	New Hubbard-Leonard connection				509,488	122,277	631,765
New Road	West Harbeck Road	Dowell Road				1,450,621	348,149	1,798,770
New Road	Schutzwohl Lane	New W Harbeck-Dowell Rd.				218,093	52,342	270,435
Allen Creek Road	Denton Trail	Jacksonville Hwy		100	160,000	999,795	239,951	1,239,746
New Road	Schutzwohl Lane	GI Lane				1,428,454	342,829	1,771,283
South Union Road Extension	Terminus	New Schutzwohl-GI Ln. Road				430,223	103,254	533,477
Ringuette Road Extension	Redwood Highway	Union Avenue				380,535	91,328	471,863
GI Lane Extension	Harbeck Road	Grandview Avenue				872,370	209,369	1,081,739
Cloverlawn Drive Extension	Hamilton Lane	Rogue River Hwy		200	320,000	2,978,994	714,959	3,693,953
							Subtotal	20,269,512

APPENDIX D - RESIDENTIAL TRAFFIC MANAGEMENT

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

TECHNICAL REPORT STANDARD TITLE PAGE

1 Report No	2. Government Accession No	3 Recipient's Catalog No

4 Title and Subtitle	5. Report Date
A Guidebook for Residential Traffic Management	December 1994
	6. Performing Organization Code

7. Authors	10. Work Number
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Washington State Department of Transportation Transportation Building, KF-10 Olympia, Washington 98504	Final Report
	14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

This report provides a comprehensive reference on initiating and running a residential traffic management (RTM) program. Although aimed at smaller cities, towns and counties, the procedures are applicable in any jurisdiction. The Guidebook takes a "toolbox" approach to implementing traffic management projects, with various RTM devices and procedures being the "tools" in each box. Contents include: Introduction — a perspective on controlling traffic in residential areas; A Look at RTM — history, background and worldwide examples of RTM efforts; Getting Started — the first steps to take in starting an RTM program, and using involvement, learning and consensus building tools to build alliances; The RTM Toolboxes — a listing of RTM devices categorized by Speeding, Volume, Accidents and Miscellaneous Toolboxes; Common Design Issues — do's and don'ts for the design and installation of RTM devices; Legal Issues — authority for RTM programs under Washington state and federal statutes, regulations and case law; The Politics of RTM — a realistic look at how to make RTM a political as well as engineering success; and Concluding Thoughts — the author's view of the keys to success for an RTM program.

The Guidebook is illustrated with over 30 photographs of RTM devices in place, plus extensive references for further details.

The Guidebook includes a glossary of RTM terms, an annotated bibliography, a pictorial glossary of RTM devices excerpted from a report prepared by the City of Everett Department of Public Works, and an appendix on "Setting Up a Self-managed RTM Program in a Small Community."

17. Keywords	18 Distribution Statement
residential traffic management, traffic engineering, traffic calming, neighborhood traffic control, traffic safety, pedestrian safety	This document is available through the WSDOT Northwest Technology Transfer Center. Permission to reproduce parts of this document is granted to all parties in accordance with the "fair use" provisions of the Copyright Act.

19 Security Classif (of this report)	20 Security Classif (of this page)	21 Number of Pages	22 Price
None	None	82 plus appendices	

Contents

Appendices

Chapter 1. Introduction

Throughout the United States citizens are asking their local officials to stop the decline in their residential environmental quality caused by excessive traffic volumes and speeding on their local streets. People are demanding actions that divert or slow the flow of cars on their streets. Many actions are available — and in choosing the best ones for an area, it is important that both local governments and citizens understand all of the issues involved.

Although many technical reports and professional references are available, they are not frequently used at the local level and their examples and recommendations are not always practical for smaller jurisdictions with limited resources.

This guidebook on residential traffic management (RTM) is intended to be an off-the-shelf resource for local jurisdictions that are looking for ways to address traffic issues on neighborhood streets. It presents a "state of the art" review of technical information in the field, and compiles key elements of successful residential traffic management programs used by local jurisdictions, primarily those in the Pacific Northwest. It is aimed at transportation professionals and citizens interested in learning more about neighborhood traffic management. As such, it functions as a "short course" on how to approach and resolve traffic problems in residential areas.

The goal of residential traffic management programs is to influence driver behavior through a variety of measures and devices, including physical, psychological, visual, social and legal means.

A Perspective on Residential Streets

The issues covered here arise from a desire for safe, functional and attractive streets in residential areas. In many communities, speeding, unnecessary through traffic, noise and air pollution, and parking problems threaten this vision. Residents also voice concerns about the safety of pedestrians, bicyclists and children. As traffic volumes grow and congestion increases on nearby through and arterial streets, these issues become more acute.

Residential streets become part of the neighborhood and are eventually used for a variety of purposes for which they were not designed. Residential streets provide direct auto access for the occupant to his home; they carry traffic past his home; they provide a visual setting, an entryway for each house; a pedestrian circulation system; a meeting place for the residents; a play area [whether one likes it or not] for the children, etc. (*Performance Streets*, Bucks County (PA) Planning Commission, Doylestown, Pa, 1980)

Residential streets do more than carry cars and provide access to homes; they are an integral part of the neighborhood environment. A residential street typically:

- provides vehicular access to abutting property,
- provides vehicular access within or through a local area,
- provides a means to enable social interaction within a neighborhood,
- often serves as a play area or as community open space,
- provides access for emergency and service vehicles, and
- contributes visually to the living environment[1].

Recognizing this multiplicity of functions, traffic engineers have developed design standards for new residential streets. Standard references emphasize that residential streets are inherently different from arterials, and they need different design and traffic control treatments. Some recent examples include *Residential Streets, Second Edition*[2], by the American Society of Civil Engineers, and the Institute of Transportation Engineers' *Residential Street Design and Traffic Control*[3] and *Traffic Engineering Handbook*[4] (citations are listed at the end of this chapter). Residential traffic management techniques have even been introduced into the standard traffic engineering curriculums[5].

Not a cure-all

RTM programs cannot solve all traffic problems in residential areas. Traffic circles, speed humps and other devices won't make up for problems caused by poor zoning and planning, or reckless driving. They also can't substitute for needed improvements on congested arterials.

Often, a residential street starts out serving a few homes in a sparsely developed area on the fringes of town, but they become a busy collector or minor arterial as development occurs. Without enough alternate routes, the through traffic on this residential street may not have anywhere else to go. A common complaint by residents in such situations is that they can't "back out onto the street from their driveway" as they did "when they first moved there."

Residential streets may also suffer from cut-through traffic trying to escape congestion on the major arterial routes nearby. While RTM techniques may slow cut-through traffic to more acceptable speeds, very little may be accomplished in terms of reducing actual traffic volumes.

Purpose of this guidebook

Technical reports and professional references on residential traffic management offer detailed and comprehensive discussions of the key issues that must be part of a RTM program. Most are technical and do not provide hands-on guidance in developing a community program.

The view of Paul C. Box, a consulting traffic engineer in Skokie, Illinois is shared by many in the profession: "I feel that the public agency should first strive to improve operation conditions [on the parallel arterials] and reduce the incentive for bypassing [congested areas] by use of local streets." (*ITE Journal*, August 1993; letter to the Editor)

Genre	Primary Functions
Home Owners	Vehicle access to abutting property.
	Vehicle access within or through local area.
Neighborhood	Provides a means to enable social interaction.
	Contributes visually to the living environment.
Children	Often serves as a play area or community open space.
Public Services	Provides access for emergency and service vehicles.

Table 1-1. Functions of a residential street

This guidebook was prepared to help transportation professionals, local jurisdictions and neighborhood residents who are looking for ways to reduce the impact of traffic in residential neighborhoods.

The guidebook covers:

- traffic control devices that can be applied to traffic problems on residential streets,
- what planning steps are needed to implement a successful RTM program,
- new developments in urban design that may affect neighborhood traffic,
- the planning and design aspects of traffic control devices as they affect traffic, emergency services, and other issues,
- the concept and practice of "traffic calming",
- the legal considerations of RTM programs, devices and systems,
- examples of Pacific Northwest RTM traffic control devices in place, and
- examples of effective RTM programs.

Starting an RTM program
Research and reference
Selecting an appropriate RTM device
Education about RTM

Table 1-2. Uses of this guidebook

Endnotes

[1] National Association of Australian State Road Authorities (NAASRA), *Traffic Engineering Practice Part 10*, "Local Area Traffic Management", Sydney, Australia, 1992.

[2] *Residential Streets, Second Edition*, ASCE, National Association of Homebuilders and the Urban Land Institute, Washington, D.C., 1990.

[3] Homburger, Wolfgang and Deakin, Elizabeth, et al., *Residential Street Design and Traffic Control*, Institute of Transportation Engineers, 1989; page 64.

[4] Institute of Transportation Engineers, *Traffic Engineering Handbook*, 5th Edition, Prentice-Hall, Englewood Cliffs, N.J., 1992.

[5] For example, see *Fundamentals of Traffic Engineering*, 12th Edition, which is a standard text for traffic engineering classes.

Chapter 2.
A Look At RTM

Programs and practices to manage traffic in residential areas have many names: neighborhood traffic control (NTC), traffic restraint, traffic calming, local area traffic management and environmental traffic management (ETM). The key words are "calming," "restraint", and "management." Nearly all RTM programs seek to make the residential streets safer and reduce traffic intrusion by reducing traffic speeds and, to a lesser extent, traffic volumes.

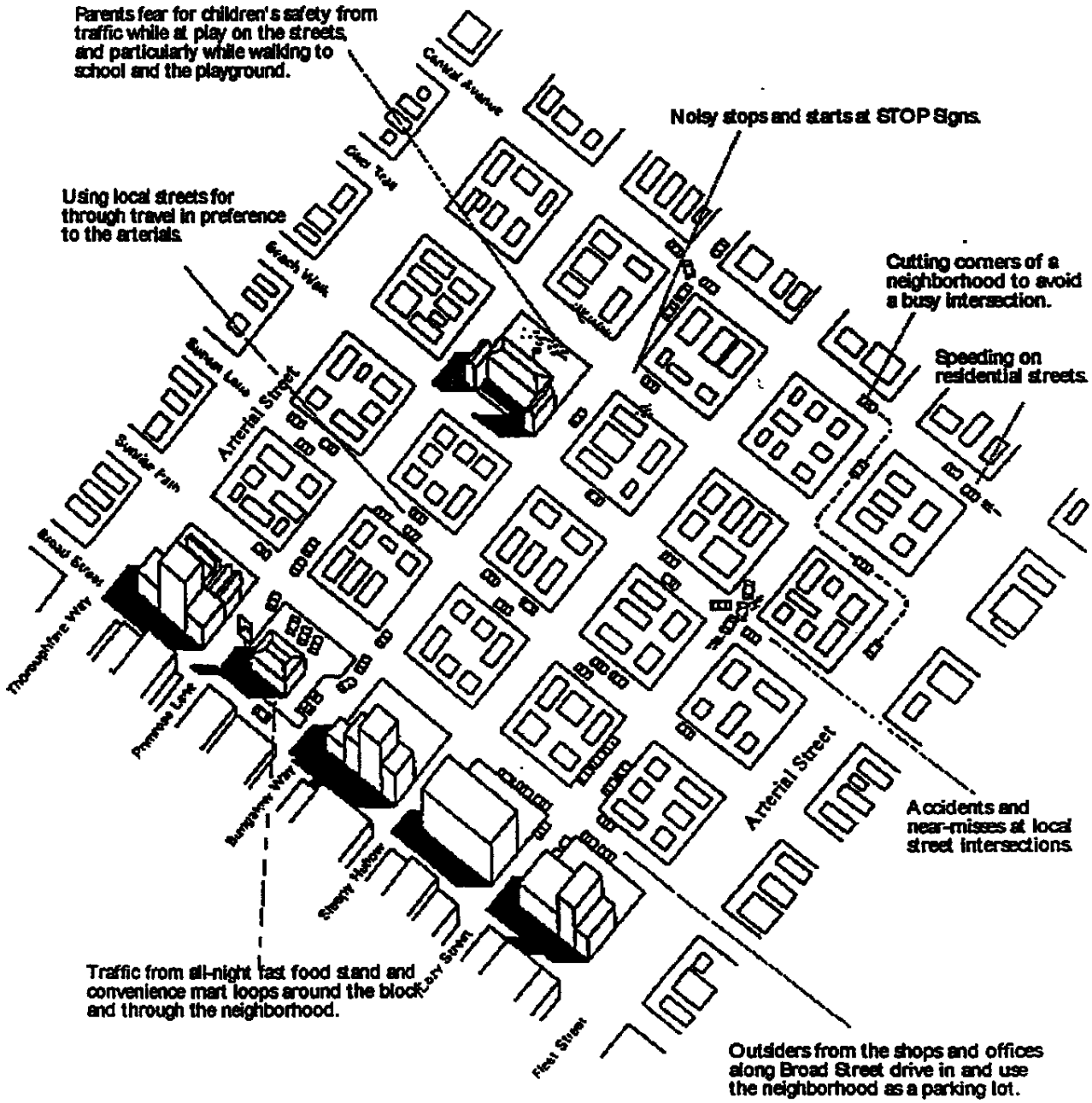
RTM – An Example

The problems with a high closely-spaced grid system in a high density urban area can be used to illustrate residential traffic management applications. As shown in Figure 2-1, cut-through traffic from the adjacent arterials (Thoroughfare Way, Fleet Street, Broad Street and Central Avenue) can impact streets designed to provide access to local residents only. The expectations of neighborhood residents to a quiet and safe environment conflict with those of motorists who believe they have the right to use any street available. In addition, commercial activities along the arterial create spill-over traffic and parking impacts on the nearby residential streets.

An example of a neighborhood traffic control plans to address these kinds of problems is illustrated in Figure 2-2. This example, from an early report on RTM techniques by Appleyard and Smith[1] for the Federal Highway Administration, shows how a series of RTM devices and control measures can work together to achieve the desired results. The resulting RTM system discourages cut-through traffic, reduces speeding and protects the residential streets from commercially-oriented traffic. Although smaller jurisdictions may not face the intensity of problems indicated in these illustrations, they provide a good overview of RTM applications.

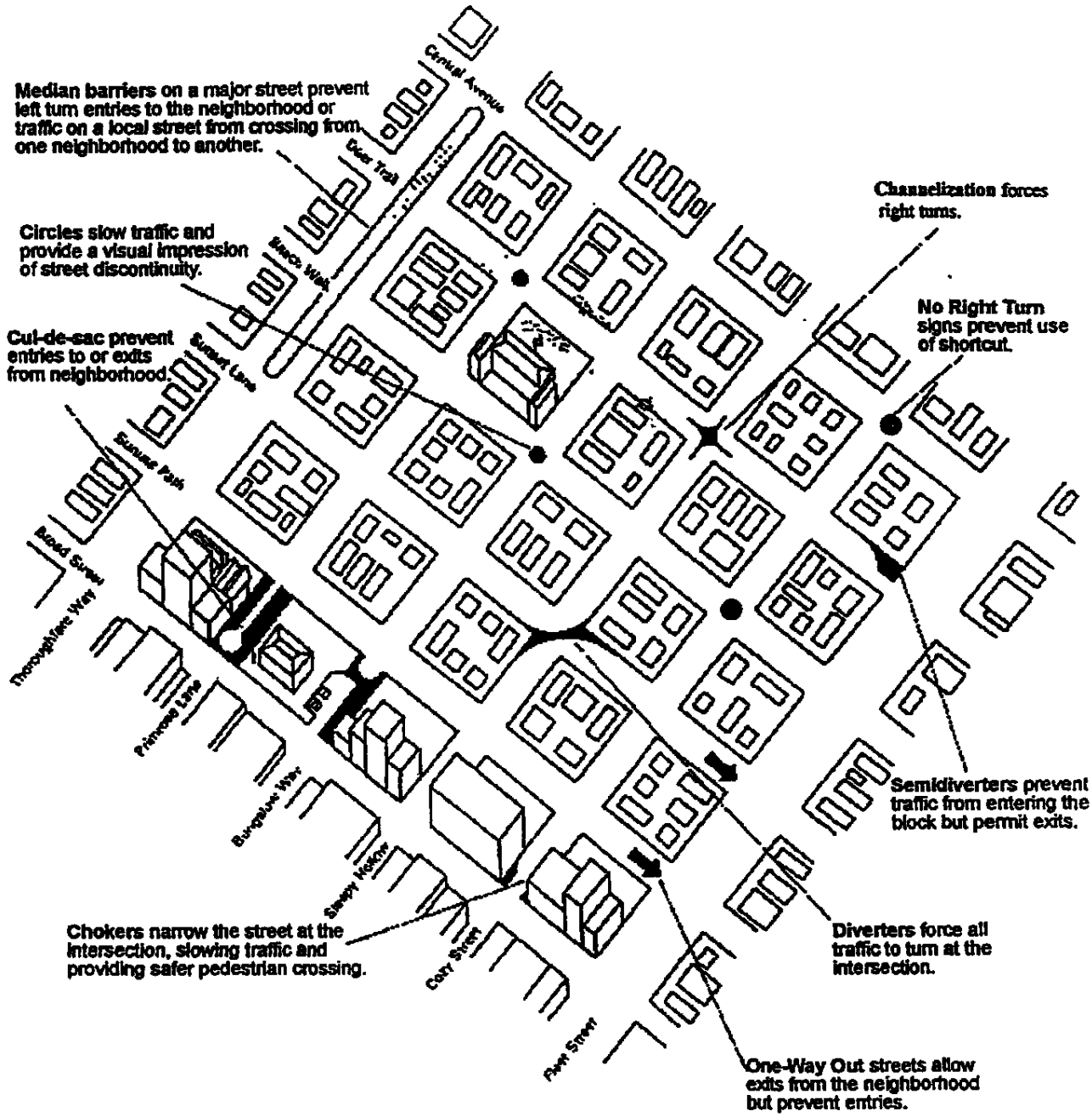
RTM – A Working Definition

Residential traffic management reduces traffic speeds, vehicle noise, visual impacts and through traffic volumes in residential neighborhoods by physical, psychological, visual, social and legal (regulatory and enforcement) means. Table 2-1 highlights some of the common actions of RTM programs.



Adapted from State of The Art Report: Residential Traffic Management; Federal Highway Administration, 1980 .

Figure 2-1. Illustrative urban neighborhood and its traffic-related problems



Adapted from State of The Art Report: Residential Traffic Management, Federal Highway Administration, 1980

Figure 2-2. Illustrative residential traffic manegmment program applied to problems in Figure 2-1.

RTM programs are defined largely by their goals and objectives, and the tools used to achieve them. Typical goals are seen in the City of Portland, Oregon's, program, "Reclaiming Our Streets" which are listed below:

- **Reduce traffic speeds and volumes on neighborhood streets to make them safer for pedestrians, bicyclists and residents, with special regard for children.**
- **Increase bicyclist and pedestrian safety, and encourage cycling and walking as transportation modes.**
- **Reduce deaths, injuries and property damage resulting from driving under the influence of intoxicants and from failure to use safety restraints.**
- **Increase the use of alternative transportation while decreasing auto use.**

As summarized in Table 2-2, the tools for achieving these goals fall into four general categories:

Education, encouragement and enforcement programs such as "emphasis patrols" by local police to catch speeders, elementary school programs to teach and reinforce "defensive walking and biking habits" byschool children, or speed watch programs by residents.

Laws and ordinances - prohibiting through trucks in residential areas, posting speed limits in residential areas, on-street parking restrictions, etc.

Traffic control devices - ranging from turn prohibitions at key entry points to a succession of stop signs.

Geometric design features - physical restrictions to induce low speed travel such as narrow streets, traffic circles or speed humps, and even traffic diverters and street closures.

Reducing	By	Examples
Through Volumes	Physical Means	Traffic circles, speed humps
Vehicle Noise	Psychological Means	Variable-spaced paint stripes
Visual Impacts	Visual Means	Landscaping to block through views
Traffic Speeds	Social Means	Neighborhood "Speed Watch" program
Accidents	Legal means	Strict speed enforcement

Table 2-1. RTM Activities

- ⇨ Education
- ⇨ Enforcement
- ⇨ Engineering
- ⇨ Enhancement

Table 2-2. The 4 E's of Residential Traffic Management

Most RTM programs have similar goals and techniques, but different results are often expected. For example, European and Japanese cities strive to restrain vehicle speeds in RTM areas to 6 to 12 mph, while many communities in the US want to hold average speeds to 25 mph on local streets.

History

Traffic engineers have only recently begun to look at vehicle movements in residential areas differently than traffic flows on urban arterials. On arterial streets, the focus is on maintaining mobility for vehicles, mostly in terms of speed and efficiency of movement. Residential streets require a much different approach, with a focus on safety and access instead of through movements.

Even though they have different purposes, most residential streets were not planned much differently than the rest of the urban street system. Most streets in residential neighborhoods are laid out in either a grid or a curvilinear pattern. While curving streets are less than a century old, the grid has been around since antiquity. In the United States, the grid is the most common street pattern found in urban areas, although in some areas the natural landscape made the roads more easily laid out than built. However, a regular grid offers a potentially endless variety of alternative travel routes.

Not surprisingly, some people living within a grid system did not always like having so little control over access to their neighborhood. Looking to reduce unwanted traffic and to establish a sense of exclusivity and community, some neighborhoods in Philadelphia, Boston and New York began to put up walls and large gated entrances to set their blocks apart.

As cities grew and spread, and auto ownership increased, unwanted through traffic became more of an issue. In the late 1940s and early 1950s, Montclair, New Jersey, and Grand Rapids, Michigan, began to put in traffic diverters, and convert neighborhood access streets into cul-de-sacs. Urban redevelopment projects in the 1960s also worked to alter the grid system, often by closing streets, by rebuilding existing neighborhoods and by creating huge "superblocks" of development with few through streets.

On the other hand, the curvilinear pattern used in many subdivisions and newer neighborhoods also was having problems. The patterns varied from division to division and offered few connections to main access routes, making trips circuitous. Transit and other alternative modes proved difficult to implement and use in these neighborhoods. Bicycle and pedestrian travel also became more difficult since interconnecting paths, sidewalks and trails were not mandated in local zoning ordinances.

The First Studies

Planning guides and technical references specifically on the traffic problems of residential streets began first appearing in the early to mid 1960's. A seminal work, *Traffic in Towns*[2] by Colin Buchanan of the United Kingdom Ministry of Transport (1963), looked at the effect that suburban commuter traffic had on inner-city neighborhoods in England. Buchanan noted the threats to quality of life posed by greater congestion, air pollution, noise, and by the lower levels of safety and freedom of movement for local residents. Buchanan first introduced the concepts of "environmental traffic management" and the "environmental capacities" of residential streets.

By placing the traffic problems directly in the context of "life in the neighborhood," Buchanan pointed in the right direction. Later studies looked at the conflicts between urban mobility and neighborhood quality of life.

The Rise of Traffic Calming

"Traffic calming" for residential areas is a concept that seeks harmony between automobiles and people. Calming the traffic means to lower vehicle speeds and traffic volumes, usually through physical changes to the streets themselves and through laws on parking and speeds. With lower speeds and less through traffic, the street environment becomes more hospitable to residents, pedestrians, bicyclists and even playing children.

Traffic calming initially started out as a treatment for individual streets. However, the benefits of the managed traffic were limited mostly to those living on the affected street. Gradually, the concept was widened to include residential street networks and even main roads. Traffic calming has been applied the most in cities in Europe, and it is there that we find the broadest range of techniques.

Table 4-2
Speeding Tool Box
By Program Phase

Phase I Toolbox	Phase - II Toolbox (When Phase I Measures Fail)	
	Intersections & Entry Ways	Along the Street/Street Section
Warning, Caution Signs	Pavement pattern, texture, color variations (e.g. Cobblestone street section pseudo humps etc.)	Landscaping: foliated trees in planted strip, curb extensions, median islands. (shortens width, depth of view)
Speed limit, zone signs	Landscaping: foliated trees in circles, curb extensions, islands (Shortens width, depth of view)	Parking variants e.g. add parking, change parallel to diagonal, perpendicular, staggered, alternating
Pavement striping, marking, coloring	Raised street surface, e.g. Speed tables, thresholds of minor street	Curb extensions that don't alter number or width of lanes, e.g. protected parking
Rumble Strips	Chokers (half closures), using curb extensions to reduce turn/curb radii, lane width/number/access/egress	Median islands (lengths vary, may serve as turn barriers)
Speed Alert, (large, illuminated, roadside speed display in driver's view; shows driver's actual speed)	Traffic circles, rotaries, round-a-bouts	Raised Crosswalks
Police visibly present (enforcement)	Median islands, barriers, turn channeling	Speed humps,undulations, dips; speed tables/platforms
Speed watch/warning. Residents use radar, record license plate # of speeders, police send letter to alert/warn vehicle owners of observed vehicle speed, request compliance.	Diagonal diverters	Slow Points. Chokers, curb extensions that reduce number and or (less effectively) width of lanes; includes chicanes; are typically one lane two-way (Slow points may also be two lane two-way.)
Photo Radar. Police offsite, automatically issue tickets to owners of speeding vehicles. Photos contain pictures of license plate and occupants of the car.	Street closure	

Table 4-2, RTM Speeding Tools

Table 4-3
Volume/Cut-Through Traffic Tool Box
By Program Phase

Phase I Toolbox	Phase - II Toolbox (When Phase I Measures Fail)	
	Intersections & Entry Ways	Along the Street/Street Section
No Through Traffic signs (Traffic volume reduction is possible only if alternate routes exist)		Parking variants e.g. add parking, change parallel to diagonal, perpendicular, staggered, alternating
One-way Signs (Caution: May also increase cut-through volumes and speeding)	Chokers (half closures), using curb extensions to reduce turn/curb radii, lane width/number/access/egress	Speed humps, undulations, dips; speed tables/platforms
Speed watch/warning (effective only if cut-through time savings are related to excessive travel speeds)	Traffic circles, rotaries, round-a-bouts	Slow Points. Chokers, curb extensions
Police visibly present (enforcement)	Diagonal diverters	
Photo Radar. Police offsite, automatically issue tickets to owners of speeding vehicles. Photos contain pictures of license plate and occupants of the car.	Forced turn channelization	Median Barriers
Turn Prohibition Signs	Full Street Closure, Cul-De-Sacs	

Table 4-4
Accident Problem Tool Box
By Program Phase

Phase I Toolbox	Phase - II Toolbox (When Phase I Measures Fail)	
	Intersections & Entry Ways	Along the Street/Street Section
Speed limit, zone signs	Raised street surface, e.g. Speed tables, thresholds of minor street	Raised and landscaped crosswalks for pedestrian accidents)
Speed watch/warning. Residents use radar, record license plate # of speeders, police send letter to alert/warn vehicle owners of observed vehicle speed, request compliance	Chokers (half closures), using curb extensions to reduce turn/curb radii, lane width/number/access/egress	Speed humps, bumps, undulations, dips, speed tables/platforms (effective where accidents are speed related)
Police visibly present (enforcement)	Traffic circles, rotaries, round-a-bouts	Slow Points. Chokers, curb extensions
Warning signs	Diagonal diverters	
Stop signs	Forced turn channelization	Median Barriers
Yield signs	Full Street Closure, Cul-De-Sacs	
Turn Prohibition Signs	Flashing beacons	

Table 4-4, RTM Accident Tools

Chapter 5.
Common Design Issues

Local jurisdictions face many common issues in selecting and designing of a Residential Traffic Management program or device.

A successful RTM program and its devices should be:

- **Predictable: To ensure comparable types of traffic control devices over the entire transportation system.**
- **Based on Sound Engineering Standards: To ensure the safety of the public and limit the liability of the City.**
- **Equitable: To ensure a fair distribution of limited resources among the competing problems and among neighborhoods.**
- **Cost Effective: To get the greatest public benefit from the limited capital and maintenance dollars available to the City.**
- **Consistent: To ensure consistency with proven and accepted traffic engineering standards.**
- **Clear and concise: To be understood by the public, and easily administered by staff and officials.**

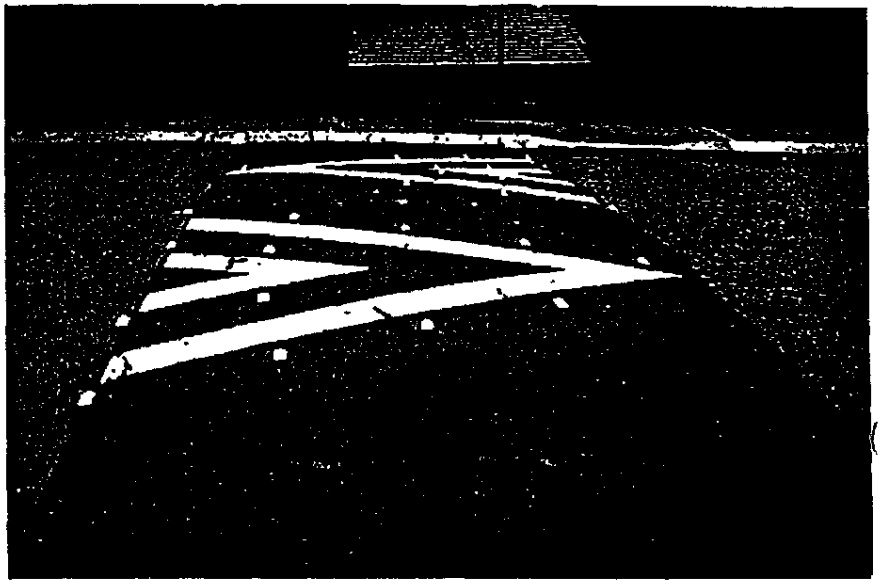


Figure 5-1a. Speed Hump Striping Pattern

Figure 5-1b. Speed Hump Edge Treatment

Guidelines

While efficiency and cost-effectiveness are important, safety is the overriding requirement in the design of local streets and RTM devices. The entire "streetscape" should create a safe environment for motorists, bicyclists, pedestrians and residents. The needs of each competing user group are balanced with the overall all goals for the street. Each element of the streetscape should contribute to the goal of maximizing personal safety, rather than the speed of car travel.

While many examples of successful RTM devices exist, a list of "off-the-shelf" devices and design standards will not produce a successful RTM program. Each situation is unique, and all design elements must be reviewed on a given street when considering RTM measures. As a minimum, the following items should be reviewed by the design professional for each RTM installation:

Geometrics

- Alignment
- Turning Radius
- Horizontal and Vertical Curves
- Superelevation
- Major geometric features such as sidewalks, curbs, etc.
- Lateral separation of modes
- Roadway Width
- Sight Distances

Safety

- Channelization
- Illumination
- Signing
- Safety Zone (clearance of obstructions from traveled roadway)
- Crosswalk Locations

Utilities

- Water and Sewer
- Franchise Utilities (such as gas, power, telephone, etc.)
- Storm Drainage
- Location of Fire Hydrants

Design vehicles

- Local emergency vehicle characteristics
- Minimum design vehicle - bus, single unit truck or passenger car
- Public transit and school bus stops and routes
- Bicycles, wheelchairs and other non-motorized devices

Other

- Landscaping
- Pedestrians and Bicycles
- Handicapped Access
- Parking
- Mail delivery routes
- Emergency Access

The requirements for these elements can be found in the design references listed in Table 5-1.

A Policy on Geometric Design of Highways and Streets, (commonly referred to as the AASHTO Green Book), American Association of State Highway and Transportation Officials.

Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration.

Washington State Department of Transportation:

- *Sign Fabrication Manual*
- *Standard Specifications for Road, Bridge, and Municipal Construction*
- *Standard Plans* for Road and Bridge Construction
- *Local Agency Guidelines*
- Local Supplements to the State's Standard Specifications and Standard Plans (varies by jurisdiction)

Table 5-1. RTM Design References

Figure 5-2 Visibility is a key design issue at an RTM device

Design Aspects of RTM Devices

This section discusses design issues related to specific RTM devices. Some common issues are:

- *Visibility.* Devices should be easily visible during day and night. Reflectors, buttons, highly reflective paint, or illumination should be used as appropriate to ensure visibility. Additionally, RTM devices should not be placed were drivers do not have adequate stopping sight distance for the desired deign speed.

- *Signage.* Advance signs should warn motorists of upcoming RTM devices and, to the extent possible, guide the motorists' response to such devices. For example, a curve sign should be placed upstream of diagonal diverters. A typical RTM warning sign is shown in Figure 5-3.

- *Streetscape.* RTM devices should blend naturally into the streetscape and enhance the appearance and "feel" of the street. They should alert drivers that they are in or entering a residential place.

- *Design vehicles.* RTM devices should be designed to accommodate emergency service and other large vehicles at an acceptable speed.

- *Maintenance.* As with any municipal project, the longer term maintenance needs should be anticipated in the design process and minimized to the extent possible. Some jurisdictions contract with the neighborhood to maintain plantings or simply eliminate planting and landscape in the absence of a willingness on the part of residents to participate.

- *Parking.* On-street parking in residential areas creates a sense of activity; some jurisdictions encourage on-street parking for this reason. However, in some instances, on-street parking also creates sight line restrictions which may be unsafe for drivers who are going too fast. Diagonal parking in selected areas can be used to slow traffic flow, since motorists must be alert to cars backing out at any time. Examples of parking options are given in Figure 5-4.

Figure 5-3. Advance warning sign

- *Speed control.* RTM devices should be located and designed to limit speeds in residential areas.

Landscaping

Neighborhood residents often insist on attractive landscaping as a component of RTM devices. Landscaping can enhance the effectiveness of traffic control devices and add to the living quality of the neighborhood. Figure 5-5 shows two approaches to landscaping traffic circles in the City of Seattle. The first, with a tree and well-established vegetation, contributes to the character of the neighborhood and reinforces the circle as an obstacle requiring low speeds to circumnavigate. The second, anchored by reflectors on a sign post, attracts little extra attention as evidenced by the dents in the guard rails and wheel marks on the curbing around the circle.

When planning landscaping, consider the following issues:

- Does the landscaping block vehicle and pedestrian sight lines?
- Does the landscaping hide pedestrians?
- Does the landscaping attract the driver's attention and induce the driver to negotiate the circle at low speed?
- Does the landscaping block illumination? The site should be visited at night to review the illumination and looking for shadows.
- How will the landscaping be maintained? Is irrigation required?

Many cities use a team approach where the neighborhood and city share the costs of installation and maintenance.

Figure 5-4a. Parallel parking on one side of the street

Figure 5-4b. Parallel parking on both sides of the street

Figure 5-4c. Diagonal parking on one side of the street.

FIGURE 1 Interactive speed watch
Bellevue, Washington

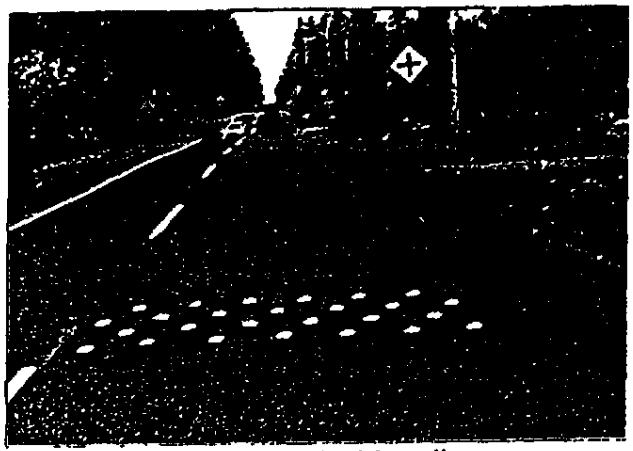


FIGURE 2 Rumble strip preceeding intersection
Bellevue, Washington

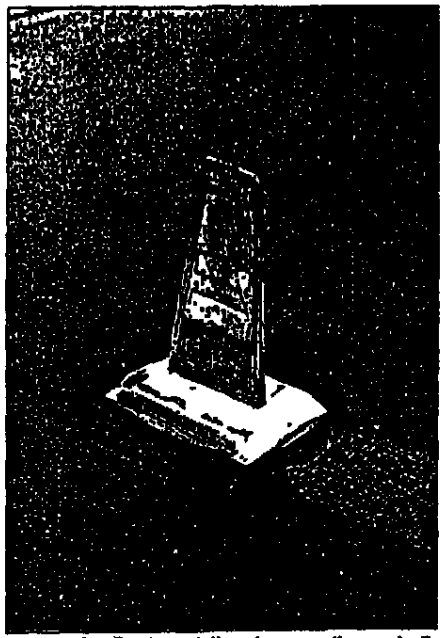


FIGURE 3 Rubber delineator on diagonal diverter
Vancouver, B.C.

INTERACTIVE SPEED WATCH

RUMBLE STRIPS

TRAVERSIBLE RUBBER DELINEATOR

Location

Bellevue, Washington
Vancouver, B.C.

Setting

Varies

TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Rumble Strips	Unlikely	Yes	Increase	Vehicles - Good Bicycles - Questionable	None	No Problems	Not Applicable	Low	Snowplow

ENTRY TREATMENT

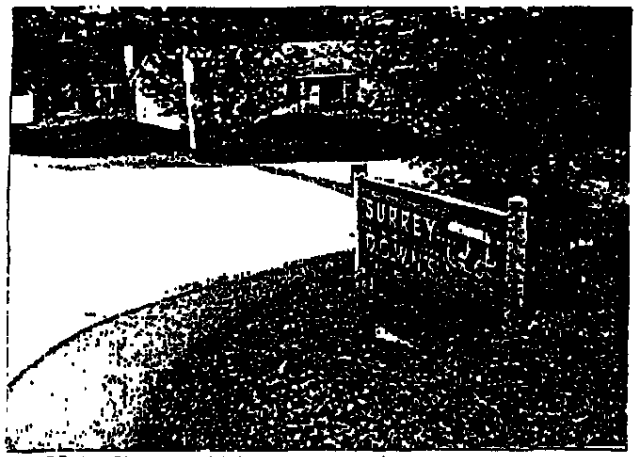


FIGURE 1 Sign and textured pavement
110th Ave. S.E. at Main St., Bellevue, Washington

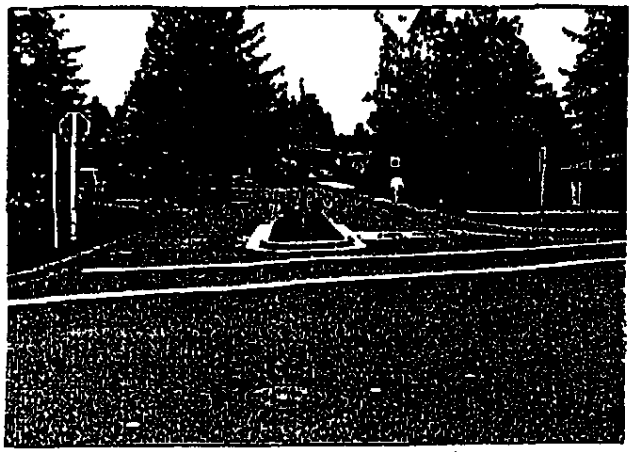


FIGURE 2 Median sign and textured pavement
S E. 2nd Ave. at 100th Ave. S.E., Bellevue, Washington

FIGURE 3 Textured pavement, red "Bomanite"
110th Ave. S.E. at Main St., Bellevue, Washington

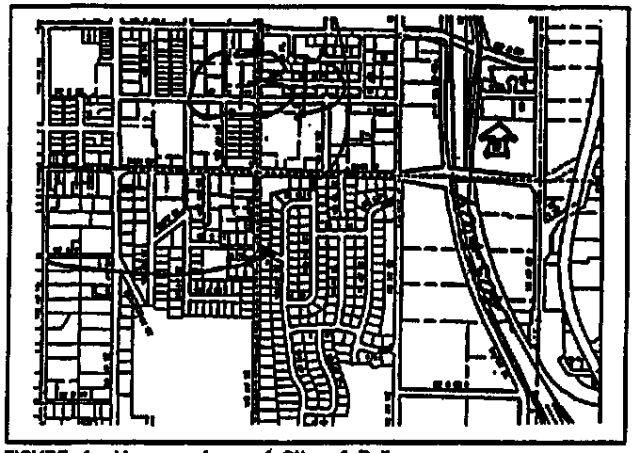


FIGURE 4 Map courtesy of City of Bellevue

Location

Surrey Downs Neighborhood
Bellevue, Washington

Setting

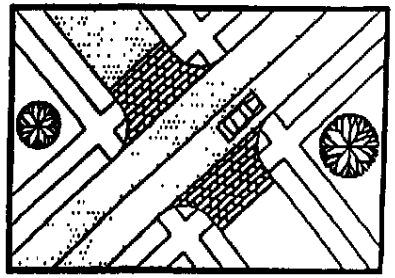
Fully developed, single family residential area, adjacent to downtown Bellevue.

Situation

Cut-thru traffic and excessive speeds Neighbors seek to affect driver behavior by emphasizing that they are entering a "special" place.

Features

Textured, colored pavement, neighborhood identification sign, median, drought-resistant landscaping.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Entry Treatment Surface & Median	Possible	Slight	No/Minor Change	Possibly Improved	None	No Problem	Not Applicable	Low to Moderate	Low to / Possible Moderate Vandalism

TRAFFIC CIRCLE

FIGURE 1 Circle sign indicates direction of travel Vancouver, B.C.

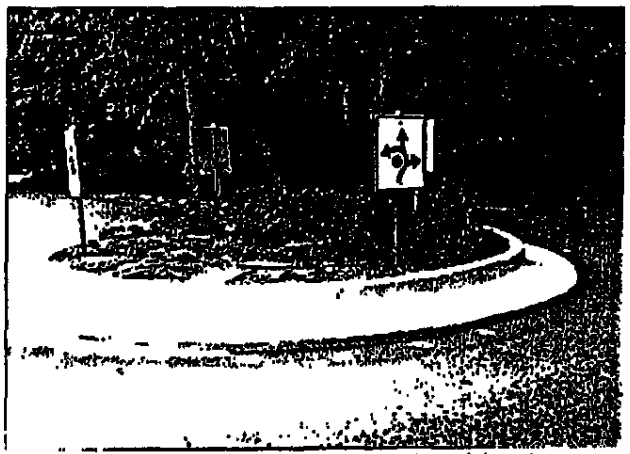


FIGURE 3 Circle sign clearly shows direction of travel N.E. area, Portland, Oregon

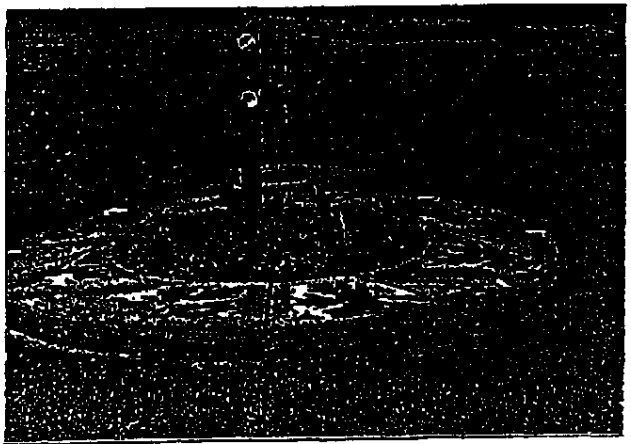


FIGURE 2 Circle detail "Mapleleaf" pavement design Mapleleaf Neighborhood, Seattle, Washington

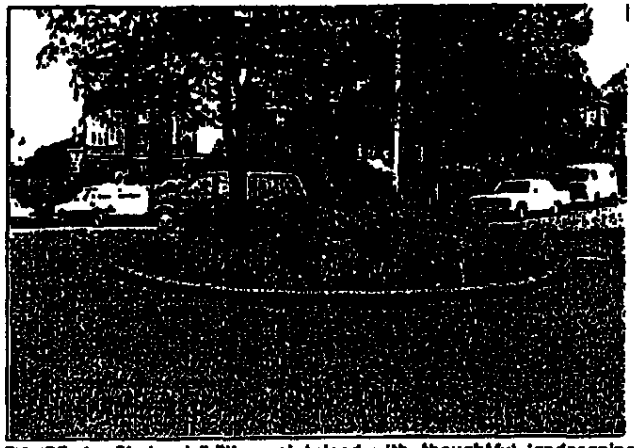


FIGURE 4 Circle visibility maintained with thoughtful landscaping, E. Highland Dr. at 16th St., Seattle, Washington

Location

Figure 1 Vancouver, B.C.
Figure 2.4 Seattle, Washington
Figure 3 Portland, Oregon

Setting

Fully developed residential areas in three Pacific Northwest cities.

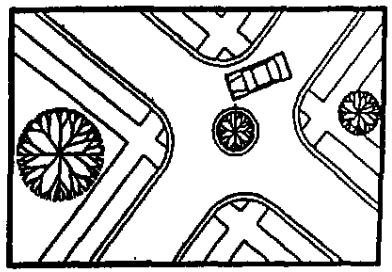
Situation

All circles at intersections of local streets.
Diameter of circles varies to provide clearance.

Features

Portland and Vancouver both provide signs to indicate the desired direction of travel Seattle does not do this on local streets, but does sign for direction when circles are located on intersections of local and arterial/collector streets

TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Traffic Circle	Possible	Likely	No Change	Improved	None	Some Constraint	Low	Low	Vandalism



TRAFFIC CIRCLES

In Three Cities

FIGURE 1 18th Ave. E. at E. Roy St.
Capitol Hill, Seattle, Washington

FIGURE 3 Haro and Jervis
Vancouver, B.C., Canada

FIGURE 2 E. Roanoke at 25th Ave. E. Eastbound
Mountlake District, Seattle, Washington

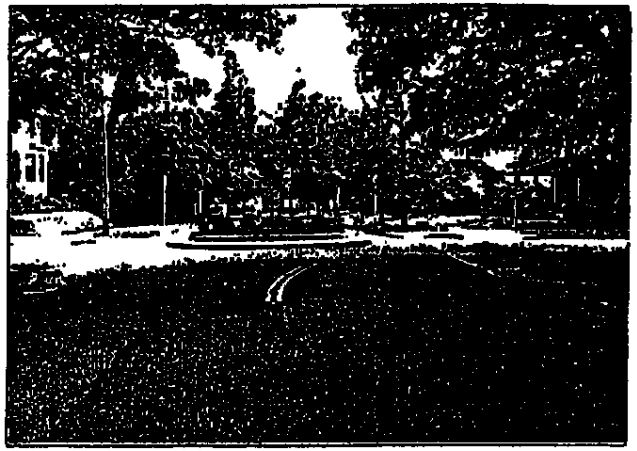


FIGURE 4 N.E. 24th Ave. at N.E. Tillamook
Portland, Oregon

Location

Seattle, Washington
Portland, Oregon
Vancouver, B.C., Canada

Setting

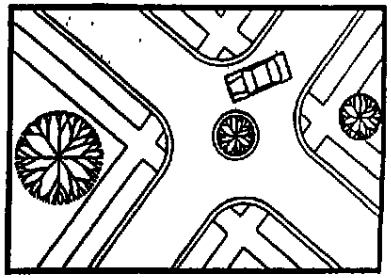
Figure 1 Old single family area near church and school; circle installed mid 1970's; Seattle, Washington
Figure 2 Affluent, single family area near Univ. of Washington and Lake Washington. Circle newly installed
Figure 3 High density, high rise near downtown Vancouver, B.C.
Figure 4 Mature, well-kept single family area; Portland, Oregon

Situation

The same problem in each city: speeding, cut-thru traffic, accidents. The circles are one of a number of devices and measures put in together to provide an area-wide remedy. They are not "spot" improvements in these case

Features

All examples very well landscaped with both shrubs and trees.
Notice variation in signage, curb design, striping and use of reflectors. See how shrubs are kept low and trees are pruned high to assure pedestrians and driver/auto visibility.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Traffic Circle	Possible	Yes Near Circle	No Change	Improved	None	Some Constraint	Self Enforcing	Moderate to High	Moderate / Possible Vandalism

ROTARY

Moderate Size

FIGURE 1 Rotary N.E. Naomi at 17th Ave. and 63rd St. Looking east. Seattle, Washington

FIGURE 2 Rotary, N.E. Naomi at 17th Ave. and 63rd St. Seattle, Washington

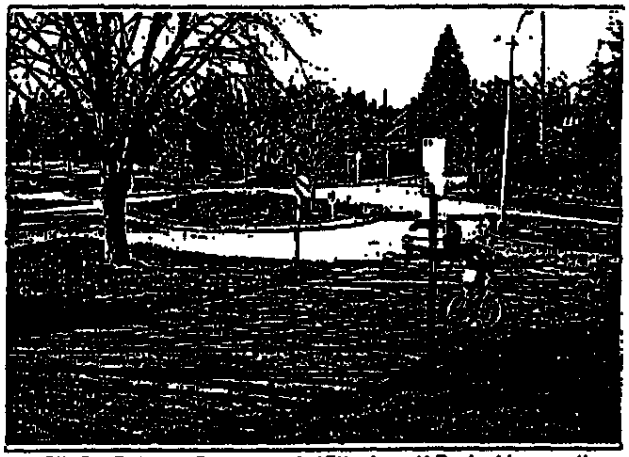


FIGURE 3 Rotary Ravenna at 17th Ave. N.E., looking north Seattle, Washington

FIGURE 4

Location

University neighborhood north of the University of Washington, Seattle, Washington

Setting

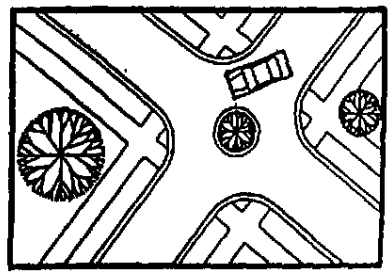
Fully developed, mature single family areas, N. Seattle.
Figure 2 Classic rotary in heavily landscaped boulevard of historic Olmsted design

Situation

Rotaries reduce head on conflicts by encouraging traffic to merge, flow in the same direction, and exit smoothly. Pedestrians must be alert to find gaps in which to cross if traffic volumes are high.

Features

Figure 1,2 Odd-shaped, landscaped rotary with walkways cutting across to accomodate pedestrians.
Figure 3 has a circumferential sidewalk It and the nearby median islands are wide and tastefully landscaped



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Traffic Rotary	No	No	Mixed Results	Mixed Results	None	No Constraint	Low	High	Moderate to High / Possible Vandalism

- Rotaries are very large circles. They often substitute for traffic signals on major arterials if there is enough space available. In these neighborhood examples, however, some of the entering streets have stop signs; in many instances, rotaries function quite well without stop controls. Unfamiliar drivers discover that they take some getting used to.

FORCED TURN CHANNELIZATION

Right Turn In
Right Turn Out
Diverter

FIGURE 1 Barkley at Thurlow Looking west
Vancouver, B.C.

FIGURE 3 Barkley at Thurlow Looking east
Vancouver, B.C.

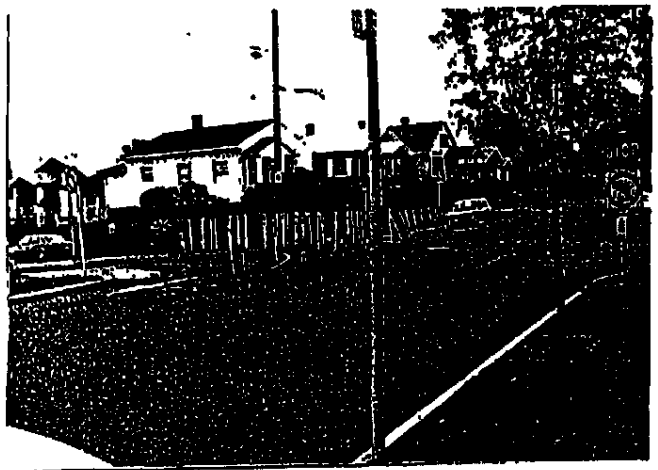


FIGURE 2 Test: Right turn in, right turn out island
N.E. Schulyer at E. 8th Ave, looking S.W.
Portland, Oregon

FIGURE 4 Test: Right turn in, right turn out island
N.E. Schulyer at E. 8th Ave., looking north
Portland, Oregon

Location

Westend area, Vancouver, B.C.
Northeast area, Portland, Oregon

Setting

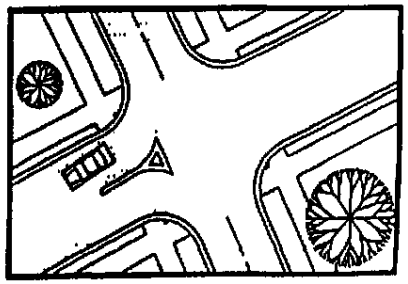
Two residential neighborhoods in two Pacific Northwest cities. In Vancouver, B.C., high population density in high and low rise buildings adjacent to downtown. In Portland, Oregon, mature urban single family area near major shopping center.

Situation

Vancouver, B.C.: High volume of cut-thru speeding traffic, often to/from hospital complex to east.
Portland, Oregon: Cut-thru, speeding traffic mostly to/from shopping complex to south

Features

Figure 1,3 raised island diverter with curb cuts, no landscaping, functional but unattractive.
Figure 2,4 Test case. Lack of bulk contributes to unappealing appearance.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Forced Turn Channelization	Yes	Likely	Decrease	Improved	Some, No Left Turn	Minor Constraint	N/A	Potentially High	Vandalism

SPEED HUMP (BUMP)

ROAD UNDULATIONS
3 Humps in Series
With Curb Extensions

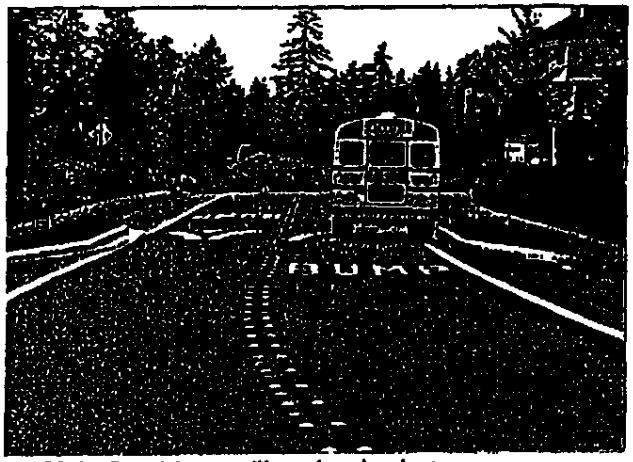


FIGURE 1 Speed hump with curb extensions
111th Ave. N.E. looking N.W., Bellevue, Washington

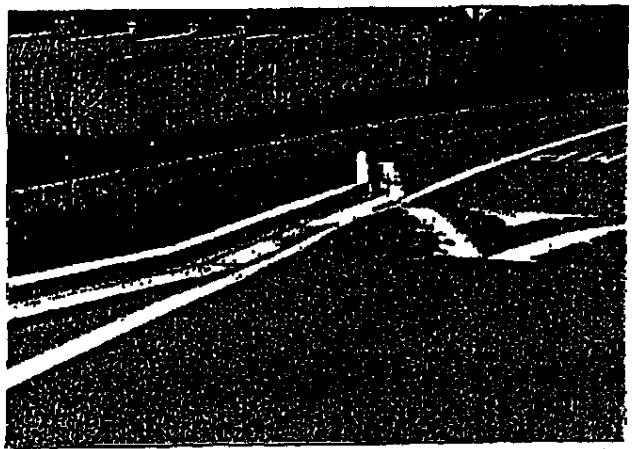


FIGURE 2 Detail curb extension to physically reduce traveled way. See tire marks on curb face.
111th Ave. N.E., Bellevue, Washington

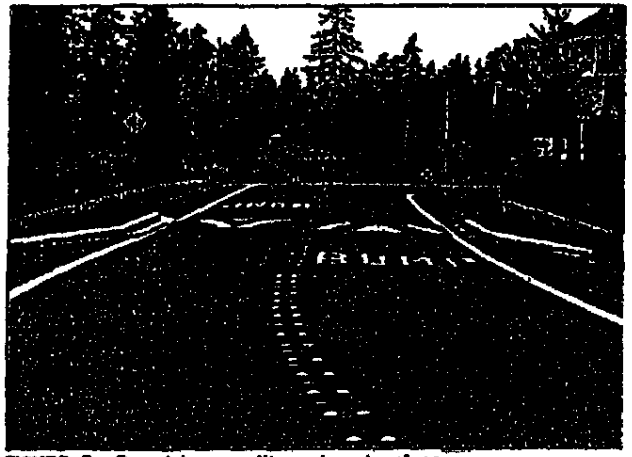


FIGURE 3 Speed hump with curb extensions
111th Ave. N.E. looking N.W., Bellevue, Washington

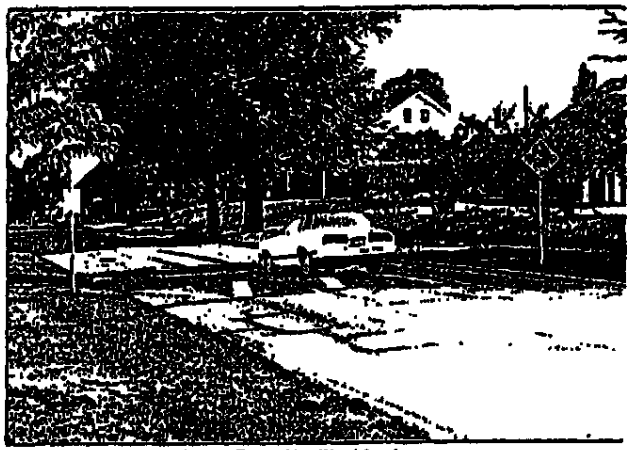


FIGURE 4 Grand Ave., Everett, Washington

Location

Yarrow Bay Development
Bellevue, Washington;
Grand Ave., Everett, Washington

Setting

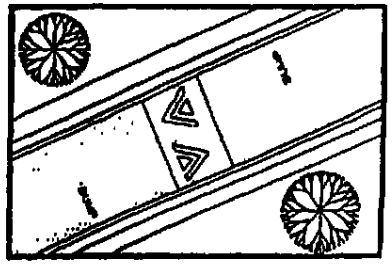
Newly developed, single family area. Condos and other multi-family dwellings along easterly portion of 111th Ave. N.E.

Situation

Cut-thru traffic, speeding
Wide street width and sweeping curves invited speeding. Rolling terrain and curves limit sight distance. Wide curb-to-curb places crossing pedestrians and school children at risk.
Speed reduced

Features

Extensive use of striping, reflectors, and buttons. Landscaped curb extensions include deciduous trees. Drought tolerant plantings maintained by neighbors Pedestrian crossing distance effectively reduced with striping.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Speed Humps/ Undulations	Possible	Yes	No Change	Improved	None	Minor Constraint	Self Enforcing	Moderate	Low to / Moderate Possible Vandalism

ENTRY ISLANDS AND MID BLOCK SLOW POINT

FIGURE 1 Mid block slow point, one lane/two way
Dorffel Dr., Seattle, Washington

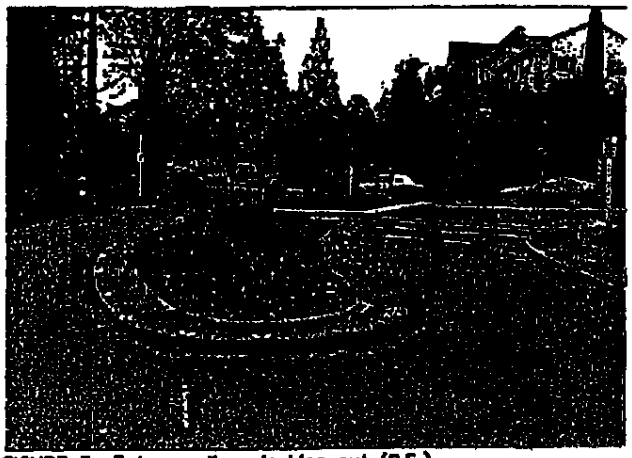


FIGURE 3 Entry median looking out (S.E.)
Dorffel Dr. at E. John and Malden Lane, Seattle, Washington

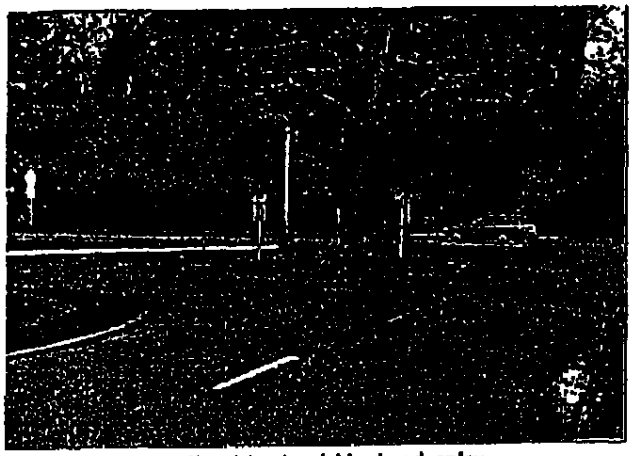


FIGURE 2 Intersection island neighborhood entry
Lake Washington Blvd. at Dorffel Dr.

FIGURE 4

TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS

Location

Lakeview Park area
Seattle, Washington

Setting

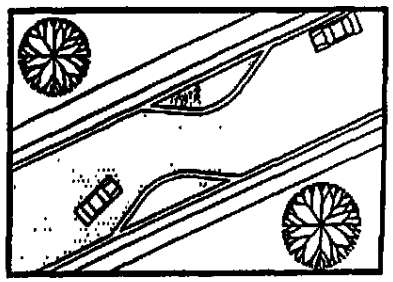
Fully developed, mature and single family residential neighborhood near Lake Washington.

Situation

Cut-thru traffic and excessive speed. Neighbors requested slow point to allow passage of only one car at a time, and the median at southeast entry to lessen collisions by slowing and guiding traffic flow.

Features

Offset slow point and entry islands, all landscaped.
Slow point and island have irrigation system



CHICANE

Alternating Barriers

Reduce 2 Lane, 2 Way to 1 Lane, 2 Way

FIGURE 1 Approaching vehicle, requires driver decision. Who is to give way? 70th Ave., westbound

FIGURE 2 Open lane ahead; N.E. 70th St. west of 15th Ave. N.E., westbound

FIGURE 3 N.E. 70th St. at 15th Ave. N.E.; Looking west

FIGURE 4 N.E. 70th St. just west of 15th Ave. N.E., westbound

Location

North of the Univ. of Washington, east of I-5 freeway and the Green Lake area of Seattle, Washington.

Setting

Fully developed, urban area in corridor serving heavily traveled freeway.

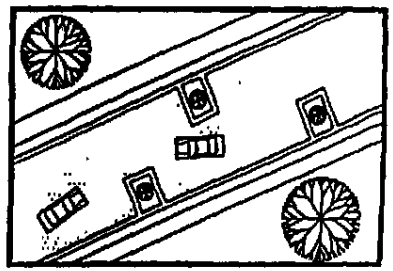
Situation

Three chicanes on 70th St. N.E. just west of 15th Ave. and another three farther down the street just east of 12th Ave. have been very effective in reducing cut-thru traffic volumes. Speeding has also diminished

70th Ave. to the west provides one of several I-5 freeway crossings in the vicinity It is fed by an I-5 off-ramp serving south, west, and eastbound freeway exits

Features

Basic landscaping and fencing (6x6 posts, 2x6 laterals), provided by the city is maintained by neighbors (who also painted fence). The solid appearance and use of reflectors and signs has proven effective, safe and popular with residents along the street. Boisterous negotiations between drivers going in opposing directions have been reported.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Chicane (Fort)	Yes	Yes	Decrease	Mixed Results	None	Minor Constraint	Not Applicable	Moderate to High	Moderate / Possible Vandalism

CHOKERS
LANE REDUCTION

Passage For One Vehicle At A Time

FIGURE 1 Interlaken Blvd. east of 24th Ave. E. Bridge reduced to one lane

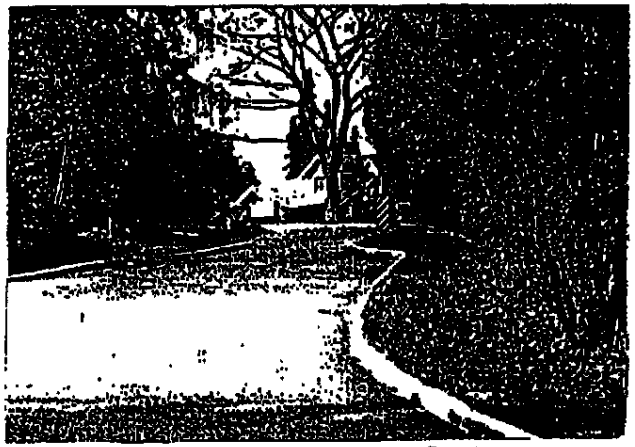


FIGURE 2 Interlaken Blvd. near 24th Ave. E., when southeast bound, entering series of choke points.

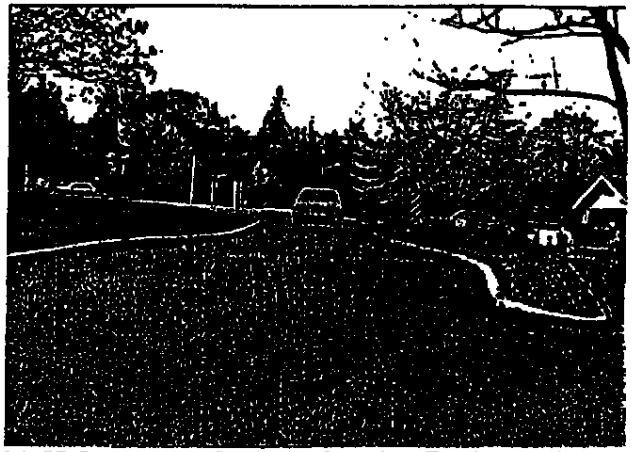


FIGURE 3 Interlaken Blvd. near 24th Ave. E., when northwest bound, exiting series of choke points

FIGURE 4 Interlaken Blvd.

Location

West of Washington Park
Seattle, Washington

Setting

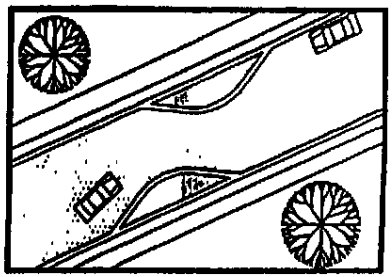
Fully developed, mature single family area, Houses abut linear parkway

Situation

Congestion on the few alternative routes attracted commuter cut-thru traffic Series of chokers effectively reduced speed and volume of traffic. Strenuous opposition is slowly abating (1991), but drivers often "honk" (day and night) to warn opposing vehicles approaching single lane bridge Honking upsets neighbors.
"Perfect" solution yet to be achieved

Features

Landscaping on chokers and bridge approaches retains flavor of original "Olmstead" boulevard design.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Choker Lane Reduction	Possible	Yes	Decrease	Improved for Pedestrians	None	No Problems	Initially High Now Routine	Moderate to High	Possible Vandalism Moderate

HALF CLOSURE

Test Exit Only
Semi-Diverter/Choker

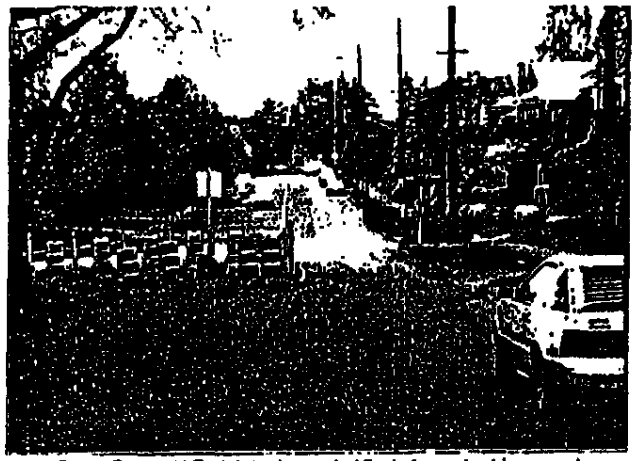


FIGURE 1 Test N.E. Wistaria and 42nd Ave., looking west

FIGURE 3 Test N.E. Wistaria and 42nd Ave., looking east

FIGURE 2 Test N.E. Knott at 42nd Ave., looking east

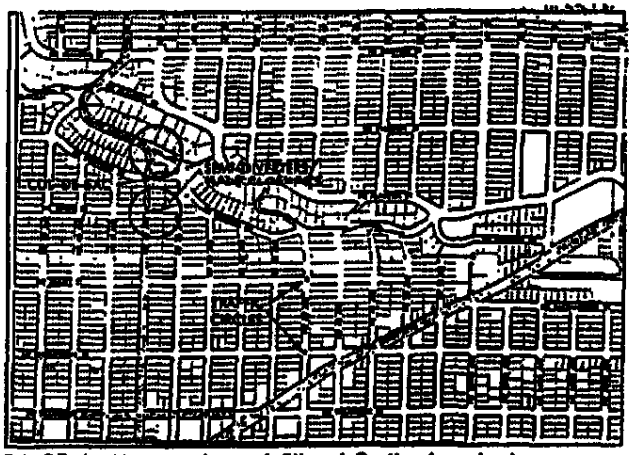


FIGURE 4 Map courtesy of City of Portland, revised

Location

Northeast Portland, Oregon

Setting

Fully developed, well maintained, single family residential area

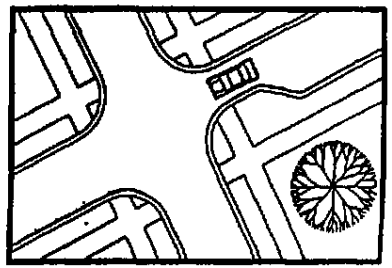
Situation

Cut-thru traffic uses local streets
Two half closures and one full closure/ cul-de-sac have been temporarily installed to assess their deterrent effect

Features

Highly visible, well signed barriers are successful in appearing both massive and temporary.

TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Half Closure (Semi-diverter)	Yes	Likely	Decrease	Improved	Restricted One Direction	Minor Constraint	Potentially High	Moderate	Low to Moderate / Possible Vandalism



HALF CLOSURE

EXIT ONLY
Semi-Diverter
/Choker

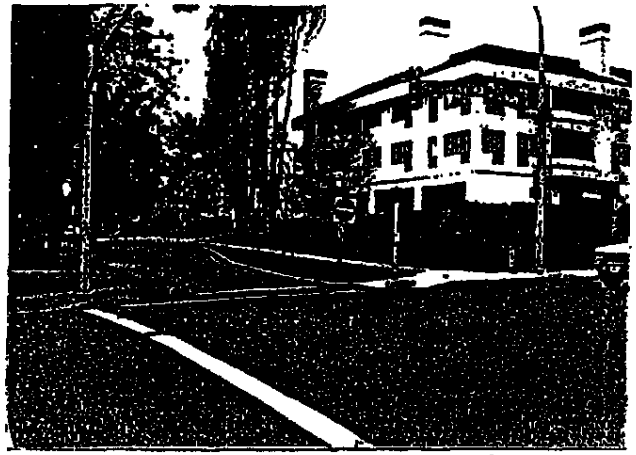


FIGURE 1 Half closure, 4th St. at 100th Ave. N.E., looking northwest, Bellevue, Washington

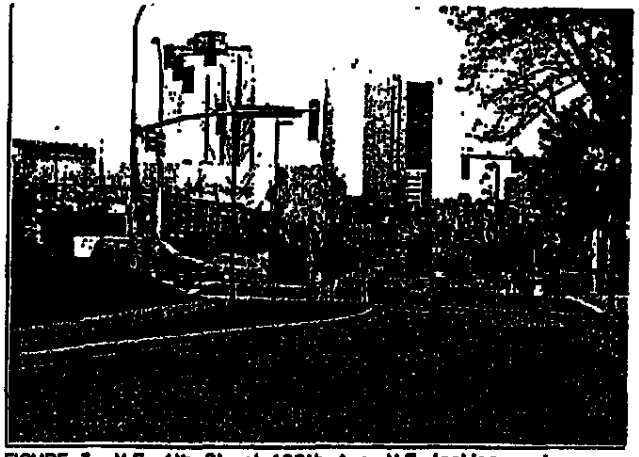


FIGURE 3 N.E. 4th St. at 100th Ave. N.E. looking east Bellevue, Washington

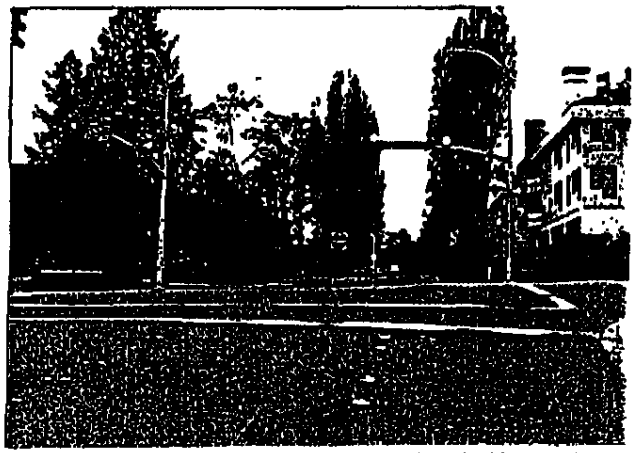


FIGURE 2 Same location as figures 1 and 4, looking west

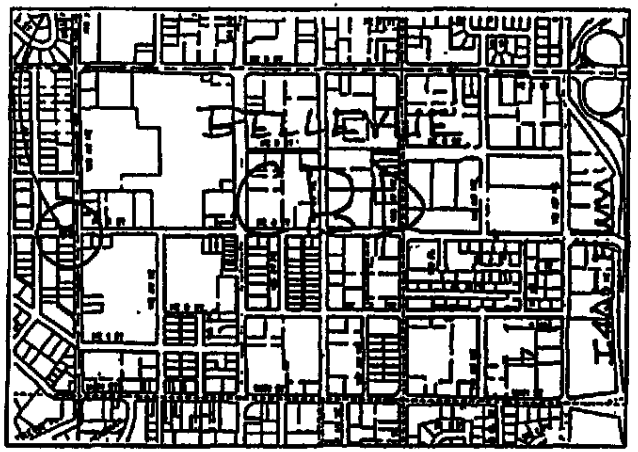


FIGURE 4 Map courtesy of City of Bellevue, revised

Location

West of downtown
Bellevue, Washington

Setting

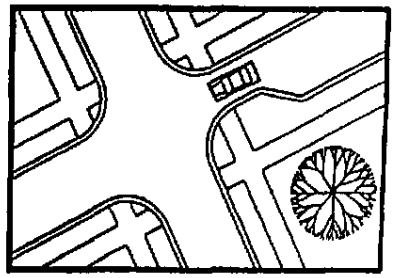
Transition block, senior housing condominiums and apartments between downtown Bellevue and single family area to west

Situation

Heavy two-directional traffic to and through neighborhood. Pedestrians at risk
Exit-only half closure installed
Reduced volume; shifted and split entering traffic among alternative routes nearby.
Pedestrians also benefit from reduced crossing distance on west side of 100th Ave

Features

Curb extended to close off entry lane
Irrigated landscaping, ample signage, pedestrian activated signal



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Half Closure/ Semi-Diverter	Yes	Likely	Decrease	Improved	Restricted to One Direction	Minor Constraint	Potentially High	Low to Moderate / Possible Vandalism	Moderate

SEMI-DIVERTER PARTIAL CLOSURE

Intersection Re-Design

Figure 1 N. Willamette Blvd. at N. Portland Blvd. Looking southwest

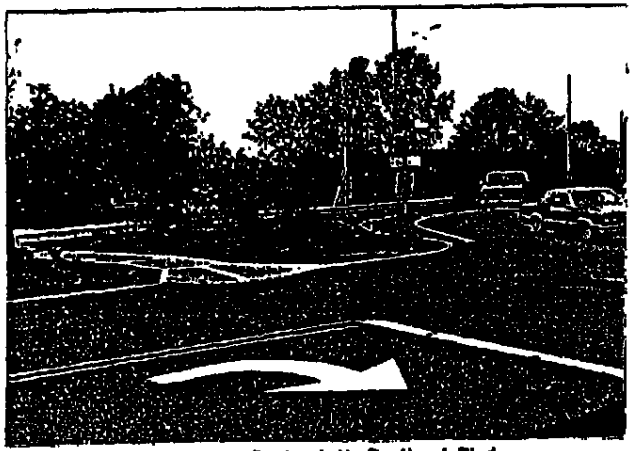


Figure 2 N. Willamette Blvd. at N. Portland Blvd. Looking northwest

Figure 3 N. Willamette Blvd. at N. Portland Blvd. Looking south

Figure 4

Location

Along bluff east of and above Swan Island Industrial Park and the Willamette River in the north area of Portland, Oregon

Setting

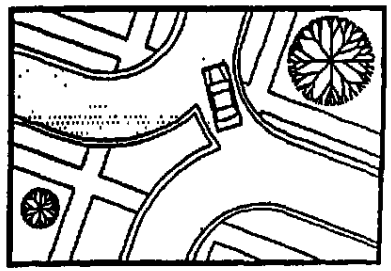
Mature, fully developed, mostly single family residential area Residences are on bluff on east side of street facing westerly view over the street toward Forest Park on the west Portland hills across the Willamette River below

Situation

Cut-thru and speeding traffic caused neighbors to south to seek remedy
The semi-diverter forces south bound traffic originating from the north to flow eastward toward the Portland Blvd interchange with the I-5 freeway.

Features

Dense, yet tasteful landscaping reinforces change of direction.
Curb cut walkway accesses blufftop trails



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Semi Diverter	Yes	Likely	Decrease	Improved	Restricted	No Problems	Moderate	Potentially High	Vandalism

DIAGONAL DIVERTER

FIGURE 1 Diagonal diverter at Gilford and Pendrell, looking east

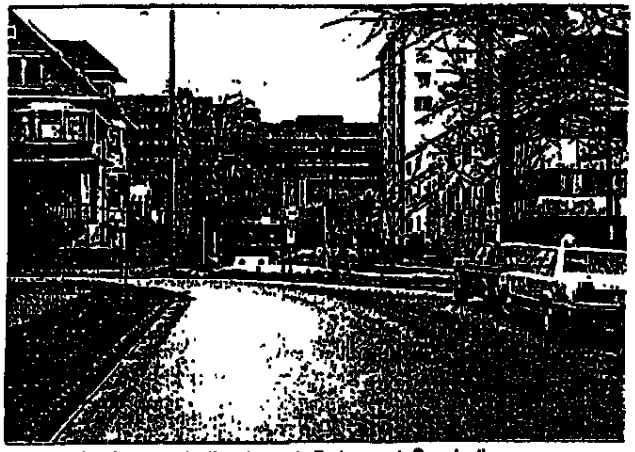


FIGURE 2 Diagonal diverter at Bute and Pendrell, looking south on Bute

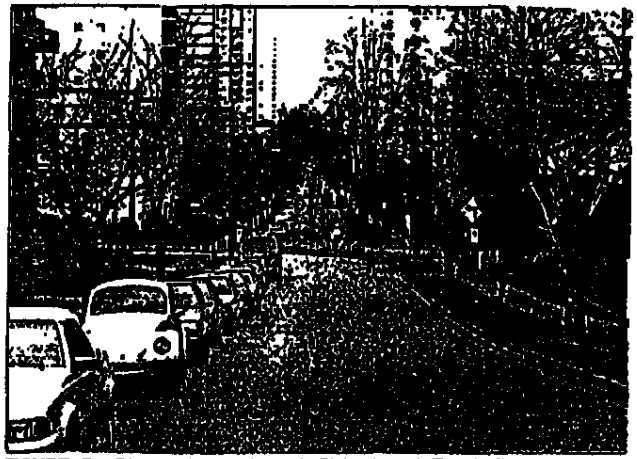


FIGURE 3 Diagonal diverter at Gilford and Pendrell, looking west

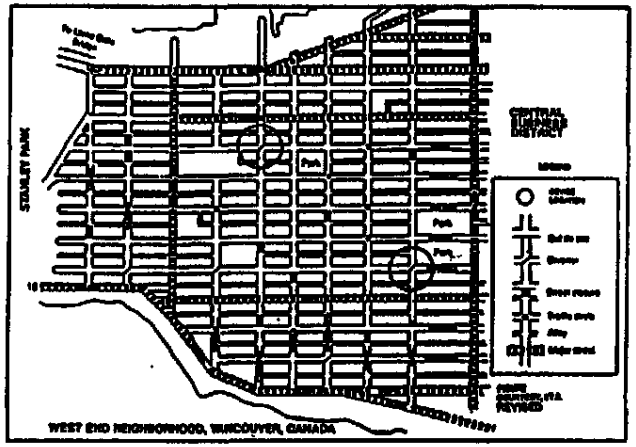


FIGURE 4 West End neighborhood, Vancouver, Canada (Courtesy of I.T.E.)

Location

West End Neighborhood
(Near Stanley Park)
Vancouver, B.C., Canada

Setting

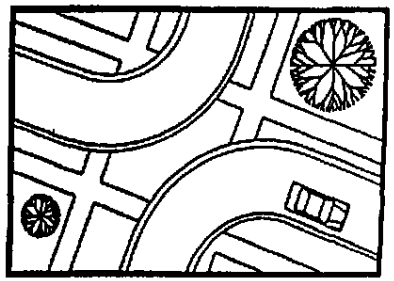
Fully developed, dense urban area mostly residential with high and low rise buildings.
Between downtown and major regional scale park.

Situation

High volumes of cut-thru traffic, speeding accidents.
Diagonal diverters one of several devices used to mitigate negative traffic impacts in this area.

Features

Very desirable, close-in living and working environment. Tasteful landscaping and surface treatment
Sparse appearance due to seasonal loss of leaves by deciduous trees
Traversable curbs allow passage of emergency vehicles.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Diagonal Diverters	Yes	Likely	Decrease	Improved	Left or Right Turn Only	Some Constraint	Moderate	Potentially High	Vandalism

DIAGONAL DIVERTERS

Full and Partial

See Opening For Right Turns
(Figure 3 only)

FIGURE 1 Diagonal diverter, E. Prospect at 18th Ave., Seattle, Washington

FIGURE 3 Turn lane cut into partial diagonal diverter E. Highland Ave. at 18th Ave., Seattle, Washington

FIGURE 2 Diagonal diverter, E. 17th Ave. at Republican St., Seattle, Washington

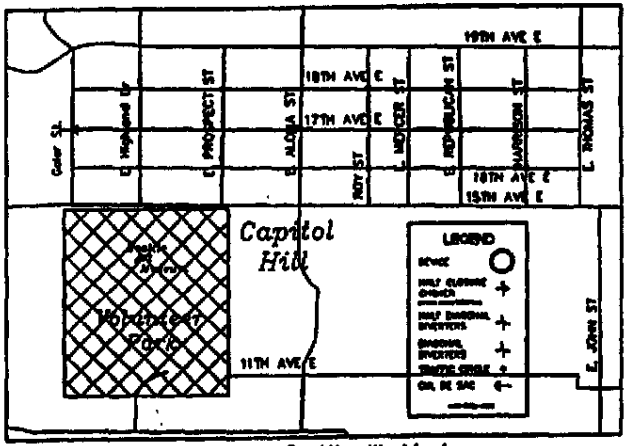


FIGURE 4 Capitol Hill area, Seattle, Washington

Location

Capitol Hill Area
Seattle, Washington

Setting

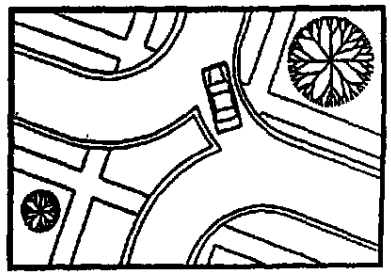
Fully developed, older residential area of large, single family and apartment houses.

Situation

Cut-thru traffic, numerous accidents at local street intersections.
System of diverters, half closures, and circles lessened cut-thru volume and greatly reduced accidents

Features

Figure 1 diverter is cut to ease traffic access to elementary school on adjacent block. All diverters heavily landscaped Autos parked along diverter further slow traffic.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Full Diagonal Diverters	Yes	Likely	Decrease	Reduces Accidents	Left or Right Turn Only	Some Constraint	Low, Depends on Features	Moderate to High	Moderate / Possible Vandalism
Partial Diagonal Diverters	Yes	Likely	Decrease	Reduces Accidents (Less so than Full Diverter)	Left or Right Turn Only (Except at opening)	Some Constraint	Low, Depends on Features	Moderate to High	Moderate / Possible Vandalism

DIAGONAL DIVERTER

FIGURE 1 Diagonal diverter at Cadero and Haro, Vancouver, B.C.

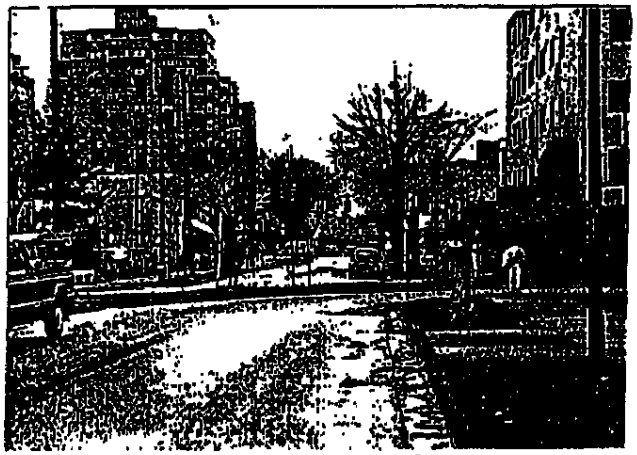


FIGURE 2 Diagonal diverter at Bute and Pendrell, Vancouver, B.C.

FIGURE 3 Diagonal diverter at Cadero and Haro, Vancouver, B.C.

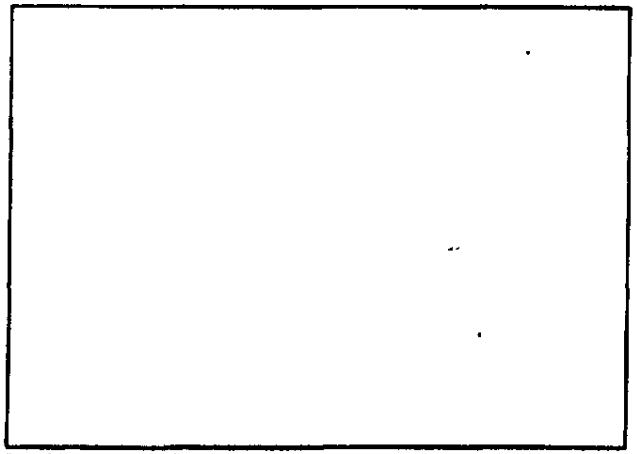


FIGURE 4 West End neighborhood, Vancouver, Canada Figure courtesy of I.T.E.

Location

West End Neighborhood
(Near Stanley Park)
Vancouver, B.C., Canada

Setting

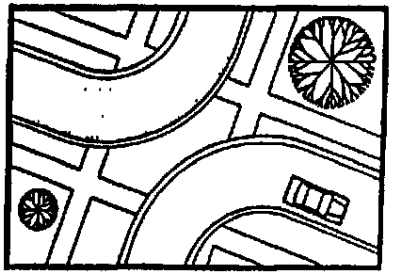
Fully developed, dense urban area mostly residential with high and low rise buildings.
Between downtown and major regional scale park.

Situation

High volumes of cut-thru traffic, speeding accidents.
Diagonal diverters one of several devices used to mitigate negative traffic impacts in this area.

Features

Very desirable, close-in living and working environment. Tasteful landscaping and surface treatment
Sparse appearance due to seasonal loss of leaves by deciduous trees
Traversable curbs allow passage of emergency vehicles.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Diagonal Diverters	Yes	Likely	Decrease	Reduces Accidents	Left or Right Turn Only	Some Constraint	Low to High Depends on Features	Moderate to High	Possible Vandalism

DIAGONAL DIVERTER

FIGURE 1 Diagonal diverter at 15th Ave. and E. Prospect St.

FIGURE 3 Diagonal diverter at 16th Ave. and E. Prospect St.

FIGURE 2 Diagonal diverter at 15th Ave and E. Prospect St., looking south

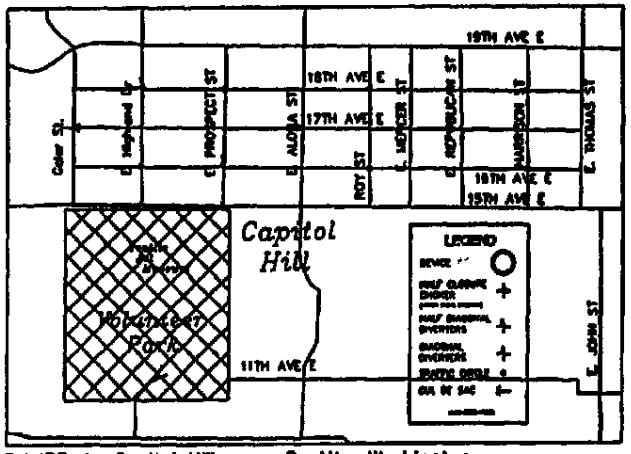


FIGURE 4 Capitol Hill area, Seattle, Washington

Location

Stevens neighborhood
(Capitol Hill)
Seattle, Washington

Setting

Fully developed, mature, single family residential neighborhood.
Some conversions to apartments

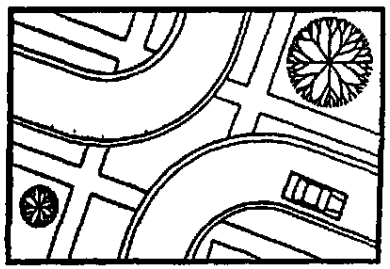
Situation

This diverter is one of a network of six devices put in place in 1974 following a test period. (See map, figure 4)
Thru traffic and accidents were reduced and have remained low since the devices were installed

Features

Seattle installs street lights, hydrants, on each side of diagonal diverters
Landscaped with trees and shrubs
Community bulletin board, stone bench, rock obstacles,and curb cuts

TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST / COMPLEXITY	MAINTENANCE COST/PROBLEMS
Diagonal Diverters	Yes	Likely	Decrease	Reduces Accidents	Left or Right Turn Only	Some Constraint	Low, Self Enforcing	Moderate to High	Moderate / Vandalism



HALF CLOSURE

Median Barriers
Turn Channelization

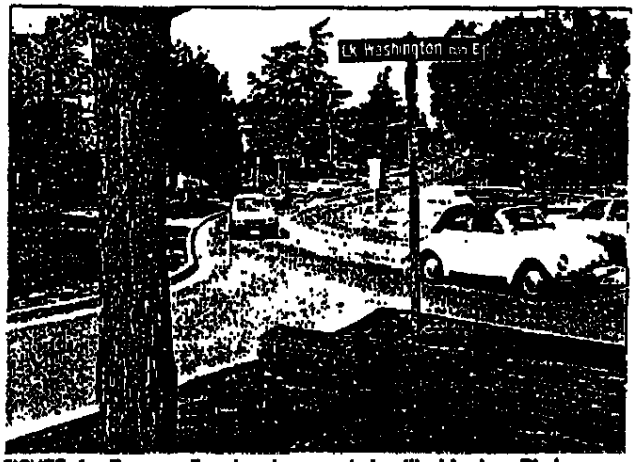


FIGURE 1 Two median barriers on Lake Washington Blvd. prohibit left turns into neighborhood.

FIGURE 2 No exit from neighborhood, 26th Ave.; right turn entry only. See SR520 off-ramp to Lake Washington Blvd. in background.

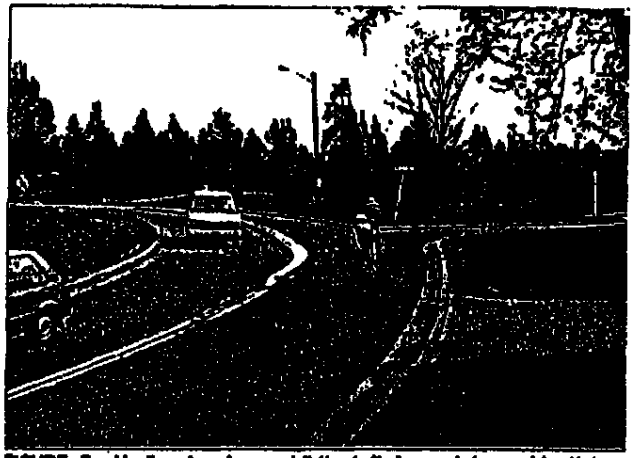


FIGURE 3 Median barrier prohibits left turns into residential area; no exit from 26th Ave.
Lake Washington Blvd. at 26th Ave., Seattle, Washington

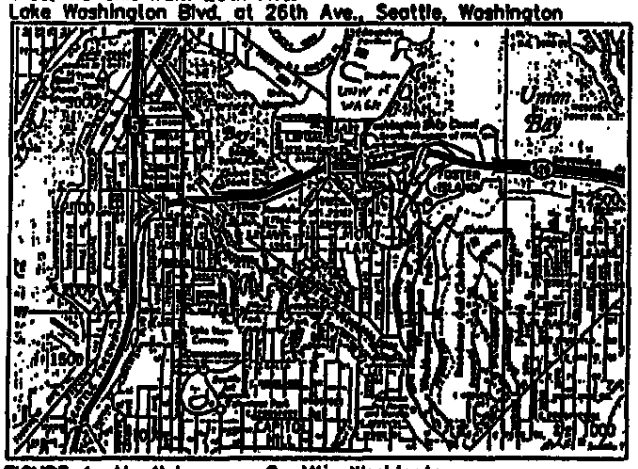


FIGURE 4 Montlake area, Seattle, Washington
Map courtesy of H.M. Gousha, Barrington, Ill., revised

TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Forced Turn Channelization Snake	Yes	Likely	Decrease	Improved	Some, No Left Turn	Minor Constraint	Potentially High	Low to Moderate	Vandalism
Half Closure Semi Diverter	Yes	Likely	Decrease	Improved	Restricted One Direction	Minor Constraint	Low	Moderate	Vandalism

Location

Mountlake Neighborhood
Seattle, Washington

Setting

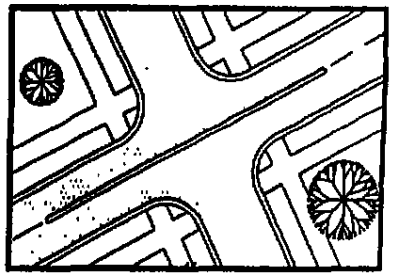
Urban, fully developed, single family area adjacent but separated from major lakeside park by Lake Washington Blvd

Situation

Lake Washington Blvd. provides route to and from park, Univ. of Washington, I-5, and SR520 bridge System of turn prohibitors, half closure, and traffic circles reduced cut-thru traffic volumes and reduced speed on local streets

Features

Lawn and tree landscaping blends half closure into park and adjacent residential area. Unattractive and very narrow median barriers are products of hard fought compromises. Barriers have many reflectors and are illuminated by street lights



STREET CLOSURE

Half Block
Full Closure

FIGURE 1 Half block, full closure; looking northeast along Gilford toward alley and Haro.

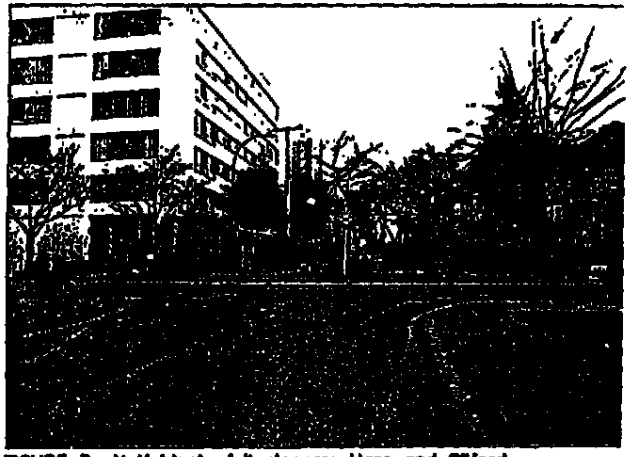


FIGURE 3 Half block, full closure; Haro and Gilford, looking southwest along Gilford.

FIGURE 2 Alley adjacent to half block, full closure on Gilford north of Haro.

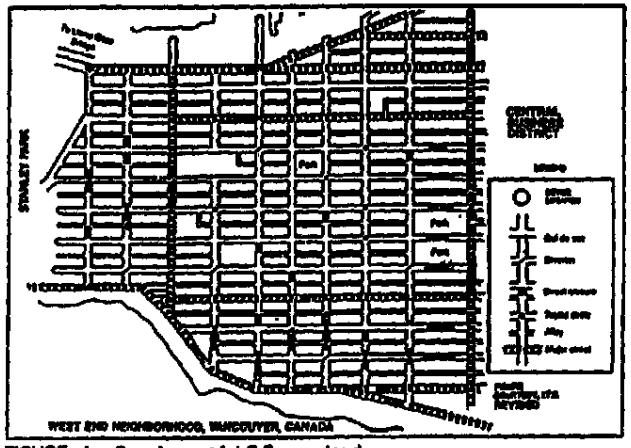


FIGURE 4 Courtesy of I.T.E., revised

Location

West End Neighborhood
(Near Stanley Park, west of downtown)
Vancouver, B.C., Canada

Setting

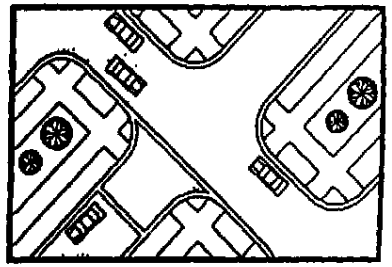
Fully developed dense urban area, mostly residential with high and low rise buildings just east of Stanley Park

Situation

Full closure one of a variety of traffic control devices located to discourage thru and speeding traffic; reduce accidents Devices are within residential areas bounded by major streets.

Features

Very desirable, close in living near downtown and regional scale park. Tasteful landscaping, attractive street furniture, permanent appearance and design



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Full Closure	Yes	Yes	Decrease	Improved	Yes	Some Constraint	Low	High/Moderate to High	Moderate/Possible to High Vandalism

STREET CLOSURE

Half Block
Full Closure

FIGURE 1 Half block, full closure
Cordero and alley south of Comox

FIGURE 3 Half block, full closure
Comox and Chilco, looking northeast along Chilco

FIGURE 2 Half block, full closure
Looking northeast along Broughton from Comox

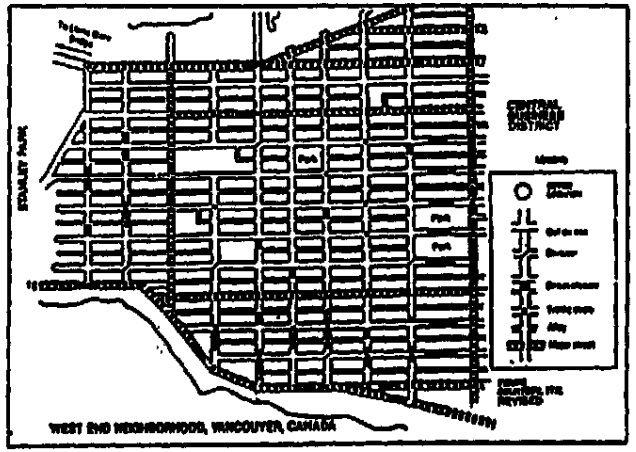


FIGURE 4

Location

West End Neighborhood
(Near Stanley Park)
Vancouver, B.C., Canada

Setting

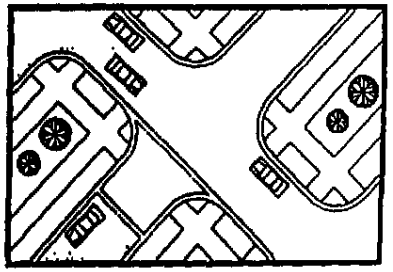
Fully developed, dense urban area
Mostly residential with high and low rise buildings.
Adjacent to downtown

Situation

High volumes of cut thru traffic, speeding, accidents; full closures just one of several types of control devices used in this area to control traffic.

Features

Very desirable, close-in living.
Tasteful landscaping, planters, street furniture and surface treatments
Permanent appearance and design
See mountable curb for emergency vehicle access.



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Full Closure	Yes	Likely	Reduced	Improved	Yes	Some Constraint	Low	Low	Vandalism

FIGURE 1 Chilco St. cul-de-sac looking southwest toward the intersection of Chilco, Robson, and Lagoon Dr.

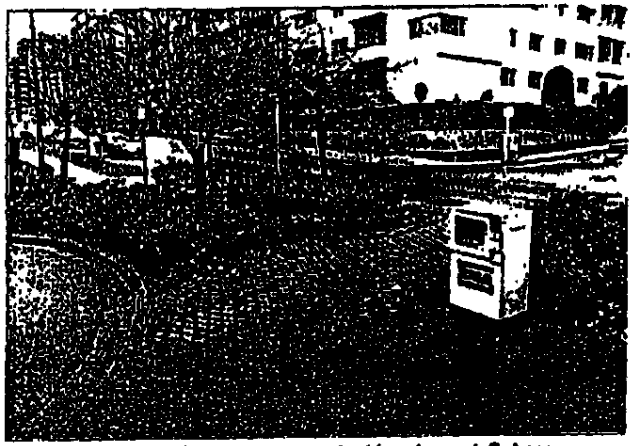


FIGURE 2 Chilco St. cul-de-sac looking toward Robson.

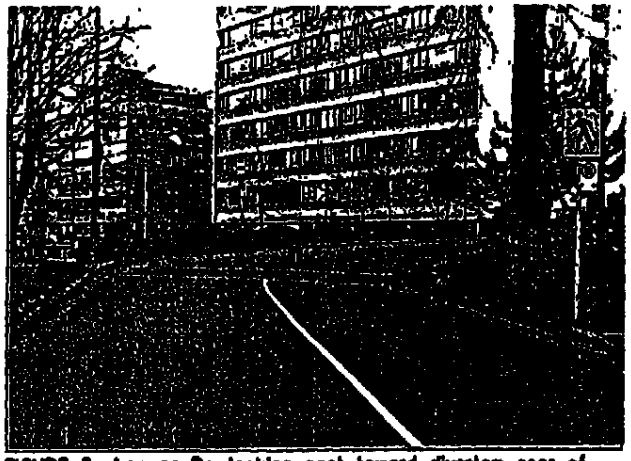


FIGURE 3 Lagoon Dr. looking east toward diverter; rear of cul-de-sac on Chilco.

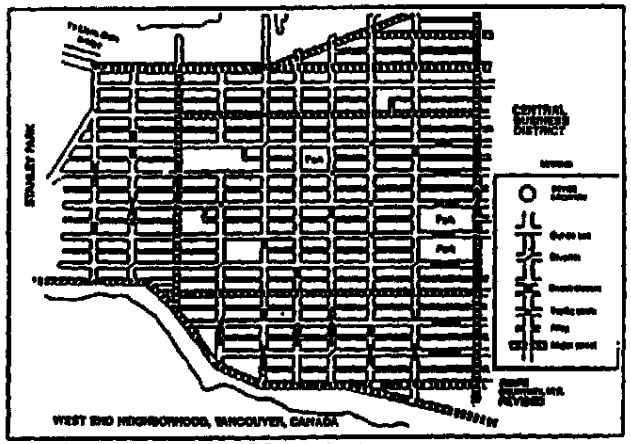


FIGURE 4 Courtesy of I.T.E., revised

FULL CLOSURE

Cul-de-Sac
Diverter
Combination

Location

West End Neighborhood
(Near Stanley Park)
Vancouver, B.C., Canada

Setting

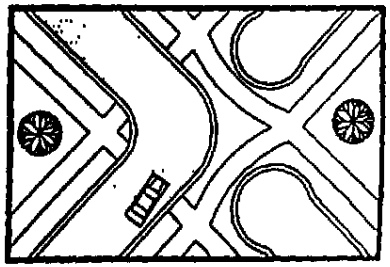
Fully Developed
Dense Urban Area
Mostly residential with high and low rise buildings.

Situation

Adjacent to downtown
Very desirable, close in living
Tasteful landscaping
Permanent appearance and design

Features

Very desirable, close in living near downtown and regional park.
Tasteful landscaping



TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY AND COMPLEXITY	MAINTENANCE COST/PROBLEMS
Diagonal Diverters	Yes	Likely	Decrease	Improved	Left or right turn only	Some Constraint	Low	Moderate to High	Moderate to High / Possible Vandalism
Cul-de-Sac	Yes	Yes	Decrease	Improved	Total	Some Constraint	Low		Moderate to High / Possible Vandalism

FIGURE 1 Test, Full Closure, looking west
N.E. Halsey St. at 28th Ave., Portland, Oregon

FIGURE 2 Test Full Closure looking west
N E Stanton at N.E. 42nd Ave., Portland, Oregon

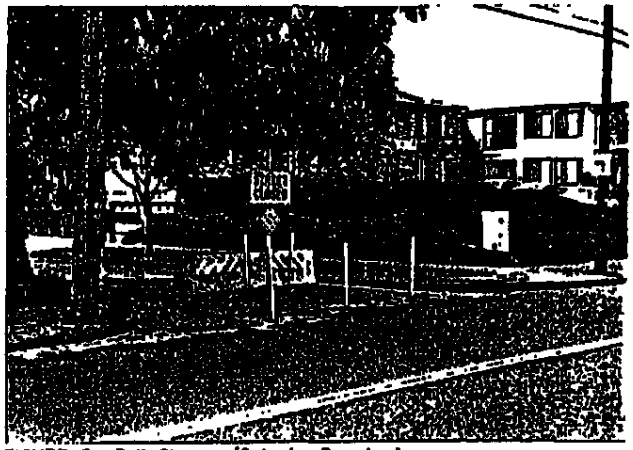


FIGURE 3 Full Closure/Cul-de-Sac test
N.E. 28th Ave. at Wasco St., Portland, Oregon

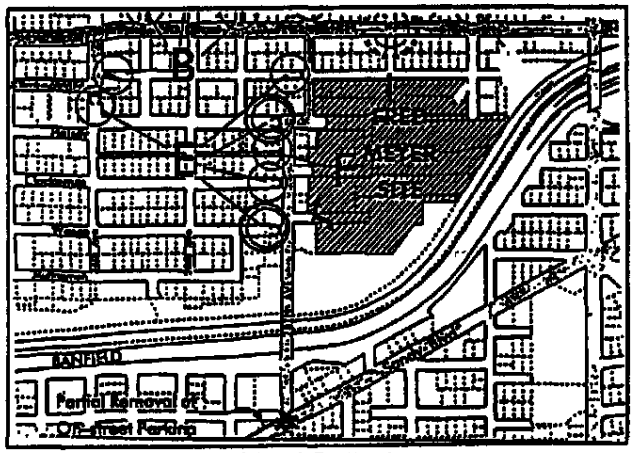


FIGURE 4 Courtesy of City of Portland

TRAFFIC MANAGEMENT DEVICE	VOLUME REDUCTION	SPEED REDUCTION	NOISE AND POLLUTION	SAFETY	ACCESS RESTRICTIONS	EMERGENCY VEHICLE ACCESS	DEPENDENCE ON POLICE ENFORCEMENT	CONSTRUCTABILITY COST/ COMPLEXITY	MAINTENANCE COST/PROBLEMS
Cul de Sac	Yes	Yes	Decrease	Improved	Total	Some Constraint	Low	Low to High (R.O.W. acquisition and landscaping)	Low to Moderate Possible Vandalism if landscaped

FULL CLOSURES TEST

Cul-de-Sac or Hammerhead

Depending upon design at street terminus

Location

Northeast area of Portland, Oregon

Setting

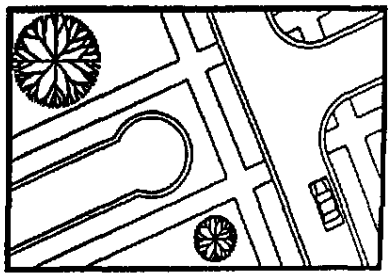
Two different residential neighborhoods both fully developed.
Figure 1 and 3 mixed multiple and single family near large (Fred Meyer) shopping center.
Figure 2 single family area

Situation

Excessive cut thru traffic
See "E" and "F" in figure 4 for series of five test closures near shopping center
Figure 2 reverts to play street One of three locations in test case

Features

Obvious temporary appearance, well signed, many reflectors.
Three to six month test period precedes decisions on suitability/acceptance
CAUTION: Concrete "Jersey" barriers are unforgiving if struck. Use in test requires careful and liberal use of reflectors, warning and control signs.



Appendix E
Setting Up A Self Managed Program in Small Communities

Often times local agencies are confronted with complaints from citizen groups, and or individuals regarding traffic problems pertaining to their respective neighborhoods. Typical complaints involve speeding, cut-through traffic, high traffic volumes, accidents, noise, pollution, sight distance, safety of children, pedestrians, and bicyclists, etc. The local agencies also have to respond to the complaints of this nature received by a mayor or a City Council person. What should a local agency do and what steps should it follow in order to address these complaints? This section provides an overview of everything that a local agency needs to know about setting up a RTM program that has guidelines to deal with problems of this nature.

Authority to undertake RTM programs

Before setting up a RTM program, a local agency would want to know the authority it has in implementing any such program. Although there are no specific state statutes related to residential traffic management, the authority for RTM programs can be derived from the same statutes which allow jurisdictions to install and maintain other traffic control devices such as stop signs and traffic signals. Titles 46 and 47 of the Revised Code of Washington (RCW) contain the statutes dealing with motor vehicles, public highways and transportation in the state of Washington. The chapters and sections of the laws applicable to the residential traffic management are discussed below.

Section 46.90.010 of the RCW directs the Director of the Deaprtment of Licensing to adopt a model traffic ordinance containing a comprehensive set of uniform traffic laws for Washington communities. The model ordinance is codified in Chapter 308-300 of the Washington Administrative Code (WAC).

The basic authority for the installation and maintenance of traffic control devices rests with the "traffic engineer" for each local jurisdiction. WAC 308-330-260 (pursuant to RCW 46.90.010) establishes the office of "traffic engineer" and generally describes his or her duties. Absent a specific position of traffic engineer in a jurisdiction, the statutory duties of the traffic engineer may be carried out by the jurisdiction's engineer or other person appointed to carry them out.

The authority for specific acts by the traffic engineer is provided by WAC 308-330-265. The predecessor of this WAC regulation (formerely RCW 46.90.265) was cited by traffic engineers in Bellevue, King County and Seattle as the source of their authority for the RTM programs in these jurisdictions. Under the more recent RCW 46.90.010, the WAC regulation should have the same effect.

For RTM programs, the following subsections of the WAC apply:

> WAC 308-330-265 (1). The traffic engineer is authorized to place and maintain official traffic control devices when and as required under the traffic ordinances or resolutions of the local authority to make effective the provisions of said ordinances or resolutions, and may place and maintain such additional official traffic control devices as he/she may deem necessary to regulate, warn, or guide traffic under the traffic ordinances or resolutions of the local authority;
>
> (4) To establish safety zones of such kind and character and at such places as he/she may deem necessary for the protection of pedestrians;
>
> (23) To test new or proposed traffic control devices under actual conditions of traffic.

The latter section (23) establishes the authority of the traffic engineer to undertake demonstration projects involving traffic control devices under actual conditions of traffic. This section allows jurisdictions to test various RTM measures under the guidance of the local traffic engineer.

Speed Limits. The basic speed limits for unposted streets in cities and towns in Washington is set at 25 mph by RCW 46.61.400(2). The basic rule of speed restrictions is more applicable to RTM settings:

> **RCW 46.61.400 Basic Rule and maximum limits.** (1) No person shall drive a vehicle on a highway at a speed greater than is **reasonable and prudent** under the conditions and having regard to the **actual and potential hazards** then existing. ...(emphasis added)

RCW 47.24.020 requires WSDOT approval for speed limits established by local authorities on city streets that are part of the state highway system.

Goals and Objectives

The goals selected for RTM program should be consistent with local needs, desires and resources, should be non-conflicting and accepted and easily understood by local officials. The primary goal could be the improvement of living and environmental conditions in residential streets.

The objectives must be clear, concise, and unambiguous, should be consistent with goals and priorities. The objectives could be improvements in safety, and reduction in noise and air pollution.

Identification of the Needs

Growing public awareness of the neighborhood traffic problems and related issues mounted to increasing pressure on the local agencies in dealing with the problems. These problems range from high speeds, high traffic volumes to excessive non-resident parking, to poor geometrics and pavement surface. The issues range from safety to pollution, to inconvenience. The local agencies use two approaches to identify and address the problems and issues associated with residential traffic management.

Based on Complaints

In most cities, neighborhood traffic problems are identified primarily through the complaints they receive from the residents. Some cities have established standard procedures for assessing a complaint and dealing with it. Usually, they require citizens to document their problems in a standard format (e.g., the Citizens' Action Request Form in this appendix). If the complaint is from an individual, the problem is confirmed either by conducting interviews with the residents of the neighborhood or by requiring the individual to obtain problem confirming signatures from other residents in the neighborhood. Before undertaking a detailed assessment, based on a complaint, of the nature and the gravity of a neighborhood traffic problem, it is important to ascertain whether it is a widely experienced problem or the one that is perceived by one or two individuals of the neighborhood. A written complaint with signatures corroborating the problem provides the local agency with enough justification to address the problem.

Based on Inventory Information

Some cities periodically update inventory of the conditions of local streets. Typically, the inventory updates are done for traffic volume, speed, accident, and composition data, pavement condition data, data on traffic control devices, signs, and markings, and other pertinent information. These cities use either locally developed standards or state standards or guidelines from other established sources, to identify conditions of streets in need of attention.

Assessment of the Problem

Once it is confirmed that there exists a problem in a neighborhood, the local agency should undertake field studies to understand the nature of the problem, its complexity, magnitude, and origin. In general, the field studies are conducted for information on traffic volume counts, speed, accidents, traffic operations, parking patterns, traffic composition, design features and geometrics of the roadway, and land use. Analysis of all these factors and other pertinent factors would help reveal the real cause(s) of the problem. Sometimes,

contrary to the beliefs of the residents, the real cause of the problem may be lying within the neighborhood . For instance, on-street parking shortages in certain neighborhoods have been found to be the result not only of commuter use of the spaces, but partly due to residential off-street parking standards being below the level needed to handle resident's cars.

Development of Alternatives

Community involvement plays a crucial role in the development of alternatives for alleviating neighborhood traffic problems. In developing alternative plans, all affected groups should be invited for a open discussion of the problem and possible solutions. Transportation professionals should educate the community groups, emergency service personnel, and other affected parties of various possible ways in which a problem may be addressed. It is equally important to listen to the solutions that the affected groups might have in dealing with a particular problem. The communities should be informed of both long and short term solutions, although they usually prefer a quick fix solution to their respective neighborhood problems. Usually a combination of short-term and long-term solutions may be in the best interest of the community. For example, a short-term solution to excessive non-resident parking on local streets might be to implement resident permit parking. Longer-term solution would include developing a commute-reduction program to reduce the percentage of non-residents arriving by auto, improving the management of available commercial parking facilities, and constructing additional parking facilities for non-residents' use.

While preparing alternative schemes, some of the important factors to be considered are the access restrictions to emergency vehicles, safety issues, traffic operational impacts, and environmental impacts.

Evaluation of Alternatives

A detailed assessment of the selected alternatives should be conducted in order to determine their feasibility of implementation of an alternative and likelihood of its success in mitigating a neighborhood traffic problem. The impacts to be assessed include:

Access restrictions to the emergency vehicles, school and transit buses, other service vehicles because of the alternatives

- Safety issues associated with the alternatives
- Impacts of the alternatives on the adjacent neighborhoods
- Other Traffic and parking operational impacts
- Land use impacts
- Environmental impacts including noise pollution, air pollution, and fuel consumption
- Impacts on the aesthetics of the neighborhood

Besides these issues, financial and economic feasibility, socio-political impacts, and legal implications of the alternatives should also be studied in detail. Lastly and most importantly, legal aspects of the traffic control devices involved in the alternatives should be given due consideration.

Selection of an Alternative

The alternatives should be compared in a matrix format in relation to the factors and issues listed in the above section. Using the matrix, transportation professionals can help the decision makers in their choice by identifying the merits and demerits of various alternatives and by recommending some of them. The final selection of an alternative is usually the responsibility of elected officials. Neighborhood groups also have considerable influence in the selection process. However, it is the duty of transportation professionals to inform the decision makers of all possible consequences of the alternatives.

Implementation

The implementation of a neighborhood traffic control plan involves several issues including public notice and involvement, enforcement, the choice of temporary and permanent installations, financing implementation, incremental versus one step implementation, timing of various phases of installation. Besides, care should be taken to see that the plan satisfies all the legal requirements. If the traffic control plan involves installation of any devices, standard manuals, and texts should be referred to for guidelines.

Public notice, citizen involvement, and police enforcement

Public and motorists should be informed of the implementation plan so that they are fully aware of the changes about to take place. The information can be passed to the affected interests by distributing notices, posters, and flyers. Also, emergency services including police, fire, paramedics, and other services such as public transit, school buses, and delivery services should be made fully aware of the implementation schedule and the changes.

Since the enforcement is the key for the successful implementation of any program, it is important to apprise the enforcement personnel of the plan, of the laws related to new controls, and expected construction schedule.

Also, local magistrates should be informed of the purpose of the program, the planning process involved, the legal basis for the devices, and the planned enforcement program. This could be useful in case of any future legal entanglements.

Temporary versus permanent devices

The choice between temporary and permanent devices involves substantial trade-offs. Temporary devices are easy to modify, and cost effective for installation in several locations. They can be used as experimental devices, modified or upgraded if proved to be successful,

dismantled otherwise, without involving huge losses. On the negative side, they may create technical, legal, aesthetic, and political problems. Vandalism and disobedience is also a possibility with these devices.

Permanent devices on the other hand are aesthetically pleasing, command better obedience and respect. However it is financially risky to install them if their effectiveness is subject to question.

Financing and Implementation

The costs of a neighborhood traffic control scheme vary depending upon the type and the extent to which the devices are used. The funds for financing these schemes are obtained from general funds in most states of the U.S. However in some states, fuel taxes, motor vehicle taxes, parking revenues, and other transportation funds are utilized for funding these schemes. Occasionally, commercial developments contributing to the neighborhood problems fund these schemes while community development funds or other grants are used in certain lower income neighborhoods to help pay for traffic control schemes.

Incremental Vs One-Step Implementation

Incremental approach is followed when the resources are limited, and the implementation plan is large. This approach allows for careful evaluation of the impacts associated with individual installations and provides room for rectifying the mistakes in later installations. However, series of changes in traffic operations spread over a longer period of time could lead to adverse public reactions. Controversies may raise over which neighborhood was chosen for early implementation of the plan over others.

One-Step implementation on the other hand avoids issues of favoritism and repeated changes in the traffic operations. However, one time-large scale changes in traffic conditions could lead to complicated traffic flow and control problems and could become a target for political opposition.

Timing of Installations

Ideally, installation of any traffic devices should be done when least number of drivers and residents are around. e.g. Summer time in a university town. In the communities where such situation is not likely to occur, effort should be made to avoid implementation of the programs in peak traffic seasons like Christmas shopping season near downtown etc.

Evaluation

Evaluation process of any RTM traffic control program is the most critical process since it forms the basis for any future program of similar nature. It helps determine how well the scheme performed and how effective it was in achieving the intended objectives. Before conducting the evaluation process, a waiting period of three to six months should be given to allow for the residents and traffic to adjust to the new program.

A "before-after" traffic study should be a part of the evaluation process to study the impacts of the scheme on various factors such as traffic volumes, vehicle composition, trip diversion, accidents, speeds, aesthetics, safety. Residents' perceptions on these factors and input from the personnel of emergency services, public transit, and school buses regarding their experiences with the program could be very valuable in the evaluation process.

Public Participation

In all the steps listed above, it could be noticed that public participation had a prominent role to play in shaping any RTM program. Public involvement in all steps of the program builds the trust of citizens in their governing bodies, and increases the chances of success of a program. Also, it is very crucial to a city committed to improving the living conditions, welfare, and safety of its citizens and the neighborhoods they live in.

Program Monitoring and record keeping

Successful programs should be monitored constantly and records should be kept on the problems and issues associated with them. These records could be very beneficial for similar programs of the future.

Where (and When) to Get Help?

In case of any ambiguity concerning any issue related to RTM, the small communities could consult the following sources.

1. Experienced staff of the cities where successful RTM programs exist (e.g. City of Portland, City of Bellevue, City of Seattle, etc.)
2. Private traffic consultant
3. WSDOT and the Northwest Technology Transfer Center
4. References listed in this report (Public libraries could be encouraged to have them)

Common sense, reasonableness and liability exposure

Clearly best protection is a reasonable, logical and well thought out plan with good guidelines. While reasonableness should be exercised in implementing any Residential Traffic Management program, tradeoffs and risks should be recognized in case of any discretionary action.

As in the case of any other traffic engineering activity or improvement, care should be taken to follow the guidelines suggested in standard manuals before installing any traffic control devices for RTM.

All facts and engineering decisions should be documented to minimize the possibility of lawsuits. Residential Traffic Management programs in place should be followed upon to evaluate their effectiveness in neighborhood traffic control.

CITIZEN ACTION REQUEST FORM

FOR THE FIRST PHASE IN NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

Contact Name: _____ Day Phone: _____

Address: _____ Today's Date: _____

Neighborhood: _____

Concerned Location: _____

What concerns have you identified at the above location?

_____

_____

What Phase I solutions do you feel would address your concerns? (Check one or more)

- ☐ Trimming Bushes
- ☐ Signing
- ☐ Enforcement
- ☐ Speed Humps
- ☐ Neighborhood Traffic Safety Campaign
- ☐ Other _____

Thank you for taking the time to fill out the Citizen Action Request Form. After completing the form, fold it for mailing (address appears on the other side of this form). *Don't forget to use first class postage.* Once we receive the form, we will contact you to investigate traffic solutions.

FOR OFFICE USE ONLY

Date Received: _____ Project Number: _____

Field Investigated: _____

Accidents ☐ Speeds ☐ Volumes ☐ Map ☐

Neighborhood Contacted: _____

Traffic Improvement Plan Selected: _____

City of Phoenix
STREET TRANSPORTATION DEPARTMENT

NEIGHBORHOOD TRAFFIC MANAGEMENT DEVICES

Traffic Management Device	Traffic Reduction	Speed Reduction	Noise and Pollution	Safety	Traffic Access Restrictions	Emergency Vehicle Access	Maintenance Problems	Level of Violation	Cost
Speed Bumps	Possible	Limited	Increase Noise	No Documented Problems	None	Minor Problems	None	Not Applicable	Low
STOP Signs*	Unlikely	None	Increase	Unclear	None	No Problems	None	Potentially High	Low
NO LEFT/RIGHT TURN Signs	Yes	None	Decrease	Improved	No Turn(s)	No Problems	Vandalism	Potentially High	Low
One-Way Street	Yes	None	Decrease	Improved	One Direction	One Direction	None	Low	Low
Chokers	Unlikely	Minor	No Change	Improved For Pedestrians	None	No Problems	Trucks Hit Curbs	Not Applicable	Moderate
Traffic Circle	Possible	Likely	No Change	Unclear	None	Some Constraint	Vandalism	Low	Moderate
Median Barrier	Yes	None	Decrease	Improved	Right Turn Only	Minor Constraint	None	Low	Moderate
Forced Turn Channelization	Yes	Possible	Decrease	Improved	Some	Minor Constraint	Vandalism	Potentially High	Moderate
Semi-Diverter	Yes	Likely	Decrease	Improved	One Direction	Minor Constraint	Vandalism	Potentially High	Moderate
Diagonal Diverters	Yes	Likely	Decrease	Improved	Turn Traffic	Some Constraint	Vandalism	Low	Mo
Cul-de-Sac	Yes	Likely	Decrease	Improved	Total	Some Constraint	Vandalism	Low	

*Must meet legal requirements for installation

**May result in high roadway user costs

Source City of Phoenix
Street Transportation Department

WHAT IS THE NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM?

The Neighborhood Traffic Management Program was created in 1989 by the Phoenix City Council and is operated by the Street Transportation Department. Since that time the program has been addressing neighborhood traffic safety concerns by enabling citizens and/or community groups to become involved with the improvement process.

In this way, the Street Transportation Department and the neighborhood community work together to create a pleasant and safe environment in which to live.

WHY WOULD OUR NEIGHBORHOOD BECOME INVOLVED?

There could be many reasons. Some major ones include:

- Vehicles travelling faster than the posted speed limit.
- Non-local traffic using the neighborhood as a short cut.
- High number of traffic accidents.
- Pedestrian safety.

HOW DOES THE PROGRAM WORK?

The program involves a two-phase process. Depending on the nature of the problem, some solutions can be resolved and action taken immediately, while others may take longer.

PHASE I

The first phase measures the extent of the problem and focuses on using effective but less restrictive measures first. Doing so allows the opportunity to change driver behaviors and correct the problem *without* imposing severe and drastic changes.

- Citizen request from Home Owners' Association or by petition
- Traffic Engineering Reviews... 1-2 months
- Organize neighborhood and develop traffic management plan..... 1-3 months
- If approved by the neighborhood and Phoenix City Council, work is completed... 1 month

PHASE II

The second phase focuses on physical measures. These are *only necessary or desirable, if the first phase improvements are ineffective.*

- Review 1st Phase Improvements .. 1 month
- *If necessary,* modify or develop additional traffic control measures ..... 1 month
- A petition is circulated by neighborhood with at least a 70% majority..... 1-2 months
- Public Hearing ..... 1-2 months
- If approved by the neighborhood and the City Council, work is completed..... 1-3 months

HOW DOES OUR NEIGHBORHOOD BEGIN THE PROCESS?

1. Identify the PROBLEMS in your neighborhood. For example:
   - Limited visibility or sight distance.
   - Unusually high traffic volumes.
   - Speeding vehicles.
   - Unsafe walking routes.
2. Discuss the types of SOLUTIONS with your neighbors. Possible solutions may be as follows:

   Trimming Bushes
   Trim bushes either by the homeowners or City crews to provide better sight distance.

   Signing
   Install appropriate traffic control signs. These may include speed limit, parking restrictions, turn restrictions, etc.

   Target Enforcement
   Increased enforcement of the speed limit by the Phoenix Police Department. Police cannot be at all places at all times. However, with neighborhood assistance they can target their efforts to those times when speeding is most prevalent and through their presence increase driver awareness.

   Speed Humps
   The installation of 3" asphalt humps placed across the street to slow motorists down. Residents may elect to use one hump or a series of humps along a street to control speeds.
3. FILL OUT the Citizen Action Request Form enclosed.
   Please note: Each project will be evaluated and prioritized on a first come, first serve basis, and the ability of the neighborhood to show concensus for a traffic management plan.

IS THE PROGRAM SUCCESSFUL?

The success of the program is reflected by the positive comments and results achieved in neighborhoods throughout Phoenix. The most successful efforts occur where the neighborhood establishes traffic safety as a community priority and becomes actively involved. By working as a community, you have taken the first step toward a more pleasant and safer neighborhood in which to live.

A Public Awareness Program
Sponsored by the City of Phoenix
Street Transportation Department

APPENDIX E - ENVIRONMENTAL DOCUMENTATION

Rogue Valley
Council of Governments

Grants Pass Urban Area Transportation Plan Update
Environmental Documentation

Transportation Department

June, 1995

OVERVIEW

Most environmental legislation comes from the federal government. Implementation, however, is relegated to the states. This document describes some of the more commonly used environmental laws and their applicability to transportation planning in the Grants Pass area. The document is presented in two sections: (1) a brief summary of federal legislation relevant to the Grants Pass Master Transportation Plan update including the implementing authorities; and (2) a description of documents containing environmental reviews pertinent to the Grants Pass area and their findings.

FEDERAL LEGISLATION

Clean Air Act (CAA)

Air quality became a national issue in the 1960s. Legislation passed in 1963 and in 1967 provided the foundation for today's air quality laws. The acts divided the United States into air quality regions and set national emission standards for air pollutants. It required states to develop state improvement plans (SIP)s to conform with the national emission standards. In 1970, the Federal Clean Air Act was enacted. It was a product of dissatisfaction over enforcement of the earlier laws and the continued feeling that poor air quality threatened public health. The 1970 Act contains three elements: (1) deadlines for meeting federal air quality standards; (2) health and welfare criteria for CO, NO, SO, ozone, lead, particulate matter, and toxic pollutants; and 3)requirements for the use of the best available technology to meet air quality standards. This was also the first act to provide for citizen suits as a means of enforcement. Although amended in 1977 and 1990, the principles of the 1970 act still apply. Today, the Act protects areas which are cleaner than ambient standards from degrading to the federal ambient standard, provides for tail pipe emission standards, hazardous air pollution emission standards, contingency plans for accidental releases, acid rain research, and enforcement procedures. Non-attainment areas are defined for areas not meeting ambient standards. The Environmental Protection Agency (EPA) and the State Department of Environmental Quality (DEQ) regulate the act.

Transportation planning is closely tied with the Clean Air Act. Grants Pass is currently a non-attainment area for both carbon monoxide (CO) and Particulate Matter (PM_{10}). CO is a concern in the downtown core, where ambient standards are approached at certain concentrated areas called "hot spots". Particulate matter is a concern for the entire planning area.

Clean Water Act (CWA)

The Clean Water Act prohibits discharge of pollutants into the waters of the United States, and seeks to restore and maintain the integrity of the nations waters. In 1972, the Act set three broad goals for United States water quality: (1) maintain biological integrity of waters; (2) maximum the use of available technology; and; (3) zero discharge. The act distinguishes between point and non-point sources, divides responsibilities between federal, state, and local governments and distinguishes between water discharge and in filling of wetlands. It set up the National Pollutant Discharge Elimination System (NPDES) which requires permits for discharging into navigable waters. The scope of NPDES was recently expanded to include storm water discharge in municipalities over 100,000 in population. The EPA issues permits and the DEQ reviews

standards and sets monitoring criteria. The Clean Water Act is of concern to the Grants Pass area for wetland maintenance (see below).

Statute 404 of the Clean Water Act: Wetlands
Wetland regulation primarily falls under Statute 404 of the Clean Water Act. The statute prohibits the discharge of fill or dredge material into U.S. waters without a permit from the Army Corps of Engineers. In 1988, then Vice-President Bush campaigned on the idea of "no net loss" of the nation's wetlands. Once elected he implemented the federal Emergency Wetlands Resource Act of 1986. The act recognized areas of specific wetland loss around the nation and established mechanisms for public-private cooperation in wetland protection. Authority for wetland regulation falls upon the Army Corp of Engineers, the EPA, the Department of the Interior's Fish and Wildlife Service and the Department of Agriculture's Soil Conservation Service.

Wetlands are a concern in transportation planning. Construction usually requires the movement, in filling, or grading of soils. Oregon has a planning policy (benchmark) of no net loss of the state's wetlands. The Grants Pass Urban Area contains significant wetland areas.

Endangered Species Act (ESA)
Passed in 1973, ESA protects both threatened and endangered species and their habitat. Species refers to plants as well as animals. The Department of the Interior's Fish and Wildlife Service continually updates a list of threatened and endangered species.

In planning, a biological assessment must be completed to determine if a species or its critical habitat is effected by a project. If impacts are discovered they must be satisfactorily mitigated before a project receives approval.

Fish and Wildlife Coordination Act
This act refers to the protection of fish stock and habitat. A cost benefit analysis of relevant projects must be completed prior to approval. If impacted, provisions for conservation, maintenance, and management of fish resources on project land and water must be made. The Department of Interior's Fish and Wildlife Department is the primary regulator.

The Rogue River, a major fishery resource for the state of Oregon, cuts through Grants Pass. Projects must not impact the riparian zones along the river or the river itself with runoff, habitat removal or other impacts.

National Environmental Policy Act (NEPA)
NEPA was signed into law January first 1970. It's purpose is to identify and to mitigate environmental impacts early in the planning process. NEPA requires an environmental assessment of all projects receiving federal funds. If significant impacts are found, a written environmental review, called an environmental impact statement (EIS), must be conducted. Significant impacts are those considered to effect the "quality of the human environment or are

expected to be controversial on environmental grounds." The process includes public comment periods.

NEPA may affect specific projects identified in the Grants Pass Master Transportation Plan update.

Noise Control Act
As population and population densities increase, so do levels of noise. Noise pollution is of specific concern to those located near airports, industrial areas, or freeways. The Noise Control Act provides noise controls for surface transportation, construction, aviation and railways. It also protects against inadvertent exposure through education and through the labeling of "noise intensive" products. The EPA and state Department of Transportation regulate the Noise Control Act.

Resource Conservation and Recovery Act (RCRA)
RCRA regulated the management and disposal of solid and hazardous waste. A hazardous waste causes or contributes to mortality or human and/or environmental health. Solid waste are materials not immediately reused. Recyclable materials may be considered part of the solid waste problem. Solid waste can be a solid, a liquid, a gas or a sludge.

RCRA applies to transportation planning where hazardous and solid wastes are routed during transport. For completion of the Grants Pass Master Transportation Plan update, hazardous and solid waste transport routes should be known. An understanding of potential disasters, natural or otherwise, along those routes is also recommended.

Comprehensive Environmental Response Act (CERCLA)
Superfunds Amendments and Reauthorization Act (SARA)
Toxic Control Substances Act (TSCA)
The three acts above address hazardous waste clean-up and disposal. CERCLA (a.k.a. Superfund) and SARA provide the financial mechanisms for the remediation and clean up of hazardous waste. TSCA controls toxic and chemical substances posing an "unreasonable risk to environmental and\or human welfare". It requires manufactures to provide information on the health and environmental risks associated with products and with manufacturing processes. The EPA regulates the aforementioned acts.

Safe Drinking Water Act (SDWA)
The Safe Drinking Water Act serves to protect drinking water by setting standards for water source and quality. It involves: (1) a national drinking water standards program and; (2) an underground injection control program. The first program requires public water facilities to treat water to meet minimal national standards for contaminants. The second program establishes a permit process for the underground disposal of liquid wastes. SDWA is regulated by the EPA.

The act applies to transportation planning when a project impacts groundwater wells. It is not anticipated as a significant concern for current transportation planning in Grants Pass.

Wild and Scenic Rivers Act
This act protects rivers possessing either pristine corridors or unique scenic, recreational, historic and/or cultural characteristics. Its intent is to protect free-flowing rivers or sections of rivers which symbolize the vanishing heritage of the United States' frontier landscape for present and future generations to enjoy. The Department of Interior's Bureau of Land Management and the Department of Agriculture's United States Forest Service administer the act.

Projects which affect a designated river must provide a detailed description and explanation of the impacts. The Rogue River contains 84 miles of designated wild and scenic river way. The designated area does not fall within the Grants Pass area, yet projects may still fall with in the scope of the act if impacts flow downstream.

ENVIRONMENTAL DOCUMENTATION

Existing documents with environmental information were reviewed as part of this process. This screening was done to identify potential environmental issues for projects recommended in the Grants Pass Urban Area Master Transportation Plan.

Title:	6th Street / 7th Street Couplet Redwood Hwy (US-199) Grants Pass, Josephine County.
Date:	June 1994.
Author:	ODOT, Environmental Services. Vince Carrow, Air Quality Specialist.
Document Type:	Air Quality - Conformity Analysis.
Geographic Area:	Area-wide Analysis: Grants Pass Urban Growth Boundary. Local Analysis: 6th St, between G and H streets, in the central business district.

Synopsis:
A local and regional analysis of air quality was conducted on four alternatives for rebuilding a section of the Redwood Highway through downtown Grants Pass. The area- wide study concentrated on carbon monoxide (CO) emissions, while the local study examined CO concentrations. The four alternatives were (1) continuous three lanes, (2) four lanes from "A" Street to the bridge, (3) four lanes from "Midland" Street to the bridge and (4) a no build scenario. Each alternative was examined with and without curbside parking.

Findings:
Conformity with CO criteria (project does not increase CO emissions over those in 1990 or over no build alternative levels nor does it increase CO "hot spots") was achieved with both four lane options without curbside parking. A conformity analysis needs to be done on particulate matter 10 (PM10) as soon as a method of analysis is approved by the EPA.

Title:	Preparation Plan for Revising the Hellgate Recreation Area Management Plan.
Date:	September 1993.
Author:	U. S. Department of Interior, Bureau of Land Management.
Document Type:	Preparation Plan.
Geographic Area:	Hellgate Recreation Area of the National Wild and Scenic Rogue River (from Applegate River to Grave Creek). 27 miles.

Synopsis:
The desire to revise the management plan for the Rogue River grew from increases in visitor use and concurrent conflicts. The revision attempts to refocus implementation of the Wild and Scenic Rivers Act 1968 (see p. 4). A preparation plan is prepared to document boundaries and goals of previous planning efforts, explain the need for a revised plan, explain the revision process and identify issues, players and alternatives.

Findings:
The BLM proposed to limit recreation use. An Environmental Impact Statement (EIS) needs to be prepared. The Preparation Plan discusses the following issues: (1) conflicts between private boating (motorized and non-motorized) and commercial boating and angling, and serenity (in reference to motorized boating); (2) commercial regulation; (3) user fees; (4) management of recreational opportunities, including fishing, camping, hiking, and interpretive resources, and; (5) enforcement. The preparation plan discusses four scenarios; (1) less visitor use, requiring permits for all recreational use except sightseeing, dining or lodging; (2) the status quo. This is the baseline alternative to which the other alternatives can be compared; (3) angler and floater enhancement/more visitor use and watercraft. This alternative emphasizes the fishing and floating experience. All motorized boating would be banned during spawning season and strictly regulated the rest of the year. No regulations would be placed on the number of visitors interested in angling or floating. Three new fishing sites would be developed, and; (4) maximum visitor use. This alternative seeks to maximize visitor use, through heavy management, but with few fees and limits. Many new facilities would be developed. Each alternative will be examined in an EIS. The Preparation plan is not available for public comment (public comment is inherent within an EIS) but it will become a public document after plan completion.

Title:	Grants Pass Urban Area Wetlands Inventory.
Date:	April 1992.
Author:	City of Grants Pass.
Document Type:	Map.
Geographic Area:	Grants Pass, Oregon.

Synopsis:
This is a draft map of wetland locations in the Grants Pass urban area. A final map and a report are in production.

Findings:
Wetlands are located throughout the Grants Pass area, especially on the outer edges of development.

Title:	Wetland Determination and Delineation in Grants Pass, Oregon.
Date:	July 24, 1991.
Author:	Scientific Resources, Inc.
Document Type:	Technical.
Geographic Area:	Southeast corner of Redwood Hwy #25 and Terry Lane, Grants Pass, Oregon. 10-acres.

Synopsis:
A study was undertaken to determine and to delineate wetlands on a 10 acre site proposed for development. The *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* was the main resource consulted for the determination. The study examined the soil, the hydrology and the vegetation for wetland characteristics. One-foot diameter holes were excavated in selected areas to determine soil content and hydrology. A visual percent cover analysis was completed for vegetative species. To receive wetland status, a site must contain wetland characteristics in all three areas.

Findings:
It was found that no area tested within the site contained the combined wetland characteristics.

Title:	Lonnon Road-Fish Hatchery R, New Hope Rd, Josephine County, Oregon.
Date:	April 1990.
Author:	Oregon Department of Transportation and Federal Highway Administration.
Document Type:	Environmental Assessment.
Geographic Area:	New Hope Road, South of Grants Pass. 2.43 miles.

Synopsis:
The environmental assessment pertains to the widening of New Hope Road. At the time of publication, New Hope road was too narrow to adequately allow emergency parking, pedestrian or bicycle traffic. The accident rate on this section of roadway was 17 % higher than the average for rural secondary highways during the five year study period of 1983-1988. The proposed project widens the road from 24 feet to 40 feet, extending the shoulders from 3 feet to 8 feet. It also reconstructs a curve to reduce curvature. Three alternatives were identified and an environmental assessment of the area and of the proposed project was completed.

Findings:
The project would cause the relocation of one residential and possibly one business site. Approximately 8 acres of right-of-way must be obtained from 53 parcels. Impacts on businesses, residents and land use were found to be minimal. Water ways and quality, threatened and endangered species, and other natural resources were not found to be significantly impacted. The drainage method, however, has not been determined although no significant impact is expected.

Historical, cultural, and archeological resources are not anticipated to be a concern, nor is aesthetic resources. Air quality standards would not be exceeded with construction. Three underground storage tanks fall within the proposed right-of-way area, making hazardous materials are a potential concern. Noise levels are also a concern. Project completion results in noise levels for 34 residences exceeding the Federal Highway Administration noise impact criteria. Construction would cause occasional traffic delays and noise impacts. Mitigation measures were proposed for traffic, right of way, noise and hazardous material impacts.

Title:	The Third Bridge Corridor Development Plan.
Date:	September 1987.
Author:	City of Grants Pass.
Document Type:	Report and Plan.
Geographic Area:	The land area bisected by the pending arterial highway which connects the Redwood spur at the city's south interchange with Interstate 5 and Redwood Highway (U.S. 99). Grants Pass, 868.5 acres.

Synopsis:
The Third Bridge Corridor Development Plan is an urban renewal plan. It is under the jurisdiction of the Development Agency, whose mission statement is to "eliminate blight and depreciating property values". Public utility systems in the area need upgrading, as does the existing street system. This is especially important, in that ODOT plans on constructing a third bridge over the Rogue River. Its connecting streets would bisect the project area. This places development pressure upon the area. Public work activities are proposed to create conditions in the area which facilitate jobs and support the cost of public services. All redevelopment projects will comply with the Grants Pass Comprehensive Plan.

Findings:
Public utility improvements should decrease operation and delivery costs of the city, as well as encourage businesses to locate in the area, creating jobs. The improved roadway system is seen as reducing energy consumption per vehicle mile traveled and reducing air pollution and travel time. Assessed property values are expected to rise as a result of the project.

Title:	Final Environmental Impact Statement for Foothill Boulevard, Rogue River and Redwood Highway (3rd Bridge, Grants Pass).
Date:	1987.
Author:	Oregon Department of Transportation.
Document Type:	Final Environmental Impact Statement.
Geographic Area:	Rogue River crossing from Interstate 5 to Highway 99, 199, and 238. Grants Pass, Oregon.

Synopsis:
The proposal of a bypass of the downtown area of Grants Pass, including the construction of a third bridge over the Rogue River, is examined in this Final Environmental Impact Statement (FEIS). The document examines the environmental impacts of four alternatives and the no build

alternative. Alternative 1 was proposed for construction. The document identifies project impacts on geology, wildlife, aquatic habitat, energy, transportation, land use, recreation, social and economic environments, historical and archeological resources, aesthetics, air quality, and noise levels.

Findings:
Insignificant impacts were found for historic and archeological resources. Geological impacts were discovered regarding soil type (low strength, high water table, and significant shrink-swell capacities). Mitigation measures provide for drainage which alleviates high water table problems and for the use of lime soil treatment or cement to mitigate soil strength and shrink swell potential. A secondary impact of such is the irretrievable loss of soil resources to urban land uses. Maintenance costs of embankments are significant. Project construction results in the loss of biological habitat, which reduces wildlife production. Secondary impacts of project completion will result in more rapid habitat loss, than the no-build alternative. The project is expected to increases development along its corridor. No threatened or endangered species were found on the project site. Overall impacts were considered minor, in that they are localized and a natural result of development. Following the no build alternative wouldn't avoid this impact, only delay it. Aquatic impacts were found to be minimal, and could be mitigated. Riparian zones supplying organic materials to the river and some stream side pools would be disrupted . The affected area is small and similar habitat is available nearby. The project entails crossing the 50 and 100 year floodplains. Measures are to be taken which alleviate the impediment of floodwater. Alternative 1 intrudes four acres upon the flood plain. Energy consumption is favorably impacted by the project.

Traffic impacts of the project are also considered favorable. Peak hour traffic would be alleviated for downtown Medford as well as travel time. Access to the industrial section of would be improved, resulting in a decrease of through town truck traffic. Access would also be improved for emergency services. The project alone is not considered to cause land use impacts in the entirety. Recreational impacts of the project are deemed beneficial, providing increased access to parks and a bikeway. Noise levels at H.W. Baker Park, although not significant, have been mitigated. Social impacts include improved access for emergency services, improved safety for pedestrians in the downtown area, and the displacement of property. Alternative 1 displaces seven residences and one day care center. Measures have been secured to reimburse those displaced. Residents are agreeable with the action. The project separates a neighborhood. Noise control barriers would be constructed to mitigate the neighborhood noise increase, but in the long run neighborhood character would change. Five businesses would be affected by the project. Overall the project would facilitate business in the central business district and in the industrial area of the city. Aesthetic impacts to the river corridor would occur. Air quality impacts are determined to be beneficial.

Title:	Grants Pass Carbon Monoxide Plan.
Date:	June 1986.
Author:	Rogue Valley Council of Governments.
Document Type:	Air Quality Compliance Document.
Geographic Area:	Grants Pass Carbon Monoxide Non Attainment Area, Grants Pass, Oregon.

Synopsis:
Pursuant to the 1977 Clean Air Act amendments, states must submit plans documenting how it will conform with air quality standards. Grants Pass is in an air quality non-attainment area for carbon monoxide. A plan to comply with health standards for CO by December 16, 1990 was needed. Most CO pollution originates for vehicles. The plan, consequently, addresses transportation improvements which result in acceptable CO levels.

Findings:
The City of Grants Pass chose a combination of the federal emissions control program and the construction of a third bridge over the Rogue River as its control measures. (The third bridge program is included in the Six Year Highway Improvement Program by ODOT (see above).) This plan is projected to decrease CO emissions 50 % between 1984 and 1990.

APPENDIX F - STREET IMPROVEMENT PROGRAM

Appendix F

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
3rd Street	**Arterial**			800							
-"E" to "F"	*City*	3,550	-	300	60	36	None	Both	Stripe bike lane and remove parking west side.	2015+ *Low*	$2,700
-"F" to "G"	*City*	6,196	-	500	60	36	Lanes Both	Both	None.		
4th Street	**Collector**			4,800							
-Evelyn to "A"	*City*	6,000	7,727	1,200	60	36	None	Both	None.		
-"A" to "E"	*City*	7,143	5,933	1,100	60	36	None	Both	Install bike lanes both sides. Remove Parking.	1998 *High*	$64,800
-"E" to "F"	*City*	7,500	6,802	300	60	36	None	Both			
-"F" to "J"	*City*	5,600	6,840	1,200	60	36	None	Both			
-"J" to Bridge	*City*	4,309	4,165	1,000	60	36	None	Both			
6th Street	**State Hwy.**			13,600							
-Morgan to Vine	*State*	8,304	13,894	500	70	49	None	East	Reconstruct street. Provide bike lane on west side.	1998 *High*	$7,473,000
-Vine to Hillcrest	*State*	8,608	12,255	1,100	70	44	None	Both			
-Hillcrest to Midland	*State*	12,157	13,301	1,000	70	44	None	Both			

Street Improvement Program

Street *-Segment*	**Functional Classification** *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Midland to Savage	*State*	13,586	15,308	1,300	70	56	None	Both	Reconstruct street. Provide bike lane west side.		
-Savage to Manzanita	*State*	13,442	17,477	600	80	56	None	Both			
-Manzanita to "A"	*State*	16,097	18,639	2,200	80	56	None	Both			
-"A" to "D"	*State*	18,118	20,300	800	80	56	None	Both	Reconstruct street. Widen to 62 feet. Provide four travel lanes with parking both sides. Provide bump outs at corners and alleys. Maintain nine foot sidewalk.		
-"D" to "F"	*State*	17,913	20,193	600	80	56	None	Both			
-"F" to "J"	*State*	17,312	20,068	1,200	80	56	None	Both			
-"J" to "M"	*State*	16,872	18,901	1,100	80	56	None	Both			
-"M" to Voorhies	*State*	19,759	22,266	600	80	56	None	Both	Reconstruct street. Provide bike lane west side from "M" St. to Caveman bridge.		
-Voorhies to Lewis	*State*	21,403	23,015	1,400	80	56	None	Both			
-Lewis to West Park	*State*	22,265	23,737	300	80	56	None	Both			
-West Park to Redwood Hwy.	*State*	14,354	15,773	900	80	38-56	None	Both			
7th Street	**State Hwy.**			13,600							
-Morgan to Hillcrest	*City*	8,652	13,436	1,500	100	44	None	Both	Reconstruct street. Provide bike lane on east side.		

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Hillcrest to Midland	*City*	13,281	16,249	1,000	90	44	None	Both			
-Midland to Steiger	*City*	13,824	15,386	800	90	44	None	Both			
-Steiger to Savage	*City*	13,824	15,386	500	60	44	None	Both			
-Savage to Outlook	*City*	15,300	19,762	300	60	36	None	Both	Full reconstruction. Widen street to 42 feet. Provide no parking either side, bike lane east side.		
-Outlook to Evelyn	*City*	15,300	17,654	1,000	60	36	None	Both			
-Evelyn to Jackson	*City*	16,600	18,954	900	60	36	None	Both			
-Jackson to "A"	*City*	17,000	18,086	800	60	36	None	Both			
-"A" to "E"	*City*	17,085	17,869	1,100	60	36	None	Both			
-"E" to "F"	*City*	18,233	18,028	300	60	36	None	Both			
-"F" to "J"	*City*	17,471	18,328	1,200	60	36	None	Both			
-"J" to "M"	*City*	15,814	17,560	1,100	60	36	None	Both			
-"M" to Voorhies	*City*	21,700	23,902	600	60	36	None	Both	Reconstruct street. Provide a bike lane on the east side from "M" St. to 300 feet south.		
-Voorhies to East Park	*City*	21,069	22,375	1,500	130	36	None	Both			
-East Park to Redwood Hwy	*City*	10,100	8,417	1,000	130	36	None	West			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
9th Street	**Local Coll./ Collector**			8,300							
-Savage to Josephine	Local Coll./ *City*	3,497	3,411	2,000	60	36	None	Both	None.		
-"D" to "E"	Collector/ *City*	3,566	3,822	300	60	36	Lanes Both	Both	None.		
-"E" to "F"	Collector/ *City*	3,866	4,382	300	60	36	Lanes Both	Both	None.		
-"F" to "J"	Collector/ *City*	3,775	5,174	1,200	60	36	Lanes Both	East	Provide sidewalks where needed.	2006 - 2015 *Low*	$34,500
-"J" to "M"	Collector/ *City*	3,000	4,642	1,100	60	36	Lanes Both	East			
10th Street	**Collector**			4,700							
-Hillcrest to Dewey	Collector/ *County*	1,482	1,828	1,600	50	36	None	None	Reconstruct collector street from Hillcrest to 940 feet south. Provide curb, gutter, sidewalk, and bike lanes.	2015+ *Low*	$447,916
-Dewey to Hefley	Collector/ *City*	2,057	2,139	400	50	36	None	None	Provide sidewalks where none exist. Provide bike route signage as needed.	2006 - 2015 *Low*	$67,860
-Hefley to Savage	Collector/ *City*	2,057	2,139	500	50	36	None	Both			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Savage to Cedar	Collector/ *City*	3,600	4,089	400	50	36	None	West			
-Cedar to Madrone	Collector/ *City*	3,600	4,089	600	60	36	None	Both			
-Madrone to "A"	Collector/ *City*	4,306	6,587	1,200	60	36	None	Both			
"A" Street	**Arterial**			8,200							
-Dimmick to 4th	*City*	5,471	2,058	1,900	60	36	None	Both	Sign as bike route as needed.	2006-2015 *Low*	$1,200
-4th to 6th	*City*	7,200	5,469	350	60	36	None	Both	Remove parking and provide bike lanes both sides.	1998 *High*	$12,600
-5th to 6th	*City*	7,200	5,469	350	60	44	None	Both	Stripe bike lanes both sides.		
-6th to 8th	*City*	8,518	8,200	700	60	36	None	Both	Sign as bike route as needed.	2006-2015 *Low*	$1,900
-8th to 9th	*County*	7,300	6,354	1,200	70	36	None	Both			
-9th to 10th	*County*	6,294	7,713	1,300	60	36-40	None	Both			
-10th to Foothill	*County*	6,294	7,713	2,400	60	36-40	None	None	Sign as bike route, install sidewalks both sides.	2015+ *Low*	$199,470
Agness Avenue	**Arterial**			3,000							

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Fairview to Spalding	*City*	-	-	1,700	80	48	Lanes Both	Both	None.	NA	NA
-Spalding to "N"	*County*	-	-	1,300	80 to tracks	NA	NA	NA	Provide 80 foot right-of-way where needed on south side of tracks. Provide at-grade rail crossing. Construct new arterial street 48 feet wide with bike lanes and sidewalks both sides.	2006-2015 *Med*	$1,278,824
Allen Creek Road	**Arterial**			7,100							
-Redwood Ave to Redwood Hwy.	*County*	1,498	9,060	300	50	22	None	None	Provide 70 feet right-of-way. Reconstruct as 48 foot wide arterial street with sidewalks and bike lanes both sides.	2006-2015 *Med.*	$2,369,917
-Redwood Hwy to West Harbeck	*County*	2,139	7,579	2,100	60	22	None	None			
-West Harbeck to Denton Trail	*County*	2,139	7,579	2,600	40	22	None	None			
-Denton Trail to Jacksonville Hwy	*County*	NA	NA	2,100	NA	NA	NA	NA	Provide 70 foot right-of-way. Construct new 48 foot wide arterial street with sidewalks and bike lanes both sides.	2006-2015 *Med.*	$1,239,746

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Ament Road	**Local Coll.**			5,700							
-Foothill to Shannon	*County*	936	-	3,900	50	20	None	None	Full reconstruction. Improve to 36 feet wide with curb, gutter, and sidewalk. Install bike lanes at "N" St.	2015+ *Low*	$1,755,000
-Shannon to Agness (New Road)	*County*	-	-	1,800	NA	20	None	None	Provide 50 foot right-of-way. Construct new 36 foot wide local collector street with bike lanes and sidewalks both sides.	2015+ *Low*	$714,046
Anderson Street	**Collector**			1,000							
-"A" to "D"	*City*	3,602	-	1,000	60	36	None	Both	None.		
Angler Lane	**Collector**			1,600							
-Leonard to Raydean	*County*	-	-	800	50	36	None	Both	Install bike lanes both sides.	2015+ *Low*	$14,400
-Raydean to George Tweed	*County*	-	-	800	NA	NA	NA	NA	Construct new collector street with sidewalks and bike lanes both sides.	2015+ *Low*	$331,788
"B" Street	**Local Coll.**			3,700							
-Upland to Olmar	*City*	-	-	200	NA	NA	NA	NA	Construct new local collector. Provide 50 feet right-of-way, 36 feet curb-to-curb with sidewalks both sides	2006-2015 *Low*	$45,565

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Olmar to Dimmick	*City*	1,084	-	3,500	40-60	36	None	None	Install sidewalks both sides.	2015+ *Low*	$105,000
Beacon Drive	**Collector**			2,400							
-"A" to "D"	*City*	-	-	900	45-50	44	None	None	Stripe bike lanes both sides. Install sidewalks both sides.	2006-2015 *High*	?
-"D" to Fairview	*City*	-	-	700	50	44	Lanes Both	None	Provide 60 feet right-of-way. Install sidewalks both sides.	2015+ *Low*	$21,000
-Grants Pass Pkwy. to Spalding	*County*	-	-	800	50-60	44	None	East	Provide sidewalks on west side.	2015+ *Low*	$12,000
Bridge Street	**Arterial**			5,200							
-Lincoln to East Line Section 13	*County*	5,163	5,285	1,300	50	44	Lanes Both	None	Overlay. Provide 60 feet minimum right-of-way. Provide sidewalks both sides.	2006-2015 *Med.*	$66,372
-East Line Section 13 to Spruce	*City*	5,163	5,285	500	60	44	Lanes Both	None	Provide sidewalks where none exist.	2015+ *Low*	$66,000
-Spruce to Cypress	*City*	7,799	6,239	600	60	44	Lanes Both	North			
-Cypress to Greenwood	*City*	7,799	6,239	300	60	44	Lanes Both	South			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Greenwood to Oak	*City*	8,291	5,723	1,300	60	44	Lanes Both	South			
-Oak to 4th	*City*	11,378	10,382	1,200	60	44	Lanes Both	South			
Cloverlawn Drive	**Collector**			10,100							
-Rogue River Hwy to Fruitdale	*County*	1,902	7,866	1,300	50	36	None	None	Overlay. Provide sidewalks both sides.	2006-2015 *Low*	$74,962
-Fruitdale to Alanita	*County*	3,932	7,989	800	50	36	None	None	Overlay. Provide bike lanes and sidewalks both sides.		
-Alanita to East View	*County*	4,232	8,222	700	50	36	None	None			
-East View to Hamilton	*County*	4,232	8,222	1,500	40-60	22	None	None	Full reconstruction. Provide 60 feet minimum right-of-way. Reconstruct 42 foot wide street with bike lanes and sidewalks both sides.	2105+ *Low*	$2,369,917
Coach Drive	**Local Coll.**			3,500							

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Curtis to Jacksonville Hwy.	*County*	-	-	3,500	NA	NA	NA	NA	Construct new local collector street. Provide 50 feet right-of-way. Construct 36 foot wide street with sidewalks both sides.	1998-2006 *Low*	$2,587,713
Cottonwood St.	**Local**			1,900							
-Bridge to Louise	*City*	-	-	1,200	50	36	None	None	Remove parking. Stripe bike lanes both sides.	1996-1998 *High*	$34,200
-Louise to Webster	*City*	-	-	700	50	36	None	Both			
Curtis Drive	**Local Coll.**			800							
-Jacksonville Hwy to Coach	*County*	-	-	800	50	22-36	None	None	Full reconstruction. Reconstruct local collector street 36 feet wide with sidewalks both sides.	2015+ *Low*	$360,000
"D" Street	**Collector**			9,700							
-Dimmick to 9th	*City*	-	-	3,700	60	32-36	None	Both	None.		
-9th to Candy	*City*	-	-	1,300	50	39	Lanes Both	Both	None.		
-Candy to 11th	*City*	4,277	-	1,900	50	44	Lanes Both	Both	None.		

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-11th to Beacon	*City*	-	-	800	50	40	Lanes Both	None	Install sidewalks both sides.	2015+ *Med.*	$12,000
-Beacon to Foothill	*County*	-	-	2,000	50	40	Lanes Both	None	Overlay. Install sidewalks both sides.	2015+ *Med*	$74,337
Darneille Lane	**Collector**			2,600							
-Redwood Ave. to Leonard	*County*	647	-	2,600	60	22-24	None	None	Full Reconstruction. Construct collector 42 feet wide with bike lanes and sidewalks both sides.	2015+ *Med.*	$1,184,959
Dimmick Street	**Arterial**			2,900							
- Bellevue to "A"	*City*	-	-	500	60	36	None	East	Stripe bike lanes both sides. Eliminate parking. Provide sidewalks where none exist.	2006-2015 *Med*	$31,964
- "A" to "B"	*City*	-	-	300	60	36	None	Both			
- "B" to "C"	*City*	-	-	300	60	36	None	West			
- "C" to "F"	*City*	-	-	900	60	22-28	None	None	Full reconstruction. Construct new 48 foot wide arterial with TWLTL and bike lanes, no parking, and sidewalks both sides.	2006-2015 *Med*	$179,496
-"F" to Foundry	*City*	-	-	200	60	NA	NA	NA	Construct new at grade rail crossing Construct 48 foot wide arterial with bike lanes and sidewalks both sides	2006-2015 *Med.*	$718,762

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Foundry to "G"	*City*	-	-	500	60	20-25	None	None	Full reconstruction. Construct new 48 foot wide street with TWLTL and bike lanes, no parking, and sidewalks both sides.	2006-2015 *Med.*	$15,608
Dowell Road	**Local Coll. /Arterial /Collector**			3,300							
- Leonard to Redwood Avenue	Local Coll./ *County*	1,196	-	1,300	60	36	None	Both	Install sidewalks both sides.	2006-2015 *Med*	$66,372
- Redwood Avenue to Redwood Hwy.	Arterial/ *County*	1,196	-	1,400	65-80	48	Both	Both	None.		
-Redwood Hwy. to Schutzwohl	Collector/ *County*	1,598	-	600	60	20	None	None	Full reconstruction. Provide 48 foot wide collector with TWLTL and bike lanes, no parking, and sidewalks both sides.	2006-2015 *Low*	$248,842
Drury Lane	**Local Coll.**			2,100							
-Grandview to Fruitdale	*County*	814	-	2,100	50	22	None	None	Full reconstruction. Construct 36 foot wide local collector with sidewalks both sides.	2006-2015 *Med*	$947,967
"E" Street	**Arterial**			4,200							

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-3rd to 4th	*City*	4,022	1,742	300	60	36	None	Both	Stripe bike lane north side. Eliminate parking one side.	2015+ *Low*	$18,900
-4th to 6th	*City*	4,172	3,149	700	60	36	None	Both			
-6th to 7th	*City*	6,400	8,463	400	60	36	None	Both			
-7th to 9th	*City*	7,000	8,779	700	60	36	None	Both			
-9th to Mill	*City*	6,855	8,997	1,400	60	36	Lane North	Both	None.		
-Mill to "F"	*City*	10,000	13,991	700	60	36	Lane North	North	Construct sidewalks south side.	2015+ *Low*	$10,500
East Park Street	**Collector/ Local Coll.**			6,400							
-6th Street to Grants Pass Pkwy	Collector *City*	-	-	3,100	50	40	Route	Both	None.		
-Parkdale to Gold River	Local Coll. *City*	-	-	600	0	40	Lanes Both	Both	None.		
-Gold River to Clara	Local Coll. *County*	1,119	-	1,200	50	29	None	One Side	Full Reconstruction. Construct 36 foot wide local collector street with sidewalks both sides.	2006-2015 *Med*	$597,221
-Clara to Hamilton	Local Coll. *County*	1,119	-	1,500	50	22	None	None	Full Reconstruction. Construct 36 foot wide local collector street with sidewalks both sides.	2015+ *Med.*	$696,758

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Evelyn Avenue	**Local Coll.**			1,200							
-4th to 6th	Local Coll./ *City*	-	-	700	60	30-36	None	Both	None.		
-6th to 7th	Local Coll./ *City*	-	-	500	50	30-36	None	Both			
"F" Street	**Collector/ Arterial**			12,600							
-"G" to Sunhill	Collector/ *City*	-	-	2,800	NA	NA	NA	NA	Construct new collector. Provide 60 feet right-of-way. Construct 36 foot wide collector with bike lanes, no parking, and sidewalks both sides. Provide new at-grade rail crossing.	2006-2015 *Med*	$2,064,863
-Sunhill to Elm	Collector/ *City*	-	-	2,400	NA	NA	NA	NA	Construct new collector. Provide 60 feet right-of-way. Construct 36 foot wide collector with bike lane, no parking, and sidewalks both sides.	2006-2015 *High*	$2,089,747
-Elm to Booth	Collector/ *City*	-	-	800	60	36	None	South	Provide bike lanes and sidewalks both sides.	2015+ *Low*	$27,000
-Booth to 2nd	Collector/ *City*	-	-	600	60	36	None	None			
-2nd to 3rd	Collector/ *City*	1,790	-	400	50	36	None	Both			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-3rd to 4th	Arterial/ *City*	4,277	4,998	300	50	40	Lane South	Both	None.		
-4th to 6th	Arterial/ *City*	4,277	4,998	700	50	36	None	Both	Provide bike lane on south side. Eliminate parking one side. Provide sidewalks where none exist.	2015+ *Low*	$6,930
-6th to 7th	Arterial/ *City*	6,800	7,046	400	50	36	None	Both			
-7th to 8th	Arterial/ *City*	6,000	9,002	400	50	36	None	Both			
-8th to 9th	Arterial/ *City*	6,000	9,002	300	60	36	None	North			
-9th to Mill	Arterial/ *City*	5,852	8,821	1,600	60	40	None	Both			
-Mill to Grants Pass Pkwy.	Arterial/ *City*	6,700	9,734	1,900	60	40	Lane Both	Both	None		

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Fairgrounds Rd.	**Collector**			200							
-Redwood Hwy. to Union	*County*	-	-	200	60	40	None	None	Full reconstruction. Reconstruct as 42 foot wide collector street with bike lanes and sidewalks both sides.	2015+ *Med.*	$47,398
Fairview Avenue	**Local Coll.**			2,600							
-Beacon to Foothill	*City*	-	-	2,600	50	36	None	Both	None.		
Foothill Blvd.	**Arterial/ Collector**			6,660							
-"A" to 760 feet southeast	*Arterial/ County*	-	-	760	60	36	None	None	Overlay. Provide sidewalks both sides	2015+ *Med*	$37,168
-760 feet southeast of "A" to Fairview	Arterial/ *City*	-	-	2,300	60	36-44	Lanes Both	Both	None.		
-Spalding to I-5	Collector/ *City*	-	-	1,600	100-130	44	Shoulder	None	Install sidewalks and bike lanes both sides.	2015+ *Low*	$48,000
-I-5 to Ament	Collector/ *County*	3,606	-	2,000	50	44	None	None	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes, no parking, and sidewalks both sides.	2015+ *Med*	$995,369

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Fruitdale Drive	**Collector**			12,700							
-Jacksonville Hwy. to Drury	*County*	3,183	4,622	2,600	60	22	Shoul-der	None	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	1999-2005 *Med.*	$1,421,950
-Drury to Parkdale	*County*	3,026	4,419	700	60	22	Shoul-der	None			
-Parkdale to Gaffney	*County*	3,929	5,329	500	60	22	Shoul-der	North	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides, parking one side.	2006-2015 *Med.*	$1,777,438
-Gaffney to Overland	*County*	3,929	5,329	3,300	60	22	Shoul-der	None			
-Overland to Alexander	*County*	3,929	5,329	1,300	60	22	Shoul-der	None	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides, parking one side.	2015+ *Med.*	$2,488,413
-Alexander to Rogue River Hwy	*County*	-	-	4,300	60	22	None	None			
"G" Street	**Arterial**			5,800							
-Lincoln to Leonard	*County*	5,529	8,618	1,300	40-80	24	None	None	Full Reconstruction. Reconstruct arterial street 48 feet wide with TWLTL and bike lanes and sidewalks both sides, parking one side.	1999-2005 *High*	$622,105
-Leonard to Wildwood	*City*	6,822	6,799	1,100	60	44	Lanes Both	North	Stripe for TWLTL. Retain bike lanes both sides. Install sidewalks on south side.	2006-2015 *High*	$108,000

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Wildwood to Oak	*City*	7,611	6,933	2,100	60	44	Lanes Both	North			
-Oak to Pine	*City*	9,142	7,237	500	60	44	Lanes Both	North			
-Pine to 3rd	*City*	10,248	5,646	800	60	44	Lanes Both	North			
George Tweed Blvd	**Proposed Collector**			3,300							
-Kellenbeck to Redwood Ave	County	30-60	-	1,300	NA	NA	NA	NA	Construct new collector street 42 feet wide with bike lanes, no parking, and sidewalks both sides.	2015+ *Low*	$592,479
-Redwood Ave. to Willow	County	0-30	-	2,000	NA	NA	NA	NA	Construct new collector street 40 feet wide with bike lanes, no parking, and sidewalks both sides.	2015+ *Low*	$900,569
Gladiola Street	**Local Coll.**			1,600							
-"N" to Portola	*County*	851	-	1,600	40	22	None	None	Full Reconstruction. Provide 50 foot right-of-way. Reconstruct local collector street 36 feet wide with sidewalks both sides.	2006-2015 *Med.*	$516,763

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
G.I. Lane	**Collector**			1,300							
-Harbeck to Jacksonville Hwy.	*County/ Private*	-	-	500	0-20	NA	None	None	Construct new collector street. Provide 60 foot right-of-way. Construct 42 foot wide collector street with bike lanes and sidewalks both sides	2006-2015 *Low*	$1,081,739
Grandview Ave.	**Collector**			5,200							
-Harbeck to existing Grandview	*City*	-	-	1,100	NA	NA	NA	NA			
-New Extension to Drury	*County*	2,020	5,288	2,600	40-60	20-28	None	None	Full Reconstruction. Provide 60 foot right-of-way. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	2006-2015 *High*	$2,369,917
-Drury to Gaffney	*County*	2,042	5,341	1,000	40-60	20-28	None	None			
-Gaffney to Cloverlawn	*County*	1,537	5,341	1,600	40-60	20-28	None	None			
Grants Pass Parkway	**State Highway**			11,500							
-7th to Parkdale	*State*	13,824	18,252	2,400	110	68	Lanes Both	None	None.		
-Parkdale to "M"	*State*	17,988	23,692	1,300	110	78	Lanes Both	Both			
-"M" to "F"	*State*	19,793	18,849	3,200	110	68	Lanes Both	Both			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-"F" to Beacon	*State*	26,509	28,822	700	110	80	Lanes Both	Both			
-Beacon to Terry	*State*	21,397	24,615	1,300	110	80	Lanes Both	Both			
-Terry to Agness	*State*	14,412	19,215	1,300	110	80	Lanes Both	Both			
-Agness to I-5	*State*	15,683	26,208	1,300	110	68-80	None	None	Provide bike lane south side. Provide connection to Foothill Blvd.	1999-2005 *Low*	$11,700
Greenfield Road	**Collector**			4,100							
-Scoville to Spring Mountain	***County***	-	-	2,100	30+	22	None	None	Full reconstruction. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides	2006-2015 *Med.*	$945,000
-Spring Mountain to Hillcrest	***County***	-	-	2,000	NA	NA	NA	NA	Construct new collector street. Provide 50 feet minimum right-of-way. Construct 36 foot wide collector street with bike lanes and sidewalks both sides.	2006-2015 *Med*	$1,000,722
Hamilton Lane	**Local Coll.**			9,100							
-East Park to Rogue River Hwy.	*County*	590	-	400	40	22	None	None	Full Reconstruction. Reconstruct local collector street 36 feet wide with sidewalks both sides.	2015+ *Med*	$149,305

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Overland to Cloverlawn	*County*	770	-	6,000	40	22	None	None	Full Reconstruction. Reconstruct local collector street 36 feet wide with sidewalks both sides.	2015+ *Low*	$2,836,801
Harbeck Road	**Collector**			5,500							
-Jacksonville Hwy. to G I. Ln.	*County*	4,249	2,481	1,700	60	38-44	Lanes Both	One Side	Overlay and widen to 40 feet. Provide sidewalks, curb, and gutter where none exist.	2015+ *Med*	$100,886
-G I Ln to Grandview	*County*	1,333	2,481	400	60	38-44	Lanes Both	One Side			
-Grandview to West Harbeck	*County*	1,297	2,830	400	60	34-38	Lanes Both	West (Part)	Full reconstruction. Provide 40 foot wide collector street with bike lanes and sidewalks both sides. Provide turn lanes where needed.	2015+ *Med*	$353,908
Haviland Drive	**Local Coll.**			4,000							
-Grandview to Highline Canal	*County*	751	-	2,000	60	26	None	None	Full Reconstruction. Provide 36 foot wide local collector street with sidewalks both sides.	2015+ *Low*	$805,772
-Highline Canal to Cloverlawn	*County*	-	-	2,000	NA	NA	NA	NA	Construct new local collector street. Provide 50 foot right-of-way minimum and new 36 foot wide street with sidewalks both sides.	2006-2015 *Low*	$1,072,092

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Hawthorne Ave.	**Collector**			3,800							
-Vine to Morgan	*County*	-	-	1,500	70	27-36	None	East	Install sidewalks west side.	2015+ *Low*	$22,500
-Morgan to Hillcrest	*County*	-	-	1,100	70	27-36	None	East	Overlay. Provide sidewalks where none exist. Stripe for bike lanes.	1998-2000 *Low*	$114,160
-Hillcrest to Loughridge	*County*	-	-	500	70	27-36	None	None	Overlay. Provide sidewalks both sides.		
-Loughridge to Midland	*County*	-	-	700	50	27-36	None	None			
Highland Avenue	**Arterial**			11,100							
-UGB to Vine	*County*	1,700	_	1,900	60	36	Lanes Both	None	Full Reconstruction. Construct arterial street 40 feet wide with bike lanes and sidewalks both sides.	1999-2005 *Med*	$2,015,621
-Vine to Woodbrook	*County*	1,637	-	3,300	60	40	Lanes Both	West			
-Woodbrook to Windsor	*County*	1,637	-	1,800	60	36	Lanes Both	East (Part)			
-Windsor to Carol	*County*	1,637	-	1,000	60	40	Lanes Both	Both			
-Carol to Valley View	*City*	-	-	1,200	50-60	36-40	Lanes Both	East	Provide sidewalks where none exist.	2015+ *Low*	$84,000

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Valley View to Midland	*City*	6,020	6,568	1,300	60	36-40	Lanes Both	East			
-Midland to Starlite	*City*	5,085	5,501	600	60	36-40	Lanes Both	East			
-Starlite to Savage	*City*	5,291	4,902	600	60	36-40	Lane East	None			
-Savage to Bellevue	*City*	5,228	5,957	1,300	60	36-40	Lane East	East			
Hillcrest Drive	**Collector**			6,000							
-Hawthorne to Washington	*County*	-	-	600	60	36	None	None	Overlay Stripe bike lanes both sides. Provide sidewalks where none exist.	1999-2005 *Low*	$66,372
-Washington to 6th	*County*	3,100	5,093	700	60	42	None	Both			
-6th to 7th	*City*	3,471	6,064	500	40-50	44	None	Both	Stripe bike lanes both sides. Remove parking both sides.	2015+ *Low*	$9,548
-7th to 9th	*City*	2,444	2,811	800	50	40	None	Both	Stripe bike lanes both sides. Remove parking north side.	2015+ *Low*	$13,020
-9th to 10th	*County*	2,614	7,120	1,400	50	28	None	None	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes, no parking, and sidewalks both sides.	2015+ *Med.*	$671,874

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-10th to Beacon	*County*	2,100	1,784	1,300	50	28	None	None	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes, no parking, and sidewalks both sides.	2015+ *Med*	$622,105
Hubbard Lane	**Collector**			2,300							
-Redwood Ave. to Redwood Hwy	*County*	-	-	2,300	40	22	None	None	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	2015+ *Med.*	$1,066,463
I-5	**State Highway**										
-Exit 58	*State*	-	-	NA	NA	NA	NA	NA	Construct new on-ramp and improve intersection.	2006-2015 *Med*	$1,817,098
"J" Street	**Collector**			5,600							
-Oak to 5th	*City*	-	-	1,300	60	36	None	Both	None.		
-5th to 6th	*City*	-	-	4,300	60	44	None	Both			
-6th to 11th	*City*	-	-	2,100	60	36	None	Both	None.		
-11th to Mill	*City*	-	-	1,400	60	36	None	None	Overlay. Provide sidewalks both sides.	2015+ *Low*	$70,000

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Jacksonville Highway	**State Highway**			15,400							
-Redwood Hwy. to Lark Ellen	*State*	19,000	-	3,500	90	74	Lanes Both	Both	None.		
-Lark Ellen to West Harbeck	*State*	19,899	23,225	800	90	74	Lanes Both	Both			
-West Harbeck to Mayfair	*State*	17,310	18,616	1,500	90	74	Lanes Both	Both			
-Mayfair to New Hope	*State*	17,262	18,218	1,600	90	74	Lanes Both	Both			
-New Hope to Allenwood	*State*	11,008	14,449	2,100	90	32	Shou l-der	None	Widen to four lanes with bike lanes and sidewalks both sides.	2002-2005 *High*	$2,140,000
-Allenwood to UGB	*State*	10,031	17,254	5,900	90	32	Shou l-der	None			
Kellenbeck Ave.	**Collector**			7,600							
-Hubbard to Willow	***County***	-	-	2,600	NA	NA	NA	NA	Construct new collector street. Provide 60 feet right-of-way. Construct 42 foot wide collector with bike lanes and sidewalks both sides.	2015+ *Low*	$1,184,959
-Willow to Redwood Ave	***County***	-	-	2,800	60	0-40	None	Both Part	Construct new collector street. Construct 40 foot wide collector with bike lanes and sidewalks both sides.	2015+ *Low*	$450,284

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Redwood Ave to Willow	***County***	-	-	2,200	0-60	NA	NA	NA	Construct new collector street. Provide 60 feet right-of-way. Construct 42 foot wide collector with bike lanes and sidewalks both sides.	2015+ *Low*	$995,365
Leonard Road	**Collector/ Local Coll.**			7,900							
-UGB to Willow	*Collector/ County*	683	-	3,900	40	20-22	None	None	Full reconstruction. Provide 60 feet right-of-way. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	2015+ *Med*	$1,777,438
-Willow Ln to Mesman Dr.	*Local Coll / County*	683	-	4,000	40	21-22	None	None	Full reconstruction. Provide 50 feet right-of-way. Reconstruct local collector street 36 feet wide with sidewalks both sides.	2015+ *Med.*	$1,777,438
-Kellenbeck to Leonard	*Collector/ County*	683	-	300	NA	NA	NA	NA	Provide 60 feet right-of-way. Construct new collector street 42 feet wide with bike lanes and sidewalks both sides.	2015+ *Low*	$142,195
Lincoln Road	**Arterial**			6,200							
-"G" to Bridge	*County*	-	-	2,000	40	20	None	None	Full Reconstruction. Provide 70 feet right-of-way. Reconstruct arterial street 48 feet wide with TWLTL, bike lanes, no parking, and sidewalks both sides.	2006-2015 *High*	$2,101,111
-Bridge to Webster	*County*	-	-	1,900	55-70	36	Lanes Both	None			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Webster to Redwood Ave.	*County*	246	-	2,300	NA	NA	NA	NA	Construct new bridge. Provide 70 feet right-of-way. Construct new arterial street 48 feet wide with TWLTL, bike lanes, and sidewalks both sides.	2006-2015 *High*	$15,727,118
Lower River Rd.	**State Hwy.**			2,600							
-UGB to Doneen Lane	*State*	-	-	1,800	40	28	None	None	Full reconstruction. Provide 60 feet right-of-way where needed. Widen to 48 feet with curb, gutter, sidewalk, and bike lanes.	2002-2005 *Med*	$315,000
-Doneen Ln. to Lincoln Rd	*State*	-	-	800	40-60	28	None	None			
"M" Street	**Arterial**			8,200							
-4th to 6th	*City*	9,675	7,305	800	60	44	Lanes Both	Both	None.		
-6th to 7th	*City*	10,500	16,830	400	60	44	Lanes Both	Both			
-7th to 9th	*City*	9,000	9,966	600	60	44	Lanes Both	Both			
-9th to 10th	*City*	7,700	7,619	400	60	44	Lanes Both	Both			
-10th to 11th	*City*	7,700	7,494	400	60	44	Lanes Both	Both			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-11th to Skunk Creek	*City*	7,700	7,494	1,000	60	38-44	Lanes Both	North	Provide sidewalks where none exist.	2015+ *Low*	$15,000
-Skunk Creek to "N"	*County*	8,179	9,068	1,000	50	38-42	Lanes Both	Both	Overlay. Provide sidewalks where none exist.	2015+ *Low*	$111,505
-"N" to Milbank	*County*	7,295	8,773	1,200	50-60	42	Lanes Both	Both			
-Milbank to Ashley	*City*	7,295	8,773	700	50-60	42	Lanes Both	Both			
-Ashley to West Line Section 21	*City*	7,295	8,773	300	50-60	42	Lanes Both	None			
-West Line Section 21 to "N"	*County*	7,295	8,773	1,300	50	42	Lanes Both	None	Overlay. Provide sidewalks both sides.	2015+ *Low*	$42,478
Madrone Street	**Local Coll.**			2,600							
-9th to 10th	*City*	1,169	-	1,300	50	36	None	None	Provide sidewalks both sides.	2015+ *Low*	$39,000
-10th to 11th	*City*	-	-	600	40	36	None	None			
-11th to Beacon	*City*	978	-	700	50	36	None	None			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Manzanita Ave.	**Local Coll.**			3,400							
-Upland to Elm	*City*	-	-	2,800	NA	NA	NA	NA	Construct new local collector street. Provide 50 feet minimum right-of-way. Construct 36 feet wide local collector with sidewalks both sides.	2006-2015 *Low*	$716,605
-Elm to Hawthorne	*City*	-	-	1,400	60	36	None	None	Provide sidewalks where none exist.	2015+ *Low*	$21,000
-Hawthorne to 7th	*City*	-	-	2,000	60	36	None	Both			
Meridian Way	**Collector**			1,400							
-Ramsey to Jacksonville Hwy	*City*	-	-	1,400	60	40	Lanes Both	Both	None.		
Midland Ave.	**Collector**			3,300							
-Highland to Prospect	*City*	-	-	600	50	36	None	Both	Provide sidewalks where none exist. Sign as bike route as needed.	2015+ *Low*	$34,632
-Prospect to Hawthorne	*City*	-	-	700	50	36	None	North			
-Hawthorne to Hawthorne	*City*	-	-	100	50	36	None	None			
-Hawthorne to Washington	*City*	-	-	600	60	36	None	South			
-Washington to 6th	*City*	-	-	800	60	36	None	North			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT 1995	ADT 2015	Length (feet)	Conditions (1995) ROW	Width	Bike	Walk	Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
-6th to 7th	*City*	-	-	500	60	36	None	Both			
Mill Street	**Collector**			3,600							
-"D" to "F"	*City*	-	-	600	50	36	None	West	Provide 50 foot right-of-way where necessary. Provide sidewalks where none exist.	2015+ *Low*	$75,000
-"F" to "J"	*City*	-	-	1,400	40-50	36	None	None			
-"J" to "M"	*City*	-	-	1,600	50	44	None	West			
Morgan Lane	**Local Coll./ Collector/ Arterial**			5,000							
-Candler to Highland	Local Coll./ *City*	-	-	1,200	50	36	None	Both	Stripe bike lanes both sides. Eliminate parking.	2006-2015 *Low*	$16,200
-Highland to Hawthorne	Collector/ *County*	-	-	1,400	50	22	None	Both	Full Reconstruction. Provide 60 feet right-of-way. Reconstruct 42 foot wide collector with bike lanes and sidewalks both sides, parking one side.	1999-2005 *Med*	$622,105
-Hawthorne to Washington	Collector/ *County*	-	-	600	80	36	None	None	Overlay. Provide sidewalks both sides. Sign as bike route as needed	1999-2005 *Low*	$53,098
-Washington to Vine	Collector/ *County*	3,571	5,134	500	60	40	None	None			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Vine to 6th	Arterial/ *City*	4,818	6,551	200	70	44	None	None	Provide sidewalks where none exist. Stripe bike lanes both sides. Eliminate parking as needed.	2015+ *Low*	$6,750
-6th to 7th	Arterial/ *City*	3,063	3,025	500	70	44	None	Both			
"N" Street	**Local Coll./Arterial**			5,300							
-"M" to 100 feet east of Belle Aire	Local Coll./ *City*	-	-	1,200	45-55	36	None	None	Provide sidewalks where none exist. Provide 50 feet right-of-way where needed.	2015+ *Low*	$18,000
-100 feet east of Belle Aire to Rogue Drive	Local Coll./ *County*	-	-	2,000	50	36	None	None	Overlay. Provide sidewalks both sides.	2015+ *Low*	$55,753
-Camelot to Riverwood Apts	Arterial/ *County*	-	-	800	50-55	42	Both	South	Full Reconstruction. Provide 60 feet right-of-way. Reconstruct arterial street 48 feet wide with bike lanes and sidewalks both sides.	2006-2015 *Med*	$798,633
-Riverwood Apts to Agness	Arterial/ *County*	-	-	1,900	50	22-24	None	None			
-Agness to Gladiola	Local Coll./ *County*	-	-	200	40	22-24	None	None	Full reconstruction. Reconstruct 36 foot wide local collector with sidewalks both sides.	2006-2015 *Med*	$211,403

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Nebraska Avenue	**Local Coll.**			2,700							
-Union to Ramsey	*County*	455	-	1,400	50	36	None	Both	Overlay. Provide sidewalks both sides.	1999-2005 *Low*	$36,746
-Ramsey to McCarter	*County*	455	-	700	50	18	None	West	Reconstruct east half of street. Construct 36 foot wide street with sidewalks.	1999-2005 *Med.*	$236,992
-McCarter to West Harbeck	*County*	455	-	600	40-50	36	None	None	Overlay. Provide sidewalks both sides	2015+ *Low*	$14,698
New Hope Road	**Collector**			7,400							
-Jacksonville Hwy. to UGB	Collector/ *County*	2,381	-	500	60	40	Lanes Both	None	Terminate vehicular through access from Jacksonville Highway to Allen Creek Road. Retain pedestrian and bike through route. Construct sidewalks both sides.	2006-2015 *Med.*	$16,000
Oak Street	**Arterial**			2,200							
-"G" to Burgess	*City*	-	-	1,700	60	36	None	None	Stripe bike lanes both sides. Eliminate parking. Provide sidewalks where none exist Sign for through traffic.	2006-2015 *Med*	$83,984
-Burgess to Bridge	*City*	-	-	500	60	36	None	Both			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Overland Drive	**Arterial**			6,300							
-Rogue River Hwy. to Cloverlawn	*County*	-	-	6,300	0-80	NA	NA	NA	Provide 80 feet right-of-way. Construct new arterial street with bike lanes and sidewalks.	1999-2005 *Med*	
Parkdale Drive	**Arterial/ Collector**	-	-	2,400							
-Grants Pass Pkwy. to Rogue River Hwy.	Arterial/ *City*	-	-	1,300	60-70	48	Lanes Both	Both	None.		
-Rogue River Hwy to Fruitdale	Collector/ *City*	-	-	600	50	48	Lanes Both	Both			
Portola Drive	**Local Coll.**			3,000							
-Rogue to Harvey	*City*	-	-	2,400	50	36	None	Both	None.		
-Harvey to Gladiola	*County*	998	-	600	40	22	None	None	Full reconstruction. Reconstruct local collector 36 feet wide with sidewalks both sides.	2015+ *Low*	$225,000
Ramsey Avenue	**Collector/ Local Coll.**	-	-	5,400							
-Allen Creek Rd. to Hemlock	Collector/ *County*	-	-	700	NA	NA	NA	NA	Provide 60 feet right-of-way. Construct new collector street 48 feet wide with bike lanes both sides.	2006-2015 *Med*	$1,771,283

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Hemlock to Nebraska	Collector/ *County*			500	60	48	None	Both	Overlay.		
-Nebraska to Meridian	Collector/ *City*	-	-	2,300	60	NA	NA	NA	Construct new collector street 48 feet wide with bike lanes both sides.		
-Meridian to Union	Local Coll./ *City*	-	-	1,900	50-60	36	None	Both	None.		
Raydean Drive	**Collector**	-	-	2,400							
-Redwood Ave. to End	*County*	-	-	1,500	60	24	None	None	Full reconstruction. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides, parking one side.	2015+ *Low*	$682,500
-End to Angler	*County*	-	-	900	NA	NA	None	None	Construct new collector street. Provide 60 foot right-of-way. Construct 42 foot wide collector with bike lanes and sidewalks both sides, parking one side.	2015+ *Low*	$402,886
Redwood Avenue	**Arterial**			10,100							
-450 west of Darneille to Raydean	*County*	5,172	-	800	60	32	None	None	Full reconstruction. Reconstruct arterial street 48 feet wide with TWLTL, bike lanes, no parking, and sidewalks both sides.	2015+ *High*	$2,441,015
-Raydean to Dowell	*County*	5,172	-	4,400	60	32	Lanes Both	None			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Dowell to Redwood Cir.	*County*	5,172	-	3,800	60	36	Lanes Both	None	Full reconstruction. Reconstruct arterial street 48 feet wide with TWLTL, bike lanes, no parking, and sidewalks both sides.	2006-2015 *High*	$7,682,641
-Redwood Cir. to Lincoln Rd.	*County*	5,172	-	1,100	60	36	Lanes Both	None	Construct new arterial street 48 feet wide with TWLTL, bike lanes, no parking, and sidewalks both sides.	2006-2015 *High*	$473,983
Redwood Highway	**State Highway**			14,700							
-UGB to Hubbard	*State*	9,804	15,000	400	150	68	Multi-use	None	Widen and overlay. Provide shoulder bikeway from Redwood Ave. to South "Y".	1996 *High*	$3,561,000
-Hubbard to Willow	*State*	10,930	15,276	2,600	150	68	Multi-use	None			
-Willow to Demaray	*State*	13,498	19,793	500	150	68	Multi-use	None			
-Demaray to Dowell	*State*	17,018	26,035	2,300	150	68	Multi-use	None			
-Dowell to Allen Creek	*State*	18,511	28,010	4,300	150	68	Multi-use	None			
-Allen Creek to Redwood Ave	*State*	16,948	25,006	900	150	68	Multi-use	None			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Redwood Ave. to Fairgrounds	*State*	27,223	33,207	2,300	170	72	Shoul-der	None			
-Fairgrounds to Ringuette	*State*	26,303	28,647	800	170	72	Shoul-der	None			
-Ringuette to South "Y"	*State*	26,807	27,658	600	200	72	Shoul-der	None			
-Willow Ln. Intersection	*State*	NA	NA	NA	NA	NA	NA	NA	Install traffic signal.	2006-2015 *Med*	$184,000
-Dowell Rd Intersection	*State*	NA	NA	NA	NA	NA	NA	NA	Install traffic signal.	1997 *High*	$184,000
-Allen Creek Rd Intersection	*State*	NA	NA	NA	NA	NA	NA	NA	Install traffic signal.	1999 *High*	$184,000
-South "Y"	*State*	NA	NA	NA	NA	NA	NA	NA	Needs Assessment.	1997 *High*	$27,000
Ringuette Street	**Collector**			2,900							
-West Park to canal	*County*	794		500	60	24	None	None	Full reconstruction. Reconstruct collector street 36 feet wide with bike lanes, no parking, and sidewalks both sides	1999-2005 *Low*	$189,593

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-canal to Redwood Hwy	*County*	794	-	600	60	36	None	None	Overlay. Stripe bike lanes both sides. Provide sidewalks both sides.	1999-2005 *Low*	$29,204
-Redwood Hwy to Union	*City*	-	-	500	NA	NA	NA	NA	Install traffic signal. Provide 60 foot right-of-way. Construct new collector street 48 feet wide with TWLTL and bike lanes, no parking, and sidewalks both sides.	2006-2015 *Med.*	$471,863
-Union to Meridian	*City*	-	-	1,300	60	40	Lanes Both	Both	None.		
Rogue Drive	**Local Coll.**			1,400							
-"N" to Portola	*City*	-	-	1,400	40-44	32-34	None	None	Provide 50 feet right-of-way where needed. Provide sidewalks both sides.	2015+ *Med*	$42,000
Rogue River Highway	**State Highway**			10,900							
-Redwood Hwy to Maple	*City*	15,576	16,022	1,000	100	72	None	None	Provide access management Install curbs, gutter, sidewalks and bike lanes both sides.	2006-2015 *Med*	$4,000,000
-Maple to Parkdale	*City*	16,000	16,583	1,500	100	50	Shoul-der	None			
-Parkdale to Cloverlawn	*County*	12,941	14,287	1,800	100	50	Shoul-der	None			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Cloverlawn to Mt Baldy	*County*	8,950	8,950	3,700	100	30-50	Shou l-der	None			
-Mt. Baldy to Fruitdale	*County*	7,530	7,370	3,000	100	30	None	None			
Savage Street	**Collector**			6,600							
-Highland to Prospect	*City*	-	-	700	60	36	None	None	Provide sidewalks where none exist. Provide bike route signs as needed.	2015+ *Low*	$52,740
-Prospect to Hawthorne	*City*	-	-	600	60	36	None	Both			
-Hawthorne to Lawnridge	*City*	-	-	400	60	36	None	None			
-Lawnridge to Washington	*City*	-	-	400	60	36	None	Both			
-Washington to Conklin	*City*	2,001	2,720	400	60	36	None	None			
-Conklin to 6th	*City*	2,001	2,720	400	60	36	None	South			
-6th to 7th	*City*	4,509	4,958	500	60	44	Wide Both	South	Provide sidewalks where none exist.	2015+ *Low*	$7,500
-7th to 9th	*City*	4,117	2,387	800	60	44	Wide Both	Both	None.		

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-9th to 10th	*City*	2,100	2,196	1,200	60	36	None	Both	Provide bike route signage as needed.	2015+ *Low*	$720
-10th to Beacon	*City*	-	-	1,200	40	18-36	None	Both	Full Reconstruction. Reconstruct collector street 36 feet wide with bike lanes, no parking, and sidewalks both sides.	2006-2015 *Med.*	$99,537
Scenic Drive	**Collector**			900							
-UGB to Scoville	*County*	1,002	-	900	80-90	24	None	None	Full reconstruction. Provide 60 feet right-of-way. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	2015+ *Low*	$370,944
Schutzwohl Lane	**Collector**			4,100							
-Dowell to West Harbeck	*County*	-	-	3,000	NA	NA	NA	NA	Provide 60 feet right-of-way. Construct new collector 42 feet wide with bike lanes and sidewalks both sides.	2006-2015 *Low*	$1,798,770
-West Harbeck to Allen Creek	*County*	-	-	1,100	50	30	None	South	Reconstruct collector street. Provide 60 feet right-of-way. Reconstruct collector street 40 feet wide with bike lanes and sidewalks both sides.	1999-2005 *Low*	$622,105

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Scoville Road	**Collector**			600							
-Scenic to Greenfield	*County*	1,892	-	600	80+	36	None	None	Full Reconstruction. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	2015+ *Low*	$270,000
Spalding Avenue	**Collector**	-	-	3,400							
-Grants Pass Pkwy. to Beacon	***City***	-	-	900	NA	NA	NA	NA	Construct new collector street 48 feet wide with TWLTL and bike lanes and sidewalks both sides.	1998-2006 *High*	$550,711
-Beacon to Agness	*City*	-	-	2,800	50	36	Wide	Both	Stripe bike lanes both sides.	1996-1998 *Med.*	$25,200
Terry Lane	**Local Coll.**			1,700							
-Fairview to Spalding	*City*	-	-	1,700	50-70	36-48	None	Both	None.		
Union Avenue	**Local Coll./ Collector**			4,000							
-Nebraska to Fairgrounds	Local Coll./ *County*	3,038	-	1,000	60	36	Lanes Both	None	Full Reconstruction. Reconstruct local collector street 36 feet wide with sidewalks both sides.	2015+ *Med.*	$805,772
-Fairgrounds to Ringuette	Collector/ *County*	3,038	-	900	60	36	Lanes Both	None			

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Ringuette to Jacksonville Hwy	Collector/ *County*	3,038	-	2,100	60	36	Lanes Both	None	Full Reconstruction. Reconstruct collector street 48 feet wide with TWLTL and bike lanes, no parking, and sidewalk both sides.	2006-2015 *Med.*	$876,869
Upland Drive	**Proposed Local Coll.**			9,000							
-Morgan to "F" St	*City*	-	-	9,000	NA	NA	NA	NA	Construct new local collector street. Provide 50 foot right-of-way minimum. Construct local collector 36 feet wide with bike lanes, no parking, and sidewalks both sides.	2006-2015 *Low*	$3,682,166
Upper River Road	**Arterial**			1,400							
-Upper River Road Loop to Lincoln	*County*	2,715	-	1,400	60	24	Lanes Both	None	Widen to 48 feet. Install bike lanes and sidewalks both sides	2015+ *Med*	$50,443
Vine Street	**Arterial**			8,500							
-Highland to Hawthorne	*County*	1,487	-	3,500	60	22	None	None	Full reconstruction. Construct 48 foot wide arterial street with bike lanes and sidewalks both sides.	2015+ *Low*	$1,354,231
-Hawthorne to Morgan	*City*	1,487	-	1,800	60	22	None	None	Full reconstruction. Construct 48 foot wide arterial street with bike lanes and sidewalks both sides	2015+ *Low*	$696,462

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
Washington Blvd.	**Collector**			5,300							
-Morgan to Hillcrest	*County*	1,801	-	1,500	90	44	Wide Both	None	Provide sidewalks where none exist.	2015+ *Low*	$54,000
-Hillcrest to Loughridge	*County*	1,801	-	500	90	44	Wide Both	Both			
-Loughridge to Midland	*County*	1,801	-	600	90	44	Wide Both	East			
-Midland to Van Dyke	*City*	-	-	700	60	36	None	None	Provide sidewalks both sides. Provide bike route signage as needed.	2015+ *Low*	$21,042
-Van Dyke to Savage	*City*	-	-	700	60	36	None	Both	Provide bike route signage as needed.	2015+ *Low*	$1,200
-Savage to Evelyn	*City*	-	-	1,300	100	21+ 26	None	Both			
West Harbeck Road	**Collector/ Local Coll.**			7,400							
-Schutzwohl to Forestview	Local Coll./ *County*	1,123	-	900	60	36	None	Both	None.		
-Forestview to Allen Creek Rd	Local Coll./ *County*	1,123	-	1,100	NA	NA	NA	NA	Construct new local collector road. Provide 50 feet right-of-way, 36 feet wide road with sidewalks both sides.	2006-2015 *Low*	$270,435

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-Allen Creek Rd. to Jacksonville Hwy	Collector/ *County*	1,989	2,064	2,700	60	24	None	None	Full Reconstruction. Reconstruct collector road 42 feet wide with bike lanes and sidewalks both sides.	2006-2015 *Med.*	$1,184,959
-Jacksonville Hwy to Towne	Collector/ *County*	1,201	2,522	1,100	60	34	Lanes Both	None	Full reconstruction. Reconstruct collector street 42 feet wide with sidewalks and bike lanes both sides.	2015+ *Med.*	$973,246
-Towne to Harbeck	Collector/ *County*	1,297	2,830	1,600	60	34	Lanes Both	None			
West Park Street	**Local Coll./ Collector**			7,200							
-Lincoln Road to Allen Creek	Local Coll./ *County*	-	-	1,400	NA	NA	NA	NA	Provide 60 feet right-of-way. Construct new local collector street 36 feet wide with bike lanes, no parking, and sidewalks both sides.	2015+ *Low*	$630,615
-Allen Creek to Ringuette	Local Coll / *County*	-	-	3,500	40	18-22	None	None	Full Reconstruction. Provide 50 feet right-of-way. Construct local collector 36 feet wide with bike lanes, no parking, and sidewalks both sides.	2015+ *Med.*	$2,132,926
-Ringuette to 300 feet west of 6th	Collector/ *County*	1,024	-	2,000	50	20-28	None	None	Full Reconstruction. Provide 60 feet of right-of-way. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	1999-2005 *Low*	$947,967

Street Improvement Program

Street *-Segment*	Functional Classification *Jurisdiction*	ADT		Length (feet)	Conditions (1995)				Planned Improvement	Project Timing, *Priority*	Project Cost ($1995)
		1995	2015		ROW	Width	Bike	Walk			
-300 feet west of 6th to 6th	Collector/ *County*	1,024	-	300	NA	NA	NA	NA	Intersection Improvements. Align West Park St., Lewis Ave. and East Park St.	2006-2015 *Med.*	$479,613
Willow Lane	**Collector/ Arterial**			4,500							
-Leonard to Redwood Ave.	Collector/ *County*	2,730	2,076	2,600	50	20	None	None	Full Reconstruction. Provide 60 feet right-of-way. Reconstruct collector street 42 feet wide with bike lanes and sidewalks both sides.	2006-2015 *Med.*	$1,184,959
-Redwood Ave to Redwood Hwy.	Arterial/ *County*	1,053	2,236	1,900	50	20	None	None	Full Reconstruction. Provide 60 feet right-of-way. Reconstruct arterial street 48 feet wide with bike lanes and sidewalks both sides.	2006-2015 *Med.*	$971,666

Separate Pedestrian and Bicycle Improvements

Location *-Segment*	Jurisdiction	Length (feet)	Planned Improvement	Project Timing *Priority*	Project Cost ($1995)
Bike/Pedestrian Bridge over Rogue River *-Webster to West Park*	*City*	2,500	Construct New Bicycle/Pedestrian Bridge over Rogue River. Provide connecting links to the All Sports Park, Lincoln Road, Cottonwood St., West Park Street, and Redwood Highway through the Fairgrounds.	1998-2002 *High*	$1,259,000
Midland Avenue *-7th to 9th*	*City*	800	Construct new multi-use path.	1996-1998 *Low*	$16,000
North Middle School/Gilbert Creek Park *-Highland to Hawthorne*	*City/Dist. 7*	1,400	Construct new multi-use path through the park and school.	2015+ *Low*	$28,000
Riverside School *-"N" to Harvey*	*County/Dist 7*	900	Construct new multi-use path through the school	2015+ *Low*	$18,000
Rogue Community College *-Redwood Hwy to Demaray Dr*	*RCC*	3,300	Construct new multi-use path through the school	2015+ *Low*	$66,000

APPENDIX G - EXISTING PLANS & POLICIES

Grants Pass Urban Area
Master Transportation Plan

Technical Memorandum 1

Summary of Existing Plans and Policies

Final

April 11, 1994

Prepared by:

The KJSA Team
500 108th Avenue NE
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Table of Contents

INTRODUCTION & SUMMARY

PURPOSE

This technical memorandum summarizes contents, findings and recommendations of planning documents that affect transportation in Grants Pass and Josephine County. The purpose of the memorandum is to consolidate basic information about current planning requirements and recommendations in a concise form that can be easily referenced during the Grants Pass Urban Area Master Transportation Plan Update process.

ORGANIZATION

The memorandum is organized by state, regional and local plans and studies. The following information is provided in a standard format for each document:

- Title
- Author
- Date
- Document Type
- Status
- Planning Period
- Geographic Area Covered
- Synopsis
- Findings
- Recommendations

SUMMARY OF RECOMMENDATIONS

The following is a listing of the documents summarized in this memorandum, with highlights of major findings and/or recommendations of each:

State Plans and Studies

State plans are those that apply to the entire state of Oregon.

Oregon Transportation Plan (1992)

The plan presents a series of goals and policies to guide Oregon transportation development as well as a preferred plan for achieving those goals. The preferred plan includes recommendations for transportation system improvements and development of new programs to control transportation supply and demand. It also identifies strategies

for supporting the state's growth management goals through transportation system management.

Oregon Highway Plan (1991)

The plan recommends implementation of the policies, guidelines and standards included in the plan. Further, almost $12 billion (uninflated dollars) are recommended to "fully" address all needs. The plan recommends pursuit of "Plan 2," which would include increasing the fuel tax by two cents per year through 2010. This plan would cost $10.1 billion in 1991 dollars, and would meet 53 percent of modernization needs statewide, in addition to significant preservation, operations, maintenance and bridge needs.

State Agency Coordination Program (1990)

ODOT will focus on two areas in its coordination program: reestablishing a strong field component through regional planning representative, and providing central coordination through the Planning Section of the Highway Division. The plan assigns specific responsibilities to the planning section, regional representatives, district offices, the aeronautics and public transit divisions, the environmental section, and the strategic planning unit.

1993-1998 Six-Year Transportation Improvement Program (1992)

The plan details which projects and programs will be implemented during the 1993-1998 period, identifies individual project costs, and schedules implementation on an annual basis. Over $561 million of highway improvements are recommended in ODOT Region 3, which includes Josephine County and Grants Pass. $32,000 of public transportation assistance is included for Josephine County. No funds are programmed for airport or railroad improvements in the Grants Pass area. Please see the full document for detailed project and program descriptions and scheduling.

Preliminary 1995 - 1998 Statewide Transportation Improvement Program (1993)

The plan details which projects and programs will be implemented during the 1995-1998 period, identifies individual project costs, and schedules implementation on an annual basis. Over $370 million of highway improvements are recommended in ODOT Region 3, which includes Josephine County and Grants Pass. $211,000 of public transportation assistance is included for Josephine County. No funds are programmed for airport or railroad improvements in the Grants Pass area. Please see the full document for detailed project and program descriptions and scheduling.

Regional Plans and Studies

Regional plans are those that cover areas larger than Josephine County, but smaller than the state of Oregon.

Elderly and Handicapped Transportation Services Alternatives Report (1986)

New transportation services for this population should be limited to those people who cannot use other forms of transportation. Taxi companies are recommended as the preferred providers of additional services to this group. Discount coupons are recommended as an efficient way to subsidize this service.

Transportation Service Extension Study for the Rogue Valley Transportation District (1985)

The study recommends the following: 1) free-standing fixed route, fixed schedule service in Grants Pass with connections to Medford; and 2) fixed route, fixed schedule service for Gold Hill and Rogue River connected to line-haul service between Medford and Grants Pass.

Local Plans and Studies

Local plans are those that apply to Josephine County, the City of Grants Pass, or both jurisdictions in whole or in part. Plans and studies relating to Josephine County are presented first, followed by those related directly to Grants Pass.

Comprehensive Plan for Josephine County, Oregon (1981)

The plan includes a list of 10-year roadway construction projects within the County. Construction of a third and, potentially, fourth bridge across the Rogue River is also encouraged.

Josephine County Special Transportation Plan for Seniors and Persons with Disabilities (1993)

The plan recommends the adoption by the Josephine County STF (Special Transportation Fund) Committee of a mission statement, and eight sets of goals and supporting policies to ensure coordination of STF programs.

Urban Growth Area Zoning Ordinance (1992)

No specific recommendations.

Josephine County Subdivision Ordinance (1990)

No specific recommendations.

Flood Damage Prevention Ordinance for Josephine County, Oregon (1990)

No specific recommendations.

Josephine County Bikeways Master Plan Proposal (1982)

A recommended bikeway system map is presented, together with a phased implementation plan. Phase I is the skeleton of the entire network, Phase 2 includes all routes recommended for construction in the City and County comprehensive plans, and Phase III is routes which would open up further recreation possibilities for local residents. Potential funding sources are the State bicycle fund, obligation bonds, private funds, and bike fees. An effective public education program for both bicyclists and motorists is also recommended.

Josephine County Bicycle Guide (1992)

No specific recommendations.

Grants Pass Comprehensive Plan Transportation Element (1982?)

Fourteen capital improvements are recommended in the CIP portion of the element to address existing and future transportation deficiencies. The element also recommends updating the functional classification designations of all streets in the City and adopting street design criteria, expanding the bicycle network, and providing more transportation services for the elderly and disabled.

Airport Master Plan for Grants Pass Airport (1992)

The plan recommendations include a runway extension of 1,200 feet to a length of 5,200 feet to accommodate a wider variety of business aircraft, staged development of roughly 32 aircraft hangar positions during the planning period, extension or realignment of vehicle access to the western apron and hangar area to connect the development area with existing roadways, and extension of Flaming Road to connect with Paradise Ranch to provide access for long-term aviation-related development. The plan also encourages planned water and sewer improvements in the North Valley Industrial Area that would benefit airport users and long-term airport development and ensuring that compatible land uses are located in the immediate vicinity of the airport.

Josephine County Roadway and Traffic Management Plan (1982 ?)

The plan recommends development of six action programs: Roadway Network Planning, Data Collection and Evaluation, Roadway and Traffic Improvement, Roadway Maintenance, Traffic Safety, and Project Implementation. The plan identifies and recommends $2.7 million of street network improvement projects to address existing and immediate future conditions, and an additional $62.5 million to address growth through 2000. The plan also includes a rating system for prioritizing capital improvement projects.

Josephine County Standards and Specifications for Design and Construction of County Roads (1977)

No specific recommendations.

Grants Pass Carbon Monoxide Plan (1986)

The selected carbon monoxide (CO) control strategy for the Grants Pass area is the combination of the federal new car emission control program and the construction of a third bridge over the Rogue River in Grants Pass to reduce congestion and CO concentrations in the Grants Pass downtown area.

Technical Document Updating the Population Element of the Comprehensive Plan for the City of Grants Pass, Oregon (1992)

The population for the City of Grants Pass is projected to grow from 17,488 in 1990 to as high as 25,481 by 2010, under the highest growth scenario. Under the medium growth scenario, the area within the City's urban growth boundary is projected to grow from 25,069 in 1990 to 33,764 in 2010.

Roadway and Traffic Safety Management Plan for Grants Pass, Oregon (1981)

The plan recommends development of six action programs to address current and future transportation management needs. The plan identifies and recommends almost $21 million of street network improvement projects to address existing conditions, and an additional $14.7 million to address growth over a five to ten year time frame.

A Land Access and Traffic Management Plan - Northwest Sector Development (including Supplement and Addendum #1 - "F" St. Extension) (1981)

The development scenarios which would result in unacceptable traffic loadings on existing streets or the new collector would not be desirable with regard to land access and traffic distribution. Construction of a new collector with indirect access to local streets is recommended because it provides better traffic distribution and emergency access, and allows full potential land development.

Grants Pass Convention Center Traffic Impact Analysis (1989)

The study recommends seven roadway improvement projects to mitigate project build conditions in 1991, three more to address conditions in 2001, and two more in 2015.

Grants Pass Sports Complex Traffic Impact Analysis (1990)

Two operational improvements are recommended during Phase I development, and two more operational improvements are recommended during Phase II. Detailed signal warrant analysis is recommended to track the need for a signal at Lincoln Road and 'G' Street in the future. More extensive traffic modeling is recommended to determine

intersection capacity expansion needs in the future at 6th and 'M' Streets. Signalization changes at this intersection are recommended in the short term.

Josephine County Fairgrounds and Grants Pass Riverfront Transportation System Analysis (1990)

Fourth Bridge/Allen Creek Road Corridor: Re-align Redwood Ave. at Allen Creek Rd. to line up with the proposed Fairgrounds driveway. Maintain Redwood Ave. as a collector arterial. Terminate Redwood Ave. in a cul-de-sac east of Allen Creek Rd. Construct Allen Creek Rd. as a 5-lane facility between Redwood Ave. and Redwood Hwy. with signals. Connect Allen Creek Rd. to Hwy. 238 at New Hope Rd.

Fairgrounds/Riverfront Area Street Network: Install the pedestrian and bicycle facilities recommended in the Riverfront and Fairgrounds master plans as land development permits. Tie local streets to the collector system formed by East and West Park Streets to enhance access to the river and developments within the area. Extension of Tussy Lane from West Park to Lewis St. and realignment of Lewis with East Park at 6th St. Retain the offset between East and West Park Streets. Connect West Park St. with Pansy Lane west of the Fairgrounds. Minimize the number of accesses onto Allen Creek Rd. between Redwood Ave. and the River.

Fairgrounds Entryways: Maintain internal Fairgrounds circulation routes to allow existing south frontage entrances to continue to serve as main access points. Test the impact of closing Fairgrounds Rd. with a temporary closure. Restrict turning movements at the west driveway to right-in and right-out only.

South "Y" (Redwood Highway) Interchange Needs: Construct improvements recommended as part of the Grants Pass Parkway project. Further study is recommended after the Parkway project is completed.

AM/PM Mini Market Transportation Impact Analysis - Grants Pass Parkway & Terry Lane (1993)

The study recommends that on-site signage in the gasoline pump area should be provided to encourage drivers to use the forwardmost pump. The new road/Terry Lane intersection should be striped to provide an eastbound left turn lane and an eastbound through-right lane. Also, adequate sight lines should be maintained to allow motorists exiting the north site driveway to see vehicles turning from Grants Pass Parkway.

Transportation Analysis for Grants Pass Retail Center (1991)

Three improvements are recommended in order to mitigate project impacts at the Grants Pass Parkway/Terry Lane intersection:

- The project should be served by three full access driveways - two on Terry Lane and one on Spalding.

- The proposed driveways should have two exit lanes and one entrance lane.
- A traffic signal should be installed at the Grants Pass Parkway/Terry Lane intersection, with a left turn lane and through-right turn lane on the northbound approach.

Redwood Neighborhood Plaza Master Plan (1981)

The plan contains a variety of proposed on-site transportation improvements related to driveways, on-site access/circulation, parking, and pedestrian and bicycle movements. Please see the full document for detailed descriptions of these improvements.

Redwood Neighborhood Plaza Traffic Impact Report (1981)

The report recommends a set of roadway improvements for the "without project" and "with project" cases. Please refer to the full document for a detailed description of these improvements.

The Third Bridge Corridor Development Plan (and report) (1987)

A list of specific roadway and bike/pedestrian path improvements is presented. Please refer to the full document for a complete description of these projects.

Josephine County Fairgrounds Master Plan (1990)

The plan contains a recommended parking plan. No other specific transportation recommendations are provided, but a list of transportation issues is presented. These issues and others were to be addressed in a transportation system study for the Fairgrounds and Riverfront Development Area.

Grants Pass South Union Local Improvement District Transportation System Analysis (and additional related analysis) (1992)

A series of improvements are recommended both for LID access routes and the internal streets system. Please refer to the full document for a detailed description of these improvements.

Grants Pass Signal Study (1981)

The study recommends installation of a new traffic-adjusted signal system on 6th and 7th Streets in Grants Pass. The system includes an on-street master controller and hardware interconnect, with complete replacement of the existing signals. Total cost to implement the recommended system is $1.265 million.

CONSISTENCY AMONG PLANS & STUDIES

The primary differences in planning documents that affect transportation in Grants Pass and Josephine County are found between recent planning efforts at the state level and the various past planning studies that have been conducted at the local level. In particular, the Oregon Transportation Plan and 1993-1998 Statewide Transportation Improvement Program both reflect a greatly increased emphasis on multimodal planning and coordination. In contrast, local planning studies have been more heavily oriented to the auto mode. Also, planning for individual modal systems has not been closely coordinated with the other modal components of the overall transportation system.

The second area of difference between recent state level plans and local planning documents is the consideration given to the relationship between the transportation system and land use. Both the Oregon Transportation Plan and the State Agency Coordination Program emphasize the importance of this interdependence in transportation and land use planning in jointly achieving transportation and land use goals. In past local planning activities, however, there has been less recognition of this relationship, i.e., local transportation plans generally do not reflect impacts of the transportation system on land use and vice-versa.

With regard to consistency between the planning documents, there are no similar features common to all of the plans reviewed. This is to be expected given the diversity of areas covered by the plans.

There are, however, several elements that appear in more than one planning document. These are:

1. An immediate need for operational improvements at the South "Y" interchange;

2. A longer-range need for a fourth bridge connecting Lincoln Rd. with Flower Lane/Allen Creek Rd.;

3. Access/circulation improvements are required in the Fairgrounds area on the north side of Redwood Highway and in the S. Union Ave. area on the south side of Redwood Highway;

4. Operational/level-of-service problems are associated with future development along Grants Pass Parkway at the intersection of Terry Lane/Grants Pass Parkway; and

5. A need for access management measures along Redwood Highway west of the South "Y" interchange and along Rogue River Highway.

STATE PLANS AND STUDIES

OREGON TRANSPORTATION PLAN

Author: Oregon Department of Transportation

Date: September 1992

Document Type: Statewide Transportation Plan

Status: Adopted by the Oregon Transportation Commission on September 15, 1992.

Planning Period: 1992-2012 (system development); 1992-2032 (policy direction)

Geographic Area Covered: Entire state of Oregon

Synopsis

The Oregon Transportation Plan (OTP) sets out the long-range multi-modal transportation vision for the state for the next 20 to 40 years. The plan articulates policies to guide attainment of statewide goals relating to transportation system development, livability, economic development and implementation. The plan describes alternative transportation systems, and presents a preferred alternative for achieving the state's transportation and growth management goals. Finally, the plan presents methods for addressing the state's transportation needs through investment and other implementation techniques.

Findings

Strong growth and changing travel patterns will dictate where and how the state responds to transportation needs in the future. Increased rural and urban linkages, goods movement, environmental protection, management of growth, economic development, and integration of new transportation technologies are identified as paramount needs in the plan. The preferred alternative will be the most effective way to achieve the goals of the plan, and attain transportation benchmarks.

Recommendations

The plan presents a series of goals and policies to guide Oregon transportation development as well as a preferred plan for achieving those goals. The preferred plan includes recommendations for transportation system improvements and development of new programs to control transportation supply and demand. It also identifies strategies for supporting the state's growth management goals through transportation system management.

1991 OREGON HIGHWAY PLAN

Author: Oregon Department of Transportation

Date: June 1991

Document Type: State Transportation Plan

Status: Adopted by Oregon Transportation Commission in 1991.

Planning Period: 1991-2010

Geographic Area Covered: Entire state of Oregon.

Synopsis

This plan comprises the Highway Element of the Oregon Transportation Plan. It includes "policies and strategies that will guide the Highway Division's operating and fiscal activities during the 1991-2010 period." The plan updates the 1985 Highway Plan. The plan also includes program definitions, standards, a status report on each of the Highway Division's programs, growth trends, policies and strategies to address needs, and an evaluation of different implementation options. The implementation analysis includes revenue projections, evaluation of alternate plans under three funding scenarios (no additional funding, 2 cent/year gas tax increase, and 3 cent/year gas tax increase), and discussion of methods of meeting the needs.

Findings

The plan finds that there will be significant highway needs between 1991 and 2010. ODOT's major strategy and priority is to maintain the existing state highway system, regardless of funding availability. System expansion, congestion reduction, and highway modernization are goals that the Division will pursue, subject to funding constraints.

Recommendations

The plan recommends implementation of the policies, guidelines and standards included in the plan. Further, almost $12 billion (uninflated dollars) are recommended to "fully" address all needs. The plan recommends pursuit of "Plan 2," which would include increasing the fuel tax by two cents per year through 2010. This plan would cost $10.1 billion in 1991 dollars, and would meet 53 percent of modernization needs statewide, in addition to significant preservation, operations, maintenance and bridge needs.

STATE AGENCY COORDINATION PROGRAM

Author: Oregon Department of Transportation

Date: December 1990

Document Type: Program Plan

Status: Adopted by Oregon Transportation Commission on September 18, 1990. Certified by LCDC on December 13, 1990.

Planning Period: Indefinite.

Geographic Area Covered: Entire state of Oregon.

Synopsis

This plan describes how ODOT plans to coordinate its programs to comply with Oregon's land use planning program, statewide planning goals, and acknowledged comprehensive plans. The program plan is divided into several chapters that discuss the following: 1) ODOT organization and programs; 2) Identification of ODOT programs affecting land use; 3) Coordination of programs affecting land use; 4) Cooperation and technical assistance program; 5) Coordination with state and federal agencies, and special districts; 6) Organization of ODOT's coordination program.

Findings

Most of ODOT's programs affect land use in some way. All of ODOT's programs are required to comply with acknowledged comprehensive plans. Most of the department's coordination with local public facility planning will occur during periodic review. The department's primary areas of coordination with the Department of Land Conservation and Development involve ODOT's planning program, city and county plan amendments, and periodic review. The department coordinates with a large number of state and federal agencies and special districts.

Recommendations

ODOT will focus on two areas in its coordination program: reestablishing a strong field component through regional planning representative, and providing central coordination through the Planning Section of the Highway Division. The plan assigns specific responsibilities to the planning section, regional representatives, district offices, the aeronautics and public transit divisions, the environmental section, and the strategic planning unit.

1993 - 1998 SIX-YEAR TRANSPORTATION IMPROVEMENT PROGRAM

Author: Oregon Department of Transportation

Date: July 1992

Document Type: Transportation Improvement Program

Status: Adopted by Oregon Transportation Commission in 1992.

Planning Period: 1993 - 1998

Geographic Area Covered: Entire state of Oregon.

Synopsis

This plan describes the comprehensive program of transportation improvements that the state of Oregon intends to carry out between 1993 and 1998. The plan identifies aeronautics, railroad, public transit and highway projects that are necessary to maintain and enhance the existing transportation system. The plan also identifies funding sources for each of the projects, and schedules their implementation on an annual basis for the planning period based on priority. Further, the plan identifies additional needs that are not funded.

Findings

The cost of identified transportation needs during the planning period exceeds the level of anticipated funding to implement projects and programs to address those needs.

Recommendations

The plan details which projects and programs will be implemented during the 1993-1998 period, identifies individual project costs, and schedules implementation on an annual basis. Over $561 million of highway improvements are recommended in ODOT Region 3, which includes Josephine County and Grants Pass. $32,000 of public transportation assistance is included for Josephine County. No funds are programmed for airport or railroad improvements in the Grants Pass area. Please see the full document for detailed project and program descriptions and scheduling.

PRELIMINARY 1995 - 1998 STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM

Author: Oregon Department of Transportation

Date: December 1993

Document Type: Transportation Improvement Program

Status: Not yet adopted

Planning Period: 1995 - 1998

Geographic Area Covered: Entire state of Oregon.

Synopsis

This plan describes the comprehensive program of transportation improvements that the state of Oregon intends to carry out between 1995 and 1998. The plan identifies aeronautics, railroad, public transit and highway projects that are necessary to maintain and enhance the existing transportation system. The plan also identifies funding sources for each of the projects, and schedules their implementation on an annual basis for the planning period based on priority. Further, the plan identifies additional needs that are not funded.

Findings

The cost of identified transportation needs during the planning period exceeds the level of anticipated funding to implement projects and programs to address those needs.

Recommendations

The plan details which projects and programs will be implemented during the 1995-1998 period, identifies individual project costs, and schedules implementation on an annual basis. Over $370 million of highway improvements are recommended in ODOT Region 3, which includes Josephine County and Grants Pass. $211,000 of public transportation assistance is included for Josephine County. No funds are programmed for airport or railroad improvements in the Grants Pass area. Please see the full document for detailed project and program descriptions and scheduling.

REGIONAL PLANS AND STUDIES

ELDERLY AND HANDICAPPED TRANSPORTATION SERVICES ALTERNATIVES REPORT

Author: Rogue Valley Council of Governments

Date: March 1986

Document Type: Alternatives Study.

Status: Complete.

Planning Period: 1986 (existing conditions)

Geographic Area Covered: Josephine and Jackson Counties.

Synopsis

This study evaluated the current (1986) transportation services for the elderly and handicapped in Josephine and Jackson Counties. Major issues involved accessibility of services and the fiscal implications of various service alternatives.

Findings

Transportation services for the elderly and handicapped are of paramount importance in Josephine and Jackson Counties. The study concludes that transportation services for the elderly and handicapped in the study area in 1986 were: 1) too focused on particular segments of the elderly and handicapped community; 2) too expensive; and 3) inaccessible for a large portion of the target population. The recommended service improvements can be funded through Special Transportation Fund allocations.

Recommendations

New transportation services for this population should be limited to those people who cannot use other forms of transportation. Taxi companies are recommended as the preferred providers of additional services to this group. Discount coupons are recommended as an efficient way to subsidize this service.

TRANSPORTATION SERVICE EXTENSION STUDY FOR THE ROGUE VALLEY TRANSPORTATION DISTRICT

Author: Rogue Valley Council of Governments and Rogue Valley Transportation District

Date: July 1985

Document Type: Public Transportation Study

Status: Complete.

Planning Period: Current (1985).

Geographic Area Covered: RVTD service area and adjacent communities that could be included in an expanded area, including Grants Pass, Central Point, Eagle Point, Rogue River, Gold Hill, and Shady Cove.

Synopsis

This study examines the feasibility of expanding the RVTD service area, and providing public transportation services to new areas including the communities listed above. The study examines travel demand characteristics based on 1980 Census data, reviews community goals for public transportation and existing services, discusses several alternative methods of providing public transportation, evaluates the financial feasibility of each, and recommends a preferred alternative.

Findings

Transit service to Shady Cove and Eagle Point is not fiscally feasible without substantial subsidies aside from property tax and farebox revenues. Services to Gold Hill and Rogue River would not be practical unless linked to service between Medford and Grants Pass. Services in Grants Pass and Central Point could be self-supporting, using property tax and farebox revenues.

Recommendations

The study recommends the following: 1) free-standing fixed route, fixed schedule service in Grants Pass with connections to Medford; 2) fixed route, fixed schedule service for Gold Hill and Rogue River connected to line-haul service between Medford and Grants Pass; and 3) fixed route, fixed schedule service in Central Point. The study also presents recommended routings and service frequencies in each area.

LOCAL PLANS AND STUDIES

COMPREHENSIVE PLAN FOR JOSEPHINE COUNTY, OREGON

Author: Josephine County Planning Department

Date: April 1981

Document Type: Comprehensive Plan

Status: Adopted

Planning Period: 20 years from adoption

Geographic Area Covered: Rural portion of Josephine County

Synopsis

The plan contains a variety of elements that outline the direction of development (overall and specific) over a 20 year planning period, including specific methods for fulfilling the plan goals. Elements that are most relevant to the Grants Pass Urban Area Master Transportation Plan update are: social characteristics, economics, housing, and transportation.

Findings

The social characteristics element includes information on population characteristics, migration patterns. and population projections. The total population for Josephine County was projected to increase from 56,800 in 1980 to 96,643 by 2000, with a significant shift in the urban/rural distribution from 71%/29% in 1980 to 57%/43% in 2000. The economics element presents information on employment, economic sectors, income, employment projections, and commercial/industrial development. The significant long term employment trends have been a severe decline in agriculture and fisheries employment, fluctuations in manufacturing, and increases in trade and services. Total employment for Josephine County was projected to increase from 19,400 in 1978 to 37,500 in 2000. The housing element includes information on housing inventory and housing projections, with total dwelling units projected to nearly double from 21,887 in 1980 to 39,127 in 2000. The transportation element describes both the County road system and other modes. Road system data includes an inventory of County roads, rural road and urban street standards, and a description of the County roadway funding process. An important finding regarding the roadway system is the need for a third and, potentially, fourth bridge across the Rogue River. The discussion of other modes includes inter-city transportation, rail, air, bicycle and pedestrian

modes, and the general feasibility of public transit service. Findings for other modes were:

- current development densities did not warrant a fixed route public transit system;
- inter-city transportation services are very restricted; and
- implementation of bicycle and pedestrian paths should be done in conjunction with overall bicycle and pedestrian system plans.

Recommendations

The plan includes a list of 10-year roadway construction projects within the County. Construction of a third and, potentially, fourth bridge across the Rogue River is also encouraged.

JOSEPHINE COUNTY SPECIAL TRANSPORTATION PLAN FOR SENIORS AND PERSONS WITH DISABILITIES

Author: Rogue Valley Council of Governments

Date: February 1993

Document Type: Transportation Plan

Status: Complete.

Planning Period: Indefinite.

Geographic Area Covered: Josephine County.

Synopsis

The plan addresses the need to efficiently coordinate special transportation services for the elderly and disabled in Josephine County. It also provides a coordinated mechanism for funding applications and allocations under the Oregon Special Transportation Fund (STF), created by the Oregon Legislature in 1985 to provide financial assistance to transportation providers to help expand services to elderly and handicapped citizens. The plan provides a coordination framework for three STF providers in Josephine County: Josephine County Community Services, Josephine County Mental Health, and the Handicap Awareness Support League (HASL).

Findings

The elderly and disabled community in Josephine County makes up a significant portion of the population. Rising transportation costs and scarce funding make it important to ensure that funds available for special transportation are used efficiently. A coordinated, formalized planning process is necessary to maximize the use of available STF funds. Plan findings and recommendations are based on a survey of the elderly and disabled community, providing information about their needs and priorities.

Recommendations

The plan recommends the adoption by the Josephine County STF Committee of a mission statement, and eight sets of goals and supporting policies to ensure coordination of STF programs.

URBAN GROWTH AREA ZONING ORDINANCE

Author: City of Grants Pass and Josephine County

Date: 1981

Document Type: Ordinance.

Status: Adopted.

Planning Period: Present.

Geographic Area Covered: Grants Pass urban area outside of City limits.

Synopsis

This ordinance defines acceptable and unacceptable uses and development of land within the urban area of Grants Pass. The ordinance implements the Comprehensive Plan for Josephine County and the General Plan for the City of Grants Pass.

Findings

None.

Recommendations

None.

JOSEPHINE COUNTY SUBDIVISION ORDINANCE

Author: Josephine County

Date: 1990 (revised version adopted)

Document Type: Ordinance.

Status: Adopted

Planning Period: Present.

Geographic Area Covered: Josephine County.

Synopsis

This ordinance implements provisions of the Comprehensive Plan for Josephine County pertaining to land division and development. The ordinance delineates the proper width and arrangement of streets, and their proper relation to the topography of the site and to existing or planned streets. The ordinance also provides for public utilities and facilities, adequate open space, recreational opportunities, proper division of land, and the development of property at appropriate densities. This document applies to both the urban and rural portions of Josephine County, with two sets of land division and development scenarios.

Findings

None.

Recommendations

None.

FLOOD DAMAGE PREVENTION ORDINANCE FOR JOSEPHINE COUNTY, OREGON

Author: Josephine County

Date: 1990

Document Type: Ordinance.

Status: Adopted

Planning Period: Present.

Geographic Area Covered: Both urban and rural portions of Josephine County.

Synopsis

This ordinance sets our requirements for flood prevention, control and repair in Josephine County. Provisions that affect transportation include minimizing damage to public facilities such as streets, and requiring that uses vulnerable to floods, including facilities serving those uses, be protected against flood damage at the time of initial construction. The ordinance also includes general standards for achieving this protection.

Findings

None.

Recommendations

None.

JOSEPHINE COUNTY BIKEWAYS MASTER PLAN PROPOSAL

Author: City/County Bikeways Advisory Committee

Date: 1982

Document Type: Bikeway Plan

Status: ?

Planning Period: Indefinite

Geographic Area Covered: Grants Pass/Josephine County urban growth area

Synopsis

Based on recommendations in the transportation elements of the Grants Pass and Josephine County Comprehensive Plans, this plan was developed to provide for a system of bike trails within the urban growth boundary and nearby surrounding areas. The Bikeways Committed conducted a survey of local residents which was used to develop criteria for route selection and classification. These criteria were applied to establish a bikeways route map, together with recommendations on priorities and phasing for implementation. The plan also includes goals and policies and a discussion of potential funding sources.

Findings

Findings from the survey were:

- bicyclists ride primarily for recreation, but also for work, school, and shopping purposes
- many bicyclists wish to travel to the same destinations as autos, but are prevented from doing so because of heavy traffic or dangerous access
- significant road hazards include lack of shoulders, grates, and inattentive auto drivers
- hazardous areas include the 6th and 7th St. bridges, the South "Y" intersection, and Redwood Avenue
- the freeway at the north end of the City and the river at the south end form barriers to easy bicycle access to the City.

A list of bikeway design criteria was also assembled by the Committee and presented in the plan.

Recommendations

A recommended bikeway system map is presented, together with a phased implementation plan. Phase I is the skeleton of the entire network, Phase 2 includes all routes recommended for construction in the City and County comprehensive plans, and Phase III is routes which would open up further recreation possibilities for local residents. Potential funding sources are the State bicycle fund, obligation bonds, private funds, and bike fees. An effective public education program for both bicyclists and motorists is also recommended.

JOSEPHINE COUNTY BICYCLE GUIDE 1992

Author: City of Grants Pass/Josephine County Bikeway Advisory Committee

Date: 1992

Document Type: Public Information Pamphlet

Status: Complete.

Planning Period: Present.

Geographic Area Covered: Josephine County.

Synopsis

This is an update of the 1982 Josephine County Bikeways Master Plan. The guide shows roads most suitable for bicycle travel in Josephine County, and provides graphic information about accommodations for bicycles, including pavement and shoulder characteristics. No warranty about the safety of any facility is made or implied by the guide. The guide also identifies loop routes for bicycle touring, areas where off-road ("mountain biking) cycling is allowed, and locations of bicycle shops.

Findings

None.

Recommendations

None.

GRANTS PASS COMPREHENSIVE COMMUNITY DEVELOPMENT PLAN

Author: City of Grants Pass and Josephine County

Date: 1985

Document Type: Comprehensive Plan.

Status: Adopted

Planning Period: 1982 - 2000

Geographic Area Covered: Grants Pass urban area.

Synopsis

The plan contains a variety of elements that outline the direction of development in the Grants Pass urban area through 2000, including specific methods for fulfilling the plan goals. .The transportation element of the plan inventories the existing transportation system within the urban growth boundary, identifies existing transportation problems and needs, and projects future transportation needs. This element also defines goals and policies for improving transportation within the urban area, and implementing the recommendations of the element. Other elements that are relevant to the Grants Pass Urban Area Master Transportation Plan update are: population, economy, housing, and land use.

Findings

In 1980, the greatest number of vehicle trips per day were made by private automobiles. Vehicular traffic problems existed at four major locations within the urban growth boundary in 1980: downtown Grants Pass, Redwood Spur, Rogue River Highway, and the Northwest Sector. There are also several areas that are undesirable for bicycle and pedestrian travel due to lack of facilities. Few transportation choices are available to the transportation disadvantaged.

Projected traffic growth through 2000 will require two additional bridges over the Rogue River. Traffic volumes on 6th and 7th Streets will be about 10 percent higher in 2000. The addition of the bridges will improve circulation in the downtown, and slightly lower volumes on the existing bridges. The South Interchange will need major design modifications to handle anticipated traffic growth. Access management will be needed along Redwood Avenue to maintain capacity and safety. Parking and access changes will be needed along the Rogue River and Williams Highways.

Recommendations

Fourteen capital improvements are recommended in the CIP portion of the element to address existing and future transportation deficiencies. The element also recommends updating the functional classification designations of all streets in the City and adopting street design criteria, expanding the bicycle network, and providing more transportation services for the elderly and disabled.

AIRPORT MASTER PLAN FOR GRANTS PASS AIRPORT

Author: SFC Engineering Company

Date: October 1992

Document Type: Transportation Plan

Status: Adopted (?)

Planning Period: Through 2010

Geographic Area Covered: Surrounding area within 30 minutes driving time

Synopsis

The Grants Pass Airport Master Plan is a long-term development program with the purpose of producing a safe, efficient, economical, and environmentally acceptable air transportation facility for the community. It provides a step-by-step phased outline of the recommended developments and identifies pending needs to aid in future scheduling and budgeting. The plan contains the following information: 1) Inventory and analysis of data pertinent to the airport; 2) Analysis of general economic factors and evaluation of area's aviation activity; 3) Forecasts of aviation activity through 2010; 4) Determination of airport facility requirements and their feasibility; 4) Investigation of alternatives to meet airport facility needs; 5) Airport layout plan and land use plan for the airport and its surrounding area; and 6) Scheduling priorities, phasing of proposed developments, and estimated development costs.

Findings

The planning analysis produced the following findings:

- Grants Pass Airport will experience continued growth in aircraft operations during the 20-year planning period.
- Based aircraft are expected to increase from 101 to 134 by 2010; annual aircraft operations are expected to increase from 26,800 to 40,200 by 2010.
- The airport will continue to accommodate primarily general aviation aircraft include in FAA Airplane Design Groups I and II.
- The runway and taxiway system has adequate capacity to accommodate forecast activity through the 20-year planning period and beyond.
- Noise impacts on areas surrounding the airport are minimal.
- The Airport Master Plan should be adopted by Josephine County as an element of its comprehensive plan and transportation plan.

Recommendations

The plan recommendations include a runway extension of 1,200 feet to a length of 5,200 feet to accommodate a wider variety of business aircraft, staged development of roughly 32 aircraft hangar positions during the planning period, extension or realignment of vehicle access to the western apron and hangar area to connect the development area with existing roadways, and extension of Flaming Road to connect with Paradise Ranch to provide access for long-term aviation-related development. The plan also encourages planned water and sewer improvements in the North Valley Industrial Area that would benefit airport users and long-term airport development and ensuring that compatible land uses are located in the immediate vicinity of the airport.

JOSEPHINE COUNTY ROADWAY AND TRAFFIC MANAGEMENT PLAN

Author: Josephine County

Date: 1982(?)

Document Type: Transportation Plan

Status: Complete.

Planning Period: 1982 - 2000

Geographic Area Covered: Josephine County

Synopsis

The plan was developed to provide Josephine County with a program to manage present and future traffic problems. The primary goal of the roadway network planning is to provide the planning criteria and design standards necessary to develop, construct, and maintain a safe, efficient, and economically feasible transportation system of county roads and streets. The plan presents six "action programs": Roadway Network Planning, Data Collection and Evaluation, Roadway and Traffic Improvement, Roadway Maintenance, Traffic Safety, and Project Implementation.

Findings

The plan includes a variety of facility- and location-specific findings. Please refer to the plan document for a complete listing.

Recommendations

The plan recommends development of the six action programs listed above. The plan identifies and recommends $2.7 million of street network improvement projects to address existing and immediate future conditions, and an additional $62.5 million to address growth through 2000. The plan also includes a rating system for prioritizing capital improvement projects.

JOSEPHINE COUNTY STANDARDS AND SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF COUNTY ROADS

Author: Josephine County

Date: September 1977

Document Type: Manual

Status: Adopted

Planning Period: Indefinite

Geographic Area Covered: Josephine County

Synopsis

This manual provides standards and specifications to be used in designing and constructing roads in the county road system and roads proposed for acceptance into the county road system. Design standards for rural roads and urban streets based on functional classification are presented. as well as supplemental factors affecting the selection of the road standard, and additional design criteria. Construction specifications are presented, including typical sections for each functional classification of rural roads and urban streets.

Findings

None.

Recommendations

None.

CITY OF GRANTS PASS MOBILE HOME PARK DEVELOPMENT GUIDELINES

Author: City of Grants Pass

Date: October 1977

Document Type: Development guidelines

Status: Adopted

Planning Period: Present.

Geographic Area Covered: City of Grants Pass

Synopsis

These guidelines define how mobile home parks can comply with zoning and development requirements. The guidelines state that mobile home parks should be located on major or collector streets. The guidelines also define street design, parking and pedestrian access standards for mobile home parks.

Findings

None.

Recommendations

None.

GRANTS PASS CARBON MONOXIDE PLAN

Author: Rogue Valley Council of Governments

Date: June 1986

Document Type: Pollution Control Program Plan

Status: Adopted

Planning Period: 1984 - 1990.

Geographic Area Covered: Grants Pass planning area, as defined in the plan. The central non-attainment area is the area of downtown Grants Pass bounded by 5th Street, "M" Street, 8th Street and "B" Street.

Synopsis

This plan establishes an action program for reducing carbon monoxide (CO) levels in the Grants Pass area. Grants Pass was designated "non-attainment" for CO by the U.S. Environmental Protection Agency in 1985. CO levels in the Grants Pass area must be reduced to meet health standards by December 1990, as required by the Clean Air Act. This plan analyzes several transportation improvement scenarios to accomplish this reduction.

Findings

Carbon monoxide (CO) concentrations in Grants Pass during 1983-1985 were about 30 percent above the eight hour CO health standard. In 1984, 75 percent of CO emissions in the Grants Pass urban area were caused by automobiles and trucks. The combination of newer, cleaner cars replacing older models and increased traffic is projected to result in a decrease of about 12 percent in CO emissions between 1984 and 1990. Implementation of the recommended control program will result in a CO emissions decrease of almost 50 percent by 1990, and CO levels will more than meet the CO health standard.

Recommendations

The selected CO control strategy for the Grants Pass area is the combination of the federal new car emission control program and the construction of a third bridge over the Rogue River in Grants Pass to reduce congestion and CO concentrations in the Grants Pass downtown area.

TECHNICAL DOCUMENT UPDATING THE POPULATION ELEMENT OF THE COMPREHENSIVE PLAN FOR THE CITY OF GRANTS PASS, OREGON

Author: University of Oregon

Date: August 1992

Document Type: Demographic Study Report.

Status: Complete. (copy reviewed was missing key pages)

Planning Period: 1992 - 2010.

Geographic Area Covered: City of Grants Pass, incorporated area.

Synopsis

This report documents the methodology and findings of a community planning workshop conducted by the University of Oregon at the request of the City of Grants Pass. The purpose of the workshop was to update the existing population element of the City's comprehensive plan, and provide a current basis for population forecasting. Historic trends, U.S. Census information, Bonneville Power Administration data, and Portland State University demographic research were analyzed to determine current population characteristics. Three annual population growth factors were used to "bracket" potential 2010 population levels.

Findings

The report presents several major findings based on 1990 Census data. Grants Pass' population is projected to grow from 17,488 in 1990 to as high as 25,481 by 2010, under the highest growth scenario. Under the medium growth scenario, the larger Grants Pass urban area is projected to grow from 25,069 in 1990 to 33,764 in 2010.

Recommendations

None.

ROADWAY AND TRAFFIC SAFETY MANAGEMENT PLAN FOR GRANTS PASS, OREGON

Author: Transportation Planning and Management, Inc.

Date: March 1981

Document Type: Transportation Plan

Status: Complete.

Planning Period: 1981 - 2000

Geographic Area Covered: Josephine County and Grants Pass

Synopsis

The plan was developed to provide the City of Grants Pass and Josephine County with a program to manage present and future traffic problems. Goals include reduction of accidents, and improvement of roadway conditions and traffic operations. The plan presents six "action programs" to achieve these goals: Transportation Planning, Data Collection and Evaluation, Roadway and Traffic Improvements, Street Maintenance, Traffic Safety, and Project Implementation.

Findings

The plan includes a variety of facility- and location-specific findings. Please refer to the plan document for a complete listing.

Recommendations

The plan recommends development of the six action programs listed above. The plan identifies and recommends almost $21 million of street network improvement projects to address existing conditions, and an additional $14.7 million to address growth over a five to ten year time frame. The plan also includes a rating system for prioritizing capital improvement projects.

A LAND ACCESS AND TRAFFIC MANAGEMENT PLAN - NORTHWEST SECTOR DEVELOPMENT (including Supplement and Addendum #1 - "F" St. Extension)

Author: Transportation Planning and Management, Inc.

Date: 1981

Document Type: Traffic Impact Analysis

Status: Complete

Planning Period: 1981

Geographic Area Covered: Northwest Sector and adjacent areas

Synopsis

This report studied and evaluated existing land use, street usage and traffic movement characteristics, potential land use, and traffic management within and adjacent to the northwest sector of Grants Pass. Travel forecasting included trip generation from potential development, directional distribution, and traffic assignments onto various land access alternatives. Traffic impacts on existing and proposed new streets were evaluated for two basic alternatives, each with two principal features: extend existing streets into the northwest sector and construct "Upland Drive" as a new local collector.

Findings

With the extension of existing streets. it would be necessary to limit development to 657 dwelling units (9,500 total vehicles per day) to keep traffic loadings acceptable on each street. Without this constraint, "buildout" development would be 743 dwelling units (10,210 total vehicles per day). resulting in unacceptable loadings on several streets. Construction of a new local collector with no access to existing streets would provide 912 new dwelling units, or 11.560 total vehicles per day on the new collector, which would exceed the limits recommended in the Urban Area Traffic Management Plan. With indirect access to local streets, acceptable loadings on existing streets and the new collector could be attained with this alternative.

Recommendations

The development scenarios which would result in unacceptable traffic loadings on existing streets or the new collector would not be desirable with regard to land access and traffic distribution. Construction of a new collector with indirect access to local streets is recommended because it provides better traffic distribution and emergency access, and allows full potential land development.

GRANTS PASS CONVENTION CENTER TRAFFIC IMPACT ANALYSIS

Author: JRH Transportation Engineering

Date: February 1989

Document Type: Traffic Impact Analysis

Status: Complete.

Planning Period: 1991 - 2015

Geographic Area Covered: Area between Lewis Street and the Rogue River, west of 6th Street.

Synopsis

Report analyzes current and future traffic impacts of the planned Grants Pass Convention Center Complex. Five intersections were analyzed. Projected traffic growth due to general area development and its impact on intersection levels of service was also assessed.

Findings

The Complex is estimated to generate about 6,000 new trips per day, of which 580 will occur during the afternoon peak period. Major traffic impacts were identified at the intersections of Lewis/Park Streets. 6th Street/northbound Highway 99/238, and 7th/Park Streets.

Recommendations

Several improvements are recommended to mitigate the traffic impacts of both the Convention Complex and surrounding development. The study recommends seven roadway improvement projects to mitigate project build conditions in 1991, three more to address conditions in 2001, and two more in 2015. Additionally, the following are recommended:

- Provide an additional 100 parking stalls.
- Accomplish all work on Highway 199 at the time improvements are made to the 6th Street/Hwy. 238 and Hwy. 199 intersection.
- Construct all modifications by 2001.

GRANTS PASS SPORTS COMPLEX TRAFFIC IMPACT ANALYSIS

Author: JRH Transportation Engineering

Date: March 1990

Document Type: Traffic Impact Study

Status: Complete.

Planning Period: 1990 - 2005.

Geographic Area Covered: Site on the east side of Lincoln Road and on the south side of Lower River Road.

Synopsis

Report analyzes the traffic impacts of a proposed Community Sports Complex. Site development would occur in two phases during 1990. Impacts were analyzed for both phases in 1990, and for full build out in 2005. The 2005 analysis examines impacts both with and without the proposed Fourth Bridge over the Rogue River. Both capacity and operational analyses were performed.

Findings

'G' Street, Bridge Street and Lincoln Road would experience significant increases in traffic due to the project. The 1990 analyses show that there would be no immediate adverse traffic impacts because facility capacities are sufficient to handle the increased traffic. Only minor improvements would be needed to accommodate 2005 traffic levels.

Recommendations

Two operational improvements are recommended during Phase I development, and two more operational improvements are recommended during Phase II. Detailed signal warrant analysis is recommended to track the need for a signal at Lincoln Road and 'G' Street in the future. More extensive traffic modeling is recommended to determine intersection capacity expansion needs in the future at 6th and 'M' Streets. Signalization changes at this intersection are recommended in the short term.

JOSEPHINE COUNTY FAIRGROUNDS AND GRANTS PASS RIVERFRONT TRANSPORTATION SYSTEM ANALYSIS

Author: JRH Transportation Engineering

Date: June 1990

Document Type: Consultant Study

Status: Draft.

Planning Period: 1990 - 2015.

Geographic Area Covered: Fairgrounds and riverfront areas.

Synopsis

The report presents analysis of transportation issues associated with the Josephine County Fairgrounds and Rogue River Riverfront Development area. Major issues include: Fourth Bridge/Allen Creek Road corridor; Fairgrounds/Riverfront area street network; Fairgrounds entryways; and South "Y" (Redwood Highway) interchange needs.

Findings

Fourth Bridge/Allen Creek Road Corridor: Construction of the Fourth Bridge linking Lincoln Road to Allen Creek Road at Redwood Highway will provide an important alternative route for significant amounts of traffic using the South "Y" interchange. Other improvements in the Allen Creek corridor would increase the use of this alternative route and reduce congestion at the South "Y."

Fairgrounds/Riverfront Area Street Network: The Riverfront Development Area is well served by arterial streets and highways. With improvement to collectors and local streets, the potential for full development of land in this area will be enhanced.

Fairgrounds Entryways: Development of the plaza adjacent to the main Fairgrounds entrance at Fairgrounds Rd. and Redwood Hwy. will create access difficulties in and around the Fairgrounds entrance. Closure of Fairgrounds Rd. to through traffic will require modifications to Ringuette and Redwood Hwy. to handle additional traffic.

South "Y" (Redwood Highway) Interchange Needs: Improvements to this interchange are being constructed as part of the Grants Pass Parkway project.

Recommendations

Fourth Bridge/Allen Creek Road Corridor: Re-align Redwood Ave. at Allen Creek Rd. to line up with the proposed Fairgrounds driveway. Maintain Redwood Ave. as a collector arterial. Terminate Redwood Ave. in a cul-de-sac east of Allen Creek Rd. Construct Allen Creek Rd. as a 5-lane facility between Redwood Ave. and Redwood Hwy. with signals. Connect Allen Creek Rd. to Hwy. 238 at New Hope Rd.

Fairgrounds/Riverfront Area Street Network: Install the pedestrian and bicycle facilities recommended in the Riverfront and Fairgrounds master plans as land development permits. Tie local streets to the collector system formed by East and West Park Streets to enhance access to the river and developments within the area. Extension of Tussy Lane from West Park to Lewis St. and realignment of Lewis with East Park at 6th St. Retain the offset between East and West Park Streets. Connect West Park St. with Pansy Lane west of the Fairgrounds. Minimize the number of accesses onto Allen Creek Rd. between Redwood Ave. and the River.

Fairgrounds Entryways: Maintain internal Fairgrounds circulation routes to allow existing south frontage entrances to continue to serve as main access points. Test the impact of closing Fairgrounds Rd. with a temporary closure. Restrict turning movements at the west driveway to right-in and right-out only.

South "Y" (Redwood Highway) Interchange Needs: Construct improvements recommended as part of the Grants Pass Parkway project. Further study is recommended after the Parkway project is completed.

AM/PM MINI MARKET TRANSPORTATION IMPACT ANALYSIS - GRANTS PASS PARKWAY & TERRY LANE

Author: Kittelson & Associates, Inc.

Date: September 1993

Document Type: Traffic Impact Analysis

Status: Complete

Planning Period: 1993

Geographic Area Covered: Intersections in immediate site vicinity

Synopsis

This report evaluates the expected on-site and off-site transportation impacts associated with the proposed construction of an Arco AM/PM Mini-Market at the southwest quadrant of the Grants Pass Parkway/Terry Lane intersection. The following intersections in the immediate site vicinity were analyzed: Grants Pass Parkway/Beacon Drive, Grants Pass Parkway/Terry Lane, Spalding Road/Beacon Drive, and Site Access/Terry Lane. All analyses were based upon average weekday peak hour conditions and it was assumed that no site-generated person trips would be made by transit. Level-of-service analysis was performed for 1993 existing conditions and the 1993 "with project" case.

Findings

The analysis produced the following findings:

- All intersections in the study area currently operate at an acceptable level-of-service (LOS D), except the intersection of Grants Pass Parkway/Terry Lane.
- The proposed project will generate approximately 200 p.m. peak hour trips. Roughly 75% of these trips will be diverted from the existing traffic stream and 25% will be new trips.
- In the near future, all intersections will continue to operate at an acceptable level-of-service, except the Grants Pass Parkway/Terry Lane intersection..
- Although northbound motorists on Terry Lane attempting to enter onto Grants Pass Parkway may experience long delays, alternative access to the site is available via Beacon Drive.
- The north site driveway will be right-in, right-out only and will operate acceptably in the proposed location.

Recommendations

The study recommends that on-site signage in the gasoline pump area should be provided to encourage drivers to use the forwardmost pump. The new road/Terry Lane intersection should be striped to provide an eastbound left turn lane and an eastbound through-right lane. Also, adequate sight lines should be maintained to allow motorists exiting the north site driveway to see vehicles turning from Grants Pass Parkway.

TRANSPORTATION ANALYSIS FOR GRANTS PASS RETAIL CENTER

Author: Associated Transportation Engineering & Planning

Date: August 1991

Document Type: Traffic Impact Analysis

Status: Complete

Planning Period: 2015

Geographic Area Covered: Redwood Highway Spur between Agnes Ave. and Beacon Rd.

Synopsis

This report describes the results of a transportation analysis for a proposed 149,00 s.f. retail center development located on the southeast quadrant of the intersection of Grants Pass Parkway/Terry Lane. Traffic impacts are identified for four locations along Grants Pass Parkway in the immediate project vicinity for three cases: existing conditions, 1991 with project, and 2015 with project.

Findings

The existing (1991) level-of-service at the locations analyzed is very good, with the exception of the Grants Pass Parkway/Terry Lane intersection, which operates at LOS "F". The proposed project will generate approximately 9,600 daily vehicle trips and 760 p.m. peak hour vehicle trips. It is estimated that 35% of the total project trips will be pass-by trips, or trips already in the traffic stream. The project will have a substantial impact on the Grants Pass Parkway/Terry Lane intersection.

Recommendations

Three improvements are recommended in order to mitigate project impacts at the Grants Pass Parkway/Terry Lane intersection:

- The project should be served by three full access driveways - two on Terry Lane and one on Spalding.
- The proposed driveways should have two exit lanes and one entrance lane.
- A traffic signal should be installed at the Grants Pass Parkway/Terry Lane intersection, with a left turn lane and through-right turn lane on the northbound approach.

REDWOOD NEIGHBORHOOD PLAZA MASTER PLAN

Author: DIRA Associates, Inc.

Date: July 1981

Document Type: Development Master Plan

Status: Complete

Planning Period: Indefinite

Geographic Area Covered: Project site

Synopsis

This report provides information on a planned 68-acre mixed use development to the south of the Josephine County Fairgrounds. It contains project objectives, master plan elements (land use and development standards, utilities, and traffic access and parking), and a project construction phasing plan.

Findings

None.

Recommendations

The plan contains a variety of proposed on-site transportation improvements related to driveways, on-site access/circulation, parking, and pedestrian and bicycle movements. Please see the full document for detailed descriptions of these improvements.

REDWOOD NEIGHBORHOOD PLAZA TRAFFIC IMPACT REPORT

Author: PRC Vorhees, Inc.

Date: July 1981

Document Type: Traffic Impact Analysis

Status: Complete

Planning Period: Through 2000

Geographic Area Covered: Immediate project vicinity

Synopsis

This report documents the traffic impacts of the proposed Redwood Neighborhood Plaza development on the surrounding local street network for the years 1990 and 2000. It contains an analysis of existing (1981) intersection level-of-service conditions, traffic model forecasts without the proposed project, project traffic estimates (trip generation, distribution, and assignment), future year intersection levels-of-service with and without the proposed project, and recommended mitigation improvements.

Findings

The proposed project would generate roughly 14,500 average daily trips. Year 2000 intersection levels-of-service for the "with project" case would either be the same or degraded by one letter level-of-service compared to the "without project" case. Without improvements, three of the intersections analyzed would operate at an unacceptable level-of-service (LOS "D" or worse) for both cases by 2000. With improvements, all intersections would operate at an acceptable level-of-service for both cases by 2000 .

Recommendations

The report recommends a set of roadway improvements for the "without project" and "with project" cases. Please refer to the full document for a detailed description of these improvements.

THE THIRD BRIDGE CORRIDOR DEVELOPMENT PLAN (AND REPORT)

Author: The Third Bridge Corridor Development Agency

Date: 1987

Document Type: Urban Renewal Plan

Status: Adopted

Planning Period: Indefinite

Geographic Area Covered: Third Bridge Corridor Development Area

Synopsis

The purpose of the Third Bridge Corridor Development Plan is to accomplish the mission of the Development Agency, which is to eliminate blight and depreciating property values within the development area. The plan contains a land use plan, six development plan projects comprised of specific improvement activities, and a discussion of project financing. The accompanying report contains a description of the physical, social, and economic conditions of the area, a description of the relationship between each project to be undertaken and the existing conditions, and the estimated total cost and completion date of each project and project activity and the sources of money to pay such costs.

Findings

The Third Bridge over the Rogue River will cause development pressure in the development area where existing streets are inadequate to accommodate additional traffic. A substantial number of existing streets have inadequate rights-of-way and driving surfaces. Curbs, gutters, and sidewalks do not exist on a majority of the streets. Large areas of land are currently unserved by local or collector streets. Grade separated railroad crossings are needed within the development area. A bike lane is needed on the 7th St. Bridge. The estimated total cost of the roadway improvements is $22.6 million.

Recommendations

A list of specific roadway and bike/pedestrian path improvements is presented. Please refer to the full document for a complete description of these projects.

JOSEPHINE COUNTY FAIRGROUNDS MASTER PLAN

Author: Cameron & McCarthy

Date: 1990

Document Type: Development Master Plan

Status: Complete

Planning Period: Indefinite

Geographic Area Covered: Project site

Synopsis

The report contains information on the redevelopment of the Josephine County Fairgrounds site.

Findings

None.

Recommendations

The plan contains a recommended parking plan. No other specific transportation recommendations are provided, but a list of transportation issues is presented. These issues and others were to be addressed in a transportation system study for the Fairgrounds and Riverfront Development Area.

GRANTS PASS SOUTH UNION LOCAL IMPROVEMENT DISTRICT TRANSPORTATION SYSTEM ANALYSIS (AND ADDITIONAL RELATED ANALYSIS)

Author: JRH Transportation Engineering

Date: February 1992

Document Type: Transportation Plan

Status: Complete

Planning Period: Indefinite (buildout)

Geographic Area Covered: South Union LID

Synopsis

This report provides a transportation system analysis for a proposed South Union Local Improvement District (LID). The LID is comprised of roughly 250 acres located south of Redwood Highway 199 and west of Jacksonville Highway 238. It is bounded on the west by Allen Creek Rd. and on the south by West Harbeck Lane. The goal of the analysis was to identify transportation system needs expected to result from full development of land within the LID as presently zoned and to consider the potential impacts of increased Industrial Park zoning. Two issues were addressed: the provision of adequate routes to the LID from the surrounding region, and provision of adequate access to, and circulation among, the variously zoned areas within the LID.

Findings

At buildout, the developments within the LID will generate roughly 37,000 trips per day. Two major access routes to the LID, Redwood Highway 199 and Jacksonville Highway 238, currently operate well below capacity. Their overall ability to meet future needs will be determined by regional traffic demand rather than by trips generated by the LID. The trip generation data for the LID show that the capacity of these routes would not be exceeded with full development of the LID in 1992. Quality of service to the LID provided by these routes will be determined largely by the traffic performance at major access points, however.

Recommendations

A series of improvements are recommended both for LID access routes and the internal streets system. Please refer to the full document for a detailed description of these improvements.

GRANTS PASS SIGNAL STUDY

Author: CRS Group Engineers, Inc.

Date: September 1981

Document Type: Traffic Operations Study

Status: Complete.

Planning Period: 1981 - 2000

Geographic Area Covered: Redwood Ave. corridor from River Ave. to NE "B" Street between SW 3rd Street and SE 9th Street.

Synopsis

The study analyzes the condition and performance of existing traffic signals in the study area, analyzes several new signal systems, and recommends an appropriate signal system for the area. The study also includes recommendations for optimized signal timings for several alternative traffic conditions in 2000.

Findings

Changes to signal configurations, interconnections and timings are necessary in the study area to accommodate both existing and forecast traffic levels.

Recommendations

The study recommends installation of a new traffic-adjusted signal system on 6th and 7th Streets in Grants Pass. The system includes an on-street master controller and hardware interconnect, with complete replacement of the existing signals. Total cost to implement the recommended system is $1.265 million.

12.00 ENERGY CONSERVATION ELEMENT INDEX

12.10 PURPOSE

12.20 ENERGY RESOURCES

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- Alternative Energy Sources
- Hydroelectric
- Solar
- Biomass
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- Wind
- Geothermal
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- Thermal Electric

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- Electricity
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12.40 FUTURE ENERGY NEEDS

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12.50 METHODS OF CONSERVING ENERGY

- Energy Use Surveys
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  - Natural Conservation Features
  - Designing the Energy Efficient Dwelling
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12.60 FINDINGS

ENERGY CONSERVATION ELEMENT

12.10 PURPOSE

The purpose of this section is to identify energy resources, inventory the amount and type of energy consumed in the UGB, determine future energy needs and examine methods for conserving energy and promoting energy diversification.

12.20 ENERGY RESOURCES

Energy prices in the 1970's in real terms, ceased to decline. Slowly citizens and the national economy began adjusting to both higher energy costs and diminished energy supplies. The occasional symptoms of the larger problem, including the 1973 oil embargo, the 1976-77 natural gas shortage and the 1979 gasoline lines, emphasize and clearly highlight a need to provide for the transition to new sources of energy and new ways to use it.

Fossil Fuels - For generations, fossil fuels have provided a cheap, efficient and readily available supply of energy for western cultures. Today, nearly all commodities are dependent on oil, natural gas and coal for their manufacture and distribution. The realization that these energy sources, especially crude oil, are finite and therefore subject to depletion has placed increased emphasis on the dual need to conserve remaining supplies and seek alternative renewable sources. The previously mentioned symptomatic factors have made these needs evident to consumers. The most obvious solution to the energy problem has been to increase the search for more deposits of fossil fuels; making use of recent technological advances and information to extract deposits in more isolated areas. It is expected, however, that in a rather short time the cost of retrieving newly found reserves will exceed the benefits. Although it will be possible to increase the total annual energy produced, it will require increasing energy to extract, transport, refine and distribute these resources. In the long range, therefore, exclusive or disproportionate reliance on these nonrenewable energy fuels will likely result in higher inflation and make the transition to alternative renewable sources more disruptive to the economy.

Patterns of energy use will continue to be shaped by the cost and availability of energy resources. Although Oregon does not possess significant deposits of fossil fuels, the state is well endowed with other renewable energy resources.

No known oil reserves or refining facilities exist in Oregon. Like electricity and natural gas, petroleum is imported to the state. Until 1973, the price Oregonians paid for petroleum products rose at a rate less than general inflation. Disruption of the international oil market since the 1973 oil embargo has caused the price of petroleum products, most notably gasoline, to increase substantially.

Changing sources of petroleum imports from Canada and other Western countries to principle reliance on oil from the Middle East and other politically unstable ports of the world has a profound effect on consumer prices. It is expected that reliance on these sources will continue several years, at least through a period of transition to other renewable energy sources. The speed and ease of

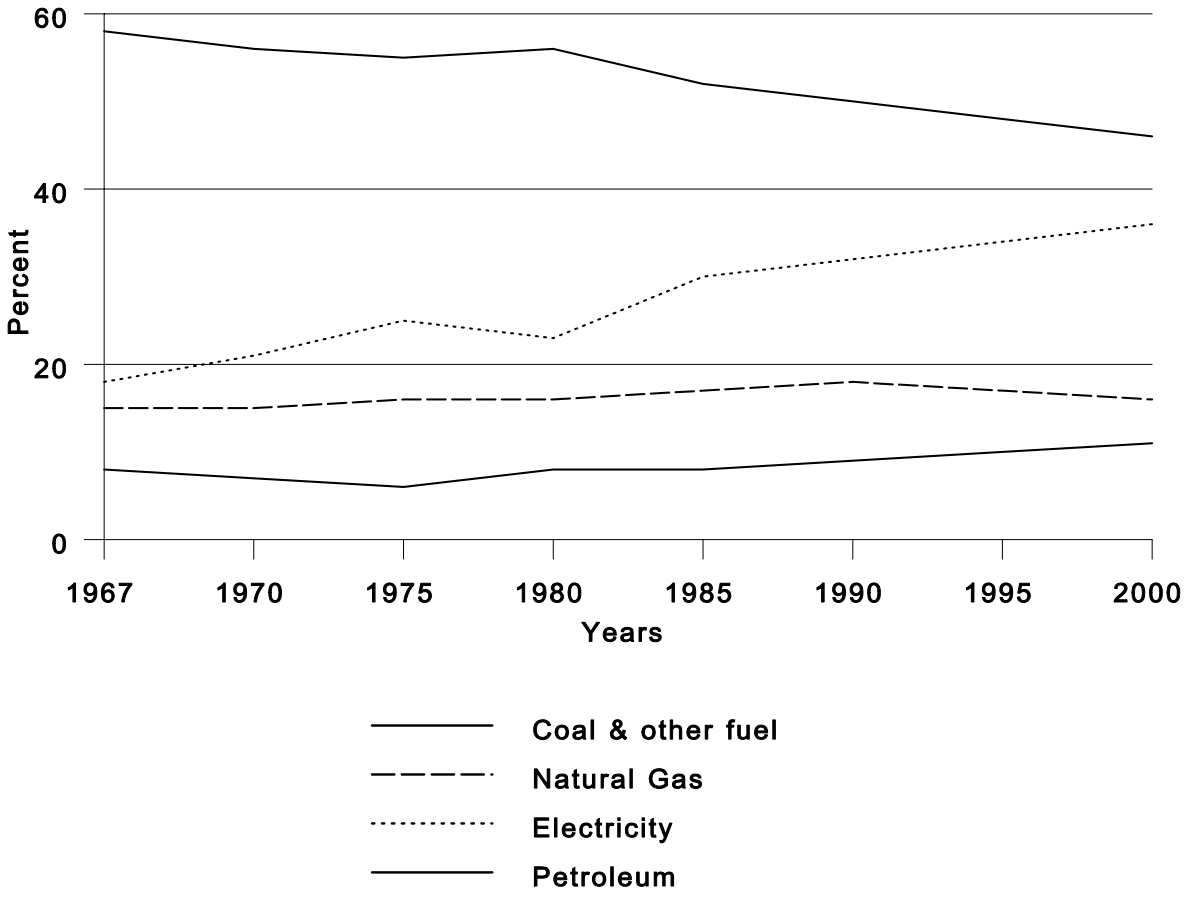
transition will be based largely upon international factors and the country's general adaptability to other energy sources.

The Natural Gas Policy Act of 1978 marked major change in federal policy, allowing substantial price increases and eventually resulting in total price decontrol of natural gas. The Act also promotes through incentive, further exploration, development and production.

The overall outlook for the availability of natural gas has improved although some uncertainties still exist. The quantity and price of the state's future supply, like most other large scale energy sources will continue to be a function of federal and international policy decisions.

Table 12.10.1 depicts recent and future trends in the distribution of energy sources in Oregon from 1967 to 2000.

TABLE 12.20.1
Trends in Relative Shares of Energy Sources



Detailed energy consumption forecasts for conventional energy sources by source type and sector are presented in the ODOE Fourth Annual Report (1980). The report also contains much information relative to energy supply and the state's role in energy conservation. Those wishing further information relative to state energy planning are referred to that document.

Alternative Energy Sources - Decreasing known reserves of conventional energy supplies have highlighted a need to seek ways to harness new energy sources in the form of power from the sun and wind, from falling water and water heated within the earth, from wood and plant fibers and organic wastes. The increasing cost of conventional fuels and the prospect of even higher future costs have made the potential use of alternate, renewable resources more attractive. The increasing emphasis has also shifted the responsibilities of energy production away from the national and international levels and more in line with the state and local level. It is in developing these alternate sources to appropriate levels that state and local government and the private sector will play an increasingly important role in the overall solution to the energy problem. A nine-member Alternate Energy Development Commission (AEDC) has recently published a final report titled *Future Renewable* that will become the cornerstone in the State's effort to prepare a clear and workable plan for the development of alternate energy sources. The report provides an analysis of six primary alternate energy sources and makes eighty-seven recommendations pertaining to state energy planning, energy conservation and production. The single most significant conclusion reached by the study was that no single renewable source can contribute a substantial share of projected energy demand growth, but together, the contributions of all can meet a significant portion of that demand growth. The following section is a brief presentation of the nine categories of energy resources and their expected applicability to Grants Pass and the region in general.

There are several energy resources available in the State of Oregon, including hydroelectric, solar, Biomass, alcohol fuels, wind and geothermal. Natural gas is a potential resource. In addition, Oregon imports coal and uranium for thermal powered electrical plants. Petroleum products like gasoline, oil and diesel are imported also.

Hydroelectric - Hydroelectric accounts for approximately 80% of all the electricity sold in Oregon. Although the U.S. Geologic survey reports that less than 50% of the state's potential hydro sites have been developed, most large hydro sites are not environmentally or economically acceptable. The Oregon Department of Energy's Fourth Annual Report (1980) indicates that no large scale or low-head hydroelectric projects are feasible for Josephine County or the Grants Pass area in light of the economic issue. It is likely, however, that as energy costs increase, environmental priorities will, in some cases, give way to energy priorities. Under these circumstances, it appears likely that some locally generated hydroelectric may be available in the future if the economic problems can be overcome.

In the Rogue Basin, there are 135 streams that are identified as having hydroelectric potential. A number of constraints to development of these streams were identified in a study by the Water Resources Research Institute. The greatest limitation was the distance of the potential hydroelectric sites to a viable market. Table 12.20.2 illustrates these constraints.

TABLE 12.20.2

Constraints	Number of Streams
Land Use Restrictions	27
Utility Displacement	50
Building Displacement	50
Special Fish Problems	77
Distance to nearest power line greater than ten miles	31
Distance from reach to viable local market too great	130

Source: Water Resources Research Institute

Solar - There are several programs in Oregon to promote the conservation and utilization of solar energy. Contrary to the popular belief that solar power is unsuitable for the Pacific Northwest due to the long, overcast winters, a recent Oregon Department of Energy study reveals that Oregon homeowners can meet a year round average of fifty percent of home heating needs with solar energy. Solar power is clean, inexpensive, relatively dependable and technologically feasible. Solar utilization may take two basic forms-- passive and active. Passive solar utilization basically involves the proper orientation of buildings and exterior building design and landscaping to maximize large unobstructed southern exposures, while protecting northern exposures. Active systems involve mechanical solar collection and storage components. The Alternate Energy Solar Task Force estimates that the nation's use of solar by the residential, commercial and industrial sectors could account for a savings of approximately 132 trillion BTU's annually.

Opportunities for the use of both passive and active solar systems are high. Although other parts of the state are afforded somewhat greater solar potential based on the average daily solar radiation, Grants Pass rates very highly.

Solar heating potential is measured in British Thermal Units per square foot (BTU/ft^2). The annual average daily solar radiation measured in Medford, in neighboring Jackson County, is 386 BTU/ft^2. That is sufficient energy to bring one quart of water to a boil during the daily period of solar radiation. A 55 gallon hot water heater, maintaining a temperature of 150°F, would need approximately 144 square feet of solar collector to provide daytime water heating. Of course, cloudy days would impair the efficiency of the solar panels. Passive solar space heating is achieved by placing large areas of glass on the south side of a building. The solar heat gained by the building is relative to the area of glass. Heat can be retained in the building if a large mass of masonry, water or wood is incorporated in other design of the structure, in proximity to the glass.

Biomass - Biomass is plant material and solid waste that can be used for energy production. Biomass is considered second only to hydro in terms of its potential contribution to the state's renewable energy resource. Currently, biomass accounts for 58% of the State's industrial process steam. Most of its present usage is by the forest products industry. Cordwood also currently supplies approximately 8 to 10 percent of the share of the State's residential space heating needs.

It is likely that biomass will provide an increasingly greater share of the region's total energy requirements since Southern Oregon has a proportionally large timber supply. Greater wood burning appliance efficiency will result in more heat per unit in the future. Opportunities also exist for the utilization of solid waste through its burning to generate power and through the capture of methane from solid waste landfills. It is estimated that biomass could account for up to 29% of the State's 1980 energy demand on a raw fuel basis.

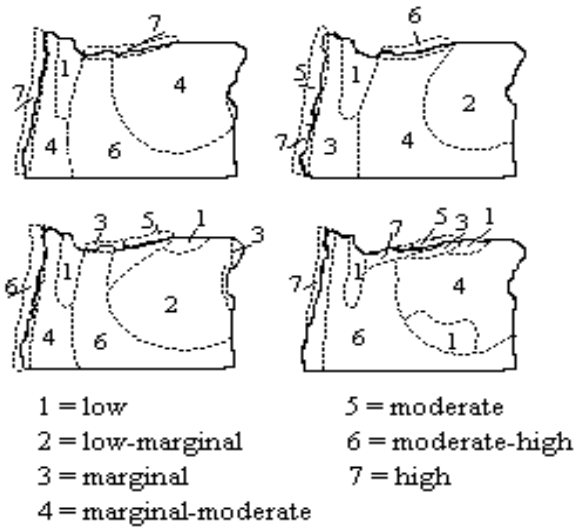
Alcohol Fuels - Fuel grade ethyl alcohol can be readily produced from a wide variety of crops and wastes through fermentation and distillation. The scale of production is quite flexible, varying from small scale farm units which can produce several hundred gallons per day, to large scale operation capable of several thousand gallons per day. Ethyl alcohol which is 95% pure alcohol, can be utilized by conventional automobiles with but minor modifications. If steps are taken to purify the ethyl alcohol, it can be used with gasoline in mixtures of up to ten percent without automobile modifications. Another alcohol fuel, methyl or wood alcohol can be efficiently produced but generally requires larger scale facilities and has a somewhat lower fuel value than ethyl alcohol. Methyl alcohol is produced from coal, straw and wood fiber.

Production of alcohol fuels is generally not well suited for urban areas due to the nature of the operations and need to store large volumes of combustible material. Although alcohol production is probably not desirable within the City, the agricultural capabilities of the Southern Oregon region make it attractive for alcohol fuel production. Key government programs now in place provide incentives for the formation of alcohol production operations. As the price of oil increases, alcohol production and use are likely to become a more important source of fuel.

Wind - Current research indicates that approximately 4,500 square miles of Oregon land has usable wind resources for power generation. Many areas have not been studied. Wind utilization may be either large or small scale, weaving both residential and industrial needs. The maps in Figure 12.20.3 indicate the potential use of wind for various parts of the state.

The Grants Pass area has marginal wind potential for energy generation, due mainly to its inland, intermountain location.

FIGURE 12.20.3
Seasonal Wind Potential for Energy Generation in Oregon



Geothermal - Some of the most promising geothermal resources in the country are found in Oregon although no known sources exist in Josephine County. In Klamath Falls, thermal waters have been used for space heating for many years. Generally, geothermal energy resources are situated in areas of geologically recent volcanic activity. Although more study is needed, it does not appear that geothermal will play a role in grower generation for the Grants Pass area.

Natural Gas - Currently, there are several oil companies searching for natural gas in western Oregon. Some gas wells have been drilled and gas has been found.

In 1977, approximately 18.1 percent of the State's total conventional energy supply came from natural gas. This figure represents a steady decline from previous years when natural gas consumption accounted for as much as 20.5% in 1973. The majority of natural gas is imported. Two-thirds of the State's natural gas supply comes from Canada, with the remaining one-third coming from resources in the southwest and Rocky Mountains.

Thermal Electric - In 1975, thermal generation accounted for approximately 15 percent of the State's electrical demands. Sources were usually located out of the State. By 1977, Oregon's first commercial thermal nuclear plant, Trojan, supplied up to 25 percent of the State's total energy demand. Several new thermal coal-fired plants are expected to become operational during the 1980's. If electrical demand increases in Oregon, then it is likely that the state will rely increasingly on thermal generation of electricity.

Petroleum Products - No known oil reserves or refining facilities exist in Oregon. Like electricity and natural gas, petroleum products are imported. Until 1973, the price Oregonians paid for petroleum products rose at a rate less than general inflation. Disruption of the international oil market since the 1973 oil embargo has caused the price of petroleum products, most notably gasoline, to increase substantially. Recent price reductions relate to the worldwide recession, and are not expected to be long term.

Changing sources of petroleum imports from Canada and other Western countries to principal reliance on oil from the Middle East and other politically unstable parts of the world has had a profound effect on consumer prices. It is expected the reliance on these sources will continue several years, at least through a period of transition to other renewable energy sources. The speed and ease of transition will be based largely upon international factors and the country's general adaptability to other energy sources.

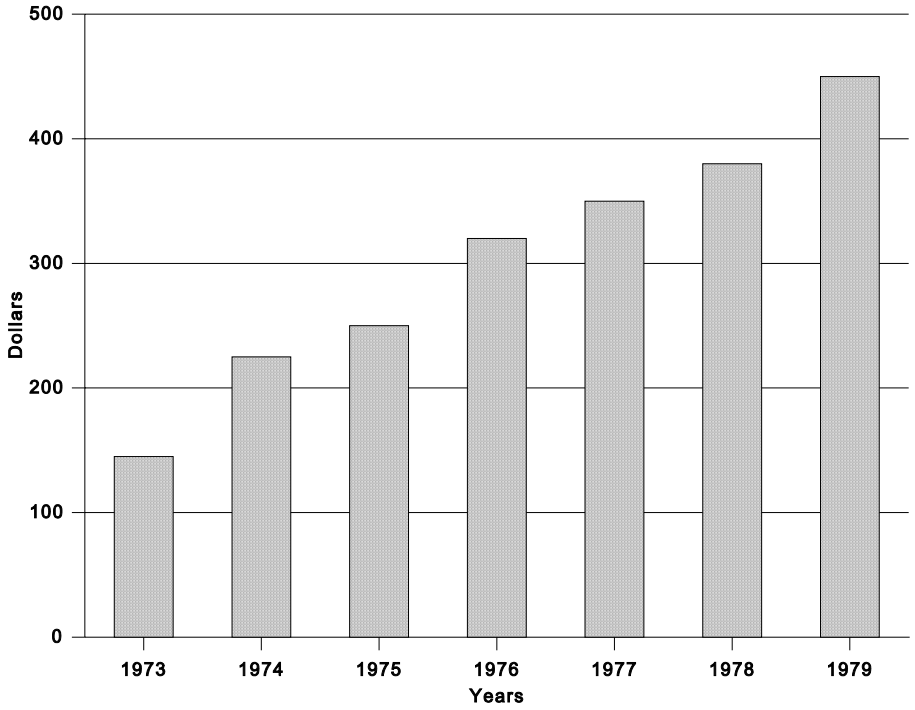
12.30 INVENTORY OF ENERGY CONSUMPTION

Energy consumption in the Grants Pass Urban Growth Boundary is predominantly limited to three energy resources; hydro and thermal generated electricity, natural gas, and petroleum products. Solar energy is becoming a more recognized resource as many more residential homes and commercial buildings are incorporating some form of solar design.

Natural Gas - The overall outlook for the availability of natural gas has improved although some uncertainties still exist. The quantity and price of the State's future supply, like most other large scale energy sources, will continue to be a function of federal and international policy decisions.

Since 1973, the price of natural gas has increased about two and one-half times. The primary reason for such excessive price increases is the 915% increase in Canadian export prices since 1973. Table 12.20.4 illustrates average annual residential natural gas price increases.

TABLE 12.20.4
Typical Annual Residential Natural Gas Fill
Based on 1970 consumption Levels



In 1976, 23 percent of the homes in Oregon used natural gas for space heating. Natural gas is provided to consumers in Josephine County by the California Pacific Natural Gas Company. The gas is received from the Northwest Pipeline Cooperative Canada. In 1982, there were approximately 4,140 gas accounts (households) in the UGB area: those accounts comprise 45% of the total area households.

Medford-Ashland Air Quality Maintenance Area Analysis, October, 1976, estimated that 13% of the new homes built in that study area would utilize gas. The Housing Element, (Section 9) reveals that there may be additional 8,600 to 11,900 new households by the year 2000, of which 1,100 to 1,500 will use gas. Under this assumption, by the year 2000, the percent of total households using gas will be 27%.

Electricity - The single provider of electrical energy to Josephine County is the Pacific Power and Light Company (PP&L). The company's sources of electricity are: 13% hydro-generated, 69.5% thermal-generated, and 16% purchased power and metropolitan interchange. The number of customers in Josephine County, including customers in Glendale and Rogue River, served by electricity increased by 65% from 1970 to 1979. (Josephine County Comprehensive Plan) The use of electricity in Josephine County increased 5.49% from 1977 to 1978. PP&L projected an annual increase in consumption of 6.2% from the period 1978 to 1988. However, electricity consumption

declined from 1980 to 1982 for reasons attributed to electricity rate increases and declines in the rate of population growth. (PP&L, Grants Pass Office)

As of January 1, 1980, PP&L served a total of 5,816 electrical customers in the City, of which 1,250 were commercial and industrial accounts.

The Grants Pass electricity service district includes all Josephine County, Glendale in Douglas County and Rogue River in Jackson County. The total amount of electricity consumed by all users in that district from March 1981 to March 1982 was 55,195 megawatt hours. The distribution of the electricity consumption is shown in Table 12.20.5.

TABLE 12.20.5
Electricity Consumption: Grants Pass District
March 1981 - March 1982

User	Number of Accounts	Consumption (megawatt hours)
Residential	27,044	35,105
Commercial	5,703	20,000
Industrial	167	20,000
Public Street Lighting	37	20,000
TOTAL		55,195

According to PP&L, there were 23,821 residential accounts in Josephine County in March, 1982. The average consumption per account was 1300 kilowatt hours per year. The estimated population for the UGB in 1980 was 22,000 persons. Therefore, assuming that the annual consumption per account (household) is constant, and that the total households in the UGB was 9,282, then the 1980 residential electricity consumption for the UGB was 12,066 megawatt hours.

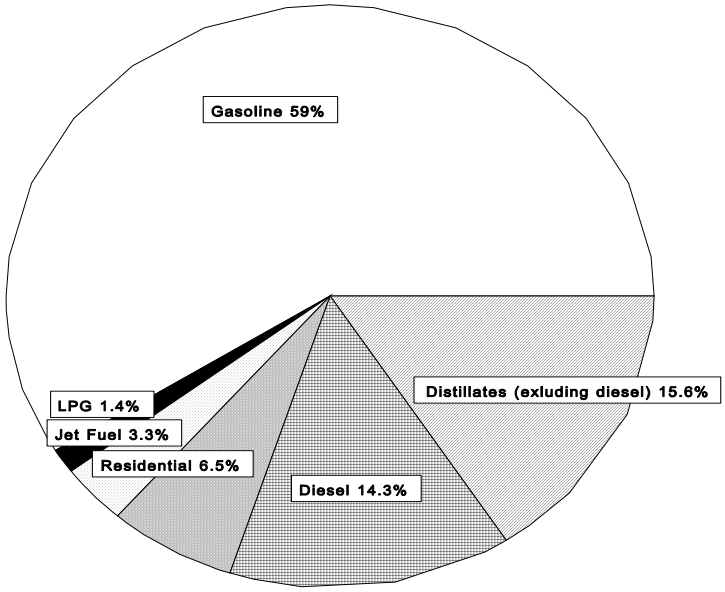
Petroleum Products - Petroleum products, as used here, refer almost exclusively to the use of gasoline for powering automobiles. In the appendix to the Grants Pass Airshed Study, meteorologist Donald Ballanti described the existing consumption of gasoline as it related to vehicle miles traveled by the automobiles in the UGB area and vicinity during 1976.

Gasoline mileage for automobiles and light trucks is estimated to be 12.7 mpg in 1976. Mileage for heavy duty gasoline vehicles was estimated to be 6 miles per gallon (mpg). The total vehicle miles traveled by gasoline vehicles in 1976 was estimated to be 212 million miles. Therefore the total gasoline consumption in 1976 was estimated to be 180 million gallons. It is also estimated that approximately 33,200 persons live within the airshed study area in 1976, making the per capita consumption of gasoline in 1976 approximately 5400 gallons. Of course, that figure is a population equivalent which includes all consumption by all types of consumers; residential, commercial and

industrial vehicles, including a substantial tourist component. The 1980 population for the UGB was 22,000 persons: that is a gasoline equivalent of 118 million gallons, assuming the same tourist to population ratio.

Fuel oil is another petroleum product used in the Grants Pass area. In 1976, 13% of the homes in Oregon used fuel oil for space heating. Fuel oil also comprised 21% of the total commercial/industrial space heating fuel in 1976. (Oregon Department of Energy, Oregon Energy Future, January 1978.) Table 12.20.6 depicts the distribution of petroleum products in Oregon.

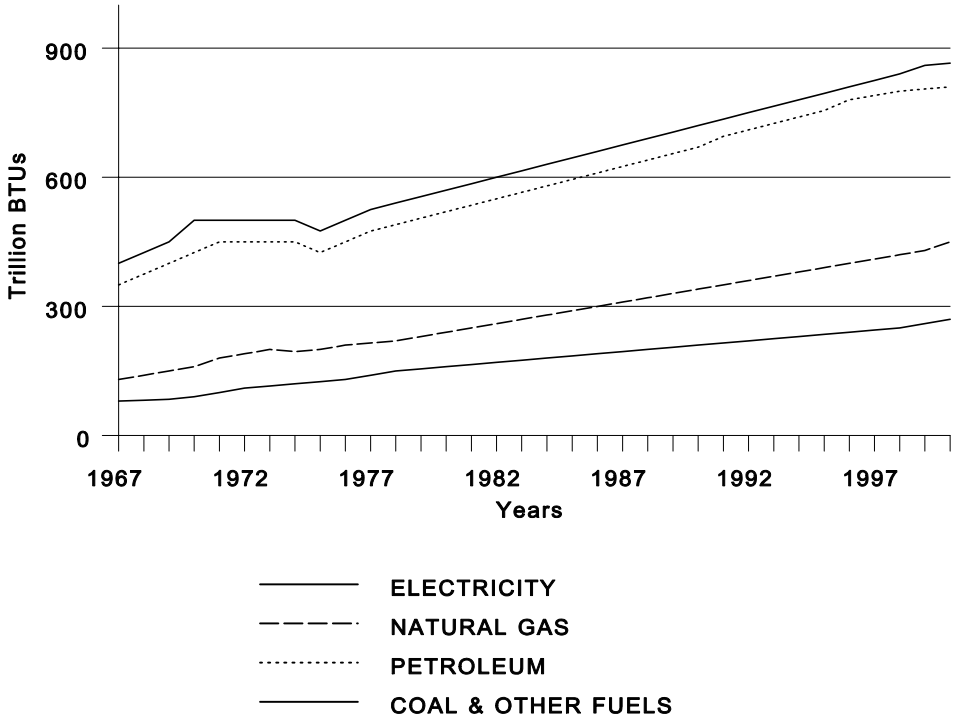
TABLE 12.20.6



12.40 FUTURE ENERGY NEEDS

During the period from 1978-200, state total and per capita energy consumption is expected to increase but at a slower rate than in the past. Energy demand is also expected to increase at an annual rate of 1.8% from 1978-1990 and 1.7% between 1990-2000. In the eleven year period from 1967-1977 the average annual growth equaled 2.9%. Figure 12.20.7 illustrates the total energy consumption by energy source and how the proportional usage of each conventional source is expected to change.

Figure 12.20.7
Energy Consumption by Source



The population of the UGB area is projected to increase by 16,000 to 22,000 persons by the year 2000. Without the application of conservation measures or the diversification of consumption among all the alternative energy resources, the total consumption for the basic energy resources will increase with the population growth.

Natural Gas - According to the Medford-Ashland Air Quality Maintenance Area Analysis, October, 1979, 13% of future new homes will be served by natural gas. The UGB area is projected to add approximately 12,000 new homes by the year 2000. Therefore, approximately 1,600 new homes will use natural gas.

Electricity - If the year 2000 UGB population is 44,750 with approximately 20,800 households, then the projected residential electricity consumption in the year 2000 may be 27,040 megawatt hours.

Petroleum Products - According to the appendix of the Grants Pass Airshed Study, mileage efficiency for automobiles and light trucks is projected to double by 1990 from 12.7 mpg to 26.2 mpg. Based on that assumption, the per capita population equivalent gasoline consumption of 1976 should be reduced from 5,400 gallons to 2,700 gallons. The 1990 population of the UGB area is projected to be approximately 30,000 persons. Therefore, the total consumption of gasoline by

consumers within the UGB area in 1990 is projected to be 81 million gallons. If the mileage remains the same through the year 2000 and the high population projection of 44,750 persons is realized, then the gasoline consumption in the year 200 will be 121 million gallons. Therefore, even with twice as many people living in the boundary area in the year 2000 than residents there in 1980, and related increases in tourist consumption, total gasoline consumption will be almost the same for both years. That achievement is attributed to greater vehicle mileage efficiency. If the actual vehicle miles traveled is reduced and/or alternative forms of transportation are used more frequently, then gasoline consumption in the year 2000 may be less than consumption in 1980.

12.50 METHODS FOR CONSERVING ENERGY

Energy Use Surveys - Two separate energy related surveys were taken in the Grants Pass area during the summer of 1980. One survey conducted by PP&L was a survey of 72,454 customers throughout the State. This mail-out survey posed a variety of questions related to energy consumption, conservation and sources of future power generation. The second survey, conducted by SUNERGI, a non-profit energy interest group, focused specifically on the Grants Pass community. The survey was conducted by door-to-door interviews using a sample equaling 354. All persons surveyed were occupants of single family detached homes; no mobile home or apartment dwellers were surveyed. The sample size and survey technique had a confidence rating of 95% - 5%. The results of these surveys are available through PP&L, SUNERGI, and the City of Grants Pass. The results are summarized below:

Pacific Power's Oregon Electric Energy Poll, June 1980.

1. An overwhelming majority (90%) of Oregonians believe that Oregon should become more energy self-sufficient in terms of power generation and that Oregon should start now to develop more sources of energy.

2. When asked how to best manage electric energy shortages, the following methods were supported by a majority of respondents: a) restrict the operating hours of a business to a 40 hour week (63%), b) establish electric rates that would penalize customers for electrical usage above the "normal" amount (60%), and c) require complete insulation and weatherization of homes before they can be sold (69%).

3. Nuclear power was cited as the least practical source of new energy (40%).

4. Most Oregonians have taken steps to reduce home energy consumption (86%) and another 71% are willing to cut back even further.

5. When asked what percentage of energy should be produced by conventional vs. alternate sources over the next 10-20 years, 57% favored convention and 43% favored alternate sources.

6. Given the choice between solar, wind, geothermal and wood waste as electric sources, the following were favored: solar (33%), wood waste (25%), wind (22%) and geothermal (20%). Substantial majorities were found in favor of building generation facilities for any of these sources within the county of those surveyed.

7. Given the same choice as in #6 above but relating to either coal, nuclear, or hydro, the following were favored: coal (22%), nuclear (22%), and hydro (56%). The only power source for which there was a majority opinion for building generation facilities within the county of those surveyed was hydro (79%). Nuclear and coal received 37% and 47% respectively.

8. When provided with the relative costs of generating electricity for each of seven electric sources and asked to rank each by priority, the ranking was as follows: hydro (67%), geothermal (44%), solar (43%), nuclear (38%), coal (35%), wind (21%), and wood waste (20%).

SUNERGI Survey, June and July, 1980.

1. A majority of City residents (70%) found that rising utility bills forced them to consume less energy.

2. When asked what the main source of heat in the home was, the following responses were tabulated: electricity (38%), natural gas (29%), wood (26%), oil (4%).

3. The majority (71%) favored meeting energy needs with local resources.

4. A strong majority (83%) agreed that individuals like themselves have a responsibility to conserve energy to help resolve the national energy problem, as opposed to 17% who favor trusting the federal government to find a solution to the problem.

5. A majority (64%) agree that the City should protect access to sunlight.

6. A strong majority (83%) agree that municipal zoning should be flexible enough to allow for the use of solar energy.

7. A strong majority (78%) agree that local programs to encourage solar energy use should be developed.

8. No clear majority was in either agreement or disagreement with the proposition that solar heating systems should be installed in homes prior to sale.

9. A majority (54%) favored solar heating requirements as a part of home design.

10. A majority (61%) felt that building contractors should be trained in solar home construction prior to issuance of their license.

11. A majority (53%) favored regulations that require the seller of a home to disclose the pas year's energy bills, energy efficiency of the home and amount of available winter sunlight.

12. When asked which of several energy sources are preferred, the following responses were tabulated: solar (37%), hydro (17%), conservation (12%), nuclear (10%), coal (96%), oil and natural gas (6%), and synfuels (4%).

13. When asked what measures have been taken to conserve energy , the following measures received at least a 30% or greater response: recycle newspapers, cans and bottles (78%), set thermostat at 65° or lower during the winter (43%), drive a small car (52%), install shutters and shades on windows (43%), install weatherstripping and caulk around doors and widows (38%), install storm or double pane windows (34%), install energy saving device on fireplace (44%), and lower temperature settings on hot water heater (937%).

Survey Interpretation: Local Attitudes - From the results of the two energy use surveys presented above, a few obvious conclusions can be drawn. It is apparent that the local population has indeed felt the consequences of the energy problem. This is reflected by the response to questions related to recent utility bills and personal measures taken to conserve energy. The surveys do not reflect whether or not most consumers believe the current energy problem is real or contrived; the responses of both do, however, appear willing to take personal and local actions to help solve the overall problem. Most respondents have already taken certain steps to reduce energy consumption. It is not clear weather this is a purely economic response to increasingly high utility bills or a genuine response to a perceived bona fide problem, or both.

It appears that people are more willing to turn their thermostats down during the winter than up during the summer. There is also a distinct preference for the purchase of a smaller automobile than to carpool or use other alternate modes of transportation. Other than the purchase of smaller cars, conservation actions have generally been limited to those actions that reduce comfort and convenience rather than those that require substantial cash outlays such as building insulation. This may be an indication that people do not believe the energy problem will be of long duration, or perhaps it is simply a question of economics and the perceived cost and benefits of the more costly conservation actions.

There is substantial agreement that the local area should be more energy self-sufficient. There is also clear majority agreement on the role solar power should play in the future. This is indicated by majority opinions supporting regulations that ensure adequate access to sunlight and the local, as well as statewide, preference expressed for the development of and opportunities for the use of solar energy. On the other hand, nuclear power has generally been cited as one of the least preferred alternatives. Also frequently cited as a preferred source of power are hydroelectric projects. This

was clearly represented by both surveys. As reported earlier, no economically potential hydro sites were identified by ODOE in Josephine County. This is not to say that potential sites do not exist, in fact, eighteen such sites were identified in 1976 by the US Army Corps of Engineers. Although since 1976 some of the proposed sites have come under federal ownership, it is likely that other sites may be developed during the planning period. Acceptance of the tradeoff resulting in dam construction over environmental concerns will necessarily result in disturbance of anadromous fish runs and displacement of existing buildings and utilities, according to the Water Resources Research Institute.

Conservation and Adjusting to Resource Scarcity - The United States consumes over 30% of the world's energy. Since the national population equals only about 6% of the world's population, it appears that energy conservation is a readily attainable goal. The federal and state governments have reported in numerous documents that less than 50% of total energy is consumed efficiently. The remaining share is simply lost energy. Clearly, a sound case can be made for more efficient energy use.

Typically, conservation has been perceived as a type of crisis-response behavior. Recently, a more positive view has been taken of conservation, as itself a source of energy that can be influenced and encouraged through incentives. Numerous state and federal programs are available which provide tax incentives to achieve conservation objectives. Studies by the Harvard Business School, National Academy of Science and Ford Foundation have concluded that conservation is not only cost effective, but is the only major new energy source that can quickly become operational. Various specific conservation programs are detailed in a later section of this element.

Energy conservation can take many different forms, from weatherization programs for habitable buildings, to proper automobile maintenance and upkeep. It is an area where State government can, and is, playing a major role in providing incentives, key regulation and information disbursal. An important ingredient to any state or local conservation program is positive public involvement and the need for individuals to recognize the enormous opportunities for energy and financial savings.

Resource scarcity today not only relates to energy supply, however, and greater numbers of people are now realizing that the planet we live on has finite quantities of numerous minerals and other raw materials, including water, land and air. Recognition of this fact is the first step to finding solutions to the economic problems of supply and demand that invariably arise once the end of the supply can be seen. Ignoring this fact will undoubtedly leave future generations with a world resource base ill equipped to meet their needs.

Planning and Designing for Energy Conservation - As indicated by the previous evaluation of conventional and alternate energy resources, local government is generally unable to influence many sources of energy supply significantly. The City of Grants Pass will not, for example, dramatically influence the decisions of the Bonneville Power Administration or the State or federal government regarding energy consumption and conservation. Local government can, however, take steps to ensure that our cities and buildings are planned and designed to optimize the efficient use of conventional energy and provide for the practical use of alternate energy resources. The following

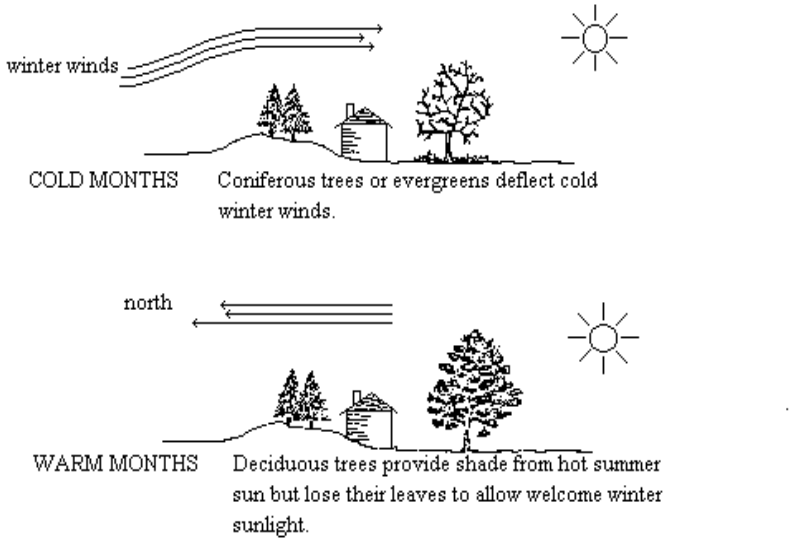
sections are designed to detail the various planning and design techniques available to local government to aid Grants Pass in meeting the overall goal of energy conservation and the wise use of local renewable energy resources.

Circulation Patterns - Use of the private automobile accounts for more fuel consumption than all other residential energy uses combined. On a subdivision scale, the developer has several options by which to develop energy efficient circulation patterns. The use of long cul-de-sacs instead of through streets directs traffic around neighborhoods and reduced the unnecessary use of gasoline. The use of narrower streets reduces the heat generated by the street in the summer months and reduces construction costs, both in terms of financial cost and the energy used in construction.

The orientation of streets has a major influence on passive solar utilization. By orienting streets in an east-west direction, lots and dwellings will be oriented in a north-south direction. This ensures that at least one side of the structure and a major yard or the street is open to the sunny southern exposure. It should be noted that due to rectilinear construction and placement, that streets in mobile home parks should be oriented in a north-south direction.

Natural Conservation Features - An especially beneficial effect of trees is their thermal performance. In winter, they can act as windbreaks and reduce heat loss from buildings. In summer, trees absorb solar radiation, provide shade and create cooling through evaporation processes. To maximize their use, trees must be selected carefully and located strategically. Whereas shade is valuable in summer and sunlight is welcome in winter, it is important to select only deciduous trees for southerly placement. Conversely, coniferous trees should be selected and placed to deflect cold winter winds. On building sites with large existing trees, the emphasis should be placed on strategic street and dwelling locations to utilize existing vegetation.

FIGURE 12.50.1

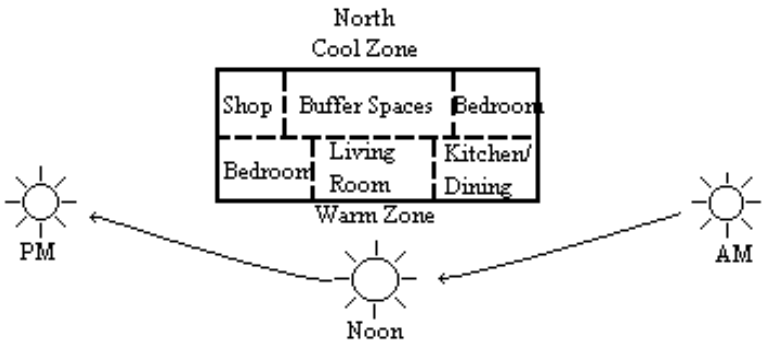


In addition to their aesthetic and shade giving properties, properly placed trees can create beneficial summer and winter airflows. The above illustration indicates how property placed in trees can be used to provide shade and divert cold winter winds. Calculations indicate that the heating load on a dwelling with a 20 mph wind is almost two and a half times greater than with a 5 mph wind.

Designing the Energy Efficient Dwelling - On a building lot that has good access to the winter sun, designing the energy efficient home follows two basic strategies. The first strategy is simply to ensure that the dwelling will make maximum use of the energy it consumes. The second strategy is to generate heat within the house by making use of the sun's energy.

The south side of a dwelling receives over three times more solar radiation in winter than the east or west sides, and nearly 14 times more energy than the north side. Maximize this fact by use of the following design factors:

- Face the elongated side of the dwelling to the south
- Keep house lines simple on the north and minimize north facing windows and doors
- Protect doorways and widows from prevailing winter winds
- On all windows, use double glazing that is separated by a thermal break
- Place at least 50% of the south facing wall area in windows
- Locate rooms according to their requirements for heat and light
- Prevent summer overheating by protecting southern exposures with deciduous trees and roof hangings
- Locate operable windows high on south facing walls when overheating is likely
- Use interior or exterior shades or curtains to block undesirable summer sunlight
- Insulate attics and exterior walls including floors
- A large thermal mass located where the winter sun will shine on it provides heat storage within the dwelling.



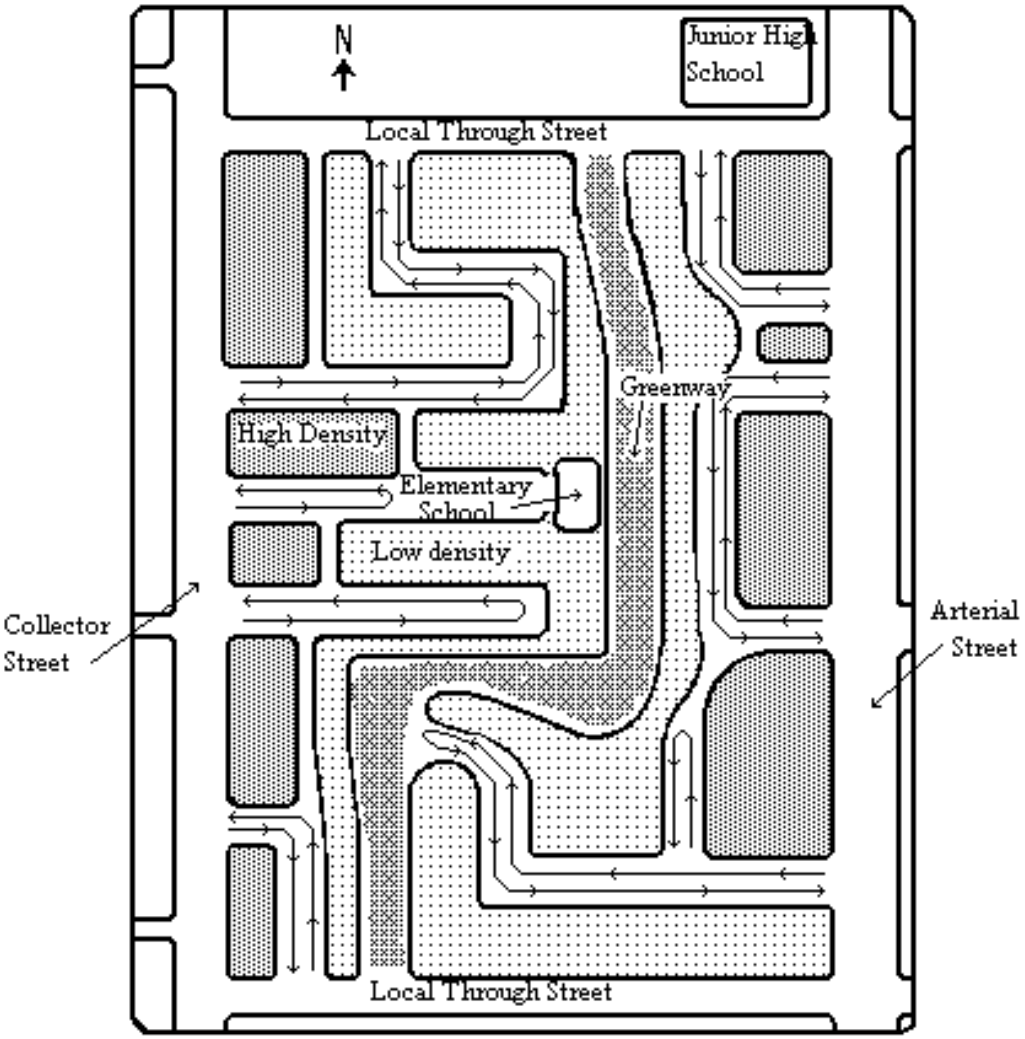
These are the basic components of passive solar utilization. There are also several examples of active solar systems that can be used for water and space heating. Numerous studies and publications are now readily available to aide the home builder in maximizing the use of solar energy.

Urban Form Energy Implications - Controlling the urban form through the prevention of sprawl is an effective way to reduce energy consumption. By encouraging the development of land in outlying or remote areas, land use policy works at cross purposes with an energy conservation ethic. Sprawl development serves to spread land uses over a large area, thereby increasing the public's reliance on the private automobile and diminishing the attractiveness of public transportation as well as increasing travel distances for employment and to obtain basic necessities.

By definition, urban growth boundaries should be only large enough to support reasonably expected population levels during the planning period. This feature of the goals, in and of itself, will result in significant long range energy savings. Other less significant energy conservation features are also set forth in the state-wide planning, some of which also relate to urban form in a slightly different sense. Urban growth boundaries are a quantitative measure of external urban form. Urban form is, however, an internal feature that relates to the layout of the urban infrastructure including streets, schools, chopping and employment centers and other public facilities. Energy conservation is realized through the allocation of density to optimize population along high capacity transportation corridors and hear high vehicle trip generating uses such as shopping facilities, employment centers and high use public buildings. In terms of land use, this translates to high density residential development along arterial streets, around the central business district, around shopping and employment centers and near to schools, libraries, parks, government offices and other public and private uses that are traveled to frequently. Although from this description it appears that most residential areas would be planned for high density development, in reality, probably less than 30 percent of the entire residential land base would be planned for high density development. For a city the size of Grants Pass, high density development simply implies dwelling groups of two or more units clustered in low profile planned developments.

As discussed, urban growth boundaries predetermine the external urban form. Internal urban form is largely determined by the routing of the transportation network. Cities can therefore effectively guide the internal urban form to the advantage of energy conservation by the careful routing of streets and laying out of blocks. The super block concept provides an excellent tool to achieve the objectives of energy conservation through intelligent planning of the internal urban form.

FIGURE 12.50.4
Superblock Concept



As can be seen from the illustration, the superblock, through its design, will reduce energy consumption through the following design features;

- High density residential use that is planned adjacent to major streets to reduce the length of travel time require for the greatest number of people to reach a major thoroughfare.

- Internal streets generally routed in an east-west direction to facilitate solar utilization.

- Internal streets penetrate but do not transverse the superblock. This reduces internal through traffic and encourages walking, bicycling and other modes of transportation.

- Common open space transversing the superblock provides proximal park and recreation and non-vehicular transportation opportunities.

- Internal neighborhood commercial node will encourage walking to do light shopping and reduce the length and number of shopping related vehicle trips.

- Internal location of elementary school near greenway strip will enable children to walk and bicycle to school and reduce the need for bussing.

Transportation - Private automobile transportation is a major energy consumer and a primary target for energy conservation practices. With the exception of the airplane, the private automobile consumes more BTU's per passenger mile than any other form of transportation. Table 12.50.5 reports the relative amounts of energy expended per passenger mile for both urban and intercity travel based on the four basic transportation modes.

TABLE 12.50.5
Comparison of Energy Efficiency for Transportation Codes

URBAN	ENERGY (BTU/PASSENGER MILE)
Bicycle	2000
Walking	300
Mass Transit	3800
Automobile	8100
INTER-CITY	
Bus	1600
Railroad	2900
Automobile	3400
Airplane	8400

Inter-city travel is typically a function of state and county government and urban travel is the primary concern of municipal government. This section will therefore concentrate on modes of travel and issues that can be affected by city government.

As reported in the above chart, the four basic modes of travel in a community, in order of energy conservation and efficiently are walking, bicycling, public transit and the private automobile. Each of these modes places a certain demand upon the roadway. In most cases the demand is conflicting, as is the case between the automobile and bicycle. In this example, both modes compete for a

limited portion of the roadway surface. Ideally, each conflicting mode would be separated. However, with limited municipal budgets, separation of modes is seldom possible. In the past such conflicting demand for roadway space has typically been resolved in favor of the private automobile. Examples of this occur when a tradeoff exists between removing the parking from one side of a street to provide for a bike path. Normally, the decisions made to leave the on-street parking and find other bike path routes where the roadway surface is sufficiently wide enough to accommodate both.

The overall energy problem in conjunction with related air quality problems and the changing role of the bicycle from recreation to transportation has emphasized a need to resolve such conflicting demands more in the favor of these bicycles.

In the past, public transportation has only been successful in capturing the ridership of "transit captives," or those who are either too young, too old, disable or for some other reason have no other true transportation alternatives. Rising oil prices, vehicle maintenance cost and car prices have changed this picture somewhat, and the promise of even greater automobile operating expenses will increase the broad attractiveness of public transportation even further.

To be widely used, a public transit system requires high density living areas and high activity uses along major travel routes. Distribution of population and businesses over a large area makes public transit less convenient, inefficient and normally too costly to operate. Studies have demonstrated a direct correlation between density and public transit ridership. Typically a sharp increase in transit ridership can be expected when densities are increased to greater than seven dwelling units per acre; at densities over 60 dwelling units per acre, transit use accounts for approximately 50% of all trips.

Solar Access - Unless local communities begin to plan now for future development of solar energy, controlled development could make it impossible for solar utilization to take place. Protecting solar access simply means regulating development in such a way to ensure that buildings and vegetation do no block sunlight and prevent solar utilization by neighboring buildings. In short, regulating to control shadows.

In developing a solar access program, the first step is to determine the level of solar access desired. Four basic levels of solar access are possible:

1. Rooftop Protection: protects the sunlight falling on the south-facing rooftops of new developments

2. South Wall Protection: protects south walls of new buildings

3. South Lot Protection: protects part of a lot adjacent to south-facing wall

4. Detached Collector Protection: protects solar access only to part of a lot for use by detached collector systems

Once the level of solar access to be regulated is determined, the next question becomes whether to regulate buildings, vegetation, or both. Typically, programs aimed at regulating vegetation for solar access are, for obvious reasons, difficult to administer.

The third major component of a solar access program involves a determination of the regulator device to be used. Private agreements between property owners can be used to protect solar access as well as public regulation. The most common private agreement is the restrictive covenant. A restrictive covenant is a contract between two or more persons which involves mutual promises of reciprocal benefits and burdens among consenting landowners. Generally, restrictive covenants "run with the land," meaning that the covenant binds not only the existing property owners, but all future owners of the land. Should this approach prove desirable, covenants should be required during the development approval process and reviewed by the City Attorney. Easements are another type of private agreement that can be used to protect solar access. Easements are a partial interest in real property that can be separate from the property and transferred. The most common example is a utility easement that simply conveys the right of a utility company to run its lines across private property. A solar easement is a negative easement that prevents one land owner from doing something that otherwise would be allowed, such as erecting a building on a lot which can cast a shadow on the solar collector of a neighboring lot.

Street Lighting - Typically, municipal street lighting consumes a major share of the total annual energy expenditure. There are basically three different types of street lighting: incandescent, mercury vapor and sodium vapor. Sodium vapor is far more efficient than either incandescent or mercury vapor, although it emits a yellow rather than white light. The Pacific Power and Light company is currently replacing some fixtures with sodium vapor. The following table presents the relative efficiency (nominal lumens) versus energy requirements (watts) of the three lighting types as reported by the Portland General Electric Company.

Street Lighting Efficiency

Type of Light	Watts	Nominal Lumens
Incandescent	92	1,000
	182	2,500
	300	4,000
	405	6,000
	620	10,000
Mercury Vapor	100	4,000
	175	7,000
	250	10,000
	400	21,000
	1,000	55,000
Sodium Vapor	70	5,800
	100	9,500
	150	16,000
	250	25,500
	400	48,000

State and Federal Programs - Considering the relatively recent nature of the energy problem as perceived by state and national decision makers, there is truly and abundance of state and energy related programs. In fact, far too many to present herein and more programs are being developed all the time to aid homeowners, renters and business to conserve energy and develop more sources of energy production. By far the greatest emphasis, at least based on number of separate programs, is on providing tax incentives and low interest loans for the weatherization of homes. Most programs focus on incentives to encourage conservation either for homeowners, business or utilities. Those wishing addition information are urged to contact the Oregon Department of Energy.

12.50 FINDINGS

1. Nearly all citizens recognize that a problem exists regarding energy production, distribution and utilization. Although it appears several factors have been responsible for the problem, no single solution, such as solar or nuclear utilization, can be expected to return consumers to past days of abundant and inexpensive energy. In fact, most sources agree that a solution for the energy problem lies in developing all of our viable energy producing resource capabilities.

2. Locating and harnessing local, renewable sources of energy is a major area where local government can directly participate in energy generation. Opportunities exist in Grants Pass and Josephine County to utilize wind, biomass, hydro and alcohol fuels as well as solar energy. Excepting solar utilization these sources of power generation are either too land consumptive or environmentally sensitive to reasonably be located within City limits. Nevertheless, Grants Pass should assist Josephine County in developing these energy sources for the mutual benefit of both City and County residents.

3. Numerous studies have concluded that as much as 54% of all energy consumed is wasted and that the most readily usable source of new energy can be realized though conservation. When considered as a source of energy, conservation is the least costly, most flexible and most environmentally acceptable energy resource available.

4. Conservation not only relates to reduced levels of energy consumption, but also to passive means of utilizing the sun's energy for space and water heating. Typically, little consideration has been given to the physical layout of subdivisions and planned developments regarding opportunities to use sunlight for space and water heating although enough sunlight falls on the outside of homes for this purpose. Many developments have been approved locally that lack the basic orientation and design features that permit effective solar utilization either passively or with the aid of solar heating device.

   Recently there has been an increasing awareness that opportunities exist at the local level to utilize solar energy. In Grants Pass public opinion clearly supports action that facilitates solar utilization and use of other alternative energy sources.

13.00 LAND USE ELEMENT

13.10 PURPOSE

13.20 HISTORIC DEVELOPMENT, NATURAL CONSTRAINTS & THE CITY'S URBAN FORM

13.30 THE URBANIZING AREA

- Urbanizing Area Concept
- State Land Use Goal 14
- Past Urbanizing Study Areas
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LAND USE ELEMENT

13.1 PURPOSE

The purpose of the Land Use Element is to review the forces and constraints behind the evolution of the City's urban form, to review the Urban Growth Boundary and Urban Growth Plan process, to summarize the residential, commercial and industrial land use requirements for the area to the year 2000, to summarize the urban service capacity and requirements for the Boundary area, and to propose Land Use Models, development strategies and policies for land use within areas, subareas and neighborhoods of the Urban Growth Boundary.

13.2 HISTORIC DEVELOPMENT, NATURAL CONSTRAINTS AND THE CITY'S URBAN FORM

The historical development of the present City limits can be illustrated best by examining the City as it existed in 1952 and the subsequent land annexations during the periods 1952 through 1962 and 1962 through 1980.

In 1952 the City limits were nearly unchanged from the original plat in 18__, (see Map 13.2.0). The City limits of 1952 defined a corporate land area that was almost entirely located north of the Rogue River. The southern boundary of the city was the river. The northern boundary was adjacent to the foothills of the river valley. The northeast and northwest boundary corners intruded into steep slope areas. Between these two corners, along the north line, the Gilbert Creek drainage area formed a narrow, upland valley which very quickly rises into the higher elevations of the foothills. The west boundary of the city abutted agricultural land south of the Rogue River floodplain and older flood terraces. These lands were in agricultural use. The east boundary of the city abutted more river bottom and river terrace lands as well as the steep slopes of the foothills. The north, east and west city boundary lines ignored the topography and were straight survey lines. Except for the curvilinear south line, the city boundary lines formed a large square of land

The annexations of land from 1952 through 1962 began to reflect some of the topographical constraints of urban growth in this portion of the Rogue River valley. The west boundary of the city remained unchanged. Apparently the income from agricultural land use was a strong enough incentive to resist urbanization. Along the north boundary line a large rectangular tract of land was annexed by the city, extending northward into Gilbert Creek drainage area where the slopes were moderate.

Map 13.2.0
Historic Development of the City of Grants Pass

An incentive for this annexation was the interchange of the old existing State Highway 99 and the development of the Interstate Highway 5 along the edge of the foothills. In fact, today that tract of land is almost entirely committed to tourist commercial use. Along the east boundary line several small annexations occurred between 1952 and 1962. These annexations were generally located along the northern half of the east line in proximity to the foothills and the interstate highway. The land located east of the city limits on the floodplain and river terraces was committed to the industrial uses of timber products manufacturing, particularly along the Southern Pacific Railroad. Along the southern edge of the east boundary line, within the river floodplain, the city annexed a large tract of land predominantly intended for residential uses.

The significant annexations during this period occurred south of the Rogue River. The land immediately south of river is relatively level. Southward of the floodplain and terraces the terrain gradually becomes rolling hills. A large tract immediately south of the river was annexed by the city, encompassing the interchange between the scenic Redwood Highway and the Rogue River Highway (old State Highway 99). Today this area is committed almost exclusively to thoroughfare commercial use.

During the period 1962-1980 the City limits expanded in the same general areas as it had done in the previous ten years. Once again, no change in the boundary occurred along the west limit of the city; although some urbanization was occurring on the floodplain adjoining the city. That development was urbanizing without public facilities and services, utilizing septic systems and private water wells.

On the north City limit, a large tract was annexed during this period. Approximately one-third of this tract was located in the steep slope areas of the foothills. Two other smaller tracts, one located in the steep slope area, were also annexed to the north City limits. Much of these lands were marginally suited for urban level development given the existing City standards for development, in which both annexation policy and the subdivision ordinance required that development be provided with sewer, water, water and standard roadways. The provision of these facilities and improvements in areas of steep slope are costly to install and maintain, especially if development occurs as single family detached housing on large lots.

On the east City limit, a large tract was annexed that bordered the interstate highway right-of-way as the highway traverses the edge of the steep slopes of the foothills. This tract is located at the intersection of the interstate highway and Redwood Highway. Much of the land along Redwood Highway has developed in thoroughfare commercial use. The foothill area of this tract has developed in residential use. There were three other smaller annexations which occurred along the east limit during this time period. All three were located in the southeast area on or near the Rogue River floodplain immediately south of the industrial area.

South of the river, there were three annexations during the period 1962 to 1980. The largest was a significant annexation in that it may be the genesis of the new direction for city growth. Concurrent with these annexations, in December 1969 and again in July, 1978, two large sewer service districts were formed south of river. The Harbeck-Fruitdale Service District included a land area nearly as large as the city at that time, and was located south of the city along the Rogue River and southward

along Allen Creek to the southern foothills of the river valley. The Redwood Service District was nearly as large as the Harbeck-Fruitdale Service District and was located west of it and southwest of the city. The Redwood Service District encompassed much level floodplain and terrace land. These two areas were rapidly becoming urbanized and needed sewer service to ensure health. Both areas were suitable for economic sewer design as the topographic gradients were gradual and most of sewer system would be gravity flow as opposed to mechanical pumping of sewage. With these sewer facilities, the Redwood and Harbeck-Fruitdale areas could urbanize at higher densities. The only limiting factor for achieving maximum urban densities was the lack of a municipal or special district water supply system. All urban development in these two areas had occurred with private water supply systems. That limiting factor has influenced the type and density of urban development south of the river: single family homes are the predominant residential housing type, while commercial development has been more neighborhood and thoroughfare oriented rather than centralized in one general commercial area. Other urban services like fire protection and solid waste are provided by the private sector.

As the preceding discussion indicates, the urban form of the City of Grants Pass has been significantly determined by the topography and the distribution of facilities and improvements. Urban growth occurred in areas of "least resistance": areas where there was availability of serviceable land. The directions of urban growth in the Grants Pass area appear to be toward the more urbanized areas of Redwood and Harbeck-Fruitdale, where the major infra-structure of roads and sewer service are existing, and where there is an abundance of serviceable land due to the relatively level topography.

The impetus for urban growth on the north side of the Rogue River is constrained by the topography and existing land uses. North of city the steep slopes of the foothills present a formidable and expensive obstacle for urban development. West of city the lands remain predominantly in productive agriculture use, except for the urbanizing area immediately adjacent to the City Limits. East of the city the timber products industries have been joined by other industries to form a distinct industrial area between the foothills and the Rogue River. The railroad lines which bisect this area further enhance the industrial value of this land. By process of systematic elimination, all directions for major urban growth are restricted except one - south of the river.

13.3 THE URBANIZING AREA

- **Urbanizing Area Concept**

The concept of the "urbanizing area," or that area immediately outside a city in the process of developing and becoming part of the city, is not a new one. The city's 1960 Parks and Recreation Study (Bureau of Municipal Research), the city's 1969 Sewer Study (Brown and Caldwell), the county's 1972 Water and Sewer Study (Stevens, Thompson and Runyan), the 1969 General Plan (Langford and Stewart), and the city's 1974 Water Study (Brown and Caldwell) all depict an "Urbanizing area" for Grants Pass, and use this area to determine future facilities demand. (See Map 13.3.1) Due to natural, geographic constraints, and to the historical development of the area and its transportation system, all urbanizing areas depicted show marked similarities.

- **State Land Use Goal 14**

In 1973, the Oregon State Legislature found that "uncoordinated use of lands threaten the orderly development, the environment of (Oregon) and the health, safety, order convenience, prosperity and welfare of the people of (Oregon)."[1] A commission was formed, the Land Conservation and Development Commission, with members appointed by the Governor and confirmed by the State Senate, to establish state-wide planning goals, and to assure that land-use plans and actions by Oregon cities and counties were in compliance with these goals. Stateside hearings were held, and fourteen basic land use goals were determined.

Two critical concerns of the legislation were the conservation of agricultural land and fostering orderly, economic and efficient growth rather than urban sprawl. State Land Use Goal 14 focuses on these two issues, and resulted in a requirement for cities to create Urban Growth Boundaries as a means of providing "for an orderly and efficient transition from rural to urban land use."

An Urban Growth Boundary (UGB) separates "urbanizable" land from "rural" land. "Urbanizable" lands are those lands necessary and suitable for future incorporated city limits (urban areas), and which can be served by city (urban) services and facilities. "Rural" lands are agricultural, forest or open space lands, and other lands suitable for sparse settlement, small farms or acreage homesites, and which need little or no public services. Quite suitably then, given the above definitions, the criteria for the establishment and expansion of an UGB, as well as the criteria for full development of lands within a Boundary, focuses on need, on efficient provision of services, and on protection of agricultural land. These key criteria are as follows:

Establishment and change of the boundaries shall be based upon consideration of the following factors:

1) Demonstrated need to accommodate long-range urban population growth requirements consistent with LCDC goals;
2) Need for housing, employment opportunities, and livability;
3) Orderly and economic provision for public facilities and services;
4) Maximum efficiency of land uses within and on the fringe of the existing urban area;
5) Environmental, energy, economic and social consequences;
6) Retention of agricultural land as defined, with Class I being the highest priority for retention and Class VI the lowest priority; and,
7) Compatibility of the proposed urban uses with nearby agricultural activities.

Conversion of urbanizable land to urban uses shall be based on consideration of:

1) Orderly, economic provision for public facilities and services;
2) Availability of sufficient land for the various uses to insure choices in the market place;
3) LCDC goals; and
4) Encouragement of development within urban areas before conversion of urbanizable areas.

[1] ORS, Chapter 197.005, Legislative Findings

The establishment of the Grants Pass Urban Growth Boundary was based upon a long history of considering the Grants Pass "urbanizing area," and was focused upon the economic provision of services to that urbanizing area.

- **Past Urbanizing Study Areas**

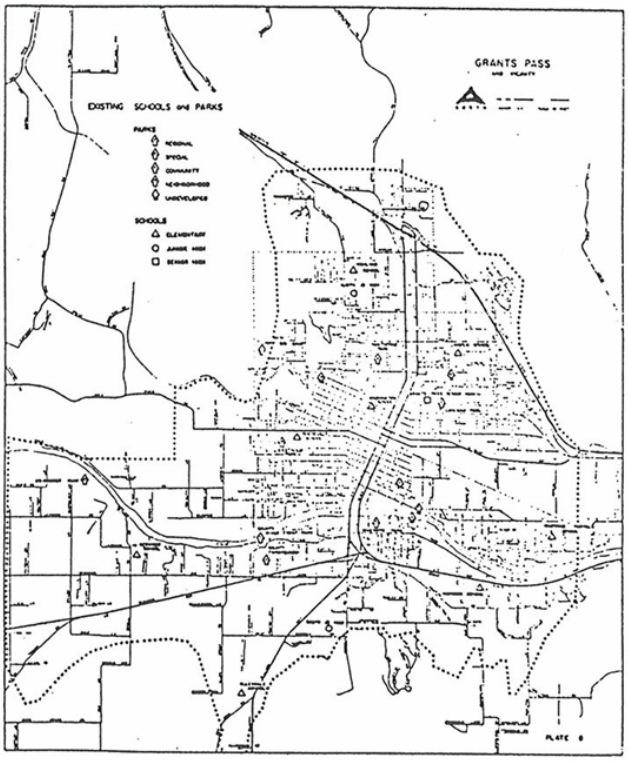
The 1960 study "Planning for Recreation Areas, Grants Pass and Vicinity," included an urbanizing area very similar to the 1978 draft Urban Growth Boundary, with the exception of the South Fruitdale area. (See Map 13.3.1-A) The 1960 Park Study also projected an urban population for the study area of about 36,000 persons, as compared to the 36,600 persons projected by the draft Boundary proposal of 1978.

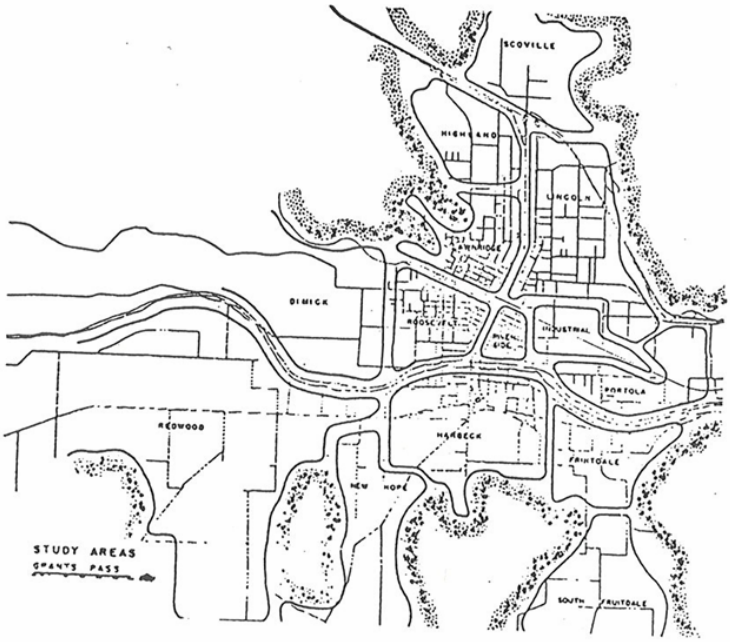
The 1969 General Plan and the 1969 Sewer Study showed similar study areas that were very close to the 1968 draft UGB, with the exception of the "Azalea area" west of the city limits. (See Map 13.3.1-B) The 1969 General Plan "urbanizing area," including the city limits, contained 10,664 acres, 6,717 dwelling units and 20,151 persons in 1967. The 1969 Plan projected 58,000 persons in the county by 1985, and 34,800 persons in the urbanizing area by the same date. The 1969 plan projection of county population was reasonably close to the 1981 PSU estimate of 61,200, based upon the 1980 US census count of 58,855 persons. In contrast, the 1979 Urban Growth Boundary area was estimated to contain 22,340 persons in 1980, by dwelling unit count and 1980 household size.

The 1969 Plan's UGB projection was significantly higher. Extrapolated to 1980, the projection estimated 30,730 persons in the urbanizing area including the city, 38% above the 1980 count. This is due primarily to the use of a larger study area (over 3,000 acres larger than 1979 UGB), in the use of a larger household size (3.41 persons per household versus the 1980 census tally of 2.42 for the city), and in anticipation that a higher percentage of immigrants would be attracted to the urban area than was the case (38%) of county population projected within city limits versus the 1980 census tally of 25%).

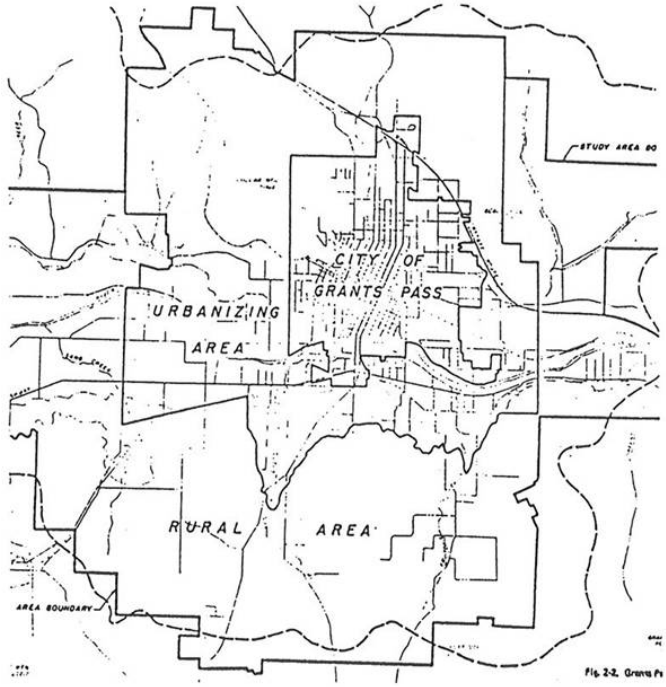
The 1972 county-wide water and sewer study also showed an urbanizing area very close to the 1979 UGB, as did the 1974 city water study. (See Map 13.3.1-C) The 1972 study indicated an urbanizing area of 9,550 acres, including the city limits, and projected a population of 40,000 persons by 1972, very close to the Economic Model projection of 38,870 persons by 1995, based upon the 1979 UGB area of less than 8,000 acres. The 1974 study estimated an urbanizing area population 31,500 to 28,500 persons by 1985, compared to the 1980 dwelling unit count estimate of 22,30 persons, using an urbanizing area of 11,550 acres compared to the 1979 UGB area of less than 8,000 acres. The greater acreage and a higher family size than present (2.9 compared to 2.42, city, 1980), account for the 1974 study's population projection of 48,750 persons by 1998. Table 13.3.2 and Map 13.3.1 show the extent of each urbanizing area considered, its size and projected populations.

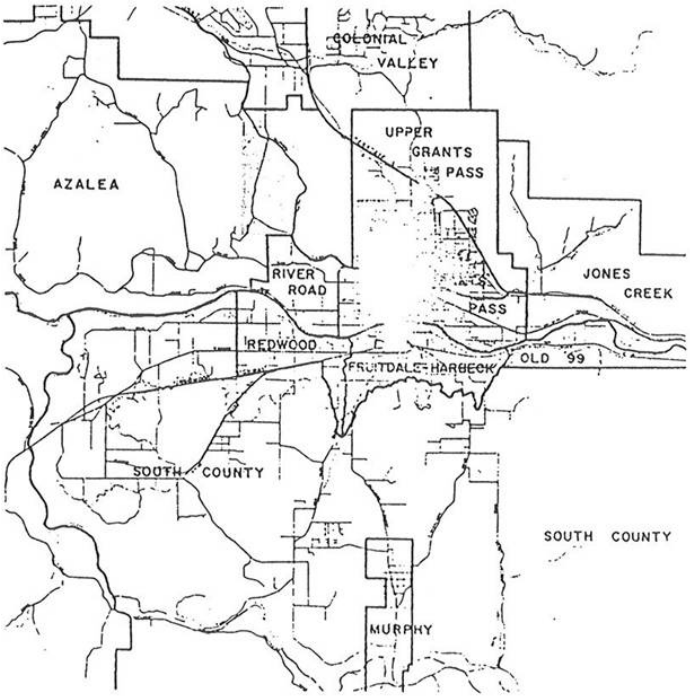
Map 13.3.1-A
1960 Recreation and Park Study and 1969 Urban Plan Highly Urbanizing Area



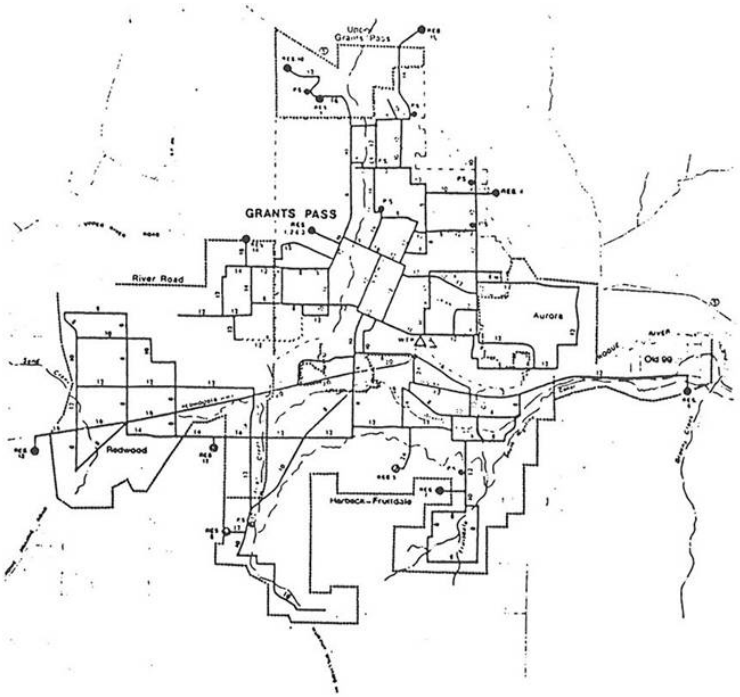


Map 13.3.1-B
1969 Sewer Study and 1969 General Plan





Map 13.3.1-C
1972 Water Sewer Study and 1974 Water Study



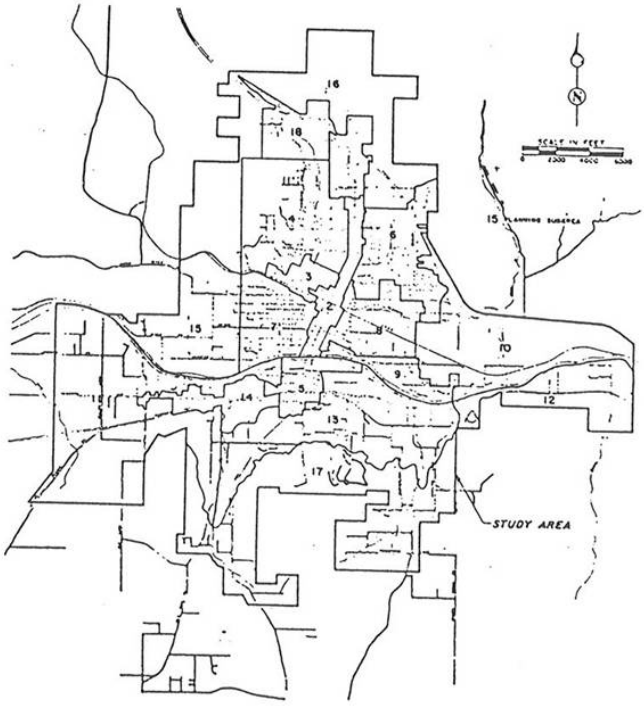


Table 13.3.2

Plan/Study	Study Area Acres	Urbanizing Study Area Projected Population	
		Persons	Date
1960 Recreation/Park Study	-	36,000	Full Development
1969 Sewer Study	14,440	44,600	2000
1969 General Plan	10,664	34,800	1985
1972 Water/Sewer Study	9,550	40,000	1992
1974 Water Study	11,550	48,750	1998
1979 UGB		22,340	1980- Unit County
		30,320	1990- UGB
		33,545	1990- Economic Model
		38,300	2000-UGB
		44,750	2000- Economic Model

Physical and Geographic Constraints

Each of the above referenced studies were concerned with service provision to the city and urbanizing area, and the study areas selected as most likely to urbanize and most efficient to service are markedly similar. In each case, the city's historical development, and fairly obvious physical and geographical constraints, as well as placement of major transportation routes, have led to similar conclusions regarding the direction and location of future development.

Induced by the Old Stage Road Stop, and later by the placement of the Southern Pacific Railroad in 1883, initial development took place on the flat river terrace north of the Rogue River, with the initial street grid laid out parallel to the railroad tracks. Later development spread to fill this alluvial river terrace north of the river, also extending north up Gilbert Creek and Fruitdale Creek, limited by steep, folded hills to the west, north and east, and by the river to the south. Highway 99, extending from Rogue River and Medford to the southeast, and continuing on west to the coast, together with the Sixth and Seventh Street bridges, encouraged development to the south of the river, once again constrained by topography to the river terraces (Redwood, Harbeck and Fruitdale areas), and the Allen Creek area to the south along the Williams Highway. Development to the west, north of river, has been limited by large scale commercial farming operations, and recently, by zoning laws. Commercial uses have followed the transportation system: railroad, highway and freeway. Industrial uses have co-opted the river terrace area north of the river and west of the city. The I-5 freeway has

both added to and altered the transportation network, opening new areas for more intensive commercial development near the freeway interchanges, while at the same time reinforcing existing patterns that have given rise to the city's physical structure. Residential areas have filled in the areas of level gradient between the major roadways that the attendant commercial development, and the surrounding hills.

13.4 THE URBAN GROWTH BOUNDARY

- **Boundary Formation Strategy**

In the fall of 1977, the City of Grants Pass initiated its Comprehensive Plan activity with a series of "town hall" meetings to discuss general goals for the future development of the city. Josephine County had initiated its Comprehensive Plan process some 2.5 years earlier, and pressed the city to initiate Urban Growth Boundary proceedings. One of the city's primary concerns was the provision of urban level services to the urbanizing area outside city limits. The city's water system was without any major improvements to the distribution network in over 20 years. A treatment plant expansion in 1961 had increased plant capacity to 11.5 mgd (million gallons per day), but the distribution system limited plant yield to just over 9 mgd, a limit that was being approached by the city's maximum daily use in the summer season. The sewage treatment plant, recently expanded in 1974, was adequate, although the city was experiencing major infiltration and inflow of groundwater into its old sewage collection system, even in the summer months. (See Water and Sewer Sections, Services Element, for full discussion).

As indicated above, the city's historical development had been predominantly north of the Rogue River. Of the city's 3,440 acres, only 234 acres (or 74% of the incorporated area) was located south of the river. Most of the potential urbanizing area, however, lay south of the river. Following World War II, and more intensively following the completion of I-5 in 1962, first the Harbeck-Fruitdale area and then the Redwood area began to develop beyond rural densities, including commercial, industrial and residential land uses.

Groundwater in these areas was limited, and salt intrusions were moving steadily west and north from the southeastern corner of the Fruitdale area. Flat terrain and impervious soil layers creating perched water tables close to the surface limited the use of septic systems for sewage disposal and created storm drainage problems. These conditions resulted in the creation of the Fruitdale-Harbeck Sewer Service District in 1970, whose effluent is treated by the city plant, and the creation of the Redwood District in 1977.

The county began using a building code in 1974, and a zoning ordinance in 1973, and had no additional fire code requirements other than the minimal requirements contained in the Uniform Building Code. Development at urban densities had been allowed, but not urban standards of development.

In addition, the area's population influx had been heavily weighted with retired persons, many on fixed incomes, and not likely to be able to bear traditional financing methods required to extend the necessary urban services, or to bring the urbanizing area up to full urban standards of development.

As a consequence, the city felt barely able to meet its own on-going service improvements, much less able to bear the burden of extending full services into partially urbanized areas with substandard roads and property divisions, no water system and constructed at non-urban standards. The City felt the potential liability for full service provision to be a grave consideration, and therefore insisted from the outset that determination of an UGB and its attendant service obligations be inextricably joined with a determination of urban service responsibilities on the part of the city and county. As a result of these concerns, the city evolved the following strategy for preparing the Comprehensive Plan:

- The City and County, in a joint process with the City as lead agency, would develop and adopt the Grants Pass Urban Growth Boundary and Urban Services Policies. Sufficient data base to satisfy Goal 14 would be developed, problem areas would be identified, and further data base work initiated. The boundary and policies, once agreed upon, would lay out the "ball park" and set the "rules of the game" for the rest of the planning process leading to a complete Comprehensive Plan.

- The Urban Growth Boundary Management Agreement negotiations would immediately follow, based upon an expanded data base. The Management Agreement would determine the City and County's specific responsibility for providing urban services, would identify areas needing further technical study in order to result in the required capital improvements, would structure the process for further City-County negotiation in each service area, and finally would set the standards for whatever "interim" development occurred concurrently with the required area-wide capital improvements.

- The remainder of each jurisdiction's Comprehensive Plan would then be completed according to each jurisdiction's schedule and resources, basic agreement having been reached in key policy areas.

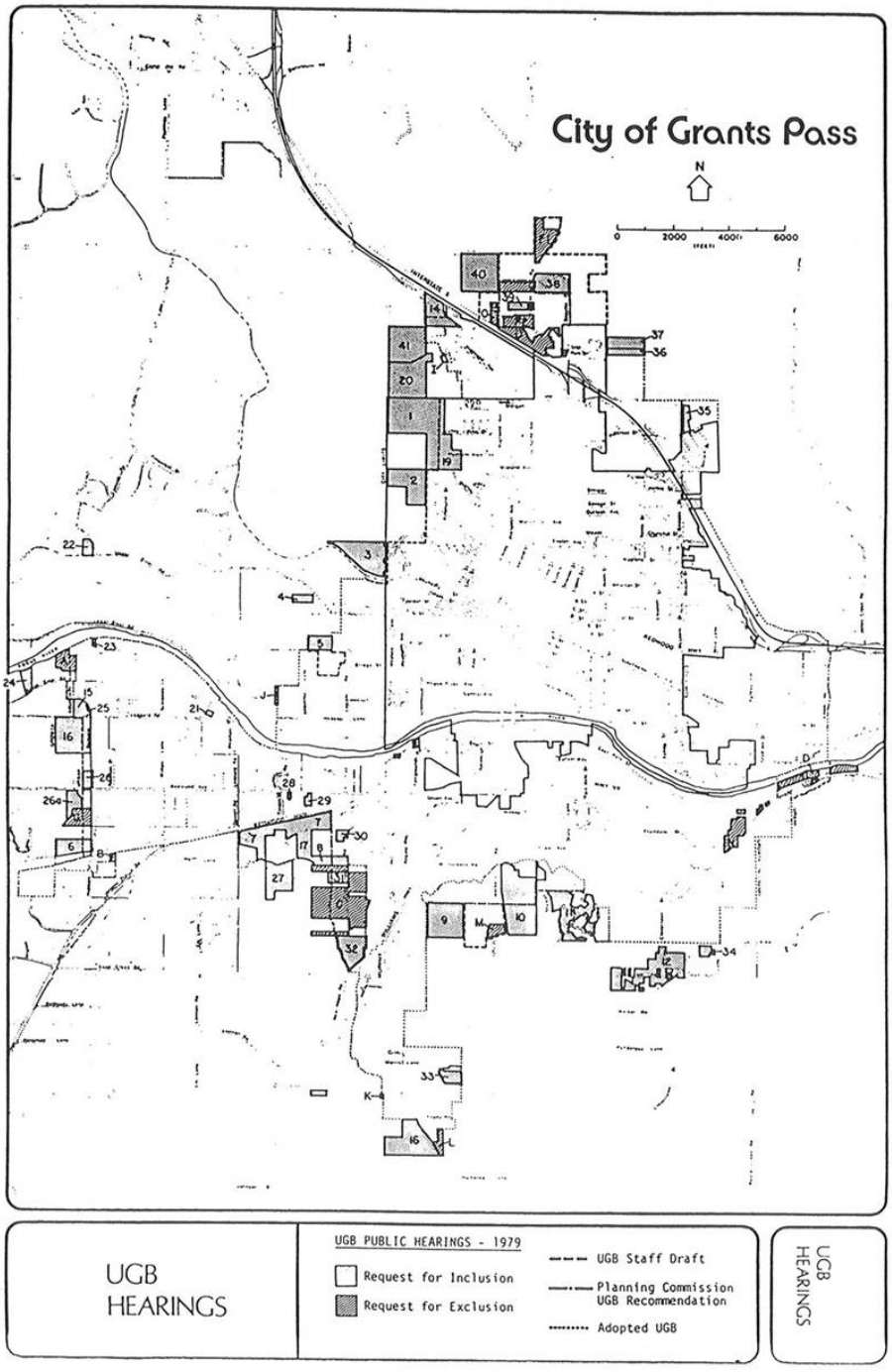
- Joint review, at intervals to be agreed upon, would allow alteration of the Boundary, Service Policies and Management Agreement as required.

This strategy limited the City's liability for the provision of urban services to the Boundary area, and at the same time allowed the City to synchronize its efforts with the key compliance schedule requirements of the County. Ordinarily, a detailed data base is developed first, goals and policies follow, and finally the Urban Growth Boundary and Management Agreement.

On this basis, then, the city proceeded to develop an UGB and service policies in conjunction with the county. The draft Boundary and Policy Document was released in July of 1978. There followed an intensive and extensive series of public workshops and hearings, and a revised UGB and Urban Service Policies were adopted in August, 1979. Map 13.4.1 shows the changes made in the draft boundary during the adoption process. Most of the citizen and property owner concerns were expressed at the periphery of the Boundary, by individuals wanting in or out of the Boundary area. The most significant changes make to the draft boundary were in the north city are (250 acres deleted), the Allen Creek area (lower Allen Creek Road area deleted), and in the Redwood area

(areas added below the Redwood Highway and at the western periphery).

Map 13.4.1
Urban Growth Boundary - 1978 Hearings History



Initial Boundary Rationale

The draft UGB was projected to accommodate 36,600 persons by the year 2000. The target population of 36,600 persons would have represented 51% of the PSU low-range population projection for Josephine County, 47% of the mid-range and 41% of the high range projections, with 34% being the recent historical average of city percent of county population. The PSU (Portland State University) projections were used as the projections with the "best local fit" at that time, and were also the highest of extent projections. (See Population Element for full discussion).

Orderly and economic provision of services, as might be imagined, was a prime consideration in determining the Boundary. The draft UGB south of the Rogue was nearly coterminous with the active potions of the existing Redwood and Harbeck-Fruitdale Sewer Service Districts, which had sewer mains already extended throughout, and were thereby fully committed to some level of urbanization, and also was bounded by the 1150' elevation contour indicating the most efficient water service area as per two recent water studies. (See Section 13.3 above). The draft Boundary north of the river was primarily limited by the 1450' and 1166' elevations, once again used as efficient water service indicators, as well as by the commercial farmlands to the west, and by steep hills and the freeway to the northwest and northeast. Except where steep slopes prohibited, the Boundary was extended evenly around the existing city limits north of the river, once again reflecting the economy of service extensions. (See Map 13.4.1 and Appendix 13.1, Draft Urban Growth Boundary and Urban Service Policies).

The need for housing, employment and livability were addressed in a more primitive fashion, by simply projecting the same 1978 city land use ratios forward to 2000, making slight increases in the commercial and multi-family land use ratios. This approach reflected the overwhelming opinion voiced by individuals throughout the planning area to retain the small town character of area, and favoring low, controlled growth. A 28% "market factor" was added to ensure market choice and to prevent an artificial inflation of land prices. (See Tables 13.4.2 and 13.4.3, below).

Table 13.4.2
1978 Draft Urban Growth Boundary Land Use Ratios

Type of Land-use	Acres per 100 Persons	
	Present	Future
Single family residence	8.771	8.418
Multi-family residence	.293	.331
Public/Semi-public	2.121	2.123
Industrial	1.236	1.235
Railroad	.379	.145
Commercial	1.471	1.475
Transportation	4.536	4.538

Table 13.4.3
1978 Draft Urban Growth Boundary Acreage Determination

Item	Acres
Acres developed to urban densities within city limits	2,633
Additional acres needed for development to accommodate 36,600 persons	4,052
Vacant acres needed for choice in the market place (28% x 4,052)	1,135
Total Acres Inside Urban Growth Boundary	7,820

The lands within the Boundary lying along the river terraces to the east and west of the city limits north of the river had agricultural soil capabilities. To the east, the lands were rated as Class II and IV soils; due to the proximity of existing industry of long standing in both city and county, due to excellent freeway and rail access, and due to relatively small parcel size, this area had a unique value for industrial development and was included in the Boundary. On the west, the Boundary was limited by commercial farmlands, and was extended into Class II through IV soils only as far as already committed to urbanization, in the form of large trailer parks and small parcel size. Further, the Boundary was designed to utilize rural residential lands and cemetery locations as a buffer between the commercial farmlands and the UGB area. South of the river, parcelization into small lots, the location within existing sewer districts, and the potential of economic water service were the limiting facts, even though the soils were rated as Class II through IV. (See Appendix 13.1)

Boundary Evolution Summary
Following the city's Comprehensive Plan strategy, the city then embarked upon a development of the data base to higher level, preparing commercial and industrial land inventories, a full build able lands inventory for the Boundary area, economic, traffic and urban farm analysis utilizing HUD and Oregon Traffic Safety Commission grants, a water plan and a storm drain plan. Simultaneously, the city set out to negotiate a rather detailed Management Agreement with the county, in an effort to further define the responsibility for providing urban services, and to establish "interim development standards" for the urbanizing area prior to final Comprehensive Plan and Development Code preparation. The economic/traffic/urban form analysis, identified as the urban Growth Plan, were to serve as a guide to the Comprehensive Plan, as well as providing the Economic and Transportation Elements and portions of the Land Use Element, and "testing" the Urban Growth Boundary for sufficiency.

As more detailed industrial and commercial inventories were completed, an extensive monitoring of the transportation network, and an analysis of the area's economic base were undertaken. Three separate commercial scenarios were prepared and examined, together with three industrial scenarios, and the resulting nine combinations were each reviewed in conjunction with the transportation network in order to determine their effects upon urban form. (See Urban Form Section, below for

full discussion).

The primary Urban Growth Plan impacts upon the Boundary were the decisions to double the area's light industrial growth vote, to determine the quantity and location of needed commercial and industrial lands, and their relationships to residential lands, to increase the year 2000 target population to 38,300 persons, and to determine the primary transportation network together with its relationship to urban form. The Urban Growth Plan was adopted by the city in August, 1980, and included by the Board of County Commissioners in their interim "Comprehensive Plan" for the urbanizing area in August, 1981.

The Management Agreement, meanwhile, adopted by both Board and Council in January, 1981, called for the development and adoption of urban service plans determining the required service facilities and their location, cost and implementation mechanisms within 24 months. These basic service plans included water, sewer, storm drainage, transportation parks, solid waste, and irrigation water. The Council adopted a Water Distribution Plan for the UGB area in _____, 19__, and a Treatment Plan in _____, 19__. The Board likewise adopted a Water Plan for a more limited area within the UGB prepared by the same engineering from, in _____, 19__. (See Section 10.2). The Transportation Plan was adopted by Council in March, 1981 and by the Board in _____, 19__. (See Section 11). The Storm Drain Plan (Dealing with the UGB area and a larger drainage basin), was adopted by Council in May, 1982, and by the Board within the month. (See Section 10.4). A Sewer Study is currently underway, and a Parks Study began in July, 1982. A Solid Waste Plan was adopted by the Board of County Commissioners in _____, 19__, and this Plan was accepted in principle by Council as part of the Management Agreement, although an implementation plan has yet to be initiated. For those service plans adopted, Council, Board, Staff and the public now know the required future facilities, their location, costs and choice of financing mechanisms. In addition, for the water, storm drainage and transportation plans, computer models have been developed that include present and future facilities, and thus the effects of any policy change or development upon the system can be quickly and inexpensively quantified, and the results used to make an informed decision. In addition to the service plans, a six-year Capital Improvement Program (CIP) has been developed, so that the timing and inter-relationship of facilities installations may be assessed.

Also called for by the Management Agreement were common development standards, and a single planning commission serving the UGB area. The Council and Board created the Urban Area Planning Commission in May, 1981, replacing the City Planning Commission, the County Planning Commission, and County Zoning Commission within the UGB area. Also adopted were common land use hearing rules and a common zoning ordinance in August, 1981.

The effect the Management Agreement had upon the UGB, then, was the quantification of major service demands, the definition of and city-county agreement of service implementation modes, and the beginning of the development of the UGB area, ending an effective development moratorium of over two years. The city, through the mechanism of annexation agreements, entered into service commitments to land totaling over 260 acres during the first nine months of operation of the Urban Area Planning Commission, representing one-twentieth of the urbanizing area.

Boundary Criteria Summary
Therefore, the city is now in a position to address the UGB criteria contained in Goal 14 in a specific fashion. The material below attempts to summarize this criteria review. (Turn to proper Plan Section referenced for full treatment of each criterion).

Criteria (1): Population Need
The guidelines of Goal 14 indicate that the need for urban expansion should take into account an area's growth policy, population needs to the year 2000, the area's "carrying capacity," and recreation needs. Growth sentiment in the area ranges from no-growth to unlimited growth, with the majority of persons living in the area preferring low controlled growth (See Population Element).

Recent studies, and decisions make regarding the economy of the area, have resulted in a most probably range of population by the year 2000 to be between 96,640 and 101,250 persons for Josephine County, and between 38,300 and 44,750 persons for the Urban Growth Boundary area. The County Comprehensive Plan target population is 96,643 persons. (See Population Element for full discussion).

Criteria (2a): Housing Need
Housing need within the Boundary for the target population was again approached as a series of ranges, whose two main variables were household size and residential density mix. Also important to meeting the need for affordable housing was encouraging alternate development concepts (common wall townhouses, zero lot line detached housing, clustering, etc.), providing more moderate and high density build able acreage, and encouraging alternate building types (such as modular and mobile homes).

Using the lower value of the most probably household size range, the total new dwelling units required by the year 2000 were estimated to be between 8,883 and 11,913 dwelling units. (At today's household size, demand was estimated to be between 6,262 and 8,862 units). Two density models were used to determine the distribution of need by density group, where low density equaled 5.5 du/Acre, moderate density equaled 10.5 du/Acre and high density equaled 15.5 du/Acre and up. These models found the following housing need, split by density group, assuming low household size, and the target population range of 38,300 to 44,750 persons, as shown in Table 13.3.4.

Table 13.4.4
Housing Need and Boundary Expansion

Housing Model	Population Range	Dwelling Unit Need by Density Group			Boundary Expansion Required	
		5.5 du/Ac	10.5 du/Ac	15.5 du/Ac		
Low Density Model	38,300	5,226	3,088	569	1995	Urban Growth Plan Map
	44,750	7,009	4,023	881	1990	
High Density Model	38,300	4,076	3,149	1,706	2000	Service Capacity map
	44,750	5,413	3,928	2,640	1995	
(1)	(2)	(3)	(4)	(5)	(6)	(7)

Affordability also means "choice in the marketplace," as well as variety in density and building type. Column (6) in Table 13.4.4 indicates when the UGB would have to be expanded for each end of the population range, as the Housing Density Models are compared against the two Land Use Models, and as the developable units ratio between 3 to 5 times the unit demand. Depending upon the Land Use Model used, and the actual population pressure experienced, "Choice in the marketplace" could be maintained for 10 to 15 years, even without major Boundary expansion.

The urban Growth Plan Land Use Model closely follows the Urban Growth Plan, where as the Service Capacity model results in significantly higher densities in the urbanizing areas, particularly the Redwood District.

Criteria (2b): Employment Need The Urban Growth Plan development process was participated in by members of the City Council, the Board of County Commissioners, the City and County Planning commissions, the City Utility Commission, the downtown merchant and shopping center merchant associations and citizens at large. The consensus of opinion was that a concerted public and private effort was required to diversify the area's economic base, and a target of doubling the rate of historic (light industrial) job growth was determined. This policy was reflected in several economic projections, each with its own population projection, as is shown in Table 13.4.5.

Table 13.4.5
Job Growth and Population Growth

Model	Past Job Growth Trends Wood Projects/Other 1970-1980	Projected Job Growth Trends			Projected Population UGB At Year 2000
		1980-1990	1990-2000	Total 1980-2000	
Urban Growth Boundary (1979)	300/560	500	600	1,100	36,000
Urban Growth Plan (1980) (1)	300/560	1,300	1,800	3,100	(1) 38,300
(2)	"	"	"	"	(2) 42,200
Economic Model (1982) (3)	300/560	1,330	1,050	2,380	(3) 44,800

Source: Population Element, Table 6.5.6

The Urban Growth Plan (1) presumed 3,100 new light industrial jobs, mostly in lower paying assemblage industries, resulting in 50% of these jobs taken by existing residents as part-time or second-income jobs, and 70% of the newcomers living within the UGB. The Urban Growth Plan (2) presumed 75% of the jobs taken by newcomers, and 85% living within the UGB. The Economic Model (3) presumed a mix of heavier and light industrial jobs at higher pay, and thus 100% of the newcomers were projected to live within the Boundary (See Economic and Population Elements).

Recent formation of the Josephine Economic Development Association, and the inclusion of $300,000 in the City's FY 1982-83 budget request solely for fostering economic development, indicate the seriousness of this policy determination. Enough acreage with either industrial zoning or the potential for industrial zoning has been included within the Boundary to accommodate twice the doubled light industrial job growth rate.

Criteria (2c): Livability - "Livability" was the primary driving force behind the recent surge of immigrants into Josephine County. Livability was defined by newcomers to Josephine County as a good place to raise children, a slower pace of daily life, safety from crime and violence, the friendliness of people, less crowding and pollution, cleaner air, and better recreational opportunities. Those locating here, according to a recent study, were willing to "purchase" this intangible but real "livability" at a mean cost of 45% of their former salary, with 28% willing to take cuts of up to $20,000 per year. These "urban refugees" were mostly from metro areas, and were part of a major nationwide trend. (See Population Element.)

Past plans recognized that the natural resources of the area, the Rogue River, wilderness and forest lands, viewsheds and rural lands have a major function in the area's economy (General Plan - 1969), and this view has been reinforced by more recent economic studies (Urban Growth Plan - 1980).

The "livability" of the area is reinforced by the Economic and Recreation Elements, the natural resources are protected and enhanced as a part of daily life by the Recreation and Resource Duality Elements, and existing residential neighborhoods are protected by the Land Use Element.

Criteria (3): Orderly and Economic Provision of Urban Services - The orderly and economic provision of services has been a prime consideration in the development of the Urban Growth Boundary and attendant service policies, as has been indicated above. The Boundary was initially formed including the outlying sewer districts, and care taken to include only those areas most economically served with water at fire flow capacities. Service plans have been prepared, or are under way, determining needed facilities and their location, cost and possible financing mechanisms, for the key urban services of water, sewer, storm drainage, transportation, parks and solid waste disposal. Completed plans include computer models of the service system to aid in assessment of system needs and impacts, and to keep the plans updated.

The Capital Improvement Program (CIP) has been developed as a combined City-County program in order to coordinate facilities provision and to assure proper timing of service provision. Each service plan includes a variety of funding mechanisms, and the present City programs include many of these mechanisms, such as general obligation bonds, developer improvements, oversizing fund, Bancrofting of improvements, local improvement district formation, rate payer contribution, and systems development charges. In addition, the County has authorized consultants to prepare a study of various funding mechanisms possible for County use, and should soon be in a position to match the City's array of service financing mechanisms.

In addition to planning for service provision, and assisting in its financing, the Interim Development Standards for the urbanizing area require that, whenever a basic service capacity is reached in a particular area, further development in that area much be dependent upon the required system improvement constructed, or upon improvement plans agreed upon by the City and County together with adequate financing commitments.

Criteria (4): Maximum Efficiency of Land Use - Both Land Use Models address the issue of "efficient" land use, consistent with the area's historical development pattern and citizen desires. The Downtown Plan calls for high density residential uses fringing the City center, and by providing peripheral employee parking lots, will maintain needed parking space while allowing intensive commercial development in the City center. The Boundary area's two major "suburban" shopping centers, the Grants Pass Center and the Redwood Plaza, are actually very close to the Downtown and are also provided with surrounding high density residential zoning. The construction of the Third Bridge (See Transportation Element), will tie all three commercial sectors into a "shopping triangle" efficiently serving the outlying residential areas. Both housing density models show a further intensification of land use from historic patterns, resulting in a City low density/ high density

residential lands split by the year 2000 of 66%/33% (low density model) to 70%/30% (high density model), as compared to the 74%/24% of today (1980 census) or a decade ago, 86%/14% (1970 census).

The utilization of the urbanizing area over time is somewhat predetermined by varying resource capacity. In the Redwood and Harbeck-Fruitdale areas south of the Rogue River, the sewer systems are already installed, and residential development can proceed throughout the area, constrained only by the limits of the ground water resource (1-4 dwelling units/acre) and the economies of interim fire flow provision. Commercial and industrial development within these areas will require fire flow water for economic reasons, and water extension to the prime commercial and industrial locations in these areas is a high priority. North of the river, all services may be extended from any point in the City's infrastructure.

Criteria (5): Environmental, Energy, Economic and Social Consequences - The environmental and economic consequences of the Plan have been discussed under Criteria (2), above. The City had energy audits performed a series of surveys performed by Pacific Power and Light, and by Sundergi, Incorporated. Several other cities in the Rogue River Valley were also surveyed. The survey showed the citizenry to be quite aware of the need for and benefits of energy conservation, and these citizen concerns and desires form the basis for the City's energy conservation policies (see Energy Element).

The urban form arrived at as a result of an intensive series of workshop sessions was a compromise between a core-centered and dispersal approach to urban land use (see Section 13.5 for full discussion). The final choice emphasized citizen desires for the future, and yet respected the area's historic development pattern.

Criteria (6): Retention of Agricultural Land - Map 13.4.6 shows the location of agricultural lands rated by soil classification adjoining the city limits and through the Boundary area. North of the Rogue, to the east, soil classes II through IV may be found. Further to the west lie the large commercial farms, likewise of high soil class, as may have been expected within and adjoining the Rogue River flood plain. In the southwest corner of the Boundary area, north of the river, lies a major mobile home park, provided with city water and sewer, and predating the Boundary and Senate Bill 100. Several subdivisions and mall parcelization has occurred between this mobile home park and the city limits, committing the area to urbanization. Between the Boundary and the Exclusive Farm Use lands (see map) lie Rural Residential lands, and several cemeteries.

North of the Rogue to the east, the flood plain and river terrace soils continue, of soil classes II to IV. This area, with highway, freeway and rail access, had developed historically as heavy industrial, beginning with several mills and other forest-resource oriented industries. The rail and freeway access, the small parcelization, the existing industrial commitment, and the need for economic diversification all required the further industrial use of this area, and its inclusion within the Boundary.

Criteria (7): Compatibility of Proposed Urban Uses Nearby Agricultural Uses
note: to be provided by County Planning.

Map 13.4.6
Soil Classifications and UGB Formation

(Map showing soil classifications within 4 adjoining UGB and city limits, county Exclusive Farm use zone to west, Boundary outline, and Redwood and Harbeck-Fruitdale Sewer Service Districts.)

13.5 THE URBAN GROWTH PLAN AND URBAN FORM

The pattern of transportation ways is a primary determinant of commercial development, and this transportation pattern has a similar impact upon industrial development as well. On the other hand, as commercial and industrial development occurs, traffic patterns and loading are affected, and major realignments of the transportation ways may result.

The City wished to address the question of its industrial base, commercial development, the existing and projected transportation network and the resultant urban form, and so directed work on the Urban Growth Plan and Traffic Management Plan to proceed as a coordinated project. Utilizing funds from HUD and Oregon Traffic Safety Commission grants, a team of economists, architects, planners and traffic engineers were selected from over 40 firms showing interest. Working at the direction of the City Council and Board of County Commissioners, and with input from a 30 member committee selected by Board and Council, an Economic Base Analysis was prepared (See Economic Element). From this analysis three major scenarios were discussed for future commercial and industrial development. Of the nine possible combinations of the commercial and industrial scenarios, six combinations or "growth alternatives," were selected for detailed review. Final deliberations of Board and Council resulted in an amalgam of two growth alternatives selected as the Urban Growth Plan for the urbanizing area.

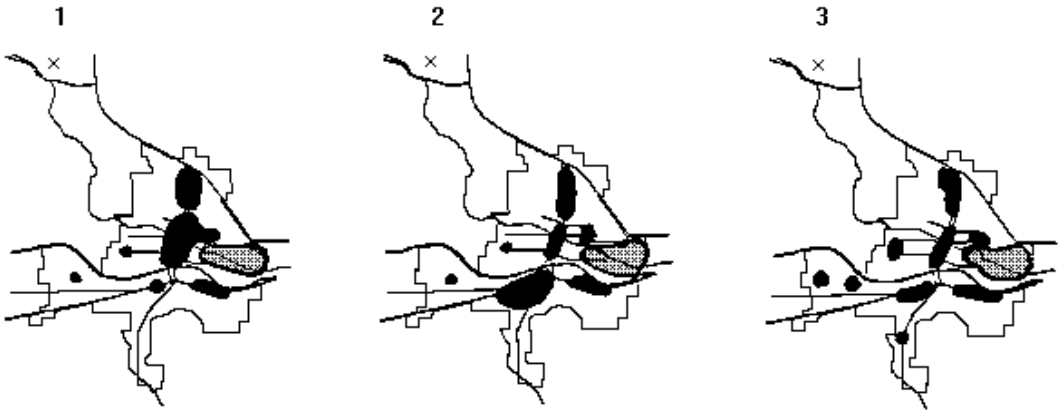
Commercial Scenarios

The commercial scenario analysis (1) projected future commercial floor space and acreage requirements for the Grants Pass Urban Growth Boundary area to the year 1990 and 2000; (2) allocated projected growth among three alternative commercial development scenarios; and (3) analyzed the economic, transportation and urban form patterns that will likely result with each alternative.

An analysis of historical commercial retail space as conducted using various sources: (1) a comparison of land use inventories; (2) a comparison of building permits; and (3) retail sales figures. Included is an estimate of leakage from the Grants Pass area. "Leakage" refers to those expenditures by residents that are made outside of the local area. It is the major comparison goods categories of general merchandise and miscellaneous retail where the leakage is most clearly seen. Out of the total of about 44 million dollars spent by County residents on general merchandise and miscellaneous retail items in 1979, some 27 million were spent in the County and 17 million out of the County. Also analyzed was projected growth in office/service space. The requirements for office/service space were primarily based on historic ratios between service space and retail space in Grants Pass and other comparable cities, but comparisons were also made with other cities and counties in the State.

Projected commercial growth of 1,670,000 SF of retail space and 1,190,000 SF of office/commercial space over the next two decades in the Grants Pass Urban Growth Boundary can develop in several alternative forms. The three scenarios selected are graphically represented in Map 13.4.7.

Map 13.4.7
Alternate Commercial Scenarios



Major commercial growth is channeled to the existing centers of commercial activity, the Downtown, and the Grants Pass Shopping Center area east of the Downtown.

Major commercial growth is established at a new County-wide shopping complex south of the Rogue River in the Redwood Interchange area.

Major commercial growth is disbursed around the urban Area, with emphasis on commercial strips and neighborhood centers.

Commercial Scenario 1:
Scenario 1 assumes sufficient space for feasible commercial expansion in the existing centers. Areas directly south, east and west of the downtown center will have all been identified as suitable for major downtown expansion. The Grants Pass Shopping Center is considering expansion with a covered mall and other commercial buildings. Additional commercial land between the downtown and the shopping center awaits development as well. Scenario 1 allocated 65% of the new commercial growth to the existing commercial centers downtown and in the Grants Pass Shopping Center area. It assumed a moderate size community center south of the River, with office and service uses developing around it, and limited growth in commercial strips and neighborhood centers around the urbanized area.

Scenario 1 would require the attraction of a new major name department store in the Downtown. Other smaller retailers, and perhaps a second department store anchor would follow if that first commitment could be obtained. It would require the development of a more off-street parking facility, either several additional blocks of service parking or a block of multi-level parking, probably assembled with the assistance of the City adjacent to the site of the major department store.

Under this scenario there would also be a major increase in office/service growth downtown. This type of growth would likely develop toward the north end of the downtown near the Courthouse City Hall office concentrations. As major retailing grew in the Downtown, it would most likely push out

existing uses that require less expensive space, such as the automotive businesses on the south end of the downtown. These would most likely relocate along commercial strips.

Scenario 1 assumed that:
(1) Downtown Grants Pass would remain both retail trade center and the office/service center of the county over the next decade.
(2) Limited new facilities would be developed south of the River which would meet basic shopping needs for resident south of the River.
(3) There would be little dispersement of commercial facilities to new neighborhood or commercial strip area; these residential areas would mainly continue to be served from existing commercial locations.

Commercial Scenario 2:
Scenario 2 allocated 33% of the new commercial growth to a major County-wide shopping complex and commercial center south of the River. 20% of the commercial growth was allocated to new facilities downtown and in the existing shopping center area; 12% to 13% of the space demand was accommodated by the conversion of 357,000 SF. of downtown retail space to office space use. Neighborhood and strip retail was also increased over Scenario 1, indicating the dispersement of convenience retail to neighborhood centers and/or strips, along with the concentration of comparison retail in a major new center.

Scenario 2 was highlighted by a major new county-wide shopping complex south of the Rogue River. There are serious questions about whether a major new retail concentration south of the Rogue River in the urban area could survive and prosper in the early 1980's. The new county-wide shopping complex would require two major department store anchors plus a major drug and variety stores. There would be on the order of 1,500 parking spaces and congestion on the bridges would be increased, since the majority of potential customers now live north of the bridges.

One very positive aspect of Scenario 2 is that it would most effectively prevent “leakage” of local shopper’s expenditures to shopping areas outside of the County.

Downtown in Scenario 2 would have limited retail growth, as would the existing Grants Pass Shopping Center, due to competition from the new center. Instead, downtown would experience a series of retail vacancies as retailers move to the center and downtown rental space rates dropped in relation to other areas. Office/service uses would replace former retail uses in the downtown and street floor offices of lawyers, accountants, etc. would become more prevalent. And as Josephine County continued to grow at a hearty pace, Grants Pass would not be faced with long term vacancies or boarded up buildings on its main street.

The City would require an active effort to make the transition to office/service uses in the downtown a gradual and attractive one. If the downtown retail space becomes converted to commercial storage or warehouse uses or too much second hand or part -time retailing takes hold, the market for first class office/service uses in the Downtown could be damaged.

Commercial Scenario 3:
Scenario 3 projected that about 40% of the commercial growth over the next decade would go to the existing concentrations downtown and at the Grants Pass Shopping Center area, while the other 60% will be generally dispersed to commercial strips and neighborhoods on both sides of the River, with no special shopping center of unusual size south of the River. There would likely be neighborhood centers and/or strip commercial development in the Redwood area and along the Rogue River Highway as well as at the Redwood Interchange. North of the River, new commercial strips would develop west of the City and the North City commercial area would continue to develop and expand its borders.

Under this Scenario, the downtown would continue to grow moderately, but it would become a gradually decreasing part of the total commercial activity for the urban area, as the commercial strips and neighborhood centers grew at a faster pace. It would also gradually become more of an office/service center for the County, less "the" retail center for the County.

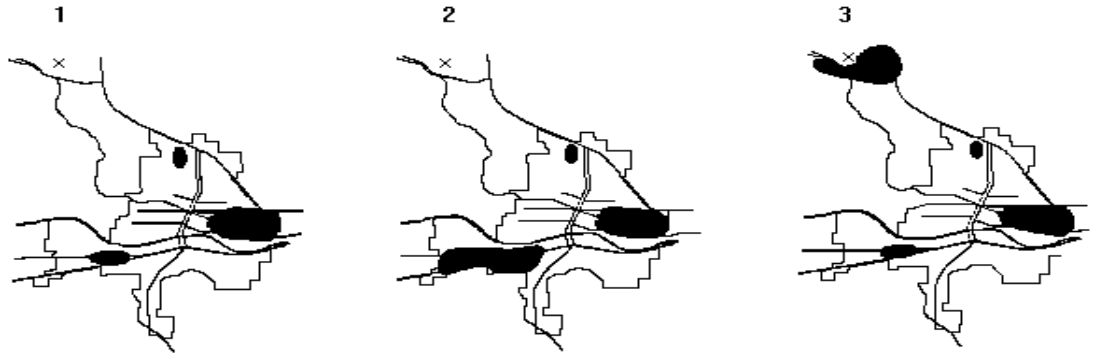
The downtown would not attract a new department store under this Scenario, but it could retain what it has and perhaps get some expansion from existing major retailers. It would be possible under this Scenario for the downtown to more directly serve a higher density population living closer to the downtown in new apartments and condominiums. Many of the persons so attracted would be older and retired who would find the services and goods they needed there.

Major new retailers would locate in freestanding stores along commercial strips in the Scenario, while new neighborhood shopping centers with grocery/drug anchors and related convenience goods and services were developed in each area of residential growth. The Scenario would do the least to prevent leakage in expenditures for major comparison goods items to areas outside the County

Industrial Scenarios

As is demonstrated in the Economic Element, Josephine County has maintained a strong base in lumber and wood products manufacturing in the 1970's. Light manufacturing employment in Grants Pass has continued to grow steadily in the 1970's, on a new base established strongly in the 1960's. Tourism continues as a significant supplement to the manufacturing base, but transfer payments have accounted for most of the dramatic growth in population of the County in the 1970's. Thus, the County's economy no longer depends so strongly on its lumber and wood products jobs, not even on the light manufacturing jobs. An examination of historical and recent industrial development in the City is contained the Economic Element as well as analysis on the supply of industrial land in the City and in the urbanizing areas. The demand for industrial land is nowhere near as great as the supply on the bases of projections in manufacturing and distributive employment in the Grants Pass area. The real policy questions appear to be which of those potential industrial acres should be given priority in the extension of water and sewer services so as to make it the priority area. Projections for demand for industrial land were based on three scenarios graphically represented in Map 13.4.8.

Map 13.4.8



Alternate Industrial Scenarios

A continuation of present trends, with limited industrial growth in the area easily accommodated by east Grants Pass and areas directly east of Grants Pass to the Urban Growth Boundary.

A more rapid growth in industrial employment, concentrating on light manufacturing in the Redwood area.

A more rapid growth in industrial employment, concentrating on light manufacturing at Merlin.

Industrial Scenario 1:
Under a continuation of present trends, employment in lumber and wood products was projected to experience a moderate decline to the year 2000. This decline was approximately offset in demand for industrial land by growth in distributive employment-- trucking, warehousing, and wholesale trade. The real growth in manufacturing jobs, even under a continuation of present trends, would be through expansion of light manufacturing firms. An increase of 500 jobs was projected for the 1980's, as occurred in the 1970's in this category; and an increase of 600 jobs from 1990 to the year 2000 was projected.

Only a limited amount of new industrial acreage would be required in the Urban Growth Boundary area under this Scenario; thirty (30) acres over the next ten year and sixty seven (67) more from 1990 to 2000. Additional population supported from this industrial growth would be only about one thousand persons during the 1980's and some 1200 persons in the 1990's.

Industrial Scenario 2:
With a conscious program to attract light manufacturing firms, an additional 800 light manufacturing jobs could be added in the 1980's, plus another 1200 in the 1990's. Distributive employment would also increase at the same rate. There would be 1,440 new industrial jobs in the 1990's instead of 550; plus 2,650 new jobs in the 1990's instead of 1,150 as projected under a continuation of present

trends. Even under more rapid growth Scenarios, demand for additional industrial land will be quite easily met, whether at Redwood or at Merlin. In either case, such rapid industrial growth will only require about sixty (6) industrial acres in the 1980's and another one hundred twenty (120) industrial acres by the year 2000. There would be significant increases in population supported under more rapid growth Scenarios -- about 2,025 additional persons in the 1980's and another 4,051 in the 1990's, or 6,076 additional persons by the year 2000.

Industrial Scenario 3:
This scenario would not differ from Scenario 2 in the magnitude of new employment and population supported by the County. It merely allocated the same amount of growth to industrial allocations in Merlin instead of the Redwood area. The basic difference in impact from Scenario 2 would be that there would be longer commutes to work from the UGB area, pressures on different arterial and on residential development in the Merlin area, and a greater portion of the new population would live outside the Urban Growth Boundary. We estimate that 50% of the new population compared to 30% in Scenario 2. The estimated additions of population supported are based on a number of assumptions that need to be made explicit. Approximately one-half of the new light manufacturing jobs would be "second income jobs" taken by persons already living in the area to supplement family incomes. The other half would attract new residents. The new jobs and new income would have a multiplier effect supporting additional employment in support and service occupations.

Nine Growth Alternatives

The three Commercial Scenarios and the three Industrial Scenarios can be combined to form a matrix of nine potential combinations. (See Table 13.4.9) Each combination had a different impact on the City's land uses, residential distribution, transportation network and the UGB's community facilities. All Scenarios were deliberately focused, and somewhat exclusive as a result, if compared to the probable mix of what would happen in reality. The combinations quantified the most salient impact and in doing so gave the City and County policymakers a clearer understanding of the possible implications of their land use decisions in the months ahead, and the power of these decisions to shape the future.

Table 13.4.9
Growth Alternative Matrix

C1-I1*** Major commercial growth channeled to existing centers. Continuation of historical trends in industrial growth.	C2-I1*** Major commercial growth established at new County-wide complex south of River. Continuation of historical trends in industrial growth.	C3-I1*** Major commercial growth disbursed around the urban area. Continuation of historical trends in industrial growth.

C1-I2*** Major commercial growth channeled to existing centers. Increases above current trends of industrial growth channeled to the Redwood area.	C2-I2*** Major commercial growth established at new County-wide complex south of River. Increases above current trends of industrial growth channeled to the Redwood area.	C3-I2 Major commercial growth disbursed around the urban area. Increases above current trends of industrial growth channeled to the Redwood area.
C1-I3 Major commercial growth channeled to existing centers.	C2-I3*** Major commercial growth established at new County-wide complex south of the River	C3-I3 Major commercial growth disbursed around the urban area.

Of the nine possible growth alternatives, those selected for examination were first chosen on the basis of the most probable to occur, given historic trends and the free play of the market, then as associated with other Alternatives for purposes of comparison. C1-I1 and C2-I1 were the obvious initial choices, which compare the location of major retail activity in existing locations north of the river to a shift south of the river, matched against a background of historical industrial development. The dispersal Alternative, C3-I1, would result as the most probably "free market" model.

Increased industrial activity was located within the Urban Growth Boundary (UGB), and the two combinations of Industrial South/Commercial North (C1-I2) and both Industrial and Commercial South (C2-I2) were explored and compared.

The option of increased industrial activity located in Merlin was then linked with the new commercial focus south of the River (C2-I3) as a comparison with the other two augmented industrial models explored in order to include a Merlin model to examine the impacts of industrial development in that area on Grants Pass and on Merlin itself.

Housing location was generally determined for each Growth Alternative by assuming the following "market" factors: (1) that housing would tend to locate near commercial activity and job source, (2) that higher densities would tend to cluster near commercial concentrations and, to a lesser degree, near light industrial locations, (3) that improved transportation ways, including a "fourth bridge" if necessary, would first follow and then intensify patterns of residential development and finally then intensify patterns of residential development and finally (4) that key utility extensions would be available as required by each Growth Alternative. These factors gave the following "target populations" for the UGB by the year 2000:

Scenario	Persons
Industrial 1 (I1) - Historic Job Growth	36,000
Industrial 2 (I2) - Increased Job Growth - Located in UGB	38,390
Industrial 3 (I3) - Increased Job Growth -Located in Merlin	37,135

After the most likely high density areas were located and mapped for each Growth Alternative according to the "market factors" listed above, an allocation by transportation area was then conducted. These "transportation zones" were developed to reflect actual City and UGB districts with a pre-existing public identification, as well as reflecting zoning boundaries and key transportation barriers.

For each of the selected growth alternatives, the principal traffic-carrying streets were determined and then evaluated for safety and capacity. Traffic zones were then determined that reflected key transportation barriers, as well as actual City and UGB districts with an existing public identification.

Present day traffic volumes were measured along key roadways in each district and future traffic volumes were then forecast for each growth alternative, based on trip generation (how many trips), trip distribution (to where), modal split (automobile, transit, bicycle, walk, and traffic assignment which route).

Growth Alternative C1-I1

Of all the Alternatives, C1-I1 most closely resembled an extension of "things as they are." While the UGB areas south of the river have by far the most available open space, under this river have by far the most available open space, under this Alternative the revitalized downtown and an expanded Grants Pass Shopping Center would "Capture" the clear majority of multi-unit housing, pulling it close to the downtown on both the east and west, and to the north of the shopping center, to areas already zoned for such housing. (See Map 13.4.10).

Residential areas south of the river would develop at low to moderate densities, with multi-unit development limited to the Redwood interchange area. Multi-unit development in the City would begin to push past the vacant acreage available during the planning period, resulting in some expansion of the higher density areas and conversion of lower density lands near the downtown now being used. The most probably model for population distribution would be a split in population of 60% north and 40% south of the river, and showing the least deviation from the present north-south population split of 70/30%.

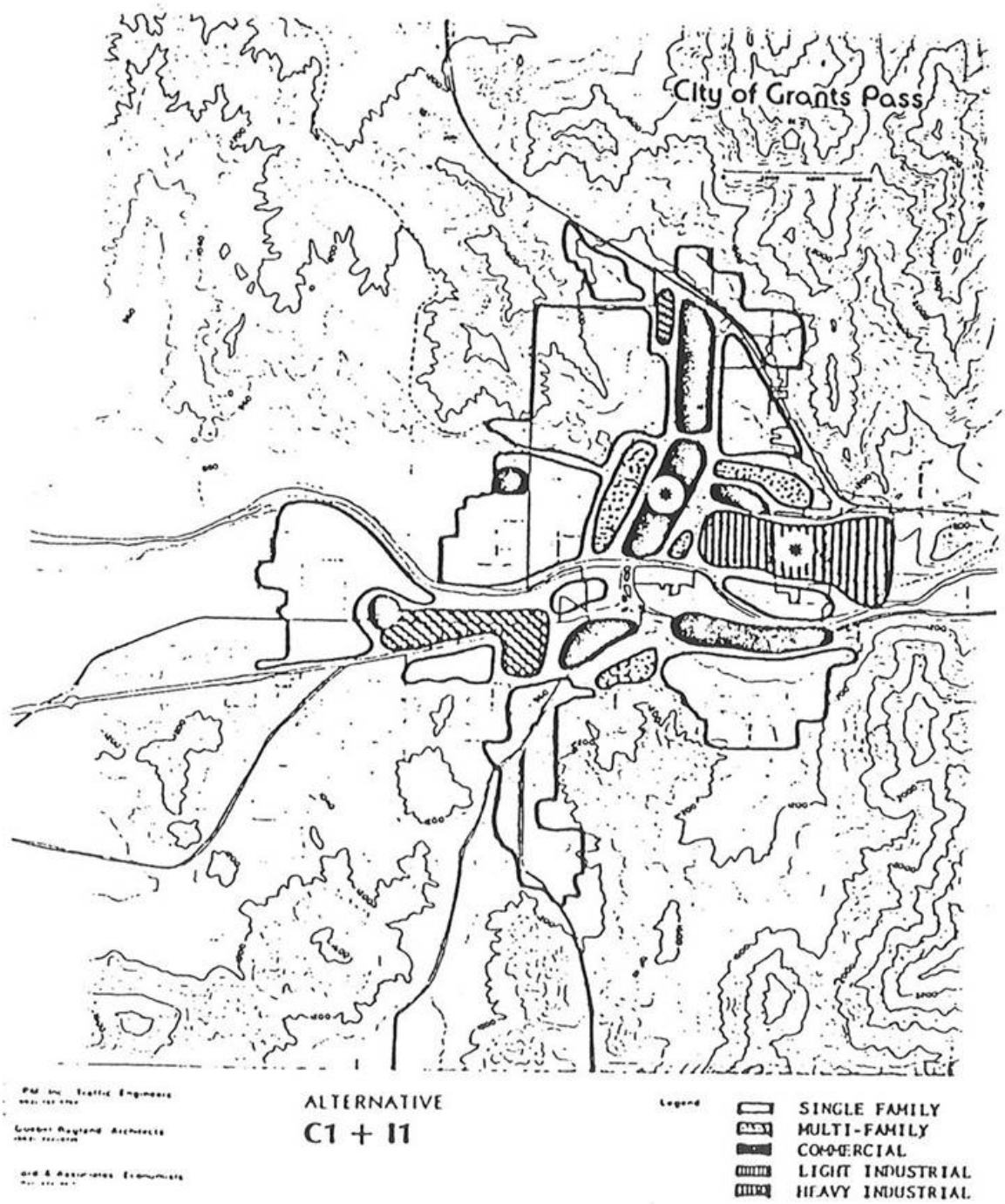
The majority of traffic using the 6th and 7th Streets couplet would be destined to or from the Central Business District (CBD).The third bridge alignment would be expected to carry most of the bypass and industrial traffic. Improvements in downtown parking and traffic circulation would be needed to accommodate the growth. (See Map 13.4.11).

Traffic volumes on sections of E, F, M, and 9th Streets would be expected to be lower than today with the third bridge alignment. Improvements to the Redwood Highway Spur (F Street) from E Street to the I-5 interchange would be needed to accommodate the additional traffic and improve safety.

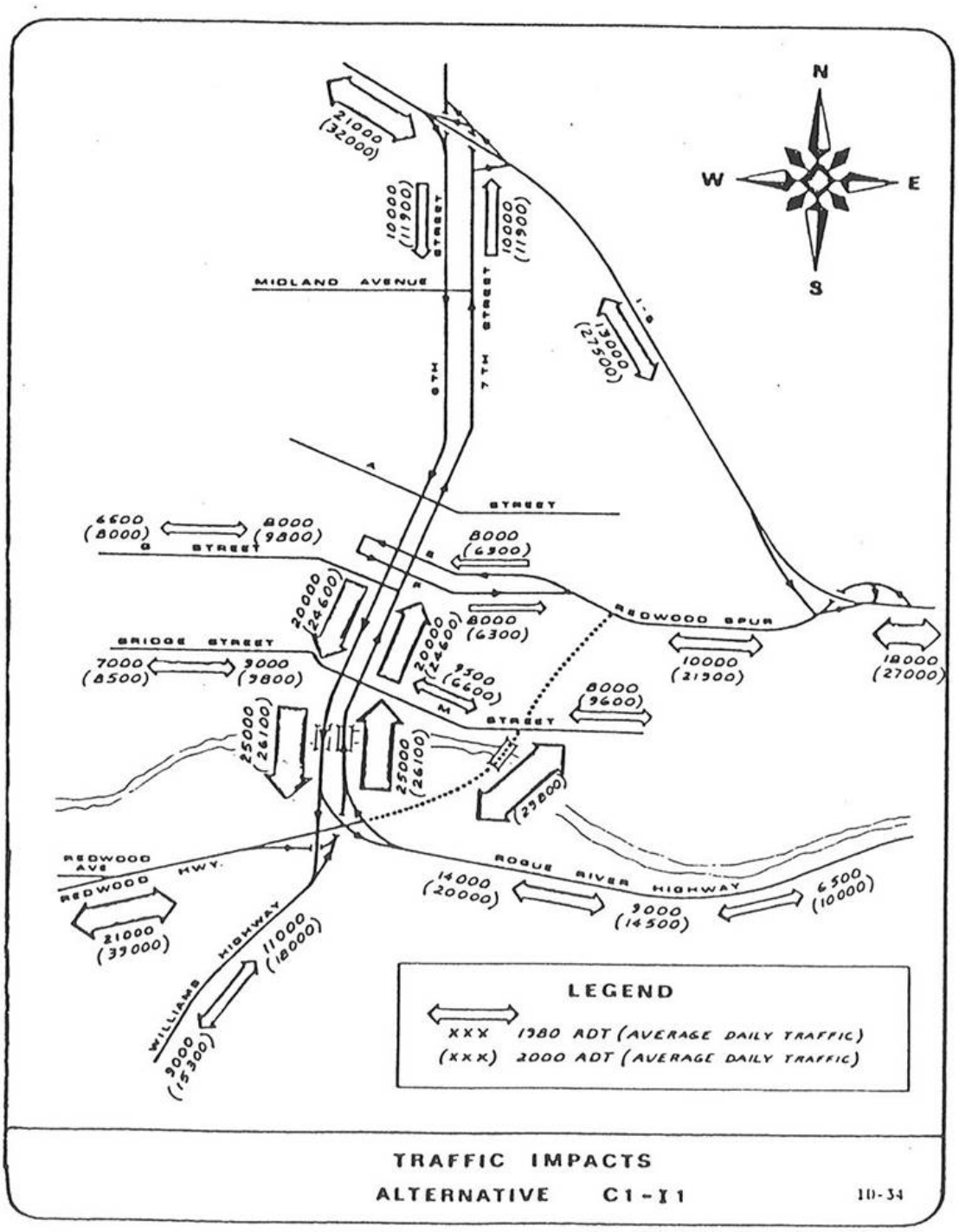
Traffic volumes on existing bridges would be very close to today's volumes. Peak hour congestion should be less with minor improvements on both sides of the bridges, coupled with peak hour industrial traffic destined south of the river directed to the new bridge. The interchange would have to modified to accommodate additional traffic and the third bridge connection.

Traffic volume on the Redwood Highway near the River Avenue intersection was estimated to increase 86 percent by the year 2000. Access management is recommended. Establish access management for the Williams and Rogue River Highways.

Map 13.4.10
Growth Alternative C1-I1



Map 13.4.11
Traffic Impacts



Growth Alternative C2-I1

This alternative shifted the primary multi-unit "draw," a county-wide shopping complex, south of the river to the Redwood interchange area, resulting in limited multi-unit activity north of the river alongside a "traditional" downtown and a Grants Pass shopping center of approximately the same size it is today. This would result in a significant shift of multi-unit activity to the Fruitdale-Harbeck area.

The location of a fourth bridge as an extension of Lincoln Road to facilitate access for the City's west side to the new center area west of the City and north of the river. Development in this Alternative would most likely follow utilization of lands now vacant, including areas newly zoned for multiple use outside the present city limits. For this reason, a 50/50% population split north and south of the river was estimated. (See Map 13.4.12).

Increased commercial development was expected in the North City area in comparison to C1-I1. Greater emphasis would have to be placed on access management along north 6th and 7th Streets. With the change in the downtown area to convert retail space into office space, as well as add new office/service space, a greater percentage of the CBD traffic would be directed to local professional businesses. North City residents attracted to newer shopping facilities south of the river would add to the downtown traffic. Improved traffic circulation would and parking would still be needed. (See Map 13.4.13).

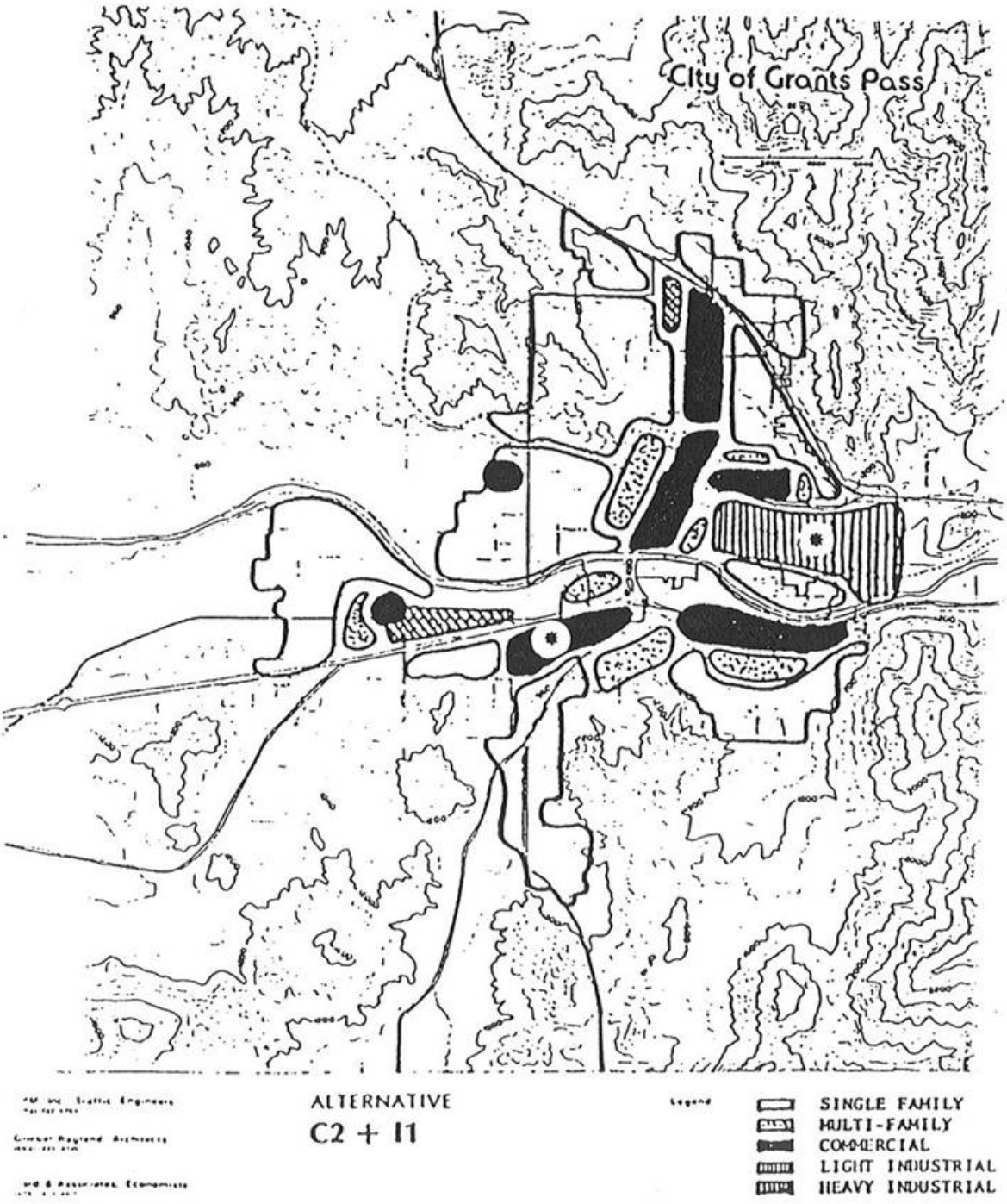
Sections, of E, F, M, and 9th Streets would carry significantly less traffic than today because of the third bridge and the reduced attraction to the downtown area. The number of trips estimated to cross the river in the year 2000 was about five percent higher than with Alternative C1-I1. The interchange would have to be modified to provide for the increased traffic and the third bridge connection.

Traffic volumes on the major routes south of the river were shown to be greater reflecting higher population allocations south of the river and greater activity. Apply access management to Redwood, Williams, and Rogue River Highways.

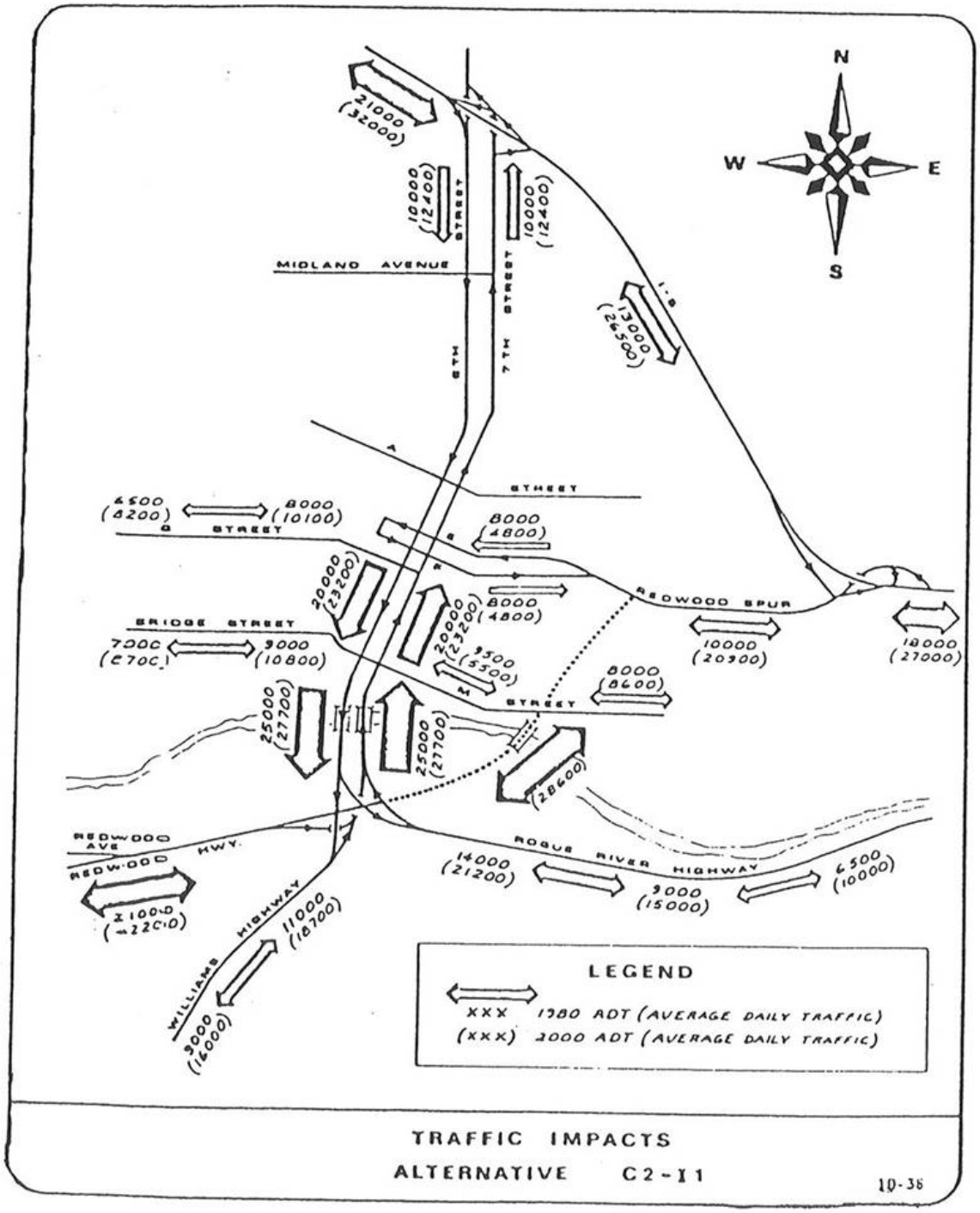
Growth Alternative C3-I1

The "dispersion" Alternative, although shifting a significant share of retail development to urban fringe areas, still showed a north-south split of Commercial square footage approximating that of the present day. In addition, the Grants Pass Shopping Center received only 1/3 less the Commercial square footage as it did in the C1 Alternative, and twice the footage as in the C2 Alternative. North of the river, multi-unit activity would probably follow enhanced Grants Pass shopping center activity primarily, and downtown secondarily, as well as being drawn to UGB areas either to the north or to the west of the present city limits. A fourth bridge at Lincoln Road was assumed, shifting projected population from Ward I to Ward II. (See Map 13.4.13).

Map 13.4.12
Growth Alternative C2-I1



Map 13.4.13
Traffic Impacts



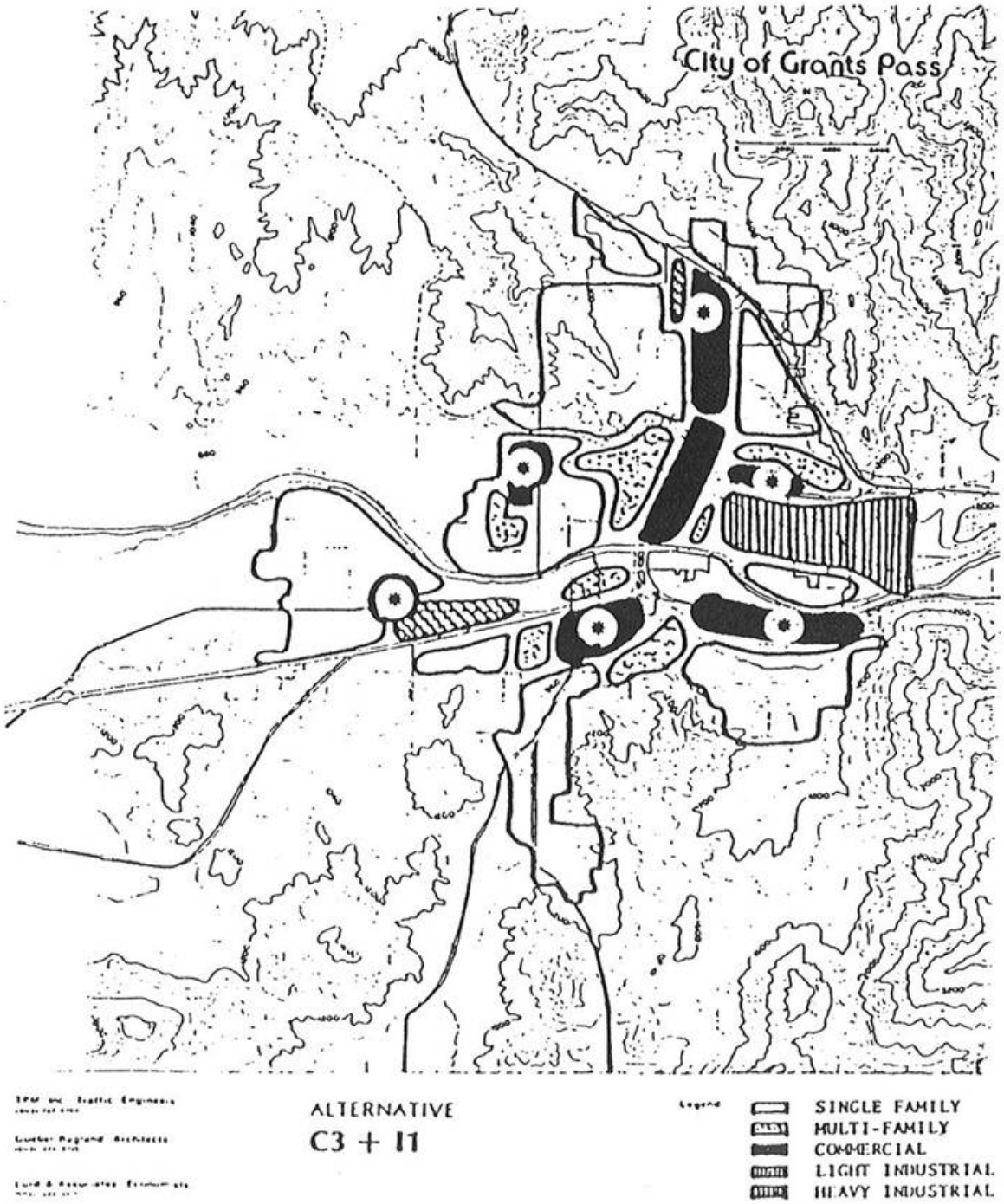
This Growth Alternative, even more than C1-I1, would represent the least physical change from the community as we know it today, with a population split of 60/40% north and south of the river.

Substantial strip retail and office expansion along North 6th and 7th Streets is projected with this alternative. Careful access control and management is required. Commercial traffic would be more uniformly distributed throughout the urban growth boundary (UGB). However, the downtown area would remain the major shopping/service attractor. Additional commercial growth in the downtown area would require parking and traffic circulation improvements. (See Map 13.4.15).

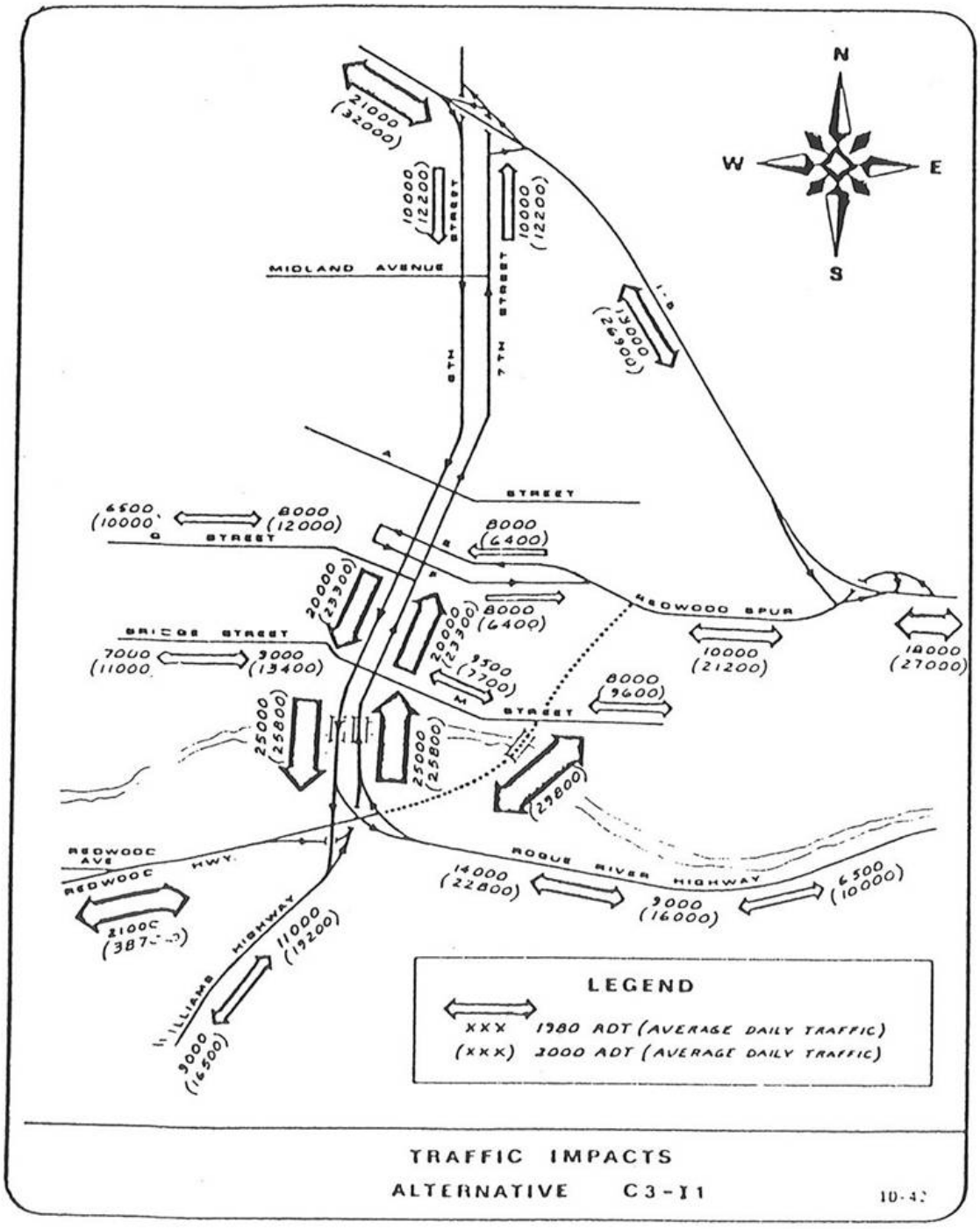
Traffic volumes on sections of E, F, M, and 9th Streets would be expected to be lower than today with the third bridge alignment. Improvements to the Redwood Highway Spur (E Street) from E street to the I-5 interchange would be needed to accommodate the additional traffic and improve safety.

This land use alternative resulted in the lowest number of river crossing trips. Traffic volumes on the existing bridges would be about the same as today with the third bridge. The interchange would have to be modified to accommodate additional traffic and the third bridge connection. Apply access management to the Redwood, Williams, and Rogue River Highways.

Map 13.4.14
Growth Alternative C3-I1



Map 13.4.15
Traffic Impacts



Growth Alternative C1-I2

The effects of this Growth Alternative upon the demand for residential housing were twofold. First, the target population for the UGB is increased from 36,000 persons to 38,300 as a result of increased industrial growth. Second, the location of a light industrial - heavy commercial "business park" in the Redwood area, developed in such a way as to be compatible with housing, could act as a "draw" for multi-unit activity in a manner similar to a commercial center, but at a reduced order of magnitude. Thus a population split of 55% north and 45% south of the river was settled upon. Midway between C1-I1, multi-unit activity north of the river is drawn to the downtown and Grants Pass Shopping Center areas. South of the river, multi-unit activity is shown adjacent to light industrial and commercial activities as a probably "free market" response. Due to the increase in the target population as a result of increased industrial activity, there were more persons projected to be residing south of the river than in the C2-I1 Alternative, which showed a higher percentage south of the river.

This Alternative proposed a population split of 55%-45% north and south of the river.

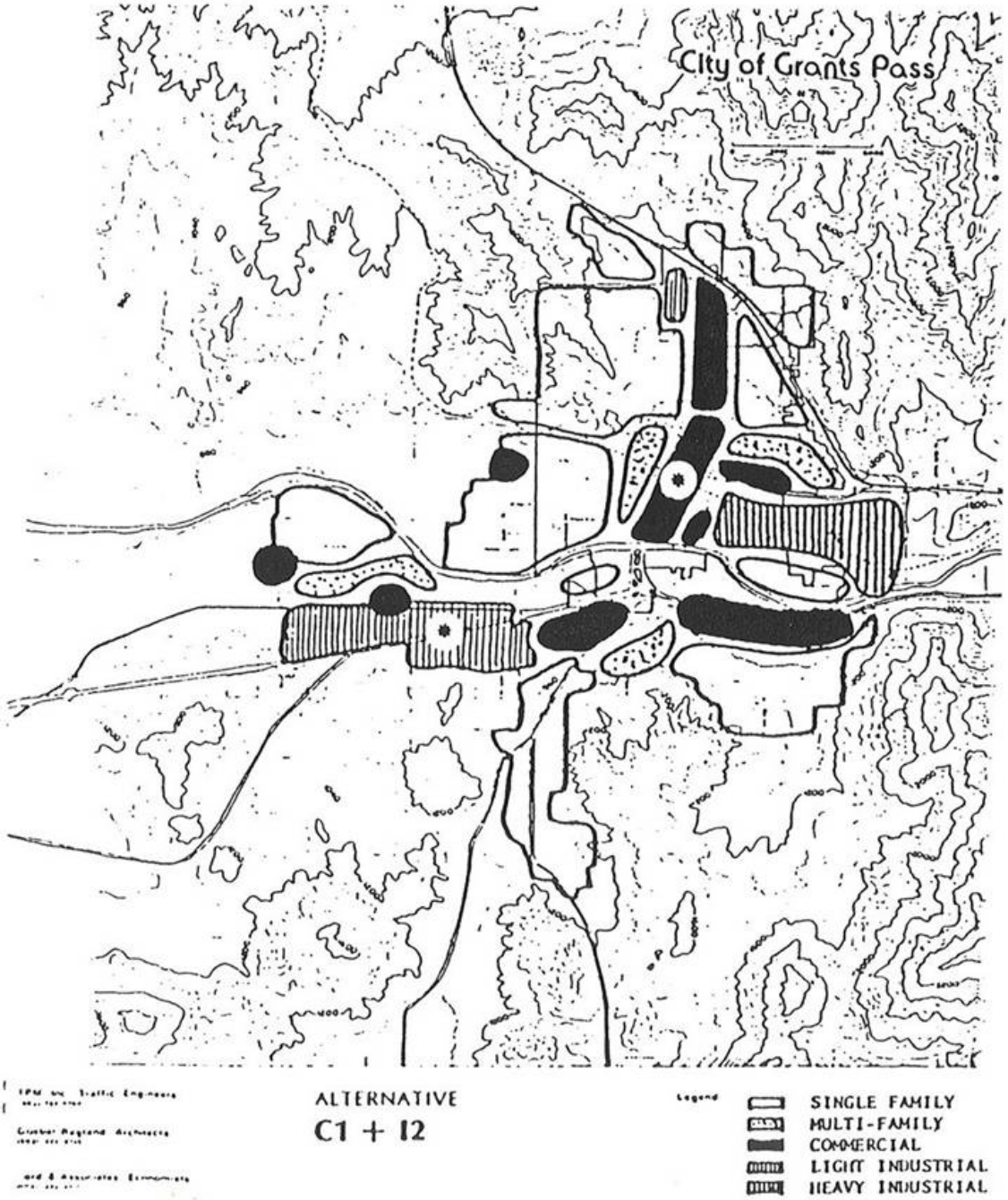
This alternative projected a higher population (an increase of 4253 people), within the UGB by the year 2000 than the previous alternatives. This converted into more than 10,000 additional trips on the roadway system.

The majority of traffic using the 6th and 7th Streets couplet would be destined to or from the CBD. The third bridge alignment would be expected to carry most of the bypass and industrial traffic. Improvements in downtown parking and traffic circulation would be needed to accommodate the growth. (See Map 13.3.7).

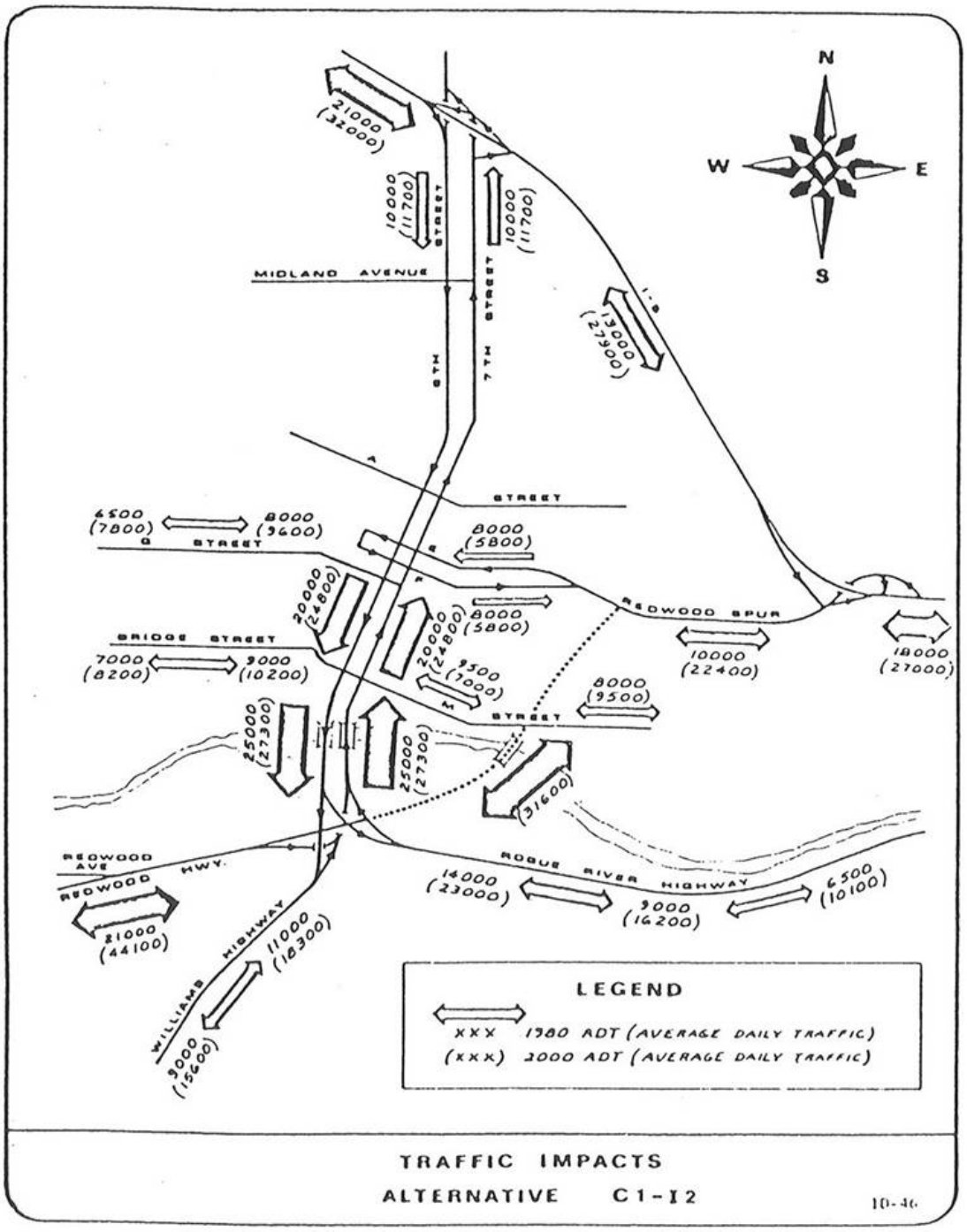
Traffic volumes on sections of E, F, M, and 9th Streets would be expected to be lower than today with the third bridge alignment. Improvements to the Redwood Highway Spur (F Street) from E Street to the I-5 interchange would be needed to improve safety and accommodate the projected traffic including industrial traffic to and from the Redwood area.

With the construction of the third bridge, the existing bridges were estimated to carry about 10% higher traffic volumes than today. Peak hour trips to and from an industrial development south of the river would have minimal impact to peak hour congestion on the bridges since peak hour traffic will be traveling in opposite directions. Apply access management to Redwood, Williams, and Rogue River Highways and Redwood Avenue.

Map 13.4.16
Growth Alternative C1-I2



Map 13.4.17
Traffic Impacts



Growth Alternative C2-I2

This Alternative proposed the most radical departure from today's community structure than any of the other Growth Alternatives considered, populating a virtual "new town" south of the river, in addition to increasing the target population from 36,000 to 38,300, a condition of increased industrial activity. The combined commercial - industrial centers, together with the available raw land, would probably draw almost all multi-unit activity south of the river, resulting in "boom" conditions in Redwood and Redwood interchange areas, and resulting in nearly 30% of the UGB population, or nearly 12,000 persons, locating there within the 20 year planning period. (See Map 13.4.18).

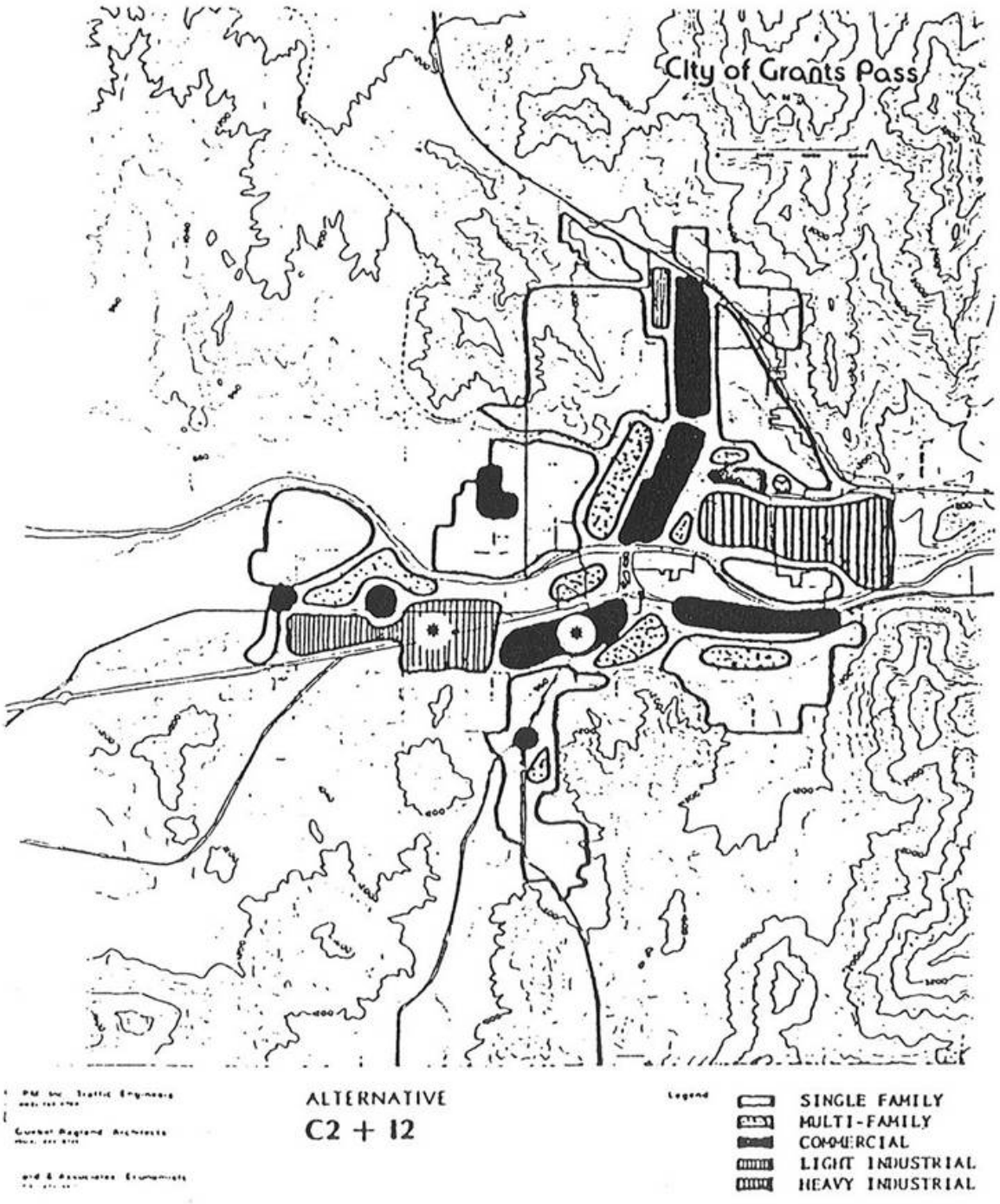
Assuming public funding of key utility improvements required south of the river, residential development north would dwindle to a virtual standstill, reinforcing the conversion of retail space downtown to office uses and the minor increase in retail space in the Grants Pass Shopping Center, assumed in the C2 Scenario. Also note the marked increase in the area along the Murphy-Williams Highway. The population accommodated would require either higher density units located near the Williams - New Hope Road commercial area, or shifting the population burden into the Fruitdale - Harbeck area, requiring multi-unit development contiguous to the Highway 99 commercial strip.

This Growth Alternative reflects a population split of 40% north and 60% south of the river.

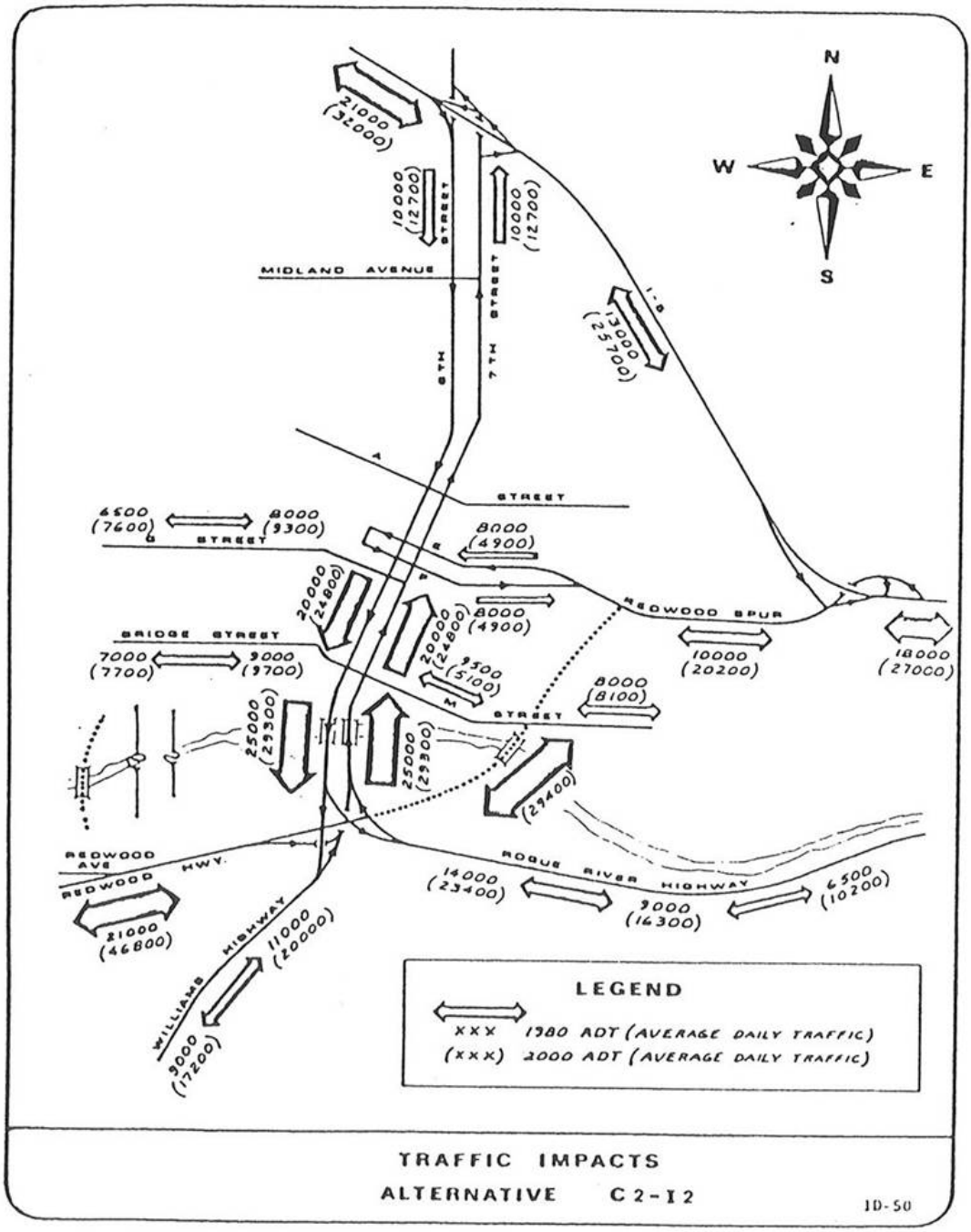
Apply access management to North 6th and 7th Streets. Most of the traffic using the 6th and 7th Streets couplet would be destined to or from the CBD. The third and fourth bridges were expected to carry most of the bypass and industrial traffic. Some improvements in parking and traffic circulation would be needed. (See Map 13.4.19). Sections of E, F, M, and 9th Streets would carry significantly less traffic than today because of the third bridge and the reduced attraction to the downtown area.

This land use alternative resulted in the greatest number of trips crossing the river. A fourth bridge west of the existing bridges would reduce traffic volumes on the existing bridges to about today's level. Additional impacts of the fourth bridge include volume reductions on sections of the Redwood Highway, Bridge Street, and G Street. With major commercial and industrial developments south of the river, access control became extremely important to ensure safe and efficient movement of people and goods. Careful access management should be applied to the Redwood, Williams, and Rogue River Highways and Redwood Avenue.

Maps 13.4.18
Growth Alternative C2-I2



Map 13.4.19
Traffic Impacts



Growth Alternative C2-I3

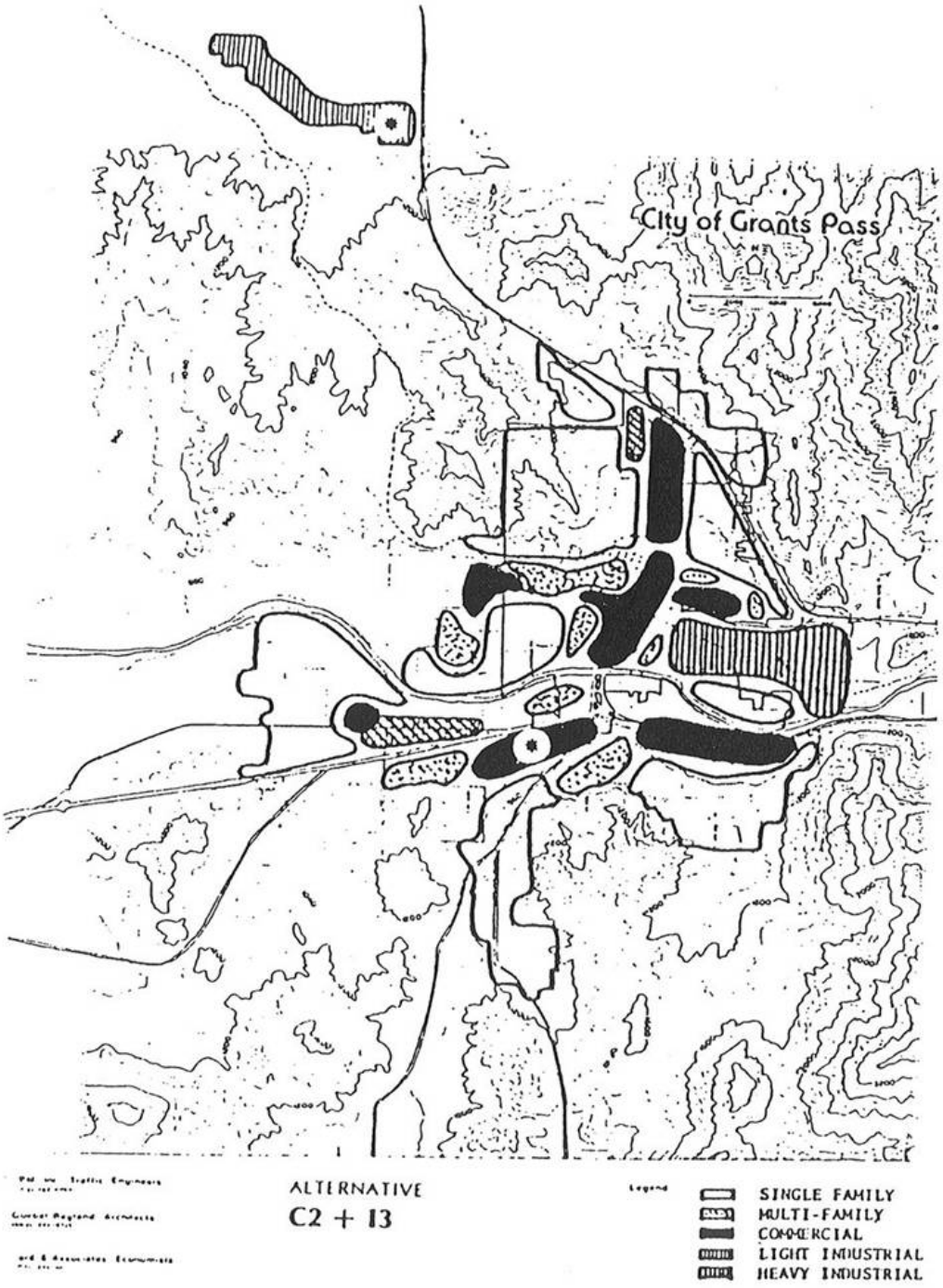
This Alternative located increased industrial activity in the Merlin area, instead of the Redwood area as in C2-I2, but kept the center of commercial activity located south of the river for the sake of comparison. The UGB target population was increased from 36,000 to 37,000 persons, due to 50% of the additional residents resulting from increased industrial activity locating outside the UGB, presumably in the Merlin area. The travel pattern of northwest City residents south to the new commercial center via a fourth bridge would now be augmented by the need for access to the Merlin job center by County residents outside the UGB as well as the new population accommodated within the boundary in the Redwood and New Hope - Williams Highway areas. This would draw both commercial and multi-unit activity out G Street to the intersection of G, Lincoln and Upper River Road. The Merlin "draw" would be estimated to adjust the 50/50% north-south population split of C2-I1 to 455/45%. A shift in population from Ward I to Ward IV was made to account for the probable multi-unit activity there. (See Map 13.4.20).

It was speculated that this Alternative could lead to such intensive development pressure in the Ward IV, Upper River Road and Pine Crest area, that the resulting G Street - Upper River Road - Lincoln Road area would become the new commercial "center of gravity," as either a new center in its own right, or an extension of downtown, and the Redwood interchange area never reaching its estimated potential.

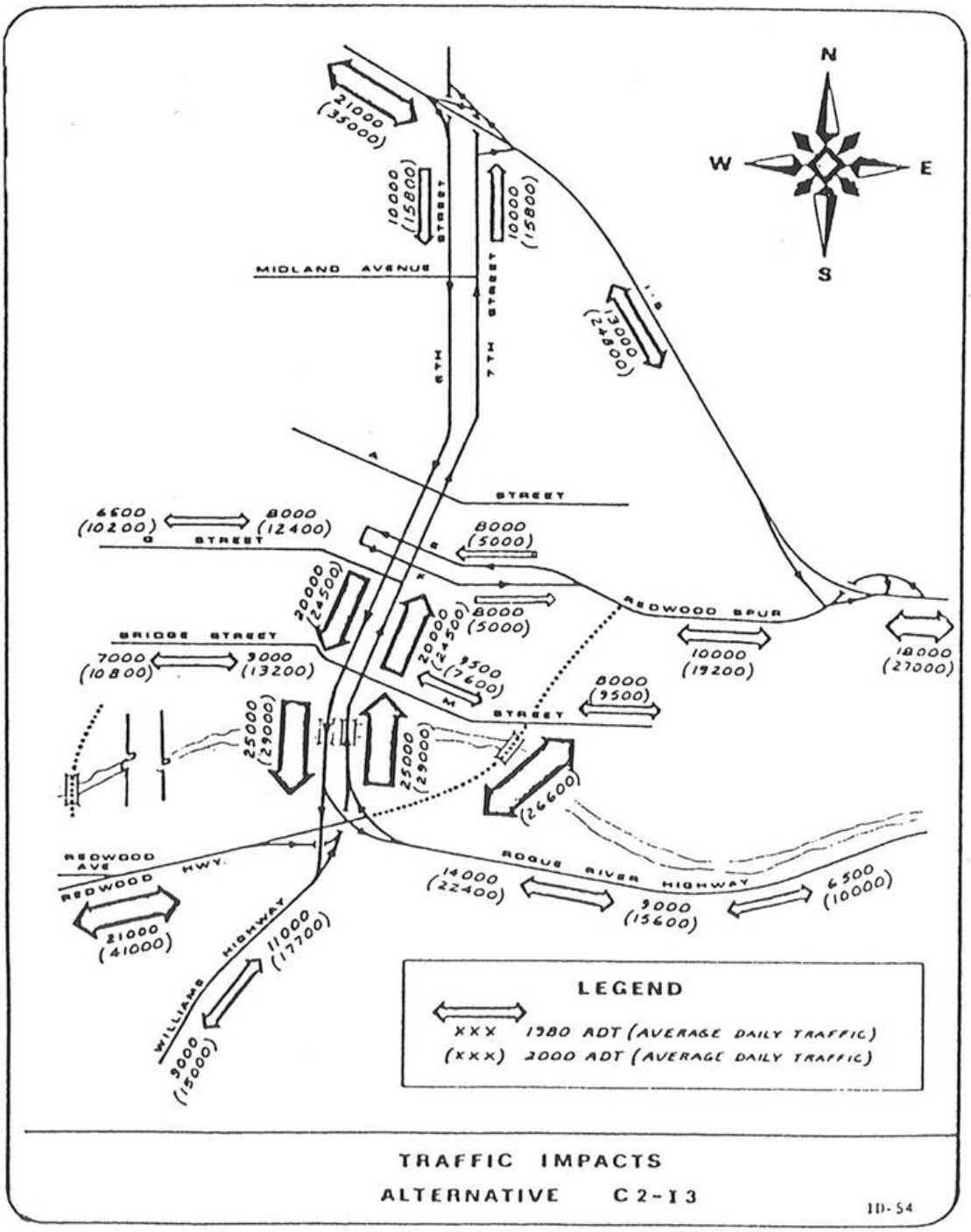
Access management should be applied to the North 6th and 7th Streets couplet due to the projected increase in strip commercial development coupled with projected higher traffic volumes to and from the Merlin area. Some improvement in the downtown parking and traffic circulation would be required. However, the third and fourth bridges would significantly improve operations on the 6th and 7th Streets couplet. (See Map 13.4.21).

Sections of E, F, M, and 9th Streets would carry significantly less traffic than today because of the third bridge and the reduced attraction to the downtown area. Impacts of the fourth bridge include volume reductions on sections of the Redwood Highway, Bridge Street, and G Street. Traffic on the existing bridges was expected to be lower than today's volumes with the two additional river crossings. The west bridge was expected to carry more traffic with this Alternative than with Alternative C2-I2. Apply access management to Redwood, Williams, and Rogue River Highways.

Maps 13.4.20
Growth Alternative C2-I3



Map 13.4.21
Traffic Impacts



Service Impacts of Growth Alternatives

An attempt was made to estimate basic service costs for each Growth Alternative, given the fact of few complete service plans at that time (1979-80). Information was summarized by Growth Alternative target population, residential densities and location, retail/office/service growth, locations and assumptions, and improvements to roadways and bridges, water and sewer system, and school systems. See Appendix 13.2 for detail.

Urban Growth Plan

The Urban Growth Plan as finally adopted was a combination of various alternatives outlined above. The main features of the Urban Growth Plan may be summarized as follows. (See also Appendix 13.1).

The Plan called for an aggressive industrial promotion effort to attract light manufacturing firms to the area, increasing light industrial employment growth to more than twice the rate of 1970's. The Plan allocated lands adjoining the established East Grants Pass area, within the Redwood area and within the Merlin area (beyond the Grants Pass UGB), totaling twice the industrial or potential industrial lands needed for the increased job growth rate. Industrial growth was fostered in these three areas by the Plan, as follows. The East Grants Pass area was given immediate priority for the extension of water services further to the east, accommodating growth in new and existing industry. The Redwood area and Merlin area were both designated as suitable for light industrial development, as a sort of “Market Test,” and would reevaluate both sites at the end of a five year period. The Redwood site offers the only major new industrial park opportunity in the Boundary Area and places the industrial park lands in a central location South of the River adjoining commercial and high density residential areas. The Merlin freeway interchange area urbanizes over the next 20 to 40 years. (See Map 13.4.22).

The Urban Growth Plan projected an UGB population of 38,300 persons by the year 2000, an increase of 7% over the adopted target population of 35,750 persons, assuming 50% of the new light industrial jobs are filled by immigrants, and 70% of these newcomers reside within the UGB. (Computing these rates as 75% immigrants and 85% UGB residence results in 42,200 persons within the UGB by the year 2000. See Population Element for full discussion). Also projected by the Plan was a shift in population from 70% resident north of the Rogue, and 30% south, to 55 % residing north and 45% south of the Rogue River.

Commercial growth was centered in three major areas: the Downtown, East Grants Pass and the Redwood Interchange. (See Map.) The Downtown was projected to grow and renew itself at a healthy rate, but was not projected to retain its current high share of retail sales volume, with 57% of its growth being in office and service space. By contrast, the East Grants Pass and Redwood Interchange areas were projected to experience 67% of their growth in retail space, and together, the two areas were projected to absorb 54% of the commercial retail space required by the entire UGB over the planning period. The East Grants Pass area is in an area favorable for expansion due to the

location of the existing Grants Pass Shopping Center, the nearby freeway exit, plans for the Third Bridge, and availability of undeveloped land lying along "E" and "F" streets and the Redwood Spur. The Redwood Plaza area is located on the Redwood Highway, centrally located to the future residential areas south of the river with high density, residential lands adjoining, as well as being opposite the County Fairgrounds.

The North City area would continue to grow and fill out its undeveloped land potential, while growth of existing commercial areas and establishment of new neighborhood centers are provided for in the West City, Williams Highway, Fruitdale/Harbeck and Redwood Avenue/Redwood Highway areas. (See Economic Element and section following for full discussion).

Residential growth within the Urban Growth Boundary over the next twenty years will be influenced by several critical factors. These factors include: the presence of the existing quantity and quality of housing stock within the Urban Growth Boundary, the relationship of build able land (i.e., land now vacant or underutilized) to the existing pattern of residential development with the Boundary, the current zoning pattern as it relates to existing housing development, the national trend toward an increasing need for multi-family residential units due to smaller families, more single parent families and the sharply rising costs of single family residential construction, and the community's attitude toward residential development.

The Urban Growth Plan proposed three broad categories for residential development. These categories can be characterized by the types of residential construction allowed within a range of housing density (i.e., the numbers of units per acre). The density ranges are as follows:

> Low Density - This category is meant to provide areas within the Urban Growth Boundary suitable for predominantly single family dwellings. Other types of housing that could be characterized as low density may be allowed within this category. These might include: common wall or lot line residential units on smaller lots with open space provided in the subdivision, mobile home subdivisions similar to single family subdivisions, etc.
>
> Medium Density - This category of housing would be responsive to the trends nationally as described above. It would provide areas of the Urban Growth Boundary suitable for common wall dwellings such as condominiums, duplexes, tri-plexes and other multi-family and single family dwellings.
>
> High Density - This category would allow housing types within the Urban Growth Boundary, primarily located around the larger commercial centers, which would be suitable for garden apartments, higher density condominium developments, etc.

The Urban Growth Plan located the various types of housing densities in relationship to a number of considerations. Generally, lower densities would be found further from arterial or collector street systems, community facilities, shopping, etc. Higher densities would be located closer to major streets, shopping community facilities, etc.

The increased commercial activity in the Redwood Interchange area, as well as an industrial park in the southerly portion of the Redwood area, would result in moderate and high density residential development south to the Redwood Interchange areas. Increased commercial development in the downtown and the Grants Pass Shopping Center, as well as the third bridge connection to the Redwood Spur, will draw higher density there, as well.

As a major factor in determining the Capital Improvement Program over the next decade, the distribution of residential population within the Urban Growth Boundary was seen to be critical. Coupled with the amount of commercial and industrial growth within the Urban Growth Boundary the residential populations will help determine the need for improvements to the street system, water system, sewer system, storm drain system, etc.

The impact of residential growth on existing neighborhoods within the Urban Growth Boundary over the next twenty years was determined to be a key factor by the Plan. Future decisions regarding the transportation system, utilities, schools and parks systems would differ from one area to another. For example, development in the West City neighborhoods would have a much different impact on existing residential populations than development in underutilized areas south of the Rogue River. For this reason, various areas within the Urban Growth Boundary would be characterized in three different categories: conservation areas, transition areas, and finally, developing areas.

Estimated traffic volumes resulting from the adopted Urban Growth Plan are shown on Map 13.4.23. Traffic assignments assume two additional bridges, one east and one west of the existing bridges.

Traffic volumes on 6th and 7th streets north of “M” street are expected to be about 10% higher than today. Improved downtown circulation would be needed coupled with access management.

With the additional bridges, changes in travel patterns would occur. Traffic volumes on “E”, “F” and “M” streets between 6th and 7th streets couplet and the east bridge alignment are expected to be lower than today. Traffic on “G” Street west of 6th Street is projected to be 20 - 30 percent higher while Bridge Street volumes would be about the same as today. Also during the 20 year period, traffic volumes on the Redwood Spur (“F” Street) east of the new bridge alignment are estimated to nearly double.

An estimated 86,000 trips per day will cross the river by year 2000. With two additional bridges, traffic volumes on the existing bridges are estimated to be slightly less than today. In the event the west bridge is not built, projected traffic volumes on the existing bridges would reach 54,000 - 55,000 vehicles per day (Compared to about 50,000 crossings today) and the east bridge would carry about 31,000 trips per day.

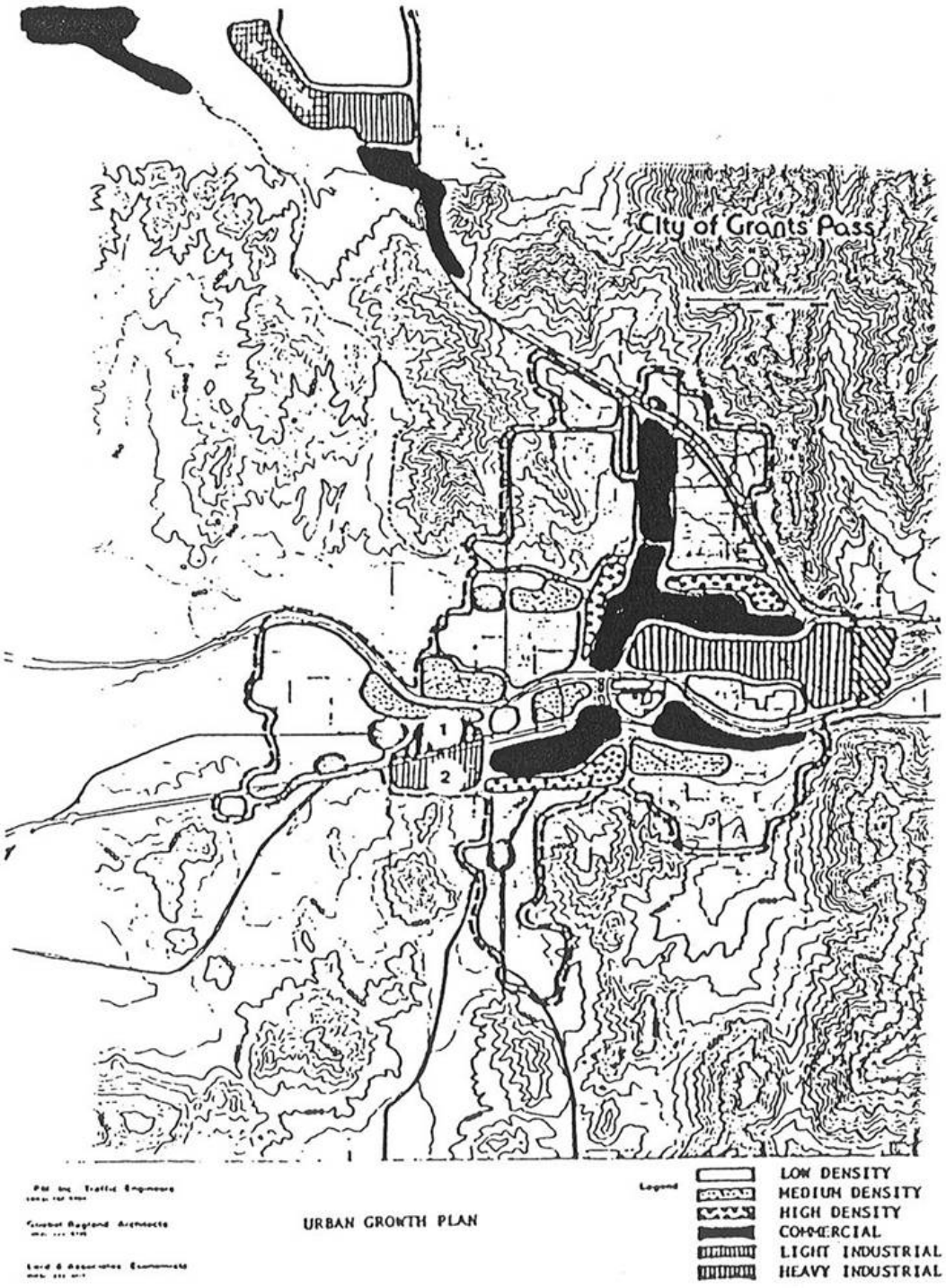
South Interchange - Because of the expected increase in traffic approaching the interchanges, coupled with another bridge connection, major design modifications will have to be made to the interchange to manage traffic.

Redwood Highway - Traffic on the Redwood Highway south of the river is expected to increase by about 77 percent. The existing four lane roadway could handle this traffic with continued enforcement of access control and management policies. Access management along Redwood Avenue would be needed to maintain roadway capacities and safety.

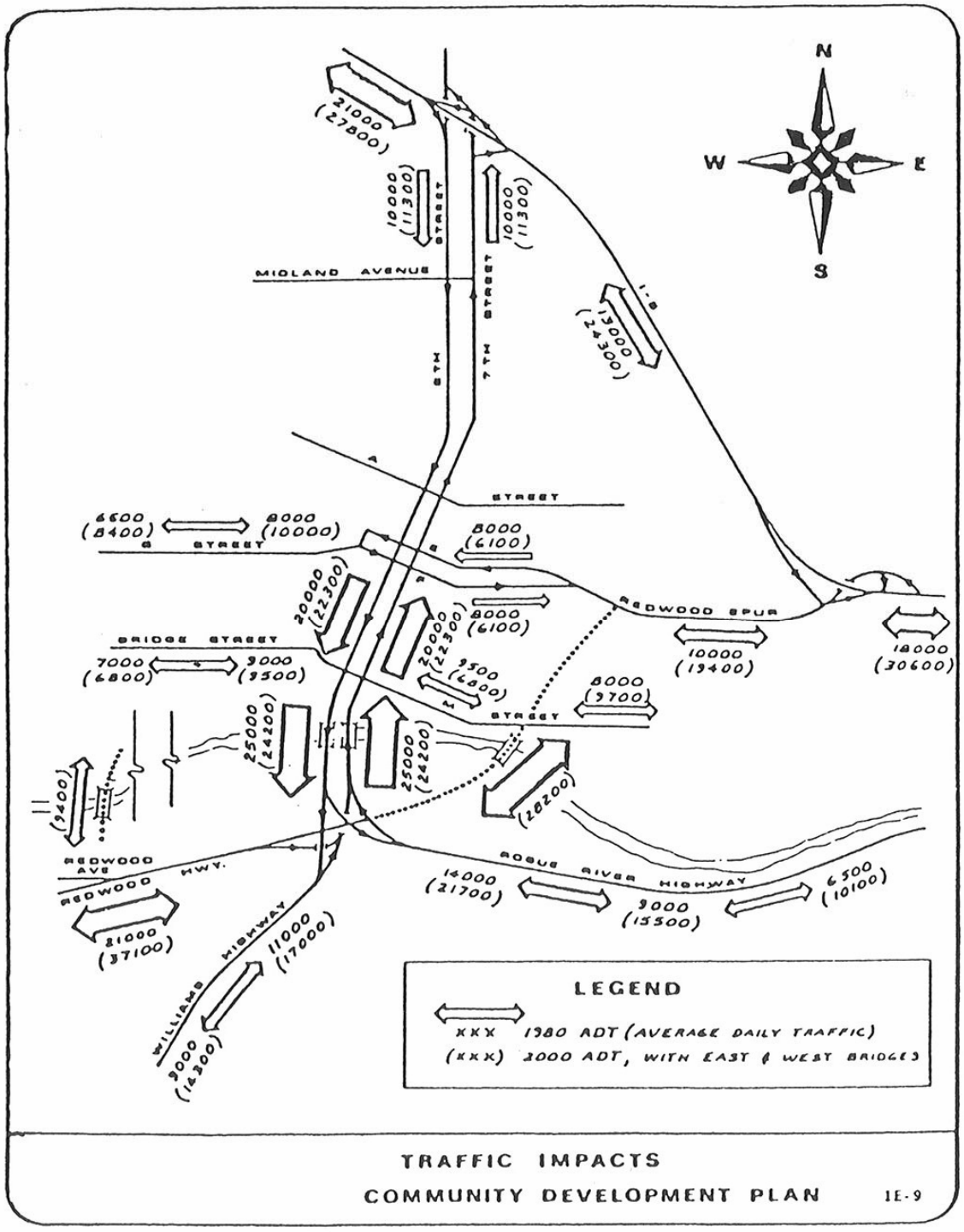
Rogue River Highway - The existing parking and accessibility problems along this route will worsen with an expected 50 percent increase in traffic. Major parking and access changes are needed to improve the route capacity and safety, and to accommodate future traffic growth.

Williams Highway - Applying access management techniques to maintain existing capacity levels, the route would be capable of handling the projected traffic volumes.

Map 13.4.22
Urban Growth Plan



Map 13.4.23
Traffic Impacts



13.6 LAND NEEDS SUMMARY

The following section summarizes land needs by major land use type: residential, commercial, industrial and open space. For full discussion please refer to the Housing and Economic Elements.

Residential Land Needs

The total demand for new dwelling units within the Boundary Area was projected based upon a range of target population (originally estimated between 38,200 to 44,750 persons by the year 2000; in 1992, the range was revised to between 27,967 and 30,261 persons), a range of household size for both the City and urbanizing area (2.42 - 2.08) persons per household, City and 2.59 - 2.22 persons per household, urbanizing area), and HUD recommended minimum vacancy rates by housing types (1.5% for single family, 6.5% for multi-family). When household sizes were maintained constant at 1980 rates, the total new dwelling unit demand is projected to be between 6,262 and 8,862 units for the original target population range of 38,300 to 44,750 persons by the year 2000. When household sizes were projected a declining rate, the total new dwelling unit demand is projected between 8,883 and 11,913 units. The total housing need was then further broken down by density, and a demand for each density group was projected. The existing city density structure was examined, as well as city and county market trends, and the affordability of various housing types. The City's existing dwelling units had moved from a density split of 86% low density to 14% moderate - high density in 1970, to a split of 75% low density to 24% moderate - high density, "driven" by a building start split of 50% low density/ 50% moderate - high density during the 1970's. The City's build able lands, mostly scattered lots within established neighborhoods, with the exception of the Northwest sector of Ward I, were split 59% low/ 41% moderate - high, representing the inertia of building modes of the past. Two "density models" were utilized, each driven by different density needs, as shown in Table 13.4.24. (For full discussion, see Housing Element, Section 9.24).

Table 13.4.24
Housing Needs by Density Model

Model	Population	Household Size	Vacancy Rate	Housing Demand by Density Group			New Unit Demand by Density Group			Total New Unit Demand
				5.5 du/Ac	10.5 du/Ac	15.5 du/Ac	5.5 du/Ac	10.5 du/Ac	15.5 du/Ac	
Low Density Model	38,300 - 44,750	2.42 - 2.08 City 2.59 - 2.22 Urbanizing Area	Under 5.5 du/Ac 1.5% Over 5.5 du/Ac 6.5%	City 60% UA 60%	30%	10%	5,226 - 7,009	3,088 - 4,023	569 - 881	8,883 - 11,913
High Density Model	38,300 - 44,750			City 50% UA 45%	25%	30%	4,076 - 5,413	3,149 - 3,928	1,706 - 2,640	8,931 - 11,981

Source: Table 9.2.24, Housing Element.

Two land use models were then examined, one based closely on the Urban Growth Plan, and the second based upon a realistic "buildout" within the City, recognizing existing neighborhoods and their present densities, and postulating densities approaching planned service capacities in the urbanizing area. The low density housing model was compared to the Urban Growth Plan land use model, and the high density housing model was compared to the service capacity land use model to determine adequacy, and to determine at what point the UGB must be enlarged.

The Urban Growth Plan model could absorb the full population range of 38,300 to 44,750 persons, at declining household size, and fits well with the low density housing needs model, approaching buildout with the higher end of the population range. This combination would require boundary expansion between 1990 and 1995 to maintain a build able potential to demand ratio in excess of 3.5. However, an update to the Populating Element conducted in 1992, revised the population range for the year 2000 to be between 27,967 and 30,261 persons. This range will not appear to require a boundary expansion by the year 1995.

The service capacity model could absorb the full population range at declining household size, and still have between 55% and 30% capacity remaining in the urbanizing area. Using the high density housing model, the service capacity land use model would require boundary expansion between 1995 and 2000 to maintain a build able potential to demand ratio in excess 3.5. (See housing element for full discussion.)

Commercial Land Needs

In 1979 - 80, a full Commercial Lands Inventory was completed, that tallied all commercial lands within the boundary (see Appendix 13-3). Subsequently, the Urban Growth Plan economists prepared an economic base and commercial lands analysis, projecting the need for commercial lands at ten year intervals. The projection, while based upon a target population of 36,000 persons also assumed a market factor of 28%. According to the economists, the target population of 38,300 persons will require an additional 8% of the projected retail square footage, well within the market facet utilized. The Urban Growth Plan allocated the projected need among the nine commercial areas within the boundary, as summarized in Table 13.4.25. (The acreage shown includes parking requirements at appropriate ratios for each area by decade. For full discussion, see Economic Element, Section _____.) Also shown in Table 13.4.25 is the vacant commercial land revealed by the inventory, and the additional commercial land requirements resulting.

Table 13.4.25
Commercial Lands Required by Area

Commercial Area	Land in Commercial Use - 1980 (Acres)	Vacant Commercial Land - 1980	Commercial Growth Requirements 1981 - 2000
1) Fruitdale/Harbeck	38.5	2.50	16.3
2) Redwood Interchange	79.0	26.80	95.5
3) Redwood Highway	51.0	.28	26.5
4) South Downtown	44.5	1.40	26.7
5) North Downtown	22.0	1.80	20.2
6) North City	80.0	21.40	40.5
7) East Grants Pass	46.8	4.70	86.9
8) West Grants Pass	5.8	.20	20.2
9) Williams Highway	N/A	N/A	7.0
TOTALS	367.6	59.08	329.8

Both land use models were allocated similar commercial and industrial expansion, except for certain minor variations. The additional commercial acreage allocated in the land use models is compared to the acreage required by the commercial lands analysis by Table 13.4.26.

Table 13.4.26
Additional Commercial Lands Required and Allocated

Commercial Area	Commercial Growth Requirements 1981 - 2000 (Acres)
1) Fruitdale-Harbeck	16.3
2) Redwood Interchange	95.5
3) Redwood Highway	26.5
4) South Downtown	26.7

5) North Downtown	20.2
6) North City	40.5
7) East Grants Pass	86.9
8) West Grants Pass	10.2
9) Williams Highway	7.0
TOTAL	329.8

Industrial Land Needs

The 1980 Urban Growth Plan developed an industrial lands needs assessment based upon doubling the 1970's job growth rate in light industry, and the attendant distributive employment. (See Economic Element.) Acreage requirements were based upon 30 acres/employee for light manufacturing employment, and 15 employees/acre for distributive employment. Allowing a 28% market factor, 157.8 acres were required for the desired additional job creation. Assuming all such jobs would be created within the UGB, the acreage available and the acreage required are compared in Table 13.4.27. Columns (2) and (3) of this table compare the earlier industrial lands inventory (1980) used in the Urban Growth Plan with a later, more detailed inventory (1982). Columns (4) and (5) compare the Urban Growth Plan estimate for industrial acreage demand by area with a later estimate extrapolated from the Economic Model, reflecting the different type of employment projected (See Population and Economic Elements.)

Table 13.4.27
Additional Industrial Lands Required and Allocated

Industrial Area	Vacant Acres 1980 Inventory	Vacant/Underutilized Acres 1982 Inventory	Additional Industrial Lands Required	
			Urban Growth Plan	Economic Model
East Grants Pass I and II (Within City)	12.2*	5.42/67.8*	46.8	50
East Grants Pass II (Within UGB)	114.1	103.74/89.29		
East Grants Pass IV (East of UGB)	--	53.97/23.73		

North City, I and II (Caveman Industrial Park and Adjacent	29.6 (*)	20.34/13.47 (*)	10.0	6
West Grants Pass	10.4*	10.13/.55*	3.0	3
Redwood I (North of Highway)	80.0	22.66/45.23	15.0	6
Redwood II (South of Highway)	100.0	99.78/56.87	80.0	30
TOTAL	346.3	316.04/296.94	157.8	95

* Fully Serviced Areas (*) Partially Serviced Areas
Vacant= entire tax lot undeveloped.
Underutilized= that portion of parcel not fully developed for industrial purposes, or a use of lesser intensity, such as large lot residential farm or woodlot easily convertible to industrial use.

It is clear from Table 13.4.28 that total acreage is not the limiting factor for adequate industrial development, if both existing zoned and serviced lands are included with lands with no urban services and the potential for industrial zoning. Table 13.4.28 reveals that very little acreage is in fact fully serviced, has appropriate zoning and is vacant or underutilized. (Column 3). Moving from left to right across the columns of Table 13.4.28, each of the inventory totals past column 3 involves either more time (to obtain appropriate zoning, column 4) or more investment dollars (to extend services, column 5). Column 6, when compared to other columns, reveals which subareas have the greatest potential for further industrial zoning.

Table 13.4.28
Industrial Lands Inventory 1982

Industrial Area	Total Acres	Acres With Full Urban Services Industrial Zoning Vacant/Underutilized	Acres With Full Urban Services Vacant/ Underutilized	Acres With Industrial Zoning Vacant/ Underutilized	Acres With "Industrial Potential" Vacant/ Underutilized
North City I	34.12	10.87 (City)	10.87	17.56	18.24
North City II	25.21	17.57 (City)	17.57	17.57	17.57
West City	26.41	10.68 (City)	10.68	10.68	10.68
East City I	10.74	0	0	0	0
East City II	200.57	73.22 (City)	73.22	73.22	73.22
East City III	321.77	16.20 (UGB)	77.55	143.24	193.03

East City IV	96.61	0	0	15.31	77.70
Redwood I	128.80	0	0	1.68	67.89
Redwood II	209.11	0	0	7.10	156.65
TOTAL	1,043.34	128.54	189.89	286.36	614.98

Column 1 depicts inventory area (See Map ____).
Column 2 lists total acreage of inventoried tax lots within the area.
Column 3 shows vacant and underutilized acreage with full services and industrial zoning.
Column 4 shows vacant and underutilized acreage with full services or within 500' of full services, but without industrial zoning.
Column 5 shows vacant and underutilized acreage with appropriate industrial zoning, but without full services.
Column 6 shows all vacant and underutilized acreage with industrial potential, and includes all other categories.

Parks and Open Space Land Needs

In the absence of an adequate Recreation and Parks Study, the Recreation Element performed a rather rudimentary Parks needs analysis. Regional parks were deemed sufficient, at a present ratio of 4.6 acres per 1000 population, while the need for neighborhood and district parks was projected forward at a demand rate of 6 acres per 1000 population, a ratio established by Medford's 1979 Park Plan. Table 13.4.29 summarizes both existing and future need for neighborhood and community park acreage. (See also Recreation Element, Section 3).

Table 13.4.29
Neighborhood and Community Parks Land Need

Subarea	Existing Park Acres	Target Population 38,300 Persons			Target Population 44,750 Persons		
		1980 Park Need	1980 - 2000 Need	Year 2000 Total Need	1980 Park Need	1980 - 2000 Need	Year 2000 Total Need
Northwest	14.1	6.7	11.9	18.5	6.7	11.9	18.5
Northeast	3.3	16.0	11.6	27.6	16.0	11.6	27.6
Southeast	6.9	1.2	3.1	4.3	1.2	3.1	4.3
Southwest	4.5	19.0	11.6	30.5	19.0	11.6	30.5
Harbeck-Fruitdale	3.5	19.5	24.3	43.8	19.5	34.3	53.8

Redwood	0	7.7	34.4	42.1	7.7	63.0	70.7
TOTAL*	32.3	70.0	96.8	166.8	70.0	135.4	205.4
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

* Totals may not add due to rounding. See Table 7.39 and Table 7.3.10, Recreation Element, Section 3.

Between 167 and 205 acres are needed by the year 2000 for community and neighborhood parks. Some 70 acres of that estimated need were needed in 1980. That is, between 34% and 42% of projected need is actually current need. Unfortunately, neither current nor projected need is spread uniformly among the urban and urbanizing subareas, as may be seen by comparing columns (3), (4) and (7), Table 13.4.28. The northeast and southwest subareas of the city are particularly lacking in park facilities. The northeast subarea may have some potential for increased park use of Lincoln School and Grants Pass High School. The southwest subarea is particularly impacted, and although the school-owned properties below Bridge Street adjoining Cottonwood Avenue offer an excellent potential, other measures should be considered for the developed portion of this subarea.

South of the Rogue, the Redwood area's 1980 neighborhood and district park need of 7.7 acres is presently served by urban level facilities at Schroeder Park, and much of the future need could be accommodated by use of the PUD concept (limited use of mini-parks and greenways within new housing developments) and by the school owned properties at the corner of Leonard Road and Darnielle Lane. The Harbeck-Fruitdale subarea, however, is and will be severely impacted, needing 20 acres of neighborhood park now, and between 24 and 34 additional acres by the year 2000.

Due to the infill nature of most development north of the Rogue River, there is little difference in park acre demand between the low and high ends of the population projection range. South of the River, there is little difference in park acre demand between the low and high ends of the population projection range. South of the River, however, the demand is nearly doubled, from 58.7 acres (low target population need) to 97.3 acres (high target population need).

13.7 DEVELOPMENT STRATEGIES

Putting Zoning in Perspective

Zoning by cities was first begun by New York City in 1913, and adopted by that city in 1916. By 1923, 292 cities had promulgated zoning regulations, most using New York City as a model, based for the most part on the common law of nuisance that enjoined a property owner from using his land without regard for the possible deleterious effects such use might have on neighboring properties. Such ordinances were carefully geared towards the stabilization and protection of property investments, mainly through the device of zoning districts, specifying the types of land use permitted within the district, and including height, bulk and setback provisions.[2] Today, zoning ordinances and

[2] Traditional Zoning, Edward N. Reiner, Vol. I, Management and Control of Growth, Urban Land Institute, 1975.

associated codes have gone far beyond the original constitutional justification for zoning adopted by the U.S. Supreme Court in Euclid vs. Amber Reality Co. the prevention of nuisances in advance of their occurrence, and have taken instead the rationale of "advancement of public welfare," too often ignoring the costs to the public (higher land prices and unit costs) while pursuing viable public benefits (service extensions, protection of developed properties, and provision of amenities).[3]

The zoning district concept has often been designated the bearer of all policy requirements over the years, regardless of whether zoning districts were the most suitable or efficient instrument of the desired policy. Also, as zoning, subdivision and other development related ordinances and policies have been adopted, a great body of varying procedures have been built into the process, often contradictory, confusing and difficult to follow for the developer, neighbor and administrator. Further, the standards by which a proposal is permitted to go forward, or that determine what a proposal must provide in the way of services, amenities or buffering are unclear, or vague and discretionary, and often unrelated to the task for which they were formulated in the first place.

In recognition of these inequities and inefficiencies "built in" to most codes, cities in Oregon have undertaken major revisions in their development ordinances and policies, often in conjunction with their revised Comprehensive Plans. In addition, the Bureau of Governmental Research and Service, University of Oregon, has developed a model Land Development Ordinance Format, many of whose features have been incorporated by Oregon cities in revising their ordinances. The City of Gresham came closest to utilizing the entire format. In Southern Oregon, the cities of Klamath Falls, Roseburg, Medford and Ashland have either recently adopted or are considering adopting revised development ordinances which address some of the following issues:

1. Separate Procedures from Standards. Easy to follow development procedures set apart from the standards and criteria for development, can be consistent and fair, and can stay that way as they are amended over time.

2. Vary Levels of Procedures. There are many kinds of decisions that are strictly objective in nature, involving clear, measurable criteria, that may be decided at the staff level rather than go to Board or Council and create long delays.

3. Set Clear, Measurable Standards. Many criteria for development and most development construction standards can be extremely precise and measurable, particularly if expressed in performance terms. All parties know where they stand, and processing is expedited.

4. Different Conditions Warrant Different Criteria. Development within a new, just developing area, need not be burdened by development regulations designed to protect existing, established neighborhoods nor should areas not subject to inundation be burdened by regulations appropriate to areas in a flood plain, just because they share a type, density or intensity of land use.

[3] Toward a Revised Theory of Zoning, Dan Tarlock, Ibid.

Separate Procedures from Standards Vary Procedure Levels:

Previous zoning, subdivision and other development related ordinances as a group often have separate requirements as to whom the application for development is to be submitted, who makes a decision on the application, whether a public hearing takes place who presides at the hearing, who receives notification and how this is done, the time limits for each part of the process, etc. If every permit process has an independent procedure, it is difficult for both the applicant and the public officials to keep track of all the procedures. Often the differences are unimportant but just came about because of separate adoptions of the various regulations. On the other hand, everything should not be handled by one process. The procedures required for making a simple land development decision do not need to be as extensive as those for a more complex decision where considerable discretion is necessary and public participation may be appropriate. Using a single process can cause unnecessary delay of simple applications and add to the costs. A single process also can confuse people as to the amount of discretion available to the administrative body.

Administrative procedures that are required for making land development decisions may be seen to lie on a continuum. At one end there are simple ministerial decisions in which the public official is accorded little, if any, discretion and merely applies measurable standards to a submitted proposal to reach a decision. On the other end of the continuum lie far more complex administrative decisions, sometimes referred to as quasi-judicial decisions, where judgmental criteria as well as measurable standards govern the action. Then the decision involves a substantial degree of discretionary judgement on the part of the official or body that apply the facts to the situation. In these cases it often is necessary to weigh disadvantage to one party against reasonable benefits to another party and balance what is allowed against restraints on how it is allowed. Table 13.7.1 summarizes four levels of development procedures, and Tables 13.7.2 illustrates sample procedural reform.

Table 13.7.1
Varying Levels of Development Procedures

Type I Procedure	Type II Procedure
Objective decisions. Little, if any, discretion required. Because of minimal or no effect on others, public participation is provided simply by noticing nearby property owners and reviewing their submitted written testimony. No public hearing is held. Director of Community Development, or his designee, takes action. Appeal by Type III procedure.	Objective decisions. Moderate discretion required. Application of the standards may require knowing of some effect upon others. Nearby property owners invited to respond to a tentative decision. Director of Community Development holds meeting, takes action. Lack of agreement escalates process to Type III procedure.
Type III Procedure	**Type IV Procedure**
Complex or subjective decisions. Discretion required. Delegated quasi-judicial actions required. Possible significant effect on some persons or broad effect on a number of persons. In addition to applicant, others affected are invited to hearing to present initial information. Hearings Officer or Planning Commission holds public hearing, takes action. Appeal by Type IV procedure.	Complex or subjective decisions. Great deal of discretion required. Quasi-judicial or legislative actions required. Possible significant effect on some persons or broad effect on a number of persons. In addition to applicant, others affected are invited to hearing to present initial information. Planning Commission holds public hearing and makes recommendation, City Council or Board of County Commissioners, or bother acting jointly, holds public hearing, takes action. Appeal to LCDC or LUBA

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Table 13.7.2
Sample Density Determination Matrix

Overlay District	Density Computation Procedure for Any Given Residential District	Suggested Procedure	Current Procedure (s) Eliminated
Established	Compute Median Density * from Existing Development	Type I	CUP, PUD, Dwelling Group Rearyard Development
Developing	As stated in Comp Plan	Type I	CUP, PUD, Dwelling Group
Redeveloping	As stated in Comp Plan	Type I	CUP, PUD, Plan. Comm. Interpretations
Slope Hazard	Compute according to degree of site information available	Type I	CUP, PUD, Zone Change
Flood Hazard	Transfer density from flood plain	Type I	CUP, PUD, Zone Change

Procedure Types
Type I - Ministerial (staff), 15% variance allowed.
Type II - Hearings Officer (appeal to Planning Commission).
Type III - Planning Commission (appeal to Board/Council).
Type IV - Planning Commission recommendation, Board/Council action.
* Take any 3 of adjoining parcels (abutting or across street or alley), sum lot size and divide by three, round to nearest whole number. If adjoining parcels undeveloped or capable of further division and development, expand consideration in radius until 3 parcels found.

Table 13.7.3
Sample Hearing Type Determination Matrix For Residential Development

Overlay District	Desired Building Type	Suggested Procedure/ Notification	Current Procedure (s) Eliminated
Established	Same as adjacent	Type I (No Notice)	None
	Different than adjacent	Type II (Notice adjacent parcels only)	CUP, PUD, Dwelling Group
Developing	Standard Subdivision Plot	Type II (Notice 300" radius)	UAPC Plat Approval
	PUD Plan	Type III (Notice 500" radius)	CUP, Dwelling Group
	PUD Plat (After plan approval	Type II (Notice same as Plan)	UAPC Plat Approval

Eliminates "conditional use permit" concept entirely, replaces with performance standards and the hearing "referee" (Hearings Officer), or goes to Planning Commission for Plan Approval.

Procedure Types:
Type I - Ministerial (staff), 15% variance allowed.
Type II - Hearings Officer (appeal to Planning Commission).
Type III - Planning Commission (appeal to Board/Council).
Type IV - Planning Commission recommendation, Board/Council action.

Set Clear, Measurable Standards

Vague and discretionary standards, whether utilized as criteria for permitting a development, or used to determine what design or construction standards must be met, are unevenly applied, often unfairly, and needlessly involve higher levels of decision making and its attendant delays and costs, rather than the quick, ministerial treatment that measurable and objective standards may receive. Rather than making a general, vague statement of criteria ("The emission of disturbing vibrations... is prohibited"), a measurable standard is given ("noise levels measured at the property line shall not exceed the following frequencies during the hours shown..."). As another example, setbacks could vary according to the types of zones abutting, rather than arbitrarily for each zone separately and may be shown in a simple table. Each development criteria and standard would have a rational basis in fact, and any criteria or standard objective and benefit should be carefully weighed and balanced against the public and private cost of such criteria or standard. (See Table 13.7.4 and Exhibit 13.7.5).

The standards should be written in clear, concise language, with the format being preferably all outline or checkoff list, rather than lengthy, wordy paragraphs.

Apply Different Criteria for Different Conditions

Urban Development within an area as yet unformed should not necessarily be subject to the same conditions of development as areas within established neighborhoods, just as areas that are redeveloping offer special opportunities and challenges.

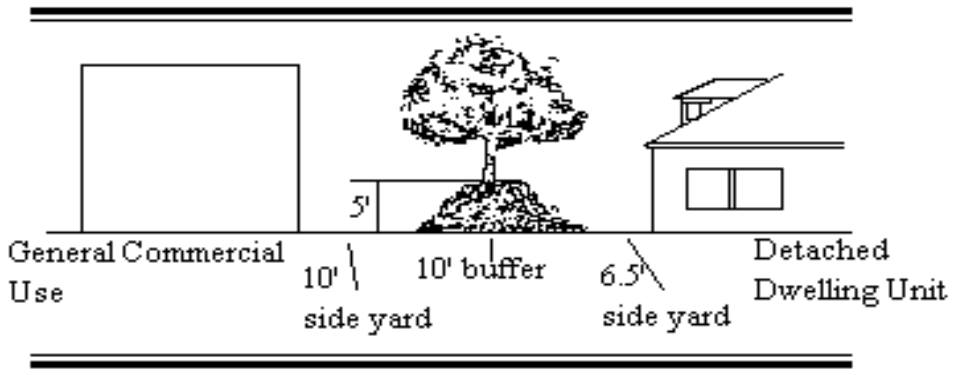
1) Major Classifications Districts.
Under this approach, all lands could be seen as belonging to one of three major districts, regardless of the underlying zone: Established, Developing and Redeveloping.

Table 13.7.4
Sample Buffering Requirement Matrix

Land Use	Res Lo	Res Mod	Res Hi	Res Hi Rise	N. Comm	G. Comm	O. Comm	C. Comm	Bus. Pk.	Indus
Res Lo	---									
Res Mod	1	---								
Res Hi	3	2	---							
Res Hi Rise	4	2	1	---						
N. Comm	3	2	2	---	---					
G. Comm	3	3	2	---	---	---				
O. Comm	3	2	2	---	---	---	---			
C. Comm	---	3	2	---	---	---	---	---		
Bus. Pk.	4	4	4	3	3	3	---	---	---	
Indus	5	5	5	4	4	4	4	4	2	---

Buffering requirements vary on a scale from 1 to 5, depending on the degree of mitigation required, increasing with degree of incompatibility. (See Table 23.7.4)
1) Screen planting within required yard.
2) Screen planting with sight obscuring fence.
3) 5' buffer planting/fence zone in addition to required yard.
4) 10' buffer planting/fence zone in addition to required yard.
5) 15' buffer planting/fence zone in addition to required yard plus activity enclosures as required.

Exhibit 13.7.5
Illustrated Buffer Zone



Sample Requirement from Gresham

(A) A buffer consists of a horizontal distance from a property line which may only be occupied by screening, utilities, and landscaping materials. The required buffering distance between various land uses is identified in this Section.

(B) The buffer area requirements are in addition to the yard set back requirements, except for developments within the Central Commercial (Downtown).

(C) Within the buffer areas screening is required and may consist of any of the following:

At least on (1) row of deciduous or evergreen trees or a mixture of each, not less than fifteen (15) feet apart, and at least one (1) row of evergreen shrubs spaced not more than five (5) feet apart which will grow to form a continuous hedge at least five (5) feet in height within one (1) year of planting, lawn, low growing evergreen shrubs, evergreen ground cover or vegetable or rock mulch covering the balance of the property.

In lieu of these standards, and at his/her option, the owner may prepare a detailed plan and specifications for landscaping and screening, including plantings, fences, walls, walks and other features designed to afford the degree of desired buffering. Such plan and specifications shall be submitted to the Director of Community Development for review.

The concept of identifying all land as being in an established, redevelopment or developing district is proposed partially to overcome a contradiction that often now occurs. Land not yet developed is often placed in a restrictive zone as though it had its future determined, but with full expectation by the city or county officials that rezoning may occur. Some property owners, not realizing the zoning in such cases is nothing but a “holding” classification, expect the protection of the restrictive zoning. Others, of course, understand the zoning game and rely on the holding classification partially as a land banking technique until reclassification is desired. Rules for a developing district that are

separate from the rules for areas that are well developed (established) permit are a visible and understandable distinction between the fairly fixed standards desired in established areas and the flexible standards warranted for newly developing areas.

One goal of this land use regulation system is to move land into an established status as it is developed. Land that has not reached an established use status belongs in the developing district only until it becomes established. Land that has been used up, so to speak, is shifted into the redevelopment district to allow for conversion to new forms of development.

Once the initial districts are established, new underdeveloped lands coming into the Boundary could be placed in the Developing category ministerially, as could lands be placed from the Developing to the Established districts as development occurs. Placement of lands into the Redeveloping category should be a quasi-judicial act determined by elected or appointed officials.

(1a) Established District

The purpose of the established district is to protect from incompatible uses those portions of the planning unit that are already established (developed) or that become established, and that are functionally adequate, safe and healthful places to live, work or receive services. The investment decision made to locate in these areas, based in large part upon the existing structure, development and character of the established neighborhood, may then be protected in a very basic and straightforward manner. New development within such a district has to conform to the conditions of the surrounding properties: setback, height, bulk, landscaping, even architectural character or materials if desired. Simple review criteria would allow an average or mean condition to be established when varying conditions are surrounding. Review would be ministerial, unless a departure from the surrounding norm is desired, and then a public hearing would be held to determine whether and under what conditions the project would go forward. Once approved, a development then is used, along with other surrounding developments, to determine an adjacent development and so on, thus allowing change and neighborhood evolution, but in a moderate, gradual manner.

Most of the Established area would be in those fully developed neighborhoods of the City, north of the river, and in the developed neighborhoods and subdivisions of the Harbeck-Fruitdale area south of the river. The Established district may also surround pockets of land in Developing or Redeveloping districts, although the pockets would decrease as development occurs.

(1b) Developing District

The purpose of the Developing district is to acknowledge the merit of flexibility in dealing with new developments in new areas, bringing land use controls into conformity with contemporary development practices and conditions. When zoning was first brought into common use, cities were the only areas zoned, and most development took place on a lot-by-lot basis, with concentric or linear growth outward from urban centers. This made each property owner almost totally dependent on the individual actions of adjacent neighbors for the quality of the living environment. This is no longer true. Much development now occurs on a large scale, and the location of new development is

not necessarily an extension of some existing development.

New developments usually create their own living environments. Flexible land use controls during the development period could acknowledge the developer's choices and encourage creative design. Past practices have been to apply traditional zoning mechanisms to developing areas as a sort of unacknowledged holding zone and then partially respond to developer proposals by entertaining zone changes. However, the fixed standards often become obstacles to new design. The planned unit development system emerged because of these obstacles; so a different approach should permit developments to be planned to whatever degree is appropriate for the particular location and development.

The developing district consists of all lands not contained in the established or redeveloping districts, and could be administered as one large planned unit development! One could go further and allow even zoning districts to emerge, rather than be predetermined by the Plan. Development standards and criteria, specifically tailored for the planned unit development approach, and a greater level of ministerial review, could help "fast track" development in these areas, and reward innovation and initiative.

As each Developing area was completed, and became contiguous to an Established area, or became contiguous to other Developing areas, it would become an Established area and pockets of undeveloped ground within would then have to conform to the existing development, although the "existing" development would reflect the latest market trends, and such general conformity would not be burdensome to the developer and yet protect the new investor as well.

(1c) Redeveloping District

A Redeveloping district is established to recognize the appropriateness of upgrading the livability of usability of previously developed areas that are beginning to warrant change or have become blighted. Traditional zoning is adequate for this purpose because it is primarily aimed at preserving the status quo.

Specific criteria for the designation of a redevelopment district would be set forth in the Development Code. The criteria might include reference to old or substandard building conditions, high vacancy rates, deterioration of or lack of adequate public facilities, and lack of a minimal level of certain amenities such as open space around residential buildings.

Uses that were economically sound, well maintained or of historical value could be protected, allowing redevelopment to complement rather than damage valued uses. Special conditions not applicable in other zones may be set out in the Development Code, or as a result of the hearings process, allowing redevelopment to fully utilize old structures, to permit "fast tracking" once a concept is approved, to allow a greater degree of design and construction flexibility, or to allow for combinations of public and private contributions to the upgrading of an area over time.

(2) Special Purpose Districts
As indicated above, zoning can be a clumsy instrument to deal with hazard areas of various sorts. Zoning hillside areas to arbitrarily larger lots penalizes the less steeply sloping areas, while providing little protection to the very steep areas. A series of overlay zones could be used instead, with special conditions relating only to the hazard issue itself.

(2a) Steep Slopes
Steeply sloping areas, especially those with unstable soils, may warrant special treatment, relating directly to the degree of hazard. Various formulas could be provided, depending upon the degree to which the owner or developer wished to investigate and record the actual conditions, and a base density of say, R-1-8, could then be used to calculate densities. Examples of such an approach are provided in Appendix 3.3.

(2b) Floodplain
Areas subject to flooding may be treated the same way, with the criteria and standards now contained in a separate Floodplain Ordinance incorporated into the Development Code instead.

(2c) Historic
Should an historic area be designated, protection of historic buildings could be coupled with an area wide renovation and revitalization program encouraging private reinvestment and conversion to economically viable uses.

(3) Official Maps
Certain facilities plans, such as water, sewer, storm drains, roads, landscape strips and greenways, used to be designated and located fairly precisely to guarantee orderly and economic delivery of services. Such facilities lend themselves to a map designation, which then may be altered as time and circumstances require. Coupled with specific standards in the Development Code, such a map would then assist developers in preparing their plans while allowing public jurisdictions to plan for economic and efficient service delivery to future development.

13.8 SERVICE CAPACITY SUMMARY

Following are summaries of service capacities and facilities required to serve the target population range. (For full discussion, see Public Facilities and Services Element.)

Water Service Capacity

Water capacity was examined as water source capacity, water treatment capacity and water storage capacity. The results are summarized in Table 13.4.29.

Assuming full use of the 1960 and 1965 permits, the full capacity in surface waters diverted from the Rogue River are 65% to 76% utilized by the year 2000 target population, range, and 81% to 94% utilized by the buildout populations for the two land use models used. Although the planning period seems adequately covered, efforts should begin now to find additional water to serve future growth.

The present water treatment plant expansion, when completed, could absorb a full city buildout, with 20% "surplus capacity." A second expansion could serve the Urban Growth Plan target population while a third expansion would be required to serve the Economic Model Target population, with 15% surplus capacity. The third expansion could also serve the Urban Growth Plan land use model buildout, with 10% surplus, but would be 5% short of serving the Service Capacity land use model buildout. A third expansion of the treatment plant may require additional site acquisition.

The Phase I reservoir addition (#6) will bring the City up to recommended levels, while Phase II additions (#5,7,8) will accommodate city buildout with 30% surplus capacity. The addition of reservoir #11 will accommodate the Urban Growth Plan target population, while reservoirs #9 and 10 will accommodate the Economic Model target population by the year 2000. Flow and pressure requirements within the system may require reservoirs to be added in advance of demand based merely on population.

Water service appears adequate for the target population range, given necessary facilities expansion as indicated.

Table 13.4.29
Water Service Capacity and Projected Demand

A. Water Source

City Water Permits	Cumulative Capacity (Persons)	Projected Demand* (Persons)
1888 right	11,825	15,630 - est 1981
1960 permit	35,475	38,300 - UGB 2000

1965 permit	59,125	44,750 - Economic Model 2000 44,700 - UGB Buildout 55,700 - Service Capacity Buildout

* Capacity calculated at 683 gallons per capita per day, present maximum day demand.

B. Water Treatment

Treatment Plant	Cumulative Capacity (Persons)	Projected Demand* (Persons)
Existing	14,060	15,630 - est. 1981
1st Expansion	26,350	21,000 - City Buildout
2nd Expansion	39,530	38,300 - UGB Buildout
(3rd Expansion)***	52,710	44,750 - Economic Model 2000 47,700 - UGB Buildout 55,700 - Service Capacity Buildout

* Capacity calculated at 683 gallons per capita per day, present maximum day demand.
** May require site expansion to accommodate 3rd model.

C. Water Storage

Reservoirs	Cumulative Capacity (Persons)	Projected Demand (Persons)
1 - 4 (existing)	9,800	15,680 - est. 1981
6 (phase 1)	16,660	
5, 7, 8 (phase II)	29,790	21,000 - City Buildout
11	38,610	38,300 - UGB 2000
9, 10	45,470	44,750 - Economic Model 2000
12	49,390	47,700 - UGB Buildout
13, 14	50,570	55,700 - Service Capacity Buildout

Sewer Service Capacity

Sewer Service capacity was examined as both treatment plan hydraulic and BOD capacity, and as collection system hydraulic capacity. Due to a number of factors, the area's sewage is "weak," and BOD capacity is not a factor. The hydraulic capacity of treatment plants and collection systems is compared to projected demand in Table 13.4.30.

The Redwood collection system has adequate overall capacity to serve the highest year 2000 population, perhaps requiring paralleling in local subsystems. The Redwood treatment plant will need expansion of capacity of two to four times present capacity. The Redwood plant is designed to expand in modules.

The city treatment plant will be unable to accommodate projected year 2000 flows within the present city limits, and is in fact periodically in present violation of DEQ discharge requirements. A study is under way to determine expansion options, based upon the severity of the infiltration/inflow problem. Expanded capacity shall consider UGB demand projections. Both the city and the Harbeck-Fruitdale District would appear to require additional sewer collection mains as well.

Sewer service appears adequate for the target population range, given necessary facilities plans as indicated.

Table 13.4.30
Sewer Service Capacity and Projected Demand

Sewer Service District	Treatment Plant Capacity	Collection System Capacity Population Equivalents	Year 2000 Target Population UGB/Econ. Model	Year 2000 Total Population Equivalents* UGB/Econ. Model
City of Grants Pass	21,000	21,000 (?)	20,200	32,400
Harbeck-Fruitdale	---	14,000	11,730/12,750	16,200/17,240
Subtotal	21,000	35,000	31,900/32,950	48,600/49,640
Redwood	4,000	16,000	6,400/11,800	8,920/14,340
Total	25,000	51,000	38,300/44,750	57,520/63,980

*includes commercial and industrial loading.
(?) capacity uncertain pending study due August 1982.

Storm Drain Service Capacity

Full development of the UGB will require the improvements listed in Table 13.4.31. The city and urbanizing area are lacking in adequate storm drainage facilities, and the facilities represented in line A of the Table will be critical to install in order to avoid major drainage problems as the area develops.

Table 13.4.31
Storm Drainage Projected Demand

Demand Years	Storm Drain Line (Miles)	Improvement Costs (1983 Dollars in Millions)
A. 1982-1988	6.5	$3.5
B. 1988-1995	15.9	$6.7
C. Beyond 1995	23.8	$7.6

Solid Waste Service Capacity

The UGB target population range will generate slightly less than twice the capacity of landfill sites 1-4, or 45% - 47% of total landfill site capacity, as shown in Table 13.4.32. The remaining portion of the solid waste site service area, however, must also be accommodated resulting in 69% to 73% of the capacity of all six sites being consumed by the year 2000. Between 1985 and 1990, areas 5 and 6 must be developed at some cost. A plan has been adopted by the county, and recognized in principle by the city. That calls for resource recovery in conjunction with Jackson County when such a project becomes cost effective. Solid waste service disposed site capacity appears to be adequate for the target population range, given the necessary improvements as indicated.

Table 13.4.32
Solid Waste Service Capacity and Projected Demand

UGB Target Population Range (Persons)	Solid Waste Production*			Disposal Site Capacity	
	UGB to Year 2000	Total Service Area to year 2000***	Areas 1-4	Areas** 5-6	Total Area
38,300	2.84	4.40	1.59	4.78	6.37
44,750	2.99	4.63	1.59	4.78	6.37

* Loose density, in million cubic yards.
** Require costly site preparation.
*** UGB's proportional share of total waste generated in service district estimated at 45%.

Transportation Capacity
Note: Abstract from Transportation Element

Fire Protection Service Capacity
The demand for fire protection service within the UGB is more a function of geography and station location than population. Seven additional fire fighting personnel, one 3000 gallon tanker and a station south of the Rogue River will be required to serve the target population range. Critical to this estimate is the extension of fire flow water able to provide sufficient quantities of water on demand throughout the urbanizing area (see Water Service Capacity, above).

Police Protection Service Capacity
The demand for police protection service within the UGB by the year 2000 will require 26 to 36 additional personnel, together with 7 vehicles and a small station south of the Rogue River.

School Service Capacity
The UGB area can be expected to generate between 3500 and 5000 additional students by the year 2000, in accommodating the target population range. (Decreasing household sizes were projected, resulting in a proportionate decrease of children per household, projecting in a conservative student demand estimate should economic diversification occur to the extent desires). Table 13.4.33 shows the impact of this student demand in required classrooms upon Grants Pass School District #7 and Josephine County School district #23.

Although it is not known precisely to what degree any of the existing schools can accommodate additional students or add on classrooms, since considerations of "crowding" are matters of policy, it seems reasonable to assume that meeting school service demands and maintaining the present high standards of education will require significant facility additions.

TABLE 13.4 33
School Service Projected Demand

	Facilities Needed in # of Classrooms					
School Type	**District No. 7**		**County Unit**		**Total**	
	Low	**High**	**Low**	**High**	**Low**	**High**
Elementary	36	53	11	16	47	73
Middle	8	17	12	16	20	33
High	6	18	13	18	19	36
Total	**50**	**88**	**36**	**50**	**86**	**142**

Source: Section 10.8.11, Public Facilities Element

13.9 LAND USE ANALYSIS

The Land Use Analysis Section utilizes the Land Use Inventory of 1978 and 1980, together with the more detailed Commercial and Industrial inventories of 1980 and 1982, in order to determine build able lands (see Appendices 13.1 - 13.4), utilizes the findings of the Population, Recreation, Economic and Housing Elements to determine land needs for the planning period, utilizes the findings of the Public Facilities, Transportation, and Natural Hazards Elements to determine appropriate location of proposed land uses; and finally, utilizes the Urban Growth Plan to assess the considerations of urban form.

Areas, Subareas and Neighborhoods
The Land Use Analysis examines the Urban Growth Boundary area as a series of seven residential subareas, containing 33 distinct neighborhoods; nine commercial subareas, and nine industrial subareas, including one subarea outside the Boundary at this time. Each subarea is identified (location), briefly reviewed (discussion), a conclusion is drawn (statement), and policies for the subarea are stated (policies). As two land use models were used (see Housing element, Section 9.24), each residential neighborhood will exhibit two sets of policies where required. The Urban Growth Plan land use model is referred to as Map "A", while the "Service Capacity" land use model is referred to as Map "B." The Commercial and Industrial subareas remain essentially the same for both models.

Table 13.9.1 identifies the areas, subareas and neighborhoods discussed in the Land Use Analysis, and Map 13.9.2 shows their location. The Land Use Analysis proceeds in a clockwise fashion, beginning north of the river with the southwest subarea (Ward IV and its urbanizing area extension). Policies are included for convenience and reference, and the entire section is also located in the Findings and Policy Sections of the Land Use Element.

Table 13.9.1
Areas, Subareas and Neighborhoods

Area	Residential Subarea Neighborhoods	Commercial Subarea	Industrial Subarea
North	Southwest (Ward IV) - 5 Northwest (Ward I) - 4 Northeast (Ward II) - 5 Southeast (Ward III) - 4	North City East Grants Pass North Downtown South Downtown West City	N. City I N. City II W. City E. City I E. City II E. City III E. City IV
South	Redwood - 6 Harbeck - 2	Harbeck / Fruitdale Redwood Interchange	Redwood I Redwood II

	Fruitdale - 6	Redwood Highway Williams Highway	

MAP 13.9.2
Areas, Subareas and Neighborhoods of the Urban Growth Boundary Area

MAP 13.9.2-A
Low Density Model - Urban Growth Plan

MAP 13.9.2-B
High Density Model - "Service Capacity" Plan

13.9.1 North Area Residential

Location - The North Area of the Urban Growth Boundary is all that portion of the Boundary area located north of the Rogue River.

Discussion - the area contains approximately 90% of the 1982 city limits, and about one-third of the urbanizing area. The urbanizing area's form pockets evenly spaced around the city limits as topography permits; most of the developable area is located in the south west (residential) and East City (industrial) subareas. Sewer and water are generally extended to the City limits only, except for substandard lines serving a mobile home park (Southwest subarea) and the Agness Avenue sewer extension in the industrial area (East City subareas).

A good network of county roads extends throughout the urbanizing area, needing only widening and improving, with the exception of the East city subarea, which will require the Third Bridge, improvements to the Redwood Spur and a parallel collector system to the Redwood Spur to accommodate full development. An exception to road, sewer and water extension within the Northwest subarea, which contains well over 50% of the subarea's build able lands, and is characterized by steep slopes, containing over 60% of the boundary's slope hazard areas. The North area contains 4 residential subareas and 17 neighborhoods; 5 commercial subareas; and 7 industrial subareas.

Statement - The North Area is predominated by the existing development with the city limits, and contains virtually all heavy industrial lands and the majority of light industrial lands. It is appropriate that the area should develop by the gradual extension of municipal systems through the urbanizing area and undeveloped portions of the city limits.

13.9.2 Southwest Subarea

Location - the subarea is located south of the Southern Pacific tracks west of 6th Street, and contains Ward IV of the city and its urbanizing area extension.

Discussion - the subarea is bordered on the northeast and east by the Downtown commercial area. West of the subarea lie exclusive farm use lands. At its southwestern edge, the subarea is heavily committed to mobile home development. The predominant housing type in the subarea is the single family detached dwelling unit. One-fifth of the housing stock is multi-family dwellings. The public facilities capacities (except parks) are suitable for medium residential density. There are not schools in the subarea, although School district #7 owns an 22 acre site adjoining the city limits, at the end of the Rogue River Avenue. The subarea is severely park impacted, having a 1980 ratio of 1.1 park acres per 1000 population, needing 19 parks acres now, plus 12 additional park acres by the year 2000.

Statement - The subarea is predominantly a low density residential area with a strong representation of moderate density residential dwellings. It is appropriate that the subarea should develop at low to moderate densities during the planning period.

Policies:

1. The southwest Subarea shall develop at low to moderate densities.
2. Areas adjacent to the Downtown with long standing commitments to high densities, shall develop at moderate to high densities.
3. The City shall develop Greenwood Park.
4. The City shall develop the municipal sewer treatment plant land as a green open space with access to the Rogue river.
5. The City shall cooperate with district #7 as needed to develop the district property at Rogue River Avenue as a school park, and shall acquire and develop the land for park purposes if not developed by District #7 as a school.

Jordan Street Neighborhood

Location - The neighborhood is located from the Southern Pacific tracks south to West "G" Street, and from Pine Street west to the Boundary limit.

Discussion - the neighborhood has a large amount of buildable land, mostly within the urbanizing area, but a certain amount below the southern Pacific tracks and above Jordan Street. West "G" Street is a designated arterial street that will be capable of serving a moderate to high density neighborhood. The housing conditions are fair to good, with 20% of the single family structures substandard, and showing a 14% rehabilitation rate. The public facilities capacities are suitable for moderate to high residential densities. The only "park" in the neighborhood is Stanfield Park containing .01 acres.

Statement - The neighborhood is a low density area with a large amount of build able land, and adjoins a major arterial ("G" Street). It is appropriate that the neighborhood develop as a moderate to high density area.

Policies:
1. The neighborhood shall contain Developing and Redeveloping Districts.
2. The neighborhood shall develop at moderate to high densities.
3. New residential development shall provide land for park use.

Pine Street Neighborhood

Location - the neighborhood is located from West "G" Street south to Central Avenue and from 5th Street west to Oak Street.

Discussion - The neighborhood consists of 63% older single family dwellings and 37% newer multifamily dwelling units. 31% of the single family dwellings are substandard, although the rehabilitation rate is a strong 20%. The vacant buildable land area is small. The redevelopment land area is calculated to be 65% of the total buildable land. However, if the rehabilitation rate continues to be strong then the redevelopment capacity of the neighborhood will diminish. The neighborhood contains many structures on the historic inventory. The part of the neighborhood between 5th Street and 3rd Street is recommended for high density because of its proximity to commercial services. However, there is a notable lack of park/open space that is needed to balance the higher density land use.

Statement - the neighborhood consists of many older, single family dwelling units and many new multi-family dwelling units. The existing density is a low to moderate range. It is appropriate that the neighborhood continue to redevelop at moderate to high density.

Policies:

1. The neighborhood shall contain an Established and Redeveloping District.
2. The neighborhood shall redevelop at high residential densities between 3rd Street and Pine Street.
3. The neighborhood shall redevelop at high rise densities between 5th Street and 3rd Street.
4. New residential development at moderate rate shall provide land for park use.

Greenwood Avenue Neighborhood

Location - The neighborhood is located from West "G" Street south to the Rogue River and from Oak Street west to the 1982 City Limits (Range 5 line).

Discussion - The neighborhood is predominantly composed of single family dwellings. The housing condition are good in the southern portion, but only fair in the northern portion. Only 7% of the single family structures are substandard. Multifamily dwellings are distributed almost evenly throughout the old R-2 and R-6 zoning designations. There is no school in the neighborhood, but District #7 owns 22 acres adjoining the neighborhood at Rogue River Avenue. There are 5-1/2 acres of park land and 33 acres of other public land in the neighborhood which, if developed, could provide adequate park and open space for the neighborhood during the planing period. The sewer facilities have the capacity to accommodate moderate to high density development.

Statement - the neighborhood is currently developed at a low to moderate residential densities. It has a moderate amount of buildable land and the facilities capacity is suitable for moderate density. It is appropriate for the neighborhood to continue to develop at low to moderate densities.

Policies:

1. The neighborhood shall contain Established and Redeveloping District.
2. The part of the neighborhood adjacent to "G" Street shall redevelop at high densities.

3. The remaining portion of the neighborhood shall continue to develop at moderate densities.
4. New residential development shall provide land for park use.

Lincoln Road Neighborhood

Location - The neighborhood is located south of West "G" Street to the Rogue River and west of the 1982 City Limits (Range 5 line) to the UGB.

Discussion - the neighborhood is relatively undeveloped in 1982, and provides 70% of the residential buildable lands for the Southwest Subarea. The housing types are predominantly single family mobile homes that are in good condition. The street pattern is skeletal, requiring expansion of collector and arterial street rights-of-way, extension of Lincoln Avenue and the "Fourth Bridge," and the F-Street extension crossing of the southern Pacific tracks. The public facilities are mostly undeveloped except for a few minor improvements. There is a 22 acre future school site that will serve as the Southwest Subarea's district park. The buildable lands south of Bridge Street lie within the 100 year floodplain of the river, and a substantial portion lies within the floodway.

Statement - The neighborhood is currently developed at rural densities, with several exceptions. There is an abundance of buildable land. The land is serviceable by sewer and water. Most required street right-of-way may be obtained as development occurs. It is appropriate that this neighborhood should develop at low to moderate densities during the planning period.

Policies:

1. The neighborhood shall contain Established and Developing Districts.
2. The neighborhood shall develop at low to moderate densities. The area west of Lincoln Street and south of "G" Street shall be considered to have a special potential for mobile home development.
3. The Comprehensive Plan Map shall contain two General Commercial nodes, one located in the vicinity of the intersection of Lincoln Street and "G" Street, and the second in the vicinity of Lincoln Street and Bridge Street.
4. That portion of the neighborhood located in the 100 year flood plain shall be considered a hazardous development area. Development in this area shall be required to meet the Flood Hazard development standards of the Development Code, and shall be encouraged to utilize cluster development, create open spaces and minimize impervious surfaces.

13.9.3 Northwest Subarea

Location - The Northwest Subarea is located north of the Southern Pacific tracks and west of 6th Street and contains Ward I of the city and its urbanizing area extensions. It is bordered by commercial and light industrial development on the south and east, by industrial development and the I-5 freeway on the north, and steep terrain on the west and northwest.

Discussion - The Northwest Subarea is basically contained within the Gilbert Creek drainage basin.

Gilbert Creek traverses the middle of the subarea contributing to the scenic and wildlife quality of the area. The western half of the subarea gradually rises into foothills encompassing areas of steeper slopes which present hazards to development. Much of the slope hazard areas are undeveloped at this time, and are unserved by sewer, water or streets. Sewer facilities in the subarea have a low to moderate density capacity, except for the southern portion which has larger mains and is in proximity to commercial and social services. The subarea housing is dominated by single family (25%), with several mobile home park uses in the urbanizing area to the north (4%), and relatively few multiple dwellings in spite of the old R-3 and R-4 zones (10%). The existing housing stock is in good condition, with only 8% of the total structure count in a substandard or dilapidated condition.

The subarea contains two schools and numerous park facilities, encompassing 24.6 park acres per 1000 population including the 42 acre BLM parcel, and 12.4 acres/1000 without. Local school park-facilities, however, will be needed in the moderate to high density areas as redevelopment occurs.

Statement - The Northwest subarea is predominantly a low density residential area. It is appropriate for the subarea to remain predominantly a low density residential area.

Policies:

1. The Northwest subarea shall develop at low densities except that the area adjacent to the Downtown, the light industrial, and hospital areas shall develop at moderate to high densities.
2. The Subarea shall contain Established, Developing, and Redeveloping Districts.
3. All or a portion of the BLM lands shall be retained for park use, and more intensive park facilities developed throughout the Subarea.
4. The subarea is composed of several district neighborhoods, each with different architectural building styles. New development in Established Districts of the subareas shall attempt to fit well within the architectural style of the surrounding area.

First Street Neighborhood

Location - The neighborhood is located in the southern part of the Northwest Subarea from “A” Street south to “E” Street, and from 5th Street west to Grant and Hillside.

Discussion - The First Street Neighborhood is characteristically defined by its architectural housing style, lot size and street pattern. The housing style is typified by the two story, wood frame building with a steeply pitched roof and tall, narrow windows. The housing types are evenly split between the single family dwelling described above (59%) and the multifamily two story apartment generally found on corner lots (41%). 29% of the single family dwellings are substandard or dilapidated, and the rehabilitation rate is 19%. The neighborhood contains many buildings on the historic inventory, including many outstanding specimens in the vicinity of the county courthouse. Redevelopment from single family to multifamily or professional uses is occurring.

The lot sizes are small. The street pattern is a traditional grid which creates small square blocks. The

sewer and water facilities have a moderate density capacity. Commercial services are nearby. The Josephine Memorial Hospital, county library, Senior Services Center, county courthouse, and city municipal buildings are located in the neighborhood. Hillside-Bellevue Park provides 1.5 acres of open space for the western end of the neighborhood.

Statement - The First Street Neighborhood is a low to moderate density residential area. It is appropriate for the neighborhood to continue to develop and redevelop as a moderate density and professional office area.

Policies:

1. The neighborhood shall develop at low to moderate densities, and redevelop at moderate to high densities.
2. Multifamily apartments shall be encouraged to locate on corner lots.
3. The neighborhood shall contain Established (west end) and Redeveloping (east end) Districts.
4. Higher density development shall locate in the Redeveloping District, and adjacent to Downtown.
5. Moderate density residential development shall provide land for park use.
6. Redevelopment shall respect buildings of historic quality.

Manzanita Neighborhood

Location - the neighborhood is located in the south central part of the Northwest Subarea from Midland south to "A" Street and from 6th Street west to Highland.

Discussion - The Manzanita Neighborhood is characterized by low density development and has many buildings in the historic inventory, some of the classic period styling. The housing types predominated by single family (96%), with some multifamily (4%) spread through the old R-1-6 zone. The housing stock is in good condition, with 8% of the single family structures in substandard condition, but showing a 57% rehabilitation rate!

The neighborhood has 3.2 acres of usable park space, or 2.1 acres per 1000 population. Both Lawnridge (1.42 acres) and Ogle (.27 acres) are centrally located, and the Highland School/Gilbert Creek facilities are nearby.

Statement - the Manzanita Neighborhood is a low density, single family residential area with good housing stock, a high rehabilitation rate and many structures of historic value. It is appropriate for the neighborhood to continue as a low density area.

Policies:
1. The neighborhood shall continue to be developed at low residential densities.
2. The neighborhood shall be considered an Established District.

Highland Neighborhood

Location - Generally the central and western parts of the northwest subarea, the neighborhood is located from Morgan Lane (1982 city limits) south to the Southern Pacific tracks, and from Hawthorne Avenue West to the Boundary limit.

Discussion - The Highland Neighborhood is characterized by low density development, much of it occurring within the last 10 to 15 years. All existing dwelling units are single family detached structures. The neighborhood has 231 acres of buildable lands, by far the most significant buildable area within city limits, and almost all within steeply sloping areas, without sewer, water or adequate roadways. From 3300 to 2900 additional persons could be expected from the area's potential 1600 new dwelling units. The neighborhood has a disproportionate supply of park space at 9.9 acres per 1000 population, due to the presence of Gilbert Creek Park, not counting the 42 acre BLM site.

The Traffic Plan calls for a major collector to circle through the developing area, connecting with highland and the "F" Street extension, relieving Morgan Lane, Valley View Drive and "B" Street.

Statement - The neighborhood is a low density residential area. It is appropriate for the area to continue to develop as a low density area due to constraints of topography and services extension.

Policies:

1. The neighborhood shall continue to develop at low residential densities.
2. The neighborhood shall contain an Established and Developing District.
3. Gilbert Creek shall be respected as a natural resource, and shall be incorporated into public and private parks and open space where possible.
4. The portion of the neighborhood located in the slope hazard area shall be required to meet the Slope Hazard development standards of the Development Code, and shall be encouraged to utilize cluster development, create open spaces and minimize soil disturbances.

Gilbert Creek Neighborhood

Location - The neighborhood is located in the northern urbanizing portion of the Northwest Subarea, from Morgan Lane north to the freeway Industrial area, and from Cavemen Industrial Park west to the UGB.

Discussion - The area is characterized by mixed residential development, lot size, and street pattern. Existing housing types are split evenly between wood frame single family dwellings and mobile homes. Lot sizes are generally very large and development rural, although extensive commitments have been made to urban level development. There is no street pattern except for one arterial and a few cul-de-sacs. Sewer facilities are designed for low residential density. There are no parks or other types of public open space.

Statement - the area is currently developed to rural densities. It is appropriate for the neighborhood to develop at moderate to high densities.

Policies:

1. The neighborhood shall be considered a Developing area.
2. The area shall develop at (low to moderate - Map A), (low to high - Map B) densities.
3. New residential development at moderate densities shall provide land for park use.

13.9.5 Northeast Subarea

Location - the Northeast Subarea is located north of the Southern Pacific tracks and east of 6th Street and contains Ward II of the city and its urbanizing area extensions. It is bordered by commercial development on the south and east and by the foothills and bisected by I-5 on the west and north.

Discussion - the Northeast Subarea is confined by topography to the north and northeast, by commercial development along 7th Street to the west, and by commercial development and the Redwood Spur to the south. The I-5 freeway bisects the northerly portion of the subarea, leaving 39% of the subarea's build able lands in the hilly sections above the freeway.

Single family structures (77%) dominate the subarea, with multifamily (23%) making a strong showing. Most of the multifamily development is located between "A" and "D" Streets, adjacent to or nearby the commercial facilities of the Grants Pass Shopping Center or the 6th and 7th Street couplet. The housing stock is in excellent condition, with only 4% of the existing single family structures substandard, and the Subarea shows a 26% rehabilitation rate. Relatively few if the structures in the historic inventory are located in the Subarea, although several of the best physical examples are located here.

The public facilities have a capacity for moderate residential density in the southern part of the subarea. The remainder of the subarea has low density facilities capacity. While Lincoln Elementary and Grants Pass High School provide 40 acres of grounds, only a small portion is available to the public at any given time as true park space, leaving the swim center and Croxton Park providing 2.8 acres of park space to the Subarea, or .56 park acres per 1000 population. The Subarea will require 27.6 acres in neighborhood and district park space by the year 2000, of which 16 acres (52%) is needed now. Further use of school grounds, particularly near high density development, is in order.

Statement - the subarea is predominantly a low density residential area with a strong representation of moderate and high density development. During the planning period, the area shall continue to develop at low, moderate and high densities.

Policies:
1. The Northeast Subarea shall continue to develop at low, moderate and high densities, as follows:
a. Low densities in the steeply sloping areas north and northeast of the freeway.

B. High and high densities adjoining the commercial area of downtown, the “E” and “F” couplet and the Redwood Spur.
C. Low and moderate densities throughout the remainder of the district.
2. The Subarea shall contain Established, Developing and Redeveloping areas.
3. The Subarea is composed of several distinct neighborhoods, each with different architectural building styles. New development in Established Districts of the subarea shall attempt to fit well within the architectural style of the surrounding area.
4. The city shall attempt to acquire open space between “A” Street and Redwood Highway in order to meet the recreational and open space needs of the higher density residential uses in that area.
5. Redevelopment shall respect structures of historic value.

Flint Avenue Neighborhood

Location - The neighborhood is composed of 75% single family and 25% multifamily dwelling units. Where the neighborhood interfaces with the Commercial Downtown Center and along “D” Street the housing conditions are substandard. 11% of the existing single family structures are substandard or dilapidated, with a rehabilitation rate of 19%. The public facilities are adequate for moderate to high density development. There are no parks / open spaces within the neighborhood, although the Grants Pass High School grounds are adjacent to the area.

Statement - The neighborhood is an older low density area with some redevelopment to multifamily dwelling units. It is appropriate that some redevelopment occur in areas where housing conditions are substandard, and the area encouraged over time to realize its higher density potential.

Policies:
1. The neighborhood shall be considered Established and Redeveloping Districts.
2. The part of the neighborhood that interfaces with the commercial districts and / or fronts along “D” Street shall be designated for high density and high rise redevelopment.
3. The city shall attempt to provide park space to serve the high density area.
4. New residential development at moderate densities shall provide land for park use.

Victoria Street Neighborhood

Location - The neighborhood is located from “A” Street south to “D” Street and from 11th Street west to Baker Drive.

Discussion - the neighborhood is composed of 93% multifamily dwelling units. Of the 16 single family structures, 3 are substandard (20%). The neighborhood has a large percentage of vacant land (9 acres.) The public facilities are adequate to accommodate high residential density. The streets that border the neighborhood on the north and south are either arterial or collectors. There are no parks / open spaces in the neighborhood.

Statement - the neighborhood is predominantly composed of multifamily dwelling units. There is a

large amount of buildable land relative to neighborhood size. It is appropriate that the neighborhood be developed to be a high density during the planning period.

Policies:

1. The neighborhood shall develop at high density.
2. The neighborhood shall be a Redeveloping District.
3. The city shall attempt to provide park space for the high density area.
4. New residential development shall be encouraged to provide land for park use.

Fairview - Foothill Neighborhood

Location - the neighborhood is located from Foothill Boulevard and "A" Street south to the Redwood Spur and from Agness Avenue and the freeway west to Harriet Street and Beacon Drive.

Discussion - the neighborhood is developed primarily to rural densities, being newly annexed to the city and contains a large portion (30 acres) of buildable lands. Of the existing dwelling units, 59% are single family, 40% multifamily, and 3% of existing single family structures are substandard.

The public facilities are adequate to support moderate to high density development, the neighborhood being subject to a recent local improvement district for water, sewer and streets. There are three major streets serving the neighborhood; a highway, an arterial and a collector. The western edge of the neighborhood adjoins the Grants Pass Shopping Center. There are no parks / open spaces in the neighborhood.

Statement - the neighborhood is currently a low density area with good services and a relatively large amount of buildable land. It is appropriate that the neighborhood should develop at moderate to high densities during the planning period.

Policies:

1. The neighborhood shall be designated a Development District.
2. The part of the neighborhood south of "D" Street and east of Terry Lane, and along Fairview Avenue shall develop at high densities. The remainder of the neighborhood shall develop at moderate densities.
3. New residential development shall provide land for park use.

Lincoln School Neighborhood

Location - The neighborhood is located from Midland Avenue south to "A" Street and from I-5 west to 7th and 8th Street, and forms the bulk of the Northeast Subarea.

Discussion - The neighborhood is overwhelmingly developed as a single family detached dwelling

area (97%). The condition of the housing stock is very good, with only 4% of the existing single family structures substandard, and a substantial 31% rehabilitation rate. The neighborhood contains 112 acres of build able lands. The streets are mostly local residential streets with only two collectors. The sewer facility capacity is capable of accommodating low density development. The parks total 2.82 acres, or 1.5 acres per 1000 population, and within the neighborhood are adequate to accommodate the needs of the residents only if the Lincoln and Grants Pass High School grounds are opened to further neighborhood use.

Statement - The neighborhood is a well established low density single family area. The neighborhood should generally continue to develop at low densities.

Policies:

1. The neighborhood shall continue to develop at a low residential density, except that the area west of Ninth Street shall redevelop at moderate densities.
2. The neighborhood shall be considered an Established District, (except that the area west of Ninth Street shall be contained in a Redeveloping District.)
3. The city shall attempt to provide neighborhood and district park facilities in the area.

Oak Park / Woodland Terrace / Sunset Neighborhood

Location - The neighborhood is located from Ausland Drive south to Midland Avenue and from I-5 east to 9th Street, including the land north of I-5 and east of 6th Street. The neighborhood is composed of three distinct sub-neighborhoods, Oak Park (north of the freeway including the area south of Ausland Drive and north of Morgan Lane), woodland Terrace (northeast of the freeway, south of Morgan Lane), and Sunset (south of the freeway to Midland and east of the freeway to 9th Street.)

Discussion - containing 98 acres of buildable lands, the typical lot sizes are ½ acre. All dwellings are single family, with 3 substandard structures (6%). Public facilities are suitable for low density, although portions of the neighborhood north of the freeway are all located in water service areas three and four, served by proposed reservoirs 7 and 8. There are no parks / open spaces in the neighborhood. The part of the neighborhood southwest of I-5 has a large amount of buildable land and is adjacent to the city commercial subarea.

Statement - the neighborhood is currently developed at a low density with a large quantity of buildable land. The neighborhood should continue to develop at low densities north of I-5 and at (moderate - Map A) (high - Map B) densities southwest of I-5.

Policies:

1. The Oak Park and Woodland Terrace areas shall continue to develop at low densities except properties in close proximity to the I-5 north interchange which provide a transition between the

interchange and low density residential designations. These properties shall develop at moderate to high densities, including designations which also permit professional office.
2. The Sunset area shall develop at moderate densities.
3. The Oak Park, Sunset and northern portion of the Woodland Terrace areas shall be within a Developing District.
4. The southerly portion of the Woodland Terrace area shall be within an Establishment District.
5. New residential development in the Sunset area shall provide land for park use.

13.9.5 Southeast Subarea

Location - The Southeast Subarea is located south of the Southern Pacific tracks and east of 6th Street, and contains Ward III of the city and its urbanizing extensions. It is bordered by the Rogue River to the south, industrial development to the north, and commercial development to the west.

Discussion - the predominant housing type is single family detached dwellings (95%) on medium to large lots (7000 sf. to ½ acre). The public facility capacities are suitable for moderate to high density residential development. The amount of vacant buildable land is low (73 acres). The greatest amount of buildable land is located near the Riverside School grounds, in an area suited for moderate to high densities. The Subarea is well networked with streets, and is adequately served by visiting arterial and local collector streets. Long, narrow lots on the southern fringe extend into the 100 year floodplain and floodway.

Statement - the southeast Subarea is predominantly a low density residential area. During the planning period the area should continue to develop at low densities, except for the urbanizing area south of “N” Street and east of Portola Drive, which should develop to moderate to high densities.

Riverside Avenue Neighborhood

Location - the neighborhood is located from “I” street south to “M” Street and from Skunk Creek west to 8th Street.

Discussion - the existing single family dwelling units have a high percentage (37%) of substandard dwellings with only a 3% rehabilitation rate. Almost 30% of the housing stock in the neighborhood is multifamily dwelling units. However, the vacant buildable land area (1 acre) and the redevelopable land area (3 acres) are small. The sewer capacity is adequate for high density development. There are no parks / open spaces in the neighborhood.

Statement - The neighborhood is an older single family low density area that has already experienced some redevelopment to multifamily use. The neighborhood should continue to redevelop at high to high rise residential densities.

Policies:
1. The neighborhood shall redevelop at a high to high rise residential density.

2. The neighborhood shall be contained within a Redeveloping District.
3. Redevelopment at high residential densities should be encouraged to provide usable open space within each development.
4. The city shall attempt to provide park space available to the neighborhood.

Rogueview Neighborhood

Location - the neighborhood is located from "A" Street south to the Rogue River and from Skunk Creek west to 8th Street.

Discussion - the neighborhood is small, consisting of less than 40 single family dwelling units with no substandard structures. All of the dwellings are in standard condition, and the neighborhood contains a surprisingly large amount (2.5 acres) of vacant buildable land considering the neighborhood's size. The public facilities are adequate to accommodate high density development; however, many lots run down to the river.

Statement - the neighborhood is a stable, low density single family detached residential area. It is appropriate the future development shall be of low density.

Policies:
1. The remaining buildable land shall develop at low densities.
2. The neighborhood shall be contained within an Established District.

Portola Neighborhood

Location - the neighborhood is located from "M" Street and the Leigh lateral south to the Rogue River, and from Skunk Creek east to the Boundary limit.

Discussion - All dwelling units are single family detached, with 2% of the structures substandard, and showing a strong 25% rehabilitation rate. Well supplied with park facilities, with Portola Park (6.9 acres) and the Riverside School (14 acre grounds), the neighborhood averages 6.8 acres per 1000 population (Portola Park only). The neighborhood has ? acres of buildable lands, and is well networked by streets, with Portola Drive serving as a local collector to the "N" Street arterial. Public facilities have the capacity to accommodate low to moderate densities. Long, narrow riverside lots, mostly developed, extend into the 100-year floodplain and floodway.

Statement - The neighborhood is a well established low density single family residential area. There is a moderate amount of buildable land mainly located in proximity to the Riverside School grounds. The neighborhood should continue to develop at low densities.

Policies:

1. The remaining buildable lands shall continue to develop at low densities.

2. The neighborhood shall be contained within an Established District.

Leigh Later Neighborhood

Location - the neighborhood is located from "J" Street south to the Leigh Lateral and Riverside School, and from east to Portola Drive east to Gladiola Drive.

Discussion - this small neighborhood is mainly undeveloped, and with frontage on the "N" Street arterial and potential access to park facilities at Portola and Riverside, the area offers excellent moderate to high density development opportunity. A local collector street will be required connecting new development with several entries at "N" Street, running parallel to Leigh Lateral, connecting to Portola Drive via _____. Existing and planned services are adequate to serve moderate to high densities.

Statement - the neighborhood is mainly undeveloped with moderate to high density potential, provided an internal local street is constructed and services are extended.

Policies:
1. The neighborhood shall be developed at moderate to High densities.
2. The neighborhood shall be contained within a developing District.
3. Development at moderate to high densities shall provide land for park use.

13.9.6 South Area Residential

Location - the South Area of the Urban Growth Boundary is all that portion of the boundary area located south of the Rogue River.

Discussion - the South Area contains two-thirds of the urbanizing area, but only 10% of 1982 city limits. Sewer service is spread virtually throughout the entire urbanizing area.

Municipal water service at fire flow levels, however, is limited to the city limits portion of the South Area. A major 30" water main is proposed to cross the river; water main extension throughout the urbanizing area, together with reservoirs and pump stations, will be required for full urban level development. Interim residential development on wells may be supported by the aquifer up to 4 dwelling units per acre.

The South Area is well served at present densities by a basic street network developed to rural standards. Roadways designated arterials and collectors will generally require additional right-of-way and further development. Additional local and local collector roadways are required; a third and fourth bridge are required.

The South Area contains two regional parks (Schroeder and Riverside), but is lacking in neighborhood and district park facilities. Good opportunity exists in the Redwood and Harbeck

Subareas for park development, while the Fruitdale Subarea is more severely impacted.

The South Area contains 3 residential subareas and 14 neighborhoods; 4 commercial subareas, and 2 industrial subareas.

Statement - The South Area, while containing some pockets of urban level development, contains the majority of developable lands within the Boundary, and will require the greatest extension of urban services. It is appropriate that certain levels of development proceed at interim levels of service provision, and that full services be required for full levels of urbanization.

13.9.7 Fruitdale Subarea

Location - the Fruitdale Subarea is located from the Rogue River south to the Boundary limits, and from Seventh Street and Harbeck Road east to the boundary limits.

Discussion - The predominant housing type is single family detached (-----%), of which ------% are mobile homes. Housing ranges from large lots along the Rogue River, to smaller, older development adjacent to Riverside Park, to newer single family subdivisions and rural level development south of Fruitdale Drive, to very large undeveloped lots south of and above the Highline Canal.

Sewer mains are extended throughout the area up to the Highline Canal, although water service is limited. The 30" main river crossing is scheduled to be installed in the fall of 1982.

The basic roadway network is in place, with the Third Bridge and approaches, the Cloverlawn arterial extension, the GI Lane collector extension and the Haviland River local collector extension proposed. Development within the existing “superblock” network is appropriately served by a series of local collectors and cul-de-sacs so designed not to become major through streets, such as the Axtell Drive complex in the Fruitdale Drive Neighborhood.

The area is served only by Riverside Park, a regional park located in the northwestern corner of the subarea. Fruitdale School has limited park potential. The subarea needs 20 acres of neighborhood and district park space now, and will need an additional 24 acres by the year 2000. The use of limited access parks in PUD’s, and development of a greenway system will help alleviate park needs in the developing areas, while some major park acquisitions are required for the presently impacted neighborhoods.

Intrusion of the 100-year floodplain and the floodway into the riverside neighborhoods is limited by the higher riverbanks, with Riverside Park occupying most of the subarea’s floodplain.

Further expansion of the Urban Growth Boundary to the south and southeast is limited by topography and the cost of service provision, with the possible exception of the Crestview Loop area.

Statement - The Fruitdale subarea is a mix of old and new development, and contains 287 acres of buildable lands, ------% of the Boundary total. The subarea should develop at low, moderate and high densities.

Policies:
1. The Fruitdale Subarea shall continue to develop at low, moderate and high densities as follows:
a. Low densities in the urbanizing area south of Fruitdale Drive.
B. Moderate densities between Fruitdale Drive and East Park Street.
C. High densities adjacent or nearby existing or proposed commercial, where facilities permit.
2. The Subarea shall contain Developing and Established Districts - Map A, and Developing, Established and Redeveloping Districts - Map B.
3. Development in park-impacted areas shall provide lands for park use.

Riverside Park Neighborhood

Location - the neighborhood is located from the Rogue River south to Rogue River Highway, and from Parkdale Drive west to Seventh Street.

Discussion - Predominantly an older neighborhood, and containing Riverside Park, single family detached housing predominates (95%). Although many residential structures are old, there is only one substandard structure. The neighborhood contains only 2% of the Subarea's buildable lands. The 100-year floodplain and floodway intrude into the neighborhood. The west end of the neighborhood borders on the Redwood Interchange commercial Subarea. The proposed Third Bridge route will bisect the neighborhood, physically dividing it, and having a noise impact potential. Local streets within the neighborhood are mostly substandard. Riverside Park (26 acres) and Baker Park boat ramp (2.3 acres) provide adequate park space.

Statement - It is appropriate that portions of the neighborhood gradually redevelop to a higher density.

Policies:
1. The neighborhood shall continue to develop at low densities, and shall redevelop to a moderate and high densities below East Park Street.
2. The neighborhood shall contain Redeveloping (west end) and Established Districts.
3. The neighborhood has ample park and open space.
4. The Third Bridge crossing approach shall buffer noise impacts upon the neighborhood.

East Park Street Neighborhood

Location - the neighborhood is located from Rogue River south to Commercial uses along Rogue River Highway, and from Parkdale Drive east to Riverside Drive.

Discussion - the neighborhood contains larger, older homes along the river, and a mix of older and

more recent development south of East Park Street. 72% of the residences are single family detached, and of these, 64% are mobile homes. There are no substandard structures. The neighborhood contains 36 acres of buildable lands (13% of the Fruitdale Subarea total). Most of it contiguous. The 100-year floodplain and floodway intrudes moderately into that portion of the neighborhood lying north of East Park Street.

Statement - It is appropriate that the neighborhood contain a mix of densities, with care taken to protect established areas.

Policies:

1. The neighborhood shall develop at low to moderate densities, as follows (Map A):
a. Low density for that portion adjoining the floodplain.
b. Moderate densities for the remaining buildable lands.
2. The neighborhood shall contain Established and Developing Districts.
3. Moderate and high density development shall provide lands for park use.

Fruitdale School Neighborhood

Location - the neighborhood is located from Rogue River Highway south to Fruitdale Drive, and from Maple Lane east to the Boundary limit.

Discussion - the neighborhood is predominantly single family detached (94%), older developments on large rural lots, with a few more recent low density subdivisions, and contains 31 acres of buildable lands (11% of the Fruitdale subarea). Development is quite mixed, adequate served at present densities by a basic street network needing some right-of-way expansion and development to serve at full urban levels. Sewer is adequate; no fire flow water is extended. There are no parks, and Fruitdale School park use is limited. Fruitdale Creek runs through the neighborhood and will be impacted by the Cloverlawn Drive extension.

Statement - It is appropriate that the neighborhood develop at moderate to high densities.

Policies:
1. The neighborhood shall develop at moderate - Map A, and moderate to high - Map B, densities.
2. The neighborhood shall contain Established and Developing Districts.
3. Development to moderate and moderate to high densities shall contain lands for park use.
4. Fruitdale Creek shall be developed as a greenway.

Fruitdale Drive Neighborhood

Location - the neighborhood is located form Fruitdale Drive south to the Highline Canal, and from Harbeck Road east to the Boundary limit. Gently rolling, this neighborhood contains 123 acres of buildable lands (43% of the Fruitdale Subarea total), and contains most of the new subdivision

activity, developed at county standards (10,000 S.F. lots on wells). Single family detached structures predominate (----%), of which ----% are mobile homes.

Sewer is adequate with 8" and 10" mains. Municipal water is not extended to the neighborhood; the aquifer potential is 1 to 3 dwelling units an acre. Minerals and salts are intruding into existing wells in the southeast corner of the neighborhood, and the intrusion is moving north and west. The Hilltop area is on a knoll and will require a pump station for water services.

The neighborhood is adequately served at present densities by a basic street system developed to rural standards. Additional right-of-way and further development will be required to serve full urban levels.

There are no parks serving the neighborhood, although the Gravity Canal, the Highline Canal, and Fruitdale Creek have greenway potential. Fruitdale Creek will be impacted by the Cloverlawn Drive extension.

The neighborhood contains slope hazards in the Hilltop and Canyon Drive areas.

Statement - It is appropriate that the neighborhood develop at predominantly low to moderate densities.

Policies:
1. The neighborhood shall develop at low to moderate - Map A, and low, moderate and high - Map B densities as follows:
a. Moderate densities southerly of the Hilltop area - Map A
b. Moderate to high densities southerly of the hilltop area - Map B
c. Low densities throughout the remaining areas of the nieghborhood.
2. The neighborhood shall contain Established and Developing Districts.
3. Development to moderate and moderate to high densities shall contain lands for park use.
4. Fruitdale Creek shall be developed as a greenway.
5. The Highline and Gravity Canals shall be explored for greenway use.
6. The city and county shall provide three neighborhood parks distributed evenly through the neighborhood, and located near or adjacent to the proposed greenway system.
7. The portion of the neighborhood located in the slope hazard area shall be required to meet the Slope Hazard development standards of the Development Code, and shall be encouraged to utilize cluster development, create open spaces and minimize soil disturbance.

Cloverlawn Drive Neighborhood

Location - The neighborhood is located south of the Highline Canal.

Discussion - Containing only 30 single family residences, the neighborhood is composed of large lot rural residnetial, pasture land and wood lots. Almost all the neighborhood is in a slope hazard area,

and is in water service zone #2. There is no existing sewer service, and only Cloverlawn Drive and Hamilton Drive cross the area, with no local streets.

Statement - It is appropriate that the neighborhood develop to low densities.

Policies:
1. The neighborhood shall develop at low densities.
2. The neighborhood shall be in a Developing District.
3. Fruitdale Creek shall be developed as a greenway.
4. The use of the Highline Canal as a greenway shall be explored.
5. The portion of the neighborhood located in the Slope Hazard area shall be required to meet the Slope Hazard development standards of the Development Code, and shall be encouraged to utilize cluster development, create open spaces and minimize soil disturbance.

13.9.7 Harbeck Subarea

Location - the Harbeck Subarea is located from the Rogue River south along the Williams Highway to the Boundary limit, and from Allen Creek Road east to Harbeck Road and 7th Street.

Discussion - the Subarea includes most of the portion of the 1982 city limits south of the Rogue, extending along the Williams Highway as the "panhandle" of the Boundary area, and surrounds the Redwood Interchange commercial Subarea, including the Fairgrounds and Redwood Plaza. The Subarea contains 295 acres of buildable lands, ----% of the total Boundary. Over 96% of the Subarea's housing is in single family detached structures, of which 12% are mobile homes.

Sewer is extended throughout the subarea, fully covering the West Park Street neighborhood, but limited to Williams highway and other major streets along the panhandle. Municipal water service is not extended, except to the area within city limits. All of the Subarea is in water service Zone 1, except the southerly half of the panhandle, which is in Zone 2.

The major arterial roadways are in place, although several arterial, collectors and local collectors are proposed for which there is now no right of way.

The area is served by Tussing Park, the Fairgrounds, Allendale and South Middle Schools, and the Grants Pass Golf Club, and has ample park space.

The 100-year floodplain and floodway makes a major intrusion at the north end of the Subarea, while the eastern section of the panhandle contains slope hazard lands.

Further expansion of the boundary to the east and west is limited by topography, except for the Allen Creek area, the only active portion of the Redwood Sewer District not within the Boundary.

The Subarea contains Allen Creek, a major natural resource, forming the eastern bounds of

Allendale Elementary School.

Statement - The Harbeck Subarea is a mix of old and new development, and contains 295 acres of buildable lands, ------% of the Boundary total. The subarea should develop at moderate and high densities where adjacent to intensive commercial uses, and at low densities elsewhere.

Policies:

1. The Harbeck Subarea shall continue to develop at low, moderate and high densities as follows:
A. Low densities in the Williams Highway area.
B. Moderate to high densities adjacent to the major commercial centers of the Redwood Interchange Commercial Subarea and at intersections of arterial and collector streets.
2. The subarea shall contain Established, Developing, and Redeveloping Districts.
3. Allen Creek shall be developed as a greenway.
4. Allendale and South Middle Schools shall be further developed as school parks.

West Park Street Neighborhood

Locations - the neighborhood is located from the Rogue River south to the Redwood Highway, and from the furthest extension of West Park Street east to 6th Street.

Discussion - Predominantly an older neighborhood, containing Tussing Park and adjoining the County Fairgrounds, and containing 19 acres of buildable lands (6% of the subarea total). Structure conditions are fair to good. The 100-year floodplain intrudes to West Park Street, while the floodway is confined by the high river bank. The eastern and southern edges of the neighborhood border on major commercial areas, while the western edge and extension borders the county Fairgrounds. Sewer is extended throughout, while fireflow water is extended only along an 8" line in West Park Street, with adequate 1" to 2" lines serving areas adjacent to the city limits. The neighborhood is adequately served with streets for present densities.

Statement - It is appropriate that the neighborhood develop and redevelop at moderate to high densities.

Policies:
1. The neighborhood shall develop at moderate to high densities.
2. The neighborhood shall contain Established, Developing and Redeveloping Districts.
3. The neighborhood has ample open space.
4. Development along the Rogue River frontage shall provide for a greenway connecting Riverside Park, Tussing Park and the Fairgrounds.

West Harbeck Road Neighborhood

Location - From South Union Avenue south to West Harbeck Road, and from Allen Creek Road east

to Harbeck Road.

Discussion - A newly developing neighborhood, containing early low density subdivisions off West Harbeck Road, with large lot holdings to the north and east committed to higher densities, and bordering on the Redwood Interchange Commercial Subarea to the north. Framed by South Union and West Harbeck and bisected by Williams Highway, the area is generally well served by arterial and collectors, but will require arterial and collector extensions for which there is now no existing right-of-way. The area is sewered along major roadways; municipal water is not extended, although major commitments have been made. Allen Creek runs through the western edge of the neighborhood, and south Middle School is located on the eastern edge.

Statement - It is appropriate that the neighborhood develop at moderate to high densities, excepting those portions already developed at low densities.

Policies:
1. The neighborhood shall develop at low to high densities, as follows:
a. Low densities in areas of recent, low density development.
b. High densities in remaining, buildable lands adjacent to or nearby major commercial uses, and served by an arterial or collector street.
2. The neighborhood shall contain Established and Developing Districts.
3. Allen Creek shall be developed as a greenway.

Williams Highway Neighborhood

Location - The neighborhood is located from West Harbeck road south along Williams highway to the Boundary limit, containing the Boundary "panhandle."

Discussion - Predominantly a large-lot rural residential, pasture and woodlot neighborhood, with urban level development proceeding in scattered subdivisions. The neighborhood contains ----- acres of buildable lands, representing -----% of the Harbeck Subarea and ----% of the entire Boundary area. Sewer extends out Williams Highway, then parallels the highway to the west in a future local collector right-of-way. Municipal water is not extended. Served by the Williams Highway arterial, recently fully developed by the State, the neighborhood will require parallel local collectors with several points of highway entry. The neighborhood contains Allendale Elementary School, Allen Creek, the Grants Pass Golf Club, and borders Cathedral Hills Park (BLM).

The neighborhood includes slope hazard lands along its easterly edge, and half of the neighborhood is within water service Zone 2.

Statement - It is appropriate that the neighborhood develop to low densities throughout.

Policies:
1. The neighborhood shall develop to low densities throughout, except properties located at nodes to

arterial and collector streets shall develop at moderate to high densities, including designations which also permit professional offices.
2. The neighborhood shall contain Established and Developing districts.
3. Allen Creek shall be developed as a greenway, and a neighborhood or district park shall be developed adjoining Allendale School.
4. The use of the South Highline Canal as a greenway shall be explored.
5. The portion of the neighborhood located in the Slope Hazard area shall be required to meet the Slope Hazard development standards of the Development Code, and shall be encouraged to utilize cluster development, create open spaces and minimize soil disturbance.

13.9.9 Redwood Subarea

Location - the Redwood Subarea is located from the Rogue River south to the boundary limit, and from Allen Creek Road and the County Fairgrounds west to the Boundary limit.
Discussion - the Redwood Subarea includes 500 acres of buildable lands, by far the most buildable lands of any subarea, representing -----% of the total. Formerly zoned to rural densities with 2.5 and 5 acre lot minimums, the Subarea is almost all large-lot rural development, with a scattering of mobile home courts and rural subdivisions, and with fairly intensive heavy commercial and light industrial development adjacent, between Redwood Avenue and the Redwood highway. All of the Subarea's housing is single family detached, and 67% is in mobile homes.

Sewer is extended throughout the Subarea, with the exception of the Schutzwohl Lane neighborhood, although the capacity of certain lateral sewer mains is limited from 9 to 15 persons per acre (4 to 6 dwelling units per acre at 2.42 persons per household). No municipal water is extended, and the aquifer is deemed adequate to serve from 1 to 4 dwellings per acre.

The major arterial and collector roadways are in place, although several will require additional right-of-way and development to serve at full urban levels. The existing streets form "superblocks", ideally suited to serve as the arterial-collector network, with local collectors serving the "superblock" interior, reducing through-traffic in residential areas. Several collectors and local collectors are proposed for which there is now no right-or-way, including the Fourth Bridge approach.

The area's park needs are served by Schroeder Park, the Redwood Elementary School, and the Rogue Community College only, with District #7 holding 38 acres of undeveloped land at the western edge of the Boundary.

The 100-year floodplain and floodway are held in by the higher south bank and the river's direction of curvature, unlike the condition of the opposite shore. Schroeder Park occupies from one-fourth to one-third of the floodplain area in the subarea.

Further expansion of the Boundary to the west and south is quite favorable, with those lands within the Redwood Sewer District Phase II area most favored. The area surrounding the Rogue community

College may have to be included in the Boundary prior to a general need for residential lands, in order to serve the college's needs.

Policies:
1. The Redwood Subarea shall develop at low to moderate - Map A, and low, moderate and high - Map B, densities as follows:
Map A
A. Moderate densities in the Redwood Highway neighborhood.
B. Low density elsewhere.
Map B
A. Low to high densities in the Redwood Circle neighborhood.
B. moderate to high densities in the Redwood Highway neighborhood.
C. Low to moderate densities in the Leonard Road neighborhood.
2. The Subarea shall contain an Established and Developing District.
3. The city and county shall provide neighborhood and district parks, adjoining school sites where possible.

Redwood Circle Neighborhood

Location - the neighborhood is located from the Rogue River south to Redwood Avenue, and from the Fairgrounds west to Leonard Road.

Discussion - the neighborhood is developed with large lot subdivisions, and contains 41 acres of buildable lands representing 8% of the Subarea total; however, much of these "buildable lands" are portions of already developed lots along the river capable of further development, are not likely to be used in the planning period. The housing is all single family detached, with one mobile home park adjoining Leonard Road. Due to the high bank, the floodway and 100-year flood plain are almost coterminous along the river. The southern edge of the neighborhood borders on the mixed heavy commercial and light industrial uses of the Redwood I Business Park subarea, while the eastern edge borders the Fairgrounds. Sewer is extended throughout, while municipal water is not extended. The neighborhood is adequately served with streets for present densities.

Statement - It is appropriate that the neighborhood continue to develop at low densities.

Policies:
1. The neighborhood shall develop at low densities.
2. The neighborhood shall be contained within an Established District.
3. The neighborhood has ample open space.

Leonard Road Neighborhood

Location - The neighborhood is located from the Rogue River south to Redwood Avenue, and from Leonard Road west to the Boundary limit.

Discussion - The largest are of contiguous undeveloped land in the Boundary, the neighborhood contains 347 acres of buildable lands, representing 69% of the Subarea total, and ___% of the Boundary total. All existing residences are single family detached, with only 4% mobile homes. The 100-year floodplain intrudes along the bend in the river, but only moderately. The area is served by sewer in all existing major roadways, with gravity flow to the main truck line that parallels the river near the edge of the floodplain. The densities served by the present lateral mains, however, are limited to 4 to 6 dwelling units per acre at the lowest projected household size, and higher than low density development may require parallel sewer lines. Municipal water is not extended, and the capacity of the aquifer is estimated at 1 to 4 dwellings per acre. The collector / arterial roadway network is in, forming "superblocks" that should be served by local collectors so placed to avoid through traffic. Additional right-of-way and street development will be required.

Statement - It is appropriate that the area develop at low densities - Map A, and low, moderate and high densities - Map B.

Policies:
1. The neighborhood shall develop at low densities - Map A, moderate to high densities along Redwood Avenue and Willow Lane, and low densities elsewhere - Map B.
2. The neighborhood shall be within a Developing district.
3. Moderate and high density development shall provide lands for park use.
4. The city and county shall provide two neighborhood parks within the neighborhood, at least one of which shall be developed as a school park.
5. Greenways shall be encouraged within superblocks, leading to park and open space, and/or commercial uses.
6. The portion of the neighborhood located in the 100 year flood plain shall be considered a hazardous development area. Development in this area shall be required to meet the Flood Hazard development standards of the Development code, and shall be encouraged to utilize cluster development, create open spaces and minimize impervious surfaces.

Redwood Highway Neighborhood

Location - the neighborhood is located from Redwood Avenue south to Redwood Highway, and from Dowell Road west to the Boundary limits.

Discussion - The neighborhood contains 71 acres of buildable lands (14% of the Subarea total). All residences are single family detached, with 94% being mobile homes. Sewer is extended along all arterial, collectors and subdivision streets. Capacity of the lateral mains is limited to 4 to 6 dwelling units per acre, and higher densities may require parallel mains. Municipal water is not extended, and the aquifer capacity is estimated at 1 to 4 dwelling units per acre. The collector / arterial roadways form "superblocks" that should be served by local collectors so placed to avoid through traffic. Additional right-of-way and street development will be required.

Statement - It is appropriate that the area develop at low to moderate densities - Map A, moderate to high densities - Map B.

Policies:
1. The neighborhood shall develop at low to moderate densities - Map A, moderate to high densities along the Redwood Highway and high densities along Willow Lane - Map B.
2. The neighborhood shall be within a Developing district.
3. Moderate and high density development shall provide lands for park use.
4. The city and county shall provide the neighborhood with a neighborhood park.
5. Greenways shall be encouraged within superblocks leading to park and open space, and/or commercial uses.

College Heights Neighborhood

Location - this neighborhood is located in and around the Rogue Community College at the southwest Boundary corner.

Discussion - As small as it is, the neighborhood contains 20 acres of developable lands, 4% of the subarea total. The college is served by a sewer extension of the Redwood system. Municipal water is not extended, and the aquifer capacity is estimated at 1 to 4 dwelling units per acre. The college is directly served by a Redwood Highway exit, while the surrounding area is served by the Darnielle Lane intersection.

Statement - The neighborhood should be developed at moderate - Map A, and moderate to high - Map B, densities to serve the Community College needs. The boundary may need expansion to serve the immediate needs of this neighborhood prior to the need to provide sufficient counts in the market place for residential lands on a Boundary-wide basis.

Policies:
1. The neighborhood shall be developed at moderate - Map A, and moderate to high - Map B densities.
2. The neighborhood shall contain an Established and Developing District.
3. The neighborhood has sufficient park space.

Schutzwohl Lane Neighborhood

Location - the neighborhood is located among the higher elevations, south of the Redwood highway and Gravity Canal, and from Allen Creek road west to Dowell Road.

Discussion - the neighborhood contains only 11 single family residences, large lot homes, and 21 developable acres (4% of the subarea total). The area is not sewered, nor is municipal water extended. The neighborhood is served by private drives, and a local collector and local streets will be required for full development. Almost all the neighborhood is within the slope hazard area.

Statement - It is appropriate that the neighborhood develop at low densities - Map A and Moderate densities - Map B.

Policies:
1. The neighborhood shall continue to develop at low densities - Map B and develop at moderate densities - Map A.
2. The neighborhood shall be within a Developing District.
3. The portion of the neighborhood located in the Slope Hazard area shall be required to meet the Slope Hazard development standards of the Development Code, and shall be encouraged to utilize cluster development, create open spaces and minimize soil disturbance.

13.9.10 North Area Commercial

There are five commercial Subareas of the North Area: the North and South Downtown, the North City (6th and 7th Street couplet at the City's north freeway exit), East Grants Pass ("E" and "F" Street Couplet and Redwood spur at the city's south freeway exit), and West City (out "G" Street). These subareas are briefly characterized below.

North City - the Subarea extends from the freeway south along the 6th and 7th Street couplet to Evelyn Avenue. Rapidly developing over the latter part of the 1970's due to the presence of the city's northern freeway exit, this subarea is very auto oriented in its development: motels, drive-in fast food and restaurants, automobile sales and service and the K-Mart plaza. In order to meet the estimated 40.5 acre demand for additional commercial lands in the next 20 years, either some portion of the Caveman Industrial Park must be made available for commercial use, or the residential areas paralleling this strip development intruded upon.

Downtown - The Downtown Subarea roughly parallels the 6th and 7th Street couplet, broadening to include 4th through 5th streets, and extending from Evelyn Avenue south to "J" Street, and may split into North downtown (above the southern Pacific tracks) and south Downtown (below the tracks). The north Downtown is dominated by public uses (County Courthouse, City Municipal Building, Public Library, Post Office) and their attendant professional office satellites, while the upper portion of the south Downtown is the true "city core," with multi-story buildings on the city's historic inventory. Much private reinvestment has taken place within the Downtown, which remains a healthy and economically viable retail and professional center. To accommodate the projected 47 acre demand for commercial space, it is proposed to expand the high-rise core area south along the 6th and 7th Street couplet, from 5th to 8th Streets, as far as "M" Street.

East Grants Pass - This subarea extends along the "E" and "F" Street couplet and the Redwood Spur, from Ninth Street east to the city's southern freeway exit. The subarea contains the Grants Pass Shopping Center (including 6 to 10 vacant acres for Center expansion), and has only in the early 80's shown signs of the development potential of the North City Subarea. With both light and heavy industrial areas to the south, bordering portions of "F" Street and the Redwood spur, the projected

commercial demand of 87 acres will require conversion of vacant lands from industrial zoning..

West City - This subarea encompasses the light industrial / heavy commercial area along the southern Pacific tracks west of Downtown, and extends along "G" Street to the Boundary limit. The subarea projected commercial demand is 11 acres, focused upon the commercial "nodes" at "G" Street and Lincoln, and at Lincoln and Bridge Streets (Map B), or split between this area and the light industrial area (Map B).

13.9.11 South Area Commercial

There are four commercial subareas of the South Area: Harbeck-Fruitdale, Redwood Interchange, Redwood Highway, and Williams Highway. These Subareas are briefly characterized below.

Harbeck-Fruitdale - This subarea is a "strip" development along the Rogue River Highway, extending from the Redwood Interchange west to the Boundary limit. Expansion of the Highway, the presence of a high shelf falling away to the river at the north-westerly end of the subarea, the encroachment of residential lands and the change in travel patterns brought about by the I-5 Freeway all limit future commercial development in this area. Projected commercial demand is 16 acres.

Redwood Interchange. - This subarea includes the 6th and 7th Street couplet below the bridges, and all that "triangle" of commercial lands to the south between Harbeck Road, Williams Highway and the Redwood Highway. The subarea will be accessed by both the third and fourth bridges, and will become the primary commercial center south of the Rogue River. Projected commercial demand is 96 acres, the highest of any single commercial subarea.

Redwood Highway - This subarea includes existing strip development along the Redwood Highway and Redwood Avenue from Allen Creek Road to Leonard Road, and "Node" development proposed for the Redwood Highway and Redwood Avenue west to the boundary limit. Some 27 acres of commercial demand is projected, with very high land area ratios utilized to account for the mixed use zone proposed for the Redwood highway - Redwood Avenue area.

Williams Highway - This subarea is composed of a commercial "node" at the intersection of Williams Highway and New Hope Road. Projected commercial demand is 7 acres.

13.9.12 North Area Industrial

There are six industrial subareas of the North Area: North City I and II, West City, East City I - III, and one industrial subarea inventoried and not included in the 1979 boundary, East City IV.

North City I - The subarea is a "strip zone" paralleling the I-5 freeway north and west of the 1982 city limits, extending from Hawthorne north and west to the boundary limit. Zoned light industrial and industrial park, more than one-half of the subarea is vacant or underutilized. Full serviced land is

limited.

North City II - the subarea is also a “strip zone”, at the north of the city paralleling 6th Street, extending from the freeway interchange south to Loughridge Avenue. The subarea is within the city limits, zoned light industrial and industrial park, is fully serviced, and over half the land is vacant. The future land need of the North City Commercial Subarea may require mixed use of this subarea.

West City - the subarea parallels the Southern Pacific tracks, lying mostly to the north of the tracks, and extending from 3rd Street west beyond Grant Street into a steep sloping, underdeveloped area. Zoned primarily heavy industrial, the subarea has actually developed as a light industrial-heavy commercial mixed use. Some parcels have rail access. The subarea is 40% vacant, but most vacant land occurs in the western portion of the subarea, which is sloping and undeveloped, and proposed for conversion to residential uses.

East City I - the subarea includes all light industrial lands within the city limits and east of 7th Street. Acting as a buffer between the heavy industrial and residential and commercial land uses, the subarea is fully serviced, but contains no vacant or underutilized lands. The subarea is located from “F” Street and the Redwood Spur south to “M” and “N” Streets, and from the light industrial lands east to the 1982 city limits.

East City II - This subarea contains the city’s prime blocks of heavy industrial lands, almost all fully serviced, much with excellent rail access, and accessed by the Redwood Highway Spur, convenient to the City’s southern freeway exit. Some conversion to commercial uses along “F” Street and the Redwood Spur may be required to meet demand in the East Grants Pass commercial subarea. 37% of the subarea is under utilized or vacant, but much of the under-utilized land is being held for future expansion by existing enterprises.

East City III - the subarea includes those lands outside the 1982 city limits and inside the 1979 Urban Growth Boundary, extending from the Redwood Spur and I-5 freeway south to “N” Street and Portola Drive. Zoned heavy industrial at the center, with industrial park and light industrial designations at the fringes, the subarea has good rail access, and potential for further rail access, and the greatest amount of vacant and under-utilized land (60% - nearly 200 acres). There is sewer extension along Agness Avenue, otherwise little other service extension in the subarea. There is a high degree of heavy industrial commitment, mostly older mills.

East City IV - the subarea is located outside the 1979 Boundary, between the I-5 freeway and Rogue River, east of the 1979 Boundary to the Tokay Canal. 1982 zoning included heavy industrial, and rural residential, with no service extensions.

13.9.13 South Area Industrial

There are two industrial subareas of the South Area: Redwood I and II. These subareas are briefly characterized below.

Redwood I - The subarea is located in the "Redwood Triangle" area between and adjoining Redwood Avenue and the Redwood Highway, and from their intersection west to Dowell Road. This area is also included in the Redwood Highway commercial subarea. The subarea has only 1% of its vacant lands in an industrial land use designation, while 53% of its acreage is vacant or underutilized. However, the vacant acreage would be just as suitable for either commercial, heavy commercial or light industrial uses.

Redwood II - the subarea is located south of the Redwood Highway, southerly to the South Highline Canal, and adjoins Allen Creek road, extending west to Dowell Road. Out of the 157 vacant or underutilized acres with "industrial potential," some 50 to 75 acres are sloping, and/or committed to expensive homes on large lots. Although representing a significant Industrial Park potential, this area may be the least committed to industrial use of all the inventory areas.

13.10 Downtown Plan

As part of the Urban Growth Plan effort, a more detailed analysis of the Downtown, or central business district, was accomplished (see Section 13.5 for full discussion). A Downtown Program was reviewed, discussed, amended and adopted. The following material is based upon the adopted Downtown Program, and the analysis leading to the program. *(Downtown Improvement Program, Section 2 of Technical Memoranda, Urban Growth Plan; Goebel-Ragland, Architects, Lord and Associates, Economists and Transportation Planning and Management, Engineers; March 1981.)*

13.10.1 Existing Conditions

The City of Grants Pass has inventoried commercial land use through the Urban Growth Boundary area and this information was transferred to a 1"=200' base and analyzed in three major categories. The first, retail commercial; the second, office commercial; and the third, auto-oriented commercial.

Land Uses

The Downtown area was analyzed from Evelyn Street to the Rogue River in the corridor extending from approximately 3rd Street to 9th Street. The area is composed of several sets of subareas. (See Map 13.10.1). The retail core represents the heart of the downtown area with the key intersection at the corner of 6th and "G." The retail core expands in an east-west direction from 4th to approximately 8th Street. Within the retail core, a sub-district of older historical buildings is found along the south side of "G" Street extending in an east-west direction. There has been recent activity in the preservation and rehabilitation of many of the older buildings in Grants Pass in this historic area.

North of "A" Street, the land uses are primarily auto-oriented consisting of a mix of older motels, some new motels, and a number of office-type uses. In several cases new office buildings have been constructed along this strip but are auto-oriented in nature.

In the south downtown from approximately “J” Street to “M” Street the area is characterized by a mix of retail, office and auto-oriented uses surrounded by large amounts of off-street parking. The quality and condition of buildings in this area tends to be moderate to poor and would probably be subject to more intensive conversions as the downtown continues to grow in a southward direction.

South of “M” Street and just north of “M” between 6th and 8th a number of auto-oriented commercial and office uses are found. This area will probably see the intensification of these types of uses with replacement of older structures with new structures, and the use types remaining.

Presently going east from the downtown along the “E” and “F” couplet a number of auto-oriented and industrial oriented uses are found. The condition of structures in these areas is moderate to poor and this area will likely see the conversion to more intense auto-oriented uses.

Zoning Patterns - the Central Business District (CBD) of Grants Pass is in a C-6 or Central Commercial Zone. As the most dense and as a zone that requires no off-street parking, the Central Business District provides the “downtown” feeling that is characterized by central business districts. North of the central business district along the 6th-7th couplet, a zone of C-3 or limited commercial is designated. This zone is the most flexible of all zones allowing the greatest range of uses. This zone is also characterized by a mix of retail and office-type uses, primarily auto-oriented, with off-street parking required. “C” Street is currently the dividing line between the C-3 and the C-6 zones.

Extending along the “E” - “F” couplet going east and west from the downtown, again C-3 zones are found.

South of the downtown along the 6th-7th Street couplet, the zone changes to C-5 or what is called Thoroughfare Commercial. The C-5 zone is meant to be used primarily by businesses which depend upon through traffic and is not intended to serve the adjacent residential neighborhoods as the C-3 zone is. Along 6th Street south of the retail core a small section of C-3 is found which is a mix of retail and office uses supportive of both the downtown and the residential neighborhoods to the west.

Around the downtown core a number of high density residential districts are found (R-4). In the southeast portion of the Downtown area extending east are found R-3 and R-1-6 zones. To the west of the downtown area extending east are found R-3 and R-1-6 zones. To the west of the Downtown beyond the R-4 zones are found R-3 zones.

Conflict Analysis - An analysis of the comparison between the existing land use patterns with the zoning pattern reveals several important characteristics.

1. In the north area around the government buildings, uses tend to be office-type which is now primarily an R-4 zone. The draw of these office uses by the Government Center has extended those types of uses into the R-4 zones east and west of the 6th and 7th Street couplets. The retail core area in the northeast and southeast portions of that C-6 zone is not fully utilized. The character of development along 7th Avenue north of “G” and south of “H” Streets is primarily that of a C-3 zone.

2. The types of uses found south of the retail core between “J” and “L” Street, while zoned C-5, are more characteristic of the C-3 zone.

3. Generally speaking, residential land use patterns surrounding the downtown core are less intense than the current zoning designations. In some cases, this disparity has resulted in a deterioration of neighborhoods due to a lack of interest in investing money in single family structures in area with potential for multi-family housing. The market, however, has not yet responded in many of these older neighborhoods. In some areas, rehabilitation projects have begun to restore some of the older homes in deteriorated condition even in the face of the higher zone designation. (See Neighborhood Analysis, Sections 13.9.2 and 13.9.5).

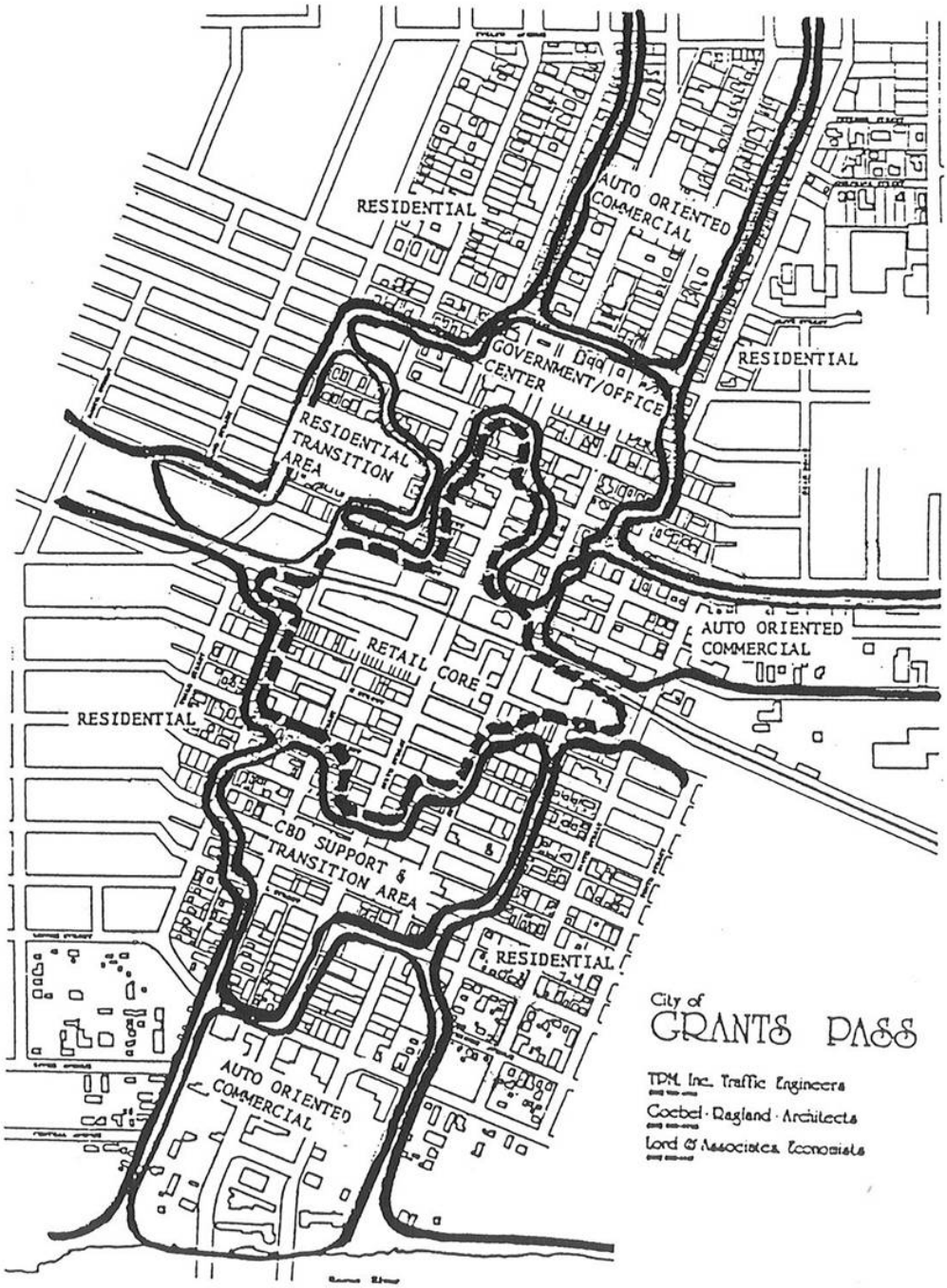
4. With the exception of the areas around the Government Center and a small area in the southwest portion just outside the retail core, most areas other than the retail core are characterized by being underutilized, or over-zoned.

13.10.2 Commercial Space Needs 1980-2000

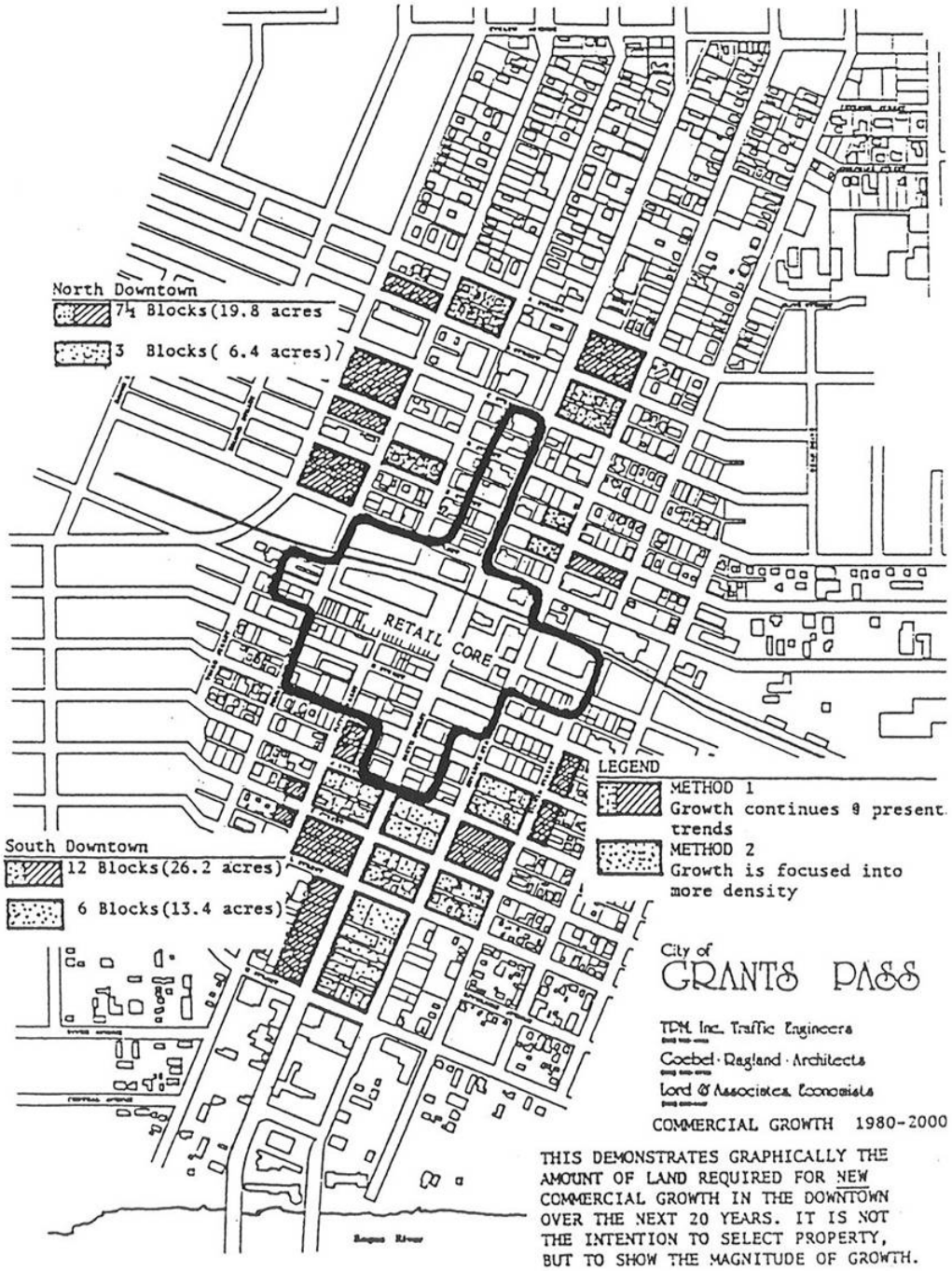
Based on the Urban Growth Plan selected by the City Council and board of County Commissioners, the amount of commercial square footage projected for the Downtown has been developed. In a combination of retail and office growth, this projection approximates twelve blocks in the south Downtown area (south of the railroad tracks) and seven and one-half blocks in the north Downtown area. It must be noted that the actual blocks which undergo conversion over the twenty year period have not been selected, and this analysis is for graphic purposes only to demonstrate the amount of land area needed for commercial growth in the Downtown area. This growth has been assumed to take on the same kind of characteristic patterns that Grants Pass has experienced over the last few years, but with an increase in intensity of use (i.e. less land area per amount of building area) during the twenty year planning period. If land uses continue at an even more intense rate, the amount of land area required for commercial absorption would be thereby reduced. (See Map 13.10.2)

The projection for commercial growth is primarily in the south downtown area. In effect, the retail core will continue to expand along 6th and 7th Streets in a southerly direction. In the north Downtown area, the retail core would remain along the 6th Street in its present configuration. An expansion of office uses in the north Downtown area will mean a greater conversion of present close-in residential uses to offices, or the demolition of residential structures for more intense office development. A goal of this plan is to preserve those existing residential structures deemed to be of an historical quality for rehabilitation to office uses. Other residential structures with less architectural quality should be removed for more intensive development.

Map 13.10.1
Downtown Land Use Summary Schematic



Map 13.10.2
Downtown Retail and Office Space Demand: 1980-2000



13.10.3 Design Resources

Design resources are those features of the urban environment which humanize the environment, give it aliveness, and make it a more pleasant place in which to be. Amenities, natural and man-made, define an area as a special place, and tend to encourage human activity. Commercial activity not only provides for the exchange of goods and services, but also plays an important social function. The scale and concentration of buildings, street space, public spaces and pedestrian amenities are necessary to defining an area as a "special place."

Retail Core - The retail core has a key geographical location in the community. It offers an experience not found elsewhere in the City of Grants Pass, nor will it be duplicated as the City continues to grow in the suburban areas. Its historical role as the center for trade and the center of the residential neighborhood surrounding the retail core is in a state of transition. This process is normal for downtowns, and if handled wisely, the Downtown will continue to serve as the major focal point of the community. Its proximity to the Rogue River and relative location to major residential neighborhoods can support its continued retail role. Private property owners and the public generally have a great investment in Downtown Grants Pass. The maintenance of its "physical plant" is imperative to the Downtown's continued health.

Office and Government area - At the north end of the Downtown are located the majority of government and civic activities and related office developments supporting these activities. The City Municipal Building and Council Chambers, County Courthouse, Police and Sheriff Departments, Library and other public agencies contribute to this area and give it its own individual identity.

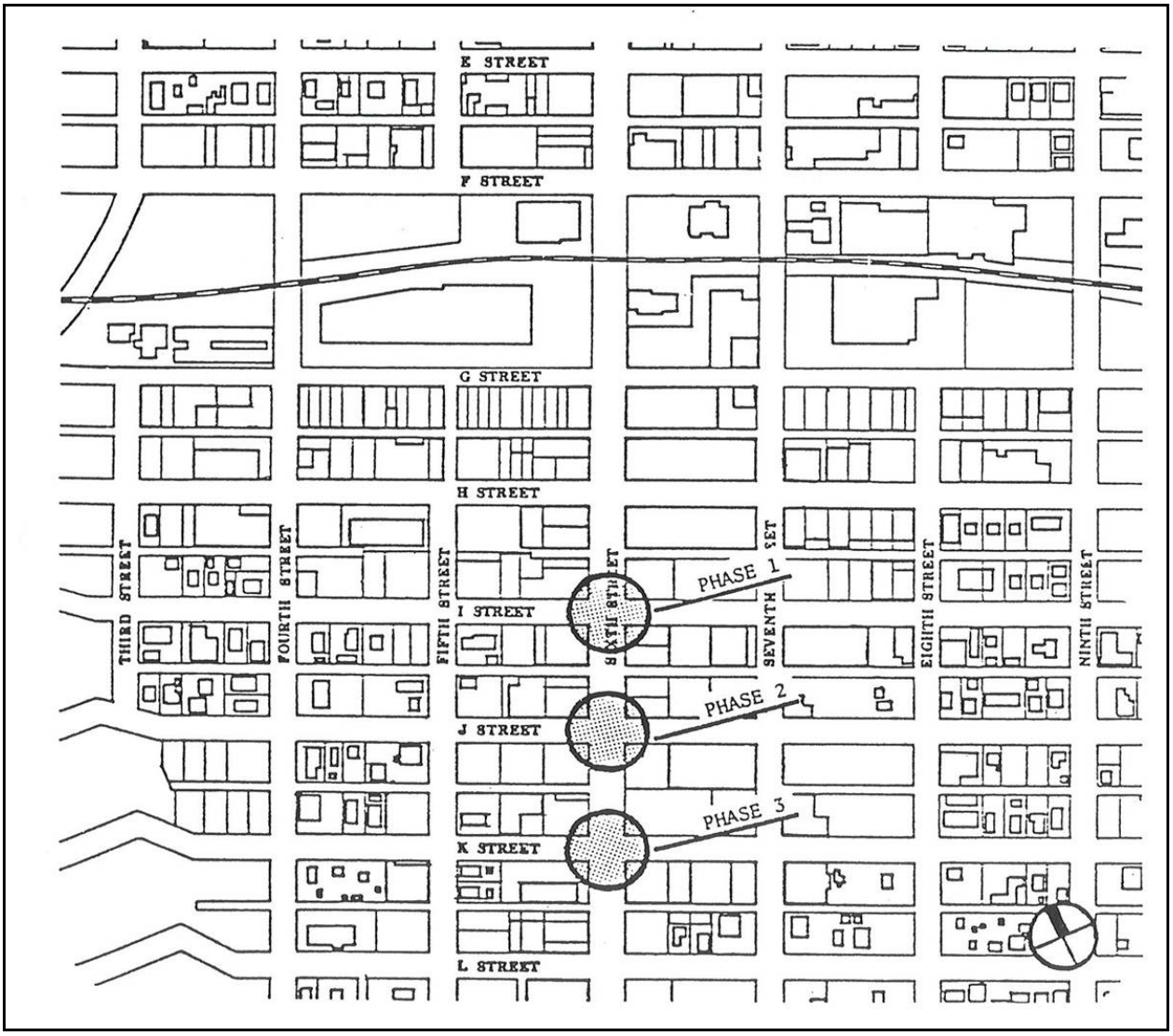
Public Spaces - the scale and concentration of buildings, street spaces, public spaces and pedestrian amenities are necessary to defining an area as a special place. The downtown is served by a major north-south couplet bisected by the railroad tracks, which has helped generate today's downtown character. The retail core and primary commercial activity is located along 6th, with the east-west streets providing main linkages into the residential neighborhoods. The street space is a major design resource. The streets in the Downtown are of sufficient width to accommodate adequate landscaping and other amenities. This would further aid in the defining of the commercial area and at the same time reinforce its relationship to the surrounding residential neighborhoods. There are certain intersections which should be emphasized in the core area and are shown on Map 13.10.3 the provision of improvements in the public rights-of-way will reinforce the identity of the Downtown.

Pedestrian amenities - Pedestrian amenities are important design resources. Sidewalk areas, benches, fountains, places for litter, covered areas and awnings are amenities necessary to giving an area a "sense of place." a small area in the retail core offers these kinds of resources. The east-west streets, and the streets north and south of the retail core should receive a continuation of the program begun several years ago by the City. A significant aspect of pedestrian amenities lies in landscaping in the public rights-of-way. Such improvements have a dramatic impact in downtowns, and the street tree program begun several years ago should also be continued.

Historic Buildings - an historical inventory was compiled, revealing many buildings in the Downtown to have historic character and quality, giving the entire area a feeling of scale and quality, and continuity with the past.

Other Special Features - Other important aspects of design resources in the downtown include such things as views to the surrounding hills, the quality of the light for pedestrians in the evening and at night, special features such as the "It's the Climate" sign over 6th Street, as well as special signing in the downtown, etc.

Map 13.10.3
Key Core Intersections



13.10.4 Downtown Parking Requirements

Parking Inventory - TPM, Inc. Inventoried the number of parking spaces and their usage in 1980*, including both off-street and on-street spaces.

Inventory of Parking Spaces, "A" Street to the River, 4th to 8th, 1980:

On Street Spaces:	1,096
Off-Street Spaces:	3,380
Total Spaces:	4,476

*Specific boundaries for the downtown inventory were: 5th - 7th, A-D; 4th - 8th, E-I; 4th - 7th, J-K; and 5th - 7th, L to the River.

An analysis of usage of on and off-street spaces was done, using ranges of 0%-25%, 25%-50%, 50%-75%, and 75%-100%. The following summarizes the major findings from this analysis:

1. Around the retail core, the off-street parking spaces tend to be used to about 75% capacity. These are averages and do not take into consideration peak loading.
2. The parking generally reflects intensity of development downtown in that the area of the retail core where the parking areas are used to high capacities. In the areas south of the retail core and north of the retail core, there appears to be adequate parking to serve the mixed office and retail uses that occur at present.
3. Parking around the Government Center seems to be at capacity. This is due to the higher turnover in these lots for people visiting the City and County functions. There are other smaller areas of parking lots at 10% capacity; one just east of 7th on "F" Street and the other at the corner of "J" and 5th.
4. Associated with the office uses around the Government Center (on either side of 6th and 7th) the parking lots tend to be at 75% capacity, while some are at 50% capacity.
5. Between the office uses around the Government Center and the area by the railroad tracks, there is a band stretching east-to-west of parking lots that are underutilized.
6. There is another pocket of underutilized parking lots in the area between "J" and "K" Streets along 5th Street.
7. For the majority of the area in south downtown from the Safeway parking lot area going south and west around the retail area, parking lots tend to be at about 50% capacity.
8. At the south end of the downtown, north of the Rogue River (with the exception of the Riverside Motel) most of the off-street parking lots tend to be underutilized, at 25% capacity. This stretches north to approximately the area between "L" and "M" Streets.
9. On-street parking generally follows the same pattern of usage as does off-street lots. Highest in the retail core and office/government areas, lowest in the south Downtown.

Parking Requirements: 1980 - Parking spaces can be compared with the amount of floor space in the Downtown, to determine whether parking ratios are in keeping with general standards of parking to floor space in Downtown areas. Also, future parking spec. requirements can be estimated by relating that need to the projected growth in downtown floor space over the 20-year period from 1981-2000.

In addition to the retail, office and service space itemized in the 1980 commercial inventory, it is necessary to inventory the public and institutional space in government and non-profit buildings, which also influences the parking requirements of the downtown.

Retail Floor Space	710,714 s.f.
Office/Service Space	609,587 s.f.
Public & Institutional	262,834 s.f.
Total Floor Space	**1,583,135 s.f.**

A standard ratio of parking spaces to retail floor space would be one space for each 250 s.f. of retail space, for an area such as downtown Grants Pass. (There is generally less retail space per parking space in a suburban shopping center (200 s.f.) and a good deal more in a large city downtown.) A standard ratio for office/service and public/institutional space in the Grants Pass downtown is one parking space for each 500 s.f. Applying these standards, the number of downtown spaces required as of 1980 are:

Retail: 710,714 s.f. @ 250 s.f./space	2,843 spaces
Office/Service: 609,587 @ 500 s.f./space	1,219 spaces
Public / Institutional: 262,834 @ 500 s.f./space	526 spaces
Total Spaces Required:	4,588 spaces
Total Spaces Inventoried:	4,476 spaces
Apparent Deficit in Parking Spaces	**112 spaces**

The parking inventory did not count spaces north of “A” Street, west of 4th or east of 8th Streets, however. These areas are clearly used as parking for downtown purposes. In general, it appears that the amount of parking is therefore sufficient for the needs of users as of 1980.

An inventory of parking spaces and floor space for the downtown retail core was also made. It was confined to the areas from 4th to 8th, from the railroad tracks south to “J” Street.

Existing Parking Spaces: On-Street - 571 + Off-Street: 1,413 = Total 1,984

Parking Requirements at the Standard Ratios

Retail: 407,758 s.f.@ 250 s.f./space	1,631 spaces
Office/Service: 92,895@500 s.f./space	186 spaces
Total Spaces Required	1,817 spaces
Total Spaces Inventoried	1,984 spaces
Apparent Surplus in Parking Spaces	**167 spaces**

Parking Demand: 1980 - 2000
Commercial space growth allocated to the downtown over the next twenty years is as follows:

	Retail Space	Finance / Service Space	Total
South Downtown	260,000 s.f.	270,000 s.f.	530,000 s.f.
North Downtown	85,000 s.f.	230,000 s.f.	386,000 s.f.
Total Downtown	**345,000 s.f.**	**500,000 s.f.**	**916,000 s.f.**

Parking Requirements at the Standard Ratios will be:

Retail: 345,000 s.f. @ 250 s.f. / space	1,380 spaces
Finance / Service: 500,000 s.f. @ 500 s.f. / space	1,000 spaces
Total	**2,380 spaces**

It should be noted that this projection does not account for growth in public and institutional space and its additional parking requirements for the Downtown area.

If the same level of parking that is now provided in the downtown is to be provided in the Year 2000, another 2,380 parking spaces will be needed to accommodate the projected growth in commercial space only. At a ratio of 320 s.f. per space, parking will require 761,600 s.f. or 17-1/2 acres total in the Downtown area for parking alone. This translates into over 11 downtown blocks of new surface parking. Obviously the downtown could not respond to that amount of parking. Several factors are likely to occur which will help mitigate this demand:

1. Greater amounts of higher density housing in and around the core will reduce the number of vehicles requiring downtown parking.

2. There will be more attention given to mass transit systems as the working population becomes more “office” oriented.

3. There will likely be more attention given to mass transit systems as the working population becomes more “office” oriented.

4. There will likely be a more favorable economic return in the operation of parking structures in the future, encouraging the construction of multi-level parking.

5. More people are buying smaller cars, which require less storage space.

6. As the City continues to grow the value of land increases, giving the incentive to maximize land usage. This means the ratio of land area to building area will decrease.

In the areas surrounding the retail core, the potential for six blocks of parking has been shown, assuming the less intensive area south of “L” Street will continue to provide its own off-street parking, thereby absorbing some of the demand projected. Additionally, the area around the government center will need to provide related off-street parking as required by the growth of government and related office functions.

13.10.5 Downtown Building Conditions

During the fall of 1980, visual surveys were conducted in the Downtown recording the general character and condition of buildings. Properties were viewed from the outside only with basic considerations given to structural conditions and exterior finishes. The age of structures and type of construction were also taken into consideration. This survey was conducted by a licensed architect.

While a detailed survey on a building-by-building basis was not conducted, the following comments apply generally to buildings in the downtown area and will serve as a basis for future studies directed at building rehabilitation, new construction and historic preservation.

Downtown buildings can be divided into five categories of building types as shown in Table 13.10.4. The advantage of classifying a building by architectural type is to gain an understanding of its history, role in the Downtown and helping to determine appropriate ways to treat the building when it is rehabilitated.

Table 13.10.4
Downtown Building Types

Type A: Historic	Buildings distinguished by consistent design from an architectural style or period of the past.
Type B: Defaced	A type of building partially converted or remodeled, thereby obscuring or omitting original historic detailing.
Type C: Stripped	Characterless, plain buildings generally without historic styling, but of traditional historic proportions.
Type D: Commercial Modern	Generally characterless undistinguished modern buildings, poorly related to the traditional two-story streetscape because of their one-story height.
Type E: Foreign	Buildings with strong character or design features, yet out of harmony with the town image because of out-of-character materials, style, scale, form, etc.

The downtown core consists of a mix of Types B, C, and D buildings with the predominant building being Type C. In the oldest area of Downtown along "G" Street, there is a grouping of historic buildings of type A & B. Surrounding the retail core in a southerly and easterly direction the predominant building type is Type E. Based on preliminary visual observations, most of the buildings are in fair to good condition, but require exterior repair and probably interior code compliance work as well. The age of the building is a major determinant in the amount of interior code work which will need to be done to bring the building up to meet the State of Oregon's Uniform Building Code. New code requirements in the last few years have had substantial impacts to building owners as they contemplate remodeling their structure. Major problem areas have included the following:

1. **Exiting Requirements** - Building codes require most buildings in the area to have two exits from upper floor areas. Older buildings in many cases do not provide two exits, and they must either provide a second exit if none exists or provide a sprinkler system as an acceptable alternate.

2. **Handicap Requirements** - New building codes require the provision of access to buildings by the handicapped and provisions for handicapped access to toilet facilities as well as other areas in the building. Most buildings will need to have handicapped facilities installed as the building is remodeled.

3. **Plumbing / Electrical Systems** - In most older buildings, it is usually the case that the plumbing and wiring systems are severely outdated and deteriorated. Substantial cost can be incurred in bringing the plumbing and electrical systems up to meet current building codes.

4. **Seismic Stability** - Many of the older, masonry buildings do not provide sufficient lateral support to meet seismic building code requirements. This usually means that buildings must provide sufficient diaphragm action, or the addition of interior walls to provide lateral support.

5. **Exterior Repair** - the most frequent element needing repair in the building exterior is the roof. The roof system is subjected to substantial weathering, and tends to be in the various states of deterioration. Additionally, many building exteriors are in need of cleaning and painting, which are not as costly as the foregoing repairs, but probably have the most significant impact to the appearance of the Downtown.

6. **Energy Efficiency** - As energy becomes more of an issue, future code provisions will probably require energy conservation retrofitting. This will include insulation, storm windows, energy efficient lighting, etc.

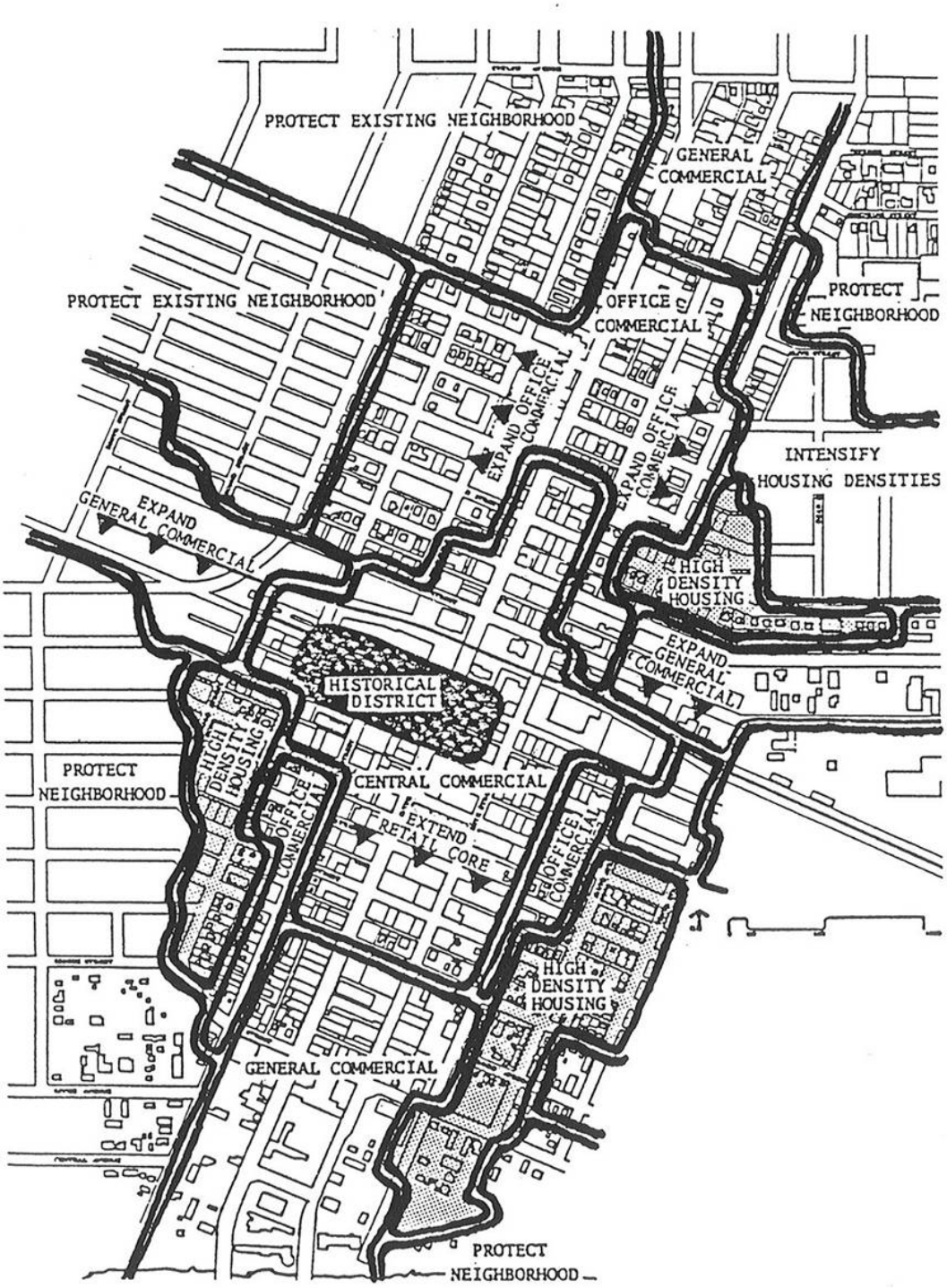
The condition of a building has an aggregate impact with other nearby buildings which characterizes the downtown area itself. In other words, the condition of the downtown must be judged by the condition of its buildings. Generally, the Grants Pass Downtown has buildings in fair to good condition. The two major areas of treatment are: 1) the general upgrading of exterior conditions within the downtown through cleaning and painting of buildings, and 2) the upgrading of building interiors to meet current building codes.

13.10.6 Downtown Improvement Program

No Improvement Option - Without a Downtown Improvement Program what might be likely to happen in downtown over the next ten to twenty years? The following summarizes the major changes that would occur during this time period if no organized plan was adopted:

1. Decentralization of commercial activity and the emergence of major new commercial centers in other parts of the community.
2. A basic change in commercial uses in the Downtown area:
   a. The movement of department stores and supermarkets out of Downtown.
   b. More office uses Downtown.
   c. Possibly more second-hand stores, part-time stores.
   d. Greater amounts of social service and charitable uses.
   e. Storage uses.
3. A continued increase in traffic through Downtown, making it a less attractive place to shop.
4. A random clearing of Downtown land to provide more parking for remaining adjacent businesses, resulting on the loss of a concentrated Downtown core and the loss of structures with historic quality.
5. Residential concentration pushed farther out from the Downtown, by low intensity commercial expansion spreading out from the Downtown into older nearby residential areas.

Map 13.10.4
Proposed Land Use Plan



Program Strategies - Fifteen years ago a Central Business District Plan was published documenting the conditions found in Grants Pass, projecting future growth and suggesting several possible plans for action. A review of this plan shows that in retrospect much was found and projected was accurate. The Plan laid out a framework for a grand vision of what the Downtown could become. It identified the probable impact of suburban shopping centers on the Downtown and recommended an approach for the Downtown to remain the regional shopping center for the Josephine County area.

It is important to review the response to the recommendations and to understand why a majority of the Plan's concepts were not followed.

First, the obstacles to accomplishing the Plan's concepts, identified in the Plan itself, were too difficult to surmount. These are still obstacles and include:

1. Property ownership is vested in a wide variety of interests, under no particular consensus for what the Downtown should be. Shopping Centers controlled by a limited group of investors can respond more quickly to changes in consumer buying patterns and consumer demands for parking, architectural style, public amenities, etc.

2. Many Downtown businesses and property owners tend to concern themselves with their own interests and find it difficult to become involved in Downtown-wide issues.

3. By-and-large businesses in the Downtown have been successful and are not convinced major improvements are needed on the Downtown.

4. The growth of Grants Pass (within the City limits) has been relatively slow, except for the significant increases in the population in the "urban fringe" areas. Since the Plan was completed in 1965 there has not been, until recently, any urgency in making major Downtown improvements.

5. The implementation of Plan concepts are dependent on the abilities of the merchants, property owners and City officials to organize and achieve a working group to agree on a Plan, choose methods for financing improvements and decide on ways to maintain the area one improved. This is one of the keys to the realization of Plan concepts. For the reasons listed above, the need or desire for such a group has not occurred during the last fifteen years.

The obstacles described above are not unique to Grants Pass. They are found for the most part in many other business districts throughout the county. With the exception of very few business districts which have succeeded in completing major Downtown revitalization projects, most are now, or have been, in the process of a much more financially conservative approach to improvements. The basis for this current renewed planning effort has been the realization by many businesses and property owners that the Downtown is indeed beginning to feel the growth and problems documented in 1965. The acute lack of adequate parking in the core area, the continued presence of

high volumes of through traffic going south on 6th and northern 7th, the recent proposals for the development of several new shopping centers, especially south of the Rogue River where population has grown the fastest, and the recent growth of regional shopping facilities in Medford and Roseburg are contributing factors to this realization.

Specifically, the following strategies have been assumed in the development of capital improvement projects:

1. A probable continuation in the attitudes held by many businesses that the Downtown is presently healthy, and a reluctance to consider any major projects.

2. Financing major projects by businesses and/or property owners will not be generally supported. Smaller projects which build on the improvement work already begun will be more favorably supported.

3. Large amounts of public funds will not be available for major projects. Smaller amounts of public funds could be used as a stimulus for increased business participation in improvement.

4. The lack of parking in the core area is a major concern and a solution to that problem will receive the most support. Projects which increase parking and at the same time support other Downtown goals will be more effective.

5. Projects should be flexible in their financial commitments They should be able to stand by themselves as complete projects, but also, if more funds permit, have the ability to increase in scope. They should also provide for a range in ways to be financed: public, private, contributions, etc.

6. Projects which are based on a community's ability to finance maintain, with the public sector acting in a supportive role, will be the most accepted and effective.

Financing Strategies - Costs of Downtown capital improvements are generally borne by three parties - Downtown property owners, Downtown merchants, and city government. A fourth group, private donors, can be encouraged to make contributions to specific projects. Appropriate projects for private donors need to be identified and circulated to potential individual and group donors, such as service clubs, local businesses, and individuals. Projects can be dedicated as memorials and provided with plaques in honor of deceased citizens, for example.

The Role of the City

City government has several roles to play in the process:
1. The financing of downtown improvement planning;
2. The organizing of private parties for cooperative action;
3. Providing the public mechanisms through which improvements can be financed and

implemented, such as local improvement districts, business license surtaxes or Downtown development funds;

4. Absorbing operating and maintenance costs related to Downtown capital improvements within regular department budgets whenever possible;
5. Coordinating the City's regular capital expenditures with Downtown improvement expenditures to maximize their joint impact; and,
6. If justified by city policy and federal intent, to earmark portions of federal funds received by the city, such as Community Development Block Grants, for Downtown development.

The City of Grants Pass has shown itself to be flexible and resourceful in assisting merchants and property owners in implementing downtown improvement projects. A Downtown Development Fund, financed by Downtown parking meter and parking fine revenues, was established and is used in matching funds with money provided by the Downtown Merchants Association for such projects as street tree plantings. The City has worked with Downtown property owners to acquire public parking lots and develop pedestrian alleyways from them to the commercial center. The City has issued revenue bonds to acquire public parking lots for Downtown shoppers, and arranged to have the revenue bonds retired through a surtax on annual business license fees for benefiting property owners. The City is prepared to assist in the formation of Local Improvement Districts in the Downtown to finance improvements.

The other public sources of financing Downtown improvements should be considered by the City: 1) enacting a city hotel/motel tax and earmarking a portion of it for tourist and visitor-related downtown improvements; and 2) earmarking a portion of the Community Development Block Grant funds now received by the City from the federal government for downtown housing and public amenity improvements for older low and moderate income persons.

The Urban Growth Plan consultants recommended that one strategy for Downtown development should be to provide higher density housing, especially for older citizens, near the Downtown, both to support retail activity in the Downtown and to provide a social center for citizens in the Downtown. These aims are completely compatible with the aims of Community Development Block Grant funds now coming to Grants Pass from the federal government. The City now receives funds on the order of $700,000 per year under this program, and uses it for low interest rehabilitation loans for housing, public works improvements, etc. The consultants recommended that the City prepare a program to improve Downtown housing and public amenities, primarily for low and moderate income retired citizens, as one component of its Housing and Community Development Plan for the next three-year period. Perhaps 20% of the total funds should be earmarked for these purposes. They might involve the rehabilitation of Downtown structures for Downtown housing, or the assembly of land for new low and moderate income Downtown housing, as well as the construction of public amenities that will help make the Downtown a center of living for nearby residents.

The consultants noted that Downtown property owners who are not also merchants tend to be passive about their Downtown holdings. Many are older, retires, often living outside of the community, or absorbed in other business interests. They are not quick to take advantage of greater

income opportunities by investing in improvement to their own properties, or in supporting public improvements in the Downtown. Downtown merchants are more active and concerned, since their business life is focused on the Downtown. But, if they do not own Downtown property, they are often ready to leave the Downtown for a more favorable business location when their lease runs out. Those who both operate Downtown businesses and own Downtown property have the greatest leadership potential for Downtown improvement programs.

Downtown property owners and Downtown merchants have interests in two kinds of Downtown improvements: improvements to privately owned Downtown lands and buildings, and improvements in the public areas of streets, sidewalks, alleyways and off-street public parking areas. The former type of improvement is usually a private decision of the building owner; the latter is a matter of joint action with other owners and merchants working through their associations in collaboration with the City.

Investments in Downtown building renovation have become lucrative in many cities in recent years, as costs of new construction and new building rents have escalated rapidly. These opportunities exist in Grants Pass as well. Building owners need to become aware of new opportunities for their older buildings, and also how improvements to public areas of the Downtown reinforce the opportunities for profitable investments on their private holdings.

Existing building owners or outside developers will have to see the opportunities for Downtown investment in Grants Pass. One or two successful renovations that result in new tenancies at significantly higher lease rates than before will demonstrate the opportunities available to Downtown property owners. Then the advantage of upgrading the public amenities of the Downtown through joint action will be more evident. Finally, owners and merchants will have to come to agreement on sharing the costs of public improvements in the Downtown. This may develop through a local improvement district with increased property taxes, paid by the owner and partially offset by adjustments in merchant's lease rates.

It may be financed through voluntary assessments to members through a Downtown Development Association. Revenue bonds paid off by a business license surtax may be used again. Property owners and merchants must share the burden, and the City's contribution should be based on the willingness of the private parties to undertake the task.

13. LAND USE ELEMENT FINDINGS

Historic Development

1. The historic development of the city's urban form has been primarily a result of the area's physical constraints and the evolving transportation system.

2. Induced by the old stage road stop and the placement of the Southern Pacific Railroad in 1883, initial platting and development took place on the flat river terrace north of the Rogue River, with the initial street grid paralleling the railroad. Later development spread to fill this alluvial river terrace, extending up Gilbert and Fruitdale Creeks, limited by the steep, folded hills to the northwest, north and east, and by the river to the South.

3. Highway 99, extending from Medford to the southeast, and continuing west to the coast, together with the Sixth and Seventh Street bridges, encouraged development south of the river, once again constrained by topography to the flatter portions of the river terrace.

4. Commercial uses have followed the transportation system: rail, highway and freeway. The I-5 freeway both altered and reinforced the transportation network, opening new areas for intensive commercial development at the north and south interchanges, while at the same time reinforcing the Downtown commercial activity via 6th and 7th and "E" and "F" couplet system. Industrial uses co-opted the lowlands north of the river and west of the city.

Urban Growth Boundary Formation

5. In 1973, the Oregon State Legislature found that "uncoordinated use of lands threaten the orderly development, the environment of (Oregon) and the health, safety, order, convenience, prosperity and welfare of the people of Oregon." The Land Conservation and Development Commission was formed, with members appointed by the Governor and confirmed by the Senate. Fourteen Oregon land use goals were adopted, reflecting the two critical concerns of conserving agricultural lands and fostering orderly and economic urban growth, rather than urban sprawl.

6. Goal 14 focuses on these two issues, requiring the creation of an "Urban Growth Boundary" as a means of providing for "an orderly and efficient transition from rural to urban land use." The Boundary separates "urbanizable" from "rural" lands. "Urbanizable" lands are those lands necessary and suitable for future incorporated city limits (urban areas), which can be served by city (urban) services and facilities. "Rural" lands are agricultural, forest or other lands suitable for small farms or acreage homesites needing little or no public services.

7. Goal 14 requires establishment and change of the Boundary according to the following criteria, focusing on the economic provision of services and the protection of agricultural lands:

(1) Demonstrated need to accommodate long-range urban population growth requirements consistent with LCDC goals;
(2) Need for housing, employment opportunities an livability;
(3) Orderly and economic provision for public facilities and services;
(4) Maximum efficiency of land uses within and on the fringe of the existing urban area;
(5) Environmental, energy, economic and social consequences;
(6) Retention of agricultural land as defined, with Class I being the highest priority for retention and Class VI the lowest priority; and,
(7) Compatibility of the proposed urban uses with nearby agricultural activities."

8. The "urbanizing area" concept is not new. Area plans since 1960 have considered substantially the same "urbanizing area" that eventually became incorporated within the Grants Pass Urban Growth Boundary Area. The 1960 Park Plan (Bureau of Municipal Service), the 1969 General Plan (Langford and Stewart) and 1960 Sewer Study (Brown and Caldwell), the 1972 County Water and Sewer Study (Stevens - Thompson - Runyan) and the 1974 Water Study (Brown and Caldwell) all show the same concern with the economic provision of urban services, and identify the same areas as most likely to urbanize and most efficient to serve.

Table 13.3.2

Plan/Study	Study Area Acres	Urbanizing Study Area Projected Population Persons	Date
1960 Recreation / Park Study	-	36,000	Full Development
1969 Sewer Study	14,440	44,600	2000
1969 General Plan	10,664	34,800	1985
1972 Water / Sewer Study	6,550	40,000	1992
1974 Water Study	11,550	48,750	1998
1979 Urban Growth Boundary		22,340 30,320 33,545 38,300 44,750	1980 - Unit Count 1990 - Urban Growth Plan 1990 - Economic Model 2000 - Urban Growth Plan 2000 - Economic Model

9. Due to the city's historic pattern of development, only 254 of the 3,440 acres within the incorporated city limits in 1980 (7% of the total) were located south of the Rogue River, and yet most of the potential "urbanizing area" lay to the south. Development in this area had already required the extension of sewer service due to health problems (Harbeck-Fruitdale in 1970, Redwood in 1977). The area water table was limited, and salt intrusions into the water table threatened portions of the Harbeck-Fruitdale area. Some development had occurred south of the river at urban densities, but not at urban standards of development. In addition, the city faced major upgrading of its water system, and the area's population influx was heavily weighted with retired persons not likely to be able to bear the traditional financing methods necessary for service improvements and extensions.

10. The City's Comprehensive Plan strategy reflected the City's concern for its potential liability for urban service provision, while recognizing the need to synchronize its Comprehensive Plan efforts with the county, whose planning process has a two year lead:

-The City and County, in a joint process with the City as lead agency, would develop and adopt the Grants Pass Urban Growth Boundary and Urban Services Policies. Sufficient data base to satisfy Goal 14 would be developed, problem areas would be identified, and further data base work initiated. The boundary and policies, once agreed upon, would lay out the "ball park" and set the "rules of the game" for the rest of the planning process leading to a complete Comprehensive Plan.

- The Urban Growth Boundary Management Agreement negotiations would immediately follow, based upon an expanded data base. The Management Agreement would determine the specific responsibility of the City and County for providing urban services, would identify areas needing further technical study in order to result in the required capital improvement, and would structure the process for further City-County negotiation in each service area, and finally would set the standards for "interim" development that would precede the required area-wide capital improvements.

- The remainder of each jurisdiction's Comprehensive Plan would then be completed according to each jurisdiction's schedule and resources, basic agreement having been reached in key policies.

- Joint review, at intervals to be agreed upon, would allow alteration of the Boundary, Policies and Management Agreement as required.

11. This strategy has been followed, initiated with City-County adoption of the Urban Growth Boundary and Urban Service Policies in August, 1979, followed by the adoption of the Urban Growth Plan in August, 1980 (City) and incorporation of the Urban Growth Plan into the interim "Comprehensive Plan" for the urbanizing area in August, 1981 (County). The Management Agreement, adopted by the City and County in January, 1981, called for adoption of service plans within 24 months. To date, solid waste, water, transportation and storm drain plans have been adopted, specifying the extent, location, costs and potential financing mechanisms for facility extension throughout the Boundary area. In addition, most of the service plans contain computer models of present and proposed systems, allowing the effects of any policy change or major development proposal to be swiftly known, and in informed decision result.

12. In addition, as called for by the Management Agreement, a single Planning Commission (the Urban Area Planning Commission) was created to serve the Urban Growth Boundary Area as a whole, replacing its City and County counterparts. Common land use hearing rules and a common zoning ordinance of development standards were adopted for the Boundary area, City and County alike, and a coordinated administration of urbanizing area development was initiated. As a result, an effective moratorium on urbanizing area development was ended, and the city made service commitments to over 260 acres proposed for (one-twentieth of the total urbanization area) development within the first nine months of Urban Area Planning Commission action.

13. The draft Grants Pass Urban Growth Boundary was projected to accommodate 36,600 persons within 7,820 acres by the year 2000. Based upon the Portland State University (PSU) population range projected for Josephine County at the time (1978), 41% to 47% of projected county growth would have been accommodated by this target.

14. The Boundary location was primarily determined by the degree of commitment to urban level development, and the economic provision of services. South of the Rogue, the draft Boundary was nearly coterminous with the Harbeck-Fruitdale and Redwood sewer districts, whose mains were already extended throughout the area, and was bounded by the 1150 elevation contour, representing the most efficient water service areas. North of the river, the Boundary was limited by commercial agricultural lands to the west, and by steep slopes and freeway to the northwest, north and northeast. Except where steep slopes prohibit, the Boundary was extended evenly around existing city limits, using the 1450' and 1166' elevations to determine economic water service extension. The draft boundary used (1978) land use ratios reflecting resident desire for low, controlled growth and the maintenance of small town character. A 28% "market factor" was added to ensure choice in the marketplace. (See Tables 13.4.2 and 13.4.3)

Table 13.4.2
1978 Draft Urban Growth Boundary Land Use Ratios

Type of Land Use	Acres per 100 persons	
	Present	Future
Single family residence	8.771	8.418
Multi-family residence	.293	.331
Public / Semi-public	2.121	2.123
Industrial	1.236	1.235
Railroad	.379	.145
Commercial	1.471	1.475
Transportation	4.536	4.538

Table 13.4.3
1978 Draft Urban Growth Boundary Acreage Determination

Item	Acres
Acres developed to urban densities within city limits	2,633
Additional acres needed for development to accommodate 36,600 persons	4,052
Vacant acres needed for choice on the market place (28% x 4,052)	1,135
Total Acres Inside Urban Growth Boundary	**7,820**

15. North of the Rogue River lands within the Boundary included areas of agricultural soils rated Class II through IV. To the east, existing industry of long standing, excellent rail and freeway access, small parcel size, and the area's unique potential for industrial development precluded preservation of these soils for agricultural use. To the west, the Boundary was limited by commercial farm lands, and was extended only to include areas with prior commitment to urbanization in the form of large trailer parks and small parcel size. South of the Rogue, only the areas within the new sewer districts and capable of economic water service were included, even though soils were rated as Class II through IV.

16. Following protracted hearings, a revised Boundary was adopted with a target population of 35,750 persons, and encompassing ??? acres. Most of the citizen concern was expressed by property owners on the Boundary periphery wanting either in or out of the Boundary area. Most of the area removed was above the most economical water service elevations. Also adopted was a set of Urban Service Policies deemed to be "part of one body" with the Boundary.

Map 13.11.1
1979 Urban Growth Boundary, Agricultural Soils and Sewer Districts

The Urban Growth Plan

17. As had been the case in the City's development history, the pattern of the future transportation network would act as a primary determinant of commercial and industrial development. Likewise, as development occurred, traffic patterns and loading would be affected, and major changes in the transportation network would result. The city wished to address the questions of its industrial base, commercial development, the existing and projected transportation network, and assess the resultant urban form, and so directed work on the Urban Growth Plan and Traffic Management Plan to proceed as a coordinated project, utilizing HUD and OTSC grant funds, and selecting a team of architects, planners, economists and traffic engineers from over 40 firms showing interest.

18. Working at the direction of the City Council and Board of County Commissioners, and with input from a 30 member committee, the County's economic base was analyzed, and three major commercial and industrial scenarios were discussed, as shown in Maps 13.4.7 and 13.4.8.

19. The three commercial scenarios and the three industrial scenarios yielded a possible combination of nine growth alternatives, of which six were examined in detail. The impact of the selected six scenarios upon the city's commercial, industrial and residential land distribution, key service facilities, and the transportation network were then reviewed in a series of public workshops and hearings.

20. The Urban Growth Plan has finally adopted combined features of the various alternatives examined, and may be summarized as follows:

    - Light manufacturing was to be "aggressively promoted" in an attempt to more than double the light industrial job growth rate of the 1970's. The east Grants Pass area was given immediate priority for the extension of water service further east, while both the Redwood area and the Merlin area (outside the Boundary) were designated as most suitable for industrial park development. The Redwood area offered the only major new industrial park opportunity within the Boundary, and placed light industrial lands in a central location for two-thirds of the urbanizing area south of the Rogue River, adjoining commercial and high-density residential lands.

    - The projected year 2000 population was 38,300 persons, up from 35,750 persons of the adopted Boundary, as 50% of the new jobs were estimated to be filled by immigrants, and 70% of the newcomers were estimated to reside within the Boundary area. (Allocating 75% (jobs) and 85% (location) raises the target to 42,200 persons.) The Plan also projected a population shift from 70% north of the Rogue and 30% south, to 55% north and 45% south.

    - Commercial growth was centered in three major areas, east Grants Pass, the Downtown and the Redwood Interchange. While the Downtown would continue growing and stay healthy,

57% of its growth was projected as office and service space rather than retail, while the east Grants Pass and Redwood Interchange area growth was projected as 67% retail. (Together, the two shopping center area were projected to absorb 54% of all commercial retail space required within the Boundary.) The north city area was projected to continue to fill out its undeveloped land potential, and neighborhood shopping area growth was provided for the west city, Williams Highway, Harbeck / Fruitdale and Redwood Avenue areas.

- Residential growth was characterized by three categories: low density, including single family detached, zero lot line or common wall units on smaller lots, and mobile home subdivisions; medium density, including common wall duplex and multi-unit types such as condominiums, duplexes, and triplexes; and high density, including garden apartments, and higher density condominium projects. The housing categories were located within the Boundary area such that lower densities were found further from arterial or collector streets, community facilities, and shopping, while the higher densities would be found closer. High density development was projected for the Redwood Interchange, east Grants Pass and Downtown areas, following increased commercial development.

Residential Land Use Needs

21. The projected demand for new dwelling units within the Boundary was based upon a range of population (38,000 to 44,750 persons), a range of household size for the city and urbanizing area, the HUD minimum vacancy rates by housing type. Total unit demand by the year 2000 ranged from 6,262 to 8,862 units (constant household size) to 8,883 to 11,913 units (declining household size).

22. Total housing need was further broken down by density, and a demand for each density group was projected, according to a “low density model” and a “high density model.” The density models were “driven” by various factors affecting demand, and the results are shown in the Summary Table 13.4.24 (See also Housing Element, Section 9.24, for full discussion).

23. Two land use models were then mapped, one based closely on the Urban Growth Plan, and the second based upon a realistic “buildout” within the city, recognizing existing neighborhoods and their present densities, and postulating densities approaching planned service capacities for water and sewer in the urbanizing area. The low density housing model was then compared to the urban Growth Plan land use model, and the high density housing model was compared to the “Service Capacity” land use model.

24. The Urban Growth Plan model could absorb the full range of projected population (38,300 to 44,750 persons), fitting well with the low density housing model, but would be approaching buildout (47,700 persons) at the high end of the population range, requiring Boundary expansion between 1990 and 1995 to maintain a ratio of buildable lands to demand in excess of 3.5.

25. The “Service Capacity” model could absorb the full range of projected population and still retain from 55% to 30% capacity in the urbanizing area, fitting well with the high density housing model, and not requiring major Boundary expansion until 1995 to 2000 or while maintaining the buildable lands to demand ratio of 3.5.

Commercial Land Use Needs

26. In 1979-80, a commercial lands inventory was completed of all commercial lands within the Boundary. Based upon the inventory and other research, the Urban Growth Plan economists prepared an analysis of the area’s economic base, and projected commercial land needs to the year 2000 in 10 year intervals, based upon a target population of 36,000 persons, and including a 28% market factor.

27. According to the economists the Urban Growth Plan target of 38,300 persons will require an additional 8% retail square footage, well within the market factor utilized. Should the upper end of the target population be realized, additional commercial lands may be required.

Industrial Land Use Needs

28. The Urban Growth Plan developed an industrial land needs assessment based upon doubling the 1970's light industrial job growth rate, estimating 30 employees per acre for light manufacturing employment and 15 employees per acre for distributive employment. Assuming all such jobs are created within the UGB, Table 13.4.27 shows the industrial acreage requirements by area indicated by the Urban Growth Plan (column 4) and extrapolated to fit the Economic Model projections (column 5). Although the Urban Growth Plan target population was 38,300 persons, the assessment was based upon new jobs created, not upon population, and will hold.

29. Total industrial acreage within the Boundary, either existing or potential, is not a limiting factor. However, very little acreage is in fact fully serviced, in addition to being appropriately zoned and vacant. (See Table 13.4.28).

Park and Open space Land Use Needs

30. In the absence of a completed Park Plan, the need for neighborhood and district park facilities was projected at a demand rate of 6 acres per 1000 population, a ratio established by Medford’s 1979 Park Plan. Table 13.4.29 summarizes this existing and future park need by area.

31. Seventy acres of neighborhood and district park facilities are presently needed within the Boundary, and between 100 to 135 acres of additional facilities will be required by the year 2000.

32. Neither current nor projected need is spread evenly throughout the urban and urbanizing subareas. Within the city, the Northeast and Southwest subareas are particularly deficient, while increased public use of Lincoln School and Grants Pass High School offer some potential for the Northeast subarea. The only significant park potential for the Southwest subarea is the undeveloped property owned by the Grants Pass School District below Bridge Street adjoining Cottonwood Avenue.

33. Due to the infill nature of most development north of the Rogue River, there is little difference in park acreage demand of the high and low ends of the population projection range. South of the river, however, the demand nearly doubles from the low target population need (58.7 acres) to the high target population need (97.3 acres).

34. For the Redwood area, much of the future small park need could be met by including limited use mini-parks and greenways within the development using the PUD development concept. School district 7 properties at the corner of Leonard Road and Darnielle Lane, and the expansion of, or intensified use of, Schroeder Park offer other park opportunities. The Harbeck - Fruitdale subarea, however, is more impacted; needing 20 acres of neighborhood park space in 1980. This subarea will need an additional 24 to 34 acres by the year 2000.

Development Strategies

35. Zoning was originally geared towards the stabilization and protection of property investments, as first initiated by New York City in 1913 and adopted in 1916. By 1923, 292 American cities had followed suit, basing their zoning codes for the most part on the common law of nuisance, enjoining a property owner from disregarding the deleterious effects of his property use upon neighboring properties.

36. The original constitutional justification for zoning, the prevention of nuisances in advance of their occurrence (U.S. Supreme Court, Euclid vs. Amber Realty Co.), has been largely supplanted with the "advancement of public welfare" rationale. This approach has often ignored costs to the public such as increased land prices and unit costs, while pursuing public benefits such as service extensions, protection of developed properties, and providing amenities.

37. The typical zoning device used has been the "zoning district," which specifies the types of land use permitted in a given area or "district," and included height, bulk, setback and nuisance abatement provisions. Over the years, zoning districts have been burdened with almost all land use policy requirements, regardless of whether zoning districts were the most suitable or efficient policy instrument. Further, as subdivision ordinances and other policies have been adopted, a great body of varying procedures has built up, often contradictory, confusing and difficult to follow for developer, property owner and administrator alike. The standards that determine whether a proposal may go forward, or what a proposal must provide were often unclear, vague and discretionary, and at times unrelated to the task at

hand.

38. In recognition of these "built in" inequities and inefficiencies, many cities in Oregon and throughout the country have undertaken major revision of their development ordinances and policies. The University of Oregon's Bureau of Governmental Research and Service has developed a model Land Development Ordinance format, most closely followed by the City of Gresham. In Southern Oregon, the cities of Klamath Falls, Roseburg, Medford and Ashland have either recently adopted or are considering for adoption, revised development ordinances utilizing portions of the model code approach, and addressing the following issues:

- separating procedures from standards
- varying levels of procedures.
- setting clear, measurable standards.
- allowing different development criteria for different conditions.

39. Procedures - Ordinances often require the same procedure for all development proposals, often so different in size, scope, complexity and degree of impact upon the public. A different process for every procedure, on the other hand, is confusing, difficult to track, and inequitable. Administrative decisions may be seen to lie on a continuum, with simple ministerial decisions involving measurable standards and little or no discretion at one end, and complex quasi-judicial or legislative decisions involving both judgmental criteria and measurable standards at the other end. As one moves along the continuum, more and more discretionary judgment is required, until often the decision must balance disadvantage to one party against reasonable benefit by another party, and balance what is allowed with restraints on how it is allowed. Table 13.7.1 illustrates four levels of development procedure that move from the ministerial (Type I) to the quasi-judicial or legislative (Type IV); from objective decisions requiring little discretion (Type I) to subjective decisions requiring a maximum of discretion (Type IV); and from decisions affecting only the applicant (Type I) to those affecting a number of persons or the general welfare (Type IV).

40. Standards - Standards are utilized either as a criteria for permitting a development proposal, or as design and construction standards to be met by the development. Vague, discretionary standards ("the emission of disturbing vibrations.... is prohibited") may be unevenly and unfairly applied, and involve higher levels of decision making, thereby adding to the time and cost of the process, whereas clear, measurable standards ("noise levels measured at the property line shall not exceed the following frequencies during the hours shown...") may be uniformly applied in a quick and objective fashion. The standards should have a rational basis in fact, should be written in clear concise language, and should take the format of a check-off list or series of descriptions, rather than wordy legalistic paragraphs. Finally, standards should be separated from procedures.

41. Criteria and Conditions - Development proposals faced with differing development conditions ought not to be compelled to meet the same criteria. A new development in a fully established neighborhood faces different conditions than the same development proposal occurring on the fringe of the urban area among large undeveloped lots. Development on flatter terrain ought not to be held to conditions required for development on steep slopes and fragile soils, and development above potential flood waters ought to be free of flood plain requirements. An effective way of tailoring development conditions is through the use of "overlay districts" which are applied to specific areas only, and which contain development criteria, standards and incentives tailored to meet specific conditions. The use of these overlay districts makes all the associated requirements highly visible, and forces them to be linked in a rational manner to the actual conditions that warrant any special requirements.

42. Tables 13.11.3 and 13.11.4 illustrate two categories of overlay districts. "Major Classification Districts" account for the differing requirements and opportunities for development in established neighborhoods, newly developing areas and already established areas that are redeveloping. "Special Purpose Districts" identify areas of special regulatory need, such as steep slopes, flood plain, and historic areas, and areas requiring special fiscal attention, such as Urban Service extension.

Table 13.11.3
Major Classification Districts

(A) Established District	(B) Developing District	(C) Redeveloping District
Protects already established development from incompatible uses, respecting existing structure and character of established neighborhoods.	Encourages flexibility in newly developing areas, promotes contemporary development practices, encourages creative design and affordable housing.	Recognizes need to upgrade previously developed areas that warrant change or have become blighted.
Allows ministerial approval of new development that conforms to existing height, setback, bulk, landscaping and type in immediate area.	Allows ministerial approval of new development that meets performance standards of zone and overlay district (slope, flood plain).	Uses that are economically sound, well maintained, or of historical value could be protected, allowing redevelopment to compliment rather than damage valued areas.

Sets public hearing for approval of new development that does not conform to existing development, reviewed under clear criteria.	Public hearing only when adjoining an established or redeveloping district, or when ministerial review acceptance and conditions are challenged by adjoining property owners or developer.	Area plans created in advance, and special staff resources allocated to “fast track” the review process, while allowing for full public review.
Once approved, development becomes part of established neighborhood, and is used to determine approval of subsequent adjoining or nearby proposals.	Once developed, and adjoining an established district, development is ministerially placed within the established district, and itself serves as a model for adjacent or nearby development.	Special development conditions and incentives not applicable in other zones set out in Development Code, allowing design flexibility and both public and private contributions to upgrading the area over time.
Main thrust is to protect neighborhoods that are established, functional, safe and healthful places to live.	Main thrust is to eliminate delays and positively encourage creative, contemporary and affordable development practices within a set of pre-established performance standards.	
Change occurs in a gradual, evolutionary manner.	Makes maximum use of undeveloped lands to create the established neighborhoods of the future.	

Tables 3.11.4
Special Purpose Districts

(A) Slope Hazard	(B) Flood Hazard	(C) Historic	(D) Urban Services
Relate allowable density and development standards directly to the degree of slope and soil hazard.	Relate buildable lands and development standards directly to degree of flood hazard.	Recognizes and protects areas of historic value.	Determines developing areas in most immediate need of urban services extension.

Using base zone of R-1-8, allocates allowable density or formulae varying in complexity with degree to which owner wishes to investigate and record actual site slope and soil conditions.	Replaces and incorporates present flood plain ordinance.	Encourages viable and economic use of historic areas and structures, maximizes private reinvestment.	Establishes public priorities for urban service expenditures over given period of time.
Allows fuller use of areas within a slope zone with less hazard than R-1-12 approach, while more stringent where site circumstances require.	Allows fuller use of areas within a flood zone with less degree of hazard.	Commits public resources as necessary to both preserve the value of and enhance the use of the city's historic resource.	Sets up various financing mechanisms in advance.
Allows range of design construction standards based on actual degree of hazard. Specific standards allow ministerial review, avoids unnecessary hearings.	Specific standards allow ministerial review, avoids unnecessary hearings.		Focuses upon shortening procedure.

43. As a result of these special districts, the underlying zones can be simplified in requirements and reduced in numbers, and any regulation may be related very specifically to the area requiring regulation. For instance, the R-1-6 and R-2 districts may be combined, since both allow duplexes, eliminating the conditional use procedure in the R-1-6 zone, which should not be required in a developing district (encourages new development concepts) and which is no longer necessary in an established zone (protects existing development directly). Table 13.11.5 illustrates the economics of such a concept.

Table 13.11.5

Proposed Land Use Designations		Existing Designations
LR Low Density Res -	5.5 du/Ac	R-1-12, R-1-8
MR Moderate Dens Res –	10.5 du/Ac	R-1-6, R2
HR High Dens Res –	17.5 du/Ac	R-3, R-4
HRR High Rise Res –	35.5 du/Ac	R-4
NC Neighborhood Commercial		C-2
GC General Commercial		C-3, C-4, C-5
CC Central Commercial		C-6
OC Office Commercial		New
BP Business Park		M-P, M-1
I Industrial		M-2
10 new zones		15 old zones

Service Capacity Summary

44. All basic facilities required for a city to function were examined, and the range and expected population was within planned service levels and capacities. The findings below summarize the Public Facilities Element and may be found in more detail in Sections 10.2 through 10.8

Water Service

45. The city's water permits totaling 62.5 cubic feet per second will serve 59,130 persons at maximum day demand, including all associated industrial and commercial uses, fully serving the expected population range (38,300 to 44,750 persons), as well as the buildout capacity of both land use models (47,700 to 55,700 persons). The Grants Pass Irrigation District perfected right of 96.7 cfs may be used for municipal purposes, and one-third to one-half of this right would serve an additional 30,500 to 45,700 persons.

46. With the addition of Reservoir 6, the city's reservoir capacity would match requirements for the existing population. Reservoirs 7 and 8 would serve city buildout (21,000 persons), and reservoirs 5, 9, 10 and 11 would serve the expected UGB population range (38,300 to 44,750 persons).

47. The current addition to the city's treatment plant will serve 26,350 persons, leaving an excess capacity over city buildout (21,000 persons) of present city limits of 30%, or 3.65 mgd. A second expansion will be required between 1985 and 1990, with a capacity to serve a total of 39,530 persons. Additional capacity may be required between 1995 and 2000 to serve the high end of the population range.

Sewer Service

48. The UGB area is served by two sewage treatment plants and three service districts. The Grants Pass plant serves the city and Harbeck-Fruitdale districts, while the Redwood plant serves the Redwood district.

49. The present total treatment plant capacity for both plants is estimated at 25,0000 person equivalents, and the main trunk collection system at 51,000 person equivalents. The expected population range of 38,300 to 44,750 persons will generate sewage of 57,530 to 63,980 person equivalents, including industrial and commercial usage, requiring 130% to 156% expansion of plant capacity and some new or parallel collection mains.

Storm Drain Service

50. Most of the city and urbanizing area is flat or gently sloping, and as impermeable materials such as roofs and paving replace natural vegetation, storm runoff increases dramatically, and a storm drain system is required. Both the city and urbanizing area are lacking in adequate storm drain facilities.

51. The draft storm drain master plan calls for 6.5 miles of new line by 1988, 15.9 miles by 1995, and an additional 23.8 miles to serve full buildout. The major canals and laterals of the Grants Pass Irrigation District play a key role in the system.

Solid Waste Service

52. Within the Urban Growth Boundary in 1980, 954 pounds of solid waste was generated for every resident. The UGB generates 45% of the waste generated by the total service area of the Merlin landfill. By the year 2000, the UGB will have generated 2.8 to 5.0 million cubic yards of waste material, and the landfill service area could generate a total of 4.4 to 4.6 mcy.

53. After receiving 1.6 mcy of this total, the landfill will have to develop two more existing sites, with a capacity of 6.4 mcy, well in excess of projected landfill demand. Josephine County has adopted a solid waste management plan proposing resource recovery with Jackson County when cost effective.

Police Protection

54. Josephine County (including Grants Pass) ranked 13th in state population in 1979, but ranked 23rd for crimes such as murder, rape, burglary, assault and robbery (Jackson County ranked sixth). Within the city, crimes such as rape and robbery are on the decrease, while assault, burglary and larceny are on the increase.

55. Seven new vehicles, an office south of the Rogue River, and between 26 to 36 additional personnel will be required to serve the expected range of population (38,300 to 44,750 persons) within the UGB.

Fire Protection

56. Fires are increasing within the city at a rate of 17 per year. Also increasing are the number of alarms, and fires as a percentage of alarms.

57. In 1977, the National Insurance Services office found 14 deficient fire flow locations in the city, giving the city a 5 rating. Current improvements to the city water system could raise the city rating to a 4, or possibly a 3. Commercial/Industrial ratings of above 9 and residential ratings of above 8 require a water system with fire flow capacities. Differences in annual insurance premiums for commercial ratings of 8 or 9 versus 5 are 65% to 76% more.

58. Requirements for serving the Boundary are primarily a function and response time rather than population, and the extension of fire flow water service throughout the Boundary. Seven personnel, one 3,000 gallon tanker, and a two-vehicle station south of the river will be required.

School Service

59. The students of both the Grants Pass School District No. 7 and the Josephine County School district No. 23 consistently rate well above the national average in performance tests. The excellent level of education in these districts is partly a function of small class sizes and high student/teacher ratios.

60. Between 3,500 to 5,000 additional students could be generated by the year 2000 in accommodating the expected range of population (38,300 to 44,750 persons), even when assuming a declining student per household ratio to match the decreasing household size. At a somewhat higher classroom loading than present, between 86 and 142 additional classrooms will be needed by the two districts combined by the year 2000.

CITY OF GRANTS PASS

COMPREHENSIVE PLAN POLICY INDEX

1. LOCATION

. **Note**

The Data Base portion of the Comprehensive Plan describes the location of Grants Pass relative to the amenities that make the City an enjoyable and desirable place in which to live. In addition, the geography of the City is presented at the local, state and regional level.

No policies result from the findings made.

2. CITIZEN INVOLVEMENT

. Goal

To develop a citizen involvement program that insures the ongoing involvement of citizens in all phases of the land use planning process.

. Policies

2.1 Land Use actions shall be reviewed as provided in the Development Code, with the degree of public participation fitting the extent of impact of the proposed land use action, as provided in Policy 13.1.2 of the Plan. The Development Code shall include provisions for adequate, timely and informed review, including notices bearing complete and easily understood information needed by the general public to make an informed opinion.

2.2 Where a land use issue or action may have an impact upon a particular neighborhood, ward or special interest group, or may affect large numbers of Urban Growth Boundary residents and property owners, special workshop sessions shall be held to assure access by affected citizens to all phases of the land use decision making process.

2.3 The Council shall adopt a Citizen Involvement Program to assure adequate citizen involvement in land use issues and actions. The program shall contain provisions for communications between citizens and elected or appointed officials, assistance for the provision and interpretation of technical information, mechanisms for responding to individual citizen input, and financial support.

2.4 The citizen involvement program shall include a Citizen Involvement Committee (CIC) composed of representatives of the City Council, Planning Commission, standing committees and citizens at large. The responsibilities of the citizen involvement committee shall be to assist in the development of the citizen involvement program, to assist in implementing the program, and to evaluate the effectiveness of the program annually.

2.5 The citizen involvement program shall contain procedures for the establishment and change of the program and committee, standards for review of the program, and explicit provisions for the general charge and specific tasks of the citizen advisory committee.

3.0 SCENIC, ROGUE RIVER, HISTORIC AND NATURAL RESOURCES

. Goal

To conserve, restore and enhance the area's scenic river, historic and natural resource.

. Policies

. Scenic

3.1 The City and County shall explore the creation of a scenic route and major gateway overlay designation on the UGB land use map. The scenic overlay shall be used to determine those major arterial routes through, and major entrances to, the City of Grants Pass and urbanizing area frequented by the traveling public, where special landscaping or scenic effect is desired.

3.2 The Development Code shall require an appropriate level of landscaping for all new development and redevelopment.

. Rogue River

3.3 The City shall recognize the Rogue River as the most significant natural and economic resource. Further, the City shall recognize the development opportunities of the river by the institution of "Riverfront Tourist Commercial Zones". These special commercial zones found in scenario 4 of the RRP and located at either existing or proposed bridges, would provide for development standards as well as provide specific allowable uses for each Riverfront Tourist Commercial Area. It is highly desirable that the new zoning allow for mixed use development (residential, commercial, retail, office); however, due to the limited space available, uses which either require or depend on a river location shall be higher priority.

3.4 The city shall recognize the river as the predominant visual feature in the community by the institution of a "Scenic Overlay Zone", to occur along the entire length of the river within the urban growth boundary; the width of the zone should correspond to the width of the River Corridor. This zone shall include:

- The creation of a design review board which would review all projects within the overlay zone for their design aesthetics and compatibility with the environmental setting.

- The creation of design guidelines to be utilized by the proposed design review board as well as by staff and other discretionary commissions.

- The creation of public viewpoints in the locations as designated in the RRP

3.5 In conjunction with the above policy and policies under the Fish, Wildlife and Natural Resource Section of this element, the city shall institute the necessary ordinances for the protection and restoration of the riparian and wetland habitats along the river. This new ordinance must address the removal of river vegetation, the erosion of the riverbank, the allowable recreational uses of the waterway and the potential impact on aquatic and terrestrial wildlife.

3.6 In concert with policies 7.5, 7.6 and 7.7, the city shall develop a bicycle and pedestrian trails system. This system may link the proposed Riverfront Tourist Commercial Zones as well as provide linkage to the downtown and other community trails system. Further, the city may provide access to the river's edge at areas designated in the RRP and other suitable areas.

The above trails and access points shall be acquired by the city either through easements, development conditions and (or) direct public purchase.

. Historic

3.7 Within twelve months of adoption of the Comprehensive Plan, the City shall establish an Urban Area Historical Buildings and Sites Commission, whose primary function is to facilitate the preservation, conservation, restoration, rehabilitation or upkeep of historic buildings, structures and historical areas within the City of Grants Pass, and advise the City Council in land use actions affecting historic structures, sites and areas.

3.8 Within sixteen months of adoption of the Comprehensive Plan, the Development Code shall include a process of designation and review for structures, sites and areas considered indicative of the City's historical heritage, which will assist participating property owners in qualifying for federal, state or local financial assistance programs.

. Fish, Wildlife and Natural Resources

3.9 The City and County shall coordinate development policies with the Oregon Department of Fish and Wildlife to prevent the degradation of aquatic habitats, recognizing the role these habitats play in the area's economic well-being.

3.10 The City and County shall act to conserve and enhance the quality and character of the Rogue River and its tributary streams, protecting streamside vegetation and discouraging the channelization, diking and filling of stream channels.

[1]Locally significant wetlands mapped in the Local Wetlands Inventory shall be protected by buffers, appropriate to their identified class and function, to preserve habitat and protect and enhance water quality.

. Aggregate

3.11 The aggregate resource site located in the southwest subarea opposite the City's sewage treatment plant shall be utilized. Seasons and methods of operation may be regulated to lessen impact upon the surrounding area.

. General

3.12 Within sixteen months of adoption of the Comprehensive Plan, the Development Code shall act to facilitate these Scenic, Rogue River, Historic and Natural Resource policies, and shall contain a balanced mix of positive incentives (Which may include economic incentives, density transfer, clustering, planned unit developments, density incentive, rapid review procedures, clear and measurable standards, etc.), as well as exactive requirements (which may include mandatory reviews, dedication, easement or development requirements, etc.), as needed to assure the realization of these policies.

4. ENVIRONMENTAL RESOURCE QUALITY

. **Goal**

To maintain and improve the quality of the air, water and land resources of the area.

. **Policies**

4.1 The City and County shall affect air quality by:

(a) coordinating the maintenance of air quality with the State Clean Air Implementation Plan.

(b) cooperating with the State Department of Environmental Quality, the County Health Department, organizations and individuals for the ongoing monitoring of air pollutants in the UGB airshed.

(c) continuing and augmenting the program of paving unpaved roadways within the UGB, including alleys.

4.2 The City and County shall:

(a) evaluate the need for a local noise ordinance utilizing DEQ Noise Control Regulations and Model Noise Ordinance within 16 months of adoption of the Comprehensive Plan.

(b) coordinate land use planning with the DEQ Noise Control Regulations, especially the regulations for industry and commerce.

(c) locate noise sensitive land uses, such as residential, away from noise sources wherever possible.

(d) explore the requirement of noise abatement measures in residential developments that are located adjacent to noise sources such as highways, major streets, railroads, industrial and commercial areas.

4.3 The City and County shall affect water quality by:

(a) coordinating land use activities with the State Department of Environmental Quality River Basin Plan, the 208 Water Quality Plan and the National Pollutant Discharge Elimination System Permit requirements. [1]If waterways within the city are declared water-quality limited by the Oregon Department of Environmental Quality, the City will work with DEQ to develop an appropriate pollutant load reduction strategy implementation plan in response to a Total Maximum Daily Load (TMDL) determination developed for the watershed.

(b) encouraging the development of land that minimizes the area of impervious surface and/or provides for storm-water retention. [1]Runoff that cannot be infiltrated shall be managed so that (a) the peak flow of the receiving stream is not significantly increased and (b) water quality is maintained.

(c) maintaining all public parking lots and streets in as litter-free and chemical-free condition as possible, and encouraging private owners to maintain parking lots and driveways in as litter-free and chemical-free condition as possible.

(d) increasing the hydraulic capacity of the City's wastewater treatment plant.

(e) identifying improperly abandoned groundwater wells in the UGB area, requiring that the wells be properly capped or sealed, and continuing to monitor the salt intrusion into wells in use.

(f) [1]regulating site planning for new development and construction to better control drainage and erosion and to reduce and retain stormwater runoff and protect water quality.

(g) [1]regulating the location of permitted uses that may have higher than ordinary impacts on water quality, particularly those that generate, store, or use hazardous waste or materials.

(h) [1]increasing public awareness of techniques and practices private individuals can employ to correct water quality and quantity problems.

(i) [1]regulating the cutting of trees and encouraging the reforestation and revegetation of appropriate trees in the city.

4.4 The City and County shall affect land quality by:

(a) coordinating the disposal of solid waste with the Josephine County Solid Waste Management Plan.

(b) evaluating the long term needs for sludge disposal and considering alternatives to liquid land application.

4.5 The City and County shall address the environment's carrying capacity by:

(a) complying with applicable state and federal environmental protection standards.

(b) so managing urban development and environmental protection that irreversible damage to the quality of the environment is avoided.

5. NATURAL HAZARDS

. Goal

To reduce the risk of loss of life and damage to property both private and public, due to natural hazards.

. Policies

5.1 Geologic, Slope, Soils and Erosion Hazard

5.1.1 The city and county shall place a slope hazard overlay designation on the UGB land use map. The slope hazard overlay shall be used to determine areas within the boundary with slopes greater than 15%.

5.1.2 The Development Code shall contain standards for development related to the degree of hazard from slope and soil type. The soils classification of the U.S. Soils Conservation Service shall be used as a general guide only for determining hazard areas. The Development Code shall provide methods to modify the required development standards as a result of more precise and site-specific slope and soil characteristics information.

5.1.3 Within 18 months of adoption of the Comprehensive Plan, the Development Code shall provide definitive guidelines for the routing and design of roads in steep areas to minimize environmental damage, maintain natural drainage patterns, and conform to the general topography.

5.1.4 The Development Code shall act to facilitate these slope and soils hazard policies, and shall include a balanced mix of positive incentives (which may include density transfers, clustering, administrative appeal from requirements based on more precise information, etc.), as well as exactive requirements (which may include density reduction, development requirements, etc.).

[1]5.1.5 Development on hillsides shall not endanger life and property or land and aquatic resources determined to be environmentally significant.

[1]5.1.6 On tree-covered hillsides, development shall be designed to preserve as many trees and as much natural vegetation as possible.

[1]5.1.7 The City shall require certain land disturbing activities associated with construction and improvements to employ erosion control prevention to control stream sedimentation.

[1]5.1.8 Standards for hillside protection will require use of construction techniques that reduce sediment transport and peak storm flows by minimizing erosion and surface water runoff.

5.2 Flood Hazard

5.2.1 The city and county shall maintain an active involvement in the National Flood Insurance Program.

5.2.2 The city and county shall place a flood hazard overlay designation on the UGB Land Use Map. The flood hazard overlay shall be used to determine areas within the Boundary subject to flood hazard in accordance with the Grants Pass and Josephine County Flood Insurance Studies, pursuant to the National Flood Insurance Program.

5.2.3 The Development Code shall regulate development within the 100-year floodplain and floodway as required to maintain participation in the National Flood Insurance Program.

5.2.4 The Development Code shall provide for methods to determine and appeal the location of the 100-year floodplain and floodway boundaries when there appears to be discrepancies between official mapped boundaries and actual field conditions.

5.2.5 The Development Code shall act to encourage the use or provision of areas suitable for storm water retention, [1]detention, and infiltration, such as wetlands, grassed waterways, seasonal ponds and woodlands.

5.2.6 The city and county shall ensure that all new utilities and public facilities that locate within or pass through the 100-year flood plain do not result in increases in flood levels. Public water systems shall be designed to minimize or eliminate infiltration of flood waters, and public sewer systems shall be designed to minimize or eliminate discharges or infiltration.

5.2.7 The Development Code shall act to facilitate these flood hazard policies, and shall include a balanced mix of positive incentives (which may include density transfers, rapid review procedures, open space credits, etc.), as well as exactive requirements (which may include dedication or easement requirements, development requirements, etc.).

5.2.8 The city and county shall actively participate with Jackson County and other affected agencies in developing strategies to reduce and manage flooding and flood hazard areas.

5.3 Wildfire Hazard

5.3.1 Within 18 months of adoption of the Comprehensive Plan, the Development Code shall act to encourage reduction of fuel concentrations and the construction of fire breaks, which may include utilizing fire resistant or less flammable vegetation, construction of water sources, construction of roads suitable for use by emergency equipment, and provision of loop road systems for residential areas in hilly terrain.

6. POPULATION

. Goal

To base decisions regarding the population to be accommodated within the UGB for the 20 year planning period upon (a) sound, current and accurate demographic and economic data, (b) population projection models that reflect conditions and trends of the area and region, and (c) the desired growth policy of the citizenry and property owners of the planning area.

. Policies

6.1. Planning for the Urban Growth Boundary for the 20-year period from 2007-2027 shall be based on growth at a 2.2% growth rate from a year 2007 population of 37,460 to a year 2027 population of 57,888.

6.2 Sufficient lands capable of full urbanization shall be provided within the Boundary to ensure an adequate choice in the market place for the projected population.

6.3 The City and County shall actively participate in the ten year and five year census efforts of the Federal government.

6.4 The City and County shall ensure a continuous stream of current land-use and development data from all agencies affecting land-use and development within the Boundary, and shall provide for the electronically enhanced storage, retrieval and analysis of this data.

6.5 The City Manager shall prepare an annual report to the Urban Area Planning Commission, the City Council, the Board of County Commissioners and other appropriate Boards and Commissions on the location, type, and degree of development within the Boundary. The annual report shall include information on the cost and availability of various housing types and densities, on the addition to or depletion of the capacity of basic urban services (water, sewer, storm drainage, streets and parks), and the adequacy of serviced, buildable lands for each land use type shown on the Comprehensive Plan Land Use Map.

These yearly reports and analyses shall be used by the City and County to guide revisions to the Comprehensive Plan.

7. RECREATION, PARKS AND OPEN SPACE

. Goal

To provide for the Recreation and Park and Open Space needs of the residents of and visitors to the Grants Pass Urban Growth Boundary area. The provisions shall: ensure the availability of sufficient open spaces for all areas of the UGB; meet the recreational needs of all age groups and types of recreation activities; locate open spaces in a manner that shall protect and enhance natural resources, and minimize hazard to life and property.

. Policies

. General

7.1 The City and County shall act to respect and conserve the natural resources in the area, to protect and enhance the quality and usefulness of the Rogue River, and to recognize that natural beauty is of great significance to the future of the area.

7.2 The City and County should act to increase the variety and number of public and private recreation opportunities and leisure time activities in the area.

7.3 Recreation sites shall be obtained by the City and County when possible so that these open spaces will be preserved for the future, in accord with an adopted Park Plan. Parks development should proceed as needed in order to increase and enhance recreational opportunities in the area.

7.4 Community appearance is a major concern and should be a subject of a major effort in the area. With visitor income as a primary source of future economic growth and development, beauty becomes a matter of basic economic significance. Street tree planting and landscaping, sign regulation and building improvement and painting programs should all be utilized to improve the environment.

. River Parks

[1]7.5 The City shall design parks which meet the recreational needs of the community, protect the significant natural features, minimize environmental deterioration, and where possible, serve as stormwater detention and treatment facilities.

7.6 The City and County shall act to protect and enhance all recreation activities, public and private, utilizing the Rogue River resource, while at the same time avoiding detriment to the resource itself, with its many special and unique qualities.

7.7 The regional River Parks in and adjacent to the Urban Growth Boundary (such as Schroeder, Riverside and Pierce) should be enhanced as river oriented parks. Schroeder and Riverside may also function as neighborhood or community parks,

provided that great care is taken to preserve the basic river orientation and natural character of these river parks.

7.8 Within 12 months of adoption of the Comprehensive Plan, the City and County shall review the potential of the development of a riverside trail or greenway linking Riverside, Tussing and Schroeder Parks, with an additional tie to the County Fairgrounds via Tussing Park.

. School Parks

7.8 The City, County and School Districts should continue to cooperate in the full utilization of the School Park concept, which may include the joint acquisition, development, utilization and maintenance of educational and recreational facilities. The School Park concept should be utilized to realize larger and more usable sites as well as more cost effective utilization than possible with single-use facilities.

7.10 The City, County and School Districts should continue to maintain communications adequate to assure that adjacent schools and parks are appropriately acquired, designed and managed in order to maximize the utility of school grounds and parks to both school children and the general public. The City and County shall pursue an agreement with the school districts, such that the City and County would be consulted prior to and during the design of proposed school facilities, and would have first opportunity to purchase school district grounds and facilities within the UGB for park purposes should such grounds or facilities be offered for sale.

7.11 Neighborhood Parks should be located adjacent to elementary schools, and Community Parks adjacent to middle schools or high schools, whenever possible, and shall be developed as School Parks insofar as practicable. Elementary school sites should be enhanced as neighborhood park facilities wherever adjacent grounds are not available. Potential School Park sites shall be carefully designed both to meet recreation needs and to minimize any impacts disruptive to residential neighborhoods.

7.12 School parks should be considered at or adjacent to the proposed school sites at Rogue River Avenue between Bridge Street and Webster Lane, at Leonard Road and Darneille Lane, and Grandview Avenue and Drury Lane.

7.13 Neighborhood parks are particularly needed and their acquisition and development should be pursued in Ward II, Ward IV and the urbanizing area to the west, and the Fruitdale-Harbeck area, both the developed and undeveloped portions.

. Greenways and Trails

7.14 The City and County, in cooperation with School Districts, Grants Pass Irrigation District, utilities and other public and semi-public agencies shall appoint a committee to explore the acquisition and development of a greenway and trail network that

would connect designated natural resource and recreation sites within, adjacent to and near the UGB.

. Fairgrounds

7.15 The County Fairgrounds is an especially valuable asset to the people of the community. The City, County and Fair Board shall take care to preserve the fairgrounds for recreation activity, to protect the site from the encroachment of other public uses which may detract from its basic function, and shall act to enhance and extend the recreational capacity of the site. The City and County shall cooperate with the Fair Board to develop a Master Plan for the development of the County Fairgrounds.

. Park and Recreation Plan

7.16 Within 12 months of adoption of the Comprehensive Plan, the City and County shall develop and adopt a Park and Recreation Plan for the Urban Growth Boundary area. Such a Park Plan shall:

(a) determine the number, size and approximate location of park and recreation facilities, greenways and trails deemed necessary to serve the expected population within the Urban Growth Boundary;

(b) base the facilities determination on a thorough analysis of all types of City and County recreation activities, using and correlating available preference and use data;

(c) utilize organized input from all segments of the community;

(d) recommend implementation and financing strategies for acquiring, developing and maintaining needed park and recreation facilities;

(e) demonstrate continuity with the Park Plans of 1960, 1967 and 1969, as adopted by City and County, and as followed through by acquisition, expansion and development;

(f) determine the areas of greatest facility need;

(g) assess existing recreation supply and demand, and plan for a balance of needed leisure services, based upon a reasonable balance of service provision and cost sharing by governmental, commercial and private sources.

7.17 The Park and Recreation Plan shall provide a parks, recreation and open space overlay designation on the UGB land use map. The parks overlay shall be used to determine the approximate location of or areas of need for future parks and recreation facilities. Specific park locations shall be shown only where lands are publicly owned.

7.18 Within 16 months of adoption of the Comprehensive Plan, the Development Code shall act to facilitate these park, recreation and open space policies, and shall contain a balance mix of positive incentives (which may include density transfers, density incentives, rapid review procedures, etc.), as well as exactive requirements (which may include dedication or easement requirements, system charges, development requirements, etc.), as needed to assure the realization of these policies.

7.19 The City and County shall develop a Capital Improvement Program (CIP) within 18 months of adoption of the Comprehensive Plan, which Program shall include timely and adequate funding to realize the acquisition and development of facilities required by the adopted Park and Recreation Plan.

7.20 The City and County shall explore the provision of incentives for park, open space and greenway dedication.

8. ECONOMY

. Goal

To improve, expand, diversify and stabilize the economic base of the community.

. Policies

8.1 The City and County shall endeavor to improve, expand, diversify and stabilize the economic base of the community:

(a) by encouraging the location and development of environmentally sound economic activities within the Urban Growth Boundary which meet the occupational and employment needs of area residents, particularly the unemployed and under-employed.

(b) by giving high priority to the extension of full urban services to designated industrial areas of the Urban Growth Boundary in the Capital Improvement Program.

(c) by encouraging and providing support to non-profit economic development organizations and groups which seek to improve employment opportunities within the Urban Growth Boundary.

(d) by insuring that an adequate quality and quantity of industrial land is available, properly zoned and serviced.

(e) by protecting existing and planned commercial and industrial areas from the intrusion of incompatible land uses through land use regulation.

(f) by providing for a timely, efficient, clear and objective development review process.

(g) by applying for state and federal grants which can be used for extension of public facilities to industrial areas or direct financial assistance to new or expanding industries.

8.2 The City and County shall continue to improve their working relationship with each other and with other governmental bodies so as to improve the community's ability to accommodate growth.

8.3 The City and County shall encourage educational and occupational training programs, and make selective resources of the City and County available to public and private agencies for such training programs.

8.4 The acquisition and development of park and recreation facilities, as well as the conservation of natural resources and open space, shall be considered a vital part of the economic development an economic well being of the area, the region and the State, and appropriate efforts shall be made to keep both recreation development and natural resource conservation abreast of growth.

8.5 The implementing ordinances shall act to facilitate these economic policies, and shall contain a balanced mix of positive incentives (which may include rapid review procedure, clear and measurable standards of development, subsidized service extension, etc.), as well as exactive requirements (which may include dedication or easement requirements, system changes, development requirements, etc.), as needed to assure realization of these policies.

8.6 The City and County shall encourage industrial development within the Urban Growth Boundary and the North Valley Industrial Park by:

(a) working with economic development organization and the property owners involved to encourage development of the remaining acres in the Caveman Industrial Park.

(b) providing City water service and fire suppression and prevention services to Josephine County's 85 acre North Valley Industrial Park, and encouraging full development of this park.

(c) completing a facility plan and implementation strategy for the East Grants Pass Industrial area, which will include the extension of Agness Avenue across the Southern Pacific Railroad tracks, and the extension of water along "N" Street and Agness Avenue.

(d) working with economic development organizations and the landowners in the East Grants Pass, industrial area to market their properties in a unified and cooperative manner.

(e) providing City water services south of the Rogue River to the "Redwood Plaza" industrial area.

8.7 (a) The City and County will encourage commercial development at major commercial nodes, which includes the East Grants Pass area around the existing Grants Pass Shopping Center; the Redwood Commercial Triangle South of the Rogue River area and the Downtown area. The City will also encourage infill commercial and office development along Sixth and Seventh Streets, and in the North City commercial area.

(b) In addition, convenience shopping area will be developed in the future in the Redwood area and the Southeast area of Grants Pass. The Rogue River Highway will continue to be used as a commercial strip.

8.8 The City shall assist in maintaining the Downtown commercial area as a vital business and office district by:

(a) following the adopted Downtown Improvement Program, giving high priority to Downtown Improvement projects in its Capital Improvement Program.

(b) making every reasonable effort to involve Downtown property owners and merchants in any improvement projects and proposals regarding the Downtown, and all proposals shall be subject to thorough public discussion before approval by the Council.

(c) providing support to the Towne Center Association in order that they may continue to carry out the "Oregon Main Street Program", which focuses on improvements to the area of organization, promotions, design and economic restructuring.

(d) evaluating the potential for, and provide where possible, long term revenue sources for Downtown improvement, both for the Towne Center organization and for public capital improvements.

(e) encouraging private building owners to maintain and improve their buildings.

(f) improving the efficiency with which the public uses both the off and on-street parking systems.

(g) zoning the Downtown area "Central Business District" which allows building to the property line and does not require any landscaping or off-street parking requirements.

(h) providing zoning designations that allow the eventual build up of residential densities immediately surrounding the Downtown area.

(i) requesting the State Department of Transportation to reconstruct Sixth and Seventh Streets, and to assist in the construction of a new synchronized signal system on Sixth and Seventh Streets.

(j) implementing the Old City Hall/Fire Station plan for improvements and use of those buildings.

. <u>Tourism</u>

8.9 The City shall promote tourism, as significant element in the local economy by:

(a) utilizing a portion of the transient room tax for visitors and convention promotion services.

(b) creating a financial mechanism and completing landscaping and sign improvements to the North Interchange area.

(c) supporting the Centennial Commission's efforts toward activities drawing tourists to the area.

9. HOUSING

. Goal

To encourage the provision of adequate numbers of housing units within the Urban Growth Boundary at price ranges and rent levels commensurate with the financial capabilities of area households, and to allow for flexibility of housing type, density, location and design.

. Policies

. Housing as a Community Service

9.1 The City and County recognize that builders and developers are providing a necessary and desirable service, and commit to work together in the spirit of cooperation to provide adequate housing in a timely and efficient manner.

9.2 The City and County shall seek to maintain a physical standard of housing responsive to the health, safety and general welfare of the residents of the community, through the enforcement of the Uniform Building Code, as mandated by the State of Oregon.

9.3 The City and County shall encourage the development of public housing rehabilitation programs as a method of assisting property owners whose dwellings need structural repair; shall encourage the use of public funds in providing housing assistance.

. Housing Variety, Type, Density, Location Amenities and Costs

9.4 The Land Use Map, Zoning Map, Overlay Maps and the Development Code shall provide opportunities for a variety of housing types, densities and locations within the Urban Growth Boundary area.

9.5 The Development Code shall establish provisions for housing types which are shown to be related to lower housing costs, and shall allow these housing types outright in appropriate locations throughout the Boundary area.

9.6 The City and County recognize condominium ownership, manufactured housing, and attached single-family homes as legitimate and affordable housing alternatives, and will encourage their development to appropriate standards and in appropriate locations within the Boundary Area.

9.7 The City and County shall either (a) place on the Comprehensive Plan Land Use Map a manufactured housing overlay designating where manufactured housing shall be permitted as an outright use, or (b) allow manufactured housing outright in all Developing Districts within the Boundary.

9.8 The City and County recognize the need for rental units and additional multifamily homes in the area, and will designate appropriate locations for multi-family development within the Boundary area.

9.9 The City and County recognize the need for balance in housing types, and shall continue to support the development of traditional housing types, and shall act to protect and enhance Established neighborhoods within the City and Boundary area.

9.10 The Development Code shall establish provisions for density transfer within a particular housing development; and shall set forth regulations to accommodate housing developments which utilize density transfer, such as cluster development, planned unit development and zero lot line development.

9.11 Within 16 months of adoption of the Comprehensive Plan, the Development code shall explore service design standards (roads, water, sewer, storm drainage) which endeavor to lower the costs of development and maintenance while ensuring public safety and health.

9.12 Within 16 months of adoption of the Comprehensive Plan, the Development Code shall ensure the conservation of environmental amenities which are important for the livability of residential housing, which may include open space, parks, recreation areas, buffer yards, wetlands, natural wildlife habitats, solar space access, views, and waterways.

9.13 The City and County shall balance the benefits of its regulatory actions with the impact of such regulations to the cost of housing, and shall regularly review their fees and charges for reasonableness and efficiency.

9.14 The City shall encourage the provision of housing for all people, regardless of age, race, color, religion, sex, national origin, or handicap status, and shall take special measures to insure that not group or class of people is excluded from the community.

10. PUBLIC FACILITIES & SERVICES

. **Goal**

To provide needed facilities and services for the Urban Growth Boundary area in a timely, orderly, efficient, economic and coordinated manner.

. **Policies**

10.1 .General Service Policies

10.1.1 Urban levels of development shall require urban levels of service, as defined by the Implementing Ordinances.

10.1.2 Those who benefit most from the extension of urban services shall be those who pay most of the cost of service extension. Citizens in the developed areas with a full range of services already provided should pay little if any of the costs of extending urban services. Various techniques should be utilized to mitigate the economic impact of service extension to those residents in developing areas who already provide certain of their own services, and to mitigate the economic impact of service extension to those persons on fixed and/or low incomes.

10.1.3 Services shall be provided in an orderly and economic manner. Services provided at public expense should be provided first to those areas most heavily committed to urban development and those areas most actively developing, before extension to less committed areas or to those areas less actively developing. The extension of services with similar physical and/or programmatic requirements should be coordinated where economies will result. The involvement of the private sector is essential in the provision of services, and will determine to a great extent the timing, location and financing means of service extensions.

10.1.5 The division of lands and development of property within the Urban Growth Boundary shall be in accordance with the phased provision of urban services, as provided in the Implementing Ordinances. The type, location and phasing of public facilities and services shall be used by the City and County in a coordinated fashion as factors to direct urban expansion, and to implement land use policies.

10.1.6 Neither the City nor the County shall create special districts within the Urban Growth Boundary for the provision of water, sewer, storm drainage or street improvement services, unless approved by both parties and managed by either the City Council or the Board of County Commissioners. Overlapping and competing layers of political control of the provision of services shall be discouraged.

10.1.7 Services shall be resource effective. Services shall not be extended past the carrying capacity of the resource base of that service, and shall utilize the resource in the most effective way practicable.

10.1.8 The City and County recognize that the provision of necessary services to accommodate the projected growth and land use allocations is a mutual responsibility. The City and County will continue to cooperate with other and with the private sector in the development and use of financial mechanisms and programs that are effective, efficient and equitable. The County recognizes its need to develop new techniques and resources for financing urban level public facilities.

10.1.9 A six-year Capital Improvements Program, will be developed jointly by the City and County by January, 1984, and be maintained on an annual basis thereafter. This program will be used as a guide in the decision making process regarding the expenditures of local public funds on capital projects as well as seeking State and Federal funds.

10.1.10 Prior to first periodic review, the City and County shall complete a public facilities plan for those areas within the Urban Growth Boundary which were not included within the adopted facilities plans at the time of acknowledgment.

10.2 .Water Service Policies

10.2.1 The City and County shall follow the adopted Water Facilities Plan for the Urban Growth Boundary area when extending and improving water service. Key factors to be utilized in growth management include:

(a) the number, size, location and approximate costs of water treatment, storage and distribution facilities deemed necessary to serve the expected population within the Urban Growth Boundary;

(b) water sources and treatment and distribution modes;

(c) continued input from all segments of the community;

(d) implementation and financing strategies for acquiring, developing and maintaining needed water treatment, storage and distribution; and

(e) determination of the areas of greatest need, including techniques of funding and prioritization for these areas of need.

10.2.2 The City and County shall maintain a continuously updated computerized model of the municipal distribution system. This model shall be available for use at cost by public agencies and private organizations in order to determine questions of service capacity, improvement requirements and improvement cost.

10.2.3 The City and County shall adopt an official Water Facilities Plan Map, showing the location, size and type of existing and future water treatment, storage and distribution facilities called for by the Water Facilities Plan, and such map shall be keyed to the computerized model of the distribution system.

10.2.4 The Development Code shall facilitate these water service policies, and shall contain a balanced mix of positive incentives (which may include density transfers, density bonuses, rapid review procedures, etc.) as well as exactive requirements (which may include dedication or easement requirements, system charges, development requirements, etc.) as needed to assure the realization of these policies.

10.2.5 The City and County shall develop a Capital Improvement Program (CIP) within 12 months of adoption of the Comprehensive Plan, which program shall include timely and adequate funding to realize the development of facilities required by the Water Facilities Plan, and shown on the Water Facilities Plan Map.

10.2.6 The Water Facilities Plan shall be reviewed and updated, and revised if necessary, at one year intervals, with major revisions at five year intervals. The revisions to the Water Facilities Plan shall be used as a basis for revising these policies.

10.2.7 Within 24 months of adoption of the Comprehensive Plan, the City and County working with the Grants Pass Irrigation District shall explore the possibility of the municipal use of the District water right, and shall explore the most cost effective way, for public agencies and private individuals alike, to provide water to the UGB area for all purposes.

10.2.8 Urban level development shall require a public water system, or shall meet requirements of Interim Development Standards as provided by the Implementing Ordinances. Interim Development Standards shall allow development to proceed in a timely and economical manner, prior to full public water system extension, provided the requirements of public safety, health and welfare are met, and the future extension of the public water system is safeguarded.

10.3 .Sewer Service Policies

10.3.1 Within 12 months of adoption of the Comprehensive Plan, the City and County shall develop and adopt Sanitary Sewer Facility and Management Plans for the Redwood, Fruitdale-Harbeck and City service districts, including all parts of the Urban Growth Boundary area. The Sanitary Sewer Facility and Management Plans shall:

(a) determine the number, size, location and approximate costs of sanitary sewer facilities and improvements deemed necessary to serve the expected population within the Urban Growth Boundary;

(b) base the facilities and improvements determination upon a thorough analysis of the Urban Growth Boundary service districts, including present treatment plan capacity, treatment levels and Department of Environmental Quality requirements, collection system age, construction and function, and infiltration and inflow characteristics of the system;

(c) recommend implementation and financing strategies for acquiring, developing and maintaining needed sanitary sewage facilities;

(d) demonstrate continuity with past sanitary sewer plans, as adopted and developed by the City and County;

(e) provide for adequate coordination between the City and County as needed in the expansion and maintenance of the sewer service districts;

(f) determine the areas of highest priority.

10.3.2 Within 12 months of adoption of the Comprehensive Plan, the City and County shall adopt an official Sanitary Sewer Facilities Plan Map, showing the location, size and type of existing and future collection and treatment facilities called for by the Sanitary Sewer Facilities and Management Plan. The map shall also show Service District boundaries.

10.3.3 The Development Code and Development Standards shall act to facilitate these sanitary sewer service policies, and shall contain a balanced mix of positive incentives (which may include density transfers, public funding of oversized lines, rapid review procedures, etc.) as well as exactive requirements (which may include dedication or easement requirements, system charges, development requirements, etc.) as needed to assure the realization of these policies.

10.3.4 The City and County shall develop a Capital Improvement Program (CIP) within 12 months of adoption of the Comprehensive Plan, which program shall include timely and adequate funding to realize the development of facilities required by the adopted Sanitary Sewer Facility and Management Plans, and as shown on the Sewer Facilities Plan Map.

10.3.5 The Sanitary Sewer Facility and Management Plans shall be reviewed and updated, and revised if necessary, at one year intervals with major revisions at five year intervals. The revisions to the Sanitary Sewer Facilities and Management Plans shall be used as a basis for revising these policies.

10.3.6 The City and County shall encourage sanitary sewer design that minimizes the cost of anitary service extensions, and that minimizes the cost of maintaining such extensions.

10.3.7 Urban level development shall require a public sanitary sewer system, or shall meet the requirements of Interim Development Standards as provided by the Implementing Ordinances. Interim development Standards shall allow development to proceed in a timely and economical manner, prior to full extension of the sanitary sewer system, provided the requirements of public safety, health and welfare are met.

10.4 .Storm Drain Service Policies

10.4.1 The City and County shall follow the adopted Master Storm Drainage Facilities and Management Plan for the [1]Grants Pass Urban Growth Boundary area when extending the improving drainage service. Key factors to be utilized in growth management include:

(a) the number, size, location and approximate costs of storm drainage facilities and improvements deemed necessary to serve the expected population within the Urban Growth Boundary;

(b) the analysis of the UGB drainage basins, using generally accepted runoff projection techniques, including appropriate computer modeling, if possible;

(c) implementation and financing strategies for acquiring, developing and maintaining needed storm drainage facilities;

(d) maintaining continuity with past drainage plans, as adopted and developed by the City and County; and

(e) determination of the areas of highest priority, including techniques of funding and prioritization for these high priority areas.

10.4.2 The City and County shall adopt an official Storm Drainage Facility Map showing the location, size and type of existing and future storm drainage facilities called for by the Storm Drainage Plan. The Storm Drainage Map shall be used to determine service district jurisdiction, and the location of future storm drainage facilities and improvements.

10.4.3 The Development Code shall act to facilitate these storm drainage policies, and shall contain a balanced mix of positive incentives (which may include density transfers, public funding of oversized lines, rapid review procedures, etc.), as well as exactive requirements, system charges, development requirements, etc.), as needed to assure the realization of these policies.

10.4.4 The City and County shall develop a Capital Improvement Program (CIP) within 12 months of adoption of the Comprehensive Plan, which program shall include timely and adequate funding to realize the development of facilities required by the adopted Storm Drainage Plan, and shown on the Storm Drainage Facilities Map.

10.4.5 The Storm Drain Plan shall be reviewed and updated, and revised if necessary, at one year intervals, with major revisions at five year intervals. The revisions to the Storm Drain Plan shall be used as a basis for revising these policies.

10.4.6 The City and County working with the Grants Pass Irrigation District shall explore an agreement that will ensure that the storm drainage use of, and the necessary repairs, improvements and maintenance of the irrigation canal system, are made in a manner consistent with the Storm Drain Plan, and in a timely and cost-effective manner.

10.4.7 The City and County shall encourage storm drainage design that minimizes storm water runoff, including retention, [1]detention, and infiltration areas or facilities, use of vegetative open space, and the preservation of natural waterways.

10.4.8 The City and County shall coordinate the provision of storm drain facilities with the provision of open space called for by the Park Facilities Plan, wherever possible, and to the extent practicable. This coordination shall include retaining drainage channels as close as possible to their natural state, and the use of plan materials and maintenance techniques in storm water retention.

10.4.9 Urban level development shall require urban levels of storm drainage, as provided in the Implementing Ordinances. Interim Development Standards shall allow development to proceed in a timely and economical manner, prior to full extension and development of the storm drain system, provided the requirements of public safety, health and welfare are met.

10.5 .Solid Waste Service Policies

10.5.1 The City and County shall encourage the collection of solid waste within the Boundary area by private, commercial collection services.

10.5.2 The City and County Agreements with the commercial franchise service managing the solid waste landfill at the Merlin site shall include measures to successfully reduce leachate produced at the landfill site, such as uphill trenching and draining, and importation of suitable topsoil to reduce erosion and promote revegetation.

10.5.3 Within 16 months of adoption of the Comprehensive Plan, the City and County shall adopt a Solid Waste Management Implementation Plan, including relevant sections of the Solid Waste Management Plan (1975), which plan shall include:

(a) an ongoing assessment of landfill disposal techniques, with provisions for correction of those techniques as required.

(b) a yearly estimate of landfill capacity and the rates of solid waste generation, including all areas within the landfill site service district as well as the UGB area, and an estimate of when landfill site capacity will be reached.

(c) a recommendation of financing strategies for adequately maintaining and preparing the landfill site, as well as providing for alternative methods of solid waste disposal.

10.6 .Police Protection Service Policies

10.6.1 Urban levels of development shall require urban levels of police protection. As the urbanizing area converts from rural to urban levels and intensities of land use over time, police protection should be increased to meet the increased service need.

10.6.2 The City and County shall explore an agreement establishing responsibility for the provision of police protection services within the Urban Growth Boundary over time. This agreement shall consider the costs and benefits of various methods of providing police protection, and shall include financing techniques to mitigate the costs of increased service.

10.7 .Fire Protection Service Policies

10.7.1 Municipal water systems shall provide water at fire flow capacities.

10.7.2 Urban levels of development shall require urban levels of fire protection as stipulated by the Implementing Ordinances. The minimum urban level of fire protection for fully developed residential, commercial and industrial areas shall be that qualifying for the insurance underwriters relative classification rating of 5. Provision of fire protection should be phased over time as urban level development proceed without a minimum of a Class 8 rating, nor shall commercial industrial development proceed without a minimum of a Class 9 rating.

10.7.3 The City and County shall explore an agreement establishing responsibility for the provisions of fire protection services within the Urban Growth Boundary area over time. This agreement shall consider the costs and benefits of various methods of providing fire protection, and shall include financing techniques to mitigate the costs of increased service.

10.8 .Health Services

10.8.1 Health services should be provided by the private sector. The City and County shall encourage the provision of health services in appropriate locations throughout the Boundary area.

10.9 .School Service Policies

10.9.1 The City and County shall maintain an open, ongoing dialogue with the School Districts in a manner that will facilitate the planning efforts of all agencies.

10.9.2 The City and County shall notify the respective School Districts of all residential land use actions within that district in a timely and complete manner, and make development data available to the districts on a regular basis.

10.9.3 The School Districts shall be notified in a timely manner regarding revisions and updates to the Comprehensive Plan that may affect the Districts, and shall be encourage to participate in the revision process.

12. ENERGY CONSERVATION

. Goal

To promote the wise and efficient use of all forms of energy.

. Policies

12.1 The City and County shall make energy conservation and waste reduction a regular practice in purchasing, operating and maintaining its buildings, vehicles, equipment and facilities such as sewer, water, street, lights, as well as take advantage of renewable energy resource opportunities.

12.2 The City and County shall encourage our residents and businesses to take action to conserve energy and use renewable energy resources. Our efforts shall be coordinated with those of utilities, state and federal agencies, and other organizations.

12.3 Within 12 months the City and County shall revise all land development standards to provide and protect solar access, remove obstacles to energy efficient design, and require energy efficient development when ownership is to be transferred to the City or County upon completion such as water, sewer, and streets.

12.4 The City and County shall encourage efforts within the County for the use of solar, geothermal, wind, hydro, biomass resources and alcohol fuel.

12.5 Within 12 months the City and County shall encourage energy-efficient construction by:

(a) establishing procedures and standards in the Development Code that benefit and protect solar access for the active and passive use of solar energy in new development.

(b) providing incentives in the Development Code for residential developments which implement energy conservation and direct application renewable resource design criteria such as solar orientation, passive space heating, vegetative shading for cooling, and solar access covenants, etc.

(c) providing incentives in the Development Code for residential developments that can demonstrate energy efficient construction which exceed building code requirements.

(d) encouraging power companies and lending institutions to provide incentives for energy efficient construction and the utilization of alternate energy resources and systems.

(e) encouraging programs of other agencies providing for retrofit energy systems and energy conservation techniques.

12.6 The City and County shall pursue a more energy-efficient urban form by:

(a) locating higher densities in close proximity to major streets, potential public transit locations, the central business district, shopping and employment centers, schools and parks.

(b) establishing the transportation network in Developing areas around the "superblock concept", reducing travel time to major traffic ways, providing open space, recreation areas and commercial activity in close proximity to residences, and providing an internal greenway pedestrian and bikeway system increasing non-vehicular transportation.

(c) encouraging infill development within Established and Developing areas of the Urban Growth Boundary.

13. LAND USE

. Goal

To provide a vision of the future through maps and policies that shall guide and inform the land use decisions of the present, in such a manner that:

(a) identifies rural lands and separates these lands from urbanizable lands,

(b) provides for an orderly economic and efficient transition from rural to urban land use,

(c) does not exceed the carrying capacity of the area's air, land and water resource,

(d) is responsive to the wishes of the citizens and property owners of the planning area, and

(e) provides adequate amounts of industrial, commercial and residential lands to meet growth needs over the planning period.

. Policies

13.1 Purpose and Intent

13.1.1 Data Base Purpose

The Data Base of the Comprehensive Plan depicts the geologic, geographic, physical, historical, economic and social patterns and relationships of the Grants Pass area. The goals and policies of the Comprehensive Plan represent the conscious choices of the Grants Pass community for the future growth and evolution of the area, based upon these patterns and relationships.

13.1.2 Findings, Goals and Policies Purpose:

The adopted Comprehensive Plan is the official statement of the City of Grants Pass which sets forth its policies concerning the future development of the community.

(a) The "Goals" are broad statements of philosophy that describe the desires of the people of the community for the future of the community. The Goals are the ends towards which land use activity is to be directed, and to which policies give operating principles, plans and courses of action.

(b) The "Policies" are plans or definite course of action selected from among all alternatives to guide and determine present and future decisions. Policies are intended to be mandatory and directional, to carry out the Goals, and to serve

as the basis for specific implementation measure, including land use ordinances, resolutions, and permits.

(c) "Findings" tie the goals and policies to the Data Base in a clear, demonstrative and rational manner.

(d) The Comprehensive Plan is the controlling land use instrument for the City; all development regulations and related actions by the City shall conform to the Comprehensive Plan.

13.1.3 Land Use Map Purpose:

The Comprehensive Plan Land Use Map is a key tool of the Comprehensive Plan, designating the most appropriate use for all real property within the Urban Growth Boundary. The designated land uses are based upon the goals, policies, findings and data base of the Comprehensive Plan.

13.2 Land Use Map

13.2.1 Comp Plan Land Use Map:

The City and County shall adopt a Land use Map as part of this Comprehensive Plan. The Comprehensive Plan Land Use Map shall:

(a) designate the highest and best land use for all portions of the Urban Growth Boundary area, on a parcel-by-parcel basis.

(b) guide and direct changes to the Zoning Map.

(c) meet the demonstrated need during the planning period for residential, commercial, industrial, and public lands as determined by the Comprehensive Plan.

13.2.2 Comp Plan Land Use Designations:

The Land Use Map shall include the following land uses, whose designation are summarized below:

- Low Density Residential: maximum densities of up to 5.5 dwelling units per acre. (Allows Zoning Map Designations of R-1-12, R-1-10, R-1-8)

- Moderate Density Residential: maximum densities of up to 10.5 dwelling units per acre. (Allows Zoning Designations of R-1-6, R-2)

- High Density Residential: maximum densities of up to 17.5 dwelling units per acre. Location limited to immediate proximity of Downtown, or the shopping centers in East Grants Pass and the Redwood Interchange. (Allows Zoning Map Designation of R-3)

- High Rise Density Residential: maximum densities of up to 35.5 dwelling units per acre. Location limited to immediate proximity of Downtown, shopping centers in East Grants Pass and the Redwood Interchange, and other areas adjacent to nodes of existing or planned supporting commercial use; employment centers, community and recreation facilities, arterial and collector streets, and/or transit centers to support higher densities while reducing travel demand and maximizing opportunities for alternate modes of transportation. (Allows Zoning Map Designation of R-4)

Unless a separate professional office designation is created, areas which are suitable for professional uses, but not for higher residential densities, may also be considered for this designation. However, at the time of designation, the review body should consider some restrictions of higher density residential development until adequate adjacent supporting uses and facilities are planned or provided. Options for establishing restrictions may include, but are not limited to, the use of a Development Agreement restricting use or intensity of use.

- Neighborhood Commercial: provides for small retail and service businesses in residential areas. Limited to maximum area of 20,000 square feet of contiguous land. (Allows Zoning Map Designation of NC, Neighborhood Commercial)

- General Commercial: provides for all commercial and professional uses, excepting those requiring on-site manufacture or assembly. Development standards according to adjacent uses and development. (Allows Zoning Map Designation of GC, General Commercial)

- Central Business District: mixed use District, provides the retail, professional office, and high rise residential core for the City and urbanizing area, and encourages concentrated development. (Allows Zoning Map Designation of CBD, Central Business District)

- Business Park: mixed used District, provides for light industrial and commercial uses, allows retail sales as accessory use to light industrial and wholesale uses. (Allows Zoning Map Designation of BP, Business Park)

- Industrial Park: Industrial Park in campus-like setting, allowing only those industries meeting high performance standards. (Allowing Zoning Map Designation of IP, Industrial Park)

- Industrial: provides for those industrial uses with heavier impacts upon their surroundings and need for outdoor functions. Performance standards required, with graduated buffering requirements keyed to adjacent uses. This district shall not

include retail commercial (other than service commercial) or other uses incompatible with heavy industry. (Allows Zoning Map Designation of I, Industrial)

- Urban Reserve: maximum density of up to and including 1 dwelling unit per acre. To be used on the Zoning Map only, provides a "holding zone" for the future residential, uses designated on the Land Use Map, allowing and protecting interim rural residential uses.

13.2.3 Plan Map/Zoning Map

The land use designation on the Comprehensive Plan Land Use Map shall be deemed to encompass the Zoning Districts of the Development Code according to the following schedule:

Comprehensive Plan Land Use Designation	Urban Area Zoning Ordinance Designation
Residential Designation:	**Allows:**
Low Density	UR R-1-12, R-2-20, R-1-8
Moderate Density	UR R-1-6, R-1
High Density	UR R-3
High Rise Density	UR R-4
Commercial Designation:	**Allows:**
Neighborhood Commercial	C-2
General Commercial	GC
Central Business District	CBD
Industrial Designation:	**Allows:**
Business Park	BP
Industrial Park	IP
Industrial	I

13.2.4 Other Maps

The Development code shall include a Zoning Map, that shall include Special Purpose District Maps and Utility Maps, which maps and their criteria and standards shall meet the following basic functions:

(a) The Zoning Map shall show currently permitted land uses on a parcel-by-parcel basis, and shall serve as a basis for determining the taxable value of any given parcel. The Zoning Map may show a less intensive land use than shown on the Land Use Map if within the same general category of land use (e.g. R-1-6 in a MR Land Use District).

(b) The Special Purpose District Maps and Standards shall determine which special development standards and review procedures,, if any, apply to any given development proposal.

(c) The Utility Maps, together with the Development Standards, shall determine the existing and future location of basic services, (water, sewer, streets, storm drainage, and parks), and shall determine which special development standards, if any, apply to any given development proposal.

13.2.5 Special Purpose Districts

Special Purpose Districts shall be adopted to include the following:

(a) Slope Hazard: delineating areas of slope hazard due to combinations of steep topography and unstable soil, whose primary function is to allocate densities and development standards appropriate to the degree of hazard.

(b) Flood Hazard: delineating areas of flood hazard, whose primary function is to determine location and standards of development appropriate to the degree of hazard.

(c) Historic: delineating areas of historic value to the community, whose primary function is to encourage viable and economic use of historic areas while conserving and enhancing the area's historic resources.

(d) Manufactured Housing District: delineating areas where manufactured housing is permitted outright in appropriate locations throughout the Urban Growth Boundary Area.

13.2.6 Development Code and Map Criteria

The Development Code shall set forth the criteria, standards and procedures for inclusion within and development of real property of a given Land Use District, Zone, Major Classification district, and Special Purpose District.

13.3 Areas of Mutual Concern

13.3.1 Identification:

As appropriate, the City and County shall identify any "areas and items of mutual concern" which may extend beyond the Urban Growth Boundary.

13.3.2 Procedures for Review:

When so designated, the City and County shall establish procedures for notification and review for those areas and items of mutual concern identified.

13.4 Development Procedures

13.4.1 Procedure Types:

The Development Code shall separate land use procedures from land use criteria and development standards. Land use procedures shall be stratified according to the degree of discretionary judgment required, and the magnitude of the impacts of the proposal on the adjacent properties and the community as a whole, as follows:

13.4.2 Expedite Minor Review:

The Development code shall establish procedures for the development review process which expedite minor development proposals through administrative review, with provisions for public review upon appeal.

13.4.3 Streamline Review Process:

The Development Code procedures shall act to streamline the land development process and eliminate unnecessary delays, and shall contain standards and procedures for land-use actions that are clear, objective and non-arbitrary.

13.5 Comprehensive Plan Amendments

13.5.1 Provision for Amendments:

The Comprehensive Plan is not an inflexible document. It is intended to be responsive to changes in community condition and the attitude. In order to permit such flexibility, and at the same time maintain the integrity of the Comprehensive Plan, it is necessary to amend the Plan from time to time without frustrating its basic purpose.

(a) In order to maintain the validity of community decision-making, the Data Base must be continuously updated, and the implications for decision-making that result from changing data and changing community attitudes should be widely disseminated and discussed.

(b) Goals, Policies, and Findings will require changing over time, as the community changes. Linkage must be maintained between policy and the data base, all land use maps, and the implementing ordinances.

(c) From time to time, the Land Use Map may need to be amended, and yet still maintain the correct linkages to the goals, policies, findings and data base, as well as retaining internal consistency.

13.5.2 Minor and Major Amendments:

The City and County shall mutually revise the Comprehensive Plan from time to time, making both minor and major amendments.

(a) Data Base: Revisions to the Data Base shall be Minor Amendments and shall proceed administratively as follows:

1. Upon special update and analysis requested by the City Manager or City Council;

2. Upon receipt of area or regional data, studies and analyses by other public or semi-public agencies;

3. Upon verification of site specific or area specific studies and analyses performed by the private sector;

4. Continuously as initiated by the Director; and

5. As a part of the City Manager's Annual Development Report.

(b) Findings, Goals and Policies: Amendments to Findings, Goals and Policies shall be either minor or major amendments as follows:

1. Minor amendments, involving minor changes to findings and policies only, at one year intervals upon receipt of the City Manager's Annual Development Report for that year.

2. Major amendments, involving major changes to findings, goal and policies at five year intervals, two years after the decennial census and quintennial counts taken by the US Census Bureau, upon receipt of the City Manager's Annual Development Report for that year.

(c) Land Use Map: Amendments to the Comprehensive Plan land Use Map shall be either minor or major amendments, as follows:

1. Minor amendments, consisting of quasi-judicial review of land use for one parcel or a group of parcels, shall be considered at any time, using the City Manger's Annual Development Report as a guide to the need for and appropriateness of such minor amendments.

2. Major amendments, consisting of legislative review of overall patterns of land use within a neighborhood, subarea, or area, or within the City or Urban Growth Boundary as a whole, scheduled at five year intervals, two years following the decennial census and

quintennial counts taken by the US Bureau of the Census, using new Census data as a guide to the need and appropriateness of such major amendments.

(d) Notwithstanding (b) and (c) above, minor or major amendments, may be considered at any time upon the mutual consent of the City Council and Board of County Commissioners, using the latest Annual Development Report and revisions to the data base as a guide to the need and appropriateness of such revisions.

13.5.3 Initiating Amendments.

Comprehensive Plan amendments may be initiated as follows:

(a) A petition submitted by residents or property owners within the Urban Growth Boundary.

(b) The Planning Commission.

(c) The City Council.

(d) The Board of County Commissioners.

13.5.4 Criteria for the Amendment:

For amending the findings, goals, policies and Land Use Map of the Comprehensive Plan, the City Council and Board of county commissioners shall base their conclusions upon, and adopt findings in consideration of, all the following criteria:

(a) consistency with other findings, goals and policies in the Comprehensive Plan.

(b) A change in circumstances, validated by and supported by the data base or proposed changes to the data base, which would necessitate a change in findings, goals and policies.

(c) Applicable planning goals and guidelines of the State of Oregon.

(d) Citizen review and comment.

(e) Review and comment from affected governmental units and other agencies.

(f) A demonstration that any additional need for basic urban services (water, sewer, streets, storm drainage, parks, and fire and police protection) is adequately covered by adopted utility plans and service policies, or a proposal for the requisite changes to said utility plans and service policies as

a part of the requested Comprehensive Plan amendment.

(g) Additional information as required by the review body.

(h) In lieu of item (b) above, demonstration that the Plan as originally adopted was in error.

13.5.5 Joint Review.

Amendments to the Findings, Goals, Policies, and Land Use Maps of the Comprehensive Plan shall be made either jointly by the City Council and Board of County Commissioners, or after mutual review of proposed revisions and assurance of compatibility by both the Council and Board. The procedure for joint review shall be provided in Policy 13.8.

13.6 Urban Growth Boundary Amendments

13.6.1 Urban Growth Boundary Purpose and Intent:

The Urban Growth Boundary of the City and County, as adopted and amended, shall:

(a) identify and separate urbanizable land from rural land;

(b) provide for an orderly and efficient transition from rural land uses to urban land uses;

(c) allow for the orderly and economic provision of public facilities and services as needed to accommodate urban development;

(d) contain future urban development within the geographical limits of the Boundary; and

(e) be considered as part of one body with the policies of the Comprehensive Plan, and acted upon in the manner provided for in the Comprehensive Plan.

13.6.2 Boundary Amendments:

The City and County shall mutually amend the Urban Growth Boundary from time to time, making both minor and major amendments.

(a) Minor amendments, involving only the inclusion or exclusion of lands, shall be considered annually, using the City Manger's Annual Development Report as a guide to the need for and appropriateness of such minor amendments.

(b) Major amendments, involving major changes in the data base, goals and policies, in addition to the inclusion and exclusion of lands, shall be

considered at five year intervals, two years following the decennial census and quintennial counts taken by the U.S. Bureau of the Census, using new Census data as a guide to the need and appropriateness of such major amendments.

(c) Notwithstanding (a) and (b) above, either minor or major amendments may be considered at any time upon the mutual consent of the City Council and Board of County Commissioners using the latest Annual Development Report and revisions to the data base as a guide to the need and appropriateness of such amendments.

13.6.3 Criteria for Inclusion

For including real property within the Urban Growth Boundary, the City Council and Board of County Commissioners shall base their conclusion upon and adopt findings in consideration of the following criteria, as relevant to each inclusion:

(a) The proposed inclusion meets applicable planning goals and guidelines of the State of Oregon.

(b) The proposed inclusions consistent with the goals and policies of the Comprehensive Plan.

(c) The applicant has demonstrated need to meet population growth requirement:

1. as defined by residential, commercial, industrial, public, and semi-public land requirements determined by the Comprehensive Plan, as best met by the proposal versus other available alternatives; or

2. as defined by a need to meet the land use requirements of a given area, sub-area or neighborhood of the Boundary, consistent with the Comprehensive Plan policies for that area, sub-area, or neighborhood.

(d) The applicant has demonstrated that the proposed inclusion recognized the development patterns endorsed by the Comprehensive Plan.

(e) The proposed inclusions are not agricultural lands supporting a commercial agricultural enterprise.

(f) The proposed inclusions are contiguous to the Urban Growth Boundary.

(g) The proposed inclusion can be provided with the full range of basic urban services in an economical manner.

(h) Allow for citizen review and comment.

(i) Allow for review and comment by affected governmental units and other agencies.

(j) If properties included within the Boundary, the zoning of the included property shall be consistent with the Comprehensive Plan Land Use Map for the Urban Growth Boundary.

13.6.4 Criteria for Exclusion:

For excluding real property from the Urban Growth Boundary previously included, the City Council and Board of County Commissioners shall base their conclusions upon, and adopt findings in consideration of, the following criteria, as relevant to each exclusion:

(a) The proposed exclusion is consistent with the Planning Goals and Guidelines of the State of Oregon.

(b) The proposed exclusion is consistent with the Goals and Policies of the Comprehensive Plan.

(c) The applicant has demonstrated that the need for residential, commercial, industrial, public and semi-public lands, as determined by the Comprehensive Plan, will not be significantly affected by the exclusion.

(d) The proposed exclusion is not partitioned or developed to urban levels. Urban levels are evidenced by partitioning or residential development of more than one dwelling unit per acre; by basic urban services of sanitary sewer and/or water systems available to the area; by developed industrial, commercial and institutional uses, or lands designated for those uses; and by the availability of sanitary sewer service or public water service to the area.

(e) The proposed exclusion is agricultural land capable of supporting a commercial agricultural enterprise.

(f) The proposed exclusion is contiguous to the Boundary, and will not leave islands within the Urban Growth Boundary; also, the exclusion area represents a reasonable geographical exclusion in shape, does not preclude services to other lands within the Urban Growth Boundary, and does not constitute a disruption to a neighborhood.

(g) The proposed exclusion cannot be provided with a full range of urban services in an economical manner.

(h) Allow for citizen review and comment.

(i) Allow for review and comment by affected governmental units and other

agencies.

(j) If property is excluded from the Boundary, the zoning of the excluded property shall be consistent with the County Comprehensive Plan Land Use Map, except that where sanitary sewer service and/or public water service is available to the property, the zoning of the excluded property shall be Suburban Residential. Urban level zones shall be contained within the Urban Growth Boundary.

13.6.5 Initiation of Revision:

(a) Revisions to the Urban Growth Boundary may be initiated by:

1. A petition submitted by property owners or their authorized agents.

2. The Planning Commission.

3. The City Council.

4. The Board of County Commissioners.

(b) Signed Petition shall included either:

A petition signed by all property owners requesting inclusion or exclusion, or a petition signed by property owners requesting inclusion or exclusion within a designated area shown on an assessors map, such that the signatures represent more than half the property owners of more than half the property with more than half the assessed value of the total property shown within the designated area.

13.6.6 Joint Review:

Inclusions or exclusions of real property to the Urban Growth Boundary shall be made jointly by the City Council and Board of County Commissioners. The procedure for joint review shall be as provided in Policy 13.8.

13.7 Urban Area Planning Commission

13.7.1 Urban Area Planning Commission.

A single Planning Commission, designated the "Urban Area Planning Commission", shall be appointed to serve the Grants Pass Urban Growth Boundary area, both inside and outside the City limits.

13.7.2 Appointment

(a) Joint Appointment. The Planning Commission shall consist of eight members, four appointed by the City Council and confirmed by the Board of County Commissioners, and four appointed by the Board of County Commissioners, and confirmed by the City Council.

(b) Profession or Business. Members appointed to the Urban Area Planning Commission shall qualify under the standards established in ORS Chapter 215 for appointment of County Planning Commissioners, and shall qualify under the standards established in ORS Chapter 227 for appointment of City Planning Commissioners.

(c) Residence. The members of the Urban Area Planning Commission shall reside or own property within the Urban Growth Boundary and be residents of Josephine County, and shall generally represent the four wards of the City of Grants Pass and their future expansion North of the Rogue River, and the three geographic areas South of the Rogue River: Fruitdale, Harbeck, and Redwood.

13.7.3 Staffing and Procedure.

(a) Staffing. The Urban Area Planning Commission shall be adequately staffed by both the City and County. The City shall be the administrative lead agency for the Urban Area Planning Commission and responsible for initiating the Commission agenda, established the time and place of Commission Meetings, and contacting Commissioners. Agendas for the Urban Area Planning Commission shall be established by the City Director of Community Development, with the consent of the County Planning Director, and the Chairman or Vice Chairman of the Urban Area Planning Commission.

(b) Administrative Procedure and Report Format. Administrative procedures and report format shall be established by a mutual agreement between the Director and the County Planning Director. Such procedures shall clearly establish between the City and County Planning staffs the lead staff responsibility for client contact, project analysis, staff reports, and presentation to the Urban Area Planning Commission and to the appropriate governing body.

(c) Applications and Fees. Applications for permits or hearing before the Urban Area Planning Commission shall be made at the City Planning office for proposals located within the incorporated limits of the City of Grants Pass and at the County Planning office for proposals located within the urbanizing area outside of the City limits. The Board of County Commissioners and the City Council shall adopt a uniform fee schedule which shall be designed to make the activities of the Urban Area Planning Commission as self-supporting as possible.

13.7.4 Review Authority.

(a) Within City limits, the Planning Commission shall have the authority:

1. to make a final decision on all land use matters requiring a Type III procedure.

2. to make recommendations to the City Council, designated on all land use matters requiring a Type IV procedure.

(b) Within the urbanizing area, outside Grants Pass City limits but inside the Urban Growth Boundary, the Planning Commission shall have the authority:

1.

2.

3.

4.

(c) Within the Urban Growth Boundary, the Planning Commission shall have the authority to hold hearings and make recommendations on amendments to the Comprehensive Plan Findings, Goals, Policies, Land Use Maps and Urban Growth Boundary to the City Council and Board of County Commissioners.

13.8 City/County Joint Review Procedure

13.8.1 Joint Review. Joint review as provided in this section by the City Council and Board of County Commissioners shall be required for amendment and revision to the following items:

(a) Comprehensive Plan Data Base.

(b) Com Plan Findings, Goals and Policies.

(c) Comp Plan Land Use Map.

(d) Urban Growth Boundary.

(e) Mutually adopted Service and Utility Plans.

13.8.2 Data Base Joint Review.

(a) All administrative revisions to the Data Base shall be summarized annually, and placed in both the City Manager's and the County Planning Department's annual Development Reports, together with implication for policy making that may result from the Data Base revisions, including proposed changes to the Comprehensive Plan and Development Code.

(b) Revisions to the Data Base occurring during the year prior to the Annual Development Report that are significant enough to warrant reconsideration of Comprehensive Plan and Development Code policies, requirements and maps shall be forwarded to the City Manager for City Council consideration and to the Board Chairman for Board of County Commissioners consideration.

(c) The City Council and Board of County Commissioners shall review all Data Base revisions in an administrative action at a public meeting, and shall determine at the time of such review whether to initiate an amendment to the Comprehensive Plan or the Development Code as a result of the revisions to the Data Base. The procedure for amendment action so initiated shall be as provided in this Element.

(d) Governing Body Review may be joint, or may be separate. In either case, the revisions to the Data Base must be found to be consistent by both Council and Board.

13.8.3 Finding/Goal/Policy, Land Use Map, UGB, Other Joint Review.

(a) Request for Review. when amending the Comprehensive Plan Findings, Goals, Policies and Land Use Map, the Urban Growth Boundary and jointly adopted service or utility plans, the jurisdiction initiating action shall notify the other jurisdiction at least 45 days prior to the initial hearing on the matter

before the Urban Area Planning Commission, Utility Commission or governing body, as appropriate.

(b) Reply and Comment. At least 10 days prior to the initial hearing, the noticed jurisdiction shall reply, as follows:

1. no comment.

2. comment, with request that the originating jurisdiction conclude the matter.

3. comment, with request for a joint hearing on the matter.

(c) Notice. Notice for the joint hearing shall be as provided in the ordinances of the initiating jurisdiction as follows:

1. For Council initiated items, as provided in the Development code, Section 2.060, Type IV Procedure.

2. For Board initiated items, as provided in the appropriate implementing ordinance.

(d) Hearing Procedure. Hearing procedure shall be as provided in the ordinances of the initiating jurisdiction as follows:

1. for Council initiated items, as provided in the Development Code, Section 9, Legislative Hearing Guidelines.

2. for Board initiated items, as provided in the Land Use Hearing Rules.

(e) Governing Body Review. Following recommendation by the Urban Area Planning Commission, and joint workshops and hearings as appropriate by the governing bodies, the Council and Board shall take joint action on the amendment, as follows:

1. Concur in the amendment action, which for Data Base inclusions, Land Use Map, Urban Growth Boundary, and Service and Utility Plan Maps shall mean identical material adopted by both jurisdictions, and for Data Base Supplemental Material, Findings, Goals, and Policies, and Service and Utility Plan Policies, shall mean consistent material adopted by both jurisdictions. Upon concurrence, the amendment shall go forward.

2. Do not concur and call for a rehearing within 45 days. Such rehearing shall be noticed and conducted as provided in Sections 13.8.3(c) and 13.8.3(d) above.

3. Do not concur, and call for a mediated resolution of the matter within 45 days. A mediator acceptable to both parties shall be named within 10 days, and the costs of mediation, if any, shall be shared equally by the Council and Board. The Urban Area Planning Commission may serve as mediator. The mediated proposal shall be presented jointly to Board and Council in a noticed public meeting as provided in Sections 13.8.3(c) and 13.8.3(d) above.

4. Should the governing bodies fail to concur, as defined in Section 13.8.3(e) (1), at the conclusion of the rehearing or upon presentation of the mediated proposal, the Amendment shall not go forward.

Type I Procedure

Objective decisions.

Little, if any, discretion required.

Because of minimal or no effect on others, public participation is provided simply by noticing nearby property owners and reviewing their submitted written testimony.

No public hearing held.

Director of Community Development, or his designee, takes action.

Appeal by Type III procedure.

Type II Procedure

Objective decisions.

Moderate discretion required.

Application of the standards may require knowing of some effect upon others.

Nearby property owners invited to respond to a tentative decision.

Director of Community Development holds meeting, takes action.

Lack of agreement escalates process to Type III procedure.

Type III Procedure

Complex or subjective decisions.

Discretion required. Delegated quasi-judicial actions required.

Possible significant effect on some persons or broad effect on a number of persons.

In addition to applicant, others affected are invited to hearing to present initial information.

Hearings Officer or Planning Commission holds public hearing, takes action.

Appeal by Type IV procedure.

Type IV Procedure

Complex or subjective decisions.

Great deal of discretion required. Quasi-judicial or legislative actions required.

Possible significant effect on some persons or broad effect on a number of persons.

In addition to applicant, others affected are invited to hearing to present initial information.

Planning Commission holds public hearing and makes recommendation, City Council or Board of County Commissioners, or both acting jointly, holds public hearing, takes action.

Appeal to LCDC or LUBA

14. DEFINITIONS

14.1 Park Types

Park types shall have the following definitions for purposes of planning and locations:

(a) Regional. Regional parks are those recreation facilities which place strong emphasis on a natural outdoor setting and customarily include facilities for picnicking, camping, river access, swimming and similar activities. They are usually parks to which people travel because of the natural beauty of the area or the special recreation opportunities afforded by the site. Regional parks may also be utilized as neighborhood parks by residents of the immediate area, and may contain highly developed areas of landscaping, play equipment, playfields and courts.

(b) Community. Community parks are relatively large facilities intended to serve all or a major portion or the urban community, and should include all those facilities found in smaller parks, in addition to providing recreation opportunities not included in smaller sites.

(c) Neighborhood. Neighborhood parks are smaller facilities distributed throughout the community so that all households are from 1/4 to ½ mile from the facility. Park size will depend on land availability, with 3 to 8 acres being the desired range. Neighborhood parks may also serve persons from outside the immediate neighborhood, and facilities may therefore include playgrounds, playfields, courts, picnic sites, play equipment, restrooms, walkways and parking. Where facilities are placed that will draw persons from outside the immediate neighborhood, extensive landscape and other buffering shall be provided, and weekend scheduling shall be kept within reasonable hours. No night lighting for team sports activities shall be provided.

(d) Special. Special park facilities are special purpose facilities whose site requirements and location differ with their function and history of development. The largest is the County Fairgrounds, a significant recreation resource for the area and region. Other special parks include the swim pools and community building, and small limited space parks often utilizing some natural feature.

Amendments to the Grants Pass Comprehensive Community Development Plan

Ordinance	Date	Description
4471	12/15/1982	Adopts Comprehensive Plan and supporting documents for Grants Pass and for the Urban Growth Boundary Area
4490	8/17/1983	Revises Policies and Land Use Map Designations, adopts additional elements, adopts Development Code, and repeals certain ordinances
4517	7/18/1984	Revises certain findings of the Comprehensive Plan as requested by the LCDC for Elements 11 and 13
4518	8/1/1984	Revises certain findings of the Comprehensive Plan as requested by the LCDC
4531	1/16/1985	Revises certain findings of the Comprehensive Plan as requested by the LCDC to comply with Goals 5, 10, 11 and 14
4536	3/4/1985	Revises Comprehensive Plan Goal 14, Urbanization, as requested by the State Land Conservation and Development Commission (LCDC).
4545	6/5/1985	Adopts the Master Parks Plan
4546	6/19/1985	Amends the location of the Urban Growth Boundary, revising findings and adding a Public Facilities Policy
4630	11/16/1988	Amends Element 13 related to retail sales in the Business Park land use designation
4682	10/12/1990	Amends Element 3: Adds the Rogue River to Scenic and Historic Areas
4689	12/19/1990	Amends Element 4 related to Air Quality Standards
4691	12/19/1990	Amends Element 9 pertaining to Day Care, Group Care, and Residential Care
4706	7/17/1991	Revises the Manufactured Housing District boundary
4710	8/7/1991	Amends Element 4 related to Water Resource Quality
4711	8/7/1991	Amends Element 4 related to Noise Standards
4719	1/8/1992	Adopts a Buildable Commercial and Industrial Land Inventory
4720	1/8/1992	Amends Element 4 related to Land Quality and Solid Waste Management Standards
4734	5/20/1992	Adopts a Public Facilities Plan
4747	10/7/1992	Amends Element 13 regarding Land Use Procedures
4787	2/16/1994	Amends Policies related to changes in the Development Code pertaining to Planning Commission Quorums, Appeals, Flood Hazard Standards, Disabled Person Parking, and Land divisions
4795	5/1/1994	Amends elements pertaining to Population, Economy, Housing, and Land Use
4917	12/3/1997	Adopts the Grants Pass Urban Area Master Transportation Plan, replacing Element 11 of the Comprehensive Plan

4919	1/11/1998	Adopts the Wetland Resource Plan as an addendum to Element 3
5125	6/5/2002	Amends Policies in Elements 3, 4, 5, 7 and 10 related to Stormwater Management and Open Space
5201	12/3/2003	Amends policies in Element 13 pertaining to the High Rise Density (HHR) designation and the Oak Park/Woodland Terrace/Sunset neighborhood
5202	12/3/2003	Amends policies in Element 13 pertaining to policies of the Harbeck residential subarea and the Williams Hwy neighborhood
5394	1/17/2007	Amends the database in Element 13 to include the Economic Opportunities Analysis prepared by Craig A. Stone & Associates dated October 2006 and revised January 2007 regarding the inventory of employment land
5432	2/20/2008	Repeals entire text in Element 6: Population, and replaces with new text adopted by City Council on 2/20/2008; Replaces Element 6 Polices with new text
5433	2/20/2008	Repeals entire text in Element 8: Economy, and replaces with new text adopted by City Council on 2/20/2008; Does not change the Economy Goal & Policies in the Polices section of the Comprehensive Plan; Repeals Ordinance 5394, Economic Opportunities Analysis, originally adopted as a supplement to the Comprehensive Plan on 1/17/2007

Comprehensive Plan Map & Zone Map Amendments

Ordinance	Date	Description
4471	12/15/1982	Adopts the Comprehensive Plan Map
4490	8/17/1983	Amends maps related to R-4 zoning designations for area between A Street and Wharton Dr., and on Burgess Street, 4th Street and "L" Street
4492	9/7/1983	Revises the titles only of land use designations and the corresponding Zone Map revisions for commercial, industrial, and reserve designations, combining C-3, C-4 and C-5 designations to one GC designation and removing those zoning boundaries from the map
4499	12/21/1983	Changes the boundaries of GC, General Commercial Zoning District, to include eight tax lots in their entirety near Fairview Ave.
4518	8/1/1984	Amends maps to correct discrepancies between the City and County land use maps in the unincorporated boundary area, as directed by the DLCD review of comp plan map adoption
4527	12/19/1984	Amends maps from IP to BP for TL 36-50-05-33 / 702
4546	6/19/1985	Amends the Urban Growth Boundary Map to exclude certain properties
4549	7/1/1985	Amends maps from HR & R-3 to BP on NW E St.
4630	11/16/1988	Amends maps from IP to BP for TL 36-05-05-33/702
4661	4/4/1990	Amends maps from MR/LR and R-1-6 to LR and R-1-12 for TL 36-5-18-21/300
4662	4/4/1990	Amends LR and R-18 boundary on maps for TL 36-5-7-14 / 400 to centerline of Gilbert Creek
4695	2/20/1991	Amends maps from MR & R-2 to HR & R-3 for property on NE D & Foothill blvd.
4696	3/6/1991	Amends maps from LR & R-1-12 to RTC-III for TL 36-6-24-41/100
4698	3/27/1991	Amends maps from HR & GC to RTC, and from R-3 & GC to RTC-II for certain properties located on the Rogue River
4716	10/16/1991	Amends maps from I to GC for TL 36-05-16-34/303
4717	11/20/1991	Amends maps from HR & R-3 to GC for TL 36-5-20-32/2100
4722	1/15/1992	Amends maps from LR & R-1-8 to MR & R-2 for TL 36-5-16-24-2000
4731	3/18/1992	Amends the HR & R-3 boundary on maps for TL 36-5-6-44/900 west of the centerline of Gilbert Creek
4750	11/4/1992	Amends maps to include an abandoned section of Foothill Blvd and property north of it into the GC zone boundary
4751	12/2/1992	Amends the boundary of the RTC and RTC-1 zone maps to include property bounded by the Rogue River on the north, East Park on the south, a residential development on the east and the Parkway Bridge on the west.
4754	1/6/1993	Amends maps from HR & R-3 to HRR & R-4 for certain properties on 3rd and F Streets
4767	5/5/1993	Conditionally amends maps from LR & UR to GC for property to be developed as an office building

4777	8/4/1993	Amends maps from HR & R4 to MR & R-2 for TL 36-6-13-40 / 3600 & 4001 on Lower River Road
4808	10/11/1994	Amends maps from LR & R-1-8 to MR & R-2 for a portion of TL 36-06-24-12 / 400
4809	10/5/1994	Amends maps from HR & R-3 to HRR & R-4 for property on NE D St. and Baker Dr.
4817	12/19/1994	Amends maps from I to BP for property at Mill St., M St., and the Grants Pass Parkway
4821	3/1/1995	Amends maps to include a property at the corner of Beacon Dr. and Spalding Ave. completely within the I zone.
4830	7/19/1995	Amends maps from HR & R-3 to HRR & R-4 for property on NW E St.
4834	9/6/1995	Amends maps from LR & R-1-8 to MR & R-2 for property off Balsam Rd.
4845	11/15/1995	Amends maps from LR & R-1-8 to MR & R-2 for property off Balsam Rd.
4846	12/6/1995	Amends maps from GC to BP for property located along Mill St.
4854	4/3/1996	Amends maps from I to GC for property on Spalding Ave.
4857	7/3/1996	Amends maps to MR & R-2 for property onWest Park St.
4864	9/18/1996	Amends maps to M-1 for property on Dowell Rd
4873	11/20/1996	Amends maps to MR & R-2 for property on Schutzwohl Ln.
4875	12/4/1996	Amends maps from I to R-3 for property on NW 'E' St.
4876	12/18/1996	Amends maps to GC for property on Allen Creek Road.
4878	1/15/1997	Amends maps from NC to MR, and NC to R-2 for property on NE Olive St.
4881	3/5/1997	Amends the Zone Map to create a medical overlay district.
4892	6/4/1997	Amends maps from MR & R-2 to GC for property on 7th & Evelyn Sts.
4901	8/6/1997	Amends maps from I to BP for properties near SE M, 10th & Mill Sts.
4913	11/5/1997	Amends maps from I to BP for property on SE M St.
4921	2/4/1998	Amends maps from HR to HRR & R-3 to R-4 at 602 NW Clarke St.
4931	3/18/1998	Amends maps from I to BP at 1470 SE 'M' St.
4940	6/17/1998	Amends maps from HR & R-3 to GC at 248 SE Euclid Street.
4953	12/2/1998	Amends maps from BP & LR to MR, and from BP & R-1-8 to R-2 for property on Foundry St.
4968	8/4/1999	Amends maps from IP to BP at 310 NW Morgan Ln.
4972	7/7/1999	Amends maps from HR & R-3 to I for property at 525 NW E St.
4977	8/4/1999	Amends maps to include property located at 1997 and 2001 NE D St. entirely within the R-3 zone
4978	8/4/1999	Amends maps from GC, MR and LR & GC, R-2 and R-1-12 to BP for properties located south of West Park Street and west of Ringuette St.

4990	11/3/1999	Amends maps from GC to I for a portion of two parcels located south of Spalding Ave.
4994	12/15/1999	Amends maps from HHR & R-4 to GC for two lots at 231 and 243 SW I St.
5009	4/19/2000	Amends maps from GC & C-3 to BP for properties at 1831, 1867 & 1935 Redwood Ave.
5011	5/3/2000	Amends maps from HR & R-3 to HHR & R-4 for properties on Ramsey and Nebraska Aves.
5032	12/6/2000	Amends maps from MR & R-1-6 to HRR & R-4 for a lot located at 714 NW 5th St.
5046	2/21/2001	Amends maps from BP to HR & R-3 for a lot located at 904 NW E St.
5048	3/21/2001	Amends maps from HR & GC to BP for a lot located at corner of SW G St. and Foundry St.
5074	9/5/2001	Amends maps from LR & R-1-6 to MR & R-2 for property located at 1114 Lincoln Rd.
5088	12/19/2001	Amends maps from HHR & R-4 to GC for a property located at 223 SE M St.
5102	2/20/2002	Amends maps from BP & M-1 to LR & r-1-8 for property located at 1137 Gladiola.
5120	5/15/2002	Amends maps from I to GC for property located at 1 Fire Mountain Way
5121	5/15/2002	Amends maps from MR & R-2 to GC for property located at 210 NE School St.
5124	6/5/2002	Amends maps from LR & R-1-8 to GC for property located at 2015 SW Bridge St.
5134	6/19/2002	Amends maps from HR & R-3 to HHR & R-4 for property located at 1859 Allen Creek Rd.
5139	7/3/2002	Amends maps from IP to BP for property located at 2318 NW Vine St.
5157	10/16/2002	Amends maps from MR & R-2 to GC for property located at 324 Redwood Hwy.
5171	2/5/2003	Amends maps from HR & R-3 to GC for property located at 1845, 1867 and 1889 Williams Hwy.
5181	7/2/2003	Amends maps from HR & R-3 to GC for property located at 840 Fruitdale Dr.
5191	9/17/2003	Amends maps from LR & R-1-12 to MR & R-2 for property located at 365 Short St.
5203	12/3/2003	Amends maps from LR & R-1-8 to HHR & R-4 for property located at 2024 & 2050 Williams Hwy and 815 West Harbeck Rd.
5204	12/3/2003	Amends maps from I to GC for property located at 168 NE Beacon Dr.
5210	1/21/2004	Amends maps from LR & R-1-12 to HHR & R-4, and entering into a development agreement for property located at 235 NW Scenic Dr., 105 & 251 NW Scenic Dr., and 2100 Scoville Rd.

5223	2/18/2004	Amends maps from BP & M-1, BPTO to GC for property located at 1597, 1589, 1631 Allen Creek Rd. and 835 Union Ave.
5235	5/19/2004	Amends maps from I to GC, and entering into development agreement #2004-1 for property located at 124 NE Beacon Dr.
5238	6/2/2004	Amends maps from BP, LR & BP, R-1-8 to HR & R-3 for property located at 1647, 1661, 1673, 1771 and 1785 SE N St.
5246	8/18/2004	Amends maps from GC to IP and IP to GC for property located at 1941 NW Washington Blvd and 1960 Vine St.
5255	10/6/2004	Amends maps from LR & R-1-8 to MR & R-2 for property located off Salmon Cir.
5272	2/2/2005	Amends maps from I to HR & R-3 for property located at NW F St.
5273	2/16/2005	Amends maps from LR & R-1-8 to MR & R-2 for property located at 2106 SW Bridge St.
5274	2/16/2005	Amends maps from LR & R-1-8 to MR & R-2 for two properties located on Lower River Rd. and Bridge St.
5277	3/2/2005	Amends maps from LR & R-1-8 to MR & R-2 for property located at 2194 Lower River Rd.
5291	5/18/2005	Amends maps from BP & M-1 to MR & R-2 for property located at 1350 Schutzwohl Ln.
5315	10/19/2005	Amends maps from LR & R-1-12 to MR & R-1-6 for property located at 1307 Bellevue Pl.
5354	5/17/2006	Amends the Comprehensive Plan Map from RTC to HR, LR to HR, and HR to MR, and amends the Zoning Map from RTC-1 to R-3, R-1-12 to R-3, and R-3 to R-2 for portions of property located at 900 East Park St and 1305 Parkdale Dr.
5365	7/5/2006	Amends maps from LR & R-1-8 to MR & R-2 for properties located at 2218, 2240 and 2260 Lower River Rd.
5386	12/6/2006	Amends maps from I to GC for property located at 525 NW F St.
5394	1/17/2007	Amends maps from I to LR & R-1-12 for a portion of the property located at 2944 Highland Ave.
5403	6/6/2007	Amends the Urban Growth Boundary to include approximately .68 acres of land plus adjacent right-of-way and establishes a City Comprehensive Plan Map designation of LR and Zoning Map designation of R-1-8 for the included land off Upper River Rd.