TRANSPORTATION SYSTEM PLAN

City of Hubbard

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EXECUTIVE SUMMARY

This document describes and implements a plan to provide an economical, safe, accessible, and multi-modal transportation system for the community of Hubbard, Oregon. The Transportation System Plan (TSP) satisfies state transportation planning requirements under the Oregon Transportation Planning Rule (TPR). The TPR, adopted in 1991, and amended in 1995, implements Statewide Planning Goal 12, to provide and encourage a safe, convenient and economic transportation system.

The Hubbard TSP was developed by a Transportation Advisory Committee (TAC) composed of interested citizens, elected and appointed city officials, and transportation planning specialists from state agencies and Marion County. Public involvement and inter-jurisdictional coordination occurred during all phases of TSP development and adoption. The TSP was developed in six steps: (1) Review existing plans, policies, standards, and laws; (2) Inventory the existing transportation system; (3) Identify current and future transportation needs; (4) Develop and evaluate alternatives; (5) Produce a draft TSP; and (6) Review, revise, and adopt the TSP.

The review of existing plans, policies, standards, and law included the Transportation Planning Rule (OAR 660-012), Hubbard Comprehensive Plan, Hubbard Development Code, Woodburn TSP, Marion County Rural TSP, various regional transportation plans and studies, and the Oregon Transportation Plan and supporting Oregon Department of Transportation (ODOT) modal plans.

The plan developed background information about the community which included a brief history of the city, overview of natural and cultural resources, existing and future population, existing and future land uses and housing, existing and future employment patterns and local economy, and information about transportation patterns in 1990. After area dedicated for use as public right-of-ways is removed, land area inside the UGB is 363 acres. The city, and its transportation system, is segmented by the north-south trending railroad, Highway 99E, and Mill Creek. Hubbard was the 10th largest of the 19 cities in Marion County in 1990. Estimated population in 1998 was 2,210 and Marion County projected that 3,105 people will reside in the city by 2020.

In general, Hubbard's natural and cultural resources, or natural hazards and limitations present slight to moderate development limitations to the transportation system. The most common soil poses moderate development limitations to streets and roads due to high seasonal water tables, slow permeability, and low stability; and poor storm water drainage was identified by the city as a concern. Numerous structures with potential historical significance exist in the older central city, but more information about these resources is needed. Most natural resources and hazards/limitations are located along Mill and Little Bear Creeks and are: steeper slopes, soils with severe development limitations, floodplain, and riparian and wetland areas. Species threatened or endangered with extinction are not known to exist in Hubbard, but would be most likely to occur near the creeks. Hubbard

Mineral Springs is located along Mill Creek in the northwest part of the city. Hubbard's community centers were identified and the lack of parks located east of Hwy. 99E, no schools inside the UGB, the post office on G Street, and the market and bank at the intersection of D and Hwy. 99E had important transportation-related effects.

The 1999 Comprehensive Plan indicated the following future distribution of land uses: 48% residential, 27% industrial, 18% commercial, and 7% public/semi-public. The city anticipates that 307 new dwelling units will be needed by 2020. Most undeveloped land is located around the periphery of the community with the largest areas located in the north and southeast parts of the community. Hubbard designated a commercial center located west of Hwy. 99E in the approximate center of the city and continues to support industrial development in southeast Hubbard.

In 1990, the Hubbard workforce was 823 people and they worked mainly in the retail trade and manufacture of durable and non-durable goods industries. The largest employers employed between 100 and 249 people and were located in the south part of the city. Most of the workforce traveled alone to work in an automobile (80%) and about 67% of the workforce had a commute time between 30 and 60 minutes.

The TSP was composed of roadway, rail freight and rail passenger, bikeway, pedestrian, and public transportation elements. Each element included a discussion of TPR requirements; definitions of facilities and services; recommended standards for facilities and services; inventories of the type and condition of facilities and services; existing and future needs; and plans, maps, and policies.

The main points in the roadway facility plan were to: (1) Subdivide arterial functional classification into major and minor categories; (2) Identify maintenance of existing streets with poor to fair pavement conditions as top priority; (3) Extend existing arterial/collector streets and construct new collector streets to develop a street network that protects and improves local and regional travel options; (4) Look for access management opportunities along Hwy. 99 to improve safety, reduce congestion, and promote inter-business circulation; (5) Apply to ODOT to open J Street at-grade crossing of railroad and improve intersection with Hwy. 99E; (6) Add continuous left turn lane to Hwy. 99E north of signal and make other capacity/safety improvements as needed; (7) Improve intersection safety along 3rd St.; (8) Realign the intersection of D St. and Hwy. 99E; (9) Add a truck route; (10) Revise street design standards; and (11) Update goals and policies.

The main points of the rail freight and rail passenger plan were: apply to ODOT to open the closed J St. at-grade crossing and make the other needed safety and capacity improvements to the street and key intersections; evaluate local travel to and from the post office for daily mail pick up to assess the traffic impact on the protected at-grade crossings, work with ODOT and railroad on measures to mitigate the sound and visual impacts of rail traffic; and update goals and policies.

The main points of the bikeway plan were: include bikelanes when the major and minor arterials, 5th St., A St. and parts of G St. are improved; require new collectors and arterials to include bikelanes; designate other bikeway facilities for remaining collector streets, plan for a multi-use path along Mill Creek with potential connections to Woodburn or N. Marion Schools; plan for bikelanes along existing roads to N. Marion Schools; and update goals and policies.

The main features of the pedestrian facilities plan were to meet Hubbard's sidewalk needs by prioritizing construction of new sidewalks, and improvement of existing sidewalks, to arterial and collector streets, the Commercial Center, and Riveness Park. Goals and policies were also reviewed and revised.

The public transportation plan identified the following projects: two bus pull-outs along Hwy. 99E in the north and south parts of town; a safe and convenient transit stop at Riveness Park; two park-and-ride facilities located in Commercial Center and industrial area; and updated goals and policies. The transit facility at Riveness Park will be coordinated with the North Marion County Service, a new public transportation service provided by "Wheels" that began operating in Hubbard in the spring of 1999. The public transportation element included a detailed inventory of the existing services and connections in Hubbard and Woodburn.

The TSP concludes with a schedule and cost estimate for the proposed improvements in the each element of the transportation plan, and potential funding mechanisms available at the local, state, and federal level. Projects are prioritized and scheduled over 0-5 year, 5-10 year, and 10-20 year intervals. The Plan identified $10,235,104 of projects on city, County, and ODOT facilities during the next 20 years.

TSP appendixes include definitions and acronyms used in the document; public input and TAC meeting minutes; a detailed inventory of streets, sidewalks, and existing accesses along Hwy. 99E; a review of required, transportation-related land use regulations and recommended changes to Hubbard code; street design standard drawings, and written review comments.

The TSP was implemented by a review and coordination process that included city staff, Marion County, ODOT, and the Department of Land Development and Conservation. The Hubbard Development Code was reviewed for consistency with the standards set forth in the TSP and was revised to implement the TSP. The TSP and code revisions were reviewed by the Hubbard Planning Commission and City Council in work sessions in June and adopted by resolution on June 29, 1999.

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INTRODUCTION

Overview of Transportation System Plans

This document presents the Transportation System Plan (TSP) for Hubbard, Oregon. The purpose of a TSP is to identify a system of transportation facilities and services that will provide for local transportation needs and meet state and federal transportation planning requirements. A successful plan will contribute to an efficient travel infrastructure, clean air, multiple travel options, and economical and timely travel for the community of Hubbard. Explanations of terms and acronyms commonly used in transportation planning are included in Appendix A.

Transportation System Plans are required by federal and state legislation. The Intermodal Surface Transportation Efficiency Act (ISTEA), passed by Congress in 1991, was replaced by the Transportation Equity Act for the 21st Century (TEA-21). TEA-21 increased federal funding for surface transportation, and continued most of the planning requirements and projects established by ISTEA (ODOT, 1999). Oregon passed the Transportation Planning Rule (TPR) (OAR 660 Division 12) in 1991 and revised it in 1995. The TPR guides regional and local transportation planning for Land Conservation and Development Commission (LCDC) Goal 12 - Transportation.

The State's TSP consists of the Oregon Transportation Plan, adopted in 1992, and supporting modal/topic and facility plans:

- Aviation System,
- Bicycle/Pedestrian,
- Highway,
- Public Transportation,
- Rail Freight,
- Rail Passenger
- Transportation Safety Action, and
- Willamette Valley Strategy.

The TPR also requires that counties, cities, and metropolitan planning organizations (MPO's) prepare TSP's that are consistent with state plans and other relevant plans.

The TPR establishes different requirements for TSPs depending on the population, transportation needs, and location of each jurisdiction. Hubbard is required to include the following components in its TSP:

- A road plan for a network of arterial and collector streets;
- A public transportation plan;
- A bicycle and pedestrian plan;
- An air, rail, water, and pipeline plan;
- Policies and land use regulations implementing the plan; and

- Financing program.

A checklist, detailing the requirements for the Hubbard's TSP is included in Appendix F.

The Hubbard TSP was coordinated with the Marion County Rural Transportation System Plan (RTSP), the Marion and Polk Counties Regional Transportation Enhancement Plan, and the Oregon Transportation Plan. Hubbard also reviewed the Woodburn TSP because the cities are located within one mile of each other, and share facilities and certain issues.

The key achievements of the Hubbard TSP are:

- Public and interagency involvement;
- Plan's internal consistency and consistency with state and regional plans;
- Network of streets;
- Transportation accessibility;
- Safety;
- Safe and convenient walking and bicycling;
- Minimizing adverse economic, social, environmental (ESEE) consequences;
- Intermodal linkage and passenger services coordination;
- Minimizing conflicts between modes;
- Fundable plan; and
- Implementing ordinances.

A determination was also made regarding the TSP requirements and the Clean Air Act. Ambient air quality is monitored by the Oregon Department of Environmental Quality (DEQ) by a statewide air quality surveillance network. Air Pollution Index (API) values, based on the monitoring information, are calculated for Portland, Salem, Eugene, Medford, and Bend. The monitoring station closest to Hubbard is located in Salem. This station continuously monitors for carbon monoxide, ozone, and particulate levels. Lead samples have also been obtained in Salem. Ambient air quality is related to the amount and types of discharged pollutants and meteorological events (DEQ, 1994).

Available data from the Salem station indicates that air quality is generally good (DEQ, 1996). DEQ monitoring records indicate that air quality standards in Salem were not exceeded for ozone, fine particulate matter, or lead; but were exceeded for carbon monoxide twice, in 1991 and 1993. Presently, there is no air quality data for the Hubbard, and the city is assumed to be in conformance with air quality standards, therefore the requirement to demonstrate compliance with the Clean Air Act in the TSP has not been triggered.

Due to its size (<25,000 people) and location (not part of a Metropolitan Planning Organization area), Hubbard is not required to include a Transportation System Demand and Management Element in their TSP. Hubbard is supportive of public transportation services and facilities (rideshare facilities and regional demand management programs) that would reduce commuter traffic and promote carpooling programs at large employers.

Public Involvement and Interagency Coordination

The Hubbard TSP was developed cooperatively with a Transportation Advisory Committee (TAC) made up of city staff, appointed and elected city officials, interested citizens, Oregon Department of Transportation (ODOT), and Department of Land Conservation and Development (DLCD) representatives (Appendix B). Interagency coordination included review of other transportation planning documents and these are shown in Figure 1. The TAC met about every other month during some phases of the process and two Open Houses were held in order to solicit public input. TAC meeting minutes and information summaries of Open Houses are included in Appendix B. A survey (Appendix B) was also distributed to Hubbard residents with their August, 1998, water bill to gain additional insight into the community's concerns and goals regarding transportation issues.

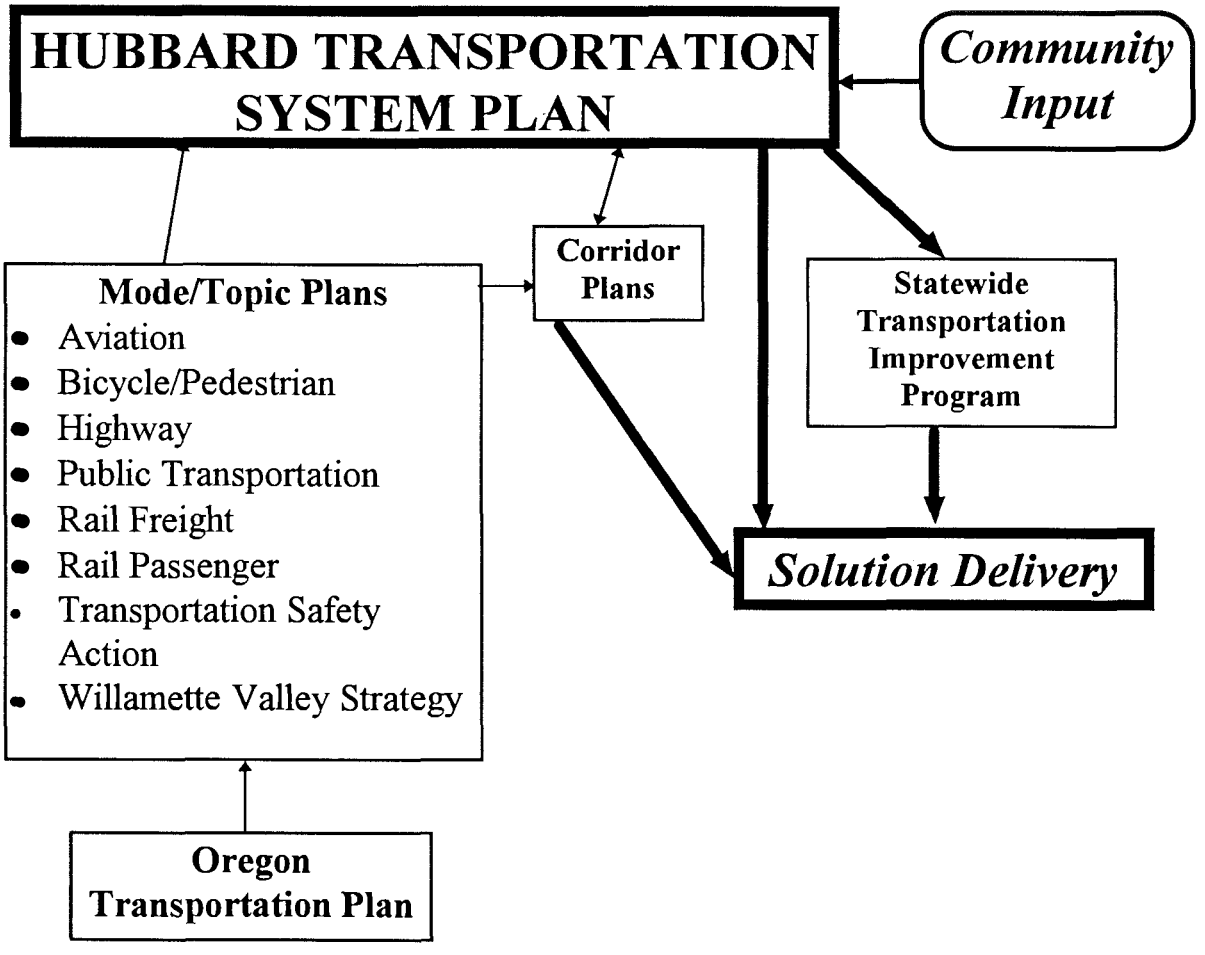


Figure 1. Integrated Transportation Planning

(adapted from ODOT, 1998)

Development and Evaluation of Transportation Alternatives

Hubbard is a small community with a relatively simple transportation system. Two simple alternatives were considered in developing the plan for each system element: (1) no-action, and (2) system improvement.

No-Action Alternative

This alternative envisioned no changes to existing transportation goals and policies, roadway functional classification, and roadway design standards. Local roads would be built as development occurs and the existing ordinances and standards would apply. Roadway maintenance and improvement projects would occur as needed in the community. Bikeway, walkway, and public transportation needs would be guided by existing language in the Comprehensive Plans and City Code.

System Improvement Alternative

The system improvement alternative envisioned meeting transportation system needs by formulating an overall plan to implement as growth and funding allows. This alternative included long-term incremental improvements and expansion of all facets of the existing system. Hubbard would coordinate with Woodburn, when possible, on some elements, e.g. public transportation, consistent functional classification and design standards for streets.

The choice between these alternatives used Hubbard's existing transportation goal as a criteria.: "Which alternative will best provide for and encourage a safe, convenient, and economic transportation system for the community?"

The no-action alternative was deemed unacceptable because it failed to provide a safe, convenient, and economic transportation system. Hubbard, and the Willamette Valley, will grow substantially during the next twenty years and a piecemeal approach to transportation system planning and expansion will not result in the integrated network the community needs. It is crucial the Hubbard develop collector and minor arterial routes that provide alternatives for local and cross-town traffic, and alternatives to Hwy. 99E. Access management and other actions are needed to improve conditions on Hwy. 99E and will require coordination with ODOT. Minimizing conflict between the railroad and adjacent land uses and other transportation modes will also be better accommodated by the system improvement alternative.

The system improvement alternative developed for each element was based on:

- Background information,
- TAC members' familiarity with the current transportation system,
- Results of the public survey,
- Funding limitations, and
- Minimum requirements established by the TPR.

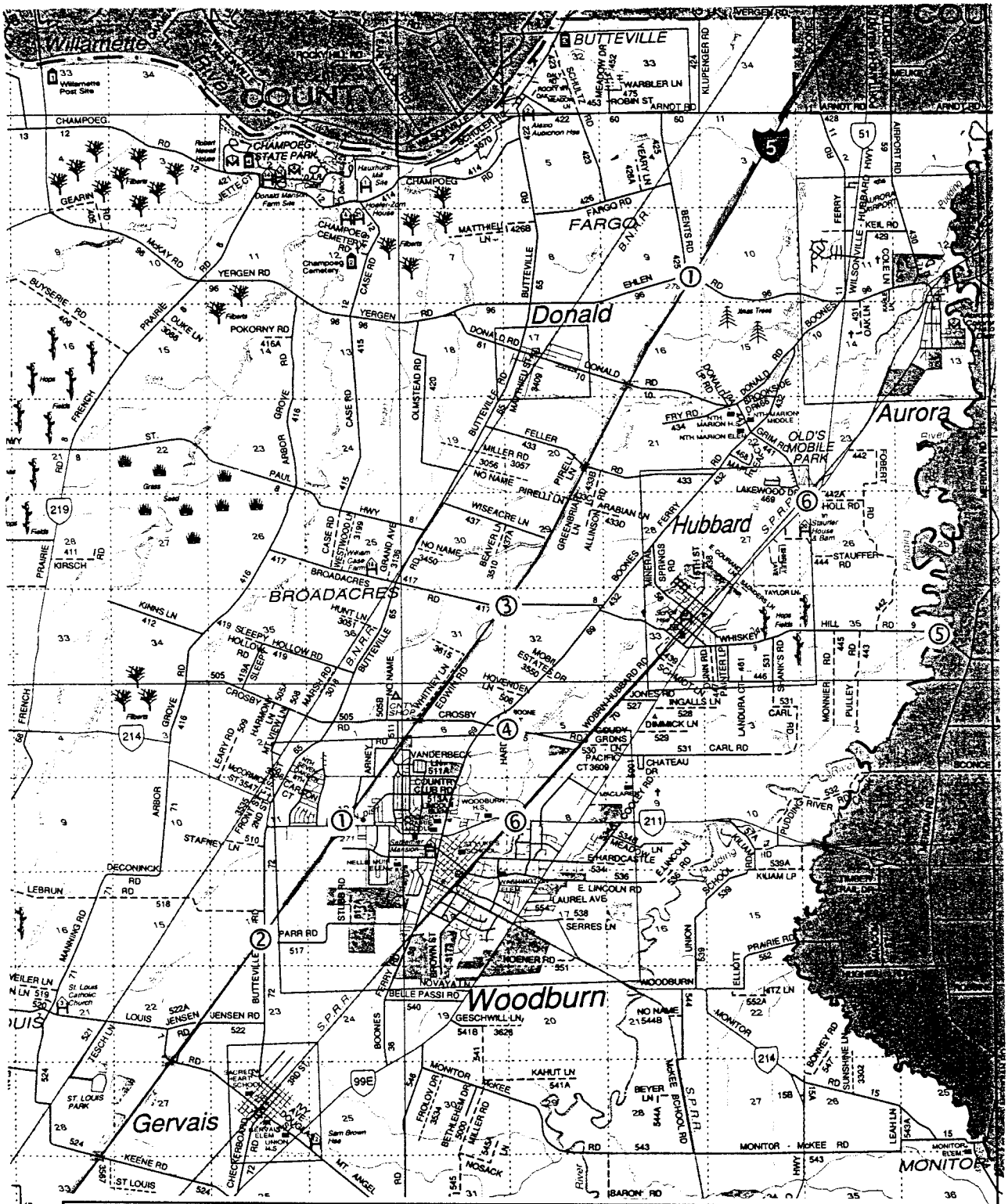


Figure 2. North Marion County Map

Legend:

1-Closest I-5 interchanges 2- Possible interchange at Buttevillle Rd* 3-Possible interchange at Broadacres Rd.* 4- Crosby Road 5-New bridge over Pudding R. 6-At-grade RR crossing closest to Hubbard

**These overpasses have been suggested for consideration as new interchanges in previous transportation planning projects.*

BACKGROUND INFORMATION

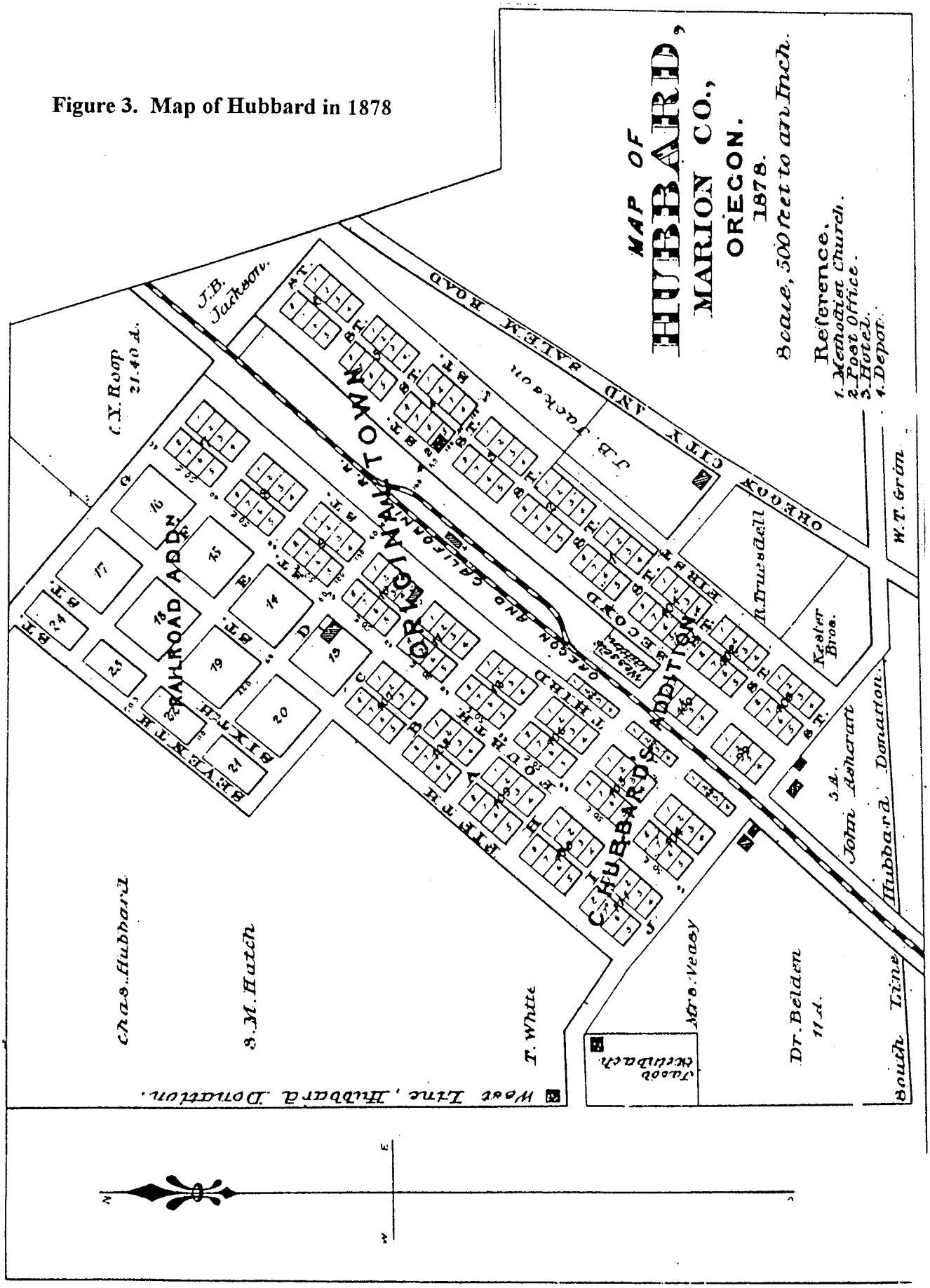
Hubbard

Hubbard is located in the north central part of the Willamette Valley, a broad lowland area lying between the Coast Range and Cascade Mountains in western Oregon. The majority of Oregon population (70%) and industry is clustered into this region of the state. Population estimates (1998) indicated that about 2,210 people reside in Hubbard and the community grew by an estimated 17 percent between 1990 and 1997 (PSU, 1998). Hubbard was ranked 10th of 19 cities in Marion County in terms of population. Hubbard lies less than one mile north of Woodburn, the third-largest city in the County. Hubbard is located about 20 miles north of Salem, the largest city in Marion County and the state capitol (126,635 people), and 28 miles south of Portland, the largest city in Oregon (509,610 people). (Figure 2).

Hubbard is one of the many small towns in the Willamette Valley that sprang up along the railroads built in the late 1860s and 1870s. The city is named after Charles Hubbard who donated 10 acres of his Donation Land Claim to the Oregon-California Railroad in 1871 for a train station and townsite. The first platted streets ran parallel and perpendicular to the railroad. The east side of the city was near the Oregon City and Salem Road (Figure 3). Hubbard was incorporated in 1891.

The surrounding diverse and productive agriculture has been the traditional mainstay of Hubbard's economy. Berries, walnuts, filberts, apples, pears, prunes, cherries, produce, grain, hay, hops, grass seed, and nursery stock have all been grown on the area's fertile soils. The Hubbard Mineral Springs were developed as a health spa and picnic area that prospered into the 1950s. Hubbard has had a small commercial core in the center of town along Hwy. 99E and the railroad, and an industrial area in the southeast portion of the city.

Figure 3. Map of Hubbard in 1878



The major highway and railroad transportation facilities running through the Willamette Valley are located next to, or near, Hubbard (Figure 2). The Union Pacific Railroad, originally the Oregon and California Railroad (Figure 3), runs through the center of Hubbard. State Highway 99E, oriented northeast-southwest, lies in the eastern third of Hubbard. Hubbard's nearest neighbors on this original down-valley route are Woodburn, located 0.8 mile to the south, and Aurora, located 3.3 miles to the north (Figure 2). Salem, Canby, Oregon City, and Portland are also located on this highway. Interstate Freeway 5 (I-5) is located 1.5 miles west of Hubbard and the Burlington Northern Railroad lies 1.2 miles west of I-5. From Hubbard, the closest accesses to I-5 are in Woodburn (4 miles distance) and west of Aurora (7 miles distance). Broadacres and Whiskey Hill Roads, once directly linked by J Street in Hubbard, form the longest, most direct, east-west route through Hubbard. Broadacres Road crosses both railroads and the freeway and connects to St. Paul and Newberg, via Highway 219. Whiskey Hill Road crosses the Pudding River (about 2.25 miles east of Hubbard), enters Clackamas County and connects to State Highway 213 north of Molalla.

The railroad and Hwy. 99E cut Hubbard into three sections and limit east-west travel through the community relative to north-south travel. Mill Creek on the west edge of the city provides another barrier oriented parallel to the railroad and highway.

Existing and Future Population

Existing Population

Census information (1990) is used to characterize the population of Hubbard and compare it to the neighboring city of Woodburn and Marion County. The census data is ten years old, but is the only demographic information available for Hubbard.

TABLE 1. SELECTED INFORMATION FROM 1990 CENSUS

	Hubbard	Woodburn	Marion County
Population	1,838 (1% of county)	13,404 (6% of county)	228,483 (cities & rural areas)
Number of Households	625	4,810	83,721
Average Household Size	2.9	2.8	2.7
Total Housing Units	635	4,922	86,869
Owner Occupied Units	468 74% of total housing units	3,263 66% of total housing units	52,510 60% of total housing units
Renter Occupied Units	155	1,524	30,984
People Living in Group Quarters (dormitories, nursing homes, correctional facilities, shelters, etc.)	10 (1% of city pop.)	489 (4% of city pop.)	11,251 (5% of population)
Median Family Income	$26,809	$25,389	$31,415
Median Gross Rent	$412	$402	$401
Enrollment in Elementary or High School	386 (21% of city pop.)	2,407 (18% of city pop.)	42,793 (19% of total county population)
Enrollment in College	65 (4% of city pop.)	516 (4% of city pop.)	14,918 (7% of total county population)
People over 60 years of age	259 (14% of city pop.)	4,033 (30% of city pop.)	41,787 (18% of county pop.)
Work Force Older than 16 Years	823 (45% of city pop.)	4,698 (35% of city pop.)	99,670 (44% of total county population)
Non-white Race Population	273 (15% of city pop.)	2,763 (21% of city pop.)	19,363 (8% of county pop.)
Hispanic Origin Population	353 (19% of city pop.)	4,226 (32% of city pop.)	17,447 (8% of county pop.)

In 1990, about 1 percent of the total Marion County population lived in Hubbard and the closest urban area, Woodburn, was 7 times larger than Hubbard. Average household size was 2.9 people which was similar to the Woodburn and Marion County size. A smaller percentage of the Hubbard population lived in group quarters (1 percent) when compared to Woodburn (4 percent) and Marion County (5 percent). The median family income in Hubbard ($26,809) was lower than the County, but higher than Woodburn. Hubbard

ranked 11th of 19 when comparing median family income to other urban areas in Marion County. About 21 percent of the Hubbard population is enrolled in public or private elementary and high schools, which is similar to the situation in Woodburn and the whole county. The percent of the population in Hubbard 60 years and older is 14% which is lower than the County (18 percent) much lower than Woodburn (30 percent). About 45 percent of Hubbard is in the workforce and this percent is similar to the County (44 percent) but less than Woodburn (35 percent). The communities of Hubbard and Woodburn are culturally and racially more diverse than Marion County. About 1/5 and 1/3 of the people living in Hubbard and Woodburn, respectively, are of Hispanic origin.

Population Forecast

The city recently updated the urbanization element of the *Hubbard Comprehensive Plan* (updated January 12, 1999). The urbanization element addressed economic development, housing, and urbanization; and began by developing population projections and land needs for a 20-year period. This information was consulted for population projections for the 20-year planning period covered in the TSP. The city is required to coordinate with Marion County on population projection. The County used an average annual growth rate of 1.5 percent for Hubbard which translates into a city population of 3,105 in 2020. This represents an increase of 1,267 people when compared to the 1990 census population, and 895 people when compared to the 1997 population estimate.

Existing and Future Land Uses and Housing

Existing Land Uses and Housing

In 1998, the city began an evaluation of the current comprehensive land use plan with an inventory of existing land uses. After area dedicated for use as public right-of-ways is removed, land area inside Hubbard city limits is 307 acres and land area inside the Urban Growth Boundary is 363 acres. Figure 4 shows that the four most prevalent current land uses inside the Hubbard UGB were single-family residential (36%), vacant (17%), industrial (12%), and agricultural (12%).

The 1990 Census indicated that Hubbard had a total of 635 housing units and most of these were two and three bedroom homes. About 70 percent of the homes were constructed in the 1970s and 1980s. From 1989 through 1997 the following housing permits were issued in Hubbard: single-family-43, duplex-1, and multifamily-4. The 1998 land use inventory identified the following numbers of housing types and densities:

- Low-density residential: 405 units on 92.7 acres for an average density of 4.4 units per acre,
- Medium-density residential: 83 units on 9.9 acres for an average density of 9.4 units per acres,
- High-density residential: 208 units on 26.21 acres for an average density of 7.9 units per acre, and
- Commercial with residential: 66 units on 12.2 acres for an average density of 5.4 units per acre.

The distribution of housing types did not meet the recommended housing mix of 75% single family and 25% multifamily.

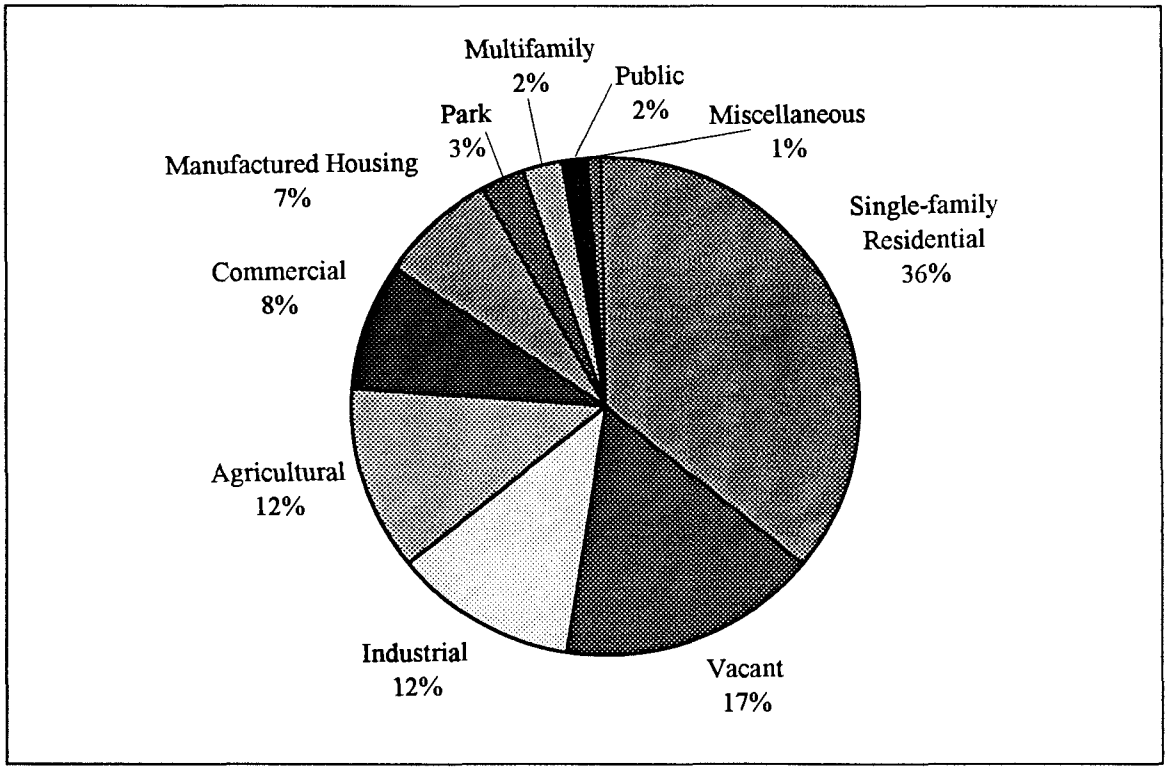


Figure 4. Inventory of Existing Land Uses in 1998

Future Land Uses and Housing

The city used the land use inventory, the previous comprehensive land use plan (Hubbard, 1977), current and recommended housing mixes, and population projections to estimate urban land needs during the 1997-2020 planning interval and adopt a new comprehensive land use plan to meet these needs. The comprehensive land use plan designated six

categories of land use inside the Hubbard UGB and the distribution is summarized in Table 2 and shown in Figure 5.

TABLE 2. 1999 COMPREHENSIVE LAND USE PLAN DESIGNATIONS

Zoning Category	Acres	Percent of UGB
Low Density Residential	119.68	33
Medium Density Residential	29.37	8
High Density Residential	26.58	7
TOTAL RESIDENTIAL	175.63	48
COMMERCIAL	64.2	18
INDUSTRIAL	100.32	27
PUBLIC/SEMI-PUBLIC	25.73	7

The maximum dwelling units per gross acre for each type of residential category is as follows:

Low density- 6,

- Medium density- 8, and
- High density-12.

Commercial use includes all activities of a commercial nature and industrial use includes manufacturing, warehousing, and wholesaling activities, but limits manufacturing to light industrial types.

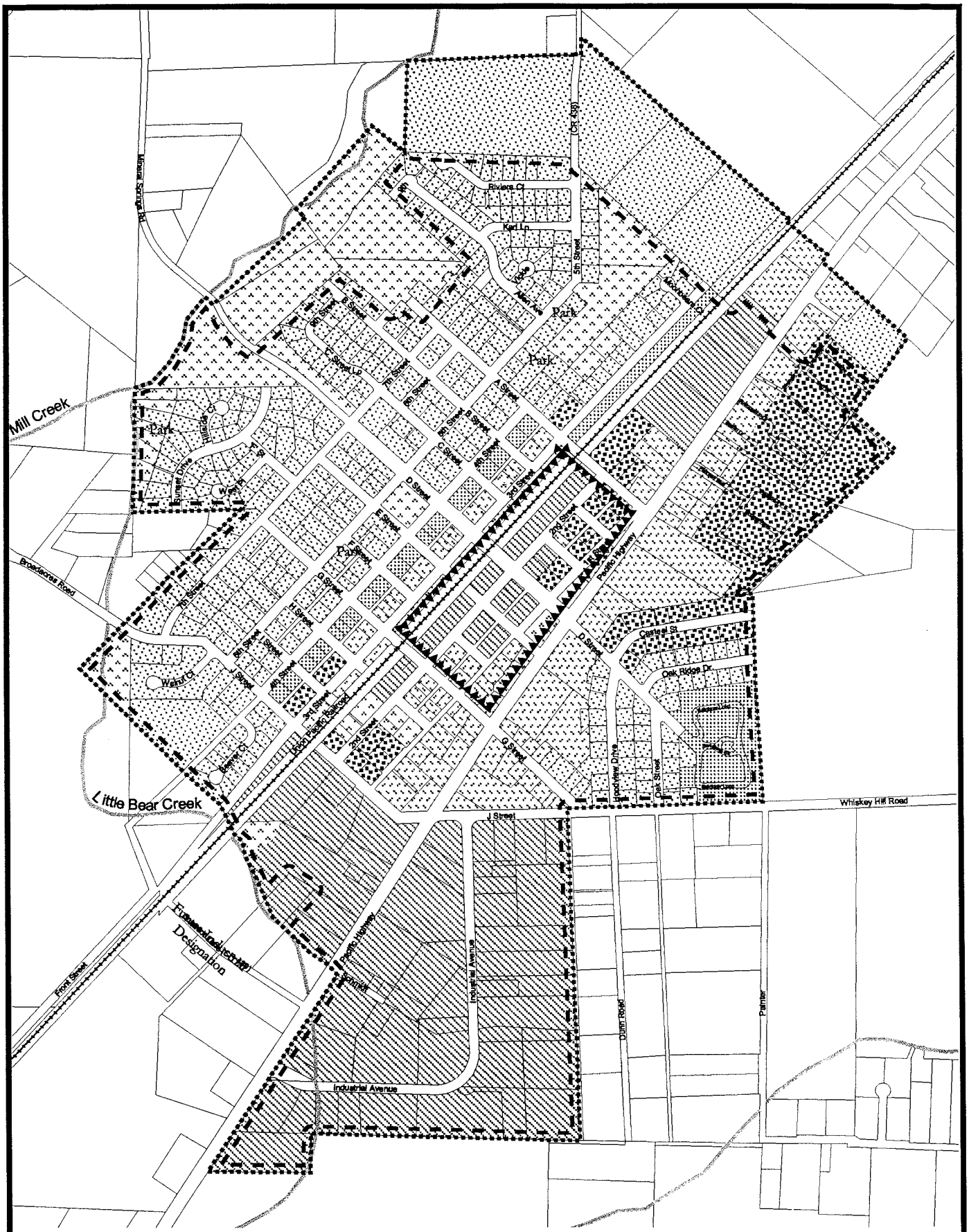
Based on population projections and people per household in the 1990 Census (2.92), the city will need 307 dwelling units by 2020. Following the recommended mix of housing types and minimum lot size, 230 units on 37 acres need to be single-family residential, and 77 units on 12.4 acres need to be multifamily residential. Hubbard calculated that it had adequate land to meet single-family housing needs, but not enough land to meet multifamily housing needs. To address this need the city will require new residential developments to reserve 20 percent of the lots for duplexes. The city also rezoned some lands in northeast and southeast Hubbard from single-family residential (manufactured housing parks) to medium and high density residential.

About 55.43 acres of vacant land designated for low-density residential use is located within the UGB (Figure 5). This land is mainly located in northwest Hubbard. Another large property, also located in northwest Hubbard and currently reserved for a school, may become available for low-density residential use. About 2.82 acres of vacant lands designated for medium- and high-density residential use are located in east and central Hubbard.

Commercial and industrial land needs were evaluated based on population projections, zoning, and land availability. Land needed for commercial use was estimated to be a minimum of 8.1 acres. Land needed for industrial use was estimated to be a minimum of 35.8 acres. About 7.1 acres of vacant commercial land is located inside the UGB, almost meeting the city's anticipated needs, but only 24.51 acres of vacant industrial land is located inside the UGB, leaving the city with a deficit of at least 11.3 acres. The city plans

on exploring options outside the UGB to meet the need for industrial land and has identified land adjacent to the existing industrial lands in the southern portion of the city (north of Schmidt Lane between the railroad and Hwy. 99E). The city designated the area between A and G Streets and Highway 99E and 3rd Street as a commercial center (Figure 5).

Lands for public use are estimated to fall short of the need by at least 9 acres. There are no lands available for parks inside the UGB at this time and the city designated the flood-prone, steeper lands adjacent to Mill Creek as public use to maintain their current function as part of the public storm drain system and natural riparian corridor. Hubbard also recognizes a need to distribute parks and open space throughout the city and plans to develop parks on the east side of Hwy. 99E.



Title:
Figure 5. Hubbard Comprehensive Plan Map

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	January 12, 1998	1

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Hubbard Comp Plan Map 8.5x11 Portrait--Rev 1

The city also updated land use policies in each zoning category and those policies relevant to the TSP are listed below:

1. Residential
   - 1.1. Multi-family units should be located close to shopping facilities and arterial or collector streets and interspersed with single-family residential when new subdivisions are developed
2. Commercial
   - 2.1. The 99E business area should be coordinated development that will add to the charm and beauty of the city. Highway 99E is the first thing a visitor see when entering the city, so businesses along 99E should reflect the character of the community.
   - 2.2. Corridor or strip commercial development shall be discouraged.
   - 2.3. Cluster type development at major intersections and a commercial center between "A" and "G" Streets and Highway 99E and 3rd Street will be encouraged.
   - 2.4. Commercial centers should be oriented toward pedestrian users, with adequate off-street parking provided.
   - 2.5. A mix of commercial activities with accessory or second-story uses is encouraged between Hwy. 99E and the railroad right-of-way
   - 2.6. The mixing of uses in the commercial area will provide a means of access to transportation, housing, ands shopping to those persons who need to locate near the various facilities.
   - 2.7. The city encourages the continuation of business within the city limits along the Hwy. 99E corridor. In planning for a commercial core, the city may be able to create secondary access or internal circulation between the businesses. The effect will widen the area east and west, hopefully, and eliminate some of the negative impacts of strip development
   - 2.8. The city supports maintaining existing businesses and encouraging a variety of new business activities to locate in the city.
3. Industrial
   - 3.1. Continue the development of an Industrial Park adequately served by city services and highway access as a way to increase and broaden employment opportunities for area residents and service-related activities.
   - 3.2. Explore the potential for an urban growth boundary expansion to increase the land for industrial development.
4. Public and semi-public
   - 4.1. Encourage the development of Mineral Springs as a County or State Park
   - 4.2. Make an effort to secure a grade school within the city limits of Hubbard.
   - 4.3. Require adequate park, open space and right-of-way in residential and commercial development with increased emphasis on land east of Highway 99E.
   - 4.4. Encourage the preservation of a Mill Creek corridor to maintain the buffer along the creek, to allow an area for storm water management, and maintain the benefits of the vegetative riparian habitat.

Existing and Future Employment and Economic Development

Existing Employment Patterns and Businesses

In 1990, Hubbard had a total work force of 823 people employed in many types of industries (Figure 6). The top three industries were (1) Retail Trade, 19%; (2) Manufacturing durable goods, 17%; (3) Manufacturing non-durable goods, 10%. Educational services, other services, wholesale trade, and agricultural/fishing/forestry, each employed 7% of the workforce. The distribution of the Hubbard workforce by industry is similar to the Marion County and Woodburn workforce. Hubbard has proportionally more workers in the manufacture of durable and non-durable goods, and proportionally fewer workers in health services and public administration, than Marion County.

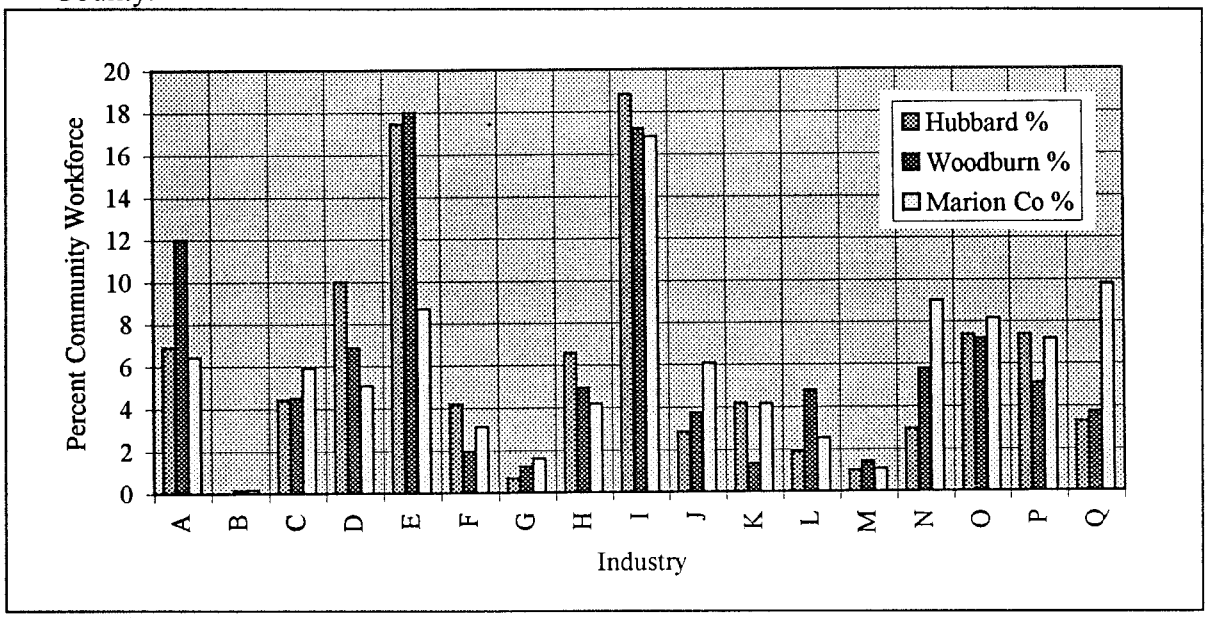


Figure 6. Distribution of Workforce by Industry

A- Agriculture, Forestry, Farming; **B-**Mining; **C-** Construction; **D-** Manufacturing non-durable goods; **E-** Manufacturing durable goods; **F-** Transportation; **G-** Communications & Public Utilities; **H-** Wholesale Trade; **I-** Retail Trade; **J-** Finance, **K-** Insurance, Real Estate; Business & Repair Services; **L-** Personal Services, **M-** Entertainment, Recreational, Professional; **N-** Health Services; **O-** Educational Services; **P-** Other Services; **Q-** Public Administration

When comparing the distribution of the Hubbard workforce by occupation to Woodburn and Marion County (Figure 7), the following differences emerge:

- Percent of Hubbard workforce employed as operators, fabricators, and laborers is almost double that of the County, and
- Percent of Hubbard workforce employed as professional, technical, sales, and administrative support is less than the County.

Hubbard is fairly similar to Woodburn except that Woodburn has proportionally more of its workforce in the farming, forestry, and fishing occupations.

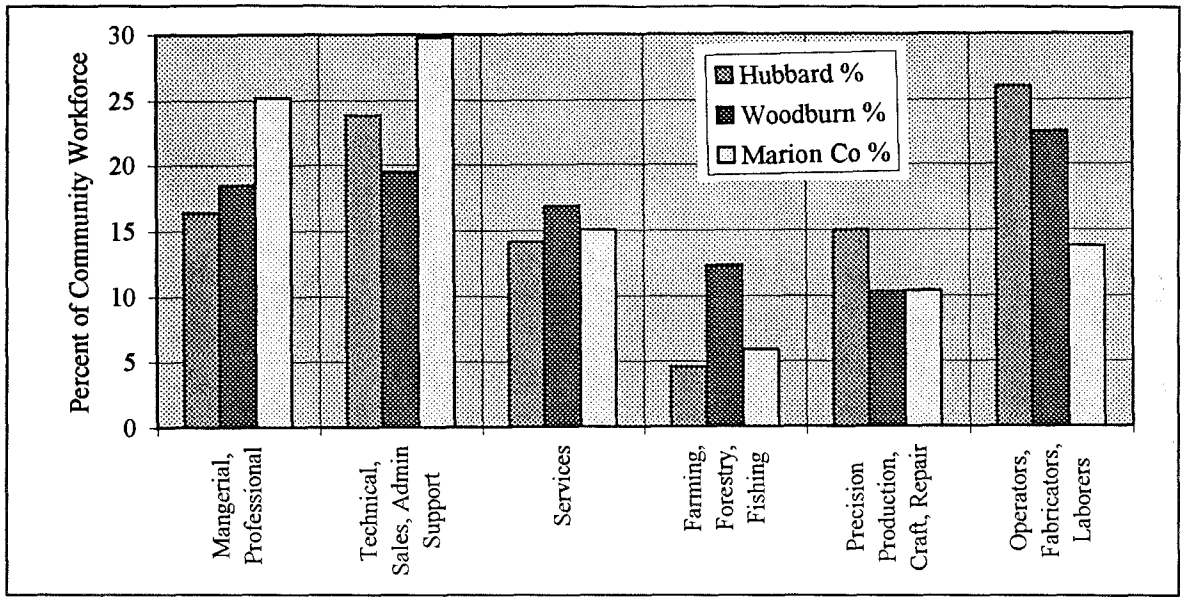


Figure 7. Distribution of Workforce by Occupation

Hubbard's economy has been based on the surrounding agricultural production of the valley, but in the 1980's and 1990's the city's industrial base increased. An industrial park located in southeast Hubbard is served by water, sewer, and storm drain systems. A review of the 1993-94 Oregon Index of Manufacturing Industries listed the following manufacturing industries with Hubbard addresses:

- B P Industries, miscellaneous wood products company;
- Black Gold, Inc., fertilizer mixing company employing < 20 people;
- Granpa's Country Meats, meat packing plant employing <20 people;
- Kreigsco Mfg., wood partitions and fixtures company employing <20 people;
- J.R. Muesling Co., industrial machinery company employing <20 people;
- Needy Brick & Tile, plastic pipe company employing <20 people;
- Nordic Enterprises, men's and boy's clothing company employing 100 to 249 people;
- Reconnex, phone services company, 100 people;
- Skookum/Ropemaster, Inc., fabricated metal hardware company employing 20 to 49 people;
- Ulven Forging, Inc., iron and steel forging company employing <20 people;
- Voget Meats. Inc., meat packing plant employing <20 people; and
- Wolf Steel Foundry, Inc., steel foundry company employing <20 people.

Most industries employed 0 to 19 people, except Nordic Enterprises, Inc.; which employed 100 to 249 people; Reconnex, which employed 100 people; and Skookum/Ropemaster, Inc. and Ulven Forging which employed 20 to 49 employees (Figure 8). Nordic Enterprises, the largest employer in Hubbard, is not located adjacent to Hwy. 99E. Nordic employees must use J Street, or other local Hubbard streets, to get to work. The intersection of J and Hwy. 99E is uncontrolled and intersection angles are not

90°. J Street is blocked at the railroad so employees using Third (Front) Street or Broadacres Rd. must use G and Second Streets.

Schrock Trucking is located on the east side of Hwy. 99E, north of the signalized intersection at Hwy. 99E and A Street. North of this intersection there is no center turning lane on the highway.

Future Employment and Businesses

Hubbard's economic goal is:
To achieve a commercial and industrial development pattern that is balanced with a moderate rate of overall economic growth. The city encourages the location of businesses with the community that create wages able to support a family. Commercial and industrial establishments should add to and not take away from the beauty of the community.

Hubbard plans on developing and maintaining a central business area that serves local residents and visitors. The city designated the area between A and G Streets and Hwy. 99E and 3rd Street as a commercial center intended to provide mixed commercial and secondary residential uses. Hubbard has vacant commercial land located primarily on the east side of Hwy. 99E (Figure 5).

Hubbard plans on maintaining and expanding the industrial park area located in the southeast portion of the city in order to increase and broaden employment opportunities for are residents and service-related activities. Vacant industrial land is located primarily in southeast Hubbard (Figure 8). The city plans on additional industrial enterprises located west of Hwy. 99E and north of Schmidt Lane. In the past, Hubbard considered access to rail services and Hwy. 99E as transportation incentives likely to attract industrial enterprises to the park. However, rail service has not been utilized by any industrial enterprises in the park.

Existing Information About Hubbard Transportation Patterns

Characterization of past and current transportation patterns in Hubbard comes mainly from U.S. Census information. There have been no state corridor studies of Hwy. 99E and no traffic impact studies required from recent development applications.

Information in the 1990 U.S. Census was used to characterize work force travel modes and times and then compare this data to the neighboring city of Woodburn and Marion County. In Hubbard, most people (80%) drove alone to work, followed by carpooling (14%) (Table 3). Work travel modes in Hubbard were similar to Woodburn and Marion County, except that Woodburn had a much higher percentage of the work force carpooling to their place of employment (26%). About 1 percent of the Hubbard work force bicycled or walked to work.

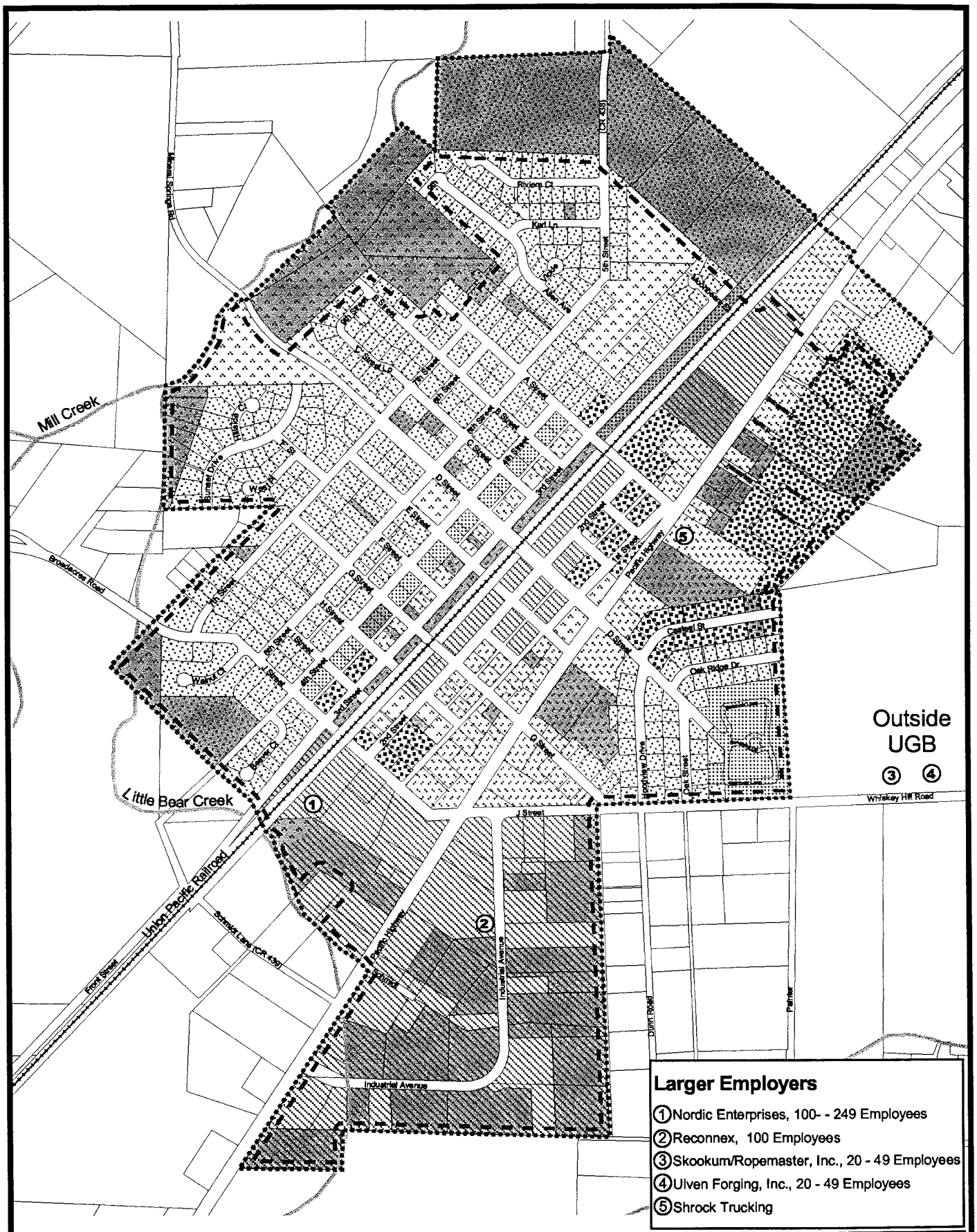
TABLE 3. COMPARISON OF WORKFORCE TRAVEL MODES

Community	Hubbard		Woodburn		Marion County	
	Count	*Percent*	Count	*Percent*	Count	*Percent*
Drove Alone	659	*80*	3,034	*65*	72,973	*73*
Carpooled	114	*14*	1,233	*26*	15,505	*16*
Public Transportation	2		45	*1*	1,661	*2*
Motorcycle	0		0		355	*<1*
Bicycle	11	*1*	46	*1*	851	*1*
Walked	8	*1*	161	*3*	3,604	*4*
Other Means	12	*1*	71	*2*	771	*1*
Worked at home	17	*2*	108	*2*	3,950	*4*
TOTAL	**823**		**4,698**		**99,670**	

In Hubbard, 67 percent of the work force is at their place of employment after 30 minutes of travel (Table 4). Only 31% of the Hubbard work force arrives at their place of employment in less than 15 minutes suggesting the majority of workers commute to another community to work.

TABLE 4. COMPARISON OF WORKFORCE TRAVEL TIME

Community	Percentage at Work in Less than 5 Minutes	Percentage at Work Within 5-14 Minutes	Percentage at Work Within 15-29 Minutes	Percentage at Work Within 30-59 Minutes
Hubbard	2	29	36	29
Woodburn	5	35	26	25
Marion County	5	34	40	16



Title:
Figure 8. Vacant Lands and Larger Employers

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	April 15, 1999	1

Filename:
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Figure 8 -- Vacant Lands ... 8.5x11--Rev: 1

City Limits
Urban Growth Boundary
Railroads
Comprehensive Plan
Low Density Residential
Medium Density Residential
High Density Residential
Commercial
Industrial
Public
Vacant Lands

300 0 300 600 Feet

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Summary of Location and Type of Growth in Hubbard

Information in the existing urbanization element (1998) estimated the amount and location of various types of growth. These figures may change slightly, but for the purposes of the TSP the existing information is adequate to generally plan for the city's transportation needs. Hubbard anticipates the following growth to occur inside the UGB by 2020:

(1) Industrial development in the industrial park located in southeast Hubbard. The city is considering an expansion of the UGB in south Hubbard to provide an additional 11.6 acres of industrial lands for a total of 35.8 acres new industrial development. This development will rely primarily on Hwy. 99E., J Street, and Industrial Avenue for access and through traffic. The intersections of J and Industrial Avenue with Hwy. 99E are likely to receive increased use and access management along Hwy. 99E will be critical to preserve through traffic function of the highway. The blocked at-grade railroad crossing at J Street limits the optimal use of J and 3rd Streets as alternative routes to Hwy. 99E.

(2) 230 single-family dwelling units located primarily in northwest, and possibly west, Hubbard. The addition of these dwelling units will add 2,197 average daily trips (9.55 trips per day per single-family dwelling unit) to the local street network. This type of development will utilize 3rd, 5th, and A Streets, and new or upgraded roads will be required for access and connections to the existing street network. The at-grade railroad crossings and intersections with Hwy. 99E for A and D Streets are likely to receive increased use.

(3) 77 multi-family dwelling units located throughout Hubbard with a slight preference for the northwest, central, and east portions of the city. The addition of these dwelling units will add 539 average daily trips to the local street network (7 trips per day per single-family dwelling unit). Impacts to roads will be similar to low-density residential impacts, but new high-density residential development in east Hubbard underscores the need to improve street connectivity in east Hubbard.

(4) About 8.0 acres of commercial development primarily located adjacent to the east side of Hwy. 99E and some areas scattered throughout central Hubbard. New commercial development will rely primarily on Hwy. 99E for access and through traffic. Improved street or parking lot connectivity and access management will be needed. The area designated as a commercial center will use Hwy. 99E, 3rd St. and A St. for intra and inter city travel to the center. The intersections of A, D, and G Streets with Hwy. 99E are likely to receive increased use, as will the at-grade crossings of the railroad. Access management along Hwy. 99E, 3rd St., and D St. will be critical to preserve safe, through traffic functions of these roads.

(5) Public use lands primarily located on the west edge of city. A, J, and D Streets presently provide access to these lands. No parks in Hubbard are located east of Hwy.

99E and access to any park located in east Hubbard will be limited by the disconnected street network in this part of the city.

Natural and Cultural Resources

Other factors affecting the transportation system plan in Hubbard include natural resources, natural hazards and limitations, and cultural resources. Surface water, riparian areas, wetlands, wildlife and fish habitat, threatened and endangered species, engineering properties of soils, flood hazards, seasonal high water tables, seismic hazards, and unstable slopes are examples of natural resources and constraints. Cultural resources include properties and sites with historic or archaeological significance; and community centers such as schools, parks, post offices, fire stations, shopping areas, and emergency response routes. This section of the TSP briefly reviews those natural and cultural conditions most likely to influence transportation facilities and planning.

Natural Resources and Limitations

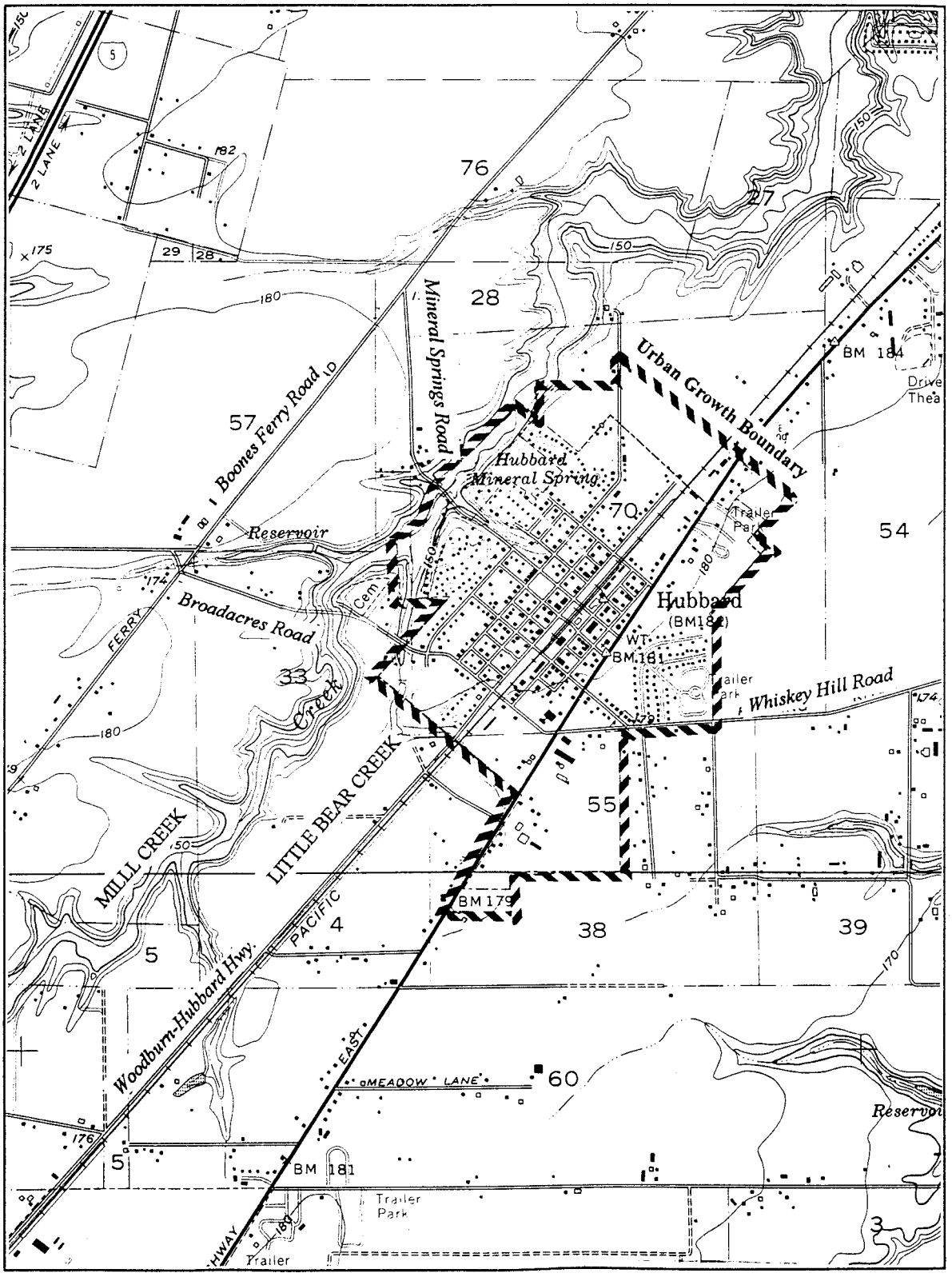
Hubbard lies on the relatively flat terrace between Mill Creek and the Pudding River (Figure 9) in the French Prairie area of Marion County. Most of the city lies on flat to gently sloping (0-3 percent) slopes and elevation ranges from about 135 to 185 feet. Short, steeper slopes are located along the west edge of the city adjacent to Mill Creek and here slopes range from 12 to 20 percent.

Mill Creek flows northeast to the Pudding River near Aurora. Little Bear Creek, runs along the southern UGB and flows into Mill Creek and has been impounded to create Bronec Reservoir (Figure 9). A swale draining to Mill Creek is located north of D Street. Hubbard Mineral Springs are located on the east side of Mill Creek in northwest Hubbard. Some areas in east Hubbard drain to the Pudding River because the city straddles the broad, gently sloping watershed boundary between Mill Creek and the Pudding River.

Riparian areas are located adjacent to streams, springs, rivers, ponds, and lakes and are dominated by vegetation requiring large amounts of water. These areas are transition zones between aquatic and upland habitats and play a critical role in purifying water, controlling erosion, attenuating flood discharges, and providing habitat. The floodplain and slopes adjacent to Mill Creek, and parts of Little Bear Creek, have riparian vegetation composed of forest or shrub types. Hubbard has already recognized the potential benefits of preserving the riparian area along Mill Creek and has zoned it for public use. An undisturbed riparian buffer will also protect the area from surface erosion, prevent slope destabilization, and preserve wetlands.

Figure 9. Hubbard Topographic Map

(from Woodburn Quadrangle, USGS 7.5' topographic series, photorevised 1985)



The occurrence of wetlands in the Hubbard area is another natural constraint on the transportation system. The National Wetland Inventory (NWI Woodburn Quadrangle) shows some wetlands located inside the Hubbard UGB. Mapped wetlands are palustrine types located mainly along Mill and Little Bear Creek, in tributary swales, and ponds (Bronec Reservoir). Palustrine meadows are fresh water marshes bogs, shallow ponds, and swamps mapped as PEM, POW, and PFO. Hubbard has wetlands associated with excavated or constructed features such as ditches, ponds, and dikes. The excavated features are denoted by an x, and the impounded features are denoted by an h in the wetland map code, for example POWKZx and POWKZh (Figure 11).

The NWI is developed solely from interpretation of aerial photos and, therefore, provides only preliminary information about wetlands in the Hubbard area. The soils map and NWI suggest that determining the presence and extent of wetlands on a site-specific basis will be required when new elements of the transportation system are designed and constructed, particularly when the projects are located in swales, drainages, ditches, and creeks.

Hydric soils are strongly correlated to wetlands. Table 6 lists hydric soils in Hubbard-Labish, Concord, and Dayton. These soils are located along western and southern edges of Hubbard in swales, depressions, and drainage ways. Wetlands on the NWI are located on Dayton and Labish soils.

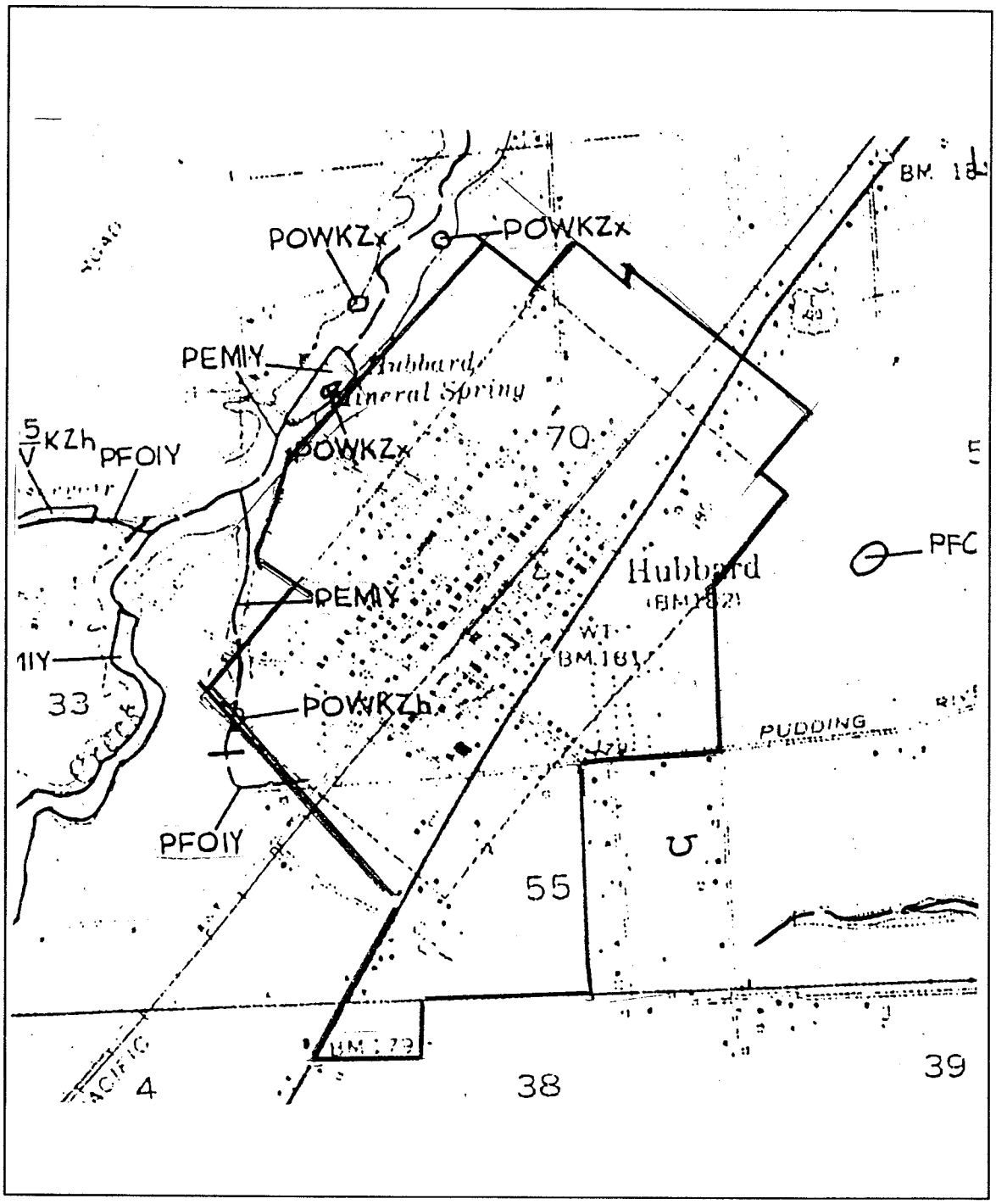


Figure 10. National Wetland Inventory (NWI) Map for Hubbard

Plant and animal species threatened or endangered with extinction can influence transportation system, or other, construction projects, especially if federal money is involved. Little site specific information is known about these resources in the Hubbard area but Table 5 shows some species of concern located in the Willamette Valley. Improvements to, or expansions of, the existing transportation system may be required to obtain more site-specific information about these species and/or work closely with state

and federal resource management agencies as are part of project planning and permitting. The species list changes with time and not all the species are likely to be located in an urban area, but it does indicate the potential scope of this type of environmental constraint. Projects that impact Mill and Little Bear Creeks are likely to need additional evaluation.

TABLE 5. POTENTIAL RARE, THREATENED, OR ENDANGERED SPECIES IN THE HUBBARD AREA

Species	Category of Concern
PLANTS	
Golden Indian paintbrush *(Castilleja levisecta)*	Listed threatened[1]
Howellia *(Howellia aquatilis)*	Listed threatened
Bradshaw's lomatium *(Lomatium bradshawii)*	Listed endangered[2]
Nelson's checker-mallow *(Sidalcea nelsoniana)*	Listed threatened
Willamette daisy *(Erigeron decumbens var. decumbens)*	Candidate species recently recommended for threatened status
Curtus' aster *(Aster curtus)*	Candidate species[3]
Tall bugbane *(Cimicifuga elata)*	Candidate species
Peacock larkspur *(Delphinium pavonaceum)*	Candidate species
Shaggy horkelia *(Horkelia congesta ssp congesta)*	Candidate species
Kincaid's lupine *(Lupinus sulphureus var. kincaidii)*	Candidate species recently recommended for threatened status
Howell's montia *(Montia howellii)*	Candidate species
FISH	
Winter steelhead	Listed threatened
Spring Chinook salmon	Listed threatened
BIRDS	
Aleutian Canada goose	Listed threatened
Bald eagle	Listed threatened
Olive-sided flycatcher	Species of concern[4]
Little willow flycatcher	Species of concern
INVERTEBRATES	
Fender's blue butterfly	Candidate species recommended for threatened status
MAMMALS	
Long-eared myotis (bat)	Species of concern
AMPHIBIANS & REPTILES	
Northwestern pond turtle	Species of concern
Northern red-legged frog	Species of concern
Southern torrent (seep) salamander	Species of concern

[1]Listed as threatened with extinction under the Endangered Species Act
[2]Listed as endangered with extinction under the Endangered Species Act
[3]Being considered for listing as threatened or endangered with extinction under the Endangered Species Act
[4]Species whose conservation status is of concern but for which further information is still needed

The Soil Survey of Marion County maps soils in Hubbard and characterizes their suitability for a variety of development activities including construction of local roads and

streets (United States Department of Agriculture (USDA), 1972). Table 6 summarizes the information regarding soil limitations for local roads and streets. A severe limitation indicates that one or more of the soil properties or site features are unfavorable or so difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. A moderate limitation indicates that soil properties and site features are unfavorable for the specified use, but limitations can be overcome or minimized by special planning and design.

TABLE 6. SOIL LIMITATIONS FOR ROAD DEVELOPMENT

Map Unit	Soil Name	Limitation for Roads and Streets	Hydric Soil*
Am	Amity silt loam	Severe: seasonal high water table	NO
Co	Concord silt loam	Severe: seasonal high water table. High shrink swell potential, slow permeability.	YES
Da	Dayton silt loam	Severe: seasonal high water table. High shrink swell potential, very slow permeability.	YES
La	Labish silty clay loam.	Severe: **flood hazard.** High shrink swell potential, seasonal high water table, slow permeability.	YES
WuA	Woodburn silt loam, 0-3% slopes	Moderate: seasonal high water table. Slow permeability and low stability.	NO
WuC	Woodburn silt loam, 3-12% slopes	Moderate: seasonal high water table. Slow permeability and low stability.	NO
WuD	Woodburn silt loam, 12-20% slopes	Moderate: slopes. Slow permeability and low stability.	NO

*Correlated with wetlands

Limitation ratings in the table assume that local roads and streets will have an all-weather surface and can carry light to medium traffic all year. Roads have a subgrade of the mapped soil type; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with the soil material at hand, and most cuts and fills are less that six feet deep.

Most of Hubbard is underlain by Woodburn A soil which has moderate limitations for local streets and roads due to the seasonal high water table. Soils along Mill Creek, in depressions and swales (Labish, Concord, and Dayton), and Amity soils (located in eastern Hubbard) pose severe limitations to local roads and streets due to seasonal high water table, slow permeability, high shrink-swell potential, flooding, and slope. Soils information suggests that adequate design and construction standards with respect to subgrade and road base requirements will be essential in well constructed roads that result in lower maintenance costs. The city's requirements for new road design and construction should be evaluated for adequacy or established by site-specific geotechnical investigations.

Figure 10 is a Flood Insurance Rate Map (FIRM) for Hubbard and Table 6 indicates those soils with flood hazards. A floodway and 100-year floodplain is mapped along Mill Creek. Floodway is defined as the channel of a stream and the adjacent land areas reserved to discharge the 100-year flood without cumulatively increasing the elevation of the 100-year flood more than a specified height. Areas with a 1% chance of flooding in any given year (100-year floodplain) are located along Mill Creek and shown as Zone AE. The elevation of the 100-year flood has been calculated by FEMA and is shown as 138 feet where D Street/Mineral Springs Road, and 139 feet where J Street/Broadacres Road, crosses the creek.. The area along Little Bear Creek lies outside of the detailed study area and is shown as Zone X. Zone X lands are either areas outside the 500-year floodplain; or areas inside the 500-year floodplain, areas on the 100-year flood with average depths of less than 1 foot or drainage areas less than 1 square mile, and areas protected by levees from the 100-year flood. Labish silty clay loam has a flood hazard limitation (Table 5).

The FIRM and soils maps show that Hubbard's minor arterial roadway connections to the west would be affected by a 100-year flood. Shallow water depths (<1 foot) might occur on J Street, 3rd Street, and Hwy. 99E during a 100-year event and impact north-south travel. Transportation facilities and services located in floodways and floodplains must be designed and constructed to withstand this hazard or excessive damage will occur. Emergency management plans and routes must take into account which routes are likely to be closed during flood events and devise alternative routes.

Hubbard also has problems with shallow flooding due to inadequate storm drainage which affects roadways, particularly along Hwy. 99E. These areas are also shown on Figure 10 as "areas flooded in 1996". Poor drainage creates safety issues and increases roadway maintenance expenses.

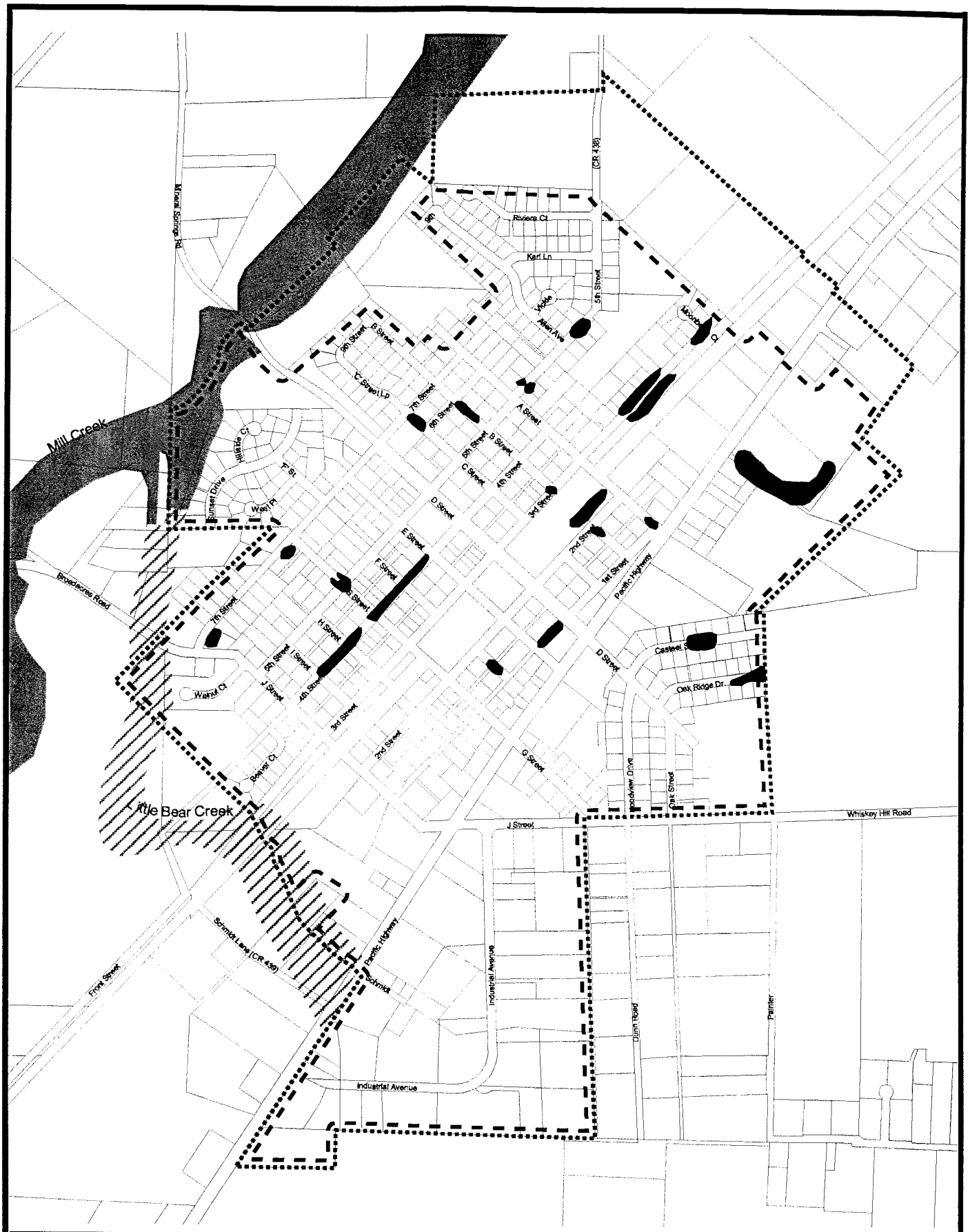


Figure 11. Flood Hazards in Hubbard

Areas Flooded in 1996
Tax Lots
City Limits
Urban Growth Boundary

FEMA Zone AE
FEMA Zone X

300 0 300 600 Feet

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	April 15, 1999	1

Filename:
r:/cog4/projects/hubbard/hub-tsp.apr

Hubbard Floodplain Map 8.5x11--Rev: 1

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This map is for illustrative purposes only and is to be used for planning purposes.

Tax lots property of City of Salem/Marion County Data Center.

Recent earthquakes in the northern Willamette Valley area and studies of estuaries on the Oregon Coast suggest that damaging earthquakes are likely to occur in Oregon. The Scotts Mills quake of 1993 (Maldin and others, 1993) had a Richter magnitude of 5.7 (moment magnitude of 5.6), and caused widespread, though generally minor, damage in the central and northern Willamette Valley. The preliminary damage estimate for this quake was 28.4 million dollars, and fortunately included no loss of life (Black, 1996). Quake damage was most intense in a northwest-southeast trending area which included Newberg, Woodburn, Mt. Angel, and Molalla (Madin and others, 1993). The Scotts Mills event indicated that faults in this area are still active. Great subduction earthquakes are the most powerful types ever recorded and recent investigations have found evidence that quakes along the Cascadia subduction zone affect Oregon every 400 to 600 years (Wang, 1997).

Site specific seismic hazards in Hubbard are not well constrained at this time, but existing information from other areas does suggest a low to intermediate relative earthquake hazard due to liquefaction damage and amplification of ground shaking in most of the city. In an earthquake, soils in Hubbard would "liquefy" and flow. Potential damages include differential vertical settlement of foundations and structures, and horizontal flow in the downhill direction or toward the drainages. Liquefaction hazard is enhanced by soil moisture and would be higher during the wet winter months and near ponds, drainages, and streams. Earthquake induced landslides are unlikely for most of Hubbard but could occur on the slopes adjacent to Mill Creek.. Critical transportation facilities in Hubbard, particularly near Mill Creek, should consider seismic hazards during design and construction phases.

Cultural Resources

The TSP should also consider existing cultural resources in Hubbard. These resources include community centers such as parks, educational facilities, local services and governmental facilities; and historically significant properties and sites. These resources are summarized in Table 7 and shown on Figure 17.

TABLE 7. HUBBARD COMMUNITY CENTERS AND OTHER FEATURES

Map Number	Type	Name	Location
H1	Historical	Hezekiah Dayton House SHPO # 761	2870 Schmidt Lane N.E., just south of UGB
H2	Historical	Albert Johnson House SHPO # 760	17707 Front St. NE, just south of UGB
H3	Historical	Builder Bungalow House SHPO #755	18537 Hwy. 99E, between city limits and UGB
H4	Historical	Scholl House	
C1	Government Service	Hubbard Post Office	G Street between 1st and Hwy. 99E
C2	Government Service	City Hall/Police Department	C Street between 1st and 2nd Streets
C3	Government Service	Fire Station	2nd Street between G and J Streets
C4	Public park	Riveness Park/Shelter	Bounded by d, E, 4th, and 5th Streets.
C5	Public park	Barendse Park	North of A Street between 3rd and 5th Streets.
C6	Government service	Hubbard Municipal Water Tower	2nd Street between G and J Streets
C7	Government service	Hubbard Municipal Water Wells	See Figure 17
C8	Government service	Hubbard Waste Water Treatment Facility	South of A Street at west UGB
C9	Private commercial	Market and bank	On the east side of the intersection of D Street and Hwy. 99E.
C10	Natural resource	Hubbard Mineral Springs	See Figure 17
C11		Hubbard Cemetery	Outside of UGB north of Broadacres Road.
C12		Hubbard Commercial Center	Between A and G Streets, and 3rd and Hwy. 99E.

Historic resources are buildings, sites, objects, structures, or districts of local, state, or national significance. An inventory of historic properties has not been completed for the city of Hubbard. The unincorporated portion of Marion County has been inventoried and three properties in the Hubbard area were identified (Koler Morrison Planning Consultants, 1990). Of the three resources, only one (H3 on Figure 17) is located inside the UGB (Table 7). None of the resources have been nominated to the National Register of Historic Places (NRHP). The historic resource closest to Hubbard and on the NRHP is

the John Stauffer House and Barn at 13551 Stauffer Rd, Aurora, Oregon. The Marion County Road and Recreation Map (Marion County Public Works, 1995) lists one other property in Hubbard with historic value: the Scholl House, a three-story farmhouse with beveled glass windows built in 1908 (Table 7, Figure 17). Existing information suggests that other historic resources exist in Hubbard. The city may want to obtain grant assistance to identify these potential resources and include considerations of historic resources in planning for street improvements. Historic resources are also mentioned because federally funded highway improvements are constrained from impacting known and potentially significant historic resources.

The Hubbard Post Office strongly influences local driving and walking patterns because most residents pick up their mail on a daily basis. Later sections of the TSP (Rail Freight and Rail Passenger) discuss the impact of this community center on previous transportation planning decisions. At the time the TSP was written, relocation of the Post Office was under discussion. The siting decision should consider the impact on the transportation system elements, particularly the roadway and pedestrian facilities.

The distribution of Hubbard community centers is skewed towards the west side of the city. Hubbard community centers are generally adequately linked by the road network but Hwy. 99E with its high traffic volumes and relatively high speeds does divide the city, and community centers, into two sections. Community center connections via the street network in the southwest part of the city is more circuitous and longer with the closure of the J St. at-grade rail road crossing. Access to, and linkages between, community centers via the pedestrian and bikeway modes is presently very limited in Hubbard. These modes are subject to the same limitations as the street network and further limited by incomplete and disconnected pedestrian and bikeway systems. The city will begin to address these deficiencies in the street, pedestrian, and bikeway elements of the TSP.

Review and Evaluation of Existing Plans, Policies, Standards, & Laws

The TSP process included an evaluation of existing relevant plans and policies within the city of Hubbard, and other relevant plans and policies from other jurisdictions and geographic areas. The integrated planning process is illustrated in Figure 1 and the resources consulted are shown in Table 8. These documents provide insight into Hubbard's present land use pattern and transportation system, and suggest direction for planning transportation improvements and future facilities. The following review includes detailed and specific information gleaned from the Woodburn TSP and the Marion County Rural Transportation System Plan. Information from the *Hubbard Comprehensive Plan* (1977) and City Code, and state plans is included in the sections covering each transportation element. The *Hubbard Comprehensive Plan* contained a general description of the transportation system and listed a few goals and policies. The transportation element had not been updated since 1977.

TABLE 8. REVIEWED PLANS, DOCUMENTS, AND STANDARDS

CITIES: HUBBARD & WOODBURN				
Hubbard Comprehensive Plan (1977)	Hubbard City Code	Hubbard Comprehensive Plan: Urbanization Element (1998)	Woodburn Transportation System Plan (1996)	
MARION COUNTY AND REGIONAL				
Marion County Rural Transportation System Plan (1998)	Willamette Valley Transportation Strategy, Phase One Report (1995)	Regional Transportation Enhancement Plan (1998)	Commuting in the Willamette Valley (1998)	Transportation Strategy of the Mid-Willamette Area Commission on Transportation (1998 draft)
STATE PLANS				
Oregon Transportation Plan	Draft Oregon Highway Plan (1999)	Oregon Public Transportation Plan (1997)	Oregon Rail Freight Plan (1994)	Oregon Rail Passenger Policy & Plan
Oregon Bicycle and Pedestrian Plan (1995)	Oregon Shines II (1997)			

WOODBURN

The city of Woodburn completed and adopted the *Woodburn Transportation System Plan* in 1996. Though Woodburn (1998 population of 16,585) is 7.5 times larger than Hubbard, the cities share several transportation facilities and issues. Woodburn and Hubbard are directly connected by Hwy. 99E and Front St. (Woodburn-Hubbard Hwy. or 3rd Street) and both cities are bisected by the Union Pacific Railroad. Woodburn differs from Hubbard, from a transportation perspective, in important ways because it abuts I-5, has accessways to the freeway, lies on State Highways 211 and 214, and operates a public transportation system. Because of Woodburn's size and location, the city is a gateway to transportation facilities used by Hubbard residents. The following information, transportation policies, system management plans, and system changes in the Woodburn TSP were evaluated in the developing the Hubbard TSP:

1. Policy to develop a plan for providing travel options between Woodburn and Portland and/or Salem, including intercity bus service and potential bus/carpool Park-and-Ride facilities. Plan proposed to expand the public transportation service to include inter-city service to Portland (top priority) and Salem via shuttle buses on I-5. Park-and-Ride facility with 300 spaces planned near the interchange of I-5 and Hwy. 214.
2. Policy to develop a plan for designated truck routes through the City, and a plan to handle truck and rail hazardous cargoes. Plan called for focusing truck traffic on Highways 219/214, 211, 99E, and the future South Arterial. Hazardous materials shipments routed north-south will be focused on I-5 and those routed east-west will be focused onto future South Arterial.
3. Develop a passenger rail stop in downtown area.
4. Develop off-street pathways along Mill Creek.

5. Points on Woodburn's existing fixed-route transit service closest to Hubbard are located at the intersections of Hwy. 214 and Front Street, and Hwy. 214 and Highway 99E. The proposed system will be two-directional fixed route, with 60 minute service frequency and expanded to include a route up Hwy. 99E, turning west on Industrial Avenue and turning south on Progress. Paratransit service will continue, but it presently serves only Woodburn residents.
6. If a passenger rail service stop is located in Woodburn, the bus and rail systems will be connected via downtown transportation center.
7. Policy to develop a strategy for providing improved access to I-5 from the Woodburn area, by improvements to the existing Highway 214 interchange and/or a new interchange in the Woodburn vicinity (with supporting local roadway improvements).
8. Woodburn evaluated four roadway system alternatives: no-build, I-5 Split Diamond Interchange with South Arterial, Second I-5 interchange with South Arterial, improve existing I-5 Interchange and widen Highway 214/South Arterial with I-5 Overpass. The location of South Arterial is not finalized but the route lies along the southern UGB and connects Hwy. 99E and I-5. The proposed location of the second interchange is at the Butteville Road overpass (Figure 2). Preferred alternative will be identified by a future refinement study.
9. Each roadway system alternative, including the no-build, was evaluated for impact to existing traffic flow patterns in 2015. Average Daily Traffic (ADT) on north end of Front Street ranged from 4,000 to 8,500 and ADT on north end of Hwy. 99E ranged from 20,000 to 26,000.
10. Field survey of accesses on Hwy. 99E between south city limits and Lincoln St. showed existing driveways per mile ranged from 14 to 65. Consolidation plans will reduce this to 10 to 35 driveways per mile.
11. Woodburn will consider the following access management strategies along state highways: plan and develop parallel road systems to Hwys. 99E, 219/214 to reduce local traffic volumes, intersection improvements, purchasing right-of-way and closing driveways, install median barriers and driveway access controls, and install two-way left turn lanes.
12. Front Street (also called Woodburn-Hubbard Hwy.) was classified as a minor arterial and Hwy. 99E was classified as a major arterial, inside Woodburn city limits. Typical street section for minor arterial was two, 12-foot travel lanes; one 14-foot left turn lane; two, 6-foot bike lanes; two, 4.5-foot parkway strip; and two, 6-foot sidewalks. Typical street section for major arterial was four, 12-foot travel lanes; one 14-foot left turn lane; two, 6-foot bike lanes; two, 4.5-foot parkway strip; and two, 8-foot sidewalks. These street sections apply inside city limits.

COUNTY

Marion County completed the first draft of the *Marion County Rural Transportation System Plan* in 1998. The plan provides a "framework for developing an efficient, well-balanced, cost-effective transportation system for the next 20 years". The scope of the project covered all transportation facilities outside UGB's. The entire document was reviewed but only issues, policy, information, and planned improvements directly affecting Hubbard are included.

Marion County recognized that the scenic, rural, low traffic volume features of county roads are appealing to bicyclists and is working to add paved shoulders to county roads. A bicycle facility along Grim Road serves high, middle, and elementary schools attended by children in Hubbard

Transportation issues were identified by soliciting comments from the public and County staff. Identified issues pertaining to Hubbard were:

- Bypasses: Woodburn-Monitor Rd. to Woodburn-Hubbard Rd.
- Sidewalks needed in Hubbard along Hwy. 99E
- Broadacres Rd. traffic conflicts with 7th St. traffic in Hubbard
- Bike paths needed from Woodburn to Hubbard
- Use existing rail lines for commuter (BNRR) and high speed (UPRR) rail
- New freeway interchange in Woodburn area

Issues were categorized by type, problem and solution, and assigned a benefit index (1-9 with 9 meaning highest benefit), feasibility, and relative cost. Conceptual roadway improvements evaluated in the Hubbard area were: (1) Improving the intersection of Broadacres and Boones Ferry Rd., (2) widening Front Street (Woodburn-Hubbbard Hwy.) between Hubbard and Woodburn, and (3) Widening Whiskey Hill Rd. between Hubbard and the county line (scheduled for completion in 1997). A signal at the intersection of Hwy. 99E and G Street to reduce congestion was rated feasible, moderate cost with a benefit index of 1. A corridor study of Hwy. 99E from Salem-Keizer to Aurora received a benefit index of 9 and low cost ranking. A regional interchange study in the Woodburn area was given a benefit index of 9 and very high cost ranking.

The inventory of county roads included roads inside Hubbard and roads connecting to city roads. County roads inside the Hubbard UGB were J Street (called Broadacres Road in County), and Mineral Springs Road. County roads connecting to Hubbard roads were Woodburn-Hubbard Hwy. (Front Street) and Whiskey Hill Road. Functional classifications were major collector for Front St., J St./Broadacres Rd., and Whiskey Hill Rd; and minor collector for Mineral Springs Road. Hwy. 99E was classified as an arterial and characterized as a corridor with heavy traffic volumes, especially during the morning and afternoon peak periods. Table 28 in Appendix A summarizes the criteria for each functional class. Other information about roadway size, condition, and operation is included in the street-sidewalk-bikeway inventory in Appendix C.

The RTSP had 1995-96 traffic volume data for Whiskey Hill, Front Street (Woodburn-Hubbard Rd.), Mineral Springs Road. Turning movements and intersection configuration for the intersections of Hwy. 99E/J St., Hwy. 99E/D St., and Front St./J St. were included. The County analyzed the performance of 43 urban intersections and 53% performed very well (LOS A or B). Of the 6 urban intersections with lower performance (LOS D or E), two were located in Hubbard (Hwy. 99E / J Street and Hwy. 99E / D St.). An explanation of Level of Service, and corresponding volume/capacity (V/C) ratios, are included in Appendix A (Table 26). County transportation policy for acceptable Level of

Service in rural areas is LOS D or better for signalized and four-way stop intersections, LOS E or better for unsignalized intersections, and LOS D or better for road segments. Traffic volume and intersection data is included in the transportation system inventory.

A computer model was used to forecast travel patterns in Marion County and included the Hubbard area. The model used an estimated population of 2,787 (average annual growth rate 1.56%) in Hubbard at 2015. No rural roadways in the Hubbard area were projected to operate at a very low level of service in 2015 by the model. Projected traffic volumes in 2015 for selected roads near Hubbard were 5,000 ADT on Front St., 5,200 ADT on Whiskey Hill Road, and 15,200 ADT on Hwy. 99E near the north city limits.

An analysis of high frequency accident locations on rural county roads noted that the site closest to Hubbard was the intersection of Boones Ferry and Broadacres Road where 7 accidents had occurred between 1994-97. Compare this to some intersections in the Salem urban area with 25 to 47 accidents.

Roadway design standards for rural roads (all roads outside of UGB) are summarized in Table 9. Rural roads located next to urban areas with high traffic volume can use urban design standards. The RTSP noted the standards were developed in 1990 and may need to be revised to accommodate population growth experienced in the 1990's.

TABLE 9. COUNTY RURAL ROAD DESIGN STANDARDS

Functional Class	Average Daily Traffic (ADT)	Minimum R/W Width	Minimum Pavement Width	Gravel Shoulders (both sides)
Arterial	1,000 - 10,000	66 feet	28 feet	2 feet
Collector	500 - 1,000	60 feet	22 feet	2 feet
Local	0 - 500	60 feet	22 feet	2 feet

Strategies to maximize the capacity, safety, and efficiency of the existing transportation system include traffic control improvements, access management, and land use controls. The County's recommended spacing requirements for accesses to county roads are summarized in Table 10.

TABLE 10. SPACING RECOMMENDATIONS FOR NEW ACCESSES ONTO COUNTY ROADS

Functional Class	Access Spacing Recommendations
Arterials	• 500' from any intersection with a state highway, arterial or major collector • 400' from any other intersection (including a private access)
Major Collectors	• 400' from any intersection with an arterial or state highway • 300' from any other intersection (including a private access)
Minor Collectors	• 300' from any intersection with an arterial or state highway • 150' from any other intersection (including a private access)
Local Roads	• 200' from any intersection with an arterial or state highway • 100' from any intersection with a major collector, minor collector, or local Road. No spacing requirements form intersections with a private access.

Marion County identified the following existing and future roadway system needs near Hubbard:

- Widen the Whiskey Hill Road Bridge (47C06) over the Pudding River (Figure 2);
- Widen Woodburn-Hubbard Rd. (Front St.) between the UGBs to improve safety;
- Perform a corridor study on Highway 99E between Keizer and Aurora that addresses access management strategies, growth and development policies, increased capacity, alternative transportation modes, and safety and traffic control improvements; and
- Perform a refinement study on the Woodburn interchange that identifies ways to improve the existing interchange and identifies the need for a second interchange.

Recommended improvements and policies during the next 20 years with direct relevance to Hubbard were:

- Woodburn Interchange Refinement Study
- Unspecified improvements to pedestrian and bicycle facilities in urban areas using a percentage of State Highway Funds
- Support efforts for a commuter shuttle service between Woodburn and Salem, implement on trial basis
- Look for opportunities for a park-and-ride lot between Hubbard and Woodburn
- Explore the feasibility of expanding Cherriots system to serve peripheral park and ride facilities and link to existing transit services in Woodburn and Wilsonville
- Organize and support paratransit services by sub-regions in the County
- Support plans for a high speed rail service currently proposed for the track owned by Union Pacific

Not all the recommended improvements could be achieved due to financial constraints and only the following projects from the previous list are scheduled: Woodburn Interchange study within the next 5 years, and Whiskey Hill Rd. Bridge over the Pudding River within the next 5 to 10 years.

The Marion RTSP concluded by identifying and discussing several long term transportation issues which will affect the mobility needs of the County in the 21st Century. Peripheral routes and strategic corridors, passenger rail service with supporting access network, transportation system management strategies, aggressive transportation system demand management strategies, additional connections to I-5 and Hwy. 22, and additional crossings of the Willamette River were identified as factors that could play a significant role in more than 20 years in the future. Hubbard is influenced by all these factors but the peripheral routes/strategic corridors, passenger rail service, and connections to I-5 are especially important to the city. The County identified Hwy. 99E as a strategic inter/intra county corridor likely to need expansion or refinement in the future. Crosby Rd. was identified as an existing peripheral route that could be used to bypass the Hubbard and Woodburn urban areas. The Plan notes that strict land use policies maintaining the traffic-moving capabilities of peripheral routes would be needed to preserve future function. The network envisioned to connect users to rail service would directly affect Hubbard and included such things as grade crossing improvements, park-and-ride facilities, upgrading existing roads, or building new roads that serve rail stations.

STATE

ODOT has a variety of plans that cover modes of transportation and specific transportation facilities. *The Oregon Highway Plan, Oregon Rail Passenger Policy and Plan, Oregon Rail Freight Plan, Oregon Public Transportation Plan, Oregon Bicycle and Pedestrian Plan,* and *Oregon Transportation Plan* were reviewed for information and policy pertinent to Hubbard. Hwy. 99E is at the center of most of the existing transportation issues in Hubbard, and since the road is a state facility, the Oregon Highway Plan contained a substantial amount of relevant information. Policy and facility information from the highway, bicycle and pedestrian, public transportation, and rail freight and rail passenger plans are included in the inventory of existing conditions in the TSP.

TRANSPORTATION SYSTEM PLAN

This section of the TSP builds on the background information and develops roadway, rail freight and passenger, bikeway, pedestrian, public, air, water, and pipeline transportation plan elements. Each system element: (1) Discusses TPR requirements, (2) Defines the facility types and services, (3) Presents recommended standards for facilities and services, (4) Inventories the existing facilities and services, (5) Characterizes existing and future needs, and (6) Presents a plan, policy, and map.

Street Network

This section of the TSP:

- References the requirement to plan for roadway facilities in the Transportation Planning Rule,
- Reviews standards, plans, and policy,
- Completes an inventory of the street network and roadway traffic conditions in Hubbard,
- Identifies existing and future roadway needs in Hubbard, and
- Presents the street network plan.

The inventory of existing roadways also discusses safety, capacity, and access management issues.

TPR Requirement

The TPR (OAR 660-12-020(2)(b)) requires that the TSP include: " A road plan for a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. Functional classification of roads in regional and local TSPs shall be consistent with functional classification of roads in state and regional TSPs and shall prove 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 660-12-0045(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) Connection to existing or planned streets including arterials and collectors; and

(C) Connections to neighborhood destinations."

The roadway element, and all other elements, shall contain (OAR 660-012-0020(3):

- An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity, and condition;
- A system of planned transportation facilities, services, and major improvements, establishing the general corridor within which the facilities, services or improvements my 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.

The TPR (OAR 660-12-020) contains the following requirements related to access management: 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;

(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;

(g) Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, and capacities and levels of service of facilities identified in the TSP.

Roadway Types, Standards, Plans, and Policy

Roadway type refers to the functional classification of the street, which is based upon the type of primary service the road is intended to provide. The two end members of the classification system are local streets which primarily provide access to property and arterial streets which primarily provide for travel mobility.

Hubbard (1977) used three general classifications to describe its existing and future network of streets. The three functional classifications are defined as follows:

- Arterial: This is a facility for moving inter-area traffic primarily carrying through traffic. An arterial is intended to provide for the majority of regional travel passing through an area as well as the majority of local trips entering and leaving the urban area. It should also provide continuity for all rural arterials which intercept the UGB and should include connections to all rural collectors. Arterials generally emphasize mobility over land access. Access to arterials should be managed to protect the mobility function of the street as much as possible.

- Collector: This facility connects intra-area traffic to the arterial system. Collectors provide links between an area or neighborhood and the arterial system. They supply abutting property with the same degree of land service as a local street but are usually given priority over local streets in any traffic control installations. Collectors penetrate into all areas of a city, gathering traffic, and channeling it to arterials or rural collectors.

- Local: This type of street primarily provides access to abutting properties and is protected from "through" traffic. Local streets entail all those not otherwise defined as arterials or collectors. While connectivity is encouraged for all streets, through traffic movement is not the intended purpose of a local street.

ODOT, Marion County, and Woodburn all use the same general functional classification system for the roadways they own and operate. Each jurisdiction may classify a given roadway slightly differently because the system is context dependent and can be subdivided if needed. Table 11 summarizes how each jurisdiction classifies roadways in and adjacent to Hubbard.

ODOT also divides state highways into five categories based on function: Interstate, Statewide, Regional, District, and Local Interest Roads. In addition, four special purpose designations may be applied: land use, statewide freight routes, scenic byways, and lifeline routes. The ODOT functional classification of Highway 99E is Regional Highway. "Regional Highways typically provide connections and links to regional centers, Statewide or Interstate Highways, or economic or activity centers of regional significance. The management objective is to provide safe and efficient, high-speed, continuous flow operation in rural areas and moderate to high-speed operation in urban and urbanizing areas. A secondary function is to serve land uses in the vicinity of these highways. Inside Special Transportation Areas (STAs), local access may also be a priority (ODOT, 1999)".

Hwy. 99E is NOT designated a statewide freight route or scenic byway. A special land use designation in the Hubbard area may be applicable, and will be discussed later. ODOT is presently working on the lifeline route designations.

Marion County classified Whiskey Hill Rd., Broadacres Rd., Woodburn-Hubbard Hwy. (AKA Front and 3rd Streets), and Mineral Springs Rd. as major or minor collectors. Woodburn (1998) classified Hwy. 99E as a major arterial and Front Street as a minor arterial in their TSP.

TABLE 11. FUNCTIONAL CLASSIFICATION OF HUBBARD ROADWAYS

Street Name	Functional Class	Jurisdiction
Hwy. 99E South UGB - North UGB	Arterial "Regional Highway"	ODOT
3rd Street South UGB - North UGB	Arterial	City
3rd Street South of UGB	Major Collector	Marion County
J Street West UGB - RR	Major Collector	Marion County
J Street RR -about G St.	Arterial	City
Whiskey Hill Rd. about G St. - east UGB and in County	Major Collector	Marion County
Mineral Springs Rd. West UGB to west city limits	Major Collector	Marion County
D Street City limits - Hwy. 99E	Arterial	City
D Street Hwy. 99E to Oak Ridge Dr.	Collector	City
A Street 7th St. to A St.	Collector	City
2nd Street J St. - A St.	Collector	City
5th Street J St. - north UGB	Collector	City
7th Street J St. - A St.	Collector	City

Functional classification is typically associated with design and mobility standards, and access management and other policies. Table 12 summarizes Hubbard's current design standards and Table 9 summarizes Marion County's recommendations for rural roadways. The Hubbard Development Code was updated in 1996-97 and included a section on street standards. Street standards included a statement of purpose, defined the scope of the standards, listed general provisions, established general right-of-way and street sections, established a procedure to modify the established standards, and established construction standards. Construction specifications were referenced to the most recently adopted public works and street standards. The Development Code also addressed private streets and off-street parking and loading.

Hubbard has no mobility standards based on functional classification for city streets. Marion County standards are LOS D or E for rural roadways and intersections (see previous discussion).

ODOT mobility standards are based on functional classification and special purpose designations for the roadway. Highway performance is measured by Volume to Capacity (V/C) ratios which is the peak hour traffic volume divided by the maximum volume of the highway segment. The closer the number is to 1, the more unstable traffic flow is. Maximum V/C ratio for peak hour operating conditions on Hwy. 99E in Hubbard is **0.8**, (non-MPO area, located outside a STA, where non-freeway speed limit is <45mph (ODOT, 1999).

TABLE 12. EXISTING STREET STANDARDS

TYPE OF STREET	RIGHT-OF-WAY WIDTH	CURB to CURB WIDTH	SIDEWALK WIDTH	BIKEWAY WIDTH	UTILITY EASEMENT WIDTH	PARKING WIDTH
Arterial	60'	38'[1]	6'	5'[2]	16	
Commercial / Industrial / Institutional	60'	36'	5		16	
Collector	60'	36'	5	5	16	
Local Option A	50'	34'	5		16	
Local Option B	40'	30'	5		16	[3]
Cul-de-sac	50'	30'	5		16	
Cul-de-sac bulb	46' radius	40'	5	Shared roadway	16	

1 Does not include allowance for on-street parking

2 The minimum width for a bikelane is 4 feet on open shoulders, of 5 feet from the face of a curb, guardrail, or parked cars

3 Additional on-site parking is required for this option: 1, 2, and 3 family dwellings, including manufactured homes, and multi-family dwellings shall have three (3) parking spaces per dwelling unit.

Both Marion County and ODOT have access management policies and standards. Marion County spacing requirements are summarized in Table 10. The location, spacing and type of road and street intersection and approach roads to state highways is intended to assure safe and efficient operating conditions. ODOT states that Hwy. 99E "Will be managed to provide for efficient and safe, medium to high speed, and medium to high volume traffic movements". Management objectives and access management standards for Hwy. 99E are given below.

Management objectives of regional highways are:

- Provide safe and efficient high-speed (~50 mph), continuous flow (LOS C) in rural areas (allowing for environmental constraints).
- Provide moderate to low-speed (~45 mph) operation in urban and urbanizing areas with moderate interruptions to flow (LOS D in urban and LOS C in urbanizing areas.

The conditions above represent the minimum tolerable conditions (ODOT, 1991) for a regional highway.

Access management standards for regional highways in urban areas include:

- Minimum spacing between public road intersections of 1/4 mile.
- Minimum spacing between private road intersections of 300-500 feet.
- Minimum spacing between traffic signals of 1/4 to 1/2 mile.
- Partial to no median control of left turning.

Lastly, because Hwy. 99E is such an important roadway in Hubbard and the topic of most public comment received during the TSP process (Appendix B), a few other relevant facts and policies taken from the Oregon Highway Plan (ODOT, 1999) are mentioned here. Hubbard residents repeatedly identified improvements for Hwy. 99E, so an understanding of ODOT's improvement strategy should be useful. ODOT plans for major improvements using the following strategies: (1) Protect existing system, (2) Improve capacity and efficiency of existing facilities, (3) Add capacity to existing system, and (4) Add new facilities to the system.

Conflicts between railroad and roadway transportation have long been a concern in Hubbard. The objective of ODOT's rail and highway compatibility policy is to increase safety and transportation efficiency through the reduction and prevention of conflicts between railroad and highway users. Implementing actions include eliminating crossings at grade wherever possible. Priority will be given to closing those crossings with the greatest potential for train-vehicle conflicts. Where rail grade crossings provide an important route for local pedestrian, bicycle or vehicle circulation, the needs of these local movements should be considered (ODOT, 1999). Other ODOT rail policies will be discussed in the rail section.

The *Hubbard Comprehensive Plan* (1977) contained other transportation policy and plans which are discussed under the relevant system element in this TSP. The general transportation goal is given here:

- To encourage efficient, safe, convenient, and economic modes of transportation.

Regional roadway-related recommendations included an interchange on I-5 at Broadacres Road and a southern bypass along Jones Road to Boones Ferry Road (Figure 2). The railroad and Hwy. 99E were recognized as commercial freight routes. Truck weight scales are currently located on I-5 near the Broadacres Road overpass which could interfere with construction of an interchange.

The automobile was identified as the dominant travel mode in Hubbard and therefore the city's dominant transportation facility was the street network. Generally good traffic circulation existed in Hubbard, but extension of future streets and ROW should consider improving circulation. A standard grid system, located west of Hwy. 99E, promoted good circulation, but the street network east of Hwy. 99E was not a grid system and circulation was not as good. Hwy. 99E and the railroad presented some hindrance to east-west travel.

The Plan (1977) contained some specific information and recommendations related to Highway 99E:

- The highway was a major transportation link to points north and south of Hubbard,
- Highway should be widened,
- Accesses should be controlled and combined where possible,
- New development should be sited to allow for future road widening,
- New development along Hwy. 99E required to widen and improve Hwy. 99E, and
- Widen Hwy. 99E to four lanes with turning lanes/signal at the main intersection.

Recommendations for improvements to other arterial streets included:

- Extend 3rd St. from the dead end to the north city limits to a connection with Hwy. 99E,
- Widen J Street to 40 feet and improve the intersection with Hwy. 99E (right angle) because the road was intended to serve as the major access point for the city's industrial district, and
- Widen D Street to 40 feet as development occurs.

Recommendations for improvements to collector streets included:

- Extend A Street east of Hwy. 99E to serve as a collector street for commercial and residential zones to north,
- Use A Street as major access when development on school property occurred, and
- Build another collector street connecting to Hwy. 99E in the northwest portion of the city.

Most local streets were described as substandard and needed curbs, gutters, catch basins, sidewalks, and increased paved width. An important local street, Industrial Avenue, was planned to serve the industrial park area in the southeast part of the city and it was recommended that some alleys be vacated in residential areas.

Inventory of Existing Streets and Conditions

Functional Class and Condition

The roadway inventory (Figure 12 and Appendix C) is a compilation of information gathered by Hubbard Public Works in 1998, Marion County Public Works, and ODOT. Data showed that about 59,465 linear feet (11.3 miles) of roadway were located inside the UGB. Table 7 shows how the streets are allocated amongst existing functional classes.

Collectors and arterials comprised about 53% (31,657 feet) of the existing street network. Table 14 summarizes available information about street name, number of intersections, length, speed limit, pavement width and condition, ROW width, and traffic volume. Detailed inventory information, by street segment, is found in Appendix C-1. The inventory identified certain segments in need of repair. Segments in poor or fair condition are shown on Figure 12. About 1,759 feet (3% of total) of roadway, located mainly on 3rd and A Streets, had poor pavement condition. About 7,879 feet (14% of total) of roadway, located mainly on 3rd, J, I, an D Streets, had fair pavement condition.

TABLE 13. EXISTING STREET NETWORK: ALLOCATION BY FUNCTIONAL CLASS

Functional Class	Linear Feet	Average Width[1]	Percent of Network
Local	27,808	27.7	47
Collector	12,772	21.8	21
Arterial	18,885	36.8	32
TOTAL	**59,465** **11.3 miles**		

Table data is from ODOT and Marion County inventory information and an inventory completed by Hubbard Public Works as part of the TSP. Roads classified by Marion County as Minor or Major Urban Collector are considered arterial in this table.

[1] This is a "weighted" average for paved roads only and is based on the width of segments of a certain length compared to the entire length

TABLE 14. SUMMARY OF EXISTING ARTERIAL AND COLLECTOR STREETS

Street Name	Inter-sections[1]	Length (ft)	Speed Limit (mph)	Pavement / ROW Width	Pavement Condition	Traffic Volume (ADT)
Hwy. 99E South UGB - North UGB	11	6,733	40	44-58' / 80'	Good	11,700 - 13,100 in 1997
3rd Street South UGB - North UGB	11	4,376'	25	22-40' / 60'	Fair to poor good on north end	2,500-3,000 in 1998
J Street[2] West UGB - RR	4	1,341	25	21-33' / 60'	Fair	1,500 in 1995
J Street RR -about G St.	4	1,752	25	24-34' / 60'	Fair to good	1,500 in 1995
Whiskey Hill Rd.[3] about G St. - east UGB	3	1,126		20-33' / 60'	Good	2,200 in 1995
Mineral Springs Rd. West UGB to west city limits	0	364	55	20' / 40'	Good	1,210 in 1995
D Street city limits - Oak Ridge Drive	9	3,361	25	20-42' / 40-60'	Good	2,000 - 2,999 in 1995
A Street 7th St. to A St.	8	1,976	25	18-30' / 60'	Poor to good	990 in 1998
G Street 2nd St. to J St.	4	1,286	25	24-48' / 60'	Good	2,742 in 1998
2nd Street J St. - A St.	9	2,428	25	22-30' / 60'		
5th Street J St. - north UGB	11	3,885	25	19-20' / 60'	Good	1,787 in 1998
7th Street J St. - A St.	8	2,574	25	19-25' / 50-60'	Good	

1 Intersection number includes the crossroads at the ends of the segments evaluated.
2 Total length of J Street inside Hubbard UGB is 4,217 feet
3 Total length of D Street inside Hubbard UGB is 3,919 feet
4 Total length of G Street inside Hubbard UGB is 2,655 feet

Street length ranged from 1,974 to 6,733 feet and Hwy. 99E was the longest continuous street inside the UGB (Table 14). Third Street was the longest street entirely under city jurisdiction. Speed limit on all streets in Hubbard was 25 mph expect for Hwy. 99E where the speed limit was 40 mph, and a segment of Mineral Springs Road with a speed limit was 55 mph. Most right-of-way width was 60 feet, but ROW along Hwy. 99E was 80 feet and ROW along D Street, between Hwy. 99E and 7th Street, was 90 feet. Mineral Springs Rd. (D St.), west of city limits, had a 40 foot ROW width, and 1st Street had row widths between 20 and 30 feet (south end to D ST.). Pavement widths on city streets ranged from 18 to 58 feet. Widest paved widths were associated with Hwy. 99E and the narrowest widths were located on A Street.

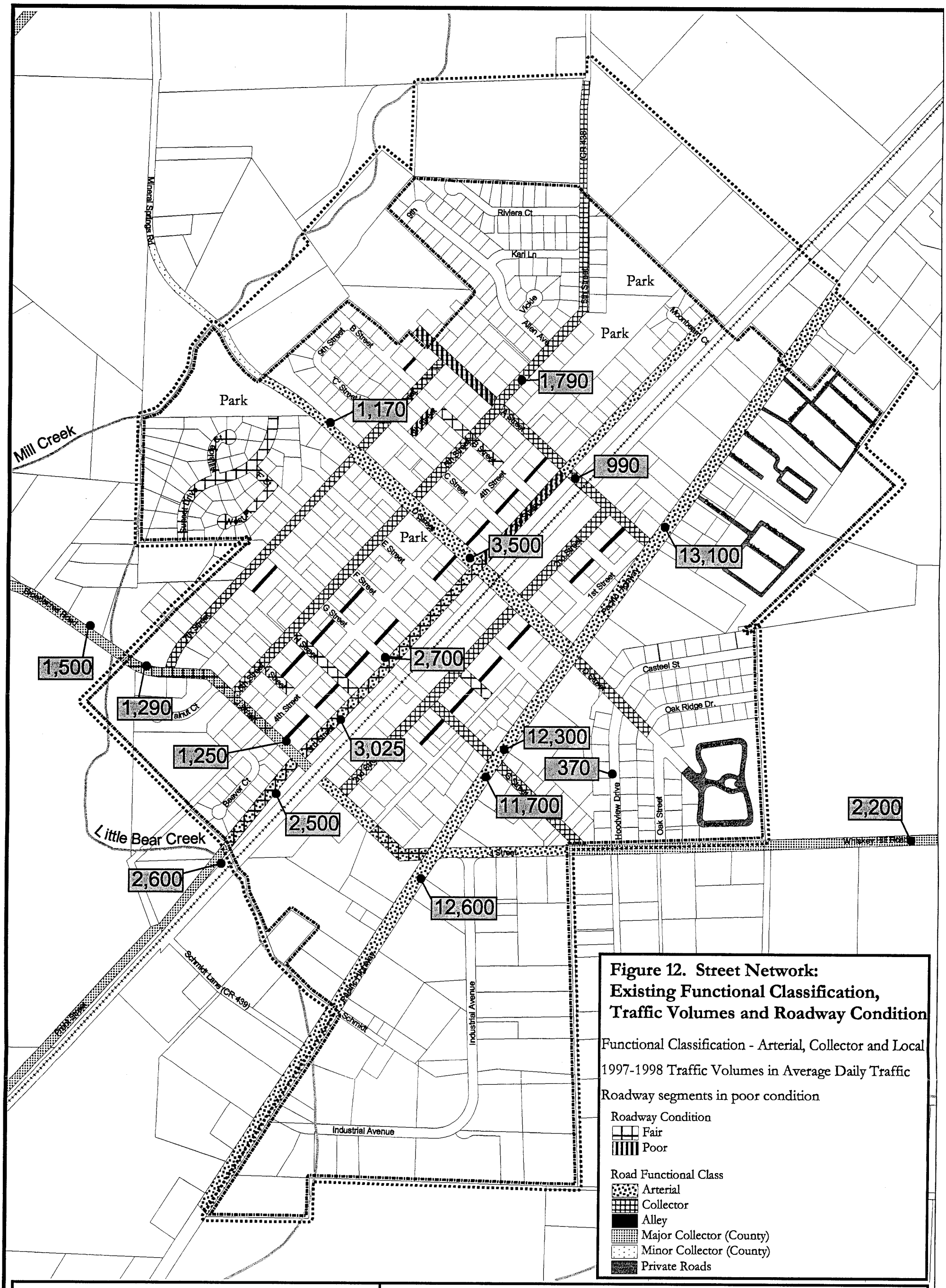

Figure 12. Street Network: Existing Functional Classification, Traffic Volumes and Roadway Condition

Functional Classification - Arterial, Collector and Local

1997-1998 Traffic Volumes in Average Daily Traffic

Roadway segments in poor condition

Roadway Condition
- Fair
- Poor

Road Functional Class
- Arterial
- Collector
- Alley
- Major Collector (County)
- Minor Collector (County)
- Private Roads

Title: Figure 12. Street Network

Prepared by: Mid-Willamette Valley Council of Governments

Created by: AJW | Date: November 5, 1998 | Revision: 1

Filename: r:/cog4/projects/hubbard/hub-tsp.apr

Average Daily Traffic 11x17 Portrait--Rev: 1

City Limits
Urban Growth Boundary
Railroads

400 0 400 800 Feet

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Most city streets had two lanes except Highway 99E which had a center turning lane from the south UGB to the signalized intersection with D Street. The highway was two lanes north of D Street. In general, pavement conditions were good on the arterial and collector streets with the exception being 3rd, A, and J Streets. These roadways had a higher percentage of pavement in poor or fair condition (Appendix C).

Hubbard had one traffic signal, with left turn arrows, at the intersection of Hwy. 99E and D Street. Flashing yellow caution lights were located at the intersection of Hwy. 99E and G Street and the intersection of Hwy. 99E and J Street. The signal and caution lights were under the jurisdiction of the ODOT. Most intersections in Hubbard did not have separate turning lanes, except for the intersections of Hwy. 99E and D and J Streets. Hwy. 99E had a center left-turn lane at both intersections. D Street had a left turn lane for traffic approaching Hwy. 99Efrom the east.

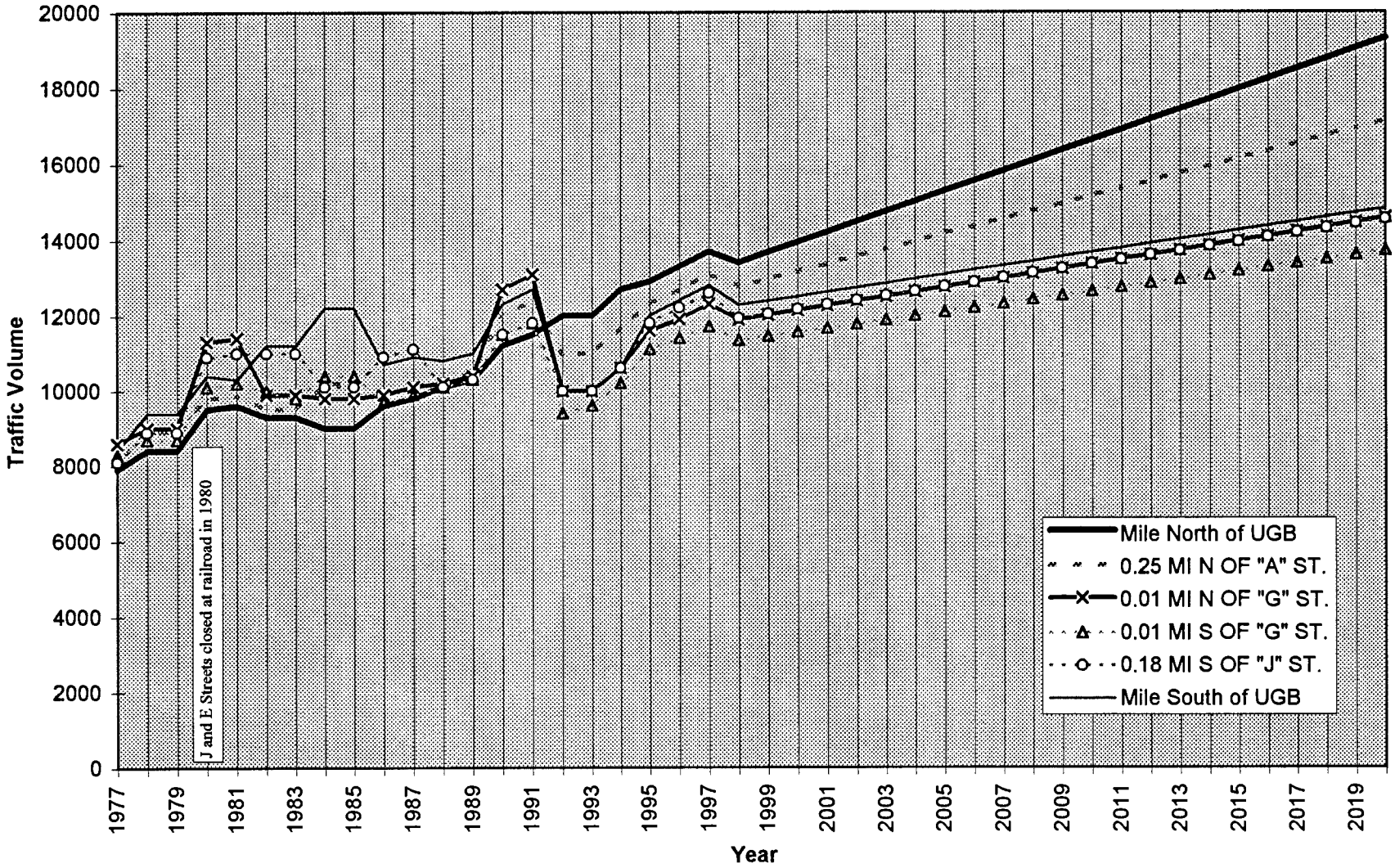
Traffic Volume and Level of Service

Current traffic volume (Average Daily Traffic) on arterial and collector streets is listed in Table 14 and shown on Figure 12. Data (1996-98) was obtained from ODOT, Marion County and the city of Hubbard. North-south traffic on Hwy. 99E ranged from 11,600 to 13,100 ADT and was 3-4 times the volume of traffic on any other road in Hubbard. Traffic movement in and out of the city on other arterials, ranked by ADT at or near the UGB, was as follows: (1) 3rd St. (2,600 ADT), (2) Whiskey Hill Rd. (2,200 ADT), (3) J St./Broadacres Rd. (1,500 ADT), and (4) Mineral Springs Rd. (1,170 ADT).

The highest, in-town arterial traffic volume was located on D St. (3,600 ADT) which also had the only signalized intersection with the highway. Traffic volume data was not available for all collector streets in Hubbard, but existing information suggested that volumes were heaviest on G St. (2,700 ADT), followed by 5th St. (1,790 ADT) and A St. (990 ADT).

Historic traffic volumes were available for Hwy. 99E. Traffic volumes from 1977-97, measured at 6 locations within and near Hubbard, are shown on Figure 13. Between 1977-97, traffic volume on Hwy. 99 E, 0.01 mile north of G St. increased from 8,600 to 12,300 ADT (43%). Overall, there appears to be a shift in the location of highest traffic volumes from the south end to the north end of town, beginning in about 1982. It is difficult to see the impact of closing at-grade railroad crossings at J and E Streets on highway traffic volume. Traffic volume north of G Street dropped in 1992 (11,400 to 9,900 ADT), but traffic volume south of G St. showed no abrupt changes after 1980 (Figure 13). The crossing closings may have had more effect on local traffic flow rather than through traffic, or been masked by signalization of the D St. intersection and the construction of Industrial Avenue.

Figure 13. Historic and Projected Traffic Volumes on Highway 99E



Level of service (LOS) is a semi-quantitative measure of the effect of a number of factors on transportation service including speed and travel time, traffic interruptions, freedom of movement, safety, driving comfort, and convenience. Table 29 in Appendix A describes typical traffic flow conditions for each level of service, with LOS A representing mostly uninterrupted flow and LOS F representing traffic jams.

The Marion RTSP (1998) included LOS analyses for four intersections in Hubbard (Table 15). The existing LOS at all intersections met County standards.

TABLE 15. LOS AT SELECTED HUBBARD INTERSECTIONS

Intersection Location	LOS in 1995
J and 3rd Streets	A
Hwy. 99E and J Street	D
Hwy. 99E and G Street	E
Hwy. 99E and D Street	B

During the public input phase of the TSP, Hubbard residents repeatedly identified the following areas as congested:

- Hwy. 99E in morning and evening, work travel- 7 (number of responses)
- The intersection of Hwy. 99E and G Street between 4:00 and 6:00 PM- 5
- The intersection of Hwy. 99E and D Street between 4:00 and 6:00 PM- 2
- Hwy. 99E all day-2
- Post office area-2
- All of Hwy. 99E in the late afternoon- 2

Hubbard residents view Hwy. 99E as the location of most congestion and unsatisfactory LOS in the city.

Access Management

The goal of access management is to protect a street for its intended function. Access management is primarily a tool that can be used to insure that objectives of mobility and safety are preserved for the city's arterial and collector system. Hwy. 99E, and the city's minor arterials, present important challenges related to reconciling the needs of past and future development along the roadways with the roadways' intended primary function of carrying through traffic.

The city of Hubbard has 44 driveway access points along Hwy. 99E (Appendix C-2, Figure 20). These can generally be divided into 32 commercial use driveways and 12 residential use driveways. Eleven of these access points are common driveways shared by more than one user. Thirteen of the 44 driveways have secondary street access from corner lots or property that extends to a parallel secondary street. Inventoried accesses are all contained within the city's boundaries.

Additional driveways in the Marion County area south of the immediate city line are generally residential/agricultural with a couple retail access points well spaced along Hwy. 99E. In contrast, immediately north of the city limit is a congested grouping of commercial and residential driveways. These sit at the entrance to Hubbard from the north at a point of speed reduction from 50 mph to 40 mph. Additionally, there is no turn lane for traffic turning into these access points. This is the **most frequent** point of automobile accidents along this stretch of Hwy. 99E. These have a direct impact on the city of Hubbard's Police Department staff, yet fall outside their taxing authority.

The inventory found that 39 driveways per mile were located along the highway inside Hubbard city limits. This range is comparable to the 14-65 driveways per mile on Highway 99E in Woodburn.

Safety and Crashes

TABLE 16. HUBBARD CRASHES: 1988-1997

Year	Total Accidents	Fatalities
1988	19	1
1989	15	0
1990	26	1
1991	16	0
1992	20	0
1993	23	1
1994	19	0
1995	32	0
1996	32	0
1997	20	0
TOTAL	**222**	**3**

Hubbard's crash statistics from 1988 through 1997 for were obtained from ODOT's Accident Summary Database. Data showed that 222 total crashes and 3 fatalities occurred during this interval (Table 16). Crash locations are shown on Figure 14. The data was analyzed for collision type, cause, and driver error (Table 17). The analysis also separated crashes occurring on Hwy. 99E from crashes on all other Hubbard streets to see if the different driving conditions resulted in different types of crashes.

Fatal crashes in Hubbard were located on the arterial streets: two fatalities were located on Hwy. 99E (near J and Elm Streets), and one fatality was located on Third St. (north of A St.). These crashes involved drugs or alcohol (2 events) or driving too fast for conditions (1 event). A crash involving a pedestrian was located near the intersection of Third and E Streets.

Total annual crashes were also compared to traffic volume on Hwy. 99E (measured north of G St.) during 1988-1997 (Figure 15). In general, the total number of crashes in Hubbard is increasing, as is traffic, and proportionally more crashes have been occurring on Hwy. 99E, especially in 1996 and 1997.

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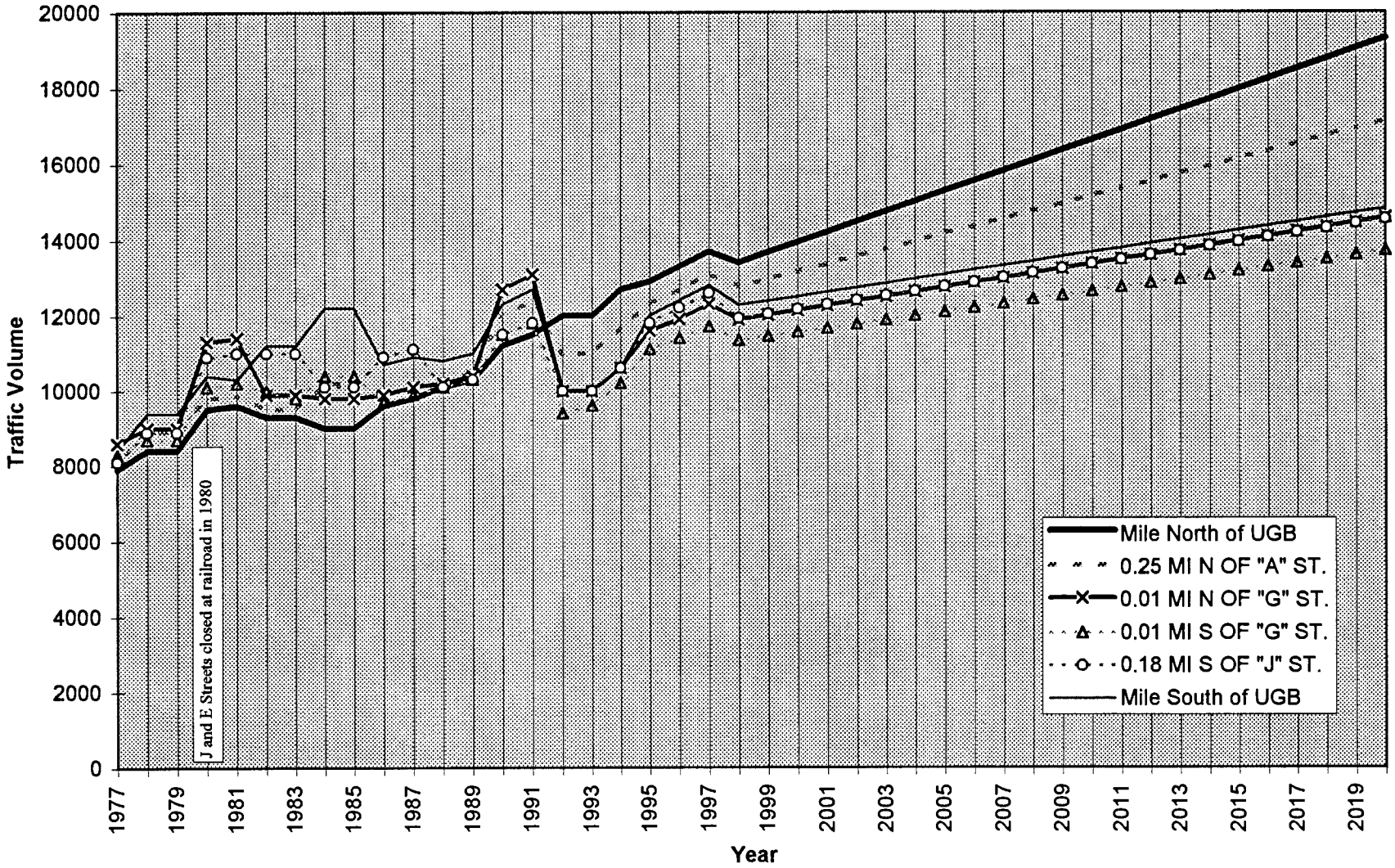

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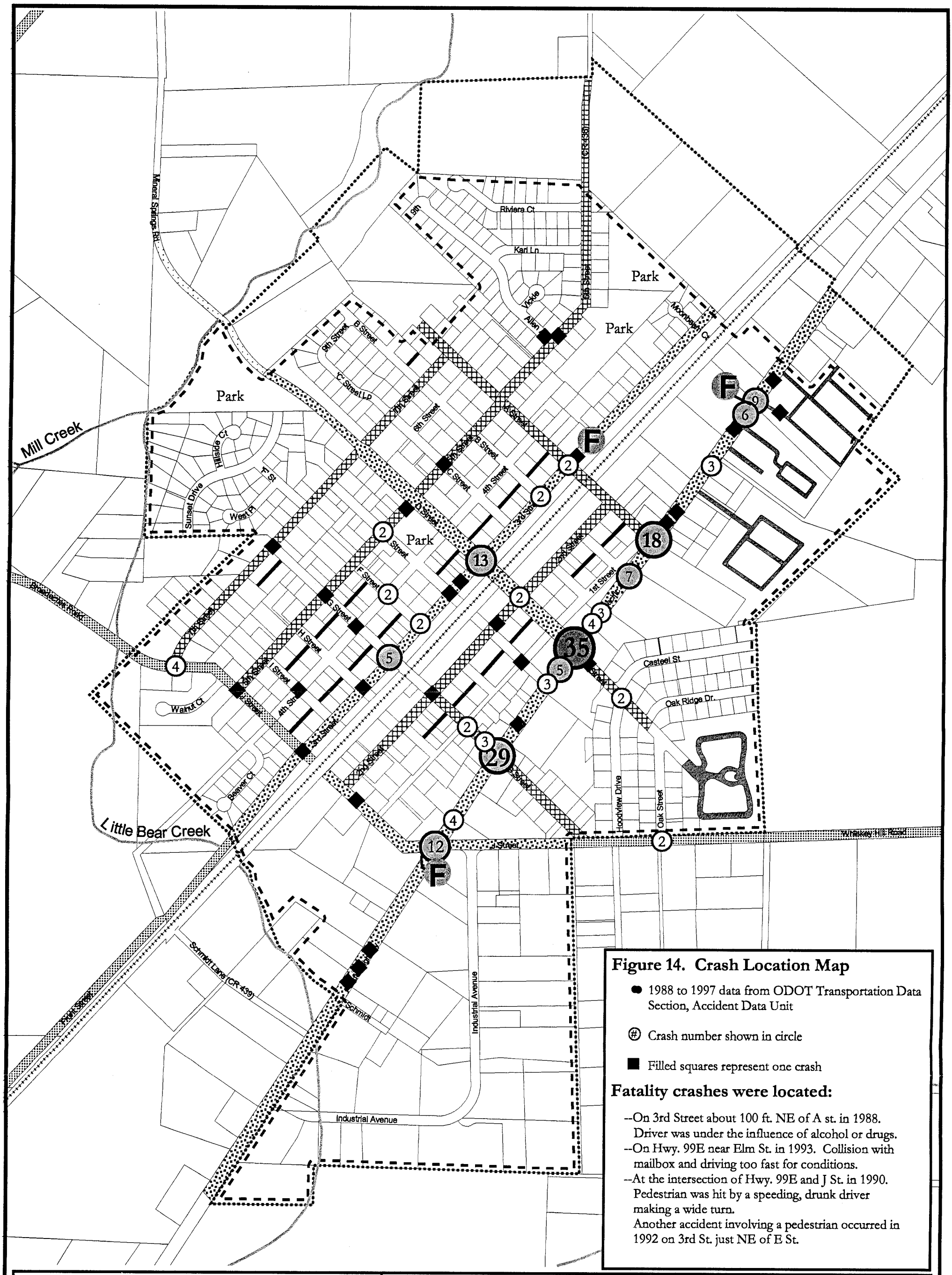

Figure 14. Crash Location Map

- 1988 to 1997 data from ODOT Transportation Data Section, Accident Data Unit
- (#) Crash number shown in circle
- ■ Filled squares represent one crash

Fatality crashes were located:

--On 3rd Street about 100 ft. NE of A st. in 1988. Driver was under the influence of alcohol or drugs.

--On Hwy. 99E near Elm St. in 1993. Collision with mailbox and driving too fast for conditions.

--At the intersection of Hwy. 99E and J St. in 1990. Pedestrian was hit by a speeding, drunk driver making a wide turn.
Another accident involving a pedestrian occurred in 1992 on 3rd St. just NE of E St.

Title:
Figure 14. Crash Location Map

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	May 10, 1999	1

Filename:
r:/cog4/projects/hubbard/hub-tsp.apr

City of Crash Location Map 11x17 Portrait--Rev: 1

City Limits
Urban Growth Boundary
Railroads
Road Functional Class
Arterial
Collector
Alley
Major Collector (County)
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Private Roads

300 0 300 600 Feet

N W E S

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In Hubbard, on streets other than Hwy. 99E (Table 17), the two most common types of collisions were angle types (39% of total crashes), followed by turning types (25% of total crashes). The most common cause was failure to yield the right-of-way (45%) and driver error was not having the right-of way (44%). On Hwy. 99E, the two most common types of collisions were turning types (30% of total crashes) and angle types (19% of total crashes). The two most common causes were improper driving (30%) and failure to yield right-of-way (26%) and driver error was failure to avoid stopped vehicles (38%) and not having right-of-way (25%). Angle type collisions occur when two vehicles intended to go straight through an intersection, but collided. Turning type collisions occur when one or both vehicles intended to turn at an intersection, but collided.

TABLE 17. HUBBARD CRASH STATISTICS: 1988-97

TYPE OF COLLISION				
	Other Hubbard Streets		Hwy. 99E	
	Number	*Percent of Total*[1]	Number	*Percent of Total*[2]
Angle	**28**	***39***	29	*19*
Turning Movements	18	*25*	**46**	***30***
Backing	11	*15*	0	
Fixed/Other Object	5	*7*	6	*4*
Non-collision	1		0	
Pedestrian	1		1	
Sideswipe-meeting	1		2	
Sideswipe-overtaking	1		2	
Parking Movements	1		0	
Animal	0		1	
CAUSE				
Did Not Yield Right of Way	**32**	***45***	39	*26*
Passed Stop Sign or Red Flasher	7	*10*	2	
Other Improper Driving	16	*23*	**45**	***30***
Made Improper Turn	7	*10*	10	*7*
Drove Left of Center on 2-Way Road	1		3	
Disregarded a Traffic Signal	0		18	*12*
DRIVER ERROR				
Disregarded Stop Sign or Signal	7	*10*	1	
Did Not Have Right-of-Way	**31**	***44***	37	*25*
Backing Improperly	10	*14*	0	
Failed to Avoid Stopped or Parked Vehicle	5	*7*	**58**	***38***
Disregarded Traffic Signal	0		18	*12*
Driving Too Fast For Conditions	4	*6*	7	*5*
Left Turn in Front of Oncoming Traffic	1		12	*8*

1. Percent of total number of crashes in Hubbard not on Hwy. 99E
2. Percent of total number of crashes in Hubbard on Hwy. 99E

The intersections with the highest number of crashes were:

- Hwy. 99E / D Street (35 total crashes),
- Hwy. 99E / G Street (29),
- Hwy. 99E / A Street (18)
- Third Street / D Street (13), and
- Hwy. 99E / J Street (12).

At D and Hwy. 99E, crashes were about 33% angle, turning, and rear collision types, and driver error was mainly disregarding the traffic signal and failure to yield right-of-way. At G and Hwy. 99E; crashes were 48% angle collision type and 31% turning collision type and driver error was mainly failure to yield right-of-way.

At A and Hwy. 99 E, crashes were 50% rear collision type and 44% turning collision type, and driver error was mainly failure to avoid a stopped or parked vehicle and yield right-of-way. Between A and the north UGB on Hwy. 99E, crashes were 68% rear collision type and 14% turning collision type and driver error was mainly failure to avoid a stopped or parked vehicle. The increasing incidence of rear end collisions occurred on the portion of Hwy. 99E that lacked a center turning lane. At J and Hwy. 99E; crashes were 58% turning collision type and 25% angle collision type and driver error was mainly failure to yield right-of-way.

Crashes between 1988-97 were also evaluated by the time of day, day of the week, and month (graphed results in Appendix C). Most crashes in Hubbard occurred in the afternoon and early evening, and peaked between 3:00 and 6:00 PM. The distribution of crashes by time of day was similar for both Hwy. 99E and other Hubbard streets. The greatest difference between the number of crashes on other Hubbard streets vs. Hwy. 99E occurred between 5:00 to 6:00 PM when 23 crashes occurred on the highway compared to one on other Hubbard streets.

For both Hwy. 99E and other Hubbard streets, more crashes occurred during the work week than on the weekend and Friday had the most crashes of any day of the week. Saturday (22 crashes) and Sunday (21 crashes) had about half the number of crashes as Friday (42 crashes). The pattern of crash distribution by month was similar for Hwy. 99E and other Hubbard Streets with peak numbers occurring in January, April, August, and November (Appendix C). The highest number of crashes on Hwy. 99E occurred during the month of August (17 crashes), and the lowest number occurred in December (5 crashes). Other Hubbard streets also had the least number of crashes occurring in December and May (2 crashes), but the highest number of crashes occurred during the month of January (7 crashes), not August.

During the public input phase of the TSP, Hubbard residents repeatedly identified the following roadway areas or situations as unsafe:

- Getting on and off Hwy. 99E- 4
- Unsafe intersection at Hwy. 99E and A Street- 4

Existing and Future Roadway Needs

The existing road system inventory, population growth and employment forecast, development patterns, future traffic volumes, and level of service forecasts is used to identify existing and future roadway needs. The discussion of needs has been divided into review of functional classification, forecast of future traffic volumes and LOS, improvement of existing roadways, location of new roadways, access management, safety improvements, , review of street design standards, other structures, and truck route.

Functional Class

A review of the existing functional classification of the Hubbard street network; comparison with ODOT, Marion County, and Woodburn classification; and existing and future traffic volumes suggested that Hubbard should reexamine the arterial classification system. Traffic volume on Hwy. 99E was, and is forecast to be, 3 to 5 times the volume on any other designated arterial street in the city. The city should also reconsider the roadway types and associated design standards in the Table 12. A commercial/industrial/institutional type of roadway is listed in the table, but not shown on any maps or specified for any situations. Hubbard should describe the purpose of minor arterials and collectors in order to preserve roadway function during the course of subsequent planning and construction decisions.

Future Traffic Volume and Level of Service

TABLE 19. FUTURE POPULATION, TRAFFIC VOLUME, AND LOS

Parameter	Existing Value	2020 Value	Change
Population	2,210	3,105	40%
Local residential traffic	See Figure 12	?	+2,500 ADT
South Hwy. 99E Traffic Volume	12,600 ADT	14,500 -26,000 ADT	15 - 206%
North Hwy. 99E Traffic Volume	13,100 ADT	15,200 ADT[1] - 19,300	16 - 47%
South end of Third St. Traffic Volume	2,500 ADT	4,000 - 8,000 ADT LOS C for 5,000 ADT	60 - 320%
Whiskey Hill (east of J St.) Traffic Volume	2,200	5,200[1]	42%
Mineral Springs (west of D St.) Traffic Volume	1,210	2,690[1] LOS C	222%

1. Marion County transportation model value for 2015

Future traffic volumes and level of service were estimated for selected roads and intersections in Hubbard (Table 19). This information is used in conjunction with the background and inventory information to identify future roadway needs.

New Roadways

The road system will increase as the urbanizable area around Hubbard is developed and new roads are needed to access property. Figure 8 shows that the largest pieces of undeveloped land, not served by the existing street network, are located in northwest Hubbard. The TSP does not identify local street alignments, but does indicate the conceptual location of collector and arterial streets.

Hubbard's new road network should:

- Extend existing collectors and arterials to provide for good local circulation and connection to intra-county and inter-city facilities;
- Build new collectors to provide access to land, and connection to the local street system and community centers;
- Build new collectors to improve circulation and local travel alternatives in east Hubbard. Local, north-south travel, off Hwy. 99E, is very limited in east Hubbard, and
- Improve and preserve existing and future system connectivity by assuring that local roads are connected to the new arterial and collector roads. New road layouts should assure the ability to extend arterial and collectors outside the UGB as the need arises.

Access Management

Arterials and collectors in Hubbard must provide both safe, efficient, through flow of traffic and access to property and businesses. The distribution of the high crash locations, and complaints regarding congestion on Hwy. 99E, suggests that access management is an important component of addressing capacity and safety concerns. In light of these competing demands on the arterials, particularly Hwy. 99E, the city will work with adjacent property owners to develop creative approaches to access management. Although the state has jurisdiction over the highway itself, the city has control over land adjacent to the highway, and thus, has significant influence over access demands. Because of the overlapping jurisdictions, all development proposals that impact the state highway will be submitted to ODOT for review.

D, J, and 3rd Streets are a minor arterials where access management is of particular importance because these routes provide east-west connections and travel alternatives to Hwy. 99E, respectively. Preserving the future mobility of these roadways will require a coordinated commitment to managing access by Marion County and Hubbard.

Safety Improvements

Existing information identified several relatively unsafe intersections, unsafe street segments, unsafe situations, and conflicts between transportation modes:

- Third Street / D Street,
- Hwy. 99E / J Street,
- Hwy. 99E / G Street,

emergency response travel across one crossing of Mill Creek was not blocked by a 100-year flood event.

The city also needs to ensure that the protected at-grade railroad crossings are located so as maximize intra-city traffic circulation and connection to inter-city and intra-county routes. These crossing facilities should also be coordinated with intersection improvements on Hwy. 99Eto improve safety and traffic flow.

Truck Route

Hubbard would also like to direct truck traffic through the city for safety, capacity, and road maintenance reasons. A truck route to redirect large vehicles and hazardous materials is recommended. The adequacy of the roadway base, pavement layers, and intersection characteristics should be evaluated as part of route selection.

Roadway Facilities Plan

The roadway facilities plan (Figure 16) will be used as a guide to assure the dedication, or in some cases, the acquisition of adequate rights-of-way for streets and related facility improvements in appropriate locations. While exact alignments may require more detailed refinement studies, this plan identifies the general alignments and connections that need to be made in order for the city to provide a safe, convenient, and economic transportation system with adequate access to all planned land uses. The roadway plan also addressees safety, capacity, maintenance, and access management.

Functional Classification

Most of the previous functional classification categories and roadway designations were retained. One functional classification was subdivided, another was eliminated and options were developed. Some street segments were reclassified (Figure. 16). Due to large differences in traffic volume, the arterial functional classification is subdivided into major and minor arterials. Hwy. 99E is designated a major arterial; and D, J, and 3rd Streets are designated minor arterials. Hubbard recognizes that the minor arterial streets provide important local connections to inter- and intra-county roadways, elementary and secondary schools, connections to future interstate freeway accesses in northern Marion County, and alternatives to travel on Hwy. 99E. Third St. provides an important alternative route to Woodburn which could be extended north to connect with Grim Road or the Wilsonville Cutoff as needed. Fully protected at-grade rail crossings and intersection improvements with Hwy. 99E are needed in order to improve and preserve the connective and alternative route functions of Hubbard's minor arterials. The commercial/Industrial/Institutional street type is eliminated.

Table 20 Continued

Map Key	Name	Location	Length (feet)	Functional Class	Comments
4	New northwest perimeter road	Runs between the extension of 3rd St. to D Street. 5th Street and west A Street extension connect to road.	4,300	Collector	Intended to provide access to new residential development, connection the collector and minor arterial streets in northwest Hubbard, and provide alternative access to Hwy. 99E.
5	Schmidt Lane	From Hwy. 99E to RR	1,000	Collector	Intended to property access and connection to Hwy. 99E for the industrial lands located in the proposed UGB expansion.
6	New Road	Hwy. 99E and east perimeter road between Parkway Blvd. & Basilio Dr.	800	Collector	Intended to improve circulation in east Hubbard.
7	B, 9th, Casteel, Oak Ridge, Riviera Ct., Rainbow Loop, Pacific Circle, Rudometkin Drive, Ash	Multiple public and private local street connections to new collector streets	150 - 900	Short extensions of local streets to intersect with collector streets.	Intended to improve circulation and promote local travel options off Hwy. 99E. As the opportunity arises, connections between the circular private roads in northeast Hubbard will be connected to the eastern perimeter road.
8	Access Management Area	Adjacent to Hwy. 99E		Not Applicable	Improve safety and capacity on roadways.
9	3rd Street	North dead end to UGB	600	Minor Arterial	Alternative to north-south travel on Hwy. 99E. Preserve ability to extend the street to the north
10	J St.: Open Crossing / Improve Intersection and Street	Closed railroad crossing and intersection with Hwy. 99E		Minor Arterial	Restore function of roadway (east-west travel), improve safety/capacity at intersection, and provide for emergency response use of J St..
11	Mitigate RR Impacts	West of railroad between A Street and north UGB		NA	Provide sound and visuals screens to reduce the conflict between residential uses and railroad

connected street network, with numerous alternative routes, reduces the volume of traffic on any one route and provides a more bicycle/pedestrian friendly environment.

The TPR requirements related to the layout of streets are addressed through the street network plan, street design standards, and the city's land development regulations. While arterial and collector streets are identified in the street network plan, an additional means of achieving a well connected street network is through the Hubbard City Code Amendments to the city's land development regulations are provided Appendix D.

Capacity and Safety Improvements

The city strategy to maintain acceptable levels of service in the in the roadway system includes improvements at intersections (turning lanes and signalization), widening the existing network of arterial and collector streets, phasing out on-street parking on collectors when warranted, and developing a well-connected street network that reduces local travel on Hwy. 99E. Level of Service standards are set in the road design standards to guide the timing of capacity improvements. The city should approach capacity and safety improvements on a situation by situation basis but the following list identifies some options:

- Add a continuous turning lane to Hwy. 99E north of the intersection with D Street;
- Expand the collector street network as identified in Table 20;
- Widen minor arterials and add turning lanes at intersections with collectors;
- Evaluate and improve the intersections of Hwy. 99E and J, G, and A Streets;
- Evaluate and improve the intersections on 3rd Street, especially D and G Streets;
- Evaluate and improve the intersection of 7th and J Streets.
- Apply to ODOT to evaluate the posted speed limits on Hwy. 99E approaching and within the city to improve safety by slowing traffic down.

Capacity improvements on Hwy. 99E will be made as needed. ODOT design standards for Hwy. 99E include four travel lanes, and 1 continuous left turning lane. A parkway strip is an option if the city will assume maintenance responsibilities for the landscaping. As Hwy. 99E is upgraded to meet capacity and safety needs, various landscaping features will be evaluated as a means to slow traffic down as it enters the city and improve aesthetics. This is consistent with the city's policy to improve first impressions of the city by adding charm and beauty to the Hwy. 99E business area.

The Hubbard Fire Department will continue to work with ODOT and railroad hazardous materials and emergency response specialists to prevent accidents and respond to accidents involving rail transport of hazardous materials.

Access Management

The city identifies the area long Hwy. 99E as and access management opportunity area. The city will use the access inventory information (Appendix C-2) to work with ODOT

(Front) Street between the southern UGB and D St., Broadacres Rd./J St. between the west UGB and Front St., Whiskey Hill Rd./J St. between the east UGB and Hwy. 99E; and D St. /Mineral Springs Rd, between Hwy. 99E and the west UGB. If and when the J St. at-grade crossing of the railroad is opened, the segment of J between Hwy. 99E and Front Street would be added to the truck route. The truck route should be studied to evaluate the adequacy of the existing road beds for truck traffic and the turning geometry and turning lane needs of intersections. Needed roadway improvements and parking restrictions should be implemented.

Street Design Standards

The street design standards are summarized in Table 21 and described in the following section. The following description of functional classes and street design standards will help the city to achieve compatibility and consistency in the development of the street network. Although it is important to have recognized street design standards, major street projects often need to be evaluated on an individual basis. Strict adherence to these standards may not be practical in all situations considering existing development or other social, economic, and environmental constraints. Furthermore, there are other considerations that need to be evaluated when designing specific streets including distance between intersections, access points, and adjacent land uses.

MAJOR ARTERIAL

Access

Access Spacing: In Hubbard, the major arterial street is a state highway (Hwy. 99E). ODOT has sole responsibility for approval and permitting of accesses to state highways and Hubbard must coordinate with the state-developed standards. ODOT management objectives are moderate to low speeds (~45 mph) with moderate interruptions of flow (LOS D). ODOT's access management standards are 1,320' minimum spacing between public road intersections, 300-500 feet minimum spacing between private road intersections, and ¼ - ½ mile minimum spacing between traffic signals. Additional pedestrian and bikeway accesses will be provided where blocks are 600 to 1,320 feet long.

Uses Permitted Direct Access: The following will be permitted direct major arterial access when they conform with spacing requirements.

- Commercial
- Major public or private development
- High Schools

Uses Prohibited Direct Major Arterial Access:

- Single-family residential
- Duplex
- Multi-family
- Elementary or Middle Schools
- Parks

The city will use the access inventory information in this TSP and work with ODOT and property owners along Hwy. 99E to minimize the number of accesses and provide optimum access spacing as the opportunity arises. The city will also work with property owners to develop connections between parking lots. The city recognizes that capacity improvements to Hwy. 99E will be phased in based on the need.

ODOT V/C Standard: 0.8 or **LOS D**
Minimum Right-of-Way: 100'
Minimum Curb-to-Curb Width: 76'
Travel Lanes: 4 @ 12'
Left Turn Lane: 1 @ 14 to 16'
On-street Parking: Prohibited
Sidewalks: Required, both sides, 6' minimum width.
Bikeways: Bikelanes required, 6', both sides.
Parkway Strip: Two @ 5' with the city providing maintenance
Public Utility Easement: Two @ 8'
Additional Design Considerations: Additional right-of-way and roadway improvements may be required at major intersections to provide for turn lanes. When the pre-existing patterns of land ownership preclude the application of the spacing standard, the city will encourage property owners to share private drives or access local and collector streets whenever possible.

COLLECTOR

Access

Access Spacing: Access to collectors will be permitted by both streets and private drives. Minimum spacing between public street intersections will be 400 feet, centerline to centerline. Minimum access spacing for private driveways will be 100 to 150 feet. The city will encourage property owners to minimize collector street access according to the following guidelines: on-site vehicle turn-arounds, adequate off-street parking, safe intersection sight distance, and safe off-set distance between intersections on opposing sides of the collector. The city will encourage combined access to collector streets wherever practical.

Level of Service Standard: B

Minimum Right-of-Way: 60 feet

Minimum Curb-to-curb Width: 34 feet

Travel Lanes: two @10' (Phase I), two @11' (Phase II)

Bikeways:

- Phase 1: Shared roadway
- Phase 2: Bike lane required, 2 @ 6'

On-street Parking:

- Phase 1: Permitted, both sides @7'.
- Phase 2: Prohibited

Parkway Strip: 2 @4.5'

Sidewalks: Required, both sides, 5' minimum width.

Public Utility Easement: 2 @ 8'

Additional Local Street Design Considerations: Collectors may exist in two phases. Collector streets with less than 3,000 ADT and speeds less than or equal to 25 mph can accommodate on-street parking and bicyclists on the roadway, functioning more as a local than as a collector street. As development occurs and traffic volumes begin to exceed 3,000 ADT, the city will begin to study the need to eliminate on-street parking and provide designated bike lanes. This strategy provides the city with the flexibility to easily increase the capacity of a collector street at minimal cost, based on need.

As collector streets are restriped to meet increased traffic volumes, additional right-of-way and roadway improvements may be required at major intersections to provide for turn lanes.

LOCAL STREET: OPTION D

Level of Service Standard: B
Minimum Right-of-Way: 60 feet
Minimum Curb-to-Curb Width: 34 feet
Travel Lanes: 2 @10'
On-street Parking: On-street Parking: Permitted, both sides @7'.
Parkway Strip: 2 @5'
Sidewalks: Required, both sides, 5' minimum width.
Public Utility Easement: 2 @ 8'
Bikeways: Shared roadway
Application: Serves local traffic and some through traffic connection to collectors and arterials, average daily traffic of 1,000 to 2,000, speeds ≤25 mph.

Additional Local Street Design Considerations: A well connected local street network is important for convenient bicycle and pedestrian access. Cul-de-sac streets will continue to be discouraged in favor of connection with existing or planned streets. Because local streets serve a wide range of uses, including neighborhood play areas, the city will explore options that discourage "through" traffic and speeds in excess of 25 mph. Application guidelines are listed for each of the local street options, but local conditions may warrant different widths. Selection of local street option will be reviewed by the city to ensure that it is appropriate for emergency vehicle access, average daily traffic, local vs. through type of travel, and number of dwelling units served. Block perimeter shall not exceed 1,600 feet unless the previous adjacent development pattern or topographical conditions justify a variation. Blocks longer than 600 feet will provide additional pedestrian and bikeway accesses.

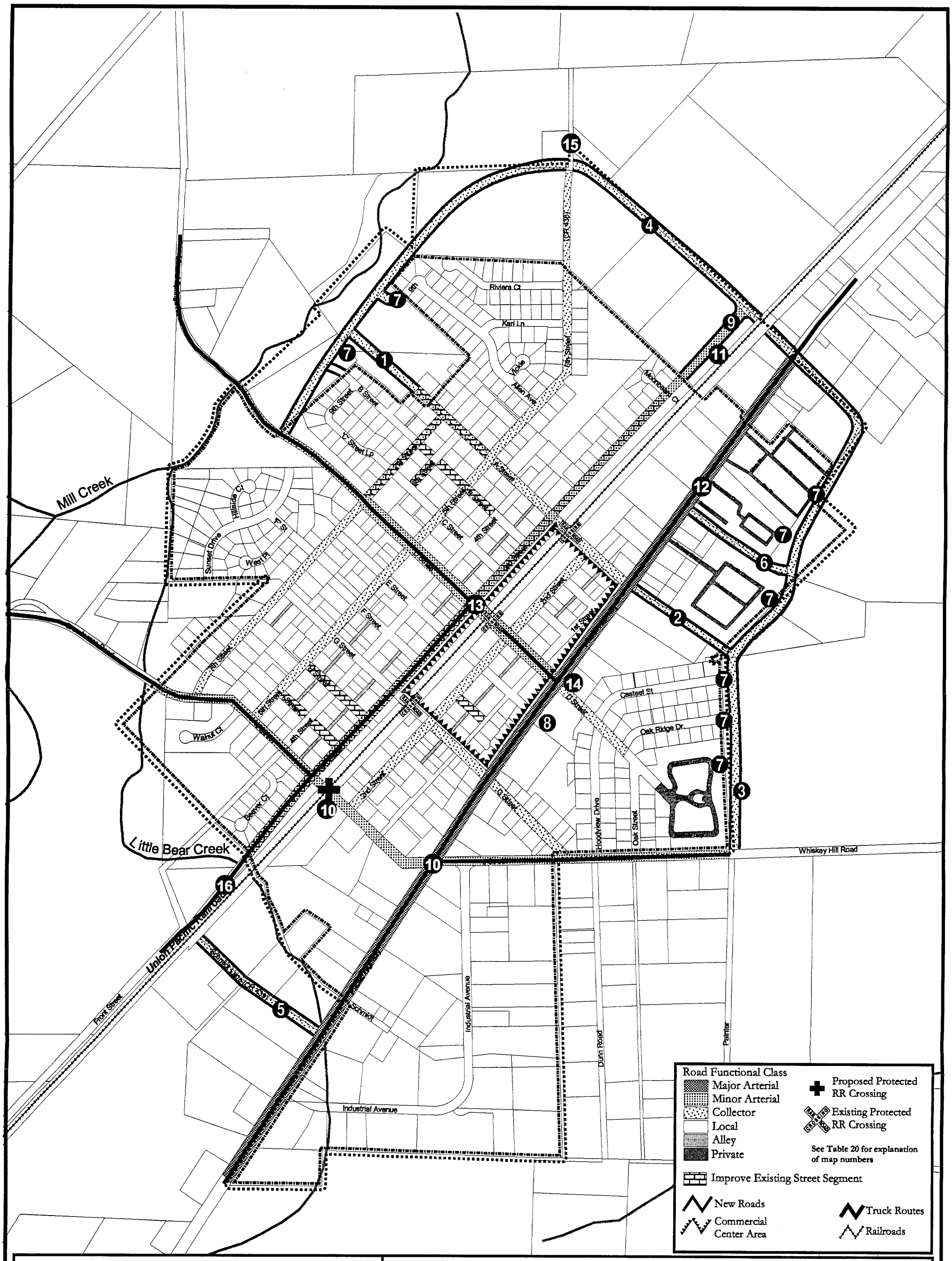
Goals and Policies

GOAL: To encourage safe, efficient, convenient, and economic modes of travel that reduces reliance upon one form of transportation, minimizes energy consumption and air quality impacts.

GOAL: To develop a safe and efficient street system which will handle the projected needs of the community and provide connections to the region.

1. Policy- Support efforts to plan for and construct an additional I-5 interchange in the north Marion County region.

2. Policy- The designated existing and future major and minor arterials, and collector streets in the Street Network Plan of the TSP will be used to prioritize street maintenance and guide the location and design of new streets.



Title:

Figure 16. Roadway Network and Rail Plan

Prepared by:
Mid-Willamette Valley Council of Governments

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Rail Freight and Rail Passenger Transportation

This section of the TSP:

- References the requirement to plan for rail facilities in the Transportation Planning Rule,
- Reviews standards, plans, and policy (ODOT, 1995),
- Completes an inventory of rail transportation facilities and services in Hubbard,
- Identifies existing and future needs in Hubbard, and
- Presents the rail facility plan.

The inventory of existing rail passenger and freight services includes a description of facilities, shipping and passenger use, public input, and background information regarding previous closure decisions of at-grade crossings in Hubbard.

TPR Requirement

The TPR (OAR 660-12-020(2)(c)) requires that the TSP include a Rail Transportation Plan which:

- Describes the intercity bus and passenger rail service and identifies the location of terminals
- Includes and 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.

Rail Standards, Plans, and Policy

ODOT has separate plans for rail passenger and rail freight services. These plans directly affect Hubbard because the city is bisected by track that is heavily used for rail freight and rail passenger services. These uses are expected not only to continue at present levels, but to increase during the planning horizon.

State policies set the general context and standards for site specific decisions. The Oregon Transportation Commission established policies and actions regarding freight and passenger rail service (ODOT, 1994). Present policies are:

1. Increase economic opportunities for the State by having a viable and competitive rail system.
2. Strengthen the retention of local rail service where feasible.
3. Protect abandoned rail rights-of-way for alternative or future use.
4. Integrate rail freight considerations into the State's land use planning process.

Planning actions associated with the fourth policy are listed because they are particularly relevant to Hubbard:

1. Recognize the social, economic, and environmental importance of rail freight service.

2. Encourage land use zoning ordinances that enhance and protect existing rail freight service.
3. Work with communities to minimize conflicts between railroad operations and other urban activities.
4. Assist in removing constraints to improved operating efficiency within urbanized areas. Work with communities to consolidate or close existing grade crossings and prevent the establishment of unjustifiable new grade crossings.
5. Encourage local jurisdictions to identify alternative uses for low density branch line right-of-ways.

The impact of Planning Action #4 in Hubbard is underscored by the following additional policy statement:

> "South of Portland, the designated High Speed Rail corridor is the Union Pacific mainline. There will be no more at grade public or private crossings allowed for this line. All efforts should be made to close unnecessary crossings or provide for future grade separations (ODOT, 1994)".

The ODOT Rail Crossing Section has three rail-related responsibilities: (1) grade crossing safety, (2) railroad safety, and (3) rail safety. The PUC has jurisdiction over all public grade crossings, must approve new crossings and alterations, and can order crossing closures and installation of safety devices. The PUC is charged with inspecting track and equipment, and has responsibilities related to hazardous materials.

The Oregon Rail Passenger Policy & Plan (ODOT, 1992) proposed that a High Speed Rail System be developed between Eugene and Portland and would use the Union Pacific track that bisects Hubbard. The service would also extend through Washington to Vancouver, British Columbia. The system would incrementally upgrade existing track and acquire high-performance train equipment that can travel at speeds of 100-125 mph. The proposed service will use existing stations and intermodal facilities in Eugene, Albany, Salem, and Portland; and included no plans to develop other local stops.

The discussion of system management and governance notes that many communities along the proposed service route see rail-related opportunities and are concerned about potential noise and safety impacts. The need for strong local/regional cooperation and methods to effectively communicate with local jurisdictions is acknowledged. Funding strategies noted that some local funding might be possible in communities developing multimodal transportation centers that provide connections to other services, including rail.

The only specific policy reference to rail transportation in the *Hubbard Comprehensive Plan* (1977) was "To encourage a land use pattern which will maximize the use of rail-based systems". The Plan noted that no scheduled stops for passenger or freight were currently provided, but that rail service could be provided to Hubbard when need arises. In 1977, facilities included mainline and spur trackage Space for more depot facilities located in strip of land between railroad and Third Streets.

Inventory of Existing Rail Facilities and Services

Hubbard is located around one of the two major railroad mainlines in Marion County. Total trackage in the county is 122 miles with 200 public rail crossings (Marion County Public Works, 1998). Hubbard was platted along either side of the Oregon and California Railroad in 1878 (Figure 3), and 2nd and 3rd Streets run parallel to the track. A siding track ran between A and D Streets and the depot was located between the lines adjacent to C Street. During the last 121 years Hubbard has expanded around the line and today is bisected by the track. The line is currently owned by the Union Pacific Rail Road (UPRR) and 5,014 feet of single track and 3 at-grade crossings of public roads are located inside the UGB. The at-grade crossings are located on:

1. A Street between 2nd and 3rd Streets;
2. D Street between 2nd and 3rd Streets; and
3. G Street between 2nd and 3rd Streets.

The at grade crossings are protected by automatic signals and gates, the highest level of protection applied to at-grade crossings.

Hubbard's two north-south arterials (3rd Street and Hwy. 99E) run parallel to the railroad. The east-west arterials (J and D Streets) cross the railroad (Figure 2). When trains pass through Hubbard north-south travel is not affected, but east west travel is temporarily blocked. The fire station, located southeast of the track, is delayed in responding to events west of the tracks.

The Comprehensive Plan (1999) designated land uses adjacent to the track which are mainly industrial and commercial, and some medium and high density residential. In the middle of town, individual parcels along the track tend to be long (250-1000' long) and narrow (50-80' wide). However, on the north and south end of Hubbard large industrial properties abut the track. A screening line of trees is located along part of the west side of the track between D and G Streets.

Both rail freight and rail passenger services utilize the track, also referred to as the Valley Main Line, but neither service stops in Hubbard. Intercity rail passenger services, provided by AMTRAK, are called the Coast Starlight and Pacific Northwest Corridor routes. Both services stop in Eugene, Albany, Salem, and Portland. The Coast Starlight Route runs from Vancouver, British Columbia, to Los Angeles, California. The southbound train departs from Portland at 2:25 PM and Salem at 3:30 PM. The northbound train departs from Salem at 1:30 PM and from Portland at 3:55 PM. In 1995, boardings and deboardings at the Salem and Portland train stations were 32,779 and 341,393, respectively (ODOT, 1997). There are four AMTRAK train movements through Hubbard each day, three in the day and one in the late evening (about 10:00 PM). The trains are 300-400 feet long and travel at 70 mph. By 2003, it is expected that the speed of passenger trains will be 79 mph.

The UPRR line between Portland and Eugene is the most heavily utilized rail line in the Willamette Valley (ODOT, 1994) and handles over 20 million gross ton miles yearly (a gross ton is one ton hauled one mile), and the measurement includes the weight of cars, contents, and locomotives (ODOT, 1994). Track classification is established by the Federal Railroad Administration and sets maximum train speeds. The Valley Main Line is maintained to Class 4 standards and maximum freight and passenger train speeds are 60 and 80 mph, respectively. The maximum gross weight of a loaded, four-axle car is 315,000 lbs.

Farm products, lumber or wood products, chemicals, and pulp and paper comprise 60 percent of rail freight originating, terminating, shipped intrastate, and shipped through Oregon. Principal commodity shipments originating and terminating in Marion County were food products; lumber or wood products; farm products; and pulp, paper, and related products (ODOT, 1994). Lumber and wood shipments originating in Oregon declined from 1986-1992, but shipments terminating and going through Oregon increased, resulting in a 28 percent increase in total freight.

There were 8 to 16 freight train movements through Hubbard each day and this varied on a daily and seasonal basis. Travel through the city occurred 24 hours per day, and night movements were slightly more common. Train length was up to 6,000 feet long and the maximum speed was 55 mph. Condition of track met Class IV standards. An extensive tie replacement project occurred in the Hubbard area during the last two summers and no major improvements are planned up to 2003 (Ed Immel, written communication, ODOT).

At-Grade Crossing Closures

In 1978 there were five at-grade crossings in Hubbard (located at A, D, E, G, and J Streets). Concerns about public safety prompted the city to inquire about signalization of crossings and reduction of train speeds through town. Between 1978 and 1980 the Public Utility Commission made a series of decisions (Order Numbers 78-901, 80-731, and 80-749) that resulted in the closure of the E and J Street crossings, and the signalization and gating of the A, D, and G Street crossings. Train speeds were raised to 55 mph through town upon completion of the required safety improvements and closures. The first order recommended that the A, D, and J Street crossings remain open and protected, and that the G and E Street crossings be closed. This recommendation was consistent with the arterial street classification and east-west linkages to the county road network provided by D and J Streets noted in the Comprehensive Plan. With the addition of the A Street protected crossing, a well distributed set of safer crossings was provided to the city. The original recommendation also included an analysis of emergency response time and noted that widening the intersection of J and 2nd Streets and upgrading the crossing a D Street would improve response time. The order required removal of the siding line across D Street.

TABLE 22. DAILY TRAFFIC COUNTS: AT-GRADE CROSSINGS IN HUBBARD

Year	J Street	G Street	E Street	D Street	A Street
1976	1,055	1,380	370	800	500
1978	970	1,370	310	890	620

When the closure decisions were made during 1978-80 it was clear that Hubbard residents did not want any crossings closed and were divided about which two crossings should be closed. The Public Utility Commissioner justified the decision to close two crossings by noting that four people had died in rail crossing crashes in Hubbard between 1961 and 1978. Traffic counts at the at-grade crossings found that the highest volume occurred at G Street (Table 22) which was classified as a local street (Hubbard, 1977). The reason cited for high traffic volume was the location of the post office at the intersection of G and 1st Streets and the lack of residential mail delivery in Hubbard, resulting in a daily trip to pick up mail. The original decision to close G Street remained unpopular and after additional negotiations and meetings, the decision was modified to close J Street and signalize and protect the G Street crossing.

Existing & Future Railroad Needs

This section evaluates the current and future rail passenger and rail freight needs, and considers how these needs will impact other transportation modes and concerns in Hubbard. The needs assessment begins with a review of state plans and growth estimates and this information will be used to suggest ways that conflict between adjacent land uses and other transportation modes can be minimized and the future function of the railroad protected.

The rail corridor between Eugene and Vancouver, British Columbia, is part of the federal Northwest High Speed Corridor (ODOT, 1992). The existing Valley Main Line will be improved in phases to accommodate higher train speeds and service levels. Improvements include new alignments, improvements to existing track, upgraded safety features at crossings, a new control system, supplemental feeder bus service to stations, and new equipment such as tilt trains. Some segments of track will be capable of speeds between 110 and 125 mph. At present, the proposed upgrades are conceptual due to funding constraints, but a grade separated track through Hubbard is included in one plan (ODOT, 1994). One proposed improvement program was staged in six phases and there are no plans to improve trackage or grade crossing signals in Hubbard until Phase 5 (Wilbur Smith Associates, 1994). During Phase 5 upgrades, work on the grade crossing signals at G, D, and A Streets are scheduled at $35,000 per crossing. In the short term, on additional roundtrip passenger train between Portland and Eugene may be added during the next biennium (1999-2001).

Rail freight traffic through Hubbard is predicted to increase during the next 20 years. ODOT estimated rail freight increases for the state system at 2.5% per year for an increase of 60% in 20 years (ODOT, 1994). Projections of freight movement and volume are

difficult because there are many unpredictable factors such as international trade patterns, competition, federal policies, foreign events, and customer needs. Railroads will first fill out the lengths of their existing trains before they increase train frequency. No noticeable increase in number of trains through Hubbard should occur within the next 5 - 10 years (Ed Immel, written communication, ODOT, 1999).

Hubbard residents raised the following rail-related issues during the public input phase of the TSP:

- Concern about crashes involving hazardous materials transported on railroad or Hwy. 99W.
- Increased noise due high-speed rail.
- Access to high-speed rail service.
- Reopening an arterial street connection to the west. "J" Street/Whiskey Hill Road/ Broadacres Road is an east-west county road currently closed at the railroad tracks. This rail crossing **needs** to be opened.

In 1997, Hubbard Public Works, Hubbard Rural Fire Protection District, and Hubbard Police Department sent letters to ODOT in 1997 requesting that the J Street crossing be reopened to traffic. Reasons given for opening the crossing included: (1) Residential and business growth in the community has increased traffic and caused increased congestion at the existing at-grade crossings, (2) The city is expanding the existing UGB, (3) Large truck traffic using J Street has to detour through town and has difficulty with the narrow streets and tight turns, and (4) Emergency response time is increased to some parts of town due to the inability to use J Street to cross the railroad. A comparison of traffic volumes in Table 22 and on Figure 12 shows that traffic volume on D Street has increased by 400%, traffic volume on A has increased 160%, and traffic volume on G Street has increased by 200% since 1978.

To summarize, rail freight and rail passenger services need facilities that can handle more volume and faster train speeds to accommodate increased demand in both short and long-term time frames. Crossing safety improvements are planned for Hubbard, but crossing closures, minimization of future at-grade crossings, double track, and track improvements are all possible, depending upon shipping demand and funding for rail passenger service. In fact, current policy states that **no** new at-grade crossings will be located in Hubbard which strongly affects connectivity and circulation in the other travel modes. Effectively, the track will continue to divide Hubbard.

Grade-separated crossings, coupled with closure of all at-grade crossings, have been discussed for small communities like Hubbard, but are more likely to occur after 2020, if at all. There are no plans to provide a rail passenger stop in Hubbard during the next 20 years. As discussed previously, several large industrial parcels are located along the railroad at the north and south ends of town, but products and supplies are not currently shipped by rail and such shipments are not planned in the near term.

The community of Hubbard has identified several short and long-term needs related to rail transportation, some of which are considered crucial. The most important short-term need is to reconcile the existing at-grade crossings with the city's east-west minor arterial roadways, which connect to the regional road system. Specifically, A and J Streets are Hubbard's links to the intra-county road system and should have protected at-grade crossings. The county system provides important alternatives to Hwy. 99E and connections to possible future interchanges on I-5. These routes are particularly important for the industrial land uses adjacent to J St. Hubbard recognizes that at grade crossings are a scarce and costly. Therefore, it is extremely important to Hubbard that the at-grade crossings in the community be used in the most efficient manner possible to maximize circulation and capacity of the existing network.

The increased railroad traffic expected through Hubbard during the next 20 years will result in more railroad-related conflicts which could impair function of the other elements in the transportation system and reduce quality of life in Hubbard. Hubbard recognizes that railroads are beneficial to the regional economy and transportation system but notes that, as a small community, it lives with substantial daily inconveniences and no direct, local benefits. The services run through Hubbard, but they do not stop to provide service because it is not currently economical to do so.

Hubbard has the following long-term concerns related to rail service:

1. Rail safety issues including crossings, derailment, and derailment with hazardous material releases;
2. Delays for auto, bicyclists, pedestrians, and emergency response providers;
3. Community barriers that sever the street, bike, and pedestrian network;
4. Increased travel time and inefficient circulation; and
5. Increased noise and other environmental degradation.

Hubbard has zoned most lands adjacent to the railroad for commercial or industrial use in order to minimize conflicts between incompatible land uses. Some residential uses are zoned along the northwest side of the track and measures to reduce sound and improve aesthetics are needed.

Rail Plan

The Rail Facility Plan is shown on Figure 16 and includes the following prioritized changes:

1. Apply to ODOT Rail Crossing Section to place a fully protected at-grade crossing on J Street. Application will include a new evaluation of needs but will consider the following:
    - 1.1. Widening J Street,
    - 1.2. Realigning the intersection with Hwy. 99E to a right angle or near right angle,
    - 1.3. Removing sight barriers on J St.,
    - 1.4. Improving J St. to accommodate emergency response providers, and

1.5. Ensuring that traffic queuing on J St. from Hwy. 99E will not back up to the railroad.

2. Evaluate the local traffic volumes and patterns related to daily mail pickup at the Hubbard Post. Use this information to find an optimal location for the facility, if and when the Post Office is relocated
3. Work with ODOT and the railroad to visually screen the railroad by extending the existing line trees on the west side of the track. Trees should also be used to on east side of track on lands zoned for medium and high density residential uses where practical. Plantings shall not impede line-of-sight at the at-grade crossings.
4. Illuminate at-grade crossings.
5. Work with ODOT and railroad to provide sound mitigation measures.

GOAL: Minimize the rail system's negative impacts on other components of the transportation system, adjacent land uses, and quality of life in Hubbard.

1. Policy- Locate protected at-grade railroad crossings in a manner that maximizes efficient connection to the intra-county road network, timely response to emergencies, and efficient circulation and connectivity of the local street network.

2. Policy- Retain existing at-grade crossings in Hubbard and ensure that safety measures offer the highest level of protection.

3. Policy- Work with the railroad to develop screens that minimize the visual and sound impacts of rail traffic.

4. Policy- Support efforts to work with ODOT, the railroads, and emergency response providers to minimize the risk of freight and passenger rail crashes and prepare for response to crashes where hazardous materials are released or large number of injuries occur.

5. Policy- Continue to zone land adjacent to the railroad for industrial or commercial use and minimize the amount of land adjacent to the railroad zoned for residential use.

GOAL: To positively encourage a land use pattern which will maximize the use of rail-based systems or preserve the future opportunity to use rail-based systems.

1. Policy- Zone land along the railroad for more compatible lands uses, such as industrial or commercial.

GOAL: Support intercity travel via high speed rail while minimizing impacts to the city.

1. Policy- Support public transportation systems that serve as feeder services connecting to high speed rail stops.

2. Policy- Support Woodburn's efforts to locate a high speed rail stop in Woodburn or north Marion County.

3. Policy- Work with ODOT to ensure that alternative routes located outside the city are evaluated in the high-speed rail planning process.

Bike Transportation

This section of the TSP:

- References the requirement for bikeway facilities in the *Transportation Planning Rule*,
- Reviews existing policy and plans,
- Defines the different types bikeways and standards (ODOT, 1995),
- Completes an inventory of these facilities in Hubbard,
- Identifies existing and future bikeway needs in Hubbard, and
- Presents the bikeway facility plan.

TPR Requirements

Under OAR 660-012-0020(2)(d), a TSP must include a bicycle plan for a network of bicycle routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514.

In order to implement the TSP, and provide for safe and convenient bicycle circulation, local governments must adopt land use and subdivision regulations that require:

- Bicycle parking facilities as part of new residential development of four units or more, new retail, office, and institutional developments, all transit transfer stations, and park and ride lots.
- On-site facilities to accommodate safe and convenient bicycle access from within new development to adjacent residential areas and transit stops, and to neighborhood activity centers (planned or existing schools, parks, shopping centers, transit stops or employment centers) within ½ mile of development.
- Single family residential development shall generally include streets and accessways.
- Bikeways along arterials and major collectors.
- Off-site road improvements, when required as a condition of development approval, to include facilities accommodating convenient bicycle travel.

A safe and convenient facility or improvement is reasonably free from hazards, particularly auto traffic, which would interfere with or discourage bicycle travel for short trips; provide reasonably direct routes of travel between destinations; and meet the travel needs by considering the destination and an optimum trip length (OAR 660-012-0045(3)(d)).

Bikeway Types, Standards, and Policy

There are several different types of bikeways and each are appropriate for different situations. Traffic volume, traffic speed, urban or rural setting, typical user, and purpose of the road all affect the decision regarding bikeway type. Bikeway facilities are summarized below.

- Shared Roadway: motorists and bicyclists share same travel lanes. Common type of facility on neighborhood streets and rural roads. Suitable in urban areas on streets with speeds <25 MPH and low traffic volume (<3,000 ADT). The two types of shared roadways are (1) Wide outside lane, between 14-16 feet, utilized where shoulder bikeway or bike lanes are warranted but cant be physically accommodated, and (2) Bicycle Boulevard, a modified local street that favors bicycles but does not exclude automobiles.
- Shoulder Bikeway: paved roadway shoulders on rural roadways. Shoulder should be paved and is 4-6 feet wide depending on traffic volume.
- Bike Lane: Portion of roadway designated for preferential use by bicyclists. Lane is 4-6 feet wide depending on the edge type, and parking. Facility is appropriate for use along urban arterials and major collectors where speeds are >25 MPH and traffic volumes exceed 3,000 ADT.
- Multi-use Path: separated facility that is 10-12 feet wide.

Hubbard inventoried existing bikelanes and prepared a Bike Path Plan in 1977. The plan identified primary and secondary types and included a map. At this time, an inter-city bicycle facility along Hwy. 99E was envisioned. No goals, policies, or implementing actions pertaining specifically to bikeways were included in the plan.

Existing Bikeways

The inventory of bikeways in Hubbard is based on the Hubbard Comprehensive Plan (1977) and additional information from the street inventory (Appendix C). Hubbard proposed a bicycle path system, including primary and secondary routes, in 1977, but as the term bike path is understood today, these facilities were never constructed. Bikeway facilities are now defined to include shared roadways. Hubbard currently has no marked bicycle facilities of any kind. Hubbard's bike path system (1977), interpreted as shared roadway facilities, is summarized in Table 23. The city viewed the bike path as a part of the recreational system. The shared roadway facilities are mainly located along arterial roads.

TABLE 23. EXISTING BIKEWAY FACILITIES

Roadway	Segment Location	Type[1]	Paved Roadway Width (feet)	Functional Class / (Existing ADT)	Ownership/ Jurisdiction
Hwy. 99E	S UGB to J Street	SR	58	Arterial / 11,000-12,000	ODOT
Hwy. 99E	D Street to north UGB	SR	51	Arterial 12,000 -13,000	ODOT
J Street (Broadacres Rd.)	W UGB to RR	SR	20-33	Minor arterial / 1,200 - 1,500	County
J Street	RR to about G St.	SR	21-34	Minor arterial	City
J Street (Whiskey Hill Rd)[2]	G St. to Painter	SR	30-34	Minor arterial / 2,200	County
D Street	W UGB to City Limits	SR	22	Minor arterial / 1,200	County
D Street	City Limits to Hwy. 99E	SR	20-30	Minor arterial / 1,200 at west end and 3,500 near 3rd St.	City
Fourth Street	J to D	SR	12-14	Local	City
Fifth Street	D to bend north	SR	19	Collector 1,800 on north end	City
A Street	5th to Hwy. 99E	SR	22-30	Collector 990	City

[1]Type: BL - bike lane, BP - bicycle path, SR - shared roadway, SB - shoulder bikeway
2 This road segment lies outside the UGB

Existing & Future Bikeway Needs

The existing and future bikeway needs were identified by comparing existing facilities to legal requirements and facility standards, examining current and projected traffic volumes, noting the location of current and future community centers, and input from the public and TAC, particularly with respect to safety for children. In general, Hubbard needs to designate additional bikeways on the minor arterials and collectors and change the bikeway type where warranted by speed, safety, and traffic volume concerns on the roadway. Bikeway types need to be linked to design standards and parking facilities identified.

Not all existing collectors and arterials in Hubbard had bikeway facilities, so bikeways must be added to the bikeway plan and the bikeway type indicated. The new and extended arterial and collector roads (Table 20) should also have bikeway designations and show the type.

Most bikeway facilities in Hubbard are shared roadway facilities which are appropriate in urban areas where roadway speeds are <25 MPH and traffic volume is under 3,000 ADT.

Traffic volumes on Hwy. 99E currently range from 11,700 to 13,100 ADT and volumes are predicted to range from 13,000 to 19,999 ADT in 2020, thus a shared roadway is not an adequate facility. Using the same rationale, the most appropriate bikeway for 3rd Street and much of D Street is a bike lane and not shared roadway. In fact, all minor arterials, including J Street, will have bike lanes as they are upgraded.

Hubbard should also upgrade from shared roadway to bike lanes on existing collector streets as warranted by traffic volume, speed, type of user, or safety concerns. When traffic volume exceeds 3,000 ADT bike lanes should be added to the street and on-street parking should be restricted if the roadway can not accommodate both uses. At present, traffic volume on most Hubbard collector streets is low.

Certain specified existing and new collectors will be required to have bikelanes in order to improve safety for the typical user. The TAC recommended that 5th Street have bike lanes because the road runs through residential neighborhoods in west Hubbard and provides direct access to Riveness and Barendse Parks. Bike lanes will be required on the east and northwest perimeter roads (Figure 17) because these roads are intended to improve internal circulation and provide safe, attractive travel alternatives to Hwy. 99E which is a busier and more dangerous roadway.

Hubbard residents made the following comments about bicycle facility needs during the public input process:

- Add bike lanes to Hwy. 99E
- Sidewalks and bikeways so kids can walk safely
- Develop paths for walkers and bikers to Marion schools, and Aurora and Woodburn
- Get bicycles off road. The roads are narrow and it is dangerous for riders.

Presently, all elementary, middle, and high school age children in Hubbard attend the North Marion schools. This cluster of schools is located 2 miles northwest of town and is accessed by Mineral Springs Road (D Street), Boones Ferry Rd., and Grimm Rd. Bikeways facilities to and from the school would greatly improve safe transportation alternatives for the students. Other bicycle needs include parking facilities in the commercial center, parks, and at park-and-ride lots.

Bikeway Plan

Planned bikeway improvements to the existing and future street network are summarized in Table 24. Goals, policies, and actions are also given in the Plan. Bikeway facilities for Hubbard students are presented as two options: (1) Bikelanes along existing roadways, and/or (2) multi-use path along the roadways or Mill Creek greenway. Woodburn plans some multi-use paths along Mill Creek greenway. A multi-use path in Hubbard parks along Mill Creek could be linked to the Woodburn path system. Connecting paths between the two cities would provide recreational benefits and travel alternatives.

TABLE 24. BIKEWAY NEEDS AND RECOMMENDATIONS

Roadway	Location	Need	Recommendation	Owner
ARTERIALS				
Hwy. 99E	South UGB to north UGB	Review bikeway type due to high traffic volume	Change bikeway type from shared roadway to bike lane. Improve roadway to include 13,466[1] feet of bike lanes	ODOT
3rd Street	South UGB to north end	Designated as a bikeway.	Designate as a bikeway: bike lane type Improve existing roadway to include 8,752 feet of bike lanes. Extension of 3rd street will require 1,200 feet (2 @600) of bike lanes.	City
J Street	West UGB to east UGB	Upgrade bikeway type during next 20 years.	Existing shared roadway facility will be upgraded to bike lanes as the roadway is improved to minor arterial standards and the at-grade crossing is opened. Total new bike lanes: 8,434 feet (2 @4,217).	County and City
D Street	West UGB to Hwy. 99E.	Upgrade bikeway type during next 20 years.	Existing shared roadway facility will be upgraded to bike lanes as the roadway is improved to minor arterial standards. Total new bike lanes: 7,038 feet (2 @3,519).	City
COLLECTORS				
D Street	Hwy. 99E to Oak Ridge Drive	Designate as a bikeway.	Designate a shared roadway/bike lane bikeway. Upgrade when needed.	City
5th Street	D to north end	Inadequate bikeway type	This road runs through residential area and along both city parks. Change bikeway type from shared roadway to bike lane due to proximity to community centers. Improve existing roadway to include 7,770 feet of bike lanes.	City
A Street	West end to Hwy. 99E	Designate entire roadway a bikeway.	Existing shared roadway facility will be extended to cover all the existing street and proposed extensions on the east and west ends. Shared roadway bikeway upgraded to bike lane when ADT exceeds 3,000 ADT or for other reasons.	City
2nd Street	J to A Streets	Designate bikeway	Shared roadway bikeway.	City
7th Street	J to A Streets	Designate bikeway	Shared roadway bikeway.	City
G Street	3rd - A Streets	Designate bikeway	Shared roadway bikeway.	City

Table 24 continued

Roadway	Location	Need	Recommendation	Owner
LOCALS				
New east perimeter road	Whiskey Hill Rd. (J St.) to Hwy. 99E	Bikeway designation needed.	Bike lanes required on new roadway: 6,600 feet (2 @ 3,300)	City
New west perimeter road.	3rd St. Extension to D Street.	Bikeway designation needed.	Bike lanes required on new roadway: 8,600 feet (2 @ 4,300)	City
New collector between Basilio and Parkway	Hwy. 99E to east end	Bikeway designation needed.	Shared roadway bikeway.	City
Schmidt Lane	Hwy. 99E to west end	Bikeway designation needed.	Designate the improved roadway a shared roadway facility when it is upgraded.	City
G Street	3rd to 7th Streets	Designate bikeway	Shared roadway bikeway	City
4th Street	J to D Streets	Remove bikeway designation.	This local street does not need, and is not required, to have a bikeway designation.	City
MULTI-USE PATHS				
Mineral Springs-Boones Ferry Roads	West UGB to North Marion Schools	Existing facilities unsafe for children	Develop about 4 miles of bike lanes along existing county roads between Hubbard and North Marion Schools. Explore a 2-mile multi-use path in Mill Creek greenway as part of route.	County
Mill Creek	South to Woodburn and north to North Schools	Provide safe facilities, mode alternatives, and recreational opportunities for traveling children and adults	Develop 2 miles of multi-use paths along Mill Creek between Hubbard and Woodburn	City and Private

1 Length includes bike lanes in each direction of travel

GOAL: To provide safe, accessible, and convenient bicycling facilities

1. Policy- Develop a bikeway system which will provide routes and facilities to allow bicyclists to travel to and from residential areas to schools, parks, places of employment, and commercial areas. Action: Coordinate with ODOT to develop bike lanes along Hwy. 99E.
   1.1. Action: Coordinate with Marion County and private landowners to develop bikeway routes to the North Marion Schools.
   1.2. Action: Coordinate with Woodburn and private landowners to develop bikeways in the greenway along Mill Creek if the opportunity arises.

Multi-Use Path to N. Marion Schools

Bike Lanes to N. Marion Schools

Mill Creek

Connect to Woodburn

Little Bear Creek

Union Pacific Railroad

Front Street

Broadacres Road

Industrial Avenue

Dunn Road

Whiskey Hill Road

Oak Ridge Dr.

Casteel St

Riviera Ct

Karl Ln

Vickie Allen Ave.

Moonlight Ct.

Hillside Ct

Sunset Drive

West Pl

Walnut Ct

Beaver Ct

Woodview Drive

Oak Street

School

C1 C2 C3 C4 C5 C6 C8 C9 C10 C11 C12 H1 H2 H3 H4

Community Centers & Other Features

C1	Post Office	C9	Local market and bank
C2	City Hall & Police Department	C10	Hubbard Mineral Springs
C3	Fire Station	C11	Hubbard Cemetery
C4	Hubbard City Park	C12	Commercial Center Area
C5	Barendse City Park	H1	Hezekiah Dayton House
C6	Water Tower	H2	Albert Johnson House
C7	City Well	H3	Builder Bungalow House
C8	Waste Water Treatment Facility	H4	Scholl House

Bikeways

- Bike Lanes/Shared Roadway
- Bike Lanes
- Shared Roadway
- New Roads
- Future Multi-Use Path
- Painted Crosswalk
- Commercial Center Area

Title:

Figure 17. Bikeway Plan

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	May 7, 1999	1

Filename:
r:/cog4/projects/hubbard/hub-tsp.apr
Bike Plan 11x17 Portrait–Rev: 1

Public Land

City Limits
Urban Growth Boundary
Railroads

Road Functional Class
Major Arterial
Minor Arterial
Collector
Local
Alley
Private

400 0 400 800 Feet

N W E S

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1. Policy- All new arterials and collectors shall include the bikeway facility specified in the street design standard.

2. Policy- All major improvements to arterial and collector streets shall include the bikeway facility specified in the street design standard.

3. Policy- When traffic volume on existing collector streets (speeds <25mph) exceeds 3,000 ADT change the bikeway type from shared roadway to bike lanes.

4. Policy- Provide bikeway facilities that are integrated with other transportation systems.
   4.1. Action: Provide bicycle facility connections and parking at park-and-ride facilities and public transportation stops.

5. Policy- Provide safe, convenient, and attractive bicycling environments throughout the city with a special emphasis in the Commercial Center.

Pedestrian Transportation

This section of the TSP:
- References the requirement for pedestrian facilities in the *Transportation Planning Rule*,
- Reviews existing policy and plans,
- Describes pedestrian facilities and reviews standards (ODOT, 1995),
- Completes an inventory of these facilities in Hubbard,
- Identifies existing and future pedestrian needs in Hubbard, and
- Presents the pedestrian facility plan.

TPR Requirements

Under OAR 660-012-0020(2)(d), a TSP must include a pedestrian plan for a network of pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514.

In order to implement the TSP, and provide for safe and convenient pedestrian circulation, local governments must adopt land use and subdivision regulations that require:
- On-site facilities to accommodate safe and convenient pedestrian access from within new development and to adjacent residential areas and transit stops, and to neighborhood activity centers (planned or existing schools, parks, shopping centers, transit stops or employment centers) within ½ mile of development.
- Single family residential development to generally include streets and accessways.
- Pedestrian circulation through parking lots in the form of accessways.

- Sidewalks required along arterials, collectors, and most local streets in urban areas, but not controlled access roadways such as freeways.
- Facilities accommodating convenient pedestrian travel, where off-site road improvements are required as a conditions of development approval.
- Internal pedestrian circulation within new office parks and commercial developments by clustering of buildings, construction of accessways, walkways and similar techniques (OAR 660-012-0045(3)(e)).

A safe and convenient facility or improvement is reasonable free from hazards, particularly auto traffic, which would interfere with or discourage pedestrian travel for short trips; provide reasonably direct routes of travel between destinations; and meet the travel needs by considering the destination and an optimum trip length of ¼ to ½ mile for pedestrians (OAR 660-012-0045(3)(d)).

In addition, the 1992 Americans With Disabilities Act (ADA) required that both public and private sector provide access for all individuals, and sets minimum standards for walkways and road crossings.

Types of Pedestrian Facilities and Standards

Pedestrian facilities include walkways, traffic signals, crosswalks, and amenities such as planting strips, lighting, and benches (ODOT, 1995). Walkways include sidewalks, paths and shoulders. The standard sidewalk width is 6 feet. Wider sidewalks are needed in high use pedestrian areas such as central business districts or parks. In low use areas, the standard sidewalk width may be reduced to 5 feet. Sidewalks adjacent to vehicle travel lanes should be 6 feet wide. Obstructions should be kept out of sidewalks and placed between the sidewalk and roadway to serve as a buffer. Signs, mailboxes, parking meters, etc. should not block motorist visibility. Where sidewalks are located next to shoulder-high vertical structures and additional 2 feet of "shy" distance is recommended. Planting strips can provide space for safety, convenience, and amenities. Recommended width is 5 feet and minimum width is 3 feet. Portland Cement Concrete is the preferred material for sidewalks because of its durability and smooth surface.

Paths can be paved or unpaved, but the surface of unpaved paths should be hard enough to permit passage of bikes and wheelchairs. The standard width is 10 feet but may be 8 feet if needed. Paths that run parallel to roadways should be separated by a distance of 5 feet. Shoulders intended for use by pedestrians or bicyclists should be 6 feet wide or wider.

ADA sets the following minimum standards for pedestrian facilities:
- Minimum sidewalk width is 3 feet.
- Sidewalks 3 feet wide must include passing areas at least every 200 feet. Passing area width must be 5 feet long by 5 feet wide.
- Grade on ramps and multi-use paths must not exceed 5%.

- The cross slope on a walk way must not exceed 2 % including curb cuts, driveways, road approaches, and sidewalks.
- Two cub cuts are required at each corner.

Facilities must include enhancements for the vision-impaired at crossings.

Other pedestrian facilities include benches, awnings, shelters, landscaping, fountains, restrooms, and maps. Special consideration is required when walkways intersect alleys and driveways. Speed bumps, mirrors, signs, tight turning radii, and channelization improve pedestrian safety.

Oregon defines crosswalks as the continuation of a curb, sidewalk, or shoulder across an intersection, regardless of whether it is marked or not (ODOT, 1995). Pedestrians in the crosswalk have the right of way. Crosswalks between intersections must be marked. The following facilities improve safety and crossing opportunity: raised medians, curb extensions, illumination, crosswalks, islands and refuges, pedestrian signals, and signing.

The *Hubbard Comprehensive Plan* (1977) had limited policy or plans related to pedestrian facilities and uses but did note that pedestrian facilities to connect recreational, commercial, and educational resources in Hubbard were envisioned. Mid-block walks and separated walkways to schools and parks for children were recommended.

Existing Pedestrian Facilities

The inventory of pedestrian ways is required to include information about sidewalk location, width, and condition; location of wheelchair ramps; and crosswalk closures. The inventory of pedestrian ways and conditions in Hubbard is based on information in the street, sidewalk, and bikeway inventory in Appendix C. The inventory shows that sidewalks along both sides of local, collector, and arterial streets inside the Hubbard UGB) would amount to about 22 miles (116,398 feet). At present Hubbard has 38,705 feet of sidewalks, or 33% of the total requirement (Figure 18). Arterial streets have few to no sidewalks, but 3rd Street is the exception with a continuous length of sidewalk on the west side between A and J Streets. The collector street with the most sidewalks is 5th Street. In general, the sidewalks are less than 5 feet wide and tend to be in fair to bad condition. Newer residential developments in west Hubbard have sidewalks, though many are narrow "landings" or wide cubs. Sidewalks are most common in the central part of the city bounded by 3rd , 5th, C, and H Streets.

Marked crosswalks are located at the following intersections:

- 3rd and I St., west side;
- 3rd and H St., west side;
- 3rd and G St., north and south sides;
- 3rd and F St., west side;
- 3rd and E St., west side;
- F and West St., west side;
- F and 7th St., west side,

- G and 2nd St., north and south sides; and
- G and 1st St., east and west sides.

The intersection of Hwy. 99E and D Street has a traffic signal and painted crosswalk. A flashing caution light is located at the intersection of Hwy. 99E and G Street, but lacks a painted crosswalk. Hubbard has a shelter in the park at the intersection of D and 4th Streets.

Existing & Future Pedestrian Needs

Existing and future pedestrian needs were identified by comparing existing facilities to legal requirements, facility standards, location of current and future community centers, and input from the public and TAC.

The inventory of pedestrian facilities noted that most roadways in Hubbard lack sidewalks and many of the existing sidewalks are in poor conditions or have substandard widths (Figure 18). Constructing the needed sidewalks is a formidable and expensive task. Hubbard proposes to meet the needs by requiring sidewalks on all new road construction and upgrade projects, and program of prioritized street improvements. Sidewalk improvements will focus on the arterial and collector roads, the portion of the city designated a commercial center (Figure 18), and local roads near parks and other community centers.

Information gathered during the public input process showed that, after streets, sidewalks were the most commonly used transportation facility and residents would like to see improvements. Hubbard residents made the following comments about bicycle facility needs:

- Build new sidewalks*
- Repair sidewalks*
- Need sidewalks and bikeways so kids can travel safely
- Develop paths for walkers and bikers to North Marion schools, and Aurora and Woodburn
- Concerns about safety because sidewalks are in poor repair and lack curb cuts in places
- Unsafe pedestrian conditions on north end of Hwy. 99E
- High speed on A Street is unsafe for kids
- Unsafe intersection at 3rd and D Streets
- Speeding in residential areas creates unsafe conditions for children
- Unsafe sidewalks throughout town
- Need a bus pull-out on Hwy. 99E, unsafe for school children

*Issue of how to pay for repairs and build new sidewalks raised twice

Public comments illustrate that pedestrian needs include safety issues that are unrelated to poorly maintained or missing facilities. Observation and enforcement of existing traffic controls and posted speed limits are needed.

Pedestrian Facilities Plan

Improvements to pedestrian facilities along existing collector and arterial streets, and other locations are summarized in Table 25 and shown on Figure 18. Local roads with higher priority for sidewalk improvements are:

- B, C, E, F, and 1st Streets in the commercial center area of Hubbard; and
- E and 4th Street adjacent to Riveness Park;

New and extended roadways are required to include sidewalks as specified by the street design standards. New minor arterial and collector roads are shown on Figure 18, but the location and length of the sidewalks is not included in Table 25 since the cost will be included under new roadway construction. The cost of constructing or improving sidewalks along existing streets is born by the landowner. At the time the TSP was written, 5-foot wide sidewalks cost about $10.00 per linear foot.

The TSP identifies sidewalk requirements for each type of street in the street section design standards (see Table). Exceptions to the sidewalk width standards occur at Riveness Park and the Commercial Center where sidewalk widths are 10' unless limited by existing structures or other factors. Where such limitations exist the sidewalks will be as close to 10'wide as possible.

TABLE 25. PRIORITIZED SIDEWALK IMPROVMENTS

Roadway	Segment Location	Need	Recommendation	Owner
		ARTERIALS		
Hwy. 99E	South UGB to north UGB	No sidewalks	Improve roadway to include 13,466[1] feet of 6-foot wide sidewalks, storm water facilities, and planting strip.	ODOT
3rd Street	South UGB to north end	Discontinuous sidewalks and existing sidewalks substandard width and in poor condition.	Improve roadway to include 4,376 feet of 6-foot wide sidewalk and planting strip on west side of roadway.	City
J Street	West UGB to east UGB	Discontinuous sidewalks and existing sidewalks substandard width and in poor condition.	Coordinate with County to improve roadway to include 8,434[1] feet of 6-foot wide sidewalks along roadway.	County and City
D Street	West city Limits to east end.	Discontinuous sidewalks and existing sidewalks substandard width and in poor condition.	Improve roadway to include 7,838[1] feet of 6-foot wide sidewalks along roadway. Consider connection to a sidewalk or path along county roads or in Mill Creek greenway to North Marion Schools.	City
		COLLECTORS		
5th Street	D to north end	Discontinuous sidewalks and existing sidewalks substandard width and in poor condition.	Improve roadway to include 7,770[1] feet of 5-foot wide sidewalks.	City
7th Street	A to J Streets	Discontinuous sidewalks and existing sidewalks substandard width and in poor condition.	Improve roadway to include 3,952[1] feet of 5-foot wide sidewalks.	City
A Street	West end to Hwy. 99E	Discontinuous sidewalks and existing sidewalks substandard width and in poor condition.	Improve roadway to include 5,148[1] feet of 5-foot wide sidewalks.	City
		MULTI-USE PATHS		
Whiskey Hill-Boones Ferry Roads	West UGB to North Marion Schools	Provide safe facilities, mode alternatives, and recreational opportunities for traveling children and adults	Develop 2 miles of path or 4 miles of sidewalks along existing county roads between Hubbard and North Marion Schools	County
Mill Creek	South to Woodburn and north to North Schools	Provide safe facilities, mode alternatives, and recreational opportunities for traveling children and adults	Develop 2 miles of multi-use paths along Mill Creek between Hubbard and Woodburn	City and Private

1 Length includes sidewalks on both sides of street

Multi-Use Path to N. Marion Schools

Bike Lanes to N. Marion Schools

Mineral Springs Rd.

C10

Rhiega Ct.

Ken Ln.

Ash Ave.

9th Street

Lord St.

C5

H3

Aboudance Ct.

8th Street

7th Street

6th Street

5th Street

4th Street

3rd Street

2nd Street

1st Street

A Street

B Street

C Street

D Street

E Street

F Street

G Street

H Street

Mill Creek

Sunset Drive

Hillside Ct.

Westfall

C4

H4

C2

C11

Broadacres Road

C9

Casteel St.

Oak Ridge Dr.

C12

Walnut Ct.

C3

C6

C1

Connect to Woodburn

Little Bear Creek

Hoodview Drive

Oak Street

Whiskey Hill Road

H2

Union Pacific Railroad

H1

Front Street

Schmidt

Industrial Avenue

Dunn Road

Community Centers & Other Features

C1	Post Office	C9	Local market and bank
C2	City Hall & Police Department	C10	Hubbard Mineral Springs
C3	Fire Station	C11	Hubbard Cemetery
C4	Hubbard City Park	C12	Commercial Center Area
C5	Barendse City Park	H1	Hezekiah Dayton House
C6	Water Tower	H2	Albert Johnson House
C7	City Well	H3	Builder Bungalow House
C8	Waste Water Treatment Facility	H4	Scholl House

Pedestrian Facilities

- Painted Crosswalk
- Existing Sidewalks
- Future Sidewalks
- Future Multi-Use Path
- Commercial Center Area
- New Roads with Sidewalks

Title:

Figure 18. Pedestrian Facility Plan

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	May 7, 1999	1

Filename:
r:/cog4/projects/hubbard/hub-tsp.apr
Pedestrian Plan 11x17 Portrait--Rev: 1

Public Land

City Limits
Urban Growth Boundary
Railroads

Road Functional Class
Major Arterial
Minor Arterial
Collector
Local
Alley
Private

400 0 400 800 Feet

N W E S

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The following policies for pedestrian traffic are included the city's TSP:

GOAL: To provide safe, accessible, and convenient pedestrian facilities.

1. Policy- All new arterial, collector, and local streets shall include the pedestrian facility specified in the street design standard.
2. Policy- All major improvements to arterial, collector, and local streets shall include the pedestrian facility specified in the street design standard.
3. Policy- Low curb crosswalks shall be used at all intersections, consistent with ADA guidelines, to facilitate use by the transportation disadvantaged, the elderly, and the handicapped.
4. Policy- Provide safe, convenient, and attractive walking environments throughout the city with a special emphasis in the Commercial Center.
5. Policy- As feasible, the city shall allow no physical obstruction of sidewalks such as utility poles, sign posts or guy wires (consistent with ADA guidelines).
6. Policy- Visibility and unobstructed views shall be promoted for all areas of high pedestrian use.
7. Policy- Bicycle traffic on sidewalks shall be prohibited.
8. Policy- The city will work with interested landowners to explore local funding options for sidewalk improvements, for example Local Improvement Districts.

The street design standards include sidewalk standards. These standards apply to new construction and reconstruction. The city shall give consideration to the arterials and collector streets lacking sidewalks (Table 25) when prioritizing and planning for road improvement and maintenance projects. Improving connectivity and circulation patterns of pedestrian facilities will be considered in new development and in improvements to the existing system, where possible. Examples of ways to improve connectivity and circulation include constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing walkways to parks and school sites.

The Pedestrian Facility Plan is shown on Figure 18 including the following prioritized improvements:

1. Sidewalks and curb cuts around Hubbard City Park (public transportation stop),
2. Sidewalks along Highway 99E,
3. Sidewalks along 3rd Street,
4. Sidewalks along J and D Streets,
5. Sidewalks in core downtown area.
6. Sidewalks along A, 5th, and 7th Streets,
7. Multi-use paths along the greenway of Mill Creek or existing County roads that connect to Woodburn paths or a route to the North Marion Schools, and
8. The higher priority local streets listed above.

Public Transportation

This section of the TSP:

- References the requirement for a public transportation plan in the *Transportation Planning Rule*,
- Describes recommended service and facilities (ODOT, 1997), relevant regional policy, and current Hubbard policies,
- Characterizes the number and kind of Hubbard resident likely to be more reliant on public transportation services,
- Completes an inventory of public transportation facilities and services in Hubbard,
- Identifies existing and future public transportation needs in Hubbard, and
- Presents the public transportation plan.

TPR Requirements

The TPR (OAR 660-12-020(2)(c)) requires that the TSP include a Public Transportation Plan which:

- Describes public transportation services for the transportation disadvantaged and identifies service inadequacies.
- Describes inter-city bus and passenger rail service and identifies the location of terminals.
- 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 adjustment in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.
- For areas within an urban area containing a population greater than 25,000 persons, not currently serviced by transit, evaluate the feasibility of developing a public transit system at buildout.

Types of Public Transportation, Recommended Services, and Policy

As used in this section, public transportation includes the following services and facilities:

- Intra- and inter-city fixed route systems such as fixed-route scheduled bus, rail, light rail, and park-and-ride express services;
- Paratransit services which primarily serve the disabled, elderly, or other transportation disadvantaged individuals;
- Rideshare/Demand Management program including carpool, vanpool, buspool matching services; preferential parking programs; and reduced parking fees; and
- Other services such as taxis, privately owned inter-city bus lines or shuttles.

The best mix of services in any community or planning area will depend on the needs of the service population, spatial distribution of the service population, economic factors, and the existing transportation system and policies.

The Oregon Public Transportation Plan (ODOT, 1997) described a preferred state of public transportation in 2015 which established targets for service types and frequencies relevant to the city of Hubbard. The plan identified minimum levels of public transportation services which provide a range of services intended to keep pace with Oregon's changing and increasing public transportation needs. Minimum level of service recommendations were based on types of services, size of community, and distance from other major intermodal centers (only Portland in Oregon) or urban central cities. For planning purposes, communities were divided into large urban areas, small communities of 25,000 or more, small communities of 2,500 to 25,000, communities of 2,500 or more within 20 miles of an urban central city, and rural and frontier (<2,500) communities (ODOT, 1997). The population of Hubbard was 1,838 in 1990, estimated to be 2,210 in 1998, and projected to be 3,105 in 2020. Urban central cities closest to Hubbard are Salem, 20 miles to the south, and Portland, 28 miles to the north. However, Woodburn and Wilsonville may also function as "urban central cities" and are located about 1 and 7 miles from Hubbard, respectively. During the 20-year planning horizon, Hubbard will become a "small community of 2,500 to 25,000" located within (barely) 20 miles of an urban central city.

The recommended minimum levels of service for Hubbard will change as the population increases. The following services are recommended for urban areas under 2,500 population and within 20 miles of an urban central city (Salem):

- Public transportation to general public based on locally established service and funding priorities;
- Accessible ride to anyone requesting services;
- Coordinated, centralized scheduling system with phone access to the scheduling system at least 40 hours weekly between Monday and Friday;
- Respond to service request within 24 hours, not necessarily provide a ride within 24 hours; and
- Connections to intercity rail and bus services.

Services recommended for community with populations of 2,500 to 25,000 include:

- Coordinating intercity senior and disabled services with intercity bus and van services open to the general public;
- Connecting local public transportation, and senior and disabled service, to intercity bus services;
- Providing an accessible ride to anyone requesting service;
- Providing 1.7 annual hours of **public** transportation service per-capita with fixed-route, dial-a-ride, or other service types;
- Providing at lest one accessible vehicle for every 40 hours of service;
- Providing one backup vehicle for every 3.5 vehicles;
- Providing daily peak hour commuter service to the core areas of the central city (Salem and possible Portland);
- Providing a guaranteed ride home program to all users of the public transportation system and publicize it well; and

- Providing park-and-ride facilities along the transit corridors to meet reasonable peak and off-peak demand for such facilities.
- Maintaining vehicles and corresponding facilities in a cost-effective manner and replace vehicles when they reach the manufacturers.

Marion and Polk Counties Special Transportation Advisory Committee undertook a project to evaluate how to increase transportation choices for the region's senior and disabled residents without additional funding (Marion and Polk Counties STAC, 1998). Project results are found in the *Regional Transportation Enhancement Plan (RTEP)* which recommends leveraging all the existing services and programs in the region into one "brokerage" that uses the latest information technology to efficiently and conveniently match clients to services.

RTEP includes sections on history and context, the plan, work plans, and other issues. RTEP seeks to coordinate transportation planning for the transportation disadvantaged by working with jurisdictions writing or reviewing Transportation System Plans. Goals, objectives, and policies related to the transportation disadvantaged has been developed for consideration. One item in the RTEP work program is extremely relevant to Hubbard because it established the Wheels North Marion County Service, a deviated fixed-route transit service with stops in the city. The RTEP was based partially on background information and issues in Planning for the Transportation Disadvantaged in Marion and Polk Counties: Seniors and People with Disabilities (Mid-Willamette Valley Council of Governments, 1998). Policy and background information will be discussed further in the TSP.

The *Hubbard Comprehensive Plan* (1977) had few policies or actions related to public transportation but did include a policy to encourage local and regional efforts to provide acceptable road-based mass transit facilities. Energy policies related to public transportation were: (1) Reduce energy consumption by extending Metro area services into north Marion County and encourage use of such a system, and (2) Rail is another alternative that could provide commuter services.

Hubbard Service Population

Information in the 1990 Census is used to identify the number of people in Hubbard more likely to use, or be more reliant upon, non-auto transportation modes such as sidewalks, bikeways, public transportation, or paratransit services. Public transportation services can very effectively serve the needs of two groups:

- People with basic mobility limitations who do not have, or can not operate, an automobile to obtain medical, educational, social or recreational services, and employment; and
- People who presently use a car, but would use other transportation alternatives, to commute to work.

People living in Hubbard are characterized with respect to mobility limitations (age and disabilities) and workforce travel patterns to identify the type of public transportation needs the community might have. People with mobility limitations in 1990 included:

- 323 people aged 5 - 14 years,
- 259 people older than 60 years, and
- 47 noninstitutionalized people with mobility limitations over the ages of 16.

The mobility limited portion of Hubbard's population was 629 people, or 34% of the total.

Census data showed that in 1990 the workforce in Hubbard was 823 people or about 45 percent of the population. Driving alone was the most common way to get to work (80 percent of workforce), followed by carpooling (14 percent). About 1 percent of the workforce walked (8 people) or bicycled (11 people) to work (Table 3). About 67 percent of the workforce was at their place of employment within 30 minutes of travel and 29 percent had travel times between 30 and 59 minutes (Table 4).

Inventory of Public Transportation Services and Facilities

The inventory of public transportation is required to include information about the type, location, and capacity of existing services and facilities, and service inadequacies. The inventory also included facilities and services located in Woodburn because this is the closest location of many connections to other services. The inventory results are summarized in Table 26.

A fixed-route transportation service, called the Wheels North Marion County Service began operating in March of 1999, and is a product of the *Regional Transportation Enhancement Plan (RTEP)* mentioned above. The service includes several routes and schedules (Appendix C). One service is available Monday through Friday and stops at the Hubbard Post Office at 7:20 AM and &:30 PM and goes to Woodburn, Silverton, and Mt. Angel. The service will deviate from the fixed route in Hubbard to a limited extent to pick up people from their homes. The fixed route portion of the service is located on Hwy. 99E, D St., F. St., G St., J St., 3rd St., and 7th St. (Figure 19).

The service was created from a pre-existing transportation service for the Mt. Angel Training Center and developmentally disabled clients. The new service has loops that connect Woodburn, Silverton, Gervais, Hubbard, Mt. Angel, and Gervais. Woodburn connections include Woodburn Transit, Silver Trolley, HUT, and Greyhound. Although the route is new, there are indications that demand will warrant additions of another vehicle in May. The service also hopes to expand the route to include St. Paul.

TABLE 26. PUBLIC TRANSPORTATION SERVICES IN AND NEAR HUBBARD

Name	Type	Clientele	Service Area/ General Route	Local Stops	Schedule	Contact Number
HUBBARD SERVICES						
North Marion County Service	Deviated fixed-route provided by Wheels (OHAS) from existing services. 17-passenger bus and van.	Public and development-ally disabled clients	Loops including Hubbard, Woodburn, Silverton, Gervais, Mt. Angel	Hubbard Post Office and where requested	Several routes/schedules from Monday through Friday (see Appendix C)	503.585.6193 1.800.422.7723
Oregon Housing & Associated Services "Wheels"	Demand response. 6 18-passenger vans	Primarily used by elderly & handicapped (357 people) but open to general public	Demand response serves north Marion County.	Not fixed	•Fixed route: AM and PM stops Monday-Friday •Dial-a-ride 8:00 AM to 5:00 PM Monday -Friday	503.585.6193 Donna Wickman
Mid-Valley Rideshare Program	Regional transportation demand management / carpool program	General public	Marion, Polk, and Yamhill Counties; and the Willamette Valley and selected coastal areas	Based in Salem, City of Salem Pubic Works Department	•24-hour rideshare matching program. •Carpool & vanpool match lists •Information and referrals	1.503.371.POOL Web Site: http:/www.open.org/spubwork/rideshar.html
Silverton Hospital-Seniors Plus	Demand response	Elderly and disabled clients and general public when space is available	Twenty mile radius from Silverton, regular service to Woodburn, Salem, and Portland as needed. Serves Hubbard.	Not fixed	8:30 AM to 4:00 PM Monday through Friday. Provides medical rides on a dial-a-ride basis	503.873.1789 503.982.8108 for Woodburn Express
Woodburn Taxi and Delivery	Demand response. Private, for profit service and a service provider for OMAP	Paying general public Oregon Health Plan Clients	Woodburn based and serves Hubbard	Not fixed	Taxi service from 7:00 AM to 5:00 PM Monday through Friday. OMAP service hours are similar, requires two-day notice	503.982.1818

Name	Type	Clientele	Service Area/ General Route	Local Stops	Schedule	Contact Number
HUBBARD AREA SERVICES						
Woodburn Transit	Intracity fixed route and schedule bus. Includes paratransit services.	Woodburn residents and elderly or disabled citizens	Woodburn UGB	Single, 15.3 mile, fixed route system on parts of Hwys. 99E, 211, 214, 219, Front, Boones Ferry, Cleveland, Young, & others	9:00 AM to 5:00 PM, Monday through Friday.	503.982.5245
AMTRAK **□Coast Starlight** **□Pacific Northwest Passenger Rail Corridor**	Passenger rail & bus service	Paying general pubic	Seattle to Los Angeles Eugene to Vancouver, BC	Amtrak Station 12th, 13th, and Mill Street; Salem Union Station in Portland	2 inbound and outbound rail services supplemented by 3 round trip buses between Portland & Eugene	1-800-USA-RAIL Funded as part of State's high speed rail initiative.
Pacific Trails	Intercity fixed route and schedule bus	Paying general pubic	Lincoln City-Salem-Portland	Stops in Woodburn at the Greyhound bus stop at 397 Front Street.	One inbound and outbound trip daily	503.692.4437
Greyhound	Intercity fixed route and schedule bus	Paying general pubic	Portland-San Francisco/ Sacramento	Salem terminal: 450 Church St. NE Salem Woodburn stop at 397 Front St.	Salem: 9 southbound and 8 northbound buses daily	Salem 503.362.2428
HUT	Intercity shuttle	Paying general pubic	Salem to Portland Airport,	Woodburn stop at Holiday Express Inn, junction of I-5 and Hwy. 214	18 inbound and outbound trips daily Stops in Woodburn between 4:30 AM to 9:30 PM.	503.363.8059 Call 4 to 24 hours in advance to arrange stop. 24 hours notice preferred

Hubbard is served by three paratransit providers (Table 26). Usually, these services are available only to a specific clientele. Paratransit service is constrained by publicly funded programs that specify who may be served, liability, and service area. Paratransit services in Hubbard include "Wheels", Silverton Hospital Seniors Plus Program, and Woodburn Taxi serving Oregon Health Plan clients. Wheels and Silverton Seniors Plus will also provide ride to paying public on a space available basis.

A regional rideshare/demand management program offers carpooling and vanpooling coordination services to commuters in the Hubbard area. The service, Mid-Valley Rideshare Program, is based in the Salem-Keizer area and has been operating since 1975. The program serves Marion, Polk, and Yamhill Counties but will assist people throughout the Willamette Valley. As of February 23, 1998, the rideshare program contained no carpool applications from people traveling to or from Hubbard.

There are currently no taxi companies based in Hubbard but Woodburn Taxi serves Hubbard (Table 26). North Marion School District provides 6 school bus routes located mainly on the grid street network located in west Hubbard (Figure 19).

AMTRAK passenger rail services use the track running through Hubbard, but the service does not stop in the city. Stations closest to Hubbard are located in Salem and Portland. This service is described more completely in the Rail Freight and Rail Passenger Plan of the TSP.

Woodburn, Hubbard's nearest urban neighbor, has a transit system and paratransit service, and a variety of connections to several intercity transportation services (Table 26). The Woodburn Transit System provides scheduled fixed-route and paratransit services to residents inside the Woodburn UGB. The transit system budget in 1997-98 was $89,665 and was funded by fare revenues ($5,000), Special Transportation Funds ($21,327), local taxes and fees ($24,173), carryover and interest ($9,555), volunteer services ($24,660) and a cash donation ($4,950). Fares were $0.75 per trip and in 1994, 28,000 people rode the transit system and 3,400 people used the paratransit services (Kittelson & Associates, Inc., 1996). The fleet consists of two buses, a van, and a sedan.

Points on Woodburn's existing fixed-route transit service closest to Hubbard are located at the intersections of Hwy. 214 and Front Street, and Hwy. 214 and Highway 99E. The proposed new system will be two-directional fixed route, with 60 minute service frequency and expanded to include a route up Hwy. 99E, turning west on Industrial Avenue and turning south on Progress.

Woodburn provides connections to the following intercity bus/shuttle services: Greyhound, Pacific Trails, and HUT. Connections to the Silver Trolley, a Silverton transportation service, are available in Woodburn.

Existing and Future Public Transportation Needs

The existing and future public transportation needs were identified by comparing existing facilities and services to ODOT recommendations (ODOT, 1997), regional studies, and input from the public and TAC. It is difficult to identify future needs specifically for Hubbard because of very limited local data. Regional and state data (demographic trends and policy requirements) and projections are used to generally characterize future needs in Hubbard.

Hubbard residents made the following comments about existing public transportation needs during the public input process:

- More information about public transportation system;
- Add local bus service to Woodburn, Salem, and Canby which should also provide for connections to Portland Metro area;
- Develop public transportation system to get kids and senior citizens to activities in Woodburn and schools; and
- Provide carpool links.

A comparison of existing services in Hubbard with ODOT recommendations for communities under 2,500 people shows that the minimum services are available, especially since the North Marion County Service began operation. Hubbard does have:

- Public transportation for the general public;
- An accessible ride to anyone requesting services that operates 40 hours per week between Monday and Friday; and
- Timely connections to intercity bus services in Woodburn. Connections to intercity rail service in Salem can be made in Woodburn, but the connection is less timely.

In addition, Hubbard has ride matching services are available through the Mid-Valley Rideshare Program.

Presently, the Wheels North Marion County service stops at the Hubbard Post Office. Hubbard would prefer that the service stop at Riveness Park, located between D, E, 4th, and 5th Streets due to congestion. However, the park currently lacks many of the amenities and safety features that would promote use of the transportation service. Needed improvements include sidewalks (10-' width) around the park, lighting, telephone, enclosed shelter, and bus pull-out.

One existing public transportation/safety need should be addressed as soon as possible. Bus pull-out areas along Hwy. 99E, especially on the north end where highway reduces from three to two lanes, are needed to improve pedestrian and vehicle safety, and reduce congestion. Other existing needs include locating a park-and-ride lot(s) in Hubbard, encouraging the large industrial employers in the southeast area of the city to promote carpooling programs, improving the sidewalk system so users may travel safely to and from the transit stops, and making the general public aware of the existing services in Hubbard.

Demographic trends indicate that future public transportation needs in Oregon during the next 20 years will be driven by an increased population with a higher percentage of elderly (>65 years). Oregon's elderly population is expected to double in size while the percent of people under 14 years old is projected to decline. The state population is expected to increase 40 percent from 1990 to 2015 (2.8 to 3.8 million) and most of the increase is expected to be in the Willamette Valley (ODOT, 1997).

The Marion County RTSP (1998) concluded that the need for paratransit services will grow as the elderly become a larger proportion of the population as the "baby boomers" age. In Marion County between 1980 and 1995 the percent of the elderly population increased from 12.6 to 16.4 % for an increase of 3,369 people in the over 65 age category. This segment of the population is growing at a faster rate than the overall population. These trends are also expected to occur in the city of Hubbard, resulting in an increased need for public transportation that provides for basic mobility and commuter service needs.

The Marion County TSP also concluded that due to the small size of most urban centers in the county, public transportation planning and implementation should be a coordinated, regional process, particularly with respect to the fixed-route bus service or commuter services. The Woodburn TSP identified a need for increased intercity services and commuter services. The Plan proposed to expand the public transportation service to include inter-city service to Portland (top priority) and Salem via shuttle buses on I-5. A park-and-ride facility with 300 spaces is planned near the interchange of I-5 and Hwy. 214.

Future public transportation services in Hubbard will need to respond to demand increases due to population growth and a larger percentage of elderly, but will also need to provide a different mix of services. By 2020 the next tier of recommendations for public transportation will apply to Hubbard due to increased population. A comparison of existing services in Hubbard with ODOT recommendations for communities with populations of 2,500 to 25,000 people shows that the following services will be needed:

- Providing 1.7 annual hours of **public** transportation service per-capita with fixed-route, dial-a-ride, or other service types;
- Providing at lest one accessible vehicle for every 40 hours of service;
- Providing one backup vehicle for every 3.5 vehicles;
- Providing daily peak hour commuter service to the core areas of the central city (Salem and possible Portland);
- Providing a guaranteed ride home program to all users of the public transportation system and publicize it well; and
- Providing park-and-ride facilities along the transit corridors to meet reasonable peak and off-peak demand for such facilities.
- Maintaining vehicles and corresponding facilities in a cost-effective manner and replace vehicles when they reach the manufacturers.

Using a population of 3,105 people in 2020, and the recommendation to provide 1.7 annual hours of public transportation service per capita, calculates out to 5,278 hours of

annual service (102 hours per week). Service can be fixed-route, dial-a-ride, or other service types. The city should work to support existing services, such as Wheels, and work with other services providers to extend their service areas into Hubbard as the need arises.

Public Transportation Plan

The Public transportation plan includes facility improvements or construction (Figure 19), public outreach and planning activities, and goals and policies. The following facilities will be improved or constructed:

1. Bus pull-out areas along Hwy. 99E;
2. Transit stop at Riveness Park with enclosed shelter, sidewalks, lighting, telephone services, and bus pull-out;
3. Two park-and-ride facilities located in the Commercial Center and in the southeast industrial area (map locations are conceptual); and
4. Improved and expanded sidewalk system providing access to the transit stop and park-and-rides (see Pedestrian Plan).

The city will maintain a program to inform Hubbard residents about public transportation services in and near Hubbard. Route and schedule information, and ride-share/carpooling information will be periodically mailed with billing statements and posted at City Hall. The city will also maintain a program to periodically assess its public transportation needs, condition and capacity of existing services and facilities, and update information about adjacent services and the potential for service expansion.

The following goals and policies for public transportation are included in the city's TSP:

GOALS

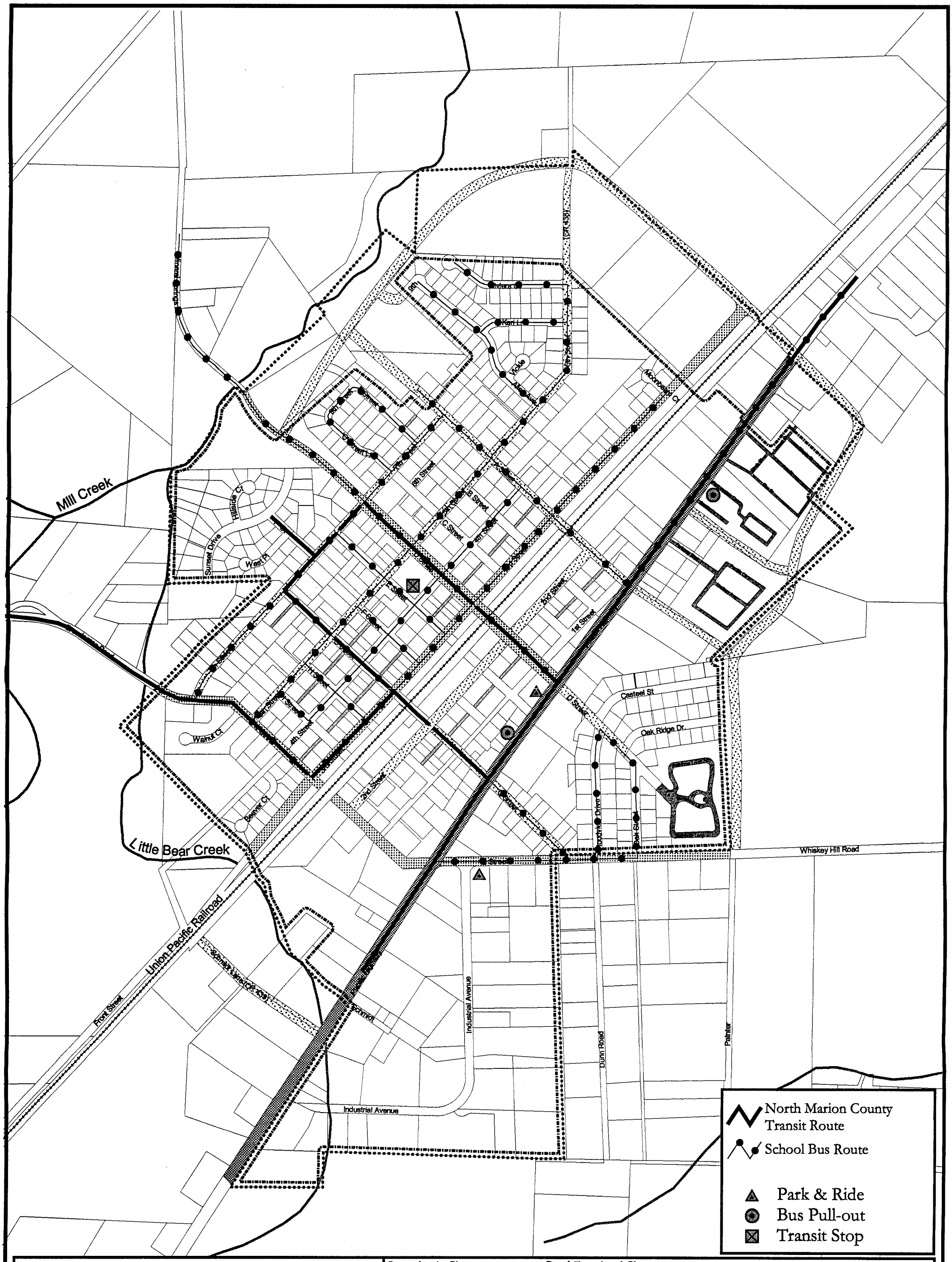
1. The city of Hubbard will seek for it's citizens, including the transportation disadvantaged, the maximum level of access to all social, work, and welfare resources.
2. The City of Hubbard will seek for its transportation disadvantaged citizens the creation of a customer-based regionally coordinated public transit system that is efficient, effective, and founded on present and future needs.

Policies

1. The city will support and promote regional planning for public transportation services that use innovative technology to maximize efficiency of operation, planning, and administration of public transportation.
2. The city seeks the creation of customer-based regionally coordinated public transit system through a regional planning process that is efficient, effective, and adequate for present and future needs. The system should provide the maximum level of access to area community centers for the transportation disadvantaged citizens.
3. The city encourages the use of carpools and park-and-ride lots in the area and other strategies to reduce the number of single occupant vehicles.

4. The city will support the efforts of the Special Transportation Advisory Committee, or its successors, in the implementation of the Regional Transportation Enhancement Plan and similar efforts to improve transportation for the disadvantaged in the region.
5. The city shall support existing public transportation services by improving facilities and promoting public awareness of the services.
6. The city will coordinate with other jurisdictions when the need for park-and-ride facilities or intercity connections to passenger rail services are studied.
7. The city shall coordinate with governmental and private agencies in the planning and provision of public transportation services and shall ensure that a given level of service is adequate for the costs incurred.

    Action: Periodically assess the community's transportation needs and check with existing services regarding expansion of service into Hubbard, for example Woodburn Transit or SMART in Wilsonville.



Title:

Figure 19. Public Transportation Plan

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	May 7, 1999	1

Filename:
r:/cog4/projects/hubbard/hub-tsp.apr
Public Transportation Plan 11x17 Portrait--Rev: 1

Comprehensive Plan
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Public

City Limits
Urban Growth Boundary
Railroads

Road Functional Class
- Major Arterial
- Minor Arterial
- Collector
- Local
- Alley
- Private

400 0 400 800 Feet

N W E S

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Air, Water, Pipeline Transportation

Air Transportation

No public or private airports are located within or adjacent to Hubbard. The closest airport is Lenhardt Airport, a private facility about northeast of the city in Clackamas County.

The closest public airports are McNary Field in Salem and Aurora State Airport in Aurora. McNary Field in Salem provides for both VFR and instrument flight rules (IFR) operations. There is no scheduled service provided by commercial air carriers.

Pipeline and Water Transportation

There are no regional pipelines in Hubbard. The closest pipelines are located along the east side of I-5 and run parallel to the freeway. The pipelines distribute petroleum and natural gas. There are currently no plans to expand the systems in any way that would affect Hubbard.

Hubbard does not have water transportation modes within the UGB. The Pudding River is located about 2 miles east of Hubbard and does not currently have a water transportation functions.

IMPLEMENTATION OF TRANSPORTATION SYSTEM PLAN

Summary of Recommended Improvements

Table 25 summarizes the recommendations in the preceding sections. It is organized by planning horizon (0-5 years, 5-10 years, and 10-20 years) and transportation system element. Rough cost estimates are given for each recommendation.

TABLE 27. TRANSPORTATION SYSTEM PLAN RECOMMENDATIONS: SCHEDULE AND BUDGET

System Element	*Project Description*	*Cost Estimate*
	0 - 5 YEARS	
Rail	Apply to ODOT to reopen J Street at-grade railroad crossing	$500
Rail	In cooperation with ODOT, evaluate the need for and cost of reopening the at-grade crossing, and intersection and street improvements.	$5,000
Rail/Road	Evaluate and model local traffic flow patterns and volume related to daily mail pickup and evaluate the impact of other locations.	$20,000
Rail/Road	Illuminate existing (3) at-grade crossings	$20,000
Rail/Roadway	Install full protection at J St. at-grade crossing of RR	$200,000
Public Transportation	Bus pull-out and shelter on north Hwy. 99E **(Assumes new storm drains, pipe, and a manhole)**	$26,000[1]
Public Transportation	Transit stop improvements at Riveness Park: enclosed shelter, 1,200' of 10' wide sidewalks , bus pull-out, telephone, lighting **(Assumes new storm drains, pipe, and a manhole)**	$98,500
Public Transportation	Annual mailing of schedule and route information to Hubbard residents	$1,300
Roadway	Apply to ODOT to evaluate posted speed limits on Hwy. 99E for a reduction to improve safety in Hubbard	$500
Roadway	Add 2,679' long, 14' wide center turning lane on Hwy. 99E between D Street and north UGB	$161,500[1]
Roadway	Improve 3rd St. between A & D Streets: 4386 ft. long, 48' wide, sidewalks, stripe bikelanes, tree wells **(Storm sewer work one side, add $215,000**	$1,031,000
Roadway	Improve A St. between 5th Street and west dead end: 677 ft. long, 34' wide, parkway strip, 5' sidewalks **(Storm, +$33,200)**	$113,000
Roadway	Improve 6th St. between B and C Streets: 257 ft. Long, 28' wide, parkway strip, 5' sidewalks **(Storm, + $12,600)**	$35,300
Roadway	Improve 7th St. between B and C Streets: 264 ft. long, 28' wide, parkway strip, 5' sidewalks **(Storm,+$13,000)**	$36,200
Roadway	Improve F St. between 1st and 2nd Streets: 257 ft. long 28' wide, parkway strip, 5' sidewalks **(Storm,+$12,600)**	$35,300
Roadway	Improve H St. between 3rd and 5th Streets: 555 ft. long, 28' wide, parkway strip, 5' sidewalks **(Storm,+$27,200)**	$76,035
Roadway	Improve I St. between 4th and 5th Streets: 268 ft long, 28' wide, parkway strip, 5' sidewalks **(Storm,+$13,000)**	$36,700
Roadway	Improve B St. between 4th and 6th Streets: 562 ft: 28' wide, parkway strip, 5' sidewalks **(Storm,+$27,800)**	$77,000
Roadway	Improve Sunset Dr. between north and south ends: 986 ft. long, 28' wide, parkway strip, 5' sidewalks **(Storm,+$48,300)**	$135,100
Roadway	Improve West Pl. between south end and F Street: 407 ft. long, 28' wide, parkway strip, 5' sidewalks **(Storm,+$20,000)**	$55,800
Roadway	Improve Hillside Ct. between west end and Sunset Dr.: 300 ft. long, 28' wide, parkway strip, 5' sidewalks **(Storm,+$15,000)**	$41,100

System Element	*Project Description*	*Cost Estimate*
Roadway	Evaluate and implement solution to improve safety/capacity at 3rd/D St. intersection. Examine all intersections along 3rd St. for safety improvements. **(Evaluate & examine only-implement is open ended)**	$7,500
Roadway	Upgrade J St. west of Hwy. 99E: 2,200 ft. long, 48' wide, sidewalks, stripe bike lanes, tree wells **(Storm,+$107,500)**	$512,000[2]
Roadway	Realign east approach of D St. to Hwy. 99E; 200' long, 34' wide, left turn lane, bikelanes, 5' sidewalks, parkway strip	$50,000
Roadway	Reconfigure intersection of Hwy. 99E and J Street	$90,000[1]
Roadway	Reconfigure intersection of Hwy. 99E and J Street	
Sidewalks	Add 13,466 ft of 6' wide sidewalks to Hwy. 99E	$175,000
	SUB TOTAL	$3,274,854
	5 - 10 YEARS	
Rail	Extend existing line of trees along west side of railroad: ~2,200 feet 1" deciduous every 40' is $100 each	$5,500
Rail	Work with railroad and ODOT to design and implement sound mitigation measures **(Design only)**	$5,000
Rail	Add trees along east side of railroad: ~4,400 feet. 1" deciduous every 40' is $100 each	$11,000
Public Transportation	South bus pull-out on Hwy. 99E	$17,500[1]
Public Transportation	Park-and-ride lots in Commercial Center and industrial area: signs, lights, pavement, striping **(20 autos + 4 bike storage units only)**	$25,000
Roadway	Extend 3rd St.: 600' long, 48' wide, sidewalks, stripe bikelanes, tree wells	$141,000[3]
Roadway	Build northwest perimeter road: 4,300' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks)	$870,000[3]
Roadway	A St. West Extension: 600' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks	$134,000[3]
Roadway	Schmidt upgrade: 1,000' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks)	$173,000[3]
Roadway	B and 9th St. connections to new northwest perimeter road: 200' long, 28' wide, parkway strip, 5' sidewalks)	$45,300
Roadway	Upgrade D St. west of Hwy. 99E: 2,935 ft. long, 48' wide, sidewalks, stripe bikelanes, tree wells	$710,000[2]
Bikeway	Build bike lanes (4 miles) or multi-use path (2 miles) between Hubbard and North Marion Schools	$211,200
Bikeway/Side walks	Upgrade 5th Street: 3,885' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks	$794,000[2]
	SUB TOTAL	**$3,142,500**

System Element	Project Description	Cost Estimate
	10 - 20 YEARS	
Roadway	East perimeter road: 3,300' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks)	$672,000
Roadway	A St. East Extension: 750' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks	$151,000
Roadway	A St. East Extension: 750' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks	$151,000
Roadway	New collector between Parkway & Basilio: 800' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks	$161,100
Roadway	Casteel and Oak Ridge St. connections to new east perimeter road: 200' long, 28' wide, parkway strip, 5' sidewalks)	$45,300
Roadway	Upgrade J St. east of Hwy. 99E: 2,020 ft. long, 48' wide, sidewalks, stripe bikelanes, tree wells	$408,700[2]
Roadway	A St. West Extension: 650' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks	$139,999[3]
Roadway	New collector road connecting 5th St. with Boones Ferry Rd.; 2,600' long, 34'paved width, striped bike lanes, parkway strips, 5' sidewalks	$529,450[2]
Roadway	Upgrade Hwy. 99E to 4 travel/1turning lane; 6,733' long, 88'paved width, striped bike lanes, parkway strips, 6' sidewalks	$1,500,000[1]
Bikeway	Build bike multi-use path (2 miles) between Hubbard and Woodburn	$211,200
	SUB TOTAL	$3,817,750
	GRAND TOTAL	$10,235,104

[1]-Projects partially or completely on ODOT facility
[2]-Projects partially or completely on Marion County facility
[3]-Projects in Hubbard and mainly needed for NEW development

The recommended projects (Table 27) that pertain to County roads (segments of J St., and Whiskey Hill and Mineral Springs Roads) do not appear in the Marion County Rural TSP. The County does not expect to be able to fund projects outside the UGB except those listed the County TSP. Furthermore, the County has not determined which urban projects (located between UGB and city limits) will be funded as all urban transportation issues from all the cities in the County have not yet been collected and evaluated. While the County realizes the benefits of the recommended projects, the inclusion of projects that pertain to County roads in the Hubbard TSP does not obligate the County to construct these projects.

Projects identified in the TSP for the next 20 years are estimated to cost a total of $10,235,104, or $511,755 per year. Of the projects identified, $1,925,000 are located on ODOT facilities, and $1,559,820 are located completely or partially on Marion County facilities, leaving $6,750,434 of projects located on Hubbard facilities. For projects proposed on facilities in Marion County and Hubbard ownership the cost was apportioned based on the percentage of roadway located in each jurisdiction. Of the projects located on Hubbard facilities, about $1,457,000 will be needed by new development. If these costs were spread over the 307 new dwelling units projected to be constructed in Hubbard during the next 20 years, each unit would require about $4,745 in new transportation facilities. This simplistic approach does not allocate any costs to new industrial or

commercial development. Other projects on Hubbard facilities, not needed by new development though all Hubbard residents would benefit, total $5,293,434 for an average of $264,672 per year. As indicated above, Marion County has no plans for improvements to Hubbard facilities. It is possible the County may have some funds for sidewalk and bikeway facilities, e.g. the bikelanes to the North Marion Schools. Realistically, the city should plan on paying for all improvements inside the UGB if they need them during the next 20 years. This would change the total cost of projects (not needed by new development) to $6,853,254, or $342,663 per year. It should also be noted that local contributions improve the likelihood that ODOT will fund projects in Hubbard.

Hubbard's proposed 1999-2000 budget allocates $115,700 to operation and maintenance of streets, and $125,000 to street construction. Some of the funds for street construction are contingent on receipt of grant moneys. Between 1997 and 1999 Hubbard received 92,600 to $94,400 per year from the State Motor Vehicle Fund. The city expects this allocation to remain similar for the next few years due to changes in the per capita rate which is use to allocate the money. This fund is used mostly for maintenance and in 1999-2000 $69,800 is planned for maintenance and $17,400 is allocated to street construction. The city's current System Development Charges (SDC) include $427 for streets and $4,346 for storm drainage.

If the city collected the current transportation SDC just from the anticipated 307 new residential dwelling units they would receive about $131,089. New facilities needed primarily by future residential development were estimated to cost about $1,457,000 leaving the city with a shortfall of at least $1,325,911. The city plans to address these shortfalls by reevaluating existing SDCs and other financing methods.

Review & Coordination

The TSP has been reviewed by city of Hubbard staff, Marion County, ODOT, and the Department of Land Development and Conservation (DLCD) for consistency with other plans and compliance with the TPR. Review comments and related changes to the TSP are included in Appendix F.

Adoption Process

The Hubbard Planning Commission reviewed the document on June 8, 1999 and the City Council reviewed the plan on June 15, 1999. The Planning Commission and City Council had the first reading to adopt the revised plan by resolution June 29, 1999.

Implementing Ordinances

The TPR requires cities to adopt policies and land use regulations for implementing the TSP as provided for in OAR 660-12-045.

A review of Hubbard's Comprehensive Plan and related ordinances has been completed and changes and additions made. The existing ordinances, and indicated changes and additions, are shown in Appendix D. The implementing ordinances were reviewed and adopted during review and adoption of the TSP.

Financing & Capital Improvement Program

Hubbard has developed a Capital Improvement Program for the planned improvements to the transportation system. The improvement program totals $10,235,104 million is detailed by task and time frame in Table 27. The following portion of the TSP describes methods that the city may use, and in some cases does use, to fund proposed projects. These finance methods may be used individually or in combination to fund projects, or contribute the city's share, to transportation projects.

Transportation improvement projects are funded from three sources: (1) federal, (2) state, and (3) local governments. A brief overview of the funding mechanisms available from each source is given.

Federal

TRANSPORTATION EFFICIENCY ACTS

Federal funds were available under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. This act terminated in 1997 and a new funding bill (NEXTEA) will be authorized. Funding categories and levels under the new bill are unknown at this time, but Hubbard will stay current with the progress of this bill and its applicability to Hubbard transportation needs. The Surface Transportation Program (STP) and National Scenic Byways Program were previous programs potentially useful for Hubbard.

COMMUNITY DEVELOPMENT BLOCK GRANTS

The Federal Department of Housing and Urban Development administers a program called the Community Development Block Grant Program (CDBG). Funds are allocated based on city size and demographics such as income levels and housing standards. In some areas, street reconstruction projects in older neighborhoods have been funded by this program.

State

STATE MOTOR VEHICLE FUND

The State of Oregon collects gas taxes, vehicle registration fees, overweight/overheight fines and weight/mile taxes and distributes a portion of these revenues to counties and

cities using an allocation formula. The State distributes a local share to cities based on a per capita rate. Revenues vary from year to year as the allocation formula can vary. Funds can be used for capital improvements or maintenance.

SPECIAL PUBLIC WORKS FUNDS (SPWF- LOTTERY PROGRAM)
The Special Public Works Fund provides grants and loans for public works that support private projects resulting in creation or retention of permanent jobs. Loans are emphasized in this program and are available for amounts up to $11,000,000 for a maximum of 25 years unless the project life is shorter. The maximum grant amount is $500,000 and may not exceed 85% of the project cost.

TOLL ROADS OR BRIDGES
This method builds certain facilities by charging a fee per use and statutes provide the option to ODOT and "private" bridge projects. Toll roads are provided for on a more limited basis, for example, the Newberg bypass.

Local

CITY GAS TAX
The city could levy a per gallon tax on fuel sold in Hubbard. Typical taxes range from $0.01 to 0.03 per gallon and Woodburn, Tillamook, and The Dalles are examples of a communities with such a tax. The city could contract with the State Fuel Tax Branch to collect and administer the tax.

LOCAL VEHICLE REGISTRATION FEE
This would operate similarly to the existing statewide system. Although the method has been discussed, no city or county governments have implemented such a program.

SYSTEM DEVELOPMENT CHARGES
This method collects an equitable share from new developments to help pay for the capital costs of improvements needed to support growth. Cities that use this System Development Charge (SDC) method are required (ORS 223.297) to complete a plan that lists the capital improvements that can be funded by SDCs and the estimated timing and cost for each improvement. SDCs are limited to those capital improvements that will be or were required to increase capacity because of increased demand due to current or expected development. This method is commonly acceptable to the public because new residents, rather than current residents, pay for the improvements. The method is less acceptable to developers because it is argued that it makes new development unaffordable. Revenues provided by this method are variable because they are linked to the amount of new development.

STREET BONDS
This method is typically used to fund road improvements that will benefit an entire community. General obligation bonds are supported by a property tax levy on assessed value of property. This method requires voter approval of bond issues and is the least expensive borrowing mechanism for municipalities.

LOCAL IMPROVEMENT DISTRICTS

This method assesses property owners in an area where capital improvements, such as road and utility projects, are required. Local Improvement Districts (LIDs) have typically been applied in developing new industrial areas but could be used to fund improvements in developed areas through increases in property taxes or other assessments. LIDs can be initiated by property owners or the city, and the collected funds are usually used to service debt on bonds incurred to undertake the improvements. Costs can be determined based on road frontage or square footage. LIDs are most suitable for individual local street improvement projects.

ROAD USER, OR STREET UTILITY, FEES

This method would charge city residents and nonresidential users a monthly or yearly fee for use of the city road system, similar to water and sewer utility fees. User fees go to maintenance activities and are instituted in LaGrande and Ashland.

TRAFFIC IMPACT FEES

This method is used to finance required road improvements associated with new development. The fee, which can vary for different land uses, is calculated based on the estimated number of vehicle trips generated by the proposed development. Revenues generated in this manner must be used for capital improvements and not maintenance activities.

FULL/PARTIAL PRIVATE CONTRIBUTIONS

Under this method the developer builds the road to city standards and then deeds the road to the city as a condition of development.

Grants are available from some economic development programs. The Immediate Opportunity Grant program, managed by ODOT, provides a maximum of $500,000 for public road work associated with an economic development related project of regional significance, provided the project creates primary employment. Additionally, although lesser shares will be considered, the grantee should provide an equal local match.

It should be noted that the state has begun to require contributions from local jurisdictions for some projects when development has significant traffic impacts. An example of this are improvements on U.S. Highway 101 near Lincoln City, and Highway 18 near Valley Junction. Cost sharing may become more common if federal funds decrease in the future. It is expected that local contribution to or cost sharing for projects such as interchanges and bridges will continue.

REFERENCES

Cambridge Systematics, Inc.; Oregon Rail Passenger Policy and Plan; prepared for ODOT August 3, 1992.

Federal Emergency Management Agency; Flood Insurance Rate Map, Marion County, Oregon and Incorporated Areas, Panel 141 of 1150, Map No. 41047C0141G; preliminary date 9/30/99.

Federal Emergency Management Agency; Flood Insurance Rate Map, Marion County, Oregon and Incorporated Areas, Panel 133 of 1150, Map No. 41047C0133G; preliminary date 9/30/99.

Federal Emergency Management Agency; Flood Insurance Rate Map, Marion County, Oregon and Incorporated Areas, Panel 141 of 1150, Map No. 41047C0137G; preliminary date 9/30/99.

Fehr & Peers Associates, Inc., Creating Livable Streets: Street Design Guidelines for 2040, Prepared for Metro.

Louie, Mike; Marion County Public Works Department; written communication, February 6, 1998.

Koler/Morrison Planning Consultants; Marion County, Oregon: Historic Context Statement; August, 1990.

Marion and Polk Counties Special Transportation Advisory Committee; Moving Toward Action: The Marion and Marion Counties' Regional Transportation Enhancement Plan, Marion and Marion Counties Special Transportation Advisory Committee for the Salem Area Mass Transit District Board of Directors; August, 1998.

Mid-Willamette Valley Council of Governments, 1998, Planning For the Transportation Disadvantaged in Marion and Polk Counties: Seniors and People with Disabilities, prepared for the Special Transportation Fund Advisory Committee of the Salem Area Mass Transit District.

Hubbard, City of; City of Hubbard Comprehensive Plan; 1977.

Hubbard, City of; Hubbard City Code.

Immel, Ed, 1999, written communication, State Rail Planner, ODOT.

Oregon Department of Environmental Quality-Air Quality Division, 1994 Oregon Air Quality Annual Report, 1995.

Oregon Department of Environmental Quality-Air Quality Division, 1995 Oregon Air Quality Data Summary, 1996, Report Number 92871.

Oregon Department of Transportation; 1994; Oregon High Speed Rail Business Plan.

Oregon Department of Transportation; Oregon Transportation Plan: The New Oregon Trail Leading into the 21st Century; Plan; September 1992.

Oregon Department of Transportation; Oregon Rail Freight Plan; adopted August 1994.

Oregon Department of Transportation; Bicycle and Pedestrian Plan: An Element of the Oregon Transportation Plan ; adopted June 14, 1995.

Oregon Department of Transportation; Transportation System Planning Guidelines; August, 1995.

Oregon Department of Transportation; Willamette Valley Transportation Strategy-Phase One Report; May 1995.

Oregon Department of Transportation; 1997 Oregon Public Transportation Plan: An Element of the Oregon Transportation Plan; adopted April 1997.

Oregon Department of Transportation; 1998 Oregon Highway Plan: Public Hearing Draft; January 1999.

Marion and Polk Counties Special Transportation Advisory Committee; Moving Toward Action: The Marion and Marion Counties' Regional Transportation Enhancement Plan, Marion and Marion Counties Special Transportation Advisory Committee for the Salem Area Mass Transit District Board of Directors; August, 1998.

Marion County Public Works, Marion County Road and Recreation Map, 1995.

United Sates Department of Agriculture, 1972, Soil Conservation Service; Soil Survey of Marion County Area, Oregon.

Washington State Department of Transportation, Oregon Department of Transportation, and British Columbia Ministry of Employment & Investment; 1995; Options For Passenger Rail in the Pacific Northwest Rail Corridor: Executive Summary; prepared by Morrison Knudsen and HDR Engineering, Inc.

Wilbur Smith Associates; 1994; Oregon High Speed Rail Capacity Analysis: Recommended Investment Program FY 1993-1997.

Wineberg, Howard; Population Estimates for Oregon, July 1997; Portland State University; Center for Population Research and Census, March, 1998.

APPENDICES

Appendix A: Definitions and Acronyms

Access Management: Measures regulating access to streets, roads, and highways from public streets or 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 the use of physical controls, such as signals and channelization including raised medians to reduce impact of approaching traffic on the main facility.

ADA: Americans with Disabilities Act of 1990. Federal legislation requiring that public facilities and commercial buildings have doorways, corridors, accessways, elevators, seating, an other facilities that are accessible to the handicapped population.

Arterial Highway: A highway primarily for through traffic, usually on a continuous route.

Average Daily Traffic (ADT): The annual average two-way traffic volume. It represents the total traffic for the year divided by 365.

Bikeway: A bikeway is created when a road has the appropriate design treatment for bicyclists, based on motor vehicle traffic volumes and speeds: shared roadway, shoulder bikeway, bike lane or bicycle boulevard. Another type of facility is separated from the roadway: multi-use path.

Bikelane: A portion of the roadway which has been designated by striping and pavement markings for the preferential or exclusive use of bicyclists.

Comprehensive Plan: A local document that guides a community's land use, conservation of natural resources, economic development, and public services. Plans contain data and information called the inventory, and the policy element. The policy element sets forth the community's long-range objectives and the policies by which they will be achieved. The plan in adopted by ordinance and has the force of law.

Demand Management: 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, ridesharing and vanpool programs, and trip reduction ordinances.

Demand Response Service: Non-fixed route service route utilizing vans or buses with passengers boarding and alighting at prearranged times at any location within the system's service area. Sometimes referred to a "dial-a-ride", it is designed to carry passengers from their origins to specific locations on an immediate basis or advanced reservation basis.

DLCD: Department of Land Conservation and Development, the State of Oregon's land use planning agency.

Divided Highway: A two-way highway on which traffic traveling in opposite directions is physically separated by a median.

Frontage Road (Local Service Road): A local street or road located parallel to an arterial highway for service to abutting properties for the purpose of controlling access to the arterial highway.

Functional Classification: (see Table 28).

Implementing Measures: The mechanisms used to accomplish the goals, policies, and objectives contained in a comprehensive plan. There are a variety of measures and two common examples are zoning and land-subdivision ordinances.

Intermodal: Connecting individual modes of transportation and /or accommodating transfers between such modes.

ISTEA: the federally enacted Intermodal Surface Transportation Efficiency Act of 1991 which provided authorizations for highway, highway safety, and mass transportation for the following six years.

Level of Service: A quantitative measure of the effect of a number of factors on transportation service including speed and travel time, traffic interruptions, freedom of movement, safety, driving comfort, and convenience (see Table 29).

Mobility: Being able to move easily from place to place.

Modes of Transportation: Mass transit, air, water, pipeline, rail, highways, bicycle, pedestrian types of travel and transport. The terms "modes", mode connectivity", and intermodal refer to these types of travel.

Multimodal: Involving several modes of transportation.

Paratransit: A general term for various types of transit service which differ (in one or more ways) from the standard fixed-route, large-bus service usually provided by transit agencies. Examples include demand-response and contracted fixed route service, among others. Paratransit services usually use smaller vehicles, such as vans, taxicabs, or small buses.

Periodic Review: A broad reevaluation of the comprehensive plan that occurs every four to ten years.

Public Transit: Bus , van, light rail and other surface transportation systems open to the general public which operate frequently and on predertermined routes and schedules.

PDIA: Potential Development Impact Analysis: Estimates existing and potential development for residential, commercial, and industrial land based on U.S. Census data, local zoning ordinances, and aerial photos. Designed to help answer the question, "How many vehicle trips would be produced if every vacant, buildable parcel of property were developed at maximum density?".

OAR: Oregon Administrative Rules. A body of law that describes how legislation and other laws will be implemented.

ODOT: Oregon Department of Transportation

Rural: Any area not included in a business, industrial, or residential zone of moderate or high density, whether or not it is within the boundaries of a municipality.

Shared Roadway Bikeway: A type of bikeway where bicyclists and motor vehicles share a travel lane.

Shoulder Bikeway: A type of bikeway where bicyclists travel on a paved shoulder.

SOV: Single-occupant vehicle

STIP: Statewide Transportation Improvement Program

Structures: A bridge, retaining wall, or tunnel.

Transportation Disadvantaged: A term used to denote individuals without the ability or capability to use personal conveyances to travel. For example, these individuals may be the working poor, students, physically or mentally challenged people.

TPR: The Transportation Planning Rule contained in Oregon's Administrative Rule, Chapter 660, Division 12, which implements the statewide planning Goal 12: Transportation.

Urbanizable area: Area between the Urban Growth Boundary and city limits that will eventually be developed.

UBA: Urban Business Area

UGB: Urban Growth Boundary. A line which drawn around a geographic area which separates urban use lands from resource, or rural, use lands; and shows where the city intends to grow.

Urban: Any territory within an incorporated area or with frontage on a highway which is at least 50 percent built-up with structures devoted to business, industry, or residences for a distance of a quarter mile or more.

Urbanizing: Areas within an urban growth boundary that are undeveloped.
Variance: An authorization issued by the Department that allows a deviation form the Department's access management standards.

V/C ratio: Volume-to-capacity ratio, a measure of roadway congestion, calculated by dividing the number of vehicles passing through a section of highway during the peak hour by the capacity of the section (see Table ?).

VMT: Vehicle miles of travel, Miles traveled per vehicle multiplied by the total number of vehicles.

TABLE 28. FUNCTIONAL CLASS CRITERIA

Classification	Primary Function	Typical Spacing	Typical Trip Length	Typical Projected Traffic Volume
Principal Arterial	Provides for trips passing through community and connecting regional centers.	2-3 miles	Over 5 miles	30,000 ADT+
Major Arterial	Serves as primary route between major urban activity areas and to access principal arterials.	1-2 miles	2 - 5 miles	15,000 - 30,000 ADT
Minor Arterial	Serves as the primary travel routes within community system and to augment and connect the arterial system.	1 mile	Over 1 mile	7,500 - 25,000 ADT
Major Collector	Channels traffic from minor collectors and local streets to arterials and provides limited property access.	½ - 1 mile	Under 1 mile	5,000 - 10,000 ADT
Minor Collector	Channels traffic from local streets to major collectors and arterial streets and provides property access.	¼ - ½ mile	½ - 1 mile	1,500 - 7,000 ADT
Local Street	Provides direct access to individual properties.	300-500 feet	Under ½ mile	1,500 ADT or less

TABLE 29. LEVEL OF SERVICE CRITERIA

Service Level	V/C	Typical Traffic Flow Conditions
A	0.00-0.10	Motorists are able to drive at their desired speed. Without strict
B	0.11-0.20	Stable traffic flow with slight delays at signalized or stop sign controlled intersections. Average speed would vary between 25 and 30 miles per hour.
C	0.21-0.35	Stable traffic flow but with delays at signalized or stop sign controlled intersections. Delays are greater than at level B but still acceptable to the motorist. The average speeds would vary between 20 and 25 miles per hour.
D	0.36-0.50	Traffic flow would approach unstable operating conditions. Delays at signalized or stop sign controlled intersections would be tolerable and could include waiting through several signal cycles for some motorists. The average speed would vary between 15 and 20 miles per hour.
E	0.51-0.90	Traffic flow would be unstable with congestion and intolerable delays to motorists. The average speed would be approximately 10 to 15 miles per hour.
F	0.91-1.00	Traffic flow would be forced and jammed with stop and go operating conditions and intolerable delays. The average speed would be less than 10 miles per hour.

Note: the average speeds are approximations observed at the various levels of service but could differ depending on actual conditions.

Appendix B: Transportation Planning Survey and TAC Meeting Minutes

Transportation Advisory Committee Members

NAME	ADDRESS	PHONE	FAX & e-mail
Vickie Nogle City Recorder	City of Hubbard PO Box 380 Hubbard 97302	503.981.9633	503.981.8743
Jamie Estrada Public Works	City of Hubbard PO Box 380 Hubbard 97302	503.981.9633	503.981.8743
Russ Peterson and Dusty Yoder Hubbard Fire Department	3110 7th Street Hubbard, OR 97302	503.981.6769	
Hildred Huyssoon City Council	PO Box 165 Hubbard, OR 97302		
Frances Raymond Planning Commission	2414 Kari Ln. Hubbard, OR 97302	503.981.7282	
Ken Yoder Hubbard RFD Interested Citizen	3252 Hoodview Drive Hubbard, OR 97302	503.982.6051	
Mike Mooney Interested Citizen	PO Box 58 Hubbard, OR 97302	wk: 503.982.0804	
Dan Fricke	ODOT Region 2 Headquarters 455 Airport Rd. SE Building B Salem, OR 97301-5395	503.986.2663	Daniel.L.Fricke@odot.state.or.us
Larry Ksionzyk	Department of Land Conservation & Development 635 Capitol Street NE, Suite 200 Salem, OR 97301-2540	503.373.0050	Larry.Ksionzyk@state.or.us
Mike Louie	Marion County Public Works 5155 Silverton Rd Salem, OR 97305	503.588.5036 x4342	
Jeanne Fromm	Mid-Willamette Valley Council of Governments 105 High St. SE Salem, OR 97301	503.588.6177	503.588.6094 jfromm@open.org

TRANSPORTATION SYSTEM PLANNING SURVEY

OPEN HOUSE

✂What are your concerns about Hubbard's transportation system: roads, sidewalks, bikeways, railroad, public transportation, safety issues, and congestion?
✂Where and how could the transportation system be improved?
✂What should the transportation system be like in the future?

The city of Hubbard is working on a Transportation System Plan which includes all modes of travel, serves the entire urban area, and is well coordinated with other plans and systems. The plan is developed in six steps:

1. Gather background information and **identify issues and concerns**
2. Inventory the existing transportation system
3. Identify existing and future needs and deficiencies
4. Develop, evaluate, and choose solutions
5. Identify how to implement the plan
6. Put the information gathered in the previous 5 steps in the Plan.

You can help **identify issues and concerns**. Please come to the Open House and express your views on how to improve the transportation system.

WHEN: 3:00 to 6:30 PM
September 17, 1998
WHERE: Hubbard Fire Hall
Cookies and coffee served!

If you can't come to the meeting, but still want to share your thoughts, please fill out the survey on the back and return with your water bill payment.

HUBBARD TRANSPORTATION SYSTEM SURVEY

Which elements of the existing transportation system do you use the most (circle top two)?

Roads Sidewalks Bikeways Public Transportation

Where do you work?

How do you get to work (circle)? Drive alone Carpool Walk Bicycle

Excluding roads, which element of the system needs the most improvement in Hubbard?

What are the biggest transportation safety issues in Hubbard and where are they located?

Are there congested areas in Hubbard (circle one)? Yes No

When does congestion occur and where is it located?

List three ways to improve the existing transportation system:

1.
2.
3.

What system needs and concerns do you see in the future?

SUMMARY OF INFORMATION FROM RETURNED SURVEYS

About 650 surveys mailed out with August water bill. 47 (7%) returned.
7 people attended the Open House on September 17, 1998.

TWO MOST COMMONLY USED PARTS OF THE TRANSPORTATION SYSTEM:

Roads- 45
Sidewalks- 34
Bikeways- 2*
Public Transportation-2*
**No perception that these parts of the transportation system exist in Hubbard.*

WORK TRAVEL MODE:

Drive alone- 30
Walk- 4
Bicycle- 1
Carpool- 0

LOCATION OF EMPLOYMENT:

Hubbard- 7
Portland- 7
Aurora- 5
Woodburn- 5
Canby- 3
Salem- 3
Home- 3
Wilsonville- 3
Retired- 2
Lake Oswego- 2
Tualatin- 2
Donald- 1
Gresham- 1
McMinnville- 1
Hillsboro- 1
Mt. Angel- 1

SYSTEM ELEMENT NEEDING MOST IMPROVEMENT (EXCEPTING ROADS):

Sidewalks- 21
Bicycle lanes- 3
Public transportation-3
Drainage systems-2
None needed- 2

TYPE AND LOCATION OF TRANSPORTATION-RELATED SAFETY CONCERNS IN HUBBARD:

- **Getting on and off Hwy. 99E- 4**
- Crossing Hwy. 99E
- Intersection Hwy. 99E and J Street is difficult to cross because there is no traffic light
- **Unsafe turning conditions on Hwy. 99E- 4**
- **Hwy. 99E and G Street (flashing light)- 3**
- Unsafe turning conditions from Hwy. 99E into BP gas station
- **Unsafe intersection at Hwy. 99E and A Street- 4**
- Unsafe signal timing at Hwy. 99E and D, (one person wrote green turn sign at light when turn light is red, another remarked that there should be an interval where all directions have red light because a lot of cars run the red lights)
- Poorly marked turning lanes
- Unsafe speeds on Hwy. 99E
- Cars passing on shoulder to get around cars on northern part of Hwy. 99E
- **Unsafe intersection at Hwy. 99E and D Street- 4**
- **Cars running red light at intersection of Hwy. 99E and D Street- 2**
- Unsafe pedestrian conditions on north end of Hwy. 99E
- Traffic from Whiskey Hill is speeding down residential streets
- High speed on A Street is unsafe for kids
- Big rigs on 5th Street traveling to Hwy. 99E
- Parking problem near Barendse Park reduces street to one travel lane
- **Unsafe intersection at 3rd and D Streets-3**
- Unsafe intersection at 3rd and A Streets
- Unsafe intersection at D and First Streets
- Running stop signs and speeding on 5th and G Streets
- **Speeding in residential areas creates unsafe conditions for children- 2**
- **Unsafe sidewalks throughout town- 2**
- Poor visibility (tree) at NE corner of 5th and G streets
- Poor traffic control
- Speeding on G Street

PERCEPTION OF CONGESTION IN HUBBARD:

Yes 22 No 10

Retired people don't perceive congestion problems in town

LOCATION AND TIMING OF CONGESTED AREAS IN HUBBARD:

- **Hwy. 99E in morning and evening, work travel- 7**
- **The intersection of Hwy. 99E and G Street between 4:00 and 6:00 PM- 5**
- **The intersection of Hwy. 99E and D Street between 4:00 and 6:00 PM- 2**
- The intersection of Hwy. 99E and J Street between 4:00 and 6:00 PM
- The intersection of Hwy. 99E and A Street between 6:00 o 8:30 AM, and 4:30 and 5:30 PM

- **Hwy. 99E all day-2**
- All day at intersection of Hwy. 99E and D Street
- BP gas station
- Saturday evening
- **Post office area-2**
- G Street
- 7th Street
- Getting onto Hwy. 99E from side streets in the morning
- **All of Hwy. 99E in the late afternoon- 2**
- On Hwy. 99E when there is an accident on I-5 and an alternate route is designated.
- 3rd and D Streets

RECOMMENDED IMPROVEMENTS TO TRANSPORTATION SYSTEM:

Streets

- **Add travel lanes to Hwy. 99E- 7**
- **Add turning lane to Hwy. 99E- 9**
- **Traffic light at the intersection of Hwy. 99E and A Street- 2**
- **Traffic light at the intersection of Hwy. 99E and G Street- 5**
- **Add bike lane to Hwy. 99E- 2**
- Alternate routing of rush hour traffic on Hwy. 99E
- Check the safety issues related to turning motions at stop light on Hwy. 99E and D Street
- Lower speed limit on Hwy. 99E through Hubbard in steps (50 to 40 to 30 to 25 mph)
- Turning lanes from side streets onto Hwy. 99E.
- Change stop signs at intersections of D and 3rd and D and 4th Streets near park
- Improve visibility (blocked by shrubs/trees) cutting off view of railroad on A Street when heading west. Starlight comes rapidly here.
- Add four-way stop at 3rd and D streets
- Add four-way stop sign at intersections of 3rd and A
- **Add four-way stop sign at 3rd and D Streets- 3**
- Widen E Street to accommodate 2 cars and lessen the impact to pedestrians going to Riveness Park.
- More traffic lights
- Remove stop sign on 3rd and G Streets
- Widen Broadacres Rd. as it come up to 7th Street
- Develop one-way traffic routes
- Additional access to I-5, for example at Crosby Overpass
- Close G at railroad tracks and open J at railroad tracks
- Widen roads
- **Replace yield signs at intersections with stop signs-2**
- Create truck route through town

Enforcement

- More enforcement of traffic laws to prevent speeding and running traffic control
- Control speeding on 7ht Street
- Maintain an adequate staffing at police and fire departments
- Aggressive enforcement of speed limits on G and D Streets near park

Pedestrian and Bikeways

- **Build new sidewalks- 6***
- **Repair sidewalks- 8***
- Sidewalks and bikeways so kids can walk safely-2
- **Develop paths for walkers and bikers to Marion schools, and Aurora and Woodburn-2**
- Get bicycles off road. The roads are narrow and it is dangerous for riders.

*Issue of how to pay for repairs and build new sidewalks raised twice

Public Transportation

- More information about public transportation system
- **Add local bus service to Woodburn, Salem, and Canby. Should provide for connections to Portland Metro area- 3**
- Develop public transportation system to get kids and senior citizens to activities in Woodburn and schools
- Provide carpool links

FUTURE NEEDS AND CONCERNS:

- **Hubbard streets need to be widened and upgraded- 2**
- Improve poor conditions on B Street between 5th and 6th Streets.
- The system is good and will only need minor changes in future.
- Open J Street across railroad tracks to provide another through street.
- **Provide public transportation- 2**
- **Overuse of Hwy. 99E because there are no alternatives**
- **Pressure State to meet their responsibilities**
- **More congestion and safety issues on Hwy. 99E- 2**
- **Increased traffic (especially commuter traffic) on Hwy. 99E may require four lanes-2**
- Too much traffic for existing system, need to update and make improvements now
- **Drainage issues- 2**

SUMMARY OF INFORMATION FROM OPEN HOUSE #1

Very few people attended the open house but the following information was obtained from the Open House.

Accident and Safety Concerns:

- Speeding on C Street / 9th Street loop is dangerous, especially past the park
- Intersection of Hwy. 99E and G Street is dangerous
- Leaving the market on the SW corner of G and Hwy. 99E is dangerous
- Intersection of A and 7th streets is dangerous because people on 7th Street turning right don't stop
- Traffic on A Street has increased a lot
- Sidewalks are in poor repair and lack curb cuts in places
- Concern about crashes involving hazardous materials transported on railroad or Hwy. 99W (raised at first TAC meeting)

Work Travel and Public Transportation

- More carpool services or a better awareness of existing ride-matching services
- How noisy will high-speed rail be?
- Will high-speed rail stop in Hubbard?
- Centralized information for public transportation services: Chinook Winds "Party Bus", Greyhound (?), "Wheels", Woodburn and other taxi services, Mid-valley Rideshare, etc.
- Find out what services the Woodburn Senior and Disabled Services provides.
- SMART provides service form Wilsonville to Salem. Could a stop in Hubbard be added?
- Public transportation services needed for seniors, disabled, and children for more than just medical services. Should include transport to volunteer services, education, and employment
- Need for a streamlined application process to access ALL paratransit services

Street Network

- Our #2 main arterial to the west, "J" Street/Whiskey Hill Road/ Broadacres Road is a county road blocked a the railroad tracks. This rail crossing **needs** to be opened.
- Industrial Avenue has a 20 mph speed limit. This should be the main route during rush hours to Hwy. 99E south since it intersects 99E at right angles. Hwy. 99E also has a center lane for left turns south. Raise speed limit and provide route signs.

HUBBARD TRANSPORTATION SYSTEM PLAN
Transportation Advisory Committee
Hubbard Fire Hall, 3161 2nd Street
August 20, 1998

The first meeting of the Hubbard Transportation Advisory Committee was called to order at 6:40 p.m. by Jeanne Fromm, Mid-Willamette Valley Council of Governments.

Present were: Hildred Huyssoon, City Council,
Frances Raymond, Planning Commission,
Ken Yoder and Mike Mooney, Residents,
Dan Fricke, ODOT,
Larry Ksionzyk, DLCD,
Mike Louie, Marion County Public Works,
Mike Krebs and Paulette David, City Staff.

Ms. Fromm reviewed the elements of a Transportation System Plan (TSP), the role of the TAC, goals, steps and the work document. The expected complete date for the plan is June 1999.

Mike Louie, Larry Ksionzyk, and Dan Fricke all discussed their department's role in the process and support for the project.

The TAC membership was reviewed. The Fire Dept. will be contacted for a representative.

An Open House was scheduled for September 17, 1998, from 3:00 to 6:30 p.m., at the Fire Hall. The next meeting will be, Thursday, October 1, 1998, at 6:30 p.m. Meeting place will be determined at a later date. A short survey will be included in the City's August newsletter.

The lists of background materials were reviewed and if available will be sent to Ms. Fromm.

The meeting was adjourned at 7:55 p.m.

Paulette E. David, CMC, City Recorder

HUBBARD TRANSPORTATION SYSTEM PLAN
Transportation Advisory Committee
Hubbard Fire Hall, 2162 2nd Street
October 1, 1998

The second meeting of the Hubbard Transportation Advisory Committee was called to order at 6:37 p.m. by Jeanne Fromm, Mid-Willamette Valley Council of Governments.

Present were: Hildred Huyssoon, City Council
Frances Raymond, Planning Commission
Jaime Estrada, Public Works Director
Dan Fricke, ODOT
Vickie Seavey, City Recorder
Marjorie Mattson, Planner /Mid-Willamette Valley Council of Governments
Dusty Yoder, Fire Department
Russel Peterson, Fire Department
Ken Yoder, Resident
Mike Mooney, Resident

J. Fromm asked if there was a representative of the Hubbard Fire Department. There was no one present representing the Fire Department. H. Huyssoon called the Fire Chief and requested him to appoint someone as representative for the Fire Department. K. Yoder, Fire Department, came as representative for the Fire Department.

J. Fromm compiled the information she received back from the fliers that were sent out with the water bills. She was very pleased with the 7% returned, this is more than usual. However, she wasn't as pleased with the turn out at the open house. Only 7 people came and she was hoping for more input, but the information she received was good, especially about public transportation issues.

J. Fromm explained her summary of information from the returned surveys. She discussed the two most commonly used parts of the transportation system, work travel mode, location of employment, system element needing most improvement, type and location of transportation-related safety concerns in Hubbard, perception of congestion in Hubbard, recommended improvements to transportation system, and future needs and concerns. J. Fromm explained the bolded print represents comments submitted multiple times.

There was a consensus the bolded comments were priority issues. Comments received covered most issues in Hubbard, but K. Yoder noted it is important to remember only a small portion of residents responded.

There was discussion regarding re-opening "J" Street. D. Fricke, ODOT, stated the city will probably have to close a street to gain a street. He suggested making a plan with options before presenting it to the railroad.

D. Fricke reviewed some relevant state policies on Highway 99E, particularly access management. An access inventory and management plan, similar to the one in Woodburn, was recommended for Hubbard. M. Mooney, TAC member, offered to perform the inventory.

M. Mattson, City Planner, reviewed the proposed changes to the Comprehensive Plan Zoning Map. A core commercial area in the center of town is proposed. This process is scheduled for completion by January 1, 1999.

J. Fromm discussed the review of the existing plans. Everyone present went over every line item and decided if it needed to stay, change, or be taken out.

J. Fromm explained the review of existing relevant plans would include numerous ODOT plans, Marion County, Woodburn, and Hubbard documents. Review would begin with transportation-related information and policies in the Hubbard Comprehensive Plan.

The next meeting was scheduled for January 7, 1998, at 6:30 p.m.

The meeting was adjourned at 8:30 p.m.

Vickie L Seavey

Vickie L. Seavey, CMC, City Recorder

HUBBARD TRANSPORTATION SYSTEM PLAN
Transportation Advisory Committee
Hubbard Fire Hall, 2162 2nd Street
January 28, 1999

The third meeting of the Hubbard Transportation Advisory Committee was called to order at 6:37 p.m. by Jeanne Fromm, Mid-Willamette Valley Council of Governments.

Present were: Hildred Huyssoon, City Council
Frances Raymond, Planning Commission
Dan Fricke, ODOT
Vickie Nogle, City Recorder
Ken Yoder, Resident
Dustin Yoder, Resident
Bonnie Heitsch, ODOT
Larry Ksionzyk, DLCD

J. Fromm referred to the fourth item on the agenda, "Further review of plans, policies, and standards relating to the Hubbard TSP." She asked everyone to turn to page 23 in the City of Hubbard TSP Draft. This is a set of street standards with definitions. She wants everyone to know what is in the current Development Code so we can compare to other cities.

J. Fromm said she wanted to compare some of the other plans that would relate to the City of Hubbard. She used the Woodburn plan because it is similar to the City of Hubbard. J. Fromm discussed items number 1 through 12. She went briefly over the Marion County plan in the areas that pertain to the City. J. Fromm referred everyone to the second paragraph on page 26. The County did some modeling on the function of some of the intersections. Of the forty-eight urban interchanges, six had lower performance, or levels of service "D" and "E." Two of these six are located in Hubbard, Highway 99E and "J" Street. She stated we will discuss what the level means later. J. Fromm went over Table 3 Rural Road Design Standards, and Table 4 Spacing Requirements for new Accesses on County Roads.

J. Fromm referred everyone to page 117, Table 26 Functional Classification Criteria. This table shows classification, primary function, typical spacing, trip length, and projected traffic volume. She pointed out what the City of Hubbard has on the aerial map of Hubbard. The arterial are Highway 99E, Front Street, Broadacres, "J" Street, Whiskey Hill Road, and "D" Street. She pointed out what the County considers arterial and collectors.

J. Fromm asked if they committee wanted "J" Street open. There was discussion regarding opening and closing railroad crossings. J. Fromm stated that the committee may need to think about which one crossing is the most important crossing to keep open.

J. Fromm asked if "J" Street should be left as an arterial street given the crossing closure at the railroad tracks.

There was a consensus to keep "J" Street as an arterial street and open the closed crossing. If the City had to close a street, it would be "A" Street.

There was discussion regarding distinguishing major or minor collector streets or arterial streets.

J. Fromm stated the arterial classification includes Highway 99E and lower-volume city/county streets

D. Fricke suggested having one class of arterial and two classes of collector streets.

There was a consensus to have arterial, major, minor collectors, and local streets.

There was a consensus that Highway 99E was a major arterial. 3rd Street and Front Street are minor arterial. Broadacres, "J" Street, and Whiskey Hill Road are minor arterial. 2nd, 5th, and 7th are collectors.

J. Fromm referred back to table 2 on page 23. There was a consensus to take out the Commercial/ Industrial/ Institutional street because no one knows what an Institutional street is.

J. Fromm referred everyone to the "Bikeways" section. This section of the TSP references the requirement for bikeway facilities in the Transportation Planning Rule, defines the different types of bikeways, and completes an inventory of these facilities. She went over the types of bikeways and standards. She referred and discussed Table 1 Existing Bikeway Facilities, and Table 2 Bikeway Needs.

There was a consensus to move the bikeway path from 4th Street to 5th Street.

There was discussion to open "J" Street for bikes and pedestrians.

J. Fromm stated we need to prioritize, set goals, and policies. She also went over the Hubbard base map.

The next meeting was scheduled for February 18, 1999, at 6:30 p.m. [Rescheduled to February 24, 1999]

The meeting was adjourned at 7:45 p.m.

Vickie L Nogle

Vickie L. Nogle, CMC, City Recorder

HUBBARD TRANSPORTATION SYSTEM PLAN
Transportation Advisory Committee
Hubbard Fire Hall, 2162 2nd Street
February 22, 1999

The fourth meeting of the Hubbard Transportation Advisory Committee was called to order at 6:37 p.m. by Jeanne Fromm, Mid-Willamette Valley Council of Governments.

Present were: Hildred Huyssoon, City Council
Frances Raymond, Planning Commission
Dan Fricke, ODOT
Vickie Nogle, City Recorder
Ken Yoder, Resident
Linda Willnow, ODOT Planning
Bob Krebs, ODOT Rail Division
Craig Reiley, ODOT Rail Crossing Safety
Mike Louie, Marion County Public Works
Jaime Estrada, Hubbard Public Works Director
Mike Krebs, Hubbard Public Works
Colleen Krebs, Resident

J. Fromm stated this is the fourth meeting out of six. She invited people from ODOT to talk about public transportation passenger rail service, and "J" Street at grade crossing closure. J. Fromm reviewed the discussion from the last meeting.

Linda Willnow, ODOT Transportation and Planning, referred everyone to her outline she prepared. She discussed the Public Transportation Needs Assessment including the existing inventory conditions, assess existing shortcomings and opportunities, assess future needs, develop and prioritize strategies to meet future needs. She notes funding is available to start up new service. This funding requires a local match. She recommended that Hubbard support whatever services are available to the City and periodically check with other service providers, such as Woodburn Transit and SMART, regarding expanded services.

Bob Krebs, ODOT Rail Division, briefly discussed the future of passenger rail. B. Krebs said eventually the speed for the passenger trains will be 90 to 95mph. High-speed passenger rail is an intercity service that will not stop in Hubbard or Woodburn. The existing tracks will be upgraded over time to provide service. When this happens, the rail will look at closing more crossings, but this is a long-term future outlook. He stated it has been proven there are more accidents when trains run slower. The City may look at an overpass when this happens.

Craig Reily, ODOT Rail Crossing Safety, briefly discussed the history regarding the closing of "J" Street (see handout). C. Reily mentioned the intersection of "J" and Highway 99E. He is concerned nothing has been done to change the 90-degree angle at this intersection. C. Reily stated the ORS (Oregon Revised Statue) says whenever possible, the rail crossing will be closed. C. Reily said it has been twenty (20) years since the crossing-closure decisions were made and his agency is willing to review the current situation in Hubbard. After the application is filed, the discussions will start regarding why the crossing needs to be opened etc.

J. Fromm reviewed the map and went over the high accident locations: At the intersections of 3rd Street and "D" Street, as well as 3rd Street and "G" Street. There was discussion regarding some contributing factors as well as some solutions, but it was deferred until more complete accident data could be examined.

The next meeting was scheduled for March 18, 1999, at 6:30 p.m.

The meeting was adjourned at 6:15 p.m.

Vickie L. Nogle, CMC, City Recorder

HUBBARD TRANSPORTATION SYSTEM PLAN
Transportation Advisory Committee
Hubbard Fire Hall, 2162 2nd Street
March 18, 1999

The fifth meeting of the Hubbard Transportation Advisory Committee was called to order at 6:30 p.m. by Jeanne Fromm, Mid-Willamette Valley Council of Governments.

Present were: Dan Fricke, ODOT
Vickie Nogle, City Recorder
Mike Louie, Marion County Public Works
Jaime Estrada, Hubbard Public Works Director

J. Fromm stated this is the fifth meeting out of six. She over viewed what we were going to discuss at this meeting. She referred everyone to the yellow Public Transportation sheet that was handed out at the last meeting.

The group discussed existing and future public transportation needs, goals, and policies. Some recommendations to the Transportation Plans were to use Rivenes Park as a centralized transit stop. Some of the areas of the park would need to be upgraded such as better lighting, complete and wider sidewalks around the park, and pull up area for buses. A church parking lot at the location of Highway 99E and "D" Street was suggested for a park and ride station.

J. Fromm referred everyone to the Rail Freight and Passenger Transportation section. There was discussion regarding existing and future rail. There was some concern about the Railroad maintaining the tracks for safe train operation. The need for future buffering along the railroad was also mentioned, especially in the area zoned for medium-density residential.

J. Estrada stated the City should consider leaving "A" Street open and closing another street because most vacant, lands that you can develop are located in the north part of the Urban Growth Boundary.

J. Fromm talked about the Pedestrian Transportation section. The city only has approximately 33% of needed sidewalks throughout the city. The requirement is to have all the streets with sidewalks, especially the commercial core area and around the parks. Many comments were received from the public regarding the need for more sidewalks and repair. The Pedestrian Facility Plan that includes the following prioritized improvements: Sidewalks and curb cuts around Hubbard City Park (public transportation stop); Sidewalks along Highway 99E, sidewalks along 3rd Street; Sidewalks along "J" and "D" Streets; Sidewalks in core downtown area; Sidewalks along "A," 5th, and 7th Streets; Multi-use paths along the green-way of Mill Creek or existing County roads that connect to Woodburn paths, and pedestrian facilities to the North Marion Schools.

D. Fricke, ODOT, stated the City of Hubbard does not have an S.T.A. (Special Transportation Area). He sees the core of Hubbard on the west side of Highway 99E. An S.T.A. is a special land use designation to manage transportation to land use concerns.

There was discussion regarding connectivity throughout the City of Hubbard and future alternate routes than Highway 99E. The east side of the City does not have a well-connected street network. Conceptual location for extensions of existing collectors to arterial's on the west side of town were discussed.

The next meeting was scheduled for 6:30 p.m. April 29, 1999, at City Hall.

The meeting was adjourned at 8:15 p.m.

Vickie L Nogle
Vickie L. Nogle, CMC, City Recorder

HUBBARD TRANSPORTATION SYSTEM PLAN
Transportation Advisory Committee
Hubbard City Hall, 3720 2nd Street
April 29, 1999

The six meeting of the Hubbard Transportation Advisory Committee was called to order at 6:30 p.m. by Jeanne Fromm, Mid-Willamette Valley Council of Governments.

Present were: Dan Fricke, ODOT
Vickie Nogle, City Recorder
Tim Wilson, Wheels Volunteer
Mike Mooney, Interested Citizen
Ken Yoder, Interested Citizen
Hildred Huyssoon, Hubbard City Council
Frances Raymond, Hubbard Planning Commissioner
Dusty Yoder, Hubbard Fire Department
D. J. Heffernan, ODOT
Mark Fancey, MWVCOG, Hubbard Planning Consultant

J. Fromm stated this is the six meeting out of six. She briefly reviewed the minutes from the last meeting. It was suggested that the TSP only recommend applying to ODOT to open "J" Street, since the Plan has no control over the decision to open/close streets.

Tim Wilson, Wheels Volunteer, discussed the Wheels program and the new routes and services Wheels now provides to Hubbard. There was discussion about using the park for a main area of pick up and drop off. He said right now he would like to use the post office as the main area. If the City decides to use the park, it would be appropriate to put a shelter, phone, and bus pull out area in the future. He said to think in terms of a place where you would be able to drop off your mother at and she would be safe. There was discussion regarding congestion at the Post Office. He wanted to know what times the Post Office is congested so he could schedule around the peak hours until the park is available to be used for this type of service.

J. Fromm wanted to review the Background Information section of the TSP referring to the different pages. She said the urbanization element addressed economic development, housing, and urbanization, and began by developing population projections and land needs for a 20-year period. The County used an average annual growth rate of 1.5 percent for Hubbard which translates into a city population of 3,105 in 2020. She pointed out the inventory of existing uses on page 17 and the vacant land at 17%. Based on population projections and people per household in the 1990 Census (2.92), the city will need 277 dwelling units by 2020. J. Fromm discussed the existing and future employment and economic development, as well as the distribution of workforce by occupation. She was hoping someone could update this list as to what current business there are today. J. Fromm discussed the future employment and businesses.

J. Fromm talked about the comparison of workforce travel modes on page 25 of the Draft TSP. She discussed the summary of location and type of growth in Hubbard. There are about 45.5 acres of industrial development in the industrial park located in southeast Hubbard. There are 208 single-family dwelling units located primarily in northwest, and possibly west, Hubbard. 69 multi-family dwelling units located throughout Hubbard with a slight preference for the northwest, central, and east portions of the city. There is 13.2 acres of commercial development primarily located adjacent to the east side of Highway 99E and some areas scattered throughout central Hubbard. 22.6 acres of public use lands primarily located on the west edge of the city. There was some discussion regarding if there was going to be a school located west of the city in the Urban Growth Boundary. It was determined that it would be a long time before a school was built in Hubbard.

J. Fromm continued with the natural and cultural resource section. She also discussed the National Wetland Inventory (NWI) map for Hubbard. J. Fromm said plant and animal species threatened or endangered with extinction can influence transportation system, or other, construction projects, especially if federal money is involved. She referred everyone to Table 5 potential rare, threatened, or endangered species in the Hubbard area. J. Fromm referred to Table 6 soil limitations for road development. There was some discussion about the Flood plain map on page 5. She was hoping someone could highlight the area of flooding in town that are not on the map. J. Fromm referenced the Table 7 on page 37 in the Draft shallow TSP. She was wondering if Hubbard Mineral Springs still existed and where it was located. The TAC clarified location.

J. Fromm asked everyone to look at the street plan she gave everyone at the meeting. She wanted to discuss local street connectivity and the location of new arterial and collector streets. The streets network section of the TSP references the requirement to plan for roadway facilities in the Transportation Planning Rule; Reviews standards, plan, and policy; Completes an inventory of the street network and roadway traffic conditions in Hubbard; Identifies existing and future roadway needs in Hubbard; and presents the street network plan. She went over the existing street standards in table 12, as well as the existing street network allocation by functional class in table 13. J. Fromm continued with LOS at selected Hubbard intersections in table 15 on page 56. At this time J. Fromm introduced a map proposing new streets and extension of existing streets. She said street connectivity and circulation in the east side of town is not as good as the west. J. Fromm explained that the purpose of the new collector running along the east edge of the Urban Growth Boundary to keep local traffic off of Highway 99E and improve circulation. J. Fromm wanted some feed back from the group regarding the street design standards handout.

J. Fromm went over the safety and accidents on page 56, table 16. She said the intersection with the highest number of accidents were: Highway 99E / D Street (35); Highway 99E / G Street (29); Highway 99E / A Street (18); Third Street / D Street (13 total accidents); Highway 99 E / J Street (12). There was discussion regarding why the accidents were so high at these intersections and some possible remedies.

J. Fromm stated she will have the final Draft TSP to all members for review and comments by May 10, 1999. She would like to have all comments back by the Open House.

The open house presenting the Draft TSP to the community has been scheduled for Thursday, May 20, from 4:00 p.m. to 7:00 p.m. at City Hall.

The meeting was adjourned at 8:35 p.m.

Vickie L. Nogle

Vickie L. Nogle, CMC, City Recorder
Recording & Transcribing

Appendix C: Inventory of Existing Transportation System

Appendix C1: Inventory of Existing Street, Sidewalk, and Bikeway Conditions

	EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS												
	Streets												
												Curbs	
Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Right Side	Left Side
1	**Pacific Hwy. 1E**	N end - A	Major Arterial	ODOT		Asphalt	1875	51'	80'	Good	1995	None	None
2	**Pacific Hwy. 1E**	A -D	Major Arterial	ODOT		Asphalt	804	51'	80'	Good	1995	None	None
3	**Pacific Hwy. 1E**	D - E	Major Arterial	ODOT		Asphalt	283	51'	80'	Good	1995	None	None
4	**Pacific Hwy. 1E**	E - G	Major Arterial	ODOT		Asphalt	525	51'	80'	Good	1995	Some	None
5	**Pacific Hwy. 1E**	G - J	Major Arterial	ODOT		Asphalt	643	44' (58' midway)	80'	Good	1995	None	None
6	**Pacific Hwy. 1E**	J - Schmidt Ln	Major Arterial	ODOT		Asphalt	1114	58'	80'	Good	1983	Yes	Yes
7	**Pacific Hwy. 1E**	Schmidt Ln - Industrial	Major Arterial	ODOT		Asphalt	739	58'	80'	Good	1983	Yes	Yes
8	**Pacific Hwy. 1E**	Industrial - S end	Major Arterial	ODOT		Asphalt	750	58'	80'	Good	1983	None	Yes
9							**6733**						

	Sidewalks				**Bikeways**							
	Right Side		**Left Side**		**Right Side**			**Left Side**				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	**Notes**
1	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	40	13,100 ADT, 1997
2	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	40	
3	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	40	
4	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	40	12,300 ADT, 1997
5	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	40	11,700 ADT, 1997
6	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	40	12,600 ADT, 1997
7	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	40	
8	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	40	
9												

EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS

Streets

Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Curbs	
												Right Side	Left Side
10	**3rd Street**	N end - Moonbeam Ct.	Minor Arterial	Hubbard	1982	Asphalt	171	24'	50'	Good	N/A	Yes	Yes
11	**3rd Street**	Moonbeam Ct. - A	Minor Arterial	Hubbard		Asphalt	1125	20'	60'	Fair	N/A	None	None
12	**3rd Street**	A - B	Minor Arterial	Hubbard		Asphalt	257	28'	60'	Poor	1998	None	None
13	**3rd Street**	B - C	Minor Arterial	Hubbard		Asphalt	268	28'	60'	Poor	1994	None	None
14	**3rd Street**	C - D	Minor Arterial	Hubbard		Asphalt	268	28'	60'	Poor		None	None
15	**3rd Street**	D - E	Minor Arterial	Hubbard		Asphalt	274	30'	60'	Fair	1986	Yes	Yes
16	**3rd Street**	E - F	Minor Arterial	Hubbard		Asphalt	270	30'	60'	Fair	1986	Yes	Yes
17	**3rd Street**	F - G	Minor Arterial	Hubbard		Asphalt	257	30'	60'	Fair	1986	Yes	Yes
18	**3rd Street**	G - H	Minor Arterial	Hubbard		Asphalt	268	40'	60'	Fair		Yes	Yes
19	**3rd Street**	H - I	Minor Arterial	Hubbard		Asphalt	274	40'	60'	Fair		Yes	Yes
20	**3rd Street**	I - J	Minor Arterial	Hubbard		Asphalt	257	40'	60'	Fair		Yes	Yes
21	**3rd Street**	J - S end	Minor Arterial	Hubbard		Asphalt	686	22'	60'	Fair	N/A	None	None
22							**4376**						

	Sidewalks				Bikeways							
	Right Side		Left Side		Right Side			Left Side				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	Notes
10	4'	Good	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
11	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
12	4'	Bad	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
13	4'	Bad	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
14	4'	Bad	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
15	6'	Bad	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
16	5'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
17	8'	Bad	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
18	9'	Bad	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
19	5'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
20	5'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	3,025 ADT in 1998
21	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	2,491 ADT in 1998
22												

EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS

Streets

Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Curbs	
												Right Side	Left Side
23	J Street	Painter-Oak	Urban Major Collector	Marion County			654	30'	60'	Good	1997	None	
24	J Street	Oak-Hoodview	Urban Major Collector	Marion County			268		60'	Good			
25	J Street	Hoodview-G	Urban Major Collector	Marion County			204	30'	60'	Good	1997	None	
26	J Street	G - Industrial	Arterial	Hubbard	1983		681	34'	60'	Good	1983	Yes	Yes
27	J Street	Industrial - Pacific	Arterial	Hubbard	1983		214	34'	60'	Good	1983	Yes	Yes
28	J Street	Pacific - 1st	Arterial	Hubbard		Asphalt	439	24'	60'	Fair		Partway	None
29	J Street	1st - 2nd	Arterial	Hubbard			268		60'				
30	J Street	2nd - RR	Arterial	Hubbard			150		60'				
31	J Street	RR-3rd	Urban Major Collector	Marion Co.		Asphalt	86	21'	60'	Fair	1994	Yes	None
32	J Street	3rd - 4th	Urban Major Collector	Marion Co.	1980		268	33'	60'	Good	1994	Yes	None
33	J Street	4th - 5th	Urban Major Collector	Marion Co.			279	22'	60'	Fair	1994	None	None
34	J Street	5th - 7th	Urban Major Collector	Marion Co.		Asphalt	429	20'	60'	Fair	1994	None	None
35	J Street (Broadacres)	7th - W end	Urban Major Collector	Marion Co.		Asphalt	279	20'	60'	Fair	1994	None	None
36							4217						

	Sidewalks				Bikeways							
	Right Side		Left Side		Right Side			Left Side				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	Notes
23	0'	N/A			Shared Roadway			Shared Roadway			25	
24					Shared Roadway			Shared Roadway			25	
25	0'	N/A			Shared Roadway			Shared Roadway			25	
26	5'	Good	5'	Good	Shared Roadway			Shared Roadway			25	
27	5'	Good	5'	Good	Shared Roadway			Shared Roadway			25	
28	5'	Good	0'	N/A	Shared Roadway			Shared Roadway			25	
29					Shared Roadway			Shared Roadway			25	
30					Shared Roadway			Shared Roadway			25	
31	5'	Good	0'	N/A	Shared Roadway			Shared Roadway			25	Two, 4-foot gravel shoulders, ADT of 1500. 1,247 ADT in 1998 V/C=.01 LOS=A
32	3'		0'	N/A	Shared Roadway			Shared Roadway			25	Two, 4-foot gravel shoulders, ADT of 1500. V/C = .09 LOS = A
33	4'	Bad	0'	N/A	Shared Roadway			Shared Roadway			25	Right shoulder is 4-foot wide, asphalt. ADT of 1500. V/C = .11 LOS = A
34	4'	Good	0'	N/A	Shared Roadway			Shared Roadway			25	Two, 2-foot gravel shoulders, ADT of 1500. V/C = .11 LOS = A
35					Shared Roadway			Shared Roadway			25	Two, 2-foot gravel shoulders, ADT of 1500. 1,287 ADT in 1998. V/C=.11 LOS =A
36												

	EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS												
	Streets												
												Curbs	
Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Right Side	Left Side
37	D Street	E end - Oak	Local	Hubbard		Asphalt	193	36'	60	Good		Yes	Yes
38	D Street	Oak - Oak Ridge	Local	Hubbard		Asphalt	167	36'	60	Good		Yes	Yes
39	D Street	Oak Ridge - Hood View	Collector	Hubbard		Asphalt	199	36'	60	Good		Yes	Yes
40	D Street	Hood View - Casteel	Collector	Hubbard		Asphalt	64	36'	60	Good		Yes	Yes
41	D Street	Castell - Pacific	Collector	Hubbard	N/A	Asphalt	360	42'	60	Good		Yes	Yes
42	D Street	Pacific - 1st	Arterial	Hubbard	N/A	Asphalt	171	30'	90'	Good	1982	None	None
43	D Street	1st - 2nd	Arterial	Hubbard	N/A	Asphalt	311	30'	90'	Good	1982	None	None
44	D Street	2nd - 3rd	Arterial	Hubbard	N/A	Asphalt	332	30'	90'	Good	1982	None	None
45	D Street	3rd - 4th	Arterial	Hubbard	N/A	Asphalt	289	20'	90'	Good	1982	None	None
46	D Street	4th - 5th	Arterial	Hubbard	N/A	Asphalt	279	20'	90'	Good	1982	None	None
47	D Street	5th - 7th	Arterial	Hubbard	N/A	Asphalt	439	20'	90'	Good	1982	None	None
48	D Street	7th - City limits	Arterial	Hubbard	N/A	Asphalt	750	20'	40'	Good	1982	None	None
49	D Street (Mineral Springs Rd.)	City limits-UGB	Urban Minor Collector	Marion Co.		Asphalt	364	20'	40'	Good		None	None
50							**3919**						

	Sidewalks				**Bikeways**							
	Right Side		**Left Side**		**Right Side**			**Left Side**				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	**Notes**
37	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
38	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
39	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
40	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
41	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
42	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
43	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
44	0'	N/A	5'	Poor	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	3,598 ADT in 1998.
45	0'	N/A	5'	Fair	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
46	0'	N/A	5'	Fair	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
47	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
48											25	1,171 ADT in 1998.
49	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	55	Two, 1-foot gravel shoulders, 1995 ADT = 1210, V/C = 0.12, LOS = B
50												

EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS

Streets

Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Curbs	
												Right Side	Left Side
51	**2nd Street**	A - B	Collector	Hubbard		Asphalt	257	24'	60'	Good		None	None
52	**2nd Street**	B - C	Collector	Hubbard		Asphalt	268	22'	60'	Good		None	None
53	**2nd Street**	C - D	Collector	Hubbard		Asphalt	279	22'	60'	Good		None	None
54	**2nd Street**	D - E	Collector	Hubbard		Asphalt	279	30'	60'	Good		Yes	Yes
55	**2nd Street**	E - F	Collector	Hubbard		Asphalt	268	30'	60'	Good		Yes	Yes
56	**2nd Street**	F - G	Collector	Hubbard		Asphalt	274	30'	60'	Good		Yes	Yes
57	**2nd Street**	G -H	Collector	Hubbard		Asphalt	268	22'	60'	Good		None	None
58	**2nd Street**	H - J	Collector	Hubbard		Asphalt	536	26'	60'	Good		None	Yes
59							**2428**						

	Sidewalks				**Bikeways**							
	Right Side		**Left Side**		**Right Side**			**Left Side**				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	**Notes**
51	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
52	0'	N/A	0'	N/A							25	
53	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
54	0'	N/A	5'	Fair	Shared Roadway			Shared Roadway			25	
55	0'	N/A	4'	Fair	Shared Roadway			Shared Roadway			25	
56	0'	N/A	4'	Fair	Shared Roadway			Shared Roadway			25	
57	0'	N/A	4'	Fair	Shared Roadway			Shared Roadway			25	
58	0'	N/A	0'	N/A	Shared Roadway			Shared Roadway			25	
59												

EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS

Streets

Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Curbs	
												Right Side	Left Side
60	5th Street	N end - Riviera	Collector	Hubbard		Asphalt	118		60'				
61	5th Street	Riviera - Kari	Collector	Hubbard		Asphalt	257		60'				
62	5th Street	Kari - Allen	Collector	Hubbard		Asphalt	632		60'				
63	5th Street	Allen - A	Collector	Hubbard		Asphalt	471		60'				
64	5th Street	A - B	Collector	Hubbard		Asphalt	279	19'	60'	Good		None	None
65	5th Street	B - C	Collector	Hubbard		Asphalt	268	19'	60'	Good		None	None
66	5th Street	C - D	Collector	Hubbard		Asphalt	276	19'	60'	Good		None	Yes
67	5th Street	D - E	Collector	Hubbard		Asphalt	279	19'	60'	Good		None	None
68	5th Street	E - F	Collector	Hubbard		Asphalt	261	19'	60'	Good		None	None
69	5th Street	F - G	Collector	Hubbard		Asphalt	264	19'	60'	Good		None	None
70	5th Street	G -H	Collector	Hubbard		Asphalt	259	19'	60'	Good		None	None
71	5th Street	H - I	Collector	Hubbard		Asphalt	264	20'	60'	Good		None	None
72	5th Street	I - J	Collector	Hubbard		Asphalt	257	20'	60'	Good		None	None
73							3885						
74	7th Street	A - B	Collector	Hubbard		Asphalt	276	20'	50'	Good		None	None
75	7th Street	B - C	Collector	Hubbard		Asphalt	264	25'	50'	Fair		Yes	None
76	7th Street	C - D	Collector	Hubbard		Asphalt	279	23'	50'	Good		Yes	None
77	7th Street	D - E	Collector	Hubbard		Asphalt	279	19'	60'	Good		None	None
78	7th Street	E - F	Collector	Hubbard		Asphalt	225	19'	50'	Good		None	None
79	7th Street	F - G	Collector	Hubbard		Asphalt	298	19'	50'	Good		None	None
80	7th Street	G - J	Collector	Hubbard		Asphalt	954	19'	50'	Good		None	None
81							2574						

	Sidewalks				**Bikeways**							
	Right Side		**Left Side**		**Right Side**			**Left Side**				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	**Notes**
60					None			None			25	
61					None			None			25	
62					None			None			25	
63					Shared Roadway			Shared Roadway			25	1,787 ADT in 1998
64	3'	Good	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
65	4'	Good	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
66	3'	Fair	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
67	4'	Good	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
68	4'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
69	3'	Good	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
70	3'	Good	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
71	3'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
72	3'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
73												
74	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
75	4'	Good	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
76	4'	Good	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
77	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
78	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
79	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
80	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
81												

EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS

Streets

Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Curbs	
												Right Side	Left Side
82	**A Street**	Pacific -1st	Collector	Hubbard		Asphalt	60	30'	60'	Good		None	None
83	**A Street**	1st - 2nd	Collector	Hubbard		Asphalt	300	24'	60'	Good		None	None
84	**A Street**	2nd - 3rd	Collector	Hubbard		Asphalt	345	22'	60'	Good		None	None
85	**A Street**	3rd - 4th	Collector	Hubbard		Asphalt	283	24'	60'	Good		None	None
86	**A Street**	4th - 5th	Collector	Hubbard		Asphalt	311	24'	60'	Good		None	None
87	**A Street**	5th - 6th	Collector	Hubbard		Asphalt	266	18'	60'	Poor		None	None
88	**A Street**	6th - 7th	Collector	Hubbard		Asphalt	165	18'	60'	Poor		None	None
89	**A Street**	7th - W end	Collector	Hubbard		Asphalt	246	18'	60'	Poor		None	None
90							**1976**						
91	**Riviera Ct**	W end to 5th	Local	Hubbard	1992	Asphalt	889	36'	60'	Good	1992	Yes	Yes
92							**889**						
93	**Kari Ln**	Allen - 5th	Local	Hubbard	1992	Asphalt	579	36'	60'	Good	1992	Yes	Yes
94							**579**						
95	**Allen**	W end - Kari	Local	Hubbard		Asphalt	600	36'	55'	Good		Yes	Yes
96	**Allen**	Kari - Vicki Ct	Local	Hubbard		Asphalt	354	36'	55'	Good		Yes	Yes
97	**Allen**	Vicki Ct -	Local	Hubbard		Asphalt	274	36'	60'	Good		Yes	Yes
98							**1228**						
99	**Vicki Ct.**	N end - Allen	Local	Hubbard		Asphalt	171	36'	50'	Good		Yes	Yes
100							**171**						
101	**Moonbeam Ct.**	W end - 3rd	Local	Hubbard		Asphalt	214	29'	50'	Good		Yes	Yes
102							**214**						
103	**Casteel St**	E end - D	Local	Hubbard		Asphalt	932	34'	60'	Good		Yes	Yes
104							**932**						

	Sidewalks				**Bikeways**							
	Right Side		**Left Side**		**Right Side**			**Left Side**				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	**Notes**
82	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
83	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
84	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	988 ADT in 1998
85	4'	Fair	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
86	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
87	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
88	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
89	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
90												
91	5'	Good	5'	Good	None	N/A	N/A	None	N/A	N/A	25	
92												
93	5'	Good	5'	Good	None	N/A	N/A	None	N/A	N/A	25	
94												
95	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
96	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
97	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
98												
99	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
100												
101	4'	Good	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
102												
103	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
104												

	EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS												
	Streets												
												Curbs	
Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Right Side	Left Side
105	**Oak Ridge Dr**	E end - D	Local	Hubbard		Asphalt	729	34'	60'	Good		Yes	Yes
106							**729**						
107	**Hood View Dr**	J to D	Local	Hubbard		Asphalt	825	34'	60'	Good		Yes	Yes
108							**825**						
109	**Oak Street**	J to D	Local	Hubbard		Asphalt	536	34'	60'	Good		Yes	Yes
110							**536**						
111	**Industrial Way**	J - Pacific	Local	Hubbard		Asphalt	2796	40'	60'	Good		Yes	Yes
112							**2796**						
113	**Schmidt Ln.**	E end - Pacific	Local	Hubbard		Asphalt	343	30'	40'	Good		No	No
114							**343**						
115	**Beaver Ct.**	S end - 4th	Local	Hubbard		Asphalt	514	27'	50'	Good		Yes	Yes
116							**514**						
117	**West Pl.**	S end - F	Local	Hubbard		Asphalt	407	29'	60'	Fair		Yes	Yes
118							**407**						
119	**Sunset Dr.**	S end - Hillside Ct.	Local	Hubbard		Asphalt	429	34'	60'	Fair		Yes	Yes
120	**Sunset Dr.**	Hillside Ct - F	Local	Hubbard		Asphalt	214	34'	60'	Fair		Yes	Yes
121	**Sunset Dr.**	F - N end	Local	Hubbard		Asphalt	343	34'	60'	Fair		Yes	Yes
122							**986**						
123	**Hillside Ct.**	N end - Sunset Dr.	Local	Hubbard		Asphalt	300	30'	60'	Fair		Yes	Yes
124							**300**						

	Sidewalks				**Bikeways**							
	Right Side		**Left Side**		**Right Side**			**Left Side**				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	**Notes**
105	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
106												
107	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	370 ADT in 1998
108												
109	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	494 ADT in 1998
110												
111	3'	Good	5'	Good	None	N/A	N/A	None	N/A	N/A	20	
112												
113	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	20	
114												
115	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
116												
117	2'	Good	2'	Good	None	N/A	N/A	None	N/A	N/A	25	
118												
119	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
120	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
121	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
122												
123	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
124												

	EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS												
	Streets												
												Curbs	
Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Right Side	Left Side
125	1st Street	A - B	Local	Hubbard		Asphalt	257	17'	60'	Good		No	No
126	1st Street	B - C	Local	Hubbard		Asphalt	268	18'	60'	Good		No	No
127	1st Street	C - D	Local	Hubbard		Asphalt	268	17'	60'	Good		No	No
128	1st Street	D - E	Local	Hubbard		Asphalt	274	17'	50'	Good		No	No
129	1st Street	E - F	Local	Hubbard		Asphalt	257	16'	30'	Good		No	No
130	1st Street	F - G	Local	Hubbard		Asphalt	268	16'	30'	Good		No	No
131	1st Street	G - H	Local	Hubbard		Asphalt	264	21'	20'	Good		No	No
132	1st Street	H - S end	Local	Hubbard		Asphalt	536	22'	20'	Good		No	No
133							**2391**						
134	4th Street	A - B	Local	Hubbard		Asphalt	257	13'	60'	Good		No	No
135	4th Street	B - C	Local	Hubbard		Asphalt	266	12'	60'	Good		No	No
136	4th Street	C - D	Local	Hubbard		Asphalt	279	12'	60'	Good		No	No
137	4th Street	D - E	Local	Hubbard		Asphalt	268	14'	60'	Good		No	No
138	4th Street	E - F	Local	Hubbard		Asphalt	268	14'	60'	Good		No	No
139	4th Street	F - G	Local	Hubbard		Asphalt	261	14'	60'	Good		No	No
140	4th Street	G - H	Local	Hubbard		Asphalt	266	13'	60'	Good		No	No
141	4th Street	H - I	Local	Hubbard		Asphalt	259	14'	60'	Good		No	No
142	4th Street	I - J	Local	Hubbard		Asphalt	257	13'	60'	Good		No	No
143	4th Street	J - Beaver Ct.	Local	Hubbard		Asphalt	193	23'	60'	Good		No	Yes
144	4th Street	Beaver Ct - S end	Local	Hubbard		Asphalt	476	27'	60'	Good		Yes	Yes
145							**3049**						

	Sidewalks				Bikeways							
	Right Side		Left Side		Right Side			Left Side				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	Notes
125	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
126	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
127	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
128	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
129	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
130	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
131	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
132	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
133												
134	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
135	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
136	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
137	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
138	4'	Good	0'	Good	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
139	4'	Good	4'	Fair	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
140	0'	N/A	5'	Good	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
141	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
142	0'	N/A	0'	N/A	Shared Roadway	N/A	N/A	Shared Roadway	N/A	N/A	25	
143	0'	N/A	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
144	3'	Good	3'	Good	None	N/A	N/A	None	N/A	N/A	25	
145												

	EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS												
	Streets												
												Curbs	
Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Right Side	Left Side
146	6th Street	A - B	Local	Hubbard		Asphalt	257	11'	55'	Good		No	No
147	6th Street	B - C	Local	Hubbard		Asphalt	257	10'	55'	Poor		No	No
148							514						
149	9th Street	B - C	Local	Hubbard		Asphalt	279	29'	50'	Good		Yes	Yes
150							279						
151	B Street	1st - 2nd	Local	Hubbard		Asphalt	298	21'	60'	Good		No	No
152	B Street	3rd - 4th	Local	Hubbard		Asphalt	279	11'	60'	Fair		No	No
153	B Street	4th - 5th	Local	Hubbard		Grass	279	35'	60'	N/A		No	No
154	B Street	5th - 6th	Local	Hubbard		Asphalt	283	22'	60'	Fair		No	No
155	B Street	6th - 7th	Local	Hubbard		Grass	167	35'	60'	N/A		No	No
156	B Street	7th - 9th	Local	Hubbard		Asphalt	579	29'	50'	Good		Yes	Yes
157							1884						
158	C Street	1st - 2nd	Local	Hubbard		Asphalt	283	24'	60'	Good		No	No
159	C Street	3rd - 4th	Local	Hubbard		Asphalt	268	19'	60'	Good		No	No
160	C Street	4th - 5th	Local	Hubbard		Asphalt	279	15'	60'	Good		No	No
161	C Street	5th - 6th	Local	Hubbard		Asphalt	279	19'	60'	Good		No	No
162	C Street	6th - 7th	Local	Hubbard		Asphalt	171	17'	60'	Good		No	No
163	C Street	7th - 9th	Local	Hubbard		Asphalt	557	30'	50'	Good		Yes	Yes
164							1836						
165	E Street	Pacific - 1st	Local	Hubbard		Asphalt	234	34'	60'	Good		No	No
166	E Street	1st - 2nd	Local	Hubbard		Asphalt	279	34'	60'	Good		No	No
167	E Street	2nd - RR	Local	Hubbard		Asphalt	234	17'	60'	Good		No	No
168	E Street	RR - 3rd	Local	Hubbard		Asphalt	129		60'				
169	E Street	3rd - 4th	Local	Hubbard		Asphalt	289	23'	60'	Good		No	Yes
170	E Street	4th - 5th	Local	Hubbard		Asphalt	279	13'	60'	Good		Yes	No
171	E Street	5th - 7th	Local	Hubbard		Asphalt	454	12'	60'	Good		No	No
172							1896						

	Sidewalks				Bikeways							
	Right Side		Left Side		Right Side			Left Side				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	Notes
146	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
147	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
148												
149	4'	Good	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
150												
151	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
152	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
153	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
154	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
155	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
156	0'	N/A	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
157												
158	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
159	4'	Poor	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
160	4'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
161	4'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
162	4'	Poor	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
163	4'	Good	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
164												
165	0'	N/A	4'	Fair	None	N/A	N/A	None	N/A	N/A	25	
166	0'	N/A	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
167	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
168											25	
169	3'	Fair	5'	Good	None	N/A	N/A	None	N/A	N/A	25	
170	0'	N/A	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
171	3'	Fair	5'	Good	None	N/A	N/A	None	N/A	N/A	25	
172												

EXISTING STREET, SIDEWALK, AND BIKEWAY CONDITIONS

Streets

Line #	Name	Segment	Functional Class	Juris-diction	Year Built	Surface	Segment Length	Paved Width	ROW Width	Condition	Last Maint/ Repair	Curbs	
												Right Side	Left Side
173	**F Street**	1st - 2nd	Local	Hubbard		Asphalt	257	10'	60'	Fair		No	No
174	**F Street**	3rd - 4th	Local	Hubbard		Asphalt	283	19'	60'	Good		No	No
175	**F Street**	4th - 5th	Local	Hubbard		Asphalt	281	22'	60'	Good		No	No
176	**F Street**	7th - West Pl	Local	Hubbard		Asphalt	236		60'				
177	**F Street**	West Pl - Sunset Drive	Local	Hubbard		Asphalt	193		60'				
178							**1249**						
179	**G Street**	J - Pacific	Collector	Hubbard		Asphalt	750	24'	60'	Good		No	No
180	**G Street**	Pacific - 1st	Collector	Hubbard		Asphalt	268	48'	60'	Good		Yes	Yes
181	**G Street**	1st - 2nd	Collector	Hubbard		Asphalt	268	48'	60'	Good		Yes	Yes
182	**G Street**	2nd - 3rd	Local	Hubbard		Asphalt	343	30'	60'	Good		Yes	Yes
183	**G Street**	3rd - 4th	Local	Hubbard		Asphalt	279	30'	60'	Good		Yes	Yes
184	**G Street**	4th - 5th	Local	Hubbard		Asphalt	279	19'	60'	Good		No	No
185	**G Street**	5th - 7th	Local	Hubbard		Asphalt	469	19'	60'	Good		No	No
186							**2655**						
187	**H Street**	1st - 2nd	Local	Hubbard		Asphalt	268	17'	60'	Good		No	No
188	**H Street**	RR-3rd	Local	Hubbard		Asphalt	86	31'	60'	Good		No	No
189	**H Street**	3rd - 4th	Local	Hubbard		Asphalt	279	11'	60'	Fair		No	No
190	**H Street**	4th - 5th	Local	Hubbard		Asphalt	276	11'	60'	Fair		No	No
191							**909**						
192	**I Street**	2nd - RR	Local	Hubbard		Asphalt	86	19'	60'	Good		Yes	Yes
193	**I Street**	3rd - 4th	Local	Hubbard		Asphalt	268	11'	60'	Good		No	No
194	**I Street**	4th - 5th	Local	Hubbard		Asphalt	268	12'	60'	Fair		No	No
195							**621**						

	Summary	Functional Class	Feet	Percent of Total								
		Local	27,808.41	47				Fair	7879	13		
		Collector	12,771.68	21				Poor	1759	3		
		Arterial	18,885.38	32								
		Total	**59,465.48**									

	Sidewalks				Bikeways							
	Right Side		Left Side		Right Side			Left Side				
Line #	Width	Condition	Width	Condition	Type	Width	Condition	Type	Width	Condition	Speed Limit	Notes
173	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
174	4'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
175	4'	Fair	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
176											25	
177											25	
178												
179	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
180	5'	Good	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
181	5'	Good	4'	Good	None	N/A	N/A	None	N/A	N/A	25	
182	0'	N/A	4'	Poor	None	N/A	N/A	None	N/A	N/A	25	2,742 ADT in 1998
183	3'	Poor	4'	Fair	None	N/A	N/A	None	N/A	N/A	25	
184	0'	N/A	4'	Poor	None	N/A	N/A	None	N/A	N/A	25	
185	0'	N/A	4'	Poor	None	N/A	N/A	None	N/A	N/A	25	
186												
187	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
188	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
189	5'	Good	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
190	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
191												
192	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
193	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
194	0'	N/A	0'	N/A	None	N/A	N/A	None	N/A	N/A	25	
195												
	Feet of existing sidewalk	38,705	Total needed sidewalk	118,931								
	Percent	33										

Appendix C2: North Pacific Highway 99E Access Inventory Summary

Appendix prepared by Mike Mooney, TAC member.

The City of Hubbard, Oregon, is divided by approximately 1.13 mile of State Highway 99E, running north and south through town. This highway segment, between north and south city limits, has eleven city street intersections. Hubbard's only electronically controlled traffic light is at the D Street intersection. The other 10 street intersections utilize stop signs for traffic control entering he State Highway. Two of these intersections also have flashing yellow lights, J Street and G Street. Hubbard's stretch of Hwy. 99E has a turn lane starting south of the Industrial Drive intersection and continuing north to the intersection with D Street.

The posted speed limit approaching Hubbard from Woodburn is 55 miles per hour (mph) between the cities. Entering Hubbard the posted speed limit is 40 mph. This speed is consistent through the city of Hubbard to its north city line. The posted speed leaving Hubbard northbound is 50 mph.

The city of Hubbard has 44 driveway access points along Hwy. 99E. These can generally be divided into 32 commercial use driveways and 12 residential use driveways. Eleven of these access points are common driveways shared by more than one user. Thirteen of the 44 driveways have secondary street access from corner lots or property that extends to a parallel secondary street.

Inventoried accesses are all contained within the city's boundaries. Additional driveways in the Marion County area south of the immediate city line are generally residential/agricultural with a couple retail access points well spaced along Hwy. 99E.

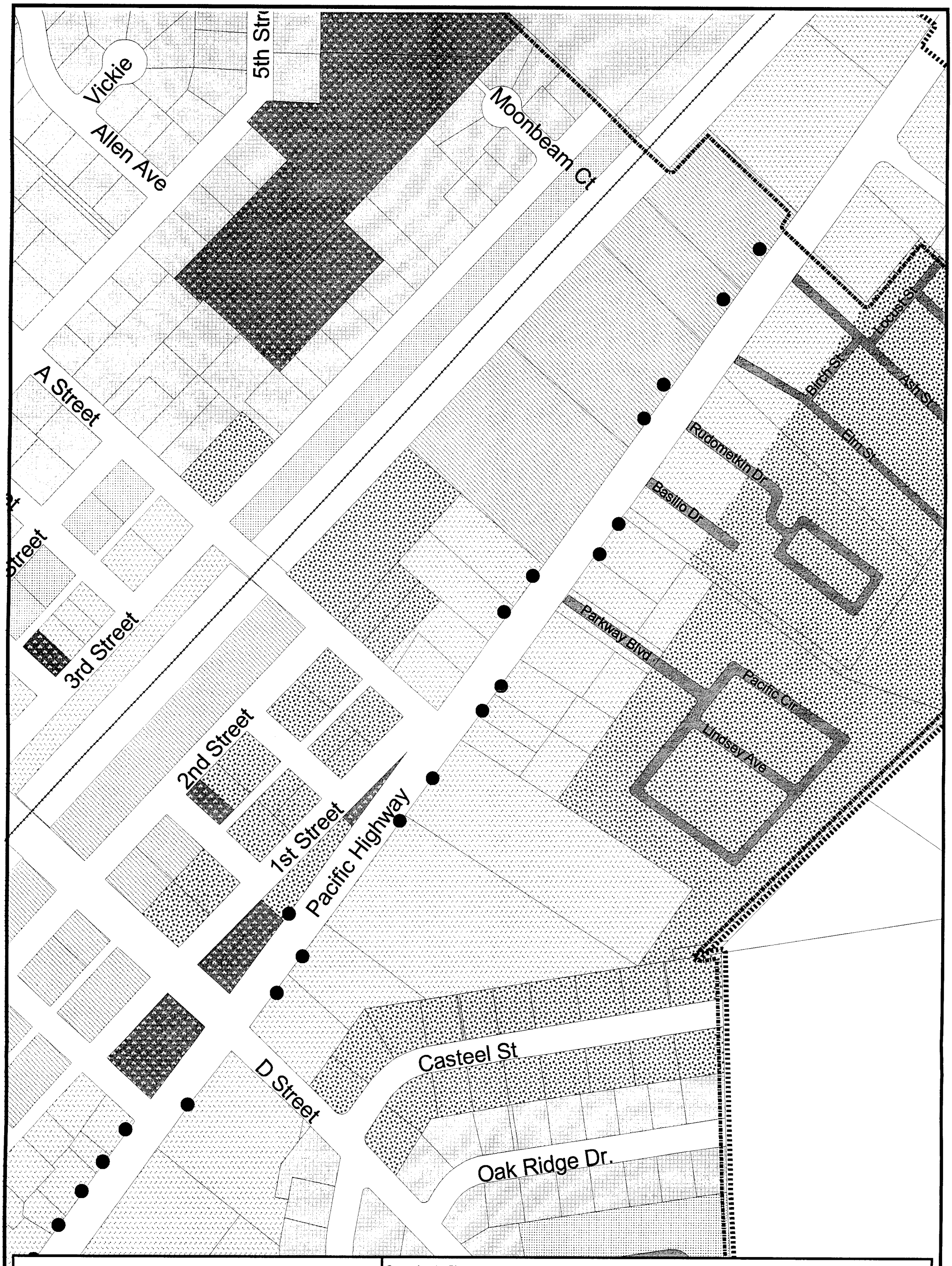
In contrast, immediately north of the city limit is a congested grouping of commercial and residential driveways. These sit at the entrance to Hubbard from the north at a point of speed reduction from 50 mph to 40 mph. Additionally, there is no turn lane for traffic turning into these access points. This is the **most frequent** point of automobile crashes along this stretch of Hwy. 99E. These have a direct impact on the city of Hubbard's Police Department staff, yet fall outside their taxing authority.

Table 30 lists the inventoried access points separated by the street intersections, from the south city line proceeding north. Figure 20 maps the access locations. Each entry in Table 30 is listed by a representative address with a code following the numerical address.
Code:
C Commercial Use
R Residential Use
S Shared Access Point
2 Secondary Street Access

So for example, 3284-C-2 is a commercial use with secondary street access.

TABLE 30. HWY. 99E ACCESS INVENTORY

Highway Segment	Total West Side Access Points	Access Listings	Total East Side Access Points	Access Listings
South city limits to Industrial Avenue	0		0	
Industrial Avenue to Schmidt Lane	0		2	2384-C-S-R 2424-R-S-C
Schmidt Lane to J Street	6	2625-C-S-C 2705-R 2735-C 2785-C 2825-C 3080-C	6	2614-C-2 2644-R 2674-R 2714-R 2754-C 2844-C-S-C-2
J Street to G Street	5	3081-C-2 3135-R 3195-C 3195-C-S-R 3255-C-S-C-2	3	3054-C-2 3154-C-2 3284-C-2
G Street to E Street	6	3325-C-2 3325-C-2 3345-C-S-R 3365-C-S-C 3425-R 3075 (E St.)-C-2	0	
E Street to D Street	0		1	3574-C-2
D Street to A Street	1	3695 (1st St.)-R-2	4	3624-C-2 3674-C-S-C 3774-C 3884-C
A Street to Parkway Boulevard	2	4015-C 4045-R	2	3948-C-S-R 3974-R
Parkway Boulevard to Basilio Drive	0		2	4074-R-2 4074-R
Basilio Drive to Rudomentkin Drive	2	4155-C 4215-C	0	
Rudomentkin Drive to Elm Street	0		0	
Elm Street to north city limits	2	4413-C 4415-C-S		



Title:

Figure 20. Highway 99E Access Inventory 1 of 2

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	May 7, 1999	1

Filename:
r:/cog4/projects/hubbard/hub-tsp.apr
Highway 99E Access Inventory 1 of 2 11x17 Portrait--Rev: 1

Comprehensive Plan
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Public

City Limits
Urban Growth Boundary
Railroads

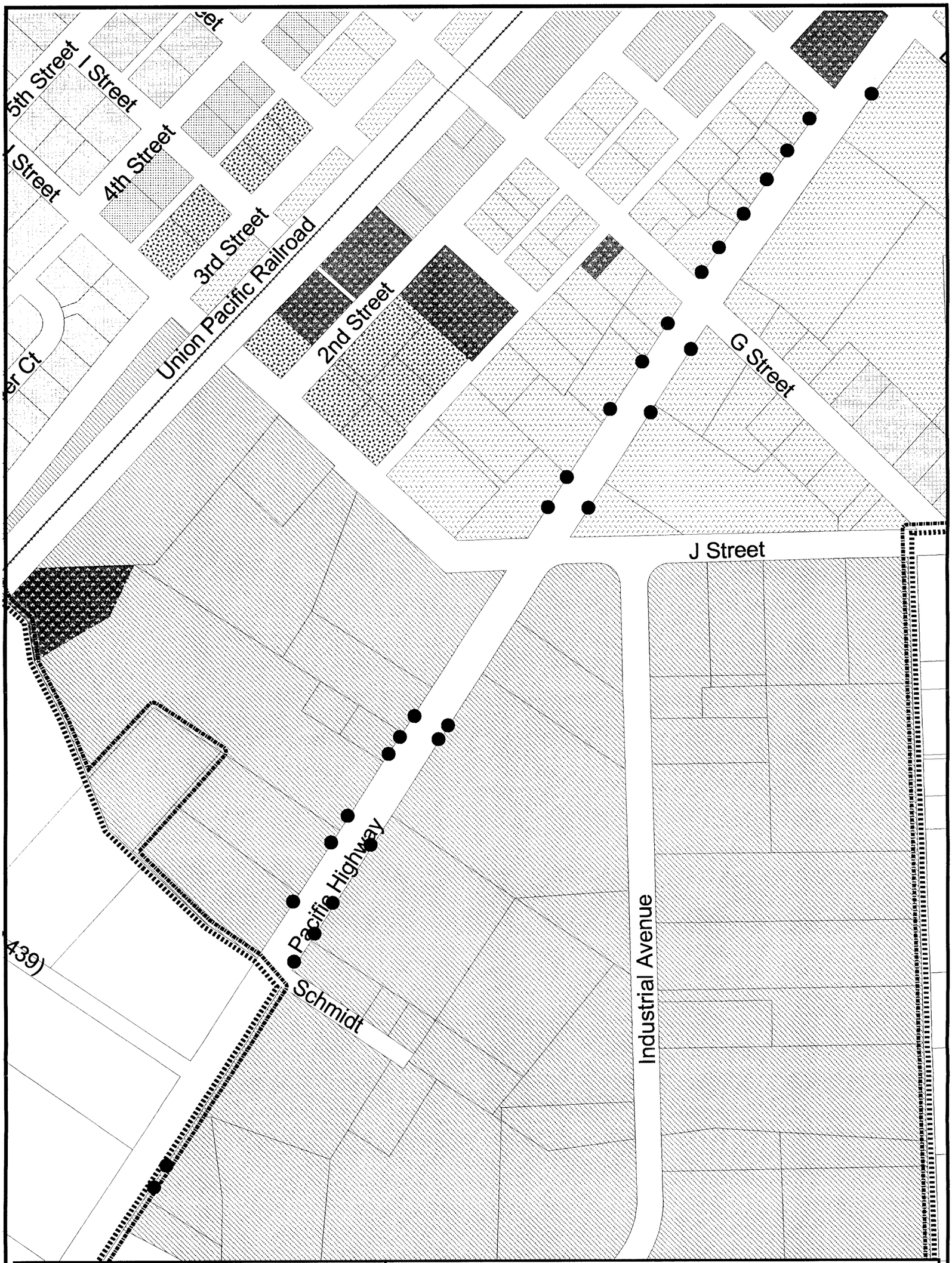
● Access Points

Road Functional Class
- Major Arterial
- Minor Arterial
- Collector
- Alley

100 0 100 200 Feet

N W E S

Mid-Willamette Valley Council of Governments
105 High Street S.E.
Salem, OR 97301-3367
Phone: (503) 588-6177
Fax: (503) 588-6094
e-mail:mwvcog@open.org



Title:

Figure 20. Highway 99E Access Inventory 2 of 2

Prepared by:
Mid-Willamette Valley Council of Governments

Created by:	Date:	Revision:
AJW	May 7, 1999	1

Filename:
r:/cog4/projects/hubbard/hub-tsp.apr
Highway 99E Access Inventory 2 of 2 11x17 Portrait--Rev: 1

Comprehensive Plan
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Public

City Limits
Urban Growth Boundary
Railroads

● Access Points

Road Functional Class
- Major Arterial
- Minor Arterial
- Collector
- Alley

100 0 100 200 Feet

N W E S

Mid-Willamette Valley Council of Governments
105 High Street S.E.
Salem, OR 97301-3367
Phone: (503) 588-6177
Fax: (503) 588-6094
e-mail:mwvcog@open.org

Figure 21. Crashes By Time of Day

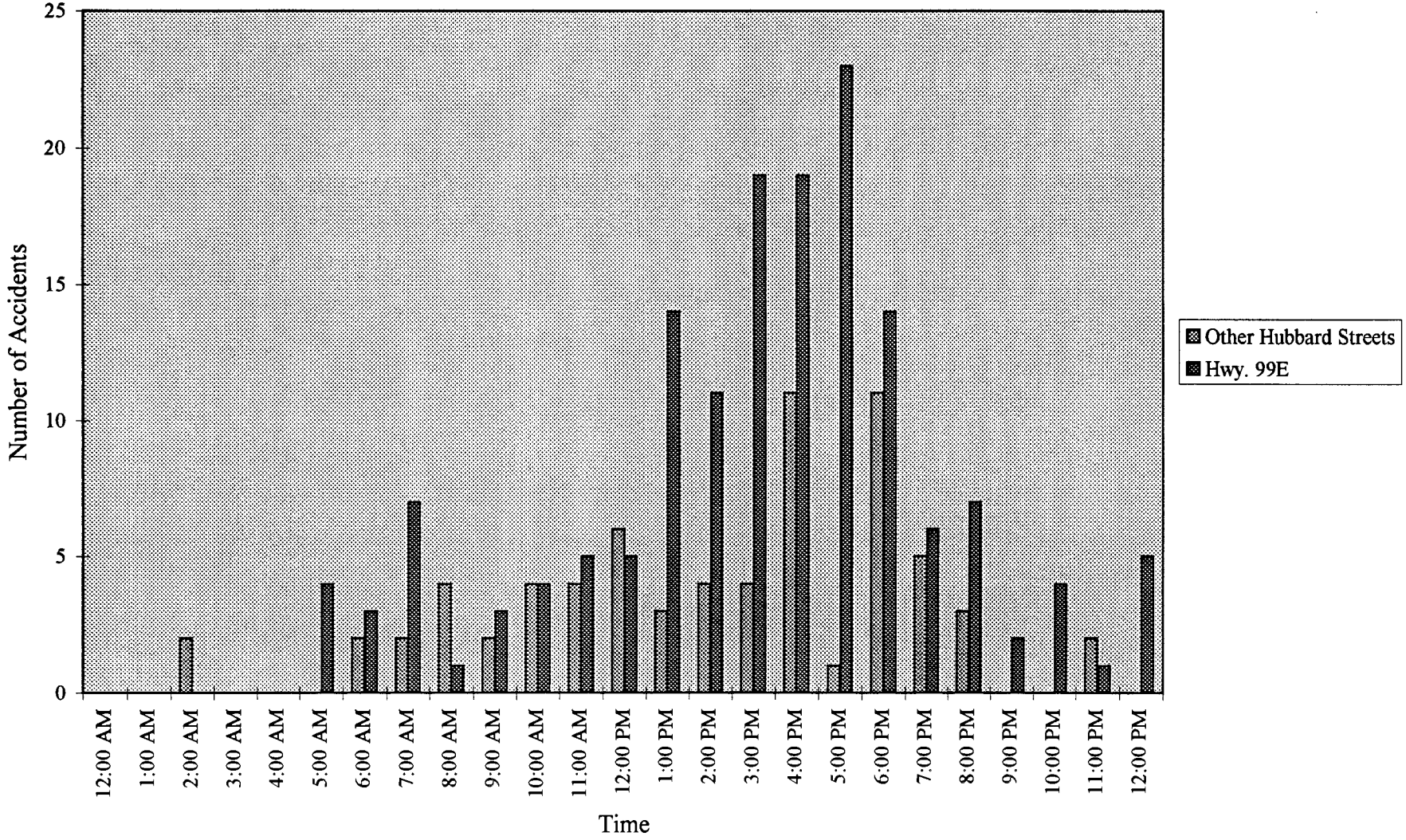


Figure 22. Crashes by Day of Week

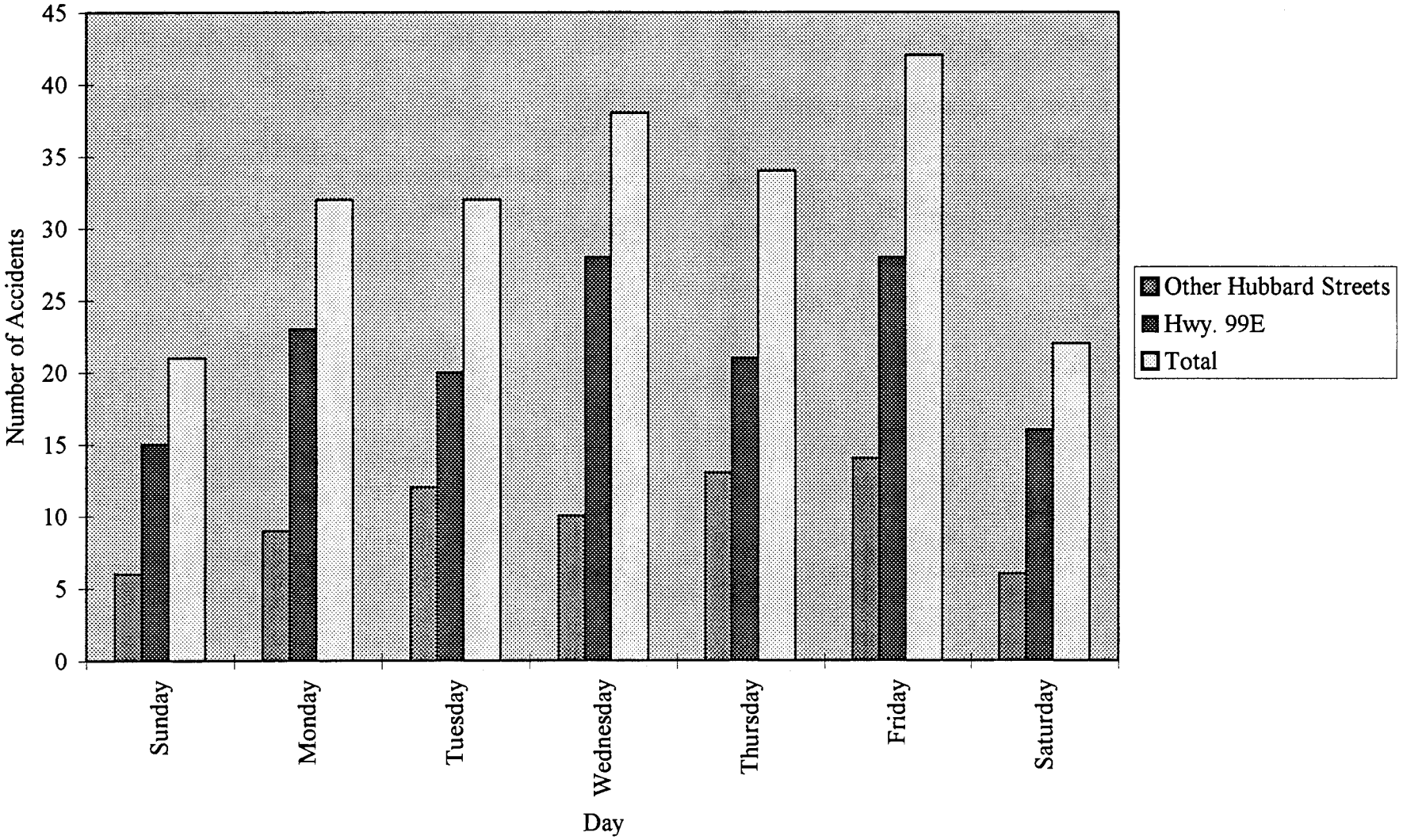


Figure 23. Crashes by Month

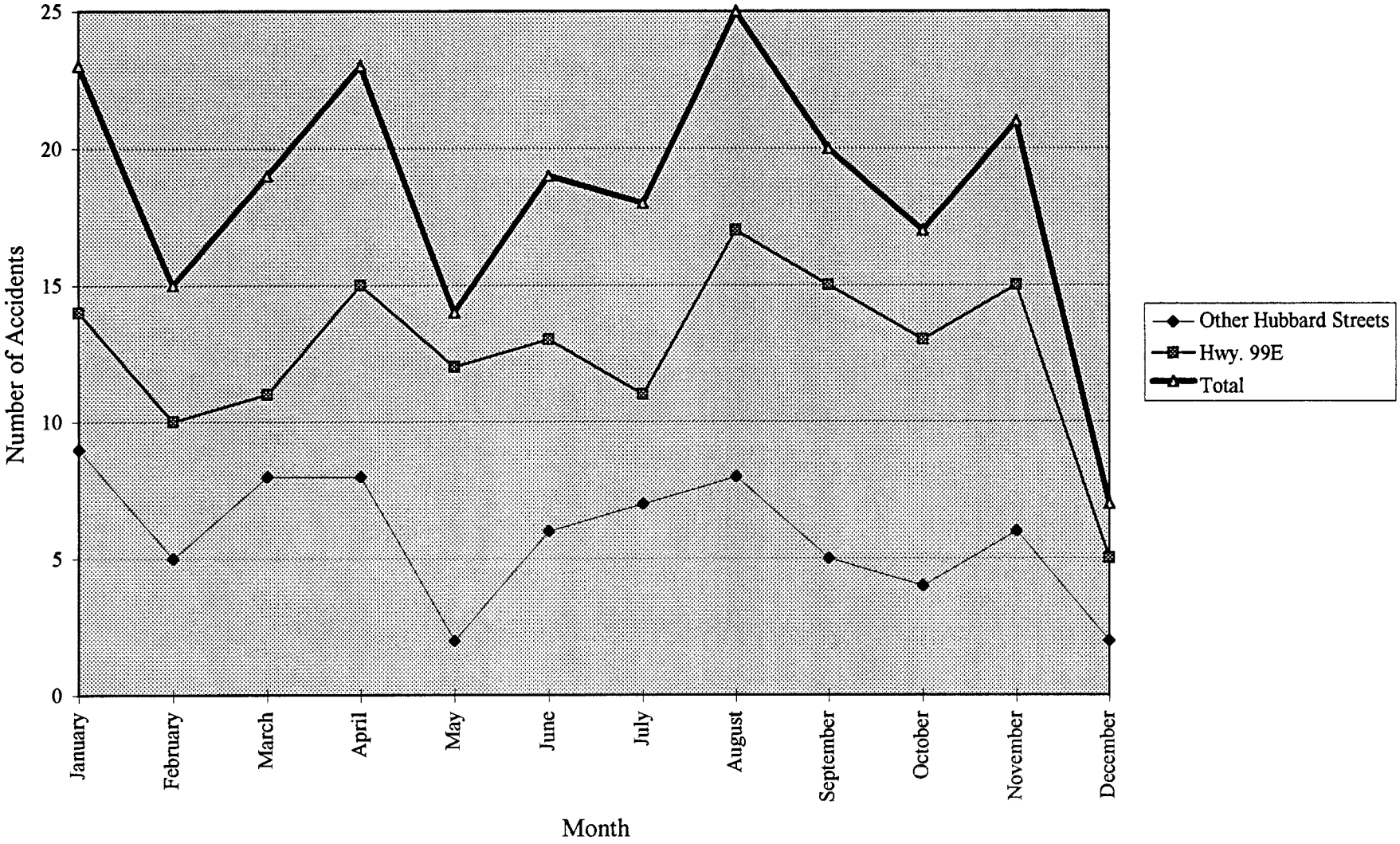


Figure 24. Typical Pavement Deterioration Pattern

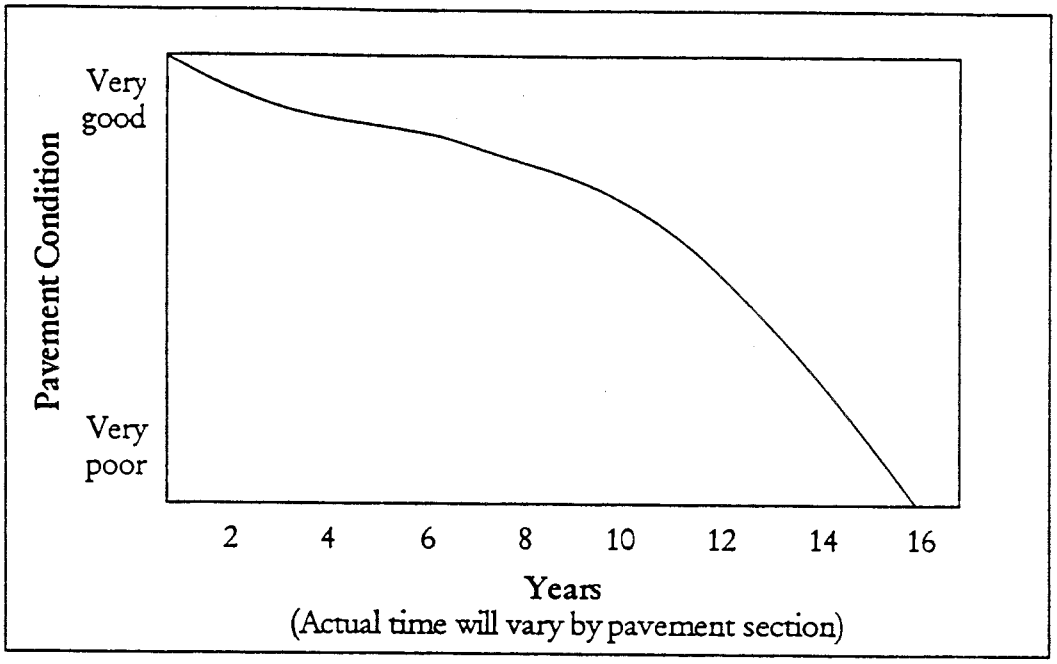
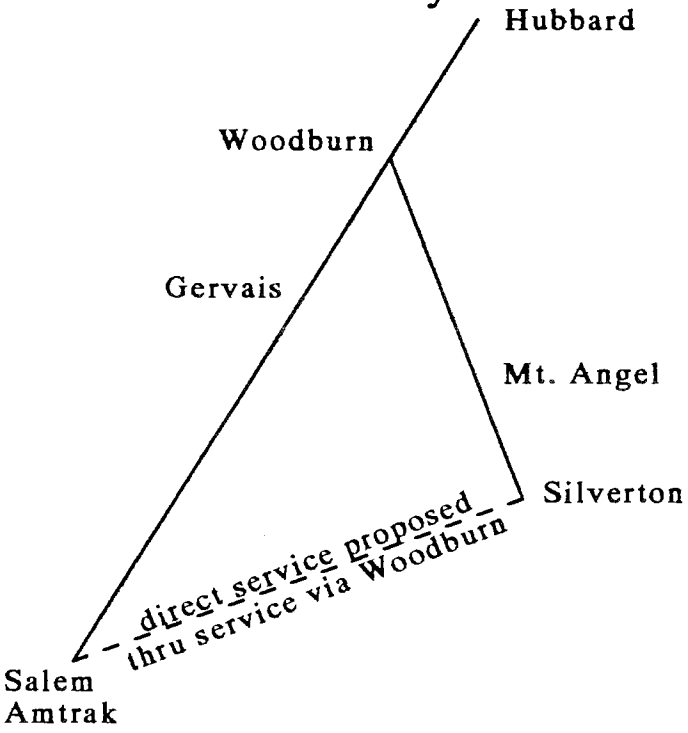


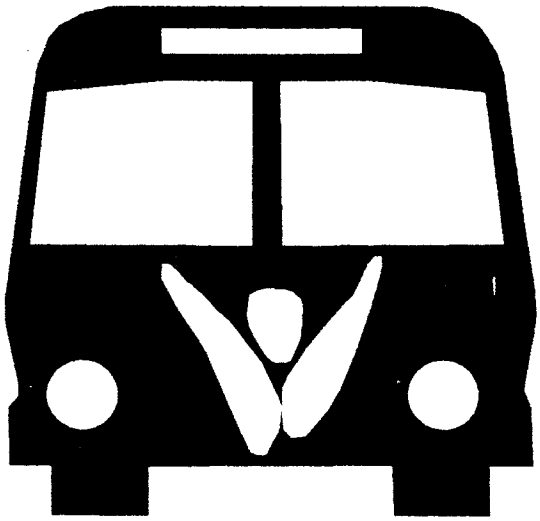
Figure 15: Typical Pavement Deterioration Pattern

This chart illustrates that the rate of pavement deterioration increases with time. This means that the cost of repairs increases dramatically the longer that treatments are delayed. This is generally also true for other types of infrastructure, such as bridges.

North Marion County Service



April 5, 1999



Silverton
Woodburn
Salem

DRAFT

Connecting carriers:

Amtrak	800-USA-RAIL www.amtrak.com
Cherriots	503-588-BUSS www.cherriots.org
Greyhound	503-362-2428 www.greyhound.com
HUT	503-363-8059 www.oregonlink.com/hut/woodburn.html
Pacific Trails	503-692-4437
Seniors Plus Bus ✚	503-873-1784
Silver Trolley	503-873-1546
Valley Retriever	541-265-2253
Woodburn Medical Express ✚	503-982-0403
Woodburn Dial-A-Ride	503-982-7433
Woodburn Transit	503-982-5245

✚ : Non-emergency medical trips only

Wheels

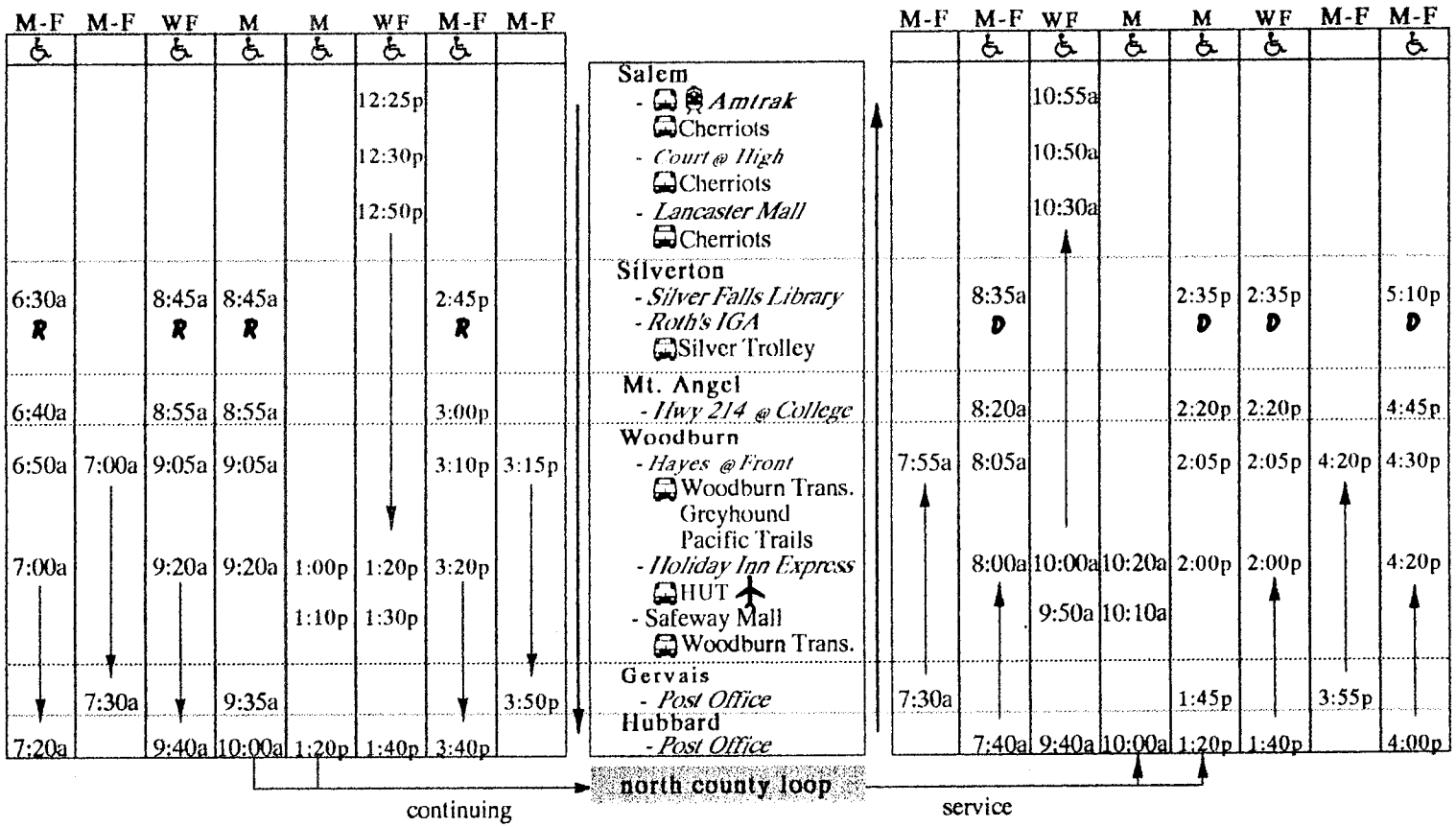
503-585-5187
800-422-7723

503-364-7869

Wheels

Silverton - Hubbard - Woodburn - Salem

April 5, 1999
585-5187



R / D Handle passengers to/from points outside of Silverton.
For service within Silverton, contact Silver Trolley at 873-1546

M-F five days per week, Monday - Friday
M Monday, only
W F Wednesday and Friday, only

$ Suggested donation
$3 round-trip all points <—> Salem/Keizer
$1 one way to / from all other points

Appendix D: Review of Land Use Regulations Related to the Transportation System

Appendix D-1 Street Design Standard Drawings

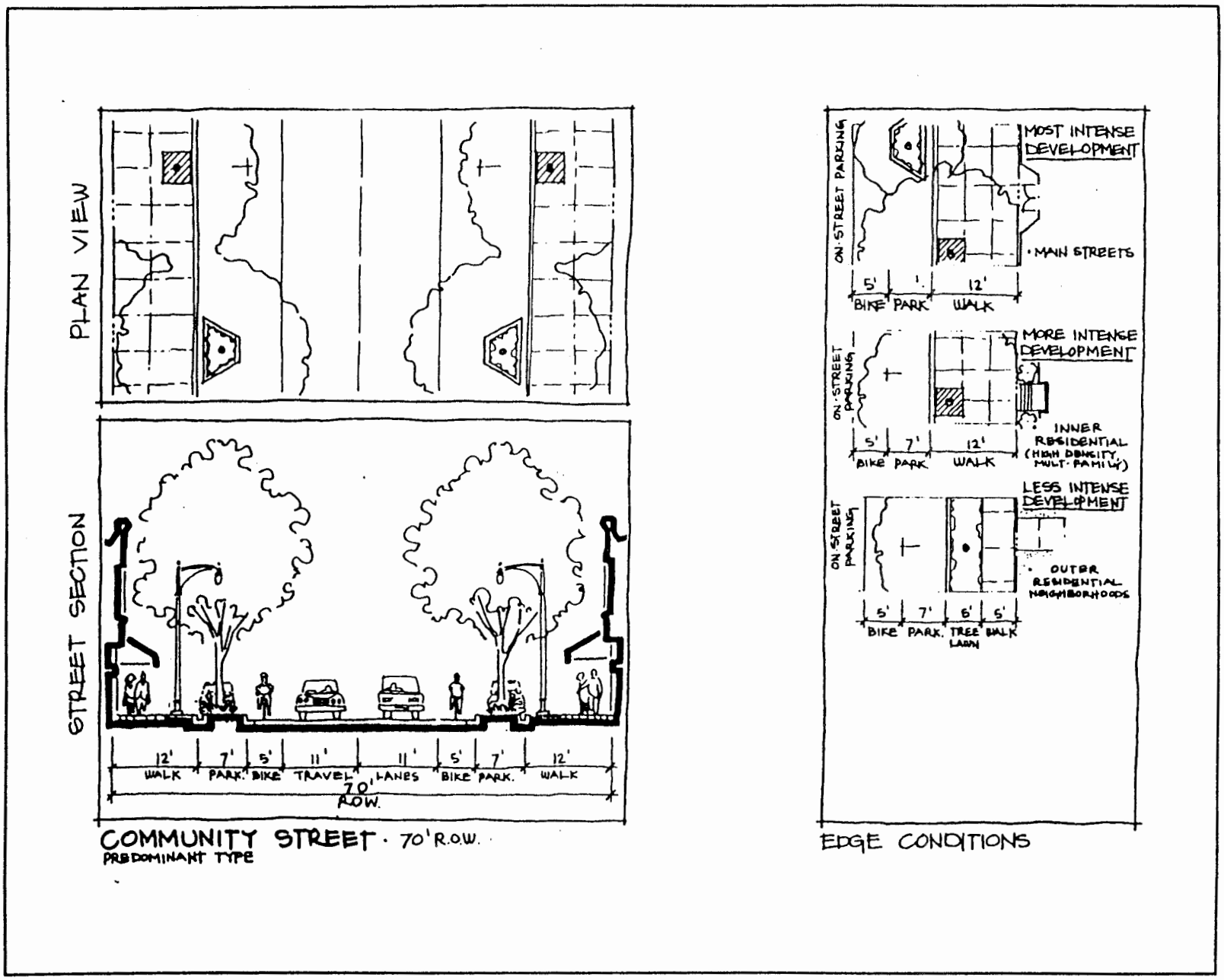
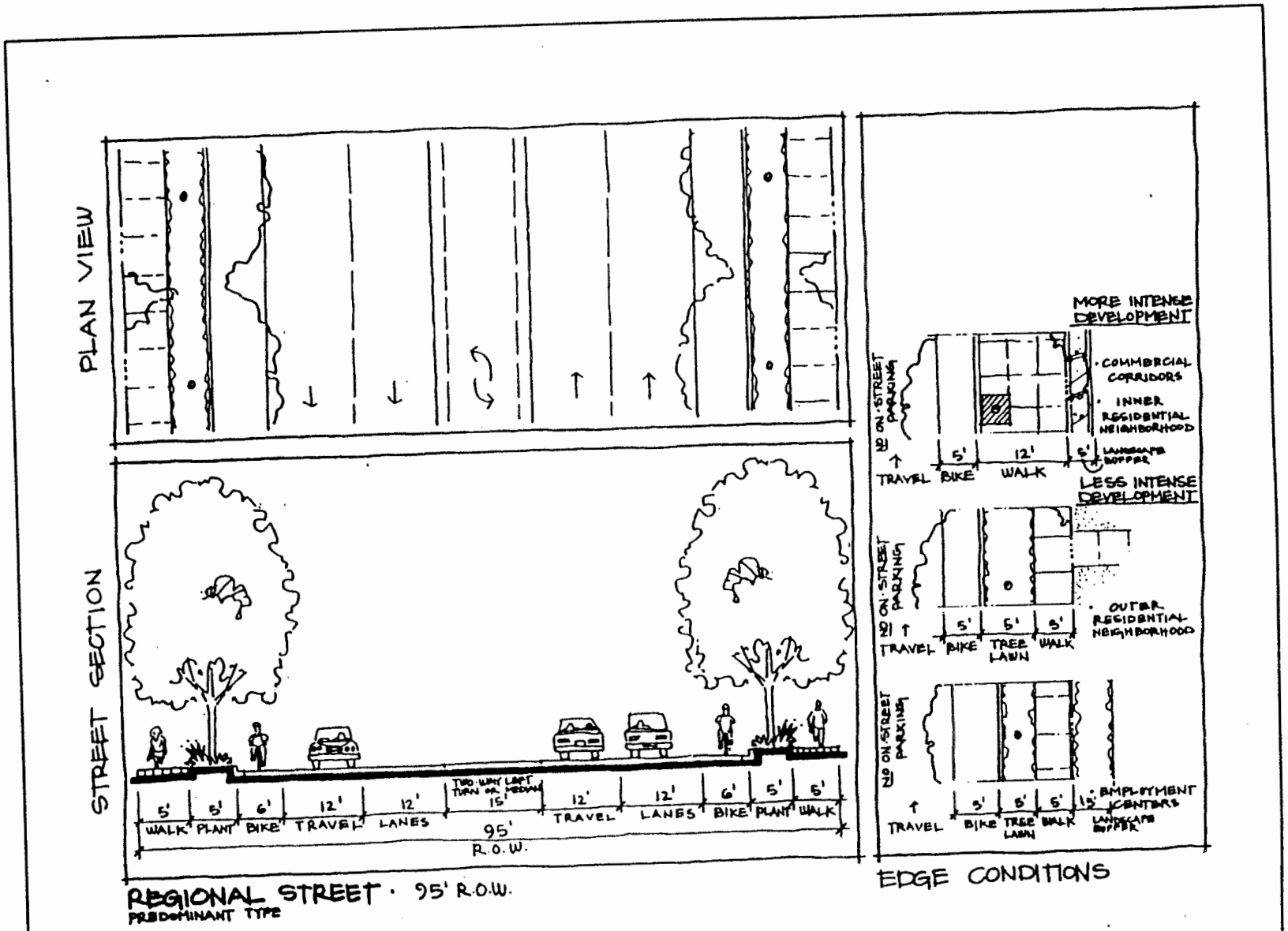


Figure 32. Typical community street design type. These facilities provide a balance of all modes of travel

HUBBARD MINOR ARTERIAL STREET DESIGN STANDARD

-Dimensions in the diagram are superseded by dimensions given in Table 21.



HUBBARD MAJOR ARTERIAL STREET DESIGN STANDARD

-Dimensions in the diagram are superseded by dimensions given in Table 21.

CITY OF HUBBARD LAND USE REGULATIONS: REVIEW AND RECOMMENDED CHANGES

As part of compliance with the Transportation Planning Rule (TPR) the city of Hubbard has reviewed its land use regulations in order to implement the TSP and conform to the specific standards set forth in the TPR (OAR 660-12-045). The TPR requires that the following topics be addressed:

1) Amend land use regulations to reflect and implement the TSP.

2) Adopt land use or subdivision ordinance measures, consistent with applicable state and federal requirements, to protect transportation facilities, corridors and sites for their identified functions, to cover the following topics:

- Access management and control;
- Protection of public use airports;
- Coordinated review of land use decisions that might affect transportation facilities;
- Conditions to minimize development impacts to transportation facilities;
- Regulations to provide notice to public agencies providing transportation facilities and services of land use applications that might affect transportation facilities; and
- Regulations assuring that amendment to land use applications, densities, and design standards are consistent with the TSP.

3) Adopt land use or subdivision regulations for urban areas and rural communities to provide safe and convenient pedestrian and bicycle circulation and bicycle parking, and to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel.

4) Establish street standards that minimize pavement width and total right-of-way.

The city of Hubbard Development Code (1996-97 update) was reviewed and amended to implement the TSP. Changes to goals and policies in the Transportation Element of the Comprehensive Plan are given in the Transportation System Plan section of this document.

Amendments to the city of Hubbard Development Code are necessary not only for compliance with the TPR, but also to insure consistency between the Comprehensive Plan and the Development Code. A number of proposed changes are not specifically required by the TPR, but are included to better represent the "intent" of the Rule and to create development patterns that facilitate multi-modal travel. The following text consists of existing language shown in normal type, deletion of existing language identified by ~~strikeout~~, and added language shown as **bold and underlined**. Relevant portions of the TPR are shown as italicized text.

2.100 ZONING DISTRICTS

Each of the zoning districts have Development Standard sections that specify driveway separation from intersections. This language should be modified to reflect the access and intersection spacing standards given in the TSP by functional roadway classification. In addition, some land uses are not permitted direct access to major and minor arterials.

2.200 GENERAL DEVELOPMENT STANDARDS

2.201 GENERAL PROVISIONS

2.201.01 Purpose

The purpose of this Section is to:

A. carry out the Comprehensive Plan with respect to development standards and policies;

B. insure that natural features of the landscape, such as land forms, natural drainage-ways, trees and wooded areas, are preserved as much as possible and protected during construction;

C. promote energy conservation and efficiency in development through site planning and landscaping; and

D. promote and maintain healthy environments and minimize development impacts upon surrounding properties and neighborhoods.

E. **provide an economical, safe, accessible, and multi-modal transportation system for the community.**

2.201.02 Application of Standards

A. The standards set forth in Section 2.200 shall apply to partitions; subdivisions; planned unit developments; commercial, industrial, and institutional projects; single family dwellings, duplexes and multi-family structures of three (3) or more dwellings.

B. The application of these standards to a particular development shall be modified as follows:

1. development standards which are unique to a particular use, or special use, shall be set forth within the district or in Section 2.300; and

2. those development standards which are unique to a particular district shall be set forth in the Section governing that district.

2.201.03 Application of Public Facility Standards

Standards for the provision and utilization of public facilities or services available within the City of Hubbard shall apply to all land developments in accordance with the following table of reference. No development permit shall be approved unless the following improvements are provided prior to occupancy or operation, or unless future provision is assured in accordance with Section 3.201.01. Public facility improvements shall meet City standards and be installed according to City Engineer approval.

Public Facilities Improvement Requirements Table

	Fire Hydrant	Street Improv.	Water Hookup	Sewer Hookup	Storm Drain	Street Lights
Single Family Dwelling & Duplex	No	C-2	Yes	Yes	Yes	No
Multifamily Dwelling	Yes	Yes	Yes	Yes	Yes	Yes
New Commercial Building	Yes	Yes	Yes	Yes	Yes	Yes
Commercial Change of Occupancy or Expansion	C-1	C-3	Yes	Yes	Yes	Yes
New Industrial Building	Yes	Yes	Yes	Yes	Yes	Yes
Industrial Change of Occupancy or Expansion	C-1	C-3	Yes	Yes	Yes	Yes
Partitions, Subdivisions, PUD, and Mobile Home Parks	Yes	Yes	Yes	Yes	Yes	Yes

Legend:No = Not required, Yes = Required, and C = Conditional, as noted.

C-1. Fire Hydrants for Commercials, Industrial, or Institutional Expansions

One or more fire hydrants are required when the total floor area of a new or expanded building exceeds 2,500 square feet, or the proposed use is classified as Hazardous (H) in the Uniform Building Code or Uniform Fire Code.

C-2. Street Improvements for Single Family Dwellings

New single family dwellings which require a street extension must provide street improvements to City street standards.

C-3. Street Improvements for Commercials, Industrial, or Institutional Expansions

Lots fronting on County roads must obtain access permits from the Marion County Public Works Department.

Lots fronting on Highway 99E must obtain access permits from the Oregon Department of Transportation (ODOT).

2.202 STREET STANDARDS

2.202.01 Purpose

A. The purpose is to provide for safe, efficient, convenient multi-modal movement in the City of Hubbard;

B. To provide adequate access to all proposed developments in the City of Hubbard; and

C. To provide adequate area in all public rights-of-way for sidewalks, bikeways, **parkway strips**, sanitary sewers, storm sewers, water lines, natural gas lines, power lines and other utilities commonly and appropriately placed in such rights-of-way.

D. **Preserve and protect the existing and intended function of the road and other transportation facilities.**

E. **Ensure that Land uses authorized under Comprehensive Plan Map and Zoning Map amendments are consistent with the identified function, capacity, and level of service of**

transportation facilities.

For purposes of this section:

1) "adequate access" means direct routes of travel between destinations, such as between residential neighborhoods and parks or commercial developments.

2) "adequate area" means space sufficient to provide all required public services to standards defined in this code, such as sidewalks, bikeways or storm sewers.

2.202.02 Scope

The provisions of this Section shall be applicable to:

A. The creation, dedication or construction of all new public or private streets, pedestrian facilities, and bikeways in all subdivisions, partitions or other developments in the City of Hubbard;

B. The extension or widening of existing public or private street rights-of-way, easements or street improvements including those which may be proposed by an individual or the City, or which may be required by the City in association with other development approvals;

C. The construction or modification of any utilities, ~~or~~ sidewalks, or bikeways in public rights-of-way or private street easements; and

D. The planting of any street trees or other landscape materials in public rights-of-way **(parkway strip).**

2.202.03 General Provisions

The following provisions shall apply to the dedication, construction, improvement or other development of all public streets in the City of Hubbard. These provisions are intended to provide a general overview of typical minimum design standards. All streets shall be designed in conformance of the specific requirements of the most current Public Works Standards **and the Transportation System Plan** of the City of Hubbard.

A. The location, width and grade of streets shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of the land to be served by the streets.

B. Development proposals shall provide for the continuation of all streets, bikeways and pedestrian facilities within the development and to existing and planned streets, bikeways, and pedestrian facilities outside the development.

C. Alignment. All streets other than local streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuation of the centerlines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, be avoided. However, when not practical, the "T" intersections shall leave a minimum distance of 200 feet between the center lines of streets having approximately the same direction and otherwise shall not be less than 100 feet.

D. Future Extension of Streets and **Location of New Streets**. Where necessary to give access to, or permit a satisfactory future development of adjoining land, streets shall be extended to the boundary of a tract being developed and the resulting dead-end streets may be approved without turn-a-rounds, upon approval by emergency service agencies. Reserve strips and street plugs may be required to preserve the objectives of street extensions. **The Transportation System Plan indicates the conceptual location of arterial and collector street extensions and new collector streets in order to preserve street function and promote the development of an efficient network of city streets and connections to state and county roads.**

E. Radius at Street Intersections. The property line radius at street intersections that have a designated right-of-way width

of 30 feet or more shall be governed by the interior angle at the intersection and will be based on the square root of the interior angle formed at the intersection of the property lines which equals the radius in feet. The distance shall be increased to the next full foot above the figure established by said formula.

The minimum angle of the intersection shall be 40 degrees.

F. Existing Streets. Whenever existing public streets adjacent to, or within a tract are of inadequate width, additional right-of-way shall be provided at the time of subdivision, partitioning or development.

1. Full street improvements to all existing streets adjacent to, within or necessary to serve the property shall be required at the time of land division or development unless the applicant demonstrates to the satisfaction of the City Engineer that the condition and sections of the existing streets meet the City standards and are in satisfactory condition to hand projected traffic loads. Storm water drainage shall be provided for on the non-curbed side of the full street improvements as required by the City Engineer. In cases where the property with a land division or development fronts both sides of an existing street, full street improvements shall be required. The party paying the costs for improvements may require buyers along the improved area to reimburse improvement costs for up to ten (10) years. Each lot should pay a proportional amount of the total improvement costs if reimbursement is pursued.

   Reserve strips and street plugs shall be dedicated, deeded, and installed to preserve the objectives of the full street prior to street construction.

2. The City may allow the applicant to record an approved "Waiver of Rights to Remonstrate for Street and Public Utility Improvements" in lieu of street improvements where the following criteria are met.

   Alternatives include:

   a. The contiguous length of the existing street to be improved (including the portion of the existing street which must be improved to serve

the development) is less than 250 feet, and

b. The existing roadway conditions and sections are adequate to handle existing and projected traffic loads, and

c. Existing public utilities (water, sanitary sewer, and storm sewer) located within the existing roadway are adequate, or can be improved without damaging the existing roadway surface.

3. In lieu of the street improvement requirements outlined in Section 2.204.03 (F) (I) above, the Planning Commission, under a Type II procedure, may elect to accept from the applicant moneys to be placed in a fund dedicated to the future reconstruction of the subject street(s). The amount of moneys deposited with the City shall not be greater than 100 percent of the estimated cost of the full street improvements (including associated storm drainage improvements). Cost estimates shall be based from a preliminary design of the reconstructed street provided the applicant's engineer and shall be approved by the City Engineer. If the City Council elects to accept these moneys in lieu of the street improvements, the applicant shall also record against all lots or parcels a "Construction Deferral Agreement and Waiver of Rights to Remonstrate for Street and Storm Drainage Improvements" approved by the City Attorney. The construction deferral agreement should be worded such that the subject properties will be responsible for paying a minimum of 50 percent of the costs of the future street and storm drainage improvements to the subject street minus the value (at the time the street is constructed) of the money deposited with the City by the applicant plus an accumulated interest, e.g. (50 percent minus (deposit plus interest)). A separate "Waiver of Rights to Remonstrate" may be required for future improvements or other public utilities.

4. All required public utilities shall be installed as part of the street construction process.

G. Cul-de-sacs. The use of cul-de-sacs and other dead-end streets shall be discouraged and shall only be approved upon showing

by the applicant of unusual or unique circumstances justifying the use of such a street. In cases where cul-de-sacs are determined to be justified they shall only be permitted subject to the following conditions:

1. There shall be no cul-de-sacs more than 400 feet in length.

2. All cul-de-sacs shall terminate with circular turn-arounds, except where the Planning Commission finds that a "pear" or "hammerhead" turnaround is more appropriate given the topography, natural, or built features, and expected use. Such variations shall be approved by the City Engineer and emergency services providers.

3. An accessway shall be provided consistent with the standards as determined by the Planning Commission to be necessary to insure safe, efficient, and convenient multi-modal access.

For the purpose of this section, "unusual or unique circumstance" exist when slopes are 8 percent or more, wetlands or a body of water are present, existing development on adjacent property prevents a street connection.

For the purpose of this section "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 the adjacent uses. Accessways through parking lots are generally physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices including landscaping, trees, and lighting. Where accessways cross driveways, they are generally raised, paved, or marked in a manner that provides convenient access for pedestrians.

H. Street Names. Street names and numbers shall conform to the established pattern in the City and shall be subject to the approval of the Planning Commission, City staff, and emergency service agencies.

I. Grades and Curves. Grades shall not exceed 8 percent on public or private streets. To provide for adequate drainage, all streets shall have a minimum slope of 0.5 percent. On arterials there shall be a tangent of not less than 100 feet between reversed curves.

J. Marginal Access Streets. If a development abuts or contains an existing or proposed arterial street, the Planning Commission may require marginal access streets, reverse frontage lots with suitable depth, screen planting contained in a non-access reservation along the rear or side property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic. Consideration shall be given for pedestrian routes.

K. Clear Vision Areas. Clear vision areas shall be maintained on corner lots at the intersection of all public streets and at the intersections of a public street with a private street, alley or drive which serves more than three parcels. No structure or planting shall be permitted within a clear vision area which would impede visibility between a height of 30 inches and 10 feet above the curb grade of the intersecting streets.

Clear vision areas are as defined in Section 1.200 (definitions), 2.203.07(1) and 2.209.07.

L. Driveways and points of access. Approaches shall be constructed according to City standards for residential and commercial users and shall meet the minimum separations of five (5) feet between residential driveways, 22 feet between commercial, industrial, and institutional driveways, **and** 20 feet from an intersection for local streets.~~, 50 feet for collectors, and 100 feet for arterials.~~ **Spacing standards for private driveways onto major and minor arterial, and collector streets shall conform to the standards established in the street design section of the Transportation System Plan.** The separation shall be measured between the nearest outside edges of each access lanes and the edge of the radius on the street. Adjoining properties are encouraged to combine accesses. For public safety purposes and wherever possible, driveways shall align with the access points to properties across the street and other street intersections. Where impractical due to lot configuration, driveways shall be as approved by the City's Public Works Superintendent.

M. **Spacing Between Public Road Intersections. Spacing between public road intersections for each functional class of road shall conform to standards established in the street design section of the Transportation System Plan.**

N. **Parkway Strip Landscaping. Landscaping and plant materials used in the parkway strip is subject to the provisions of 2.207.**

2.202.04 General Right-of-Way and Improvement Widths

The following standards in **the Street Design Standards Table** are general criteria **for all types** of public streets, bikeways, **parkway strips,** and sidewalks in the City of Hubbard. These standards shall be the minimum requirements for all streets, bikeways, and pedestrian facilities except where modifications are permitted under Section 2.202.05.

The Street Design Standards Table lists several options for local streets. The street design section of the TSP establishes guidelines for selection of the appropriate local street option. The TSP identifies the conceptual location of some new collector streets that shall be built as specified by Phase 2 design standards.

STREET DESIGN STANDARDS TABLE

Street Type[1]	ROW Width	Paved Width	Travel Lanes	Turning Lane	Parking	Parkway Strip	Sidewalk Width[3]	Bikeway Type and Standards	Utility Easement Width	Example Application
ARTERIAL										
Major	100	76	4 @12	1 @ 14-16	None	2@ 5 [2]	2 @6	Bikelanes, 2 @6	2 @ 8	Hwy. 99E
Minor	60	48[4]	2 @11	None	Both sides of street @ 7, with interspersed tree planters.	None, except tree planters used (see Appendix D)	2 @6	Bikelanes, 2 @6	2 @ 8	3rd Street
COLLECTOR[5]										
Phase 1	60	34[4]	2 @10	None	Both sides of street @ 7'	2 @4.5	2 @5	Shared roadway	2 @ 8	7th Street
Phase 2	60	34[4]	2 @11	None	None	2 @4.5	2 @5	Bikelanes, 2 @6'	2 @ 8	G St. between 2nd & Hwy. 99E
LOCAL										
Option A	50	28	1 @14	None[6]	Both sides of street @ 7'	2 @5	2 @5	Shared roadway	2 @8	
Option B	50	22	1 @15	None[6]	One side of street @ 7'	2 @5'	2 @5	Shared roadway	2 @8	
Option C	50	22	1 @22	None[6]	None	2 @5'	2 @5	Shared roadway	2 @8	
Option D	60	34	2 @ 10	None	Both sides of street @ 7'	2 @5'	2 @5	Shared roadway	2 @8	
Cul-de-sac	50	30	1 @14	None	Both sides of street @ 7'	2 @5'	2 @5	Shared roadway	2 @8	
Cul-de-sac bulb	46 radius	40		None		5'	2 @5	Shared roadway		

***All dimensions given in feet**

1. See Appendix D for drawings of street designs
2. The city will be responsible for landscape maintenance in the parkway strip
3. Includes 0.5' curb
4. Greater widths may be required at intersections to accommodate turn lanes
5. Phase I changes to Phase II when traffic volume exceeds 3,000 ADT, or safety issues become a concern.
6. Additional on-site parking is required for Local Street Options A, B, and C: 1, 2, and 3 family dwellings, including manufactured homes, and multi-family dwellings shall have three (3) parking spaces per dwelling unit.

Street Classification	Right-of-way Width	Curb to Curb Width	Sidewalk Width	Bikeway Width	Utility Easement Width	Parking Width
Arterial	60 feet	38 feet **	6 feet	5 feet *	16 feet	
Commercial/ Industrial/ Institutional	60 feet	36 feet	5 feet		16 feet	
Collector	60 feet	36 feet **	5 feet	5 feet *	16 feet	
Local	A. 50 feet	34 feet	5 feet		16 feet	
	B. 40 feet	30 feet	5 feet		16 feet	***
Cul-de-sac	50 feet	30 feet	5 feet		16 feet	
Cul-de-sac bulb	46 foot radius	40 feet	5 feet		16 feet	

* The minimum width for a bike lane is 4 feet on open shoulders, or 5 feet from the face of a curb, guardrail, or parked cars.

** Does not include allowance for on-street parking

*** Additional on-site parking is required for Local Street Options A, B, and C: 1, 2, and 3 family dwellings, including manufactured homes, and multi-family dwellings shall have three (3) parking spaces per dwelling unit.

2.202.05 Modification of Right-of-Way and Improvement Width

The Planning Commission, pursuant to the review procedures of Section 3.203, may allow modification to the public street standards of Section 2.202.04, when both of the following criteria are satisfied:

A. The modification is necessary to provide design flexibility in instances where:

1. unusual topographic conditions require a reduced width or grade separation of improved surfaces;

2. parcel shape or configuration precludes accessing a proposed development with a street which meets the full standards of Section 2.202.04;

3. a modification is necessary to preserve trees or other

natural features determined by the Planning Commission to be significant to the aesthetic character of the area; or

4. a Planned Unit Development is proposed and the modification of street standards is necessary to provide greater privacy or aesthetic quality to the development.

B. Modification of the standards of Section 2.202.04 shall only be approved if the Planning Commission finds that the specific design proposed provides adequate vehicular access based on anticipated traffic volumes.

2.202.06 Construction Specifications

Construction specifications for all public streets shall comply with the criteria of the most recently adopted public works/street standards **and Transportation System Plan** of the City of Hubbard.

2.202.07 Private Streets

A. Private streets shall only be allowed where the applicable criteria of Section 2.208.03 (C) are satisfied. Private streets shall comply with the following minimum standards:

Number of Dwellings Served	Easement or Tract Width	Surface Width
1-3	25 feet	18 feet
3-4	25 feet	24 feet
4 or more	30 feet	28 feet

*Note: If narrower streets are developed as part of Section 2.202.04 of the Code, more on site parking is required.

B. If more than one ownership is served by the private street or drive, a common access easement of not less than 30 feet in width shall be required. The Planning Commission may require an increased surface width if deemed necessary to provide adequate access to commercial or industrial uses. Prior to any requested private street or drive adoption, the City requires the private drive or street to meet minor street standards as put forth in Section 2.202.04 of the Code.

C. All private streets serving more than one ownership shall be constructed to the same cross-sectional specifications required for public streets. Provision for the maintenance of the street

shall be provided in the form of a maintenance agreement, home owners association or other instrument acceptable to the City Attorney.

D. A turn-around shall be required for any private residential street in excess of 150 feet long, which has only one outlet and which serves more than three residences. Non-residential private streets serving more than one ownership shall provide a turn-around if in excess of 200 feet long and having only one outlet. Turn-arounds for private streets shall be either a circular turn-around with a minimum paved radius of 35 feet, or a "tee" turn-around with a minimum paved dimension across the "tee" of 70 feet.

E. The Planning Commission may require provisions for the dedication and future extension of a public street.

F. The City does not accept transfer of private streets to public streets unless the

private street meets the City's construction standards at the time of acceptance and the construction inspected by the City Public Works Department and City Engineer during construction. Streets constructed to City standards, or those that provide evidence of compliance with City standards, (such as, but not limited to, providing core samples), inspected, and approved by the City and public emergency services agencies, may be eligible for transfer to public ownership if approved by the Planning Commission during a public hearing.

2.203 OFF-STREET PARKING AND LOADING

2.203.01 Purpose

The purpose of this Section is to provide adequate areas for the parking, maneuvering, loading and unloading of vehicles for all land uses in the City of Hubbard.

2.203.02 Scope

Development of off-street parking and loading areas for commercial, industrial, institutional, or multi-family development shall be subject to the Site Development Review procedures of Section 3.105 and shall be reviewed pursuant to Section 3.203. These sections are applicable to single family and duplex development, where stated.

The provisions of this Section shall apply to the following types of development:

A. any new building or structure erected after the effective date of this Ordinance;

B. the construction or provision of additional floor area, seating capacity or other expansion of an existing building or structure; or

C. a change in the use of a building or structure which would require additional parking spaces or off-street loading areas under the provisions of this Section; or

D. the operation of an outdoor business or activities with outdoor uses.

2.203.03 Location

Off-street parking and loading areas shall be provided on the same lot with the main building, structure or use except that:

A. in any residential zone, automobile parking areas for dwellings and other uses permitted in a residential zone may be located on another lot if such lot is within 200 feet of the lot containing the main building, structure or use; and

B. in any non-residential zone, the parking area may be located off the site of the main building, structure or use if it is within 500 feet of such site.

2.203.04 Joint Use

Parking area may be used for a loading area during those times when the parking area is not needed or used. Parking areas may be shared subject to Planning Commission approval for commercial and industrial uses where hours of operation or use are staggered such that peak demand periods do not occur simultaneously. The requirements of Section 2.203.05 may be reduced accordingly. Such joint use shall not be approved unless satisfactory legal evidence is presented which demonstrates the access and parking rights of parties.

2.203.05 Off-Street Automobile Parking Requirements

Off-street parking shall be provided as required by Section 2.203.08 and approved by the Planning Commission in the amount not less than

listed below.

Parking requirements for residential units, including "stick-built" and manufactured homes, require the construction of a garage. Manufactured homes located in mobile home parks are required to install either a garage or carport.

A. 1, 2, and 3 family dwellings, including manufactured homes 1) Narrow street development option **(A, B, & C)** from Section 2.204.04	2 spaces per dwelling unit 3 spaces per dwelling unit
B. Multi-family dwellings 1) Narrow street development option **(A, B, & C)** from Section 2.204.04	2 spaces per dwelling unit 3 spaces per dwelling unit
C. Hotel, motel and boarding house	1 space per guest room plus 1 space for the owner or manager
D. Club, lodge	Spaces sufficient to meet the combined minimum requirements of the heaviest uses being conducted, such as hotel, restaurant, auditorium, etc.
E. Hospital, nursing home	1 space per two beds
F. Church, auditorium, stadium, theater	1 space per 4 seats or every 8 feet of bench length
G. Elementary or Junior High School	2 spaces per classroom, plus off-street loading facility
H. High School	1 space per six students the school is designed to accommodate, plus off-street student loading facility
I. Bowling alley, skating rink, community center	1 space per 100 sq. ft. of gross floor area
J. Retail store, except as provided in "K"	1 space per 400 sq. ft. of gross floor area
K. Service or repair shop, retail store handling exclusively bulky merchandise such as automobiles or furniture	1 space per 600 sq. ft. of gross floor area
L. Bank, office buildings, medical and dental clinic	1 space per 200 sq. ft. of gross floor area
M. Eating and drinking establishment	1 space per 250 sq. ft. of gross floor area
N. Wholesale establishment	1 space per 1,000 sq. ft. of gross floor area, plus 1 space per 700 sq. ft. of retail area
O. Municipal and governmental	1 space per 400 sq. ft.
P. Industrial, manufacturing and	

	processing:	
1.	1. 0-24,900 sq. ft.	1 space per 700 sq. ft.
2.	2. 25,000-49,999 sq. ft.	1 space per 800 sq. ft.
3.	3. 50,000-79,999 sq. ft.	1 space per 1,000 sq. ft.
4.	4. 80,000-199,999 sq. ft.	1 space per 2,000 sq. ft.
5.	5. 200,000 sq. ft and over	1 space per 3,000 sq. ft.
	Q. Warehousing and storage distribution terminals (air, rail, truck, water, etc.):	
1.	1. 0-49,999 sq. ft.	1 space per 2,000 sq. ft.
2.	2. 50,000 sq. ft. and over	1 space per 5,000 sq. ft.
	R Outdoor and other uses. Other uses not specially listed above shall furnish parking as required by the Planning Commission. The Commission shall use the above list as a guide for determining requirements for said other uses.	

2.203.06 Off-Street Loading Requirements

Off-street loading space shall be provided as listed below:

A. Commercial office buildings shall require a minimum loading space size of 12 feet wide, 20 feet long and 14 feet high in the following amounts:

1. Less than 30,000 square feet = 0 spaces
2. More than 30,000 to 100,000 square feet = 1 space
3. More than 100,000 square feet = 2 spaces

B. All other commercial or industrial buildings shall require a minimum loading space of 12 feet wide, 30 feet long and 14 feet high in the following amount:

1. Less than 5,000 square feet = 0 spaces
2. More than 5,000 to 30,000 square feet = 1space
3. More than 30,000 to 100,000 square feet = 2 spaces
4. More than 100,000 square feet = 3 spaces

2.203.07 Parking and Loading Area Development Requirements

All parking and loading areas shall be developed and maintained as follows:

A. Surfacing. All driveways, parking, maneuvering and loading areas shall have a durable, hard surface. In residential areas and for all residential uses, either a minimum of 2 1/2 inches of asphalt over a 6 inch aggregate base or 4 inches of Portland cement concrete shall be provided. In commercial, industrial, and institutional areas either a minimum of 3 inches of asphalt over a 6 inch aggregate base or 5 inches of Portland cement concrete shall be provided.

If approved by the Planning Commission, areas adjacent parking lots used exclusively for storage of materials, supplies, and/or products may surface the area with rock or gravel. Excluding asphalt, tar, and/or concrete, the area must conform to Public Works road standards in regards to content, consistency, and material size and type.

B. Size of Parking Spaces and Driveways. The following standards shall apply to all parking areas and driveways:

1. One-way drives shall have minimum improved width of at least 12 feet, exclusive of parking spaces.

2. Two-way drives shall have a minimum improved width of at least 20 feet, exclusive of parking spaces.

3. The minimum width of any parking space shall be 8 1/2 feet, exclusive of driveways.

4. The minimum length of any parking space shall be 20 feet, exclusive of driveways.

C. Screening. When any public parking or loading area is within, or adjacent to a residential zone, such parking or loading area shall be screened from all residential properties with an ornamental fence, wall or hedge of at least 4 feet in height but not more than 6 feet in height. Screening height maximums along alleyways may be required less than 6 feet due to vision clearance and other safety issues. Determination shall be made by the City during final plat or plan review.

D. Lighting. Any light used to illuminate a parking or loading area shall be arranged to be directed entirely onto the loading or parking area, shall be deflected away from any residential use and shall not cast a glare or reflection onto moving vehicles on public rights-of-way.

E. Areas used for parking and maneuvering shall be maintained adequately for all-weather use and so drained as to avoid flow of water across sidewalks.

F. Except for parking to serve residential uses, parking and loading areas adjacent to residential zones or adjacent to residential uses shall be designed to minimize disturbance of residents.

G. Groups of more than four parking spaces shall be so located and served by a driveway that their use will require no backing movements or other maneuvering within a street right-of-way other than an alley.

H. Service drives to off-street parking areas shall be designed and constructed to facilitate the flow of traffic, provide maximum safety of traffic access and egress and the maximum safety of pedestrians and vehicular traffic on the site.

I. Service drive exits shall have a minimum vision clearance area formed by the intersection of the driveway centerline, the street right-of-way line, and a straight line joining said lines through points 15 feet from their intersection in accordance to Section 2.209.07 of the Code.

J. Parking spaces along the outer boundaries of a parking area shall be contained by a curb or a bumper rail at least 4" high, located a minimum of 3 feet from the property line, to prevent a motor vehicle from extending over an adjacent property or a street.

K. Clear Vision Areas. Clear vision areas shall be maintained on corner lots at the intersection of all public streets and at the intersections of a public street with a private street, alley, or driveway that serves more than three parcels. No structure, object, or planting shall be permitted within a clear vision area that would impede visibility between a height of 30 inches and 10 feet above the curb grade or the intersecting streets. Clear vision areas shall extend a set distance in accordance with Section 2.209.07 of the Code.

2.203.08 General Provisions Off-Street Parking and Loading

A. The provision and maintenance of off-street parking and loading space is a continuing obligation of the property owner. No building permit shall be issued until plans are presented that show property that is and will remain available for exclusive use as off-street parking and loading space. The subsequent use of property for which the building permit is issued shall be conditional upon the unqualified continuance and availability of the amount of parking and loading space required by this Ordinance. Should the owner or occupant of any lot or building change the use to which the lot or building is put, thereby increasing off-street parking and loading requirements, it shall be unlawful and a violation of this Ordinance to begin or maintain such altered use until such time as the increased off-street parking and loading requirements are observed.

B. Requirements for types of buildings and uses not specifically listed herein shall be determined by the City Recorder based upon the requirements of comparable uses listed and expectations of parking and loading need.

C. In the event several uses occupy a single structure or parcel of land, the total requirements for off-street parking shall be the sum of the requirements of the several uses computed separately, unless a reduction is approved for shared parking pursuant to Section 2.203.04 above.

D. Required parking spaces shall be available for the parking of operable passenger automobiles of residents, customers, patrons and employees only, and shall not be used for storage of vehicles or materials or for the parking of trucks used in conducting the business or use.

E. Accessways through parking lots are usually physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices including landscaping, trees, and lighting. Where accessways cross driveways, they are generally raised, paved, or marked in a manner that provides convenient access for pedestrians.

2.203.09 Parking of Bicycles

A. Bicycle parking shall be provided as part of all new multi-family residential development of four or more new retail, office, and institutional development. Bicycle parking shall also be required for expansions and other remodeling that increases the required level of automobile parking.

B. The required minimum number of parking spaces is specified in the following table.

Land Use Category	*Minimum Required Bicycle Parking Spaces*	*Minimum Covered Amount*
Residential		
Multi-family - general	1 space per unit	100%
Multi-family - seniors or with physical disabilities	4, or 1 space per 5 units, whichever is greater	100%
Institutional		
Schools - Elementary & Jr. Hi. or Middle	4 spaces per classroom	100%
School - Sr. Hi.	8 spaces per classroom	100%
Municipal & Government	2, or 1/2 space per 1000 ft2	25%
Churches, Auditoriums, & Stadiums	1 space per 40 seat capacity	5%
Hospitals, Nursing Homes	1 space per 5 beds	75%
Medical & Dental Clinics	2, or 1/2 space per 1000 ft2	25%
Libraries, Museums, etc.	2, or 1/2 space per 1000 ft2	25%
Commercial		
Retails Stores	0.33 space per 1000 ft2	50%
Auto-oriented Services	2 or 0.33 space per 1000 ft2, whichever is greater	10%
Groceries/Supermarkets	0.33 space per 1000 ft2	10%
Office	2 or 1/2 space per 1000 ft2, whichever is greater	10%
Restaurant (Including drive-in's)	1 space per 1000 ft2	25%
Shopping Center	0.33 space per 1000 ft2	50%
Banks & Financial Institutions	2 or 0.33 space per 1000 ft2, whichever is greater	10%
Theaters	1 space per 30 seats	10%
Industrial		
Industrial	2 or 1/2 space per 1000 ft 2, whichever is greater	100%
Warehouse	2 or 0.1 space per 1000 ft2, whichever is greater	100%
Manufacturing	2 or 0.15 space per 1000 ft2, whichever is greater	100%

C. At a minimum bicycle parking facilities shall be consistent with the following design guidelines:

1) Bicycle parking shall be convenient and easy to find. Where necessary, a sign shall be used to direct users to the parking facility.

2) Each bicycle parking space shall be at least 2 feet by 6 feet with a vertical clearance of 6 feet.

3) An access aisle of at least 5 feet shall be provided between each row of bicycle parking.

4) Bicycle parking facilities shall offer security in the form of either a lockable enclosure in which the bicycle can be stored or a stationary object, i.e., a "rack," upon which the bicycle can be looked. Structures that require a user-supplied lock shall accommodate both cables and U-shaped locks and shall permit the frame and both wheels to be secured, (Removing the front wheel may be necessary.) Note: Businesses may provide long-term, employee parking by allowing access to a secure room within a building, although, additional short-term customer parking may also be required.

5) The rack shall support the bicycle in stable position without damage.

2.207 SITE AND LANDSCAPING DESIGN

2.207.01 Purpose

A. The purpose is to guide the planting and maintenance of landscaping materials;

B. to enhance the appearance of the City, providing areas for outdoor recreation and to:

1. provide shade and windbreaks where appropriate to conserve energy in building and site design;

2. buffer and screen conflicting land uses;

3. provide for the landscaping of parking areas to facilitate vehicular movement and break up large areas of impervious surface; and

4. promote public safety through appropriate design principles; and

5. **encourage provision of screening and buffering to mitigate for**

visual and sound impacts related to railroad.

C. to prevent or reduce erosion potential within developments by providing appropriate landscape materials.

2.207.05 Screening and Buffering

A. Screening shall be used to eliminate or reduce the visual impacts of the following:

1. service areas and facilities, including garbage and waste disposal containers, recycling bins and loading areas;

2. outdoor storage and outdoor display areas;

3. parking areas for 20 or more vehicles for multi-family developments, or 30 or more vehicles for commercial or industrial uses;

4. at and above-grade electrical and mechanical equipment, such as transformers, heat pumps, and air conditioners; and

5. any other area or use as required by this Ordinance.

B. Screening may be accomplished by the use of sight-obscuring plant materials (generally evergreens), earth berms, walls, fences, building parapets, building placement or other design techniques.

C. Buffering shall be used to mitigate adverse visual impacts, dust, noise or pollution, and to provide for compatibility between dissimilar adjoining uses. Where buffering is determined to be necessary, one of the following buffering alternatives
shall be employed:

1. Planting Area: Width not less than fifteen (15) feet, planted with the following materials:

a. at least one row of deciduous or evergreen trees staggered and spaced not more than fifteen (15) feet apart;

b. at least one row of evergreen shrubs which will grow to form a continuous hedge at least five (5) feet in height within one (1) year of planting; and

c. lawn, low-growing evergreen shrubs or evergreen ground cover covering the balance of the area.

2. Berm Plus Planting Area: Width not less than ten (10) feet, developed in accordance with the following standards:

a. Berm form should not slope more than forty (40) percent (1:2.5) on the side away from the area screened from view. The slope for the other side (screened area) may vary.

b. A dense evergreen hedge shall be located so as to most effectively buffer the proposed use.

3. Wall Plus Planting Area: Width must not be less than five (5) feet developed in accordance with the following standards:

a. a masonry wall or fence not less than five (5) feet in height; and

b. lawn, low-growing evergreen shrubs, and evergreen ground cover covering the balance of the area.

4. Other methods which produce an adequate buffer considering the nature of the impacts to be mitigated, may be used, as approved by the Planning Commission.

D. Screening and buffering is encouraged along the railroad right-of-way to mitigate for rail-related sound and visual impacts.

2.208.04 Standards for Blocks

A. General. The length, width and shape of blocks shall be designed with regard to providing adequate building sites for the use contemplated; consideration of needs for convenient access, circulation, control and safety of street traffic including pedestrians and bicyclists; and recognition of limitations and opportunities of topography.

B. Sizes. Blocks shall not exceed 1,600 feet in perimeter between street lines, except blocks adjacent to **major** arterial streets, or unless the previous adjacent development pattern or topographical conditions justify a variation. The recommended minimum distance between intersections on **major** arterial streets is **1,320** feet or more. **Blocks that exceed 600 feet in length shall be require to provide additional pedestrian and bikeway accesses.**

2.208.05 Improvement Requirements

A. Partitions. During the review of partition proposals, the City may require as a condition of approval, the improvement of:

1. public streets upon which the property fronts to public standards per Section 2.201.03 of the Code. Improvements may include: surfacing from center line to curb, installation of curbing, storm sewers, sanitary sewers, water lines and other necessary public utilities;

2. sidewalks, five feet in width, **and bikeways** along public street frontage per Section 2.201.03 of the Code; and

3. private driveways serving flag lots, per the requirements of Section 2.202.07. All improvements required as a condition of approval of a ~~minor~~ partition shall be completed prior to the issuance of any building permits for the subject property.

All improvements required under this Section shall be completed or assured through a performance bond or other instrument acceptable to the City Attorney prior to the approval of the final plat of the partition.

C. Subdivisions. The following improvements shall be required for all subdivisions in the City of Hubbard:

1. Frontage Improvements: Full street improvements to full City standards shall be required for all public streets on which a proposed subdivision fronts. Such improvements shall be blended to match with existing improved surfaces across the center line and for a reasonable distance beyond the frontage of the property. Additional frontage improvements shall include: sidewalks, bikeways, curbing, **parkway strips,** storm sewer, sanitary sewer, water lines, other public utilities as necessary, and such other improvements as the City shall determine to be reasonably necessary to serve the development or the immediate neighborhood.

2. Project Streets: All public or private streets within the subdivision shall be constructed as required by the provisions of Section 2.202.

8. Other:

a. Curb cuts and driveway installations are ~~not~~ required of the subdivider, ~~but, if installed,~~ and **shall** be according to the City standards.

b. Street tree planting is ~~not~~ required of the subdivider, ~~but, if planted,~~ **and** shall be according to City requirements and of a species compatible with the width of the planting strip.

Appendix F: TSP Checklist and Written Review Comments

Transportation System Plan Element	Completed
PUBLIC AND INTERAGENCY INVOLVEMENT	
Establish advisory committee	x
Develop informational material	x
Schedule meetings for public involvement	x
Coordinate plan with other agencies	x
REVIEW EXISTING PLANS, POLICIES, STANDARDS, AND LAWS	
Review and evaluate existing comprehensive plan, OTP, Bicycle Master Plan, and other	x
Land use analysis: existing land use , vacant lands	x
Review existing ordinances, zoning, subdivision, engineering standards	x
Review existing significant transportation studies	x
Review existing capital improvements programs/public facilities plans	x
Review Americans with Disabilities Act requirements	x
Determine Clean Air Act relevance and impact	x
INVENTORY EXISTING TRANSPORTATION SYSTEM	
Inventory of arterial and collector streets: lane number, width, level of service, traffic signals, pavement conditions, structures, and functional classification required.	x
Inventory of truck & hazardous materials routes, number and locations of accesses, safety and accident areas, and substandard geometry recommended.	x
Inventory of **bicycle ways**: type, location, map, width, and capacity required.	x
Inventory of **pedestrian ways**: type, location, map, width, and capacity required.	x
Public transportation services: volumes, routes, stops, fleet	x
Intermodal and private connections	x
Air transportation	x
Freight rail transportation	x
Water transportation	NA
Pipeline transportation	NA
Environmental constraints: natural and cultural	x
Existing population and employment	x
DETERMINE TRANSPORTATION NEEDS	
Forecast population and employment, coordinate with Marion County	x
Determine transportation capacity needs: trending forecast, cumulative analysis, transportation gravity model	x
Other roadway needs: safety, bridges, reconstruction, maintenance/reconstruction	x
Freight transportation needs	x
Public transportation needs	x
Bikeway needs	x
Pedestrian needs	x
DEVELOP AND EVALUATE ALTERNATIVES	
Update community goals and objectives	x
Establish evaluation criteria	x
Develop and evaluate alternatives	
•No-build system	x
•Elements common to all build alternatives: safety, completion of certain facilities	x
•Transportation system management	x
•Transportation demand management	NA
•Transit alternative	NA

•Improvements/additions to roadway system	x
•Land use plan alternative	x
•Combination alternatives	x
Select recommended alternative	x
PRODUCE A TRANSPORTATION SYSTEM PLAN	
General goals, objectives, and policies	x
Streets plan element •Functional street classification, street design standards, service capacities	x
•Proposed facility improvements	x
•Access management plan	x
•Truck plan; hazardous material and truck routes	x
•Safety improvements	x
Public transportation element	x
•Transit route service	x
•Transit facilities	x
•Special transit services	x
•Inter-city bus and passenger rail (services and connections in Woodburn and Salem noted)	x
Bikeway system element	x
Pedestrian system element	x
Airport element	x
•Land use compatibility	x
•Future improvements	x
•Accessibility/connections/conflicts with other modes	x
Freight rail element	x
•Terminals, safety	x
Water transportation element	NA
•Terminals	NA
Pipeline element	NA
Parking Plan	Recommended
Transportation system management	NA
Transportation Demand Management Element	NA
PLAN REVIEW AND COORDINATION	
Consistency with ODOT and other applicable plans	x
ADOPTION	
Date	planned June-99
IMPLEMENTATION	
Ordinances	x
•Facilities, services, and improvements not ordinarily subject to land use regulations	x
•Facilities, services, and improvements permitted outright or subject to clear objective standards	x
•Facilities, services, and improvements having a significant impact on land use or subject to standards that require interpretation or judgment:	x
••Review and approval process consistent with 660-12-050	x
••Consolidated review of land use decisions required to permit a transportation project	x

NA not applicable

TSP REVIEW COMMENTS

The draft TSP was distributed to members of the Transportation Advisory Committee, Hubbard City Council and Planning Commission, Hubbard City Planner, Hubbard Public Works, Marion County Public Works, ODOT, and DLCD for review. All formally submitted written review comments are included in the following section. Comments from the TAC, Hubbard Public Works, and Marion County Public Works were generally addressed as the draft was prepared.

Oregon Department of Transportation

Region 2

MEMORANDUM

May 21, 1999

TO: Jeanne Fromm, ~~MWVCOG~~ Planner
FROM: DJ Heffernan
CC: Bob Cortright, TGM; Jamie Estrada, City of Hubbard
SUBJECT: Hubbard Draft TSP Comments

The purpose of this memo is to present comments and suggestions for the draft Hubbard Transportation System Plan. The overall quality of the document is excellent. The amount of information presented exceeds what is typically found in a small-city TSP. The document is well organized, thoroughly documented, and easy to read. There are data and figures missing in several locations, such as the missing cost estimates in Table 27. We presume these omissions will be included in the final draft.

Community Activity Centers and Destinations

The Transportation Planning Rule (TPR) requires communities to identify activity centers and demonstrate that these destinations are appropriately served by the transportation system. In Hubbard, existing activity centers presumably include the downtown, the southeast industrial area, the post office, and city parks. The TSP shows the location of these destinations on various maps, but the plan does not discuss these destinations as Activity Centers per se, nor does the plan review the required linkages between these destinations per the TPR (OAR 660-12-020 (2), 045(3), and 045(6)).

On reviewing the proposed policies and recommended improvements to the street, bike and pedestrian system, one finds that adequate linkages are proposed to serve existing activity centers. The plan would be improved if there were a general discussion of the need to link activity centers with an emphasis on facilities that permit travel to these destinations via alternative modes.

One of the city's comprehensive plan policies is to construct an elementary school in Hubbard (Comprehensive Plan Policy 4.2). The TSP also references the need for a city park east of HWY 99. While it may not possible to identify the location of these facilities at

this time, the plan could mention the need to provide multi-modal access to these facilities when they are developed.

Finance/CIP

It appears there is some introductory text missing from the CIP/Finance section that begins in mid-stream on p. 124? Also, there is a reference to Table 25 in the last paragraph on p. 124. Should this be Table 27? Table 27, which begins on p. 122, would be easier to understand if it came after the discussion about finance and the CIP (i.e., at the very end of the document).

The Finance chapter presents a good summary of funding resources, but not much of a roadmap for how the city intends to finance the needed improvements. The city's street SDC seems very low at $427 given the scale of the improvement program. Do they intend to update/increase the street SDC as an outgrowth of this plan? What part of the CIP will be financed with SDCs?

The plan would be strengthened if it included an estimate of that portion of the CIP that is "unfunded". It seems that by subtracting anticipated SDC revenue and gas-tax receipts that are pledged to system improvements, it should be possible to estimate program funding that needs to come from "other sources". The other sources would include higher SDCs (if the city approves them), higher gas-tax revenue (if the tax increases), and the laundry list of local, state and federal sources outlined on pages 125-127.

An SDC forecast can be developed using the city's existing fee structure and methodology. If their street SDC is like most cities, it is trip-based. Assuming the community will get the level of development forecast in the plan, an SDC forecast can be calculated in two parts: residential and non-residential. The residential forecast is equal to the city's standard residential fee ($425) times projected new residential units. For commercial and industrial fees, revenue can be estimated using average trips per developed acre times the standard trip-fee. For example, use 10 ADT per single family residence as the trip basis and assume that the city will collect $425 for every 10 trips generated by new commercial and industrial development. SDC receipts from redevelopment should not be that significant.

The combined SDC and gas tax revenue represents the funded portion of the program. At least this will give the city some idea of the scale of the funding gap for their street CIP.

Development Code

We understand that the city has been working on its development code and that the final draft will include relevant sections in Appendix D.