EUGENE SPRINGFIELD AREA 2000 TRANSPORTATION PLAN

TECHNICAL REPORT

A PRODUCT OF
EUGENE SPRINGFIELD AREA
TRANSPORTATION STUDY

Prepared by the Transportation Planning Committee

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Report Preparation
Thomas Jenkinson, Executive Director
Oliver Snowden, Program Manager
Steven C. Gordon, Associate Planner

Report Production
Wes Hanna, Production Supervisor
Clara Taylor, Cartographic Supervisor
Gail Kelly, Secretary
Bette Whiting, Production Technician
Laurie Zuckerman, Graphics

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TECHNICAL REPORT

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INTRODUCTION

This is the Eugene-Springfield Area 2000 Transportation Plan Technical Report prepared by the Lane Council of Governments Transportation Planning Committee. It is not a technical report in the true sense of the word, since it does not include all base data and modeling output used to prepare the Transportation Plan. Such a task could not be accomplished in one report. Rather, this document is a series of discussions that review some of the underlying assumptions used, and some of the alternatives developed in preparing the Transportation Plan. In this manner, the public can see some of the considerations that were used in the technical decision-making process.

Just as this report cannot present an in-depth understanding of the technical aspects of the urban transportation planning process, neither can it answer all possible questions that may arise during the Plan review and hearing process. The technical planning staff who participated in plan preparation and serve on the Transportation Planning Committee must respond to the questions of the public and policy-makers as concerns arise. All technical documentation relating to the transportation study is on file at the Lane Council of Governments offices, and the Oregon Department of Transportation. In addition, the following locally published documents are important to the understanding of, or served as a basis for, the Transportation Plan.

Eugene-Springfield Metropolitan Area General Plan

Eugene-Springfield Transportation Alternatives, L-COG, 1975.

"An Approach to Modal Testing for Eugene-Springfield Area Transportation Study", L-COG, 1974.

"An Approach to Modal Testing Revisited", L-COG, 1976.

Eugene-Springfield Metropolitan Bikeway Master Plan, L-COG, 1975.

"Eugene Paratransit Report", Eugene, 1977.

"Eugene Pedestrian Report", Eugene, 1977.

"Eugene-Springfield Area Transportation Study Transportation Systems Management Element", L-COG, 1977.

"Eugene-Springfield Area FY77 78 Transportation Improvement Program Annual Element", L-COG, 1977.

"Lane Transit District Transit Development Program", LTD, 1977.

"Population and Employment Projections - Lane County, Oregon", L-COG, 1974.

"Metro Plan Update Employment Projections - Lane County and Eugene-Springfield," L-COG, 1977.

"E-SATS Planning Overview 1976", L-COG, 1976.

"Prospectus for the Eugene-Springfield Area Transportation Study", L-COG, 1976.

"Preliminary Six Year Highway Improvement Program FY79-FY84", O-DOT, 1977.

Oregon Transportation Commission Policies 1977, O-DOT, 1977.

A Look Ahead - Transportation in Transition, O-DOT, 1977.

Mahlon Sweet Field Master Plan, L-COG, 1972.

Eugene Master Street And Highway Right-of-Way Plan, Eugene, 1968.

Lane County Master Road Plan, Lane County, 1975.

Springfield Traffic Control Device Study, Springfield, 1971.

Pertinent Lane County Subarea Land Use Plans

Neighborhood Refinement Plans

Because of difficulties encountered with air quality modeling, and because of changing Environmental Protection Agency guidelines, a full air quality consistency determination was not completed in time to be released with this report. The testing results will be included in an environmental overview of the Transportation Plan to be published subsequently.

Section A

PLANNING ASSUMPTIONS

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POPULATION AND EMPLOYMENT

Areawide Projection of Population

To fit a transportation plan to the Metropolitan Area General Plan, it is important to determine how many people will reside in the metropolitan area, where they will live, where they work and conduct business, and the level of mobility they will have. This segment is an overview of the areawide population projection and some of the supporting rationale. More detailed information is given in Population and Employment Projections, Lane County, Oregon.*

Prior to preparation of the "Alternatives" report, there was some interest expressed in various committee meetings for testing alternative population forecasts. After consideration, it was decided not to introduce population as a variable. It would be difficult, for instance, to compare a plan that serves 277,000 people with a plan that serves 250,000 people. The amount of transportation service would be different for the two plans, and the implications would be correspondingly different. While it may be desirable for agencies providing services to have fewer people to serve, a policy for managing growth rate must be based upon factors beyond the scope of the transportation study. Without testing alternative population levels, it can be inferred, however, that the transportation needs of the 169,000 metropolitan residents are being adequately served (with a few exceptions) by existing services and facilities, and that capacity deficiencies that accrue by the year 2000 will be a result of increasing resident population. In effect, it can be argued that two population levels were tested - current population and a projection of population to the year 2000. The possibility that the population projected for the year 2000 might be reached sooner or later does not negate the value of the projection in relating travel demand to population numbers.

Elected officials, after hearings on the "Alternatives" report, directed that this Transportation Plan be prepared to serve a population of 277,000 people. This projection is not a goal, a constraint, or an assigned share. Its use does not connote desirability. It is, however, a dispassionate estimate of the number of people that will reside in the metropolitan area unless local policies are established that will change the growth rate, or

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* Population and Employment Projections, Lane County, Oregon, L-COG, January, 1974, Reprinted July, 1975.

national and global pressures affecting local growth rates change during the 25-year projection period.

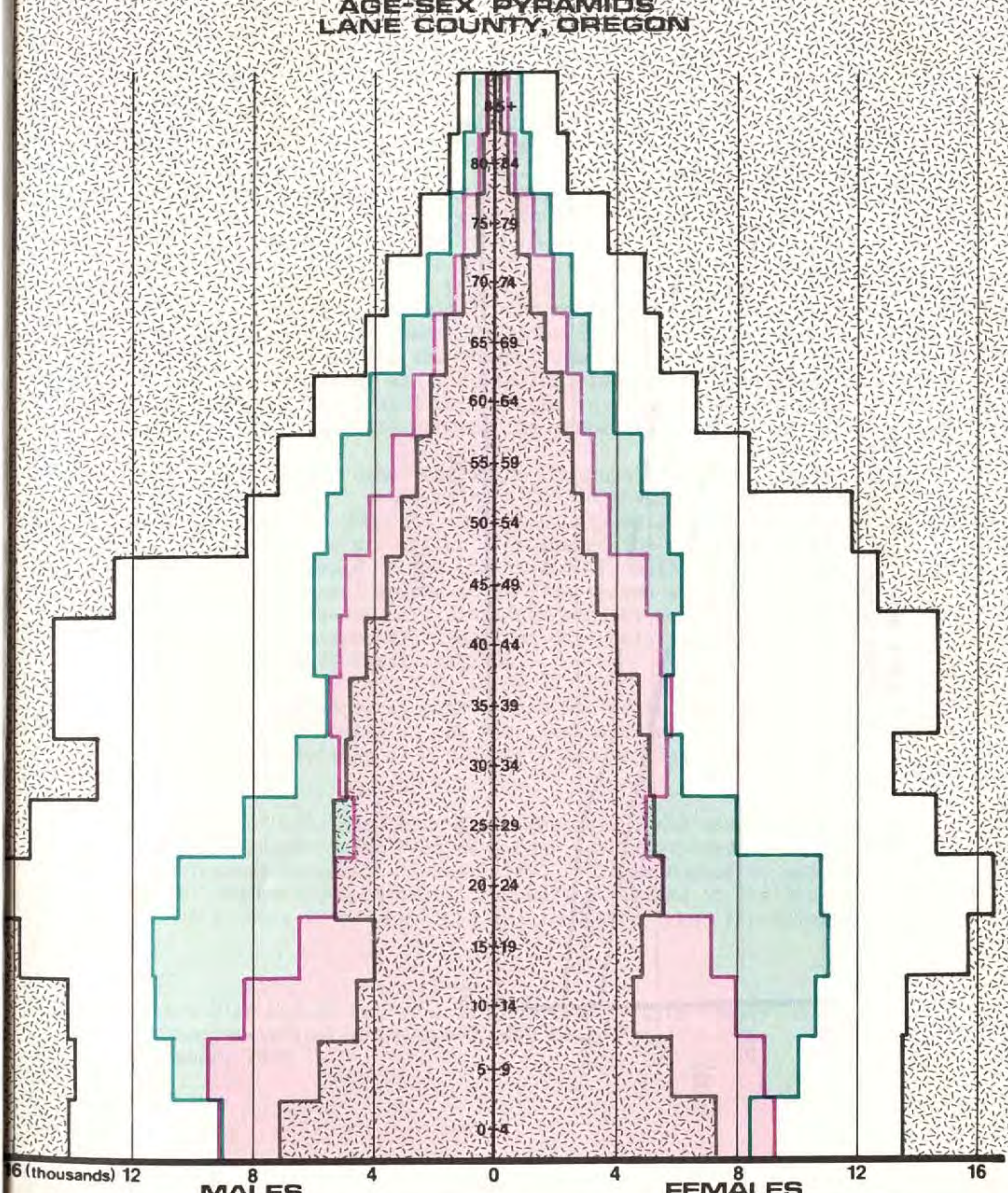
The population estimate used for the Transportation Plan was made using a cohort survival technique. Basically, this method separates population change into natural increase of the resident population (births minus deaths) and net migration. Natural increase for a period is estimated by multiplying the number of women of child-bearing age by their age-specific fertility rate to determine births, and multiplying each age group by their survival probability rate to estimate the population surviving a period. Natural increase of the resident population is then births plus surviving population. Bureau of the Census "Series E" projections were adjusted for local experience and used for the age-specific fertility rates. The total fertility rate using this methodology was 2.1 children for an average woman during her child-bearing life. The University of Oregon student enrollment was treated as a special population using enrollment projections rather than a cohort technique.

The estimate of net-migration was based upon a comparison of resident civilian labor force with total civilian labor force. An independent projection of total civilian labor force was made for Lane County using Oregon State Employment Division statistics from 1958-1972. Resident civilian labor force was estimated by multiplying each age group by a corresponding labor participation rate. The average female labor force participation rate was projected to increase by fourteen percent during the 1975-2000 period to account for an increasing proportion of females entering the labor force. If the projected total civilian labor force differed from the estimate of resident civilian labor force, migration was assumed to occur. The resident population estimate was adjusted to account for the migrant employee population. Since the estimate of total civilian labor force was a projection, the continuation of in-migration to satisfy job opportunities is predicted over the projection period.

Lane Council of Governments receives and monitors the annual population estimates made by Portland State University that are recognized by the U. S. Bureau of the Census. The short-term projections are compared with the most recent population estimate to detect variations that warrant revising the projections. At the date this report was written, no significant difference had yet been found.

The accompanying age-sex pyramids (Figure 1) demonstrate the transition expected for Lane County population from 1950-2000. The metropolitan share of Lane County's population is expected to grow from 71 percent in 1975 to 75 percent in the year 2000, from 169,000 to 277,000 metropolitan residents respectively (Figure 2).

Figure One

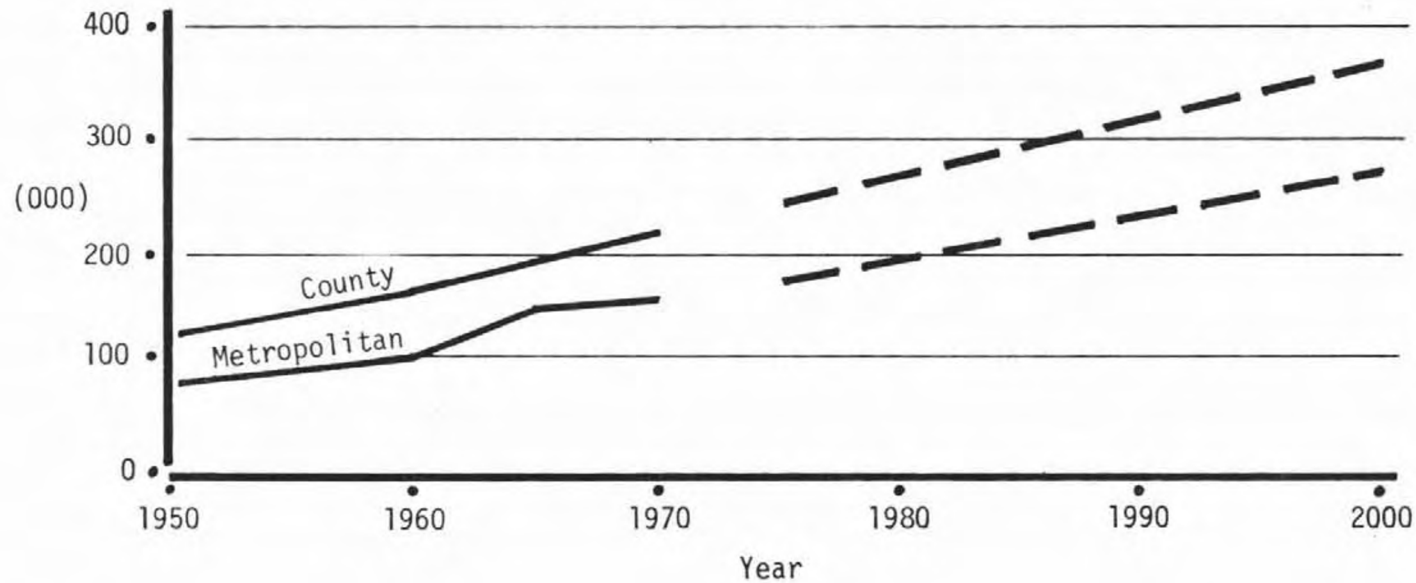


Source: Lane Council of Governments

1950 1960 1970 2000

FIGURE 2

LANE COUNTY AND EUGENE-SPRINGFIELD
POPULATION PROJECTION



Areawide Projection of Employment

In 1975, a projection of employment was made using county-wide employment statistics from the Oregon State Employment Division covering the years 1958 to 1972. The projection showed an increase in jobs from 97,000 in 1975 to 164,000 in the year 2000. A similar projection was made for the metropolitan area, which corresponds to the transportation planning study area. This projection predicted that the metropolitan share of the county's employment will increase from 78 percent in 1975 to 82 percent in 2000. Annual average employment was projected to grow from 75,000 to 134,000 during the 1975-2000 period. Figure 3 is a graph of the employment projection.

Lane Council of Governments monitors the monthly employment statistics compiled by the Employment Division to detect any changes in trends that warrant revising the projections. The employment projection used in this study was made in 1973 and reflects the figures discussed above. Since that time, changes in employment patterns locally were great enough to warrant the preparation of new estimates.

The new projections are detailed in the "Metropolitan Plan Update Employment Projections"* prepared by L-COG in November, 1977, and predict a total of 173,000 jobs in Lane County by 2000 rather than the 164,000 of the 1973 projection. Estimates for the transportation study area increased to 142,000 in 2000 from the 134,000 used in the preparing of the Transportation Plan travel estimates. Because of increased labor participation rates by area residents, the difference in employment projections does not result in an increased population forecast for 2000.

Greater increases in service, retail, and wholesale employment are expected than are reflected in the Plan, and smaller increases in manufacturing and educational employment than previously forecasted are expected.

The net result of all this means that, generally, the travel forecasts of the Transportation Plan have been underestimated, given the latest employment forecast. Essentially, the same number of people in 2000 will be making more trips than were estimated in the Transportation Plan because of more jobs and increased labor participation rates.

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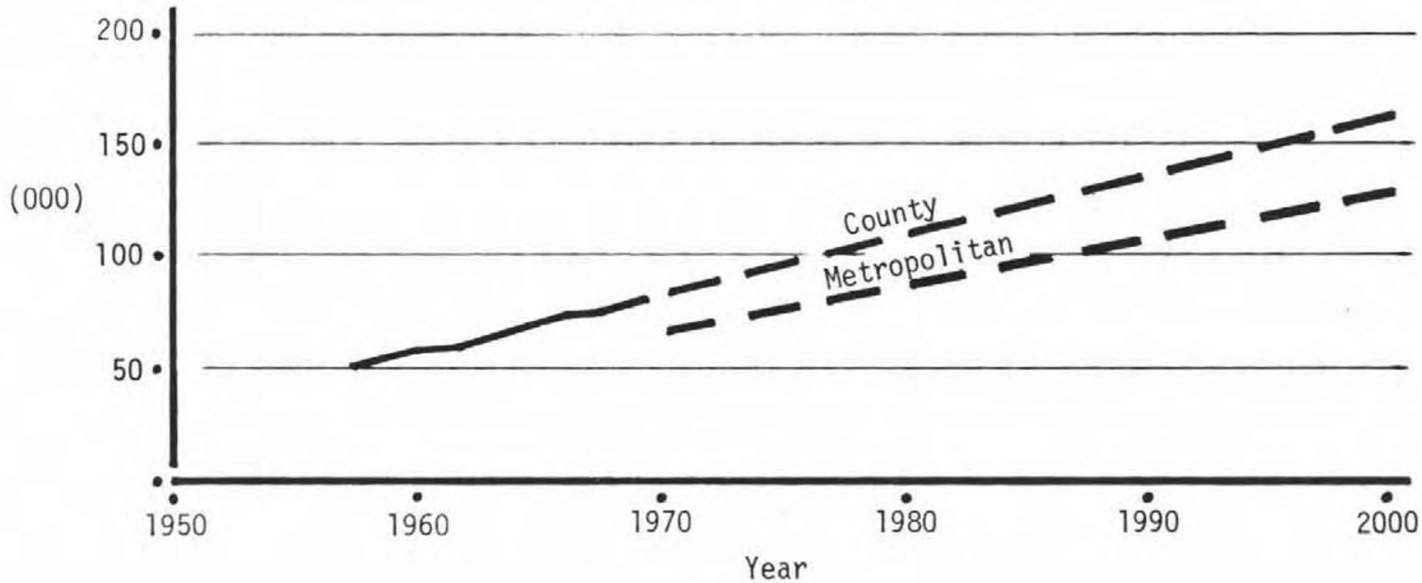
* "Metro Plan Update Employment Projections - Lane County, Oregon and Eugene-Springfield Metropolitan Study Area", L-COG, November, 1977.

FIGURE 3

LANE COUNTY AND EUGENE-SPRINGFIELD
EMPLOYMENT PROJECTION



Residential Location

The location and magnitude of population and employment for the target year are important determinants of transportation demand. The total number of trips is determined by the number of people projected to live in the area and by the overall level of economic activity. Transportation patterns within the area are determined by the internal arrangement of activities that require the transport of goods and/or people. As primary indicators of the location and magnitude of these activities, projected population for the metropolitan area is divided among smaller areas within Eugene-Springfield. A land use plan normally identifies areas which are to be used for certain broad land use categories: growth in population can be geographically allocated (for projection purposes) in accordance with those anticipated uses.

The transportation study area contains approximately 65,000 acres, roughly half of which is in agriculture or is undeveloped. As the population grows from 169,000 to a projected 277,000, additional land will be developed and some areas will be redeveloped and/or converted to other uses. The Metropolitan Area General Plan served as a guideline for allocating the additional population, but a great deal of judgment was required to project where people are most likely to live in the year 2000.

The transportation study area was divided into 204 transportation zones (see Figure 4) and each of the zones was assessed for its role in accommodating the 277,000 residents projected to be living in the area by 2000. The Planning Departments of Eugene, Springfield, and Lane County determined the potential for residential development within each transportation zone by examining the Metropolitan Area General Plan, neighborhood studies, zoning, ownership, current development, accessibility, public services, physical character, and other information. The potential was expressed in the number of dwelling units (single family, multi-family, and mobile homes) that might be expected by 2000. All development was assumed to take place within the existing urban services boundary, and all new development and redevelopment was assumed to be at the upper range of densities allowable under the General Plan. As directed by elected officials, the population distribution assumed in 2000 contains certain elements of the "balanced land use" concept examined in the "Alternatives" report. Specifically, increased residential densities were assigned to the Springfield Main Street area, Goodpasture Island, the area west of Skinner's Butte and the near-westside Eugene area.

Following the allocation of dwelling units, 1970 census information for the transportation zones was used to develop an equation that related population to dwelling units. An independent estimate was made of people living in group quarters (dormitories, rest homes, etc); total population estimates for each transportation zone was derived by adding the estimates from group quarters and conventional units. A visual display of total population was made by aggregating the estimates for the transportation zones into larger tracts for ease of comparison (see Figure 5).

A discussion of the balanced land use concept was contained in the Eugene-Springfield Area Transportation Alternatives report. In reality, the elements of that concept contained in the land use assumptions of the Transportation Plan are almost insignificant.

Employment Location

The projected employment for the metropolitan area (134,000 in the year 2000) was allocated to the 204 transportation zones based on several guidelines. Using nine different industrial categories, it was possible to estimate the physical location for the projected increases in employment. The following table is an indication of the parameters that were used for locating specific employment groupings. Given a control total from the areawide projection, the locational factors in the table were used to judge employment location in the study area. Figure 6 depicts a comparison of the projected location of jobs in 1970 to 2000.

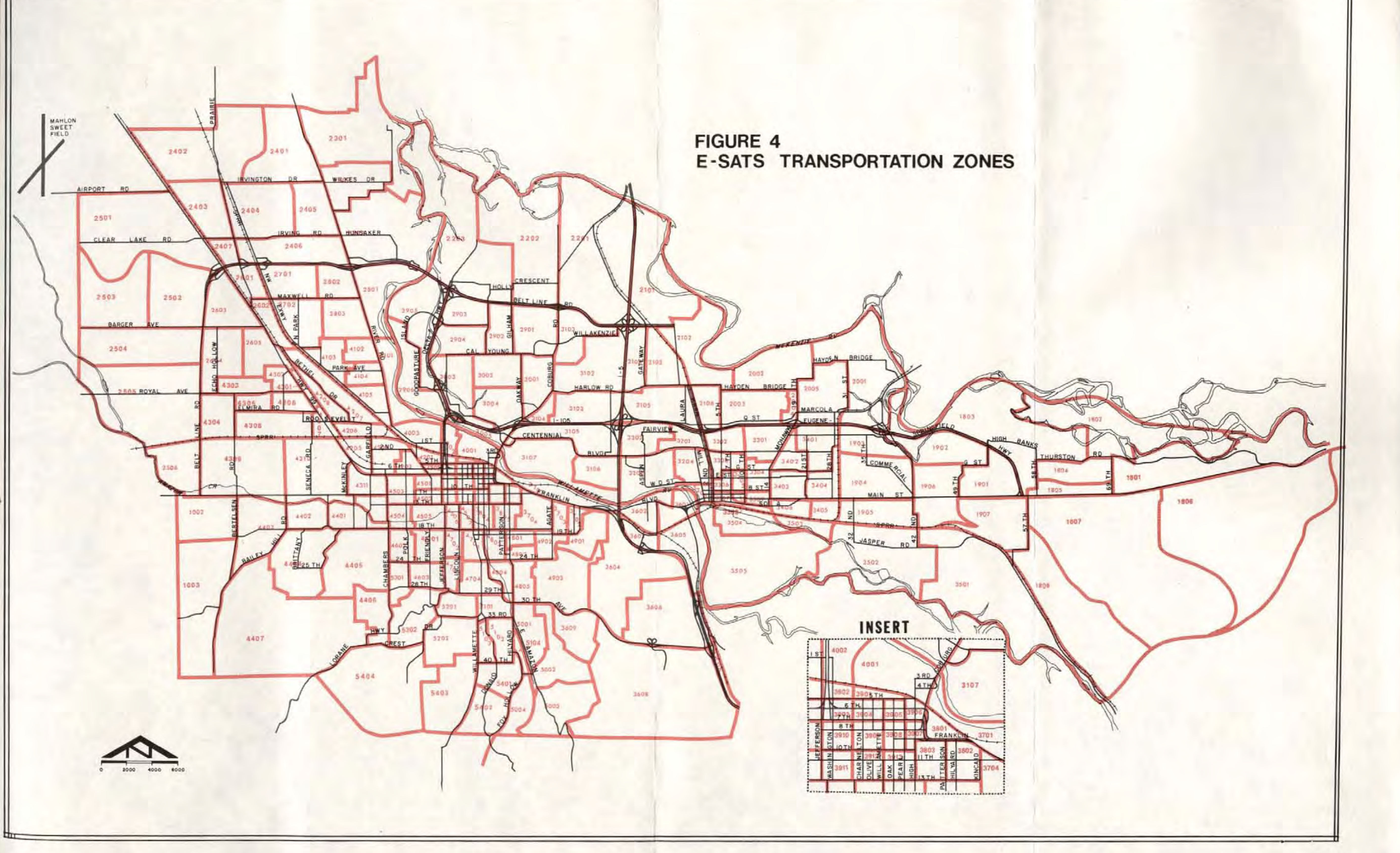


FIGURE 4
E-SATS TRANSPORTATION ZONES
MAHLON SWEET FIELD
AIRPORT RD
CLEAR LAKE RD
BARGER AVE
ROYAL AVE
IRVINGTON DR
WILKES DR
IRVING RD
HUNSAKER
MAXWELL RD
CRESCENT
BELT LINE RD
WILLAKENZIE
HARLOW RD
CENTENNIAL
FAIRVIEW
HAYDEN BRIDGE
MARCOLA
MAIN ST
COMMERCIAL
JASPER RD
THURSTON RD
HIGH BANKS HWY
FRANKLIN
WILLAMETTE
INSERT
0 2000 4000 6000

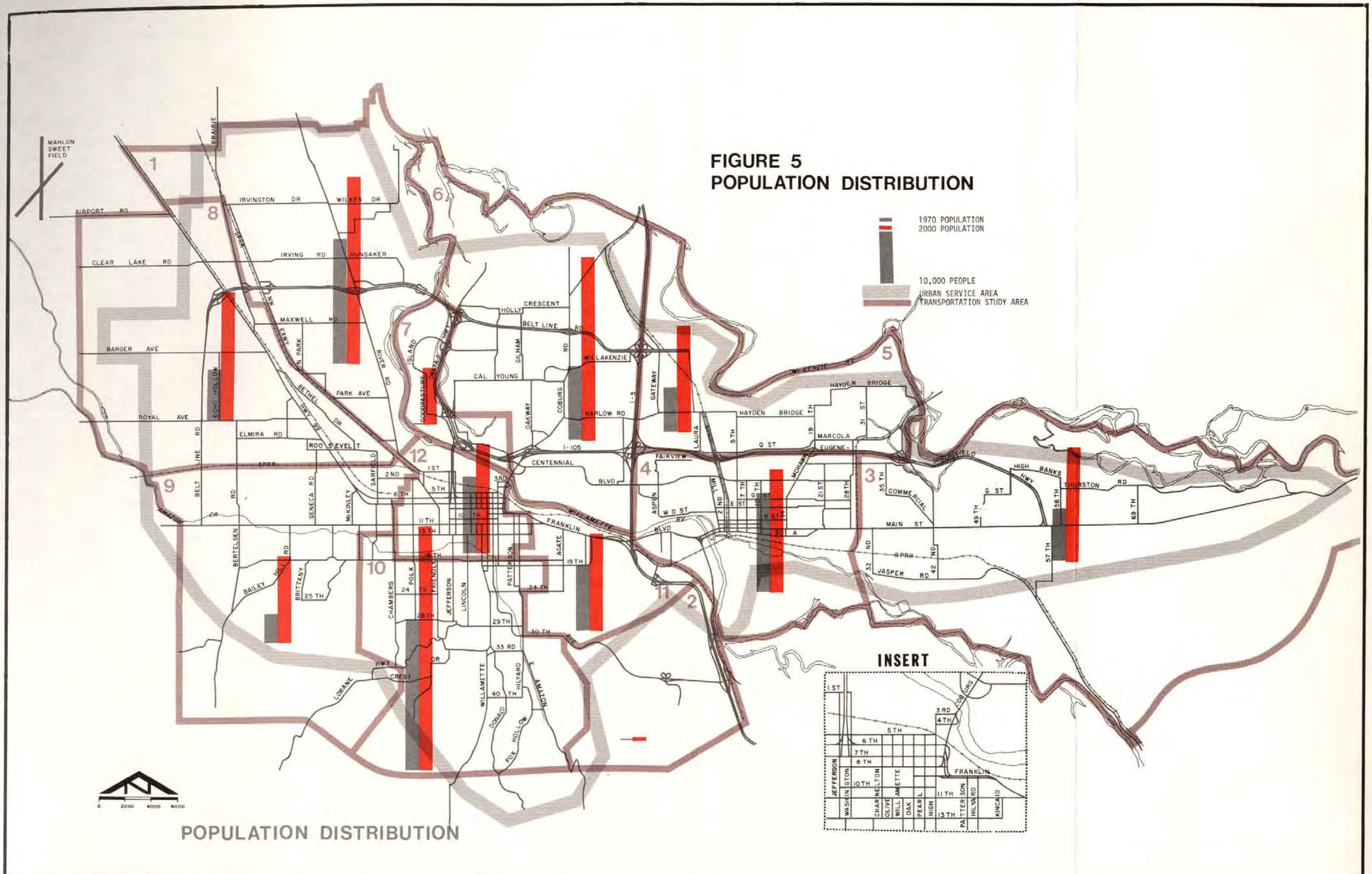


FIGURE 5
POPULATION DISTRIBUTION
1970 POPULATION
2000 POPULATION
10,000 PEOPLE
URBAN SERVICE AREA
TRANSPORTATION STUDY AREA
INSERT
POPULATION DISTRIBUTION

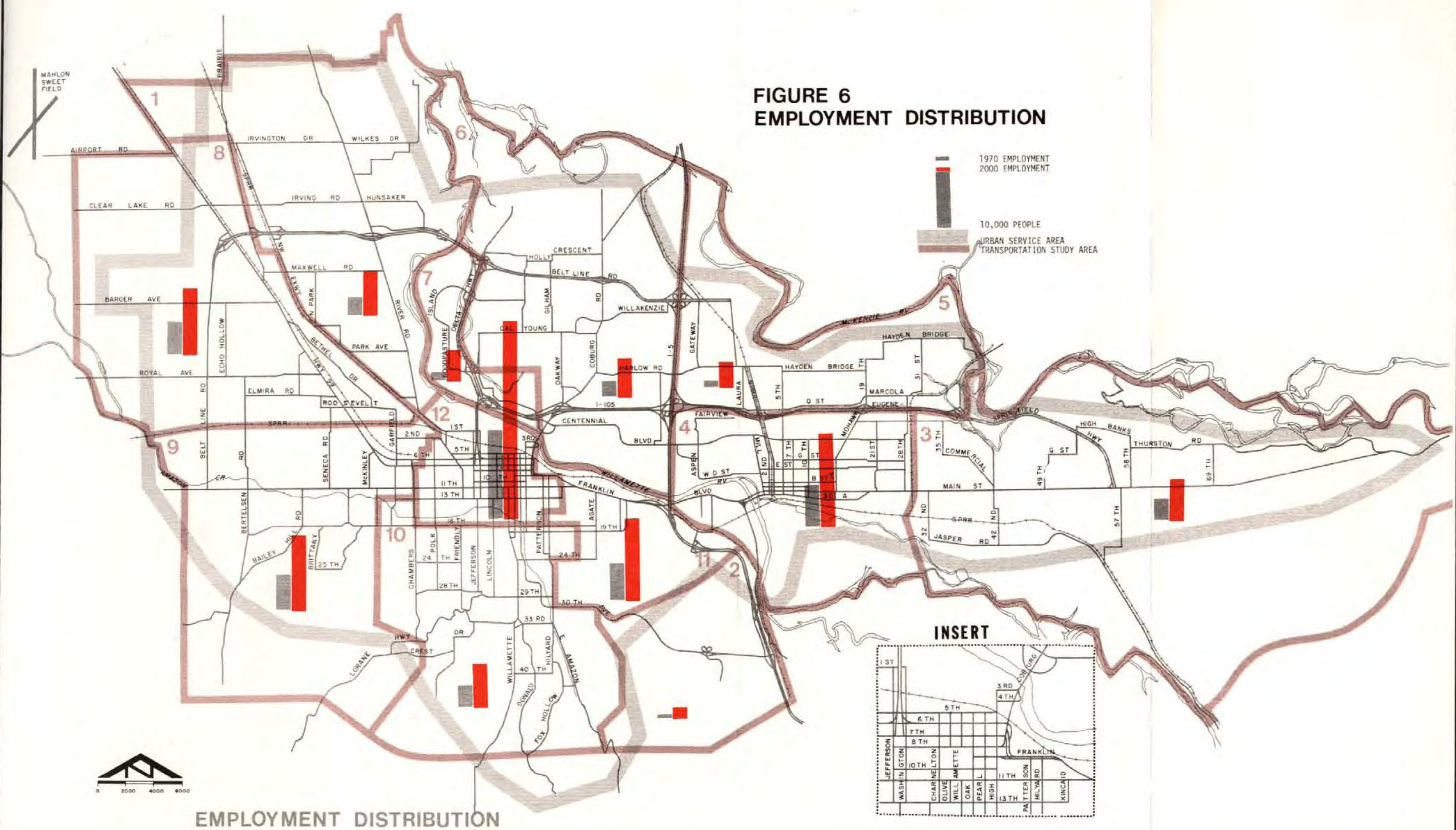


FIGURE 6
EMPLOYMENT DISTRIBUTION
1970 EMPLOYMENT
2000 EMPLOYMENT
10,000 PEOPLE
URBAN SERVICE AREA
TRANSPORTATION STUDY AREA
INSERT
MAHLON SWEET FIELD
AIRPORT RD
CLEAR LAKE RD
IRVINGTON DR
WILKES DR
IRVING RD
HUNSAKER
MAXWELL RD
BARGER AVE
ROYAL AVE
ELMIRA RD
PARK AVE
BELT LINE
CRESCENT
WILLAKENZIE
HARLOW RD
CENTENNIAL
FRANKLIN
HAYDEN BRIDGE
MARCOLA
MAIN ST
THURSTON RD
JASPER RD
HIGH BANKS
30 TH AVE
33 RD
EMPLOYMENT DISTRIBUTION

TABLE 1

PARAMETERS USED FOR ALLOCATING EMPLOYMENT
TO TRANSPORTATION ZONES

Employment Grouping	Determinants Used in Location
Agriculture, Forestry, Fisheries, Mining, and Construction	Allocated to fringe and flood plain. Mining allocated to existing gravel operation sites and areas with resource potential; construction allocated in proportion to housing starts and central building construction.
Manufacturing	Area's major manufacturers (wood products, publishing, and food processing) were projected independently; remaining increase allocated to industrially zoned land.
Transportation, Communications, and Utilities	Area's major employers projected; remaining increase allocated to industrial zoned land, transportation corridors and opportunity areas (large vacant sites with specialized development potential).
Wholesale Trade	Growth along transportation facilities and at existing wholesale facilities.
Public Service	Numerous facility plans consulted for site-specific projections; additional projected for existing locations without facility plans.
Educational	All schools assumed to have kindergartens; specific projections used for day care and nursery schools, U of O, L.C.C. Remaining increase distributed throughout to simulate day care, etc., whose location is not yet known.
Retail Trade	Employers with over 100 employees were projected separately; new neighborhood shopping centers were considered for growing residential areas; known future developments were accounted for; remainder allocated to present locations (to be consistent with 1990 Plan).
Commercial Service (banks, insurance credit, real estate, investment, lodging, personal service, business service medical, legal, etc.)	Employers with over 100 employees were projected separately; planned office buildings were considered. New neighborhood commercial considered. Remainder allocated to present locations.

TABLE 2

SUMMARY OF SOCIOECONOMIC PROJECTIONS USED
FOR ESTIMATING TRANSPORTATION DEMAND FOR ALTERNATIVE "O"

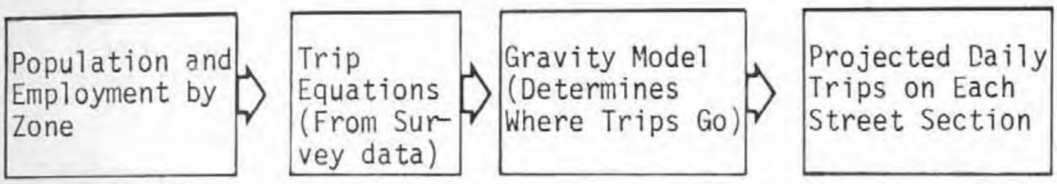
Item	1970 Value	2000 Projection
Population	147,928	277,687
Population 5+	135,515	255,883
Population 16-65	93,656	189,342
Labor Force	55,268	112,218*
Dwelling Units	49,456	101,935
Automobiles Owned	84,730	158,771
Employment	59,685	134,442*
Agriculture, Forestry	173	196
Mining and Construction	3,601	5,472
Manufacturing	12,736	25,404
Transportation, Utilities, etc.	3,798	7,338
Wholesale	2,895	5,977
Retail	12,080	25,834
Service (Commercial)	11,915	30,408
Public	4,505	9,688
Education	7,982	24,125

* November, 1977 estimates project total employment of 142,000 in 2000. Higher projections were made for wholesale, retail and service employment than shown here, and lower projections were made for manufacturing and education. The November, 1977 estimates project a total labor force of 139,000.

TRAVEL DEMAND

The population and employment projections for the transportation zones discussed in a previous section are important ingredients for estimating transportation demand. Data collected from an origin-destination survey in 1964 was used to determine the relationship between population-employment "variables" and transportation demand. These relationships, or equations, are then used to estimate the transportation demand when the population and employment within the transportation zones is varied.

As an example, the relationships from the 1964 survey were used to simulate a 1970 situation using population-employment data from the 1970 census as independent variables to estimate the number of trips originating or ending within a transportation zone.



Then a "gravity" model, calibrated with 1964 data, was employed to determine where (other transportation zones) the trips were made to and from. Then, with the origin and destination of all trips determined, the trips were assigned to streets via the shortest time path between origin and destination to estimate the traffic volume that was created by the population and employment during 1970. These traffic volume estimates were compared with traffic volumes counted in 1970, and it was found that the estimates were reasonably accurate. The general conclusion was that the same relationships that were surveyed in 1964 could be used to project transportation demand when population and employment projections for transportation zones were available.

For a better understanding, it should be added that traffic volume on roads entering and leaving the metropolitan area is estimated with a separate procedure and added to the total traffic volume that moves between internal zones. Unlike the internal zone-to-zone trip volume projections, the traffic volume projections for roads entering the metropolitan area are not directly determined by the amount and location of the metropolitan area population. A separate historical traffic projection is made for each road at its point of entry to the metropolitan area. The average 1970-2000 growth factor was 2.30 (roughly equal to 3 percent compound annual growth) and was used to project the year 2000 traffic volumes for roads entering the Eugene-Springfield area. This projection results in 21% of the projected auto trips having an origin or destination outside the Eugene-Springfield area.

Once the forecasting methodology was validated, the number of vehicle trips was estimated for each transportation zone, using the socioeconomic projections for each transportation zone as independent variables. Vehicular trip estimates were converted to person-trips by multiplying the vehicular trips by an auto occupancy factor derived from survey data. Adjustments were made to reflect the public transit and alternative mode goals. The mechanics of the transit adjustment are documented in "An Approach to Modal Testing Revisited",* and the transit analysis proceded as described in Section B of this report. The auto person trips, excluding walk, paratransit and bicycle trips were converted back to vehicular trips by dividing by occupancy factor and were then assigned to the major street network according to the shortest time path. Street and highway analysis then proceeded as described in Section C of this report.

The entire travel demand projection methodology is extremely complex and lengthy. Discussion of the entire process in this report is too detailed for the format of this report. All documentation relating to travel demand for forecast methodology is on file, in unpublished form, at the Lane Council of Governments offices and the Oregon Department of Transportation.

Table 3 summarizes the average daily trips by mode and purpose, used to design the 2000 Transportation Plan and the alternatives contained herein.

Per Capita Trip-Making

Figure 7 illustrates the per capita trip-making assumptions used in the Plan. Although the number of trips per person has been increasing for a relatively long period (the national trends show that the average American made 50% more trips in 1970 than in 1940), for study purposes, the number of trips per person was assumed to remain constant during the 1970-2000 period. Essentially, this means that individual mobility will be maintanined at current levels through

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* "An Approach to Modal Testing Revisited", L-COG, May, 1976.

the end of the century, although a substantial number of those trips will be carried by means of travel other than the automobile. In fact, if local goals are met by 2000, the number of trips per person by automobile will drop below the 1984 level.

If disposable income per household continues to rise, however, it may be difficult to achieve this "steady-state" trip making rate. Failure to do so will result in more trips in 2000 than predicted here, and greater demands on the transportation system than anticipated.

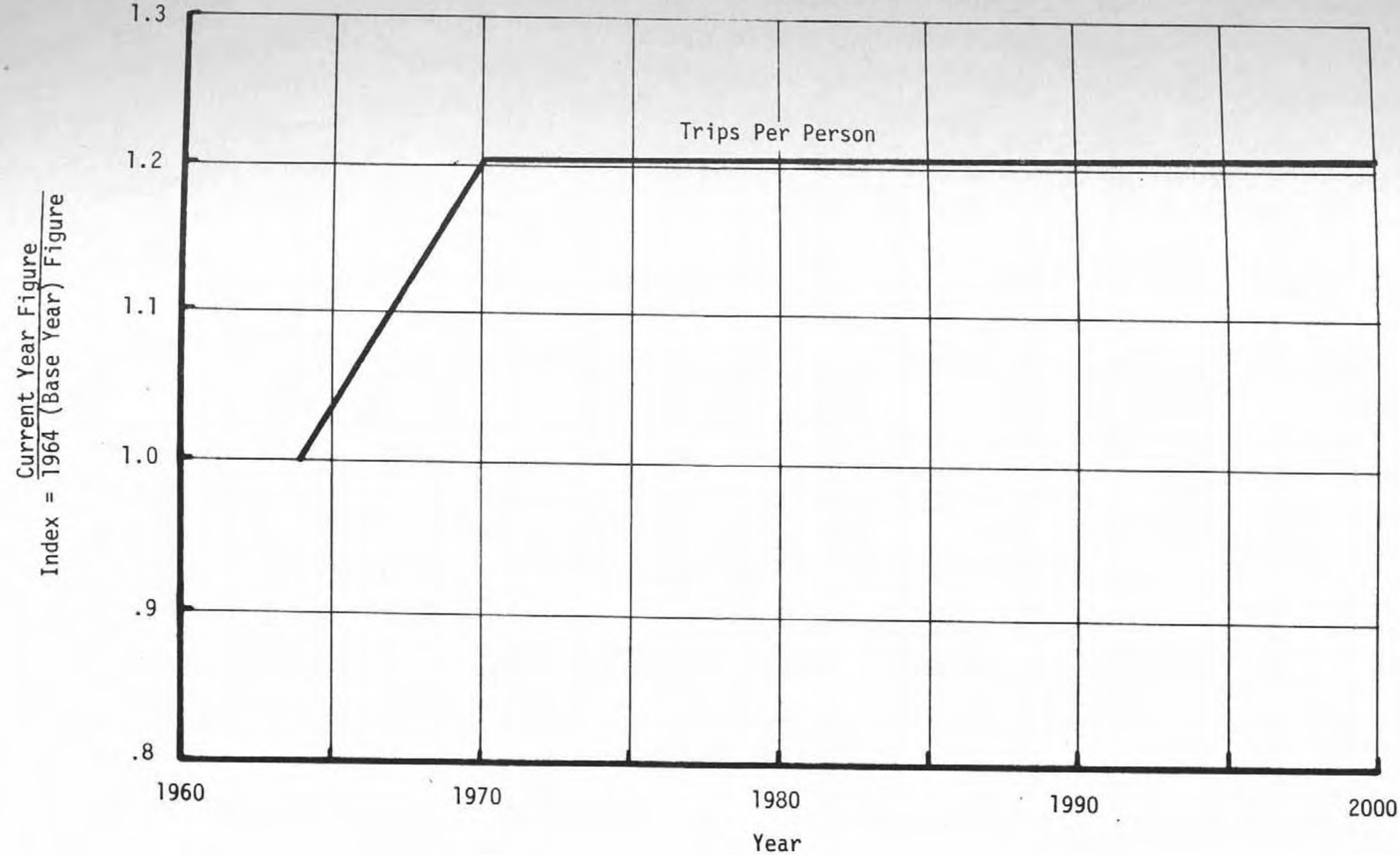
TABLE 3
2000 TRIP SUMMARY - AVERAGE DAILY TRIPS

	Purpose	Total Person-Trips	Bike, Pedestrian, Paratransit Person Trips	Transit Person-Trips	Auto Person-Trips	Occupancy Factors	Total Vehicle Trips
INTERNAL	Work	191,548	18,253	39,746	133,549	(1.14)	117,218
	Retail Shop	29,598	0	5,598	24,000	(1.39)	17,254
	Convenience Shop	84,870	8,701	13,799	62,370	(1.39)	44,902
	Miscellaneous	234,131	5,112	23,023	205,996	(1.43)	144,002
	Non-Home Based	210,765	5,387	10,615	194,763	(1.27)	153,278
	School (UO, LCC)	24,841	0*	14,300	10,541	(1.50)	7,029
	SUBTOTAL:	775,753	37,453	107,081	631,219		483,683
TRUCK	Commercial	81,913			81,913	(1.0)	81,913
	SUBTOTAL:	81,913			81,913		81,913
EXTERNAL	Internal-External	63,915			63,915	(1.0)	63,915
	External-Internal	84,427			84,427	(1.0)	84,427
	External-External	21,220			21,220	(1.0)	21,220
	SUBTOTAL:	169,562			169,562		169,562
	TOTAL:	1,027 228					735,158

* All school trips to U. of O. from within one mile of campus were assumed to walk or bicycle to class. Other U. of O. school trip assumptions were as follows: 1 to 2 miles from campus - 50% by bicycle; 2 to 3 miles from campus - 40% by bicycle; 3 to 4 miles from campus - 20% by bicycle. These trips were not counted in overall trip totals - consequently, the Eugene bicycle and pedestrian goals are over and above any bike and walk trips to the U. of O.

FIGURE 7

PER CAPITA TRIP MAKING ASSUMPTIONS



Section B

TRANSIT

TRANSIT

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INTRODUCTION

Transportation studies have treated transit travel analysis in different ways. In major metropolitan areas, sophisticated models have been developed to predict increases in transit ridership based upon certain improvements to an existing, and generally well established, transit system. The models are usually based upon extensive historic data, and assume that existing marketing conditions and travel habits will reflect rider responses to changes in transit service. The resultant future travel forecasts assume that major parameters, such as life styles and trip-making choices, will remain constant during the study period. For areas the size of Eugene-Springfield, however, complex "modal split" models can be of limited value both because of the lack of historic data and the lack of established ridership patterns.

In fact, long-range transit planning has generally been of limited value for small urban areas, other than to give overall direction to system development (goals, objectives, etc.), and to determine the effect, if any, on the long-range highway plan. Only when large capital outlays or fixed facilities are to be considered does long-range transit planning become a desirable requirement. This is based on the conviction that the conventional bus systems typical of most small urban areas historically have had little long-range impact on urban development patterns or plans for other utilities or services.

In 1975, an attempt was made to develop a model for Eugene-Springfield that would predict future transit ridership resulting from expansion and improvement of the existing transit system to a full-service system. (See "An Approach to Modal Testing," L-COG, 1975.) The study assumed that transit travel time would be reduced to the minimum that could be expected with a conventional local bus system, that the relative cost of automobile and transit travel remained the same, that the sensitivity of future bus riders to travel time changes remained the same as that of current riders, and that travel making characteristics and life styles of area residents remained constant throughout the forecast period. The conclusion drawn from the modeling was that major service improvements alone had little potential for attracting riders from the automobile to transit and increasing transit ridership (as a percent of total travel) significantly above the level experienced today. This is consistent with the findings of most other urban areas similar to Eugene-Springfield, and has often led transportation studies in those areas to put the matter "to rest" in the context of the long-range plan, and concentrate on short-range transit programming. Since conventional bus systems do not have a significant effect on overall accessibility patterns, changes in these systems are unlikely to foster significant changes in development patterns. Therefore, transit service improvements and fleet replacement can be handled in response to demand, on a short-range basis, without materially affecting other metropolitan planning. The Eugene-Springfield Area Transportation Study (E-SATS) 1985 Plan, prepared in 1967, used this approach and although it was sound from a planning perspective at the time, several years later it was politically unacceptable. In addition, this supply/demand approach to providing transit service precludes any attempt to create a different role for transit. For the new transportation plan, a new approach was needed.

Planning Approach

Inherent in transportation travel forecasting is the assumption that the individual system user, under a given set of circumstances, is rational in the choice of transportation alternatives available to him or her. Unfortunately, the circumstances surrounding that decision do not always remain constant over time. Because of the uncertainties involved with estimating transit ridership over a 25-year period, a goal-oriented, rather than forecast-oriented planning approach was selected. Consequently, local agencies were confronted with the challenging and difficult problem of determining the proper role of transit in Eugene-Springfield almost independent of existing conditions. By examining the impact of various hypothetical levels of transit ridership, elected officials could choose a transit ridership level, consistent with local goals and objectives, to be used as a goal and guide for planning purposes.

This goal-oriented approach does have its drawbacks. Obviously, adoption of a transit ridership goal in no way guarantees that the goal will ever be attained, particularly when it appears that major service improvements in and of themselves will not result in a sufficient shift of riders from automobile to transit to achieve a much higher transit goal. The penalties for an overambitious goal would not be apparent immediately, but in the long run might result in high capital outlays and operational subsidies for an overdesigned, underutilized transit system, and additional congestion on an underdesigned, overutilized street network. This need not be an insurmountable obstacle, however, for through staged implementation of a transit system, careful monitoring of progress toward goal attainment, and periodic plan review and update, ample time should be available to revise goals or implementation programming.

Indeed, if one understands the limitations and risks of the approach, it can have distinct advantages over purely quantitative forecasting methods for areas the size of Eugene-Springfield. Elected officials, from the views and comments of citizens, can identify the desired role of transit within the context of community goals and objectives and can take positive steps, beyond system improvement, to help achieve the desired role. In this way, all local governments can move with a common purpose to control the transit "market" and have a greater impact on the development of the community than if a passive stance on transit development were taken.

Background

After reviewing the "Eugene-Springfield Transportation Alternatives" report and holding public hearings, local elected officials arrived at a compatible transit goal to be used in preparing the long-range plan. Eugene elected to plan for 15 percent of internal person trips to be carried by transit in 2000, Springfield chose 10 percent and Lane County 10-15 percent. Together the individual goals resulted in a weighted areawide average of 14 percent.* "An Approach to Modal Testing Revisited", published by L-COG in May, 1976, details the methodology used to assign various types of trips to transit for testing purposes.

Technical testing then proceeded and seven transit corridors were identified with comparatively high projected passenger densities (see Figure 1). They are:

1. 6th-7th Avenue/Highway 99
2. River Road
3. Ferry Street Bridge/Coburg Road
4. Franklin Boulevard/Springfield Main Street

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* Recently, Springfield elected to reduce its goal from 10 percent internal trips by transit by 2000 to 5 percent. Since nearly all technical testing had been completed by that time, an attempt to adjust all previous work would have meant delay in the completion of the plan. Consequently, a qualitative analysis of the impact of the goal change is included in this section. This goal change would affect the fleet size and frequency of service needed to accommodate the trips in the year 2000, but would not affect the location of major routes, stops, and stations.

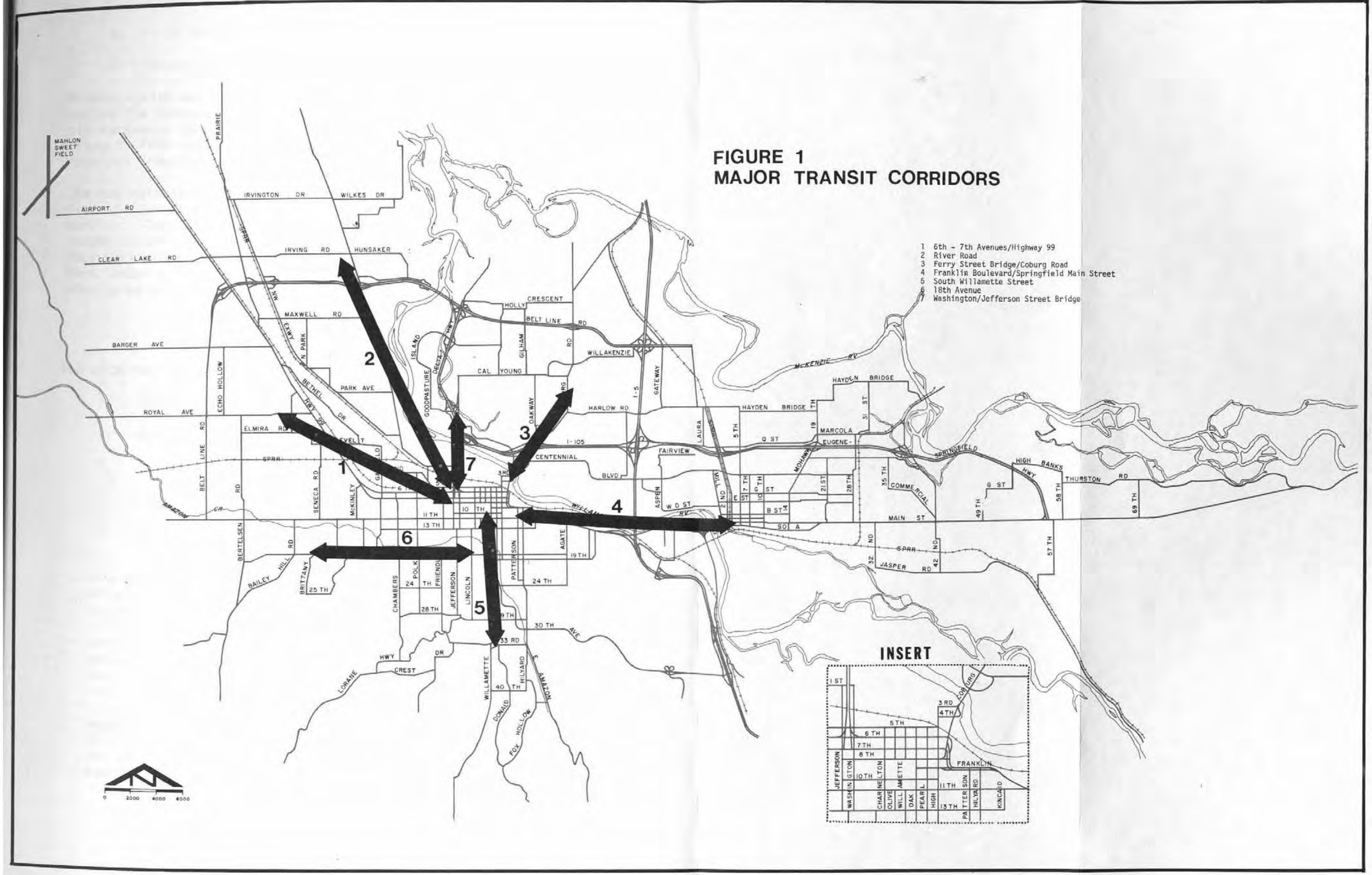

FIGURE 1
MAJOR TRANSIT CORRIDORS

5. South Willamette Street

6. 18th Avenue

7. Washington/Jefferson Street Bridge

A base system was established for modeling purposes that represented the minimum service capable of providing the transit capacity necessary to carry 14 percent of the internal urban area trips.* This system was modeled by computer to determine the required frequency of service and fleet size.

The goal-oriented approach to transit planning led to consideration of four alternative systems beyond the conventional bus service. Each alternative is capable of accommodating the passenger loads if transit ridership goals are achieved. However, they vary widely in cost and operation and include alternatives that, under more traditional analysis, would not be studied for an urban area of this size and density.

TRANSIT SYSTEM ALTERNATIVES

The alternative systems are:

1. Conventional local bus (base system)

2. Bus rapid transit supported by local buses

3. Trolley coach system supported by local buses

4. Light rail transit supported by local buses

5. Shuttle loop transit supported by local buses

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* The 14 percent goal was not applied uniformly across jurisdictions or trip purposes. Fifteen percent of the trips in Eugene, 10 percent of the trips in Springfield and 10 percent of the trips in Lane County were assigned to transit. In addition, certain types of trips, such as work trips and school (U of O, LCC) trips are more conducive to transit than are shopping or miscellaneous trips. Areas of heavy concentration of people and jobs are also more compatible with transit. Consequently, work trips to downtown Eugene, for example, represent about 38 percent of central business district work trips under the 14 percent average. For trips not well served by transit, Thurston to Santa Clara, for example, only six percent were assigned to transit.

The alternative systems were selected to display a wide range of approaches to providing urban transit service. They can be grouped into two major categories - all bus systems operating in mixed traffic on the street and highway system, and combined bus and other technology systems operating both on exclusive rights-of-way and on the street system. The conventional local bus system is essentially an expansion of the present day system to include more buses; bus rapid transit uses existing vehicles and streets, but provides some bus priority treatment; trolley coaches use new vehicles and power lines on existing streets; light rail transit uses train-type vehicles with tracks and overhead wires on existing streets, exclusive rights-of-way or a combination of the two; shuttle loop transit uses automated, unmanned vehicles on elevated structures or exclusive rights-of-way.

Alternative line haul technologies* were assigned to the major transit corridors, and for each system, a network of routes and fixed facilities was designed and its service features and costs

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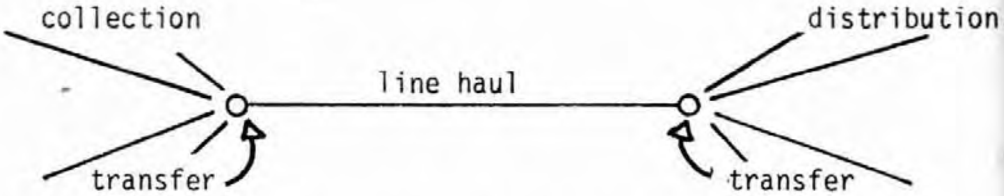
* To better understand the nature of the choice of alternative transit systems, it is helpful to understand the components of urban travel. The urban trip can be divided into four basic parts - the collection, distribution, line haul and transfer functions. In a typical urban work trip by transit, for example, the collection part of the trip would be made by



walking home to the bus stop; the transfer of modes made at the bus stop; the line haul part made by transit coach; another transfer of modes made at the destination stop; and the distribution part made by walking from the bus stop to the job site. In many large urban areas, the collection and distribution parts of the trip are often made by auto or local bus and the line haul part is made by rail rapid transit or express bus rapid transit. Modern technology, as applied to transportation, has increased the speed, efficiency and capacity of the line haul portion of the trip. In Eugene-Springfield, it is in the line haul part of the transit trip, in major travel corridors, where the choice for alternative transit systems lies.

estimated. Local bus service supports each alternative technology by providing the collection/ distribution function for trips in the major corridors, and even the line haul function in neighborhoods which are not served by certain alternative modes.

Each system was designed and evaluated as a complete system, each providing a comparable level of service in terms of area of coverage and network density. This provides a consistent basis by which to compare and evaluate the line haul segments of a complete transit system, even though completion of some systems may extend beyond 2000.

Conventional Local Bus (Base System)

The base system in the Eugene-Springfield urbanized area is generally an expansion of 1977 service. The system consists of petroleum powered buses operating in mixed traffic on existing streets. The system uses the concept of a central transfer point, with routes providing local service from that transfer point to residential areas, schools and shopping areas as well as to a system of 20 transit transfer points, or nodes. Routes are tied together at each of the nodes to provide easy transfers and access to shopping and employment centers. These nodes are also connected to each other by crosstown or circumferential routes. All routes would operate at 30-minute frequencies in midday and evening periods. Frequencies would increase to provide the necessary capacity at peak hours. The active fleet would consist of 208 vehicles, compared to 52 currently.

Other than the cost of additional vehicles, capital investment in the base system is low. Current programs of placing bus stop signs and shelters would continue, and station facilities would be constructed at the nodes. Major stations would be built at the Eugene Mall, downtown Springfield, University of Oregon, Goodpasture Island, Lane Community College, the intersection of River Road and Belt Line Road, 30th and Hilyard, Coburg and Oakway, Fairfield and Jacobs, and 58th and Main. Minor transfer stations, consisting of shelters, lighting, informational signing, telephones and bike racks would be constructed at ten other locations (see Figure 2).

American manufacturers of transit buses are currently developing updated models, and it could be expected by 2000 that the replacement fleet in Eugene-Springfield would be characterized by higher levels of passenger comfort and safety, wheelchair accessibility and reduced maintenance costs.

Major advantages of a conventional local bus system are its directness of travel, high network density, low transfer rate, compatibility with existing land use, flexibility, and low capital investment.

Major disadvantages include slow travel speed, little or no demonstrated ability to direct land development and lack of independence from street congestion.

Bus Rapid Transit (BRT) Supported by Local Buses

As the term implies, bus rapid transit is the provision of a rapid transit service utilizing conventional or high capacity super buses operating in limited-stop express service, often in priority rights-of-way. The mode of operation might be:

1. Line haul vehicles operating between stations to which passengers arrive by feeder bus, park and ride, bicycle or walking

2. Line haul vehicles operating through stations to provide both the collection/distribution portion and the line haul portion of the trip

Common forms of bus priority treatment include:

1. Reserved freeway lanes or metered freeway ramps

2. Exclusive busway (bus-only roadways)

3. Exclusive bus lanes on existing arterial streets

4. Signal preemption by buses on existing arterial streets

Urban areas throughout the country currently utilize a wide spectrum of bus priority techniques for bus rapid transit. Los Angeles, Seattle, Milwaukee and Pittsburg are developing extensive networks of bus lanes. Of the priority treatments listed, only the bus lane options and signal preemption have applicability in Eugene-Springfield in the foreseeable future.

System Description

Bus priority treatment of some form would be provided in the seven major corridors between transit nodes (see Figure 3). Service in each of the major corridors would be mainly express type. In off-peak hours, express buses provide the line haul function from downtown Eugene to stations in each of the corridors, while local buses would provide the collection/distribution phase. During peak hours most buses would operate as express routes on the line haul between stations, then provide collection/distribution service to local neighborhoods. Frequency of service would be comparable to the conventional bus system (30 minutes during off-peak periods) and many aspects of the conventional sytem would be retained to provide local service in each major corridor as well as the collector/distribution function for the express routes. In addition, the provision for new circumferential service between many of the transit stations would be retained from the conventional bus system.

Higher capacity buses (80 seats, as opposed to 50 for standard coaches) would be used on bus rapid transit lines to provide seating for peak hour passenger volumes rather than placing more buses in operation at peak times. Forty high capacity vehicles would be needed, out of a total active fleet of 165 buses.

Appropriate bus priority techniques include peak hour bus priority lanes and contra-flow lanes that would require parking removal, signing and striping of existing streets, intersection treatments involving devices that give buses priority at traffic signals, and widening of intersections to allow buses to bypass some congested intersections (see appendix for specific locations of improvements).

The major advantages of bus rapid transit include good travel speed between transfer stations, a low transfer rate, compatibility with the existing land use, the ability to be implemented in response to demand, relatively low irreversible capital investment and the second lowest operating cost in the year 2000 of any system examined.

Disadvantages include the relatively small influence the system has on land development and possible loss in street capacity in some locations due to bus priority treatment.

Trolley Coach Supported by Local Buses

The trolley coach is a rubber-tired vehicle propelled by an electric motor drawing power from a central source through an overhead trolley-wire system. With the exception of the drive train, the vehicles are similar to current diesel buses and are best suited to local bus operation on existing streets.

Major American trolley coach systems are located in Boston, Dayton, Philadelphia, San Francisco and Seattle. Several of the systems are currently adding new vehicles while others are adding new lines.

Technological advances in recent years have made the trolley coach a more viable mode of urban transport by reducing the amount of overhead wiring required, allowing "wireless" operation over short distances, permitting smoother and slightly less expensive operation than previously experienced, and developing higher capacity articulated vehicles.

System Description

The proposed trolley coach network is a system of routes in heavily travelled corridors with a high number of stops and low-travel speed. The system would be comprised of six radial routes converging on the central transfer site (see Figure 4). Service would be local with frequency of service and travel speeds comparable to that provided by the conventional local bus system in these corridors. The six trolley routes utilizing 53 vehicles would be supplemented by 169 local buses providing collector/distributor service from neighborhoods to the base system transit stations. Local bus support service would be provided by conventional petroleum powered vehicles, scheduled to make transfer connections to the trolley coach service.

Major advantages of the trolley coach system are the positive environmental impacts resulting from its dependence on electrical power, rather than fossil fuels, for propulsion.

Major disadvantages are significant, including slow travel speed, high transfer rate, system inflexibility, lack of independence from the effects of street congestion and loss of street capacity caused by the coaches.

Light Rail Transit (LRT) Supported by Local Buses

Light rail transit is a modern version of the electric streetcar, not to be confused with the commuter railroads of large eastern cities. Electrically powered, steel-wheeled cars operate on rails on existing streets, exclusive rights-of-way, or a combination of the two. Power is supplied either by overhead wires, as with the trolley coach system, or by a third rail. In mixed city traffic, power would be from the overhead wires. Individual light rail vehicles can be coupled to others and operated as a train to supply additional capacity on heavily travelled lines.

The first new light rail vehicles in North America since the 1940's have recently become available and technological advances have improved the operation and passenger conveniences of the vehicles. Several cities are purchasing new equipment and expanding lines, and two are building new systems. U.S. cities with light rail systems in operation include Boston, Fort Worth, Newark, New Orleans, Philadelphia and San Francisco.

System Description

Light rail service would be provided in the six major travel corridors radiating from the central transfer station, operating in mixed traffic on existing streets and in exclusive rights-of-ways where possible (see Figure 5). Where operation must be on existing streets, some form of intersection priority treatment such as signal preemption, would be provided on occasion. Vehicles would stop only at stations, spaced from 1/4 to 1/2 miles apart. Most stations would be simple covered waiting platforms, but transfer stations, identified in the base system, would have more complete facilities. Frequency of service would be similar to that of the base system, except that increases in frequency during peak hours would be unnecessary due to higher vehicle capacity.

Of the total fleet of 197 vehicles, 26 would be rail vehicles, the rest conventional buses. The conventional buses would provide the collection/ distribution support service and would operate at frequencies similar to those of the base system (30 minutes off peak). Schedules would be oriented toward making transfers to and from light rail vehicles at stations on the rail routes.

Both the light rail transit and shuttle loop transit systems are systems of extremes - those attributes that are good, are very good - those attributes that are poor, are very poor - due primarily to the fixed facilities.

Major advantages of light rail include high travel speed, ability to direct land development in a manner that reinforces transit usage, independence from street congestion, and the environmental benefits resulting from the electric propulsion systems.

Major disadvantages include a low frequency of service, a high transfer rate, inability of existing land use to support the system, inflexibility of the system and very high capital investments.

Shuttle Loop Transit (SLT) Supported by Local Buses

Shuttle loop transit consists of unmanned, electronically controlled rubber-tired vehicles that operate on guideways, either at ground level or elevated above the street. In either case, the system is completely separated from the street network. The vehicle has few moving parts, but utilizes complex electronic circuitry. Two vehicles may be coupled for train type operation. The central control unit is also technologically complex and requires a specialized service staff.

Shuttle loop transit is sometimes called automated guideway transit, and is similar in many ways to personal rapid transit, people movers and monorails. Shuttle loop systems are currently in operation in airports such as Dallas-Fort Worth and Sea-Tac. The U.S. Department of Transportation has funded several downtown people mover projects on a demonstration basis in Cleveland, St. Paul, Houston, Detroit, Baltimore, Miami and Los Angeles. None of these systems are as extensive as the one proposed here, and none would serve the same function. The U.S. Department of Transportation also funded a demonstration personal rapid transit system in Morgantown, West Virginia which, because of its prototype nature, was quite costly to implement.

Advances in shuttle loop transit are being made continually, and it is likely that as more systems come on line that the vehicles and control units will become less costly.

System Description

The shuttle loop system would consist of 43 vehicles operating in the major transit corridors, primarily on elevated guideways above existing streets to minimize right-of-way purchase and to avoid intersection conflicts with surface traffic (see Figure 6). Stations would be two-story structures, with enclosed waiting facilities, escalators, elevators and other amenities. Stations would be comparatively sparse -about two to three per mile.

Frequency of service would be comparable to those of the base system and other alternatives in the off-peak period. Peak hour frequency of service, unlike the base system, would remain at off-peak levels (every 30 minutes), with extra capacity provided by coupling vehicles in pairs. Collector/distribution service would be provided by 176 conventional buses.

Major advantages of the shuttle loop system include high travel speed, ability to direct land development in a manner that reinforces transit usage and the removal of transit vehicles from the street system, thereby freeing the system from the impact of street congestion and eliminating the conflict between automobiles and transit vehicles.

Major disadvantages include high transfer rate, inability of the existing land use to support the system, inflexibility, huge capital investment and lack of ability to be implemented in operable stages.

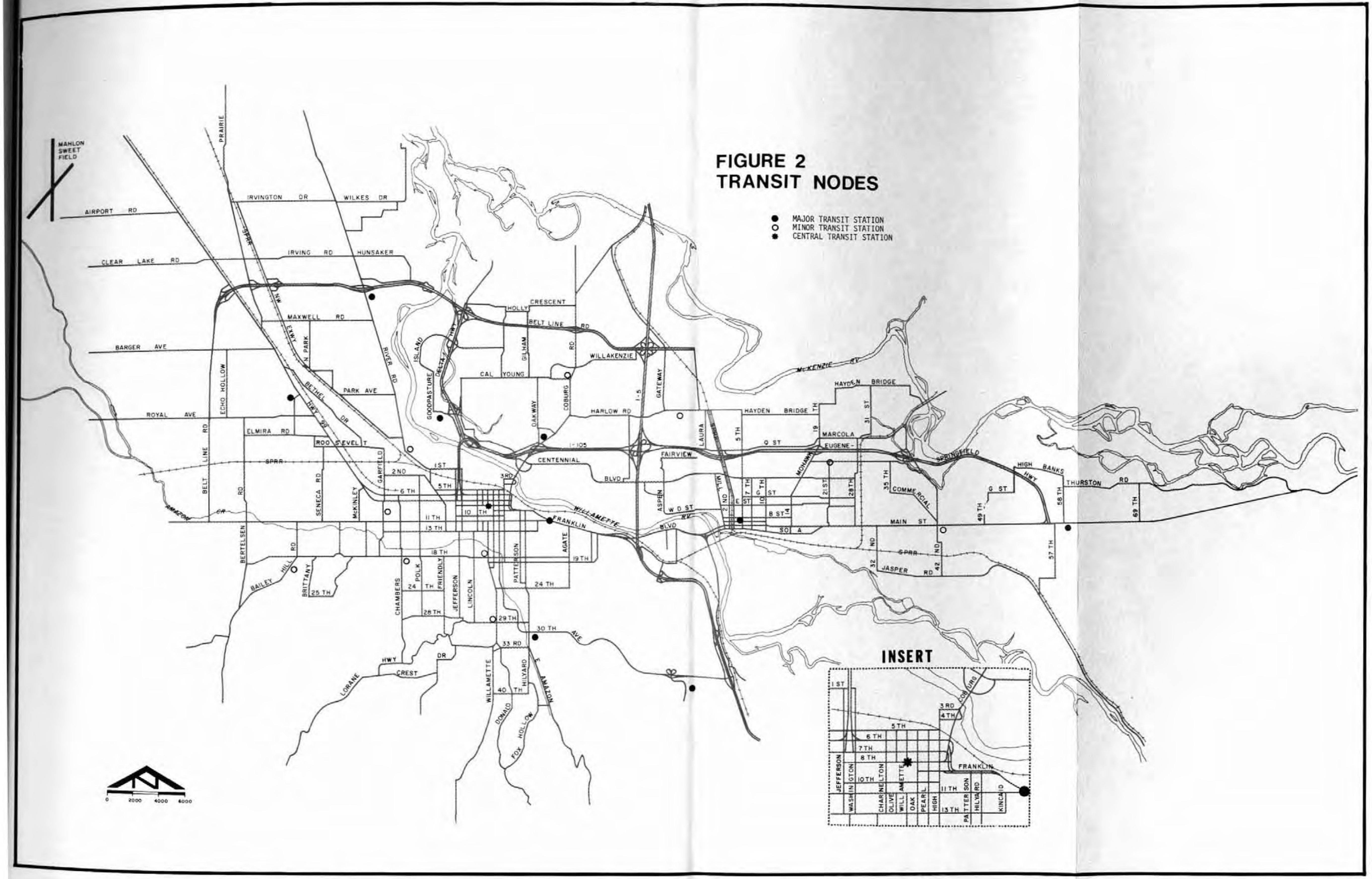


FIGURE 2
TRANSIT NODES

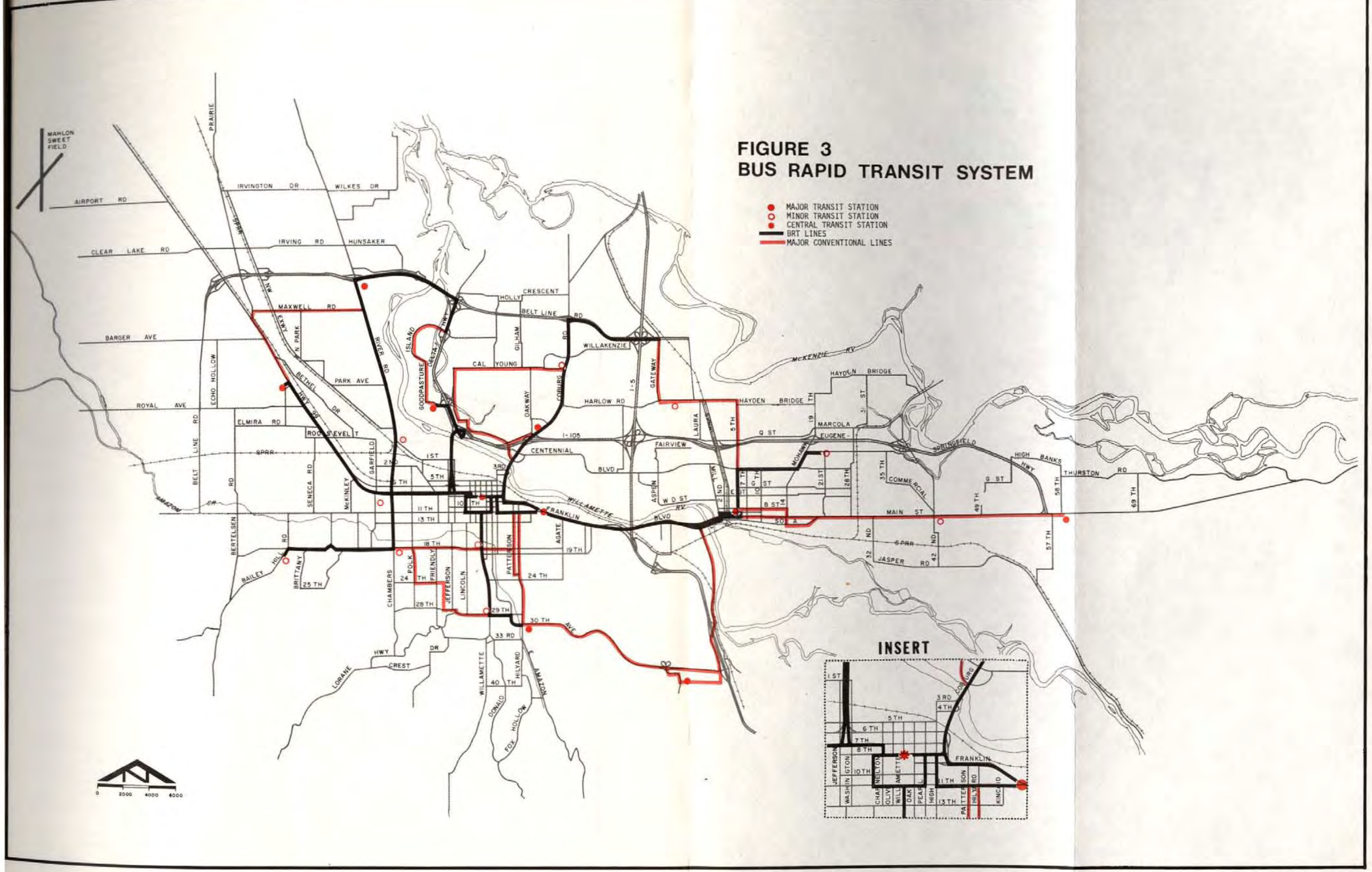


FIGURE 3
BUS RAPID TRANSIT SYSTEM

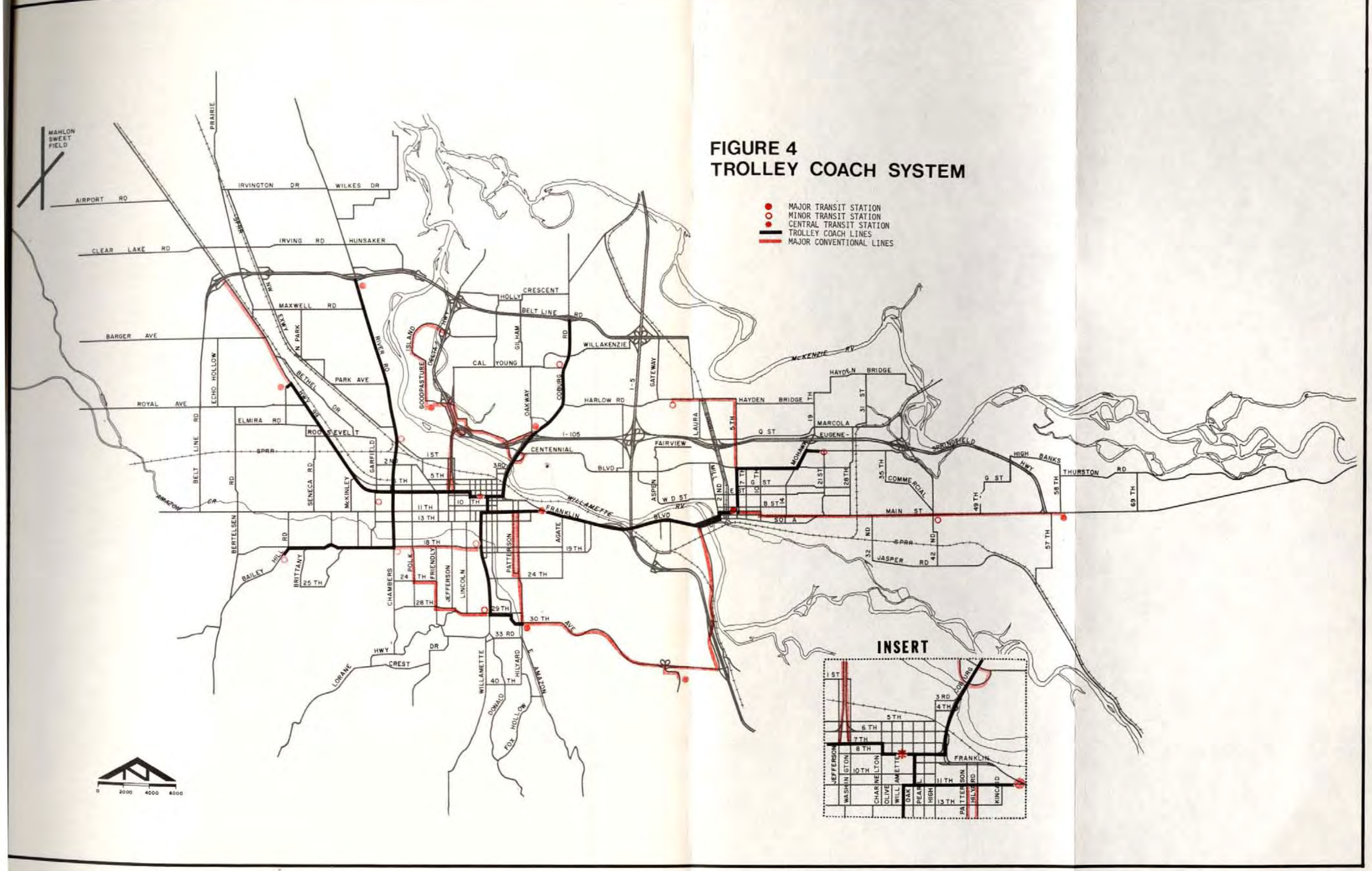


FIGURE 4
TROLLEY COACH SYSTEM

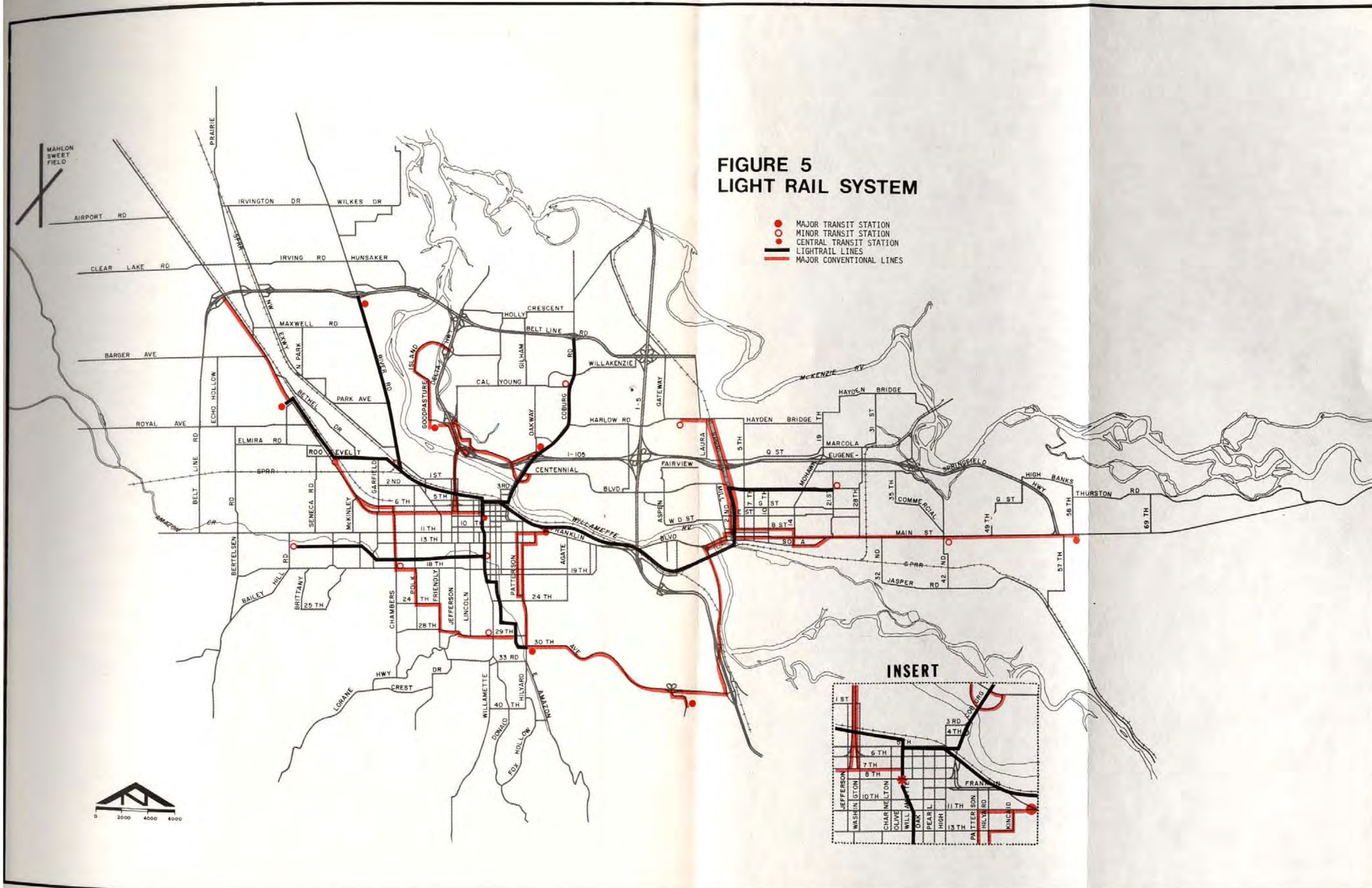


FIGURE 5
LIGHT RAIL SYSTEM

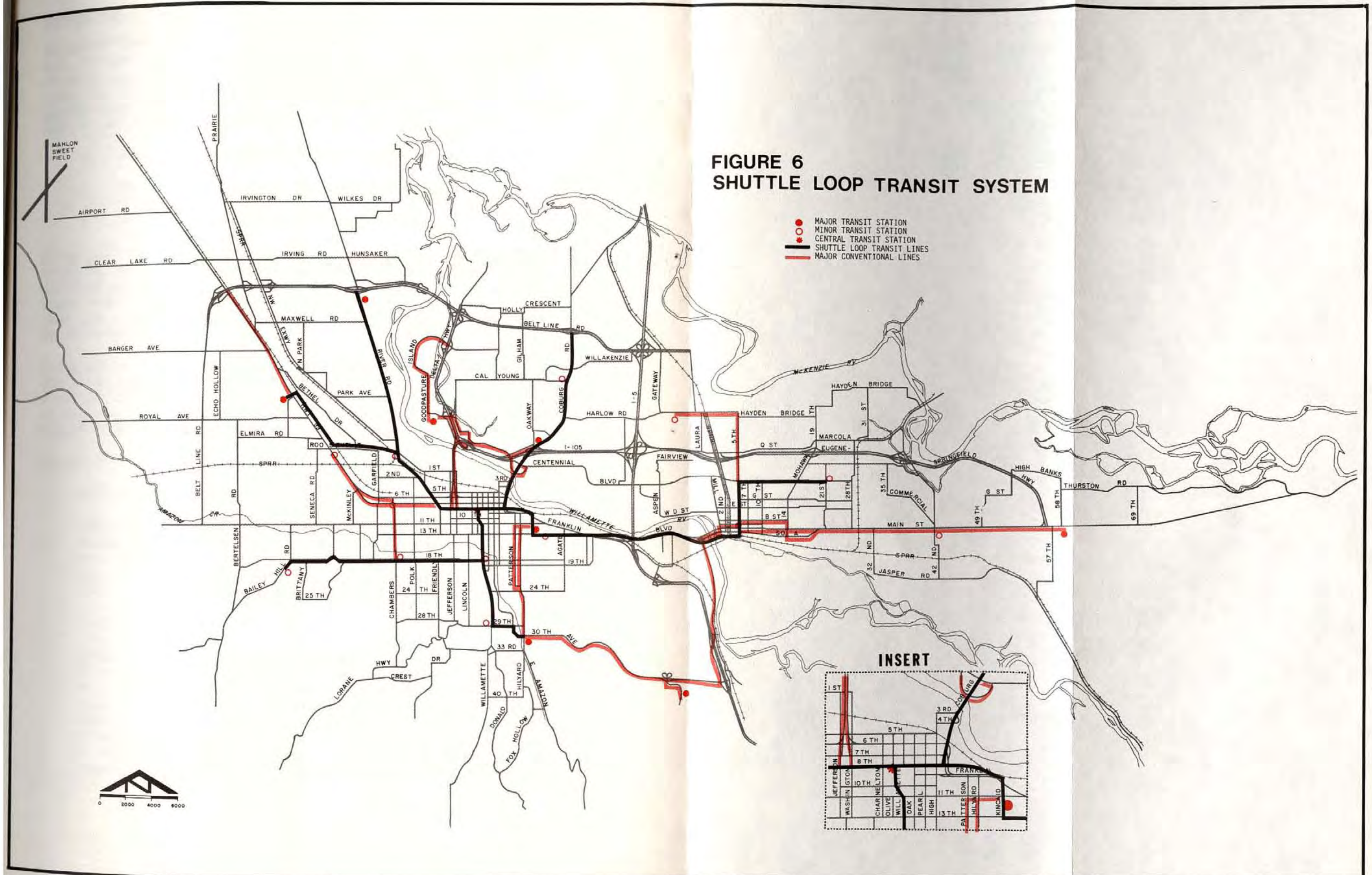


FIGURE 6
SHUTTLE LOOP TRANSIT SYSTEM

Evaluation Criteria

To assist the reader in choosing between the transit systems available to handle the transit ridership goal in Eugene-Springfield, criteria were selected and applied to each system alternative. Normally, the process of identifying which mode of transit is most appropriate for an urban area and best fits the pattern of development would include an evaluation of at least three criteria:

1. Ridership response to transit improvements

2. The effect of density on transit ridership

3. The cost of different transit services

Since the total ridership has been set as a goal, the first two criteria have been superseded. Others were needed that are more qualitative in nature than traditional analysis, due in part to the fixed ridership goal, which eliminated the supply/demand analysis that would have resulted in estimates of future ridership response to different systems.

Those criteria that were chosen were done so because of their ability to be applied to the entire transit system rather than transit alternatives for a specific corridor. In this way, the advantages of superimposing different transit technologies over the conventional local bus system can best be evaluated.

The criteria are aggregated to three categories:

Performance Criteria

Performance criteria are measures of the degree to which each transit system fulfills the goals and objectives of the urbanized area and individual jurisdictions. For each of the performance criteria, alternative systems are rated either very poor, poor, fair, good, or very good.

Impact Criteria

Impact criteria deal with the benefits, disturbances or changes to the metropolitan environment resulting from implementation of alternative transit systems. Evaluation is regional in scope. Given that the alternatives are considered on a systemwide basis, it is difficult to reflect the impact on specific neighborhoods, but it is safe to assume that any impact would be intensified in the vicinity of the six major transit corridors. For each of the impact criteria, the alternative systems are determined to have either a major negative, minor negative, negligible, minor positive, or major positive effect.

Implementation Criteria

Implementation criteria are those considerations that help determine the feasibility of each alternative. Cost figures (in 1977 dollars) have been calculated for each alternative, and the systems have been rated for the remaining criteria with the same descriptions as the performance criteria.

A full discussion of each of the evaluation criteria is found in the appendix to this section.

The purpose in developing the criteria is to stimulate discussion on the transit alternatives. Planners have identified critiera they feel are important when comparing alternatives, but the list is not meant to be all inclusive. Each reader may have criteria that he/she wishes to add to the discussion.

No attempt was made to develop a point system or to assign values to each criterion and arrive at a point total for each alternative. Too often, the result of the evaluation process is dependent upon weights assigned to criteria by planners. Indeed, the value placed on a single criterion can change from one alternative to another. By presenting only an evaluation matrix itself, without attempting to determine the relative weight of each criterion, this report allows the reader to determine which criteria are of importance when evaluating alternatives. The accompanying matrix (Table 1) summarizes the evaluation made by the Transportation Planning Committee. It was then used by the committee to arrive at its recommended future transit system. The appendix contains the detailed evaluation of each system alternative.

Recommendations

The Transportation Planning Committee recommends that the bus rapid transit system, supported by local buses, should be implemented during the study period. The bus rapid transit system brings out the best qualities of a rubber-tired system but stops short of the drawbacks of a fixed rail or fixed guideway system. No one can guarantee that the areawide transit goal will be met and there are unknown, external factors that may have a larger impact on transit ridership than any actions taken locally. A decision on a future transit system based on speculation on these external developments is risky. Steps can be taken locally to encourage transit ridership. The best course of action is one that allows aggressive, positive actions to be taken locally with a future system that will have the flexibility to be improved or changed in response to both external and internal factors.

Bus rapid transit is the best blend of agressive service and operational improvements with little commitment to inflexible fixed facilities. It is also the most realistic with respect to the size, density and character of the area. Bus rapid transit requries low-capital improvements to give the transit system priority treatment in congested areas between stations, but achievement of this seemingly simple task will not be easy. In many cases improvements may require parking removal or signal adjustments that may decrease service to the automobile.

By agressively implementing bus rapid transit service and local policies to encourage transit, premature commitments to large capital-intensive projects can be avoided. The bus rapid transit system does not commit the area for all time to one mode of transit service and the uncertainty of long-range planning will be reduced through greater confidence in the merits of staged development.

Through periodic plan updates and monitoring, new goals or new directions may be chosen as new evidence is acquired. To reach either a light rail or shuttle loop option, the area still must move through the steps of improving bus service to build a system capable of supporting the other technologies. A schematic representation of the evolution of different transit systems is illustrated in Figure 7. Many of the same improvements, such as major transfer stations are common to all systems. Regardless of the transit goal, these improvements will provide a better service to the transit user.

By monitoring actual patronage, as well as traffic congestion, fuel availability, new development and other factors that affect transit usage, conclusions may be drawn for revising goals, adopting and implementing more aggressive tactics to help attain the adopted goal, or advancing toward implementation of the original long-range plan. This course of action allows the transit plan to evolve in response to both local and national conditions.

The specific bus rapid transit projects recommended for implementation are listed in Table 2. A detailed description of the projects, without regard to priorities can be found in the appendix.

All these projects - transit stations, priority and contra-flow lanes, intersection priority treatments and fleet requirements - were based on the original transit goals adopted by Eugene, Springfield and Lane County in 1975. Any revision of those goals will of necessity change system requirements. Implications of the Springfield Council's decision to lower the Springfield goal follow.

TABLE 1

Transit System Evaluation Matrix

			Conventional Local Bus	Local Bus and Bus Rapid Transit	Local Bus and Trolley Coach	Local Bus and Light Rail	Local Bus and Shuttle Loop
Performance Criteria	Service To User	Travel Speed Between Transfer Stations	Very Poor	Good	Very Poor	Very Good	Very Good
		Directness of Travel	Good	Fair	Fair	Fair	Fair
		Frequency of Service	Good	Fair	Good	Poor	Poor
		Network Density	Good	Fair	Fair	Fair	Fair
		Low Transfer Rate	Very Poor	Good	Poor	Very Poor	Very Poor
		Ability to Direct Land Development	Very Poor	Fair	Fair	Very Good	Very Good
		Compatibility with Forecast Land Use	Very Good	Very Good	Fair	Very Poor	Very Poor
		System Flexibility	Very Good	Good	Poor	Very Poor	Very Poor
		Independence from Street Congestion	Very Poor	Fair	Very Poor	Good	Very Poor
Impact Criteria		Impact on Street System	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative
	Community Disruption	Impact on Fixed Facilities	Negligible	Minor Negative	Minor Negative	Minor Negative	Minor Negative
		Impact of Operations	Negligible	Negligible	Negligible	Minor Positive	Major Positive
		Visual Impact	Negligible	Negligible	Minor Negative	Negligible	Major Negative
Implementation Criteria		Capital Cost (1976 $000)	27,710	29,269	37,086[1]	91,456[2]	253,231[3]
		Operating Cost (1976 $000)	19,895	18,018	19,639	19,820	17,693
		Ability to be Developed in Stages	Very Good	Very Good	Poor	Very Poor	Very Poor
		Flexibility in Energy Study	Poor	Poor	Very Good	Very Good	Very Good

1 Excludes Replacement Costs for T.C. Vehicles
2 Excludes Replacement Costs for L.R. Vehicles
3 Excludes Replacement Costs for S.L.T. Vehicles

TABLE 2: BUS RAPID TRANSIT CAPITAL IMPROVEMENTS

Phase I: 1978-1990

Improvement Category	Cost (1977 Dollars)
Central Transit Station	
Eugene Mall	$800,00
Major Transit Stations (at $185,000 each)	
River Road and Beltline (Park & Ride)	
LCC (Park & Ride)	
5th and North "B"	
Coburg and Oakway	
11th and Kincaid	
30th and Hilyard	$1,110,000
Minor Transit Stations (at $10,000 each)	
18th and Chambers	
18th and Bailey Hill	
Coburg and Cal Young	
42nd and Main	
21st and Olympic	
29th and Willamette	
18th and Willamette	
Pheasant and Lindale	
8th and Garfield	$90,000
Lane Transit District Maintenance Facility	$2,893,000
Intersection Priority Treatment (at $2,000 per intersection, $1,000 per vehicle)	
134 Intersections	$268,000
Equip 121 Vehicles	121,000
	$389,000
Bus Turnouts and Queue Jumpers (at $40,000 each)	
River Road: 22 bus stops	$880,000
Street Modification and Paving	
Turning radius improvement at 8th and Lincoln	
Alley: 7th-8th between High-Ferry, plus signalization	
Acceleration lane and turning radius improvements on Coburg Road between 8th-E. Broadway	$110,000
Priority Lane Treatments	
<u>Bus Priority Lanes</u>	
11th Avenue: Willamette-Lincoln	
Lincoln: 11th-8th	
Main: 6th-Mill	
11th Avenue: Franklin-High	$8,800

Phase I: 1978-1990 (Continued)

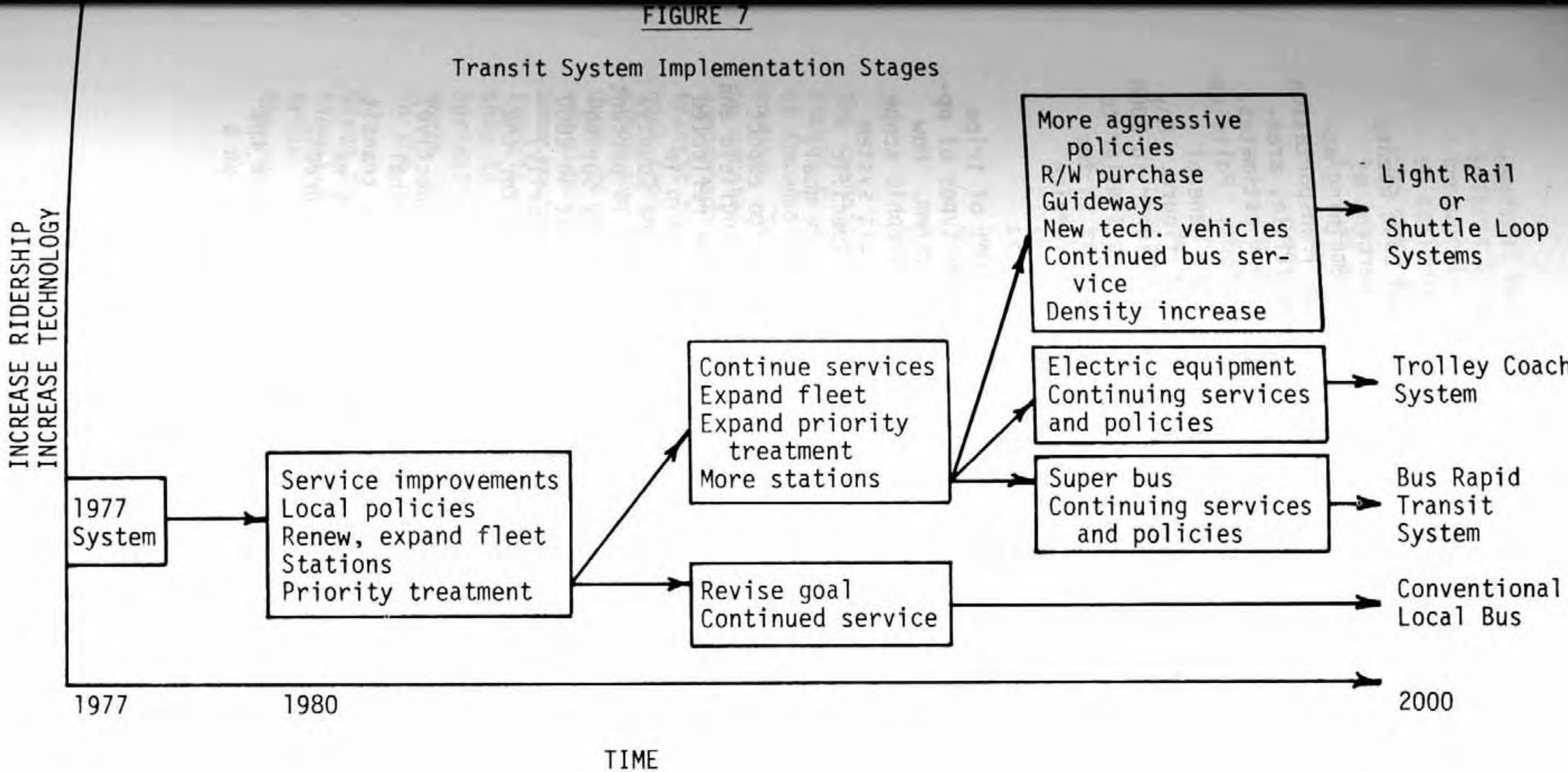
Improvement Category	Cost (1977 Dollars)
Contra-Flow Priority Lanes	
8th Avenue: Jefferson-High	
Willamette: 20th-11th, east side	
18th Avenue: Willamette-Pearl	$65,000
Peak Hour Parking Removal	
Willamette: 11th-20th, west side	
11th Avenue: Pearl-Willamette	$1,200
Vehicles	
Standard Coaches (59)	$4,130,000
High Capacity Coaches (10)	1,710,000
Replacement Coaches (31)	2,170,000
	$8,010,000
Engineering	$944,300
1978-1990 TOTAL CAPITAL OUTLAY:	$15,301,300

Phase II: 1990-2000

Improvement Category	Cost (1977 Dollars)
Major Transit Stations (at $185,000 each)	
Fairfield and Jacobs	
58th and Main (Park & Ride)	
Goodpasture Island	
7th-8th and Chambers	$740,000
Minor Transit Stations (at $10,000 each)	
River Road and Railroad Boulevard	$10,000
Intersection Priority Treatment (at $1,000 per vehicle)	
Equip 44 Vehicles	$44,000
Bus Turnouts and Queue Jumpers (at $40,000 each)	
Franklin Boulevard: 10 bus stops	$400,000
Willamette: 10 bus stops	400,000
	$800,000
Priority Lane Treatments	
Contra-Flow Priority Lanes	
7th Avenue-Chambers-Jefferson	$4,000
Vehicles	
Standard Coaches (14)	$ 980,000
High Capacity Coaches (30)	5,130,000
Replacement Coaches (72)	6,020,000
	$12,130,000
Engineering	$239,500
1990-2000 TOTAL CAPITAL OUTLAY:	$13,967,500
TOTAL BUS RAPID TRANSIT CAPITAL OUTLAY, 1978-2000:	$29,268,800

FIGURE 7

Transit System Implementation Stages



AREAWIDE TRANSIT GOAL ANALYSIS

The original transit goals in Eugene, Springfield and Lane County were compatible with an areawide transit goal of 14 percent of internal trips carried by transit by 2000. All the remaining actions that will constitute the transit element of the Transportation Plan are dependent to one degree or another on a compatible, areawide transit goal. It governs the future transit system estimates, the service improvements and local policy recommendations. Policies needed to help reach the goal are more sensitive to the general magnitude of the goal, however, rather than a specific figure. Any action setting a transit ridership goal substantially higher in 2000 than currently exists will likely require policy actions similar to those required for the 14 percent goal. Minor reductions in the goal will not alleviate the need for policy actions or service improvements.

Similarly, any goal envisioning a doubling of the percent of trips carried by transit in 2000 would still require the same types of operational and service improvements as the 14 percent system. How those service improvements are implemented and the geographic scope of the service improvements, as well as the future transit system fleet and capacity requirements, are determined by the specific transit goals of each community and the aggregate areawide goal.

Because of inherent community differences, it is natural to expect some difference in transit ridership between Eugene, Springfield and the urbanized area of Lane County. Such differences were reflected in the original goal choices of 15 percent transit ridership in Eugene, 10 percent in Springfield and 10-15 percent in Lane County. These goals, on a weighted average, produced the areawide 14 percent goal used for much of this report. The recent reduction by Springfield of its goal to 5 percent of internal trips by transit in 2000 creates a situation that is technically (if not philosophically) incompatible with the Eugene and Lane County transit goals for the following reasons:

1. The metropolitan area (from a transportation perspective) functions as a system, irrespective of jurisdictional boundaries. The likelihood of Eugene achieving a transit ridership level three times that of Springfield is extremely low. Community differences are not that great.

2. Steps taken to achieve an areawide transit goal have the potential to be more effective if they are applied on a

regional basis with unanimous backing of local governments. Efforts by one community to promote increased transit ridership through land use policies, for example, will be less effective in achieving the desired results without comparable actions in the rest of the metropolitan area.

3. In a regionally financed transit system such as Lane Transit District, the provision of different levels of service subregionally (in response to different goals) can become a sensitive political issue that works counter to promoting increased ridership. In a sense, revenues from one jurisdiction would be used to "subsidize" transit improvements in another jurisdiction in an effort to reach a more difficult transit goal.

4. If a lower level of service is provided in one community, it becomes a strong disincentive for transit trips between the two communities because access to the system is poor at one end of the trip. This lack of uniform system performance increases the need for a second automobile in households with the lesser level of transit service. Once a capital investment is made in an automobile, potential transit trips are lost.

The technical implications of the Springfield goal change are difficult to detail without additional testing, and additional testing of incompatible transit goals would be purely an academic exercise anyway. Table 4 shows the internal person-trips by jurisdiction to be carried by transit with the 14 percent goal. For the purpose of comparison, it was assumed that a reduction of approximately 5,300 transit trips in Springfield would constitute the change in transit goal from 10 to 5 percent. This approach is overly simplistic, since the lower level of transit service in Springfield would reduce, to an unknown degree, the number of transit trips between it and Eugene and Lane County. This approach assumes basically the same route structure and transit station locations as for the 10% transit goal. In reality, it will be more likely that lower ridership in Springfield will result in termination of some Eugene-Springfield routes at Springfield transfer points such as 5th and North "B", and Pheasant and Lindale, with a corresponding increase in the number of transfers required.

Given these assumptions, a brief analysis (see appendix for calculations) indicates that if 5 percent, rather than 10 percent of the trips in Springfield were carried by the bus rapid transit system in the year 2000:

1. Transit service in Springfield would be less extensive and less convenient than elsewhere in the metropolitan area. Buses would generally run on the same lines as the recommended system, but at a reduced frequency inside Springfield.

2. A net reduction of eight vehicles would be possible.

3. 1978-2000 capital costs would be reduced by $560,000.

4. 2000 annual operating costs would be reduced by $234,000.

5. Springfield traffic and traffic volumes on major facilities between Eugene and Springfield would be slightly higher than forecast in this plan. This may result in the need for additional street and highway improvements.

TABLE 4
2000 Internal Person-Trips by Jurisdiction

2000 Total Internal Person-Trips		
Eugene-Eugene	418,846	
Eugene-Springfield	113,029	
Eugene-Lane County	98,227	
Springfield-Springfield	106,103	
Springfield-Lane County	28,783	
Lane County-Lane County	10,765	
TOTAL:	775,753	
2000 Transit Person-Trips		**Percentage of Total Trips**
Eugene-Eugene	64,176	(15%)
Eugene-Springfield	15,866	(14%)
Eugene-Lane County	12,796	(13%)
Springfield-Springfield	10,511	(10%)
Springfield-Lane County	647	(6%)
Lane County-Lane County	2,984	(10%)
TOTAL:	106,980	(14%)

A compatible transit goal seems to be a necessary basis for local support and harmonious expansion of transit service. In this manner, Eugene, Springfield, and Lane County can give clear direction to Lane Transit District on the future role transit should play in the metropolitan area. In the end, however, it is really the actions to achieve the goal that are more important than the goal itself. Adopted goals, though inconsistent, still dictate a significantly increased role for transit in 2000. At this point in time, the actions to reach those goals are nearly identically those required to implement the 14 percent system. If unanimity can be reached on those actions, the lack of consistency of transit goals will remain a technical anomaly of the plan that will need to be resolved at the next major plan update.

Recommendation

The goals of 15 percent transit usage in Eugene, 10 to 15 percent transit usage in Lane County, and 10 percent transit usage in Springfield that were adopted by those bodies should be reaffirmed by Eugene and Lane County and readopted by Springfield to once again form a compatible areawide transit goal.

OPERATIONAL AND SERVICE IMPROVEMENTS

Adoption of a compatible areawide transit goal is recommended as the solution to the dilemma of the system design and facility requirements resulting from divergent transit goals. However, operational and service improvements are dependent more on the magnitude of the transit goal than the specific target value. Any goal of a substantially higher percentage of transit ridership than exists today would require essentially the same improvements recommended in Table 3. Consequently, normal improvements to the existing transit system should not be considered an option under the current transit goals. Local commitment to a better level of transit service than now exists is the minimum requirement and first step toward achieving higher transit ridership. Although Lane Transit District is the lead agency for implementing these improvements, improved transit service as a whole may require financial commitment and cooperation (on items such as parking removal for bus stops) from local general purpose governments.

Since Eugene, Springfield and Lane County have little power to implement directly service improvements to the transit system, the option available, if these basic improvements are unacceptable, is the lowering the the areawide transit goal.

Recommendation

The operational and service improvements in Table 3 should be acknowledged as necessary and their implementation by Lane Transit District supported.

TABLE 3

Short-Range Transit Service and Operational Improvements

Service Characteristic	Objective	Transit District Improvement	Comments
Transit Travel Time	Bring average transit travel time closer to average auto travel time	1. Increase transit frequency on high demand routes	Increased street congestion as auto disincentives not recommended (see page B-39)
		2. Increase transit coverage high demand areas	
Cost of Travel by Transit	Bring average direct transit passenger costs below average auto costs	1. Increase transit operating efficiency	Increased auto costs as dis-incentives not recommended (see page B-38)
		2. Adjust fare structure for attraction	Free fare not recommended (see page B-38)
Comfort/ Convenience	Improve quality of transit service, increase transit reliability	1. Extend transit operating hours	
		2. Clean, modern fleet	
		3. Improve information service	
		4. Install additional bus stop signs	Requires coordination with local governments for parking removal or dedication of space
		5. Install waiting shelters	
		6. Construct new maintenance facilities	
		7. Construct transit transfer stations	Requires coordination with local governments for location
Marketing	Provide effective transit marketing and public education programs	1. Increase media and direct marketing programs	
		2. Increase media's direct education programs	Should be supported by similar local government programs

POLICIES

The task of the Transportation Planning Committee in preparing the Transportation Plan was to take the direction set by policy makers and to identify actions necessary to help achieve adopted transportation goals that would not be met merely by a continuation of existing trends. The areawide transit goal was one such goal.

Policies and actions were assembled for consideration from many sources, including the Lane Transit District Board and the L-COG Citizens' Advisory Committee for Transportation Planning. Evaluation by TPC was from one perspective only - identify measures, available to local governments, that would maximize the opportunity to achieve the adopted transit goal. Not all policies could be implemented without conflicting with other transportation goals, however, and some were dropped from further consideration. Others were found to be essential to the achievement of the transit goal and have been recommended in the Transportation Plan.

Perhaps the realm with the greatest potential for increasing transit ridership over the long run (other than external factors) is the local government land use policies. Findings from other studies have shown that the land use policies which will maximize the potential for increased transit ridership are those that will help cluster nonresidential floorspace in downtown and other compact development patterns.

The studies also concluded that increasing overall residential density is less important for transit use than increasing density in proximity to a downtown of substantial size or transit line. In selecting a future transit system, however, density requirements should be considered. In addition to the long-term impact the system can have on the community, there are more immediate considerations of system efficiency and the amount of subsidy necessary to support the system. Both labor and other resource costs of public transportation depend on the level of its use; to keep costs within reason there must be substantial passenger demand, which in turn depends partially upon density of settlement. High quality transit service in areas of low density can easily exceed the costs of the automobile not only in dollars but also in energy and materials consumption.

Some potential actions often cited as encouragement to transit have been dismissed here because their effectiveness in achieving the desired long-term results of higher transit ridership is questionable. At least several of those actions warrant discussion.

A. Low Fare or Free Fare Transit

The rationale for free fare transit sometimes lies in the philosophy that transit should be considered a public utility and, therefore, provided on a nonfare basis. Users of other public services, however, are charged for such services. More importantly, studies have shown that transit ridership is relatively insensitive to fare decreases and is more sensitive to service changes than fare changes.*

Lowering of off-peak fares may cause some nonwork trips to shift from peak to off-peak periods, thereby reducing peak demand and permitting more efficient operation of the transit system. The shift of trips represents trips <u>already</u> on transit, however. Across-the-board fare reduction will not be sufficient incentive, by itself, to cause large shifts from the automobile to transit. In Rome, for example, no-fare transit coupled with the banning of automobiles from sections of the downtown resulted in only an 11 percent increase in transit riders, while automobile use was not measurably affected.** There is no reason to believe the experience in Eugene-Springfield would be different and the conclusion that large fare reductions will require correspondingly higher levels of public subsidy still applies. It seems likely that in this area, for a given level of subsidy, improved service would generate more passengers than would reductions in fare. Consequently, the recommendation that fares be adjusted to remain competitive to a comparable automobile is the best course of action.

B. Increase Automobile Costs

While the costs of owning and operating an automobile will undoubtedly increase dramatically during the next 25 years, local or state actions to raise auto cost, as a disincentive to auto travel, is not recommended. Research indicates that increasing the cost of auto operation relative to transit fares will have little or no impact in causing people to shift from their automobile to transit, or in reducing peak hour auto use (commuter parking policies in congested areas may have some impact, however).***

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* "Free Transit", Charles River Associates, Incorporated, Cambridge, Massachusetts, 1970.

** "Alternatives for Improving Urban Transportation - A Management Overview", Federal Highway Administration, 1976.

*** Ibid.

A dramatic increase in the price of gasoline would, over the long term, provide relatively little incentive to shift to transit. During the gasoline shortage of 1974, motorists adjusted by reducing nonessential trips, or shifting to smaller cars. The number of essential trips, such as work trips, was not significantly reduced, and although there was some tendency to shift to transit, carpooling and vanpooling also became more popular. The net result is that in terms of energy costs or limited fuel availability, individuals tend not to make trips rather than shift to transit.* While this in itself may be a desirable goal, increasing auto costs to encourage transit ridership would result in a net reduction in mobility and should be considered of limited effectiveness.

C. Increase Street Congestion

An efficient street system is necessary for the delivery of essential goods and services in the metropolitan area. Adopted policy has indicated that a greater level of congestion than exists today will be tolerated in the future, but condoning congestion as an incentive to increase transit ridership is not recommended.

Any transit system which shares the street system (and all the alternatives examined do to one degree or another) is affected in an adverse way by congestion. Transit operational problems caused by severe street congestion may make transit less attractive for some trips because of schedule and transfer uncertainties. Slower speeds on the street system also have an adverse economic impact on the transit operator, resulting in less service per dollar expended.

Experience has shown that as congestion increases, the individual makes fewer trips or travels to less congested areas rather than shift to transit. The result is decreased mobility of the urban resident and the potential for reduced or impaired delivery of goods and emerging services.

The greatest potential for a shift to transit would occur for work trips where transit provided greater accessibility than the automobile to heavily congested areas.

Those transit related policies that were deemed to be effective at increasing transit ridership and still compatible with other transportation goals were assembled with policies dealing with other

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* "Alternatives for Improving Urban Transportation - A Management Overview", Federal Highway Administration, 1976.

modes to form the comprehensive set of transportation policies in the Policy Element of the Transportation Plan. Although the policies are compatible from a transportation perspective, they still were developed with one overriding consideration - to identify policies necessary to maximize the chances that the adopted transportation goals will be met. Some of the recommended policies may be in conflict with other community goals. It is now up to the public to weigh those actions in relation to the community as a whole. It is conceivable that considerations other than transportation will preclude adoption of some policies - that is a choice to be made. However, to eliminate key policies or to make wholesale revisions to sections of the policies lessens the chances that transportation goals will be met, diminishes the local role in achieving those goals, and increases the need to revise the goals themselves.

SUMMARY

The changes that will constantly take place over the 23-year planning period make the decision process an extremely complex and speculative one at best.

Since the transit ridership of this plan was set by goal, the transit analysis that was performed was not of a supply and demand nature.

Ridership levels were independent of the alternative transit system studied, and implementation of a transit system alone is no guarantee that the transit goal will be reached. By conventional standards, the area is not large enough and does not yet have the density required to "support" some of the technologies examined in this report (Figure 8 in the appendix illustrates the findings of one study on this subject). The area can "support" any technology, however, if it is willing to supply the subsidy necessary to augment fare box revenue to make the system operable.

The fact is that the Eugene-Springfield area is nearly completely dependent on the automobile for transportation. The idea that there can be a decisive change in travel patterns merely by a move to a rail or other advanced transportation system is an illusion. Achievement of the area's transit goal is more likely to come about by shifts in urban activities and changes in life styles.

Agreement on an areawide transit goal should be ultimately reached, as recommended in the Transportation Plan. Even so, current goals still dictate a much more important role for transit in the future.

The options to help establish a stronger role for transit in the metropolitan transportation picture fall into three categories:

1. Service and operational improvements to the existing transit system by the local transit operator

2. Selection and implementation of the long-range transit system through joint decision-making and cooperation of all three local governments and the local transit operator

3. Implementation of policies or actions by local governments to strengthen and reinforce the urban characteristics that are conducive to transit travel.

Any one of these, individually, will not guarantee a stronger role for transit, but together, they should provide the basis for an improved role for transit in the urban area during the next two decades. Realistically, any transit goal substantially higher than the current ridership level, establishes operational and service improvements to the existing system not as an option, but as a requirement representing the minimum level of policy commitment. Cooperation of Eugene, Springfield, Lane County and the Lane Transit District is essential. The transit system must be expanded and improved incrementally throughout the study period to provide the capacity of handling the 2000 ridership.

As required during the public review process, or following offical decision on the Transportation Plan, the Transportation Planning Committee will:

1. Perform any additional study needed as a result of changes in the areawide transit goal

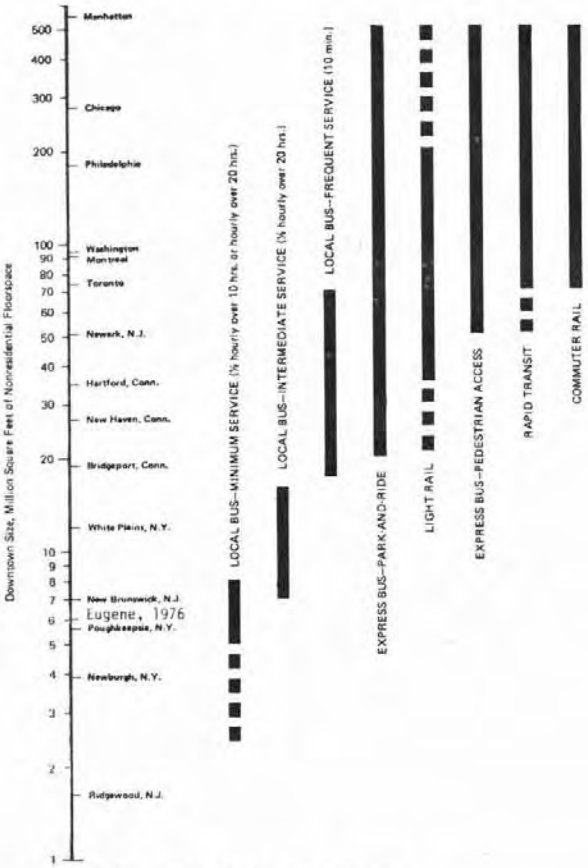
2. Perform the additional study required for specific project recommendations if a system other than bus rapid transit is recommended for implementation

3. In the coming fiscal year, develop a monitoring program that will produce the data required to evaluate achievements of the adopted transit goal. The monitoring program will be the basis for future goal revision, refinement of the long-range plan and short-range programming.

APPENDIX

FIGURE 8

Transit Modes Suited to Downtown Size.*
(approximate ranges)



Note: Downtown is defined as a contiguous cluster of nonresidential use and is larger than the more narrowly defined Central Business District

* From "Where Transit Works: Urban Densities for Public Transportation" Regional Plan Association, New York, New York, 1976. 3

This figure represents the findings of one study that related downtown size to the existing transit system in several American cities. It reflects existing conditions and does not necessarily imply that 2000 conditions will be similar. It does, however, stress the importance of a strong downtown area in supporting a stronger role for transit.

The 1976 Eugene downtown floorspace includes the University of Oregon and Sacred Heart Hospital as well as the central business district.

EVALUATION CRITERIA

Performance Criteria

Performance criteria are measures of the degree to which each transit system fulfills the goal and objectives of the urban area and individual jurisdictions.

1. Service to the User

   The objective is to evaluate the overall effectiveness of each alternative transit system in providing a high level of service to the public transit rider. To make an overall determination, each system will be evaluated with respect to its:

   a. Travel Speed Between Transfer Stations

      Transit travel speed relative to travel speed by other modes is one of the single most important factors in determining transit ridership. It is difficult to achieve transit travel time equal to or less than auto travel times on any system that shares the roadway with automobiles.

   b. Directness of Travel

      Indirect routing and out-of-direction travel are a deterrent to increased ridership. When access to a line haul mode is restricted to only a few points, some out-of-direction travel can be expected.

   c. Network Density

      The area covered by transit service has a direct bearing on ridership. A dense transit network means that walking time to and from the transit vehicle will be short, thus helping to minimize the collection/distribution phase of the trip. In Eugene-Springfield, ridership drops off sharply when the rider must walk more than 1/4 mile to gain access to the system.

   d. Transfer Rate

      The transfer has long been realized as a major stumbling block in the development of an attractive and efficient transit system. The requirement for a transfer is often the deciding factor in the individual modal choice and, the lower the transfer rate, the more attractive the transit system becomes. Technologically advanced systems, if a high number of transfers are required, may not achieve the success of a conventional one with a low transfer rate.

2. Ability to Direct Development

The objective is to assess the ability of each system to shape land development patterns and plans for other urban utilities or services. Historically, systems which have not had a significant effect on accessibility patterns and have not had fixed facilities have not had an ability to foster significant changes in development pattern.

3. Compatibility with Existing and Forecasted Land Use

The objective is to assess the consistency of each system with the land use goals of the 1990 General Plan and the degree to which existing and forecasted land use supports the implementation and operations of each system. Traditional modal split analysis has related density to the transit demand generated. Transit improvements that were recommended for a community were often done so on the basis of the density needed to produce the demand to support those improvements.

4. System Flexibility

The objective is to assess each system with respect to its ability to respond to new advances in technology, to respond to changes in ridership to land use patterns or to avoid precommitting the area to a significant expenditure of funds on major fixed facilities.

Any transit system with significant investment in fixed facilities involves the risk of wasting community funds on a system that may not be fully utilized. A flexible system, with few fixed facilities, would not direct development in a manner that would increase ridership, but it would provide the maximum opportunity to keep open options for future transit system development.

5. Independence from Street Congestion

The objective is to assess the degree to which the transit system, in major travel corridors, is free from street congestion. Any system that shares the street and highway network will suffer from congestion along with all other traffic, and will provide little incentive for increased ridership. The conventional bus system required to support each of the transit system alternatives is identical for all cases, so that the criterion will only reflect differences in the line haul technologies.

Impact Criteria

Impact criteria deal with the benefits, disturbances or changes to the metropolitan environment resulting from implementation of alternative transit systems. Since the alternatives are considered on a system basis it is difficult to reflect the impact on specific subsegments of the area. Evaluation will be regional in scope, but it is safe to assume that any impact would be intensified in the vicinity of the six major transit corridors.

1. Impact on the Street System

   The objective is to evaluate the overall ability of each transit system to be integrated into the existing street system. For planning purposes, because of the transit ridership goal, all transit alternatives were assumed to remove the same number of person trips from the street network (see Street and Highway Element for discussion). Beyond that, however, each alternative will have a different impact on the street system based upon the operating characteristics of the line haul modes and their interface with other vehicular traffic. The degree to which each alternative impeded traffic flow, removes capacity from the street system and adds to street volumes will be considered.

2. Community Disruption

   The objective is to assess the physical disruption resulting from system implementation.

   a. Impact of Fixed Facilities

      Loss of land, housing, etc., through construction of structures, guideways and transfer stations or right-of-way requirements will be considered.

   b. Impact of Operation

      The overall impact that system operation has on the community environment will be considered.

c. Visual Impact

The impact of the permanent visual changes each system brings to the urban landscape will be assessed.

Implementation Criteria

Implementation criteria are those considerations that help determine the feasibility of each alternative.

1. Capital Cost

   The cost of capital investment required for total system implementation of each alternative will be provided.

2. Operating Cost

   The annual operating cost in the year 2000 of each alternative will be provided.

3. Ability to be Developed in Stages

   The objective is to determine the ease with which each system can be expanded and the ability of each system to be implemented over time and still help achieve the transit goal. In a system that can be implemented in stages, each segment as completed, functions effectively as a piece of the existing systems. Phasing of large projects in smaller workable units allows additional time to acquire funds for implementation.

4. Flexibility in Energy Supply

   The ability of the propulsion system of each alternative, under current technology, to use alternative energy sources will be examined.

APPLICATION OF CRITERIA TO ALTERNATIVE SYSTEMS

Conventional Local Bus

Performance Criteria

1. Service to User

   With the exception of travel speed, service to the user by conventional bus would be good to very good. Because the buses under this system share existing roadway space, with little provision for priority treatment, the user is subject to the same delays and inconvenience stemming from congestion as the automobile user. Consequently, travel speed between transfer stations is very poor. This adds to the problems of operation of the system, since it becomes difficult to maintain schedules and the uncertainty of service and transfers becomes a strong factor in mode choice - a strong incentive for auto riders not to switch to transit.

   Otherwise, service to the user is good. The flexible nature of the system allows it to respond incrementally to needs and changes in land use or ridership patterns as they arise. Direct service can be provided as warranted between origins and destinations, coverage of much of the urban area with bus routes within 1/4 mile is possible, and transfers would be minimized.

2. Ability to Direct Land Development

   Paradoxically, the best attribute of the conventional bus system is in the long run, its worst attribute. Because the system is reactive in nature (responsive to land use changes and rider habits, rather than directing those changes), it has shown little ability to stimulate the higher densities necessary to support transit on a long-term basis.

3. Compatibility with Existing Land Use

   The Eugene-Springfield area is low density in character, by conventional standards ideally suited for standard bus transit systems with the minimum subsidy required.

4. System Flexibility

The conventional bus system offers the most flexibility of any transit system capable of handling the ridership goal.

5. Independence from Street Congestion

The conventional bus system suffers from the same congestion problems facing all users of the street system. Because of the dependence of the existing street system, all other things equal, the conventional bus system will be unable to decrease travel times enough to reach the ridership goal. In fact, other than decreasing headways, there is no way that the system could decrease travel time relative to the automobile.

Impact Criteria

1. Impact on the Street System

The conventional bus system would have a minor negative impact on the street system. The number of buses on the streets would be greater than today and the number of stops would be more frequent and perhaps longer, particularly in the downtown and heavily congested areas. Each of these factors would have a tendency to decrease street capacity, particularly where stops are required to be in the travel lanes of a street or the bus reenters the traffic flow from a curbside stop.

2. Community Disruption

Community disruption by the conventional bus system should be negligible. Fixed facilities are minimal, and the major transit stations are located in established activity centers. The impact of operations and visual impact would be transient in nature, limited to sights, sounds and smells of urban transit vehicles passing a given point. Concentrations will be higher than today, but primarily in the Eugene downtown and major travel corridors, which will experience an increase in all vehicular traffic by 2000.

Implementation Criteria

1. Capital Cost

Project Description	Cost (1976 dollars)	
Construction		
Central Transit Station	$ 800,000	
Major Transit Station	1,850,000	
Minor Transit Station	100,000	
Maintenance Facilities	2,902,000	
	$ 5,652,000	
Engineering	847,800	
		$ 6,499,800
Vehicles (156 additional, 147 replacement)		21 210,000
TOTAL CAPITAL COST (1976 dollars)		$27,709,800

2. Annual 2000 Operating Cost $19,895,000

3. Ability to be Implemented in Stages

   The flexibility of the system will allow it to be adjusted, expanded or contracted on a short-range basis with little risk of wasting a significant amount of funds. In fact, if this alternative is selected by elected officials, it essentially eliminates the need to consider transit on a long-range basis (other than the impact on highway needs) since all improvements are operational in nature and can be dealt with in the context of the Transportation Systems Management Element and Transportation Improvement Program.

4. Flexibility in Energy Supply

   Flexibility is poor, since currently the only feasible power source, the internal combustion engine, relies on fossil fuels.

Bus Rapid Transit (BRT) Supported by Local Buses

Performance Criteria

1. Service to the User

   In some respects, the BRT system provides better service to the user than the base system, while in others, not quite as good. Travel speed between major transfer stations would be good.

Even though the express routes still must share the street system, the priority treatment and limitations on the number of stops would have the effect of increasing travel speed over that of the base system. Some out-of-direction travel could be expected because of the limited access points on the express routes. The higher occupancy vehicles mean that total fleet size required is smaller than that of the base system. Consequently, the ability to provide short headways and a dense system network would not be as great as that of the base system.

More transfers could be expected during off-peak hours because of the express service, but transferring should be at a minimum during peak hours.

All factors considered, the bus rapid transit system will provide better service to the peak hour user, particularly if the trip is oriented to the central Eugene area, than does the base system.

2. Ability to Direct Land Development

Because the bus rapid transit system has identifiable corridors of express service and provides a greater degree of accessibility between stations than the base system, it has somewhat greater ability to direct land development. The best opportunities should come in the vicinity of major transit stations and downtown Eugene. In an absolute sense, however, the ability is still not great.

3. Compatibility with Existing Land Use

As with the base system, the low-density of Eugene-Springfield is compatible with bus rapid transit, although some standards call for a higher density to support it. Eugene's goal for a strong downtown is compatible with ridership increases necessary to support a bus rapid transit system.

4. System Flexibility

Since a bus rapid transit system is still an all-bus system, flexibility is still good, although the larger capacity buses will be limited in their use to high ridership corridors. Still, capital outlay is comparatively low for the fixed facilities and it would be possible to shift priority treatment to other corridors or move to another line haul technology without great loss of investment.

5. Independence from Street Congestion

Although a bus rapid transit system still shares the street system with other vehicles, bus priority treatment at some congested areas may help mitigate the impact of congestion. In other areas, however, even priority treatment will not completely eliminate the conflicts.

Impact Criteria

1. Impact on the Street System

The bus rapid transit system will have a minor negative impact on the street system. Although the express service will create fewer conflicts with traffic in those corridors than local bus service, the priority treatment, in particular creation of bus priority lanes and signal preemption devices, will have the tendency to decrease the total vehicular capacity of the affected intersections.

2. Community Disruption

Fixed facilities will have a minor negative impact. The station configuration is the same as the base system, but the priority treatments, such as the intersection widening and parking removal for bus priority lanes may require additional right-of-way.

The impact of operations, and the visual impact of the buses, as with the base system would be negligible and transient in nature. Although some may be offended by the larger buses, the total fleet size would be smaller than the base system.

Implementation Criteria

1. Capital Cost

Project Description	Cost (1976 dollars)	
Construction		
Central Transit Station	$ 800,000	
Major Transit Stations	1,850,000	
Minor Transit Stations	100,000	
Maintenance Facilities	2,893,000	
	$ 5,643,000	
Engineering	847,800	
		$ 6,490,800

Priority Treatment		
Peak Hour Parking Removal	1,200	
Bus Priority Lanes	77,800	
Intersection Priority Treatments	433,000	
Bus Turnouts and Queue Jumpers	1,680,000	
Street Modification and Paving	110,000	
	$2,302,000	
Engineering	336,000	
		$ 2,638,000
High Capacity Vehicles (40)		6,840,000
Conventional Vehicles (73 additional, 117 replacement)		13,300,000
TOTAL CAPITAL COST		$29,268,800

2. Annual 2000 Operating Cost $18,018,000

Because of the reduction in fleet size, higher capacity express buses, and higher average operating speeds, annual operating cost is less than that of the base system.

3. Ability to be Implemented in Stages

The bus rapid transit service can effectively be developed in stages. Establishment of express service in major corridors can be coordinated with transit ridership and service increases. Establishment of priority treatment systems can be coordinated with street and highway improvement projects. Each reduction in travel time contributes to overall system improvement.

4. Flexibility in Energy Supply

Bus rapid transit must still rely on fossil fuels for a power source, making it inflexible from an energy supply standpoint.

Trolley Coach Supported by Local Buses

Performance Criteria

1. Service to the User

The trolley coach service generally takes the worst features from the conventional local bus system and combines them with the bad points of fixed facility systems as far as convenience is concerned. Travel speed between transfer stations is very poor since the trolley coaches provide local service in mixed traffic. The overhead wires make maneuverability less than that of conventional buses, and the fixed lines would necessitate some out-of-direction travel to gain access to the trolley route at transfer stations. The transfers required would be considerably higher in proportion than the base system because of the fixed lines. It is acknowledged, however, that fixed facilities allow potential system users to purchase houses and make locational decisions that minimize the need for transfers. It is also acknowledged that, at a cost higher than that of either the bus rapid transit or the trolley coach system described here, a hybrid of the two systems could be designed.

2. Ability to Direct Land Development

   Accessibility would not be improved by the trolley coach system, but the fixed facilities would give some assurance that service would be relatively permanent - at least not easily changed. Consequently, the ability to influence land development is slightly greater than the base system, but still poor.

3. Compatibility with Existing Land Use

   By conventional standards, urban densities somewhat higher than are expected in Eugene-Springfield are required to support trolley coach service.

4. System Flexibility

   Flexibility of the trolley coach system is poor since the vehicles must be used in conjunction with the overhead wire power source. Still, capital cost that would be lost in a shift to a higher technology is relatively low. Power conversion systems and transmission lines could be used for any electrified transit system operating in the same corridor.

5. Independence from Street Congestion

   The trolley coaches would share the street system with other vehicular traffic. The maneuverability of the trolleys is less than that of conventional buses, and would be adversely affected by street congestion.

Impact Criteria

1. Impact on Street System

Poor maneuverability, and local service with many stops in the major corridors would have a major negative impact on street vehicular capacity.

2. Community Disruption

The overhead wires might result in loss of some trees while the supports for the wires would result in some intrusion outside the paved width of the street. The impact of operations would be negligible and the clean, near-silent operation of the trolley coaches would be an improvement over conventional petroleum powered buses. The overhead wires would add to street clutter most noticeably at major intersections, and would have a minor negative visual impact.

Implementation Criteria

1. Capital Cost

Project Description	Cost (1976 dollars)	
Construction		
Central Transit Station	$ 800,000	
Major Transit Stations	1,850,000	
Minor Transit Stations	100,000	
Maintenance Facilities	2,770,000	
	$ 5,520,000	
Engineering	847,800	
		$ 6,367,800
Priority Treatment		
Overhead Wiring and Power Supply	$ 5,994,000	
Street Modification	17,000	
Station Modification	320,000	
Maintenance Facilities	424,000	
	$6,755,000	
Engineering	1,013,000	
		$ 7,768,000
Trolley Coaches (53)		6,360,000
Conventional Buses (117 additional, 120 replacement)		$16,590,000
TOTAL CAPITAL COST		$37,085,800

2. Operating Cost

Annual 2000 Trolley Coach Operating Cost	$5,253,000
Annual 2000 Conventional Bus Operating Cost	14,386,000
TOTAL ANNUAL OPERATING COST:	$19,639,000

3. Ability to be Developed in Stages

   Because the trolley coach operates only as the line haul vehicle between major stations and does not possess the ability to integrate with the collection/distribution network, any implementation of a segment of a line would require an excessive number of transfers. Such a fragment of a system would be underutilized until a more complete network was implemented.

4. Flexibility in Energy Supply

   Electric propulsion allows some flexibility for future energy supply, since electric power may be generated by a number of methods.

Light Rail Transit (LRT) Supported by Local Buses

Performance Criteria

1. Service to the User

   Travel speed between major transfer stations would be very good. Exclusive right-of-way operation would be free from street congestion and operation in mixed traffic would be augmented in many cases by intersection priority treatment. Some out-of-direction travel would be required to gain access to the rail lines, and frequency of service, particularly in the peak hours, would be poor, because additional capacity is provided by adding cars, rather than more frequent trips. The fixed nature of the light rail operation makes integration with the collection/distribution mode very poor, resulting in a very high transfer rate.

2. Ability to Direct Land Development

   Fixed facilities, together with an increase in accessibility between major nodes give light rail (along with the shuttle loop system) the best ability to shape urban development in a manner that reinforces transit operation.

3. Compatibility with Existing and Future Land Use

   Urban densities higher than currently exist in Eugene-Springfield or are planned for under the current 1990 Plan are normally required to support light rail transit.

4. System Flexibility

Flexibility of the system is very poor. The rails, right-of-way and overhead wires represent a very large fixed investment and the vehicles can operate only on the rails. The ability to respond to new development patterns or travel desires would be possible only with additional large capital outlays.

5. Independence from Street Congestion

Vehicles operating on exclusive rights-of-way and in areas of intersection priority treatment may be able to provide the station-to-station line haul movement at a speed greater than that possible with the automobile. Interference with street congestion would still be expected in some areas.

Impact Criteria

1. Impact on the Street System

Light rail transit would be expected to have a minor positive impact on the street system. Exclusive rights-of-way remove transit vehicles from the streets in some corridors, but in others where travel is in mixed traffic the rails and signal preemption would decrease vehicular capacity. Rails in the street present a hazard to bicyclists, although they can be crossed safely at right angles.

2. Community Disruption

The rails, overhead wires, right-of-way requirements and additional stations represent greater community disruption than any system discussed so far. Overall impact would be minor negative. However, the existence of costly fixed facilities would tend to reduce future community disruption. Operation of the system would have a minor positive impact because the electric power and quiet operation would be an improvement over the petroleum buses of the base or bus rapid transit system. Overhead wires would provide the major visual impact. Stations would generally be small and of modern design and the impact of the vehicles would again be transient.

Implementation Criteria

Under current U. S. Department of Transportation policies, federal assistance for a rail project will come only after an exhaustive examination of alternatives that indicates the rail alternative is the most cost-effective solution for the community. Obviously, the light rail alternative is not the most cost effective for Eugene-Springfield either in terms of capital or operating cost. Implementation of this alternative would require additional study and would require financing, at least in the initial stages, to come primarily from local sources.

1. Capital Cost

Project Description	Cost (1976 dollars)	
Construction		
Central Transit Station	$ 800,000	
Major Transit Stations	1,850,000	
Minor Transit Stations	100,000	
Maintenance Facilities (conventional bus)	2,806,000	
	5,556,000	
Engineering	847,800	
		$ 6,403,800
Priority Treatment		
Guideways and Trackage	$37,002,000	
Additional Stations	2,850,000	
Signals	1,980,000	
Overpasses	2,480,000	
Priority Lanes	39,000	
Maintenance Facilities	1,560,000	
Right-of-Way Purchase	4,395,000	
	$50,306,000	
Engineering	7,546,000	
		$57,852,000
Rail Vehicles (26)		10,400,000
Conventional Buses (119 additional, 121 replacement)		16,800,000
TOTAL CAPITAL COST		$91,455,800

2. Operating Cost (1976 dollars)

Annual 2000 Operating Cost (LRT)	$ 3,822,000
Annual 2000 Operating Cost (conventional)	15,998,000
TOTAL ANNUAL 2000 OPERATING COST	$19,820,000

3. Ability to be Implemented in Stages

Although certain phases of the light rail system, such as advance right-of-way acquisition, can be accomplished over time, the system as a whole does not lend itself well to implementation in stages. Once the construction phase starts, a line should be completed as a whole to achieve its full potential. Any system must serve the demand. A fragment of a line which joins only major retail or industrial areas will not receive great usage. The majority of travel demand is from home to a nonhome location and return. Major corridors serve a variety of trip purposes and any viable system needs to accommodate these movements. The more directly it can serve the home, the more attractive it is likely to be. A short individual line, because of the transfers required to utilize the light rail vehicle, would not provide a good level of service to the user. Consequently, ridership on a short line, constructed as a fragment of the planned system, would not reach ridership levels as high as if it were integrated into the completed system. It is acknowledged, however, that a whole line may be built with minimal station facilities or grade separation, and that these features may be improved at a later date.

Because of the facilities and expertise required to maintain the light rail vehicles, certain economies of scale would be reached only after the system is more completed than a single line.

4. Flexibility in Energy Supply

The electric propulsion system allows flexibility for future energy supply, since electric power may be generated by a number of methods.

Shuttle Loop Transit (SLT) Supported by Local Buses

Performance Criteria

1. Service to the User

Travel speed between stations is very good. Since all travel is on exclusive guideways and independent of the street system, travel speed between stations, in some cases, would be better than by auto. Access to the system would be limited to the stations, only two to three per mile, and out-of-direction travel would be expected in order to utilize the guideway vehicles. Conceivably, it could be quicker to make the trip by the supporting local bus system if the out-of-direction travel required to access the guideway system is too great. Frequency of service would only be fair, since added capacity during peak hours would be provided by coupling vehicles rather than decreasing headways. The transfer rate would be very poor, since many trips would require a change of mode (to local bus) to perform the collection/distribution function.

2. Ability to Direct Land Development

Because the accessibility between stations is improved, and because the investment in fixed facilities is so great, the shuttle loop system would be very good at encouraging land development compatible with the system. Increased employment and residential densities would be expected in the vicinity of the transit stations and downtown Eugene.

3. Compatibility with Existing/Proposed Land Use

By conventional standards, residential densities and employment concentrations much greater than currently exist or are projected for Eugene-Springfield would be required to support shuttle loop transit.

4. System Flexibility

The guideways and specialized vehicles make the system very inflexible. Response to changing travel patterns or advances in technology could be accomplished only at great expense.

5. Independence from Street Congestion

Since the shuttle loop transit system is completely separated from the surface arterial streets, operation insofar as the shuttle loop transit part of the trip is concerned would be unaffected by street congestion; the local bus part of the trip would be subject to all the delays of congestion.

Impact Criteria

1. Impact on Street System

Shuttle loop transit would have a major positive effect on the street system. All transit operations in the six major transit corridors would be accomplished with few transit vehicles in mixed traffic and the loss in vehicular capacity because of high volumes of transit vehicles would be avoided.

2. Community Disruption

The impact of operations would have a major positive impact because of the shift from petroleum powered vehicles to electric ones. The visual impact, and impact of fixed facilities, however, would be major negative ones because of the elevated guideways.

Implementation Criteria

Current U.S. Department of Transportation policy has resulted in funding of guideway transit systems only on a demonstration basis, or only after extensive analysis of alternatives showing that such a system is the most cost-effective approach for the community.

The shuttle loop transit system is far and away the most costly in terms of capital expense of the alternatives examined here, and as with the light rail system, implementation of the initial stage of this system would most likely have to be funded entirely from local revenues.

1. Capital Cost

Project Description	Cost (1976 dollars)	
Construction		
Central Transit Station	$ 800,000	
Major Transit Stations	1,850,000	
Minor Transit Stations	100,000	
Maintenance Facilities (conventional buses)	2,806,000	
	$ 5,556,000	
Engineering	847,800	
		$ 6,403,800
Priority Treatment		
Guideway, Power and Trackage	$167,682,000	
Stations	18,550,000	
Special Work (bridges, etc.)	600,000	
Transit Station Modifications	1,700,000	
Central Control Facility	2,800,000	
Maintenance Facility (SLT vehicles)	1,600,000	
	$192,932,000	
Engineering	28,940,000	
		$221,872,000
SLT Vehicles (43)		7,525,000
Conventional Buses (124 additional, 125 replacement)		17,430,000
TOTAL CAPITAL COST		$253,230,800

2. Operating Cost (1976 dollars)

Annual 2000 Operating Cost (SLT vehicles)	1,695,000
Annual 2000 Operating Cost (conventional buses)	15,998,000
TOTAL ANNUAL 2000 COVENTIONAL COST	$ 17,693,000

3. Ability to be Developed in Stages

The shuttle loop system has worse problems with implementation than the light rail system. One or two short segments of lines, constructed prior to complete line implementation could not be expected to reach full potential because of the transfer required to utilize the shuttle loop part of the system. Unlike light rail, the system must be built entirely as an elevated structure or otherwise separated from all other traffic due to its automatic operation.

4. Flexibility in Energy Supply

The electric propulsion system allows flexibility for future energy supply, since electric power may be generated by a number of methods.

BUS RAPID TRANSIT FACILITIES BY MAJOR CORRIDOR

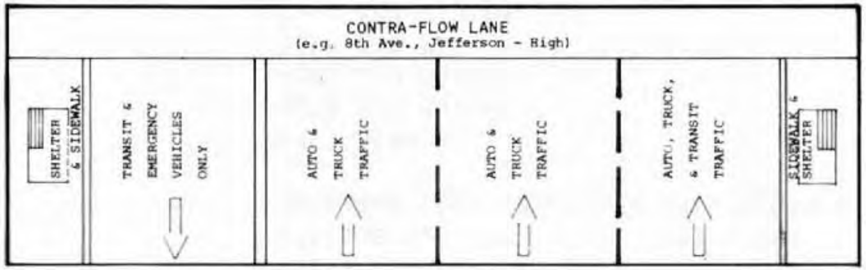
Corridor	Improvement	Comments
Eugene East-West	Contra-flow with median 7th Avenue (Chambers-Jefferson)	The bus volumes which were assumed for 7th Avenue bus traffic are dependent on a Chambers connector and 6th & 7th freeway.
		Short-term priority treatment to be done on 8th.
	Contra-flow lanes 8th Avenue (Jefferson-High)	Contra-flow lane on 8th from Jefferson to High would require parking removal.
	Transit Stations 7th/8th and Chambers 18th and Chambers 18th and Bailey Hill Fairfield and Jacobs	Short-term station location to be at 18th and Garfield.
	Intersection Priority Treatment between transit transfer stations	Intersections warranting priority treatments would be determined by subsequent refinement studies.
River Road	Transit Stations River Road and Belt Line (Park & Ride) River Road and Railroad Blvd.	
	Bus Turnouts/Queue Jumpers River Road (Railroad Blvd.-Belt Line)	
	Intersection Priority Treatment between transit transfer stations	Intersections warranting priority treatments would be determined by subsequent refinement studies.

BUS RAPID TRANSIT FACILITIES BY MAJOR HIGHWAY CORRIDOR (CONTINUED)

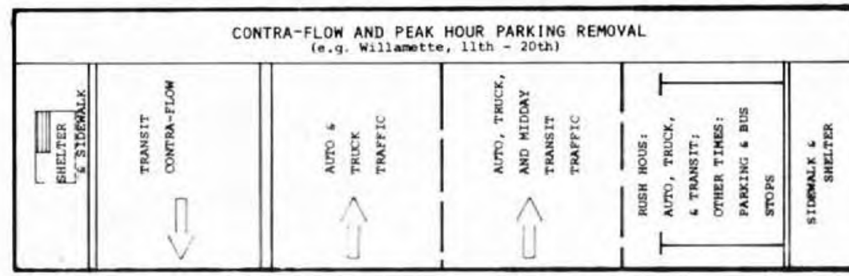
Corridor	Improvement	Comments
Downtown Westside	Peak Hour Priority Curb Lanes 11th Avenue (Willamette-Lincoln)	Total volumes imply removal of parking on South side of 11th Avenue (Willamette-Lincoln).
	Lincoln (11th-8th)	Lincoln (11th-8th) project required in conjunction with Lincoln-Charnelton couplet.
	Turning Radius Improvement 8th & Lincoln	
	Intersection Priority Treatment between transit transfer stations	Intersections warranting priority treatments would be determined by subsequent refinement stations.
Ferry Street Bridge	Priority Access Northbound approach ramp, Ferry Street Bridge Coburg Road (at Oakway southbound)	
	Transit Stations Coburg and Oakway Coburg and Cal Young	
	Intersection Priority Treatment between transit transfer stations	Intersections warranting priority treatments would be determined by subsequent refinement studies.
Franklin Boulevard	Peak Hour Priority Curb Lanes 11th Avenue (Franklin-High)	Routing to and from 11th and Franklin station assumes 8th Avenue contra-flow, Jefferson-High. Total volumes imply widening of 11th Avenue (Hilyard-High).
	Transit Stations 11th and Kincaid	
	Acceleration Lane and Turning Radius Improvement	

Corridor	Improvement	Comments
Franklin Boulevard (Continued)	Bus Turnouts and Queue Jumpers Franklin Boulevard (Hilyard-Walnut)	
	Intersection Priority Treatment between transit transfer stations	Intersections warranting priority treatments would be determined by subsequent refinement studies.
McVay Highway	Peak Hour Priority Curb Lane Main (6th-Mill)	
	Transit Stations LCC (Park & Ride) 5th and North "B"	
	Intersection Priority Treatment between transit transfer stations	Intersections warranting priority treatments would be determined by subsequent refinement studies.
Not Corridor Specific	Peak Hour Parking Removal Willamette (11th-20th, west side) 11th (Pearl-Willamette)	Contra-flow lane on Willamette (20th-11th) will require parking removal.
	Transit Contra-flow Lane Willamette (20th-11th, east side) 18th Ave. (Willamette-Pearl, south side)	
	Transit Stations 30th and Hilyard 42nd and Main 58th and Main (Park & Ride) 21st and Olympic Goodpasture Island 29th and Willamette 18th and Willamette Eugene Mall Pheasant and Lindale	
	Intersection Priority Treatment Bus Turnouts/Queue Jumpers Willamette-20th to 29th	Intersections warranting priority treatments would be determined by subsequent refinement studies.

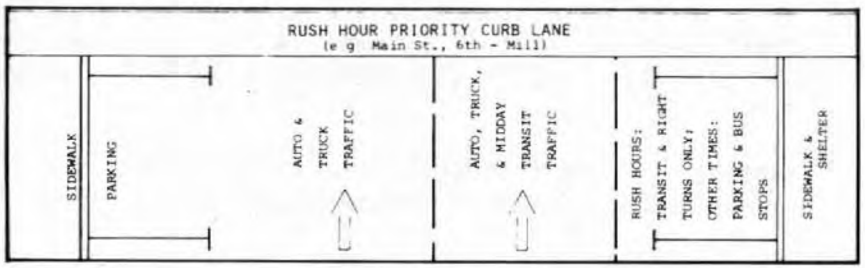
TYPICAL TRANSIT PRIORITY LANE TECHNIQUES



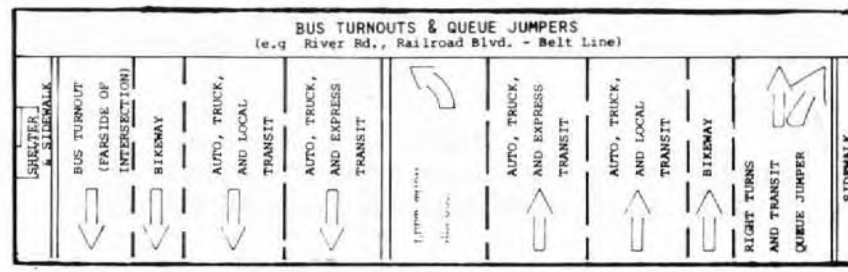
CONTRA-FLOW LANE
(e.g. 8th Ave., Jefferson - High)



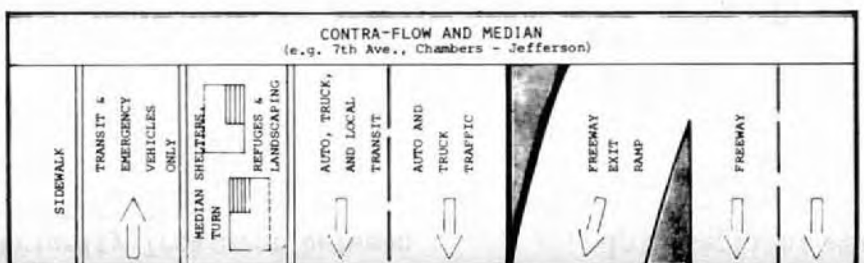
CONTRA-FLOW AND PEAK HOUR PARKING REMOVAL
(e.g. Willamette, 11th - 20th)



RUSH HOUR PRIORITY CURB LANE
(e g Main St., 6th - Mill)



BUS TURNOUTS & QUEUE JUMPERS
(e.g River Rd., Railroad Blvd. - Belt Line)



CONTRA-FLOW AND MEDIAN
(e.g. 7th Ave., Chambers - Jefferson)

SPRINGFIELD TRANSIT GOAL REDUCTION -
Effect on Transit Systems Requirements

I. Base Data

A. Year 2000 Total Internal Person Trips

1.	Eugene-Springfield	113,029
2.	Springfield-Springfield	106,103
3.	Springfield-Lane County	10,765

B. Year 2000 Transit Person Trips, All Purposes (assuming 15% Eugene, 10% Springfield, 10-15% Lane County modal split)

1.	Eugene-Springfield	15,866	(14%)
2.	Springfield-Springfield	10,511	(10%)
3.	Springfield-Lane County	647	(6%)

II. Transit System Reduction

A. Ridership Reduction

1.	Springfield-Springfield	5,256	(5%)
2.	Peak hour Springfield-Springfield	526	(10% of 24 hr. total)

B. Fleet Size and Cost Reduction

1. Peak hour vehicle in service reduction

   526 pk. hr. pass. ÷ 75 pk. hr. pass./bus = 7 buses

2. Total fleet reduction = 8 (includes 10% spares)

3. Capital Cost reduction = $560,000 (8 @ $70,000)

C. Operating Cost Reduction

1. Daily vehicle hour reduction = 49 (7 buses @ 7 hrs./bus)

2. Annual vehicle hour reduction = 15,043 (7 hrs./day X 307 days)

3. Annual operating cost reduction = $275,000 (15,043 hrs. X $18.28/

YEAR 2000 PEAK HOUR STATION USAGE - 14% AREAWIDE TRANSIT GOAL

	STATION USAGE			TRANSIT VOLUMES ADJACENT TO STATION ON APPROACH CORRIDORS AND STREETS									
STATION	ON LOADINGS	OFF LOADINGS	BUS VOL. THRU STA.	PASS.	BUSES	PASS.	BUSES	PASS.	BUSES	PASS.	BUSES	PASS.	BUSES
Eugene Mall	2,375	3,342	156	FERRY ST. BRIDGE 1,255	36	RIVER RD./VRC 2,573	90	FRANKLIN BLVD. 1,708	78	S. WILL/OAK/AMAZON 994	46	W. & S.W. EUGENE 2,500	63
30th & Hilyard	273	248	51	N. HILYARD 110	17	S. HILYARD 292	8	E. 30TH 695	19	W. & N.W. 912	48		
5th & N. "B"	1,133	1,233	75	NORTH-5TH & MOHAWK 1,008	50	SOUTH-LCC/52ND 385	14	EAST-MAIN ST. 648	16	W.-FRANKLIN/CENTENNIAL 1,151	45		
13th & Kincaid	494	1,258	88	SOUTH-PATT/HILYARD 453	24	E. FRANKLIN BLVD. 1,224	37	WEST-11TH/13TH 1,200	67				
Goodpasture Island	465	276	54	NORTH-GOODPASTURE 542	12	EAST-CAL YOUNG 790	29	E.-COUNTRY CLUB 180	12	SOUTH-CBD 1,119	53		
LCC	198	669	30	NORTH-McVAY 245	8	WEST-30TH 622	19						
Riviera	478	383	36	NORTH-RIVER ROAD 561	14	EAST-BELT LINE 455	12	W.-MAXWELL/SILVER 561	22	SOUTH-RIVER ROAD 349	14		
Gilbert	117	97	36	NORTHWEST-HWY 99 604	28	S.E.-HWY. 99 782	30	SOUTH-FAIRFIELD 260	6				
8th & Garfield	206	201	44	N.W.-HWY 99 882	30	EAST-8TH AVENUE 946	29	SOUTH-GARFIELD 659	23				
18th & Chambers	86	84	39	NORTH-CHAMBERS 23	10	EAST 18TH-AVENUE 352	12	WEST-18TH AVENUE 435	29	SOUTH-CHAMBERS 60	17		

YEAR 2000 PEAK HOUR STATION USAGE - 14% AREAWIDE TRANSIT GOAL (CONTINUED)

	STATION USAGE			TRANSIT VOLUMES ADJACENT TO STATION ON APPROACH CORRIDORS AND STREETS									
STATION	ON LOADINGS	OFF LOADINGS	BUS VOL. THRU STA.	PASS.	BUSES	PASS.	BUSES	PASS.	BUSES	PASS.	BUSES	PASS.	BUSES
18th & Will.	170	233	61	NORTH-WILL/OAK/AMAZ. 1,176	46	EAST-18TH AVENUE 343	12	WEST-18TH AVENUE 338	12	S-WILL/OAK/AMAZON 859	46		
29th & Will.	185	169	45	NORTH-WILLAMETTE 537	27	EAST-29TH AVENUE 304	29	WEST-29TH AVENUE 109	19	SOUTH-WILLAMETTE 441	12		
Oakway Mall	77	65	36	N.E.-COBURG RD. 744	36	N.W.-COUNTRY CLUB 190	12	S.W.-COBURG ROAD 821	30				
Coburg Plaza	260	192	44	NORTH-COBURG ROAD 322	10	WEST-CAL YOUNG 83	14	SOUTH-COBURG ROAD 449	30				
Mohawk & Olympic	85	70	34	NORTH-MOHAWK 296	12	S.W.-MOHAWK 453	32	SOUTH-18TH 249	6				
42nd & Main	42	27	18	EAST-MAIN 389	20	WEST-MAIN 486	20	SOUTH-42ND 74	2				
58th & Main	42	43	16	NORTH-58TH 150	6	EAST-MAIN 138	4	WEST-MAIN 276	20				
Pheasant & Lindale	190	259	32	NORTH-GAME FARM 86	6	EAST-HARLOW 223	18	WEST-HARLOW 254	14	SOUTH-LAURA 40	4		
18th & Bailey Hill	28	59	11	EAST 425	14	WEST 160	8						
River Road & Railroad Blvd.													

Section C

STREETS AND HIGHWAYS

STREETS AND HIGHWAYS

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STREETS AND HIGHWAYS

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STREETS AND HIGHWAYS

INTRODUCTION

Traditionally, the street and highway element has formed the foundation of long-range transportation plans, simply because the automobile is the dominant transportation mode and highways form the backbone of most urban transportation systems. Eugene-Springfield is no exception. Even if the future goals for transit and other modes are met, the automobile will continue to be the primary mover of people in the area throughout the study period. In addition, trucks will continue to be the prime movers of goods and the bus rapid transit system will require use of the street system as well. In fact, unless a transit system operating on its own right-of-way is selected for implementation, virtually all travel in 2000 will still be dependent on an efficient, functioning street and highway system.

Because of the large capital investments in major fixed facilities, long-range transportation planning has been extremely valuable in optimizing the use of highway construction dollars. The sophisticated computer modeling used to forecast automobile trips has worked well in identifying future needs because of the large data base available in most urban areas and the extensive research on automobile trip-making habits. Forecasting of future transit ridership is in the embryonic stages by comparison, especially in small urban areas.

The assumptions and uncertainties involved with long-range travel forecasting, however, make it a useful planning tool only if one understands its limitations. The models assume that travel habits remain constant over time and that no catastrophic events will occur to force major changes in lifestyles. Most importantly, however, the location of travel corridors is dependent upon the spacial distribution of urban activities. The identification of major traffic overloads will only be as accurate as the forecasts of future population, employment, and location of jobs and residences within the urban area.

The Eugene-Springfield Area Transportation Study took these basic assumptions and produced the 1985 Interim Plan in 1967. The plan was a recommendation to elected officials from engineers and planners on the street and highway system they felt most appropriate for the urban area after examining various alternatives. The only direction received from public officials prior to preparing the plan was that system cost should not be a major constraint. Because of the criticism of the 1985 Interim Plan, a different approach was used for the new transportation plan. It allowed greater participation of elected officials at the outset of the planning process.

Planning Approach

The preparation of this plan is different from the 1985 Interim Plan in several ways. First, through the "Eugene-Springfield Transportation Alternatives" report, it enabled elected officials to make choices on what traditionally are regarded as technical assumptions in many transportation studies. Future population and employment distributions, the future role of transit, per capita trip-making levels, and the level of service to be planned for on the highway system were all reviewed by policy makers, and direction on each was provided to planners and engineers before a final facility plan was developed. Secondly, the Transportation Planning Committee, often using systems analysis modeling tools to identify future street and highway deficiencies and test possible solutions, has presented the results of that analysis in this report, thus allowing the reader to review, evaluate and comment on alternative highway configurations that in the past were normally only reviewed by technicians. Essentially, this Plan takes an evaluation process that was once performed by planners and places it in the public arena for review by policy-makers. Thirdly, the great majority of the projects that were tested by the Transportation Planning Committee were based on forecasted street deficiencies, existing street deficiencies or citizen complaints, not on a predetermined concept of urban form utilizing a system of circumferential and radial arterials located at a specified distance from each other. In other words, the street and highway projects studied in this report are, for the most part, reactions to the anticipated demands of the desired local land use configuration and life style, not attempts to direct new development through new highways and new accessibility patterns.

By the nature of the systems planning approach, it cannot be expected to provide all the answers for every street and highway problem. Lesser ones are best treated on an operational basis through local traffic engineering departments. Urban travel forecasting techniques are best applied on a macro, rather than micro scale, and identification of future major corridor deficiencies can be done with a much greater degree of certainty than identification of a minor traffic engineering problem. This best use of systems analysis, then, allows elected officials to develop a blueprint for public investment in highways, and set the general direction for overall transportation development.

Systems analysis, as it was applied for this metropolitan area, was used to:

1. Identify travel corridors that will suffer major traffic overloads and severe capacity deficiencies by 2000.

2. Present, for each major corridor, identified alternative project combinations that will solve anticipated capacity problems and provide the level of service dictated as a planning goal. The projects studied indicate a need for additional capacity in the corridors served by those projects. Although the projects are shown on maps, the location and features of the projects should be considered as representative only. Final location and design details will be determined during the project planning stage.

3. Permit the reader to review the alternatives examined by the Transportation Planning Committee when it prepared the Plan. Different combinations of alternatives or projects may be chosen as the final system. Because the street network operates as a system, and projects of one corridor can impact traffic volumes in another, though, additional technical testing may be necessary to develop a final listing of required projects if the adopted network is significantly different from that recommended by the Transportation Planning Committee. The scope of the major projects should not change, however, and the testing will, in all likelihood, result only in design revisions for projects in the travel corridor under study.

4. Identify other smaller, non-corridor related projects needed by 2000. These projects are necessary to relieve either existing or forecasted non-corridor overloads, or are justified by several other criteria. Extensive technical data exist from this study that can be used on a case-by-case basis to support or help design some of these non-corridor projects.

The Transportation Plan cannot provide answers for every question that may arise through technical testing or public hearings. Examination of some issues are beyond the capabilities of systems planning. For example:

1. It cannot identify every intersection, signalization or minor widening project needed in the next 25 years. Such detailed forecasting is beyond the capabilities of the modeling techniques employed in this study. The nature of

the broad assumptions used for travel forecasting, not to mention population and employment forecasting, make close examination of an isolated link in the network suspect from a technical basis.

2. It cannot examine alternatives to the recommended non-corridor projects. The magnitude of many of the non-corridor problems are insignificant when compared to the anticipated deficiencies in the major corridors. The alternatives that do exist for the small, spot projects are in the engineering design features. Examination at this level of detail for every project is more appropriately done on a project-by-project basis at the time of implementation than it is in this study.

3. It cannot serve a treatise on either estimates of world oil reserves or possible technological breakthroughs in automotive propulsion systems. Opinions on both subjects are as numerous as there are individuals in the metropolitan area, and each reader must weigh the importance of fuel availability as he/she sees fit.

   When making travel forecasts for the master plan, however, it was assumed that individual trip-making would remain at 1970 levels throughout the study period. This stabilization of the per capita trip-making rate is not supported by the past trend of increasing personal mobility. It was also assumed that some source of energy would be available for travel, albeit at a cost higher than experienced today. Some studies have concluded that very substantial increases in the price of gasoline (i.e., 100% or more) would be necessary to have a measurable impact on automobile usage.* Over the long term, consumers can be expected to adjust to the price increases by various means such as purchasing smaller, more fuel efficient cars, for example. Nevertheless, increased fuel costs may be one factor that will help move toward the alternative mode goals that have been set.

   In addition, the TPC did not examine "no build" alternatives, that is, leaving the arterial system just as it is now, since the direction of elected officials was to plan for facilities or strategies that would eliminate

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* "Alternatives for Improving Urban Transportation - A Management Overview", Federal Highway Administration, Washington, D.C. 1976.

forecasted overloads. Each alternative combination of projects, for the major corridors (with one exception) do this. The magnitude of the anticipated overloads in the major corridors are so great that proven, low cost traffic engineering improvements will not provide the needed capacity in the year 2000.

Background

The "Twelve Principles", adopted following hearings on the "Alternatives" report, contained several points that had a significant effect on the future highway needs of the metropolitan area. They are:

1. The future population of the metropolitan area

2. The future land use configuration

3. The per capita trip-making rate

4. The transit ridership goal (and other modal goals)

5. The level of service goal for streets and highways.

The first three are important ingredients in estimating total travel demand and the second two are important for estimating the size of facilities required to carry the demand. Travel demand estimation for the Transportation Plan used the same procedure (with new variables) as that used for the "Alternatives" report. Further discussion here would be redundant, and the reader should refer to Chapter 11, "Travel Demand Projection", of that report for a description of the travel forecasting methodology.

The highway testing procedure consisted of determining where capacity deficiencies would develop on the existing street network with 2000 traffic, and then systematically adding new facilities or capacity increases until the future traffic could be handled.

Projected traffic volumes for 2000 were assigned to each street in the 1975 major street network. The projected volume on each street was then compared to the capacity of that facility to determine which streets were expected to be overloaded, or capacity deficient, by 2000.* For purposes of comparison, two tests were made, one that assumed all person-trips in the metropolitan area would be made by automobile in 2000, and one that assumed the adopted goals for transit, paratransit, bicycle and walking would be met. The resulting overloads are shown in Figures 1 and 2 respectively.

By examining the overloads for both tests, one finds that the shift of trips from the automobile to transit or other modes does not significantly reduce the number of major capacity deficiencies that are likely to occur. Only in the downtown Eugene area (where the computer modeling procedure is least reliable) is there some evidence that overloads may be reduced to a degree significant enough to reduce the number of traffic lanes that may have otherwise been needed. The examination of all future street and highway needs was based on the deficiencies from Figure 2.

From the test results shown in Figure 2, major travel corridors were identified that can be expected to suffer capacity deficiencies by 2000. All six corridors are illustrated in Figure 4. They are:

- Eugene East-West Corridor
- River Road Corridor
- Eugene Downtown Westside Corridor**
- Ferry Street Bridge/Coburg Road Corridor
- Franklin Boulevard Corridor
- McVay Highway Corridor

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* To make traffic volume-to-capacity comparisons, it is necessary to express the daily traffic projections in terms of peak hour demand. Currently, the traffic using major streets of the area has its maximum flow during the late afternoon. Approximately 10 percent of the daily traffic using a given street will use it during the peak hour (although this figure may vary somewhat depending on location). Therefore, 10 percent of the daily traffic projection was compared with the hourly capacity of that street. Streets whose volume projection exceeded the capacity were considered to be deficient. Figure 3 shows overloads on the major street network under 1976 conditions.

** The Eugene downtown Westside Corridor did not show serious overloads, but at the direction of the Eugene Council, it was subsequently added as the sixth major corridor to be studied.

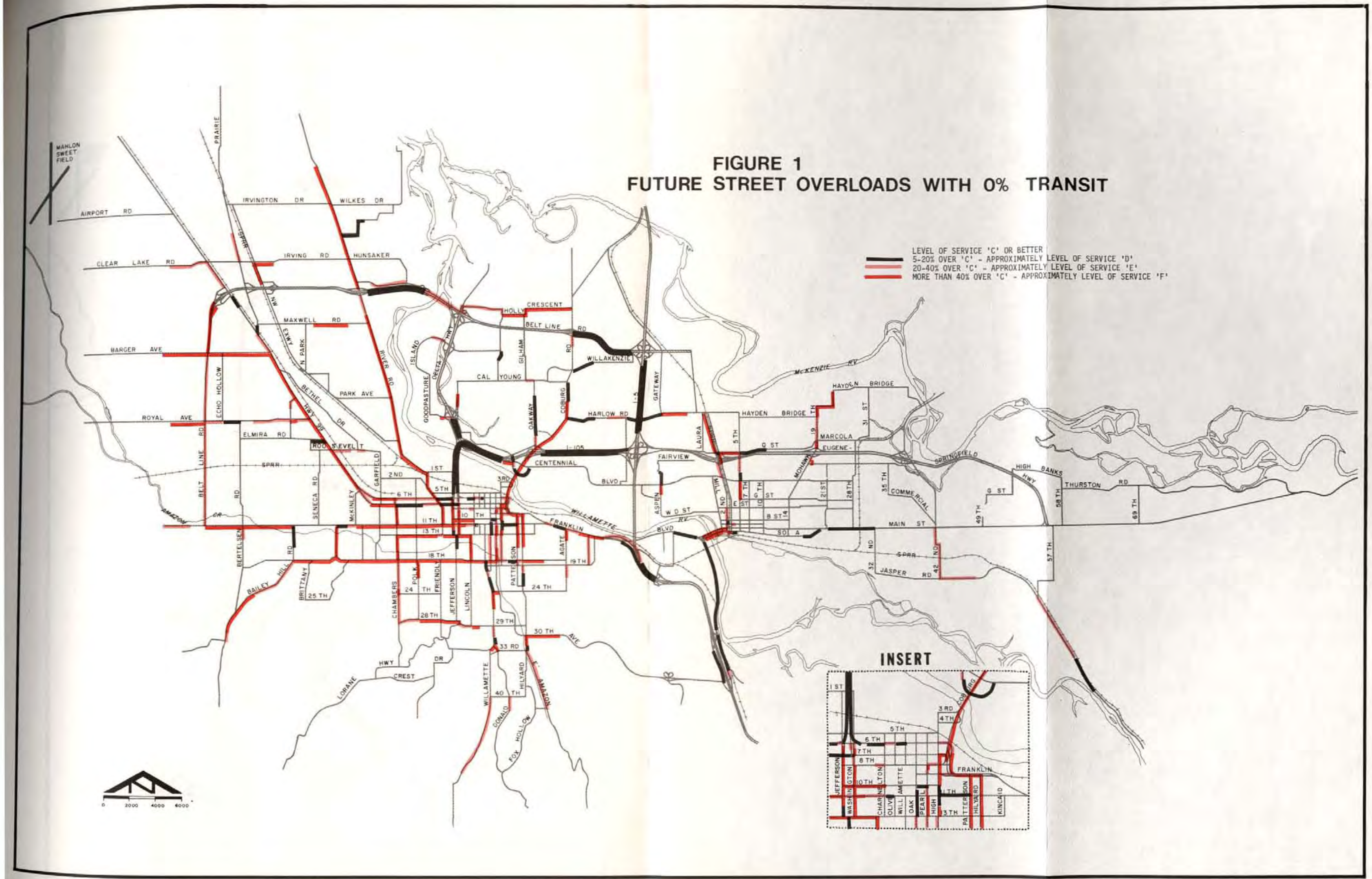

FIGURE 1
FUTURE STREET OVERLOADS WITH 0% TRANSIT

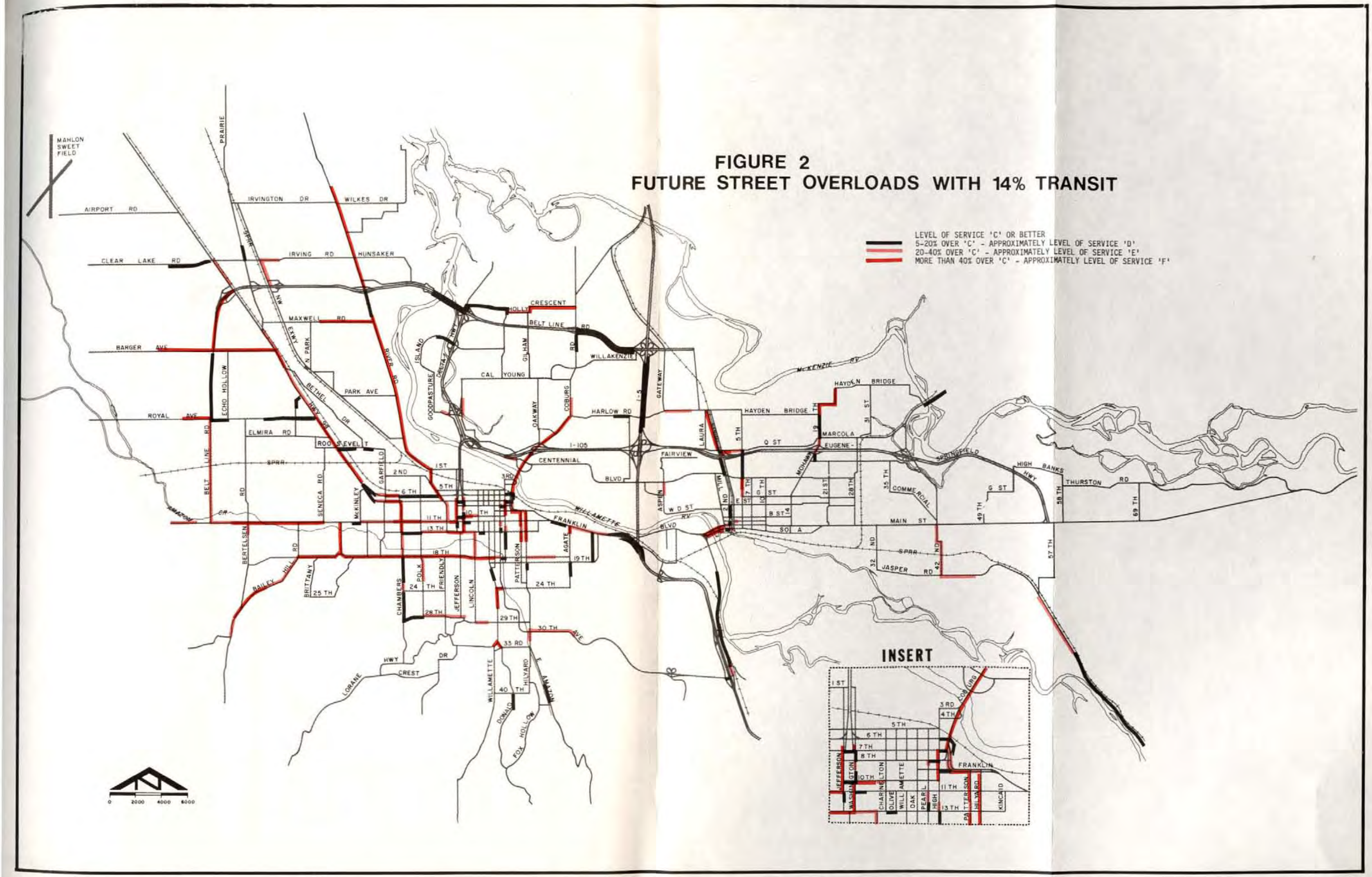

FIGURE 2
FUTURE STREET OVERLOADS WITH 14% TRANSIT

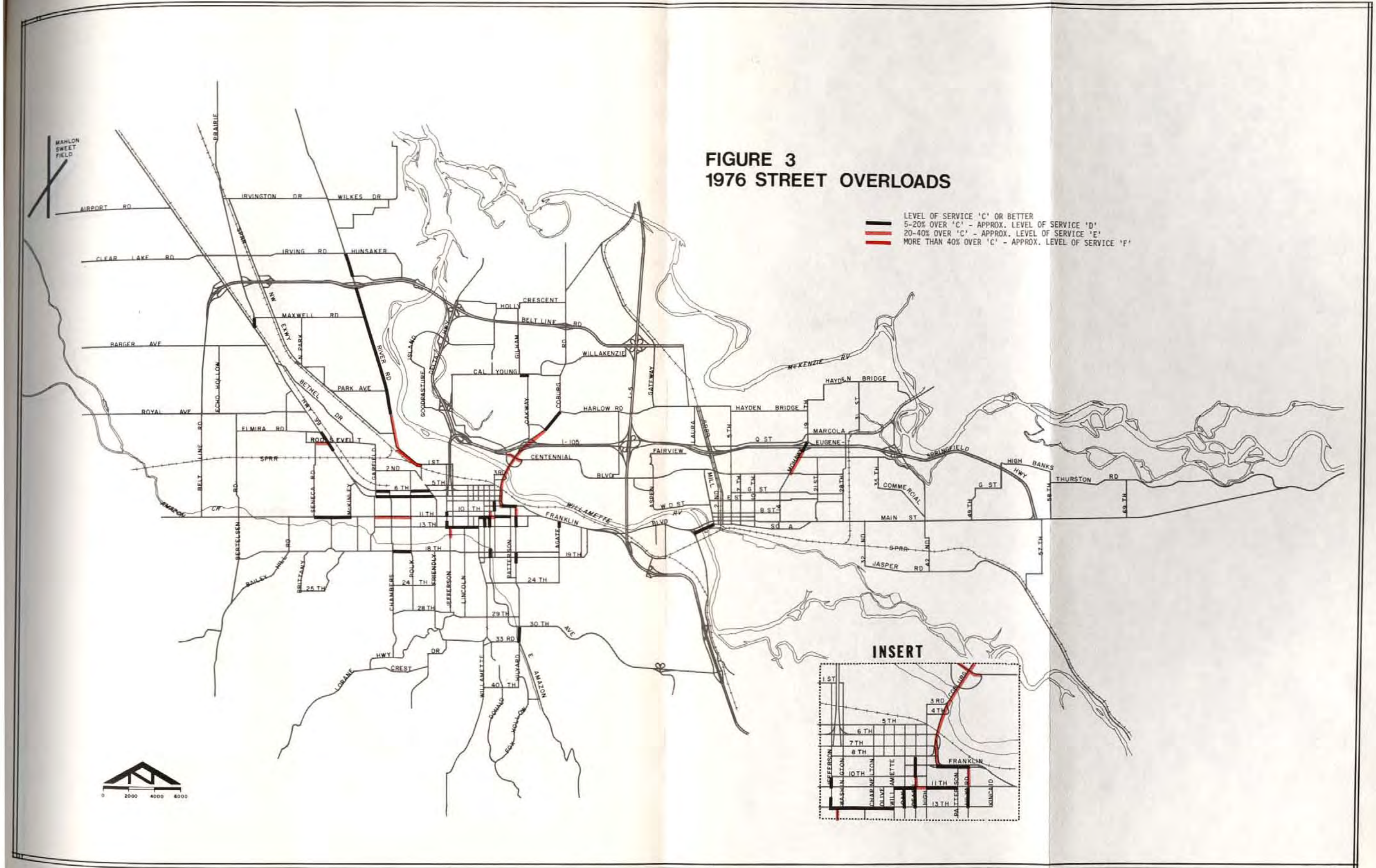

FIGURE 3
1976 STREET OVERLOADS

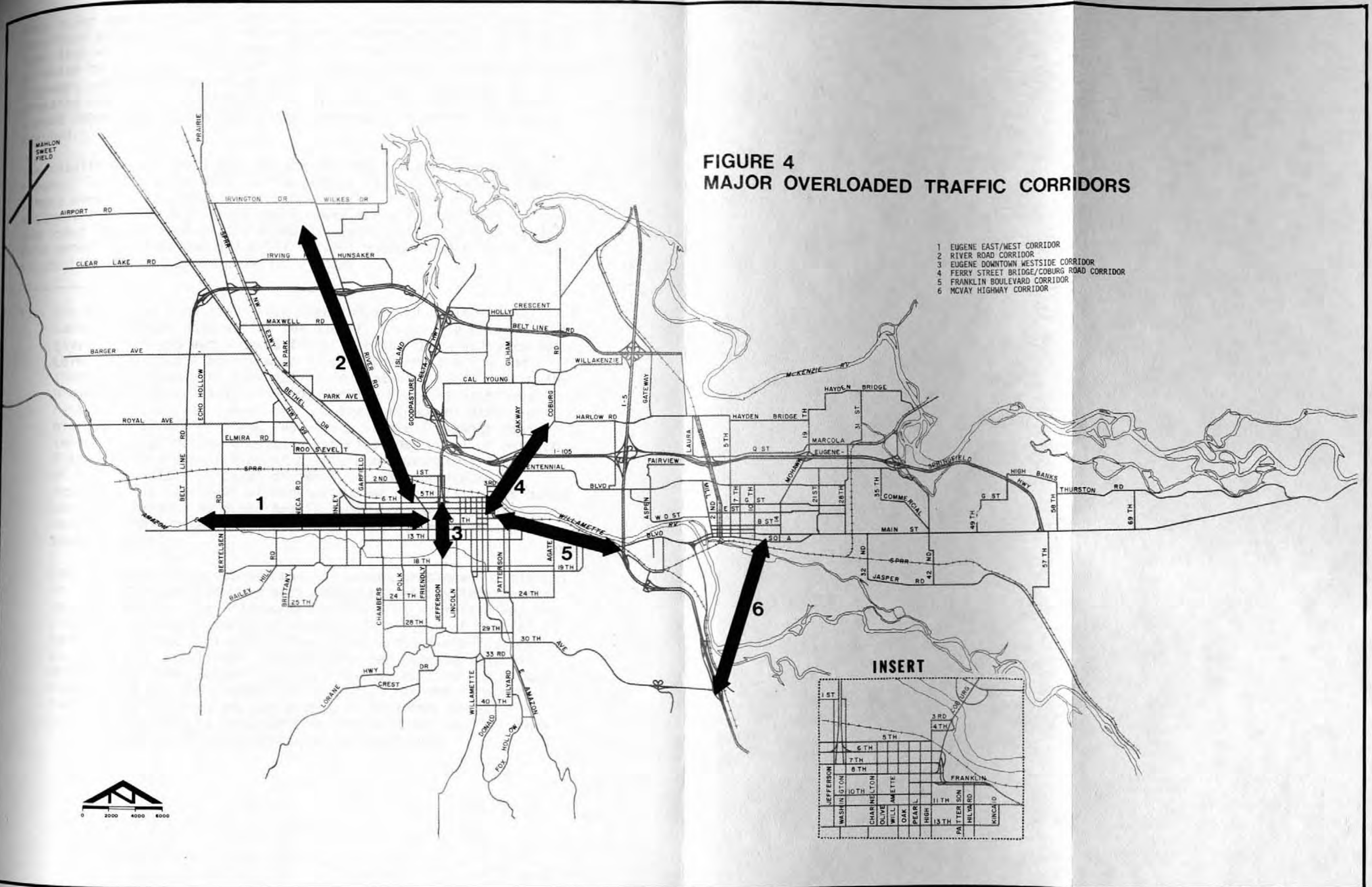

FIGURE 4
MAJOR OVERLOADED TRAFFIC CORRIDORS

Once major corridors were identified, the Transportation Planning Committee proceeded to test alternative project combinations to find ones that will prevent the occurrence of Level of Service "E" as directed by elected officials.* It should be noted that streets and highways are often improved or built for reasons other than increasing capacity. In addition, it is typical for users to demand street improvements well before the capacity of a given facility is reached.

The results of all tests made by the TPC are not included in this report. Some projects were ineffective at relieving overloads and others were deemed unfeasible for one reason or another. Technical documentation from all street and highway tests is available in unpublished form at each of the agencies participating in this study. Trip generation data and all other support documentation is on file in the Lane Council of Governments offices.

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* Six different conditions have been identified by the Highway Capacity Manual that define the quality of service offered by a given street segment under different demand to capacity ratios: Level of Service A exists when traffic volumes are low and there is virtually no restriction in maneuverability due to the presence of other cars; Level of Service B occurs with some restriction in lane operation from the presence of other vehicles; Level of Service C represents stable flow with most vehicles experiencing operating restrictions; Level of Service D approaches unstable flow at a volume approximately 105%-120% of Service Volume C; Level of Service E is experienced at approximately 120%-140% of Service Volume C with all cars being seriously impeded by other traffic and momentary stoppages are normal; Level of Service F occurs at a point where demand exceeds capacity.

Hourly demand in excess of capacity causes breakdown conditions so that fewer vehicles may pass than the quantity that represents capacity. The Transportation Planning Committee and the Citizens' Advisory Committee studied video tapes of traffic at several intersections within the Eugene-Springfield area and collectively established 1900 vehicles per lane per hour of green signal time (under ideal conditions) as a rule-of-thumb capacity to use for evaluation purposes. For the Transportation Plan preparation, any street falling into Level of Service "E" (1600 to 1900 vehicles per lane per hour of green signal time) or "F" was identified as overloaded.

STREET AND HIGHWAY CORRIDOR ALTERNATIVES

Evaluation Criteria

To assist the reader in choosing between the alternatives examined for the major travel corridors, criteria were selected and applied to project groupings in each corridor. Although each alternative was presented as a solution to specific forecasted traffic overloads, final selection of projects for implementation must include consideration of social, environmental and economic factors, land use goals and policies, and resource availability, as well as traffic considerations. The evaluation criteria attempt to draw out the relative merit of each alternative with respect to these considerations.

Because of the regional nature of the transportation plan, the level of detail of evaluation should not exceed the level of detail of traffic forecasting analysis. Consequently, the criteria are predominately qualitative in nature. Assessment and evaluation with these criteria are not intended to serve as an environmental impact statement for the projects under consideration. The detailed analysis required for the EIS/Negative Declaration will be performed at the project development stage. The criteria are aggregated to three categories:

Performance Criteria

Performance criteria are measures of the degree to which each alternative fulfills the goals and objectives of the urban area and individual jurisdictions. This includes fulfillment of the twelve principles as well as the compatibility with other modes of transportation. For each of the performance criteria, corridor alternatives are rated either very poor, poor, fair, good, or very good.

Impact Criteria

Impact criteria deal with the benefits, disturbances or changes to the immediate environment resulting from implementation of each of the alternatives. Both the natural and social environment are considered. Those criteria that are supported by quantitative analysis are assigned numeric indicators, while those criteria supported by qualitative analysis will be determined to have either a major negative, minor negative, negligible, minor positive or major positive effect.

Implementation Critiera

Implementation criteria are those considerations that help determine the feasibility of a given alternative. Cost figures (in 1977 dollars) will be calculated for each alternative and the remaining implementation criteria will be rated with the same descriptions as the performance criteria.

A full discussion of each evaluation criteria is found in the appendix to this section. A matrix following each set of corridor alternatives summarizes the evaluation of that corridor made by the Transportation Planning Committee. The purpose for developing the criteria is to stimulate discussion on the corridor alternatives. Planners have identified criteria they feel are important when comparing alternatives, but the list is not meant to be all inclusive. Each reader may have criteria that he/she wishes to add to the discussion.

As with the transit evaluation criteria, no attempt was made to develop a point system or to assign values to each criterion and arrive at a point total for each alternative. By presenting only an evaluation matrix for each set of corridor alternatives, without attempting to determine the relative weight of each, the report allows the reader to determine which criteria are of greatest importance.

Introduction

The traffic assigned to the major street network for 2000 is based on the population, employment and trip-making assumptions discussed elsewhere in this report. Trips made by transit, bicycle, paratransit and walking were removed from consideration when estimating the size and extent of future street needs. In some corridors, under the assumption that 14% of internal person-trips will be carried by transit in 2000, as much as one-quarter to one-third of internal demand has been assigned to transit. If the transit and other modal goals are not met, and if per capita trip-making does not stabilize at 1970 rates, future highway capacity needs in some corridors will be underestimated.

By identifying the anticipated problem in each corridor, and identifying alternative project combinations to solve the problem, this report will enable elected officials to evaluate workable alternatives for each corridor and alter (using the alternatives or a hybrid of alternatives) the street and highway network recommended by TPC. As stated earlier, however, traffic volumes assigned to any given facility may be influenced by changes made elsewhere in the major street network, and additional testing may be necessary to develop a complete project list. The non-corridor deficiencies are, in many instances, dependent on the project groupings chosen for major corridors.

For each of the six corridors examined in the street and highway analysis, a description of the corridor and the problems forecasted for the corridor will be presented. The alternatives investigated by the Transportation Planning Committee will be discussed, including consideration of the advantages and disadvantages of each.

Eugene East-West Corridor

The Eugene East-West Corridor covers a broad area through western Eugene, stretching from the Eugene Central Business District on the east to the study area boundary on West 11th Avenue on the west. Major arterial streets serving east-west traffic in the corridor include 6th, 7th, 11th, 13th, and 18th Avenues. In a sense, the corridor could be subdivided into two corridors - one along 6th and 7th Avenues and one along 18th Avenue - but the major new facilities proposed near 6th and 7th influence traffic volumes on 18th to such an extent that the entire area was treated as one corridor for this study.

The major arterials in the corridor are all low-speed surface streets, with no limited access facility available to carry east-west traffic. As a result, substantial community disruption has already occurred, since streets which were once residential in nature have become heavily travelled arterials. This situation can only be expected to worsen without major highway improvements.

Overloads are expected to occur on sections of 6th and 7th Avenues, most of 11th and 18th Avenues, and sections of Highway 99. Transit trips in 2000 will account for approximately 20 to 25 percent of total internal trip demand in the corridor. A significant percentage of the traffic in this corridor is through traffic or industrial/commercial traffic (particularly on 6th and 7th Avenues), which are not candidates for transit or alternative modes. Future vehicular volumes are compared to existing volumes for representative locations in the Corridor in Table 1.

TABLE 1
EUGENE EAST-WEST CORRIDOR
Traffic Volume Versus Demand

Street	1976 Average Daily Traffic (000)	1976 Level of Service "E" Volume (000)	2000 Average Daily Traffic (000)
6th Avenue-Garfield to Chambers	16.9	19.4	25.4
7th Avenue-Garfield to Chambers	17.3	21.0	25.9
11th Avenue-Garfield to Chambers	9.5	10.8	13.4
13th Avenue-Garfield to Chambers	5.7	13.2	5.7
18th Avenue-Garfield to Chambers	12.7	20.4	30.2

The alternative chosen for the East-West Corridor will have a direct impact on the Eugene Downtown Westside Corridor and the success of the projects implemented there. Major new facilities could also affect loadings on the Ferry Street Bridge and traffic patterns in the lower River Road Corridor.

Alternative One

Specific projects are shown in Figure 5 and Table 2.

Alternative One attemps to relieve forecasted overloads solely by making improvements of streets at their existing locations. No new facilities were tested as part of this alternative, and the projects shown would only increase capacity of the existing streets, not reduce travel times or increase accessibility. Consequently, all major streets in the corridor would carry increased traffic in 2000 under the same or lowered speed, and basically the same operating conditions as today.

The major advantages of Alternative One include:

- Lowest capital cost of the four alternatives studied
- No community disruption because of new highway construction

The major disadvantages of Alternative One include:

- Poor service provided to automobile and truck traffic
- Significant and increased neighborhood disruption along major arterials

- Severe impact on 18th Avenue neighborhoods, as 18th Avenue will serve as a major arterial, requiring widening to five lanes*
- No improvements in accessibility to the west Eugene industrial area
- Diversion of traffic from West 11th (east of Garfield) to avoid capacity improvements. Utilization of surface streets by through traffic

Alternative Two

Specific projects are shown in Figure 6 and Table 3.

Alternative Two relies on a widened 6th and 7th Avenues, but adds a controlled access, arterial extension of 6th and 7th through the west Eugene industrial area to West 11th at Belt Line. The facility will be at-grade for most of its length, but will include an overcrossing at 7th Avenue and at the Southern Pacific Railroad tracks near Seneca. The travel time savings of this facility will likely draw some traffic from West 11th and West 18th, but will not eliminate the need for widening of 18th from Willamette to City View. A new surface arterial, the extension of Roosevelt Boulevard, on the old Roosevelt Freeway right-of-way, will provide a truck route for industrial traffic now using residential streets in the Bethel area.

The major advantages of Alternative Two include:

- Improved access to the west Eugene industrial area
- Removal of truck traffic from Bethel area residential streets
- 6th-7th Extension can be upgraded to freeway standards at a later date, if warranted
- No new major highway construction in developed residential areas

The major disadvantages of Alternative Two include:

- Major widening along much of West 18th
- 6th and 7th Avenues remain a low speed, congested link between I-105 and the 6th-7th Extension

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* TPC examined the provision of a one-way couplet using 18th and 19th Avenues as an alternative to widening 18th from Polk to Willamette. This project was rejected by TPC, however, because of the resulting disruption along 19th.

Alternative Three (Recommended by TPC)

Specific projects are shown in Figure 7 and Table 4.

Alternative Three proposes major new construction with the 6th-7th freeway, an elevated 6-lane facility, mid-block between 6th and 7th from I-105 to Garfield, and a four lane facility with grade separation at major cross streets west of Garfield. Sixth and 7th Avenues would remain open as frontage streets serving local traffic and bus rapid transit vehicles. The improved travel time provided by the freeway through west Eugene would divert traffic from 6th, 7th, 11th, 13th, and 18th - enough to eliminate the need for major capacity improvements everywhere on these facilities except intersection improvements and restriping on 18th.

The major advantages of Alternative Three include:

- Improved access tb the west Eugene industrial area
- Excellent service provided to automobile and truck traffic
- Diversion of traffic from 6th, 7th, 11th, 13th Avenues, and sections of 18th Avenue
- Removal of some through traffic from Washington and Jefferson Streets between 7th and 13th Avenues
- Removal of truck traffic from Bethel area residential streets
- Minimization of negative automobile-related impacts along 11th, 13th and sections of 18th Avenue
- Phased implementation through advance right-of-way purchase

The major disadvantages of Alternative Three include:

- Construction and right-of-way costs for the 6th-7th Freeway
- Displacement of businesses and residences between 6th and 7th Avenues
- Remaining traffic and the need for some improvements on 18th Avenue

Alternative Four

Specific projects are shown on Figure 8 and Table 5.

Construction of the Roosevelt Freeway and West Amazon Parkway constitute Alternative Four. The Roosevelt Freeway is a four-lane facility utilizing the state-owned right-of-way between Highway 126 at Oak Hill and River Road, a six lane freeway parallel to the

Southern Pacific tracks between River Road and I-105 and a four lane arterial between I-105 and Willamette, Oak and Pearl. A four lane overpass, constructed as part of the Roosevelt Freeway, connecting River Road to the freeway and Garfield Street eliminates the need for the Chambers Connector proposed in the River Road Corridor Alternatives Two and Three.

The West Amazon Parkway is a two to four lane arterial following the Amazon Channel from West 11th to High Street. It provides the capacity and improved accessibility required to eliminate the need for major improvements on West 18th and preserves the residential nature of areas adjacent to West 18th.

The major advantages of Alternative Four include:

- Provision of excellent service to automobile and truck traffic
- Improved access to west Eugene and Veneta area
- Diversion of traffic from 6th, 7th, 11th, 13th and 18th Avenues
- Removal of truck traffic from Bethel area residential streets

The major disadvantages of Alternative Four include:

- Highest capital cost of the four alternatives studied
- Penetration of the Whiteaker neighborhood by a new major arterial
- Negative impacts on the Amazon drainageway in terms of potential recreational and wildlife values
- Urban development pressure created by increased accessibility of land west of the Urban Services Boundary
- Conversion of 14th and 15th Avenues, between Jefferson and High Streets, to a one-way couplet.

River Road Corridor

The River Road Corridor is a wedge-shaped area bounded by the Willamette River on the east, Southern Pacific tracks on the west and south, and the study area boundary at Beacon Drive on the north. The physical barriers formed by the river and railroad funnel most traffic onto River Road and, in turn, Railroad, Van Buren, and Blair Boulevards. River Road is a substandard, two lane arterial with access problems caused by adjacent land uses. Traffic conditions are compounded by the heavy left turn movements from the northbound lane and lack of left turn refuges along much of the facility. Northwest Expressway will serve as an alternative route for traffic only when River Road congestion becomes intolerable, and even then traffic still must use Railroad/Van Buren/Blair. The at-grade rail crossing on Van Buren adds further delays and presents a potential hazard as well.

Although some traffic may be diverted to Belt Line and Delta Highway, River Road will continue to function as the backbone of the corridor. Major overloads are forecast on River Road, Railroad Boulevard and Van Buren/Blair Boulevards by 2000. In fact, Railroad Boulevard is one of the few streets in the metropolitan area already experiencing Levels of Service "E" and "F" during the peak traffic hours. In 2000, during the peak hours, approximately 20 percent of the internal person-trips will be carried by transit for the corridor under the area-wide transit goal. Nevertheless, overloads will still be severe, as illustrated in Table 7.

TABLE 7
RIVER ROAD CORRIDOR
Traffic Volume Versus Demand

Street	1976 Average Daily Traffic (000)	1976 Level of Service "E" Volume (000)	2000 Average Daily Traffic (000)
Railroad Boulevard	19.5	16.4	31.5
River Road - Maxwell to Park	14.2	15.6	23.0
River Road - Belt Line to Division	19.8	28.4	35.9
Northwest Expressway-Maxwell to Park	1.9	14.4	2.0

Alternative One

Specific projects are shown in Figure 9 and Table 8.

Alternative One attempts to relieve forecasted overloads by improving only existing streets. River Road, Railroad Boulevard, Van Buren/Blair Boulevards are all widened to four lanes with turn lanes at major intersections. Northwest Expressway is completed to Prairie Road on the north and River Road on the south. Even with these improvements, severe congestion will still occur at the Belt Line/River Road interchange without additional capacity increases. It appears the overloads here can be eliminated by additional widening, channelization and signalization of River Road from south of River Avenue to north of Division Avenue, and widening the northeast and southwest Belt Line off-ramps to four lanes.

The major advantages of Alternative One include:

- Lowest capital cost of the four alternatives studied

The major disadvantages of Alternative One include:

- Poor service provided to automobile and truck traffic
- Division of the Whiteaker neighborhood with a four lane arterial
- At-grade rail crossing remains at Van Buren
- Congestion at Belt Line/River Road interchange

Alternative Two (Recommended by TPC)

Specific projects are shown in Figure 10 and Table 9.

Alternative Two, like all alternatives studied in this corridor, includes the River Road four lane widening from Railroad to Wilkes Drive, but adds a new four lane overpass to the Chambers Connector joining River Road with Chambers Street. Provided some disincentive to through traffic is implemented on Railroad Boulevard, this overpass should alleviate the traffic problems in the Whiteaker neighborhood. This connector functions best in conjunction with the 6th-7th Freeway in the Eugene East-West Corridor. Delta Highway is extended north to Santa Clara to provide some relief for an overloaded Belt Line/River Road interchange, and a new railroad overpass connects Northwest Expressway with Garfield Street.

The major advantages of Alternative Two include:

- Elimination of at-grade crossings of the Southern Pacific tracks
- Elimination of arterial traffic from the Whiteaker neighborhood
- Improved access to northern Santa Clara

The major disadvantages of Alternative Two include:

- High capital cost
- Disruption of industrial land by the Chambers Connector
- Willamette River Greenway crossing by the North Delta Extension
- Urban development pressure created by increased accessibility of land north of the Urban Services Boundary

Alternative Three

Specific projects are shown in Figure 11 and Table 10.

Alternative Three is identical to Alternative Two with the addition of a new bridge joining River Road at Park Avenue with Delta Highway north of Valley River Center. This facility provides a direct connection between lower River Road and Goodpasture Island, eliminating out-of-direction travel for that movement. Even so, it does not substantially relieve traffic congestion in the corridor or eliminate the need for the Chambers Overpass.

The major advantages of Alternative Three include:

- Elimination of at-grade arterial crossings of the Southern Pacific tracks
- Elimination of arterial traffic from the Whiteaker neighborhood
- Improved access to northern Santa Clara
- Improved access to Goodpasture Island area from lower River Road
- Improved transit service through use of the Park Avenue Bridge

The major disadvantages of Alternative Three include:

- Highest capital cost of the four alternatives studied
- Disruption of industrial land by the Chambers Connector
- Willamette River Greenway crossings by both North Delta Extension and Park Avenue Bridge
- Urban development pressure created by increased accessibility of land north of the Urban Services Boundary

Alternative Four

Specific projects are shown in Figure 12 and Table 11.

Alternative Four uses the majority of projects from Alternative Two, but substitutes an overpass connector - the Garfield Connector, joining River Road with the Roosevelt Freeway and Garfield Street at West 2nd Avenue - for the Chambers Connector and Roosevelt Connector. This alternative was only considered in conjunction with construction of the Roosevelt Freeway.

The major advantages of Alternative Four include:

- Elimination of at-grade arterial crossings of the Southern Pacific tracks
- Improved access to northern Santa Clara
- Provision of very good service for automobile and truck traffic

The major disadvantages of Alternative Four include:

- High capital cost associated with construction of the Roosevelt Freeway
- Major impacts of the Roosevelt Freeway on the Whiteaker neighborhood
- Disruption of industrial land by the Garfield Connector
- Willamette River Greenway crossing by the North Delta Extension
- Urban development pressures created by increased accessibility of land north of the Urban Services Boundary

Eugene Downtown Westside Corridor

The Downtown Westside Corridor is a small area in relation to other corridors in the Transportation Plan, lying between 7th and 13th Avenues and roughly Charnelton and Monroe. The north-south movement through the corridor was of concern in this study, and the majority of this traffic is carried by Washington and Jefferson Streets. Both were local streets at one time, but for many years, have functioned as arterials.

Even so, the Downtown Westside Corridor does not suffer from the magnitude of traffic overloads or the complexity of problems of the other corridors. Table 13 contains a comparison of representative volumes and future demand of the corridor. Were it not for the undesirable impact of arterial traffic bisecting the westside neighborhood, the overloads could be handled by improving existing streets.

Increased congestion on the Ferry Street Bridge and diversion of traffic from that facility to the Washington-Jefferson Bridge will undoubtedly create more pressure on the westside streets. Conversely, the 6th-7th Freeway will probably do more than any other new facility to divert traffic from the westside by decreasing travel time to west Eugene. It appears that improvements to the Eugene East-West Corridor and Ferry Street Bridge Corridor will do more to voluntarily divert demand than any improvement within the corridor itself. In fact, all Downtown Westside alternatives that examined a closure of Washington-Jefferson Streets assumed the existence of an improved east-west facility in the East-West Corridor (as well as an alternative north-south facility). Merely closing Washington and Jefferson without provision of these other facilities will result in much of the Washington-Jefferson traffic shifting to Monroe or Polk.*

TABLE 13
EUGENE DOWNTOWN WESTSIDE CORRIDOR
Traffic Volume Versus Demand

Street	1976 Average Daily Traffic (000)	1976 Level of Service "E" Volume (000)	2000 Average Daily Traffic (000)
Charnelton - 10th to 11th	5.7	16.6	3.2
Washington 10th to 11th	7.5	7.2	13.8
Jefferson - 10th to 11th	9.5	7.2	17.2
Monroe - 10th to 11th	3.8	11.6	12.8
Polk - 10th to 11th	5.0	12.0	4.6

Alternative One

Specific projects are shown in Figure 13 and Table 14.

Alternative One attempts to relieve forecasted overloads with a minimum of construction. Improvements to Washington, Jefferson and 11th Avenue require no construction at all, as the needed capacity is achieved by parking removal and restriping to form an additional travel or turn lane. At 13th Avenue, intersection reconstruction will remove the 90 degree turns between Washington/Jefferson and Jefferson south of 13th.

The major advantages of Alternative One include:

- Low cost of implementation

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* One alternative examined in the early stages of testing consisted of re-installing the 1st Avenue ramps on I-105 and closing Washington-Jefferson to arterial traffic without providing an alternative north-south facility. However, this alternative was deemed to be unworkable, based on forecasted volumes and design considerations, and was not studied further.

The major disadvantages of Alternative One include:

- Continued disruption of the Downtown Westside neighborhood by arterial traffic
- Removal of several existing houses near the 13th and Jefferson intersection project

Alternative Two (Recommended by TPC)

Specific projects are shown in Figure 14 and Table 15.

Alternative Two uses new ramps from I-105 to join that facility with the Linclon-Charnelton couplet at 8th Avenue. Traffic flow is reversed on Lincoln and Charnelton so that the directional movement is southbound and northbound respectively. Traffic diverters will close Washington and Jefferson to through traffic between 7th and 13th Avenues. To prevent traffic destined for west Eugene from shifting to Madison, Monroe, Tyler, Van Buren or Polk Streets, an improved east-west facility is required along 6th and 7th.

The major advantages of Alternative Two include:

- Improved access to downtown Eugene
- Removal of arterial traffic from Washington-Jefferson
- Improved north-south and east-west bicycle movements

The major disadvantages of Alternative Two include:

- High capital cost
- Shift of traffic westward to Monroe/Polk (without additional improvements in the 6th-7th Corridor)
- Displacement of businesses and residences by the new ramps.

Alternative Three

Specific projects are shown in Figure 15 and Table 16.

Alternative Three consists of two subalternatives that are basically design variations of the Lincoln Boulevard concept. For the level of detail of this study, the impacts of these facilities are nearly identical. Both subalternatives require closure of Washington and Jefferson Streets, an improved east-west facility along 6th and 7th Avenues to discourage traffic shifts to Monroe/Polk and new ramps connecting to I-105. The first subalternative extends the I-105 ramps as a four lane structure located mid-block between Lincoln and Charnelton from 7th Avenue to 11th Avenue. The second subalternative joins the I-105 ramps at 8th Avenue with a four lane, two way facility on Lincoln Street.

The major advantages of Alternative Three include:

- Improved access to downtown Eugene
- Removal of arterial traffic from Washington-Jefferson
- Improved north-south and east-west bicycle movements

The major disadvantages of Alternative Three include:

- Highest capital cost of any alternatives studied in the corridor
- Shift from traffic westward to Monroe/Polk (without additional improvements in the 6th-7th Corridor)
- Displacement of businesses and residences by Lincoln Boulevard

Ferry Street Bridge/Coburg Road Corridor

The Ferry Street Bridge, already experiencing Level of Service "E" during short segments of the evening traffic period, will experience even greater pressure and congestion in the future. Traffic from throughout the Willakenzie area, North Springfield, and even Santa Clara/River Road is funneled along parts of Coburg Road and across the Ferry Street Bridge. Compounding the problem is the fact that traffic between the Central Eugene/University of Oregon area and destinations north of the metropolitan area must use the Ferry Street Bridge to reach I-5.

Without improvement, demand will seriously exceed capacity on Coburg Road and Ferry Street Bridge from I-105 to 6th and 7th Avenues, as illustrated in Table 18. Even though the downtown and U of O are major attractors south of the bridge, the difficulty in serving such diverse traffic demand as that using the corridor is reflected in the transit usage expected in 2000 - about 15% of internal trips.

Excess capacity is expected on the Washington-Jefferson Bridge in 2000, and as congestion increases on Ferry Street Bridge, some diversion of trips to the other crossing can be expected. While leading to a more efficient utilization of existing river crossings, this by itself will not relieve the overloads on Ferry Street Bridge, though it will almost certainly increase pressure on the Eugene Downtown Westside Corridor.

TABLE 18
FERRY STREET BRIDGE/COBURG ROAD CORRIDOR
Traffic Volume Versus Demand

Street	1976 Average Daily Traffic (000)	1976 Level of Service "E" Volume (000)	2000 Average Daily Traffic (000)
Coburg Road - I-105 to Bridge	36.0	43.2	51.7
Ferry Street Bridge	50.0	43.2	66.9
Coburg Road - Bridge to 6th-7th	43.8	43.2	64.7

During the development of alternatives, new river crossings between the I-5 and I-105 bridges were discussed, but all were discarded from further consideration because of environmental and travel demand considerations. Other strategies were tried, such as the Park Avenue Bridge discussed in the River Road Corridor Alternative 3, but none were successful in diverting sufficient traffic from the Ferry Street Bridge to eliminate the need for increased capacity at the existing location. Capacity can be added at the current location either by construction of a new companion bridge or phased construction to replace the old bridge with two new three lane spans.

Alternative One - (Recommended by TPC)

Specific projects are shown in Figure 16 and Table 20.

Alternative One provides additional capacity at the existing Ferry Street Bridge site, as described above, widens Coburg Road to six lanes from I-105 to the Willamette River and widens the Coburg Road Viaduct to six lanes from the river to 7th and 8th Avenues. Restriction of some movements and additional turn lanes are required at the Coburg Road/Oakway Road intersection.

The major advantages of Alternative One include:

- Utilization of existing locations for improvements, thereby minimizing impacts of increased traffic

The major disadvantages of Alternative One include:

- Traffic disruption during bridge replacement
- High capital cost

Alternative Two

Specific projects are shown in Figure 17 and Table 20.

Alternative Two is identical to Alternative One, with the addition of a new northbound on-ramp and a new southbound off-ramp between I-5 and Franklin Boulevard. The new ramps enable University and East Eugene traffic using I-5 to the north to avoid Ferry Street Bridge. Unfortunately, the traffic diverted from Ferry Street Bridge is not sufficient to eliminate the expected overloads.

The major advantages of Alternative Two include:

- Utilization of existing locations for improvements
- Improved access to University and east Eugene area

The major disadvantages of Alternative Two include:

- Traffic disruption during bridge replacement
- High capital cost
- Inability of new I-5 ramps to reduce significantly Ferry Street Bridge overloads

Franklin Boulevard Corridor

The Franklin Boulevard Corridor in the Plan considers only that section of Broadway/Franklin between Coburg Road on the west and I-5 on the east. The corridor is narrow and confined by the Willamette River on the north and the University of Oregon campus on the south. Alternative locations are limited due to the physical constraints. Land uses adjacent to Franklin Boulevard are highway oriented and result in frequent access points along much of the facility.

Twenty to 25 percent of the internal person-trips in the corridor will be carried by transit. Nevertheless, serious overloads are expected on Franklin Boulevard by 2000 as shown in Table 22. The most critical area is on Broadway between Coburg Road and Hilyard Street. The University is a major attractor of traffic using Franklin Boulevard, and university related traffic is a major contributor to the overloads expected.

TABLE 22
FRANKLIN BOULEVARD CORRIDOR
Traffic Volume Versus Demand

Street	1976 Average Daily Traffic (000)	1976 Level of Service "E" Volume (000)	2000 Average Daily Traffic (000)
Broadway - Coburg Road to Patterson	32.9	40.8	61.3
Franklin Boulevard - 11th to Agate	30.2	41.3	37.8
Franklin Boulevard - Walnut to I-5	28.3	41.3	46.8

Alternative One (Recommended by TPC)

Specific projects are shown in Figure 18 and Table 23.

Alternative One is an attempt to prevent major construction to eliminate overloads by adding capacity to Franklin Boulevard on the present alignment. Low-capital improvements at most major intersections, coupled with traffic management techniques suggested in the Transportation Plan represent the maximim capacity increases that can be expected without major widening of Franklin or new construction. Unfortunately, these improvements are not sufficient to eliminate the overloads and congestion expected by 2000.*

The major advantages of Alternative One include:

- Low capital cost
- Ease of staging improvements

The major disadvantages of Alternative One include:

- Failure to meet adopted street and highway goal (i.e., failure to prevent occurrence of Level of Service "E" during peak traffic hours)

---

* TPC examined the concept of an expressway on the existing Franklin Boulevard alignment or an alternative means to relieve overloads. That is, by providing grade separation and interchanges where major intersections now exist, capacity increases can be achieved. Because of the disruption to the adjacent land uses, and because of the difficulty in meeting standards when providing interchanges at the current Franklin Boulevard location, this alternative was dropped from consideration.

- Poor service to transit in corridor due to congestion
- Negative impacts of congestion on adjacent businesses

Alternative Two

Specific projects are shown in Figure 19 and Table 24.

Alternative Two consists of one highway project - a four lane freeway bypass of Franklin from Walnut Street to a direct connection with 6th and 7th Avenues. The alignment parallels the Southern Pacific tracks between the Mill Race and the Willamette River. Right-of-way cost is significant since purchase of the Agripac Cannery is required.

The major advantages of Alternative Two include:

- Provision of a high level of service for automobile and truck traffic
- Removal of through truck and automobile traffic from Franklin Boulevard

The major disadvantages of Alternative Two include:

- High capital cost
- Negative environmental impacts
- Dislocation of industrial activity including Agripac

McVay Highway Corridor

Problems of the McVay Highway Corridor can only be loosely considered in a corridor context. A more appropriate characterization might be that it is a series of problem areas bound together by a common solution.

Main Street and South "A" in downtown Springfield, the McVay Highway and Franklin Boulevard intersection at the Springfield Bridge, sections of McVay Highway, and the intersection of McVay and 30th Avenue are all expected to be overloaded. The intersection deficiencies are the result of heavy turning movements. Additionally, truck traffic destined for the Springfield mills is relatively heavy along McVay Highway and through downtown Springfield. The type of trips creating overloads in this corridor do not lend themselves well to substitution by travel on alternative modes.

Existing traffic volumes are compared to future demand for representative locations in the corridor are illustrated in Table 26.

The three alternatives studied are evaluated in Table 30.

TABLE 26
McVAY HIGHWAY CORRIDOR
Traffic Volume Versus Demand

Street	1976 Average Daily Traffic (000)	1976 Level of Service "E" Volume (000)	2000 Average Daily Traffic (000)
Main Street - Mill to 2nd	12.1	16.2	18.2
South "A" - Mill to 2nd	12.8	20.4	18.1
McVay at 30th Avenue	9.0	14.3	11.0

Alternative One

Specific projects are shown in Figure 20 and Table 27.

Alternative One consists of signal improvements in downtown Springfield to increase capacity, an overpass to allow unrestricted westbound to southbound turns at the McVay/Franklin intersection, intersection redesign at McVay and 30th, and I-5 ramp changes south of 30th at L.C.C.

The major advantages of Alternative One include:

- Low capital cost

The major disadvantages of Alternative One include:

- Failure to eliminate negative impacts of truck traffic in downtown Springfield
- Poor access for Springfield residents to L.C.C. and Buford Park

Alternative Two

Specific projects are shown in Figure 21 and Table 28.

Alternative Two consists of one highway project - a two lane, limited access arterial connecting Main Street near 28th in Springfield with 30th Avenue at I-5.

The major advantages of Alternative Two include:

- Improved access to Springfield industrial area
- Removal of truck traffic from downtown Springfield
- Improved access to Mt. Pisgah/Buford Park
- Improved bicycle travel between Springfield and L.C.C.
- Improved highway access from Springfield to L.C.C.

The major disadvantages to Alternative Two include:

- Increased pressure on the urban service boundary may be created by improved access to the L.C.C. basin from Springfield
- New river crossing of the Middle Fork of the Willamette River within the Willamette River Greenway
- Negative noise impact on Buford Recreation Area

Alternative Three (Recommended by TPC)

Specific projects are shown in Figure 22 and Table 29.

Alternative Three adds the Bloomberg Connector to the 30th-30th Connector of Alternative Two. The Bloomberg Connector provides a direct connection from McVay Highway to the L.C.C. interchange on 30th Avenue.

The major advantages of Alternative Three include:

- Improved access to Springfield industrial area
- Removal of truck traffic from downtown Springfield
- Improved access to Mt. Pisgah/Buford Park
- Improved bicycle travel between Springfield and L.C.C.
- Improved access to L.C.C. via Bloomberg Connector
- Improved highway access from Springfield to L.C.C.

The major disadvantages of Alternative Three include:

- Highest capital cost of the three alternatives studied
- Increased pressure on the urban services boundary may be created by improved access to the L.C.C. basin from Springfield
- New river crossing of the Middle Fork of the Willamette River within the Willamette River Greenway
- Negative noise impact on Buford Recreation Area
- Disruption of the Bloomberg Road residences

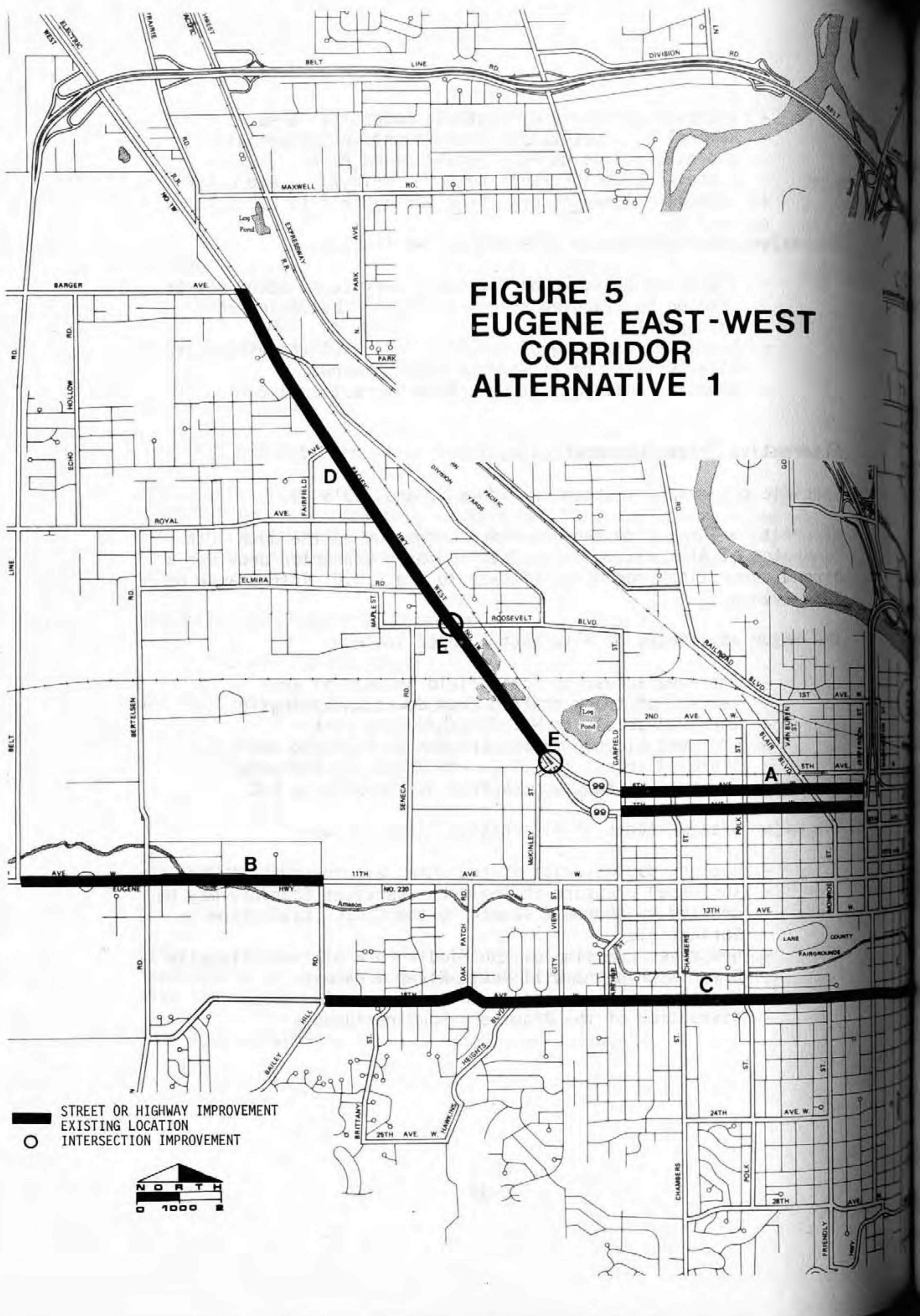


FIGURE 5
EUGENE EAST-WEST
CORRIDOR
ALTERNATIVE 1
A
B
C
D
E
E
STREET OR HIGHWAY IMPROVEMENT
EXISTING LOCATION
INTERSECTION IMPROVEMENT
NORTH
0 1000 2
BELT LINE RD.
DIVISION RD.
MAXWELL RD.
BARGER AVE.
ROYAL AVE.
ELMIRA RD.
ROOSEVELT BLVD.
RAILROAD BLVD.
11TH AVE. W.
EUGENE HWY. NO. 230
13TH AVE.
18TH AVE.
24TH AVE. W.
25TH AVE. W.
28TH
LANE COUNTY FAIRGROUNDS
Log Pond
EXPRESSWAY
WEST 11TH
NO. 230

TABLE 2

EUGENE EAST-WEST CORRIDOR
ALTERNATIVE #1*

COST ($000)

Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. 6th & 7th Avenues - I-105 to Garfield	Widen to 4 lanes	-	-	$2,084	-	$2,084	$2,084
B. West 11th Avenue - Bailey Hill to Belt Line	Widen to 4 lanes	C O M P	L E T E D	1 9 7 7			
C. 18th Avenue - Bailey Hill to City View	Remove Parking, Restripe to 4 lanes**	-	-	-	-	0	0
City View to Willamette	Widen to 5 lanes**	$862	-	2,550	-	3,412	3,412
D. Highway 99 - Roosevelt to Barger	Widen to 6 lanes** (with turn refuges)	100	-	1,138	$476	1,714	1,238
E. Highway 99 at McKinley and Roosevelt	Major intersection improvements	100	0	500	-	600	600
ALTERNATIVE #1 TOTAL COSTS:		$1,062	0	$6,272	$476	$7,810	$7,334

* Diversion of traffic from 11th & 13th Avenues required to make alternative work.
** Project does not include bike lanes.

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - 8th Avenue from Garfield to Jefferson
2. Contra-flow lane - 8th Avenue from Jefferson to High
3. Transit Stations - 8th & Garfield, 18th & Chambers, 18th & Bailey Hill, Fairfield & Jacobs
4. Intersection priority treatment between stations.

FIGURE 6
EUGENE EAST-WEST CORRIDOR
ALTERNATIVE 2

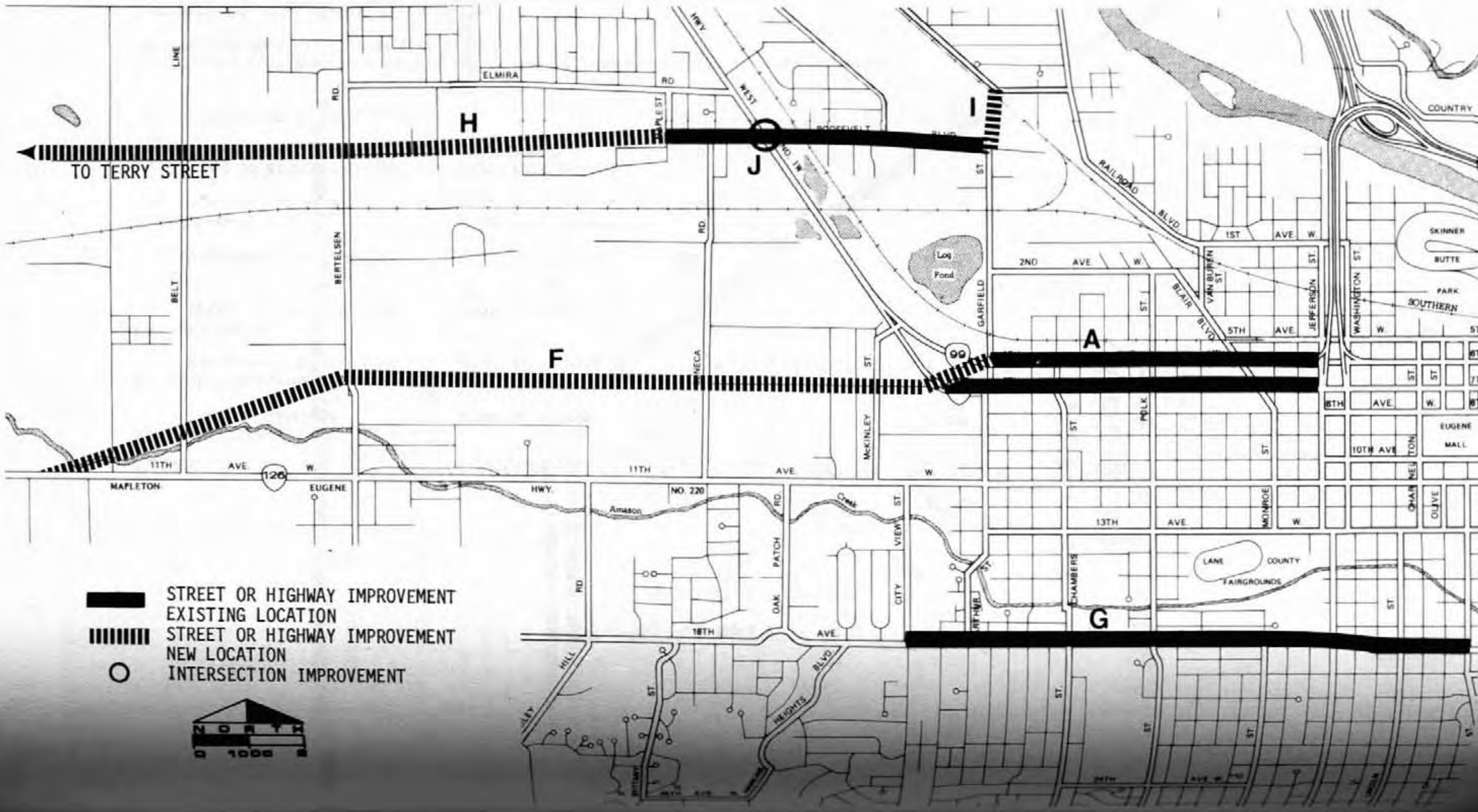


TABLE 3

EUGENE EAST-WEST CORRIDOR
ALTERNATIVE #2

Project	Project Description	COST ($000) Right-of-Way	Structure	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. 6th & 7th Avenues - I-105 to Garfield	Widen to 4 lanes	-	-	$2,084	-	$2,084	$2,084
F. 6th-7th Extension - Garfield to W. 11th at Danebo	4 lane arterial	$4,024	$17,156	3,173	-	24,353	24,353
G. 18th Avenue - City View to Jefferson	Widen to 4 lanes (with turn refuges)	272	-	1,496	-	1,768	1,768
Jefferson to Willamette	Widen to 5 lanes	138	-	623	-	761	761
H. Roosevelt Boulevard - Garfield to Terry	4 lane arterial	373	-	1,094	987	2,454	1,467
I. Roosevelt Connector - Roosevelt to N.W. Expressway	2 lane overpass	-	560	460	-	1,020	1,020
J. Highway 99 & Roosevelt Boulevard	Intersection improvements	**	**	**	**	**	**
ALTERNATIVE #2 TOTAL COSTS:		$4,807	$17,716	$8,930	$987	$32,440	$31,453

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - 8th Avenue from Garfield to Jefferson
2. Contra-flow lane - 8th Avenue from Jefferson to High
3. Transit stations - 8th & Garfield, 18th & Chambers, 18th & Bailey Hill, Fairfield & Jacobs
4. Intersection priority treatment between stations

FIGURE 7
EUGENE EAST-WEST CORRIDOR ALTERNATIVE 3
(Recommended by TPC)

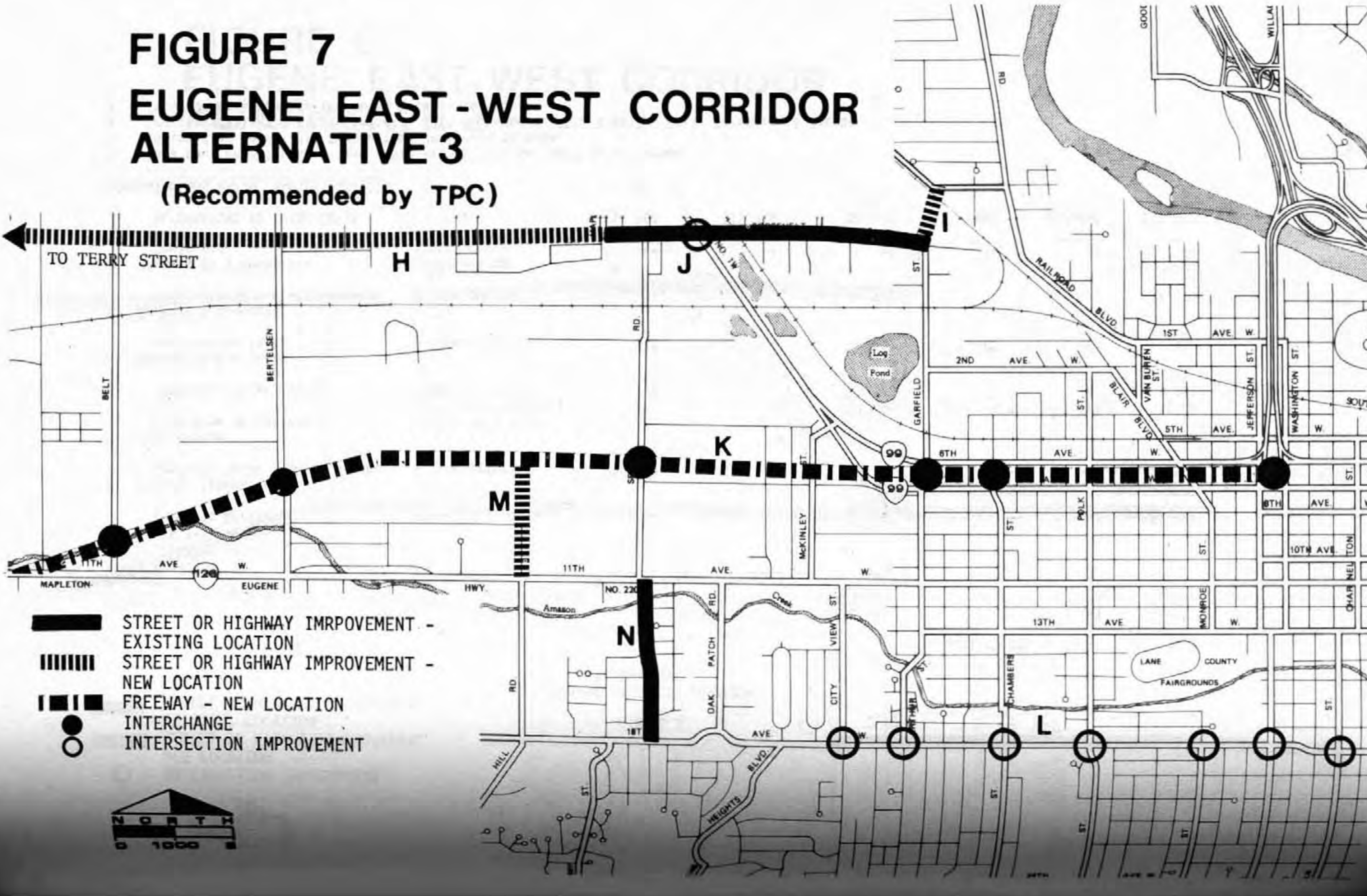


TABLE 4
EUGENE EAST-WEST CORRIDOR
ALTERNATIVE #3

			COST ($000)					
	Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
K.	6th-7th Freeway - I-105 to W. 11th*	4 to 6 lane freeway	$13,715	$54,586	$6,454	-	$74,755	$74,755
H.	Roosevelt Boulevard Garfield to Terry	4 lane arterial	373	-	1,094	$987	2,454	1,467
L.	W. 18th Avenue at: Lincoln, Jefferson, Friendly, Polk, Chambers, Arthur, City View	Restripe to 4 lanes and major intersection improvements - turn refuges, signalization, channelization, widening, etc.	334	-	1,729	-	2,063	2,063
I.	Roosevelt Connector - Roosevelt to NW Expressway	2 lane overpass	-	560	460	-	1,020	1,020
M.	Bailey Hill Road - W. 11th to 6th-7th Freeway	2 lane arterial	95	-	102	197	394	197
N.	Buck Street - W. 18th to W. 11th	2 lane arterial	82	127	168	186	563	377
J.	Highway 99 & Roosevelt Boulevard	Intersection improvements	**	**	**	**	**	**
	ALTERNATIVE #3 TOTALS		$14,599	$55,273	$10,007	$1,370	$81,249	$79,879

* Project No. A_1 - Widening 6th and 7th Avenues for four lanes, is recommended as an interim treatment during the 1978-1990 period.
** Project included as part of Roosevelt Boulevard Project and Highway 99 Project.

COMPANION BUS RAPID TRANSIT PROJECTS
1. Peak hour priority curb lane - 7th Avenue from Garfield to Jefferson.
2. Contra-flow lane - 7th Avenue from Jefferson to High.
3. Transit Stations - 7th & Garfield, 18th & Chambers, 18th & Bailey Hill, Fairfield & Jacobs.
4. Intersection priority treatment between stations.

FIGURE 8
EUGENE EAST-WEST CORRIDOR
ALTERNATIVE 4

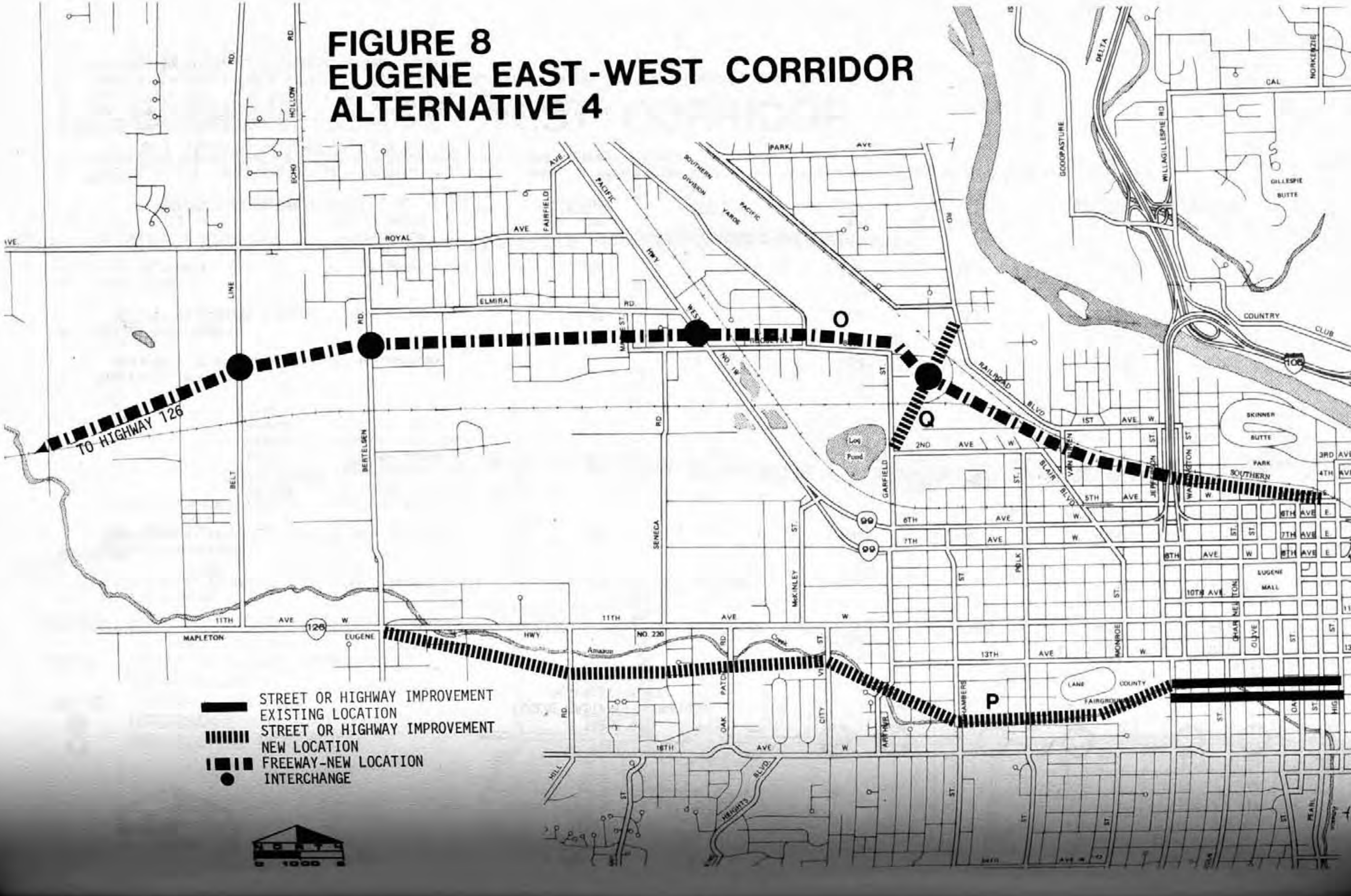


TABLE 5

EUGENE EAST-WEST CORRIDOR
ALTERNATIVE #4

Project	Project Description	COST ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
O. Roosevelt Freeway - Pearl to Highway 126 at Oak Hill	4 to 6 lane freeway (4 lane arterial east of I-105)	$8,137	$46,119	$38,371	-	$92,627	$92,627
P. Amazon Parkway - High to W. 11th at Bertelsen	2 lane arterial	2,803	1,733	5,545	-	10,081	10,081
Q. Garfield Connector	4 lane overpass	*	*	*	*	*	*
ALTERNATIVE #4 TOTALS:		$10,940	$47,852	$43,916	-	$102,708	$102,708

* Constructed with the Roosevelt Freeway

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - 8th Avenue from Garfield to Jefferson
2. Contra-flow lane - 8th Avenue from Jefferson to High
3. Transit Stations - 8th & Garfield, 18th & Chambers, 18th & Bailey Hill, Fairfield and Jacobs
4. Intersection priority treatment between stations

TABLE 6
EUGENE EAST-WEST CORRIDOR
EVALUATION MATRIX

	ALTERNATIVES			
	1	2	3	4
Performance Criteria				
Service to the Automobile User	Poor	Fair	Very Good	Very Good
Compatibility with Land Use Goals	Very Poor	Fair	Good	Good
Service to Transit	Poor	Fair	Good	Good
Efficient Goods Movement	Poor	Fair	Very Good	Very Good
Service to Other Modes	Poor	Fair	Good	Fair
Impact Criteria				
Noise Impact [1]	16	14	12	13
Air Quality Impact [2]	2.2	0	2.3	15
Neighborhood Impact	Major Negative	Minor Negative	Minor Positive	Minor Negative
Natural Resource Impact	Negligible	Minor Negative	Minor Negative	Major Negative
Social Impact	Negligible	Negligible	Negligible	Minor Negative
Economic/Industrial Base Impact	Negligible	Minor Positive	Minor Positive	Major Positive
Implementation Criteria				
Capital Cost [3] ($000)	$7,334	$31,453	$79,879	$102,708
Staged Development	Very Good	Good	Fair	Poor

1 Miles of street potentially exceeding FHWA residential noise standard during peak hours.
2 Miles of street potentially exceeding the 8 hour CO standard under worst case meteorological conditions.
3 1977 dollars.

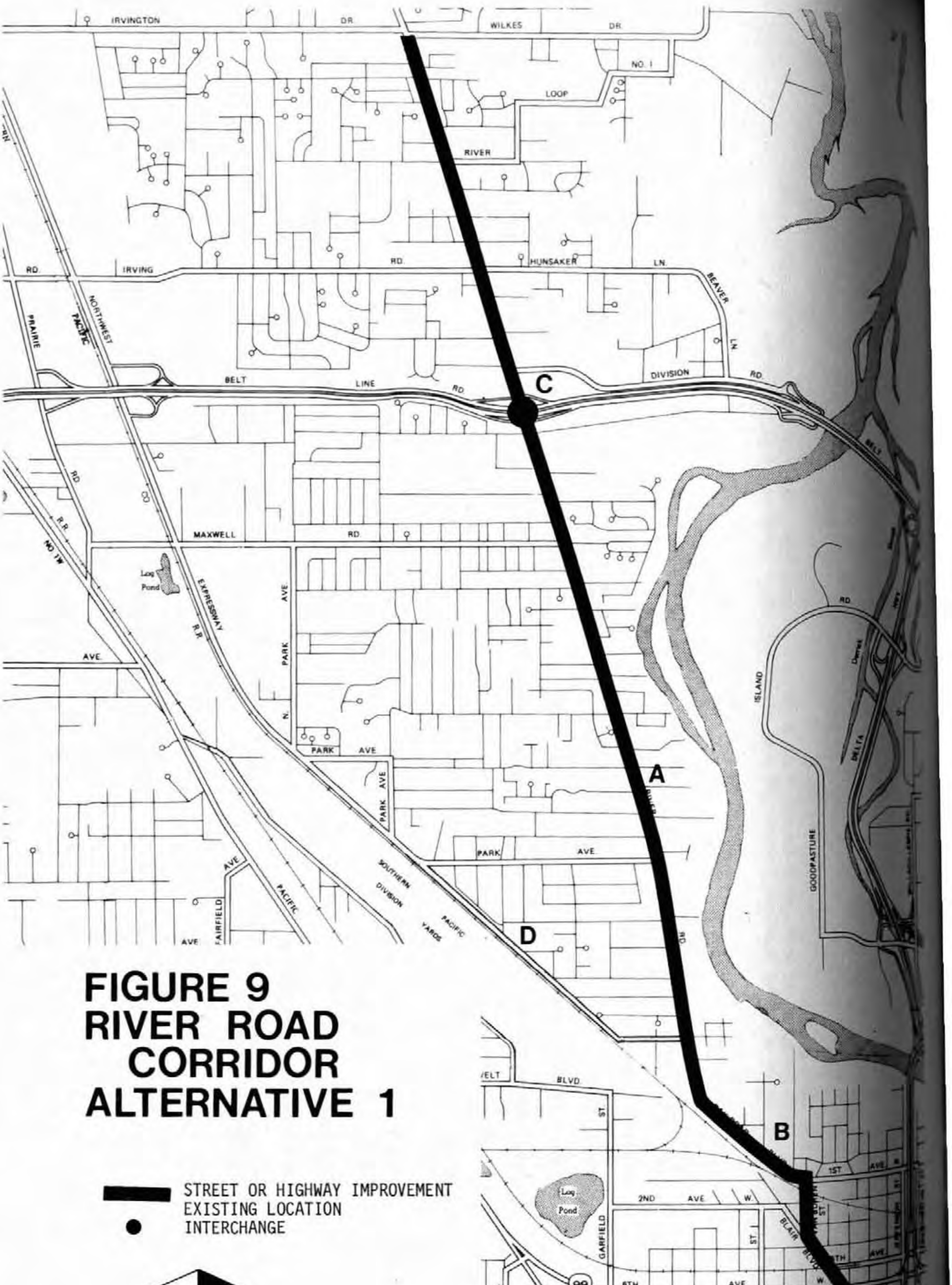


FIGURE 9
RIVER ROAD CORRIDOR
ALTERNATIVE 1

TABLE 8

RIVER ROAD CORRIDOR
ALTERNATIVE #1

Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
		COST ($000)					
A. River Road - Railroad Blvd. to Wilkes Dr.	Widen to 4 lanes (with turn refuges and intersection improvements)	$1,000	-	$2,980	-	$3,980	$3,980
B. Railroad/Van Buren/Blair - River Road to 7th	Widen to 4 lanes*	227	-	1,232	-	1,459	1,459
C. River Road/Belt Line Interchange	Interchange/intersection improvements	-	-	450	-	450	450
D. Northwest Expressway - North and South Extensions**	2 lane arterial	-	-	245	-	245	245
ALTERNATIVE #1 TOTALS:		$1,227	0	$4,907	0	$6,134	$6,134

* Project does not include bike lanes.
** Committed project

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - 1st Avenue from Jefferson to Van Buren
2. Bus turnouts/queue jumpers - Railroad Boulevard from Van Buren to River Road
   - River Road from Railroad Boulevard to Irving
3. Transit Stations - River Road & Railroad Boulevard, River Road & Belt Line
4. Intersection priority treatment between stations and or River Road north of Belt Line
5. Park and ride lot - River Road and Belt Line

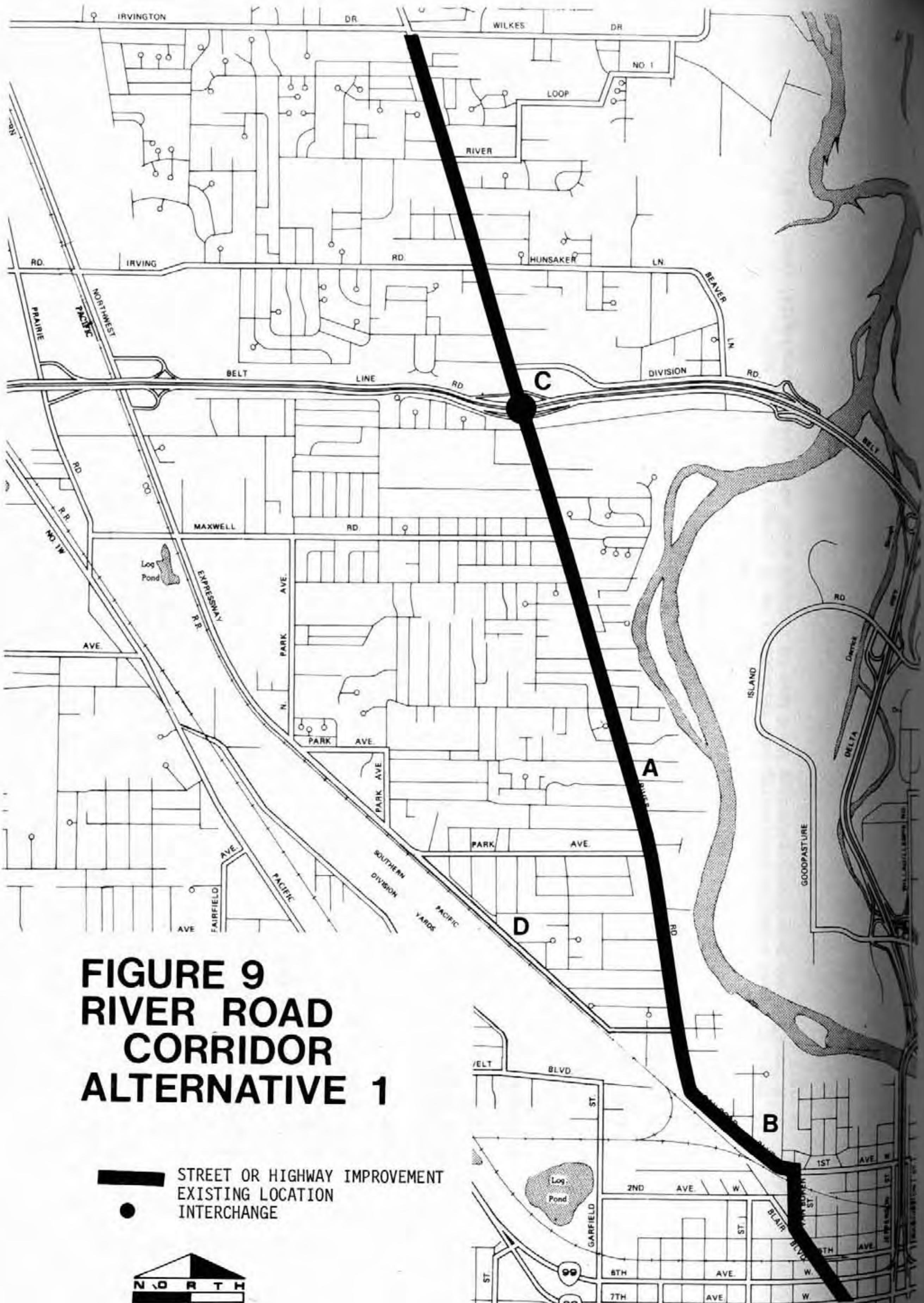


FIGURE 9
RIVER ROAD CORRIDOR ALTERNATIVE 1

TABLE 8

RIVER ROAD CORRIDOR
ALTERNATIVE #1

Project	Project Description	COST ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. River Road - Railroad Blvd. to Wilkes Dr.	Widen to 4 lanes (with turn refuges and intersection improvements)	$1,000	-	$2,980	-	$3,980	$3,980
B. Railroad/Van Buren/Blair - River Road to 7th	Widen to 4 lanes*	227	-	1,232	-	1,459	1,459
C. River Road/Belt Line Interchange	Interchange/intersection improvements	-	-	450	-	450	450
D. Northwest Expressway - North and South Extensions**	2 lane arterial	-	-	245	-	245	245
ALTERNATIVE #1 TOTALS:		$1,227	0	$4,907	0	$6,134	$6,134

* Project does not include bike lanes.
** Committed project

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - 1st Avenue from Jefferson to Van Buren
2. Bus turnouts/queue jumpers - Railroad Boulevard from Van Buren to River Road
   - River Road from Railroad Boulevard to Irving
3. Transit Stations - River Road & Railroad Boulevard, River Road & Belt Line
4. Intersection priority treatment between stations and on River Road north of Belt Line
5. Park and ride lot - River Road and Belt Line

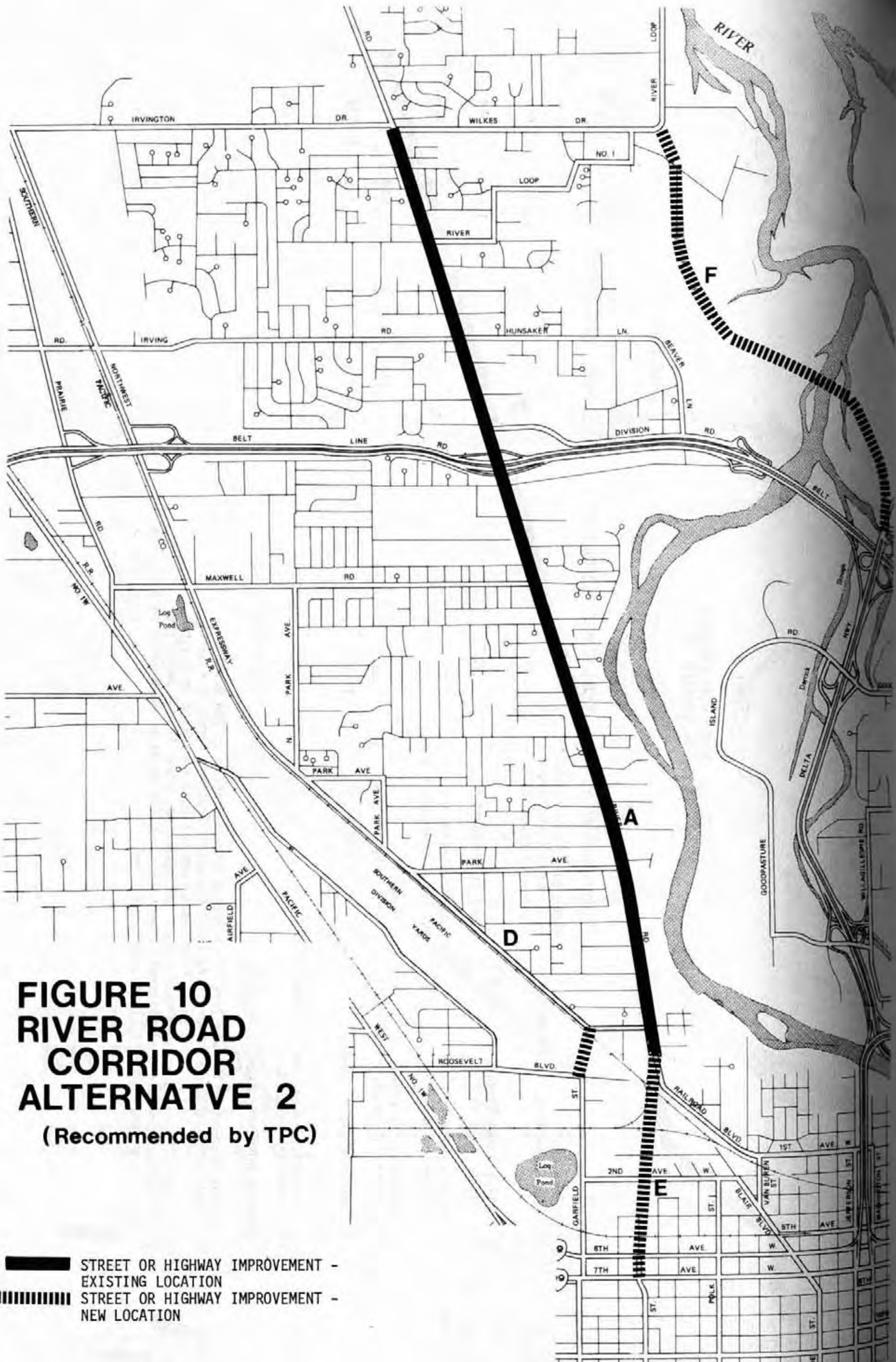


FIGURE 10
RIVER ROAD CORRIDOR
ALTERNATVE 2
(Recommended by TPC)

STREET OR HIGHWAY IMPROVEMENT - EXISTING LOCATION
STREET OR HIGHWAY IMPROVEMENT - NEW LOCATION

TABLE 9

RIVER ROAD CORRIDOR
ALTERNATIVE #2 (Recommended by TPC)

		COST ($000)					
Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. River Road - Chambers Connector to Irvington	Widen to 4 lanes (with turn refuges)	$1,000	-	$2,980	-	$3,980	$3,980
E. Chambers Connector - River Road to 6th-7th	4 lane arterial	3,043	$2,797	1,941	-	7,781	7,781
F. North Delta Extension - Delta Highway to Wilkes	2 lane arterial	210	4,420	593	-	5,223	5,223
D. Northwest Expressway - North & South Extensions**	2 lane arterial	0	0	245	-	245	245
ALTERNATIVE #2 TOTALS:		$4,253	$7,217	$5,759	0	$17,299	$17,299

** Committed project.

COMPANION BUS RAPID TRANSIT PROJECTS

1. Bus turnouts/queue jumpers - Railroad Boulevard from Van Buren to Jefferson
   - River Road from Railroad Boulevard to Irving
2. Transit Stations - River Road & Railroad Boulevard, River Road and Belt Line
3. Intersection priority treatment between stations and on River Road north of Belt Line
4. Park and Ride lot - River Road and Belt Line

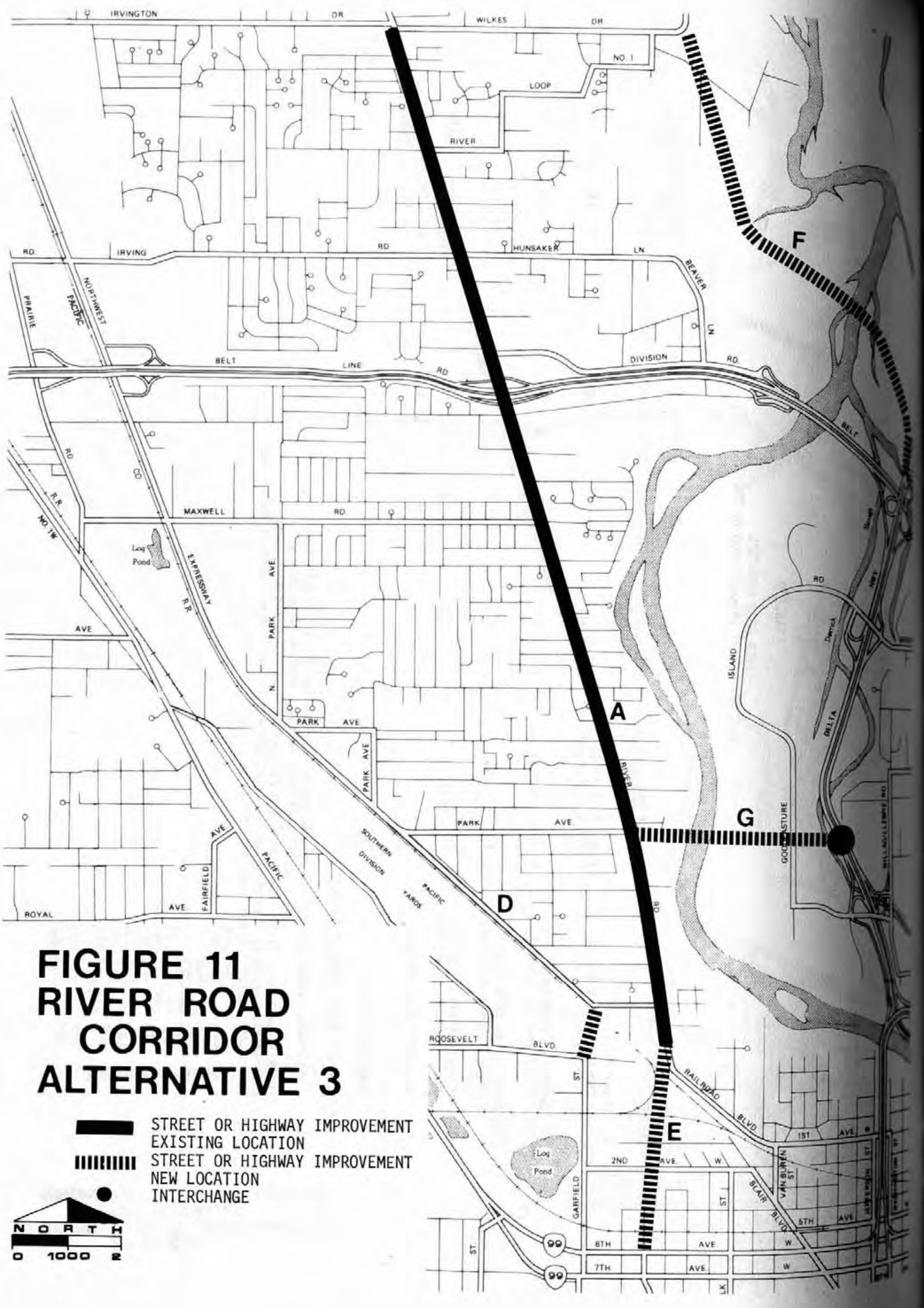


FIGURE 11
RIVER ROAD CORRIDOR ALTERNATIVE 3

TABLE 10

RIVER ROAD CORRIDOR
ALTERNATIVE #3

Project	Project Description	COST ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. River Road - Chambers Connector to Wilkes Drive	Widen to 4 lanes (with turn refuges and inter-section improvements)	$1,000	-	$2,980	-	$3,980	$3,980
E. Chambers Connector - River Road to 6th-7th Avenues	4 lane arterial	3,043	2,797	1,941	-	7,781	7,781
F. North Delta Extension - Delta Highway to Wilkes Dr.	2 lane arterial	210	4,420	593	-	5,223	5,223
G. Park Avenue Bridge - River Road to Delta	2 lane arterial	26	2,204	88	-	2,318	2,318
D. Northwest Expressway - North & South Extensions**	2 lane arterial	-	-	245	-	245	245
ALTERNATIVE #3 TOTALS:		$4,279	$9,241	$5,847	-	$19,547	$19,547

* Committed Project

COMPANION BUS RAPID TRANSIT PROJECTS

1. Bus turnouts/queue jumpers - Railroad Boulevard from Van Buren to Jefferson
   - River Road from Railroad Boulevard to Irving
2. Transit Stations - River Road & Railroad Boulevard, River Road & Belt Line
3. Intersection priority treatment between stations and on River Road north of Belt Line
4. Park and Ride lot - River Road & Belt Line

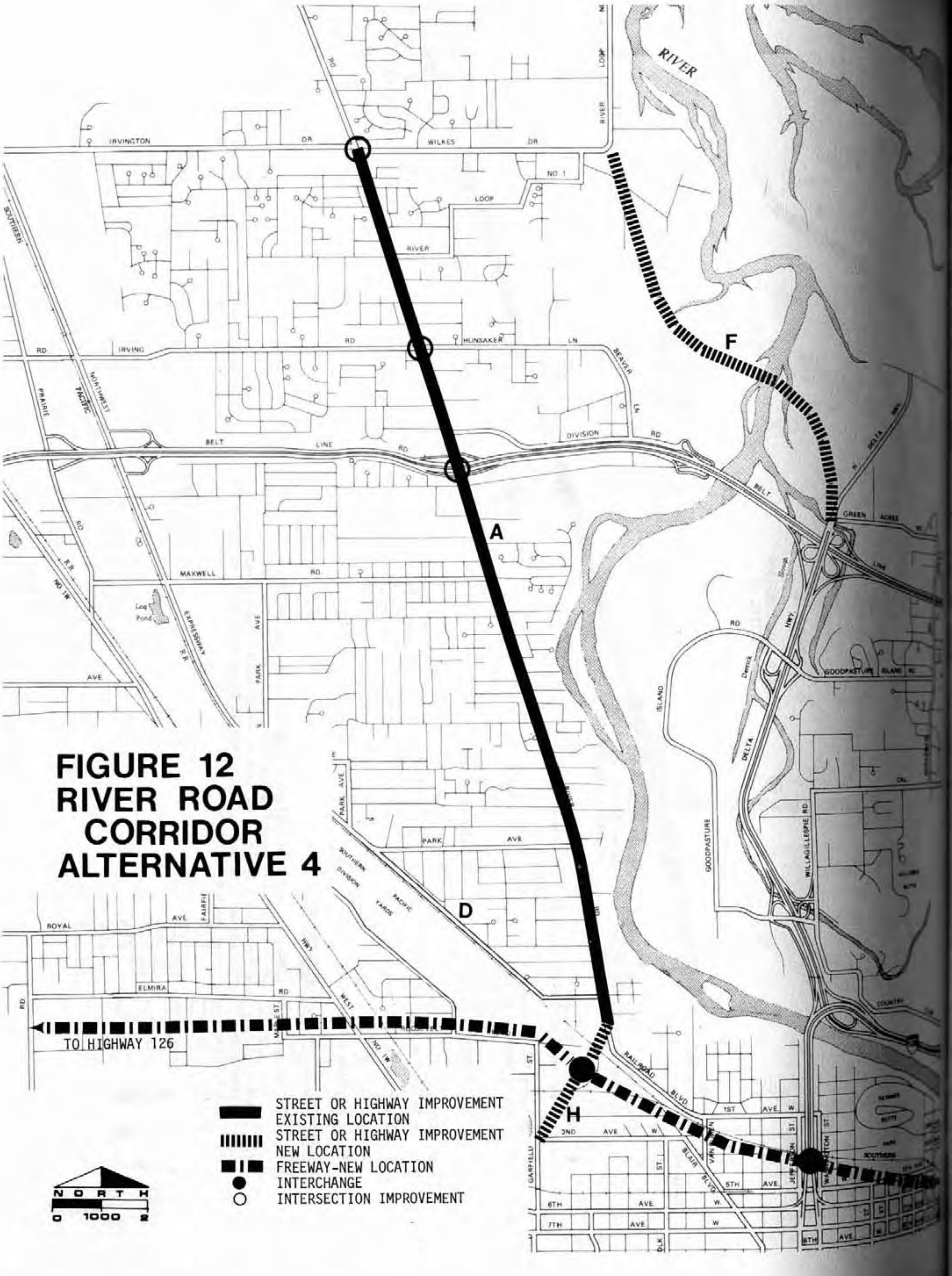


FIGURE 12
RIVER ROAD CORRIDOR ALTERNATIVE 4

TABLE 11

RIVER ROAD CORRIDOR
ALTERNATIVE #4

Project	Project Description	COST ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. River Road - Garfield Connector to Wilkes Drive	Widen to 4 lanes (with turn refuges)	$1,000	-	$2,980	-	$3,980	$3,980
H. Garfield Connector - River Road to Garfield	4 lane arterial	*	*	*	*	*	*
F. North Delta Extension - Delta Highway to Wilkes Drive	2 lane arterial	210	4,420	593	-	5,223	5,223
D. Northwest Expressway - North & South Extension**	2 lane arterial	-	-	245	-	245	245
ALTERNATIVE #4 TOTALS:		$1,210	$4,420	$3,818	0	$9,448	$9,448

* Project included with construction of the Roosevelt Freeway
** Committed project.

COMPANION BUS RAPID TRANSIT PROJECTS

1. Bus turnouts/queue jumpers - Railroad Boulevard from Jefferson to Van Buren
   - River Road from Railroad Boulevard to Irving
2. Transit Stations - River Road & Railroad Boulevard, River Road & Belt Line
3. Intersection priority treatment between stations and on River Road north of Belt Line
4. Park and Ride Lot - River Road and Belt Line

TABLE 12
RIVER ROAD CORRIDOR
EVALUATION MATRIX

	ALTERNATIVES			
	1	2	3	4
Performance Criteria				
Service to the Automobile User	Poor	Good	Good	Very Good
Compatibility with Land Use Goals	Poor	Poor	Poor	Poor
Service to Transit	Poor	Fair	Good	Fair
Efficient Goods Movement	Poor	Fair	Fair	Good
Service to Other Modes	Fair	Good	Very Good	Good
Impact Criteria				
Nosie Impact [1]	14	13	14	15
Air Quality Impact [2]	0.1	0.1	0	0.5
Neighborhood Impact	Major Negative	Minor Positive	Minor Positive	Major Negative
Natural Resource Impact	Negligible	Major Negative	Major Negative	Major Negative
Social Impact	Major Negative	Negligible	Negligible	Minor Negative
Economic/Industrial Base Impact	Negligible	Minor Negative	Minor Negative	Minor Negative
Implementation Criteria				
Capital Cost [3] ($000)	$6,134	$17,299	$19,367	$9,448
Staged Development	Fair	Fair	Fair	Fair

1 Miles of street potentially exceeding FHWA residential noise standard during peak hours.
2 Miles of street potentially exceeding the 8 hour CO standard under worst case meteorological conditions.
3 1977 dollars.

FIGURE 13
EUGENE DOWNTOWN WESTSIDE CORRIDOR ALTERNATIVE 1

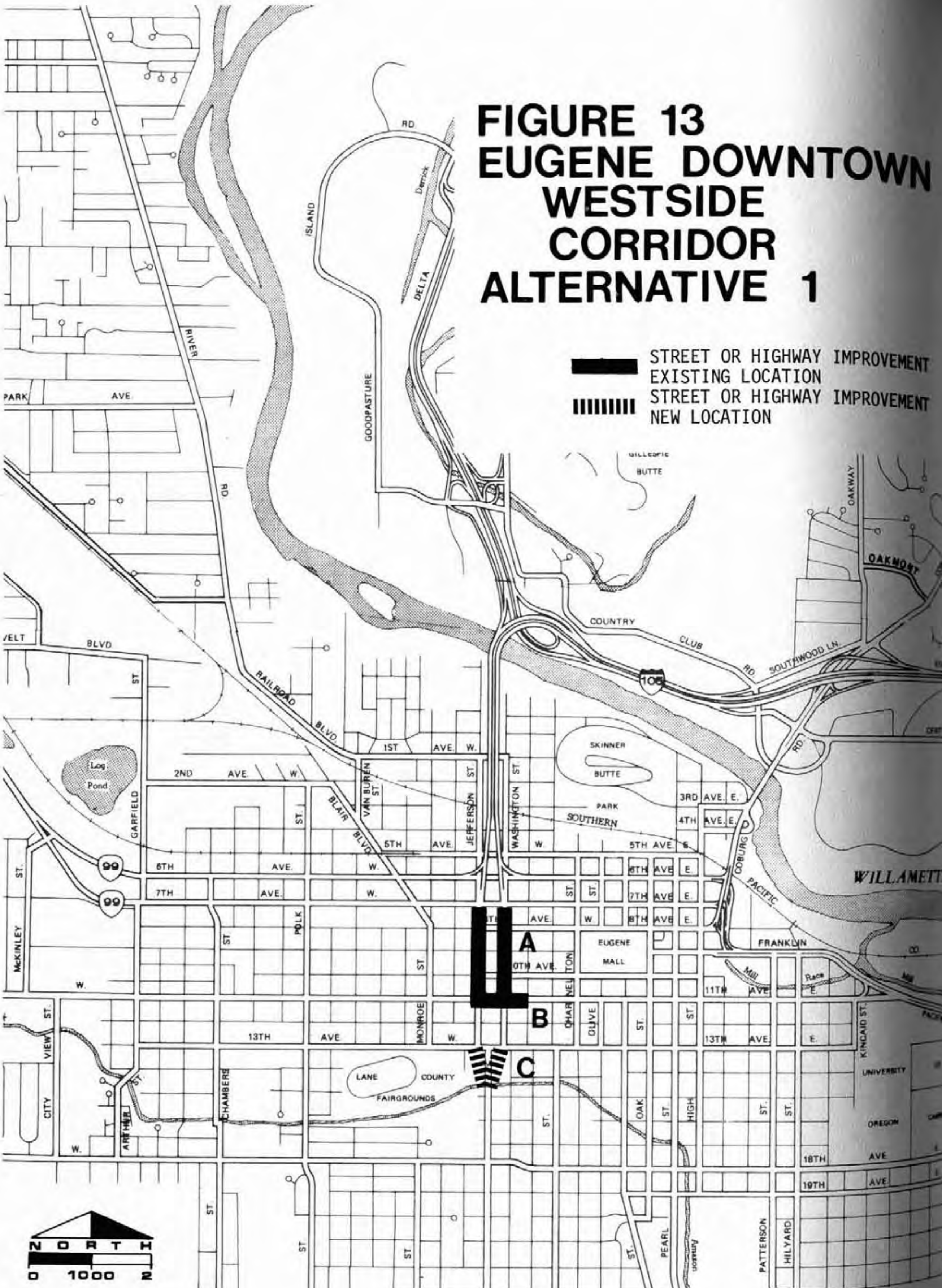


TABLE 14

EUGENE DOWNTOWN WESTSIDE CORRIDOR
ALTERNATIVE #1

Project	Project Description	COSTS ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. Washington-Jefferson 7th to 11th	Remove parking, restripe to 3 lanes	-	-	-	-	-	-
B. 11th Avenue at Washinton-Jefferson	Remove parking, restripe to 3 lanes	-	-	-	-	-	-
C. 13th Avenue & Jefferson	Major intersection revision	$525	-	$317	-	$842	$842
ALTERNATIVE #1 TOTALS:		$525	0	$317	0	$842	$842

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lanes - 11th Avenue from Willamette to Lincoln
   - Lincoln from 11th to 18th
2. Contra-flow lane - 11th Avenue from Charnelton to Willamette
3. Turning radious improvement - 8th & Lincoln
4. Intersection priority treatment between stations

FIGURE 14
EUGENE DOWNTOWN WESTSIDE CORRIDOR
ALTERNATIVE 2
(Recommended by TPC)

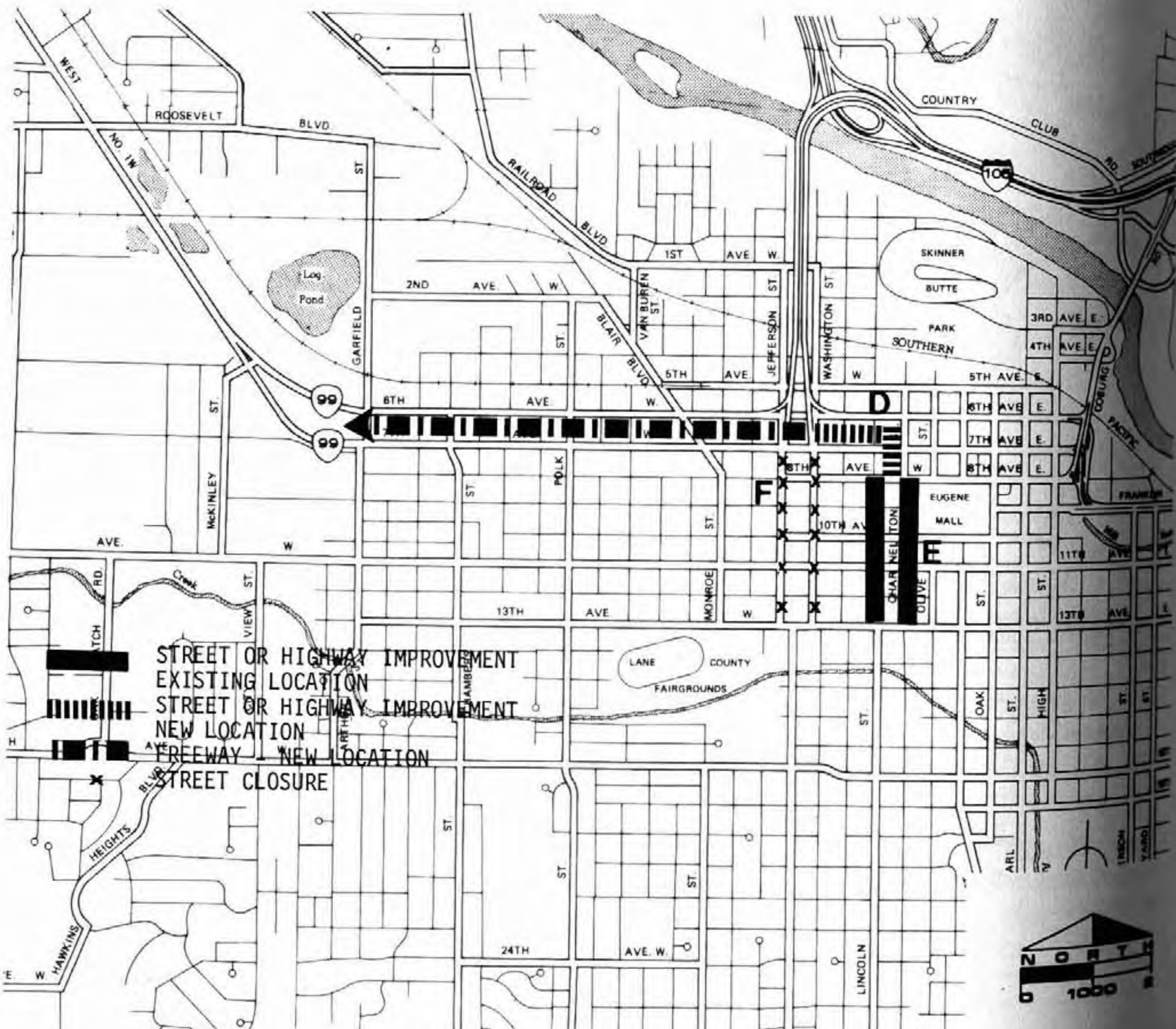


TABLE 15

EUGENE DOWNTOWN WESTSIDE CORRIDOR
ALTERNATIVE #2

		COSTS ($000)					
Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
D. I-105 Ramps - I-105 to Lincoln-Charnelton at 8th	New structures to Lincoln-Charnelton couplet	$2,726	$5,086	$123	-	$7,935	$7,935
E. Lincoln-Charnelton couplet	One-way couplet	-	-	331	0	331	331
F. Washington-Jefferson - 7th to 13th	Close to thru traffic	-	-	-	0	-	-
ALTERNATIVE #2 TOTALS:		$2,726	$5,086	$454	0	$8,266	$8,266

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lanes - 11th Avenue from Willamette to Lincoln
   - Lincoln from 11th to 18th
2. Contra-flow lane - 11th Avenue from Charnelton to Willamette
3. Turning radious improvement - 8th & Lincoln
4. Intersection priority treatment between stations

FIGURE 15
EUGENE DOWNTOWN WESTSIDE CORRIDOR
ALTERNATIVE 3

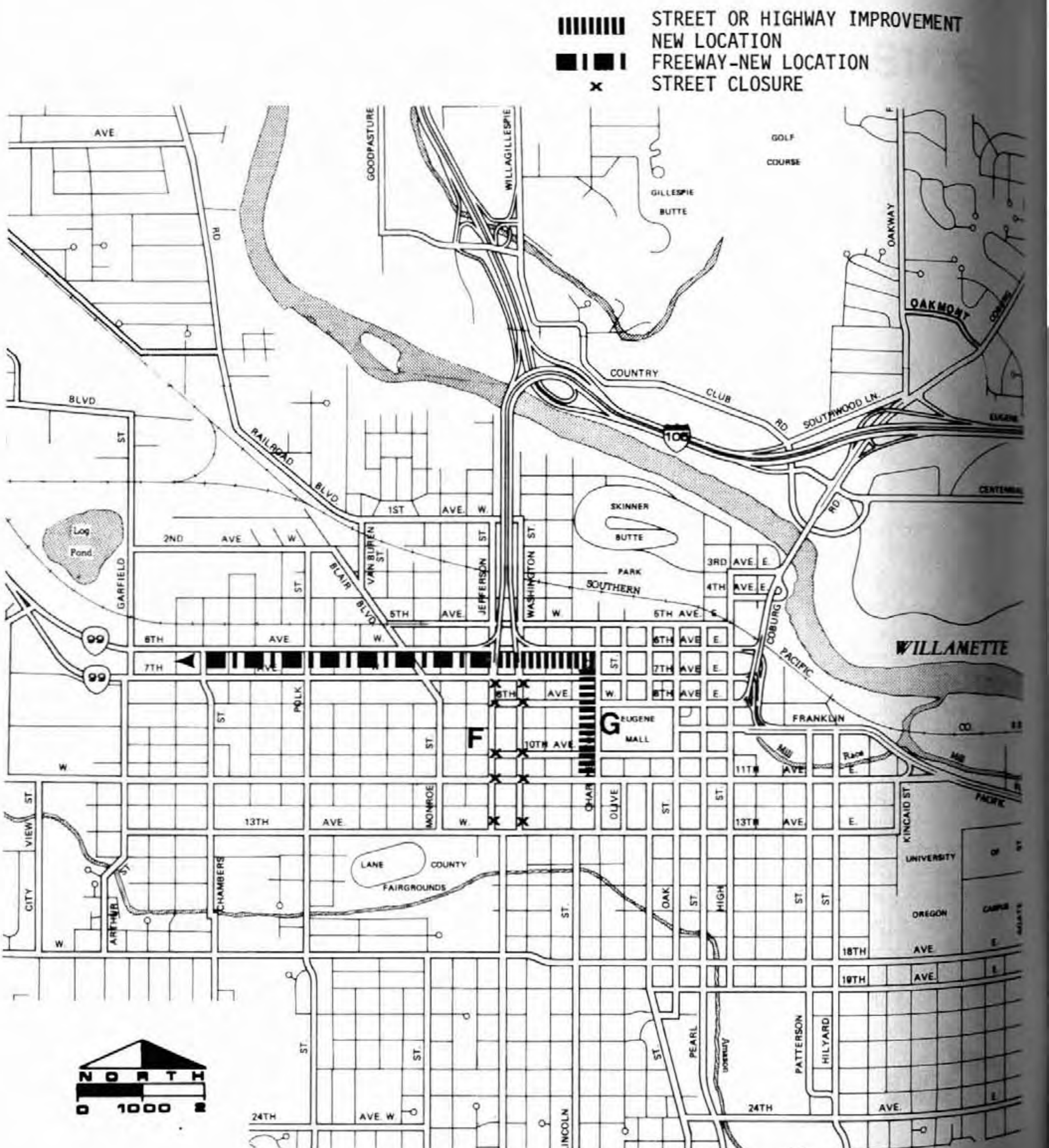


TABLE 16

EUGENE DOWNTOWN WESTSIDE CORRIDOR
ALTERNATIVE #3

Project	Project Description	COST ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
F. Washington-Jefferson - 7th to 13th	Close to through traffic	-	-	-	-	-	-
G_1. Lincoln Boulevard - I-105 to 11th	4 lane structure	$4,260	$9,949	$158	-	$14,367	$14,367
G_2. Lincoln Boulevard - I-105 to 8th & Lincoln	4 lane structure	2,726	5,428	85	-	8,239	8,239
8th to 13th	Widen Lincoln to 4 lanes		-		-	2,500	2,500
ALTERNATIVE 3_1 TOTALS:		$4,260	$9,949	$158	0	$14,367	$14,367
ALTERNATIVE 3_2 TOTALS:			$5,428		0	$10,739	$10,739

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lanes - 11th Avenue from Willamette to Lincoln
   - Lincoln from 11th to 18th
2. Contra-flow lane - 11th Avenue from Charnelton to Willamette
3. Turning radious improvement - 8th & Lincoln
4. Intersection priority treatment between stations

TABLE 17

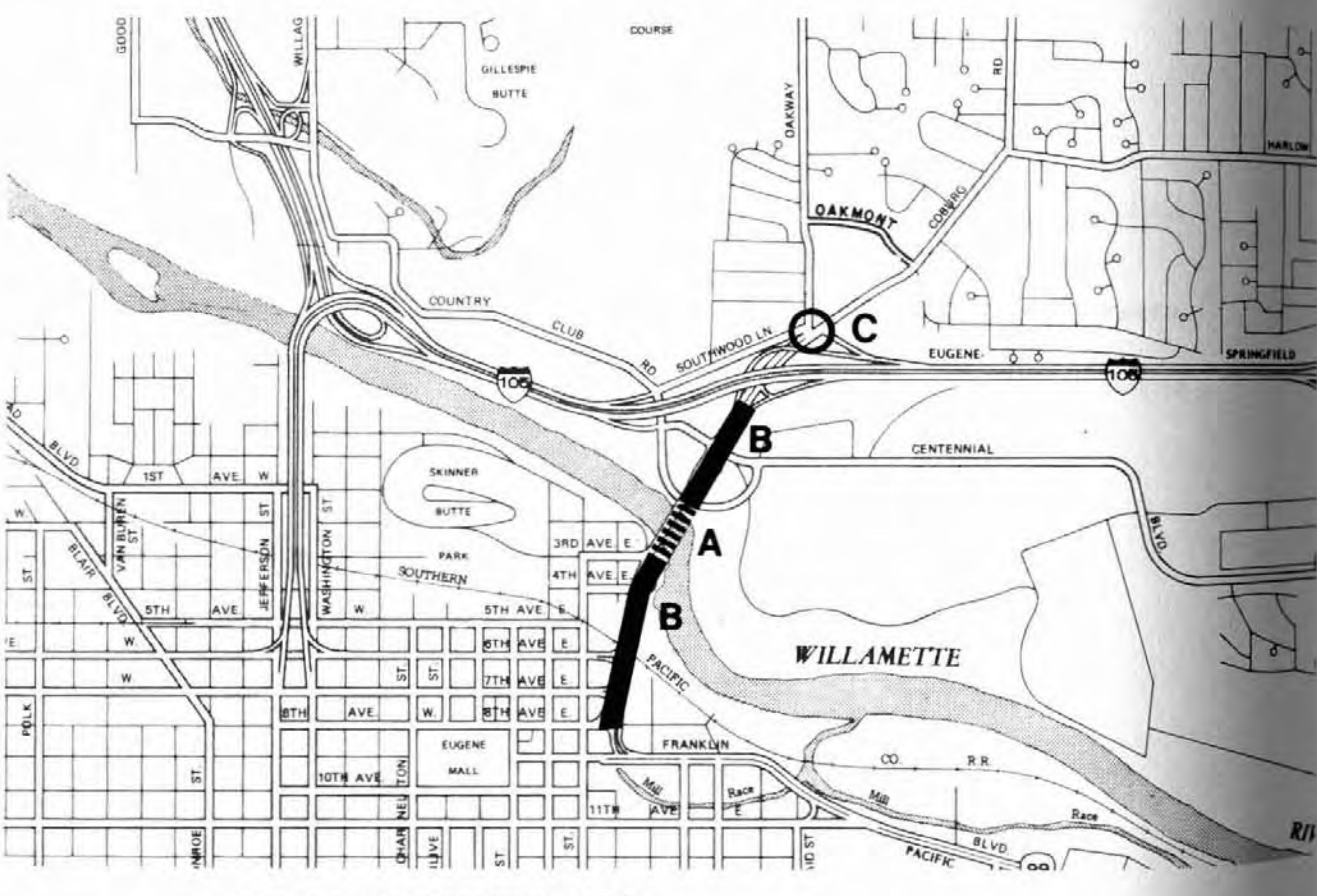
EUGENE DOWNTOWN WESTSIDE CORRIDOR
EVALUATION MATRIX

	ALTERNATIVES 1	2	3
Performance Criteria			
Service to the Automobile User	Good	Good	Good
Compatibility with Land Use Goals	Poor	Good	Good
Service to Transit	*	*	*
Efficient Goods Movement	*	*	*
Service to Other Modes	Fair	Good	Good
Impact Criteria			
Noise Impact[1]	1 mile	1 mile	1 mile
Air Quality Impact[2]	0	0.7	0.7
Neighborhood Impact	Minor Negative	Minor Positive	Minor Positive
Natural Resource Impact	*	*	*
Social Impact	Minor Negative	Minor Negative	Minor Negative
Economic/Industrial Base Impact	Negligible	Minor Positive	Minor Positive
Implementation Criteria			
Capital Cost[3] ($000)	$842	$8,266	$14,367 $10,739
Stages Development	Very Good	Poor	Poor

1 Miles of street potentially exceeding FHWA residential noise standard during peak hours.
2 Miles of street potentially exceeding the 8 hour CO standard under worst case meteorological conditions.
3 1977 dollars.
* Not applicable to the alternatives within this corridor.

FIGURE 16
FERRY STREET BRIDGE / COBURG ROAD CORRIDOR ALTERNATIVE 1

(Recommended by TPC)



STREET OR HIGHWAY IMPROVEMENT EXISTING LOCATION

STREET OR HIGHWAY IMPROVEMENT NEW LOCATION

INTERSECTION IMPROVEMENT

TABLE 19

FERRY STREET BRIDGE - COBURG ROAD CORRIDOR
ALTERNATIVE #1

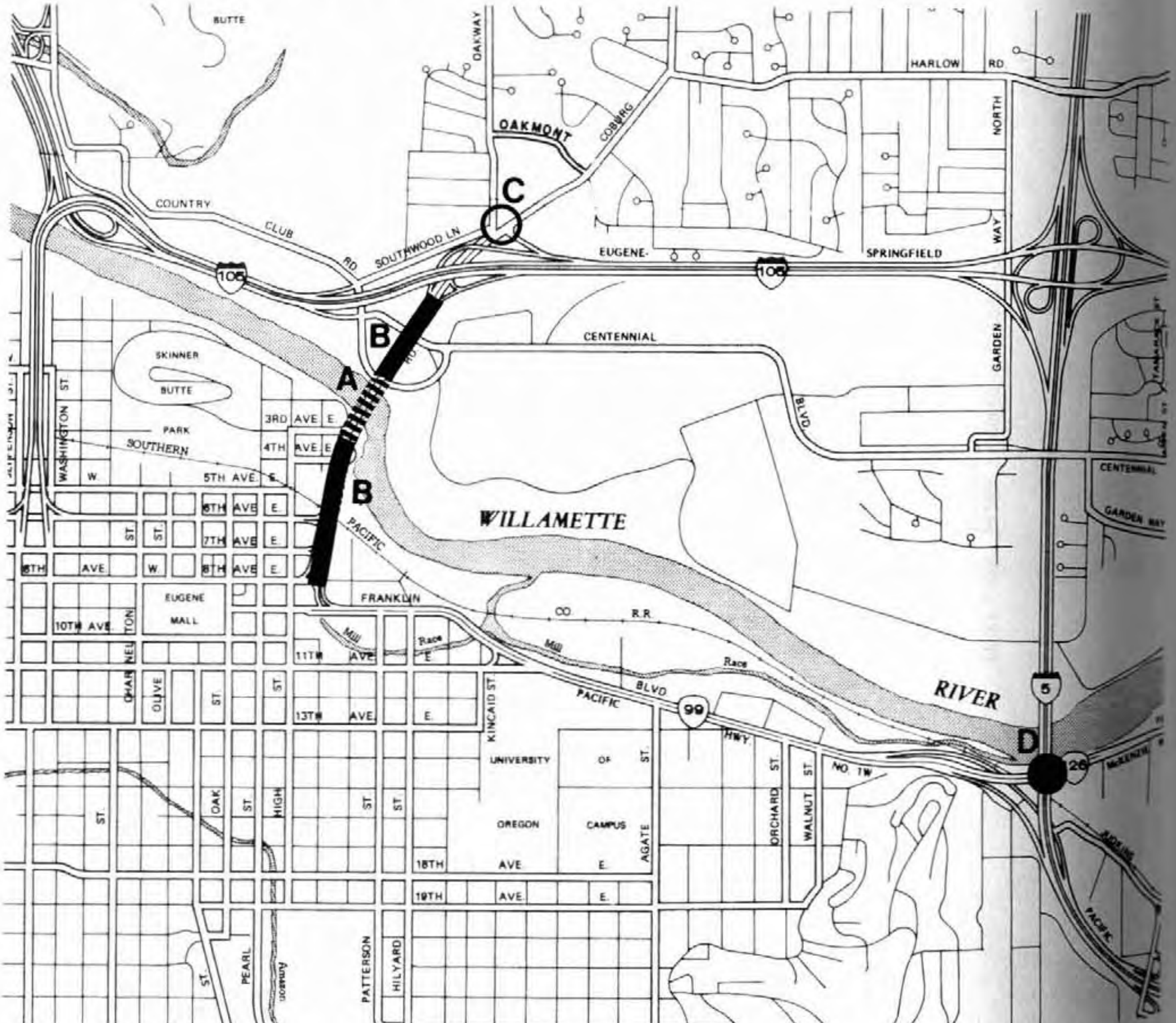
(Recommended by TPC)

Project	Project Description	COST ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. Ferry Street Bridge	Provide 6 lanes capacity - new bridge or companion structure	-	$4,284	-	-	$4,284	$4,284
B. Coburg Road - 8th Ave. to I-105	Widen to 6 lanes	-	1,258	$359	-	1,617	1,617
C. Coburg Road & Oakway Road	Major intersection improvements	50	-	250	-	300	300
ALTERNATIVE #1 TOTALS:		$50	$5,542	$609	0	$6,201	$6,201

COMPANION BUS RAPID TRANSIT PROJECTS

1. Priority access - Northbound approach ramp to Ferry Street Bridge
   Southbound on Coburg Road (at Oakway)
2. Transit Stations - Coburg & Oakway, Coburg & Cal Young
3. Intersection priority treatment between transfer stations.

FIGURE 17
FERRY STREET BRIDGE - COBURG ROAD ALTERNATIVE 2



[solid bar] STREET OR HIGHWAY IMPROVEMENT EXISTING LOCATION

[hatched bar] STREET OR HIGHWAY IMPROVEMENT NEW LOCATION

● INTERCHANGE

○ INTERSECTION IMPROVEMENT

TABLE 20

FERRY STREET BRIDGE - COBURG ROAD CORRIDOR
ALTERNATIVE #2

Project	Project Description	COST ($000) Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
A. Ferry Street Bridge	Provide 6 lane capacity - new bridge or companion structure	-	$4,284	-	-	$4,284	$4,284
B. Coburg Road - 8th Avenue to I-105	Widen to 6 lanes	-	1,258	$359	-	1,617	1,617
C. Coburg Road & Oakway Road	Major intersection improvements	$50	-	250	-	300	300
D. I-5 & Franklin	New freeway ramps	-	1,777	461	-	2,238	2,238
ALTERNATIVE #2 TOTALS:		$50	$7,319	$1,070	0	$8,439	$8,439

COMPANION BUS RAPID TRANSIT PROJECTS

1. Priority access - Northbound approach ramp to Ferry Street Bridge
   Southbound on Coburg Road (at Oakway)
2. Transit Stations - Coburg & Oakway, Coburg & Cal Young
3. Intersection priority treatment between transfer stations.

TABLE 21

FERRY STREET BRIDGE/COBURG ROAD CORRIDOR
EVALUATION MATRIX

	ALTERNATIVES 1	2
Performance Criteria		
Service to the Automobile User	Good	Very Good
Compatibility with Land Use Goals	Very Good	Good
Service to Transit	Fair	Fair
Efficient Goods Movement	Good	Good
Service to Other Modes	Fair	Fair
Impact Criteria		
Noise Impact[1]	3 miles	3 miles
Air Quality Impact[2]	1.4 miles	1.4 miles
Neighborhood Impact	Negligible	Negligible
Natural Resource Impact	Negligible	
Social Impact	Negligible	Negligible
Economic/Industrial Base Impact	Negligible	Negligible
Implementation Criteria		
Capital Cost[3] ($000)	$6,201	$8,439
Staged Development	Fair	Fair

1 Miles of street potentially exceeding FHWA residential noise standard during peak hours.
2 Miles of street potentially exceeding the 8 hour CO standard under worst case meteorological conditions.
3 1977 dollars.

FIGURE 18
FRANKLIN BOULEVARD CORRIDOR
ALTERNATIVE 1
(Recommended by TPC)

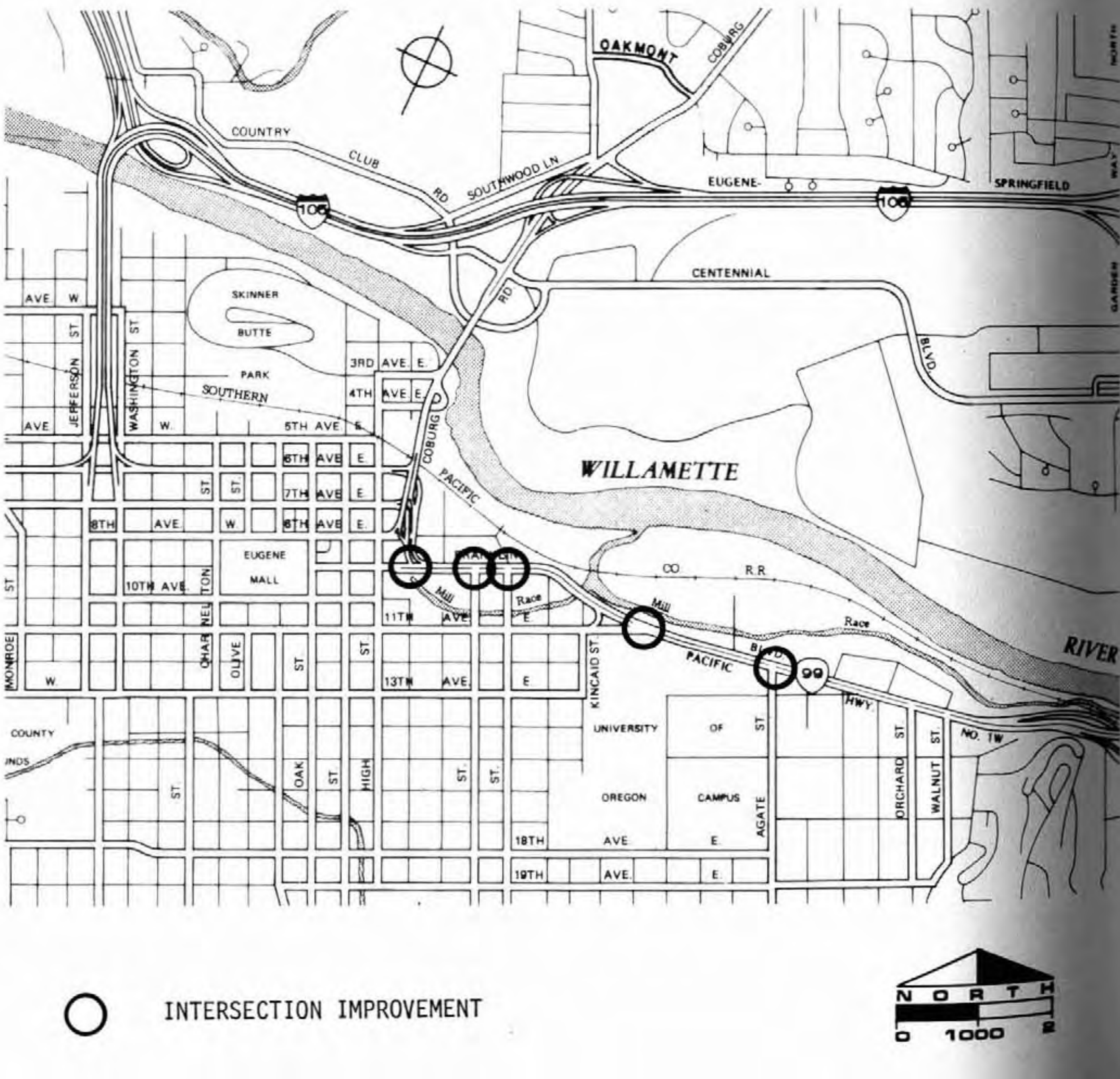


TABLE 23

FRANKLIN BOULEVARD CORRIDOR
ALTERNATIVE #1

(Recommended by TPC)

Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Costs	Total Public Costs
Franklin Boulevard Intersections	Major intersection improvements at:						
	Broadway	-	-	$52	-	$52	$52
	Patterson Street	$98	-	21	-	119	119
	Hilyard Street	-	-	-	-	0	0
	11th Avenue	-	-	15	-	15	15
	Agate Street	-	-	28	-	28	28
TOTALS:		$98	0	$116	0	$214	$214

* Improvements recommended here will not eliminate the overloads on Franklin Boulevard. Additional capacity will be provided, but Levels of Service "E" and "F" will occur in places.

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - 11th Avenue from Franklin to High
2. Acceleration lane/turning radius improvement - Coburg Road at 8th & E. Broadway
3. Bus turnouts/queue jumpers - Franklin Boulevard from Walnut to Hilyard
4. Transit station - 11th & Franklin
5. Intersection priority treatment between stations

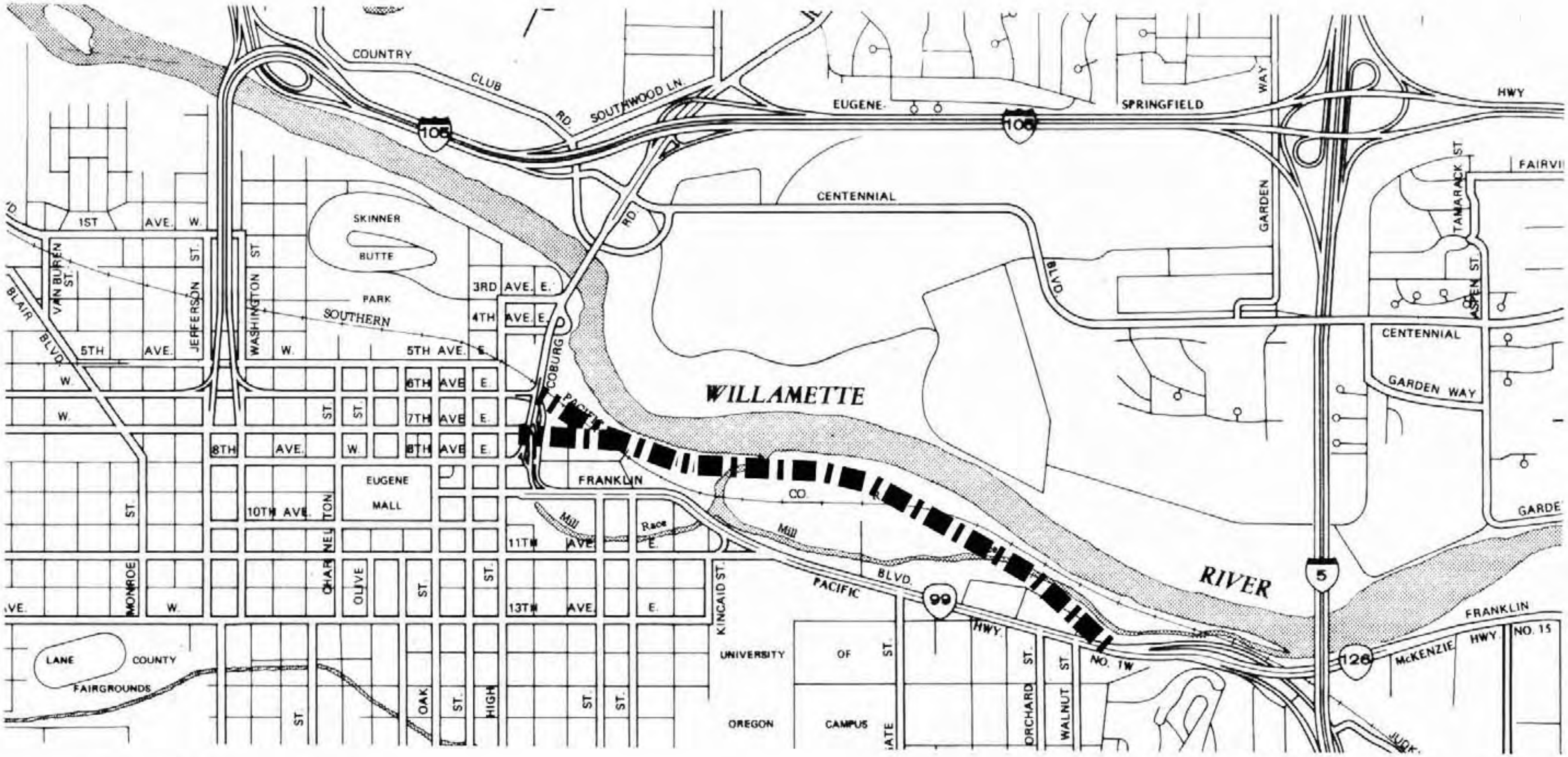


FIGURE 19
FRANKLIN BOULEVARD CORRIDOR
ALTERNATIVE 2

NORTH

0 1000

FREEWAY-NEW LOCATION

TABLE 24

FRANKLIN BOULEVARD CORRIDOR
ALTERNATIVE #2

Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
		COST ($000)					
A. Franklin Bypass - Walnut to 6th-7th Avenues	4 lane freeway	$9,519	$2,500	$2,950	-	$14,969	$14,969
ALTERNATIVE #2 TOTALS:		$9,519	$2,500	$2,950	0	$14,969	$14,969

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - 11th Avenue from Franklin to High
2. Acceleration lane/turning radius improvement - Coburg Road at 8th and E. Broadway
3. Transit Station - 11th & Franklin
4. Intersection priority treatment between stations.

TABLE 25

FRANKLIN BOULEVARD CORRIDOR
EVALUATION MATRIX

	ALTERNATIVES 1	2
Performance Criteria		
Service to the Automobile User	Very Poor	Very Good
Compatibility with Land Use Goals	Fair	Fair
Service to Transit	Fair	Very Good
Efficient Goods Movement	Very Poor	Very Good
Service to Other Modes	Poor	Poor
Impact Criteria		
Noise Impact[1]	5 miles	5 miles
Air Quality Impact[2]	1.5 miles	2.1 miles
Neighborhood Impact	Negligible	Negligible
Natural Resource Impact	Negligible	Major Negative
Social Impact	Negligible	Negligible
Economic/Industrial Base Impact	Negligible	Minor Negative
Implementation Criteria		
Capital Cost[3] ($000)	$214	$14,969
Staged Development	Very Good	Very Poor

1 Miles of street potentially exceeding FHWA residential noise standard during peak hour.
2 Miles of street potentially exceeding the 8 hour CO standard under worst meteorological conditions.
3 1977 dollars.

FIGURE 20
McVAY HIGHWAY CORRIDOR
ALTERNATIVE 1

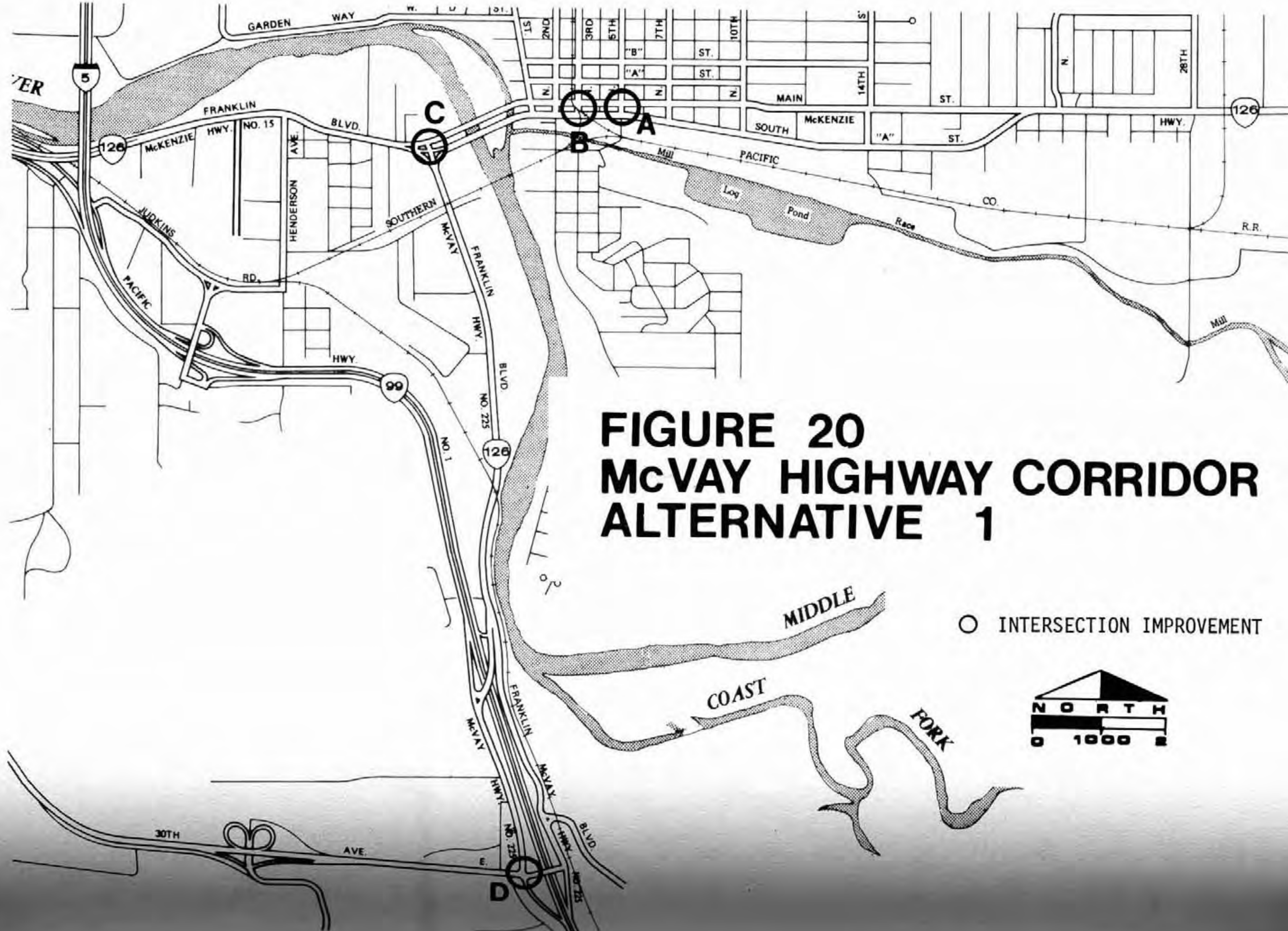


TABLE 27

McVAY HIGHWAY CORRIDOR
ALTERNATIVE #1

Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
		COST ($000)					
A. South "A" & 5th Street	Signal improvements	-	-	$50	-	$50	$50
B. South "A" & 3rd Street	Signal improvements	-	-	50	-	50	50
C. McVay & Franklin (at Springfield Bridge)	Major intersection improvements/overpass	-	$600		-	600	600
D. McVay & 30th Avenue	Intersection/interchange improvements	-	-	100	-	100	100
ALTERNATIVE #1 TOTALS:		0	$600	$200	0	$800	$800

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - Main Street from 6th to Mill
2. Transit Stations - 5th & North "B", LCC (Park & Ride Lot)
3. Intersection priority treatment from stations.

FIGURE 21
McVAY HIGHWAY CORRIDOR ALTERNATIVE 2

IIIIIIII STREET OR HIGHWAY IMPROVEMENT NEW LOCATION

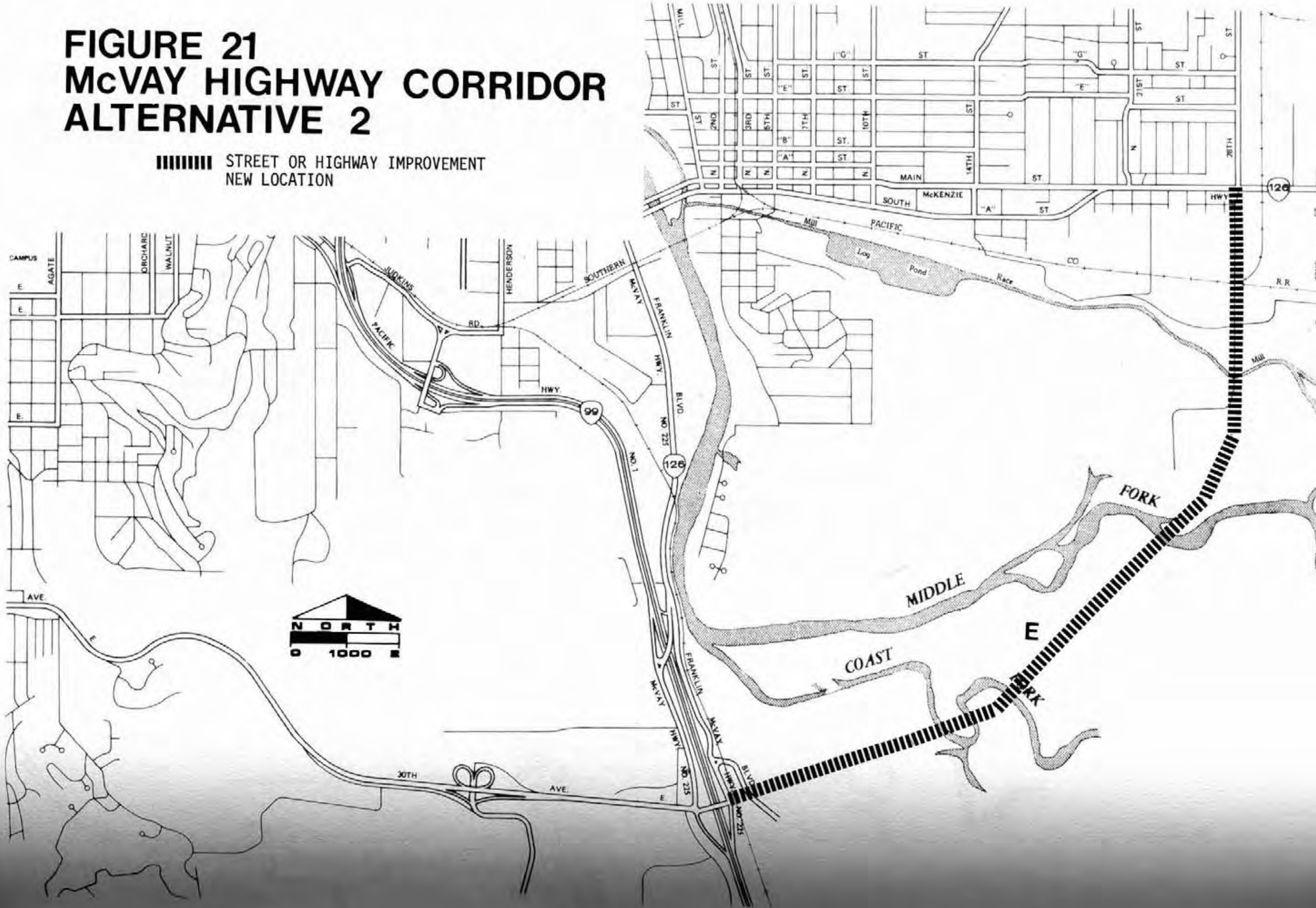


FIGURE 22
McVAY HIGHWAY CORRIDOR ALTERNATIVE 3
(Recommended by TPC)

STREET OR HIGHWAY IMPROVEMENT
NEW LOCATION

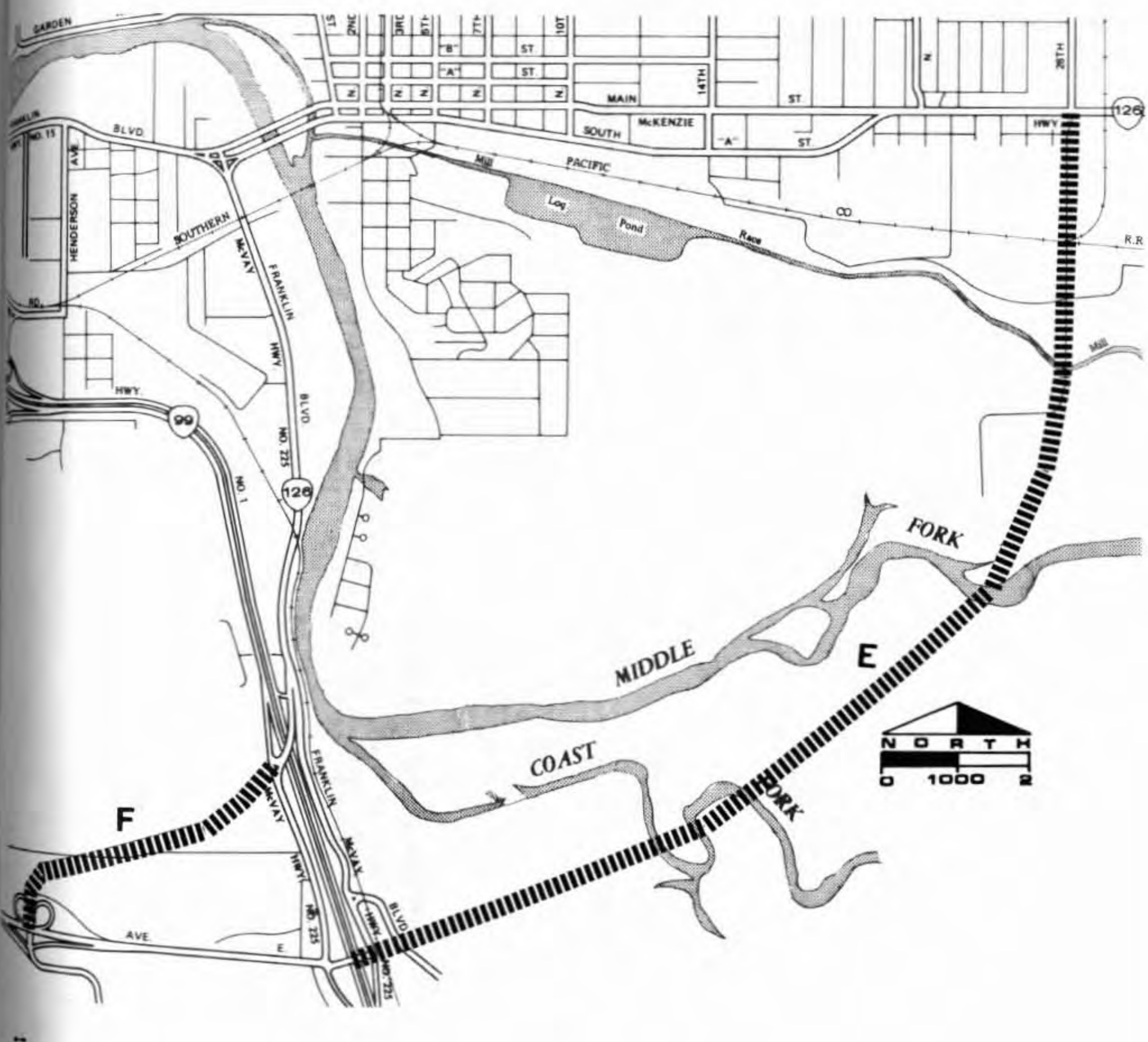


TABLE 28

McVAY HIGHWAY CORRIDOR
ALTERNATIVE #2

		COST ($000)					
Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
E. 30th-30th Connector - Main Street to McVay Highway	2 lane arterial	$320	$1,512	$799	-	$2,631	$2,631
ALTERNATIVE #2 TOTALS:		$320	$1,512	$799	0	$2,631	$2,631

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - Main Street from 6th to Mill
2. Transit Stations - 5th & North "A", LCC (Park and Ride Lot)
3. Intersection priority treatment between stations.

TABLE 29

McVAY HIGHWAY CORRIDOR
ALTERNATIVE #3

(Recommended by TPC)

		COST ($000)					
Project	Project Description	Right-of-Way	Structures	Grading, Paving, And Signals	Assessment	Total Project Cost	Total Public Cost
E. 30-30th Connector - Main Street to McVay	2 lane arterial	$320	$1,512	$799	-	$2,631	$2,631
F. Bloomberg Connector - McVay to 30th	2 lane arterial	10	380	92	-	482	482
ALTERNATIVE #3 TOTALS:		$330	$1,892	$891	0	$3,113	$3,113

COMPANION BUS RAPID TRANSIT PROJECTS

1. Peak hour priority curb lane - Main Street from 6th to Mill
2. Transit Stations - 5th & North "B", LCC (Park & Ride Lot)
3. Intersection priority treatment between stations

TABLE 30
McVAY HIGHWAY CORRIDOR EVALUATION MATRIX

	ALTERNATIVES		
	1	2	3
Performance Criteria			
Service to the Automobile User	Fair	Very Good	Very Good
Compatibility with Land Use Goals	Good	Very Poor	Very Poor
Service to Transit	*	*	*
Efficient Goods Movement	Fair	Very Good	Very Good
Service to Other Modes	Fair	Very Good	Very Good
Impact Criteria			
Noise Impact [1]	4 miles	6 miles	6 miles
Air Quality Impact [2]	0 miles	0 miles	0 miles
Neighborhood Impact	Negligible	Negligible	Negligible
Natural Resource Impact	Negligible	Major Negative	Major Negative
Social Impact	Negligible	Negligible	Negligible
Economic/Industrial Base Impact	Negligible	Minor Positive	Minor Positive
Implementation Criteria			
Capital Cost [3] (000)	$800	$2,631	$3,113
Staged Development	Good	Poor	Poor

1 Miles of street potentially exceeding FHWA residential noise standard during peak hours.
2 Miles of street potentially exceeding the 8 hour CO standard under worst case meteorological conditions.
3 1977 dollars.
* Not applicable to the alternatives of this corridor.

Recommendations - Major Travel Corridors

After extensive testing and evaluation of the corridor alternatives, the Transportation Planning Committee chose the alternatives listed below as the best solutions for anticipated problems in the major travel corridors.

These project combinations will, in most cases, meet the level of service goal, and facilities from those combinations should form the backbone of future capital improvement programs.

Eugene East-West Corridor - Alternative 3

The additional capacity required in the Eugene East-West Corridor should be provided ultimately by the facilities of Alternative 3, represented in Figure 7/Table 4. As an interim solution on 6th and 7th Avenues, both streets should be widened to 4 lanes between I-105 and Garfield (as in Alternative 2) before the 6th-7th Freeway is built in that section.

River Road Corridor - Alternative 2

The additional capacity required in the River Road Corridor should be provided by the facilities of Alternative 2, represented in Figure 10/Table 9.

Eugene Downtown Westside Corridor - Alternative 2

The facilities represented in Figure 14/Table 15, should be implemented to address the problems identified in the Downtown Westside Corridor. Until the Lincoln-Charnelton Couplet is implemented, additional capacity should not be provided on the Washington-Jefferson Couplet, other than improvements of signalization/channelization from 7th to 13th Avenues.

Ferry Street Bridge/Coburg Road Corridor - Alternative 1

The additional capacity required in the Ferry Street Bridge/Coburg Road Corridor should be provided by the facilities of Alternative 1, represented in Figure 16/Table 19. Project staging, such as early construction of a third northbound traffic lane from Franklin Boulevard to the bridge, will help carry the expected traffic increases, but increasing congestion is to be expected until additional river crossing capacity is provided. As an interim measure, traffic management techniques and automobile disincentives should be used to control demand or divert traffic to the Washington-Jefferson Bridge.

Franklin Boulevard Corridor - Alternative 1

Additional capacity in the Franklin Boulevard Corridor should be provided by the intersection improvements of Alternative 1, represented in Figure 18/Table 23. These intersection improvements will not provide the capacity required to achieve the desired level of service, however. Several locations will likely suffer severe congestion and overloading by 2000, in spite of the improvements.

McVay Highway Corridor - Alternative 3

The additional capacity required in the McVay Highway Corridor should be provided by the facilities of Alternative 3, represented in Figure 22/Table 29.

Recommendations - Non-Corridor Projects

In addition to the significant overloads identified in the major travel corridors, other locations not directly tied to any of the major corridors are expected to experience overloads and operational problems during the study period. Additional capacity requirements must be met at these locations or they will act as bottlenecks for the rest of the street and highway system.

Provision of the required level of service is only one consideration, however, and streets are often improved or built for reasons other than increasing capacity. The need to re-route traffic, to provide truck access routes for efficient goods movement, to make pedestrian, bicycle and other safety improvements, and to bring streets up to city standards are logical justifications for street projects. The sidewalks, curbs and gutters provided in bringing streets to city standards improve drainage, define access points to the street, and increase pedestrian safety.

Recommendations for non-corridor street and highway projects needed to complete the future highway network are listed in Table 9 of the 2000 Transportation Plan document. No alternatives were studied for those projects in this plan. The alternatives available are design or operational alternatives more appropriately studied on a project-by-project basis at the time of implementation.

Figure 23 contains all of the projects in the recommended future street and highway network. The numbers refer to the complete project listing shown in Table 10 of the 2000 Transportation Plan document. These capital improvements, when combined with the system management techniques suggested in the Plan, should enable the street and highway system to meet most community goals for level of service, safety and other considerations.

Local Government Policies

If the funds available for highway construction were unlimited, Level of Service "E" could ultimately be prevented from occurring by providing additional street capacity through major construction projects. Because of rising construction costs and limited revenues, however, this capital intensive solution to traffic problems is not always possible. Even if it were, other factors, such as social and environmental considerations, make the approach unrealistic in many cases.

In the preparation of the Plan, policies and actions were identified as measures that would maximize the opportunity to achieve the level of service goal for street and highway operation without decreasing mobility or relying exclusively on major capital improvements. Unlike the transit policies, which were designed to stimulate increased demand for services provided, street and highway policies had to be designed either to decrease demand or better manage the demand that is expected to occur.

Automobile disincentives to decrease demand are often effective in achieving the desired primary result - decreased automobile traffic on a particular facility or area - but in many cases, result in secondary impacts that are less desirable. An overall loss in personal mobility for the general public, decreased accessibility for the affected areas, or less efficient traffic management are common by-products of automobile disincentives applied independently of a comprehensive traffic management plan. Consequently, parking regulation and congestion pricing were the only included disincentives in the recommended policies. Other strategies were dismissed because the disbenefits outweighed potential benefits.

The policies in many instances represent low cost, traffic management approaches to traffic problems. While effective application can achieve significant results in relieving some smaller capacity deficiencies, they should not be considered panaceas for all problem locations. Short of major land use changes, there are no real alternatives to capital intensive construction projects (other than tolerance for extreme levels of congestion, which in turn would lead to decreased accessibility, mobility, and so on) in some of the major corridors. Low cost policies may help maintain traffic flow during interim conditions, however.

Highway policies that were deemed to be effective at regulating demand or improving traffic management and still be compatible with other transportation goals were assembled with policies dealing with other modes to form the comprehensive set of transportation policies in the Policy Element of the Transportation Plan. Although the policies are compatible from a transportation perspective, they still were developed with one overriding consideration - to identify policies necessary to maximize the chances that the adopted transportation goals will be met. Some of the recommended policies may be in conflict with other community goals. It is now up to the public to weigh those actions in relation to the community as a whole. It is conceivable that considerations other than transportation will preclude adoption of some policies - that is a choice to be made. However, to eliminate key policies or to make wholesale revisions to sections of the policies lessens the chances that transportation goals will be met, diminishes the local role in achieving those goals, and increases the need to revise the goals themselves.

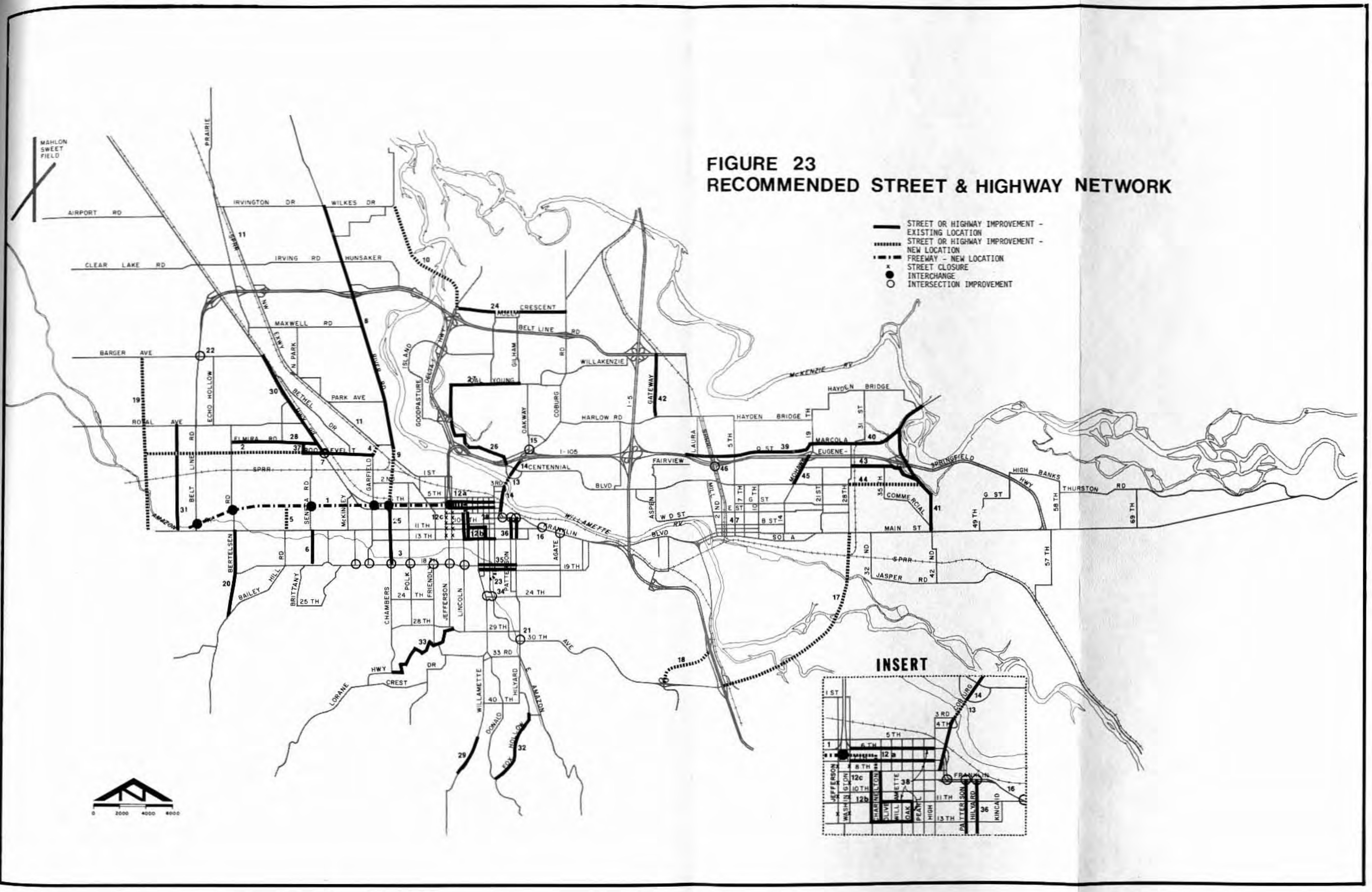


FIGURE 23
RECOMMENDED STREET & HIGHWAY NETWORK

SUMMARY

The street and highway network currently forms the backbone of the surface transportation system in Eugene-Springfield and will continue to do so throughout the study period. The proportion of trips using modes other than the automobile may increase, but an adequate street system will still be essential for the effecient operation of buses, bicycles and paratransit vehicles.

Even if the transit goals and alternative mode goals are achieved by 2000, the overloads likely to occur in the major travel corridors will not be significantly reduced. Only the downtown Eugene area shows some evidence that overloads may be significantly reduced if alternative mode goals are met.

The question often arises as to the impact of not treating the capacity overloads either through construction or other means of capacity increase. In some minor cases, the excess demand during peak hours might be neglected and the facility could saturate until drivers seek alternative routes. In other cases, attempts to reduce peak hour demand, through staggered work hours, for example, may have some impact on traffic volumes. In the major corridors, though, demand is expected to exceed capacity to such a degree and on such an extensive portion of the system, that alternative routes would also be filled for several hours per day. On the worst overloaded streets, alternative routes may be few or nonexistent, and rather than serving as a transit incentive, congested streets actually have a severe adverse effect on the quality of transit service due to increases in travel time and operating cost.

In reality, many trips would not be made because occupants and drivers would consider the delays intolerable. Without construction to eliminate peak hour deficiencies (or most of them) in the major corridors, the plan diagram of the Metropolitan Area General Plan will not be attainable because the street and highway network could not support the planned land activity. Otherwise, life styles would have to change dramatically to be able to accommodate drastic changes in travel habits.

The construction projects and policies recommended in the Transportation Plan for implementation, in most instances, will meet the highway level of service goal and allow the community to maintain mobility (although some lifestyle changes will occur to meet the transit and alternative mode goals). Even so, congestion and delays on the street system will still be greater than generally experienced today.

Phasing recommendations for street and highway projects are included in the Transportation Plan.

Proper implementation programming of the projects requires setting priorities annually through preparation of the Transportation Improvement Program and consideration of available funding, public attitudes, and so on. The general direction to programming and priority setting can be set through the Transportation Plan, however. Projects recommended for implementation between 1978 and 1990 are, in most cases, improvements to the existing system. Right-of-way acquisition for new facilities should occur during this period to prevent new development or redevelopment from encroaching on the proposed alignment, thereby minimizing future costs and disruption. Most major new facilities should be programmed between 1990 and 2000, partly because of the lead time required to initiate a major new project, but more importantly because current state policy places a higher priority on improvements to the existing system, and because the short-term funding outlook does not include sufficient revenues to embark on a major construction program in Eugene-Springfield between 1978 and 1990.

Other street and highway issues are addressed in the Transportation Plan. This report reviewed only those issues for which alternatives were examined. Not all projects tested were included in the alternatives, however, because they were ineffective at relieving overloads or were unfeasible for other reasons. Results and technical documentation for all street and highway tests that were performed are available for review (in unpublished form) at the Lane Council of Governments offices and each of the agencies participating in this study. Cost estimates were performed by Eugene, Springfield, Lane County, and the Oregon Department of Transportation. Assumptions and calculations for facilities within the respective jurisdictions are on file with each.

Time and funding did not permit the evaluation of the myriad of project combinations that were possible in major corridors. One alternative (or hybrid) project combination must be selected for each corridor.

As required during the public review process, or following official action, the Transportation Planning Committee will:

1. Respond, where possible, at meetings or hearings to the implications of modifying or changing alternatives

2. Perform any additional testing required if alternatives other than the ones recommended are adopted for major corridors

3. Following Plan adoption, prepare a comprehensive Transportation Systems Management (TSM) Program that develops low and non-capital strategies, consistent with the Plan policies, to better manage future traffic.

4. Following Plan adoption, annually prepare a Transportation Improvement Program (TIP) listing all major federally-assisted transportation projects for a three to five year period.

APPENDIX

EVALUATION CRITERIA

To assist the reader in choosing between the alternatives examined for the major travel corridors, criteria were selected and applied to project groupings in each corridor. Although each alternative was presented as a solution to specific forecasted traffic overloads, final selection of projects for implementation must include consideration of social, environmental and economic factors, land use goals and policies, and resource availability, as well as traffic considerations. The evaluation criteria selected attempt to draw out the relative merit of each alternative with respect to these considerations.

Because of the regional nature of the transportation plan, the level of detail of evaluation should not exceed the level of detail of traffic forecasting analysis. Consequently, the criteria are predominately qualitative in nature. Assessment and evaluation with these criteria are not intended to serve as an environmental impact statement for the projects under consideration. The detailed analysis required for the EIS/Negative Declaration will be performed at the project development stage.

Performance Criteria

Performance criteria are measures of the degree to which each alternative fulfills the goals and objectives of the urban area and individual jurisdictions. This includes fulfillment of the twelve principles as well as the compatibility with other modes of transportation. For each of the performance criteria, corridor alternatives will be rated either very poor, poor, fair, good, or very good. Specific criteria and the objective of each are as follows:

1. Service to the Automobile

   The objective is to assess the overall effectiveness of each alternative in providing a high level of service to the motoring public. Directness of travel, high travel speed, uninterrupted flow, and safety are some of the considerations that contribute to a high level facility. Alternatives containing freeways or limited access facilities would tend to rank highest in this category.

2. Compatibility With Land Use Goals

The objective is to assess the degree to which each alternative supports the goals of the 1990 General Plan (and Refinement Plan) and/or encourages land development in accordance with those goals. Increasing the accessibility of underdeveloped opportunity areas, or inducing development pressure beyond the urban service boundary are types of factors to be considered.

3. Service to Transit

The objective is to evaluate the ability of each alternative to effectuate the adopted transit goals. The alternatives will be reviewed for compatibility with the planned transit operation and service improvements as well as for the ability to remove street congestion or delays from key links in the transit network.

4. Efficient Goods Movement

The objective is to determine the effectiveness of each alternative in providing for the efficient movement of goods. The network modeling process deals with the movement of people. However, alternatives will be evaluated at a minimum for their ability to eliminate forecasted overloads on major truck routes, remove through industrial traffic from residential streets and provide effective truck routes where none are available.

5. Service to Other Modes

The objective is to assess the degree to which each alternative is compatible with other transportation modes and consistent with other modal plans. Bicycles, paratransit, walking and intercity bus, rail and air travel will be considered where appropriate.

Impact Criteria

Impact criteria deal with the benefits, disturbances or changes to the immediate environment resulting from implementation of each of the alternatives. Both the natural and social environment are considered. Those criteria that are supported by quantitative analysis will be assigned numeric indicators, while those criteria supported by qualitative analysis will be determined to have either a major negative, minor negative, negligible, minor positive or major positive effect.

1. Noise Quality

The objective is to measure the degree to which each alternative alters the noise environment in terms of the number of miles of streets and highways potentially exceeding FHWA noise guidelines for residential and nonresidential land development. A qualitative value will be assigned to the results.

2. Air Quality

The objective is to measure the degree to which each alternative impacts the air quality of the immediate area. The number of miles of streets and highways with forecasted traffic volumes high enough to have the potential for the eight hour CO standard to be exceeded will be recorded.

3. Neighborhood Impact

The objective is to assess each alternative with respect to its infringement upon existing, identifiable neighborhoods. Removal of through traffic from neighborhoods and preservation or enhancement of neighborhood integrity are two positive considerations.

4. Nature Resource Impact

The objective is to assess the impact of each alternative on the natural environment in terms of open space, park land, agricultural land, wildlife habitat, flood plain or the Willamette Greenway boundary. Only a broad review will be given to identify major areas of disruption.

5. Social Impact

The objective is to evaluate the effect of each alternative on the elderly, minorities, low income areas, or other significant demographic categories. The level of analysis will be broad and qualitative, similar to that performed for Natural Resources.

6. Economic/Industrial Base Impact

The objective is to assess the degree to which each alternative disturbs, enhances, or changes industrial development. Loss of industrially zoned land, change in accessibility, enhancement of undeveloped land or displacement of existing industry are among the points to be considered.

Implementation Criteria

Implementation criteria are those considerations that help determine the feasibility of a given alternative Cost figures (in 1977 dollars) will be calculated for each alternative and the remaining implementation criteria will be rated with the same descriptions as the performance criteria (The costs of proposed highway projects were estimated for the jurisdiction most likely to implement the projects. Calculations are on file at L-COG or the responsible jurisdiction).

1. Capital Cost

   The objective is to arrive at a total cost estimate for each alternative in 1977 dollars.

2. Potential for Staged Development

   The objective is to determine the degree to which each alternative has the capability of being implemented in stages. In a project or alternative with this capability, each segment, as completed, functions effectively as a piece of the existing system. Phasing of large projects allows additional time to acquire construction capital as well as allowing implementing agencies to build segments that relieve hot spots in the existing network. Advance acquisition of right-of-way or the ability of one alternative to be upgraded to a higher level facility can also be considered. Staged Development can also be characterized as a "flexibility" factor.

Section D

PARKING

SECTION D. PARKING

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SECTION D. PARKING

INTRODUCTION

The purpose of the parking element of the Transportation Plan is to develop forecasts of future parking demand based upon the trip information developed during the transportation systems modeling process. Policy recommendations were developed for those major activity centers for which parking problems were forecasted to occur by 2000 or currently exist. Those recommendations are included in the Plan.

The assumptions used during the transportation systems modeling process are inherent in this parking element. Population increase and allocation assumptions, employment increase and allocation assumptions, trip-making characteristic assumptions and the respective community goals regarding transit ridership, and the use of alternative modes were reflected in the information used for this parking analysis. This systems analysis approach applied to parking is different than traditional parking studies. The factors which determine the demand within a given area are the trip "attractions" expressed in terms of employment which is broken down into major employment classification groupings. Unlike traditional parking studies, the parking analysis will not make site specific recommendations for new parking facilities.

METHODOLOGY

Information was obtained regarding the current supply of parking available. The supply figures combine both privately controlled and publicly controlled parking spaces.

During the transportation systems modeling process, future employment was allocated to the various transportation zones, within the metropolitan area. In the modeling process, the allocation of employment by type of employment to a particular zone becomes an important factor in determining the number of trips which will be attracted to that zone for various trip purposes.

Information was developed during the transportation systems modeling process which translated the various goals for mode choice into trip-making information for each zone. Thus, the number of automobile trips into each zone by trip purpose was developed. Likewise, the person trips to all zones via transit by trip purpose were developed.

For this study, work trips by automobile served as the basis for determining the demand for long-term parking needs, and retail shopping trips, convenience shopping trips, miscellaneous trips, and school trips constituted the demand for short-term parking. The short-term parking demand is created by the clients, customers, and users of governmental, educational, and commerical services. Trips by commercial vehicles were not considered in this analysis.

Once the number of automobiles entering a zone or group of zones was obtained, a generalized estimate of future parking space demand was derived by utilizing the formula shown in Table One.

TABLE 1: A FORMULA FOR CALCULATING A GENERALIZED ESTIMATE OF FUTURE DEMAND FOR PARKING SPACE.

$$D = \frac{N\ R\ S\ C}{E}$$ where:

D = The demand for parking space.
N = Number of automobiles. For calculation of long-term demand, work purpose automobile trips are used; for short-term demand calculations, other trip purposes by automobile are used.
R = Ratio of peak accumulation of total daytime parkers to total number of parkers.
S = Seasonal parking factor.
C = Locational adjustment factor for city center areas.
E = Efficiency of space use[1]

By varying the S and C factors, three various levels of demand can be determined.

A desirable level occurs when there is adequate supply to meet all customer and employee parking needs, even during the seasonal peak. Access to a given destination is usually easy to attain. Both the S and C factors equal 1.1.

A tolerable level occurs when there is adequate supply to meet all customer and most employee parking needs except during the seasonal peak. In this instance, S equals 1.0 and C equals 1.1.

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[1] Parking in the City Center, Wilbur Smith and Associates, New Haven, Connecticut, 1965.

A minimum level occurs when there is adequate supply to meet most customer and employee parking needs. Some difficulty may occur in finding a parking space, but space is available within a desirable distance of the destination. Employee parking must be carefully managed to insure that accessibility is maintained for customers. Parking is deficient during the seasonal peak demand period. Both the S and C factors equal 1.0.

When the minimum level is not maintained, an adequate parking supply is not available. During the peak demand periods on an average weekday, customers will be inconvenienced. The user will have difficulty in finding a space near the destination. Psychological barriers may force consumers to other shopping areas.

EUGENE DOWNTOWN

For purposes of this parking anaysis, downtown Eugene was defined as census tract number 39. The current (1976) parking supply within the downtown area was approximately 8,300 spaces. This figure includes public on-street and both public and private off-street parking supplies. This total does not include 310 on-street parking spaces within the downtown parking district. As traffic increases and additional capacity must be provided upon existing rights-of-way, on-street parking will be removed. It is likely that additional on-street parking in other areas will also be removed for the above reason. The provision of bicycle lanes, bus lanes and turn-outs will also add to demands upon existing rights-of-way.

The total employment for the metropolitan area was projected to increase from 59,680 in 1970 to 134,440 by 2000. The allocation of employment in downtown Eugene for 2000 was 22,820. This is an increase of 13,160 employees over the 9,660 employed in 1970. Implicit in this allocation is an assumption that the necessary public and private commitment to the Eugene Downtown will continue during the next 23 years to provide the viable central business districts referred to in the "1990 General Plan". Most of the allocated increase in employment in downtown Eugene was in the retail shopping, commerical service, and public service employment categories.

The trip end data indicate that 10,980 work trips will be made to downtown Eugene by automobile drivers in 2000. Additional work trips will be made on transit (7,640 person trips), by alternative modes (2,250 person trips) and as automobile passengers (1,930 person trips).

By utilizing the formula in Table One and the following factors, the generalized estimates of the three levels of future long-term parking space demands were calculated for downtown Eugene as shown in Table Two:

N = 10,980 automobiles
R = 0.70
E = 0.95

S and C factors vary in the calculations of the three levels as described previously.

TABLE 2: LONG-TERM PARKING SPACE DEMANDS FOR DOWNTOWN EUGENE - 2000

Demand (desirable level) = 9,800 spaces
Demand (tolerable level) = 8,900 spaces
Demand (minimum level) = 8,100 spaces

The trip end information indicates that 19,950 automobile driver trip ends will be made for trip purposes which will constitute the demand for short-term parking space. By utilizing the formula in Table One and the following factors, the generalized estimates of the three levels of future short-term parking space demands were calculated for downtown Eugene as shown in Table Three.

N = 19,950 automobiles
R = 0.26
E = 0.75

S and C factors vary in the calculations of the three levels as described previously.

TABLE 3: SHORT-TERM PARKING SPACE DEMAND FOR DOWNTOWN EUGENE - 2000

Demand (desirable level) = 8,400 spaces
Demand (tolerable level) = 7,600 spaces
Demand (minimum level) = 6,900 spaces

Discussion

At the minimum level, 8,100 long-term and 6,900 short-term parking spaces will be required in downtown Eugene if all the assumptions and factors utilized in the forecast are correct. This total of 15,000 parking spaces exceeds by 6,700 spaces the existing supply of 8,300 spaces. (The construction of the proposed six parking structures in the downtown Eugene area will add a net increase of 1,250 spaces to the existing supply, still leaving a shortfall of 5,450 spaces.)

Additional pressures for adding bicycle lanes, transit priority lanes, and automobile travel lanes will result in the continued loss of on-street parking supply.

It is important to remember that the demands for future parking will be met through the provision of both private off-street parking and through the provision of public off-street parking. While new businesses will supply some of the additional parking, close cooperation between the business community, other governmental agencies and the City of Eugene will be necessary in order to monitor the parking problems and to address parking needs within the planning period. In order to provide accessibility to downtown Eugene, adequate parking must be provided. The supply of adequate parking is necessary to ensure the continued viability of the downtown as a commercial center competing with suburban-type shopping centers within the metropolitan area.

As discussed in the transit section, the viability of the downtown and the concentration of employment and activities within the downtown are essential to the success of the transit system. Thus, the transit system depends to a large extent on the concentration of activities in the downtown; the concentration of activities creates demands for additional parking, and an interrelated cycle occurs.

The demand figures for the downtown area already account for trips via alternative modes, including transit. For instance, thirty-three percent (33%) of the person work trips to downtown Eugene are forecasted to be made via transit under an areawide 14% transit ridership goal. If the transit person trips and trips made via other modes such as bicycle, paratransit, and pedestrian were all made by automobile, an additional 8,900 to 10,700 parking spaces would be required to meet both the long-term and short-term demands combined.

The provision of 5,450 additional parking spaces to meet the minimum level of parking demand has serious implications both socially and economically for the downtown area. The policies which were developed in conjunction with the parking element outline steps which can be taken to begin to minimize such negative impacts. Preferential parking treatment for high occupancy vehicles is an example of such a policy. Increased automobile occupancy has some limited capabilites which would help ease parking space demand.

SPRINGFIELD DOWNTOWN

For purposes of this parking analysis, downtown Springfield was defined as transportation zones 3205, 3307, and 3308. In 1976, approximately 2,250 total parking spaces were available in this area. This total included public on-street and both private and public off-street parking spaces.

The total employment allocated to downtown Springfield for 2000 was 4,150 persons; an increase of 1,800 over the 1970 level of employment which was 2,350 employees.

The trip end data indicate that 3,750 work trips will be made to the downtown area by automobile drivers in 2000. Additional work trips will be made by transit passengers and automobile passengers.

By utilizing the formula in Table One and the following factors, the generalized estimates of the three levels of future long-term parking space demands were calculated for downtown Springfield as shown in Table Four:

N = 3,740 automobiles
R = 0.70
E = 0.95

S and C factors vary in the calculations of the three levels, as described previously.

TABLE 4: LONG-TERM PARKING SPACE DEMAND FOR DOWNTOWN SPRINGFIELD - 2000

Demand (desirable) = 3,330 spaces
Demand (tolerable) = 3,050 spaces
Demand (minimum) = 2,750 spaces

The trip end information indicates that an additional 4,765 automobile trips will be made to the downtown area for other than work purposes. These automobile trips create the demand for short-term parking spaces. The factors below were used to calculate the three levels of demand for short-term space as shown in Table Five:

N = 4,765 automobiles
R = 0.26
E = 0.75

S and C factors vary in the calculations of the three levels, as described previously.

TABLE 5: SHORT-TERM PARKING SPACE DEMAND FOR DOWNTOWN SPRINGFIELD - 2000

Demand (desirable) = 2,000 spaces
Demand (tolerable) = 1,800 spaces
Demand (minimum) = 1,650 spaces

Discussion

At the minimum level, a total of 4,400 parking spaces will be required in downtown Springfield. This total exceeds the existing supply of 2,250 spaces by 2,150 spaces. Thus, the amount of parking space in downtown Springfield will have to approximately double to meet the demands in 2000. While not all of those spaces will be provided through the expenditure of public funds, a commitment to providing public off-street parking in downtown Springfield appears necessary.

UNIVERSITY OF OREGON (UO) AND SACRED HEART GENERAL HOSPITAL (SHGH) AREA

Transportation zones 3704, 3802, and 3805 were used to define the area of influence for purposes of this parking analysis. While additional areas surrounding the UO are impacted negatively by users of on-street parking space who are destined for the UO, these three zones were used because they attract the higher numbers of trips.

University of Oregon

Approximately 2,000 off-street parking spaces are currently available on the UO campus. Approximately 3,000 on-street parking spaces are available within four blocks of the edge of campus and south of Franklin Boulevard.

The 2000 employment allocation was 8,800 to the University. Trip end information indicated that 4,900 automobile driver work trips had a destination at the UO. Based upon the following assumptions and the formula shown in Table One, the demand by 2000 for parking by employees was calculated to be 3,455 spaces.

N = 4,900 automobiles
R = 0.67
E = 0.95

S and C are not applicable to the UO situation.

In addition to the 4,900 automobile driver work trips destined for the UO, 22,090 automobile driver trips for other purposes were destined for the UO. By using the formula in Table One and the following factors, the total demand by 2000 for parking created by other than work trips was calculated to be 6,500 spaces.

N = 22,090 automobiles
R = 0.25
E = 0.85

S and C are not applicable to the UO situation.

Discussion

The number of parking spaces needed at the UO to satisfy the forecasted demands is approximately 10,000. It is obvious that this total far exceeds the 5,000 spaces currently available. The 5,000 figure is inflated since the 3,000 or so on-street spaces are not all available to those whose destination is the University. In addition, the negative impacts caused to the neighborhoods surrounding the University by the demand for on-street parking space are such that the practice should be phased out during the time frame covered in this plan.

The trip generation factors and assumptions which were used to develop this element of the transportation plan are not the important issues which emerge from the parking analysis. Whether the demand for automobile parking is for 5,000 spaces or 10,000 spaces, one fact remains evident: only 2,000 off-street spaces are provided by the University of Oregon for the current 3,500 employees and 17,000 students. The gap between demand and supply can only be expected to increase by 2000. While the University of Oregon does offer ample opportunities for the use of alternative modes, not all automobile trips can be expected to be substituted to transit, bicycle, pedestrian, or paratransit modes through the use of parking controls. However, the following trip assumptions were used when making the parking forecast:

Up to one mile from campus - 100% of school trips by bicycle or walking
One to two miles from campus - 50% of school trips by bicycle
Two to three miles from campus - 40% of school trips by bicycle
Three to four miles from campus - 20% of school trips by bicycle
58% of all school trips not by bicycle or walking will be carried by transit.

The University of Oregon should take positive action to enact in the near future existing policies contained in the Long Range Campus Transportation Plan which would allow for UO provision of off-street parking, at cost, for both students and employees of the University. In conjunction with the provision of such off-street facilities, the phasing out of on-street storage of vehicles in neighborhoods surrounding the campus should occur.

The policies developed in conjunction with this plan address, to a certain extent, the problem created by on-street parking of non-residents in residential areas. Local governments adopting this plan should encourage the University of Oregon and the State Board of Higher Education to address the parking deficiencies on the UO campus.

Sacred Heart General Hospital

The existing and planned off-street parking supply controlled by SHGH totals 1,070 spaces. The Hospital currently employs 1,100 persons (full-time equivalency) and the allocation for 2000 was 1,500 employees.

Trip end information indicates that 1,000 automobile driver work trips were assigned to SHGH in the year 2000. By applying the following factors and by using the formula in Table One, the demand for long-term parking at SHGH was calculated to be 525 spaces.

N = 1,000 automobiles
R = 0.50
E = 0.95

S and C are not applicable to the SHGH situation.

An additional 2,150 automobile driver trips for other than work purposes were destined for the Hospital. These automobiles constitute the demand for short-term parking space needed by the year 2000. By using the following factors and the formula shown in Table One, the demand by 2000 for short-term parking was calculated to be 1,770 spaces.

N = 2,150 automobiles
R = 0.70
E = 0.85

S and C are not applicable to the SHGH situation.

Discussion

The total demand for approximately 2,300 spaces of parking at Sacred Heart Hospital exceeds the existing and planned supply by 1,230 spaces. This deficit does not appear to be so severe that the demand cannot be accommodated in parking structures as improvements occur at and near the hospital during the planning period. While high land costs will, in all likelihood, necessitate the accommodation of future parking structures, such a treatment should be encouraged by the City of Eugene in order to reduce the negative impact upon surrounding residential neighborhoods by causing reductions in the available housing supply.

LANE COMMUNITY COLLEGE (LCC)

A long-term demand for 700 parking spaces and a short-term demand for 2,400 parking spaces by the year 2000 were calculated for LCC. While this total future demand for 3,100 spaces exceeds the existing 3,000 spaces, it is not an increase which warrants concern. Since LCC is moving to decentralize its activities, some of the forecasted demand is likely to be transferred to locations other than the current main campus. In addition, the isolation of the campus and the control of the administration over existing facilities provide opportunities to exercise policies which would result in more efficient use of the existing space. Such policies could include pricing of space, preferential treatment for high occupancy automobiles, and active programs for promoting carpooling and preferential treatment for compact automobiles. The forecasted need for parking assumes that nearly 60% of all school trips to LCC will be by transit in the year 2000.

VALLEY RIVER CENTER

Valley River Center, as a major regional shopping center, warrants investigation in terms of future parking demand. Unfortunately, from a transportation systems modeling process point of view, two transportation zones, 2905 and 2906, constitute the area which includes the Valley River Center complex. Valley River Drive and Goodpasture Island Loop create a portion of the boundary which separates those two zones. This same boundary divides the Valley River Center proper from the Ernst Hardware, Valley River Twin

Cinema, Far West Federal complex. The same zone which includes the Ernst complex also contains the existing K-Mart shopping center and contains much of the land proposed for "medium density residential" designation in the "1990 Plan" as amended in December, 1975.

Current parking supply in transportation zones 2905 and 2906 equals approximately 6,050 spaces. Based upon the trip information generated in the transportation systems modeling process, some 9,930 total spaces would be required by 2000. However, not all of those spaces would be needed at the Valley River Center.

The parking situation should be monitored as development in the Goodpasture Island area occurs.

MOHAWK SHOPPING CENTER

The Mohawk Shopping Center is rapidly becoming a major area of commercial activity in Springfield. Most of the activity is located north of Centennial along Mohawk Boulevard, along Olympic Street between North 18th Street and North 28th Street, and along North 18th Street between Centennial and Mohawk. Unfortunately, for parking analysis purposes, this area is split into three separate transportation zones, 3301, 3401, and 3402.

The current number of parking spaces in the commercial center is approximately 2,350. In 1976, commercial employment was about 725 in the commercial area with an additional 350 workers employed at the Willamette-McKenzie General Hospital and the nearby associated medical service offices. Based upon the trip information generated in the transportation systems modeling process, some 5,890 total parking spaces would be required in the three transportation zone area by 2000. Much of the increased demand for parking is predicated on an increase in 2000 employment in the three transportation zone areas to a total of about 3,600 employees. Not all of the 5,890 spaces would be associated with increases in the commercial center.

The parking situation at the Mohawk Shopping Center should be monitored as commercial development occurs.

PARKING POLICIES

Parking is an important component of a transportation system. The provision of parking is essential to downtown areas in terms of providing accessibility to retail stores and commercial services. While parking plays a vital role in maintaining viable activity centers, it causes some negative impacts. The objectives of the policy suggestions are to address the needs to provide parking, and to attempt to reduce the negative impacts caused by parking.

In the two downtown areas, the provision of short-term parking for customers will have to be given priority over long-term employee parking. Various policies were developed which address this problem. Other policies are being proposed which would encourage increased occupancy in automobiles and the use of smaller vehicles. Such policies help reduce the demand for total parking space. A third major parking related problem occurs when parking spills over into neighborhoods adjacent to major activity centers such as the downtown areas and the University of Oregon and Sacred Heart General Hospital area. A policy was prepared to address this problem.

Other policies which were developed have either direct or indirect impacts upon parking. Policies directed toward achievement of transit ridership goals and achievement of alternative mode goals will ultimately have an effect upon parking demand. Achievement of the goals has been assumed by 2000 in developing the parking forecasts. Policies directed toward limiting on-street parking to achieve higher capacities or to accommodate alternative modes will impact parking supply. The policy addressing staggered work hours in order to lessen the impact of peak hour travel would have positive impacts by reducing peak hour parking demands. These and other recommended policies are included in Element II - Policies, of the Transportation Plan.

RECOMMENDATIONS

- Level of Service*
  The minimum acceptable level of service should be provided for the auto user when parking in or near major activity centers. The minimum acceptable level of service is characterized by an adequate supply to meet most customer and employee parking needs. Some difficulty may occur in finding a parking place, but space is available within a reasonable distance of the destination. Since parking space will be at a premium, employee parking must be carefully managed to insure that accessibility is maintained for shoppers, customers, and clientele.

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* Three levels of service are generally identified for providing parking supply. From the highest level of service to the lowest, they are: desirable, tolerable, and minimum.

- Parking Supply
The parking forecasts are based on the transit, paratransit, bicycle and pedestrian goals as well as the population and employment assumptions for the major activity centers. The minimum level forecasts and needs are:

	2000 Forecasted Space Requirements (minimum)	Existing Off-Street Supply	2000 Remaining Needs
Eugene Downtown	15,000	8,300*	6,700 spaces
Springfield Downtown	4,400	2,250*	2,150 spaces
U of O	10,000	2,000**	8,000 spaces
Sacred Heart	2,300	1,070	1,230 spaces

Eugene, Springfield, the University of Oregon, and Sacred Heart should develop a long range implementation and financing schedule to provide the minimum level of parking required by the year 2000.

As one of the most critical areas of parking need, the University of Oregon should take positive action to enact the parking policies of the Campus Transportation Plan which call for the provision by the U of O of off-street parking, at cost, for both students and employees.

- Policies
Policies that will help achieve greater efficiency in the use of available parking space, and address existing parking problems, such as on-street parking near downtown Eugene and the U of O, are contained in Element II (Policies) of the Transportation Plan.

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* Includes on-street parking.

** Includes some on-street parking within the UO campus area.

Section E

INTERCITY TRANSIT

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INTERCITY TRANSIT

INTRODUCTION

Many of the issues in intercity transportation planning cannot be resolved by the metropolitan planning process, but must be addressed by the statewide plan which has yet to be completed. For example, future intercity bus and rail alternatives in the Willamette Valley corridor are discussed in the Rail Study, published by the Oregon Department of Transportation. Included in the report is an evaluation of several levels of rail service, ranging from two to ten or more round trip trains per day. While choices in modal emphasis are extremely dependent upon state planning, intercity terminal location and access is largely a local planning process.

In the absence of long range goals for intercity public transportation ridership, it would be reasonable to assume that current ridership would increase at least in proportion to forecast population growth. This would indicate at least a 63% increase by the year 2000. The number of buses and trains assumed to be operating through the Eugene/Springfield area in the year 2000 is listed in Table 1. Such traffic forecasts need to be updated by the eventual completion of a statewide plan, taking into account national as well as state policies and programs.

LOCATION OBJECTIVES

The intercity planning guidelines provided in the Overall Planning Direction Element of the Transportation Plan are general and do not provide direction for the discussion of specific facilities. To assist in comparison and evaluation of alternative intercity terminal concepts, the following set of location objectives are proposed.

1. Maximize inter-modal passenger convenience.
2. Minimize intercity vehicle travel time.
3. Minimize travel time for local access modes.
4. Recognize the requirements of the various carriers, both publicly and privately owned, including the economics of intercity package express.
5. Consider the existing and planned neighboring land use for both compatibility and enhancement.

6. Consider availability of access right of way with respect to demand forecasts for all modes.

7. Minimize adverse air and noise impact on adjacent properties.

EXISTING FACILITIES

Intercity Bus - Currently Greyhound and Trailways both offer service to the Eugene/Springfield area. There are 41 P.U.C. Station Stops per day at the present bus terminals at the northeast corner of 10th & Pearl. Greyhound owns their facility, while Trailways leases space. Both carriers store and maintain their coaches at sites away from the 10th & Pearl passenger terminals. This practice of separate maintenance and parking facilities is common due to the expense of downtown property.

The present intercity bus terminals at 10th & Pearl are central to the downtown Eugene business district. Convenient access is available for taxi service and for the airport limousine, which is currently based at the adjacent Eugene Hotel. The central transit station for Lane Transit District is two blocks away.

Given projected increases in the level of intercity bus service, the terminals will need to be expanded to accommodate the volume of passengers and vehicles. Opportunities for expansion at the present site are limited. Depending on the future location of the LTD station, the current site could share most of the advantages of Alternative C.

Rail - Passenger service is provided by Amtrak with two trains per day, one northbound departure at 10:20 a.m. and one southbound departure at 6:35 p.m. The passenger terminal is located at 4th & Willamette, six blocks from 10th & Willamette, the central transit station for LTD.

DESCRIPTION AND DISCUSSION OF ALTERNATIVES

Alternative A - Description: The rail terminal would remain at 4th & Willamette and future growth in rail facilities would be accommodated by developing this site more fully. The intercity bus terminals would be relocated to a site adjacent to Interstate 5. Two general areas to investigate are I-5 and Belt Line and the I-5 interchange in Glenwood.

Analysis: The following considerations apply to an intercity terminal at either of the sites adjacent to I-5.

1. Separate rail and intercity bus terminals create a continual lack of intermodal cooperation and detract from passenger convenience.

2. Both of the proposed sites for the intercity bus terminal would reduce mileage and time costs for the intercity carriers.

3. The table below compares forecasts of average travel time by mode from both sites. An intercity terminal adjacent to I-5 favors the auto mode for local access.

E-SATS

Location	E-SATS Transportation Zone	Average Auto Travel Times	Average Transit* Travel Time
I-5 & Belt Line	49	14.2 min.	53.2 min.
I 5 in Glenwood	125	15.6 min.	50.3 min.

4. The package express business is an important source of revenue for intercity carriers. To maintain the attractiveness of this service, the carriers would need to develop a local trucking system to transport express shipments to a more central pickup point. This is an expense that they may not be willing to consider.

5. At the I-5 and Belt Line site, the southeast quadrant of the interchange is within the city limits of Springfield. Between I-5 and Gateway, south of Belt Line, the Springfield zoning principally commercial (C4), and a series of large motels, restaurants, and recreation facilities have been developed. Construction of a terminal at the Belt Line Interchange would benefit this existing development.

   The remaining land around the interchange is under the jurisdiction of Lane County and is zoned either for agriculture (AGT) or for low density rural residential (RA).

   The land around the Glenwood interchange is currently in Lane County but portions of it will be taken into the City of Eugene when the new landfill site is annexed.

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* Assumes a conventional fixed route bus transit system.

Alternative B - Description: The current 4th & Willamette rail terminal would be expanded to accommodate intercity bus and a new multi-modal facility would be developed at this site that would result in the elimination of the 10th & Pearl bus terminals. It is likely that this project would require the acquisition of adjacent property.

Analysis: The following considerations apply to a combined rail-intercity bus terminal in the vicinity of 4th & Willamette.

1. This type of multi-modal facility would improve coordination and facilitate passenger transfers between rail and intercity bus.

2. The mileage and travel time costs for intercity bus operators would not change significantly. Operating costs to and from 4th & Willamette terminal would be comparable to operating costs to and from the existing intercity bus terminal at 10th & Pearl.

3. This type of multi-modal facility would attract taxi operators. Permanent taxi stands could be designed and incorporated into the design. Another factor to consider is the possibility of development of a major hotel facility in the north end of downtown. If this hotel is built, it will have excellent access to both rail and intercity bus. It would also attract the Airport Limousine Operator, adding another access mode to the terminal.

   For auto and transit, the following comparison of forecast travel time for the year 2000 can be made:

Location	E-SATS Transportation Zone	Average Auto Access	Average Transit Access*
4th & Willamette	141	17.0 min.	45 min.

4. The 4th & Willamette terminal is centrally located and would enhance intercity package express.

5. The property on the north side of 4th Avenue between 4th and the railroad tracks is owned by the Southern Pacific and is zoned light industrial (M2). Directly south of 4th Avenue, at Willamette Street, the property is zoned

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* Assumes a conventional fixed route bus transit system.

either downtown commercial (C3) or light industrial (M2). The development of a multi-modal terminal in this vicinity would be compatible with both historical usage and current zoning practices.

Alternative C - Description: An intercity bus terminal would be developed within an area bounded by 5th, 7th, Olive, and Pearl Streets. This combined facility would replace the existing intercity terminals at 10th & Pearl. The rail terminal would remain at 4th & Willamette and future growth in rail facilities would be accommodated by developing this site more fully. This facility would be close to the Lane Transit District's Central Transit Station if it is located on the north side of the Eugene Mall.

Analysis:

1. Due to its proximity to the rail terminal at 4th & Willamette, a combined bus facility at the location would improve coordination among intercity bus and rail modes.

2. For the intercity carriers, mileage costs would not change significantly. However, travel time costs would need further study and would be dependent on traffic congestion in and around the terminal as well as terminal design.

3. Local access to the terminal by public transportation would be favored. Auto access would depend on facility design with a probable emphasis on taxi stands, short term parking and kiss 'n' ride. The possible construction of a major hotel on the block to the west or the 8th & Willamette site implies that Airport Limousine Service would be readily available.

Location	E-SATS Transportation Zone	Average Auto Travel Time	Average Transit Travel Time*
Area bounded by 5th, 7th, Olive, and Pearl Streets	144	17.3	34.3**

4. The site is centrally located and would enhance intercity package express.

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* Assumes a conventonal fixed route bus transit system.

** Assumes average travel time associated with central transit station itself.

5. The area under consideration is zoned downtown commercial (C3) and community commercial (C2).

RECOMMENDATIONS

1. The Oregon Department of Transportation should coordinate its intercity transit planning with urban area transportation studies, so that future statewide plans and policies are developed with due consideration to local adopted goals and policies.

2. The main Eugene-Springfield rail station should remain at, or in proximity to, its current location. The location of minor stations should be planned in cooperation with Oregon Department of Transportation and state implementation of a Willamette Valley Rail Rapid Transit Service.

3. Intercity bus terminals should be located in proximity to downtown Eugene.

   To facilitate this action, private intercity operators should be encouraged either to remain at their current location or to relocate, if need is shown, to another area of the downtown in a shared facility. If relocation is to occur, the Eugene Renewal Agency should investigate the availability of sites near the mall.

4. The feasibility of a combined intercity and intracity bus terminal near the downtown mall should be investigated by Lane Transit District and the Eugene Renewal Agency in consultation with Greyhound and Trailways.

TABLE 1

TWO WAY INTERCITY TRAFFIC PROJECTIONS*

		1976		2000	
		24 Hr. Ave.	Peak Hr.	24 hr. Ave.	Peak Hr.
Trailways					
I-5 north		8	2	14	2
Bend via 26, 126		6	0	10	2
I-5 south		8	2	14	2
Greyhound					
I-5 north		16	2	26	4
Hwy. 99 north] River Rd. north]	--	14	2	22	4
I-5 south] Hwy. 99 south] Hwy. 58 south]	--	30	4	48	6
Green Bus, Inc.					
Hwy. 126 west		0.3	0	1	1
Amtrak					
north		2	0	4	2
south		2	0	2	0
Total Bus Station Stops		41.1	6	68	11
Total Train Station Stops		2	0	3	1

*Assumes increase proportional to forecast population growth.

TABLE 2

TWO-WAY NON-URBAN AND INTERCITY TRAFFIC PROJECTIONS

(Assuming Downtown Terminal Location)

	1977 LTD Non-Urban		2000 LTD Non-Urban		2000 Non-Urban and Intercity	
	24 Hr. Ave.	Pk. Hr.	24 Hr. Ave.	Pk. Hr.	24 Hr. Ave.	Pk. Hr.
Highway 99 (Gilbert Ctr.-Chambers)	8	2	13	3	35	7
Highway 99 Corridor (Chambers-Eugene Mall)	27	4	44	7	67	12
Franklin Blvd. Corridor (Eugene Mall-I-5)	7	1	11	2	73	10
Willamette Corridor (Eugene Mall-18th)	23	2	37	3	37	3
I-105 Corridor (Eugene Mall-VRC)	8	0	13	0	13	0
Ferry Street Bridge (Eugene Mall-I-105)	21	2	34	3	84	11
30th Avenue (Hilyard-LCC)	23	2	37	3	37	3
Coburg Road (Oakway-Cal Young)	21	2	34	3	34	3
Mohawk Blvd. Corridor (5th & N. "B"-Olympic)	14	2	23	3	23	3

Section F

LAND CONSERVATION AND DEVELOPMENT COMMISSION CITIZEN INVOLVEMENT AND TRANSPORTATION GOALS

EVALUATION OF THE TRANSPORTATION PLAN
WITH RESPECT TO LCDC GOAL #1, CITIZEN INVOLVEMENT,
AND LCDC GOAL #12, TRANSPORTATION

The Eugene-Springfield Area 2000 Transportation Plan", once adopted, will serve as the comprehensive surface transportation plan for the Eugene-Springfield metropolitan area. The cities of Eugene and Springfield, the Oregon Department of Transportation, the Lane Transit District, and Lane County, all working within the metropolitan area, will rely on the Plan to guide future expenditures and policy implementation. Those agencies will, at times, work within their own jurisdictions and, at other times, will work in cooperation with each other, to implement the adopted policies and facilities.

Since those agencies are affected by the state-wide goals adopted by the Land Conservation and Development Commission as per Oregon Revised Statutes, Chapter 197, it is appropriate to evaluate the Transportation Plan with respect to Goal #1, Citizen Involvement, and to Goal #12, Transportation.

LCDC Goal #1, Citizen Involvement

The planning process leading to the release of the Eugene-Springfield Area 2000 Transportation Plan can be termed a "goal-oriented process". Before describing that process, it should be noted that the Lane Council of Governments has two citizen committees which work with the staff concerning transportation planning; the Citizens' Advisory Committee for Transportation Planning (CAC), and a subcommittee of the technical Transportation Planning Committee, the Metropolitan Bicycle Committee. This latter committee contains a mix of citizens and technical staff.

The Metropolitan Area General Plan (commonly referred to as the "1990 Plan") was adopted in 1972, calling for a review of the Transportation Plan.

The first major step in the transportation planning process occurred during May of 1974 when the CAC held four public meetings in the metropolitan area to listen to suggestions from the public about the kinds of broad concept alternatives which should be investigated.

The CAC further participated in developing the six concept alternatives which were investigated to insure that the range of alternatives suggested by the public were treated. The CAC was involved in the preparation of the "Eugene-Springfield Transportation Alternatives" report, which was released for public review in September, 1975. This report was the subject of numerous public meetings during late 1975 and early 1976. Neighborhood groups, University of Oregon classes, and special interest groups such as the Board of Realtors and Chambers of Commerce were presented with a slide show, and copies of the report. Staff was available to provide information and answer questions regarding the report. During early 1976, the respective planning commissions and elected bodies of the City of Eugene, City of Springfield, and Lane County held public hearings regarding the report. The CAC, along with other groups and individual citizens, presented their recommendations regarding the concept alternatives. Those hearings received broad media coverage during the hearing and adoption process.

As a result of those hearings and the decisions made by the three elected bodies, the "Twelve Principles for Master Plan Development" were adopted by the three elected bodies and the L-COG Board. These principles provided direction for further planning on the Transportation Plan.

The CAC was involved not only in reviewing drafts of plan elements as they were prepared, but was also involved, for example, in making suggestions for street and highway alternatives and proposing policies for consideration. The Metropolitan Bicycle Committee also made numerous policy suggestions which were drawn primarily from the goals and recommendations of the already adopted Metropolitan Bikeway Master Plan.

All meetings of the CAC, the Transportation Planning Committee (TPC, the technical committee), and the Metropolitan Area Transportation Committee (MATC, the policy committee) are announced to the news media and are open to the public.

The hearing and adoption process which will follow release of the Eugene-Springfield Area 2000 Transportation Plan will involve extensive public review and discussion from November 1977 through March 1978. To assist the public in formulating their views on the Transportation Plan, a slide show and an "Overview" brochure have been prepared.

It is also important to note that the CAC at its September 27, 1977 meeting took the following action:

1. The CAC endorsed the basic outline and concept of the Transportation Plan in that it meets the goals and objectives of the Metropolitan Area General Plan;

2. The CAC endorsed the process by which the Transportation Plan was developed; and

3. The CAC endorsed the proposed process for hearings and adoption by which the Transportation Plan will be further refined.

The CAC provides continuity of citizen participation in the transportation planning process. The CAC has assisted the staff in ensuring that the plan documents are understandable and address the issues which are important to the community.

The transportation planning process involves, at differing levels, representatives of the City of Eugene, the City of Springfield, Lane County, the Lane Transit District, the Federal Highway Administration, the Oregon Department of Transportation, and the Lane Regional Air Pollution Authority. The transportation planning process has been closely coordinated to ensure that the existing citizen involvement programs of the participating agencies will be involved in the coming hearing and adoption process.

Conclusion:

The extensive transportation citizen involvement program in the Eugene-Springfield metropolitan area during the preparation of, and adoption process for, the Eugene-Springfield Area 2000 Transportation Plan addresses LCDC's Goal #1, Citizen Involvement.

LCDC Goal #12 (Transportation) states:

> Goal: To provide and encourage a safe, convenient and economic transportation system. A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services, (8) facilitate the flow of goods and services so as to strenghten the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

Evaluation

Each of the points covered in the goal will be addressed and evaluated from the perspective of the Eugene-Springfield Area 2000 Transportation Plan.

"(1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle, and pedestrian;"

The Transportation Plan is a comprehensive multi-modal plan which addresses the surface transportation needs of the metropolitan area during a 23 year planning period. Water and pipeline transportation are not significant in the metropolitan area and it was deemed inappropriate to devote detailed planning efforts to those modes. The airport needs of the metropolitan region are addressed in the Mahlon Sweet Field Master Plan, adopted in 1973, and the "General Aviation Airport Needs, Site Selection, and Feasibility Study" now being prepared for public review.

The relationship between air travel and surface travel to the metropolitan area is implicit in the trip generation information developed for the computer modeling utilized during preparation of the Transportation Plan. The Eugene-Springfield Area 2000 Transportation Plan considers alternative modes including automobile, transit, bicycle, pedestrian, and paratransit modes. The interrelationship between intercity transit and local transportation is addressed in the Plan.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (1).

"(2) be based upon an inventory of local, regional and state transportation needs".

The Transportation Plan responds in detail to local and regional transportation needs. Those needs are expressed in terms of locally adopted community goals and objectives as expressed in the Metropolitan Area General Plan and in the Eugene-Springfield Transportation Master Plan: A Progress Report. This latter pamphlet elaborates upon decisions made by local elected officials after the extensive local meetings and public hearings held in response to the alternatives presented in the "Eugene-Springfield Transportation Alternatives Report." The direction expressed in the "Progress Report" was presented as the "Twelve Principles for Transportation Master Plan Development".

In addition to adopted local goals and objectives, the entire transportation systems modeling process is geared toward anticipating future demand for personal and goods movement. This modeling process utilizes not only inventories of existing needs, but needs for the future based on projected population growth, projected employment growth, future land use, and other variables.

The Oregon Department of Transportation has been involved in the continuing, cooperative, and comprehensive transportation planning process in the metropolitan area since the early 1960's. In the absence of an adopted state-wide transportation plan, the local transportation planning process attempted to address state-wide transportation needs by: 1) including the local state highway segments during all phases of planning, 2) including a section addressing the relationship between local transportation and intercity transit, and 3) including the state in the consideration of possible future financing of the transportation systems considered.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (2).

"(3) Consider the differences in social consequences that would result from utilizing differing combinations of transportation modes".

The "Eugene-Springfield Transportation Alternatives Report" presented six broad concept alternatives and an evaluation of the physical, social, and economic impacts of those alternatives for extensive public review in 1975 and 1976. The goal-oriented methodology used in this metropolitan area represents a pioneering approach to transportation planning in the United States.

The modal choices examined in the "Alternatives Report" ranged from zero percent (0%) transit to a level of future transit ridership which would have relieved the area from having to construct any new highways or having to add additional capacity to existing streets and highways. Modal choice was a controversial issue in the consideration of a future transportation system for this metropolitan area.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (3).

"(4) avoid principal reliance upon any one mode of transportation;"

The transportation goal of the Metropolitan Area General Plan ("1990 Plan") states, "We must provide for a balanced transportation system to give mobility to all citizens." The Transportation Plan provides direction which would lead to an areawide 14% transit ridership (the transit modal split is currently 2 1/2%) and greater reliance on alternative modes such as bicycles, paratransit, and pedestrian.

The 14% transit goal would result in a ridership increase of 95,000 daily weekday passengers over the current 12,000 level (a total of 107,000 daily passengers by 2000). This represents approximately a 900% increase over current levels.

The transportation system recommended in the Transportation Plan will provide more choice between modes by 2000.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (4).

"(5) minimize adverse social, economic, and environmental impacts and costs;"

The "Eugene-Springfield Transportation Alternatives Report", the Eugene-Springfield Area 2000 Transportation Plan, and this Technical Report attempt to measure the pros and cons of 1) broad system alternatives, 2) facility alternatives within corridors, and 3) transit system alternatives.

In commenting upon the alternatives outlined in the "Alternatives Report", the public had detailed information available upon which to base judgments concerning the physical, social, and economic impacts associated with those broad concept system alternatives. In making decisions which resulted in adoption of the "Twelve Principles for Transportation Master Plan Development", local elected officials had available the same evaluations of the alternatives.

During preparation of the Eugene-Springfield Area 2000 Transportation Plan, five transit system alternatives were evaluated. Social, economic and physical environmental criteria were used in the comparison, evaluation, and selection of the recommended bus rapid transit system. Likewise, various street and highway alternatives were examined within the six problem corridors identified during the planning process. Social, economic, and physical environmental factors were considered during preparation, evaluation, and selection of the street and highway alternatives being recommended.

The Technical Report addresses some of the major costs and benefits resulting from the systems, alternatives, and policies recommended in the Transportation Plan.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (5).

"(6) Conserve Energy;"

The "Eugene-Springfield Transportation Alternatives Report" compared the energy consumption of the system alternatives presented. The recommendations regarding transit, bicycles, paratransit, and pedestrians in the Transportation Plan all move toward a future transportation system which is more energy efficient than the current transportation system. Elimination of severe levels of congestion also increase automobile energy efficiency. The compact urban growth form of the Metropolitan Area General Plan contributed to reduced transportation energy requirements.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (6).

"(7) Meet the needs of the transportation disadvantaged by improving transportation services;"

The transportation system operating within the urban services boundary will result in a more dense development pattern which will be better served with public transportation systems. The result will be higher levels of service to the transportation disadvantaged and more choice between modes for those individuals.

In addition, local "special efforts" planning for the elderly and handicapped have resulted in the following actions by the Lane Transit District:

1. Reduced fare for senior citizens.
2. Provision of a special dial-a-bus system which connects any point within its service area to selected destinations within the metropolitan area.
3. Provision of limited late hour and weekend service.
4. Careful planning of routes to service low income, minority, and concentrations of elderly citizens.

Through expansion of the transit system as recommended in the Transportation Plan, and through improvements to the sidewalk system (including curb cuts or ramps) and to the bicycle/pedestrian network, the transportation disadvantaged will be afforded better transportation service.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (7).

"(8) Facilitate the flow of goods and services so as to strengthen the local and regional economy;"

The transportation planning process considered relieving extreme levels of congestion as one of its major goals. The street and highway alternative evaluation considered goods movement and service to industrial land. Implementation of the street and highway improvements of the Transportation Plan will facilitate general goods and services movement, and will increase the accessibility of lands suited to goods storage and transfer.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (8).

"(9) conform with local and regional comprehensive land use plans."

Preparation of the Transportation Plan was prompted by the adoption of the Metropolitan Area General Plan ("1990 Plan"). The goals, objectives, recommendations, urban service boundary, and plan diagram were used as controlling factors during all phases of plan preparation.

The relationship between the Transportation Plan and the Metropolitan Area General Plan was addressed in the "Eugene-Springfield Transportation Alternatives Report", the "Eugene-Springfield Transportation Master Plan: A Progress Report", the Eugene-Springfield Area 2000 Transportation Plan, and in the Technical Report.

Conclusion:

The Eugene-Springfield Area 2000 Transportation Plan addresses point number (9).

CONCLUSION

The Eugene-Springfield Area 2000 Transportation Plan addresses all nine points of LCDC Goal #12 (Transportation) and, therefore, addresses LCDC Goal #12, Transportation.