CITY OF ST. HELENS
TRANSPORTATION SYSTEM PLAN

DRAFT

Prepared For:

City of St. Helens

Oregon Department of Transportation

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1.0. OVERVIEW OF TRANSPORTATION SYSTEM PLANNING

The purpose of this study is to develop a comprehensive multi-modal transportation system plan (TSP) that meets future transportation needs for the City of St. Helens and its urban growth area. The TSP is intended to serve as a guide for the management of existing transportation facilities, and for the design and implementation of future transportation facilities.

1.1 Transportation System Planning Requirements

The St. Helens Transportation System Plan is part of an on-going statewide transportation planning process designed to meet the requirements of the federal Intermodal Surface Transportation Efficiency Act (ISTEA), Statewide Planning Goal 12 and its implementing policy, the Transportation Planning Rule (TPR). While each of these requirements identify different policy initiatives, all three share several common themes: 1) a requirement that transportation plans provide a balance transportation system providing transportation options; 2) that transportation plans reduce reliance upon the single occupant automobile and increase the opportunity for modal choice; and 3) that transportation plans be coordinated with land use plans, and address the environmental, social, economic and energy consequences of proposed actions. Each of these requirements, regarding the St. Helens Transportation System Plan is summarized below.

Intermodal Surface Transportation Efficiency Act

The Intermodal Surface Transportation Efficiency Act (ISTEA) specifies requirements for statewide and metropolitan long-range planning. ISTEA does not require areas with less than 50,000 population, such as St. Helens, to conduct transportation plans. The legislation is however relevant to the St. Helens TSP as it redefines the manner in which federal aid is provided for highway and transit programs.

Goal 12 - Transportation

In the mid-1970s, Oregon adopted 19 Statewide Planning Goals to be implemented in comprehensive plans. The aim of Goal 12 - Transportation is *to provide and encourage a safe, convenient and economic transportation system.*

Goal 12 required all communities, regions and metropolitan areas to include the following transportation element in their comprehensive plans.

> 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 strengthen the local economy; and (9) conform with local and regional comprehensive land use plans.

Transportation Planning Rule

With concurrence of the Oregon Department of Transportation (ODOT), the Land Conservation and Development Commission (LCDC) adopted the Transportation Planning Rule (TPR), OAR 660 Division 12, in April 1991, revised April 1995, to guide regional and local transportation planning in carrying out LCDC Goal 12 - Transportation.

Through measures designed to reduce reliance on the automobile, the TPR is intended to assure that the planned transportation system supports a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country. The rule requires the Oregon Department of Transportation (ODOT) to identify a system of transportation facilities and services adequate to meet identified state transportation planning needs and prepare a state transportation systems plan. The Oregon Transportation Plan is intended to meet the requirement for the state TSP.

The rule also requires metropolitan planning organizations (MPOs) and counties to prepare regional TSPs consistent with the adopted state TSP; cities and counties must prepare local TSPs consistent with both regional and state TSPs. The planning process is intended to assure that comprehensive plans provide for a network of transportation improvements sufficient to meet local, regional and state transportation needs.

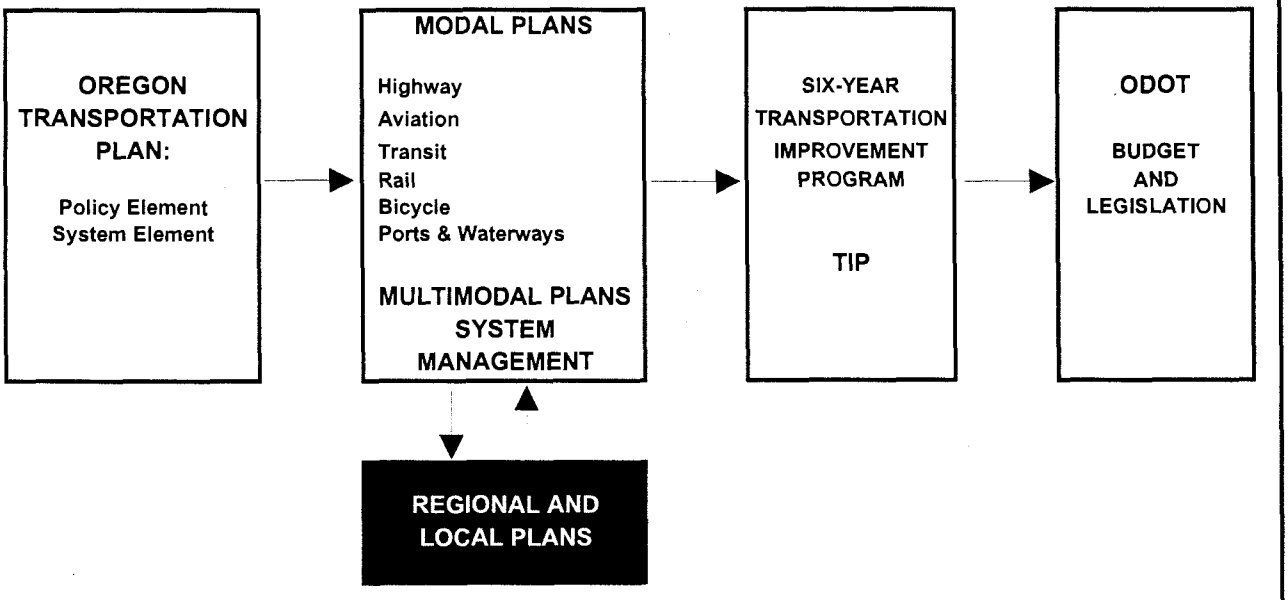
1.2 System Planning Description and Purpose

A transportation system plan (TSP) is a long-range (20-year) plan for managing transportation systems that move people, goods and services within a defined geographic area. The purpose of the TSP is to develop a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs. TSPs are currently being developed for all Oregon counties and urban areas with a population greater than 2,500.

Under the Transportation Planning Rule (TPR), transportation planning is divided into two phases: transportation system planning and transportation project development. Transportation system planning establishes land use controls and a network of facilities and services to meet overall transportation needs. Transportation project development implements the TSP by determining the precise location, alignment, and preliminary design of improvements included in the TSP.

The local TSP is part of statewide integrated planning approach designed to implement Goal 12 and the TPR. The Oregon Transportation Plan (the state TSP) identifies goals and policies and a system plan for entire state of Oregon. Regional and local TSPs

Figure 1.1
INTEGRATED TRANSPORTATION PLANNING



must be consistent with Oregon Transportation Plan and implement its policies at the local level. Figure 1.1 illustrates the integrated transportation planning process.

1.3 Planning Requirements for the City of St. Helens

The Transportation Planning Rule establishes a set of planning requirements and criteria for jurisdictions depending on its population, transportation needs and location. Generally, all jurisdictions in the state must prepare a transportation system plan, however, larger communities have added requirements regarding the preparation and coordination of their TSP.

The City of St. Helens falls into the jurisdictional category of cities with a population between 2,500 and 25,000 located outside a major urban area. The City of St. Helens must prepare a local TSP that is consistent with county, regional and statewide plans. and included the following elements:

- Identification of transportation needs, including:
  - ⇒ All transportation needs within the Urban Growth Boundary
  - ⇒ Needs of the transportation disadvantaged,
  - ⇒ Needs for movement of goods and services to support industrial and commercial development,

- A road plan for a network of arterials and collectors, consistent with state and regional TSPs.

- A public transportation plan that:
  - ⇒ Describes public transportation services for the transportation disadvantaged and identifies service inadequacies.
  - ⇒ Describes intercity bus and passenger rail service and identifies the location of terminals.

- A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area.
- An air, rail, water and pipeline transportation plan which identifies where public use airports, mainline and branch railroads and railroad facilities, port facilities, and major pipelines and terminals are located or planned within the planning area.
- Policies and land use regulations for implementing the TSP.
- A transportation financing program.

1.4 Public and Interagency Involvement

The public involvement process was initiated at the beginning of the study to obtain input and involve the public in the entire TSP process. A Technical Advisory Committee (TAC) was formed to guide the study process. It consisted of representatives from each affected jurisdiction, various City agencies as well as members of the public. The TAC's role was to review of the technical analysis and provide overall guidance to the study team. Members of the TAC included:

- Skip Baker, St. Helens City Planner
- Esco Bell, St. Helens City Engineer
- Chief Roth, St. Helens City Police Department
- Nate Russell, Supt,. St. Helens Public Works Department
- Dave Hill, Columbia County Roadmaster
- Cliff Tetreault, St. Helens School District
- Chief Jacobus, St. Helens Rural Fire Department
- Pete Williamson, Port of St. Helens
- Bob Gert, COLCO Transportation
- Chris Vietmeler
- Bill Mallory
- Don Barnett

The general public was involved through stakeholder interviews that were held at the beginning of the study process to identify transportation issues of concern to the community. Two open houses were held; one at the beginning of the study process, and the second after submittal of the Draft Transportation System Plan.

The open houses were advertised with newspaper display ads and a public service announcement on radio.

Information and results from the stakeholder interviews and the public open houses have been summarized and included in Appendix A. All of this information was incorporated into the development of the St. Helens Transportation System Plan.

1.5 TSP Study and Plan Organization

The development of the St. Helens TSP began with the establishment of the TSP goals and objectives, and development of the evaluation criteria, as outlined and described in Section 2. Goals and objectives were developed with the input of the TACs and the public at the first open house. The study team then developed the evaluation criteria based on these goals and objectives and they were reviewed and approved by the TAC. The goals and objectives then guided the development of the transportation system alternatives.

In Section 3, the existing and future conditions for the City of St. Helens are presented. These include land use, population and employment, and the natural and cultural environments. The review of existing plans, policies, ordinances, and standards are also presented.

An inventory of the existing transportation system was conducted to identify physical, operational, traffic safety, and travel characteristics of roadways within the St. Helens Urban Growth Boundary, as outlined in Section 4. Transportation issues were identified by the study team, and then verified by the TAC and the public through stakeholder interviews and at the first open house.

Section 5 presents the future conditions for the St. Helens area. Included is a discussion of the forecast demographic conditions, future transportation conditions, and an assessment of the future transportation needs for the community of St. Helens.

The next step was the development of the transportation system alternatives, which are described in Section 6. The alternatives were analyzed using the QRS II travel demand model for St. Helens developed as part of the TSP process. This section also includes the evaluation of the alternatives.

The Draft Transportation System Plan is presented in Section 7. The preferred alternative is described, and the recommended street system plan, bicycle plan, pedestrian plan, public transportation plan, the air/rail/water/pipeline plan, and access management plans are included.

Section 8 presents the TSP implementation plan . Included are the prioritization of projects, recommended land use ordinance modifications, and funding evaluation. The purpose of this section is to present the means of achieving the recommended transportation system plan.

Section 9 concludes the study by listing the requirements and recommendations of the Oregon TPR (OAR 660 Division 12) and outlining how the St. Helens Transportation System Plan provides the analysis and findings needed for the city to comply with the Transportation Planning Rule.

2.0 GOALS AND OBJECTIVES

The goals and objectives identify the intent of the Transportation Systems Plan and provide the means to meet the future mission for the City of St. Helens. They establish the value of the community for the transportation system and how it fits into the unique character of St. Helens. They are consistent with city's Comprehensive Plan, the general viewpoints of the city's residents and they take into consideration the requirements of the Oregon Transportation Plan and Goal 12 - Transportation Planning Rule.

The goals give overall guidance to the strategies and specific polices that make up the TSP. The goals are general statements of purpose for how the TSP relates to each element of the City's setting. There are goals for Transportation Efficiency, Community Vision, Resource Preservation, and Economic Development. Each goal has specific objectives that identify how each goal is to be carried out.

2.1 Development of the Goals and Objectives

The goals and objectives were based on a variety of sources of information. Existing transportation plans were reviewed and a comprehensive public involvement program was conducted. In specific the goals and objectives were developed from the following sources of information:

- The City of St. Helens Comprehensive Plan
- Oregon Transportation Plan
- Transportation Planning Rule
- Portland - Astoria (U.S. Highway 30) Corridor Plan
- Stakeholder Interviews conducted in May, 1996
- Public Open House conducted in May, 1996
- Citizen Focus Groups conducted in June, 1996

2.2 Development of the Evaluation Criteria

Criteria are needed to evaluate plan alternatives in order to select the alternative to be the Transportation System Plan. These criteria are based on the goals and objectives that were developed to ensure that the preferred alternative accomplishes these goals and objectives. They are tools to measure how well each alternative addressed each of the goals.

The evaluation criteria for each goal are specific to the goal, as illustrated in Section 2-5, below. Each alternative was analyzed using the evaluation criteria and a comparison was then be made between the alternatives.

Many evaluation indicators can be quantified with a good degree of precision (i.e., transit travel times or capital cost estimates) while others rely totally on subjective evaluation (i.e., impact on visual quality of areas near a proposed improvement). In selecting a set of evaluation criteria, emphasis was placed on those which could be quantified. Since it was not always possible to use those type of criteria, as in

assessing visual and aesthetic impacts, an attempt was made to select measures which can be clearly defined and understood by all involved, and which most effectively show differences between alternatives.

Transportation Goal criteria include measures of how easy it will be to travel around the city, how long it will take, and if safety will be maximized with an alternative. Community Goal criteria include measures of how accessible different locations in the city will be, how available transit will be and what the land use impacts will be for each alternative.

The Resource Goal criteria address environmental impacts. And the Economic Goal uses measures of how easy it will be to move people and goods around the city, and what the public costs and fundability will be for each alternative.

2.3 Goals and Objectives

Goal: TRANSPORTATION - Develop a transportation plan to manage future transportation needs and prolong the useful life of the existing transportation system.

Objectives:

- Provide alternative routes to Highway 30 for local traffic.
- Improve safety for all modes of travel.
- Provide solutions to reduce conflicts between through and local traffic and improve traffic flow.
- Provide safe, accessible and connected pedestrian and bicycle facilities including: across and along Highway 30 and other collectors and arterials; to and along the waterfront; within neighborhoods; and to other towns.
- Improve town continuity by providing safe and easy access to and across Highway 30 and railroad crossings for all modes of travel.
- Improve public transportation options within St. Helens as well as to other areas.
- Promote alternative modes of travel (such as bicycle and pedestrian) and connections to these modes to reduce vehicle miles of travel.

Goal: COMMUNITY - Develop a plan for a transportation system that supports the individual character of St. Helens and the future "Vision" for the City (this Vision will be developed through the Visioning process).

Objectives:

- Provide transportation improvements that protect the area's historical character and neighborhood identity.
- Enhance the visual quality (such as with landscaping) of the transportation system.
- Encourage land-use patterns that reduce vehicle miles of travel.

- Promote community identity with gateways and other community designs.
- Enhance access to community structures (such as schools and community centers)

Goal: RESOURCES - Develop a plan for a transportation system that protects environmental resources and enhances the scenic beauty of the area.

Objectives:

- Minimize adverse impacts to natural environments, including wetlands, estuaries, and other wildlife habitat, especially that of threatened and endangered species.
- Maintain and enhance access to parks and recreational and scenic resources.

Goal: ECONOMIC DEVELOPMENT - Develop a plan that supports economic viability.

Objectives:

- Improve the transportation system to protect the economic viability of commercial areas.
- Improve rail and water connections to enhance and provide economic opportunity.
- Through transportation and land use, encourage local area work patterns.
- Improve the transportation system to Portland and other surrounding communities for the movement of goods and services.

2.4 Evaluation Criteria

Transportation Goal Criteria:

Mobility

Mobility is a measure of the relative ease with which people and goods can travel to and between different activities. A mobile person is able to get to the places where they live, work, shop, socialize and play with reasonable travel time and convenience. An adequate transportation system provides this mobility for all members of the community. Therefore, a definition of mobility is dependent on all available modes of transportation, including; automobile, public and private transit, bicycle and pedestrian.

Measures:

- Average speed by functional roadway class - Model output: mph
- Access to transportation disadvantaged - Qualitative comparison: +/-
- Provides for various users - Qualitative comparison* :+/-
  (Commercial, commuter, residents, recreational)

Vehicle Miles of Travel (VMT)

Vehicle miles of travel is the total number of miles that all vehicles have driven on all roadways in a transportation system or for select roadways only. VMT is measured for a specified time period, usually 24 hours. VMT is a measure of both how far people are traveling in their vehicles to their destinations and of how many vehicle trips are being made. VMT is a major component of automobile emissions and is determined in large part by the proximity of activity locations within the community.

Measures:

- Total VMT - Model output: vehicle-miles
- VMT by functional roadway classification - Model output: VMT by type

Vehicle Hours of Travel (VHT)

Vehicle hours of travel is a measure of the time spent by travelers in their vehicles on the roadway system. Vehicle hours traveled represents the total number of hours spent in vehicles on a specific road or a road network in a given time frame, usually 24 hours. VHT is comprised of time spent traveling as well as time spent waiting (delay). VHT is directly related to travel speed. As travel speed decreases, the number of hours spent traveling increases.

Measures:

- Total VHT - Model output: vehicle-hours
- Travel time from 101/20 intersection - Model output: Concentric ring

Level of Service (LOS)

Level of service measures the adequacy of transportation facilities both in terms of physical operations and in terms of driver perception. The purpose of transportation facilities is to move travelers between locations. LOS applies a ranking system to define how well a transportation system is serving its purpose. In general, if travelers are easily able to travel along a roadway facility with little delay and interaction with other vehicles then LOS is "good". If travel is very slow and interaction with other vehicles is high, then LOS is "bad".

Measures:

- Miles in system by LOS by functional classification - Model output: LOS F, E, D, C or better (based on SIGCAP V/C criteria)

Availability of Transit

The availability of transit is part of the mobility and accessibility evaluation criteria. The purpose of transit is to provide options for travel to those who can not, or choose not to, walk, bicycle or drive a car to their destination. Transit can also be used for special purposes such as shuttles to events, shuttles between major activity locations and tourist routes. An evaluation of transit components is a critical part of a complete transportation plan.

Measures:

- Level of community wide transit service - Qualitative comparison*: +/-
- Level of transit service for transportation disadvantaged - Qualitative comparison: +/-
- Level of transit service for tourist destinations - Qualitative comparison*: +/-

Maximize System Safety

Vehicle safety is measured in terms of number of accidents, accident rates and traffic violations. These types of measures can not be made when considering future alternatives. However, qualitative comparisons can be made for transportation alternatives relative to their ability to address safety concerns in specific areas known to have safety problems.

Measures:

- Addresses safety concerns from analysis and public input - Qualitative comparison*: +/-
- Estimated number of traffic accidents.

Community Goal Criteria:

Accessibility to Different Modes and to Varying Levels of Destinations

This measure is related to the mobility discussion on providing access to various transportation system users. Community residents have a variety of needs and wishes that are satisfied at differing locations. Different travel options should also be available to help limit congestion and to prevent people from being stranded by failure of a certain mode. This measure is a qualitative comparison that describes the ability of a transportation system to provide travelers with a variety of options.

Measures:

- Level of pedestrian, bike, auto & transit access to neighborhoods - Qualitative comparison*: +/-
- Level of pedestrian, bike, auto & transit access to community - Qualitative comparison*: +/-

Availability of Transit

The availability of transit is part of the mobility and accessibility evaluation criteria. The purpose of transit is to provide options for travel to those who can not, or choose not to, walk, bicycle or drive a car to their destination. Transit can also be used for special purposes such as shuttles to events, shuttles between major activity locations and tourist routes. An evaluation of transit components is a critical part of a complete transportation plan.

Measures:

- Level of community wide transit service - Qualitative comparison*: +/-
- Level of transit service for transportation disadvantaged - Qualitative comparison: +/-
- Level of transit service for tourist destinations - Qualitative comparison*: +/-

Minimization of Land Use Impacts

Transportation system planning and land use planing should be done in complimentary fashion. The transportation system must be compatible with and support adopted land uses. Different types of streets and levels of traffic are appropriate for different types of land uses. Streets serving neighborhood and school traffic usually carry lower levels of traffic than streets serving more intense land uses.

Measures:

- Supports land use plans - Qualitative comparison*: +/-
- Minimizes Neighborhood traffic infiltration
  Percent VMT on minor collector/local street system - Model output

Resources Goal Criteria:

Minimization of Environmental Impacts

Transportation amenities are part of a larger set of community amenities. Transportation system planning should consider the environmental, historical and cultural aspects of a community that help to make that community a desirable place to live. The goal is to avoid or minimize impacts to these community features.

Measures:

- Minimizes impact on significant natural and cultural features (natural areas, wetlands, historic/cultural resources, schools, parks and cemeteries) - Qualitative comparison: +/-
- Minimizes visual and aesthetic impacts - Qualitative comparison*: +/-

Economic Goal Criteria:

Mobility

Mobility is a measure of the relative ease with which people and goods can travel to and between activity locations. A mobile person is able to get to the places where they live, work, shop, socialize and play with reasonable travel time and convenience. An adequate transportation system provides this mobility for all members of the community. Therefore, a definition of mobility is dependent on all available modes of transportation, including; automobile, public and private transit, bicycle and pedestrian.

Measures:

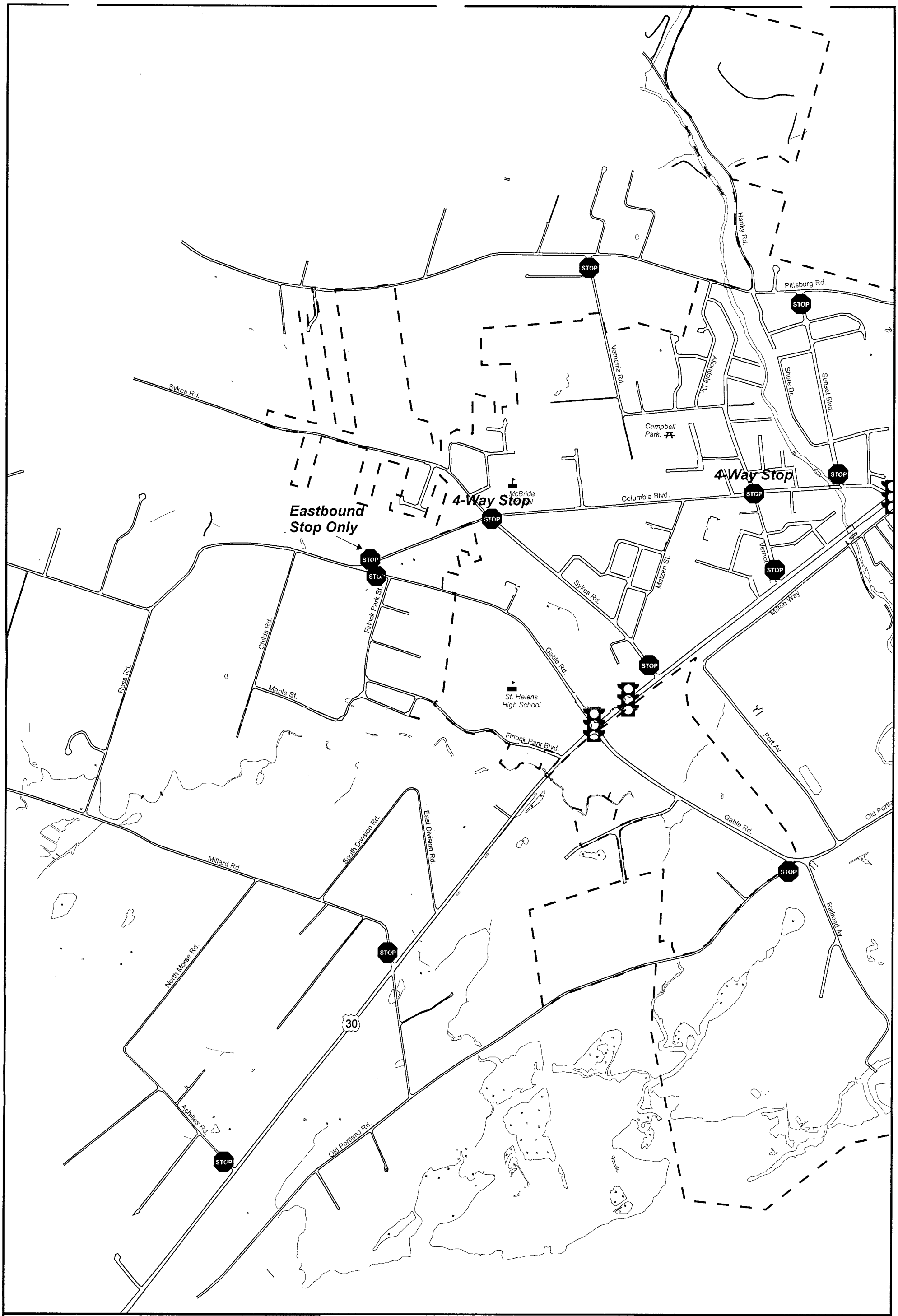
- Average speed by functional roadway class - Model output: mph
- Access to transportation disadvantaged - Qualitative comparison*: +/-
- Provides for various transportation system users - Qualitative comparison*:+/-
  (Commercial, commuter, residents, recreational)

Minimization of Public Costs

Transportation alternatives must be designed so as to provide the most benefit for available public dollar. Capital costs can be developed for the elements of various transportation alternatives. The alternatives can then be evaluated to ensure that transportation goals and objectives are being met in an efficient manner. These goals and objectives can conceivably be met with a variety of solutions. Solutions that make use of available funding should be favored.

Measure:

- Capital costs (all modes) - $$ and relative comparison* +/-



City of St. Helens Transportation System Plan

LEGEND

Existing Traffic Signals

Existing Stop Signs

Figure 4.4

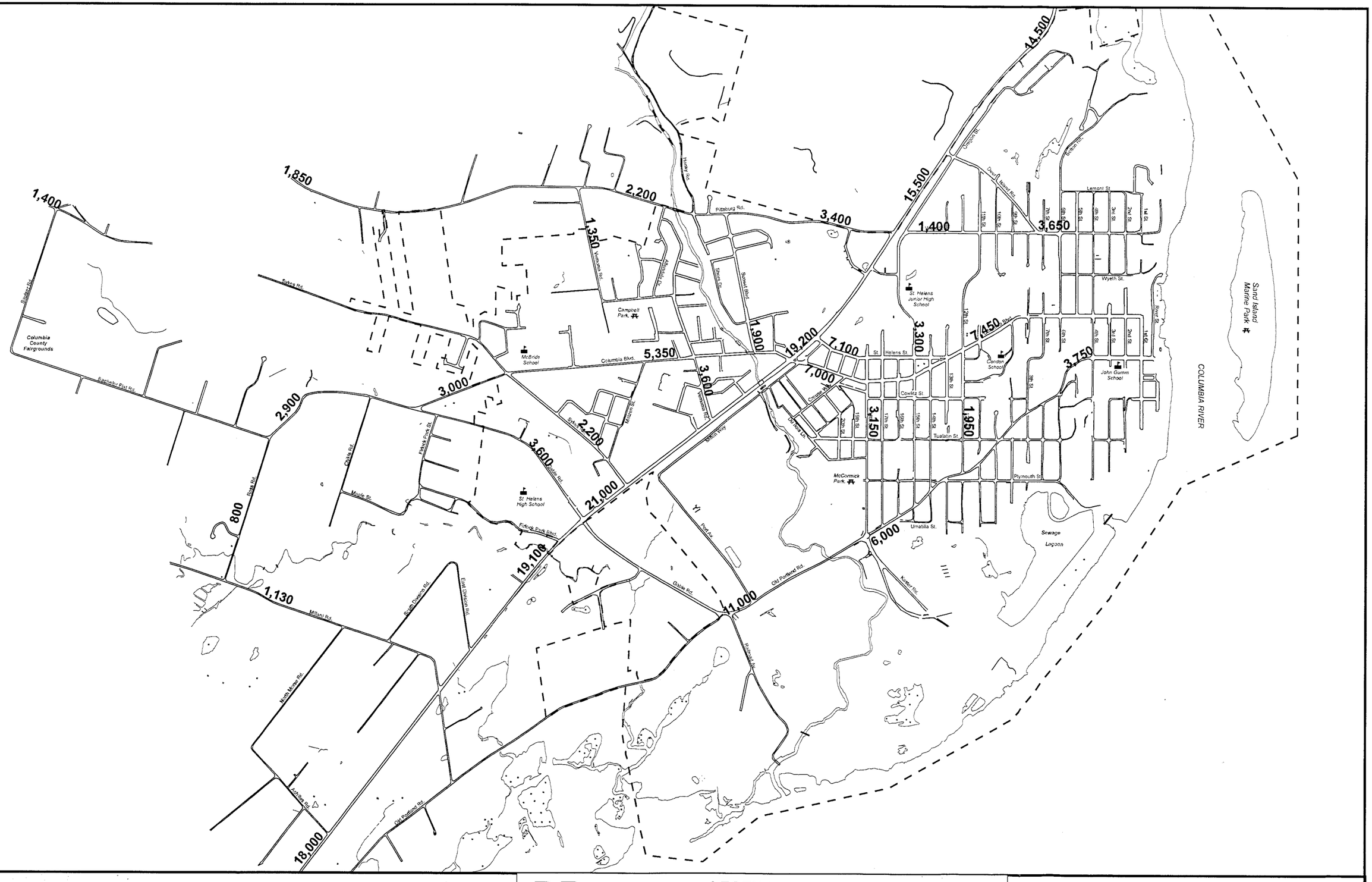
Traffic Control Devices Along City Arterials
(West St. Helens)

City of St. Helens Transportation System Plan

LEGEND

▪▪▪▪▪▪▪▪ Designated Truck Routes

Figure 4.5
Existing Truck Routes



OREGON DEPARTMENT OF TRANSPORTATION

City of St. Helens Transportation System Plan

PB 100 YEARS

LEGEND

(10,000) - Average Annual Daily Traffic Volume - 1996

Figure 4.6
Existing (1996)
Average Daily Traffic

3.0 EXISTING CONDITIONS AND PLANS

The history of St. Helens as a town and distinct community dates back to 1844 when it was the site of a sawmill. In 1846, Henry Knighton, the second owner of the sawmill, placed a pre-emption claim on the land known today as St. Helens. During the following years, he surveyed and mapped the land. Knighton believed that this town would easily surpass Portland as a fresh water port. In February, 1889, the town consisting of St. Helens, Houlton and Milton, was chartered by the State Legislature. In 1903, St. Helens became the county seat of Columbia County.

3.1. Growth, Population and Employment

The City of St. Helens has experienced a steady amount of growth since its incorporation in 1889. Between 1920 and 1995, population growth has averaged approximately 1.7 percent per year. The largest growth periods occurred between 1920 and 1940 as well as a fairly large growth period the 1960s. Recently, the City of St. Helens has been experiencing a resurgence of population growth, averaging a 1.4 percent increase per year between 1990 and 1995.

Table 3.1
St. Helens Population Growth
1920 - 1995

Year	St. Helens Population	Average Yearly Population Growth Rate	Columbia Co. Population	St. Helens' Percentage of County Pop.
1920	2,220		13,960	15.9%
1930	3,394	4.3%	20,047	16.9%
1940	4,303	2.4%	20,971	20.5%
1950	4,711	0.9%	22,967	20.5%
1960	5,022	0.6%	22,379	22.4%
1970	6,212	2.1%	28,790	21.6%
1980	7,064	1.3%	35,646	19.8%
1990	7,535	0.6%	37,557	20.1%
1995	8,080	1.4%	39,700	20.4%

Sources: Center for Population and Research, School of Urban and Public Affairs, Portland State University.
St.Helens Comprehensive Plan, 1978.

Figure 3.1 displays population density by census block for 1990. The graphic reveals that the higher density neighborhoods are located in the older, eastern section of the City. In fact, in 1990, approximately 65 percent of the total residents within the St. Helens city limits lived east of Highway 30. In 1980, the percentage of the total population living on the eastside equaled 67 percent. The small decline in the population percentage between 1980 and 1990 attests to the fact that most of the residential growth in the St. Helens area is occurring west of Highway 30. However, it should be noted that the population estimate for 1995 indicates that the City of St. Helens has surpassed its 1980 to 1990 population gain since 1990. Most of this growth has also been occurring on the west side.

Total employment within the St. Helens Urban Growth Boundary is estimated at approximately 3600. Of the this total, approximately 40 percent of the employment is in the industrial sector. The primary industry and main employer in the St. Helens area is the Boise Cascade paper mill. Boise Cascade employs over 600 residents and accounts for nearly half of the industrial sector employment. The next largest employment sectors are the retail and service industries. These two industries also account for nearly 40 percent of the total employment in the St. Helens area. Since St. Helens is the County Seat of Columbia County, there are a number of government employees located within the City. Table 3.2 displays employment in St. Helens by sector..

Table 3.2
Employment by Sector

Employment Sector	Employees	Percent
Industrial	1,450	40.3%
Retail	800	22.2%
Service	650	18.1%
Government	400	11.1%
School	300	8.3%
TOTAL	**3,600**	

Source: Estimate using City of St. Helens Business Licenses

As mentioned earlier, the largest employer in St. Helens is Boise Cascade. However, there a number of other significant employers in the area. These major employers are listed in Table 3.3 and graphically displayed in Figure 3.2.

Figure 3.1
1990 Population Density By Census Block

OREGON DEPARTMENT OF TRANSPORTATION

City of St. Helens Transportation Systems Plan

PB 100 YEARS

Table 3.3
Major Employers in the St. Helens Area

Major Employer	Employees
Boise Cascade	624
St. Helens School District	274
Portland General Electric	220
Columbia County	176
Armstrong Word Industries	168
Friesen Lumber Co.	115
Letica Corporation	105

Source: City of St. Helens, Columbia County Chamber of Commerce

Because of its close proximity to the Portland metro area, St. Helens has a fairly large commuter population. The 1990 Census reported that approximately 30 percent of St. Helens residents commuted to work outside of Columbia County (25 percent to Portland and 5 percent elsewhere). With the higher rate of population growth since 1990, the commuting percentage is estimated to be much higher today.

3.2 Land Uses

Existing Land Use

The original town of St. Helens was platted in 1866. The original grid-iron plat provided the standard for future subdivisions, and it wasn't until the 1950s that a curved street was constructed. The irregular topography of St. Helens did not lend itself easily to this straight-forward platting. Nevertheless, infilling proceeded at a steady rate between the town of St. Helens and Houlton.

The original city plat stands today as the foundation for the established residential area near the Columbia River. The city has typically grown to the west, and more recent growth has occurred in areas west of Highway 30.

Residential land use in St. Helens reflects two main factors: the existence of the three original separate communities, and grid-iron platting. Thus, the more established and most dense residential development is located adjacent to the waterfront, and in the vicinity of old Milton and Houlton (east of Highway 30). Approximately 65 percent of the community's 8,080 residents are located in this portion of the City.

Most of the recent housing construction in St. Helens has been west of Highway 30. The area outside the City Limits within the Urban Growth Boundary consists of large lot residential housing with some scattered agriculture use.

Nearly all of the commercial development in St. Helens is located along the City's two major arterials, U.S. 30 and Columbia Blvd. The largest retail and commercial activity is found along the Columbia River Highway (U.S. 30), which includes the community's two largest retail shopping centers, Safeway/Payless Drug, and Mays Plaza. There is also a variety of commercial establishments adjacent to Highway 30. This includes a number of establishments that cater to the traveling public, including a number of service stations, restaurants, hotels/motels and a variety of other retail uses. Since the Burlington Northern Railroad abuts the east side of Highway 30, all the commercial activity is located on the west side of Highway 30.

The remaining commercial activity within St. Helens is primarily located along Columbia Blvd., east of Highway 30 and in the Old Town Historic District along 1st Avenue. This commercial activity includes a number of specialty retail stores and a few restaurants.

Nearly all of the heavy industrial activity is located in the McNulty Industrial park in the southeast portion of the city. The area south of McCormick Park and Umatilla Street, east of Highway 30 is all zoned for heavy industry and contains nearly all of the major industrial activity within St. Helens. The three largest industrial employers (Boise Cascade, Armstrong World Ind. and Letica Corporation) are all located in this area.

There are a few other light industrial land uses scattered throughout St. Helens. The largest concentration of these uses are located along Milton Way. There is also some light industrial activity located along Oregon Street in the northern section of town.

The City of St. Helens owns a significant amount of land for schools, public offices, parks and other recreational uses. Within the St. Helens School District, there are a total of 7 schools. These include one Senior High School, located on Gable Road just west of Highway, one Junior High School, located on 16th Street, just south of West Street and five elementary schools located throughout the City. Total school enrollment in 1995 included 2,810 students.

There are a number of city parks within St. Helens available for recreational use. The largest recreational park is McCormick Park which covers over 50 acres. This park is located in the southeastern section of the City along 16th Street. Other large city parks include: Sand Island Marine Park in the middle of the Columbia River, Columbia View Park off Strand Street near City Hall, and Campbell Park, located west of Highway 30 off North Vernonia Road. Besides these parks, there a number of smaller parks located in a variety of neighborhoods throughout the city. Table 3.4 lists all the parks and recreation sites within the City of St. Helens.

Table 3.4
St. Helens City Parks

City Parks	Acreage
Campbell Park	6.5 acres
Civic Pride Park	1.1 acres
Godfrey Park	2 acres
H. Huemann Park	2.1 acres
Little League Park	2.7 acres
McCormick Park	72.5 acres
Sand Island	28 acres
Veterans Park	1.7 acres
Columbia View Park	2 acres
Columbia Botanical Gardens	8.4 acres

Other Public Recreational Facilities

- J.J. Collins Marine Park
- Columbia County Fairgrounds
- Sauvie Island
- St. Helens Golf Course
- Rutherford Bikeway

Source: Columbia County Chamber of Commerce

The City Government and public office buildings are primarily located in the Historic District along 1st Street. Other community buildings include the new Public Library located near McCormick Park on 18th Street, the city police and fire station near 13th and Columbia Blvd. as well as a number of other facilities disseminated throughout the city.

Vacant Lands

The City of St. Helens currently has a fairly large supply of vacant land within its urban growth boundary. An analysis conducted by Portland State University as part of a Potential Development Impact Analysis (PDIA), estimated that St. Helens had approximately 1,058 net developable acres available for residential expansion as of 1990. This equates to more than 18,000 possible dwelling units. Figure 3.3 displays the percentage of vacant residential land for all areas within the St. Helens urban growth boundary. The figure reveals that the majority of available residential land is located on the west and south ends of the UGB. As of 1990, more than two-thirds of the land in the dark shaded areas of Figure 3.3 were vacant.

The City of St. Helens also has a considerable amount of commercial and industrial land available. No studies or land inventories have been completed, but, the McNulty Creek Industrial Park has a number of lots available and nearly all of the southeastern portion of the city is zoned commercial or industrial, and based on aerial photographs, a large percentage of this area remains vacant.

OREGON DEPARTMENT OF TRANSPORTATION

City of St. Helens Transportation Systems Plan

PB 100 YEARS

3.3 Existing Plans and Policies

One of the objectives of the Oregon's Transportation Planning Rule (TPR) is to provide a transportation plan that is consistent with state, regional and local policies and standards. To meet this objective, a variety of transportation, land use and other comprehensive plans were reviewed prior to the preparation of the Transportation Systems Plan. The following is a summary of relevant plans and policies related to the St. Helens' transportation system.

St. Helens Comprehensive Plan

Traditionally in St. Helens, land development and transportation have been closely connected. The transportation system has directly influence land use patterns as can been seen by Highway 30, and in recent years, growth on the west side has created the need for additional transportation infrastructure. Thus, the St. Helens Comprehensive Plan was reviewed to determine local policies towards land use and transportation.

The St. Helens Comprehensive Plan identifies several community goals and policies related to the area's transportation system. The following is a summary of goals and policies that directly or indirectly have an affect on the City's transportation system.

Economic Element

The amount and type of economic development activity has a tremendous influence on transportation needs and demands. For example, heavy manufacturing usually requires a large capacity highway system, rail or water transportation for shipping intercity raw and finished goods, while smaller scale retail and commercial activities caters to more localized automobile traffic.

The St. Helens Comprehensive Plan identifies a variety of goals and polices relating to economic development that would have a direct influence on future transportation needs.

General Economic Development Plans - In St. Helens, assistance is most needed in diversifying the economy, stimulating the existing commercial areas and improving the transportation system to Portland. Although local government in St. Helens has traditionally not taken an active role in the local economy, the Plan's set of economic policies commits the City to a more active posture. It commits the City to:

- Develop a plan and explore grant opportunities for downtown;
- Develop a plan specific to the waterfront; and
- Examine the possibility of developing the town's tourist and recreational trade.

The following is a list of the City's general economic development goals and policies that are relevant to the transportation system:

- To encourage the expansion of employment opportunities within the urban area so residents can work within their communities rather than commute to jobs outside the County.
- Continue the efforts and water front development and explore the possibility of acquiring grants for their revitalization.
- Continue developing the local tourist and recreational sectors of the economy.
- Unless there is a program to provide sewer and water to intervening properties, discourage the leapfrog development of industrial lands.
- Discourage strip commercial development and encourage the in-filling of under-utilized lands close to Uptown and Downtown.

General Commercial Development - The thrust of the Comprehensive Plan's commercial designation is to guide businesses toward the area of existing town centers, and alleviate Highway 30 of traffic and congestion. The City's Comprehensive Plan identifies the following polices toward guiding future commercial development:

- The City shall try to concentrate new commercial development in and adjacent to existing, well established business areas taking into account the following considerations:
  1. Making shopping more convenient for patrons,
  2. Avoiding the mixing of homes with scattered businesses,
  3. Cutting down on street traffic.
  4. Maximizing land through joint use of vehicular access and parking at commercial centers, and,
  5. Encourage locations that enjoy good automobile access and still minimize traffic hazards.
- Discourage "strip" commercial development along arterials.
- Ensure that all commercial enterprises maintain sufficient off-street parking to accommodate their patrons, workers and loading requirements.
- Emphasize and support existing town centers as business places.
- Improve the general appearance, safety and convenience of commercial areas by encouraging greater attention to the design of buildings, parking, vehicle and pedestrian circulation, and landscaping through the adoption of a site design review procedure.
- Encourage a variety of retail shopping activities to concentrate in the core commercial areas to enhance their attractiveness for a broad range of shoppers; additionally, encourage in this area the development of public spaces such as broad sidewalks, small squares, etc. to facilitate easy, safe, pleasant pedestrian circulation.
- Encourage in-filling of vacant lands within commercial areas.

Highway Commercial Development - The Highway Commercial category includes a wide-range of retail and service businesses which serve a community-wide trade area. Not only do the activities allowed in the General Commercial zone fall under this heading, but so do the "heavier" enterprises such as automobile dealerships, tire shops, and heavy machinery shops. This goals and policies of this designation has a large impact on future transportation operations and needs in the community of St. Helens. The following are the community goals relating towards commercial growth on area highways (mainly U.S. 30):

- To create opportunities for the orderly business development along selected portions of arterials.
- To establish conditions which will assure that arterial traffic flows are not disrupted and that access to and from these location is designed for safety.
- To prevent highway frontage from becoming a strip of mixed commercial, residential and other unrelated uses.

The following are the polices related to commercial growth on St. Helens' highways:

- Designate as Highway Commercial such areas along portions of U.S. 30 where highway business has already become well established.
- Designate as Highway Commercial such areas at major intersections where access to business sites does not conflict with safe traffic movement.
- Encourage enterprises which cater to the traveling public to locate in this designation.
- Encourage enterprises which deal in items which require outdoor storage or deal in items which are bulky to locate in this designation.
- Encourage curbing along Highway 30 and limit the number of curb-cuts to minimize traffic hazards as a result of conflicts between through traffic and shopper traffic.
- Non-new commercial activities will be allowed on Highway 30 south of McNulty Creek unless:

  1. Access is onto a frontage road and not Highway 30;
  2. The land receives City sewer and water services; and
  3. There be a 50 foot setback from Highway 30.

Light Industrial Development - The Light Industrial category provides sites for less intensive industrial activities where transportation and service requirements can be met, and where environmental effects will have minimal impact upon the community. Roughly 175 acres are identified in this designation. About one-fourth of them are in two sites north of town that have existing industrial activities. The remainder are in the southern sites that are close to heavy industries and, like them, have good rail access.

It is the policy of the City of St. Helens to attempt to ensure that light industry operations have adequate space with respect to employee and truck parking, loading, maneuvering and storage.

Heavy Industrial Development - The Heavy Industrial Category is intended for major manufacturing processes in which normal operations produce environmental effects which would be objectionable for neighborhood uses. All of the 875 acres designated for such activities are located south of the City where the major local industries are already located. The availability of transportation facilities, rail, road and water - the scarcity of other urban development in the area and the existing presence of heavy industries suggest that this area is appropriate for further industrial development.

The transportation related goals and policies for the Heavy Industry Category include:

- Provide suitable sites where transportation - including employee carpooling, public utilities, and other special industrial requirements such as the disposal of waste materials, can be met.
- Apply this category to areas that already have existing heavy industry or can serve industry with adequate rail, river or highway access.

Public Services and Facilities Element

The future location and plans of public services also influences future transportation demands. The location of schools, parks and sewer and water facilities affect the needs for transportation facilities, including bikeways, pedestrian ways as well as streets and highways.

The following is a list of public services and facility goals and policies that have will have an affect on the future transportation system.

- To integrate schools with land use, transportation and recreation in order to realize their optimum value for local residents.
- To create and maintain ample places and facilities for recreation in St. Helens.
- Require in new residential developments that water, sewer, storm sewer, paved streets, curbs, parks and other improvements are installed as part of the initial construction.
- Ensure that capacities and patterns of utilities and other facilities are adequate to support the residential densities and land use patterns of the Comprehensive Plan.

Transportation Element

The St. Helens Comprehensive Plan calls for a wide range of actions to promote a safe and local transportation system. Foremost, it calls for attempts to alleviate Highway 30 of some of its traffic problems by:

- completing some additional north-south and east-west routes such as Milton Way and West Street,
- installing additional traffic signals and turning lanes on Highway 30,
- widening certain sections of the Highway 30;
- introducing signs at Old Portland, Gable and Deer Island Roads to persuade motorists to utilize these arterials to get uptown and downtown.
- possibly discourage some traffic-generating developments along Highway 30.

Goals for Transportation

1. To develop and maintain methods for moving people and goods which are:
   - Responsive to the needs and preferences of individuals, business and industry.
   - Suitably integrated into the fabric of the urban communities; and
   - Safe, rapid, economical and convenient to use.

2. To remove existing congestion and prevent future congestion so that accidents and travel time would both be reduced.

3. To create relatively traffic-free residential areas.

4. To strengthen the economy by facilitating the means for transporting industrial goods.

5. To maintain a road network that is an asset to the existing commercial areas.

6. To provide a more reliable basis for planning new public and private developments whose location depends upon transportation.

7. To cooperate closely with the County and State on transportation matters.

8. To assure that roads have the capacity for expansion and extension to meet future demands.

9. To insure future arterial rights-of-way are not encroached upon.

10. To encourage energy conserving modes of transit.

11. To provide special protected routes for walking and bicycling.

Policies for Transportation

1. Require all newly established streets and highways are of proper width, alignment, design and construction are in conformance with the development standards adopted by the City.

2. Review diligently all subdivision plats and road dedications to insure the establishment of a safe and efficient road system.

3. Support and adopt by reference road projects listed in the six year Highway Improvement Program; specifically, work towards attaining left turn lanes and traffic lights on Highway 30.

4. Control or eliminate traffic hazards along road margins through the building setbacks, dedications or regulation of access at the time of subdivision, zone change or construction.

5. Limit sign and sign lighting to avoid distractions for motorists.

6. Work with the Burlington Northern Railroad to improve the safety at railroad crossings.

7. Plan and develop street routes to alleviate Highway 30's traffic load and accommodate local traffic, specifically to:

   - Investigate the feasibility of completing, improving and utilizing West. St. as a major route to uptown and downtown.
   - Investigate feasible means of completing Milton Way to Gable Road.
   - Investigate feasible means of completing St. Helens Street.
   - Investigate the feasibility of introducing signs at strategic locations to direct traffic destined for downtown to utilize Gable, Old Portland, and Deer Island Roads.
   - Investigate the possibility of widening the south end of Little Street.

8. Regulate or prevent development within areas required for future arterials or widening of rights-of-way; specifically to:

   - Ensure that proposed development between Sunset Blvd. and Highway 30 do not site buildings so as to prohibit the extension of St. Helens St.
   - Ensure that proposed developments between Milton Way and Gable Road do not site buildings so as to prohibit connecting the two.
   - Ensure that proposed development between North Vernonia and Ross Roads and between Ross and Achilles Roads, do not site buildings so as to prohibit a future arterial connecting Achilles and Pittsburg Roads.

9. Investigate installing a traffic signal at the intersections of 6th and 12th St. and Columbia Blvd.

10. Develop a plan for walking trails.

11. Maintain and update the Bikeway Plan.

12. Work with the Community Action Team and the Columbia County Council of Senior Citizens in their efforts to meet the needs of the transportation disadvantaged.

Housing Element

The type of housing along with location and density has a large influence on transportation needs and demands. The location of residential development creates the need for additional pedestrian and bicycle transportation as well as local roads and streets.

The following is a list of housing goals and policies that have an affect on transportation.

- To locate housing so that it is fully integrated with land use, transportation and public facilities as set forth in the Comprehensive Plan.
- Encourage the distribution of low income and/or multi-family housing throughout the City rather than limiting them to a few concentrations.
- Investigate row house development as a possible future housing type.
- Permit multi-family dwelling units which conform to the following general conditions and criteria:

  A. They should not be located right on major or minor arterials but within 100 to 600 feet of them; those multi-family structures that do not abut major or minor arterials should have 50 foot frontage setbacks.
  B. They should include off-street parking.
  C. They should not diminish the traffic carrying capacity of surrounding arterials, or the capabilities of other public service and utilities.

- Permit mobile home park development which conform to the following general conditions and criteria:

  D. They should include ample off-street parking.
  E. They should not diminish the traffic carrying capacity of surrounding arterials, or the capabilities of other public service and utilities.
  F. They should provide internal vehicular and pedestrian circulation and landscaping.

- Acknowledge the County's density bonus system within the Urban Growth Area for new housing developments.

Transportation Planning Rule OAR 660, Division 12

Under Oregon's statewide planning process, transportation issues are addressed under Goal 12. The objective of the goal is to provide and encourage a safe, convenient, and economic transportation system. This is accomplished by requiring all jurisdictions to prepare multimodal transportation plans that are based on an inventory of transportation needs and a consideration of social, economic, environmental and energy impacts.

The Land Conservation and Development Commission recently adopted administrative rules (the Transportation Planning Rule or TPR) to implement Goal 12. This rule is predicated on the preparation and coordination of transportation system plans (TSPs) which are defined as plans for one or more facilities that are planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes and within and between geographic jurisdictional areas. In addition, these TSPs must be consistent with all other elements, including planned land uses, of regional and local land use plans and regulations.

ODOT, regional and local governments must each prepare and adopt TSPs complying with the TPR.

The Transportation Planning Rule governs preparation and coordination of transportation system plans (TSPs). A transportation system plan is a plan for one or more transportation facilities that are planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas.

State, regional and local TSPs are required to be in compliance with the standards set forth in the Transportation Planning Rule. It establishes a planning hierarchy whereby regional TSPs must be consistent with adopted elements of the state TSP, and local TSPs must be consistent with the regional TSP.

A local TSP establishes a system of transportation facilities and services adequate to meet identified local transportation system needs, i.e. needs to move people and goods within communities and portions of counties and to provide access to local destinations. As with regional TSPs, local TSPs must be prepared, adopted and amended in compliance with the rule.

The rule places responsibility for developing state TSP on ODOT. ODOT must identify a system of transportation facilities and services adequate to meet identified state transportation needs, i.e. needs for movement of people and goods between and through regions of the state and between the state and other states. The Oregon Transportation Plan (1992), prepared by ODOT is discussed in Section 2.2.3.

The rule requires that where conflicts arise between proposed regional TSPs and acknowledged comprehensive plans, representatives of affected local governments will meet to discuss means to resolve the conflicts. Identified methods of conflict

resolution include changing the draft TSP to eliminate the conflict and amending acknowledged comprehensive plan provision to eliminate the conflicts.

The role of preparing and adopting the regional TSP rests with Columbia County, while cities must adopt local TSPs which must be coordinated among the affected governments and consistent with the regional TSP and adopted elements of the state TSP.

Oregon Transportation Plan

The Oregon Transportation Plan (OTP) is a long range comprehensive state transportation plan that sets priorities and state policy in Oregon for the next 40 years. The plan is closely linked to the Transportation Planning Rule. It carries out the federal Intermodal Surface Transportation Efficiency Act requirements for a state transportation plan.

The OTP envisions healthy growth, clean air and less traffic congestion for Oregon. Reducing the use of the single-occupancy vehicle and reducing the vehicle miles traveled are both priorities of the OTP.

The Oregon Transportation Plan (OTP) is implemented through integrated state, regional and local planning and private sector actions. ODOT multimodal and modal plans and system management carry out or amplify the OTP and are consistent with it. The Transportation Planning Rule calls for the transportation system plans of metropolitan planning organizations (MPOs), counties and cities to be consistent with the adopted elements of the OTP.

The OTP provides general direction to several Modal System Plans. Along with the Highway and Bicycle Plans, there is or will be, a Rail Plan, Transit Plan, Aeronautics Plan, Waterways Plan, Pipeline Plan, and Ports Plan.

Oregon Highway Plan

The Oregon Highway Plan is one modal element of the overall transportation planning effort constrained in the Oregon Transportation Plan (OTP). The Oregon Highway Plan classifies the state highway system into four levels of importance: interstate, statewide, regional and district. Regional Transportation Plans must conform to the policies outlined in the Highway Plan.

As a modal plan, the Highway Plan implements the Oregon Transportation Commission's directions and policies relating to highways. As the OTP develops to include all transportation modes, future Highway Plans will be amended to align with OTP policies and OTP direction.

Portland to Astoria (U.S. Highway 30) Corridor Plan

The Portland to Astoria Corridor Plan provides a comprehensive strategy for transportation services along U.S. Highway 30. The Interim Corridor Strategy for Highway 30 proposes a long-term (20 year) program for the operation, preservation and enhancement of transportation facilities within the Portland-Astoria Corridor. The purpose of the Corridor Strategy is to establish realistic performance objectives for transportation in the corridor and to make major transportation tradeoff decisions. The following is a list of relevant strategies for the City of St. Helens identified in the Interim Corridor Plan.

Transportation Balance

Autos

- Provide no additional expansion in highway capacity from Columbia City to Portland, except for transportation system management (TSM) improvements such as turning lanes.
- In lieu of capacity expansions, emphasize transportation demand management (TDM) techniques, especially the promotion of alternative modes; pricing mechanisms; and land use patterns which encourage alternatives to single occupant vehicles.

Bicycles

- Provide bicycle lanes in urban areas and, at a minimum, provide five-foot shoulders to accommodate bicycle use along the entire corridor length.
- Provide connections to local bicycle and hiking systems where feasible.
- Provide bicycle crossings across Highway 30 where appropriate and feasible.
- Where feasible, develop remaining sections of the Old Highway 30 alignment into bicycle routes.

Pedestrian

- In urban areas, at a minimum, provide six-foot sidewalks on both sides of the highway and convenient and safe pedestrian crossings.

Urban Transit/Intercity Transit

- Investigate contracted transit services to serve increasing numbers of commuters between St. Helens and Portland.
- Investigate expansion of Kelso-Longview transit service into St. Helens/Rainier.
- Encourage vanpooling to large employment centers.
- Develop "Park and Ride" and "Park and Pool" lots.
- Manage the rail line to preserve future opportunities for rail service, particularly self-propelled passenger rail. Through Transportation Systems

Plans and the Corridor General Plan, identify the conditions that would warrant future investigation of the feasibility of passenger rail services.

Rail Service

- Upgrade railroad crossings in conjunction with other roadway improvements.
- Make infrastructure improvements (railroad, streets, utilities, etc.) to enhance the investment climate for rail users.

Truck Freight

- Minimize additional long-haul truck use of Highway 30 by promoting increased bulk freight movement by rail and water.
- Improve truck access to industrial sites, including turn and acceleration/deceleration lanes where appropriate.
- Design local street systems to separate local truck traffic from through traffic.

Water

- Investigate commercial ferry service between St. Helens and Portland.

Pipelines

- To the extent feasible, utilize pipeline rights-of-way as bicycle and pedestrian pathways and wildlife corridors.

Regional Connectivity

- In urban areas, establish travel times compatible with the promotion of compact, pedestrian friendly "Main Streets".
- Provide a better network of local streets (alternative routes) in urban and developed rural areas.

Highway Congestion

- Provide Level of Service (LOS) C or better within the urban area of St. Helens.
- Develop local access management and circulation plans to relieve localized congestion problems, to facilitate local trips crossing U.S. 30 safely without unduly interfering with through traffic, and to meet other local transportation system needs.
- Improve local street systems to reduce the need for U.S. 30 improvements.
- Improve traffic signalization in urban areas to improve safety and livability.

Social and Land Use Impacts

- Design transportation system improvements to preserve the livability of the communities within the corridor and to avoid, minimize or eliminate the impacts to sensitive cultural resources and other community resources.

- Encourage transportation-efficient land use patterns that reduce vehicle miles traveled and promote a live/work balance, e.g. clustered developments, mixed uses, maximum parking ratios, and circulation systems that reduce out-of-direction travel.

Highway 30 Access Management Study

The Highway 30 Access Management Study was conducted to provide access management strategies and an access management plan for the future. The study was a cooperative effort between Oregon Department of Transportation, the City of St. Helens, the City of Columbia City, and Columbia County. The goals of the study were to:

- Move existing and future traffic volumes efficiently on US Highway 30 at reasonable speeds (35 mph inside city limits and 45 outside city limits).
- Serve the businesses and residents along the US Highway 30
- Provide transportation safety for all users.

The Access Management Plan recommends that future traffic signals should be appropriately placed and coordinated to enhance the progressive movement of traffic along Highway 30. A signal spacing of approximately 2,050 feet (0.39) miles is recommended to enable traffic to flow efficiently in the 35 mph corridor between Millard Road and Pittsburg Road. Also, a spacing of approximately 2,650 feet (0.50 miles) is recommended to enable efficient traffic flow in the remaining portion of the corridor signed for a travel speed of 45 to 55 mph.

As future development occurs, the Access Management Plan recommends the placement of three traffic signals along Highway 30. Future traffic signals are recommended, when warranted, at South Vernonia Road (MP 28.23), Pittsburg Road (MP 29.10), and Millard Road (MP 26.96) along Highway 30. It is also recommended that West Street be connected to Pittsburg Road to provide access to and across Highway 30 at the new traffic signal.

A minimum driveway spacing of 150 feet is recommended for (all) right-in/right-out access points and for full-access points from single-unit residential developments; and a minimum driveway spacing of 300 feet is recommended for commercial, industrial, and multiple-unit residential developments. Joint access to the highway should be considered whenever possible, even with access to single-unit residential units.

The plan recommends a 20 foot wide standard driveway for single-unit residential developments, with a 16 foot minimum allowable width and a 24 foot maximum allowable width. for multi-family residential, commercial, and industrial developments, a 36 foot standard width and a 40 foot maximum width is recommended.

The plan recommends limiting the number of driveways per property frontage to a single drive, unless the frontage exceeds 1/4 mile. Access from neighborhood

commercial developments located on the corner of a public street intersection is recommended to be restricted to access on the cross-street only. At the permit authorization stage, adjacent property owners should be encouraged to construct joint-use driveways in lieu of separate driveways.

Frontage roads are recommended for the long-term solution on the west side of US Highway 30, between Pittsburg Road and Achilles Road. Also, the completion of the Columbia Street/St. Helens couplet by extending St. Helens Street to Shore Drive is recommended for diversion of local service traffic away from the highway.

An adequate internal design and circulation plan is recommended to prepared for all site developments having direct access to the highway. Specifically, driveway throats should be designed long enough to allow free movement on and off of the highway. Also, the plan recommends that an adequate intersection sight distance must be provided at all existing and future signalized and unsignalized intersections, including driveways.

Figures 3.4 through 3.6 illustrate the recommended improvements of the Highway 30 Access Management Study.

St. Helens Bikeway Master Plan

In 1988, the City of St. Helens developed a master plan to further develop the system of bike routes and paths initiated in 1979. The goal of the Bikeway Master Plan is to "provide a safe, convenient, useful and attractive system of bicycle routes and paths throughout the City and Urban Growth Area which will accommodate commuters, tourists and recreational users.

The master plan identifies seven objectives:

- Complete the bikeways in the old town area which will tie in with the existing routes in the downtown area.
- Provide a safe system of bikeways which will be a showcase for St. Helens.
- Provide a system of bikeways which will link major community centers (i.e. Eisenschmidt Pool, Junior High School, McCormick Park) with residential areas.
- Provide bikeways in the residential area west of U.S. Highway 30 that will provide access to schools and parks and eventually tie in with existing routes on the east side of Highway 30.
- Provide for maintenance of bicycle facilities.
- Provide adequate areas for parking bicycles for those uses that attract bicycles (e.g. parks).
- Minimize unsafe conflicts between bicycles, pedestrians and motorized traffic.

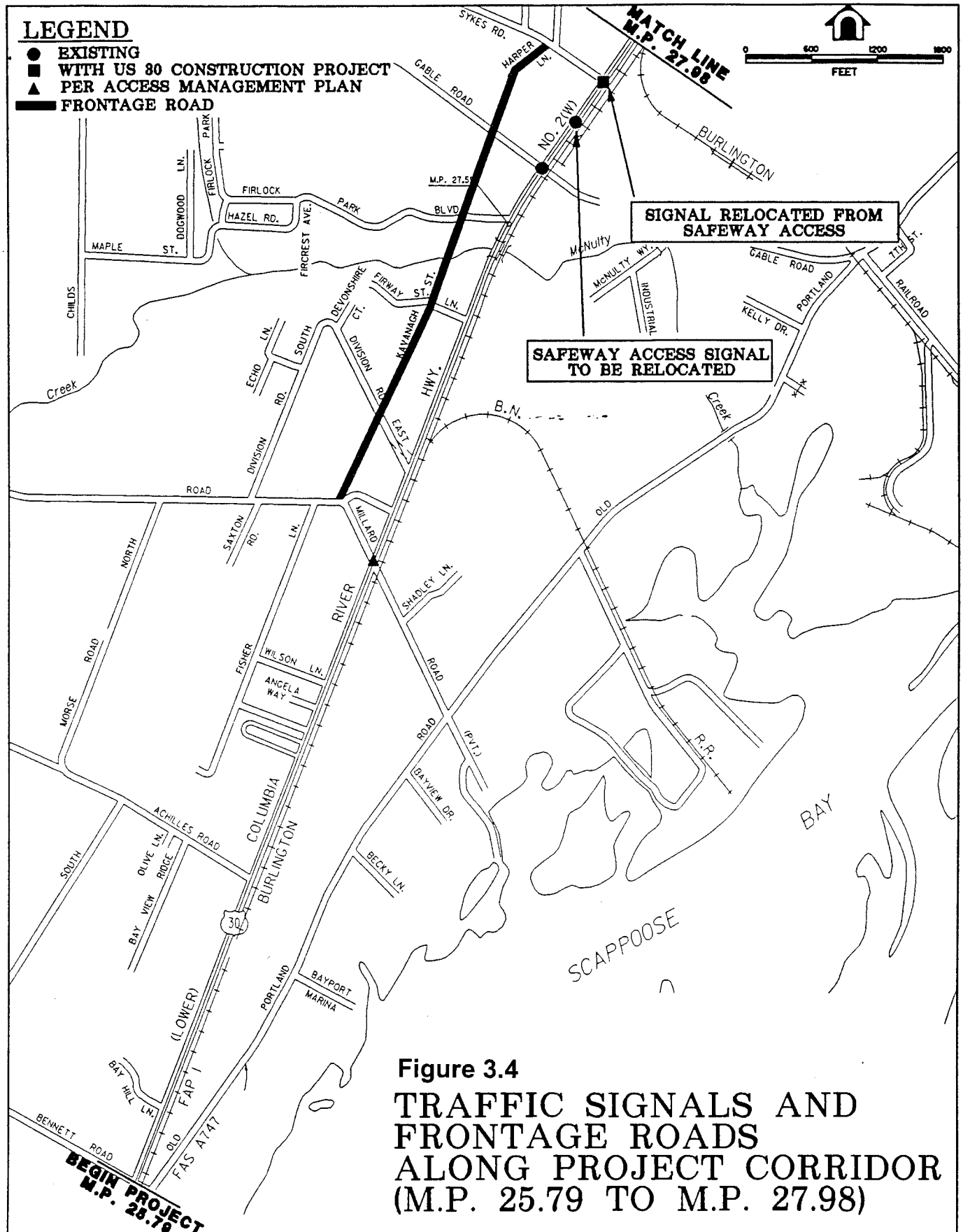


Figure 3.4

TRAFFIC SIGNALS AND FRONTAGE ROADS ALONG PROJECT CORRIDOR (M.P. 25.79 TO M.P. 27.98)

US Highway 30 Access Management Study (David Evans & Associates)

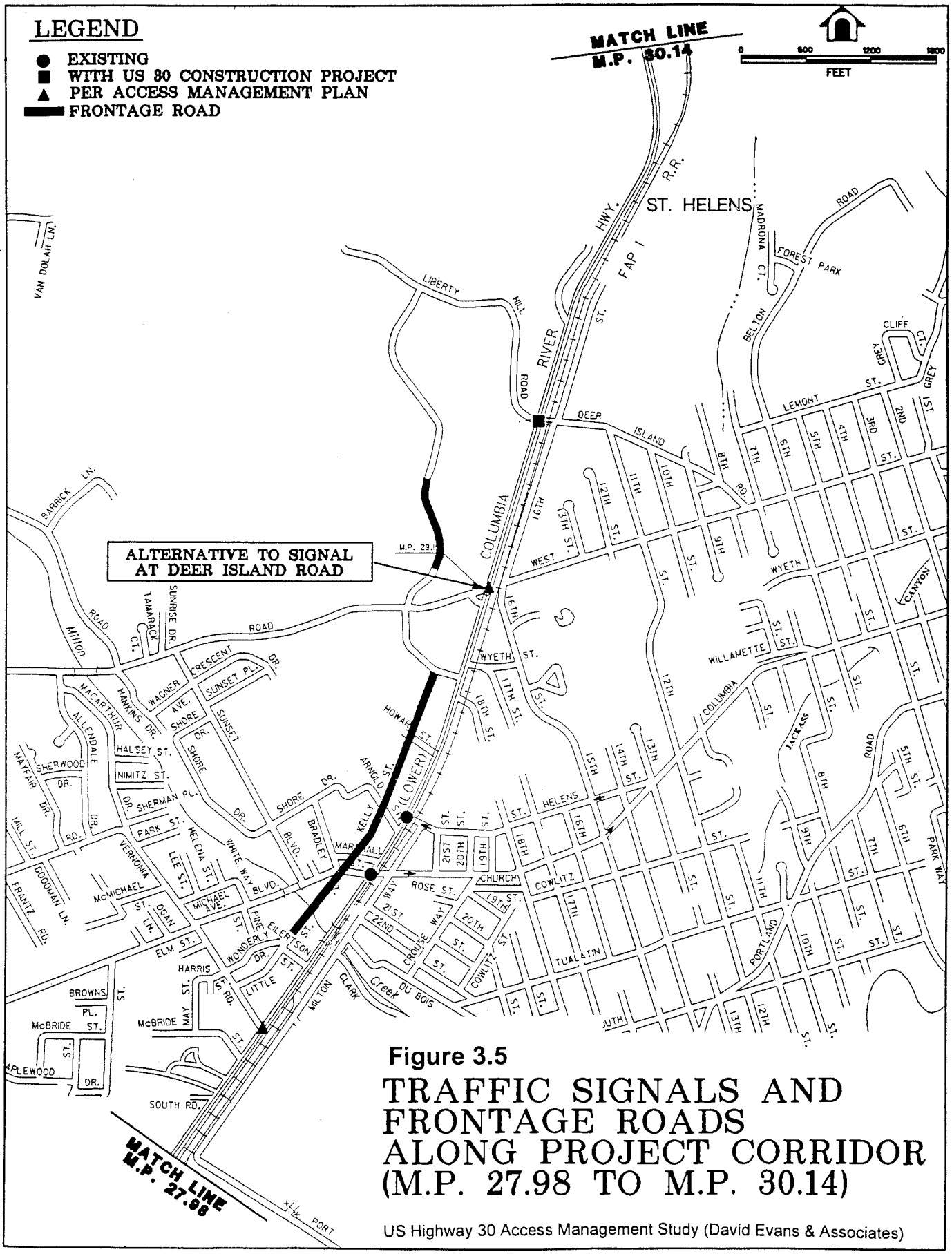


Figure 3.5

TRAFFIC SIGNALS AND FRONTAGE ROADS ALONG PROJECT CORRIDOR (M.P. 27.98 TO M.P. 30.14)

US Highway 30 Access Management Study (David Evans & Associates)

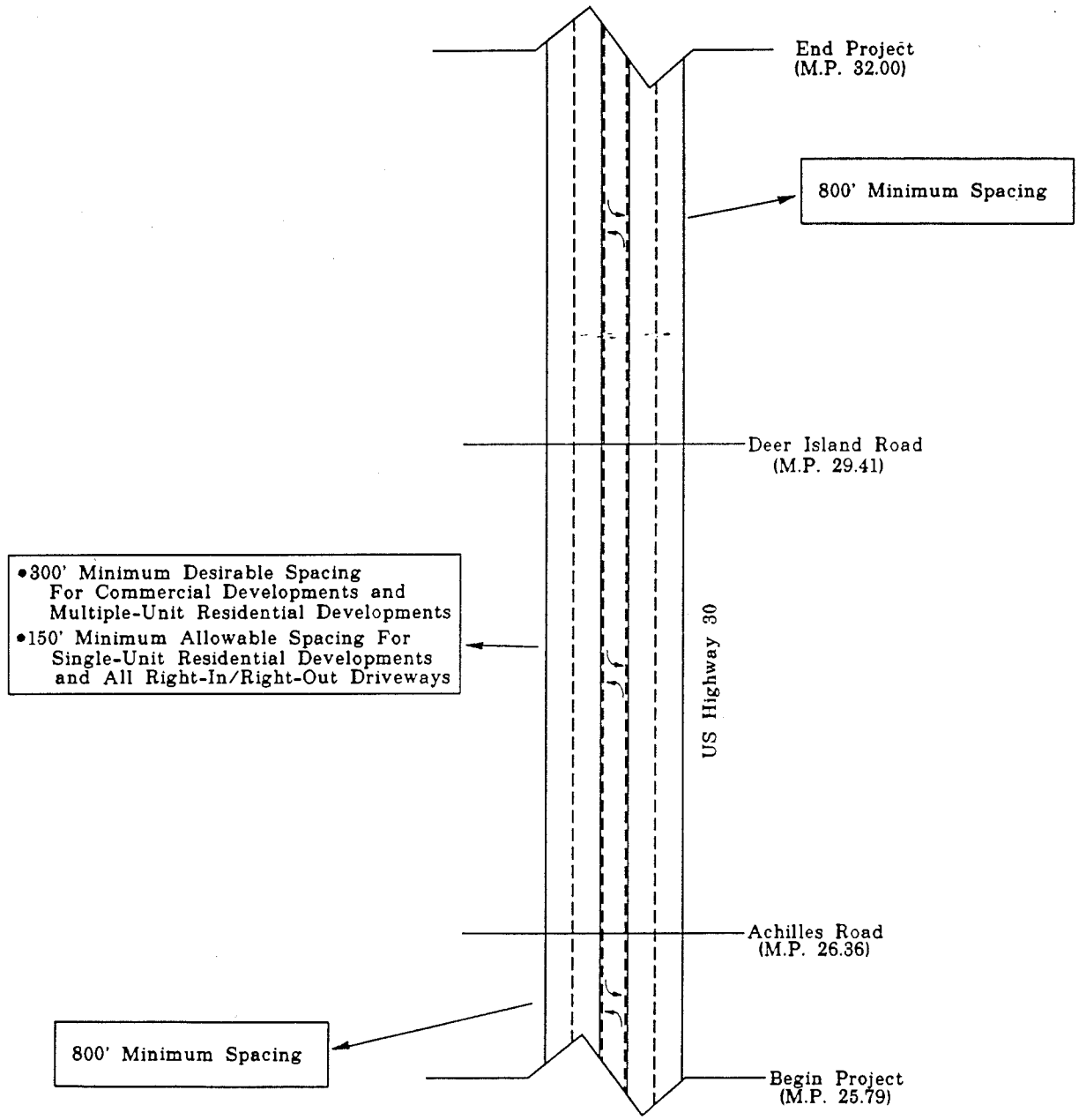


Figure 3.6

RECOMMENDED DRIVEWAY SPACING

US Highway 30 Access Management Study (David Evans & Associates)

St. Helens Public Facilities Plan

The public facilities plan, completed in 1990, summarizes existing and future deficiencies and needs and recommends proposed projects, with their associated costs and timing. The Plan identifies a future need for a new transportation link between Achilles Road and Pittsburgh Road for conveying traffic north and south on the west side and reducing the reliance on Highway 30 for north-south movement. The Plan also recognizes that many of the designated arterials and all of the city bridges will need widening and other improvements to accommodate increased traffic flows. Additional improvements would include bringing the County maintained roads and bridges up to City standards and adding curbs, sidewalks, gutters and stormdrains to most of the designated arterials.

The recommended projects include:

Proposed Project	Estimate Cost ($1989)	Time Frame
Pittsburg Rd. (Hwy 30 to west UGB line)	$983,100	1-5 yrs. for part in City 6-20 yrs. in UGB
Vernonia Rd. (Hwy 30 to Pittsburg Rd.)	$226,000	1-5 yrs.
Sunset Blvd. (Columbia Blvd to Pittsburg Rd.)	$6,750	1-5 yrs
Bachelor Flat Rd.(Sykes Rd. to UGB line)	$526,100	6-20 yrs.
Sykes Rd. (Columbia Blvd. to UGB line)	$272,250	6-20 yrs.
Gable Rd. (Hwy 30 to Bachelor Flat Rd.)	$226,750	6-20 yrs.
Millard Rd. (Old Portland Rd. to UGB line)	$242,000	6-20 yrs.
Achilles Rd. (Hwy 30 to UGB line)	$135,000	6-20 yrs.
Columbia Blvd. (St. Helens St. to Gable Rd.)	$538,000	6-20 yrs.
Old Portland Rd. (St. Helens St. to Gable Rd)	$538,000	6-20 yrs.
Old Portland Rd. (Gable Rd. to UGB line)	$504,000	6-20 yrs.
Deer Island Rd. (West St. to Hwy 30)	$121,000	1-5 yrs.
N. 6th St. (Columbia Blvd. to West St.)	$84,700	1-5 yrs.
11th and 12th St. (Deer Island Rd. to Old Portland Rd.)	$289,250	6-20 yrs.
15th St. (Old Portland Rd. to Columbia Blvd)	$191,250	6-20 yrs.
18th St. (Old Portland Rd. to Columbia Blvd)	$79,500	1-5 yrs.
West St. (6th St. to 16th St.)	$79,500	1-5 yrs.
New arterial from St. Helens St. to Sunset Blvd.	$189,000	6-20 yrs.
Highway 30 Improvements	$18 Million	1-5 yrs.

3.4 Ordinances, Zoning and Engineering Standards

St. Helens Zoning Ordinance (Ordinance No. 2616)

The purposes of the St. Helens zoning ordinance are to guide and encourage the most appropriate use and development of land, to conserve and stabilize the value of property, to provide adequate light, air and reasonable access, to secure safety from fire and other dangers, to prevent overcrowding of land, to facilitate adequate provisions for transportation, water, sewage, schools, parks and other public improvements, and, in general, to promote the public health, peace, safety and welfare, all in accordance with the Comprehensive Plan.

In order to carry out the purpose of the zoning ordinance, different zones have been established. Each zoning district is intended to service a general land use category that has common locational, development, and use characteristics. Each zone produces characteristic trip generation rates, and transportation service needs according to its function.

R-10 (Suburban Residential) - The intent of this district is to provide for large lot residential development where population concentrations of a suburban nature are developing. The minimum lot size is 10,000 square feet for all uses.

R-7 (Moderate Residential) - This district provides for medium density residential development. For dwellings the minimum lot size is 7,000 square feet for one dwelling plus 2,500 square feet for each additional dwelling unit.

RP (Residential Professional) - The RP zone is intended to provide for a desirable mixing of residential land uses with professional type offices and related limited commercial use in close proximity to residential and commercial districts. For dwellings the minimum lot size is 7,000 square feet for one dwelling plus 2,500 square feet for each additional dwelling unit.

R-5 (General Residential) - The intent of this district is provide for higher density development where population concentrations of an urban nature are developing. For dwellings the minimum lot size shall be 5,500 square feet for the first two dwelling units plus 2,500 square feet for each additional dwelling unit.

A-5 (Apartment Residential) - The A-5 zone is intended for higher density development where population concentrations of an urban nature, which includes multi-family dwellings, may develop. For dwellings the minimum lot size shall be 5,500 square feet for the first two dwelling units plus 1,500 square feet for each additional dwelling unit.

MHR-5 (Mobile Home Residential) - This zone is intended to provide for residential purposes where population concentrations of a moderate nature, including mobile home parks, may develop.

C-1 (Highway Commercial) - This zone intended to recognize the existing commercial development along Highway 30 and to limit future commercial activity to retail concerns, activities that cater to motorists, and firms that deal in large goods and require unusual amounts of space.

C-2 (General Commercial) - The intent of this zone is to provide for a broad range of commercial operations and services required for the proper and convenient functioning of commercial centers serving major areas of the city. Uses permitted include all retail and service operations that cater to pedestrian shoppers.

C-3 (Residential Commercial) - This zone is intended to provide for a broad range of commercial operations and services required for the proper and convenient functioning of commercial centers serving major areas of the city. Generally speaking, C-3 zoned areas contain residences that have been in existence for several years.

C-4 (Marine Commercial) - This zone is intended to encourage a wide range of water-related activities both commercial and residential.

LL-1 (Light Industrial) - The LL-1 zone is intended to create, preserve and enhance areas containing a wide range of manufacturing and processing, warehousing, wholesaling, retail sales, repair and maintenance establishments, and related establishments, and is typically appropriate to areas providing a wide variety of sites with good rail or highway access.

HI-2 (Heavy Industrial) - This zone allows for areas where intense industries may locate and not be in conflict with residential or commercial areas or more sensitive industrial areas. Industrial activities of all types are permitted, including those not desirable in other zones due to objectionable impacts or appearance. New commercial uses are limited and new residential uses are not allowed.

PL (Public Lands) - The purpose of this zone is to delineate land owned by public or semi-public entities that are used, or have the potential to be used, for public or semi-public purposes such as schools, parks, and play grounds.

Superimposed Zones

WG (Willamette Greenway) - The purpose of the WG Zone is to protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational quality of lands along the Willamette River. The WG Zone is a superimposed zone to be used in combination with the existing underlying zone. Within the jurisdiction of St. Helens, those lands in the Willamette Zone are within an urban area zone Heavy Industrial because of existing and historical uses.

UOS (Urban Open Space) - This zone is intended to provide protection from development for strategically sited lands that provide a valuable open space or recreation resource for the urban community.

OS-DR (Open Space-Design Review) - The purpose of this zone is to encourage development to conform to the landscape rather than have the landscaped modified to fit the proposed structure.

AZ (Archeological) - The purpose of this zone is to mitigate the impact of future development on significant archeological resources.

HRZ (Historical Resources) - The purposes of this zone are to: encourage the preservation and rehabilitation of those buildings that provide a sense of history, safeguard the City's heritage, protect and enhance the City's attractiveness, preserve diverse and harmonious architecture styles, and enhance property values.

FWW (Fish and Wildlife, Wetlands) - This purpose of this zone is to encourage the preservation of those areas identified as significant fish and wildlife habitats, or significant wetlands.

HZ (Hazards Zone) - The intent of this zone is to reduce hazards of development on lands that have slopes exceeding 20 percent.

Local land use ordinances are governed by the TPR and must be consistent with state requirements in order to protect transportation facilities, corridors and sites for their identified functions.

Street Standards Ordinance (Ordinance 2636)

Proper planning for City street network and proper street design criteria for roadways will provide safe and efficient traffic movement. A well planned street network takes into consideration many factors such as traffic volumes, travel time, speed, traffic interruptions, convenience, land use, and safety. Different classifications of streets serve varied functions in a street network. St. Helens has within the UGB roads that function as state highways, arterial streets, collector streets, and local streets.

The City of St. Helens has established an ordinance controlling standards for city streets. The purpose of the street standards ordinance is to set uniform standards for the construction and upgrading of streets within the incorporated portion of the City. Planning and design criteria for all street types are summarized in Table 3.

Table 3.5
Design Criteria for Urban Streets

Street Type	Right-of-Way	Roadway	Travel Lanes	Parking
Major Arterial	80'	64'	4x12'=48'	2x8'=16'
Minor Arterial	60'	40'	2x12'=24'	2x8'=16'
Collector	60'	36'	2x10'=20'	2x8'=16'
Local Street	50'	34'	2x9'=18'	2x8'=16'
Cul-de-sac	50'	34'	2x9'=18'	2x8'=16'
Turnaround for Cul-de-sac	50' radius	40' radius to back of curb	----	----
Alley	20'	16'	2x8'=16'	2x2'=4'
Private Street serving no more than two dwellings	none	16'	2x8'=16'	2x2'=4'

Sidewalk Standards

New sidewalks in residentially zoned areas shall be five feet in width and shall abut the curb. New sidewalks in commercial and industrial areas an along arterial streets designed in the City's Comprehensive Plan shall be al least six feet in width. Where obstructions are known or planned, including but not limited to mail boxes, fire hydrants, street lights and/or sign poles, the sidewalk shall be increase so a clear space around the obstruction of at least five feet shall be provided. Sidewalks shall have a thickness of four inches of Portland Cement except at driveways where they shall have six inches of thickness. Sidewalk construction shall conform to APWA standards for sidewalk construction.

4.0. EXISTING TRANSPORTATION SYSTEM

The City of St. Helens has a comprehensive multi-modal transportation system, consisting of a wide range of transportation alternatives. The City's transportation system includes a developed roadway and highway system, a county-wide public transportation system, an existing bicycle network and plan, pedestrian ways, railroad connections, as well as the Columbia River, which provides a waterway for both recreational and commercial transportation.

As a requirement to the System Plan, a detailed inventory of St. Helens' existing transportation system was conducted. This included a field inventory of the location and condition of existing streets and highways, bicycle routes and paths, as well as pedestrian ways and sidewalks throughout the Urban Growth Area. To supplement the field inventory, traffic counts were conducted throughout the area and information on other modes were obtained through discussions with transportation officials and existing reports. The following is a summary of St. Helens' existing transportation system.

4.1 Roadway System

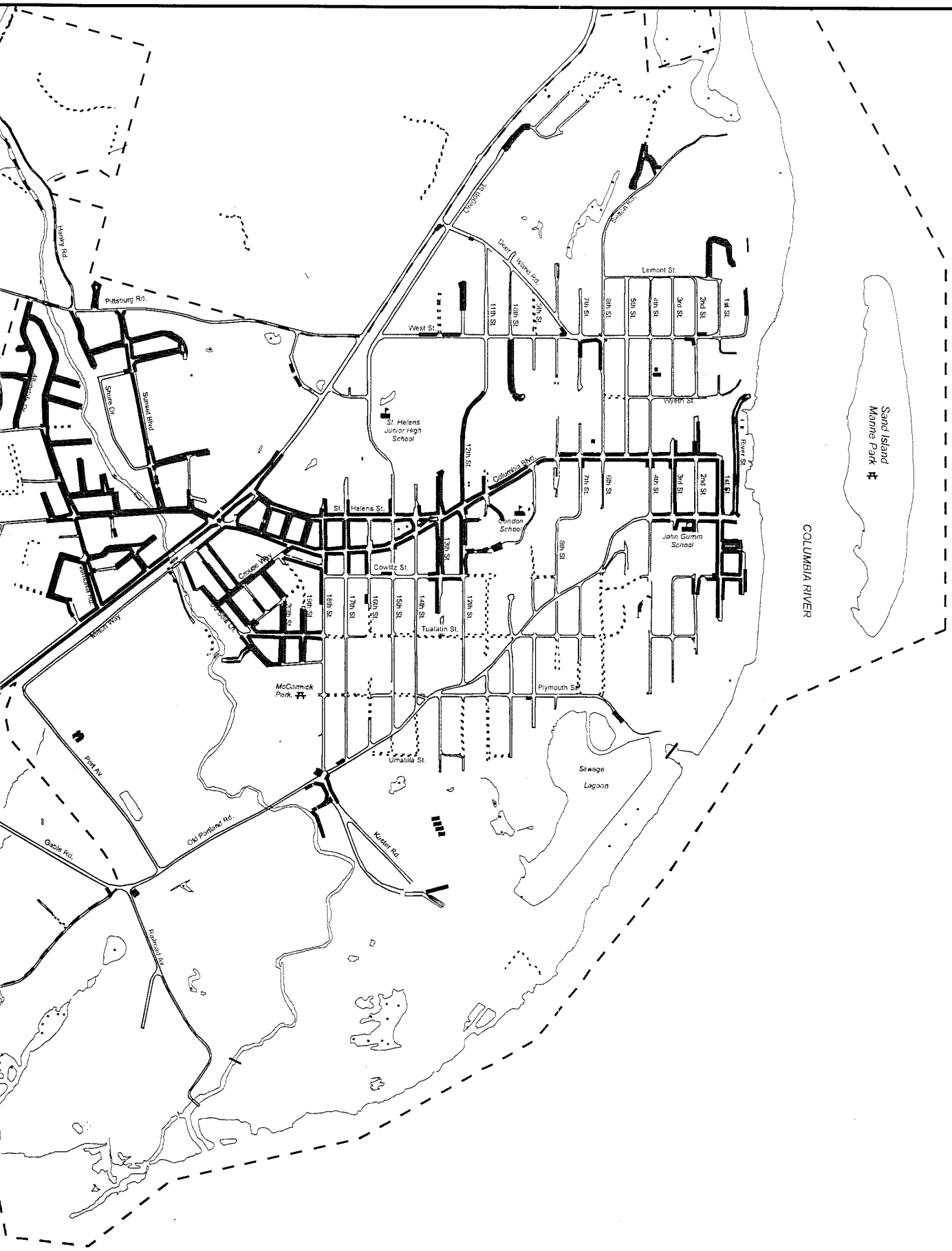
Because of its geographical location, nestled between the foothills of the Coastal Range and the Columbia River, the City of St. Helens, is currently served by only one major highway, U.S. Highway 30. Highway 30 runs north and south through St. Helens providing access to Portland on the South and Longview, Washington and the Oregon Coast to the north.

There are approximately 85 miles of roadways and streets within the City of St. Helens' Urban Growth Boundary (UGB). Of the total roadway mileage within the UGB, approximately 34 percent (29 miles) are of the highest standard (curbed asphalt concrete), 58 percent (49 miles) are paved surface only (no curbs), and 8 percent (7 miles) of gravel or natural surfaced roadway. The location and the condition of each type roadway is depicted on Figure 4-1.

Also displayed on the Figure 4.1 are the locations of all structures (bridges) in the St. Helens area. Currently, there is one city owned bridge, three County owned bridges and two State owned bridges in the UGB. The City owned bridge is on Milton Way at Milton Creek and is of metal construction. The three County bridges all cross Milton Creek, one on Pittsburg Road, one on Columbia Blvd. and the other on Old Portland Road. All three are two lane concrete bridges. The two state owned bridges are on Highway 30, located over McNulty Creek and Milton Creek.

Functional Classification

The City of St. Helens currently has a functional classification system for roads. The hierarchical functional classification system requires different design standards for each roadway classification. For instance, major thoroughfare routes require different access control standards, paving requirements, right-of-way widths, traffic safety devices, etc. St. Helens currently uses four roadway classifications:



LEGEND

- Paved and Curbed Streets
- Paved Streets Only
- Gravel or Natural Surface Streets

Figure 4.1
Existing Roadway Conditions

Major Arterials - These facilities carry the highest volumes of through traffic and primarily function to provide mobility and not access. Major arterials provide continuity for intercity traffic through the urban area and are usually multi-lane highway facilities. The only major multi-lane arterial in St. Helens is the Lower Columbia River Highway (U.S. Highway 30).

Minor Arterials - These facilities interconnect and augment the major arterial system and accommodate trips of somewhat shorter length. Such facilities interconnects residential, shopping, employment and recreational activities within the community. The following roads are considered existing minor arterials:

..

- Pittsburgh Rd.
- N. & S. Vernonia Rd.
- Sunset Blvd.
- Bachelor Flat Rd.
- Columbia Blvd.
- St. Helens St.
- Old Portland Rd.
- Deer Island Rd.
- Sykes Rd.
- Gable Rd.
- Millard Rd.
- Achilles Rd.
- N. 6th St.
- 12th & 11th St.
- 15th to the Jr.High School
- 18th & Kaster Rd.

Collector Streets - These streets provide both land access and movement within residential, commercial and industrial uses. These streets gather traffic from local and serve as connectors to arterials.

Local Streets - These streets provide land access to residential and other properties within neighborhoods and generally do not intersect any arterial routes.

Figure 4-2 graphically depicts the existing St. Helens functional classification roadway system. Roadway design standards for each classification type are discussed in section 3.4

Traffic Circulation

The Lower Columbia River Highway (U.S. Highway 30) serves as the main artery for the City of St. Helens. This facility is currently being upgraded to five continuous lanes, two lanes in each direction with a continuous turning lane. The posted speed along the Lower Columbia River Highway varies along its length through the Urban Growth Area. As you enter the St. Helens area from the south, the highway has a posted speed of 50 mph, which reduces to 45 just north of Achilles Rd. The speed limit is further reduced to 35 mph near Gable Rd. The speed limit remains 35 mph through St. Helens until just north of Wyeth where the limit increases to 45 mph.

There are currently four traffic signals along the Lower Columbia River Highway. These are located at the intersections with Gable Rd., Safeway Plaza shopping center, Columbia Blvd., and St. Helens St. The Highway 30 Access Management Plan proposes a strategy for locating future traffic signals so that they enable the

City of St. Helens Transportation System Plan

progressive movement of traffic along the highway. Future traffic signals are recommended, when warranted, at South Vernonia Road (MP 28.23), Pittsburg Road (MP 29.10), and Millard Road (MP 26.96) along the highway.

Columbia Blvd. serves as the primary east/west arterial in the City. The posted speed along Columbia Blvd. is 25 mph, except along the dense commercial district between Highway 30 and 12th street, where the posted speed is 20 mph. Between the Lower Columbia River Highway and 13th Street, Columbia Blvd. operates as a one way pair with St. Helens St. There are two traffic signals along Columbia Blvd., the previously mentioned with Highway 30 and a second light at the intersection with 18th Street. The only other traffic signal operated and maintained by the City of St. Helens is located at the Old Portland Road/18th Street/Kaster Road intersection.

Figures 4-3 and 4-4 depict the location of existing traffic signals and stop signs along all existing arterial roadways in the St. Helens urban growth area.

Truck Routes

The City of St. Helens currently has two designated truck routes. The routes are designed to limit heavy truck traffic on local streets, reducing damage and improving safety along neighborhood streets. One of the truck routes runs the entire length of Highway 30, providing a route for heavy trucks traveling through the City.. The other route connects the industrial area in the southeast to Highway 30. This route provides access to Highway 30 via Gable Road, Old Portland Road and Plymouth Street. This route primarily serves the Boise Cascade Paper and Veneer Mills, the two major contributors of heavy truck traffic in St. Helens. The City's two designated truck routes are depicted on Figure 4.5.

Average Daily Traffic

Average daily traffic volumes within the community of St. Helens vary considerably by roadway facility. The largest traffic volumes are located along the Highway 30. Existing traffic volumes along this roadway range from 14,500 between St. Helens and Columbia City to nearly 21,000 between Gable and Sykes Road. Other significant traffic volumes are located along Old Portland Road and Columbia Blvd. Old Portland Road carries between 5,700 and 11,000 vehicles per day on average and Columbia Blvd. handles between 7,400 and 2,990 vehicles per day. The Columbia Blvd./St. Helens St. one way pair carries approximately 14,000 vehicles per day for both directions. Figure 4-6 displays existing average daily traffic volumes for various arterial roadways within the St. Helens UGB.

Traffic volumes in St. Helens vary significantly by time of year, time of day and by day of the week. During the peak summer travel months, traffic along the Lower Columbia River Highway increases by as much as 40 percent compared to travel during the winter months. The amount of travel also varies by day of the week. Figures 4.7 through 4.9 depict the variances in travel along the Lower Columbia River Highway and several other locations throughout the St. Helens area.

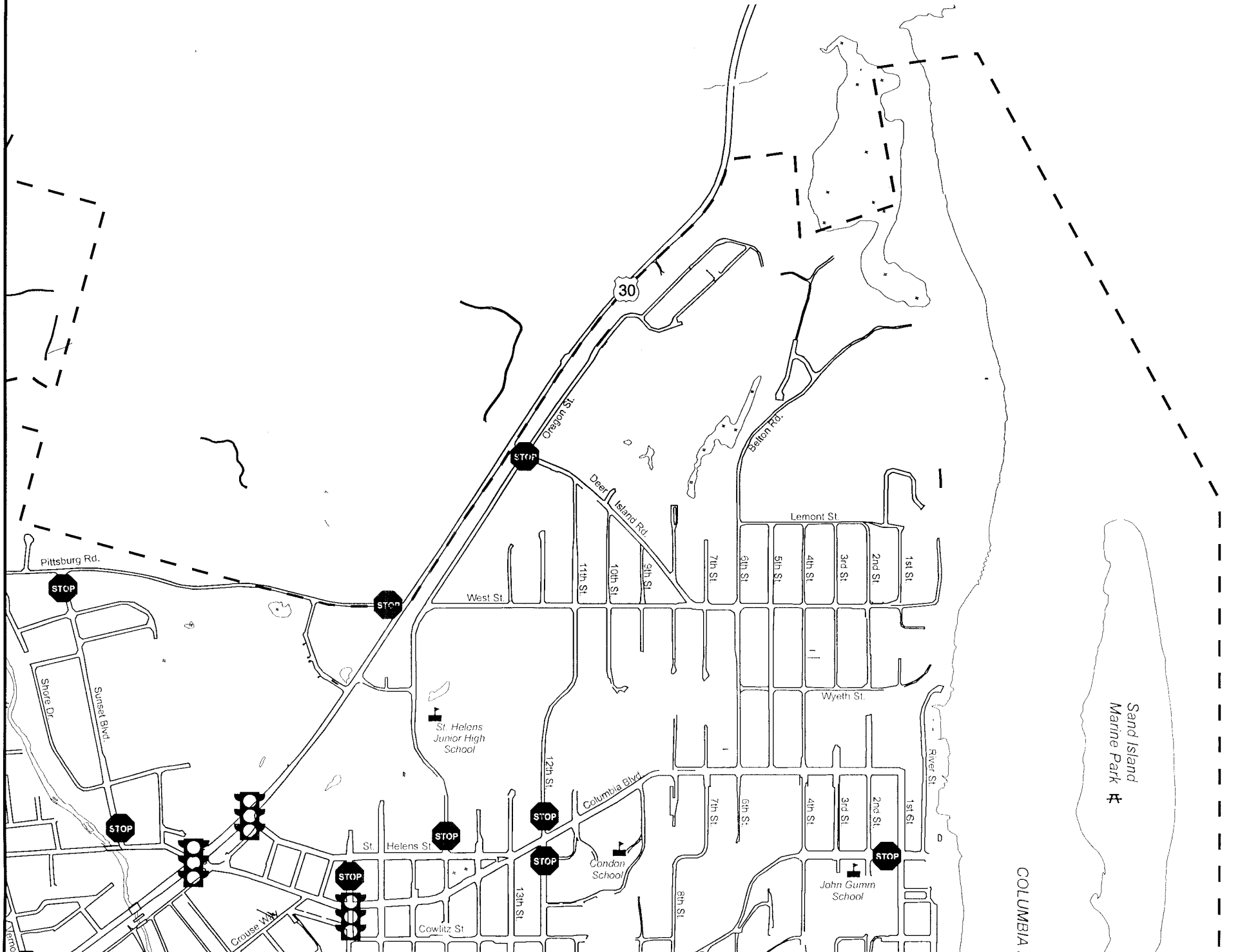

30
Oregon St.
Belton Rd.
Deer Island Rd.
Lemont St.
Pittsburg Rd.
West St.
Wyeth St.
River St.
Columbia Blvd.
St. Helens St.
Cowlitz St.
Grouse Way
Shore Dr.
Sunset Blvd.
11th St.
10th St.
9th St.
7th St.
6th St.
5th St.
4th St.
3rd St.
2nd St.
1st St.
12th St.
13th St.
8th St.
St. Helens Junior High School
Condon School
John Gumm School
STOP
Sand Island Marine Park
COLUMBIA

Figure 4.7: Average Daily Traffic By Month - U.S. Highway 30

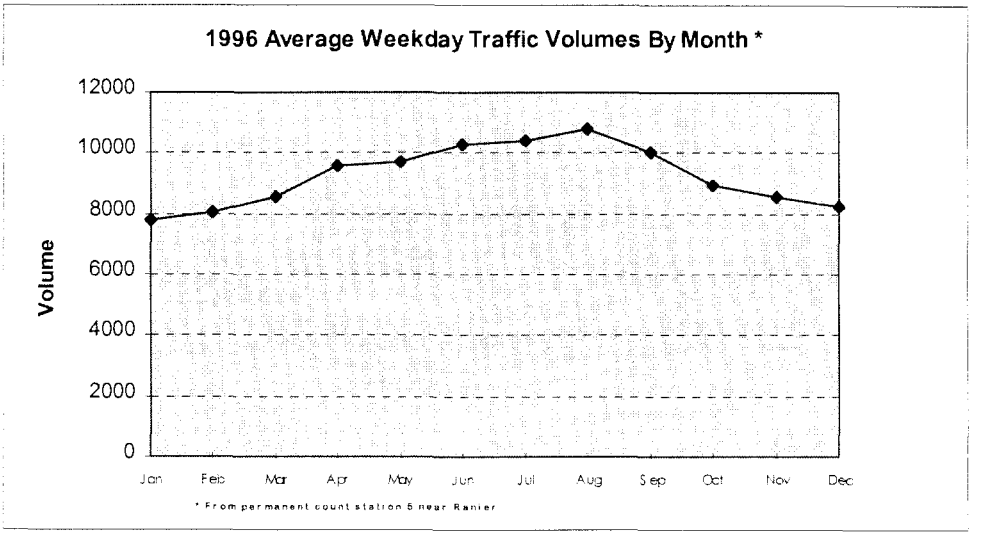


Figure 4.8: Average Daily Traffic Volume By Day of Week

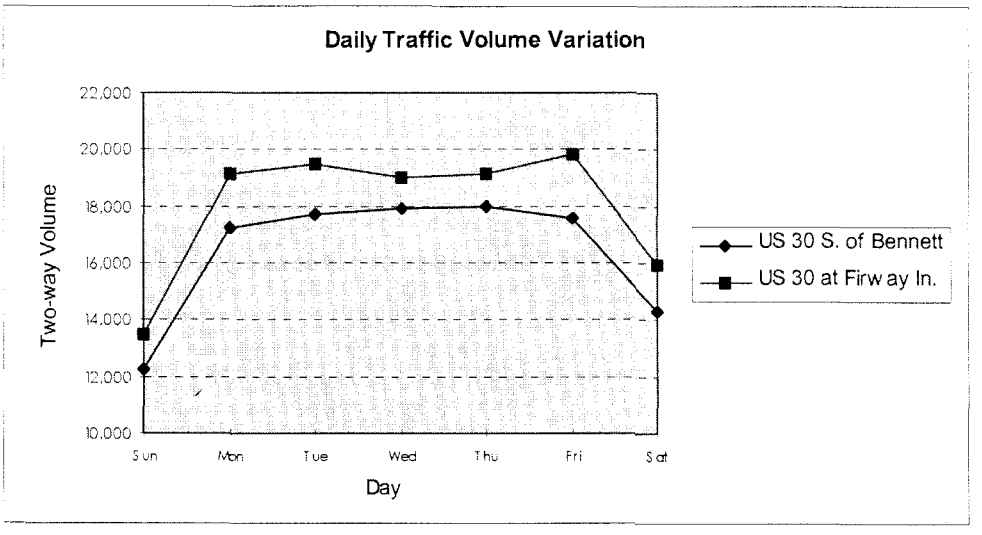
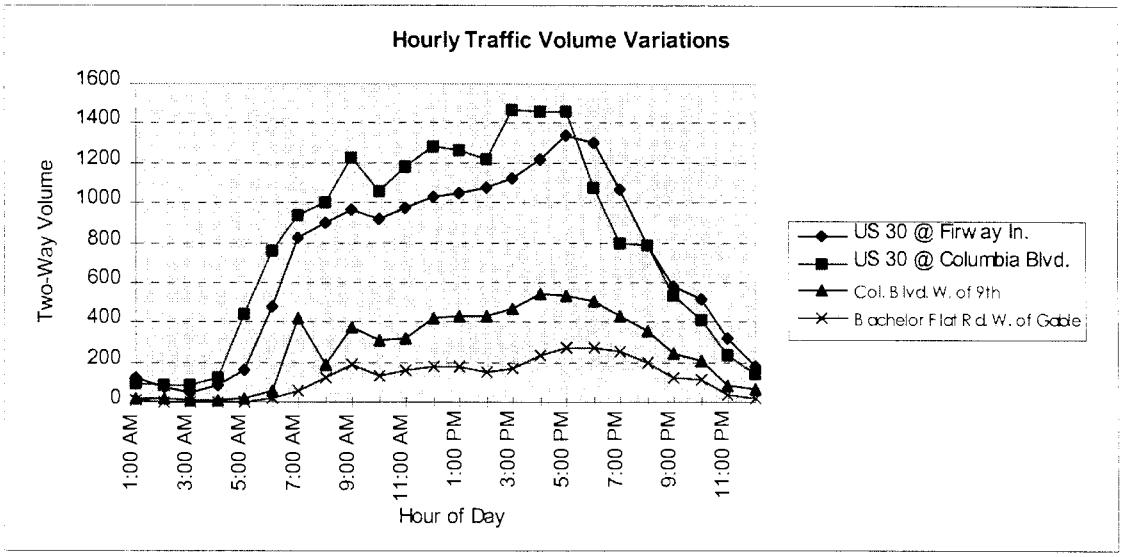


Figure 4.9: Average Daily Traffic Volume By Day of Week



Traffic Growth

Over the last 25 years, traffic volumes within St. Helens has been increasing at a fairly significant rate. U.S. Highway 30 has been experiencing the greatest increase in traffic. On average traffic volumes along Highway 30 have been increasing between 3.0 and 4.5 percent per year since 1970. Traffic volumes along the west side have been increasing at a faster rate than the east side. Traffic, west of Highway 30, has been increasing around 2.5 percent per year, compared to an average of approximately 1.0 percent on the east side. Table 4.1 displays average daily traffic volumes for various locations around St. Helens for the years 1970 and 1996.

Table 4.1
St. Helens Traffic Growth
1970 - 1996

Roadway Location	1970 ADT	1996 ADT	Annual Average Growth Rate
U.S. Highway 30			
South of Millard Rd.	7,000	18,000	3.7%
South of Gable Rd.	8,800	19,800	3.2%
North of Gable Rd.	9,600	20,800	3.0%
North of Columbia Blvd.	6,200	19,200	4.4%
North St. Helens City Limits	6,000	15,500	3.7%
East Side			
Columbia Blvd. (13th - 18th)	6,650	7,000	0.2%
Columbia Blvd. (9th - 13th)	6,700	7,500	0.4%
St. Helens St. (US 30 - 13th)	6,000	7,100	0.6%
West St. (6th - Deer Island Rd.)	2,600	3,650	1.3%
S. 18th (South of Columbia Blvd.)	1,770	3,150	2.2%
West Side			
Pittsburg Rd. (West of US 30)	1,650	3,380	2.8%
Sunset Blvd. (N. of Columbia Blvd).	1,300	1,900	1.5%
Gable Rd. (West of US 30)	1,740	3,560	2.8%
Sykes Rd. (West of US 30)	950	2,170	3.2%

Data Sources: St. Helens Comprehensive Plan (1978)
Traffic Smithy, 1996.

Traffic Safety Analysis

The Oregon Department of Transportation maintains a comprehensive database on statewide traffic accidents. This database includes accident information on state maintained highways as well as all other urban and rural locations.

Accident data for the three-year period from January 1, 1993 to December 31, 1995 was obtained for the St. Helens area. The accident information is presented for Highway 30 and for all other urban streets within the St. Helens city limits (excluding Highway 30).

Highway 30 was divided into eleven segments within the St. Helens urban growth boundary. Table 4.2 identifies each segment, milepost boundary, and number of accidents that occurred during the three year period between 1993 and 1995. Each segment defines a critical link with common characteristics along Highway 30 and helps to identify individual high accident locations.

Table 4.2
Historical Accidents by Segment
1993 - 1995
Highway 30 (within St. Helens Urban Growth Boundary)

Highway 30 Segment	Mile Post Limits	No. of Accidents	Accident Rate[1]	Fatal	Injury	PDO
Bennett Rd - Achilles Rd	25.79 - 26.36	9	0.80	0	5	4
Achilles Rd. - Millard Rd	26.37 - 26.94	4	0.36	0	1	3
Millard Rd - South City Limits	26.95 - 27.58	16	1.21	1	8	7
South City Limits - Gable Rd	27.59 - 27.68	9	4.61	0	5	4
Gable Rd - Sykes Rd	27.69 - 27.88	31	7.16	0	9	22
Sykes Rd - Vernonia Rd	27.89 - 28.22	11	1.52	0	6	5
Vernonia - Columbia Blvd	28.23 - 28.55	14	2.07	0	11	3
Columbia Blvd- St. Helens St.	28.56 - 28.64	17	11.55	0	11	6
St. Helens St - Pittsburg Rd	28.65 - 29.09	5	0.65	0	2	3
Pittsburg Rd - Deer Island Rd	29.10 - 29.40	7	1.38	0	6	1
Deer Island Rd - Cola. City	29.41 - 30.46	5	0.36	0	2	4
TOTAL	**25.79 - 30.46**	**129**	**1.49**	**1**	**66**	**62**

[1] Number of accidents per 1 million vehicle miles of travel.
Source: Oregon Department of Transportation

A total of 129 accidents were reported on Highway 30 between 1993 and 1995. Of this total, there was one accident resulting in two fatalities (pedestrian/auto accident), 66 accidents with injuries and 62 property damage only accidents. On Highway 30 the most prevalent types of accidents were rear end accidents (53.5 percent), turning movement (31.8 percent), and sideswipe accidents (5.4 percent). Other less common type of accidents were angle accidents, fixed/other object and a couple of head on collisions.

The average accident rate along Highway 30 within the St. Helens urban growth boundary is 1.49 accidents per one million vehicle miles traveled. The statewide average for all non-freeway sections of primary highways is 3.69. While the overall average for Highway 30 is less than the state average, there are a number of high accident locations along the highway through St. Helens. The highest accident location is located between, and including, the intersections of Columbia Blvd. and St. Helens St. Over the last 3 years, there has been 17 accidents, 11 resulting in injuries. Also, the are between McNulty Creek (south city limits) and Sykes Road has experienced a large number of accidents. This area has an accident rate nearly double the statewide average.

There are also a number of isolated locations along Highway 30 that have experienced a significant number of accidents over the last three years. These locations are depicted on Table 4.3

Table 4.3
High Accident Locations Along Highway 30
1993 - 1995

High Accident Location	Mile Post	Number of Accidents	Types of Accidents
Gable Road Intersection	27.69	15	10 Rear, 2 Turn, 1 Angl, 1 SS
Columbia Blvd. Intersection	28.56	8	6 Rear, 2 Angl
St. Helens St. Intersection	28.64	5	4 Turn, 1 Rear
Bennett Rd. Intersection	25.79	4	3 Turn, 1 Fixed
Millard Rd. Intersection	26.95	4	4 Turn
Vernonia Rd. Intersection	28.23	4	3 Rear, 1 Turn
Pittsburg Rd. Intersection	29.10	4	2 Rear, 1 Turn, 1 SS
Just south of Columbia Blvd.	28.52	4	3 Turn, 1 Rear

Note: Rear = Rear-end, Turn = Turning Movement, Angl = Angle, SS = Sideswipe
Source: Oregon Department of Transportation

Besides Highway 30, there are a number of other locations within the city of St. Helens that have experienced traffic accidents. Between January 1, 1993 and December 31, 1995, there were a total of 154 traffic accidents reported on roadways within the St. Helens city limits (excluding Highway 30). Of the 154 traffic accidents, none of the accidents involved fatalities, however, 65 of accidents involved injuries. The remaining 89 accidents were personal damage only accidents. Figure 4-10 illustrates the number and type of accidents by year.

Several locations within St. Helens have experienced, on average, at least one accident per year over the last three years. Columbia Blvd. near 12th St. and Gable Road, just south of Highway 30 have experienced the most accidents with 8 accidents at both locations over the last three years. Table 4.4 displays the high accident locations for arterial roadways within the city of St. Helens.

Figure 4.10: Number of Accidents by Year (1993 - 1995)

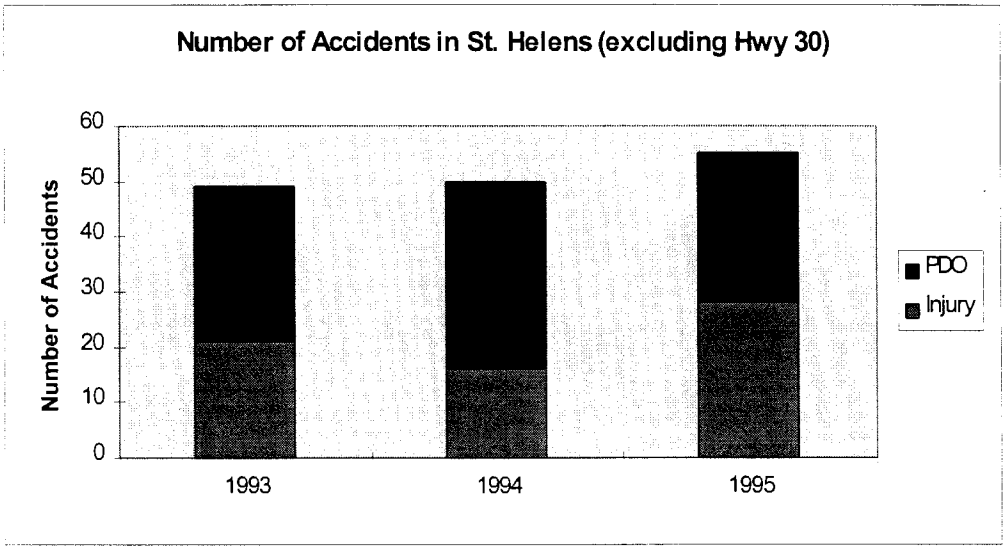


Table 4.4
High Accident Locations within St. Helens
(Excluding Highway 30)
1993 - 1995

Roadway Location	Number of Accidents	Fatal	Injury	Property Damage Only
Columbia Blvd/12th St.	8	0	4	4
Gable Rd. (just south of Hwy 30)	8	0	3	5
Columbia Blvd./18th St.	6	0	1	5
St. Helens St./1st St.	6	0	2	4
Old Portland Rd./18th St.	4	0	2	2
Old Portland Rd./15th St.	4	0	3	1
Columbia Blvd/4th St.	4	0	1	3
Old Portland Rd./12th St.	3	0	2	1
1st St./Plaza St.	3	0	1	2
Columbia Blvd/5th St.	3	0	1	2
Columbia Blvd./15th St.	3	0	3	0
Columbia Blvd./20th St./Crouse Way	3	0	1	2
Columbia Blvd/Milton Way	3	0	2	1
St. Helens St./Milton Way	3	0	1	2
West St./6th St.	3	0	2	1

Source: Oregon Department of Transportation

4.2 Public Transportation

In Columbia County, Columbia County Transportation (COLCO) operates and oversees transit service under a contract from the jurisdiction. This organization operates a dial-a-ride service throughout the county. It currently operates 20 vehicles ranging from minivans to small buses (holding up to fourteen passengers) and provided approximately 130,000 transit trips in 1995. .Sixty percent of their transit vehicles are wheelchair accessible with lifts or ramps. COLCO also provides trips into Portland, Beaverton, and Hillsboro for medical services from St. Helens.

Disabled transportation services in the St. Helens area are augmented by the Riverside Training center. The center subcontracts with COLCO, leasing four vehicles to provide transportation to disabled people needing transportation to job training and/or who are living in residential care facilities (U.S. Highway 30 Corridor Study).

On June 2, 1996, he Columbia Area Rural Transit (CART) initiated intercity transit along Highway 30 in Columbia County. CART is operated by the Columbia County council of Senior Citizens and is currently running two buses between Clatskanie and Sauvie Island. The route system is designed for travelers to connect with Portland's Tri-Met transit system at Sauvie Island. The buses operate between during the morning and afternoon peak hours only, between the hours of 6:00-10:00 AM and 3:15-7:30 pm.

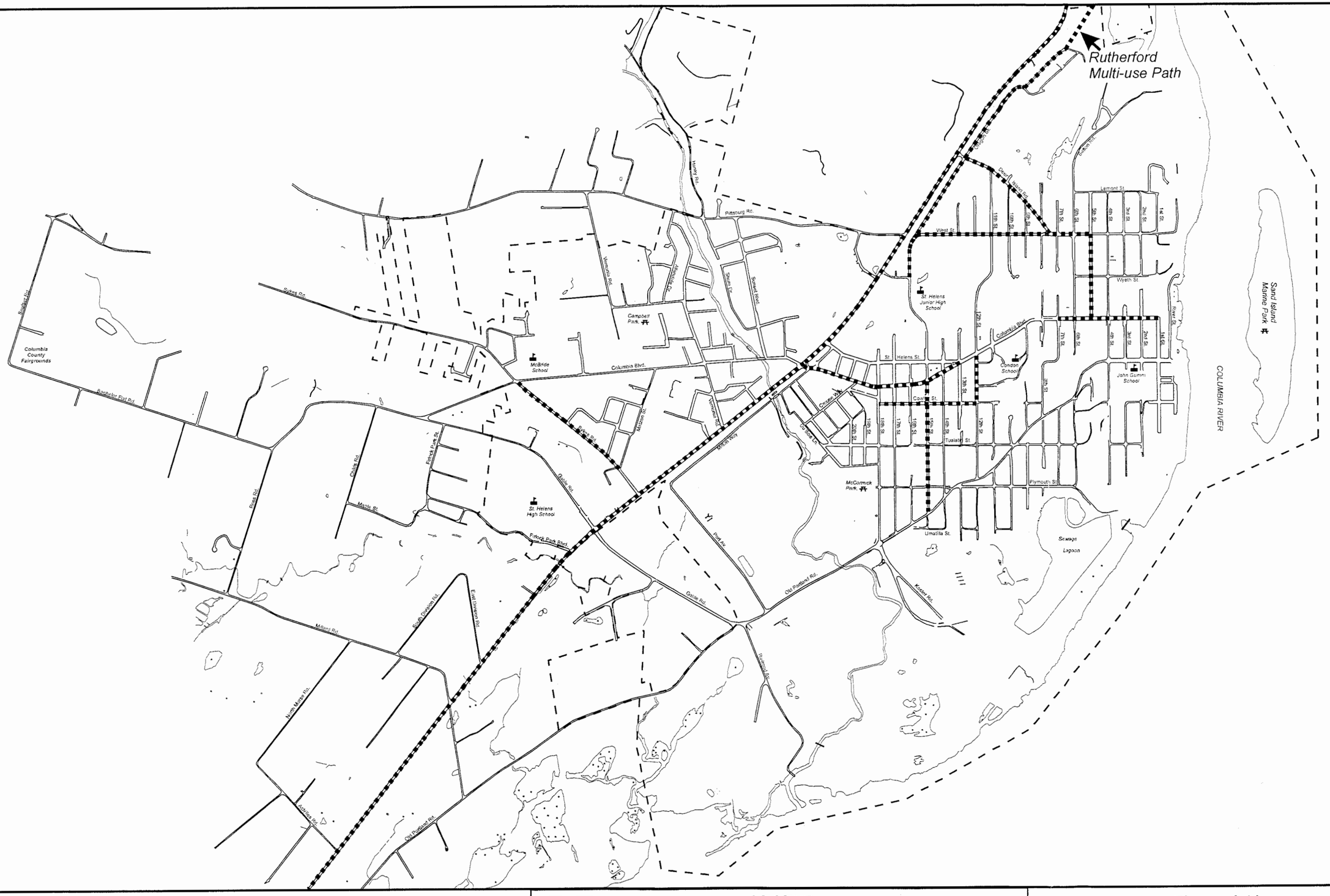
4.3 Bicycle Facilities

In 1989, the city of St. Helens prepared a Bikeway Master Plan aimed at developing a system of safe and convenient bicycle paths through the City and Urban Growth Boundary. Figure 4.11 depicts the location of all existing bicycle paths. The Rutherford Path, which is a multi-use bicycle and pedestrian path, is the only existing bicycle path that has its own separate right-of-way. Currently, all of the striped bicycle lanes within the St. Helens UGB are all in good condition and meet the standard requirements set forth in the 1995 Oregon Bicycle and Pedestrian Plan.

Bicycle Safety

Between January 1, 1993 and December 31, 1995, there were seven motor vehicle accidents reported that involved a bicycle. All of these accidents resulted in injuries to the bicycle rider. Figure 4.12 depicts the locations of these seven accidents.

These seven accidents include only reported accidents. There is good reason to believe that additional bicycle/motor vehicle conflicts occurred, possibly not resulting in injuries that were not reported.



City of St. Helens Transportation System Plan

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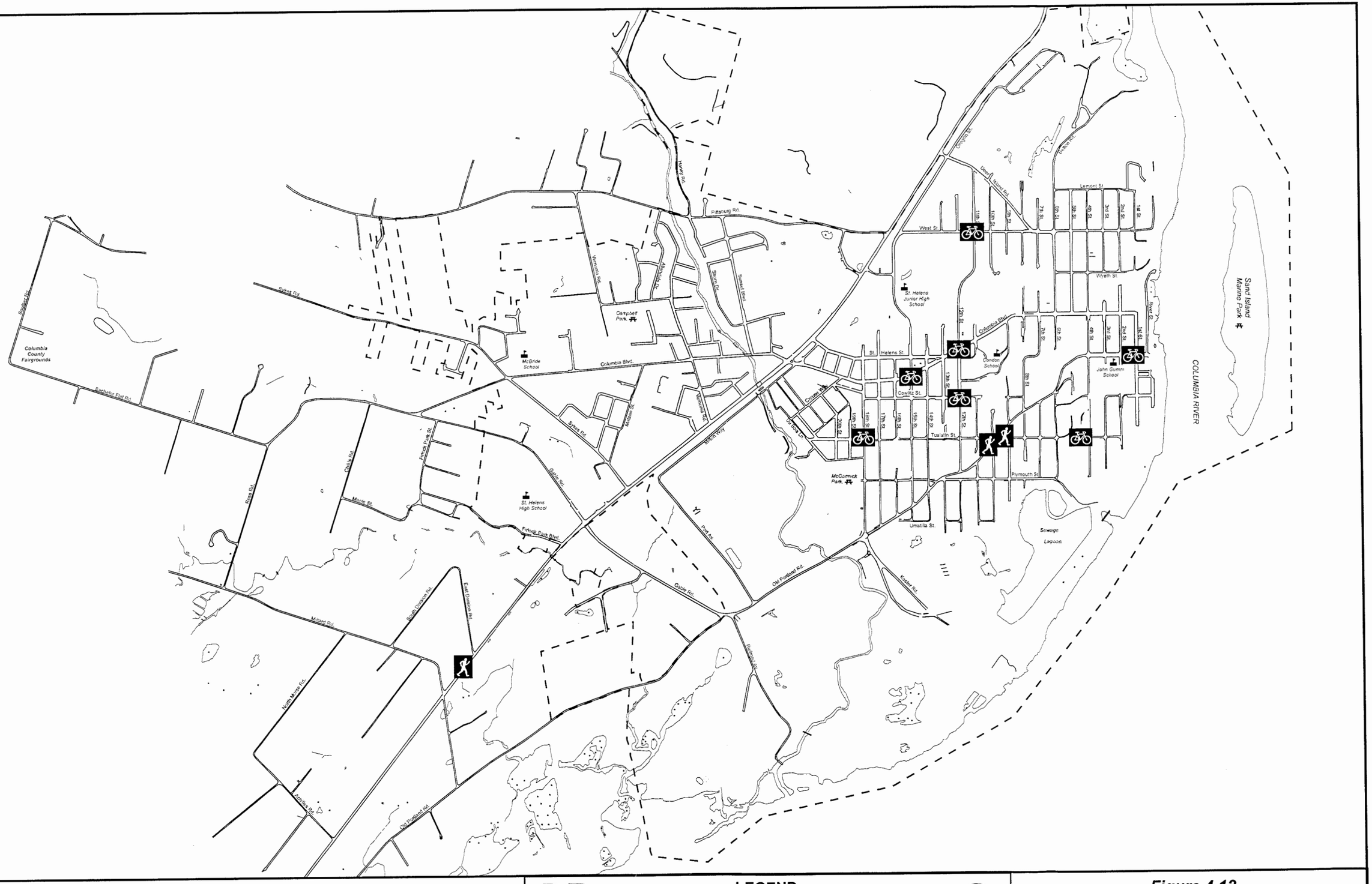
Routes with Designated Bicycle Paths

Figure 4.11
Existing Bicycle Routes and Paths



City of St. Helens Transportation System Plan

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Bicycle Accidents

Pedestrian Accidents

(Accident locations involve conflicts with motor vehicles only)

Figure 4.12
Bicycle and Pedestrian Accident Locations (1993 - 1995)

4.4 Pedestrian Facilities

The location of existing sidewalks and pedestrian ways are depicted on Figure 4.13. The majority of existing sidewalk in St. Helens are adjacent to newer or upgraded street locations. Separated right-of-way walking paths are located in McCormick park and the Rutherford Path connecting St. Helens and Columbia City. The condition of sidewalks in St. Helens vary by location. The sidewalks along newer subdivision or recently upgraded streets are in good condition and meet existing City standards. Sidewalks along the older sections of town, primarily in the east side, have deteriorated and do not meet City standards.

All new public facilities are required by current statewide planning guidelines to incorporate pedestrian and bicycle facilities. Sidewalks within private subdivisions are not required in the City St. Helens, however are recommended by the planning commission.

Pedestrian Safety

Between January 1, 1993 and December 31, 1995, there were three reported pedestrian accidents involving a motor vehicle. There was one fatal accident, resulting in two pedestrian deaths along Highway 30 just north of Millard Road (not at a crosswalk). Two other pedestrian accidents were reported along Old Portland Road, both near 10th Street. One accident involved a vehicle which did not yield to a pedestrian in a crosswalk, and the other involved a pedestrian not yielding to a motor vehicle while not crossing at a crosswalk. Both accidents resulted in pedestrian injuries. Figure 4.12 graphically depicts these pedestrian accident locations.

4.5 Rail Service

Rail freight service in St. Helens is provided by a one-track line owned and operated by the Burlington Northern Railroad. The "Port Access Branch Line" connects the cities of Astoria, Clatskanie, Rainier, Columbia City, St. Helens and Scappoose with Burlington Northern's mainline in Portland. Figure 4.14 graphically illustrates all the existing rail lines in St. Helens.

Rail freight originating and terminating in the St. Helens Port District has been increasing at an annual rate of approximately 4 to 5 percent since 1984 (U.S. Highway 30 Corridor Plan). Outbound shipments from the St. Helens area has been mostly lumber and industrial chemicals, while inbound shipments have included a wide variety of products.

4.6 Water Transportation

The Columbia River provides water transportation for the City of St. Helens. The city currently has 1 public and 5 private marinas and boat docks.

The Port of St. Helens is a deep draft port with rail and highway connections. During 1990, the Port of St. Helens began shipping lumber by barge from its new export facility.

City of St. Helens Transportation System Plan

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Sidewalks and Pedestrian Trails

Figure 4.13
Existing Sidewalks and Pedestrian Ways

City of St. Helens Transportation System Plan

LEGEND

Existing Rail Lines

Figure 4-14
Existing Rail Lines

4.7 Airport Facilities

Portland's International Airport, providing worldwide passenger and freight service, is approximately 45 minutes driving time from St. Helens.

The Scappoose Industrial Airpark, owned and operated by the Port of St. Helens, does not serve commercial aircraft, but provides some general aviation air service for the St. Helens area.

4.8 Pipeline Facilities

A high-pressure gas transmission line, owned and operated by Northwest Natural Gas, runs through St. Helens. The pipeline is located along the Rutherford Path at the northern end of the City, travels along Highway 30 and exits the community along Old Portland Road.

5.0. FUTURE TRANSPORTATION CONDITIONS AND NEEDS

This section presents the Year 2016 (20-year) forecast transportation conditions for the St. Helens area. Included in this section is a discussion of future travel demands for the St. Helens roadway network as well as the identification of multi-modal transportation needs. The forecast transportation conditions and the identification of needs are essential in developing specific transportation alternatives and projects to be included in the 20-year Transportation System Plan.

The future transportation conditions and needs are based on forecast travel demand which relies upon estimated increases in population, housing, and employment in the study area. The demographic and socio-economic forecasts, including amount and location, are used in the City's travel demand model to determine future origins and destinations of travelers within the St. Helens Urban Growth Boundary.

5.1 Forecast Demographic Trend Scenario

The following sections discuss in detail specific demographic aspects of the forecast trend scenario for the St. Helens area. The demographic forecasts for the St. Helens Urban Growth Boundary are based on the City's Comprehensive Plan and the Trend Scenario developed for the St. Helens Vision Project[1].

Over the next twenty years the community of St. Helens is forecast to experience some notable changes. In past years, St. Helens has been primarily an autonomous community with most of the residents working and living within the community. However, the recent trends indicate that the community of St. Helens will be dramatically influenced by growth in Metropolitan Portland. Because of its close proximity, it is anticipated that St. Helens will become more of a bedroom-type community within the Portland Region. As a result, it is projected that St. Helens area will experience large amounts growth with an increasing number of residents commuting more into the Portland area for employment and other needs.

Population Assumptions

Projections indicate that the State's greatest population expansion will be in and around the greater Portland metropolitan area. Because of St. Helens' close proximity to the Portland Metropolitan area, the city is expected to share in the on-going in-migration. Similar to the Portland Metropolitan area, St. Helens is forecast to experience periods of high level growth. As a result, the City's year 2016 population is expected to reach 15,600, nearly double the population in 1995 (see Table 5.1).

[1] *A Vision for St. Helens*, McKeever/Morris Inc., 1997

Table 5.1
St. Helens Forecast Population Growth
1960 - 2016

Year	St. Helens Population	Average Yearly Population Growth Rate	Columbia Co. Population	St. Helens' Percentage of County Pop.
1960	5,022	0.6%	22,379	22.4%
1970	6,212	2.1%	28,790	21.6%
1980	7,064	1.3%	35,646	19.8%
1990	7,535	0.6%	37,557	20.1%
1995	8,080	1.4%	39,700	20.4%
2016	15,600	3.2%	51,500	30.3%

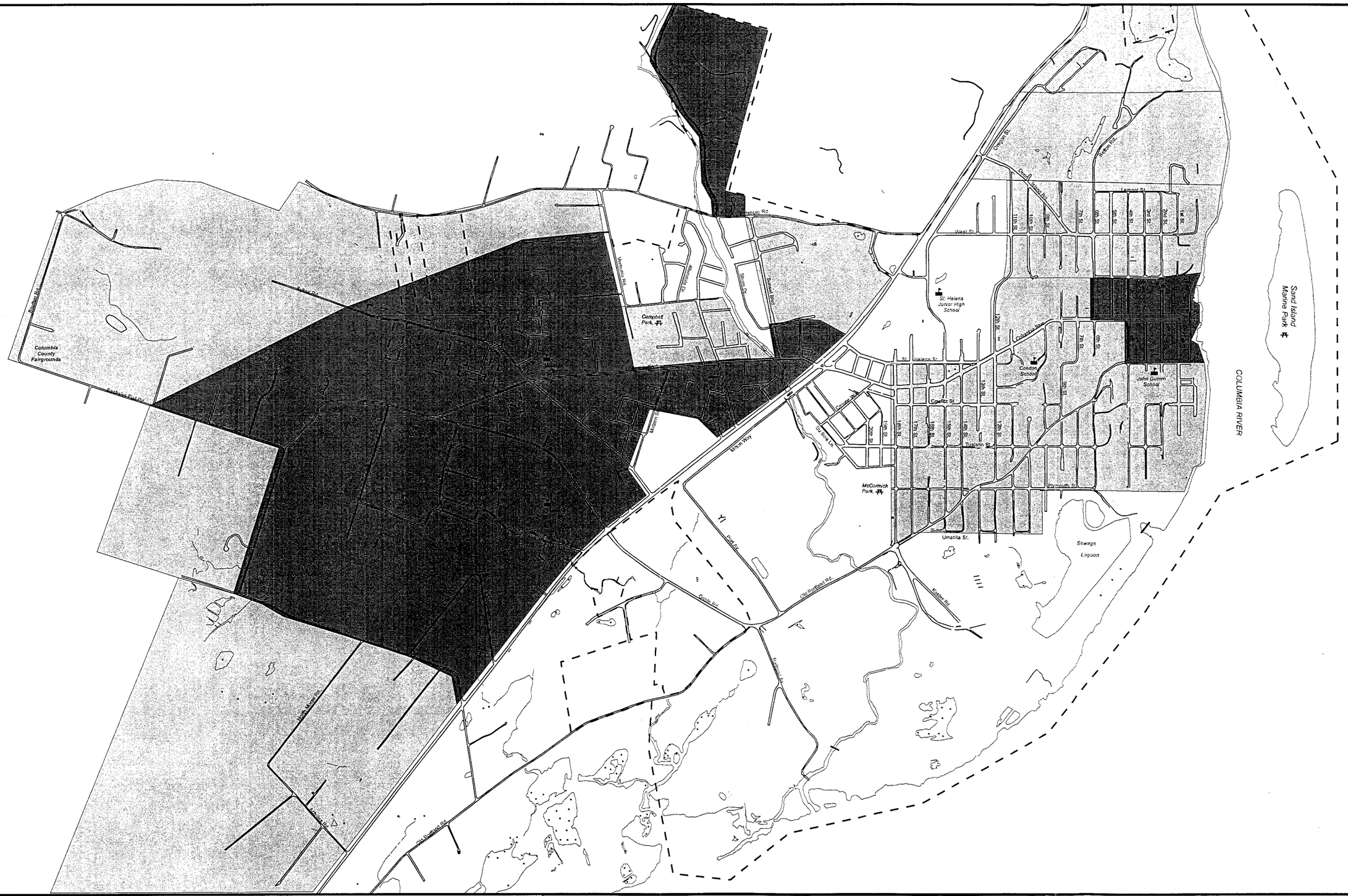
Sources:
Historical data: Center for Population and Research, Portland State University.
Forecast data: St. Helens Comprehensive Plan.

Housing Assumptions

As a result of the forecast large in-migration into St. Helens, an increase demand in housing is expected. Table 5.2 illustrates the forecast growth in dwelling units in St. Helens. Over the next 20 years, it is forecast the housing units in the City of St. Helens will increase to approximately 6,800 units, a 98 percent increase.

One of the aspect of the changing characteristics of St. Helens is the demand for new types of housing in the area. Increased multi-family housing is foreseen for many areas of St. Helens. This includes the Uptown and Downtown areas, as well as along the Historic Core Area. The growing area in West St. Helens is also expected to have a larger number of multi-family units scattered throughout the residential areas, primarily along major streets near neighborhood centers.

New single-family development is forecast to be concentrated in the western and southwestern portions of the community. Nearly two-thirds of all new single-family housing is expected to built in these areas, west of Highway 30. Infilling of new housing is expected to be added in East St. Helens, but not in any large concentrations. Figure 5.1 graphically displays expected growth in dwelling units by density within the St. Helens Urban Growth Boundary



City of St. Helens Transportation Systems Plan

Growth in Dwelling Units Per Square Mile (1996 - 2016)

Less than 100 | 100 to 500 | Greater than 500

Figure 5.1
Expected Growth in Dwelling Units

Table 5.2
St. Helens Forecast Growth in Residential Dwelling Units
1960 - 2016

Year	St. Helens Dwelling Units	Average Yearly Growth Rate
1960	1,623	--
1970	2,086	1.3%
1980	2,866	%1.6
1990	3,081	0.4%
1995	3,418	2.1%
2016	6,780	3.3%

Sources:
Historical data: U.S. Census Bureau
Forecast data: St. Helens Comprehensive Plan.

Employment Assumptions

Table 5.3 illustrates the forecast employment growth by sector for the St. Helens area. The largest economic growth is anticipated in the retail and service industries. Growth in these two sectors are foreseen to meet the needs of the City's growing population. Industrial/manufacturing employment is forecast to experience a moderate amount of growth. Some increases are expected in the educational and government employment to meet the needs of the City's growing population. While employment has grown, the population has become more dominated by commuters. As a result the community should reflect its new role as more of a Portland bedroom community.

Table 5.3
St. Helens Area Employment Forecasts
1996 - 2016

Sector	1996	2016	Growth
Industrial/Manufacturing	1,450	2,000	550
Retail	900	1,600	700
Service	750	1,425	675
Educational	300	525	225
Government	400	550	150
Total	3,800	6,100	2,300

Sources: City of St. Helens
Parsons Brinckerhoff

Industrial/Manufacturing Employment

Boise Cascade and other timber uses is expected to continue to play an important role in the St. Helens economy. However, no expansion in the timber industry is forecast for the St. Helens area. Some new industrial uses are foreseen, but mostly small manufacturing or assembly firms employing less than 50 to 100 persons each. Most of the new manufacturing and industrial employment is forecast for the existing industrial areas in the southeast portion of the community.

Retail and Service Employment

To serve the growing local population, a fairly large increase in retail and service employment is anticipated in the St. Helens area. Consistent with the current trend, most of the new commercial activity is expected along the west side of Highway 30, creating substantial linear development along the entire length of the highway.

Additional commercial development is also expected in the Historic Downtown. This business activity is anticipated to serve an increasing number of tourists as well as demand from a growing local population. Commercial activity in the Uptown Area is expected to remain fairly constant. With most of the population growth anticipated in West St. Helens, commercial activity will be drawn in that direction, especially along Highway 30.

Government/Education Employment

Most governmental services are anticipated to increase primarily to meet the needs of the growing community. However, due to limited funds growth in government services will not increase at the same rate as population. Most of the governmental employment will remain in existing locations. Because of increased population, it is anticipated that a new school will be needed in the growing west side of St. Helens.

5.2 Future (Year 2016) Transportation Conditions

The St. Helens area QRS II travel demand model, developed as part of the Transportation System Plan, was used to forecast future traffic demand on the St. Helens roadway network[2]. The travel demand model utilized the demographic assumptions discussed in the previous sections to determine the location and number of origins and destinations of travelers in the St. Helens area. The traffic model then assigned the number of vehicle trips to the St. Helens roadway network.

The forecast traffic volumes are used as a premise to determine future transportation conditions and needs in the St. Helens area. The future year base travel demand model was developed to include improvements that are planned and programmed. These specific improvements include the completion of Highway 30 to five continuous lanes and the addition of a traffic signal at Deer Island Road and Highway 30.

Vehicle Miles and Hours of Travel

The trend scenario suggests that the St. Helens area is expected to nearly double in population over the next 20-years. As a result, traffic levels are also forecast to increase significantly throughout the region. Overall, daily vehicle miles of travel is anticipated to increase by approximately 84 percent in the St. Helens area between 1996 and 2016 (Table 5.4). The amount of time motorists spend traveling is also expected to increase. Overall, total vehicle hours of travel is forecast to double. On a per capita basis, the time motorists spend traveling is projected to increase by 28 percent (this only includes only the time spent traveling within the St. Helens UGB). Overall average speeds on the St. Helens roadway system is expected to decrease from 34.8 mph in 1996 to 32.0 mph in 2016, indicating a moderate increase in congestion citywide. (Individual roadway and intersection operational analysis is discussed in Section 5.3).

Table 5.4
Daily Vehicle Miles of Travel and Hours of Travel
St. Helens Area
1996 - 2016

	1996	2016	1996 Per Capita	2016 Per Capita
Vehicle Miles of Travel	174,000	320,000	14.3 miles	16.7 miles
Vehicle Hours of Travel	5,000	10,000	24.7 minutes	31.6 minutes

Note: Per capita number includes all residents inside the St. Helens/Columbia City Urban Growth Boundaries.

[2] Please refer to Appendix B for a more detailed description of the travel demand model and a calibration report.

Year 2016 Forecast Traffic Volumes

Figures 5.2 through 5.4 display the year 2016 base traffic forecasts for the St. Helens area. Figure 5.2 compares the year 2016 forecast traffic volumes to existing 1996 traffic counts. Figure 5.3 graphically depicts the traffic flow on the St. Helens arterial and collector street network and Figure 5.4 visually displays the anticipated traffic increases.

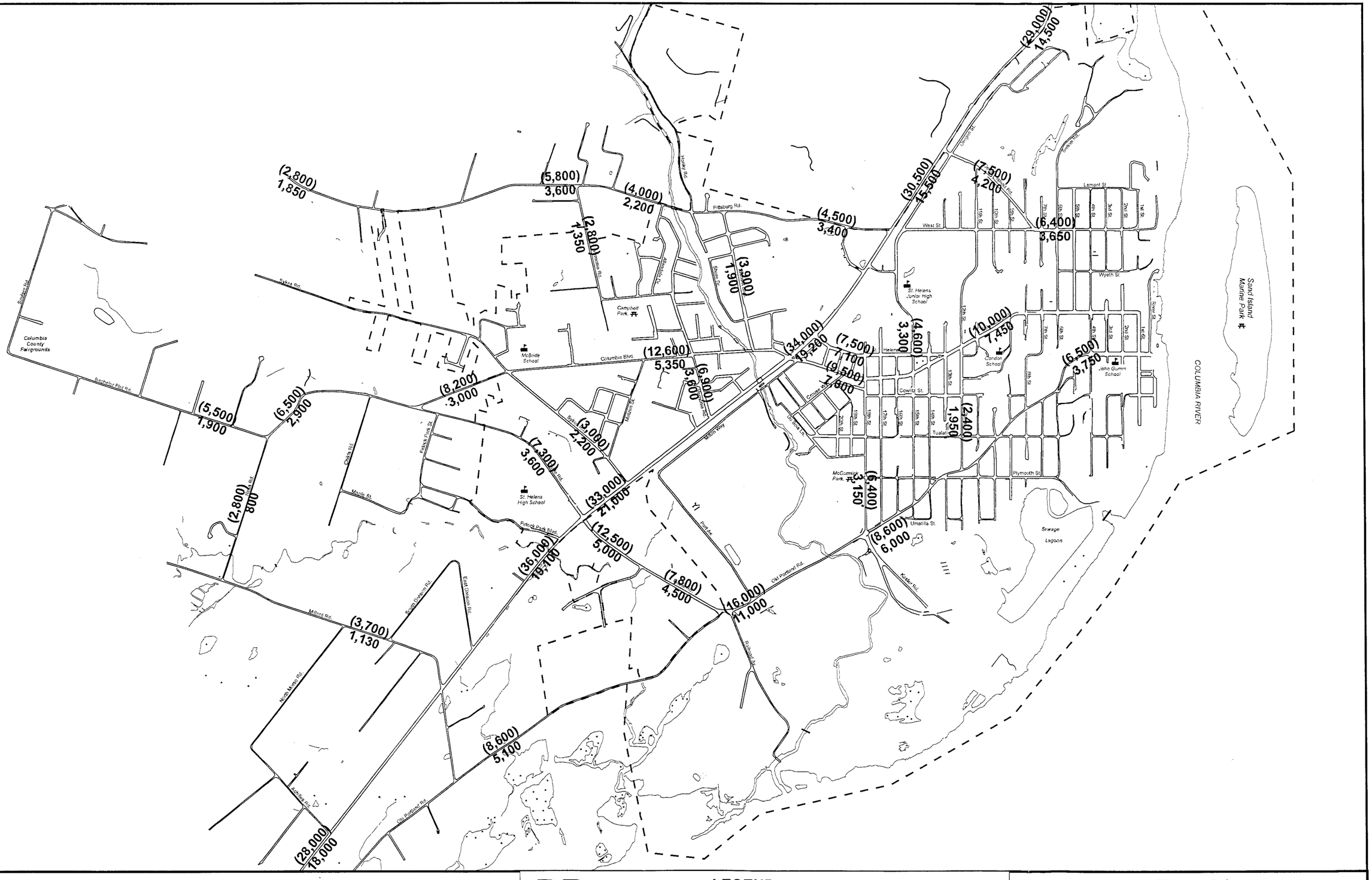
Traffic volumes are forecast to increase in all areas within the urban growth boundary. However, due to an increasing number of vehicles traveling through St. Helens as well as the anticipation of more residents living in St. Helens and commuting to Portland, the largest traffic increases is expected along Highway 30. Forecast traffic volumes along Highway 30 range from 28,000 south of Achilles Road to 36,000 south of Gable Road. On average, traffic volumes along Highway 30 are forecast to increase by approximately 75 percent or by nearly 14,000 vehicles per day between 1996 and 2016.

Areas in west St. Helens are also anticipated to experience notable traffic increases. Nearly all arterials west of Highway 30 are forecast to nearly double in traffic volumes between 1996 and 2016. The largest traffic increases are projected for Columbia Blvd., Gable Road and Bachelor Flat Road. The anticipated growth in traffic is primarily due to significant residential growth forecast for this area of St. Helens. Table 5.5 illustrates historical and forecast traffic growth for several locations throughout St. Helens.

Table 5.5
St. Helens Area Forecast Traffic Growth
1970 - 1996

Roadway Location	1970 ADT	1996 ADT	2016 ADT	70-90 Annual Growth	90-16 Annual Growth
U.S. Highway 30					
South of Millard Rd.	7,000	18,000	28,000	3.7%	2.2%
South of Gable Rd.	8,800	19,100	35,000	3.2%	2.9%
North of Gable Rd.	9,600	20,800	32,000	3.0%	2.2%
North of Columbia Blvd.	6,200	19,200	33,000	4.4%	2.7%
North St. Helens City Limits	6,000	15,500	29,000	3.7%	3.2%
East Side					
Columbia Blvd. (13th - 18th)	6,650	7,000	9,500	0.2%	1.5%
Columbia Blvd. (9th - 13th)	6,700	7,500	11,400	0.4%	2.1%
St. Helens St. (US 30 - 13th)	6,000	7,100	8,400	0.6%	0.8%
West St. (6th - Deer Island Rd.)	2,600	3,650	5,200	1.3%	1.8%
S. 18th (South of Columbia Blvd.)	1,770	3,150	6,000	2.2%	3.3%
West Side					
Pittsburg Rd. (West of US 30)	1,650	3,380	5,000	2.8%	2.0%
Sunset Blvd. (N. of Columbia Blvd)	1,300	1,900	3,600	1.5%	3.2%
Gable Rd. (West of US 30)	1,740	3,560	7,600	2.8%	3.9%
Sykes Rd. (West of US 30)	950	2,170	4,500	3.2%	3.7%

Data Sources: St. Helens Comprehensive Plan (1978) , Traffic Smithy, Parsons Brinckerhoff

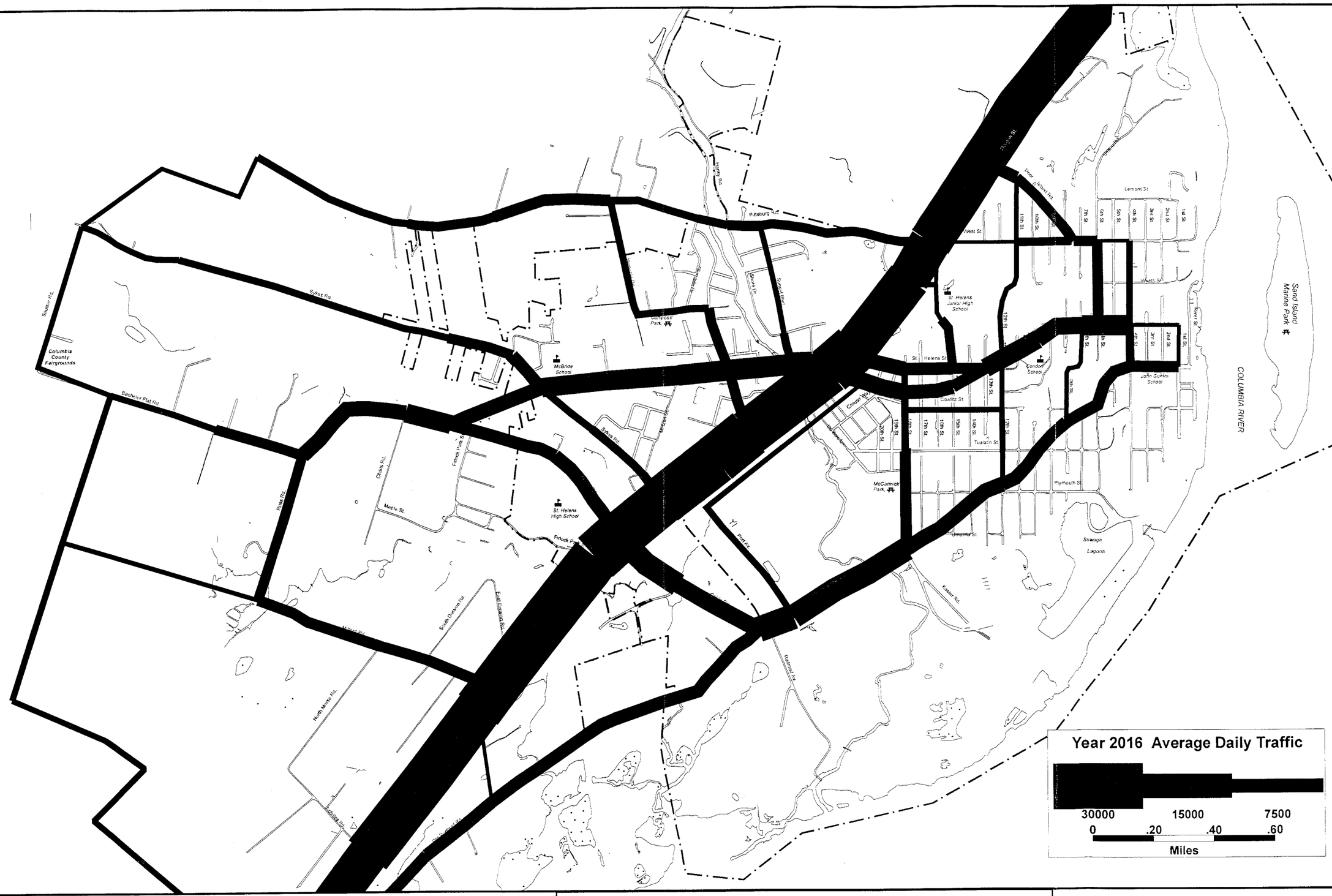


City of St. Helens Transportation System Plan

LEGEND

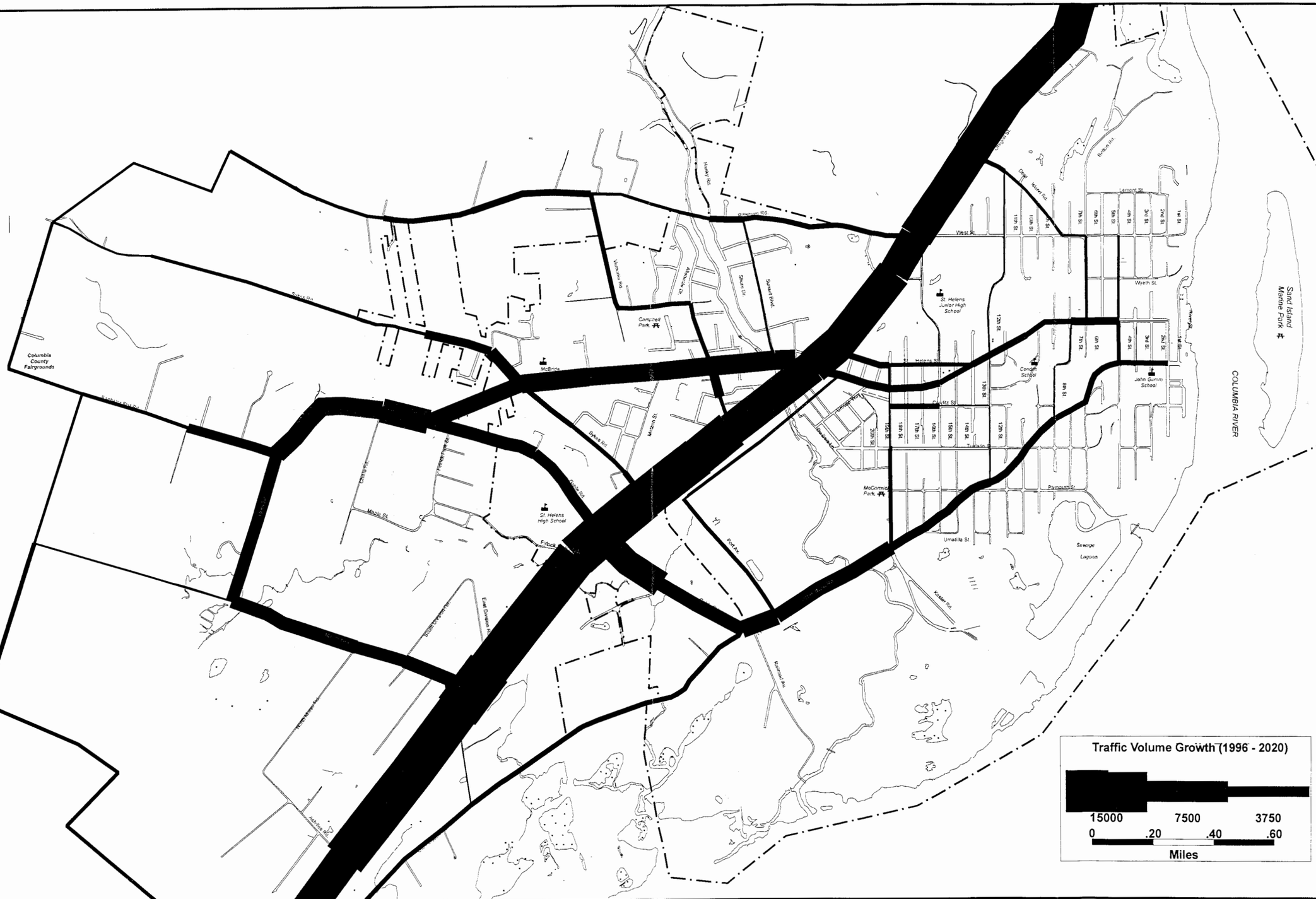
(10,000) - Year 2016 ADT
10,000 - Year 1996 ADT

Figure 5.2
Existing (1996) and Forecast (2016) Average Daily Traffic



City of St. Helens Transportation System Plan

Figure 5.3
Year 2016 Traffic Flow Map



City of St. Helens Transportation System Plan

Figure 5.4
Traffic Volume Growth
1996 - 2016

5.3 Future (Year 2016) Transportation Needs

Highway Capacity Needs

The purpose of this section is to highlight particular areas within the St. Helens roadway network that will be operating at less than acceptable levels in the future. An understanding of these deficient locations will enable development of future alternative roadway and intersection improvements to enhance mobility and decrease congestion within St. Helens.

As discussed in Section 5.3, traffic volumes are projected to grow on all roadways within St. Helens. This increase in traffic volume will undoubtedly have an impact on congestion and delay. As Table 5.4 shows, increased congestion will cause drivers in St. Helens to drive more miles and spend more time in their cars in the year 2016.

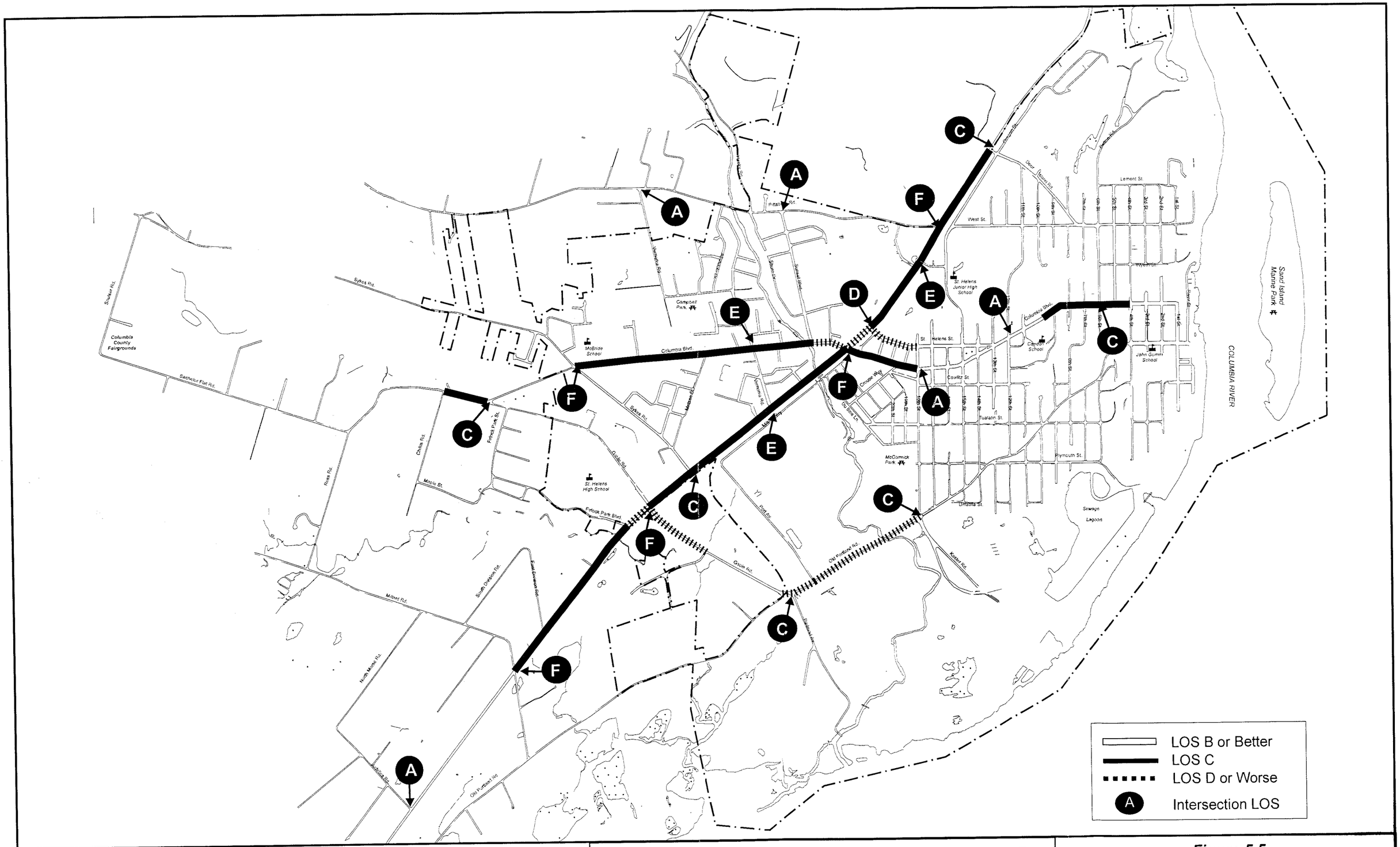
In addition to the traffic volumes discussed in Section 5.3, three additional measures were used to determine transportation facility improvement needs for the year 2016. The first measure is intersection Level of Service (LOS). Tables 5.6 and 5.7 show intersection LOS results for key signalized and unsignalized intersections, respectively, within St. Helens. Figure 5.5 is a map that also shows the LOS results for these intersections.

Table 5.6
Signalized Intersection Level-of-Service

Intersection	Percent Saturation	Level-of-Service
Highway 30/Gable Rd.	105	F
Highway 30/Sykes Rd.	67	C
Highway 30/Columbia Blvd.	104	F
Highway 30/St. Helens St.	86	D-E
Highway 30/Deer Island Rd.	69	C
Columbia Blvd./18th St.	61	B
Old Portland Rd./Kaster Rd.	69	C

Intersection LOS was determined by using ODOT's "Sigcap" signalized intersection analysis package. Signalized intersection LOS is determined by calculating "percent saturation" for an intersection. Percent saturation represents the amount of intersection capacity that is being utilized. Unsignalized intersection LOS was determined by using the Transportation Research Board's "Highway Capacity Software". Unsignalized intersection LOS is based on average delay per vehicle entering the intersection. Appendix C contains definitions of Levels-of-Service and a description of how the levels are stratified for both signalized and unsignalized intersections.

The second measure used for determining deficiencies is roadway LOS. Roadway LOS is determined by comparing simulated travel speed with the free-flow design speed of the facility. When a roadway becomes congested, vehicles cannot travel at speeds the facility was designed for. When this happens, delay increases and LOS degrades.



City of St. Helens Transportation Systems Plan

Figure 5.5
Year 2016
Level of Service

Table 5.7
Unsignalized Intersection Level-of-Service

Intersection	Percent Saturation	Level-of-Service
Highway 30/Millard Rd.	>45	F
Highway 30/Vernonia Rd.	37	E
Highway 30/Pittsburgh Rd.	>45	F
Columbia Blvd./Sykes Rd.	>45	F
Columbia Blvd./Vernonia Rd.	33	E
Columbia Blvd./Gable Rd.	14	C
Columbia Blvd./12th St.	<5	A
Old Portland/Gable Rd.	16	C

The final measure was to develop a travel contour map shown in Figure 5.6. This map shows, for both 1996 and 2016, peak hour conditions, how far a vehicle can travel a point (indicated by a star) on Columbia Boulevard just east of Highway 30. Two-minute, four-minute, and six-minute travel contours were developed.

The determination of acceptable Levels-of-Service is guided by the 1991 Oregon Highway Plan. According to the Plan, the roadway LOS standard for Highway 30 is "C". This LOS designation corresponds to the roadway segment LOS shown in Figure 5.5 and is concerned with the ability of vehicles to move along Highway 30 itself. Roadway segments are defined by a length of road bounded on either end by intersections or access points. Therefore, roadway LOS is highly dependent on intersection LOS. Generally, intersections along an arterial must operate at LOS D or better in order to provide LOS C on the roadway. Intersection LOS standards are generally less strict because they consider delay to vehicles approaching from either three or four directions. In conclusion, this Transportation System Plan considers roadways not operating at LOS C or better and intersections not operating at LOS D or better as deficient.

Highway 30 will continue to be the heaviest carrier of traffic in the year 2016. Congestion will be experienced at several locations along Highway 30, particularly at intersections with cross streets and at locations with high amounts of private and commercial access. Several intersections along Highway 30 will operate at unacceptable levels-of-service. At these intersections, a growing number of side street vehicles will be competing for access to or across Highway 30 with a large number of vehicles traveling along Highway 30.

The unsignalized intersections of Highway 30 with Millard Road, Vernonia Road and Pittsburgh Road will operate at LOS F, E and F, respectively. Delay to vehicles approaching Highway 30 from these side streets will be high. When delays are high at unsignalized intersections, unsafe turning maneuvers onto or across Highway 30 will be likely because drivers become increasingly frustrated. Although most of the delay at these unsignalized intersections would be experienced by side street vehicles, turning movements onto Highway 30 will create accident possibilities and decrease the capacity for along Highway 30 itself.

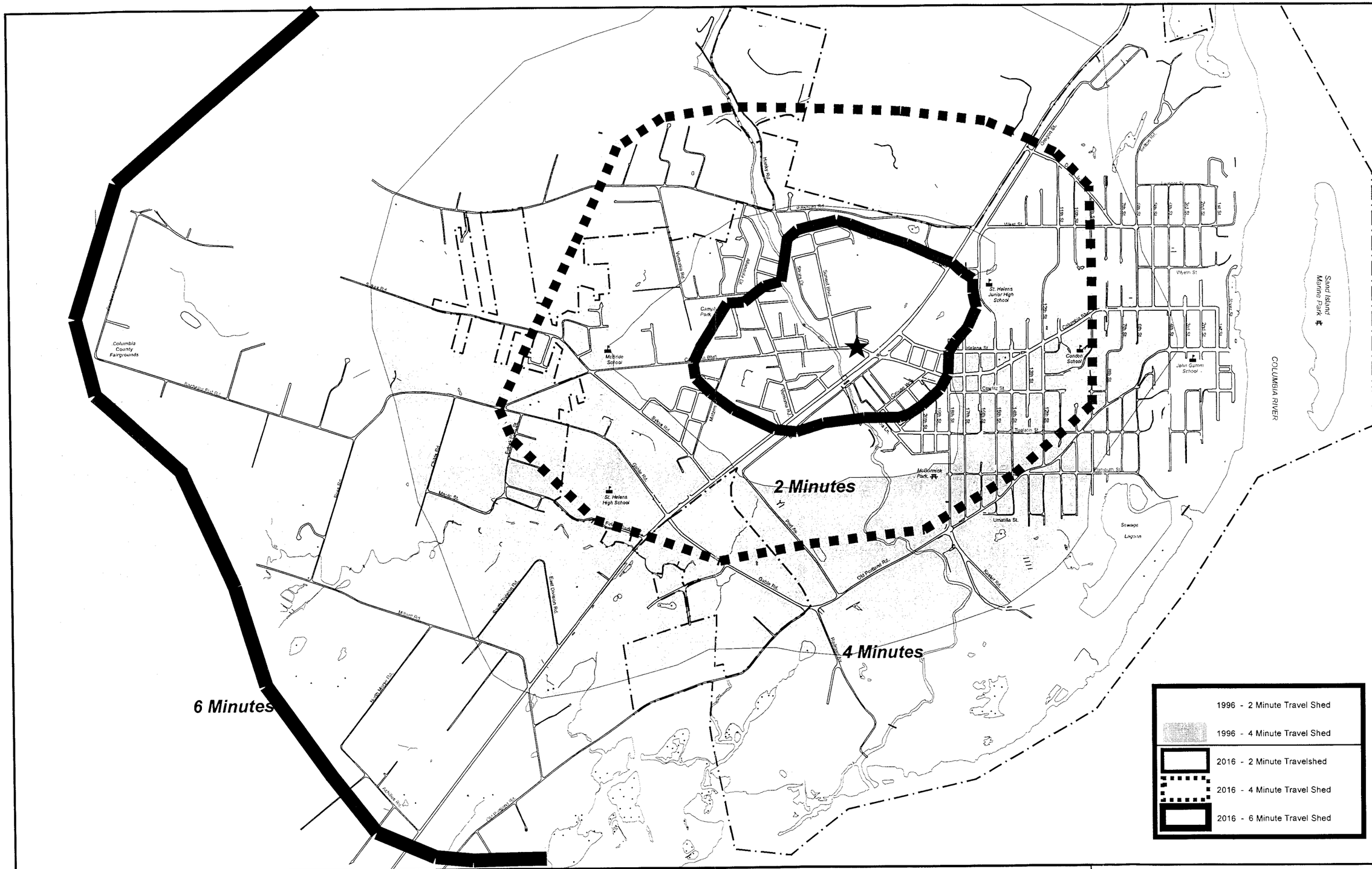
When volumes on Highway 30 are high enough to discourage or prevent access from unsignalized side streets, more vehicles will utilize signalized intersections so they can access Highway 30 safely and more quickly. If enough vehicles begin to do this however, the signalized intersections also reach or exceed capacity. As shown in Figure 5.5 and Table 5.6, this is the case in 2016 for the signalized intersections of Highway 30 with Gable Road, Columbia Boulevard and St. Helens Street which will operate at LOS F, F and D-E, respectively.

The segment between Columbia Boulevard and St. Helens Street will be very congested, particularly in the southbound direction. Many vehicles travel west on St. Helens, turn left onto southbound Highway 30, and then right onto westbound Columbia Boulevard. These vehicles are trying only to travel from east to west but end up utilizing Highway 30 for a short stretch, adding to congestion on Highway 30.

The travel contours shown in Figure 5.6 give an indication on where delay occurs, at least when traveling form the indicated location. In particular, Figure 5.6 shows that delay is experienced when traveling across and along Highway 30 in the vicinity of Columbia Boulevard and St. Helens Street. This figure also shows that delay will be more pronounced in the year 2016 and the distance that can be traveled in a given amount of time will be less. As can be seen, there will be a need in 2016 to find ways to decrease congestion and delay and increase safety along Highway 30, primarily between Millard and Deer Island Roads. Congestion along Highway 30 and side street delay at the intersections indicated above will be high.

There are several locations away from Highway 30 that will also be operating at unsafe or congested conditions in 2016. The first location is along Columbia Boulevard, primarily at the intersections with Vernonia Road and Sykes Road. Increased development on the west side of the city will create increased travel demand, especially on Columbia Boulevard. The intersections along this roadway are stopped controlled with limited capacities. Also, the increased volumes along Columbia itself will create safety concerns for pedestrians and parking maneuvers at local residences. The intersection of Columbia Boulevard and Gable Road will not be over capacity. However, the increase in volume and the unconventional design at this intersection will increase the concern for safety, primarily as it related to site distance and turning movements.

Gable Road and Old Portland Road will also have a considerable amount of traffic volume in 2016. The intersection of Gable Road and Old Portland Road will likely present safety concerns as they relate to turning movements. Also, increased industrial activity in this area will warrant consideration of safe access to and from both Gable Road and Old Portland Road.



City of St. Helens Transportation Systems Plan

Figure 5.6
Travel Time Comparisons
1996 - 2016

Public Transportation Needs

Local transit service is currently provided by the Columbia County Council of Senior Citizens (COLCO). COLCO currently provides dial-a-ride service for all of Columbia County, including the St. Helens area. In 1995 COLCO provided approximately 130,000 transit trips. As St. Helens grows is to be expected that local intra-city public transportation needs will increase. However, it is not believed that community will need or be able to justify a intra-city fixed-route transit system. Instead it is likely that COLCO will need to expand its operation of its current local dial-a-ride service.

Intercity transit service is also operated by the Columbia County Council of Senior Citizens. Currently, two buses, operating only during the morning and afternoon peak hours are traveling between Clatskanie and Sauvie Island (Tri-Met connection). A recent study sponsored by the Oregon Department of Transportation[2] has identified a future need for increased intercity public transit between St. Helens and Portland.

Bicycle Transportation Needs

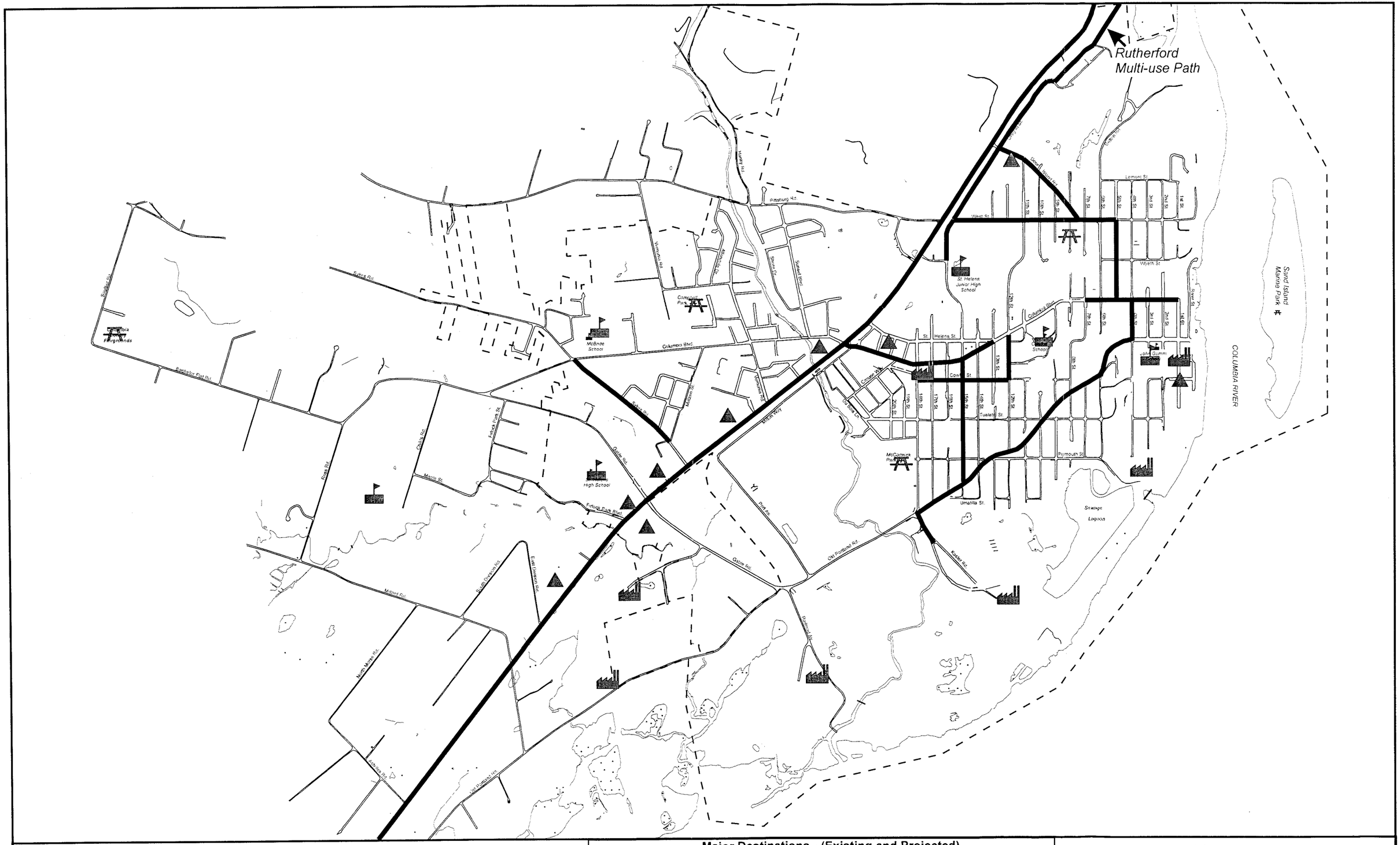
The Oregon Bicycle Plan establishes specific principles for bikeway development in urban areas. These include:

- Bicycle networks should be developed and promoted in all urban areas to provide safe, direct and convenient access to all major employment, shopping, educational and recreational destinations in a manner that would double person trips by bicycle.
- Secure and convenient bicycle storage available to the public should be provided at all major employment and shopping centers, park and ride lots, passenger terminals and recreational destinations.
- Statewide and regional bicycle systems should be integrated with other transportation systems in urban areas to accommodate commuting and other trips by bicycle. Safe, direct and continuous bikeways free of unnecessary delays should be provided along all urban arterial and major collector routes. Paved shoulders should be provided on highways in rural areas.

The City of St. Helens currently has a limited number of designated routes and paths for bicycles. Figure 5.7 displays existing bicycle routes along with major destinations throughout St. Helens. The figure illustrates a fragmented bicycle system which does not allow for continuous and direct travel to the city's major attractions. Considerable improvements are needed to achieve the standards of the Oregon Bicycle Plan.

There is also a need for additional recreational bicycle routes within the St. Helens Urban Growth Boundary. The Rutherford multi-use path which connects St. Helens with Columbia City is currently the only off-street bicycle path. While this path provides a route for recreational travel, there are still additional separate right-of-way bicycle paths needed for recreational use in the St. Helens area..

[2] US 30 Transit Feasibility Study, David Evans & Associates, August 1996.



Major Destinations - (Existing and Projected)

- Major Employers
- Schools
- Shopping Centers
- Parks and Recreational Sites

City of St. Helens Transportation System Plan

Figure 5.7
Bicycle Routes and Major Destinations

Pedestrian Transportation Needs

The Oregon Transportation Plan (OTP) identifies a set of principles and policies for pedestrian travel similar to those for bicycle travel. The principles generally state that urban areas should provide safe pedestrian facilities that provide for connectivity and convenient access to all major destinations. In St. Helens considerable improvements are needed in the pedestrian infrastructure. Figure 5.8 displays the City's pedestrian facilities in comparison to the area's major destinations. The figure reveals the lack of connectivity needed to allow for safe pedestrian travel from residential neighborhoods the City's major attractions and destinations.

5.4 Summary

The trend scenario for St. Helens indicates a changing and growing community. St. Helens is expected to be influenced tremendously by growth in the Portland metropolitan area. It is anticipated that St. Helens will become more of a bedroom-type community lying within the Portland Region. As a result, traffic conditions and transportation needs throughout the St. Helens area are foreseen to change.

Significant traffic growth is expected to occur in west St. Helens as increased housing construction occurs in the area. Several roadways and intersections throughout the City are expected to operate at deficient or unsatisfactory levels. Also, it is anticipated that there will be an increased need for providing alternative modes of travel in St. Helens. The changing demographics of the community will require an expanded public transportation system, and increased opportunities for bicycling and pedestrian travel.

Major Destinations - (Existing and Projected)

- Major Employers
- Schools
- Shopping Centers
- Parks and Recreational Sites

City of St. Helens Transportation System Plan

Figure 5.8
Pedestrian Routes and Major Destinations

6.0 TRANSPORTATION SYSTEM ALTERNATIVES EVALUATION

The purpose of this section is to identify and evaluate several alternatives that best meet the future transportation needs of the community. The previous section identified future transportation needs and deficiencies. This section continues on to evaluate a comprehensive list of alternatives to meet those future transportation needs.

The transportation system alternatives evaluated in this section were developed with input from various relevant studies and plans (including ODOT's TSP Guidelines), stakeholder interviews, City Staff, the study's Technical Advisory Committee as well as information from the first public meeting. The following presents a description of the all the alternatives analyzed as part of the transportation system plan.

6.1 Description of the Alternatives

The Transportation Planning Rule (TPR) requires that a wide range of multi-modal transportation alternatives be evaluated as part of the transportation system planning process. As a means to meet the requirements set forth by the TPR a total of five alternatives have been developed for evaluation. The following describe each of these alternatives.

No Build Condition

The No-Build condition is the base case alternative. It contains all transportation improvements that are currently planned and funded. These projects include: the Highway 30 widening project, including the addition of bicycle lanes and sidewalks, and the addition of a traffic signal at Highway 30 and Deer Island Road. The primary purpose of this alternative is to serve as a benchmark to which the other alternatives can be compared.

Transportation System Management (TSM) Alternative

The Transportation System Management (TSM) Alternative attempts to maximize the efficiency of the existing transportation system without adding additional roadway capacity. TSM projects can be characterized as being low-capital cost alternatives that can be implemented in a relatively short time frame and that aim to make better use of existing facilities, either by operational changes or by better traffic management.

Table 6.1 and Figure 6.1 describe and display all the projects included in the TSM Alternative. The projects selected for this alternative, primarily include the installation of various traffic signals and design improvements at several key intersections throughout St. Helens area.

Transportation Demand Management (TDM) Alternative

The Transportation Demand Management (TDM) alternative attempts to manage travel demand, and hence avoiding adding more capacity (lanes) to the system. The primary purpose of the TDM alternative is to reduce the number of vehicles using the road system while providing a wide variety of mobility options. TDM projects can also be characterized as lower cost strategies, especially when compared to major roadway capacity improvements.

Table 6.2 and Figures 6.2 through 6.4 display all the projects included in the TDM Alternative. The projects included in this alternative contain various transit, bicycle and pedestrian improvements as well as alternative land use plan. The alternative land use plan attempts to reduce congestion and vehicle travel by limiting the amount of commercial development along Highway 30 to half of the growth anticipated between 1996 and 2016. The land use plan also assumes that much of the commercial development that would have occurred in St. Helens will instead be located south of the City along the Portland to Scappoose Corridor.

The bicycle and pedestrian projects included in the TDM strategy aim to establish a connected network along all arterial and collector streets in St. Helens. The transit projects help to support intercity public transportation between St. Helens and surrounding communities.

Roadway System Alternative

The Roadway System alternative attempts to meet future transportation needs through the use of additional roadways and increased capacity. This alternative consists of 14 new arterial/collector streets and 16 roadway reconstruction projects. The two primary purposes of selecting the new roadway projects are, to: 1) provide new arterial and collector streets on the westside of St. Helens to meet the travel demands of anticipated residential growth, and 2) provide additional roadway alternatives for local traffic currently traveling on Highway 30. The intent of the 16 reconstruction projects are to upgrade existing arterials and collectors to current roadway standards to more safely accommodate future traffic levels. The individual projects included in the Road System Alternative are listed in Table 6.3 and graphically displayed on Figures 6.5 and 6.6.

Combination Alternative

The Combination alternative includes TSM, TDM, and road system projects. The intent of the Combination alternative is to include the best projects from each of the three previous alternatives as a means to meet future transportation needs. The projects to be included in this alternative will be selected after the TDM, TSM and Road System alternatives are evaluated.

Table 6.1
Transportation System Management (TSM) Alternative

Project Number	Project Description	Estimated Cost ($1996)
1	Signalization (Bennett Rd./Highway 30): Install a new signal and include signal coordination infrastructure.	$200,000
2	Signalization (Achilles Rd./Highway 30): Install a new signal and include signal coordination infrastructure.	$200,000
3	Signalization (Millard Rd./Highway 30): Install a new signal and include signal coordination infrastructure.	$200,000
4	Signalization (Vernonia Rd./Highway 30): Install a new signal and include signal coordination infrastructure.	$200,000
5	Signalization (Pittsburg Rd./Highway 30): Install a new signal and include signal coordination infrastructure.	$200,000
6	Signalization (Sykes Rd./Columbia Blvd.): Install a new signal.	$200,000
7	Signalization (Columbia Blvd./Vernonia Rd..): Install a new signal	$200,000
8	Signalization (Columbia Blvd./12th St...): Install a new signal	$200,000
9	Signalization (Columbia Blvd./6th St..): Install a new signal	$200,000
10	Intersection Improvements (Gable Rd./Highway 30) Add Turning Lanes	$80,000
11	Intersection Improvements (Old Portland Rd./Gable Rd.): Realign intersection to allow through movement on Old Portland Rd. Add a stop sign on Gable Rd.	$300,000
12	Intersection Improvements (Bachelor Flat Rd../Gable Rd.): Redesign intersection	$110,000
13	Intersection Improvements (Highway 30/Columbia Blvd./St. Helens St.) Add turning lanes	$80,000
--	Optimize existing signals on Highway 30 to coordinate with new signals	$20,000
	TOTAL TSM COSTS	**$2,390,000**

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Table 6.2
Transportation Demand Management (TDM) Alternative

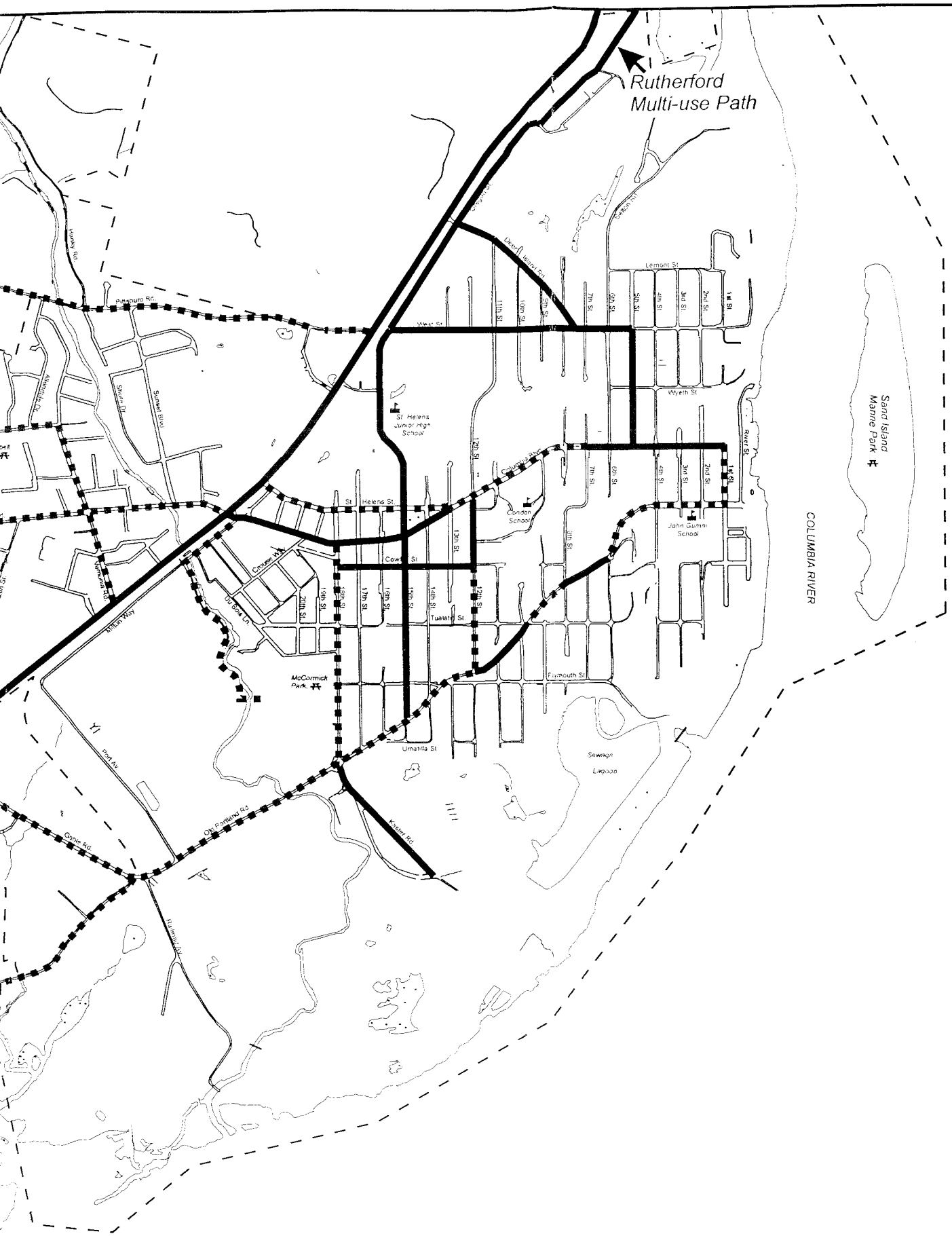
Project Type	Project Description	Estimated Cost ($1996)
Transit	Support COLCO Service and Expansion	$10,000/year
Transit	Support Vanpool Service to Portland	$11,000/year
Transit	Provide Bus Shelters at Vanpool Stops	$5,000
Transit	Provide Bicycle parking at Vanpool Stops (2).	$1,000
Transit	Support Private Ferry Service to Woodland, WA.	NA
Land Use	A Land Use Plan along Highway 30 that limits commercial activity	NA
Bicycle/ Pedestrian	Bicycle/Pedestrian Path from McCormick Park to Milton Way.	$65,000
Bicycle/ Pedestrian	Vernonia to Sykes Trail (Along BPA Power Line Easement)	$121,000
Bicycle/ Pedestrian	Sykes to Bachelor Flat Trail (BPA Power Line Easement)	$45,000
Bicycle	Bicycle Lanes on Columbia Blvd. between Highway 30 and Sykes Rd.	$132,000
Bicycle	Bicycle Lanes on Gable Rd. between Old Portland Rd. and Bachelor Flat Rd.	$417,000
Bicycle	Bicycle Lanes on Old Portland Rd. between 18th St./Kaster Rd. and Millard Rd.	$676,000
Bicycle	Bicycle Lanes on Sykes Rd. between Matzen St. and Highway 30	$42,000
Bicycle	Bicycle Lanes on Sykes Rd. between Columbia Blvd. and Saulser Rd..	$689,000
Bicycle	Bicycle Lanes on Millard Rd. between Old Portland Rd. and Ross Rd.	$500,000
Bicycle	Bicycle Lanes on Ross Road between Millard Rd. and Bachelor Flat Rd.	$211,000
Bicycle	Bicycle Lanes on Bachelor Flat Rd. between Sykes Rd. and the Fairgrounds.	$752,000
Bicycle	Bicycle Lanes on Vernonia between Highway 30 and Pittsburg Rd.	$452,000
Bicycle	Bicycle Lanes on Pittsburg Rd. between Highway 30 and Vernonia Rd.	$452,000

Table 6.2 (Cont.)
TDM Alternative

Project Type	Project Description	Estimated Cost ($1996)
Bicycle	Bicycle Lanes on St. Helens St. between Highway 30 and 13th St.	$500
Bicycle	Bicycle Lanes on Columbia Blvd. between St. Helens St. and 7th St.	$500
Bicycle	Bicycle Lanes on St. Helens St. between 1st. St. and Old Portland Rd.	$500
Bicycle	Bicycle Lanes on 1st Street between Columbia Blvd. and St. Helens St.	$500
Bicycle	Bicycle Lanes on 18th St. between St. Helens St. and Old Portland Rd.	$215,000
Bicycle	Bicycle Lanes on 12th St. between Wyeth St. and Columbia Blvd.	$106,000
Bicycle	Bicycle Parking in Old Town (4)	$2,000
Bicycle	Bicycle Parking Uptown along Columbia Blvd. and St. Helens St. (4)	$2,000
Bicycle	Bicycle Parking at several locations along Highway 30 (6)	$3,000
Pedestrian	Sidewalk improvements on Gable Rd. from Old Portland Rd. to Highway 30 (South Side Only)	$56,000
Pedestrian	Sidewalk improvements on Gable Rd. from Highway 30 to Bachelor Flat Rd. (Both Sides)	$118,000
Pedestrian	Sidewalk improvements on Bachelor Flat Rd from Sykes Rd. to Ross Rd. (Both Sides).	$186,000
Pedestrian	Sidewalk improvements on Ross Road (Both Sides)	$106,000
Pedestrian	Sidewalk improvements on Millard Road (Highway 30 to Ross Rd. (Both Sides)	$175,000
Pedestrian	Sidewalk improvements on Old Portland Rd. between 18th St. and Gable Rd. (South Side Only).	$55,000
Pedestrian	Sidewalk improvements on Sykes Rd. between Highway 30 and Columbia Blvd. (South Side Only).	$41,000
Pedestrian	Sidewalk improvements on Sykes Rd. between Columbia Blvd. and St. Helens City Limits (Both Sides).	$115,000
Pedestrian	Sidewalk improvements on Vernonia Rd. between McArthur Dr. and Pittsburg Rd. (Both Sides).	$122,000

Table 6.2 (Cont.)
TDM Alternative

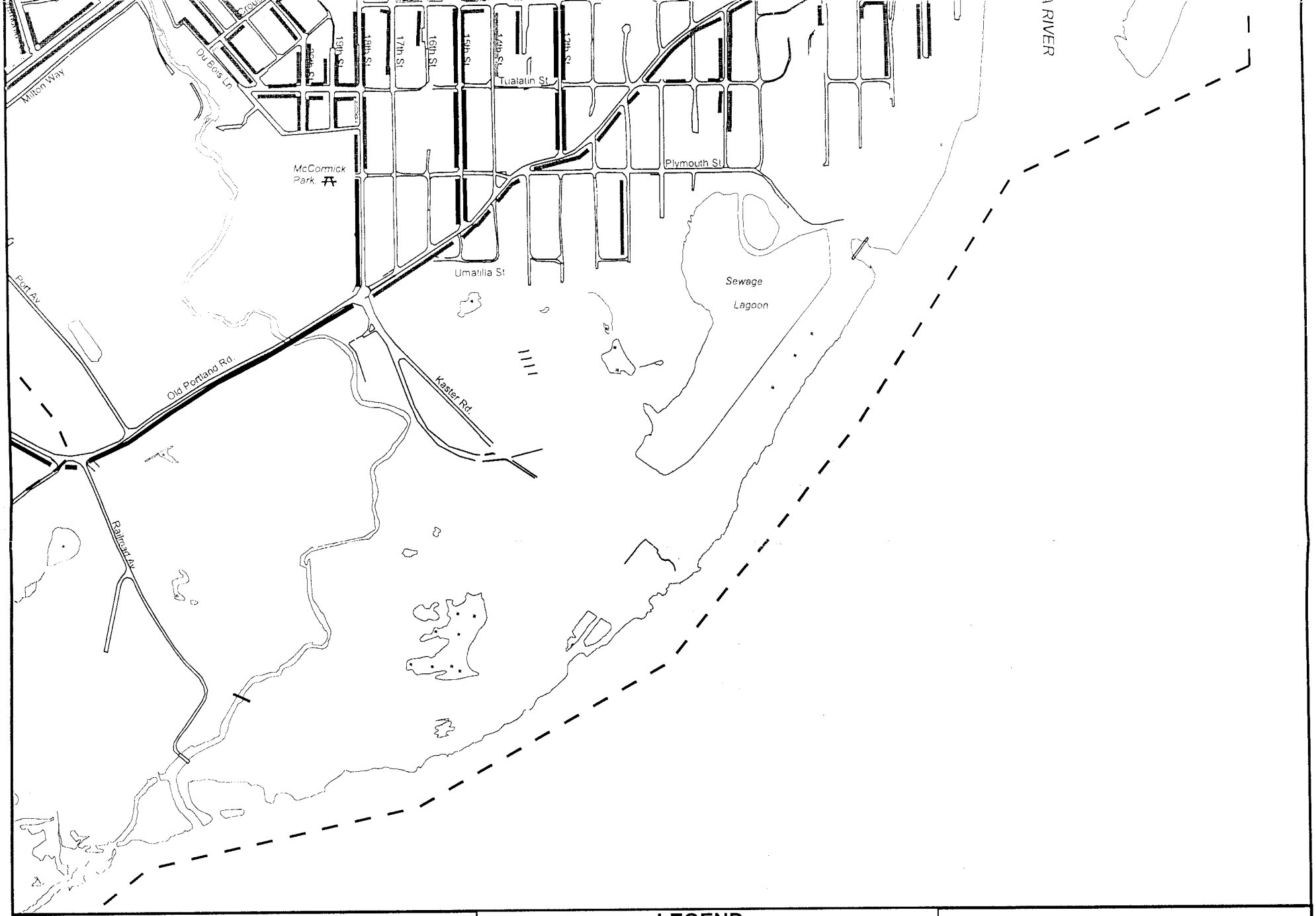
Project Type	Project Description	Estimated Cost ($1996)
Pedestrian	Sidewalk improvements on Pittsburg Rd. between Highway 30 and Vernonia Rd. (South Side Only).	$105,000
Pedestrian	Sidewalk improvements between on 16th St. between St. Helens Junior High School and West St. (East Side Only).	$30,000
Pedestrian	Sidewalk improvements on West St. between 4th St. and Oregon St. (Both Sides)	$89,000
Pedestrian	Sidewalk improvements on Deer Island Rd. (Both Sides).	$71,000
Pedestrian	Sidewalk improvements on Oregon St. (East Side Only).	$29,000
Pedestrian	Sidewalk improvements on 11th St. south of West St. (West Side Only).	$13,000
Pedestrian	Sidewalk improvements on Columbia Blvd. between Vernonia Rd. and Sykes Rd. (Both Sides).	$39,000
Pedestrian	Sidewalk improvements on 12th St. between Cowlitz St. and Old Portland Rd. (Both Sides).	$46,000
Pedestrian	Sidewalk improvements on 15th St. between Cowlitz St. and Old Portland Rd. (Both Sides).	$18,000
Pedestrian	Sidewalk improvements on 18th St. between Plymouth St. and Old Portland Rd. (West Side Only).	$18,000
Pedestrian	Sidewalk improvements on 18th St. between Plymouth St. and Old Portland Rd. (West Side Only).	$148,000
	TOTAL TDM CAPITAL COSTS	**$6,434,000**



Existing Bicycle Paths

New Bicycle Paths

Figure 6.2
Bicycle Improvements
(Part of TDM Alternative)



LEGEND

New Sidewalks

Existing Sidewalks

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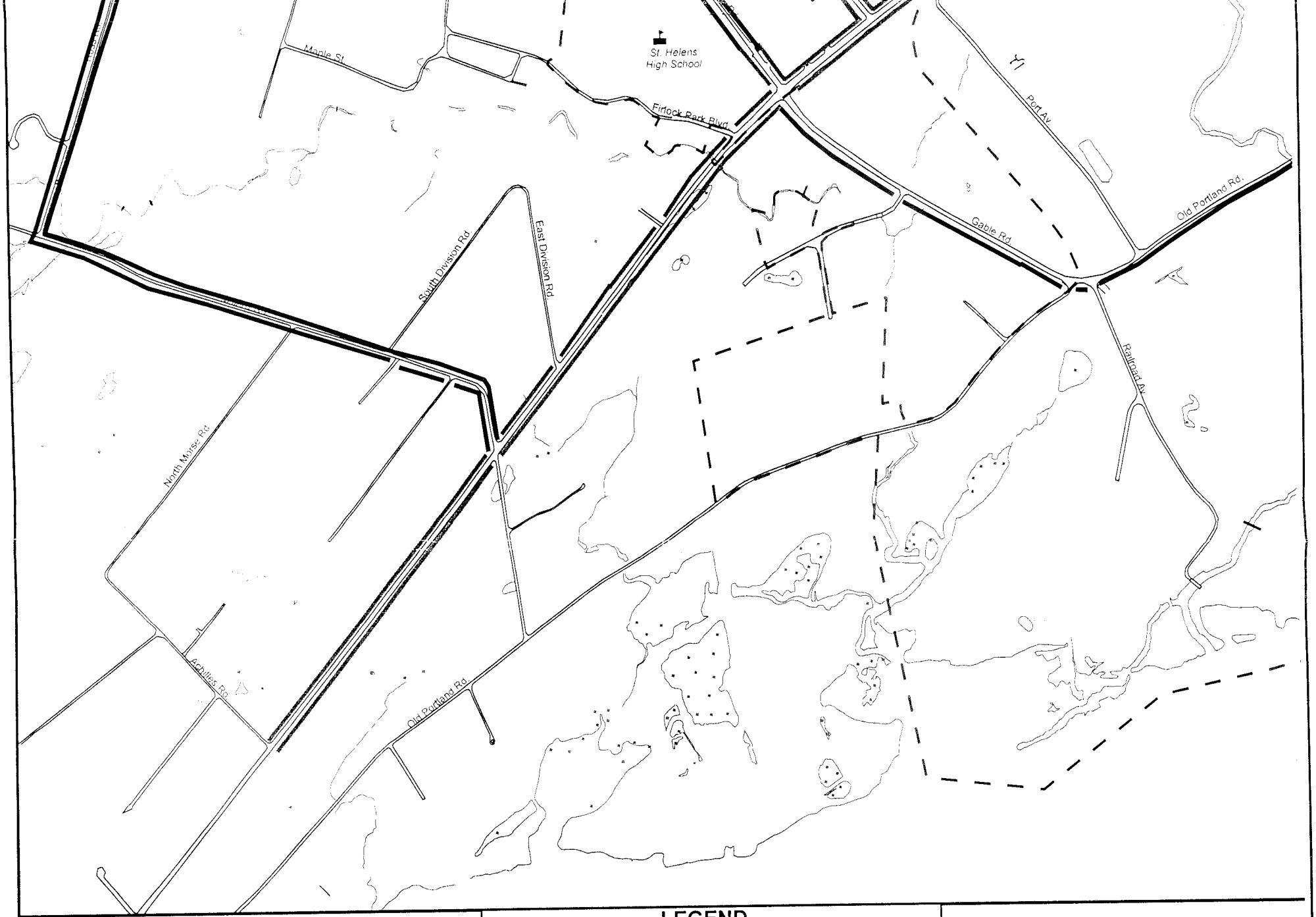
Figure 6.3
Sidewalk Improvments (Part of TDM Alternative) East St. Helens



City of St. Helens Transportation Systems Plan

LEGEND

New Sidewalks

Existing Sidewalks

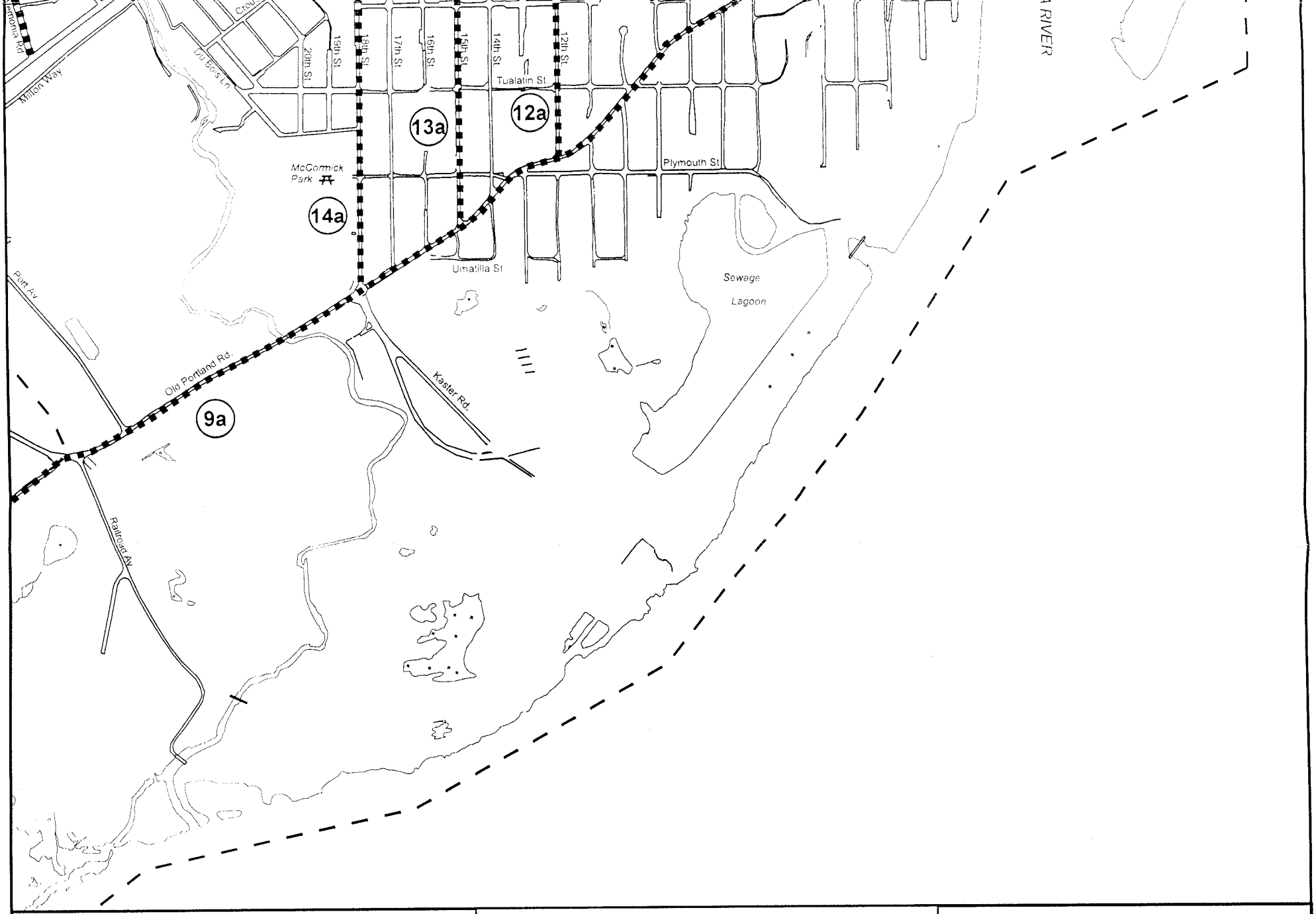
Figure 6-4
SIDEWALK IMPROVEMENTS
(Part of TDM Alternative)
West St. Helens

Table 6.3
Road System Alternative

Project Number	Project Description	Estimated Cost ($1996)
	NEW ROADWAY PROJECTS	
1	Extend Columbia Blvd./St. Helens Rd. one way couplet. Connect St. Helens Rd. to Sunset Blvd. via Shore Dr.	$930,000
2	Connect Milton Way to Gable Rd.	$700,000
3	Connect McNulty Way to Millard Rd.	$1,290,000
4	Construct an new interchange over Highway 30 connecting Pittsburgh Rd. and West. St.	$4,850,000
5	Connect Achilles Rd. to Pittsburg Rd. via Ross Rd.	$3,980.000
6	Construct Highway 30 Frontage Rd. between Millard Rd. and Sykes Rd.	$5,150,000
7	Construct Highway 30 Frontage Rd. between Sykes Rd. and Vernonia Rd.	$2,080,000
8	Construct Highway 30 Frontage Rd. between Vernonia Rd. and Columbia Blvd.	$2,330,000
9	Construct Highway 30 Frontage Rd. between Columbia Blvd. and Pittsburg Rd.	$2,030,000
10	Connect Childs Rd. to Millard Rd.	$2,070,000
11	Connect Pittsburg Rd. to 6th St. (Columbia City) via Liberty Hill Rd.	$3,660,000
12	Connect Belton Rd. to 4th St. (Columbia City).	$2,570,000
13	Connect Firlock Park St. to Millard Rd.	$2,130,000
14	Connect Industrial Way to Old Portland Road.	$390,000
	Total New Roadways Costs	**$34,160,000**

Table 6.3 (cont.)
Road System Alternative

Project Number	Project Description	Estimated Cost ($1996)
	RECONSTRUCTION PROJECTS	
1a	Pittsburg Rd. (Highway 30 to UGB Line)	$1,830,000
2a	Vernonia Rd. (Highway 30 to Pittsburg Rd.)	$500,000
3a	Bachelor Flat Rd. (Sykes Rd. to UGB Line)	$1,180,000
4a	Sykes Rd. (Columbia Blvd. to City Limits)	$250,000
4b	Sykes Rd. (City Limits to UGB Line)	$360,000
5a	Gable Rd. (Highway 30 to Bachelor Flat Rd.)	$470,000
6a	Millard Rd. (Highway 30 to UGB Line)	$540,000
7a	Achilles Rd. (Highway 30 to UGB Line)	$380,000
8a	Columbia Blvd. (Highway 30 to Sykes Rd.)	$430,000
9a	Old Portland Rd. (St. Helens St. to Gable Rd.)	$1,140,000
10a	Old Portland Rd. (Gable Rd. to UGB Line)	$1,740,000
11a	6th St. (Columbia Blvd. to West St.)	$190,000
12a	12th St. (Cowlitz to Old Portland Rd.)	$180,000
13a	15th St. (Old Portland Rd. to Columbia Blvd.)	$340,000
14a	18th St. (Old Portland Rd. to Columbia Blvd.)	$360,000
15a	Matzen St. (Sykes Rd. to Columbia Blvd.)	$310,000
	Total Reconstruction Costs	**$10,200,000**
	TOTAL ROAD SYSTEM COSTS	**$44,360,000**



City of St. Helens Transportation System Plan

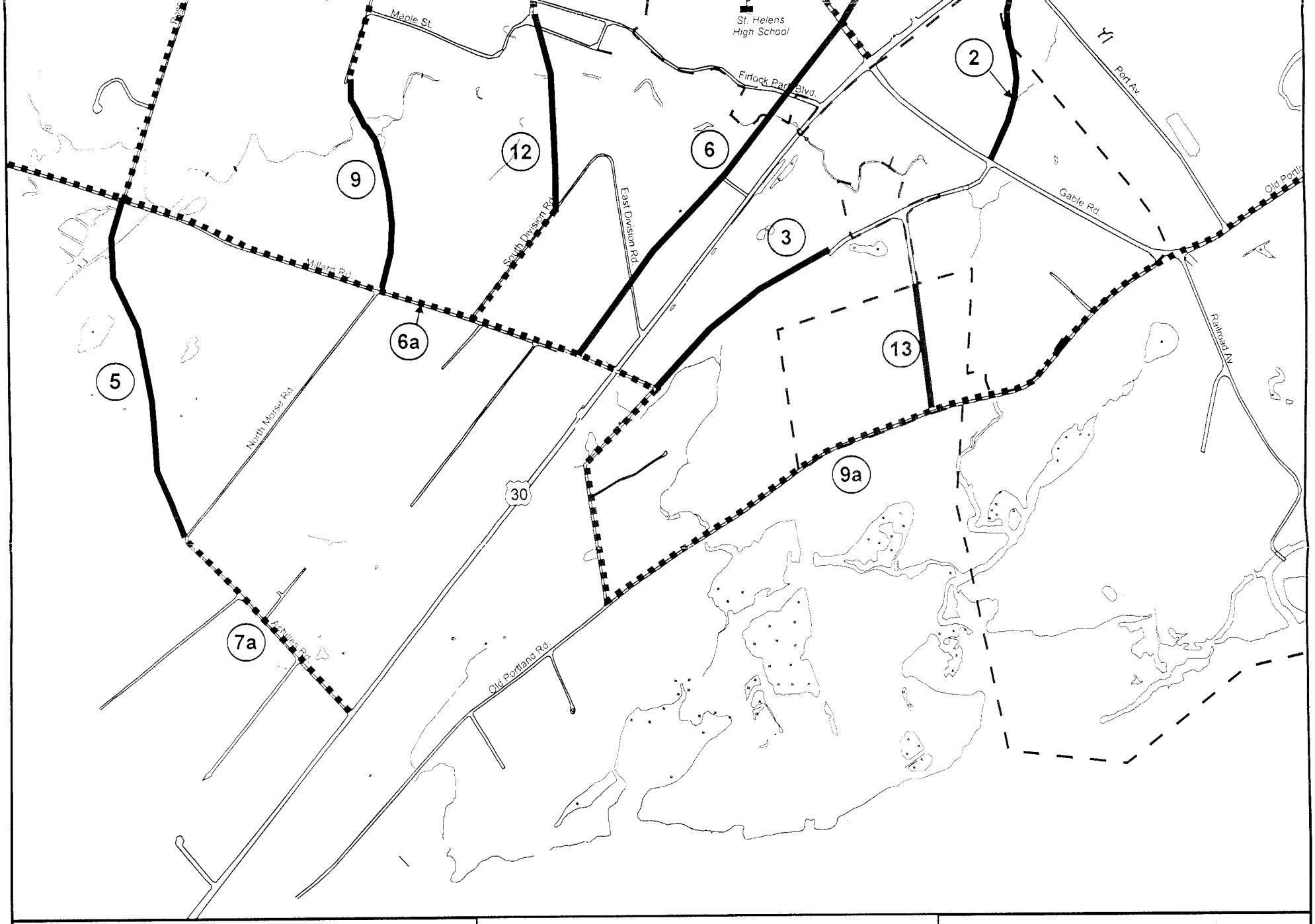
LEGEND

New Roadway Projects

Reconstruction Projects

Figure 6.5

Road System Alternative
East St. Helens



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City of St. Helens Transportation System Plan

PB 100 YEARS

LEGEND

New Roadway Projects

Reconstruction Projects

Figure 6.6

Road System Alternative West St. Helens

6.2 Cost of the Alternatives

Previously presented in Tables 6-1 through 6-3 are the cost estimates for each individual project analyzed. The main purpose of the estimates are to determine planning level or order-of-magnitude costs for each of the alternatives for further evaluation and for the funding analysis. Costs for each of the projects were determined using a variety of sources, including ODOT's HPMS system and recent construction bid tabulations. The cost estimates do not account for unique factors and considerations associated with each individual project.

The cost estimates were prepared in 1996 dollars. Project costs included construction, engineering and administration, right-of-way, and contingencies (35 percent). The total costs for each of the alternatives are presented in Table 6.4.

Table 6.4
Costs of the Alternatives

Alternative	Capital Cost
TSM Alternative	$2,390,000
TDM Alternative	$6,434,000
Road System Alternative	$44,360,000

6.3 Evaluation of the Alternatives

Specific Goals and Objectives for the Transportation System Plan were developed early in the TSP process[1]. The intent of the goals and objectives are to give overall guidance to the strategies and specific projects make up the Transportation Plan. As a result, specific evaluation criteria were developed to ensure that the preferred alternative accomplishes the intent of the goals and objectives. Each alternative is compared to the No-Build Condition and to each other using the evaluation criteria. The evaluation criteria are grouped and presented by each of the 4 goals. These goals include:

- **Transportation Goal** - Develop a transportation plan to manage future transportation needs and prolong the useful life of the existing transportation system.
- **Community Goal** - Develop a plan that supports the individual character of St. Helens and the future "Vision" for the City.

[1] The development of the goals and objectives as well as the evaluation criteria are discussed in Section 2 - Goals and Objectives

- **Resources Goal** - Develop a plan that protects environmental resources and enhances the scenic beauty of the area.
- **Economic Development Goal** - Develop a plan that supports economic viability.

The following is a summary of the alternatives evaluation as compared to the TSP goals and objectives. Table 6-5 displays the performance matrix, comparing each alternative using the evaluation criteria.

Evaluation of the Transportation System Management (TSM) Alternative

The TSM alternative has a significant impact on travel in the St. Helens area. The alternative meets many of the TSP's goals and Objectives. One of the primary objectives that the TSM alternatives would help achieve is that of improving overall travel safety. Many of the TSM projects, both traffic signals and intersection improvements, are located at high accident locations. These improvements would help prevent many accidents, not only for automobiles, but for pedestrians and bicyclists as well.

Through the use of better traffic control and management, the TSM alternative also helps to meet two additional transportation objectives, 1) reducing conflicts between through and local trips on Highway 30 and improving overall traffic flow, and 2) improving town continuity by providing safe and easy access to and across Highway 30 for all modes of travel. Figures 6.9 and 6.10 display the forecast traffic volumes and level of service indicators associated with the TSM alternative. Figures 6.7 and 6.8 also display the No-Build Condition (Base Case) traffic volumes and level of service indicators for comparison purposes.

Overall, the TSM alternative helps to improve level of service at nearly all of the intersections as well as several of the roadway segments near the Gable Road and Highway 30 intersection. The major traffic impacts associated with the TSM alternative are related to the traffic signal at Millard Road and the realignment of the Gable Road/Old Portland Road Intersection. The traffic signal at Millard Road reduces delay for vehicles trying to turn onto or across Highway 30 from Millard Road. This in combination of eliminating traffic on Old Portland Road to stop at Gable Road, helps to make Old Portland Road a faster and more heavily used alternative to Highway 30 for local traffic traveling to/from east St. Helens.

The TSM alternative helps to meet many of the future transportation needs in St. Helens without major capacity improvements. The TSM alternative should alleviate the need for some of the additional roadway capacity needs which help to meet the Resource goal of protecting the region's environment. Also through increasing travel flow and mobility many of the Economic Development goals and objectives are met.

Table 6.5
Evaluation Criteria Matrix

EVALUATION CRITERIA	2016 ALTERNATIVES							
	NO-BUILD	TSM		TDM		ROAD SYSTEM	
TRANSPORTATION GOAL							
MOBILITY			% change from No-Build		% change from No-Build		% change from No-Build
Average Speed (mph) by Functional Class							
Principal Arterials (Highway 30)	38.2	34.5	-9.7%	38.5	0.8%	39.2	2.6%
Minor Arterials	34.4	34.9	1.5%	34.4	0.0%	34.4	0.0%
Collectors	32.6	32.7	0.3%	32.8	0.6%	30.9	-5.2%
Access to Transportation Disadvantaged	o/+/-	o		++		o	
Access to Various Transportation Users	o/+/-	+		++		++	
(Commerical, commuter, residents, recreational)							
VEHICLE MILES OF TRAVEL (VMT)			% change from No-Build		% change from No-Build		% change from No-Build
Total VMT (thousand vehicle-miles/day)	320.1	319.1	-0.3%	327.0	2.2%	311.5	-2.7%
VMT Per Capita (miles/day)	16.7	16.6	-0.6%	17.1	2.2%	16.3	-2.6%
VMT by Functional Class (thousands per day)							
Principal Arterials (Highway 30)	168.2	167.7	-0.3%	172.2	2.4%	148.4	-11.8%
Minor Arterials	129.0	130.6	1.2%	131.4	1.9%	124.6	-3.4%
Collectors	22.9	20.8	-9.2%	23.4	2.2%	38.5	68.1%
Local VMT on Highway 30 (thousands per day)	87.3	87.3	0.0%	91.2	4.5%	65.9	-24.5%
VEHICLE HOURS OF TRAVEL (VHT)			% change from No-Build		% change from No-Build		% change from No-Build
Total VHT (vehicle-hours)	10,130	10,330	2.0%	10,360	2.3%	9,910	-2.2%
VHT Per Capita (Minutes/day)	31.6	32.4	2.5%	32.5	2.7%	31.0	-1.7%
AVAILABILITY OF TRANSIT							
Level of Community-wide Transit Service	o/+/-	o		++		o	
Level of Transit Service for Transportation Disadvantaged	o/+/-	o		++		o	
MAXIMIZE SYSTEM SAFETY							
Estimated Number of Accidents (Annual)	145	130	-10.3%	155	6.9%	120	-17.2%
Addresses Safety Concerns from Analysis & Public Input	o/+/-	+		-		++	

Table 6.5
Evaluation Criteria Matrix

EVALUATION CRITERIA	2016 ALTERNATIVES			
	NO-BUILD	TSM	TDM	ROAD SYSTEM
TRANSPORTATION GOAL, continued				
LEVEL-OF-SERVICE (LOS)				
Percentage of Miles in system by LOS by Functional Class				
Highway 30				
LOS B or better	32.4%	48.0%	16.8%	92.4%
LOS C	62.6%	49.5%	71.5%	7.6%
LOS D or worse	5.0%	2.5%	11.7%	0.0%
Minor Arterials & Collectors				
LOS B or better	89.7%	88.3%	89.7%	97.0%
LOS C	6.9%	9.2%	7.7%	3.0%
LOS D or worse	3.4%	2.6%	2.6%	0.0%
Key Intersections				
Highway 30 & Bennett Rd.	"C"	"B-C"	"C-D"	"C"
Highway 30 & Achilles Rd.	"A"	"A"	"B"	"A"
Highway 30 & Millard Rd.	"F"	"D"	"F"	"C"
Highway 30 & Gable Rd.	"F"	"D"	"E-F"	"D"
Highway 30 & Sykes Rd.	"C"	"C"	"B-C"	"A-B"
Highway 30 & Vernonia Rd.	"E"	"D"	"E"	"D-E"
Highway 30 & Columbia Blvd.	"F"	"F"	"F"	"D-E"
Highway 30 & St. Helens St.	"D"	"C-D"	"D"	"C"
Highway 30 & Wyeth St.	"E"	"E"	"E"	"D"
Highway 30 & Pittsburg Rd.	"F"	"B"	"F"	"E"
Highway 30 & Deer Island Rd.	"C"	"C"	"C"	"A"
Columbia Blvd. & 6th St.	"C"	"D"	"C"	"C"
Columbia Blvd. & 12th St.	"A"	"A"	"A"	"A"
Columbia Blvd. & 18th St.	"A"	"A"	"A"	"A"
Columbia Blvd. & Vernonia Rd.	"E"	"C"	"E"	"C"
Columbia Blvd. & Sykes Rd.	"F"	"C"	"E"	"C"
Pittsburg Rd. & Vernonia Rd.	"A"	"A"	"A"	"A"
Pittsburg Rd. & Sunset Rd.	"A"	"A"	"A"	"A"
Old Portland Rd. & Gable Rd.	"C"	"A"	"A"	"A"
Old Portland Rd. & 18th St./Kaster Rd.	"C"	"C-D"	"C"	"C-D"
Gable Rd. & Bachelor Flat Rd.	"C"	"B"	"C"	"C-D"

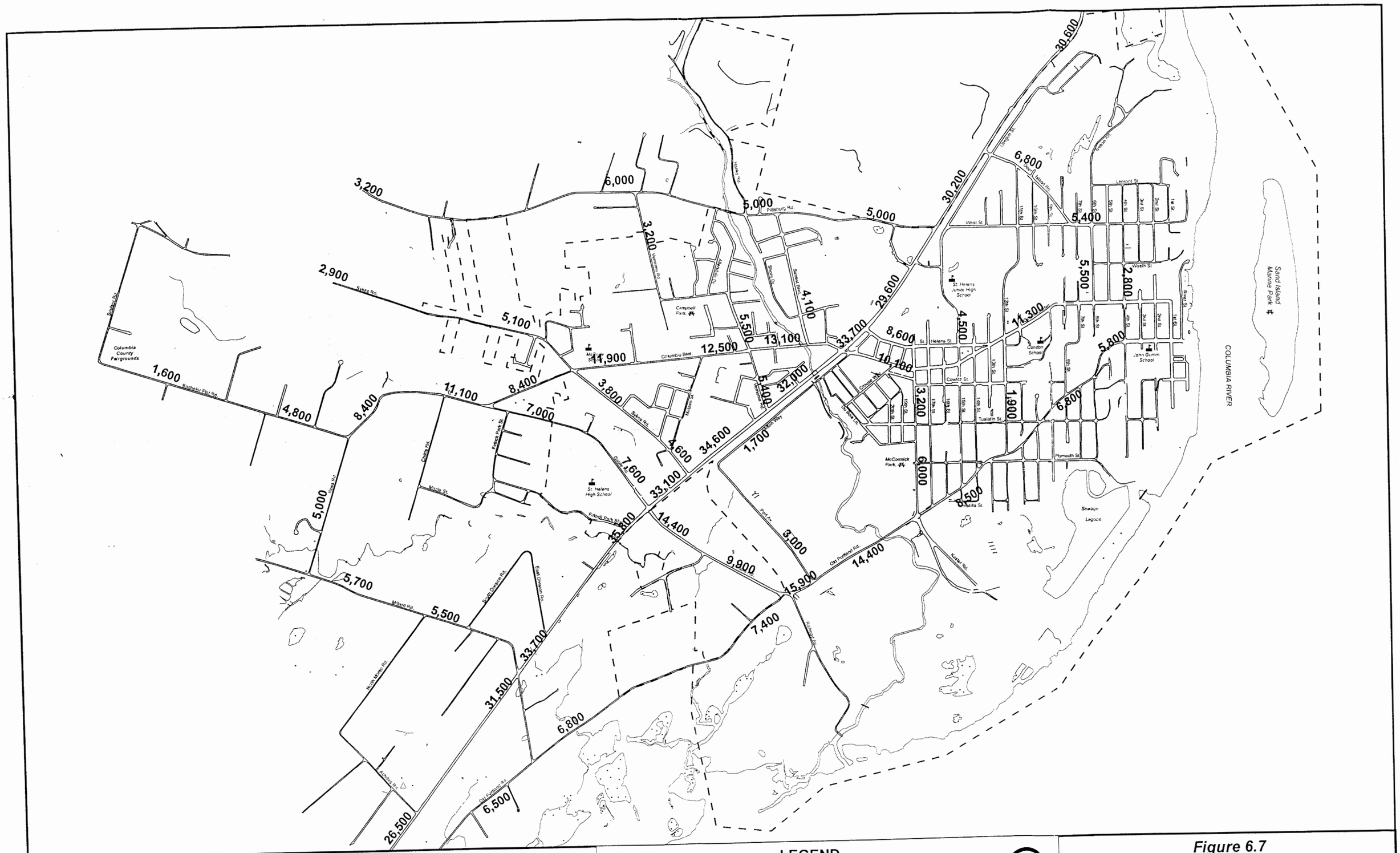
Table 6.5
Evaluation Criteria Matrix

EVALUATION CRITERIA	2016 ALTERNATIVES			
	NO-BUILD	TSM	TDM	ROAD SYSTEM
COMMUNITY GOAL				
ACCESSIBILITY TO DIFFERENT MODES AND TO VARYING LEVELS OF DESTINATIONS				
Level of Access to Neighborhoods (Pedestrians, bikes, autos, & transit)	o/+/-	+	++	+
Level of Access to Community	o/+/-	+	+	+
AVAILABILITY OF TRANSIT				
Level of Community-wide Transit Service	o/+/-	o	++	o
Level of Transit Service for Transportation Disadvantaged	o/+/-	o	++	o
MINIMIZATION OF LAND USE IMPACTS				
Supports Land Use Plans	o/+/-	+	++	+
RESOURCE GOAL				
MINIMIZATION OF ENVIRONMENTAL IMPACTS				
Minimizes Impact on Significant Natural & Cultural Features *(Natural areas, wetlands, historic/cultural resources, schools, parks, & cemeteries)*		+	++	-
Minimizes Visual and Aesthetic Impacts		+	++	-

Table 6.5
Evaluation Criteria Matrix

EVALUATION CRITERIA	2016 ALTERNATIVES							
	NO-BUILD	TSM		TDM		ROAD SYSTEM	
ECONOMIC GOAL							
MOBILITY			*% change from No-Build*		*% change from No-Build*		*% change from No-Build*
Average Speed (mph) by Functional Class							
Principal Arterials (Highway 30)	38.2	34.5	-9.7%	38.5	0.8%	39.2	2.6%
Minor Arterials	34.4	34.9	1.5%	34.4	0.0%	34.4	0.0%
Collectors	32.6	32.7	0.3%	32.8	0.6%	30.9	-5.2%
Access to Transportation Disadvantaged	o/+/-	+		++		+	
Access to Various Transportation System Users *(Commerical, commuter, residents, recreational)*	o/+/-	+		++		+	
MINIMIZATION OF PUBLIC COSTS							
Capital Costs	*NA*	$2,390,000		$6,434,000		$44,360,000	

+ Positive Impact
o No discernable change
- Negative Impact



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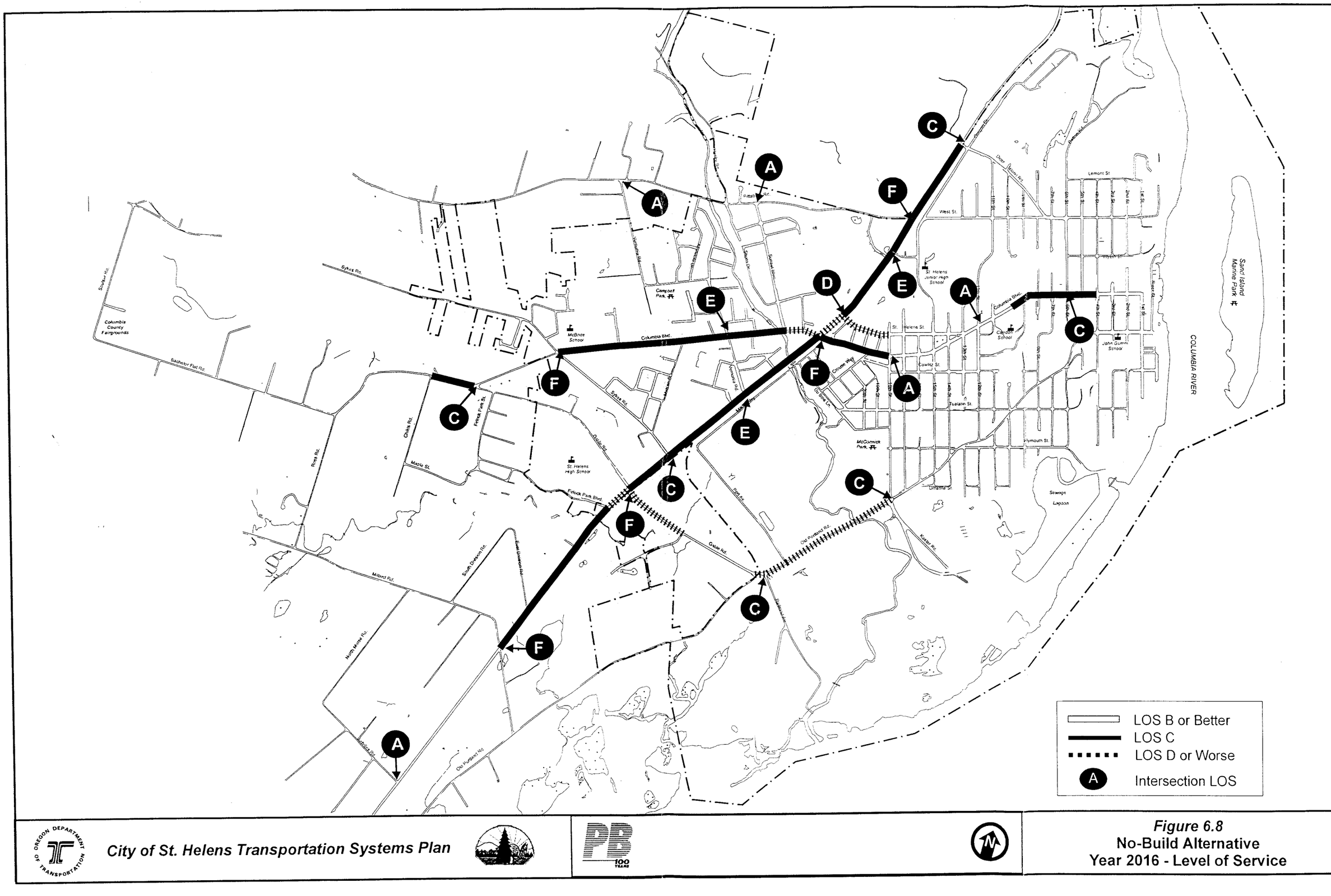
LEGEND

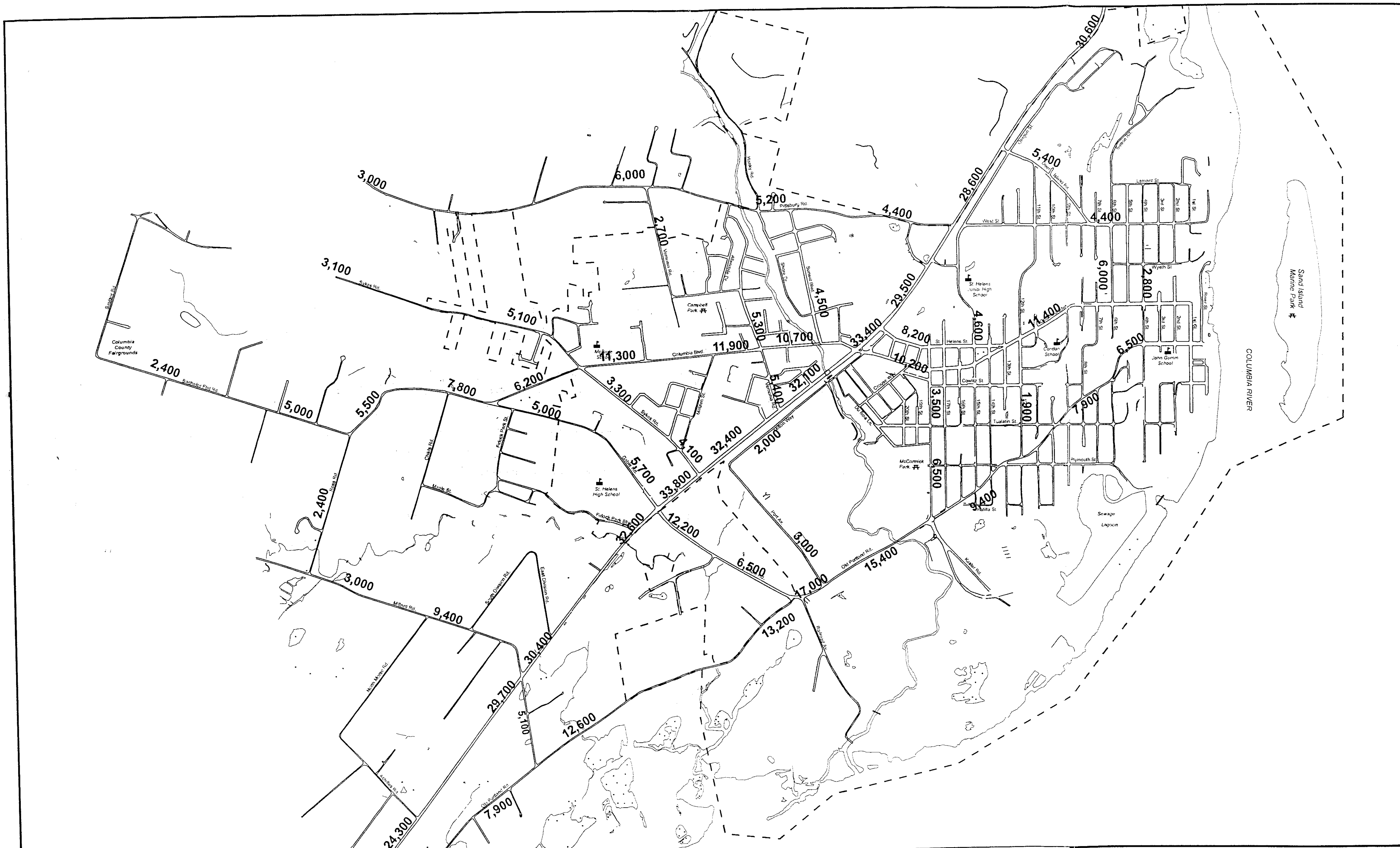
10,000 - Year 2016 ADT

Figure 6.7
Year 2016 No-Build Alternative
Average Daily Traffic



City of St. Helens Transportation Systems Plan

Figure 6.8
No-Build Alternative
Year 2016 - Level of Service



City of St. Helens Transportation System Plan

LEGEND

10,000 - Year 2016 ADT

Figure 6.9

Transportation System Management (TSM) Alternative - Year 2016 ADT

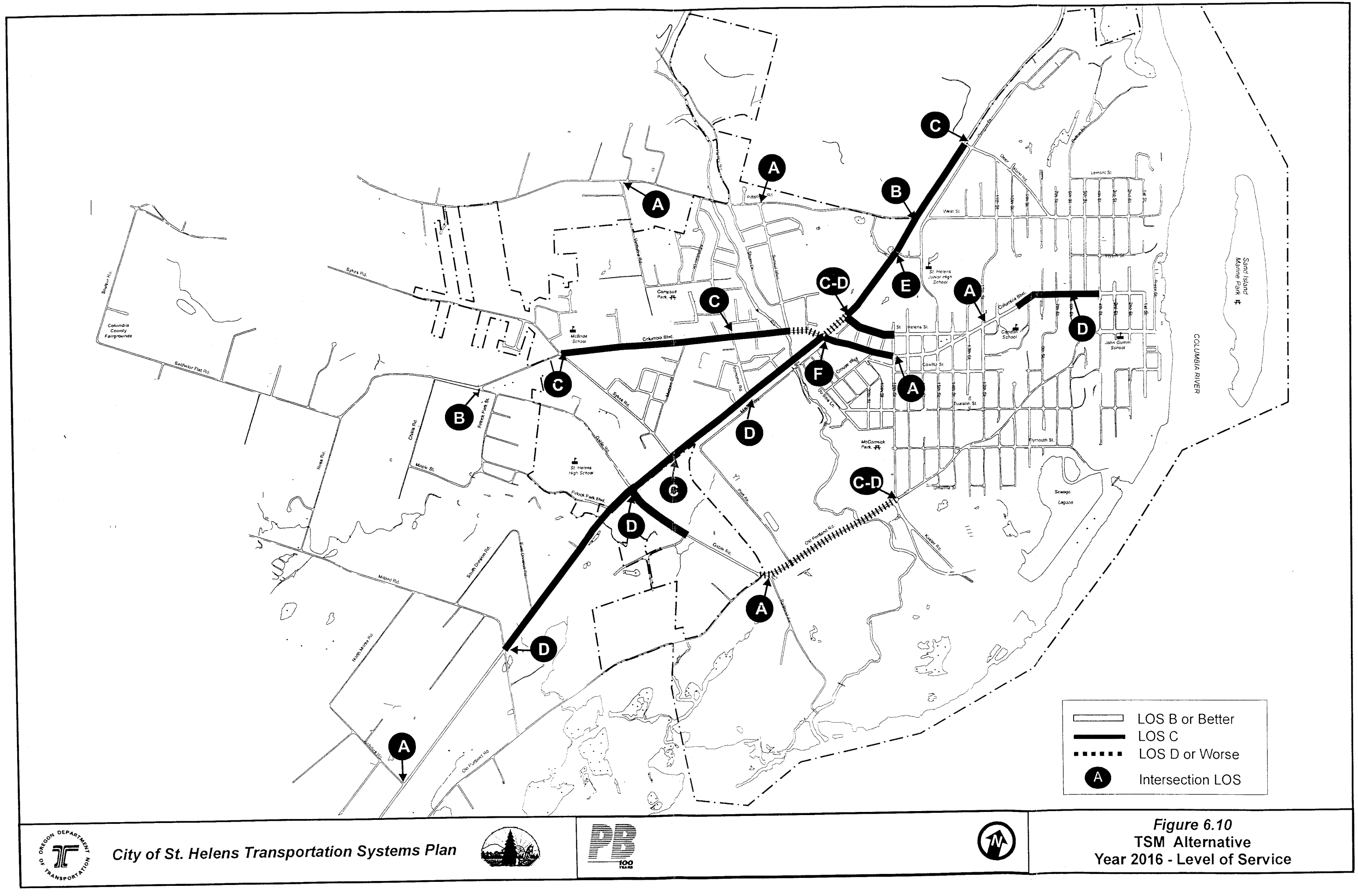


Figure 6.10
TSM Alternative
Year 2016 - Level of Service

Evaluation of the Transportation Demand Management (TDM) Alternative

The TDM alternative promotes the use of alternative modes as a means of meeting St. Helens future travel needs. Overall, the TDM alternative satisfies many objectives outlined in the Transportation, Community, and Resource Goals. However, the TDM alternative does not substantially improve overall traffic flow in St. Helens.

The improved bicycle and pedestrian networks as well as additional support for public transit provide the opportunity for increased alternative mode usage. It is estimated that the TDM alternative would reduce some short distance vehicle trips, but since these short trips are largely omitted from the travel demand model, their effects are not easily estimated.

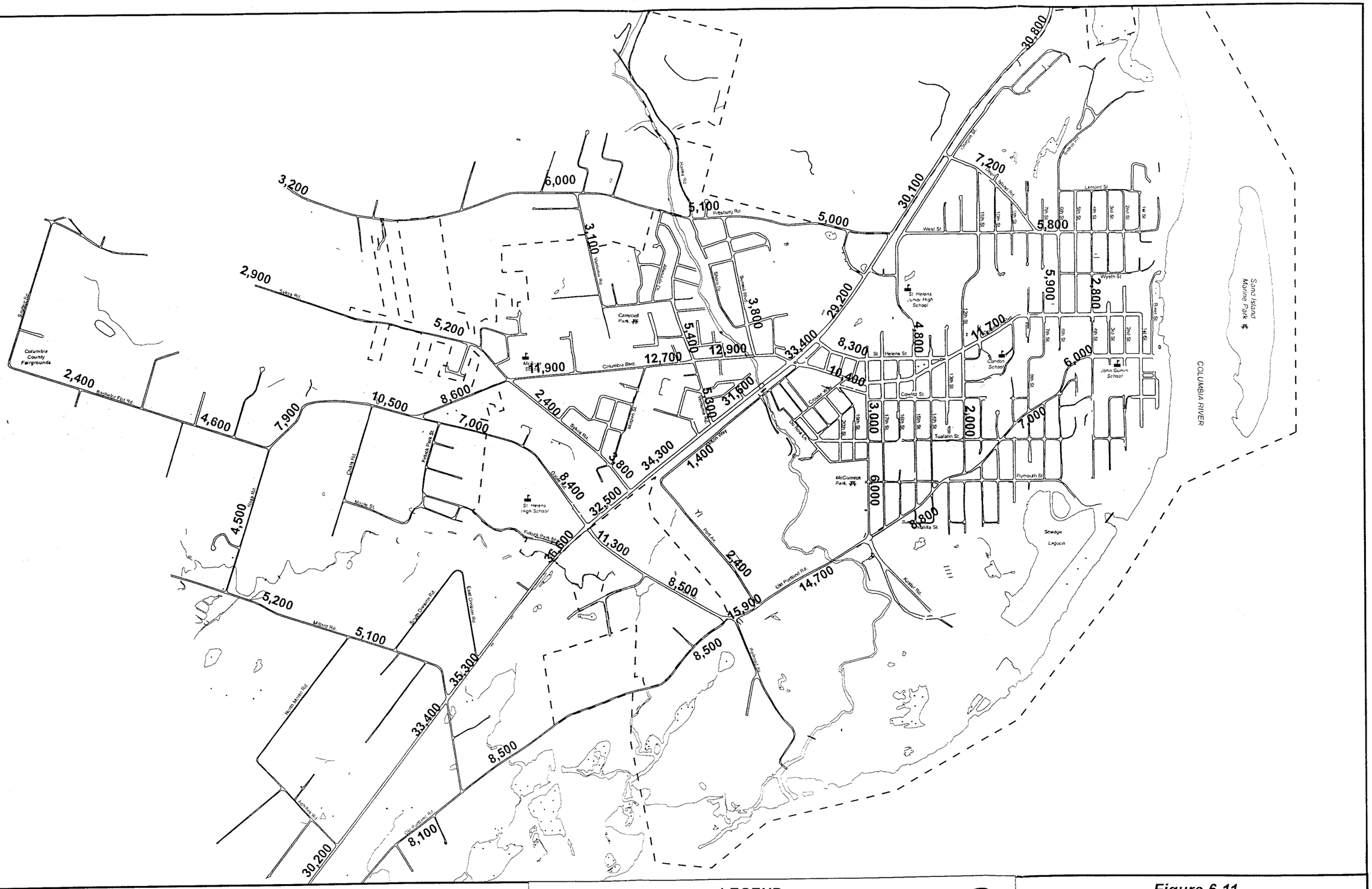
The land use plan of limiting commercial development along Highway 30 also is not expected to have a significant impact on overall travel speeds. The primary reason is that the land use plan assumes that the many residents would travel to large commercial activity south of the City along the Portland to Scappoose corridor[2], thereby increasing overall traffic volumes near the south end of the City, counterbalancing any traffic improvements along other areas of Highway 30. Figures 6.11 and 6.12 display the forecast traffic volumes and level of service indicators associated with the TDM alternative.

Evaluation of the Road System Alternative

As far as meeting the objectives of improving travel flow and reducing congestion, the Road System Alternative best achieves this task. Because this alternative provides a considerable amount of roadway capacity it helps improve nearly every level of service problem in the St. Helens network. Figures 6.13 and 6.14 display the forecast traffic volumes and level of service indicators associated with the Road System alternative. Figure 6.13 displays that the roadway alternatives would reduce a considerable amount of traffic on Highway 30, which most is local traffic, which is one of the primary objectives for the TSP. Nearly all of the segment level of service problems would be eliminated by the Road System alternative, however without the addition of several needed traffic signals (part of the TSM alternative), many of the intersections would still have level of service problems.

One objective this alternative does not meet is that of fundability. The total capital cost of this alternative is estimated at nearly $39 million. Also, complete construction of the Road System alternative would not greatly enhance the Resources Goal of protecting the environment and maintaining the scenic beauty of the area. Through increasing mobility, the Road System alternative would help achieve the Economic Development Goal of enhancing the area's viability.

[2] It should be noted if the land use alternative assumed that the additional commercial development were located in other areas of St. Helens and not in the Scappoose area, the results would have been much different. However, the comprehensive plan does not support large retail activity outside of the Highway 30 corridor, and the Visioning Process has re-affirmed this. procedure



OREGON DEPARTMENT OF TRANSPORTATION

City of St. Helens Transportation System Plan

PB 100 YEARS

LEGEND

10,000 - Year 2016 ADT

Figure 6.11
Transportation Demand Management (TDM) Alternative - Year 2016 ADT

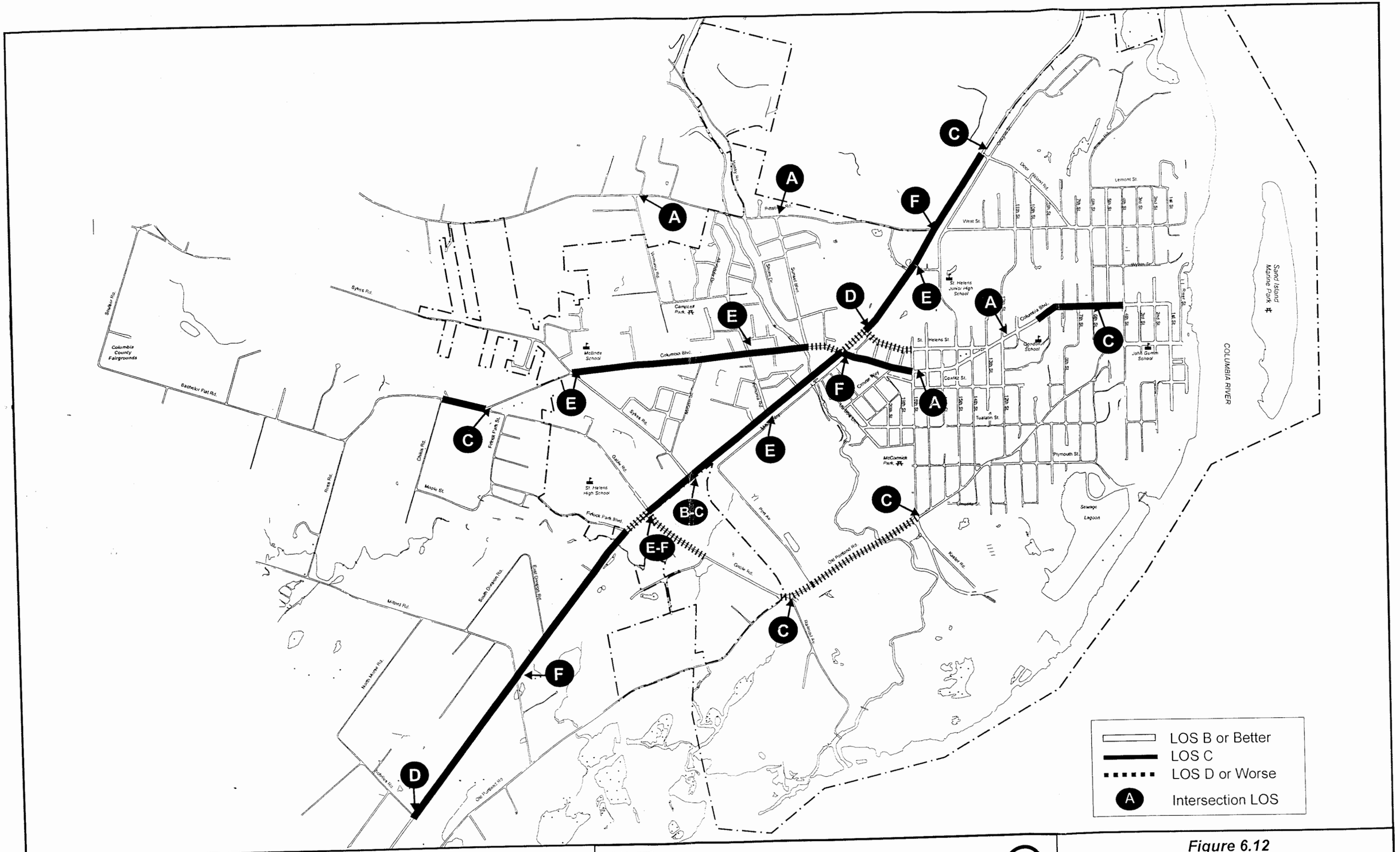
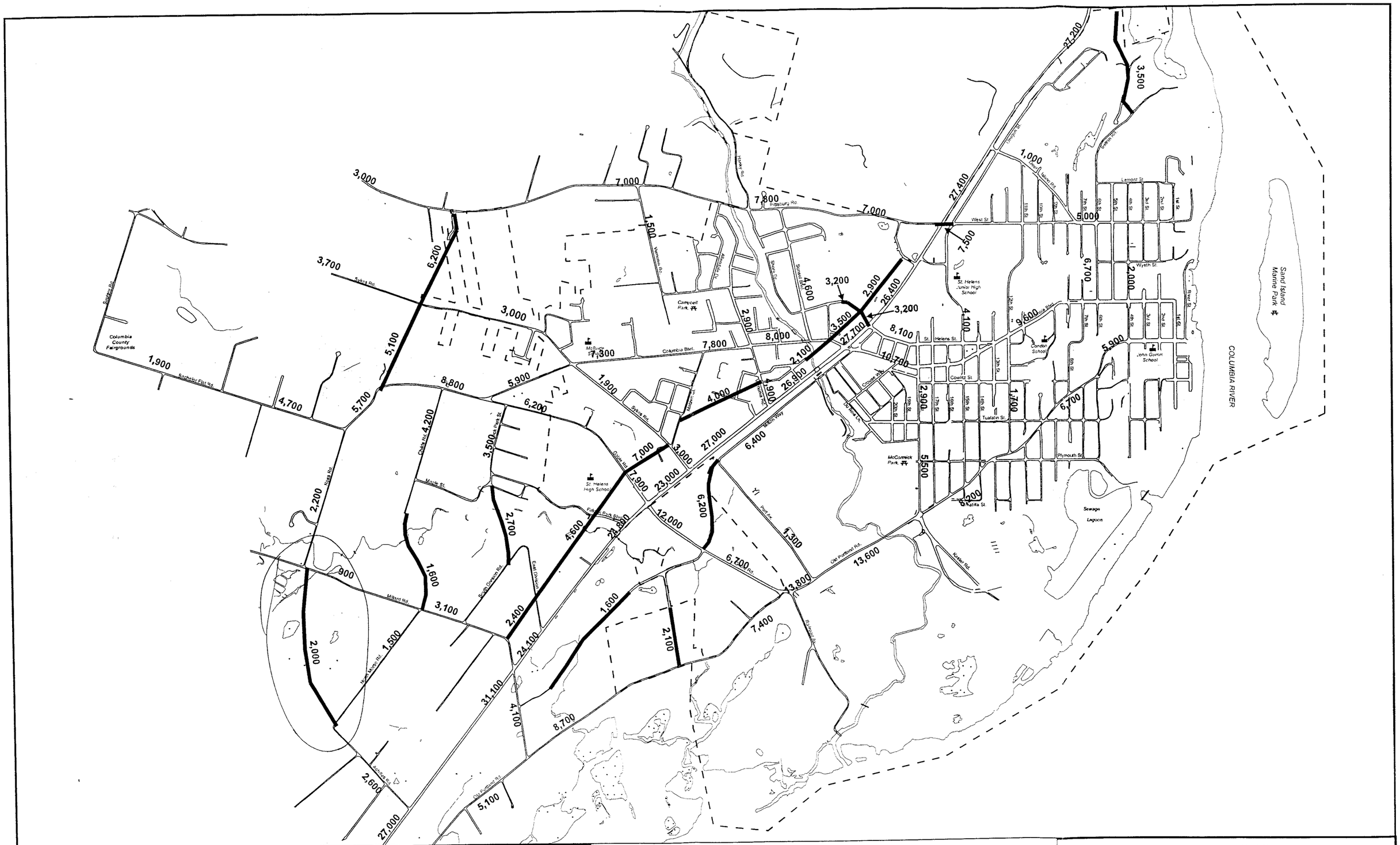


Figure 6.12
TDM Alternative
Year 2016 - Level of Service



OREGON DEPARTMENT OF TRANSPORTATION

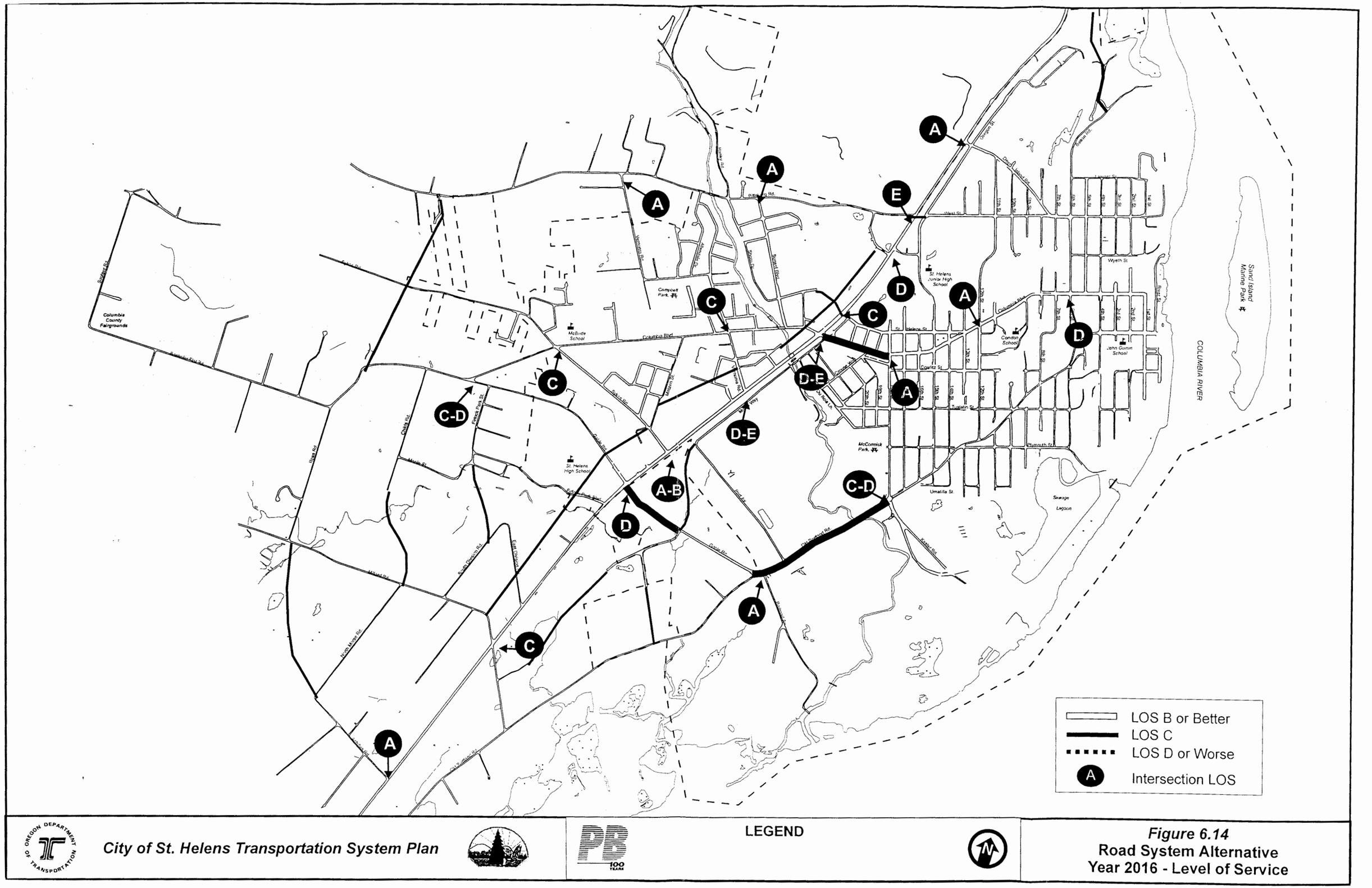
City of St. Helens Transportation System Plan

PB 100 YEARS

LEGEND

10,000 - Year 2016 ADT

Figure 6.13
Road System Alternative
Year 2016 Average Daily Traffic



LEGEND

City of St. Helens Transportation System Plan

Figure 6.14
Road System Alternative
Year 2016 - Level of Service

6.4 Individual Project Analysis

The previous section identified the impacts of several different types of transportation alternatives that could be implemented in St. Helens. The alternatives analysis showed the impact of lower cost TSM and TDM projects compared to that of higher cost roadway system improvements.

This next section analyzes the individual projects to determine the preferred and most cost effective combination of alternatives to meet the future transportation needs in St. Helens. As a means to determine the impact of each individual project under each of the alternatives, a benefit-cost analysis was conducted. The objective of the benefit-cost analysis is to determine whether the transportation cost savings (benefits) brought about by the project exceed its relevant costs and is a viable alternative to be included in the combination alternative. Thus, a different approach will be used for their prioritization.

The benefit-cost analysis focuses on the projects that have an impact on automobile travel, primarily TSM and Road System projects. These are the typical projects that are included in this type of analysis. TDM projects do have benefits and costs, however, the benefits associated with walking and bicycling are much more difficult to estimate and quantify and do not lend themselves to this type of analysis.

There are a variety of benefits associated with transportation improvement projects. This analysis focused on three types of benefits. These include:

- **Travel Time Savings** - One of the primary benefits of transportation improvements is the reduction of reduction of travel time. Through either creating a shorter route or by reducing congestion, a successful transportation improvement will reduce the amount of time a traveler spends getting from their origin to their destination. The time traveling that is saved does have a monetary value. For most motorists the primary purpose of traveling is to reach their destination as quickly as possible. Therefore, travelers are willing to pay for less time spent in their vehicle. Considerable research has been conducted concerning the value travelers place on time spent traveling. Most research has concluded that the value of time is correlated with the travelers income. In this analysis it is assumed that the value of time is 1/2 of the average wage in the St. Helens area which equals approximately $6.00 per hour saved.
- **Accident Cost Savings** - Another of the primary benefits resulting from transportation improvements is the reduction in the accident rate. Improved transportation facilities or better traffic control will reduce the potential for traffic accidents. Accident rates for the St. Helens roadways system were developed from ODOT's Historical Accident Database for by location. Based on the forecast traffic volume and the new accident rate by type of improvement, an annual number of accidents saved was estimated. To include the impact of reducing accidents in the benefit-cost evaluation, a monetary cost per accident saved was used. Accident values, by type of accident, were obtained from the

National Safety Council (as used by ODOT's Traffic Management Department) and include:

Fatality Accident	$810,000
Injury Accident	$34,200
Personal Damage Only	$6,100

- **Societal Cost Savings** - Automobile transportation creates a variety of unwanted externalities on society. These harmful impacts have costs associated with them and are often overlooked and underestimated. The majority of these costs are environmental, human, and social impacts resulting from automobile transportation. The societal costs included in this analysis included:
  - Air Pollution
  - Noise Pollution
  - Water Pollution
  - Waste
  - Barrier Effects

  Based on existing research, a cost value of $0.15 per vehicle mile of travel was used for these costs. Therefore, only transportation improvements that reduced vehicle miles of travel resulted in an overall societal cost savings, and projects that increase travel accrue additional costs.

The benefit-cost analysis used a life-cycle approach. The costs of planning, implementing, constructing and maintaining the transportation improvement over the estimated life of the project was compared to the annual benefits (travel time, accident, and societal cost savings). Table 6.6 displays the general results of the benefit-cost analysis for each individual project that had an impact on automobile travel (TSM and Road System Projects).

Table 6.6
Individual Project Benefit-Cost Results

TSM Projects	Feasibility Result
Hwy. 30/Bennett Rd. Signalization	Least Feasible
Hwy. 30/Achilles Rd. Signalization	Least Feasible
Hwy. 30/Millard Rd. Signalization	Most Feasible
Hwy. 30/Vernonia Rd. Signalization	Most Feasible
Hwy. 30/Pittsburg Rd. Signalization	Most Feasible
Columbia Blvd. Vernonia Rd. Signalization	Feasible
Columbia Blvd./Sykes Rd. Signalization	Least Feasible
Columbia Blvd./12th St. Signalization	Feasible
Columbia Blvd./6th St. Signalization	Feasible

Road System Projects	Feasibility Result
St. Helens Road Extension	Most Feasible
Connect Milton Way to Gable Rd.	Most Feasible
Connect McNulty Way to Millard Rd.	Feasible
Pittsburg Rd./Highway 30 Interchange	Least Feasible
Extend Achilles Rd. to Pittsburg Rd. (via Ross Rd.)	Feasible
Hwy 30 Frontage Rd. (Millard to Sykes)	Feasible
Hwy 30 Frontage Rd. (Sykes to Vernonia)	Least Feasible
Hwy 30 Frontage Rd. (Vernonia to Pittsburg)	Feasible
Connect Childs Rd. to Millard Rd.	Most Feasible
St. Helens to Columbia City (West Side)	Least Feasible
St. Helens to Columbia City (East Side)	Least Feasible
Connect Firlock Park St. to Millard Rd.	Most Feasible
Connect Industrial Way to Old Portland Rd.	Feasible

TSM Project Analysis

Highway 30/Bennett Road Traffic Signal - In the individual project analysis, a traffic signal at Highway 30 and Bennett Road provides less benefits than the cost of installing and maintaining the signal. Overall, the traffic signal would improve delay along Bennett Road but at an expense of increasing delay to traffic along Highway 30. In the forecast year (2016) the intersection is expected to be operating at level-of-service "C". The level of service and the benefit-cost analysis suggest that the intersection will not need to be signalized during the 20-year planning horizon.

Highway 30/Achilles Road Traffic Signal - The analysis also suggests that a traffic signal at Highway 30 and Achilles Road will not be warranted. The travel demand model indicates that traffic volumes on Achilles Road are not significant to a level where it warrants a signal. The intersection is forecast to be operating at a level of service "A", which indicates that overall delay will be minimal in the future.

Highway 30/Millard Road Traffic Signal - The benefit-cost and traffic analyses suggest that as development starts to take place to the south and west, a traffic signal at Highway 30 and Millard Road will become one of the highest priorities. Millard Road is anticipated to become a primary route for traffic traveling to/from south of St. Helens to the western portion of the City. The eastern portion of Millard Road (east of Highway 30) is also expected to be a connector between Highway 30 and Old Portland Road, allowing local traffic an alternative to Highway 30. Without the traffic signal, the level of service at the intersection is estimated to be at "F", which indicates a significant amount of delay for traffic on Millard Road and traffic turning left from Highway 30 and East Millard Rd.. With the traffic signal, delay is minimized and level of service improves to a more acceptable level of service "D". The traffic signal also helps to minimize traffic accidents at this location. Historically, this intersection has had a higher traffic accident rate compared to other locations along Highway 30 in St. Helens.

Highway 30/Vernonia Road Traffic Signal - A traffic signal at Highway 30 and Vernonia Road also proves to be warranted and feasible during the next 20 years. Without the signal the level of service is "E" with a large amount of delay on Vernonia Road. With the signal the level of service improves to "D", with a large amount of overall time savings. The traffic signal also helps to minimize traffic accidents at this location. Historically, there has been an above average number of traffic accidents on Highway 30 at the Vernonia Road intersection.

Highway 30/Pittsburg Road Traffic Signal - A traffic signal at Pittsburg Road and Highway 30 significantly improves level of service and delay at this intersection. Without the signal the level of service is "F", indicating a severe amount of delay. The traffic signal improves overall level of service to "B".

Columbia Blvd./Vernonia Road Traffic Signal - The benefit-cost and traffic analyses suggest a traffic signal at Columbia Blvd. and Vernonia Road may be warranted as traffic volumes continue to increase at this intersection. Currently, this intersection is controlled with a 4-way stop and the anticipated level of service is "E", indicating some delay on both Columbia Blvd. and Vernonia Road. The traffic signal improves overall

level of service to "C". However, this intersection does not have a history of a high accident rate and the since the traffic volumes are somewhat less than other studied intersections, a traffic signal at this intersection does not prove to be a high priority.

Columbia Blvd./Sykes Road Traffic Signal - The analyses suggest that a traffic signal at Columbia Blvd. and Sykes Road may not be necessary. While the level of service is anticipated to increase from "F" to "C", there are other factors that are influence the level of service change. The primary reason is that the traffic signal at Millard Road is anticipated to have an impact on traffic volumes on Columbia Blvd. The travel demand model indicated that as delay increases on Millard Road, traffic traveling north from the Millard Road area will be diverted to Columbia Blvd. The additional traffic on Columbia Blvd. is likely to decrease the overall level of service at the Columbia Blvd./Sykes Road intersection. With the addition of the traffic signal at Millard Road and delay decreases, traffic from this area is expected to use Highway 30 and Old Portland Road to reach its destinations and traffic on Columbia Blvd. is decreased. The reduction of traffic on Columbia Blvd. improves the level of service at the Sykes Road intersection and reduces the need for a traffic signal.

Columbia Blvd./12th Street Traffic Signal - The intersection of Columbia Blvd. and 12th Street has one of the highest traffic accident rates in St. Helens. While, the intersection is not anticipated to be operating at high congestion levels in the future, a traffic signal will likely be needed at this location because of the high accident rate and adjacent land uses. Currently, at this intersection is a fire station and an access to a grocery store. A traffic signal could provide pre-emption for the fire station and reduce accident potentials at the intersection.

Columbia Blvd./6th Street Traffic Signal - The analyses suggest that a traffic signal at Columbia Blvd. and 6th Street will likely be needed in the future. The combination of above average accident rate and an anticipated increase in traffic volumes on both Columbia Blvd. and 6th Street warrants the traffic signal.

Road System Alternative (New Roadway Projects)

St. Helens Street Extension - Extending St. Helens St. across Highway 30 to Sunset Blvd. creates a large number of travel benefits for motorists traveling through on St. Helens and as well as traffic traveling on Highway 30. Currently, traffic traveling west on St. Helens St. is compelled to turn left on to Highway 30 and then right again on Columbia Blvd. to continue west. By completing the Columbia Blvd./St. Helens one way pair to Sunset Blvd., travel flow is improved on St. Helens St., Columbia Blvd. and Highway 30. The benefit-cost analysis identified this project as "most feasible" and should be listed as a higher priority project.

Connect Milton Way to Millard Road - Connecting Milton Way to Gable Road has a extensive impact of reducing the number of local trips off of Highway 30. It is estimated that by the year 2016, approximately 6,000 vehicles would travel along the Milton Way extension to Gable Road. The majority of these vehicles would be diverted from Highway 30. In the year 2016 , the base case land use plan assumes that a large retail center will be located in the southeast quadrant of the Gable Road/Highway 30

intersection. A vast percentage of vehicles traveling on the Milton Way extension are trips traveling to/from the large retail center. If such a center is in the City's interest, then extending Milton Way to Gable Road should be required mitigation for the construction of a retail center near this location.

Connect McNulty Way to Millard Road - The benefit-cost analysis found the McNulty Way to Millard Road connection has positive benefits and is a viable project. The analysis assumed that McNulty Way would become the primary truck route for large trucks traveling from Boise Cascade and other industrial sites in the area. The new truck route reduces the amount trucks traveling through the Gable Road/Highway 30 intersection and improves overall level of service delay. Also as more retail development occurs near the Gable Road/Highway 30 intersection, McNulty Way becomes an alternative automobile route to Highway 30 to access the retail center.
Pittsburg Road/Highway 30 Interchange - An interchange at Pittsburg Road and Highway 30 provides an unobstructed route (across Highway 30 and the Burlington Northern Railroad) between east and west St. Helens. The traffic analysis revealed that the interchange would create a fairly large amount of time savings for vehicles crossing Highway 30. However, the estimated capital cost of the project is quite large (over $5 million) and the long term benefits do not out weigh the overall costs of the project.

Extend Achilles Road to Pittsburg Road (via Ross Road) - The extension of Achilles Road to Pittsburg Road provides a sort of western bypass for motorists traveling to/from south of town to the west side of the City. The road extension helps to reduce the amount of local traffic on Highway 30. Without the "bypass", traffic traveling to/from the far western portion of the city would travel along Highway 30 and turn at either Gable, Sykes or Vernonia Road. By extending Achilles Road to Pittsburg Road, both travel time and vehicle miles of travel are reduced.

Highway 30 Frontage Road - The Frontage Road to Highway 30 creates several types of travel benefits. First of all, the analysis assumes that access along Highway 30 would be limited and the majority of the business access would be along the frontage road, west of Highway 30. Based on this assumption, the limited access would help to reduce traffic accidents along Highway 30 as well as decrease the amount of short distance trips traveling from one site to another on Highway 30. Overall, the frontage road system was found to be a viable and needed project. However, two of the four segments were found to be less feasible based on construction and environmental constraints. The sections of the frontage road between Sykes Road and Vernonia Road, and Vernonia Road and Columbia Blvd., were both found to be difficult and costly to construct because of existing physical constraints. A frontage road between Vernonia Road and Columbia Blvd. would require the dislocation of many existing businesses as well as an additional bridge across Milton Creek.

Connect Childs Road to Millard Road - The connection of Childs Road to Millard Road allows for an additional north-south collector street between Highway 30 and Ross Road. As this area begins to develop a good north-south access will be needed to allow movement between Bachelor Flat Road/Columbia Blvd. and Millard Road. This roadway extension does reduce the amount of the local traffic on Highway 30. The

benefit-cost analysis found this project to be feasible and needed as residential development occurs in this area.

Connect Firlock Park Street to Millard Road - Similar to the Childs Road to Millard Road connection, this street allows local trips an alternative to Highway 30. In this roadway evaluation, it was assumed that the Bachelor Flat/Gable Road intersection was realigned with Firlock Park Street. This realignment attracted considerable more traffic than the Childs Road to Millard Road connection and provided additional time savings and more VMT reduction for motorists traveling in this area. When the Childs Road and the Firlock Park Street connections are evaluated together, the Firlock Park Street extension is a more viable project and reduces the need for the Childs Road extension.

St. Helens to Columbia City Connection - Currently, Highway 30 is the only direct route connecting the cities of St. Helens and Columbia City. Two separate routes were evaluated to determine if an additional route would be needed. It was determined that an eastside connection provides more travel benefits than a roadway west of Highway 30. However, neither roadway produces enough benefits to overcome the significant costs of the two projects.

Connect Industrial Way to Old Portland Road - The connection of Industrial Way to Old Portland Road provides an additional access into the McNulty Creek Industrial Park. The benefit-cost analysis shows that this is a needed connection, especially as the site attracts industrial activity.

Road System Alternative (Reconstruction Projects)

For the reconstruction roadway projects, a similar benefit-cost analysis was conducted to assist in prioritization. All the identified reconstruction projects are in need to be upgraded to existing roadway standards. However, it is very unlikely that the city of St. Helens has funding to complete all the identified rehabilitation and reconstruction projects. Therefore the benefit-cost analysis was used to determine which projects are in most need of reconstruction.

The same methodology used in the TSM and new roadway benefit-cost analysis was applied for the road reconstruction projects. The level of prioritization is based on two types of benefits: 1) accident reduction (does the road segment have a history of traffic accidents) and 2) improved travel time, (does the segment have large traffic volumes and can travel time be increased). These two types of benefits are quantified and compared to the cost to determine priority.. Figure 6.7 displays the prioritization list.

Table 6.7
Road Reconstruction Prioritization List

Reconstruction Projects	Priority
Gable Rd. (Highway 30 and Bachelor Flat Rd.)	High
Sykes Rd. (Columbia Blvd. to City Limits)	High
Bachelor Flat Rd. (Sykes Rd. to Ross Rd.)	High
Old Portland Rd. (St. Helens St. to Gable Rd.)	High
Columbia Blvd. (Highway 30 to Sykes Rd.)	High
18th St. (Old Portland Rd. to Columbia Blvd.)	High
Pittsburg Rd. (Highway 30 to UGB Line)	Middle
Vernonia Rd. (Highway 30 to Pittsburgh Rd.)	Middle
6th St. (Columbia Blvd. to West St.)	Middle
Sykes Rd. (City Limits to UGB Line)	Middle
Millard Rd. (Highway 30 to UGB Line)	Middle
Matzen St. (Sykes Rd. to Columbia Blvd.)	Middle
Old Portland Rd. (Gable Rd. to UGB Line).	Low
Achilles Rd. (Highway 30 to UGB Line)	Low
12th St. (Cowlitz to Old Portland Rd.)	Low
15th St. (Old Portland Rd. to Columbia Blvd.)	Low

6.5 Combination Alternative

The evaluation of the three alternatives revealed that a combination of TDM, TSM and road system projects are necessary to meet St. Helens' future transportation needs. While each alternative was successful at meeting at least one of the TSP goals, none of the alternatives met all of the goals and objectives.

The three alternatives included a comprehensive list of transportation projects. The alternatives analysis revealed that many of these projects are not warranted or are not entirely necessary over the next 20 years. The primary purpose of the combination alternative is to selectively include the substantive projects that best meet the future transportation needs.

The TSM and Road System projects included in the combination alternative, include those that were found to be feasible or have a middle to high priority rating in the individual project analysis.. The TDM projects in the Combination alternative include all transit improvements and various bicycle and sidewalk improvements to ensure a connected system on the busiest streets in St. Helens. Table 6.8 lists all the projects included in the Combination Alternative.

Table 6.8
Combination Alternative

Project Type	Project Description	Estimated Cost ($1996)
TSM	Traffic Signal (Millard Rd./Highway 30)	$200,000
TSM	Traffic Signal (Vernonia Rd./Highway 30)	$200,000
TSM	Traffic Signal (Pittsburg Rd./Highway 30)	$200.000
TSM	Traffic Signal (Columbia Blvd./Vernonia Rd.)	$200,000
TSM	Traffic Signal (Columbia Blvd./12th St.)	$200,000
TSM	Traffic Signal (Columbia Blvd./6th St.)	$200,000
TSM	Optimize existing signals on Highway 30 to coordinate with new signals	$20,000
TSM	Add Turning Lanes (Gable Rd./Hwy 30 Intersection)	$80,000
TSM	Intersection Improvements (Old Portland Rd./Gable Rd.) Realign intersection to allow through movement on Old Portland Rd. at Gable Road.	$300,000
TDM/Transit	Support COLCO Service and Expansion	$10,000/yr *
TDM/Transit	Support Vanpool Service to Portland	$11,000/yr.*
TDM/Transit	Provide Bicycle Parking at Vanpool Stops	$1,000
TDM/Pedestrian	Sidewalk improvements along 18th Street (Old Portland Rd. to Columbia Blvd.) to be completed as part of reconstruction project.	$106,000
TDM/Pedestrian	Sidewalks along Columbia Blvd. (Highway 30 to Sykes Rd.) to be completed as part of reconstruction project.	$100,000
TDM/Pedestrian	Sidewalks along Old Portland Rd. (St. Helens St. to Gable Rd.) to be completed as part of reconstruction project.	$275,000
TDM/Pedestrian	Sidewalks along Gable Rd. (Hwy 30 to Bachelor Flat) to be completed as part of reconstruction project.	$118,000
TDM/Pedestrian	Sidewalks along Pittsburgh Rd. (Highway 30 to Vernonia Rd.) to be completed as part of reconstruction project.	$105,000
TDM/Pedestrian	Sidewalks on Vernonia Rd. (Highway 30 to Pittsburg Rd.) to be completed as part of reconstruction project.	$226,000
TDM/Pedestrian	Sidewalk improvements on Millard Rd. (Highway 30 to UGB Line) to be completed as part of reconstruction project.	$175,000

Table 6.8 (Cont.)
Combination Alternative

Project Type	Project Description	Estimated Cost ($1996)
TDM/Pedestrian	Sidewalk improvements on Sykes Rd.(Columbia Blvd. to City Limits) to be completed as part of reconstruction project.	$115,000
TDM/Pedestrian	Sidewalk improvements on Bachelor Flat Rd. (Sykes Rd. to Ross Rd.) to be completed as part of reconstruction project.	$186,000
TDM/Pedestrian	Sidewalk improvements on Achilles Rd. (Highway 30 to N. Morse Rd.) to be completed as part of reconstruction project.	$112,000
TDM/Pedestrian	Sidewalk improvements on Ross Rd.(Millard Rd. to Bachelor Flat Rd.) to be completed as part of reconstruction project.	$106,000
TDM/Pedestrian	Sidewalk improvements on Firlock Park St.- to be completed as part of reconstruction project.	$78,000
TDM/Pedestrian	Sidewalk improvements on N. Morse Rd. (Millard Rd. to Bachelor Flat Rd.) to be completed as part of reconstruction project.	$106,000
TDM/Pedestrian	Sidewalk improvements on Matzen St. - to be completed as part of reconstruction project	$74,000
TDM/Pedestrian	Complete Sidewalks on Sykes Rd. between Highway 30 and Columbia Blvd	$41,000
TDM/Pedestrian	Complete Sidewalks on West St. between 4th St. and Oregon St.	$89,000
TDM/Pedestrian	Add Sidewalks on Gable Rd. between Highway 30 and Old Portland Road.	$56,000
TDM/Pedestrian	Complete Sidewalks on 11th St. between West St. to the Jr. High School.	$13,000
TDM/Pedestrian	Complete Sidewalks on 15th St. between Cowlitz and Old Portland Rd.	$18,000
TDM/Pedestrian	Add Sidewalks to New St. Helens St. Extension from Highway 30 to Sunset Blvd.	$53.000
TDM/Pedestrian	Add Sidewalks to New Achilles Road Extension between N. Morse Rd. and Ross Rd.	$137,000
TDM/Pedestrian	Add Sidewalks to New Firlock Park St. Extension to Millard Rd.	$102,000
TDM/Pedestrian	Add Sidewalks to New Ross Road Extension from Bachelor Flat Rd. to Pittsburg Rd.	$148,000

Table 6.8 (Cont.)
Combination Alternative

Project Type	Project Description	Estimated Cost ($1996)
TDM/Pedestrian	Add Sidewalks to Highway 30 Frontage Rd. between Millard Rd. and Sykes Rd.	$190,000
TDM/Pedestrian	Add Sidewalks to Highway 30 Frontage Rd. between Vernonia Rd. and Pittsburg Rd.	$106,000
TDM/Bicycle	Provide Bicycle Parking in Old Town	$2,000
TDM/Bicycle	Provide Bicycle Parking Uptown along Columbia Blvd. and St. Helens St.	$2,000
TDM/Bicycle	Provide Bicycle Parking along Riverfront	$500
TDM/Bicycle	Provide Bicycle Parking along Highway 30.	$3,000
TDM/Bicycle	Provide Bicycle Parking at the Columbia County Fairgrounds	$1,000
TDM/Bicycle	Add Bicycle lanes on St. Helens St. between 13th St. and Highway 30.	$500
TDM/Bicycle	Add Bicycle lanes on St. Helens St. between Old Portland Rd. and 1st St.	$500
TDM/Bicycle	Add Bicycle lanes on Columbia Blvd. between 7th St. and 13th St.	$500
TDM/Bicycle	Add Bicycle lanes on Gable Rd. between Highway 30 and Old Portland Rd.	$121,000
TDM/Bicycle	Add Bicycle lanes on Old Portland Rd. between Millard Rd. and Gable Rd.	$465,000
TDM/Bicycle	Add Bicycle Lanes on Pittsburg Rd. between Highway 30 and Vernonia Rd. (to be completed as part of reconstruction project)	$113,000
TDM/Bicycle	Add Bicycle Lanes on Vernonia Rd. between Highway 30 and Pittsburg Rd. (to be completed as part of reconstruction project)	$113,000
TDM/Bicycle	Add Bicycle Lanes on Columbia Blvd. between Highway 30 and Sykes Rd. (to be completed as part of reconstruction project	$100,000
TDM/Bicycle	Add Bicycle Lanes on Gable Rd. between Highway 30 and Bachelor Flat Rd. (to be completed as part of reconstruction project	$74,000
TDM/Bicycle	Add Bicycle Lanes on Old Portland Rd. between Gable Rd. and St. Helens St. (to be completed as part of reconstruction project)	$152,000

Table 6.8 (Cont.)
Combination Alternative

Project Type	Project Description	Estimated Cost ($1996)
TDM/Bicycle	Add Bicycle Lanes on 18th St. between Columbia Blvd. and Old Portland Rd. (to be completed as part of reconstruction project)	$54,000
TDM/Bicycle	Add Bicycle Lanes on Bachelor Flat Rd. between Sykes Rd. and Ross Rd. (to be completed as part of reconstruction project)	$93,000
TDM/Bicycle	Add Bicycle Lanes on Millard Rd. between Old Portland Rd. and Ross Rd. (to be completed as part of reconstruction project)	$90,000
TDM/Bicycle	Add Bicycle Lanes on Ross Rd. between Millard Rd. to Bachelor Flat Rd. (to be completed as part of reconstruction project)	$53,000
TDM/Bicycle	Add Bicycle Lanes on Sykes Rd. between Columbia Blvd. and Saulser Rd. (to be completed as part of reconstruction project)	$172,000
TDM/Bicycle	Add Bicycle Lanes on New St. Helens St. Extension between Highway 30 and Sunset Blvd.	$28,000
TDM/Bicycle	Add Bicycle Lanes on Bachelor Flat (Ross Rd. to the Fairgrounds)	$380,000
TDM/Bicycle	Add Bicycle Lanes on Saulser Rd. between Bachelor Flat Rd. and Sykes Rd.	$211,000
TDM/Bicycle	Construct a new Bicycle Path along BPA Power Line Easement between Vernonia Rd. and Sykes Rd.	$121,000
TDM/Bicycle	Construct a new Bicycle Path along BPA Power Line Easement between Sykes Rd. and Bachelor Flat Rd.	$45,000
Road System	Extend Columbia Blvd./St. Helens one way couplet. Connect St. Helens St. to Sunset Blvd. via Shore Dr.	$930,000
Road System	Connect Milton Way to Gable Rd.	$700,000
Road System	Connect McNulty Way to Millard Rd.	$1,290,000
Road System	Connect Achilles Rd. to Pittsburg Rd. via Ross Rd.	$3,170,000
Road System	Construct Highway 30 Frontage Rd. between Millard Rd. and Sykes Rd.	$5,150,000
Road System	Construct Highway 30 Frontage Rd. between Columbia Blvd. and Pittsburg Rd.	$2,030,000
Road System	Connect Firlock Park Street Extension from Firlock Park Blvd. to Millard Rd.	$850,000

Table 6.8 (Cont.)
Combination Alternative

Project Type	Project Description	Estimated Cost ($1996)
Road System	Connect Industrial Way to Old Portland Rd.	$390,000
Road System	Reconstruct Columbia Blvd. from Highway 30 to Sykes Rd.	$430,000
Road System	Reconstruct Old Portland Rd. from St. Helens St. to Gable Rd.	$1,140,000
Road System	Reconstruct Gable Rd. from Highway 30 to Bachelor Flat Rd.	$470,000
Road System	Reconstruct 18th St. from (Old Portland Rd. to Columbia Blvd.	$360,000
Road System	Reconstruct Pittsburg Rd. from Highway 30 to Vernonia Rd.	$900,000
Road System	Reconstruct Bachelor Flat Rd. from (Sykes Rd. to Ross Rd.	$670,000
Road System	Reconstruct Vernonia Rd. from Highway 30 to Pittsburgh Rd.	$500,000
Road System	Reconstruct Sykes Rd. from Columbia Blvd. to City Limits	$250,000
Road System	Reconstruct Sykes Rd. from City Limits to UGB Line	$360,000
Road System	Reconstruct Millard Rd. from Highway 30 to UGB Line	$540,000
Road System	Reconstruct Achilles Rd. from Highway 30 to N. Morse Rd.	$380,000
Road System	Reconstruct Ross Rd. from Millard Rd. to Bachelor Flat Rd.	$690,000
Road System	Reconstruct N. Morse Rd. from Achilles Rd. to Millard Rd.	$360,000
Road System	Reconstruct Firlock Park Street	$530,000
Road System	Reconstruct Matzen Street	$310,000
	TOTAL COSTS (Capital Costs)	**$29,231,000**

*. These are annual operating costs and are not included in the capital cost total.

Evaluation of the Combination Alternative

The Combination alternative was subjected to the same evaluation criteria as the three previous alternatives. Overall, the Combination alternative best fulfills the goals and objectives of the Transportation System Plan (TSP). Through providing a mixture of TDM, TSM and road system projects, this alternative improves transportation mobility, provides additional transportation alternatives, helps to minimize environmental impacts, and supports future economic viability. The evaluation results of the Combination alternative compared to the No-Build Condition are presented in the Table 6.9. The following summarizes the results of the Combination alternative in regard to the evaluation criteria and the TSP goals and objectives..

The Combination alternative selected the most worthwhile projects from each of the three previous alternatives. The result of mixing together these projects, is an alternative that fulfills every objective under the Transportation Goal. Through the addition of various new roadways and better traffic management, overall mobility and safety are enhanced. Also, through the use of frontage roads and other new roadways parallel to Highway 30, a significant amount of local traffic would be reduced from Highway 30. The Combination alternative also meets the alternative mode objectives of the TSP. Through greater support for public transit and an improved bicycle and pedestrian network, more transportation options exist for the residents of St. Helens.

While the Combination alternative does include several new roadway improvements, all of the projects are connections or small additions to the existing system. None of the improvement projects travel through environmentally sensitive areas, thus meeting the objective of the Resources Goal of protecting the scenic beauty of the area.

Through improving transportation efficiency and mobility, the Combination alternative helps to support future economic development. With a limited amount of traffic congestion and well maintained and complete transportation system, the City of St. Helens would become more attractive for industrial and commercial investment.

Overall, the Combination meets the future transportation needs of the City of St. Helens and is considered the preferred alternative.

Table 6.9
Evaluation Criteria Matrix

EVALUATION CRITERIA	No-Build	Combination Alternative	
TRANSPORTATION GOAL			
MOBILITY			*% change from No-Build*
Average Speed (mph) by Functional Class			
Principal Arterials (Highway 30)	38.2	37.8	-1.0%
Minor Arterials	34.4	34.5	0.3%
Collectors	32.6	31.0	-4.9%
Access to Transportation Disadvantaged	o/+/-	++	
Access to Various Transportation Users (*Commerical, commuter, residents, recreational*)	o/+/-	++	
VEHICLE MILES OF TRAVEL (VMT)			*% change from No-Build*
Total VMT (thousand vehicle-miles/day)	320.1	306.2	-4.3%
VMT Per Capita (miles/day)	16.7	16.0	-4.3%
VMT by Functional Class (thousands per day)			
Principal Arterials (Highway 30)	168.2	152.5	-9.3%
Minor Arterials	129.0	121.0	-6.2%
Collectors	22.9	32.7	42.8%
Local VMT on Highway 30 (thousands per day)	87.3	69.4	-20.5%
VEHICLE HOURS OF TRAVEL (VHT)			*% change from No-Build*
Total VHT (vehicle-hours)	10,130	9,928	-2.0%
VHT Per Capita (Minutes/day)	31.6	31.1	-1.6%
AVAILABILITY OF TRANSIT			
Level of Community-wide Transit Service	o/+/-	++	
Level of Transit Service for Transportation Disadvantaged	o/+/-	++	
MAXIMIZE SYSTEM SAFETY			
Estimated Number of Accidents (Annual)	145	115	-20.7%
Addresses Safety Concerns from Analysis & Public Input	o/+/-	++	

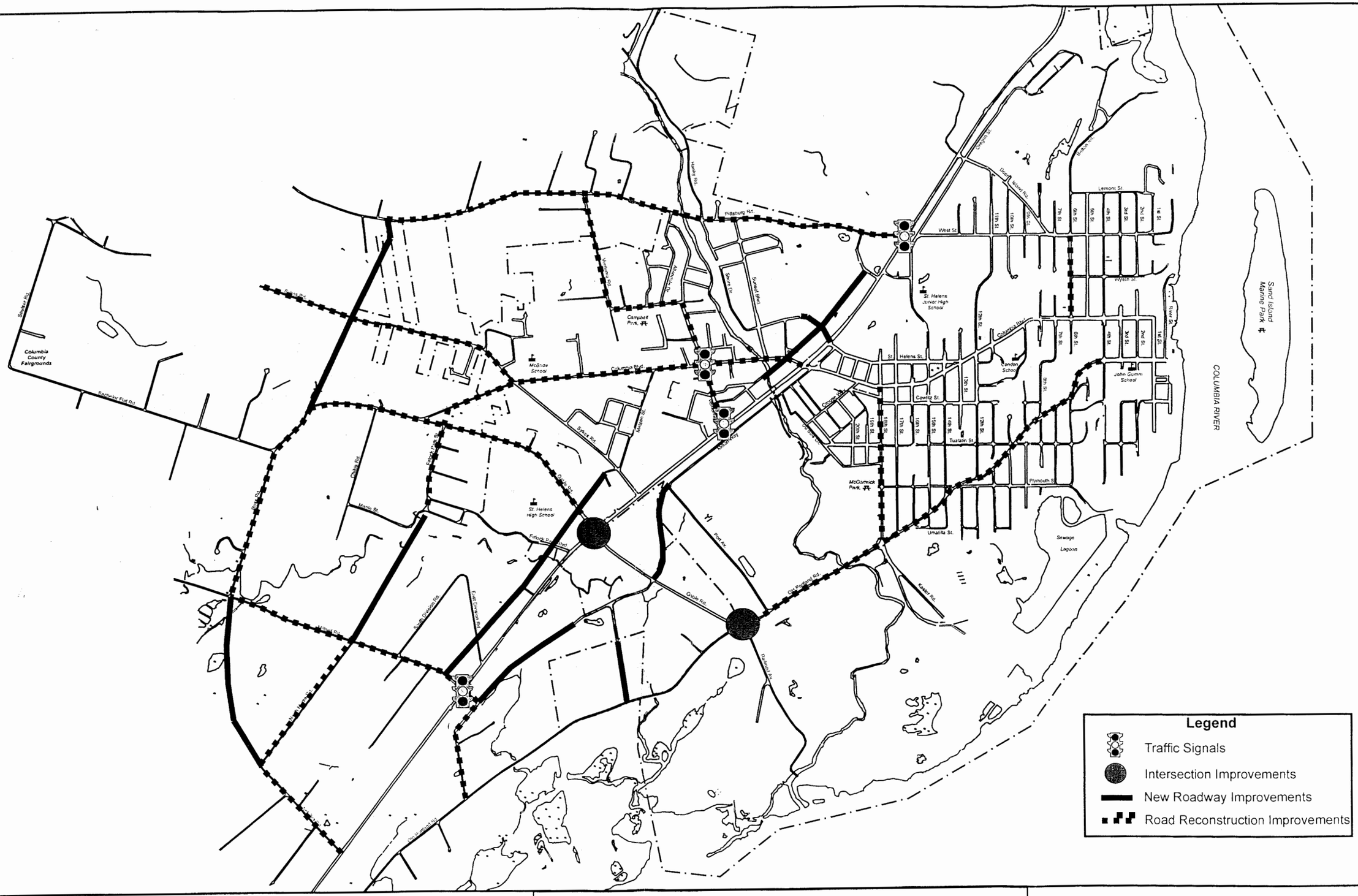
Table 6.9
Evaluation Criteria Matrix

EVALUATION CRITERIA	No-Build	Combination Alternative
TRANSPORTATION GOAL, continued		
LEVEL-OF-SERVICE (LOS,		
Percentage of Miles in system by LOS by Functional Class		
Highway 30		
LOS B or better	32.4%	92.4%
LOS C	62.6%	7.6%
LOS D or worse	5.0%	0.0%
Minor Arterials & Collectors		
LOS B or better	89.7%	97.0%
LOS C	6.9%	3.0%
LOS D or worse	3.4%	0.0%
Key Intersections		
Highway 30 & Bennett Rd.	"C"	"C"
Highway 30 & Achilles Rd.	"A"	"A"
Highway 30 & Millard Rd.	"F"	"C"
Highway 30 & Gable Rd.	"F"	"D"
Highway 30 & Sykes Rd.	"C"	"B"
Highway 30 & Vernonia Rd.	"E"	"D"
Highway 30 & Columbia Blvd.	"F"	"D-E"
Highway 30 & St. Helens St.	"D"	"C"
Highway 30 & Wyeth St.	"E"	"D"
Highway 30 & Pittsburg Rd.	"F"	"B"
Highway 30 & Deer Island Rd.	"C"	"C"
Columbia Blvd. & 6th St.	"C"	"C"
Columbia Blvd. & 12th St.	"A"	"A"
Columbia Blvd. & 18th St.	"A"	"A"
Columbia Blvd. & Vernonia Rd.	"E"	"C"
Columbia Blvd. & Sykes Rd.	"F"	"C"
Pittsburg Rd. & Vernonia Rd.	"A"	"A"
Pittsburg Rd. & Sunset Rd.	"A"	"A"
Old Portland Rd. & Gable Rd.	"C"	"A"
Old Portland Rd. & 18th St./Kaster Rd.	"C"	"C-D"
Gable Rd. & Bachelor Flat Rd.	"C"	"B"

Table 6.9
Evaluation Criteria Matrix

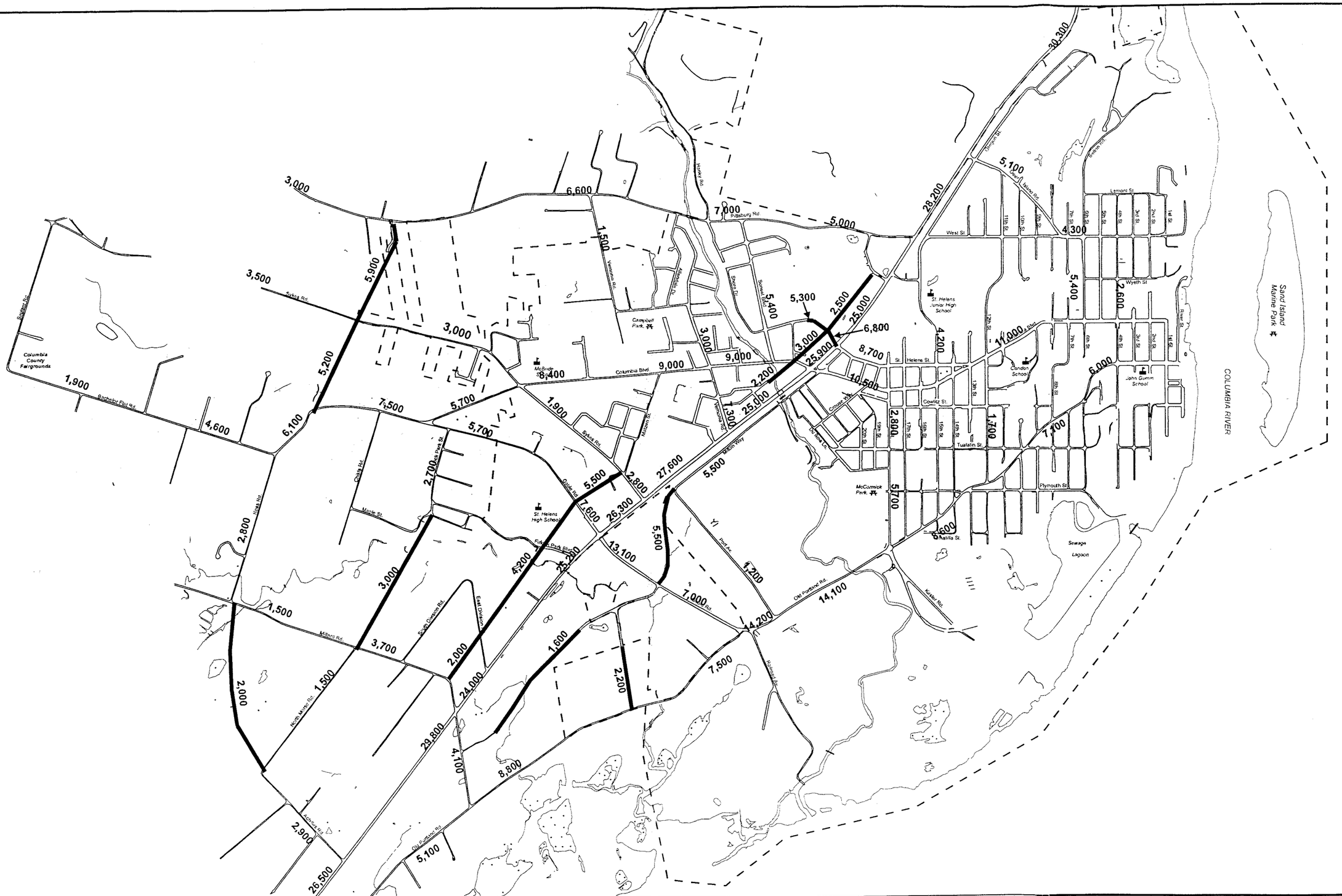
EVALUATION CRITERIA	No-Build	Combination Alternative	
COMMUNITY GOAL			
ACCESSIBILITY TO DIFFERENT MODES AND TO VARYING LEVELS OF DESTINATIONS			
Level of Access to Neighborhoods	o/+/-	+	
(Pedestrians, bikes, autos, & transit)			
Level of Access to Community	o/+/-	+	
AVAILABILITY OF TRANSIT			
Level of Community-wide Transit Service	o/+/-	++	
Level of Transit Service for Transportation Disadvantaged	o/+/-	++	
MINIMIZATION OF LAND USE IMPACTS			
Supports Land Use Plans	o/+/-	+	
RESOURCE GOAL			
MINIMIZATION OF ENVIRONMENTAL IMPACTS			
Minimizes Impact on Significant Natural & Cultural Features		+	
(Natural areas, wetlands, historic/cultural resources, schools, parks, & cemeteries)			
Minimizes Visual and Aesthetic Impacts		+	
ECONOMIC GOAL			
MOBILITY			*% change from No-Build*
Average Speed (mph) by Functional Class			
Principal Arterials (Highway 30)	38.2	37.8	-1.0%
Minor Arterials	34.4	34.5	0.3%
Collectors	32.6	31.0	-4.9%
Access to Transportation Disadvantaged	o/+/-	++	
Access to Various Transportation System Users	o/+/-	++	
(Commerical, commuter, residents, recreational)			
MINIMIZATION OF PUBLIC COSTS			
Capital Costs	*NA*	$29,231,000	

+ Positive Impact
o No discernable change
- Negative Impact



City of St. Helens Transportation Systems Plan

Figure 6.15
Combination Alternative

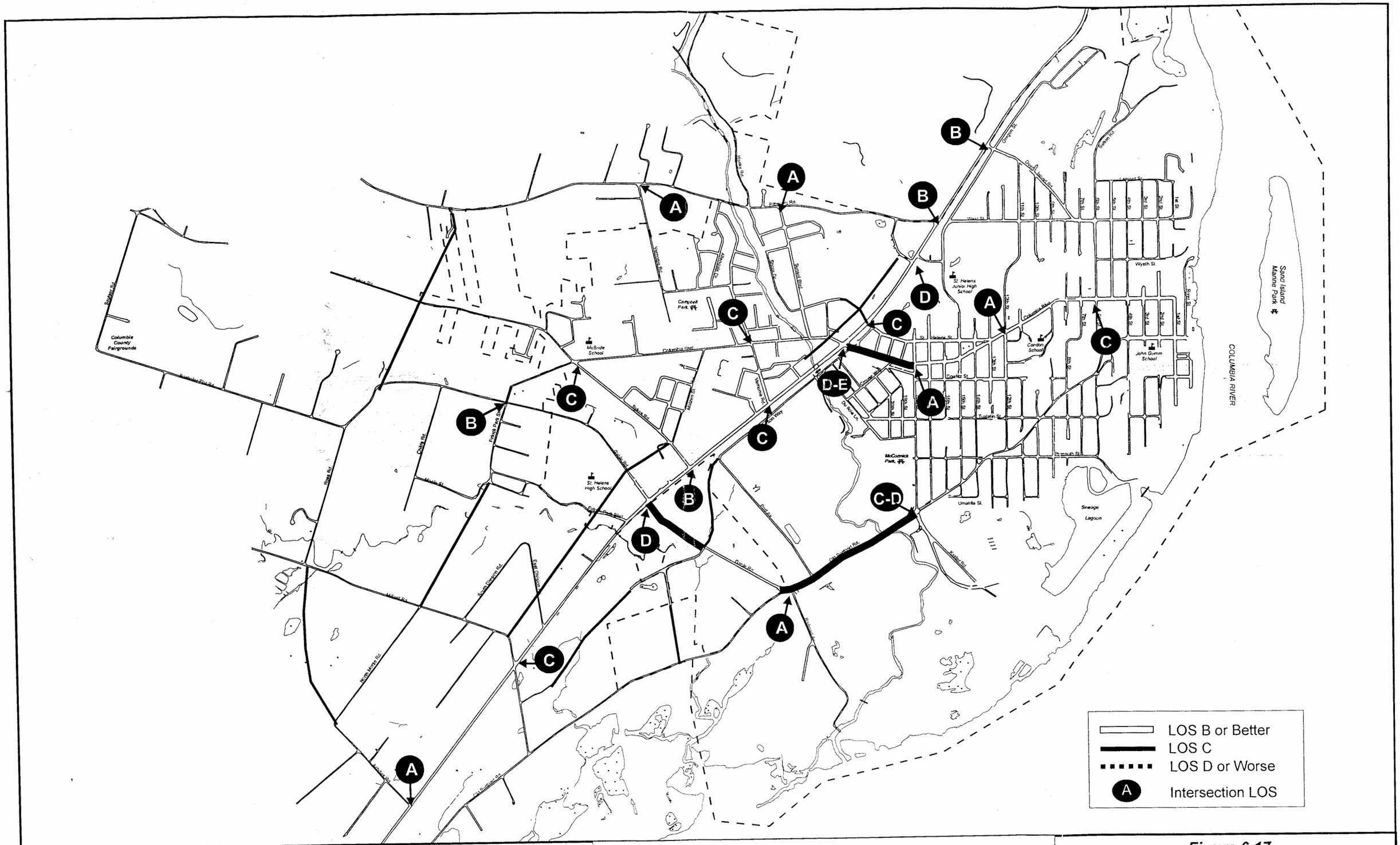


City of St. Helens Transportation System Plan

LEGEND

10,000 - Year 2016 ADT

Figure 6.16
Combination Alternative
Year 2016 Average Daily Traffic



City of St. Helens Transportation System Plan

Figure 6.17
Combination Alternative
Year 2016 - Level of Service

7.0. DRAFT TRANSPORTATION SYSTEM PLAN

This section presents the Draft Transportation System Plan (TSP) for the City of St. Helens. This Draft TSP presents project improvements and policies towards achieving the goals and objectives outlined in Section 2.

The Draft TSP is divided into 2 major components:

1. Transportation System Plans for Individual Modes
    - Street System Plan
    - Pedestrian Plan
    - Bicycle Plan
    - Transit Plan
    - Air/Rail/Water/Pipeline Plan

2. Highway 30 Access Management Plan

7.1 Transportation System Plans for Individual Modes

The Transportation System Plan comprises all the improvements of the Combination alternative, evaluated in Section 6. The Combination alternative has been identified as the "Preferred Alternative," which best represents the overall goals and objectives for the TSP. The preferred alternative recommends $29.2 million in capital improvements over the next 20 years. The following describes the recommended projects and policies for each mode contained in the preferred alternative.

Street System Plan

The Street Plan identifies the roadway alternatives that are necessary to safely and efficiently serve the vehicular needs of the community over the next 20 years. The recommended Street System Plan is illustrated in Figure 7.1[1]. The objective of the Street Plan is to achieve many of the goals and objectives stated in Section 2. The basic premise of the Plan is to maximize the efficiency of the existing roadway system through better roadway management and small scale improvements to existing roads to reduce the need for new major roadway improvements.

Roadway Improvements

There is a limited amount of new roadway construction included in the recommended Street Plan. The focus of the new streets or roadway extensions is primarily to meet the vehicular needs of anticipated new development in west St. Helens. Demographic forecasts suggest that the St. Helens area is expected to continue to grow at a significant pace over the next 20 years. The roadway improvements include new

[1] The new roadways depicted on Figure 7.1 represent general alignments. The actual alignment of each new roadway must be determined through survey and design studies.

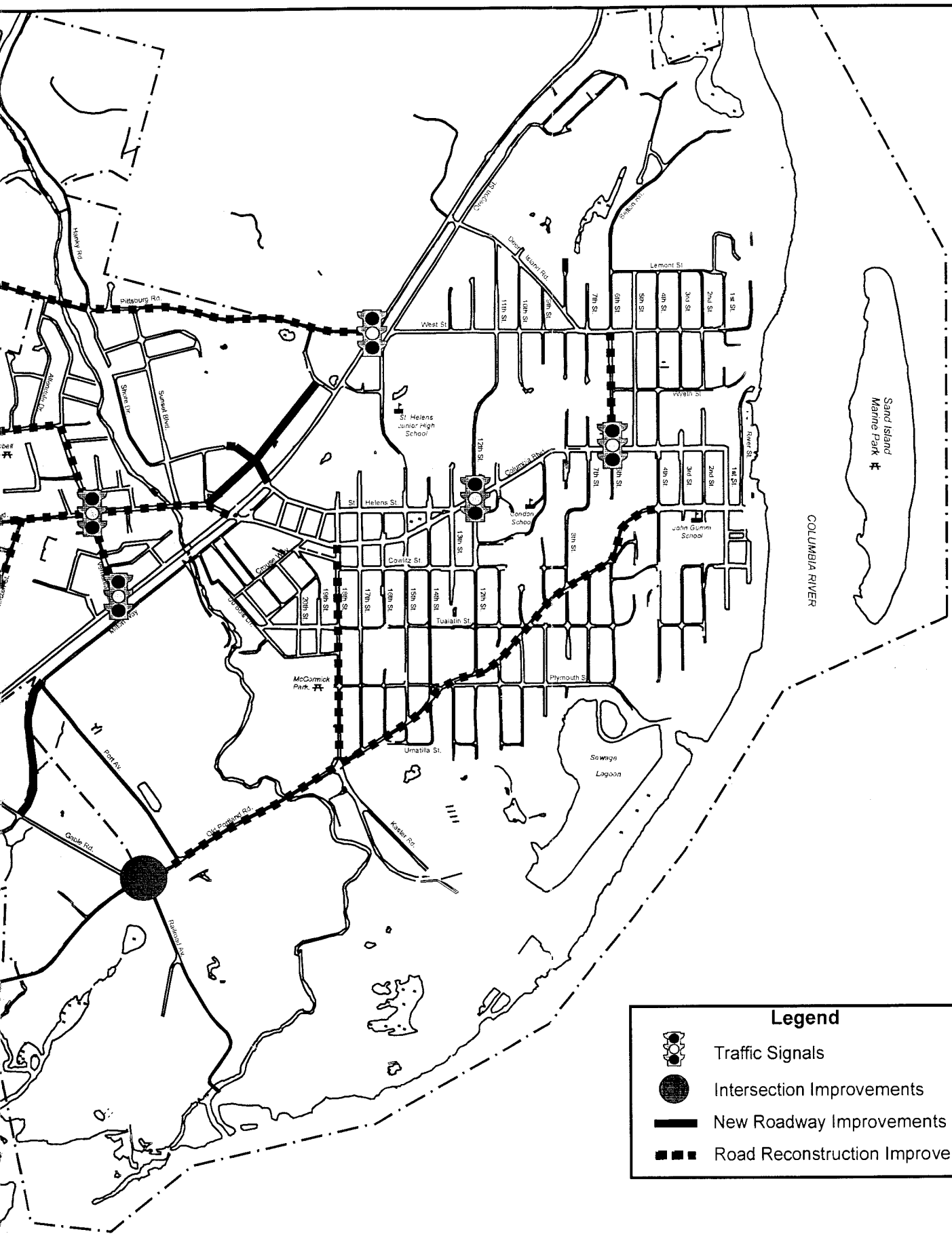


Figure 7.1
Recommended Street System Plan

arterial and collector streets to ensure future mobility and connectivity is maintained in the developing areas of west St. Helens.

The Street System Plan also includes improvements to a number of St. Helens' existing streets. Many of the arterial and collector streets in St. Helens have deteriorated or have not been constructed to today's recommended design standards. The purpose of the roadway improvements would be to upgrade the more heavily used arterial roadways to existing roadway standards to enhance mobility and safety and prevent the need for major roadway capacity improvements.

The recommended new roadways and necessary improvements to existing roads are described below and are listed with the planning level cost estimates in Tables 7.1 and 7.2.

New Roadway Improvements

- Extend St. Helens Street across Highway 30 to Sunset Blvd. via Shore Drive. This new roadway project would extend the St. Helens St./Columbia Blvd. one-way couplet to Sunset Blvd. Construct as a two-lane minor arterial, with striped bike lanes, 6-foot sidewalks and parking on both sides. The estimated length of the new road is approximately 1400 feet with an estimated capital cost of $930,000. This also includes roadway improvements to Shore Drive.
- Extend Achilles Road northwest to Ross Rd./Millard Rd intersection. Construct as a two-lane minor arterial with 6 foot sidewalks.
- Extend Ross Road from Bachelor Flat across Sykes Road to Pittsburgh Road. Construct as a two-lane minor arterial with 6 foot sidewalks.
- Extend Firlock Park Street to Millard Rd./North Morse Road intersection. Construct as a two-lane collector with 5 foot sidewalks.
- Extend Milton Way from Port Avenue to Gable Road/McNulty Way intersection. Construct as a two-lane collector with 5 foot sidewalks.
- Extend McNulty Way to Millard Road. Construct as a two-lane collector.
- Extend Industrial Way to Old Portland Road. Construct as a two-lane collector.
- Construct a frontage road west of Highway 30 between Millard Road and Sykes Road. The frontage road would enable access to businesses along Highway 30 from behind (west). Construct as a two-lane collector with 6 foot sidewalks.
- Construct a frontage road west of Highway 30 between Columbia Blvd. and Pittsburg Road. Construct as a two-lane collector with 6 foot sidewalks.

Table 7.1
Street Improvement Projects
(New Roadways)

New Roadway Improvements	Travel Lanes	Bicycle Lanes	Sidewalk Width	Parking	Estimated Cost
St. Helens Street Extension (a) (Highway 30 to Sunset Blvd.)	2	Yes	6 ft.	Yes	$930,000
Achilles Road Extension (N. Morse Rd. to Ross Rd.)	2	No	6 ft.	No	$1,530,000
Ross Road Extension (Bachelor Flat Rd to Pittsburg Rd)	2	No	6 ft.	No	$1,640,000
Firlock Park Street Extension (Firlock Park Blvd. to Millard Rd.)	2	No	5 ft.	No	$850,000
Milton Way Extension (Port Ave to Gable Rd.)	2	No	None	No	$700,000
McNulty Way Extension (to Millard Rd.)	2	No	None	No	$1,290,000
Industrial Way Extension (to Old Portland Rd.)	2	No	None	No	$390,000
Highway 30 Frontage Road (Millard Rd. to Sykes Rd.)	2	No	6 ft.	No	$5,150,000
Highway 30 Frontage Road (Columbia Blvd. to Pittsburg Rd.)	2	No	6 ft.	No	$2,030,000
TOTAL					**$14,510,000**

Note: Does not include the cost for sidewalks of bicycle lanes.
(a) Includes cost for improvements on Shore Drive.

Existing Street Improvement Projects

- Improve Old Portland Road from St. Helens Street to Gable Road to minor arterial standards, including striped bicycle lanes and 6 foot sidewalks. Redesign Old Portland Road/Gable Road intersection into a "T intersection", allowing through movement on Old Portland Road. Add stop sign on Gable Road.
- Improve 18th Street from Columbia Blvd. to Old Portland Road. Reconstruct to collector standards with parking on both sides. Include striped bicycle lanes and 5 foot sidewalks.
- Improve Pittsburg Road from Highway 30 to Vernonia Road to minor arterial standards, including striped bicycle lanes and 6 foot sidewalks.
- Improve Vernonia Road from Highway 30 to Pittsburg Road. Reconstruct to collector standards with striped bicycle lanes and 5 foot sidewalks.
- Improve Columbia Blvd. from Highway 30 to Sykes road to minor arterial standards, including striped bicycle lanes and 6 foot sidewalks.
- Improve Gable Road from Highway 30 to Bachelor Flat Road. Reconstruct to minor arterial standards with striped bicycle lanes and 5 foot sidewalks.
- Improve Sykes Road from Columbia Blvd. to the City Limits. Reconstruct to collector standards with 5 foot sidewalks.
- Improve Sykes Road from the City Limits to the end of the Urban Growth boundary. Reconstruct to collector standards.
- Improve Bachelor Flat Road from Sykes Road to Ross Road to minor arterial standards, including striped bicycle lanes and 6 foot sidewalks.
- Improve Achilles Road from Highway 30 to North Morse Road. Reconstruct to minor arterial standards with 6 foot sidewalks and striped bicycle lanes.
- Improve Ross Road from Millard Road to Bachelor Flat Road. Reconstruct to minor arterial standards with 6 foot sidewalks and striped bicycle lanes.
- Improve Millard Road from Highway 30 to Ross Road to minor arterial standards, including 6 foot sidewalks and striped bicycle lanes.
- Improve North Morse Road from Achilles Road to Millard Road. Reconstruct to collector standards with 5 foot sidewalks.
- Improve Firlock Park Street to collector standards with 5 foot sidewalks.
- Improve Matzen Street to collector standards with 5 foot sidewalks.
- Add additional turning lanes at Highway 30/Gable Road intersection. Add additional lane on Highway 30 for right turns and add dual left turn lanes on east side of Gable Road.

Table 7.2
Street Improvement Projects
(Existing Roadway Improvements)

New Roadway Improvements	Travel Lanes	Bicycle Lanes	Sidewalk Width	Parking	Estimated Cost
Old Portland Road[1] (St. Helens St. to Gable Rd.)	2	Yes	6 ft.	No	$1,440,000
18 th Street (Columbia Blvd to Old Portland Rd)	2	Yes	5 ft.	Yes	$360,000
Pittsburg Road (Highway 30 to Vernonia Rd.)	2	Yes	6 ft.	No	$900,000
Vernonia Road (Highway 30 to Pittsburg Rd.)	2	Yes	5 ft.	No	$500,000
Columbia Blvd. (Highway 30 to Sykes Rd.)	2	Yes	6 ft.	No	$430,000
Gable Road (Highway 30 to Bachelor Flat Rd.)	2	Yes	6 ft.	No	$470,000
Sykes Road (Columbia Blvd to City Limits)	2	No	5 ft.	No	$250,000
Sykes Road (City Limits to UGB Line)	2	No	None	No	$360,000
Bachelor Flat Road (Sykes Rd to Ross Rd.)	2	No	6 ft.	No	$670,000
Achilles Road (Highway 30 to North Morse Rd.)	2	No	6 ft.	No	$380,000
Ross Road (Millard Road to Bachelor Flat Rd.)	2	Yes	6 ft.	No	$690,000
Millard Road (Highway 30 to Ross Rd.)	2	Yes	6 ft.	No	$540,000
North Morse Road (Achilles Rd. to Millard Rd.)	2	No	5 ft.	No	$360,000
Firlock Park Street	2	No	5 ft.	No	$530,000
Matzen Street (Sykes Rd. to Columbia Blvd.)	2	No	5 ft.	Yes	$310,000
Highway 30/Gable Road Intersection	NA	NA	NA	NA	$80,000
TOTAL					**$8,270,000**

[1] Includes improvements to Old Portland Road/Gable Road intersection, allowing through movement on Old Portland Road.

New Traffic Signals

It has been identified that as traffic volumes increase, several intersections throughout the St. Helens Urban Growth Boundary will require new traffic signals to be installed. The cost for each traffic signal is estimated at $200,000, totaling $1,200,000 for six traffic signals. This includes the cost for installation and signal coordination infrastructure. It is also recommended that existing signals on Highway 30 be retimed to coordinate with the new traffic signals. Estimated cost for optimization of existing signals is estimated at $20,000.

Each intersection should be monitored and the timing for installation of each signal should be determine using the City's and ODOT's signal warrant guidelines and procedures. The identified new traffic signal locations include:

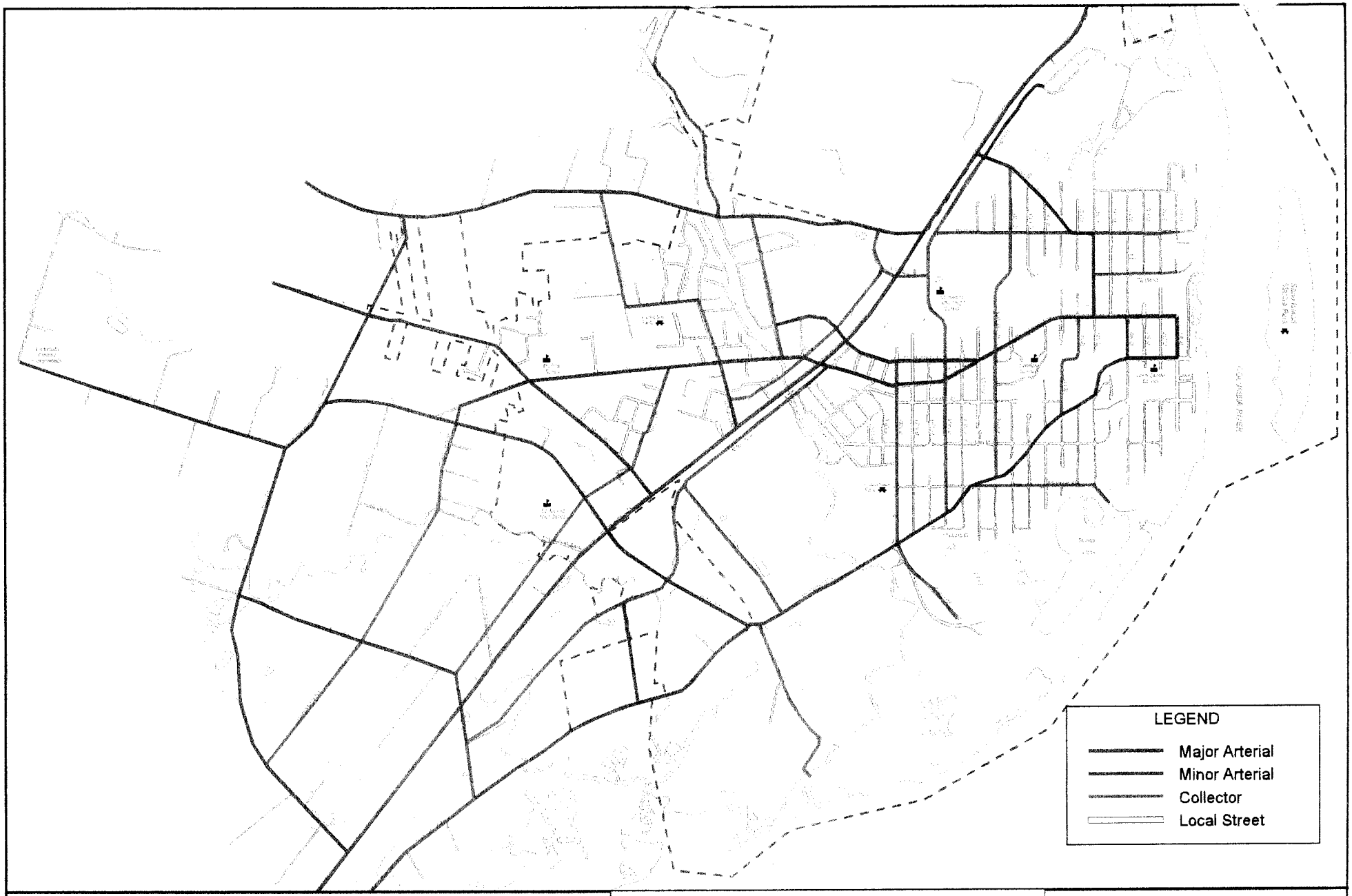
⇒ Highway 30/Millard Road intersection
⇒ Highway 30/Vernonia Road intersection
⇒ Highway 30/Pittsburg Road intersection
⇒ Columbia Blvd./Vernonia Road intersection
⇒ Columbia Blvd./12th Street intersection
⇒ Columbia Blvd./6th Street intersection

Functional Classification System

Streets perform various roles in a community, ranging from carrying large volumes of primarily through traffic to providing direct access to abutting property. These functions are often conflicting, and a hierarchical classification system is needed to determine the appropriate function and purpose of each roadway.

Figure 7.2 displays the recommended functional classification system plan for the City of St. Helens. This plan recommends four roadway classifications. These include:

- **Major Arterials** - These facilities carry the highest volumes of through traffic and primarily function to provide mobility and not access. Major arterials provide continuity for intercity traffic through the urban area and are usually multi-lane facilities. The only facility identified as a major arterial is Highway 30.
- **Minor Arterials** - These facilities interconnect and augment the major arterial system and accommodate trips of somewhat shorter length. Such facilities interconnects residential, shopping, employment and recreational activities within the community. The following roads are identified to function as minor arterials:
  - ⇒ Pittsburg Road
  - ⇒ South Vernonia Road
  - ⇒ Bachelor Flat Road
  - ⇒ Sykes Road.
  - ⇒ Columbia Blvd.
  - ⇒ St. Helens Street
  - ⇒ Old Portland Road
  - ⇒ North 6th Street
  - ⇒ Deer Island Road
  - ⇒ Gable Road
  - ⇒ Millard Road
  - ⇒ Achilles Road/Ross Road



City of St. Helens Transportation System Plan

Figure 7.2
Recommended Functional Classification System

- **Collector Streets** - These streets provide both land access and movement within residential, commercial and industrial uses. These streets gather traffic from local roadways and serve as connectors to arterials. The following streets are identified as collectors:

  ⇒ Sunset Blvd.
  ⇒ North Vernonia Road
  ⇒ Hankey Road
  ⇒ Highway 30 Frontage Road
  ⇒ North Morse Rd./Firlock Pk St.
  ⇒ Matzen Street
  ⇒ McNulty Way
  ⇒ Industrial Way
  ⇒ Milton Way
  ⇒ Railroad Avenue
  ⇒ Port Avenue
  ⇒ Plymouth Street
  ⇒ South 18th Street
  ⇒ South 15th Street
  ⇒ South 12th Street
  ⇒ South 7th/8th Street
  ⇒ South 4th Street
  ⇒ South 1st Street
  ⇒ Kaster Road
  ⇒ Wyeth Street
  ⇒ West Street
  ⇒ Oregon Street
  ⇒ North 11th/12th Street
  ⇒ North 15th/16th Street

- **Local Streets** - These streets provide land access to residential and other properties within neighborhoods and generally do not intersect any arterial routes. All remaining streets are identified as local streets.

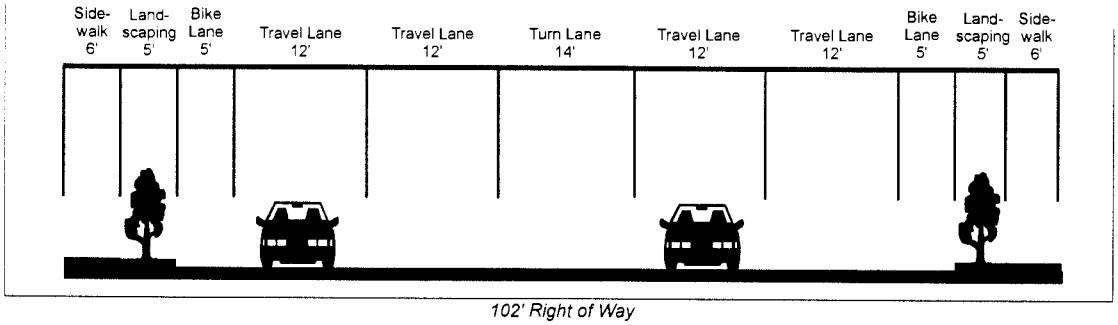
The hierarchical functional classification system requires different design standards for each roadway classification. For instance, major thoroughfare routes require different access control standards, paving requirements, right-of-way widths, and traffic safety devices. Figure 7.3 shows the typical design standards for each roadway under the functional classification system.

The suggested design standards are to be used as a guideline for roadway construction, including the development of new roads and the reconstruction of existing roads. The roadway design standards are established to ensure consistency throughout the City, but also to provide flexibility for unique and special situations.

Truck Route Plan

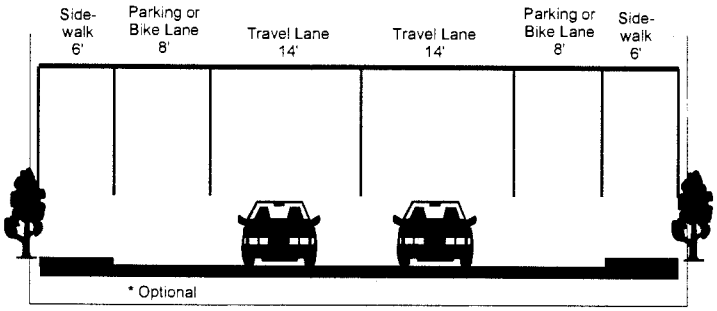
Figure 7.4 shows the recommended designated truck routes for the City of St. Helens. The routes are designed to limit heavy truck traffic on local streets, thus reducing damage and improving safety along neighborhood streets Specifically, the truck routes would connect the industrial areas, including the Boise Cascade Paper and Veneer Mills with Highway 30. For trucks traveling to/from the south, traffic would be routed along the new McNulty Way extension via Millard Road. The truck route through the McNulty Industrial Park, would reduce the number of trucks traveling through the Gable Road/Highway 30 intersection, which would reduce congestion at the busy intersection. The designated truck routes on the west side would include Sykes Road, Pittsburg Road and Hankey Road.

Major Arterial



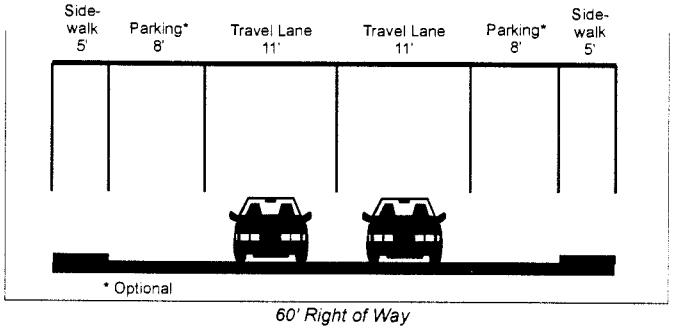
102' Right of Way

Minor Arterial



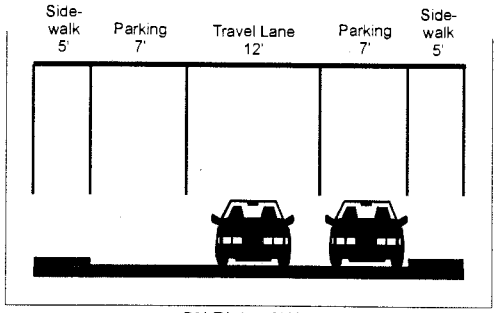
60' Right of Way

Collector

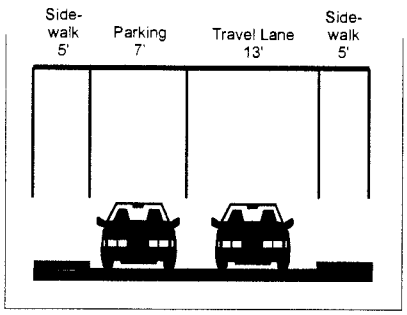


60' Right of Way

Local Street "Skinny Streets"



50' Right of Way



50' Right of Way

OREGON DEPARTMENT OF TRANSPORTATION

City of St. Helens Transportation Systems Plan

Figure 7.3
Recommended Street Design Standards

City of St. Helens Transportation System Plan

Pedestrian System Plan

One of the main transportation objectives of this TSP expresses that the City of St. Helens should promote alternative modes of travel and improved connections to these modes as a means of reducing vehicular trips within the community. A primary means of meeting this objective is to improve the City's pedestrian system.

Walking is the most basic form of transportation. Everyone is a pedestrian. Whether a traveler rides a bus or takes their automobile, each trip begins and ends with a walk. Providing a safe and convenient pedestrian network is essential for all residents of St. Helens and is needed to maintain the City's high quality of life and vision for the future.

If St. Helens is to meet its goals and objectives, it must emphasize walking as a major means of travel. To encourage more walking, the City must:

- **Provide a continuous network.** An intermittent pedestrian system that strands pedestrians at the end of unfinished sidewalks or forces them into hazardous street crossings will discourage walking.
- **Provide a safe walking environment.** A pedestrian environment that is perceived as unsafe will deter people from walking.
- **Ensure pedestrian-oriented urban design.** Design of both existing and future commercial and residential sites must give access by pedestrians equal weight with access by automobiles.

The following describes the Pedestrian Plan for the City of St. Helens. Included are various pedestrian elements to ensure that walking becomes a viable alternative in St. Helens.

Pedestrian Facility Improvements

The Pedestrian Plan recommends a continuous sidewalk system in good repair that connects neighborhoods with schools, business districts, employment centers, recreational sites, and other pedestrian traffic generators. The goal of providing a connected sidewalk system is to enhance pedestrian safety and present residents with the opportunity for walking as a means of reducing short distance vehicle trips.

Table 7.3 lists the recommended pedestrian facility improvements and Figure 7.5 displays the entire recommended pedestrian network. Specifically the Plan calls for continuous sidewalks on all arterial and collector streets within the St. Helens City Limits. Sidewalks would be also installed as a part of all on all new arterial and collector street projects as well as a part of all major reconstruction projects.

Table 7.3
Pedestrian Facility Improvement Projects

Roadway Segment	Sidewalk Width	Estimated Cost
EXISTING STREETS		
Gable Road (Highway 30 to Old Portland Rd.)	6 ft.	$56,000
West Street (Oregon St. to 4th St.)	5 ft.	$89,000
16th Street (West St. to Jr. High School)	5 ft.	$13,000
Sykes Road (Highway 30 to Columbia Blvd.)	5 ft.	$41,000
15th Street (Cowlitz St. to Old Portland Rd.)	5 ft.	$18,000
• Pittsburg Road (Highway 30 to Vernonia Rd.)	6 ft.	$105,000
* Vernonia Road (Highway 30 to Pittsburg Rd.)	5 ft	$226,000
* Columbia Blvd. (Vernonia Rd. to Sykes Rd.)	6 ft.	$100,000
* Gable Road (Highway 30 to Bachelor Flat Rd.)	6 ft.	$118,000
* Sykes Road (Columbia Blvd. to City Limits)	5 ft	$115,000
• Bachelor Flat Road (Sykes Rd. to Ross Rd.)	6 ft.	$186,000
* Millard Road (Highway 30 to Ross Rd.)	6 ft.	$175,000
* Achilles Road (Highway 30 to North Morse Rd.)	6 ft.	$112,000
* Ross Road (Millard Rd. to Bachelor Flat Rd.)	6 ft.	$106,000
* Firlock Park Street	5 ft.	$78,000
* Matzen Street	5 ft.	$74,000
* North Morse Rd. (Millard Rd. to Achilles Rd.)	5 ft.	$106,000
* Old Portland Rd. (St. Helens St. to Gable Rd.)	6 ft.	$275,000
* 18th Street (Columbia Blvd to Old Portland Rd.)	5 ft	$106,000
NEW STREETS		
St. Helens Street (Highway 30 to Sunset Blvd.)	6 ft.	$53,000
Achilles Road (North Morse Rd. to Ross Rd.)	6 ft.	$137,000
Firlock Park Street Extension (to Millard Rd.)	5 ft.	$102,000
Ross Rd. Extension (Bachelor Flat to Pittsburg Rd.)	6 ft.	$148,000
Highway 30 Frontage Rd. (Millard to Sykes)	6 ft.	$190,000
Highway 30 Frontage Rd. (Vernonia to Pittsburg)	6 ft.	$106,000
TOTAL		**$2,835,000**

* To be completed as part of the road reconstruction project.

OREGON DEPARTMENT OF TRANSPORTATION

City of St. Helens Transportation System Plan

PB 100 YEARS

Sidewalk Standards and Policies

To enable a connected and complete pedestrian system, sidewalks must be considered at the inception of transportation projects and incorporated into the total design. The City's current street standards require new sidewalks in residentially zoned areas to be 5 feet in width and shall abut the curb. New sidewalks in commercial and industrial areas and along all arterial streets are required to be at least 6 feet in width.

The City should require that sidewalks be implemented on all new roadway and reconstruction projects and ensure that sidewalks provided on developing properties be connected to the external pedestrian system.

Pedestrian Street Crossings

Adding sidewalks along a roadway are only part of the pedestrian solution; many busy streets and intersections are difficult to cross and can be barriers to walking. Allowing people to cross the street as freely as possible is important in maintaining a pedestrian friendly environment. Often the width of the street, the geometry of the intersection, and the signal timing are designed only for the needs of vehicles, not pedestrians.

To increase pedestrian crossing opportunities and safety, two approaches can be considered:

1. Designing roads that allow crossings to occur safely by incorporating design features such as raised medians or signal timing that creates gaps in traffic; or
2. Constructing actual pedestrian crossings with pedestrian activated signals, mid-block curb extensions, marked crosswalks, etc.

There are a variety locations throughout St. Helens where crosswalk improvements are necessary to maintain pedestrian safety. The 1995 Oregon Bicycle and Pedestrian Plan identify several techniques that can be implemented at busy intersections. These techniques should be implemented at the following locations:

- Highway 30/Columbia Blvd.
- Highway 30/St. Helens St.
- Highway 30/Gable Rd.
- Highway 30/Millard Rd.
- Columbia Blvd./Vernonia Rd.
- Columbia Blvd/Sykes Rd.
- 1st. St./St. Helens St.
- St. Helens St./18th St.
- Columbia Blvd./18th St.
- St. Helens St./15th St.
- Columbia Blvd./15th St.

Bikeway System Plan

The purpose of the Bikeway System Plan is to develop a continuous, safe, and interconnected network of bicycle routes throughout the City of St. Helens. While all roadways and streets can be used as bikeways, designated routes along bicycle friendly streets and/or separated bicycle lanes on busy streets can improve safety as well as increase bicycle use.

The 1989 St. Helens Bikeway Master Plan outlined a number of objectives to guide the City's Bicycle System. These objectives are still valid today and have been used to develop a Bicycle Plan aimed at meeting the future needs of the community. The objectives include:

- Complete the bikeways in the old town area which will tie in with the existing routes in the downtown area.
- Provide a safe system of bikeways throughout the city.
- Provide a system of bikeways which link major community centers (i.e. Eisenschmidt Pool, Junior High School, McCormick Park) with residential areas.
- Provide bikeways in the residential area west of Highway 30 that will provide access to parks as well as tie in with existing routes on the east side of Highway 30.
- Provide adequate areas for bicycle parking.
- Minimize unsafe conflicts between bicycles, pedestrians and motorized traffic.

Using the previous objectives as a guideline, Figure 7.6 displays the recommended Bicycle Plan for the City of St. Helens. The main objective of the Bicycle Plan is to provide bicycle routes that enable safe and efficient travel for both the everyday bicycle commuter as well as the occasional recreational rider.

The bicycle plan recommends that striped lanes be implemented on many of the City's arterial and collector streets. However, unlike sidewalks, bicycle lanes are not being recommended on all arterial/collector streets. Instead, where local streets which provide good parallel facilities and carry less vehicular traffic are available, they have been identified as the preferred bicycle route. Even though striped bicycle lanes are not being recommended on all city streets, state law does require that new and improved roadways are to accommodate bicycle travel. This can be achieved through wider travel lanes or adequate paved shoulders.

The system of bicycle facilities have been designed to connect major destinations (such as parks, schools, commercial districts, and major employers) with residential neighborhoods. Emphasis was also placed on providing additional off-street multi-use paths additional for recreational use.

On the east side of St. Helens, much of the recommended Bicycle Plan has already been implemented. There is a good north-south route running along Oregon St./15th

City of St. Helens Transportation System Plan

and 16th Streets connecting up with the Rutherford Path in northern St. Helens. Much of Columbia Blvd. has bike lanes along with Cowlitz, Deer Island Rd, West St. However, as the city begins to grow towards the south, it is anticipated that additional routes will be needed to connect these areas to the existing bicycle network. The 1989 Bicycle Master Plan also identifies that is desirable to attract cyclists touring along Highway 30 into the Old Town area via Old Portland Road. To accomplish this effort, additional bike lanes will be needed along Gable Road and Old Portland Road. Currently Old Portland Road does have a separated bike/pedestrian route along the south side. However, this facility is deteriorating, and as Old Portland Road is upgraded it will be desirable to add striped bicycle lanes adjacent to the roadway.

Currently, the west side of St. Helens has a very limited bicycle network. The only facilities that exist today are striped lanes along Sykes Rd. between Matzen St. and Columbia Blvd. Much of the residential growth anticipated in St. Helens is expected to occur on the west side. A much improved bicycle network will be needed to meet the demands of the community. The Plan calls for striped bicycle lanes along all or a portion of arterial roadways on the west side. The objective is to connect existing and new neighborhoods with activities located on both sides of the community.

Currently, the only off-street multi-use bike path in the St. Helens area is the Rutherford Path, connecting St. Helens and Columbia City. The 1989 Bikeway Master Plan identifies an additional off-street path located along the BPA power line easement in the western part of the City. This bike path has been included in the Bicycle Plan to provide an additional recreational facility for residents. It is also in the City's interest to look for additional recreational trail opportunities, such as abandoned rail lines as well as opportunities for trails along the Columbia River waterfront.

Table 7.4 lists the recommended bicycle improvements and cost estimates needed to implement the Bikeway System Plan.

Bicycle Standards and Policies

In bicycle planning there is usually a high priority placed on planning and developing new bikeways. However, there needs to be more emphasis and commitment placed on the proper maintenance and operation of existing bikeways to assure acceptable and balanced bikeway programs. Adequate maintenance will help to protect the City's investment in bikeways and continue their safe use and enjoyment. A routine maintenance program should be established to remove debris and to keep the bike lane free of physical problems. Signs and pavement markings should also be inspected regularly and kept in good shape. Poorly maintained bicycle facilities will become unridable and may become a legal liability.

Law enforcement policies should be also be emphasized to ensure bicycle safety and increase bicycle use. As with any law, lack of enforcement leads to a general disregard for the law. Bicyclists should be required to follow the laws of the road and motorists should not be allowed to use bike lanes for parking. Law enforcement is a necessary component of continued bicycle use and safety.

Table 7.4
Bicycle Improvement Projects

Roadway Segment	Improvement Type	Estimated Cost
St. Helens Street (13th St. to Highway 30	Striping	$500
St. Helens Street (Old Portland Rd. to 1st St.)	Striping	$500
Columbia Blvd. (7th St. to 13th St.)	Striping	$500
Gable Road (Highway 30 to Old Portland Rd.)	Add Lanes/Striping	$121,000
Old Portland Road (Gable Rd. to Millard Rd.)	Add Bike Lanes	$465,000
Bachelor Flat Road (Ross Rd. to the Fairgrounds)	Add Bike Lanes	$380,000
Saulser Road (Bachelor Flat Rd. to Sykes Rd.)	Add Bike Lanes	$211,000
* Sykes Road (Columbia Blvd. to Saulser Road)	Add Bike Lanes	$172,000
* Pittsburg Road (Highway 30 to Vernonia Rd.)	Add Bike Lanes	$113,000
* Vernonia Road (Highway 30 to Pittsburg Rd.)	Add Bike Lanes	$113,000
* Columbia Blvd. (Highway 30 to Sykes Rd.)	Add Bike Lanes	$100,000
* Gable Road (Highway 30 to Bachelor Flat Rd.)	Add Bike Lanes	$74,000
* Old Portland Road (Gable Rd. to St. Helens St.)	Add Bike Lanes	$152,000
* 18th Street (Columbia Blvd. to Old Portland Rd.)	Add Bike Lanes	$54,000
* Bachelor Flat Road (Sykes Rd. to Ross Rd.)	Add Bike Lanes	$93,000
* Millard Road (Old Portland Rd. to Ross Rd.)	Add Bike Lanes	$90,000
* Ross Road (Millard Rd. to Bachelor Flat Rd.)	Add Bike Lanes	$53,000
* St. Helens St. (Highway 30 to Sunset Blvd.)	Add Bike Lanes	$28,000
Vernonia to Sykes Trail (BPA Power Line Easement)	New Bike Trail	$121,000
Sykes to Bachelor Flat Trail (Power Line Easement)	New Bike Trail	$45,000
Vanpool Transit Stop Locations	Add Bicycle Parking	$1,000
Commercial Areas along Highway 30	Add Bicycle Parking	$3,000
Commercial Area along Columbia Blvd/St. Helens St.	Add Bicycle Parking	$2,000
Columbia County Fairgrounds	Add Bicycle Parking	$1,000
Old Town Area	Add Bicycle Parking	$2,000
Riverfront Area	Add Bicycle Parking	$500
TOTAL		**$2,396,000**

* To be completed as part street improvement project.

Public Transportation Plan

Intracity Transit

While over the next 20-years, the City of St. Helens is expected to experience change and increased growth, it is not anticipated that the community will be able to support a fixed-route transit service. However, the City of St. Helens should continue to support COLCO's (Columbia County Transportation) dial-a-ride service throughout Columbia County. COLCO provides transportation services to the to the disabled and transportation disadvantaged. The City of St. Helens should actively participate and financially support any expansions and added service improvements by COLCO.

Intercity Transit

A recent transit feasibility study[2] has determined that there is not enough demand to support a commuter fixed-route bus service from St. Helens all the way into downtown Portland. The demand for travel from St. Helens to Portland is high but diffused both in terms of destination and time of travel. Instead, the study recommends that a "Vanpool Service" be implemented between St. Helens and Portland. A vanpool service is different from fixed-route bus service in that the driver is a volunteer who is also commuting to the destination. The driver is unpaid, but usually does not contribute to the costs of the vanpool. Vanpooling is also different from fixed-route bus service, in that it can be more responsive to individual needs and schedules. Riders may be picked up at various locations and dropped off at one or more destinations.

Intercity transit service in the St. Helens area is currently provided by Columbia Area Rapid Transit (CART). CART operates two buses between Clatskanie and Portland's Tri-Met System at Sauvie Island. The transit feasibility study recommends that this service be expanded from the existing four trips a day to Sauvie Island to all-day service, with connections to the St. John's Transit Center. St. Johns is a major terminus and transfer point for several Tri-Met lines and should help to provide better connectivity. The all-day transit service would be an important complement to the vanpool program. Commuters are easier attracted to vanpools if some kind of transit also exists, because passengers can be assured of an alternative if they need to leave work late or early.

The City of St. Helens should help financially support the establishment of a vanpool service between St. Helens and Portland. The City should also provide shelters, park and ride lots, and bicycle parking at specific transit stops to support CART's fixed route transit service.

[2] Transit Feasibility Study, U.S. 30 Corridor, David Evans and Associates, August 1996.

Air/Rail/Water/Pipeline Plan

Air Transportation

The nearest passenger air service is provided by Portland's International Airport, approximately 45 minutes driving time from St. Helens. General aviation services are provided by the Scappoose Industrial Airpark. This plan recognizes the importance of both passenger, freight and general use aviation to the community, and encourages continued support and usage by the City of St. Helens.

Rail Transportation

Rail freight service in St. Helens is provided by a one-track line owned and operated by the Burlington Northern Railroad. The "Port Access Branch Line" connects the cities of Astoria, Clatskanie, Rainier, Columbia City, St. Helens, Scappoose with the Burlington Northern's mainline in Portland.

The System Plan recognizes the importance of rail freight service to the City of St. Helens' economic vitality. The City should help support efforts to maintain rail service in St. Helens. However, the City should work with the Burlington Northern Railroad to ensure that rail operations do not conflict with peak travel periods, or do not block all intersections connecting east and west St. Helens.

Water Transportation

Currently, water freight transportation for the City of St. Helens is provided by the Port of St. Helens operating from Columbia City. The Plan supports the efforts of the Port of St. Helens to attract water-borne activity via the Columbia River.

Recreational water transportation is provided by the Columbia River. St. Helens currently has 1 public and 5 private marinas and boat docks. The Plan supports the development of additional public boat docks for increased access to the Columbia River.

Pipeline Transportation

A high-pressure gas transmission line, owned and operated by Northwest Natural Gas, runs through St. Helens. The pipeline is located along the Rutherford Path at the northern end of the City, travels along Highway 30 and exits the community along Old Portland Road. The Plan encourages the continued use and support of this pipeline and any additional pipelines that could be developed through the city as a means of reducing the number of freight truck trips through the community.

7.2 Highway 30 Access Management Plan

The following is from the "Highway 30 Access Management Study, Bennett Road to McBride Creek, St. Helens Oregon.[3]"

The primary goal of an access management program is enhanced mobility and improved safety by limiting the number of traffic conflicts. Minimizing the number of driveways and locating driveways to minimize interference between each other and street intersections helps to minimize conflict points and maintain the function of the principal roadway.

Limiting access to higher class roadways is the foundation of access management planning. Where reasonable alternatives exist, the access to an abutting property is generally less disruptive to overall traffic flow if made to and from the lower class roadway. Locating traffic signals to emphasize traffic flow is also a an important principle. Appropriate spacing of traffic signals and their interconnection helps to enhance progressive traffic movement along the corridor.

Traffic Signals

The project corridor currently contains four signalized. These are located at the intersections of US Highway 30 with Gable Road, Sykes Road, Columbia Boulevard, and St. Helens Street. In addition, two new traffic signals would be installed along US Highway 30 at its intersections with Deer Island Road and E Street in Columbia City, as part of the US Highway 30 improvement project between Warren and the northern boundary line of Columbia County.

Future traffic signals should be appropriately placed and coordinated to enhance the progressive movement of traffic along the highway. In consultation with ODOT, all existing and future traffic signals along the project corridor are anticipated to operate under an 80-second cycle length, including 37 seconds of green for the major street through movement and the remaining total of 43 seconds assigned to cross-street movement and protected left turns from the highway.

A signal spacing of approximately 2,050 feet (0.39 miles) is recommended to enable traffic to flow efficiently in the 35 mph corridor between Millard Road and Pittsburg Road in St. Helens. Also, a spacing of approximately 2,650 feet (0.50 miles) is recommended to enable efficient traffic flow in the remaining portion of the corridor signed for a travel speed of 45 to 55 mph.

A driveway should be considered for signalization only if installation of the signal meets warrants and does not interfere with traffic progression on the major arterial or will not interfere when the major street system reaches capacity conditions when the area becomes fully urbanized. This normally means that signalization should be limited to driveways meeting the uniform signalized intersection spacing.

[3] David Evans and Associates, Inc., June, 1995.

When the public street or high volume access driveway does not conform to the selected uniform spacing criteria, consideration of signalization should be based upon a traffic engineering study which demonstrates that the signal will not interfere with efficient traffic progression for peak and off-peak conditions.

With future development in St. Helens, a traffic signal at South Vernonia Road (MP 28.23) will enable progressive movement of traffic flow along the highway as it is located at approximately 2,300 feet north of the traffic signal at Sykes Road and at approximately 1,750 feet south of the signalized intersection of Columbia Boulevard. It should be noted that McBride Street would be a better location that South Vernonia Road for optimum signal coordination, as it would be located approximately 2,000 feet from both the Sykes Road and Columbia Boulevard traffic signals. However, traffic demand from McBride Street may not warrant a traffic signal at that intersection. Also, the McBride Street intersection is located only 300 feet from the South Vernonia Road intersection; hence, locating a new traffic signal at McBride Street may not provide substantial benefits over a traffic signal at South Vernonia Road.

A traffic signal is also recommended at Pittsburg Road (MP 29.10), located 2,300 feet north of the signalized intersection of St. Helens Street, for the progressive movement of traffic flow along the highway.

A traffic signal at Pittsburg Road would be a better location than the traffic signal recommended as part of the highway improvement project at Deer Island Road. It is estimated that a traffic signal at Pittsburg Road would lead to more efficient traffic flow along the highway than at Deer Island Road, as a new traffic signal at Pittsburg Road would be located at close to the desired spacing of 2,000 feet. Also, a future traffic signal located at Millard Road (MP 26.96) would satisfy signal spacing requirements for progressive movement of traffic along the highway.

It should be noted that the traffic signals at South Vernonia Road, Pittsburg Road, and Millard Road should be considered for installation if and when they meet warrants, per the Manual on Uniform Traffic Control Devices (MUTCD).

Driveway Spacing

The regulation of minimum spacing of driveways and public street intersections along the highway reduces the frequency of conflict by separating adjacent, basic conflict areas and limiting the number of basic conflict points per length of highway. An additional effect is that driveway vehicles will be delayed less by standing queues at signal-controlled intersections.

The project corridor is characterized by a railroad on one side of the road; thereby limiting driveway access to the other side of the road. As a result, traffic conflicts between driveway turning movements are lower than a comparable highway with residential and commercial driveway access provided on both sides of the road.

For the 35 mph roadway section in the project corridor, a 150 foot minimum spacing is recommended for (all) right-in/right-out access points and for full-access points from

single-unit residential developments (see Figure 7.7). For commercial and multiple-unit residential developments located along the 35 mph roadway section, a 300 foot minimum spacing is desirable. However, under special circumstances, a 150 foot minimum allowable spacing may be allowed by going through a variance process. Also, joint access to the highway should be considered whenever possible, even with access to single-unit residential developments.

The sections of the highway that would have access spacing below the recommended standard of 300 feet after the construction of the highway improvement project are illustrated as shaded areas in Figures 7.8 and 7.9. Developers should be aware that when redevelopment occurs along these segments of the project corridor, the planned access points will have to meet or exceed the recommended 300 feet spacing standard.

The Oregon Highway Plan recommends a higher access spacing standard for Access Oregon Highways (AOH), including US Highway 30, than what is recommended as part of this Access Management Plan. The higher access spacing standard corresponds to generally higher travel speeds allowed on most Access Oregon Highways. However, the project corridor is characterized by lower travel speeds, mainly due to the proximity of land use developments primarily on one side of the highway. While the lower travel speeds and the lower access spacing standard is not in conformance with the Oregon Highway Plan for Access Oregon Highways, it is expected to lead to safer pedestrian travel along the project corridor than would be achieved under the AOH standards.

For sections of the highway south of Achilles Road and north of Deer Island Road with less development, the minimum access spacing of 800 feet as recommended in the Oregon Highway Plan should be utilized in the future.

Driveway Widths

Driveways are currently not clearly demarcated along the project corridor, due to the absence of curbed sections in certain segments. A policy on maximum driveway widths is aimed at reducing conflict areas by defining the maximum width of driveway openings on the highway. The maximum width is a function of the types of vehicles using a facility as well as the nature of the developments to be served. Consideration must be given to highway operating conditions, volume, geometry, sight distance, angle of intersection and alignment (vertical and horizontal).

A 20 foot standard driveway width is recommended for single-unit residential developments, with a 16 foot minimum allowable width and a 24 foot maximum allowable width. For multi-family residential, commercial, and industrial developments, a 36 standard width and a 40 foot maximum width is recommended. The driveway widths in the construction plans for highway improvements along the project corridor are in agreement with the standards recommended above.

NTS

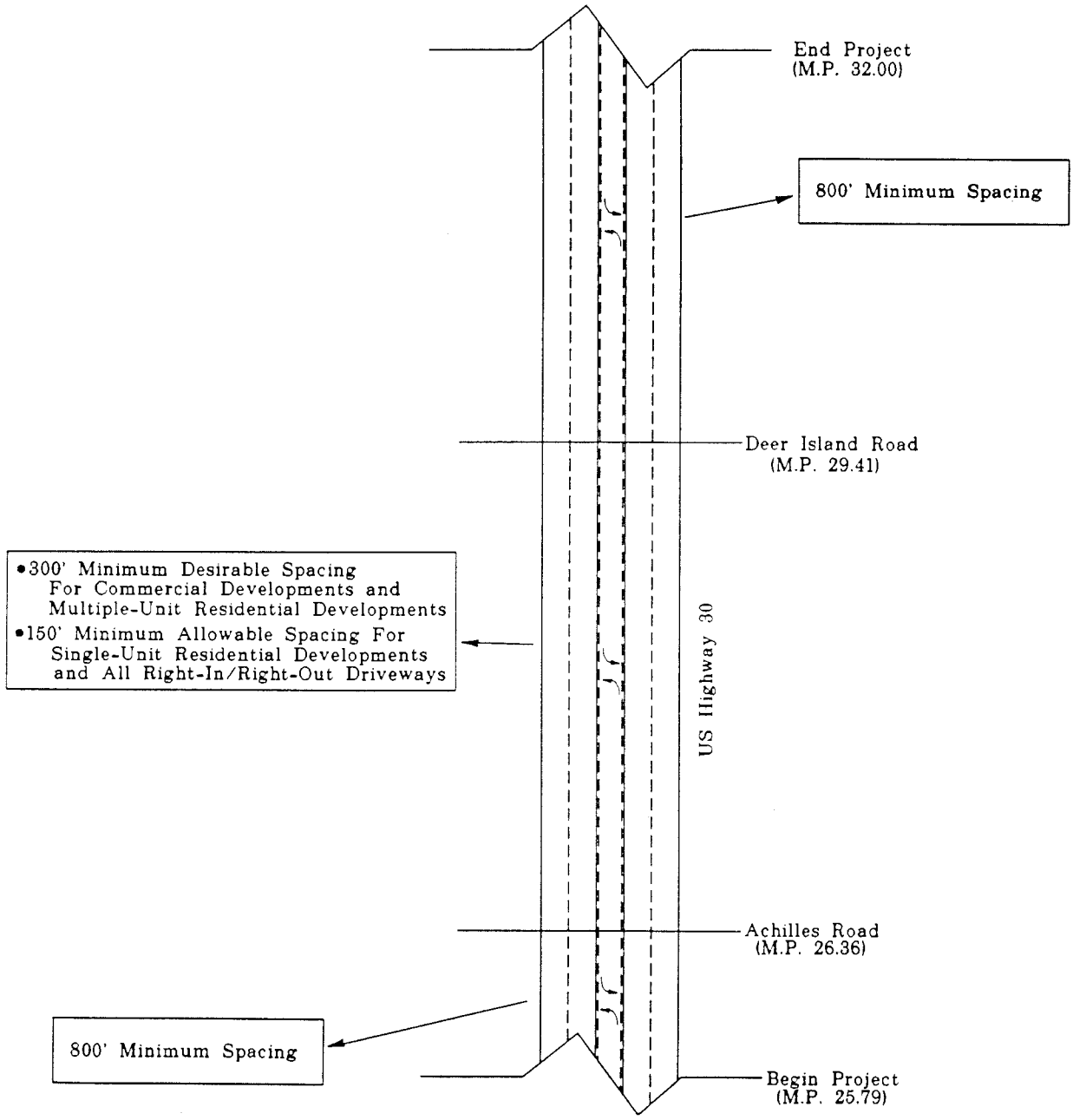


FIGURE 7.7

RECOMMENDED DRIVEWAY SPACING

US Highway 30 Access Management Study (DEA)

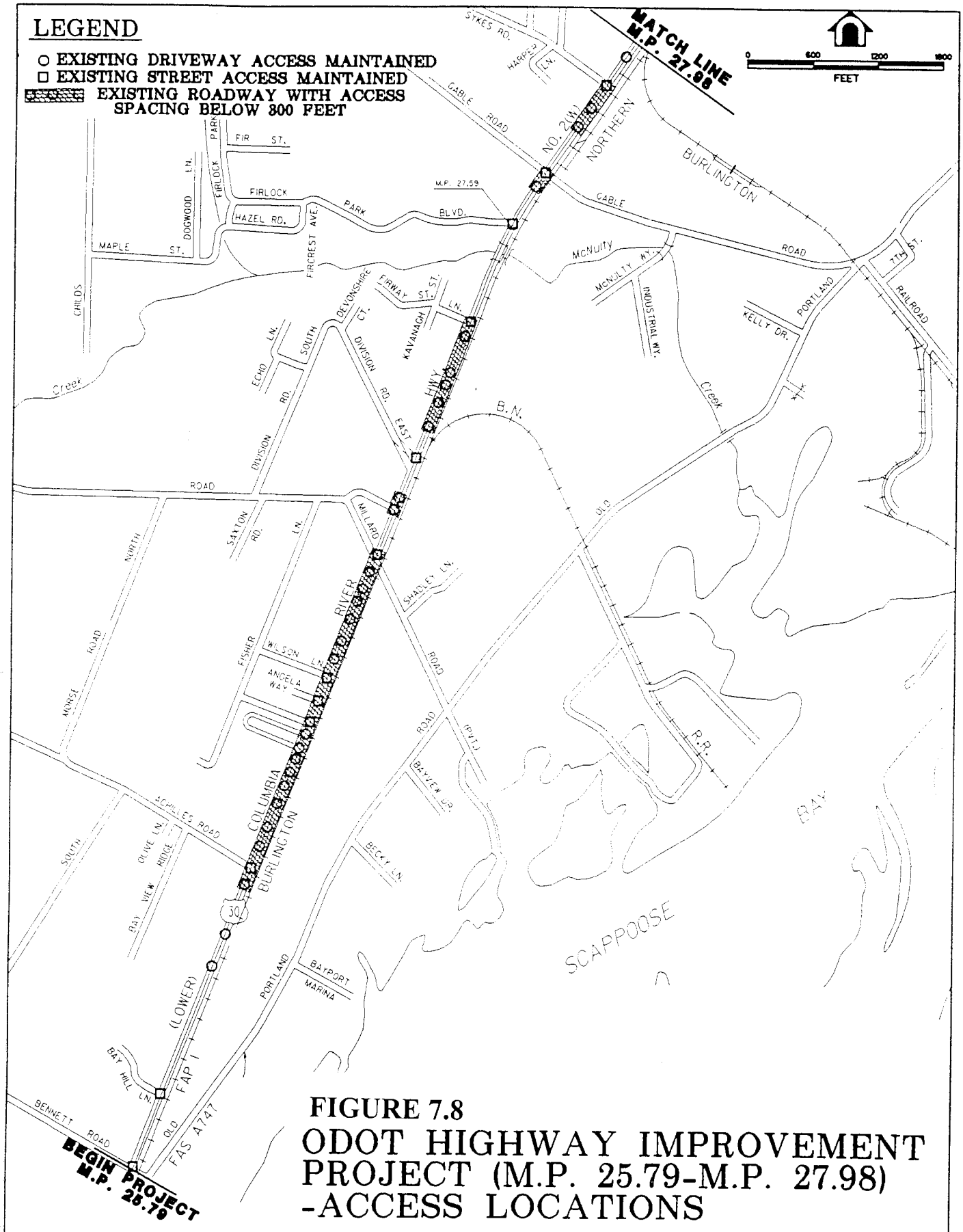


FIGURE 7.8

ODOT HIGHWAY IMPROVEMENT PROJECT (M.P. 25.79-M.P. 27.98) -ACCESS LOCATIONS

US Highway 30 Access Management Study (DEA)

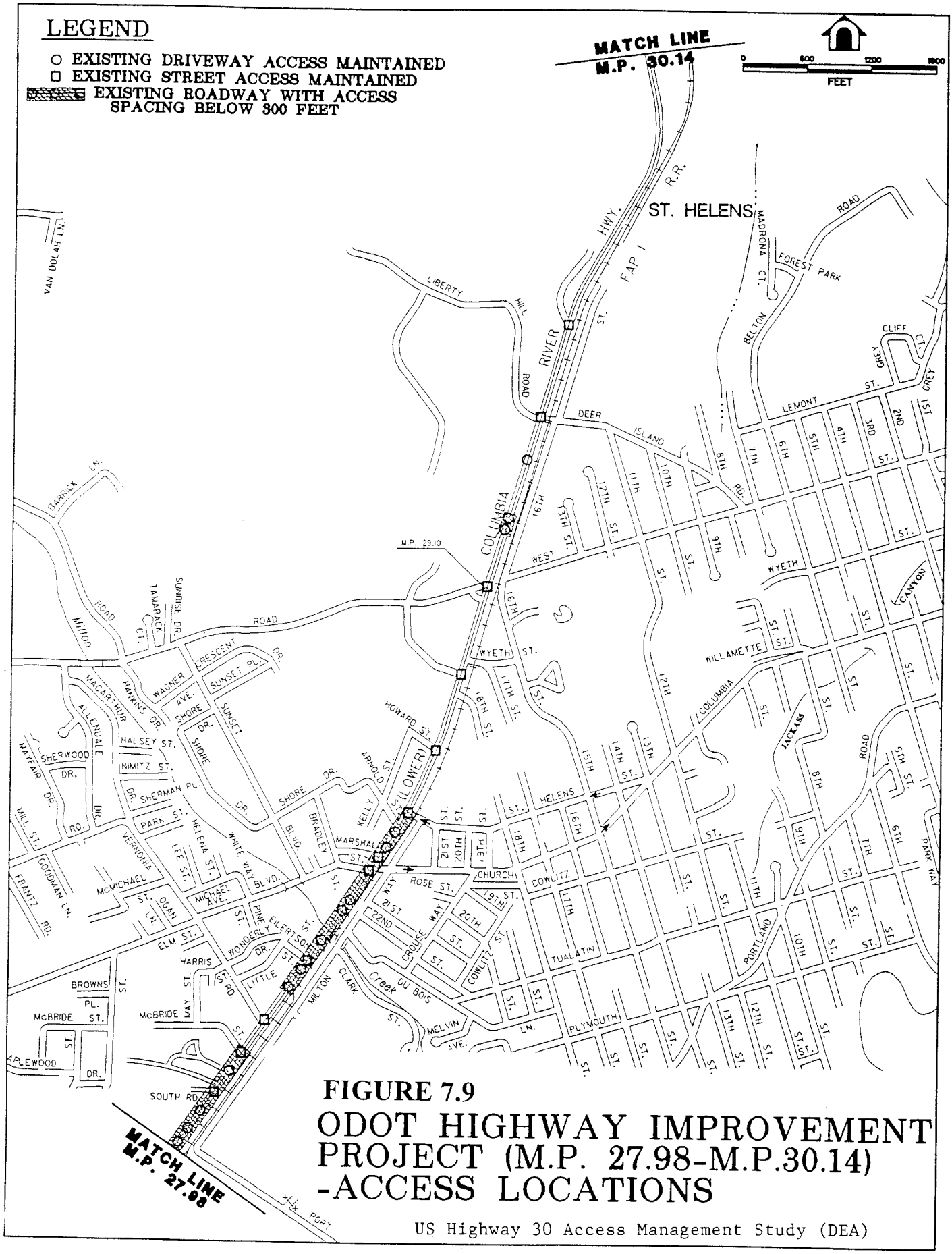


FIGURE 7.9
ODOT HIGHWAY IMPROVEMENT PROJECT (M.P. 27.98-M.P.30.14) -ACCESS LOCATIONS

US Highway 30 Access Management Study (DEA)

Number of Driveways per Property Frontage

Minimizing the number of driveways per length of highway reduces the number of basic conflict points, the frequency of conflicts, and the severity of conflicts. There are many different ways to minimize the number of driveways per length of the highway. The following strategies are recommended for the project corridor:

- Limit the number of driveways per property frontage to a single drive, unless the frontage exceeds ¼ mile.
- Restrict access from neighborhood commercial development located on the corner of a public street intersection to access on the cross-street only.
- At the permit-authorization stage, encourage adjacent property owner to construct joint-use driveways in lieu of separate driveways. Driveway pairs with more than 50 vehicles using each driveway per hour will be good candidates for this technique.
- At the permit-authorization stage, consolidate existing access to commercial sites whenever separate parcels are assembled under one purpose, plan entity or usage.
- Designate the number of driveways permitted to each existing property before development, and deny additional driveways regardless of future subdivision of that property.

Construction of Local Service Roads

A frontage road is recommended for the long-term on the west side of US Highway 30, between Pittsburg Road and Achilles Road. It would follow an alignment utilizing existing right-of-way along Kelly Street, Little Street, Kavanagh Street and Fisher Lane.

The new frontage road would help preserve the capacity of the arterial for through traffic. Properties that currently abut and have direct access on to the highway would be encouraged to have alternative access on to the frontage road, thereby diverting local service traffic away from the highway and on to the frontage road. Also, properties that would be redeveloped or assembled for another use at a later date would be required to have access only on to the frontage road.

Local service traffic can also be diverted away from the highway by completion of the Columbia Street/St. Helens Street couplet. It is recommended that the couplet be completed on the west side of the highway by extending St. Helens Streets to Shore Drive, so that the cross-over of westbound St. Helens Street traffic on the couplet would take place off of the highway via the extension of Kelly Street to Columbia Boulevard.

Driveway Sight Distance

Adequate intersection sight distance must be provided at all existing and future signalized and unsignalized intersections, including driveways. Access driveways should not be permitted where the sight distance is not adequate to allow a motorist to maneuver to come to a safe stop.

Access driveways should be designed such that they provide adequate intersection sight distance, per AASHTO guidelines. The guidelines recommend minimum sight distances for a typical vehicle (e.g. passenger car, truck, etc.) to either safely cross the highway or to safely merge with the highway traffic when turning left or right from a stopped position at the access point. The sight distance requirements based on roadway vehicle travel speeds are listed in Table 8 in the chapter on Recommended Policies and Ordinances.

Driveway sight distance can be increased by eliminating or altering physical and geometric barriers, such as by altering roadway alignment (horizontal and vertical curves) and by eliminating physical obstructions (shrubbery, fencing, walls, etc.).

Require Adequate Internal Design and Circulation Plan

An adequate internal design and circulation plan is recommended for all site developments having direct access to the highway. Although this technique can be applied to existing developments, it is recommended for application mainly during the site plan approval and access permitting processes.

New site developments and redevelopment of existing sites having direct access to the highway should be designed such that they provide adequate handling of limited parking and maneuvering areas, minimize internal interference by supplying storage areas to egress movements, and distribute ingress vehicles into the main circulation patterns with minimal hesitation and confusion. The following list reflects recommendations by which this technique can be properly applied.

- General location of driveway entrances should be approved by permitting agencies before the major effort toward maximum capacity planning begins.
- Wherever possible, the long sides of rectangular parking areas should be parallel.
- Curved, triangular and other irregularly shaped parking areas should be avoided.
- Driveway throats should be designed long enough to allow free movement on and off of the highway. For developments generating more than 500 trips per day, the depth of the driveway throat should be determined based on a site traffic impact study.

Install Visual Clues of the Driveway

Visual clues of driveways help reduce the severity of driveway conflicts. This is accomplished by increasing driver perception time and thereby limiting maximum deceleration requirements of highway vehicles.

Driveways to all new developments and existing sites being redeveloped should be designed such that they are readily visible to the approaching drivers in the through traffic lanes. Visual clues should provide information as to both the location and the geometrics of the driveway to the driver. The driver should be able to locate and identify the driveway at a distance that is at least equal to the decision sight distance (the

perception-reaction distance plus the distance required to maneuver to a turn at a speed of 10 mph or less).

If circumstances exist such that adequate sight distance cannot be provided by removing obstructions or relocating the driveway, advance warning will be required. Consideration must be given to the geometric and grace layout, traffic level and roadway type. Recommended visual cues include flashing beacons, warning sights, contrasting pavements, reflectorized treatments, driveway lighting or any combination of the above. Installation of warning devices must adhere to recommendations outlined in the Manual on Uniform Traffic Control Devices (MUTCD).

7.3 Summary

The Draft Transportation System Plan describes the projects and plans necessary to meet the anticipated future needs of the City of St. Helens. The adoption and implementation of this Plan will enable St. Helens to reach the desired population and employment levels considered in this study with an improved bicycle and pedestrian transportation system and a minimial amount of traffic congestion.

Implementation of the recommended projects included in the Street , Pedestrian, and Bicycle Plans should be coordinated with affected land owners and the actual alignment based on detailed engineering assessments.

8.0 TRANSPORTATION SYSTEM PLAN IMPLEMENTATION

This section presents two necessary steps towards implementing the Transportation System Plan recommendations. Included are; 1) the project implementation plan, which outlines the prioritization and general timing for project completion, 2) transportation funding alternatives available to finance the recommended projects in the TSP, and 3) draft ordinance recommendations and changes to assist in implementing the TSP.

8.1 Project Implementation Plan

Each of the alternatives was developed to address the transportation needs of the City of St. Helens over the next 20 years. However, because of funding constraints, the City will need to disperse the improvements over the 20 year period. Also, many of the improvements are tied directly to development, creating the need for the transportation project. The following is the recommended implementation plan for individual projects over the next 20 years.

First 5 Years:

Roadway Improvement Projects

Gable Road Reconstruction (Highway 30 to Bachelor Flat Rd.)	*$470,000*
Sykes Road Reconstruction (Columbia Blvd. to City Limits)	*$250,000*
Bachelor Flat Road Reconstruction (Sykes Rd. to Ross Rd.)	*$670,000*
Total Cost	***$1,390,000***

Pedestrian Improvement Projects

Sykes Road Sidewalks (Columbia Blvd. to City Limits)	*$115,000*
Gable Road Sidewalks (Highway 30 to Bachelor Flat Road)	*$118,000*
Bachelor Flat Road Sidewalks (Sykes Road to Ross Road)	*$186,000*
Total Cost	***$419,000***

Bicycle Improvement Projects

Gable Road Bike Lanes (Highway 30 to Bachelor Flat Road)	*$74,000*
Bachelor Flat Road Bike Lanes (Sykes Road to Ross Road)	*$93,000*
St. Helens Street (13th St. to Highway 30) - Striping	$500
St. Helens Street (Old Portland Road to 1st St.) - Striping	$500
Columbia Blvd. (7th St. to 13th St.) - Striping	$500
Add Bicycle Parking Racks around the community	$9,500
Total Cost	***$178,000***
TOTAL COST (first 5 years)	**$1,987,000**

Years 6 through 10

Roadway Improvement Projects

St. Helens Street Extension (Highway 30 to Sunset Blvd.)	*$930,000*
Old Portland Road Reconstruction (St. Helens Street to Gable Road)	*$1,440,000*
Matzen Street Reconstruction	*$310,000*
Total Cost	**$2,680,000**

Pedestrian Improvement Projects

St. Helens Street Sidewalks (Highway 30 to Sunset Blvd.)	*$53,000*
Old Portland Road Sidewalks (St. Helens Street to Gable Road)	*$275,000*
11th Street Sidewalks (West St. to Junior High School)	*$13,000*
15th Street Sidewalks (Cowlitz Street to Old Portland Road)	*$18,000*
Sykes Road Sidewalks (Highway 30 to Columbia Blvd.) north side only	*$41,000*
Matzen Street Sidewalks	*$74,000*
Total Cost	**$474,000**

Bicycle Improvement Projects

St. Helens Street Bike Lanes (Highway 30 to Sunset Blvd.)	*$28,000*
Old Portland Road Bike Lanes (St. Helens Street to Gable Road)	*$152,000*
Total Cost	**$180,000**

TOTAL COST (years 6 through 10) $3,334,000

Years 11 through 20

Roadway Improvement Projects

Highway 30 Frontage Road (Millard Road to Sykes Road)	*$5,150,000*
Highway 30 Frontage Road (Columbia Blvd. to Pittsburg Road)	*$2,030,000*
18th Street Reconstruction (Columbia Blvd. to Old Portland Road)	*$360,000*
Pittsburg Road Reconstruction (Highway 30 to Vernonia Road)	*$900,000*
Vernonia Road Reconstruction (Highway 30 to Pittsburg Road)	*$500,000*
Columbia Blvd. Reconstruction (Highway 30 to Sykes Road)	*$430,000*
Sykes Road Reconstruction (City Limits to Urban Growth Boundary)	*$360,000*
Millard Road Reconstruction (Highway 30 to Ross Road)	*$540,000*
Total Cost	**$10,270,000**

Pedestrian Improvement Projects

Highway 30 Frontage Road Sidewalks (Millard Road to Pittsburg Road)	*$296,000*
18th Street Sidewalks (Columbia Blvd. to Old Portland Road)	*$106,000*
Pittsburg Road Sidewalks (Highway 30 to Vernonia Road)	*$105,000*
Vernonia Road Sidewalks (Highway 30 to Pittsburg Road)	*$226,000*
Columbia Blvd. Sidewalks (Highway 30 to Sykes Road)	*$100,000*
Millard Road Sidewalks (Highway 30 to Ross Road)	*$175,000*
West Street Sidewalk Improvements (Oregon Street to 4th Street)	*$89,000*
Gable Road Sidewalks (Old Portland Road to Highway 30)	*$56,000*
Total Cost	**$1,153,000**

Bicycle Improvement Projects

18th Street Bike Lanes (Columbia Blvd. to Old Portland Road)	*$54,000*
Pittsburg Road Bike Lanes (Highway 30 to Vernonia Road)	*$113,000*
Vernonia Road Bike Lanes (Highway 30 to Pittsburg Road)	*$113,000*
Columbia Blvd. Bike Lanes (Highway 30 to Sykes Road)	*$100,000*
Millard Road Bike Lanes (Highway 30 to Ross Road)	*$90,000*
Gable Road Bike Lanes (Old Portland Road to Highway 30)	*$121,000*
Vernonia to Bachelor Flat Bike Trail (BPA Power Line Easement)	*$166,000*
Bachelor Flat Road Bike Lanes (Ross Road to the Fairgrounds)	*$380,000*
Sykes Road Bike Lane (Columbia Blvd. to Saulser Rd.)	*$172,000*
Saulser Road Bike Lanes (Bachelor Flat Rd. to Sykes Rd.)	*$211,000*
Old Portland Road Bike Lanes (Millard Road to Gable Road)	*$465,000*
Total Cost	**$1,985,000**

TOTAL COST (years 11 through 20) $13,408,000

Tied to Development (no exact time frame)

Roadway Improvement Projects

McNulty Way Extension	*$1,290,000*
Achilles Road Extension to Ross Road	*$1,530,000*
Ross Road Extension (Bachelor Flat to Pittsburg Rd)	*$1,640,000*
Achilles Road Reconstruction (Highway 30 to N. Morse Rd.)	*$380,000*
Ross Road Reconstruction (Millard Rd. to Bachelor Flat Rd.)	*$690,000*
Milton Way Extension (Port Av. to Gable Rd.)	*$700,000*
Firlock Park Street Extension (Firlock Park Blvd. to Millard Rd)	*$850,000*
North Morse Road Reconstruction (Achilles Rd. to Millard Rd.)	*$360,000*
Firlock Park Reconstruction	*$530,000*
Industrial Way Extension (to Old Portland Road)	*$390,000*
Highway 30/Gable Road Intersection Improvements	*$80,000*
Traffic Signal at Highway 30/Millard Road Intersection	*$200,000*
Traffic Signal at Highway 30/Vernonia Road Intersection	*$200,000*
Traffic Signal at Highway 30/Pittsburg Road Intersection	*$200,000*
Traffic Signal at Columbia Blvd./Vernonia Road Intersection	*$200,000*
Traffic Signal at Columbia Blvd./12th Street Intersection	*$200,000*
Traffic Signal at Columbia Blvd./6th Street Intersection	*$200,000*
Traffic Signal Coordination on Highway 30	*$20,000*
Total Cost	**$9,660,000**

Pedestrian Improvement Projects

Achilles Road Sidewalks (Highway 30 to Millard Rd.)	*$249,000*
Ross Road Sidewalks (Millard Road to Pittsburg Rd.)	*$254,000*
Firlock Park Street Sidewalks (Firlock Park Blvd. to Millard Road)	*$102,000*
North Morse Road Sidewalks (Achilles Road to Millard Road)	*$106,000*
Firlock Park Street Sidewalks	$78,000
Total Cost	**$789,000**

Bicycle Improvement Projects

Ross Road Bike Lanes (Millard Rd. to Bachelor Flat Rd.)	*$53,000*
Total Cost	**$53,000**

TOTAL COST (tied to development) $10,502,000

8.2 Transportation Funding Options and Financial Plan

The previous section of this chapter identified the priority and recommended timing for all capital improvement projects identified in the Transportation System Plan (TSP). Overall, the TSP recommends $29.2 million in transportation improvements over the next 20 years. Based on current transportation revenue sources, it is highly unlikely that the City will be able to finance all of the recommended improvements during this 20-year period.

The purpose of this section is to present an informational analysis of St. Helens' ability to fund the recommended TSP based on existing sources and then present financing options available to the City to meet anticipated monetary needs.

This funding section analyzes St. Helens' ability to fund the recommended capital improvement projects included in the TSP. The analysis assumes that the City of St. Helens is currently meeting and will continue to meet all of its maintenance needs through existing revenue sources, and that any additional revenue sources could be used for capital improvement projects. It is likely that City has a backlog of deferred maintenance projects and that additional revenue could be used for these projects.

Existing St. Helens Transportation Funding

Table 8.1 summarizes the City of St. Helens' transportation budget for fiscal years 1994/95 to 1997/98. The table reports transportation related revenue by individual source and expenditures by individual category.

The City's largest revenue source for transportation comes for the State Highway Fund, which contributed 88 percent of total revenue in fiscal years 1994/95 and 1995/96. The City also receives a STP grant annually from the State. Over the last two years, the City of St. Helens has made an arrangement with the State that defers payment of this grant until fiscal years 1996/97 and 1997/98. This deferment allows St. Helens to accumulate additional grant revenue for larger improvement projects. Traditionally, the St. Helens receives approximately $40,00 per year in STP Grants.

The remaining transportation revenue comes from locally-generated sources, including the City's transportation system development charge (SDC), which historically has contributed approximately $36,000 - $40,000 per year[1].

Over the past two years (fiscal years 1994/95 and 1995/96), the City of St. Helens spent between $309,000 and $489,000 annually on transportation-related expenditures. Nearly all of this money was spent to maintain the City's existing roadway system. No major capital improvement projects were completed over this two year period. The only capital expenses were for debt repayment and for equipment purchases.

[1] In May of 1997, the City has increased the SDC charge for transportation. This increase should is estimated to accrue an additional $50,000 per year. This additional revenue is reflected in fiscal years 1996/97 and 1997/98 in Table 8.1.

Table 8.1
City of St. Helens Transportation Fund
Fiscal Years 1994/95 to 1997/98

	1994/95 Actual Budget	1995/96 Actual Budget	1996/97 Adopted	1997/98 Proposed
Beginning Cash Balance	$410,814	$331,783	$397,800	$343,400
REVENUE SOURCES				
State Revenue				
Motor Vehicle Tax	$358,771	$367,618	$368,378	$385,535
State STP Grant	$0	$0	$139,800	$176,833
Bicycle Path Revenue	$0	$0	$20,500	$20,500
Haz-Mat Repayment	$0	$0	$5,000	$5,000
System Development Charges	$39,788	$36,227	$90,000	$90,000
Miscellaneous Revenue	$2,457	$1,943	$750	$750
Sidewalk Handicap Access.	$0	$0	$5,000	$5,000
Interest	$9,221	$10,897	$10,000	$10,000
TOTAL REVENUE	$410,237	$416,685	$639,428	$693,618
EXPENDITURES				
Payroll Related Expenditures	$102,013	$104,436	$112,170	$115,486
Material and Supplies				
Street Lighting	$81,212	$83,734	$89,850	$89,850
Road Paving	$169,735	$47,792	$117,076	$156,957
Sidewalk Handicap Access	$0	$0	$5,000	$5,000
Sidewalk Projects	$0	$0	$228,000	$270,915
Other	$89,741	$72,958	$151,233	$153,602
Capital Outlays				
Bond Fund	$21,413	$0	$0	$0
Bicycle Path Construction	$0	$0	$91,000	$91,000
Equipment Expense	$25,154	$700	$0	$12,000
Construction Expense	$0	$0	$100,000	$0
COLCO Transit				
Contingency and Reserve	$0	$0	$92,899	$92,208
TOTAL EXPENDITURES	$489,268	$309,620	$987,228	$987,018
Unappropriated Ending Balance	$331,783	$438,848	$0	$0
TOTAL EXPENDITURES	**$821,051**	**$748,468**	**$987,228**	**$987,018**

This section does not address whether St. Helens is currently meeting maintenance needs to its existing transportation system. Instead, The analysis assumes that the City of St. Helens is currently meeting all of its maintenance needs and any additional revenue sources could be used for capital improvement projects.

Historically, approximately 90 percent of the City's share of the State Highway Fund has been used for maintenance purposes, leaving 10 percent of the fund and the City's SDC revenue available for capital improvement projects.

Outlook for Transportation Revenue in St. Helens

To determine whether the City of St. Helens can financially implement the recommended TSP, future revenues and expenditures must be analyzed. The two major sources for transportation revenue for the City of St. Helens should remain the State Highway Fund and System Development Charges. The ODOT forecast committee expects the State Highway Fund to grow faster than inflation through 2005 and slower than inflation afterwards. St. Helens' share of the State Highway Fund should follow a similar trend.

The City's primary revenue source for capital improvement projects will come from System Development Charges. SDC revenue depends heavily on new construction and thus is quite variable. For this analysis, forecasts developed for this TSP (which are consistent with the City's Comprehensive Plan) are used to determine future SDC revenue. Residential and commercial growth in St. Helens is likely to fluctuate over the next 20 years. However, for this analysis, the SDC forecast assumes a constant residential and commercial growth rate over the 20-year (1996-2016) period, which is estimated to keep SDC revenue constant with inflation.

Table 8.2 display projected future revenue for St. Helens over the next 20 years.

Table 8.2
City of St. Helens Forecast Transportation Revenue 1996 to 2016
(1996 Dollars)

Year	State Highway Fund	STP Grants	SDC Revenue	TOTAL REVENUE
1996	$368,378	$40,000	$159,000	$527,378
2000	$430,000	$40,000	$159,000	$589,000
2005	$450,000	$40,000	$159,000	$609,000
2010	$430,000	$40,000	$159,000	$589,000
2015	$405,000	$40,000	$159,000	$564,000
Total (1996-2016)	$8,474,448	$800,000	$3,180,000	$12,454,448

Note: Historically 90% of the State Highway Fund has been used for maintenance purposes. Approximately 10% of this fund is available for capital improvement projects.

Table 8.3 displays the total amount of revenue that will be available for capital improvement projects over the next 20 years in St. Helens. Based on existing funding sources, the City will not be able to implement the recommended TSP.. According to our estimates, existing revenue sources will only cover 17 percent of the recommended improvement costs, leaving a shortfall of more than $24 million.

Table 8.3
Forecast Revenue Available for Capital Improvements
vs.
Needed Transportation Improvement Costs

Year	Revenue Available for Capital Improvements	Project Capital Costs	REVENUE SHORTFALL
1996 - 2000	$1,373,500	$1,987,000	$613,500
2001 - 2005	$1,216,000	$6,834,000	$5,618,000
2006 - 2015	$2,416,500	$20,410,000	$17,993,500
Total (1996-2016)	$5,006,000	$29,231,000	$24,225,000

Note: The project costs that are tied to development (no exact timing) were assumed to be take place between the years 2001 and 2015 (See Section 8.1). Also, the City of St. Helens currently has on hand approximately $178,500 ins SDC's collected through this fiscal year available for capital improvements. This figure in included in the above table.

Transportation Funding Alternatives

It is clear from Table 8.3 that the City of St. Helens cannot fund the recommended transportation improvements itself entirely through existing revenue sources. To fund all of the needed transportation improvements, the City will need to find additional revenue sources.

Funding for transportation improvement projects typically come from three sources: federal, state, and local governments. The following presents a summary of the funding options and sources available to the City of St. Helens. The discussion is divided into 3 sections: Federal and State funding opportunities, County funding responsibilities, and local funding opportunities. Under the Federal, State, and County funding opportunities, available funding programs and grants are presented along with which specific transportation improvement projects are eligible for funding under each program. For the local funding opportunities, a summary of the options are presented and where possible, an evaluation of the potential revenue from each source is estimated.

Federal and State Funding Opportunities

Much of the transportation system within the St. Helens Urban Growth Boundary falls under several governmental jurisdictions. For instance, ODOT is responsible for maintaining state highways, and so ODOT could potentially participate in funding

improvements recommended for Highway 30. Also, Columbia County is responsible for roads and streets outside of the city limits and still inside the urban growth boundary. The County should assist in funding the projects that fall within this category.

Since ODOT is responsible for maintaining Highway 30 through St. Helens, they could potentially participate in funding recommended projects along Highway 30 or others that improve operation on Highway 30. The specific projects that fall under this category include; all recommended traffic signals along Highway 30 as well as the Frontage Road system, which is designed to remove local traffic off of the Highway 30 to improve the overall level of service in the corridor. It is probably unlikely that ODOT will fund 100 percent of the cost of these projects. Therefore, for the purposes of this funding analysis, it was assumed that ODOT and the City of St. Helens would share the funding (50/50) for the forementioned projects.

There also several Federal and State programs administered by ODOT that fund specific types of improvements that could contribute funds for projects in St. Helens. These programs include:

Immediate Opportunity Fund - This program is administered by ODOT but is used primarily in conjunction with projects funded by the Oregon Economic Development Department. This program is intended to fund infrastructure improvements where an immediate commitment of funds is required to attract or retain industrial and some commercial firms that will provide jobs. There are two projects included in the transportation system plan that could potentially qualify for this program. These are two projects include: the McNulty Way Extension and the Industrial Way Extension. Both projects are within the Port of St. Helens' McNulty Industrial Park and could be constructed to attract a new employer.

Highway Enhancement Program - This program is designed for safety improvement projects where it can be shown that the project will reduce the frequency and/or severity of accidents and the cost/benefit ratios of the project is greater than one. This program requires a 10 percent local match.

Oregon Bicycle and Pedestrian Program - This program provides grants up to $50,000 for projects that would improve bicycle or pedestrian facilities, including construction or striping of bike lanes on roadways, and provision of sidewalks. This program distributes a total of $450,000 annually to Oregon cities and counties. Many projects included in the TSP would be eligible for partial funding through this program. These include:

Transportation Enhancement Program - This program contributes funds for projects that would improve bicycle and pedestrian facilities. In Oregon, these funds have been spent primarily on off-street bicycle/pedestrian paths. The only project that appears to qualify for this program would be the Vernonia Road to Bachelor Flat Road Bike Trail along the BPA powerline easement. This program requires a non-federal match of 20 percent for bicycle/pedestrian facilities.

Community Development Block Grants (CDBG) - The Federal Department of Housing and Urban Development (HUD) has a program known as the Community Development

Block Grant Program (CDBG). Cities receive funds based on a formula that includes their size and other demographics, including income levels and housing standards.

In practice, this program is limited to older streets in sections of the city with low to moderate income residents. For example, the City of Medford has used CDBG funds to provide sidewalks and street lighting in older parts of town. CDBG funding would require city staff to write a grant application and, if successful provide audit and compliance reports.

Special Public Works Fund - This program is administered by the Oregon Economic Development Department and provides loans and grants to fund infrastructure in commercial/industrial areas to support local economic development. The project must help create or retain a minimum of 50 jobs to receive funding through this program. The two new roadway projects in the Port of St. Helens could potentially be funded through this program.

County Funding Responsibilities

There are several projects included in the transportation system plan that currently fall under Columbia County's jurisdiction. It is likely that over the next 20 years, a portion of these roads will be annexed into the City of St. Helens. The City of St. Helens can refuse to accept roads that are not built to urban standards, leaving the County responsible for the maintenance of these roads. Therefore, the County will be responsible for several of the improvements listed in the transportation system plan.

For the purpose of determining the level funding needs for the City of St. Helens, it was assumed that improvements to existing County roads identified in the TSP will be divided evenly between the City and the County. Table 8.4 below identifies the projects that would require participation from Columbia County.

Table 8.4
Projects included in the TSP
that are under Columbia County's Jurisdiction

Projects	Total Cost	Columbia Co.'s Estimated Share
Bachelor Flat Rd. Reconstruction (Sykes Rd. to Ross Rd.)	$949,000	$474,500
Sykes Road Reconstruction (city limits to UGB)	$360,000	$180,000
Millard Road Reconstruction (Highway 30 to Ross Road)	$805,000	$402,500
Old Portland Rd. Bike Lanes (Millard Road to Gable Road)	$465,000	$232,500
Bachelor Flat Rd. Bike Lanes (Ross Rd. to Fairgrounds)	$380,000	$190,000
TOTAL	$2,959,000	$1,479,500

Local (City of St. Helens) Funding

The last two sections identified Federal, State and County funding sources available to the City of St. Helens to fund the recommended TSP. Table 8.5 below summarizes the total cost to fund the projects in the TSP by lead jurisdiction and time period. Even with substantial Federal, State, and County support, the City of St. Helens will still need a significant amount of revenue to implement the recommended TSP (approximately $16 million over the next 20 years).

Table 8.5
Estimated Level of Funded and Unfunded Projects
(1996 Dollars)

	Years 1-5	Years 6-10	Years 11-20	Total
Existing Highway Fund Revenue[1]	$200,000	$221,000	$426,500	$847,500
Existing STP Grants	$200,000	$200,000	$400,000	$800,000
Existing City's SDC Revenue[2]	$973,500	$795,000	$1,590,000	$3,358,500
Additional State Contributions	$0	$896,500	$5,960,800	$6,857,300
County Funds	$474,500	$0	$1,005,000	$1,479,500
Total Available Funds	**$1,848,000**	**$2,112,500**	**$9,382,300**	**$13,342,800**
Total Project Costs	$1,987,000	$6,834,000	$20,410,000	$29,231,000
Unfunded Project Costs	**$139,000**	**$4,721,500**	**$11,027,700**	**$15,888,200**

Note: The analysis assumes that the City of St. Helens is successful in obtaining ODOT grants and that Columbia County has the necessary funds to complete the County road projects.

1 This includes the portion of the Highway Fund available for capital improvement projects (10%, Historically 90% of the Highway Fund has been used for maintenance purposes.

2 St. Helens currently has approximately $178,500 in SDC collected through this fiscal year, which has been added to the Years 1-5 total.

The following presents St. Helens' available local funding options that could be used to raise additional revenue to fund the recommended TSP.

Increase SDC Charges - A transportation system development charge (SDC) is a sliding scale fee which all new development must pay for transportation improvements that result from construction of and trips generated by the development. The fee is normally based on the number of vehicle trips generated by the development. Developers are often given credits that reduce the SDC charge for making improvements to an adjacent arterial or collector street. Many cities and counties within Oregon now use transportation system development charges.

ORS 223.297 to 223.314 prescribe specific requirements that a SDC must meet to be considered legal. The statutes specify that a SDC may be used only for capital improvements and define the range of eligible capital facility improvements (i.e., water,

sewer, drainage, transportation, or parks). The ORS also define the method of determining the amount that may be charged for a SDC, the types of projects eligible for funding, and annual review provisions.

The following are some typical features of a SDC:

- They are collected based on a development's impact on the transportation system.
- The proceeds from the collection of the fees are used to fund a portion of the projects needed to increase the transportation system capacity.
- The fee should be reasonable and affordable so as not to prohibit or displace future development to an area without the fee.
- Where possible, the fee should be implemented on an areawide basis to avoid variances in the costs associated with development within a community.
- Projects eligible for funding by a SDC are a part of an adopted Capital Improvements Program.

The use of the transportation SDC is a major source of funding for growth-related transportation improvements. It helps match the availability of funds with the need for funding as new development places additional burdens on street capacity.

In early May, 1997, the City of St. Helens increased their Transportation SDC charge from $253 to $607 per single-family dwelling unit. It has been estimated that the new SDC rates should raise approximately $159,000 per year (based on level of growth assumed in the City's Comprehensive Plan). However, the large amount of unfunded projects in Table 8.5 suggests that SDC rates for transportation in St. Helens are not large enough to charge for the cost of projects needed to serve new development. Based on the current rate, SDC charges over the next 20 years will only cover approximately 17 percent of the needed transportation improvement costs. While Oregon law prohibits overcharging new development it is apparent that new development in St. Helens is only paying a small portion of the needed revenue to upgrade and build new collectors and arterials in the developing areas.

For comparison purposes, Table 8.6 displays SDC rates for transportation in St. Helens to rates in other nearby jurisdictions. From the comparisons made in the table, only Scappoose and Troutdale have lower SDC rates than the City of St. Helens.

Table 8.6
SDC Rate Comparisons for
St. Helens and Nearby Communities

City	Single-Family (per unit)	Multi-Family (per unit)
St. Helens	$607	$370
Scappoose	$347	$208
Forest Grove	$1,690	--
McMinnville	$1,200	--
Troutdale	$593	--
Newberg	$1,520	$1,020
Washington County	$1,200	$810
Wilsonville	$2,190	$1,560
Oregon City	$1,210	$800

Since Oregon law prohibits overcharging new development, the comparable SDC rates cannot be too high. The implication is that SDCs in St. Helens recover less than the full costs of the transportation improvements that new development requires. The level of SDCs, however, must be based on a method that relates the number of trips generated by different land use types to the cost of constructing roadways to accommodate those trips -- a city cannot simply set the rate it wants.

Table 8.7 below shows various SDC rates needed to fund the recommended TSP. Included in the table are the rates that would be necessary to fund 100 percent of the TSP. Since existing traffic and residents are responsible for some of the needed transportation improvements, it would difficult to justify paying for the entire TSP through SDC charges. Therefore, the necessary SDC rates to fund 40 and 60 percent of the TSP are also displayed in Table 8.7.

Table 8.7
SDC Rates Necessary to Fund TSP

		Level of TSP Funded		
	Existing SDC	100%	60%	40%
Single Family (per unit)	$607	$3,674	$2,205	$1,470
Multi-Family (per unit)	$370	$2,241	$1,345	$897
Light Industrial (per 1,000/sq. feet)	$334	$2,021	$1,213	$808
General Commercial	$3,114	$18,849	$11,310	$7,540
Public	$364	$2,205	$1,323	$882

Local Gas Tax - The City of St. Helens or Columbia County could implement a local gas tax in addition to the state gas tax it currently receives. Five jurisdictions within Oregon currently have a local gas tax - the City of Woodburn ($0.01/gallon), Washington Co. ($0.01/gallon), Tillamook ($0.015/gallon), The Dalles ($0.01/gallon), and Multnomah Co. ($0.03/gallon). The local gas taxes have raised the following amounts:

Woodburn	$0.01/gallon	$ 112,490	(1993)
Tillamook	$0.015/gallon	$ 98,000	(1991)
The Dalles	$0.01/gallon	$ 291,000	(1991)
Multnomah County	$0.03/gallon	$7,466,643	(1993)
Washington County	$0.01/gallon	$1,602,209	(1993)

The Washington County gas tax is shared with cities within the County on a per capita basis. The cities of Tillamook and The Dalles are responsible for collection of their local gas tax. The remaining jurisdictions rely on the State Department of Motor Vehicles for collection and distribution. The state charges an administrative fee for collection.

A gas tax would be most appropriately implemented at the County level, because a county-wide election would be necessary for approval whether the tax would be imposed in St. Helens or all of Columbia County, and because the administrative costs would take a larger share of a City gas tax. A county-wide tax also makes sense given the County's lack of funding available for transportation and expected population growth. It is estimated that each $0.01/gallon tax would generate annual revenue of about $50,000 for St. Helens or $270,000 for Columbia County (see Table 8.8)[2] . Estimated population growth and increased usage of motor vehicles would probably cause revenues from this source to grow at least as fast as inflation in most years, so this revenue source would be relatively stable in inflation-adjusted dollars.

Table 8.8
Local-Option Gas Tax Estimated Revenue
(1996 Dollars)

	1 cent/gallon	2 cents/gallon	5 cents/gallon
Years 1-5	$250,000	$500,000	$1,250,000
Years 6-10	$250,000	$500,000	$1,250,000
Years 11-20	$500,000	$1,00,000	$2,500,000
Total	$1,000,000	$2,000,000	$5,000,000

[2] *City of Scappoose Transportation System Plan*, David Evans and Associates and ECONorthwest.

Street Utility Fee - The principle behind a street utility fee is that a street is a utility used by the citizens and businesses of a city just like a water pipe or a sewer that supplies a connection to a home or business. A fee would be assessed to all businesses and households by the City for use of City streets based on the amount of use typically generated by that particular use. For example, a single-family home typically generates 10 trips per day, so the fee is based on that amount of use. A small retail/commercial use typically generates 130 trips per day per 1,000 square feet, so the fee for the retail/commercial use would be significantly greater than the fee for the single-family residence.

By law, revenue from a street utility fee could only be used for existing maintenance purposes, not for capital improvement projects. However, this money could be used to supplement revenue from the Highway Fund, which could then be used for capital improvement projects.

A street utility fee is currently being used in Medford, where it is raising approximately $1.3 million a year. The amount of the fee is based on the land use classification as it relates to trip generation. A single-family residence generating an average of 10 trips per day pays $2.00 per month. The street utility fee was implemented in 1991 in Medford and has been challenged in court and sustained on two occasions. The revenue generated by the fee is used for operating and maintaining the street system. The City of Roseburg is currently contemplating a similar fee. Roseburg currently has a similar fee for storm water charges which they use for operating, maintaining, and constructing storm drainage facilities. The Roseburg storm drainage utility fee has also been challenged and sustained by the courts.

Table 8.9 presents an estimated amount of revenue that could be generate from a street utility fee in St. Helens. A $2 per month fee would raise approximately $150,000 per year.

Table 8.9
Street Utility Fee Estimated Revenue
(1996 Dollars)

	$2/Month Fee*	$3/Month Fee*	$5/Month Fee*
Years 1-5	$750,000	$1,125,000	$1,875,000
Years 6-10	$750,000	$1,125,000	$1,875,000
Years 11-20	$1,500,000	$2,250,000	$3,750,000
Total	$3,000,000	$4,500,000	$7,500,000

* The rates per month are per residential dwelling unit. The rates for commercial businesses would be higher (based on their type of business, i.e. the higher the trip generation rate the higher the fee)

Local Vehicle Registration Fee - A local vehicle registration fee can be implemented by counties and collected in addition to the State registration fee. Based on the number of registered vehicles in Oregon and relative population, a $10 local vehicle registration fee would generate about $165,000 annually for Columbia County and approximately $30,000 per year for the City of St. Helens. The number of cars in St. Helens will probably grow faster than inflation in most years, so this revenue source would be relatively stable in inflation-adjusted dollars. Table

General Obligation Bonds (G.O. Bonds) - Bonds are sold by a municipal government to fund transportation or other types of improvements, and are repaid with property tax revenue generated by that local government. G.O. bonds fall outside of the limitations of Ballot Measure 5 but require voter approval.

Cities all over the state use this method to finance the construction of transportation improvements. For smaller jurisdictions, the cost of issuing bonds vs. the amount that they can reasonably issue creates a problem. Underwriting costs can become a high percentage of the total cost for smaller issues. According to a representative of the League of Oregon Cities, the state is considering developing a Bond Pool for smaller jurisdictions. By pooling together several small bond issues, they will be able to achieve an economy of scale and lower costs.

Within the limitations outlined above, G.O. bonding is an alternative for funding transportation improvements.

Property Taxes - Local property tax revenue (city or county) could be used to fund transportation Improvements. Revenue from property taxes ends up in the local government general fund, where it is used for a variety of uses. Precedents for the use of property taxes as a source of funding for transportation capital improvements can be found throughout the state. However, use of property taxes for transportation capital improvements will continue to compete with other general government services under the funding limitation set by Measure 5 for general government services (i.e., within the $10.00 limitation). Consequently, because the potential for increased funding from property tax revenue is limited by Ballot Measure 50 and by competition from other users who draw funds from the general fund; it is not a practical source for financing major street improvements.

Revenue Bonds - Revenue Bonds are those bonds sold by a city and repaid with "revenue" from an enterprise fund that has a steady revenue stream, such as a water or sewer fund. The bonds are typically sold to fund improvements in the system that is producing the revenue.

Revenue bonds are a common means to fund large, high cost capital improvements that have a long useful life. A sewage treatment plant is a good example where the high construction costs over a short period makes it difficult to pay for from operating funds, yet a long-term revenue stream from sewer revenues makes the sale of bonds a viable alternative that spreads the cost of the facility improvement over a long period.

Revenue bonds have been used to fund transportation improvements in the past. For example, in 1989 the City of Independence sold revenue bonds to fund street improvements with vehicle fuel tax revenues pledged as the method of repayment.

Local Improvement District (LID) - Through a local improvement district (LID), a street or other transportation improvement is built and the adjacent benefited (i.e., local) properties are assessed a fee to pay for the improvement. LID programs have wide application. The LID method is used primarily for local or collector roads, although arterials have been built using LID funds in certain jurisdictions.

Funding Conclusions

There are a variety of funding options available to the City of St. Helens. To fund all of the recommended capital improvement projects in the TSP would most likely require a number of new revenue sources. For purposes, of illustration, we have provided an example of what it would take to fund the entire TSP (See Table 8.10). The funding options include:

- Increase SDC charges from $610/du to $2,204/du (from 17% to 60% of needed capital expenditures).
- Implement a city-wide 2.5 cent local option gas tax.
- Implement a city-wide $10/vehicle registration fee.
- Implement a city-wide street utility fee (i.e. $3/month for all residences).

Table 8.10 shows that the new funding sources would generate a surplus of revenue of about $3.8 million in Years 1-5; if this surplus were carried forward into Years 6-10 and Years 11-20, there would be enough revenue all of the recommended capital improvement projects.

The reality of the funding situation, is that due to local political opposition to increased taxes, it is unlikely that the City of St. Helens will be able to fully implement the recommended TSP. The recommended funding strategy for the City should include the following:

- Aggressively pursue federal and state funding options for capital improvement projects.
- Coordinate capital improvement projects with new development and seek additional revenue from developers.
- Increase System Development Charges (SDC) to a more comparable rate with surrounding communities. (i.e. - 40% to 50% of the needed revenue, $1,470 - $1,840 per dwelling unit)
- Seek one or more of the local funding options previously discussed.
- Carefully prioritize capital improvement projects.

Table 8.10
Total Funding From Various Sources Projects to fund the Recommended TSP
(1996 Dollars)

	Years 1-5	Years 6-10	Years 11-20	Total
Existing Highway Fund Revenue	$200,000	$221,000	$426,500	$847,500
Existing State STP Grants	$200,000	$200,000	$400,000	$800,000
City's Existing SDC Revenue[1]	$973,500	$795,000	$1,590,000	$3,358,500
County Funds	$474,500	$0	$1,005,000	$1,479,500
State Contributions (ODOT)	$0	$896,500	$5,960,800	$6,857,300
Total Available Funds	**$1,848,000**	**$2,112,500**	**$9,382,300**	**$13,342,800**
Increase SDC Charge (60% of TSP)	$2,092,000	$2,092,000	$4,184,000	$8,368,000
Local Option Gas Tax ($0.03/gallon)	$625,000	$625,000	$1,250,000	$2,500,000
Local Vehicle Registration Fee ($10/vehicle)	$150,000	$150,000	$300,000	$600,000
Street Utility Fee ($3/month residential)	$1,125,000	$1,125,000	$2,250,000	$4,500,000
Total Revenue from New Sources	**$3,992,000**	**$3,992,000**	**$7,984,000**	**$15,968,000**
TOTAL REVENUE	**$5,840,000**	**$6,104,500**	**$17,366,300**	**$29,310,800**
Total Project Costs	$1,987,000	$6,834,000	$20,410,000	$29,231,000
Unfunded Project Costs	**($3,853,000)**	**$729,500**	**$3,043,700**	**($79,800)**

() under unfunded project costs means a surplus would exist.

8.3 Implementing Ordinance Recommendations

The Transportation Planning Rule (TPR) specifies that each local government in Oregon shall amend its land use regulations to implement the adopted transportation system plan. The following sections address specific requirements of the TPR related towards the implementation of the Transportation System Plan. Each section provides a summary of the TPR requirement, followed by proposed recommendations for the City of St. Helens to achieve each TPR objective.

TPR Requirement: OAR 660-12-045 (2) **- Land Use or Subdivision Ordinance regulations, to protect the function of transportation facilities, corridors and sites.**

subsequent requirement

TPR Requirement: OAR 660-12-045 (2)(a) and (b) - Access Control Measures/ and Standards to Protect Future Operation.

Summary: Local governments shall adopt access control measures, which include; driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities and provide standards to protect future operation of roads, transitways and major transit corridors.

Recommendation: Access management is important in maintaining efficient operation of a transportation system. For Highway 30, the City should continue to work with ODOT on implementing and adding to the City Code, the recommendations of the Highway 30 Access Management Study (See Section 7.2).

TPR Requirement: OAR 660-12-045 (3)(a) **- Land Use or Subdivision Regulations to provide for safe and convenient pedestrian, bicycle and vehicular circulation.**

subsequent requirements

TPR Requirement: OAR 660-12-045 (3)(a) - Bicycle Parking

Summary: The rule requires bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park and ride lots.

Recommendation: Currently, the City of St. Helens's parking requirements does not include provisions for bicycle parking. Bicycle parking should be provided at transit stops, shopping centers, employment uses, and recreational destinations in pedestrian districts. Bike parking may be shared between uses, but should be centrally located, easily accessible to building entries, and visible from streets or parking lots. For clarity, bicycle parking requirements should be tied to existing automobile parking stipulations. The following is recommended for provisions of bicycle parking in new developments:

Type of Development	Bicycle parking spaces required
• Single Family, Duplex, Triplex	None
• Multi-Family (4 units or more)	1 per unit
• Commercial Development	10% of vehicle parking
• Civic Uses	20% of vehicle parking
• Schools	8 spaces per classroom
• Industrial Development	5% of vehicle parking

TPR Requirement: OAR 660-12-045 (3)(b) - Safe and Convenient Bicycle and Pedestrian Access

Summary: Facilities providing safe and convenient pedestrian and bicycle access shall be provided within and from new subdivisions, planned developments, shopping centers and industrial parks to nearby residential areas, transit stops, and neighborhood activity centers, such as schools, parks and shopping. This shall include:

- Sidewalks along arterials and collectors in urban areas;
- Bikeways along arterials and major collectors;
- Where appropriate, separate bike or pedestrian ways to minimize travel distances within and between the areas and developments listed above.

Recommendations: The City currently does require the construction of sidewalks on new streets created through subdividing or partitioning or the upgrading of streets within the incorporated portion of St. Helens. The City should continue the policy that requires new sidewalks be constructed along all arterial and collector streets as well as local roads in new subdivisions.

Pedestrian routes should be located along or visible from streets and linked to local destinations and building entrances. Primary pedestrian routes should be bordered by residential fronts (rather than back yards), public parks, plazas, or commercial uses. Where street connections are not feasible, short pedestrian paths should provide connections between residential and retail areas. Routes through parking lots or at the rear of residential developments should be avoided.

The current St. Helens standard width for sidewalks is five feet in residentially zoned areas, and at least six feet along arterial streets and adjacent to commercial and industrial areas. These sidewalk standards are adequate to meet the requirements of the TPR.

Wheelchair ramps and other facilities should be provided as required by the Americans with Disabilities Act (ADA). The lower lip of the wheelchair ramp shall be flush with the roadway surface.

Currently, St. Helens does not have implementing ordinances related to the location of or minimum standard for bicycle lanes. The City should require bicycle lanes on all City streets outlined in the Bicycle Plan. The bicycle lanes should be implemented as; 1) the identified existing streets are upgraded, or 2) the identified new roadways are constructed.

Bikeways should also meet the minimum requirements of the 1995 Oregon Bicycle Plan and AASHTO's Guide for the Development of Bicycle Facilities. The City should provide bike lanes that range in widths from four-feet to six-feet, providing wider lanes on roads with higher vehicle speeds and larger traffic volumes. Right-of-way standards need to be adjusted where on-street parking is desired.

TPR Requirement: OAR 660-12-045 (3)(e) - Internal Pedestrian Circulation in New Developments.

Summary: Internal pedestrian circulation shall be provided in new office parks, and commercial developments through clustering of buildings, construction of pedestrian ways, skywalks, where appropriate, and similar techniques.

Recommendation: A walkway should be provided to each street abutting the property. A walkway should be provided for every 300 feet of street frontage or for every eight rows of vehicle parking. A walkway should also be provided to any bikeway or walkway along a frontage of the site which is not bordered by a street.

Sidewalks and walkways must connect the pedestrian circulation system to other areas of the site such as other buildings, parking lots, children's play areas, required outdoor areas, and any pedestrian amenities, such as plazas, resting areas and viewpoints.

The onsite circulation system should incorporate a streetscape which includes curbs, sidewalks, pedestrian scale light standards and street trees.

Walkways should be constructed to sidewalk standards except for portions of walkways in driveways and other vehicle maneuvering areas which shall be raised at least 3" and paved with a different material than the surrounding driveway.

TPR Requirement: OAR 660-12-045 (6) - Improvements to Facilitate Bicycle and Pedestrian Travel.

Summary: Local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers.

Recommendation: The City should ensure that pedestrian and bicycle access is maintained between residential neighborhoods. Specific measures should include; constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses. Another

measure to facilitate pedestrian and bicycle travel is to narrow the street width along local streets (see next section).

TPR Requirement: OAR 660-12-045 (7) - Minimize Local Street Widths

Summary: Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation.

Recommendation: Existing street standards require excessively wide residential streets. Wide roadways encourage high speeds and can attract through traffic to use residential streets. The response to these concerns about traffic has been the construction of a disconnected residential street network -- with numerous cul-de-sacs. While this reduces traffic on residential streets and effectively reduces speed ad the ends of the cul-de-sacs, it also makes pedestrian, bicycle and transit travel indirect, inconvenient and inefficient.

Where appropriate the City should require "Queuing Streets" in residential neighborhoods. Queuing streets are a narrow two-way street with a single travel lane and one or two parking lanes. A queuing street requires that when two vehicles meet, one of the vehicles must yield by pulling over into a vacant segment of the adjacent parking lane.

The recommended standards for residential street width are as follows:

Type of Street	Parking Lanes	Right-of-Way	Street Width
Through Street	2	50 feet	26 feet
	1	40 feet	20 feet
Cul-de-Sac/Dead End	2	40 feet	26/24 feet
(less than 300 feet long)	1	35 feet	20/18 feet
Cul-de-Sac/Dead End	2	40 feet	28 feet
(more than 300 feet long)	1	35 feet	20 feet

Acceptable operation of a queuing street occurs only where there are occasional breaks in the curbside parking approximately 40 feet in length to permit the yielding vehicle to pull over. In residential areas with lots of 5000 square feet or larger, use of on-street parking is light enough so that openings in the parking lane, in combination with driveways and intersections is adequate space for yielding vehicles. In more densely developed areas with high use of on-street parking queuing streets may not be appropriate. Where queuing streets are determined to be appropriate, sufficient space

for yielding vehicles can be provided by individual driveways, combinations of driveways, and intersections.

9.0 TRANSPORTATION PLANNING RULE COMPLIANCE

In April 1991, LCDC, with the concurrence of ODOT, adopted the Transportation Planning Rule, OAR 660 Division 12 (updated 1995). The TPR requires local jurisdictions to prepare and adopt a Transportation System Plan by May 1997. Outlined below is a list of recommendations and requirements for a TSP for an Urban Area with a population between 2,500 and 25,000, and how each of those were addressed in the St. Helens Transportation System Plan.

9.1 Developing a TSP

TPR Recommendations/Requirements	St. Helens TSP Compliance
Public and Interagency Involvement	
• Establish Advisory Committees.	A project management team and an advisory committee were established at the outset of the process. Membership on the management team consisted of ODOT and City staff. Membership on the advisory committee included members of the public, public agencies and utilities, and City and ODOT staff.
• Develop information material.	Stakeholder interviews were conducted. Draft information was prepared and presented at the advisory committee meetings. There were articles in the local newspaper prior to each open house.
• Schedule informational meetings, review meetings and public hearings throughout the planning process. Involve the community.	A total of four public information meetings and two open houses were held throughout the planning process. Stakeholder interviews were conducted. The open houses were advertised on the radio and through the local newspaper.
• Coordinate Plan with other agencies.	Coordination with local government agencies was accomplished by including them on the advisory committee and through individual project briefings or meetings.
Review Existing Plans, Policies, Standards, Laws	
• Review, evaluate existing comprehensive plan. (goals, policies, OTP & other state plans)	The following plans were reviewed as part of the development of the TSP: *St. Helens Comprehensive Plan, Transportation Planning Rule, Oregon Transportation Plan; Oregon Highway Plan, Highway 30 Corridor Plan, Highway 30 Access Management Plan, St. Helens Bikeway Master Plan, St. Helens Zoning Ordinance, St. Helens Street Ordinance.*

• Land use analysis - existing land use/ vacant lands inventory.	Existing and future land use patterns were reviewed to analyze current travel patterns and future transportation needs. A vacant land inventory conducted by PSU as part of a PDIA analysis was updated.
• Review existing ordinances - zoning, subdivision, engineering standards.	The existing City Subdivision Ordinance, Zoning Ordinance, and City Engineering Standards were reviewed for adequacy in the development of the TSP.
• Review existing significant transportation studies.	Significant transportation studies reviewed as part of the St. Helens TSP include the above-mentioned plans plus the West St. Helens Circulation Study, 1982 and the St. Helens Public Facilities Plan
• Review capital improvements programs, public facilities plans.	Capital improvements programs for the City were reviewed as mentioned above.

Inventory Existing Transportation System

• Street system (number of lanes, lane widths, traffic volumes, levels of traffic volumes, traffic control service, traffic signal locations and jurisdiction, pavement conditions, structure locations and conditions, functional classification and jurisdiction, truck routes, number and location of accesses, safety, substandard geometry).	An inventory of the existing street network addressing each one of the required components are provided in Section 4 of the TSP.
• Bicycle ways (type, location, width, condition, ownership/jurisdiction).	A summary of the existing bicycle route system is given in Section 4.
• Pedestrian ways (location, width, condition, ownership/jurisdiction).	A summary of existing sidewalks in the in the City is given in Section 4.
• Public Transportation Services (transit ridership, routes, frequency, stops, fleet, intercity bus, special transit, services).	A summary of the existing public transportation services in presented in Section 4.
• Intermodal and private connections.	Identification of private connections is given in Section 4; there are no significant intermodal services in St. Helens.
• Air transportation.	A summary of existing air service in the area is provided in Section 4.
• Freight rail transportation.	A summary of existing freight rail services

	is provided in Section 4.
• Water transportation.	A summary of water transportation services in provided in Section 4.
• Pipeline transportation.	A summary of pipeline transportation is provided in Section 4.
• Population, employment forecasts	Development of the forecast of transportation needs was based on population and employment numbers obtained from the St. Helens Comprehensive Plan.

Determine Transportation Needs

• Forecast population, employment.	Population forecasts were developed based on the St. Helens Comprehensive Plan. Employment forecasts were based on the population figures and information provided from the State of Oregon Employment Department. This information was used in developing the travel demand model. The model development is discussed in Section 5.
• Determination of transportation capacity needs (cumulative analysis, transportation gravity model.	Future daily traffic assignments were developed using the travel demand model described in Section 5.
• Other roadway needs (safety, bridges, reconstruction, operation/maintenance).	A safety analysis was conducted as part of the alternatives evaluation process.
• Public transportation needs (special transportation needs, general public transit needs).	Public transportation needs are discussed in Section 5.
• Bikeway, pedestrian needs.	Both bicycle and pedestrian needs are discussed in Section 5.

Develop and Evaluate Alternatives

• Update community goals and objectives.	Goals and objectives for the TSP were established through a public process, as described in Section 2.
• Establish evaluation criteria.	Evaluation criteria were established based on the TSP Goals and Objectives, and were applied to TSP Alternatives as described in Section 6.
• Develop and evaluate alternatives. Including:	Section 6 identifies the transportation system alternatives to assess the long-term

⇒ No Build System ⇒ TSM ⇒ TDM ⇒ Transit ⇒ Roadway System ⇒ Land Use Alternatives ⇒ Combination Alternatives	transportation needs, including: 1) No-Build Alternative or base case; 2) Transportation System Management (TSM) Alternative; 3) Transportation Demand Management (TDM) Alternative; and 4) Roadway System Alternative, and 5) Combination Alternative. The TDM alternative include a land use alternative as well as various transit alternatives.
• Select recommended alternative.	The Combination Alternative was chosen as the preferred alternative. The recommended alternative provides alternative mode choices to reduce reliance on the single-occupant vehicle (see Section 7).

Produce a TSP

• Transportation goals, objectives, and policies.	Policies to guide the St. Helens transportation system are throughout Section 7.
• Streets plan element: ⇒ Functional street classification ⇒ Facility improvements ⇒ Access management plan ⇒ Truck Plan ⇒ Safety Improvements.	The Streets Plan element is outlined in in Section 7 and contains each of the required and recommended components.
• Public transportation element ⇒ Transit facilities ⇒ Special transit services ⇒ Intercity transit	The Public Transportation element is outlined in Section 7 and contains appropriate components required for the City of St. Helens..
• Bikeway system element.	The Bicycle Plan is outlined in Section 7.
• Pedestrian system element.	The Pedestrian Plan is outlined in Section 7.
• Airport element	The are no air facilities within the St. Helens jurisdiction.
• Freight rail element (terminals, safety).	Rail freight is discussed in Section 7.
• Water transportation element (terminals).	The Water Transportation element is outlined in Section 7.
• Transportation System Management (TSM).	TSM is included in the Preferred Alternative as outlined in Section 7. Access management is also described.
• Transportation Demand Management (TDM).	A TDM element is not applicable per OAR 660-12-020 (2)(f) and (g).

9.2 Implementation of a TSP

Plan Review and Coordination

• Consistent with ODOT and other applicable plans.	The TSP is consistent with other applicable plans

Adoption

• Is it adopted?	To follow.

Implementation

• Ordinances (facilities, services and improvements; land use regulations).	Outlined in Section 8.3
• Transportation financing/capital improvements program.	The transportation finance options are discussed Section 8.2

Appendix A
St. Helens/Columbia City
Open House/Public Workshop Summary

May 1996

Background Information:

On May 29, 1996, the cities of St. Helens and Columbia City held an open house regarding the development of a Transportation Systems Plan for both cities and a Visioning Plan for St. Helens. About 60 people attended the Open House. The opportunity to participate was announced through a display ad and an article in The Chronicle, advertisements on KOHI radio station, news releases on KOHI, public notice on the local cable channel; and an invitation letter to residents, businesses, and agencies on St. Helens' mailing list.

The staff participating in the Open House/Workshop were: Skip Baker, St. Helens City Planner; Brian Little, St. Helens City Administrator; Jean LeMont, Columbia City Administrator/Recorder; Brian Christian, Columbia City Planner; Sam Seskin, Consultant Project Manager with Parsons Brinckerhoff; Steve Callas, Deputy Project Manager with Parsons Brinckerhoff; John Andersen, Visioning Planner with McKeever Morris; Jeanne Lawson, Public Involvement Manager with Jeanne Lawson Associates; and Julie Wagner, Public Involvement Coordinator with Jeanne Lawson Associates.

Open House:

The open house, from 7:00 to 9:00 pm, included displays and staff to provide citizens an opportunity to learn about transportation planning and the Visioning process. There were four stations in the room: 1) welcome area with a map for people to draw a line between where they work and live; 2) information on the Transportation Systems Plan for Columbia City; 3) information on the Transportation Systems Plan for St. Helens; and 4) the Visioning Process for St. Helens.

Some key messages that came out of the evening's meeting are as follows:

St. Helens TSP:

- Develop additional pedestrian facilities (including across Highway 30) within St. Helens and between neighboring communities. Improve existing paths.
- Improve public transportation options to connect to other areas, such as Portland. Improve links to areas within town.
- Design safe bike facilities and enforce bike laws.
- Improve capacity, access, and safety along Highway 30.
- Reduce reliance on Highway 30 by improving arterials, paving gravel roads.
- Improve traffic flow -- explore timing of traffic signals and number of signals.
- Retain small-town livability and feel.

St. Helens Visioning:

Overall, citizens agreed that a visioning process for St. Helens is an important and needed exercise to help shape the future of this city. At the Open House, response cards were distributed to citizens, asking them their thoughts on how they view St. Helens now and how they envision St. Helens in the future. Listed below are some of the key community messages that came forward from the response cards.

People have concerns about growth. Although varied, citizens have specific thoughts on the issue of continued growth in the St. Helens area. Their issues ranged from implementing growth-control measures to developing a plan that will accommodate growth (e.g., infrastructure, sewer systems, and schools).

Retaining community and historical character is important. Several citizens expressed the importance on continuing the area's current flavor, the small town feel, the historical sections and open spaces.

Redevelopment of certain areas of the City may be warranted. Some mentioned that gentrification of "shanty" neighborhoods would be in the best interest of the community. There were also concerns about sprawled, auto-dependent development as well as high density living.

Improving the transportation system has an important role in overall livability. Many citizens came to the Open House with concerns regarding the current transportation system. Some key messages include: improve traffic flow; explore bypassing through-traffic; poor access; poor road conditions; how the highway and railroad splits the community; lack of bike/pedestrian access; and that there are not enough alternative transportation modes.

There are a number recreational/community opportunities in the area. A range of opportunities were expressed that may help shape St. Helens in the future. Some suggestions included: a community recreational facility; providing affordable or free programs for the youth in terms of education, sports, and other recreation; nearby medical facilities; local events and festivals; and a library with a professional librarian.

Effective public participation and planning is critical. The public clearly expressed their opinion that working with as well as educating the public is a necessary component in this process. Providing professional guidance -- planning that is objective and proactive (rather than having a "band-aid approach") was conveyed as crucial in translating community issues/concerns into a workable plan. The need for inter-governmental cooperation was also mentioned.

Open House Displays:

The specific information displayed at Columbia City station included:

- Text board explaining what are Transportation Systems Plans
- The purpose of the study
- Map of the existing highway/roadway system
- Map of existing pedestrian ways and sidewalks
- Key issues heard do date -- including bike and pedestrian, access, road/highway -- with opportunities for people to add to the list of issues
- Travel characteristics of commuters
- How public input will be used
- What happens next (schedule)

Information displayed at the St. Helens Transportation Systems Plan station included:

- Explanation of a Transportation Systems Plan
- The purpose of the study
- Key issues heard do date -- including bike and pedestrian, road/highway, and public transportation -- with opportunities for people to add to the list of issues
- Map of the existing highway/roadway system
- Map of existing pedestrian ways and sidewalks
- Map of existing bike paths
- Travel characteristics of commuters
- Current traffic volume information
- How public input will be used
- What happens next (schedule)

Information at the St. Helens Visioning station included:

- Visioning process schedule that includes an explanation of the process
- Positive and negative values of the area (as defined through stakeholder interviews and the visioning committee)
- Livability issues -- defined in positive and negative categories
- List of area opportunities and constraints
- Photographs of particular areas of St. Helens were there are opportunities for improvements
- The Community Profile document
- Response card asking people specific questions about what they like/dislike about St. Helens

At the Open House, participants were provided the opportunity to review key issues heard to date (from stakeholder interviews) and add to these lists. Those issues are as follows:

St. Helens TSP

Key pedestrian issues:

- Roadway improvements
- Linear parks
- Connections to the waterfront
- Need more sidewalks
- Pedestrian overpasses over Highway 30
- Need more places to walk
- Restore walkway to Columbia City

The following issues were added to the above list:

- Have a pedestrian overpass -- ONCE the potholes are filled
- Encompass Dalton Lake as "Dalton Lake Wilderness Park" to allow paved paths and trails between St. Helens and Columbia City.
- Restore existing sidewalks to usable state (many broken, covered with gravel and water puddles)
- Charging a fee to developers to pay for new sidewalks to connect existing city sidewalks
- BPA no longer encourages recreation, parks, etc.,. under powerlines -- need to change comprehensive plan to discourage this
- Continue sidewalks -- currently they are scattered
- More and longer hiking/walking trail through greenspaces would be nice.

Key public transportation issues:

- Van to Portland
- Old trolleys from downtown to Highway 30
- Need rail line to commute to Portland
- Need regular transit service (expand COLCO)
- Need to restore Greyhound bus service

The following issues were added to the above list:

- Consider tying to Tri-Met -- the Park and Ride south of Scappoose -- explore with Tri-Met
- Public transportation from docks to up-town (like the second one listed above)
- Link to COLCO
- One person placed exclamation points after the issue "need rail line to commute to Portland"

Key bicycle issues:

- Need more bike paths and bikeways
- Need bicycle trails for kids
- Bicycle parking

The following issues were added to the above list:

- Enforcement of helmet law (less than 16 years)
- Enforce no bikes on sidewalks law
- Bike laws on Old Portland Road

- Bicycle lanes off road at least 3 feet so trucks don't suck them in a wind tunnel
- No policing of unauthorized use of land by motorists on Meadowview Drive.

Key highway/road issues:

- Need overpasses to reduce highway conflicts
- Need alternative routes to Highway 30
- Bottlenecks downtown
- Need better "side roads" to serve growing population
- Landscaped streets like Eugene
- Speeding
- Peak hour congestion
- Roads are too narrow
- Lack of access along Highway 30

The following issues were added to the above list:

- Need street alignment plan!
- Suggested an underpass as an option to reduce highway conflicts
- Pave the gravel roads in the City (dusty and potholes)
- Add more drainage/stormdrains on the roads to keep water from running into driveways and towns
- Keep traffic flowing through town -- limit traffic signals
- Study times and adjust traffic signals -- look at traffic needs
- Start improving westside major arterials: widen and pave Matzen -- make it two-way; continue North Vernonia to Columbia Blvd.; widen Pittsburg, Gable and Columbia Blvd. (take over from County)
- Stop red light running by trucks
- St. Helens Port Commission should give their nine acres (zoned residential) to ODOT to add to Dalton Lake development. Residential development should not be built when there is only one road in and out -- emergency access.
- Remember that the airport is a regional facility that serves St. Helens. One of the five reasons that a business chooses a community in which to locate is the proximity of a good airport (move freight and people). The example of the Redmond/Bend airport is a good one to keep in mind: the airport is physically located in Redmond but also serves as a key economic driver for the Bend community (the two towns are 13 miles apart).

St. Helens Visioning

Listed below are the community issues that were obtained from the response card.

Question 1: WHAT ISSUES DO YOU FEEL ARE IMPORTANT TO ST. HELENS?

- Infrastructure
- Burgeoning traffic and the dependency on autos.
- Being able to handle increased growth from Portland - homes, traffic, people.
- Controlling growth - giving continued attention to old town and the beauty of the river.
- Transportation, cleanliness, livability - parks, views, continuity.
- Projected growth will outstrip the capacity of St. Helen's schools to absorb new students in three years. Our community, including city government, needs to understand that a good school system is primary to positive growth, and they must begin taking responsibility for supporting a plan for providing high quality, safe facilities to meet the educational needs of students coming into our community.
- To keep the growth slow and improve sidewalks, bicycle routes and parks to allow people to get around without the car. Creates more friendly relationships.
- Development of Old Town section while maintaining/enhancing its historical character, including waterfront access.
- Long term renovation and redevelopment of east-side residential community.
- Development of commuter rail services extending from Portland to Longview.
- Small town quaintness, but conveniences of large city (i.e., cultural evening/day activities).
- Watch growth and prepare for it.
- Keep local dollars here (spent by people who live here).
- Keep it open and sprawled.
- That we don't over build -which taxes our schools, police, roadways, etc. I fee that developers are greedy and could care less how the community will look in 10 years - all they want is the money.
- What is our vision correctly planned growth.
- Growth needs to be controlled and infrastructure needs to be in place or a viable plan.
- Annexations need to be put to the voters of St. Helen's and UGB.
- Infrastructure is not sufficient (water, sewer, roads, schools, etc.).
- Good public transportation! Tie into Tri-Met's system and expand COLCO.
- Maintaining our wonderful small town feel - lots of open spaces.
- St. Helens and Columbia City need to work together more.

Question 2) WHAT DO YOU LIKE ABOUT ST. HELENS?

- Location.
- Friendly people - livable community.
- Old town, small town, has its own identity.
- Friendliness/River influence.
- Small town feeling, friendly. Has distinct neighborhoods and districts, water front and old town.
- The friendly greetings given strangers met in supermarket aisles, the wonderful potential of positive development in Old Town St. Helens, the beauty of our surroundings, the stirrings of cooperation and collaboration that are just beginning. The small town, caring feeling?
- Not a big shopping center for all of Portland.
- Small town character: community involvement and neighborliness.
- Old Town - historic charm and character; river frontage.
- Abundant green spaces, e.g., in canyons.
- Not a "rush-rush" feel like is in Portland/Beaverton area. Can find many conveniences without going to Portland or Longview.
- It is home.
- The people are friendly - there is a great opportunity to attract shoppers to Old Town if a larger park and water front area was developed.
- Could and should be a show place. Rural setting and low key - not a lot of industry or large non-Oregon business - keep out Wal-Mart.
- Small town.
- The open country side. The feel of a small town.
- It's beautiful with the river and mountain views.
- Elbow room and small town livability.

Question 3) WHAT DO YOU DISLIKE ABOUT ST. HELENS?

- Shanty neighborhoods - are there ordinances (laws) that could be enforced?
- Suburban and rural development where 5 to 10 lots are platted on a cul-de-sac leading to a rural country road. This leads to total reliance on auto for transportation. No paved shoulders for bicycle/pedestrian access. No provision for alternative transportation.
- Driving Highway 30 through the city, through traffic could be bypassed. Also poor access - East to West side of Highway 30.
- Rocks.
- Poor road conditions, unpaved streets, few sidewalks, railroad divides town, West side has little in the way of planned arterials.

- The air and water pollution caused by the Mill. the fear of moving away from a forest economy. Extremely poor public transportation. Limited choices re good restaurants and Old Town area in a positive way: failure to provide for our children.
- Not enough high paying jobs.
- Shabbiness of much of east side residences (some commercial premises).
- Paper Mill smell.
- Lack of community. Seems like the same people are involved with the community events - which creates burn-out for those that do help. The lack of beauty. Columbia Blvd. is very stark - no green spaces! Old Town has such potential to be a place for all - but it does attract the second hand businesses.
- The highway and railroad cut the town in half - traffic is too fast and all the trees and shrubs are gone - make our town look like California.
- Uncontrolled growth, smell, high taxes, no recreational facility for young adults. Need bike paths, BMX (bicycle) track, place for skate boards and roller blades, etc.
- Developers think they need to develop at high density to make money.
- Developers look at us as all being willing to sell out and put dollars above affected property owners and existing members of the community (we are not all willing to prostitute our property).
- City grants too many variances, hardships and conditional use permits to developers and give individual folks a hard time.
- The infilling that is going on in town.
- Lack of control over developers.
- Leadership (not all but some), primarily city planner Baker.

Question 4) WHAT OPPORTUNITIES TO IMPROVE HOW ST. HELENS DEALS WITH GROWTH AND CHANGE WOULD YOU SUGGEST?

- This display is a good start - the need public input to make it work.
- Aggressively incorporate alternative transportation opportunities with every sub-division.
- Better flow of traffic East to West and North to South.
- Be careful not to allow too much density.
- Follow through with the visions process.
- Hiring a consulting firm to help with visioning was positive and appropriate. We need an objective approach, we've had plenty of time to move forward on our own and haven't done so. The city needs to look around at potential partners in planning, people and organizations who have a vested interest in this process. There could be far more collaboration.

- To keep the growth slow and improve sidewalks, bicycle routes and parks to allow people to get around without the car. Creates more friendly relationships.
- More community involvement in comprehensive plan review/revision because so much citizen concern is not voices until development stage, when zoning has already occurred.
- Don't really know, but getting professional guidance from others is great. Perhaps talk to other communities how they've done it.
- Plan for growth, not stagnation.
- Have a citizens based council that works with planning that does not consist of real estate, or developers, a non-partisan, so to speak, group. Be more aware of environmental issues - put those first as that is what attracts people to want to live and shop here.
- Keep all citizens alerted and involved - better education of public about these concerns as we grow.
- Conduct city business in such a way that looks at the livability of the city before worrying about developers profits.
- Slow the process/review time frames and take a look at what is being proposed before you.
- Require more in hook-up and system development changes for new people moving into the community.
- Better leadership.

Question 5) ARE THERE SPECIFIC PUBLIC FACILITIES OR PROGRAMS THAT NEED TO BE IMPROVED TO MEET CURRENT OR FUTURE NEEDS?

- Public transportation.
- West side arterials, land set aside as public lands for future schools parks - plan now - don't repeat McBride mistakes. Use Dalton Lake to bring Columbia City and St. Helens together - make it a wilderness park open to public.
- School facilities, recreational facilities for kids, a coordinated plan for developing the Old Town and waterfront area, and to accommodate our visitors arriving by water. We can be a destination!
- Parks need improvement. More open space that is not a ballpark.
- Canyon areas should be designated as parks.
- Dalton Lake area and pathway between St. Helens and Columbia City should be preserved for recreational/leisure use.
- Schools - improve and plan for growth. Public transportation from docks to shops up-town on weekends! More cultural/family destination spots: nice restaurants, music, theater, etc.
- If you do not provide activities for you those whose parents cannot or will not provide them an economic resource (i.e., $100/family sports fees) you are going to have some real problems as

we grow. How many car stereos were stolen in 1995? 1996? That's a resource to those that have not!

- CPAC needs to be thrown out and start over with real people that do not have financial benefits from planning issues. City Council should hold more of these open houses if they will take seriously the issues people write about.
- All types of youth programs and facilities, better access to river and beaches.
- ROADS - county roads need the city to help with upgrade in UGB. Sewer plan is outdated and not environmentally friendly in all cases.
- Bike trails.
- Restore good medical facilities, such as the hospital. The drive to Portland is too long for critically ill people.
- There needs to be wise decisions and common sense applied.
- Sewer Plan needs to be redone considering conservation issues.

Question 6: OTHER COMMENTS:

- Prevent commercial growth on Highway 30 (work with county) between Warren and Scappoose.
- Our wonderful new library/tech center desperately needs a professional librarian to guide us in reaching our full potential. A professional librarian can help us to meet our needs now and into the future. Our interim librarian is energetic and has done a wonderful job of developing and promoting programs, but is not equipped to lead. She does not have the education, experience, or understanding of what is lacking. The City Council needs to take the time to educate themselves regarding future needs of the library and what is actually required to operate a library effectively. Please accept the counsel of the State Librarian, Jim Shepke who has offered to help.
- Does the visioning include systems change within the city offices?
- There is little rental housing available in St. Helens. Are there any median income and/or upscale condominium developments being planned? How will people needing rentals be accommodated?
- How does the city plan to attract businesses and people to a community were school facilities are unsafe, deteriorating rapidly, and close to capacity? (Understanding that one of the prime factors which attracts people to a particular area is a good school system. This, in turn, has a positive effect on property values). What is the plan re schools?
- I appreciate the depth of the planning process that is taking place and thank the participants. I believe time spent doing long term planning will be well spent. We need more long-term well thought out solutions to our problems: no more bandaids.
- Local events and festivals contribute to building a sense of community to a great degree. the number of and quality of these events have declined over the last few years. I'd like to see

"Historic Days" revived and would like to see more promoting and participation in our parades. They are a charming feature of St. Helens, and I'd hate to see them disappear.

- Keep us informed on your plans in the local newspapers (both Chronicle and Spotlight). I need more information from you made public.
- This open house has been a good idea - Thanks for your help!
- Keep the public forum going - invite input - continue the dialogue with the people who live here. Solicit monies for improvement for "beauty" sites (i.e., blvds. with grass, plants and flower baskets from poles - invite strolling neighborhoods.
- Good luck!
- Work with such groups as Merch/Assoc., Chamber schools and churches - get out to the people before changes are made.
- We need to keep our city livable, we could be another LaConner or the like if do it correctly.
- The city should not be the allies of developers but rather should be the servants of the community. Now is the future of our city and it needs to be protected. Too many special interest groups have major influence.
- I have moved here from high density areas (Navy brat). Lately there seems to be lots of out of town people who want to capitalize on our livability. We feel the push for growth is too much too soon.

Final Input

- When participants were leaving the Open House, they were asked to list the most important issue they have. Below is a listing of these issues:
- Don't over anticipate how much growth is coming and don't push for growth. We love our community -- open space, elbow room, and small town livability.
- We don't need "Wal-Mart" type businesses -- lets keep this more rural and livable. Put back the trees.
- Public safety
- Need better east/west access across Highway 30. Need less congestion through St. Helens
- Good idea to update the 20-year plan. Lack of planning leads to disaster -- preserve rural.
- Money is most important in order to implement ideas. Cooperation is also very important.
- Issues are being covered will in this planning effort.
- Do more for kids that don't have financial resources
- Dalton Lake -- Port Commission should give nine acres, zoned residential, to ODOT to add to Dalton Lake wetland development. Developing residences would prevent mosquito control.
- City shouldn't assume everyone is going to sell out to developers
- People live here and commute to Portland because they want to live in a small town. It takes a certain type of person to live a small town life.
- Development needs to be from the City out not from the County in.
- Improve parks, sidewalks, and bike trails to get people out of their houses and cars and make the community more friendly. Get to know your neighbors.
- Place utilities in BEFORE road and building development. Utilities include: superhighway lines, phone lines, sewer, water, electricity, and cable.

St. Helens/Columbia City
Open House Summary
May 1997

Background Information:

On April 29, 1997, the cities of St. Helens and Columbia City and the Oregon Department of Transportation held an open house to display and receive comments on the draft Transportation System Plans for both cities. Approximately 30 people attended the Open House. The opportunity to participate was announced through: a display ad and an article in both The Chronicle and The Spotlight; advertisements on KOHI radio station; news releases on KOHI; an article in the St. Helens Chamber of Commerce newsletter; and a direct mailing from both cities.

The staff participating in the Open House were: Skip Baker, St. Helens City Planner; Brian Little, St. Helens City Administrator; Jean LeMont, Columbia City Administrator/Recorder; Bryan Christian, Columbia City Planner; Michael Ray, ODOT, Corridor Planner; Steve Callas, Deputy Project Manager with Parsons Brinkerhoff; Paul Ceserani with Parsons Brinkerhoff; Julie Wagner, Public Involvement Coordinator with Jeanne Lawson Associates; and Karen Wagner, subconsultant to Jeanne Lawson Associates.

Open House:

The open house, from 6:30 to 8:30 pm, included displays and staff to provide citizens an opportunity to learn about transportation planning process and review the draft Transportation Plans for both cities. There were three stations in the room: 1) background information on the Transportation System Planning process; 2) Information on the draft Transportation System Plan for Columbia City; and 3) information on the draft Transportation System Plan for St. Helens.

Some key messages that came out of the evening's meeting are as follows:

- **Overall, most meeting participants were satisfied with the transportation projects outlined in the draft Transportation System Plans.**

- **For St. Helens, some of the comments we heard regarding the draft Plan include:**

  ⇒ Focus on improving the road system on the westside.

  ⇒ Improve facilities for pedestrians – look into a pedestrian overpass, eliminate bike/pedestrian conflicts.

  ⇒ Improve public transit options to Portland.

  ⇒ There were also suggestions of other roads to improve or connect, such as: connecting Bachelor Flat instead of Achilles with Pittsburg and improving Morse, Millard, Ross and Bachelor Flats.

  ⇒ There are concerns about how the business district is to develop in the future.

- **For Columbia City, some of the comments we heard regarding the draft Plan include:**

  ⇒ Columbia City is growing and improving the transportation system is needed.

  ⇒ Some of the projects listed need to be a higher priority, such as Sixth Street and "A" Street improvements. Expanding "G" Street should be eliminated.

  ⇒ Sidewalks are needed.

  ⇒ Improve the transportation system between St. Helens and Columbia City.

St. Helens Comment Forms:

1) What are your thoughts on the "Base Case" Alternative compared to the Combination Alternative (a mix of roadway, pedestrian and bicycle improvements)?

-- No comments --

2) Are there projects listed in the Combination Alternative that are more important to you than others?

- I like the identification of "H", "M" and "L" and "no time frame". The goals seem reasonable and hopefully can be accomplished.
- Generally, road/street improvements (off Highway 30) are probably most important. Sidewalks are secondary, and bicycle paths are nice to have, but should be developed along with scenic amenities (e.g., "canyon" paths).
- How come sidewalks are such a priority now when years ago some cities paid to remove sidewalks?

3) Are there projects in the Combination Alternative that should be added or deleted?

- Park and rides and van pools to Portland. Anything being done on water or rail?
- The tie from Highway 30 to Pittsburgh Road should start as Church Road. There will be growth in the area along and around Morse Road.
- Overall, it seems like a good plan.

4) Do you have any *other* comments you would like us to know?

- Frontage roads on the westside would seem most effective in reducing traffic volumes on Highway 30.

- The City is filling up with housing in the center of the city. Are we going to have a nice well-rounded business district -- or will it just be a muddle of houses, rather then businesses, and more second-hand stores? Where will the bicycle paths be placed so the kids going to McBride School have a place besides the sidewalk. We live on Shore Drive - Senior Citizen Haven and Sunset with 64 units. There they are selling as fast as they have a roof on. Where will all these people shop?

  We would like an overpass over Highway 30 to go to our business district. Many of us walk, ages 65-90 years old and no longer drive. Right now we share a sidewalk with McBride students riding bicycles up and down the road (and going double decker with their bicycles).

  Transportation - what about railroads? Blue Bird bus might take us to Montgomery Wards. Many of us make this trip to see our specialist in Portland, as we've done for the past 10-15 years. If we're ill, and we don't drive, I wouldn't want to ride Tri-Met! I've had real bad consequences in the past.

- If you must go by the laws we have, how come if they don't like them they make new ones?

- Concerning connecting Achilles with Pittsburgh, Achilles is not very long and the road ends off of Morse Road. Bachelor Flat goes south a long ways. Other roads connect as well -- Church Road - Berg Road. Where it turns south it connects to Saulser Road which goes around the fairgrounds and connects to Bachelor Flat. And just east is a road (East Kappler) that goes north and connects to Pittsburgh. So I think Bachelor Flat south to north would be a better connection.

  I'm also concerned about a creek over the hill from Achilles. A lot of geese flock here in winter escaping the hunters and also the flood. There is also a lake farther south.

- How are all these plans being coordinated with plans (and costs) for the utilities that will be required?

  I was interested in finding out about the ideas for improving the Morse, Millard, Ross and Bachelor Flat roads.

- I have come to believe that population (probably) and job growth projecting (especially) are too high. Am I the only person in St. Helens who doesn't think Boise Cascade will be operating in 20 years (or much less!) at its present scale.

- Will we still be here by 2016?

- Highway 30 development is essential; after that, the traffic flow on west side is/should be major focus.

5) Were you able to have your questions answered at this Open House?

Yes = 6
No = 0

- Thank you for the maps. The personnel were very well informed and nice to talk with.

6) How did you find out about this Open House?

Mailer = 2
Newspaper ad = 2
Word of Mouth = 1
Radio = 1
Newspaper article = 5

Columbia City Comment Forms:

1) What are your thoughts on the "Base Case" Alternative compared to the Combination Alternative (a mix of roadway, pedestrian and bicycle improvements)?

- The Base Case Alternative should include an expansion in width of both "A" Street and "E" Street on the west side to the highway.

2) Are there projects listed in the Combination Alternative that are more important to you than others?

- The development of sidewalks and widening of 6th Street from Lincoln to "K" Street. This should be a high priority not a low priority. The city development is all along 6th and it is the single largest arterial in the city. Sixth is also a major pedestrian thoroughfare in a town that has a lot of walkers.
- Improve 6th - widen and put in sidewalks. Bicycle trail on Highway 30 and 6th.

3) Are there projects in the Combination Alternative that should be added or deleted?

- Eliminate the expansion of "G" Street, it is too steep. The development of sidewalks on the east side should be reduced to low priority. Correcting Lincoln to Tacoma should be a low priority.
- Pixie Park, Fishing Pier good choice.

4) Do you have any *other* comments you would like us to know?

- The growth of the city is faster than you anticipate. I believe Columbia City will fill 95 percent of its current area within five years not eight to ten years.
- Sixth Street and "A" Street improvements need to be the higher priority. Volume of traffic, both pedestrian and vehicle.
- Often seems difficult to travel between St. Helens and Columbia City. Can alternate routes be developed?
- High need.
- Looks good.

5) Were you able to have your questions answered at this Open House?

Yes = 4
No = 0

6) How did you find out about this Open House?

Mailer = 3
Newspaper ad = 4
Word of Mouth = 0
Radio = 0
Newspaper article = 0

Questions Asked to All Participants:

We asked participants to place a bean in one jar that corresponds to how they got to the Open House. This was their response:

I Drove alone	= 14
I Drove with others	= 13
I Walked	= 0
I took COLCO	= 0
I Biked	= 0

As participants were leaving the meeting, we asked them to tell us their number one issue, suggestion or concern. This is what we heard:

- Environmental impact to geese if new road is near creek on Millard Road.
- Do not change laws to favor developers; especially street width.
- Sixth Street widening -- need sidewalks, as well as a way of getting more cars through.
- Bike path along Highway 30 must be reconstructed.
- Car pollution for those along Highway 30.
- Bike paths along Columbia Boulevard.
- All new developments should have sidewalks made. Continuous walkways along all properties.
- Pittsburgh Road needs a street light.
- Pave Smith Road (Columbia City) all the way along, (to top of hill, three miles unpaved). Good access road for Pittsburgh Road - traffic alleviation.
- Need sidewalks on collector streets in Columbia City.
- Do not want Ross Road to be a main access road (thorough fare).
- Bypass/connector between Achilles and Pittsburgh should start at Church Roads.
- Repave Slavens Road and Tarbell Road.

APPENDIX B

St. Helens TSP Model Development

A transportation demand model was developed the City of St. Helens Transportation System Plan. The QRS II transportation modeling package was selected. The model was used as the basis for all travel estimates for the plan.

1996 Model

A 1996 travel model was built to represent 1996 population, employment and roadway facility information. This model was developed for all-day traffic conditions for an "average" day in the month of May an the year of 1996. May was chosen as a month that represents a reasonable level of traffic that should be accommodated as part of this systems plan. Traffic volumes in May are generally higher than the annual average daily traffic (AADT) for respective facilities. Design level traffic conditions are known as the design hourly volume (DHV)[1]. The DHV is most often taken as the 30th highest hourly volume for the design year. Traffic volume in may closely approximate the 30th highest hours. Volumes on Highway 30 peak in the month of August. It is not economically efficient to base a city-wide long range systems plan on these maximum volumes because 1) most of the increase in the month of August is through, non-local traffic and 2) volume on local arterials and collectors are no higher in August than they are in May.

In order to provide output and information adequate for developing a transportation systems plan, the model was converted to an p.m. peak-hour model. The conversion to peak hour was made so that it was possible to evaluate traffic demand relative to transportation facility capacity more thoroughly. The knowledge of transportation capacity is much more developed for one hour periods than it is for 24-hour periods.

Transportation Network

The transportation network within the model includes all roads classified as major and principal arterials and collector streets and some local streets. A second of the transportation network as seen by QRS II are transportation analysis zones, or TAZs. Newport's 52 TAZs contain information on land use and transportation facilities for dis-aggregated areas of the entire city network. TAZs are bounded by either significant roadways or natural features. Figure B1 shows the St. Helens model network and TAZs.

Land Use and Trip Generation

Land use information is represented within transportation analysis zones in the form of numbers of residential units and numbers of employees. Residential units are divided into three major categories and employment is divided into six major categories. Table B1 indicates land use numbers by each of the residential and employment categories for each of the TAZs for the 1996 model.

FIGURE B1 TRANSPORTATION MODEL NETWORK

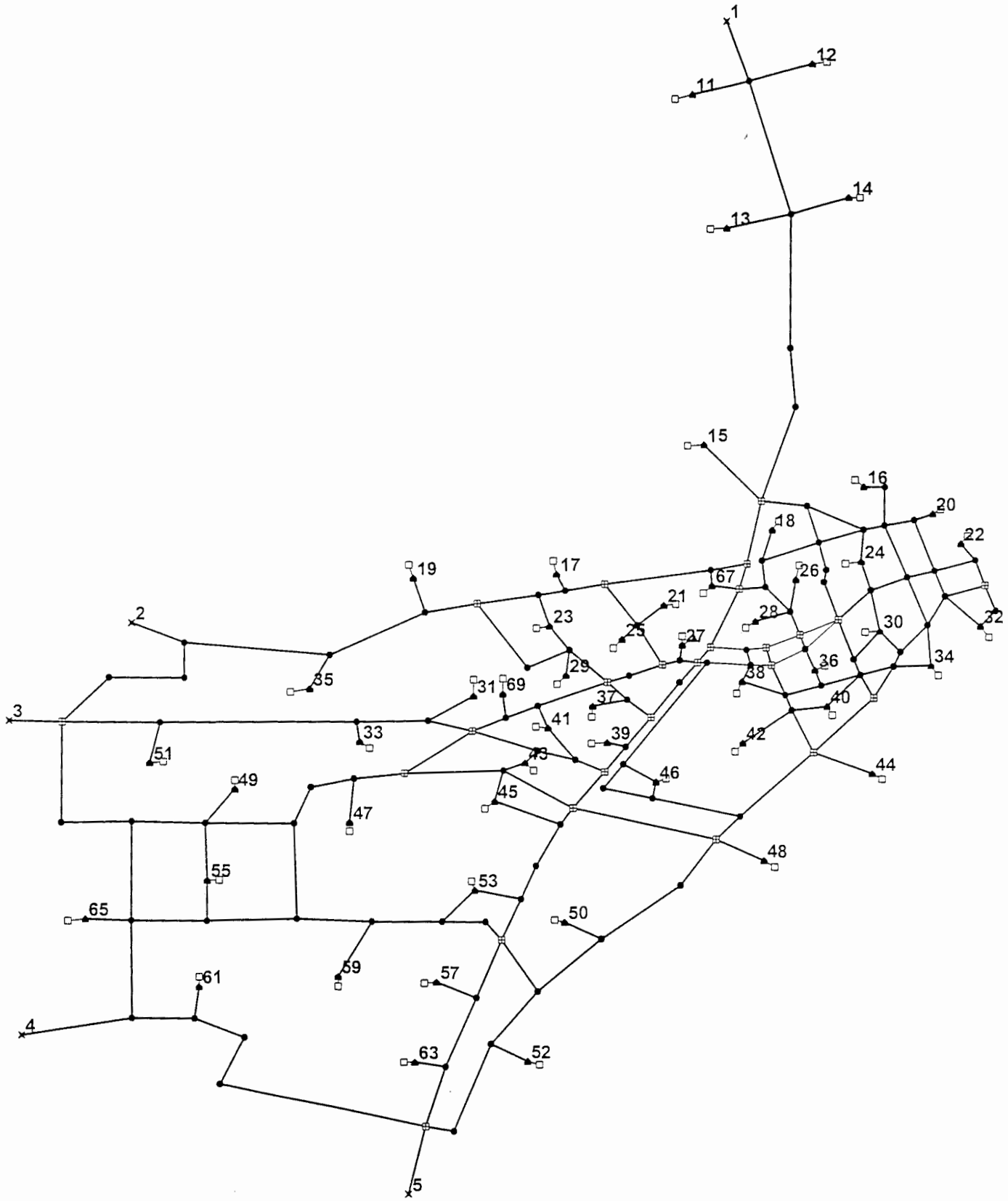


TABLE B1 1996 POPULATION AND EMPLOYMENT BY TAZ									
ZONE	SINGLE FAMILY	RV PARK	MULTI FAMILY	IDEM	RTEM	SEM	EDEM	GOVT	AGEM
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
11	241	0	0	0	0	17	0	0	0
12	17	0	0	9	0	0	0	0	0
13	89	0	10	0	0	0	0	0	0
14	171	0	0	25	2	33	12	8	0
15	57	0	0	5	0	0	0	0	0
16	152	0	35	140	12	16	0	20	0
17	17	0	0	0	0	1	0	0	0
18	56	0	40	0	1	9	0	0	0
19	90	0	0	0	0	1	0	0	0
20	278	0	8	0	0	0	0	0	0
21	62	0	112	0	0	55	0	0	0
67	0	0	0	0	18	72	0	38	0
22	164	0	0	0	36	101	0	4	0
23	151	0	4	0	0	5	0	0	0
24	87	0	51	0	0	5	0	0	0
25	66	0	4	0	0	0	0	0	0
26	63	0	0	0	6	0	49	51	0
27	0	0	49	0	30	33	0	0	0
28	18	0	104	2	9	66	25	0	0
29	112	0	0	0	2	0	0	0	0
30	151	0	0	0	46	0	48	0	0
31	49	0	0	0	0	0	0	0	0
32	148	0	103	81	76	70	43	224	0
33	45	0	0	0	0	2	0	0	0
69	71	0	8	0	0	0	56	0	0
34	128	0	8	0	1	4	0	0	0
35	92	0	0	0	7	1	0	0	0
36	145	0	0	220	37	28	0	49	0
37	77	0	127	0	51	25	0	0	0
38	82	0	12	0	125	66	0	0	0
39	73	0	0	0	43	34	0	2	0
40	154	0	71	0	5	1	0	0	0
41	102	0	0	0	1	1	0	0	0
42	129	0	0	0	12	0	0	0	0
43	19	0	32	0	132	7	78	0	0
44	29	0	70	650	0	11	0	0	0
45	60	0	6	0	131	27	0	0	0
46	27	0	0	13	23	16	0	4	0
47	63	0	0	0	0	0	0	0	0
48	21	0	0	180	0	27	0	0	0
49	54	0	0	0	0	0	0	0	0

50	29	0	0	125	1	0	0	0	0
51	9	0	0	0	0	10	0	0	0
52	55	0	0	0	0	0	0	0	0
53	99	0	0	0	56	5	0	0	0
55	63	0	0	0	0	0	0	0	0
57	119	0	10	0	37	0	0	0	0
59	48	0	0	0	0	1	0	0	0
61	32	0	0	0	0	0	0	0	0
63	57	0	0	0	0	0	0	0	0
65	55	0	0	0	0	0	0	0	0
	4176	0	864	1450	900	750	311	400	0

The QRS II model calculates trips produced in and attracted to each TAZ from the respective residential and employment numbers. The model uses established trip generation rates specific to the respective land use categories. The number of trips are calculated for an all day period and for three trip purposes; home-based work, home-based non-work and non-home-based. The model determines the origin and destination of each trip and allocates each trip to facilities on the network that connect the respective origins and destinations.

External Trips

The trips generated for each of the TAZs in the St. Helens network account for trips being made by people who live and work in St. Helens. The volume of traffic on transportation facilities also includes trips that are made by people who are either passing entirely through the city (through trips) or those who are making a trip between a location internal to the city and a location external to the city (internal-external trips). Trips entering and exiting the St. Helens network can do so at five different locations know as external stations. These external stations can be seen on Figure B1 and are located on Highway 30 south of the city limits and north of the Columbia City city limits and beyond the western St. Helens city limits on Pittsburgh Road, Sykes Road and Bennett Road. Within the model, these external stations contain trip production and attraction information similar to TAZ information.

Information obtained from ODOT on daily traffic volumes at several locations along Highway 30 within the city and to the north and south of the city was obtained for several different years. These volumes were analyzed to determine the amount of traffic passing entirely through St. Helens. These external trips were then coded into the model and allocated to the facilities on the St. Helens transportation network.

Model Calibration

Model calibration data was collected in field studies completed during May, allowing calibration of the May model. The purpose of model calibration is to verify that the model is predicting volumes with acceptable statistical limits. The guidelines for these criteria are determined by the Federal Highway Administration (FHWA) and by the Oregon Department of Transportation.

Table B2 shows the comparisons of all-day forecasted to counted volumes for several locations within the St. Helens network. The method shown was developed by FHWA and is based on a percent deviation between predicted and actual volumes. Table B2 shows that the model developed for St. Helens is clearly within acceptable limits.

Two additional means of evaluation are shown in Figures B2 and B3. These were developed as part of requirements set forth by ODOT. Figure B2 is a graphical representation of the raw data shown in Table B2. Figure B3 is a graphical representation of the percent deviations shown in Table B2. The percent deviations are compared to a curve of maximum desirable deviation as developed by the Transportation Research Board (TRB) in Report 255.

Table B2 St. Helens 1996 Volume Calibration

Validation of QRSII Model

Functional Class	A to B Nodes	Ground Count	Assigned Volume	(Vci-Vai)^2	Percent Deviation
Other	146-148	1,400	400	1,000,000	-71%
C	150-152	3,650	4260	372,100	17%
C	2-164	1,850	1850	0	0%
C	3-216	1,400	1750	122,500	25%
C	268-292	1,650	1280	136,900	-22%
C	264-288	800	590	44,100	-26%
C	4-294	750	750	0	0%
	SubTotal	**11,500**	**10,880**	**1,675,600**	**-5.39%**
Minor Art.	168-178	3,300	4200	810,000	27%
M	174-114	7,100	7400	90,000	4%
M	180-182	7,450	8900	2,102,500	19%
M	180-229	1,950	1250	490,000	-36%
M	238-236	3,750	4290	291,600	14%
M	218-220	7,000	6980	400	0%
M	222-226	3,150	2710	193,600	-14%
M	250-251	6,000	5530	220,900	-8%
M	256-257	11,000	9530	2,160,900	-13%
M	160-158	3,600	3610	100	0%
M	154-153	3,400	2570	688,900	-24%
M	191-202	1,900	2870	940,900	51%
M	158-156	2,200	2340	19,600	6%
M	158-192	1,350	1280	4,900	-5%
M	244-120	3,600	4020	176,400	12%
M	214-212	1,500	1660	25,600	11%
M	204-206	5,350	5990	409,600	12%
M	258-126	3,600	3570	900	-1%
M	247-246	2,200	2270	4,900	3%
M	208-260	3,000	2590	168,100	-14%
M	262-264	2,900	1990	828,100	-31%
M	288-286	1,130	780	122,500	-31%
	Subtotal	**86,430**	**86,330**	**9,750,400**	**-0.12%**
Major Arterial	1-100	11,000	11000	0	0%
P	100-102	12,500	13330	688,900	7%
P	104-106	14,500	16490	3,960,100	14%
P	108-110	15,500	16700	1,440,000	8%
P	114-116	19,200	20290	1,188,100	6%
P	124-126	19,000	16870	4,536,900	-11%
P	128-130	19,100	19900	640,000	4%
P	5-140	18,000	18000	0	0%
	Subtotal	**128,800**	**132,580**	**12,454,000**	**2.93%**
	TOTAL	**226,730**	**229,790**	**23,880,000**	**1.35%**

Percent Deviation by Functional Class

	Ground Count	Assigned Volume	Percent Deviation
Other	11,500	10,880	-5.39%
Minor Arterial	86,430	86,330	-0.12%
Major Arterial	128,800	132,580	2.93%
Region Wide Error	226,730	229,790	1.35%

Acceptable Limits as per FHWA-ED-90-015
Collector: Less than 25 percent
Minor Arterial: Less than 15 percent
Principal Arterial: Less than 10 percent
Region Wide: Less than 5 percent

Percent Root-Mean-Square Error

	% Error
Collector	**29.78%**
Minor Arterial	**16.56%**
Major Arterial	**7.75%**
Region Wide Error	**12.93%**

Statistical Analysis as per FHWA documentation

"Traffic Assignment August 1973"
Acceptable Error limits 30% to 100%

Figure B2
St. Helens TSP Calibration Scatterplot

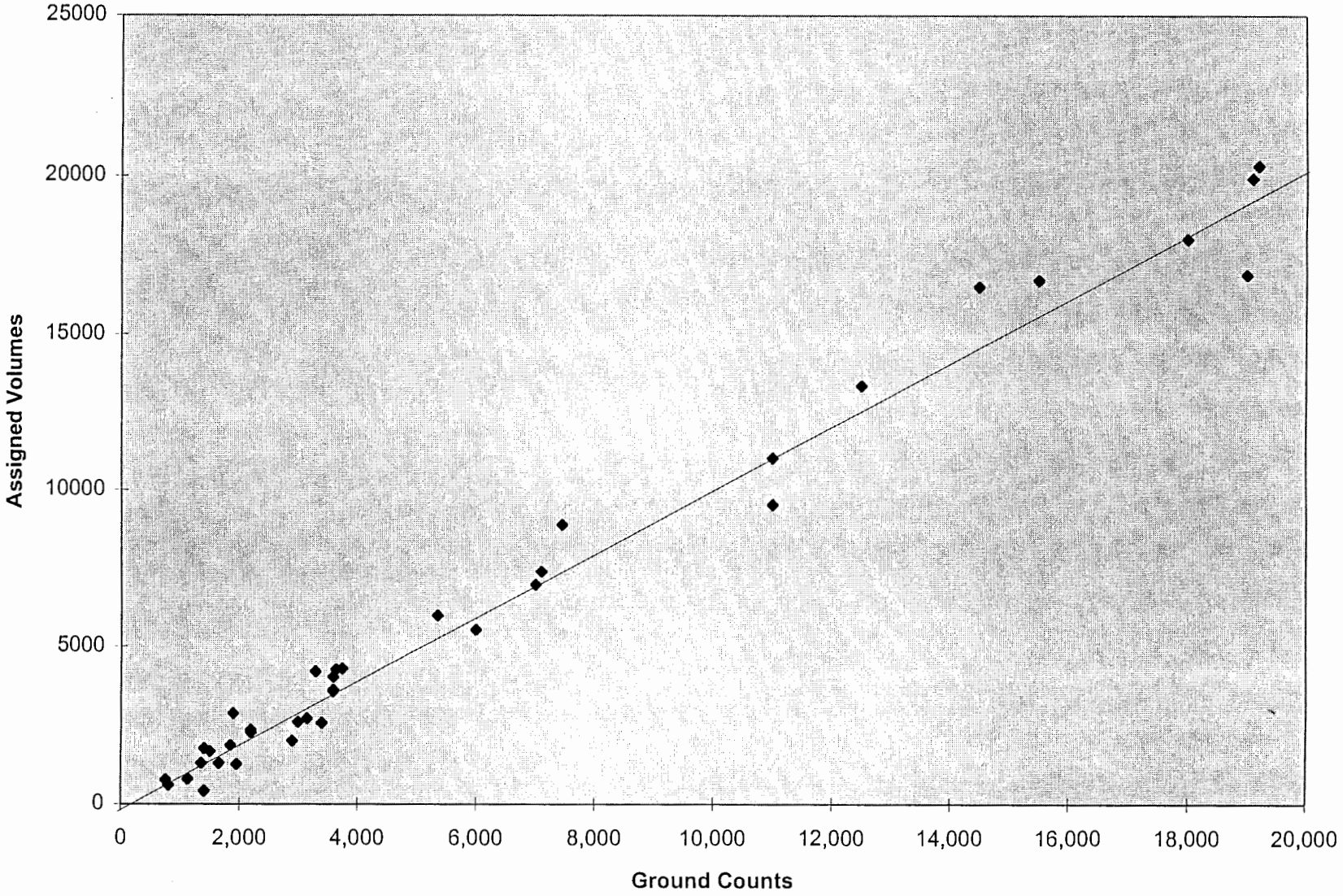
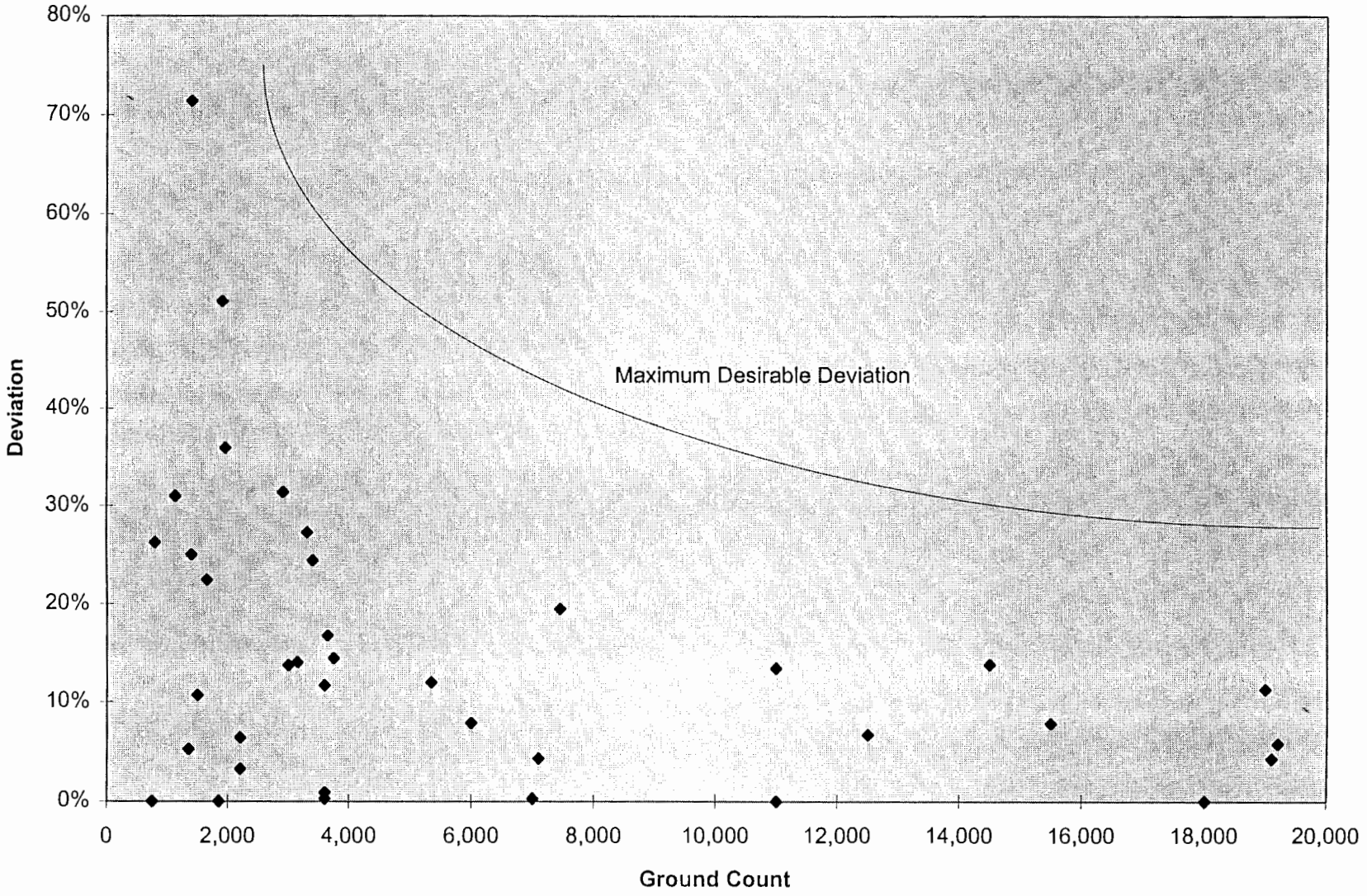


Figure B3
St. Helens TSP Calibration Deviation



As can be seen by each of the means of evaluation, the QRS II model developed for the St. Helens Transportation Systems plan meets and exceeds each of the required validation criteria.

2016 Model

Transportation Network

The future year base model was developed to include all facilities that are funded for the study year, 2016. Using this rationale, modifications were made to the model primarily based on the current Highway 30 improvement project. These improvements included the additional capacity representative of widening Highway 30 to five lanes and the addition of a traffic signal at Deer Island Road. The network for 2016 looks the same as the 1996 network shown in Figure B1.

Land Use

1996 model land use numbers were projected to represent housing and employment activity in the year 2016. Chapter 5 describes these projections in detail. Table B3 indicates the distribution land use numbers by each of the residential and employment categories for each of the TAZs for the 2016 model.

TABLE B3 2016 POPULATION AND EMPLOYMENT BY TAZ									
	SINGLE	RV	MULTI						
ZONE	FAMILY	PARK	FAMILY	IDEM	RTEM	SEM	EDEM	GOVT	AGEM
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
11	549	0	0	0	0	40	0	0	0
12	17	0	0	20	0	0	0	0	0
13	169	0	30	0	0	0	0	0	0
14	217	0	0	25	10	60	25	15	0
15	57	0	0	5	0	0	0	0	0
16	202	0	35	140	12	16	0	30	0
17	167	0	0	0	0	1	0	0	0
18	56	0	40	0	1	9	0	0	0
19	140	0	0	0	0	1	0	0	0
20	338	0	33	0	0	0	0	0	0
21	112	0	132	0	0	55	0	0	0
67	0	0	0	0	43	153	0	63	0
22	164	0	40	0	56	131	0	4	0
23	191	0	14	0	0	5	0	0	0
24	107	0	76	0	0	5	0	0	0
25	66	0	4	0	0	0	0	0	0
26	63	0	0	0	6	0	79	51	0
27	0	0	99	0	80	83	0	0	0
28	18	0	104	2	9	66	25	0	0
29	122	0	20	0	2	0	0	0	0
30	161	0	25	0	46	0	68	0	0
31	169	0	8	0	0	0	0	0	0
32	148	0	128	81	96	110	63	259	0
33	245	0	40	0	0	2	0	0	0
69	141	0	30	0	0	0	86	0	0
34	148	0	8	0	1	4	0	0	0
35	192	0	0	0	7	1	0	0	0
36	165	0	0	220	37	28	0	99	0
37	77	0	177	0	101	75	0	0	0
38	82	0	12	0	125	66	0	0	0
39	73	0	0	0	93	84	0	2	0
40	174	0	71	0	5	1	0	0	0
41	142	0	40	0	1	1	0	0	0
42	129	0	0	0	12	0	0	0	0
43	69	0	82	0	132	7	118	0	0
44	29	0	70	650	0	11	0	0	0
45	110	0	66	0	156	52	0	0	0
46	0	0	0	115	83	26	0	0	0
47	303	0	50	0	0	0	60	0	0
48	21	0	0	220	0	27	0	0	0
49	164	0	40	0	0	0	0	0	0

50	29	0	0	460	1	0	0	0	0
51	124	0	0	0	0	20	0	0	0
52	80	0	0	0	0	0	0	0	0
53	274	0	40	0	111	70	0	0	0
54	27	0	0	73	245	115	0	34	0
55	173	0	40	0	0	0	0	0	0
57	179	0	0	0	137	100	0	0	0
59	268	0	0	0	0	1	0	0	0
61	52	0	0	0	0	0	0	0	0
63	82	0	0	0	0	0	0	0	0
65	75	0	0	0	0	0	0	0	0
	6860	0	1554	2011	1608	1426	524	557	0

Appendix C
Description of Level-of-Service Methods and Criteria

Level of Service Concept

Level-of-Service (LOS) is a concept developed to quantify the degree of comfort afforded to drivers as they travel through an intersection or roadway segment. Comfort is determined by various factors including travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles. Six grades (A through F) are used to denote the various operating conditions.[1] Table C1 describes the six LOS grades.

Table C1. Level-of-Service Definitions for Intersections

LOS	Definition
A	Free flow conditions. Users are virtually unaffected by the presence of others in the traffic stream. Delay is minimal and level of comfort is excellent. Still in the range of stable flow, but the presence of other users in the traffic stream is noticed.
B	Still in the range of stable flow. The freedom to select desired speed is unaffected, but the freedom to maneuver and intersection delay are slightly hampered. The level of comfort is somewhat less than at LOS A.
C	Still in the range of stable flow, but the operation of individual users and intersection delay is becoming significantly affected by interactions with others. The general level of comfort and convenience declines noticeably.
D	High density, but stable, flow. Speed and freedom to maneuver are severely restricted. The driver experiences poor level of comfort and convenience.
E	Operating conditions at or near capacity. All speeds are low, but relatively uniform. Freedom to move is difficult and delay is high. Comfort and convenience are poor and frustration is high. Operations at this level are unstable because small increases in traffic will likely cause breakdowns. Breakdowns occur when drivers are delayed excessively at intersections (more than 45 seconds at a stop controlled intersection or for more than one signal cycle at a signalized intersection) or street traffic is "stop-and-go."
F	Breakdown conditions occur. The amount of traffic approaching a point in the road or intersection is more than the facility can accommodate.

1. Source: Highway Capacity Manual Special; Report 209, Transportation Research Board, 1994

For signalized intersections, LOS is determined by average stopped delay per vehicle. The relationship between LOS grades and delay is shown in Table C2. LOS "D" is generally considered to represent the minimum acceptable design standard.

Table C2. Level-of-Service Criteria for Signalized Intersections

LOS	Stopped Delay per Vehicle (Seconds)
A	≤ 5
B	5 to 15
C	15 to 25
D	25 to 40
E	40 to 60
F	> 60

The determination of Level-of-Service at unsignalized, stop controlled (stop signs) intersections depends upon the type of stop control. For intersections with stop control only on the side streets, LOS is defined using the concept of "reserve capacity" (the portion of available hourly capacity that is not used). For intersections with four-way stop control, LOS is defined using average delay per vehicle. Table C3 presents these relationships.

Table C3. Level-of-Service Criteria for Unsignalized Intersections

	Two-Way Stop Control	All-Way Stop Control
LOS	Reserve Capacity	Average Delay per Vehicle (Seconds)
A	< 400	< 5
B	300-399	5 to 10
C	200-299	10 to 20
D	100-199	20 to 30
E	0-99	30 to 45
F	*	> 45

* When demand volume exceeds the capacity of a lane, extreme delays will be encountered, with queueing that may cause severe congestion and affect other traffic movements in the intersection. This condition usually warrants intersection improvements.

The determination of LOS for roadway segments can be determined by volume-to-capacity (v/c)ratio and/or average travel speed. Measured average travel speed is compared to the design free flow speed for three arterial classes, as defined in the Highway Capacity Manual. Table C4 shows the relationships between roadway LOS and both v/c ratio and average travel speed.

Table C4. Level-of-Service Criteria for Roadway Segments

		Arterial Classes		
		Class I	Class II	Class III
		Range of Free Flow Speeds		
		45-35	35-30	35-25
LOS	volume/capacity	Average Operating Speed		
A	< 0.60	≥ 35	≥ 30	≥ 25
B	0.61 to 0.70	≥ 28	≥ 24	≥ 19
C	0.71 to 0.80	≥ 22	≥ 18	≥ 13
D	0.81 to 0.90	≥ 17	≥ 14	≥ 9
E	0.91 to 1.00	≥ 13	≥ 10	≥ 7
F	>1.00	< 13	< 10	< 7