2015 SUMNER TRANSPORTATION PLAN

Prepared for:

City of Sumner

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with

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1. Introduction

The City of Sumner adopted its first Transportation Plan in January 1993. In 1994, the City adopted a Comprehensive Plan consistent with the Growth Management Act (GMA). The City adopted amendments to the Transportation Plan in 2002 and 2004 that were consistent with the City's current Comprehensive Plan.

During the years following the adoption of Sumner's 2004 Comprehensive Transportation Plan, the North Pierce/South King County area has continued to experience a sharp increase in residential, commercial, and light industrial development. Between 2004 and 2010, Sumner's land area has remained at about 5.4 square miles. Since 2004 there has been approximately 10 million square feet of new warehouse space constructed in Sumner, increasing the demand for freight, auto, and non-motorized transportation. In addition, Sumner's population continues to grow and has increased to 9, 451 in 2010 and is project to exceed 10,000 between 2015 and 2017.

The valley between Seattle and Tacoma has developed into an industrial corridor experiencing a boom in warehousing and trucking-related development. Increased single- and multi-family residential development has also occurred in and around Sumner. This growth and development has contributed to increased traffic on the regional freeway system and City arterials. An increase in freight and passenger train traffic has also affected Sumner's traffic flow on its arterials. The City has identified a number of significant factors influencing its transportation system including:

- The potential development of approximately 1,000 acres of industrial zoned lands with warehouse and trucking related land uses in the City;
- The Sound Transit commuter rail station in downtown Sumner;
- Freight-mobility and safety issues associated with the two railroads running through town;
- The absence of east-west routes; and
- Increased development occurring east and south of the City resulting in through-traffic impacts to the community.

These issues and their impacts on Sumner's transportation system necessitate a major update to the City of Sumner's Comprehensive Transportation Plan. The City intends the Transportation Plan to be a stand-alone document that will also form the basis to support the Transportation Element of the City's Comprehensive Plan.

The Plan update was prepared in a series of tasks, including an inventory of existing transportation facilities and services; development and analysis of 2035 travel forecasts; evaluation of needs and deficiencies; identification of transportation system improvements; and definition of goals and policies and financing strategies. The Plan update also addresses requirements for a concurrency program and the traffic impact fee (TIF) program.

Growth Management Act

The link between land use and transportation is a focus of the GMA. Pursuant to the GMA, the City of Sumner developed a Transportation Element as part of its Comprehensive Plan. The purpose of the Transportation Element is to provide the City with a guide for transportation system improvements to meet existing and future travel needs, and a means for integrating these improvements with the regional transportation system. The City's

Comprehensive Transportation Plan (the Plan) is intended to serve as a dynamic planning tool to assist the City and other agencies in providing a comprehensive, multimodal transportation system to serve the City's Urban Growth Area and surrounding communities.

The GMA specifically requires that the following topics be addressed within the Transportation Element:

- Land use assumptions used in estimating travel demand;
- An inventory of existing transportation facilities and services;
- Level of service standards to gauge the performance of the system;
- Identification of actions and requirements needed to bring existing facilities and services up to standard;
- Forecasts of future traffic based on the land use plan;
- Identification of improvements and programs needed to address current and future transportation system deficiencies, including Transportation Demand Management (TDM) strategies;
- A realistic multi-year financing plan that is balanced with the adopted level of service standards and the land use element; and
- An explanation of intergovernmental coordination and regional consistency.

In 1998, the Washington State Legislature enacted HB 1487, which amended the GMA. The amendments to the GMA were related to transportation and growth management planning. The Bill amended several sections of the GMA (RCW 36.70A). In general, the amendments are related to the requirements for local comprehensive plan Transportation Elements, the countywide planning process for identification and siting of essential public facilities, plan consistency, and the adoption of deadlines established to meet the new requirements. The Transportation Element of local comprehensive plans shall now include:

- State-owned transportation facilities in the transportation inventory;
- The level of service (LOS) for state-owned transportation facilities;
- Identify the applicability of the concurrency requirements of the GMA to highways of statewide significance; and
- A new sub-element that includes estimates of the impacts to State-owned facilities resulting from land use assumptions such that state and local transportation plans are consistent with each other.

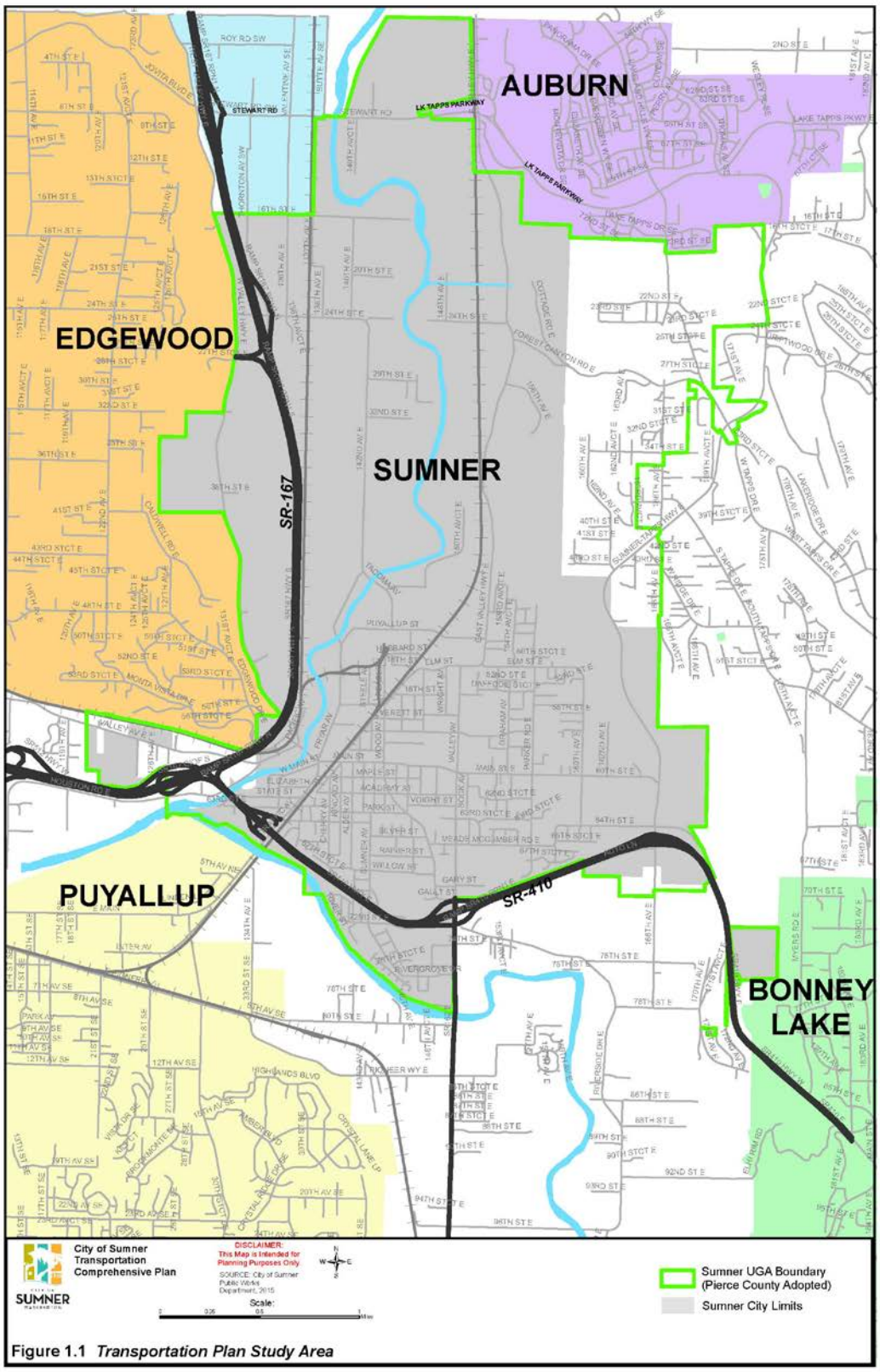
The Sumner Transportation Plan incorporates these new GMA requirements for local comprehensive plans.

Transportation Planning Area and Process

The Transportation Element provides the link between Sumner's Comprehensive Plan Land Use Element and the transportation facilities and services needed to support growth during the next 20 years. The community vision for land use, established in the City's Comprehensive Plan, was used to develop the Transportation Element objectives and policies and to identify system needs and financing strategies. The Transportation Element also describes and plans for a multimodal system that strives to improve overall mobility for residents, businesses, and visitors; promote energy efficiency; and preserve environmental quality.

The study area includes the City's UGA (Figure 1-1). The GMA requires that the transportation plan include a forecast of traffic volumes extending at least ten years. To be consistent with the land use element, and to aid in the implementation of the land use plan, a 2035 horizon year was established.

Figure 1-1. Transportation Plan Study Area



2. Goals and Policies

The City of Sumner Transportation Plan is comprised of several elements. In order to efficiently and effectively implement the Plan, the City has identified a range of goals and policies. These goals and policies provide a framework for decision making related to transportation projects and programs. The transportation goals and policies cover the following elements:

1. Public Involvement
2. Agency Coordination
3. Streets and Highways
4. Pedestrians and Bicycles
5. Rail, Transit, and TDM
6. Land Use and Environment
7. Program Financing and Implementation
8. Manufacturing Industrial Center Designation

The transportation goals and policies will be used by the City in deciding how to secure and use funding, decisions related to new land use development applications, and coordination with other City planning objectives.

The overall goal for the City of Sumner Transportation Plan is set forth below.

Overall Transportation Goal

Provide an efficient and safe multimodal transportation system to improve mobility for residents, employees, and visitors of Sumner while maintaining the small town quality of life within the City and supporting the economic vitality of the City.

The goal identifies the City's desire to meet the mobility needs of the people that live, work, or visit Sumner. The goal calls for supporting a range of travel modes: auto and truck vehicles, freight, pedestrian, bicycle, and bus and rail transit. The City wants to maintain its small-town character by minimizing the development of transportation improvements that would increase the ability or desire of regional auto traffic to travel through the community core. The remaining goals and policies further refine the City's overall transportation system goal.

The transportation system must provide improved access and circulation to support the economic development of the City. The system should be designed to provide access to the industrial and commercial areas while protecting residential areas from intrusion of auto and freight traffic.

1. Public Involvement

The City of Sumner transportation system is intended to serve the people of the City, local businesses, and those using regional transportation services. Therefore, involving the community is very important to help match the planning, design, and implementation of transportation improvements with the community vision and priorities.

Goal

Involve and educate the residents, employees, and property owners of Sumner in planning for and implementing transportation projects and programs in and around the City.

Policies

1.1 Public Involvement in Transportation Planning and Implementation

Encourage and solicit public participation in all transportation-related decisions to help ensure planning and implementation have public support.

The City will continue to provide opportunities for the public to provide input on the transportation plans improvement projects, priorities and funding, and designs. These will include meetings with the Planning Commission, City Council, and special forums, as appropriate. Input from and education to the public will provide better use of available funds and integration of the transportation system to meet land use and other community goals.

1.2 Transportation Review of Land Development Projects

Include public review of transportation improvements needed to support public or private land development projects based on the Transportation Plan.

The public is most often concerned about the potential transportation impacts and needed mitigation of specific development projects. The City will review the public's comments and issues related to transportation impacts based on the goals, policies, and criteria set forth in the Transportation Plan, the City's Comprehensive Plan, and other applicable requirements such as the State Environmental Policy Act (SEPA).

1.3 Public Education

Strive to meet the user education needs of the Sumner UGA transportation system. These include:

- Educating the public on transportation planning concepts such as levels of service, concurrency, traffic calming, and funding programs.
- Increasing user awareness of existing traffic law abuses and the dangers associated with them;
- Informing the public of advances in traffic safety from both system and vehicle perspectives;
- Supporting driver education by having police meeting with high schoolers, elderly, and other groups; and
- Developing rider information packages that inform users of commuter, transit, rail, and air transportation opportunities.
- Develop information packages on pedestrian and bicycle facilities and safety.

The more the public understands about transportation and its relationship to the overall community, the better the decisions. This will assist the City in identifying transportation issues and improvement strategies.

2. Agency Coordination

Sumner is geographically located at the confluence of several regional transportation corridors. The City is impacted by regional traffic flows that impact the quality of life within the community. The City is also growing, especially in employment uses. This growth can impact the transportation needs on the regional highway and arterial system in adjacent communities. Therefore, the City must work with other transportation service providers to plan, design, fund, and implement transportation projects and programs to serve the community.

Goal

The City of Sumner will provide a transportation system that is compatible with State and regional plans, plans of adjacent jurisdictions, and with public transit providers.

Policies

2.1 Coordination with State Highway Systems Plan

Coordinate the development and implementation of the Sumner Transportation Plan with the State Highway Systems Plan.

Those State highway systems within Sumner include SR 167, SR 410 and SR 162. These routes are state owned facilities. The State highway system provides for the regional connections to/from the City of Sumner planning area. The City will coordinate with the State to identify and implement improvement needs along the State highway system. The coordination includes involving the State in:

- The development of the City's Transportation Plan;
- Working with the State to fund and implement improvements such as improvements to Traffic Avenue and SR 410 interchange in Sumner;
- Providing support for future extension of the SR 167 freeway from Puyallup to Tacoma;
- Future widening of SR 410 to add high occupancy vehicle (HOV) lanes and interchange improvements, including structural and vegetative sound abatement; and
- Future improvements at State interchanges and State highways that serve Sumner.

2.2 Compatibility with Metropolitan Transportation Plan

Coordinate the planning and implementation of the Sumner Transportation Plan with the Regional Metropolitan Transportation Plan (MTP).

The City of Sumner transportation system is part of the larger MTP assembled by the Puget Sound Regional Council (PSRC). Major improvements to arterials, freeways, non-motorized facilities, and transit system facilities/services identified by the City of Sumner need to be included in the MTP to be eligible for certain funding programs. Furthermore, inclusion of

key projects in and around Sumner in the MTP provided for a regionally compatible system of multimodal improvements covering:

- Vehicular movement, including private passenger vehicles and commercial trucks;
- Freight rail movement;
- Regional passenger rail and bus transit;
- HOV facilities and transportation demand management programs; and
- Regional pedestrian and bicycle systems.

2.3 Coordination with Local Agencies

Coordinate planning and implementation of transportation improvement projects and programs with local agencies.

Sumner's Transportation Improvement Plan relies in part on improvements to transportation facilities under the jurisdiction of other agencies such as Pierce County and the Cities of Auburn, Pacific, and Puyallup. In addition, improvements, such as the extension of Shaw Road and proposed development near Shaw Road, have had significant impacts on traffic volumes and operations in Sumner. These types of projects require coordination to:

- Plan, design, and construct the improvements to provide continuity for vehicular and non-motorized transportation modes;
- Jointly fund significant improvements that serve regional travel patterns; and
- Ensure compatibility of improvement projects and the timing of their implementation.

Specific coordination is required for the following projects:

- 8th Street E (with Pierce County, Auburn and City of Pacific);
- Shaw Road extension (City of Puyallup);
- SR 410/Traffic Avenue Interchange (WADOT and City of Puyallup)
- East Valley Highway widening (City of Auburn and Pierce County);
- 136th Avenue E (City of Pacific);
- Sumner Regional Trail (City of Pacific, City of Puyallup, City of Bonney Lake, City of Edgewood, and Pierce County);
- SR-162 East and SR-410 Interchange (Pierce County and WADOT);
- Sumner-Tapps Highway East and SR-410 Interchange (Pierce County and WADOT); and
- Bridge Street Bridge and West Valley Highway improvements (City of Edgewood and Pierce County).

2.4 Coordination with Public Transit Providers

Continue to work with Sound Transit to support and enhance a multimodal transportation system by ensuring that the City's transportation plans and facilities are consistent with public transit plans and programs.

The City will continue to monitor growth and development and address the demand for transit through a local transit system or Pierce Transit. Prior to initiation of any expanded transit service the City will conduct a thorough demand study and fiscal analysis.

The City of Sumner does not operate bus or rail transit services. These are provided by Sound Transit, and consist of local bus, express bus, and commuter rail. The City will continue to coordinate with these agencies to provide alternative transportation services between the City and local and regional origins/destinations.

3. Streets and Highways

Streets and highways provide the basic framework for the City of Sumner transportation system. The system is comprised of freeways, arterials, collectors, and local streets. These facilities serve private vehicles, commercial trucks, public bus transit, and much of the bicycle and pedestrian travel (through adjacent sidewalks). Therefore, developing and maintaining an operationally efficient and safe street and highway system is important in meeting the overall transportation goal. Future transportation improvement plans for the street system are summarized on Table 5-2.

Goal

Plan, design, implement, and maintain a street and highway system that provides safe and cost-efficient mobility and accessibility of goods, services, and people for the community of Sumner.

Policies

3.1 Level of Service Standards

The LOS standard for arterials and collectors in the City of Sumner shall be LOS D or better except for the following locations:

- Traffic Avenue/Main Street/Fryar Avenue (LOS F)
- Main Street/Alder Avenue (LOS F)
- Valley Avenue East/Main Street (LOS F)
- West Valley Highway East/Valley Avenue/Sumner Heights Drive (LOS F)

The LOS standards for state highways in the City of Sumner are adopted by PSRC and WSDOT to be as follows:

- SR 167 (Urban LOS D)
- SR 410 (Urban LOS D)
- SR 162 (Tier 2 LOS D)

The levels of service for the above shall be measured using methodologies identified in the *Highway Capacity Manual* (HCM).

The City desires to provide reasonable levels of traffic operations while minimizing the impacts and costs of creating wider roadways and intersections to accommodate traffic. The Transportation Plan identifies improvements that would meet the standard when fully implemented. The LOS F standard at the Traffic Avenue/Main Street/Fryar Avenue and West Valley Highway/Sumner-Heights Drive East/Valley Avenue intersections is established since providing LOS D would require extensive additional improvements at the

horizon year of the Plan. The City in setting the LOS F standard for the Main Street/Alder Avenue and Main Street/Valley Avenue intersections reflects the desire to maintain Main Street as a two-lane street with parking in order to promote the downtown design characteristics.

The LOS standards for pedestrian facilities in the City of Sumner are based on pass/fail, where it passes if pedestrian facilities exist and fails when they do not.

The LOS standards for bicycle facilities in the City of Sumner are based on a pass/fail, where the facility passes if bicycle use on the facility is available via shared use or dedicated use and fails when no bicycle facility is available or no ability to share the facility exists.

The LOS standard for Transit in the City of Sumner is not established at this time. Transit services currently provided in Sumner include: Sound Transit train and buses, and Pierce County's Beyond the Boarders buses. The City of Sumner will continue to work with local transit providers for additional transit services.

3.2 Level of Service Mitigation at Non-arterial Streets or Driveways

Levels of service for non-arterial collector roads, streets, sidewalks, or driveways intersecting with arterials will be evaluated at the time of development review. The City Engineer will identify appropriate mitigation to address potential operations or safety impacts.

Left turns and through movements on side streets intersecting with arterials may operate below the adopted LOS standard. The poor level of service may affect relatively low traffic volumes and may not meet warrants for traffic signals. Furthermore, installation of traffic signals at a location may not be consistent with the Transportation Plan or traffic engineering practices. Each location will need to be reviewed based on traffic engineering studies at the time of development review. Appropriate mitigation should be identified and implemented to reduce potential safety and operation impacts, even though the intersection may operate below the adopted standard.

3.3 Concurrency

Transportation improvements or strategies shall be constructed to ensure that an adequate transportation system is in place to serve increased travel demands. Concurrency shall be defined as having a financial commitment in place to resolve the deficiency within six years. Concurrency will be implemented as part of the City's development review process under SEPA. The City will not approve new developments unless the LOS standards are met.

The City will not apply concurrency adopted on SR 167, a designated Highway of Statewide Significance (HSS), or its interchanges (per HB 1487).

Exceptions to concurrency also will be provided at the following locations in the City until improvements identified in the transportation plan are funded and constructed:

- On SR 167, a designated HSS, or its interchanges (per HB 1487);
- On SR 410, SR 162, or the three interchanges of SR 410 state highways serving the City (Traffic Avenue, SR 162, and Sumner-Tapps Highway);
- The Traffic Avenue/Main Street/Fryar Avenue intersection;
- The East Valley Highway/Forest Canyon Road; and
- The Pacific Avenue/West Valley Highway corridor or Bridge Street.

The above exceptions from denial under concurrency are identified since these corridors are affected by significant regional traffic growth and require regional funding solutions. Until improvements identified in the Transportation Plan are able to be implemented using State, other regional, and local funding, congestion will be allowed to occur. The City will review potential impacts and identify appropriate mitigation through impact fees (if adopted) and SEPA. The City will coordinate with the Washington State Department of Transportation (WSDOT) on identifying appropriate mitigation along SR 162 and at the interchanges of SR 410.

3.4 Functional Classification

Streets and arterials shall be classified to reflect their desired functional use. Design standards should be implemented based on the functional classification, location in the City, and land uses it serves.

The Transportation Plan identifies the general characteristics used to define the classification of freeways, arterials, collectors, and local streets in Sumner. Design guidelines are presented in Appendix B, which further identify potential characteristics by classification and the type of area and land uses it serves. The design guidelines cover provisions for the various travel modes served by a type of roadway.

3.5 Truck Routes

Establish truck routes based on functional classification, connectivity, and land uses.

The truck route system primarily consists of principal and minor arterials. Main Street, from Traffic to Valley Avenues, will not be a through truck route, since it serves the downtown commercial district. Collectors and local streets in the industrial classified areas will also serve as truck routes. On other City streets, only local deliveries should be allowed by trucks, unless provided for by approved exceptions. The truck route designations identified in the plan shall reflect planned improvement projects. As improvement projects are made, the truck route designation will be modified.

Trucks entering/exiting the City to/from a destination within the City should use only the designated truck routes between the regional system (or City limits) and the intersection nearest the destination/origin within the City. The truck shall limit its travel on non-truck route streets to the shortest distance between the truck route and the origin/destination within the City.

3.6 Connectivity

Provide a highly interconnected network of streets, sidewalks, bicycle lanes, and trails for ease and variety of travel.

The City of Sumner recognizes that increasing connections throughout the City provides efficiencies in traffic circulation and increases the sense of unity of the community. A flexible grid system of roadways is preferred over the use of cul-de-sacs, dead-end streets, loops, and other designs that form barriers. Creating a pattern of continuous through streets with a system of highly integrated secondary access streets will provide long-term economic and social benefits to the community. The City will encourage the use of trails and other connections that provide ease of travel between neighborhoods and community centers.

To achieve an interconnected street network, the City should:

- Allow cul-de-sacs only where the natural or built environment would logically preclude a grid street system;
- Consider future needs and opportunities for development of the local service street grid in project review of development proposals;
- Require new development to provide full or partial street improvements, where such streets will expand, complement or improve access to the larger street network, consistent with existing development patterns and environmental constraints;
- Seek to establish a maximum interval between local access streets in industrial areas of ¼ mile;
- Seek to establish a maximum interval between local access streets in residential and pedestrian-oriented commercial areas of 500 feet; and
- Establish logical new transportation links at the first available opportunity, to avoid sacrificing future options.

The City should maintain flexibility in implementing these strategies. Requirements for improvements to establish a continuous grid street system should be determined on a case-by-case basis. The public benefit of new roadways should be considered in the context of the relative impact to individual property owners and the potential detriment to residential neighborhoods. New public street rights-of-way should be located to preserve the economic value of adjacent private property to the greatest extent possible. Additionally, the local access street grid should be designed to discourage commercial and industrial traffic in areas designated for residential uses.

The provisions of this policy do not extend to a street connection in the Sumner Avenue/ Alder Avenue corridor to connect areas south of SR 410 with neighborhoods north of SR 410. The residents of the City do not desire this connection. The costs of the project would not provide adequate benefit to the City.

3.7 Private Streets

The City of Sumner discourages the use of private streets and will not agree to maintain them.

3.8 Preservation of Rights-of-Way

Retain existing and identify, acquire, and preserve rights-of-way to implement the Transportation Plan.

The City intends to use the Transportation Plan's recommendations to identify current and future transportation system needs. The City has identified specific transportation corridors where rights-of-way should be protected to serve potential short- or long-range transportation system needs. Methods to acquire and preserve rights-of-way may include:

- Requiring dedication of rights-of-way as a condition for development when the need for such rights-of-way is linked to the development;
- Requesting donations of rights-of-way to the public;
- Purchasing rights-of-way by paying fair market value; and
- Acquiring development rights and easements from property owners.

The City also seeks protecting rights-of-way from encroachment by any structure, substantial landscaping, or other obstruction to preserve comprehensive plan recommendations. Protection methods may include minimum setback requirements for property improvements to allow for sufficient right-of-way for roadway expansion, and development of specific guidelines regarding installation and maintenance of landscaping within the public right-of-way.

3.9 Access Management

Limit and provide access to the street network in a manner consistent with the function and purpose of each roadway.

The City will seek to consolidate and minimize the addition of new access points to State highways, arterials, and collectors, as appropriate. This will help preserve capacity and improve safety of the highway and arterial system, reduce interference with traffic flows on arterials, and discourage through traffic on local streets.

To achieve this level of access control, the City:

- Supports the State's controlled access policy on all State highway facilities;
- May acquire access rights along some arterials and collectors;
- Encourages and may require landowners to work together to prepare comprehensive access plans that emphasize internal circulation and discourage multiple access points to major roadways;
- Encourages consolidation of access in developing commercial and high-density residential areas through shared use of driveways, local access streets, and cross-access corridors; and
- Requires defined access and circulation systems as part of subarea land use plans.

3.10 Transportation Systems Management

Strive to efficiently operate the transportation system through Transportation Systems Management (TSM) strategies. These strategies will include:

- Signal interconnect systems, signal coordination and synchronization, and other signal systems to ease traffic flow;
- Turn lanes and pockets to allow turning vehicles to move out of through traffic lanes; and
- Access control for arterials and major collectors to minimize disruptions in traffic flow.

3.11 Maintenance and Operations

Maintain the existing and future arterial and street system and associated facilities (e.g., sidewalks, transit stops, landscaping) through an ongoing Pavement Management System (PMS) and traffic operations program.

3.12 Utilities

Coordinate with service providers on the location of major utility and transportation corridors and the construction of roadway improvements. Such coordination will help

minimize transportation disruptions caused by construction. In addition, this will reduce costs and maintain pavement integrity.

3.13 Neighborhood Traffic Control Program

Implement a systematic program for defining, designing, and implementing traffic control and pedestrian safety improvements in residential areas of the City. The City will define and prioritize locations for such programs based on:

- Traffic engineering studies
- Traffic speeds
- Safety and accident data
- Truck impacts
- Input from the community

3.14 Special Events Policy

Accommodate the transportation needs of special events and assess the costs of such accommodation to the event promoter.

The City recognizes that special events such as fairs, parades, athletic events, and large meetings may burden the transportation system beyond its ordinary capacity. The City also recognizes that such events can expand the culture and quality of life of the community. The City will seek to provide for such events by making appropriate provision such as bus transportation, traffic control, and temporary street closures. The City will notify affected businesses through mailings and the Sumner Promotions Association of Street Closures for special events. The City may assess some or all of the costs of such provisions will be assessed to the promoters or organizers of such events.

4. Pedestrians and Bicycles

Pedestrian and bicycle facilities provide for alternatives to automobiles for travel to/from and within Sumner. Pedestrian and bicycle facilities are important to promote safety and minimize impacts on overall operation of the transportation system. Pedestrian and bicycle facilities provide access and circulation within neighborhoods and connections to schools, parks, commercial areas, and community facilities. Pedestrian and bicycle facilities amenities contribute to a healthier, balanced quality of life.

Pedestrian

The City of Sumner in 2014 completed The Sumner Link Trail, connecting the trail to the Puyallup Riverbend Trail, Foothills Trail and the future connection to the City of Pacific's portion of the Interurban Trail. See Figure 5-6 for trail locations. Future plans for the trail include enhancing the trail with amenities. Other pedestrian connections through the city include five-foot sidewalks on all public streets, ten-foot sidewalks along most of East Main Street, with plans to continue sidewalks throughout the city. See Figure 5-5 for sidewalk map. The City of Sumner has very flat topography which allows for a very comfortable, easy and enjoyable walk through town.

Bicycles

Bicycle connections in town include bike lanes on Valley Avenue, Valley Avenue East and 136th Avenue East. Sumner also allows bicyclist to utilize the Sumner Link Trail that connects both recreational cyclist and commuters to other regional trail systems. In addition to the designated bicycle systems in town the streets are very bike friendly, wide, flat and connected.

Goal

Promote use of alternative transportation modes by providing an interconnected system of pedestrian and bicycle facilities.

Policies

4.1 Pedestrian/Bicycle Facilities on Arterials

Design standards for principal and minor arterials will include provisions for travel by pedestrians and bicyclists, based on the Sumner/Pacific Master Trail Plan and the Sumner Transportation Plan.

4.2 Pedestrian/Bicycle Facilities on Non-arterials

Collector roads and local streets should be designed and constructed to facilitate access and circulation by pedestrians and bicyclists within the neighborhoods and provide connections to schools, parks, community facilities, transit, and commercial districts. Development application will provide for convenient non-motorized connection where feasible.

4.3 Sidewalks

Sidewalks will be provided on both sides of all City streets unless special circumstances, such as topography or environmental constraints, make it cost prohibitive as determined by the Public Works Director.

4.4 Interim Walkways

The City will pursue the construction of interim asphalt walkways/sidewalks along city streets that are used by a considerable number of children walking to/from school. Interim asphalt walkways/sidewalks should include, but not be limited to, Parker Road, Elm Street, and 160th Street E. The construction of interim walkways/sidewalks is not intended to preclude future full street improvements.

4.5 Master Trail Plan

A system of separated, multi-purpose trails should be constructed to serve transportation and recreation needs of the community. It should also connect with adjacent communities to facilitate regional connectivity. The trail system and connections to the arterial, collector, and other pedestrian and bicycle facilities should be made per the Sumner/Pacific Master Trail Plan.

5. Rail, Transit, and Transportation Demand Management

In order to provide for transportation alternatives the City supports use of rail and bus transportation to reduce transportation demands on streets and highways.

Goal

Develop and expand an integrated system of public transportation alternatives and demand management programs to provide mobility alternatives and reduce the need to expand the general capacity of arterials and collector streets in the City.

Policies

5.1 Bus Transit Service

Continue working with Sound Transit to expand and enhance bus transit service to regional destinations and to serve growing areas of Sumner. Key connections that should be considered for new or expanded service include:

- Between Sumner and Auburn/Kent/Green Valley employment centers;
- To connect Lakeland Hills residential area to Sumner and regional transit service;
- To serve travel between Sumner, Bonney Lake, South Hill, Orting, and Cascadia development area;
- To serve travel within Sumner and connections to the commuter rail station;
- Between the Sumner MIC and local and regional areas of high density residential development; and
- To serve travel within Sumner and connections to the commuter rail station and the MIC.

5.2 Commuter Rail

Continue working with Sound Transit, WSDOT, and local agencies to enhance access to the regional commuter rail system and Sumner's commuter rail station.

5.3 Rail Connections

Preserve existing railroad rights-of-way within the City's Urban Growth Area and connections to the national rail system.

5.4 Transit Connections with Other Modes

Support construction of improved pedestrian and bicycle connections with local and regional transit service. Work to provide transit stops and shelters along arterials. Additionally, work to provide bike lockers and facilities at transit connections.

5.5 High Occupancy Vehicle Facilities

Support WSDOT and transit providers in implementing the regional plan for HOV lanes on SR 167, consistent with the State Highway Systems Plan.

5.6 Park-and-Ride

Support and coordinate with Sound Transit and WSDOT on the development of an expanded regional park-and-ride system to support use of alternative transportation modes in the Sumner area. Seek to provide tax credits or other incentives for allowing public parking on private property.

5.7 Rail Service

Enhance safety and operations of rail service (freight and passenger) through grade separation of roadways or improving at-grade crossings

5.8 Transportation Demand Management (TDM)

Promote programs that reduce the demands on the transportation system through the following strategies:

- Encourage the use of HOV programs – buses, carpools, and vanpools – through both private programs and under the direction of Sound Transit;
- Promote flexible work schedules allowing the use of transit, carpools, or vanpools;
- Promote reduced employee travel during the daily peak travel periods through flexible work schedules and programs to allow employees to work part- or full-time at home or at an alternate work site closer to home;
- Encourage employers to provide TDM measures in the work place through such programs as preferential parking for HOVs, improved access for transit vehicles, and employee incentives for using HOVs; and
- Implement the provisions of the State Commute Trip Reduction Act.

5.9 Special Needs

Ensure mobility for all residents within the UGA, including the elderly and persons with disabilities by providing an accessible and affordable transportation system.

The City of Sumner will ensure that its transportation system meets the requirements outlined in the Americans with Disabilities Act (ADA). The City will apply design standards that respond to the needs of persons who are elderly, disabled, or have other special needs. The City will identify existing transportation facilities and locations that are not accessible or usable by such persons and will improve such facilities. The City will encourage public and private transportation operators to fit the special needs of such persons.

6. Land Use and Environmental Considerations

To maintain and improve the quality of Sumner, the City continues to work to blend transportation, land use, and the environment. Design and implementation of transportation infrastructure and changes in the land use plan must be compatible with each other.

Goal

Establish a transportation system with minimal environmental impact and energy consumption that provides for a high quality of life to be enjoyed by the citizens.

6.1 Environmental Protection and Conservation

Design transportation facilities within the Sumner UGA minimizing adverse environmental impacts resulting from both their construction and operation.

The City of Sumner will fulfill this need by:

- Considering environmental costs of development and operation of the transportation system;
- Aligning and locating transportation facilities away from environmentally sensitive areas;
- Working with the State to incorporate appropriate structural and vegetative sound abatement as part of highway widening projects;
- Mitigating unavoidable environmental impacts wherever possible; and
- Soliciting and incorporating the concerns and comments of interested parties.

6.2 Compatibility with Adjacent Land Uses

Ensure that transportation system improvements are compatible with adjacent land uses and will minimize potential conflicts. The City will:

- Prevent new single-family residential areas from fronting on arterials, unless no other options exist;
- Incorporate transit, pedestrian, and bicycle access to major developments;
- Provide landscaping and noise buffers along major roadways;
- Provide facilities for bicyclists and pedestrians to access transit; and
- Provide changes to site plans to encourage pedestrian travel.

6.3 Air Quality

Support continuing efforts for improving air quality throughout the Sumner area and develop a transportation system compatible with the goals of the Federal and State clean air acts.
Federal and State legislation have made clean air a priority. The City will:

- Support and enforce vehicle emissions testing and cleaner burning fuels program;
- Coordinate with Sound Transit, and other jurisdictions on Commute Trip Reduction (CTR) programs for major employers in the Sumner planning area;
- Require air quality studies of future major developments on impacts created by site-generated traffic;
- Promote other TDM Programs; and
- Work with the private and other public sectors to introduce cleaner burning fuels for the existing motorized fleet, and vehicles powered by alternate fuel sources.

6.4 Land Use Impact Assessment

Allow major changes to the land use plan only when those proposals accompany specific analyses showing how the transportation system can adequately support existing and proposed development needs in a financially balanced manner.

6.5 Low Impact Development

Provide incentives for the use of low impact development techniques that will reduce impervious surfaces, provide for stormwater infiltration, and protect the natural environment and systems. Low impact development should be the preferred alternatives for new transportation projects.

6.6 Transportation Hazard Mitigation

Protect the transportation system against disaster, develop prevention and recovery strategies, and plan for coordinated responses.

6.7 Transportation Energy Conservation

Reduce the rate of energy use per capita, both in building use and in transportation activities.

6.8 Transportation Greenhouse Gas Alternatives

Reduce greenhouse gases by expanding the use of conservation and alternative energy sources and by reducing vehicle miles traveled by increasing alternatives to driving alone.

7. Program Financing and Implementation

Without adequate funding or implementation strategies, the City's Transportation Plan will not meet the needs of the community. The funding and implementation program must leverage the available resources to meet the City's transportation priorities. The strategies must also match with other City goals and policies, as well as regional, state, and federal requirements related to protection of the environment.

Goal

Implement the transportation plan to meet the needs of the community in an orderly manner based on community and regional priorities, benefits, and cost allocation.

Policies

7.1 Priorities

Prioritize City improvement projects and participation in State and regional projects based on the following objectives:

- Transportation safety of all modes;
- Maintenance and preservation of existing transportation system facilities;
- Upgrade or expand facilities needed to support growth within Sumner and maintain transportation concurrency;
- Expand facilities and services to improve connectivity of the transportation system; and
- Environmentally beneficial.

7.2 Transportation Funding

Fund and implement the Transportation Plan based on the relative benefits to various user groups. Funding programs that will be considered by the City include:

- State and Federal grant programs;
- Development mitigation;
- Local city transportation and general tax funds;
- Local Improvement Districts (LIDs);
- Expanded business license fees; and
- Other local option taxes fees that are currently allowed or that may be available in the future.

7.3 Regional Partnering

Continue to develop partnerships with WSDOT, Pierce County, Sound Transit, and local agencies to define and fund improvement projects and programs in the Transportation Plan.

7.4 Development Share

Ensure that new growth pays a proportionate share of the costs of transportation facilities needed to support growth. New development may contribute to the costs of needed improvements through:

- SEPA-based mitigation
- TIFs
- Frontage Improvements
- LIDs
- Other means allowed by State and local law

7.5 Six-Year Transportation Improvement Program

Ensure that the annual Six-Year Transportation Improvement Program (TIP) is financially feasible, leverages available City Funds, and is consistent with the priorities of the Transportation Plan.

The TIP used by the City to implement TIPs is used by the PSRC in developing the Regional TIP for major system elements. The TIP is used to program use of city funding.

A financially balanced Six-Year TIP is needed to evaluate the adequacy of the transportation system through concurrency. The TIP also establishes the framework for development review under SEPA.

The annual update of the TIP is also used to reevaluate project priorities based on changes in the availability of funding or development activity.

7.6 Reassessment Strategy

If probable funding falls short of meeting the identified needs of the plan, the City will review and update the Plan, as needed. The City will reassess improvement needs, priorities, level of service standards, and the land use plan.

GMA requires that the Transportation Element of the Comprehensive Plan balance transportation improvement needs with the land use plan, level of service standards, and available funding. The current plan identifies adequate funding, but relies in part on grants,

potential development mitigation, and formation of local improvement districts. If, over time, these options do not provide adequate funding, the City will need to reassess its Plan.

7.7 Transportation System Development Review

Approve major land use changes only when those proposals accompany specific documentation or plans showing how the transportation system can adequately support existing and proposed development needs based on concurrency, access, safety, and alternative travel modes.

7.8 Transportation Planning

Continue planning for transportation facilities within Sumner and its UGA on a continuing basis meeting changes in land use decisions.

7.9 Manufacturing and Industrial Center Designation

Obtain regional designation as a manufacturing/industrial center to increase access to state and federal transportation improvement grant funding.

The City will update the Transportation Plan whenever the Sumner Comprehensive Plan is revised or updated in such a way that it affects the Transportation Plan. The City will also revise the Transportation Plan if projects outside the City's control, such as special transportation related projects led by the WSDOT, PSRC, transit agencies, or Pierce County, cause a fundamental shift in transportation services throughout the UGA.

8. Manufacturing/Industrial Center Transportation Connections

The Sumner-Pacific Manufacturing/Industrial Center (MIC) is a primary hub for regional movement of goods as a gateway to national and international overseas markets. Transportation connectivity to the region is critical for success of this area as an economic and employment center.

Goal

Maintain the Sumner-Pacific MIC as a primary hub for regional goods movement and as a gateway to national and overseas markets. Support the integrated development and operation of trucking and rail terminals to enhance the freight transportation system and strengthen the Cities' economic base. Consider the needs for delivery and collection of goods at local businesses by truck. Develop a permit program, improvement district, or other revenue source to ensure ongoing maintenance and repair of infrastructure impacted by commercial freight and related businesses.

Policies

8.1 MIC Planning

Identify and address areas within the MIC or connecting corridors where efficient truck access and circulation is hindered by infrastructure gaps and inadequate design; ensure future

transportation improvements address the needs of large trucks, including (but not limited to) turning lanes, acceleration lanes and climbing lanes.

8.2 MIC Funding

Support priority funding for strategic transportation investments that improve freight mobility within and to the MIC.

8.3 MIC Design

Design non-motorized facilities with the MIC in a manner that minimizes potential conflicts with trucks and trains to allow for the safe and efficient movement of both freight and people.

3. Inventory of Existing Transportation System

The transportation system within the City of Sumner includes streets and highways, pedestrian and bicycle facilities, and transit and rail service. An inventory of the existing transportation system was conducted in Fall 2014. This transportation system inventory and associated analyses provide a baseline for the existing transportation system and aided in identifying key transportation issues addressed in the update of the Plan. The inventory covers the arterial street system, traffic control, traffic volumes, traffic operations, historical accident records, transit and rail service, and pedestrian and bicycle facilities. The inventory was used in updating the City's travel demand model, which was used to update the future traffic volume forecasts for the 2015 Sumner Transportation Plan.

Freeways, Arterials, and Collectors

Figure 3-1 summarizes the existing roadway system's geometry and locations of the City's signalized intersections. The following sections provide a more detailed description of key roadways serving the City. Figure 5-1, presented later in the Plan, shows the functional classification of the City street system.

Freeways

Two major limited access, divided state highways serve Sumner: SR 167 and SR 410.

SR 167 is a four-lane freeway through Sumner. To the south and west, it connects to Puyallup and Tacoma. To the north, it connects to Auburn, Kent, and Renton. Within the Sumner UGA, SR 167 has a posted speed of 60 mph, and access is limited to grade-separated interchanges at 8th Street E, 24th Street E, SR 410, and SR 512. The freeway portion of SR 167 presently terminates at SR 512 west of Sumner's UGA. WSDOT has plans to extend the freeway west to intersect with I-5 to connect with the Port of Tacoma area.

The State has designated SR 167 as an HSS. HSS facilities provide and support transportation functions that promote and maintain significant statewide travel and economic linkages. The State plans for this HSS facility are developed from a statewide perspective. This planning includes policy development and accompanying funding support to represent a broad range of interests that depend on the facility. Because of its designation as an HSS facility, the State has the authority of setting the LOS standards for SR 167.

SR 410 is a four-lane freeway linking the cities of Bonney Lake and Buckley with SR 167. It has a posted speed of 55 mph and access is limited to grade-separated interchanges at Traffic Avenue, Valley Avenue/Orting Highway (SR 162), and Sumner-Tapps Highway (166th Street E). East of the UGA, SR 410 is a four-lane roadway with at-grade intersections. SR 410 is a State Highway of Regional Significance. Level of service standards for SR 410 have been established by the Puget Sound Regional Council (PSRC), in consultation with WSDOT.

Arterials

The major north-south arterials serving the City of Sumner include: East Valley Highway, West Valley Highway, Sumner-Tapps Highway, 142nd Avenue E, 136th Avenue E, Valley

Avenue, and Traffic Avenue. The arterial classification map is provided on Figure 5-1. The following sections describe each of these roadways:

Valley Avenue is classified as a minor arterial providing access between SR 410, the residential neighborhoods east of the Sumner City downtown, and East Valley Highway north of the City. Land uses in the corridor are characterized by single and multi-family residences and some commercial uses. Valley Avenue has a posted speed of 25 mph. Traffic signals are provided at Main Street, Meade-McCumber Road, and the eastbound and westbound ramp terminus of SR 410. Since completion of the 2002 Sumner Transportation Plan, Valley Avenue has been improved to minor urban arterial standards and widened between Elm Street and SR 410 to provide 3 lanes, (one lane in each direction and center left-turn lane) with curb, gutter, sidewalks, and bike lanes.

South of SR 410, Valley Avenue is commonly referred to as the Orting Highway and is also known as SR 162. Within the City limits, this portion of Valley Avenue is classified as a principal arterial. The intersections of SR 162 at Rivergrove Drive, Pioneer Way E, 96th Street E intersections are signalized.

Traffic Avenue is a north-south arterial providing access between SR 410 and the Sumner City center and commuter rail station. It is five lanes between just north of Thompson and Main Streets. The adjacent land use primarily includes commercial developments. All minor intersections on the side street approaches are stop-controlled except State Street, which is signalized. Additional signalized intersections are provided at Main Street and the east and west ramp terminus of SR 410. The posted speed limit is 25 mph. Traffic Avenue south of the SR 410 intersection is four to five lanes. It connects to Shaw Road in the City of Puyallup; this connection did not exist in 2002. The Shaw Road extension to Traffic Avenue allows for a more direct connection to SR 410 for areas south, where previously SR 162 was the only connection.

North of Main Street, Traffic Avenue becomes **Fryar Avenue**, accessing Sumner's industrial areas. Fryar Avenue is a four-lane, undivided roadway between Main Street and just south of 57th Street E and then a three-lane roadway to 142nd Avenue E. It has two travel lanes between Puyallup Street and 142nd Avenue E. The two-lane section includes a bridge over the White (Stuck) River. All minor roadway approaches are stop controlled. Land uses adjacent to Fryar Avenue include the Sumner City Library and Senior Center, a United States Post Office, and other commercial developments.

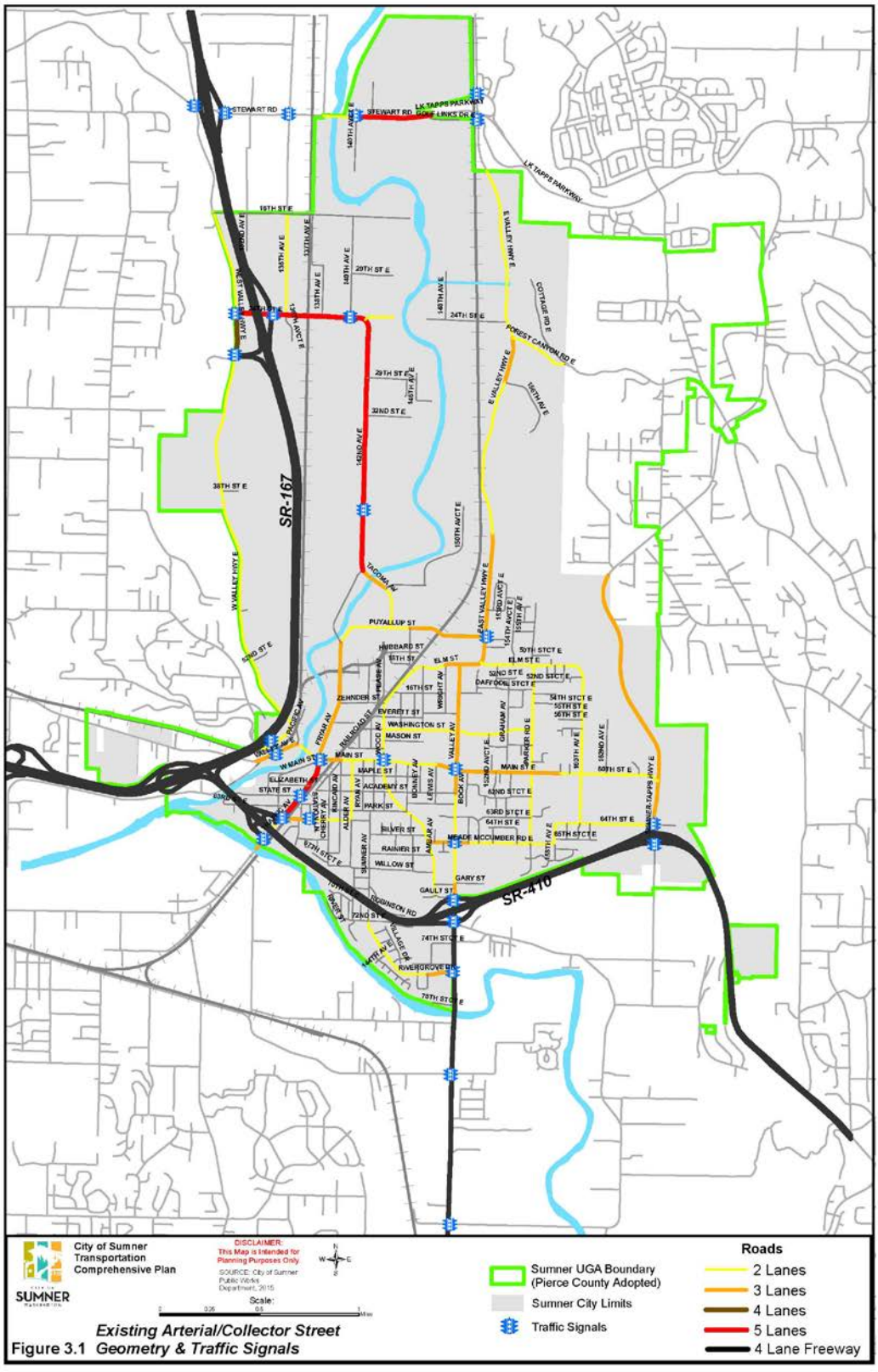
142nd Avenue E is a five-lane arterial, with two travel lanes in each direction and a center, two-way left turn lane. It provides access between Tacoma Avenue and 24th Street E. The roadway serves the industrial area north of the White (Stuck) River.

24th Street E is an arterial that crosses the Union Pacific Railroad (UPRR) tracks to provide access to 136th Avenue E and SR 167. Since completion of the 2002 Sumner Transportation Plan, the new SR 167/24th Street E interchange has been constructed and 24th Street E has been widened to five-lanes between the West Valley Highway and 142nd Avenue E.

136th Avenue E is a two-lane minor arterial providing access between **8th Street E** and **24th Street E**. This roadway is currently under construction to widen it to three-lanes with curb, gutter, and sidewalk. This minor arterial provides access and circulation for the freight distribution and light industrial areas in the northern part of the City west of the White (Stuck) River. The posted speed limit on this roadway is 30 mph.

East Valley Highway is a two- to three-lane minor arterial serving the northeast part of the city. It begins at Elm Street in Sumner and runs north out of the City limits into King County. The southern section between Elm Street and Salmon Creek includes turn lanes and sidewalks. This arterial links Sumner with industrial developments in the Algona, Pacific, and Auburn. The posted speed limit is 35 mph north of Salmon Creek. Since completion of the 2002 Sumner Transportation Plan, the East Valley Highway/8th Street E intersection has been reconfigured as a grade-separated interchange with SE 8th Street/Lake Tapps Parkway crossing over East Valley Highway. There are access ramps from Lake Tapps Parkway to East Valley Highway. The roadway traverses environmentally sensitive wetland areas near the White (Stuck) River. Developments along the roadway include the Puget Power Lake Tapps Power Plant and other scattered commercial and residential developments.

Figure 3-1. Existing Arterial and Collector Street Geometry and Traffic Signal Locations (as of January 2015)



West Valley Highway is a two-lane roadway serving the west side of Sumner. It parallels SR 167. Similar to East Valley Highway, the SR 167 interchange connects the Sumner City center with the Algona and Pacific industrial areas north of the City. Small commercial and residential developments presently exist along some sections of West Valley Highway frontage. A number of light industrial business parks have been constructed since the 2002 Sumner Transportation Plan was adopted by the City. Steep slopes to the west limit the development potential along the west side of the roadway. The posted speed limit is 35 mph. Since completion of the 2002 Sumner Transportation Plan was prepared, 24th Street E has been extended to West Valley Highway as part of the new 24th Street E.

Sumner-Tapps Highway is an arterial providing access from the northwestern portion of the Lake Tapps bluff to SR 410. Within the Sumner UGA, it is a three-lane roadway; providing two lanes for traffic climbing the hill northbound and a single lane southbound. The Sumner City limits abut the roadway. Principal intersections include E Main Street (60th Street E) and 64th Street E. The intersection of 64th Street E is signalized and isolated in close proximity to the SR 410/166th Avenue E interchange eastbound ramps. East-to-north left turns are not allowed at the intersection at E Main Street and Sumner-Tapps Highway due to sight distance restrictions.

The major east-west arterials serving the City of Sumner include Main Street, Bridge Street, Pacific Avenue, Forest Canyon Road, 8th Street E, and Elm Street. Most of the east-west arterials serve the south part of the City.

Main Street is the primary east-west arterial through the City of Sumner. It begins west of the City center at Traffic Avenue and continues through downtown Sumner through the eastern residential areas to an intersection with Sumner-Tapps Highway. Land uses along this roadway vary from commercial uses in the city center to single family residences east of 160th Avenue E. Sumner High School is also located along Main Street. Primary intersections include Traffic/Fryar (signalized), Alder Avenue (all-way stop controlled), Wood Avenue (signalized), Valley Avenue (signalized), Parker Road (north-south approaches are stop controlled), 160th Avenue E (north-south approaches are stop controlled), and Sumner-Tapps Highway (west approach is stop controlled). A railroad crossing, with gates and signals, is located just east of Traffic Avenue.

Bridge Street is the extension of Main Street between Traffic and Pacific Avenues. It includes an old (1927), narrow, two-lane bridge over the White (Stuck) River.

Valley Avenue connects West Valley Highway to Bridge Street, which crosses over the White (Stuck) River. Valley Avenue is a two- to three-lane roadway with a posted speed of 25 mph. Valley Avenue provides one of the few connections for traffic between the Edgewood plateau west of the City with SR 410, SR 167, and destinations within Sumner. The short segment of Sumner Heights Drive, between West Valley Highway and Valley Avenue provides a crossing of the Burlington Northern Santa Fe (BNSF) railroad tracks. Gates and signals control the crossing.

8th Street E is an east-west arterial in the north part of Sumner. It has two-lanes west of the White River Bridge and five-lanes between the Bridge and Lake Tapps Parkway. It is called Steward Road E west of the White River Bridge and this section is within the City of Pacific. The section between SR 167 and the Bridge is currently under construction to be widened to five lanes. It links SR 167 and East Valley Highway. West of West Valley Highway, the roadway becomes Jovita Boulevard, traverses up the western bluff, and enters the City of Edgewood. The posted speed limits range is 35 mph.

Puyallup Street is currently a two-lane, minor arterial, which was extended since the 2002 Sumner Transportation Plan was adapted. This arterial connects between 142nd Avenue E to East Valley Highway. This route serves as a primary truck route between 142nd Avenue E and East Valley Highway.

Elm Street is classified as a minor arterial from Valley Avenue to East Valley Highway, providing the connection between these two north-south arterials. This arterial segment has three lanes. The posted speed limit is 25 mph. There is curb, gutter, and sidewalk on both sides of the roadway.

Forest Canyon Road is a two-lane, east-west minor arterial that provides access from East Valley Highway up the eastern valley bluff to the Lake Tapps residential areas. The posted speed limit is 25 mph within the City limits. The arterial has a 35-mph speed limit in the County.

Collectors

A number of collector arterials provide connections between the residential areas of Sumner to arterial roadways and to the regional freeway system. The collectors are also vital in connecting the residential areas to the central business district. In general, most of the collector roads in Sumner are two-lane roadways with turn lanes and signals provided at a limited number of cross streets.

Sumner Heights Drive is a two-lane, collector providing access between West Valley Highway and the residential areas in the City of Edgewood. The posted speed limit is 25 mph.

Zehnder Street is classified as a two-lane, east-west collector between Fryar and Wood Avenues where it then connects to Elm Street. Since completion of the 2002 Sumner Transportation Plan, the street has been reconstructed to collector street standards with curb, gutter, and sidewalks on both sides. It has a posted speed limit of 25 mph. The east end of Zehnder Street crosses two railroad tracks. Crossing gates and lights control the crossing.

Alder Avenue is a two-lane, north-south collector providing access between the City center and residential areas to the south. Adjacent land uses are primarily single-family residences and commercial developments, including the Sumner City Hall/Police Station in the downtown area. The posted speed limit is 25 mph.

Thompson Street is an east-west collector providing access to the City's central residential areas. It connects Traffic Avenue to Alder Avenue. It begins at the Traffic Avenue/ westbound SR 410 ramp intersection, where signs identify the preferred route to the City center. Between Station Lane and Traffic Avenue, the street is 40-feet wide and striped for three lanes. The remaining section is a two-lane collector. The posted speed limit is 25 mph.

Wood Avenue is a two-lane, north-south collector roadway linking Valley Avenue and Elm Street just east of the Sumner City center. It primarily provides access to the residential areas north and south of Main Street. The Main Street intersection is signalized. The posted speed limit is 25 mph.

Elm Street is classified as a two-lane collector arterial between Wood and Valley Avenues and between East Valley Highway and 160th Avenue E. The short section between Valley

Avenue and East Valley Highway is part of the Valley Avenue/East Valley Highway minor arterial. The posted speed limit is 25 mph

158th Avenue E is a short two-lane, north-south collector connecting Meade-McCumber Road and 64th Street E. The posted speed limit is 25 mph.

Meade-McCumber Road is a two-lane collector roadway connecting Wood Avenue to 158th Avenue E which connects to 64th Street E and the Sumner-Tapps Highway. Land use along this roadway is primarily single- and multi-family housing. The posted speed limit is 25 mph.

Parker Road is classified as a two-lane roadway connecting Meade-McCumber Road and Elm Street. The posted speed limit is 25 mph. Sections of the roadway have been improved to City Standards by adjacent development while other sections lack sidewalks, curbs, and gutters.

Washington Street is a two-lane roadway connecting Wood Avenue to Valley Avenue and Parker Road. It serves access to residential areas; the north side of Sumner High School and athletic fields; and vacant, developable land east of Parker Road. The posted speed limit is 25 mph.

160th Avenue E is a two-lane, north-south roadway that serves as a collector between Elm Street and 64th Street E. The posted speed limit is 25 mph.

64th Street E between Sumner-Tapps Highway and 158th Avenue E is a two-lane collector roadway. It is an extension of the Meade-McCumber Road Collection which connects to Valley Avenue. The posted speed limit is 25 mph. Its intersection with Sumner-Tapps Highway is signalized.

Rivergrove Drive is a wide, two-lane collector connecting the residential areas southeast of the SR 410 /SR 162 interchange. It connects the local residential streets to SR 162. The posted speed limit is 25 mph.

Riverside Drive is a two-lane, east-west Pierce County collector arterial connecting SR 162 to 96th Street east of SR 162. It also connects to the 166th Avenue E corridor commercial area via 75th Street E. Land uses along this roadway are mainly agricultural and residential. Riverside Drive has been redirected to connect with 74th Street E east of its connection with SR 162. The posted speed limit is 35 mph.

Local Streets

The remaining roadways within the City limits and UGA are classified as "local streets" and primarily provide for property access into Sumner. They generally have two travel lanes, have 25 mph speed limits, and provide access between residential or business areas and the arterials.

East Sumner Neighborhood Plan

Key facilities in the East Sumner Neighborhood Plan include:

Sumner-Tapps Highway, described above, is a minor arterial on the east side of the East Sumner Neighborhood Plan. It provides access from the northwestern portion of the Lake Tapps bluff to SR 410. It is a three-lane facility in Sumner; providing two lanes for traffic

climbing the hill northbound and a single lane southbound. Principal intersections in East Sumner include E Main Street (60th Street E) and 64th Street E. The intersection of 64th Street E is signalized and is located approximately 200-feet north of the SR 410/166th Avenue E eastbound ramp intersection. East-to-north left turns are not allowed at the E Main Street and Sumner-Tapps Highway intersection.

Main Street is the primary east-west arterial through the City of Sumner. It connects the East Sumner Neighborhood Plan residential areas to Downtown Sumner as well as Sumner-Tapps Highway. Within East Sumner, the primary intersections are 160th Avenue E (north-south approaches are stop controlled) and Sumner-Tapps Highway (west approach is stop controlled).

160th Avenue E is a two-lane, north-south roadway that serves as a collector between Elm Street and 64th Street E. The posted speed limit is 25 mph. Intersections along this corridor are unsignalized including the connections at E Main Street and 64th Street E within the East Sumner Neighborhood Plan.

64th Street E between Sumner-Tapps Highway and 158th Avenue E is a two-lane collector roadway. This facility runs east-west and connects to Valley Avenue via Meade-McCumber Road. As described above, the intersection of 64th Street E and Sumner-Tapps Highway is closely spaced with the SR 410 eastbound ramp intersection. The posted speed limit is 25 mph.

Parker Road is west of the East Sumner Neighborhood Plan. It is classified as a two-lane roadway connecting Meade-McCumber Road and Elm Street. The posted speed limit is 25 mph. Sections of the roadway have been improved to City Standards by adjacent development while other sections lack sidewalks, curbs, and gutters.

Traffic Volumes

Daily and PM peak hour traffic volumes were collected from a variety of sources including the City of Sumner, WSDOT, and recent traffic impact analyses for proposed developments in the area. These traffic volumes were supplemented with existing PM peak hour turning movement counts conducted for the plan update in October 2014.

Freeways

Figure 3-2 shows the average daily traffic (ADT) volumes on the State highways for 2001 (or 1999 at locations where 2001 counts were not available in the 2002 Sumner Transportation Plan) and 2013.

The two State highways, SR 167 and SR 410, carry the highest traffic volumes in the study area. The ADT on SR 167 west of the SR 410 interchange was about 101,000 in 2013. North of the SR 410 interchange and south of the 24th Street E interchange, the 2013 ADT was about 90,000. North of the 8th Street E interchange, the SR 167 2013 ADT was about 96,000. The ADT on SR 167, south of the 24th Street E interchange, increased by 17 percent between 2001 and 2013. The ADT on SR 167, north of the 8th Street E interchange, increased by 20 percent between 2001 and 2013.

The 2013 ADT on SR 410 west of Traffic Avenue was 68,000. East of the SR 162 interchange, the ADT drops to 48,000 vehicles per day (vpd). East of 166th Avenue E, the ADT along SR 410 is also 48,000 vpd. The ADT on SR 410 increased by 5 to 6 percent

between 2001 and 2013 both west of Traffic Avenue and east of SR 162. East of 166th Avenue E, the ADT increased by approximately 12 percent between 2001 and 2013.

The ADT on SR 162 south of SR 410 has remained consistent during the past 12 years with approximately 21,000 vpd according to WSDOT records.

Arterials and Collectors

Figure 3-3a and Figure 3-3b show the 2013/2014 two-way PM peak hour traffic volumes on Sumner's arterials and collectors. The 2001 traffic volumes from the 2002 Sumner Transportation Plan are also provided for comparison. The counts show that there has been general growth in Sumner PM peak hour traffic over the last 13 years. In addition, roadway improvements and extensions completed since the 2002 Sumner Transportation Plan have changed travel patterns, which result in larger increases along some arterials and decreases along others.

PM peak hour volumes on SR 162 south of SR 410 have decreased by about 19 percent during the past 13 years although the daily volumes have remained relatively constant. Some of the decrease in traffic at this location may be a result of traffic shifting to Shaw Road, which was extended since the 2002 Sumner Transportation Plan was adopted. The traffic shift to Shaw Road is seen in the significant increase in PM peak hour traffic volumes along Traffic Avenue south of SR 410. The PM peak hour traffic on the Traffic Avenue south of SR 410 has increased by about 50 percent since 2001. This represents a 3.2-percent annual growth rate.

Puyallup Street was extended to connect at East Valley Highway since completion of the 2002 Sumner Transportation Plan was prepared. This extension has resulted in increased weekday PM peak hour traffic along East Valley Highway by 30 percent to the north and 50 percent to the south of Puyallup Street. In addition, PM peak hour traffic along Valley Avenue between Elm Street and the SR 410 ramps has increased by 50 to 65 percent during the past 13 years due to the extension of Puyallup Street. These increases in traffic are likely related to growth in the City as well as commuters using East Valley Highway and Valley Avenue to avoid congestion along SR 167.

In the north part of the City, PM peak hour traffic volumes have also increased by approximately 20 to 40 percent during the 2001-2014 time frame along many of the key corridors. For example, traffic volumes along 142nd Avenue E grew by 49 percent due in part to growth in industrial land uses in the area, as well as construction of the SR 167/24th Street E interchange. Along 8th Street E west of East Valley Highway, PM peak hour traffic grew by 47 percent due to the opening of the Lake Tapps Parkway, which was closed in 2001.

There are also portions of the north part of the City with much smaller traffic growth over the past 13 years. These include East Valley Highway south of 8th Street E where PM peak hour volumes have increased by 5 percent and 8th Street E west of Valentine Avenue SE where volumes have increased by 8 percent. The growth patterns indicate that travel in the northeast corner of the City at 8th Street E and East Valley Highway is generally utilizing Lake Tapps Parkway and not accessing East Valley Highway as an alternative commute route.

The PM peak hour traffic volumes in the established residential areas in Sumner west of Valley Avenue and south of Main Street has not increased substantially during the past 13 years. The PM peak traffic on Alder Avenue between Main and Willow Streets has remained

relatively constant during the past 13 years, indicating that increases in traffic on major routes in the southern part of the City is not generated by the residential/Downtown area.

The PM peak hour traffic volumes on collectors and arterials serving the residential areas east of Valley Avenue have decreased during the past 13 years. PM peak hour traffic volumes on Main Street east of Valley Avenue have stayed constant. PM peak hour traffic on Main Street east of Parker Road has decreased by 10 percent or 100 vph. PM peak hour traffic on Meade-McCumber Road has increased by 20 percent or 40 vph during the past 13 years. There has been some development in this area, but in general limited changes have occurred in this area since last Transportation Plan resulting in only small changes in PM peak hour traffic.

East Sumner Neighborhood Plan

During the 13-year period, traffic volumes along Sumner-Tapps Highway north of 64th Street E grew from 1,190 to 1,740 vph. This is almost a 50-percent increase. This increase is likely due the opening of Lake Tapps Parkway since completion of the 2002 Sumner Transportation Plan and development to the north in the vicinity of Sumner-Tapps Highway.

In addition, along 64th Street E west of Sumner-Tapps Highway PM peak hour traffic volumes have decreased by 68 percent while PM peak hour traffic volumes along E Main Street west of Sumner-Tapps Highway have increased by 56 percent. This increase in PM peak hour traffic is likely due to traffic shifting from 64th Street E to E Main Street when traveling to and from Sumner-Tapps Parkway due to the congestion at the Sumner-Tapps Highway/64th Street E intersection and SR 410 interchange. This congestion makes it difficult to turn to and from 64th Street E.

Figure 3-2. 2001 & 2013 Average Daily Traffic on State Routes Comparison

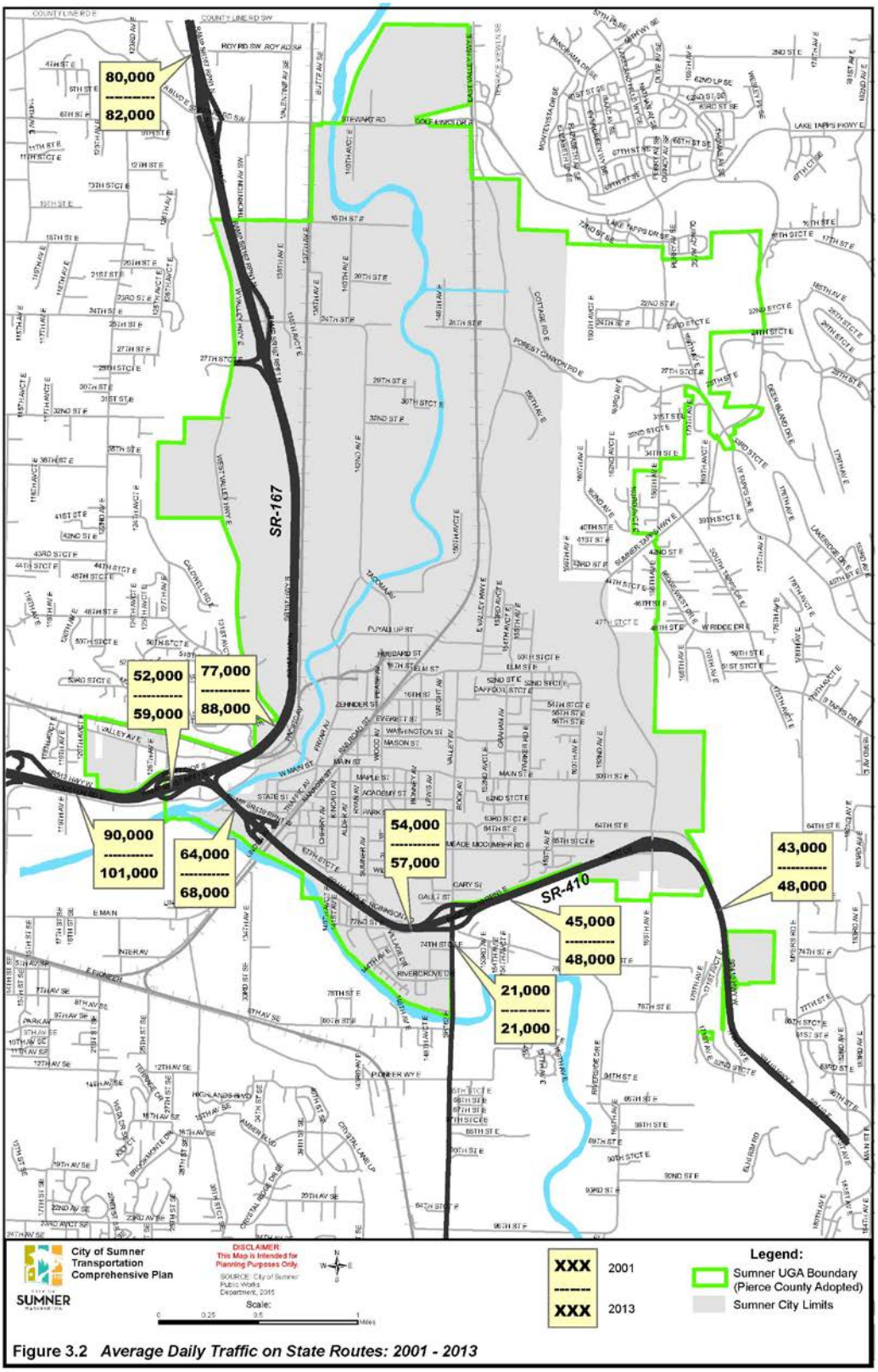


Figure 3.2 *Average Daily Traffic on State Routes: 2001 - 2013*

Figure 3-3a. 2001 & 2014 Traffic Volume Comparison – Weekday PM Peak Hour

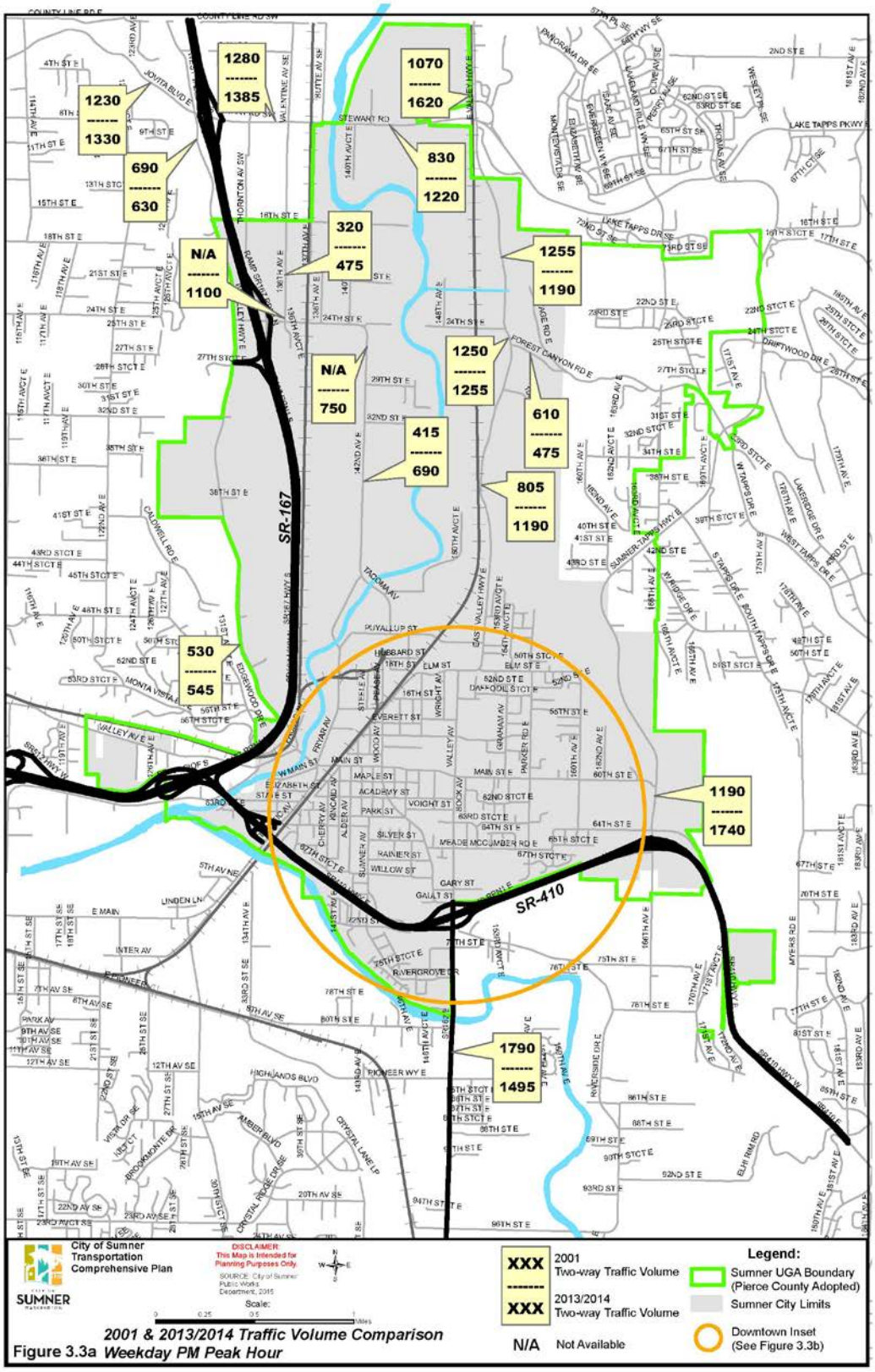
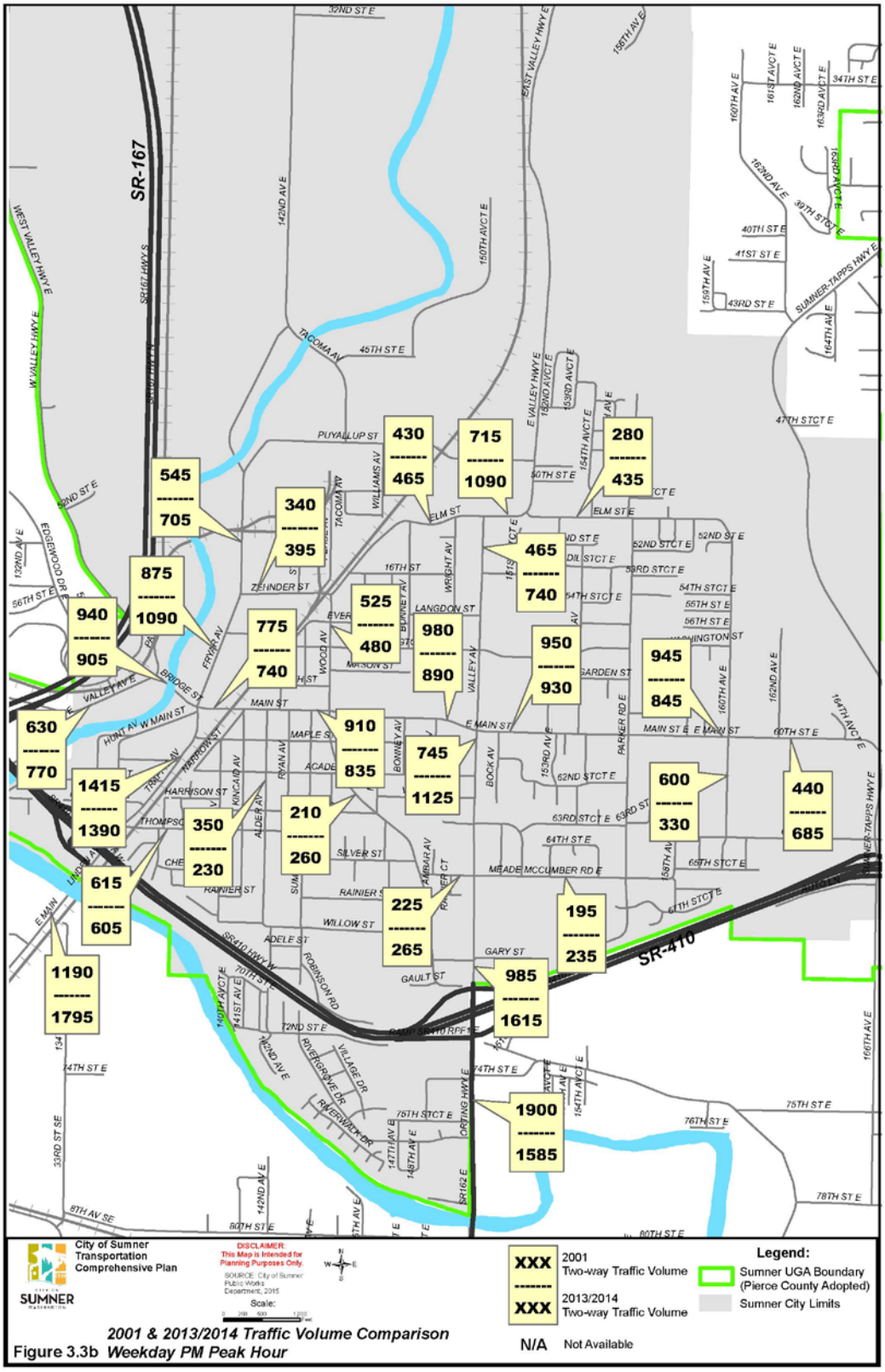


Figure 3-4b. 2001 & 2014 Traffic Volume Comparison – Weekday PM Peak Hour (Downtown Inset)



Truck Traffic

The availability of industrial land and its proximity to the SR 167, SR 410, I-5 freeway corridors has made Sumner an attractive place for trucking-related developments such as warehousing and distribution centers.

The City has adopted a formal truck route plan in an effort to manage truck traffic within its City limits. Existing truck traffic is routed around the perimeter of the residential and commercial sections of Sumner. With the extension of Puyallup Street, trucks routes have been altered since the 2002 Sumner Transportation Plan was prepared; this change removed the truck route designation from Valley Avenue, Elm Street, and Zhender Street. Truck traffic is currently routed along the 24th Street E, 142nd Avenue, Puyallup Street, Traffic Avenue, Fryar Avenue, and East Valley Highway corridors to connect the industrial areas to the freeway system and principal arterials. This change in routing reduces the impact of truck traffic on facilities within the City center. Truck traffic entering and exiting Sumner from the industrial areas to the north is served by the two SR 167 interchanges at 8th Street E and 24th Street E. The SR 167/24th Street E interchange and extension of 24th Street E to W Valley Highway was constructed since the 2002 Sumner Transportation Plan was developed; this has improved traffic circulation within the industrial area of the City.

Average daily truck percentages along Valley Avenue, Elm Street, and Zhender Street are similar to 1999 when these facilities were truck routes. Heavy vehicle traffic along Elm Street and Zehnder Street increased slightly over the past 15 years with Elm Street carrying 8 percent heavy vehicle traffics west of Parker Road and Zehnder Street carrying approximately 10 percent. Along Valley Avenue heavy vehicles represent approximately 7 percent of the average daily traffic.

The average daily truck percentages along Traffic Avenue, as counted in 2014, are 12 percent northbound and 11 percent southbound of the total daily volumes, 2 to 3 percent less than in 1999. Along Fryar Avenue, heavy vehicle volumes account for 15 percent of total daily traffic. Heavy vehicle traffic accounts for 11 percent of the ADT northbound on East Valley Highway and 10 percent southbound south of Salmon Creek. In the northern portions of the City, where the majority of the development is industrial, average daily truck percentages are much higher compared to the southern/City Center area. Along West Valley Highway, north of 24th Street E, heavy vehicles account for 32 percent of the total daily traffic. Average daily truck percentages along 24th Street E are 40 percent eastbound and 36 percent westbound. Heavy vehicle traffic accounts for 36 percent of the northbound ADT along 142nd Avenue E and 32 percent southbound. All of these arterials are currently designated as truck routes.

East Sumner Neighborhood Plan

The City does not have any arterials designated as truck routes in East Sumner and overall heavy vehicles represent only a small portion of the daily traffic. The only facility designed as a truck route in this area is SR 410. Along 64th Street E, heavy vehicle traffic accounts for 7 percent of the total daily volumes. Heavy vehicle traffic accounts for 5 percent of the ADT southbound along 160th Avenue E and 3 percent northbound.

Traffic Operations

Traffic volumes, available capacity, and field reviews were used to provide an overview of traffic operations in and around Sumner as part of the development of the 2015 Transportation Plan. Level of service (LOS) is used as a tool to qualitatively measure the operational conditions of a transportation system. The operations of an intersection and its

individual turning movements can be described alphabetically by a range of levels of service designations from LOS A, indicating free-flowing traffic, to LOS F, indicating extreme congestion and long vehicle delays. At signalized intersections, LOS is measured in terms of average control delay per vehicle and is reported for the intersection as a whole. Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. At unsignalized intersections, LOS is expressed in terms of the weighted average control delay of the overall intersection for all-way stop controlled intersections or by minor street movement for side-street stop controlled intersections. Appendix C includes an in-depth discussion of LOS.

The City of Sumner previously adopted an LOS D standard for peak-hour traffic flow on roadways within its UGA except at the Traffic Avenue/Main Street/Fryar Avenue and Main Street/Alder Avenue intersections where an LOS F standard is adopted. Potential changes and implementation of the standard are discussed in the Goals and Policies Section of this Plan.

WSDOT has adopted a LOS D standard for State highways in urban areas. Since SR 167 is a designated HSS, the State requires local jurisdictions to adopt this LOS standard for HSS facilities in their Comprehensive Plans. For non-HSS facilities, the State requires that an agency coordinate with WSDOT in establishing a LOS standard for those facilities. SR 410 and SR 162 are not HSS-designated facilities. Puget Sound Regional Council (PSRC) has adopted LOS standards for regionally significant state highways or state transportation facilities that are non-HSS such as SR 410 and SR 162. Based on the PSRC tiered LOS system, both SR 410 and SR 162 have an adopted LOS D standards.

Figure 3-4 highlights existing traffic operation deficiencies along the key corridors serving regional and local traffic in the vicinity of Sumner. Figure 3-5 illustrates the existing PM peak hour LOS at a number of intersections within and immediately outside the City of Sumner, including 26 signalized intersections and 20 unsignalized intersections. The turning movement counts were collected at key intersections during 2013 and 2014. Existing traffic operations were analyzed based on the procedures documented in the 2010 *Highway Capacity Manual* (HCM) (Transportation Research Board) using the Synchro software program (version 8).

Figure 3-4 and Figure 3-5 summarizes the LOS and delay at the study area intersections. Six of the study intersections currently operate at LOS E or F during the weekday PM pea hour. All of the intersections operating at LOS E or F are unsignalized. As described previously, there have been roadway improvements and extensions that have changed travel patterns in the City such as the extension of Puyallup Street and new interchange at SR 167 and 24th Street E. These improvements have resulted in increases in traffic volumes at the unsignalized 136th Avenue E/24th Street E and Valley Avenue/Elm Street intersections resulting in LOS F and E operations, respectively during the weekday PM peak hour. In addition, there are some intersections where traffic operations have improved as a result of the transportation improvements and/or a decrease in traffic volumes such as the Valley Avenue/74th Street E intersection, which operates at LOS C during the weekday PM peak hour as compared to LOS E previously without the Shaw Road extension.

The most significant traffic operations deficiencies in the Sumner area are on regional routes or at connections to the regional freeway or arterial system. SR 167, the major north-south freeway in the valley between Puyallup and Renton, is severely congested during peak

commuter periods. The southbound off-ramp at the 8th Street E interchange with SR 167 also has significant delays due to high volumes and stop sign traffic control.

The calculated intersection delays at the signalized ramp intersections of SR 410/Traffic Avenue, SR 410/Valley Avenue (SR 162) and SR 410/Sumner-Tapps Parkway show LOS D or better conditions. However, during peak traffic periods, the three Sumner interchanges with SR 410 also have relatively high delays and impacts associated with traffic queues extending between intersections. These result from closely spaced intersections, inadequate storage for turn movements, and poor signal operations. At times, delays at these intersections can be significantly longer and traffic queues can block adjacent intersections. This can result in lower levels of service than calculated using the HCM, and shown in Table 3-1 and on Figure 3-5.

Travel along 8th Street E has improved within the City since 2001 with widening of this facility; however, the White River Bridge and west of the Sumner UGA continue to be impacted by heavy volumes and rolling traffic queues. Improvements are currently being completed by the City of Pacific on the western portion of the corridor to widen it to 5-lanes. This current project does not include widening of White River Bridge, which is currently being designed as a four-lane crossing and is partially funded. The Bridge would continue to be a bottleneck along 8th Street E until it is widened. Operations along East Valley Highway in the north part of the City have also been improved with the opening of Lake Tapps Parkway and the grade separation of 8th Street E and East Valley Highway.

The Sumner Heights Drive and Bridge Street/Valley Avenue connections between West Valley Highway and Traffic Avenue also have congestion. Delays result from the short distance on the connector between West Valley Highway/Sumner Heights and Valley Avenue. The railroad crossing at this location further adds to potential delays.

Figure 3-4. Existing Traffic Operations Deficiencies – PM Peak Hour

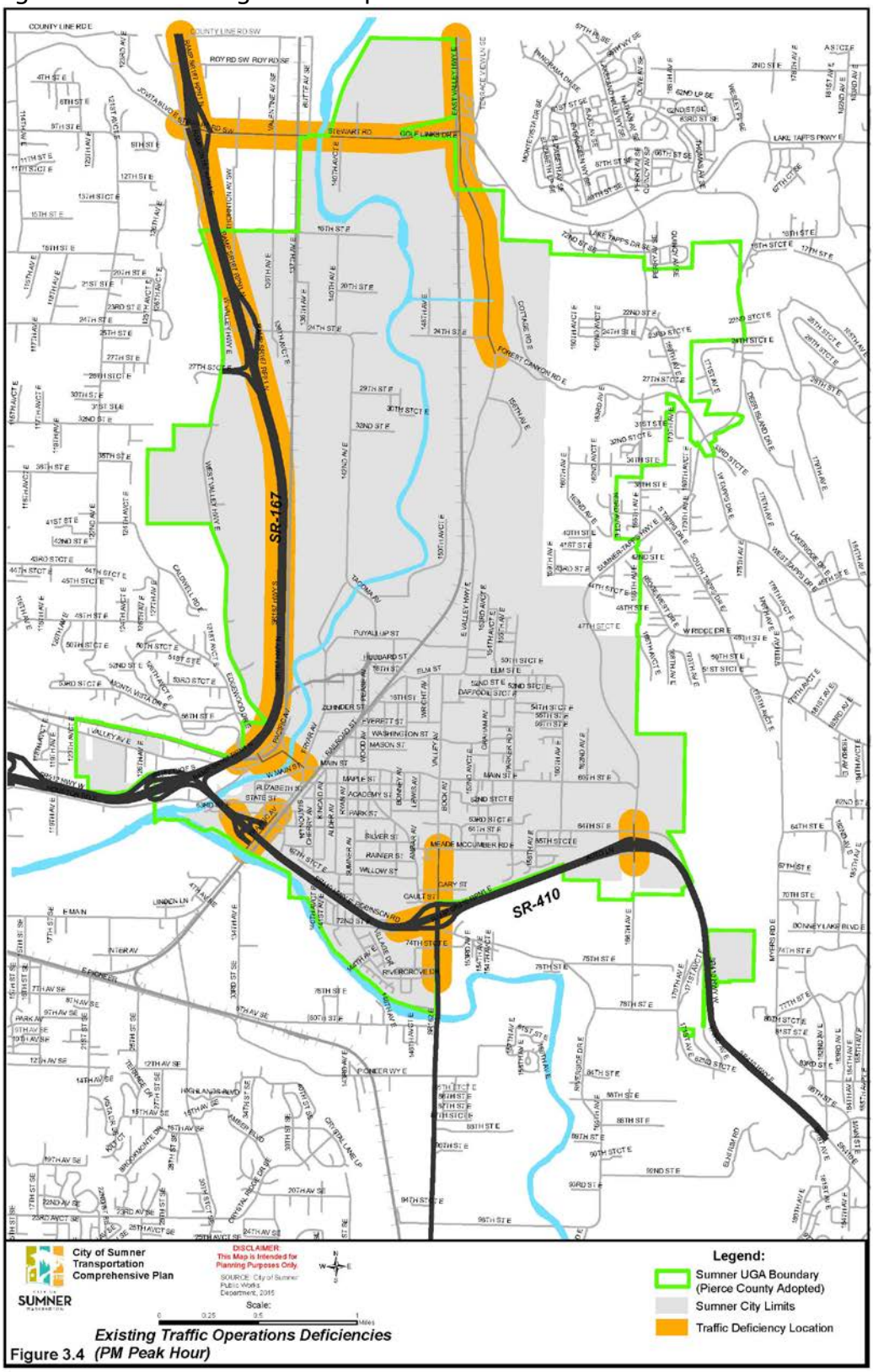


Figure 3-5. 2014 Existing Weekday PM Peak Hour Level of Service

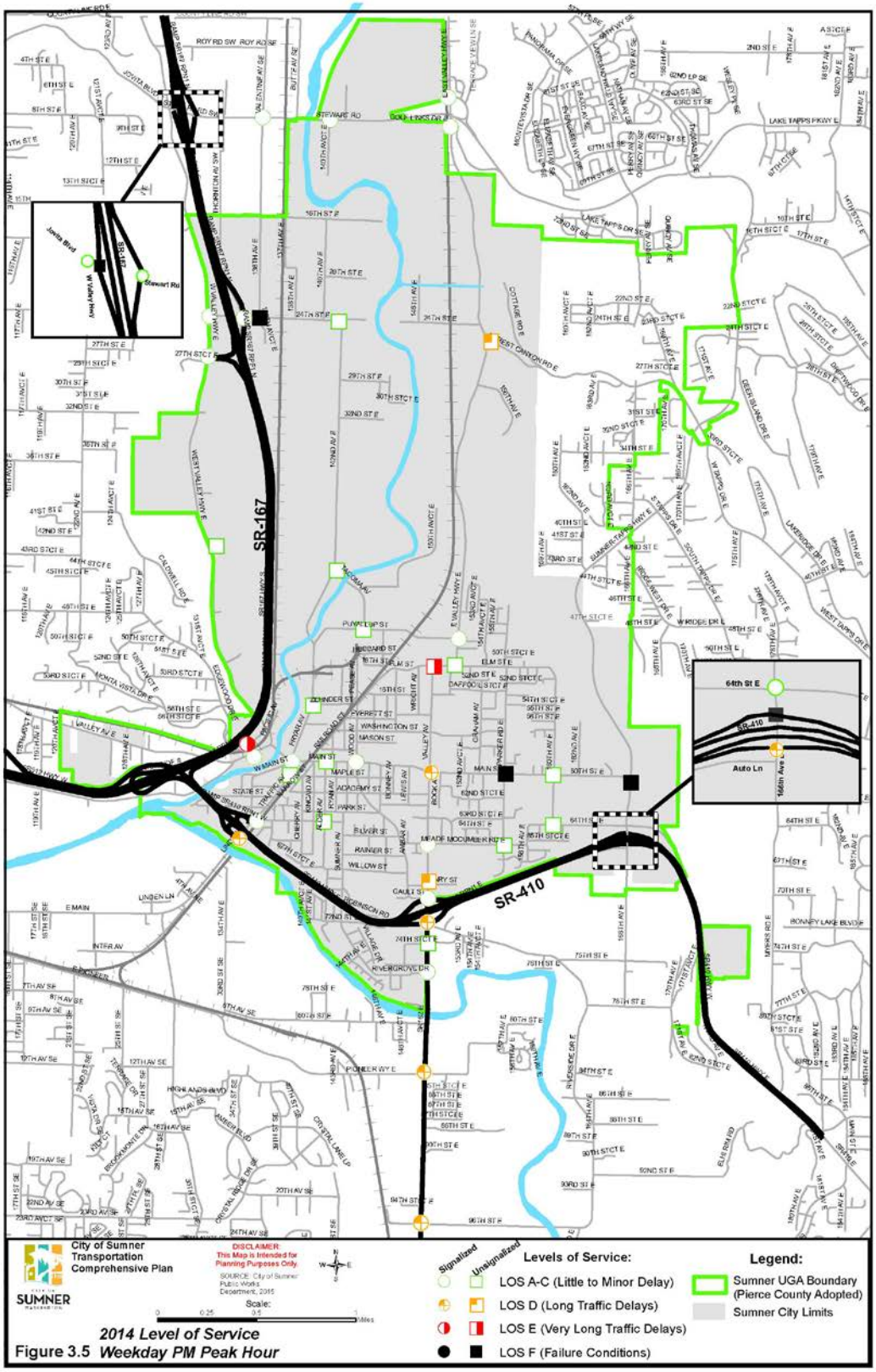


Table 3-1 Level of Service Summary for Existing (2014) Conditions – PM Peak Hour

		2014 Existing		
Intersections	**Traffic Control**	**LOS[1]**	**Delay[2]**	**WM[3]**
1. W Valley Highway E/Jovita Blvd/Stewart Rd SE (8th St E)	Signal	B	19	-
2. SR 167 SB Ramps/Stewart Rd SE (8th St E)	Side-Street Stop	F	> 50	SB
3. SR 167 NB Ramps/Stewart Rd SE (8th St E)	Signal	B	12	-
4. Valentine Ave SE/Stewart Rd SE (8th St E)	Signal	C	24	-
5. 140th Court E/Stewart Rd SE (8th St E)	Signal	A	6	-
6. East Valley Highway/Terrace View Dr SE	Signal	B	12	-
7. East Valley Highway/East Valley Access Rd	Signal	A	10	-
8. East Valley Highway/Forest Canyon Rd	Side-Street Stop	D	29	WB
9. 142nd Ave E/24th St E	Side-Street Stop	B	11	SB
10. 136th Ave E/24th St E	Side-Street Stop	F	>50	SBL
11. SR 167 NB Ramps/24th St E	Signal	A	7	-
12. West Valley Highway/24th St E	Signal	B	11	-
13. West Valley Highway/SR 167 SB Ramps	Signal	B	17	-
14. West Valley Highway E/42nd St E	Side-Street Stop	B	12	-
15. West Valley Highway/Sumner-Heights Dr E[4]	Signal	E	73	-
16. Valley Ave E/Sumner-Heights Dr E[4]	Signal	C	32	-
17. Traffic Ave/Main St (Bridge St)	Signal	C	27	-
18. Traffic Ave/Maple St	Side-Street Stop	B	10	WB
19. Traffic Ave/SR 410 WB Ramps (Thompson St)[5]	Signal	B	14	-
20. Traffic Ave/SR 410 EB Ramps[5]	Signal	D	42	-
21. Thompson St/Alder Ave	Side-Street Stop	B	13	NB
22. Alder Ave/Main St	All-Way Stop	B	12	-
23. Wood Ave/Main St	Signal	B	13	-
24. Valley Ave/Main St	Signal	D	38	-
25. Valley Ave/Meade McCumber Rd E	Signal	C	22	-
26. Valley Ave/Gary St	Side-Street Stop	D	32	WB
27. SR-162/SR 410 WB Ramp[5]	Signal	C	34	-
28. SR-162/SR 410 EB Ramp[5]	Signal	D	46	-
29. SR 162/74th St E	Side-Street Stop	C	19	WB
30. SR 162/Rivergrove Dr	Signal	C	26	-
31. SR 162/Pioneer Way E	Signal	D	39	-
32. SR 162/96th St E	Signal	B	20	-

Intersections	Traffic Control	2014 Existing LOS[1]	Delay[2]	WM[3]
33. Fryar Ave/Zehnder Ave	Side-Street Stop	C	21	WB
34. Tacoma Ave/Puyallup St	All-Way Stop	B	15	-
35. Tacoma Ave/142nd Ave E	Side-Street Stop	B	13	EBL
36. East Valley Highway/Puyallup St	Signal	B	17	-
37. East Valley Highway/Elm St	Side-Street Stop	E	36	WB L
38. Valley Avenue/Elm St	Side-Street Stop	E	36	NBL
39. Parker Rd/Main St	Side-Street Stop	F	>50	SB
40. 160th Ave E (Van Tassel Rd)/Main St (60th St E)	Side-Street Stop	C	22	SB
41. Sumner-Tapps Highway (166th Ave E)/E Main St	Side-Street Stop	F	>50	EB
42. Sumner-Tapps Highway (166th Ave E)/64th St E	Signal	A	9	-
43. Sumner-Tapps Highway (166th Ave E)/SR 410 WB Ramps[5]	Side-Street Stop	F	>50	WB
44. Sumner-Tapps Highway (166th Ave E)/SR 410 EB Ramps[5]	Signal	D	42	-
45. 160th Ave E/64th St	All-Way Stop	B	10	-
46. Parker Rd E/Meade McCumber Rd E	Side-Street Stop	B	10	NB

1. Level of service (LOS), based on 2010 *Highway Capacity Manual* (HCM) methodology.
2. Average delay in seconds per vehicle.
3. Worst movement reported for minor street, stop-controlled unsignalized intersections. SBT/L = southbound through left-turn movement; SBL = southbound left-turn movement; SB = southbound approach; WB = westbound approach; EB = eastbound approach; EBL = eastbound left-turn movement; NB = northbound approach
4. The 2010 HCM methodology does not support analysis of signals operated under one controller; therefore, the HCM 2000 method was used to evaluate this intersection.
5. Delays at this intersections may be than longer than report. Traffic queues are observed to block adjacent intersections.

As shown in the table and discussed previously, all the intersection operating at LOS E or F are unsignalized except the West Valley Highway/Sumner-Heights Drive E intersection. *The Manual on Uniform Traffic Control* (MUTCD) four- and eight-hour traffic signal volume warrants were reviewed to see if any of the unsignalized intersections operate at LOS E or F would be candidates for signal control. The results show that four out of the six intersections would meet one or more of the volume warrant criteria for installation of a signal under existing conditions. The locations meeting the signal warrant criteria include SR 167 SB Ramps/Stewart Road SE, 136th Avenue E/24th Street E, Sumner-Tapps Highway/ E Main Street, and Sumner-Tapps Highway/SR 410 WB Ramp. The Sumner-Tapps Highway intersections with E Main Street and SR 410 have been reviewed as part of the planning for the East Sumner Neighborhood Plan and roundabout or traffic signal control has been recommended. The signalized West Valley Highway/Sumner-Heights Drive E intersection operates at LOS E due to the high volume of left-turns from West Valley Highway to Sumner-Heights Drive E coupled with the limited capacity with only one westbound left-turn lane.

East Sumner Neighborhood Plan

Study intersections numbers 40-46 are within the East Sumner Neighborhood Plan. Two of the study intersections operate at LOS F and the other 4 operate at LOS D or better. Both E Main Street and SR 410 Westbound Ramp with Sumner-Tapps Highway are unsignalized and operate at LOS F due to high north-south PM peak hour volumes making it difficult for

side-street traffic to enter the traffic stream. The calculated intersection delays at the Sumner-Tapps Highway intersections of SR 410 ramps and 64th Street E show LOS D or better conditions. At times, delays at these intersections can be significantly longer and traffic queues can block adjacent intersections. This can result in lower levels of service than calculated using the HCM, and shown on Figure 3-5 and in Table 3-1. A review of the MUTCD four- and eight-hour traffic signal volume warrants show that both Sumner-Tapps Highway/ E Main Street and Sumner-Tapps Highway/SR 410 WB Ramp intersections would meet the criteria for a signal. These intersections have been reviewed as part of the planning for the East Sumner Neighborhood Plan and roundabout or traffic signal control has been recommended.

Traffic Safety

Collision records for the most recent complete three-year period were reviewed for all collisions reported in City of Sumner. Historical safety data was collected from WSDOT for the period of January 1, 2011 to December 31, 2013. A review of historical collisions was completed to identify potential safety issues for vehicles, pedestrians, and cyclists. There were four fatalities over the past three-years within Sumner not at intersections. Three of the fatalities were due to driving under the influence of alcohol and occurred on Sumner-Tapps Highway, Valley Avenue E, and SR 167. The fourth fatality was pedestrian-vehicle related where a pedestrian crossed E Valley Highway at night and was not in a marked crossing or at an intersection. In addition to this fatality, there were 7 other pedestrian-bicycle related collisions reported within the 3 year period evaluated. The location of the collisions included the Traffic Avenue/Maple Street, Traffic Avenue/SR 410 Eastbound Ramps, Valley Avenue/SR 410 Eastbound Ramps, Valley Avenue/Elm Street, and Parker Road/Main Street intersections as well as along East Valley Highway at Forest Canyon Road E and Main Street at Wood Avenue.

Further review in the study area was completed by compiling crash rates by study intersection to identify potentially problematic locations. An analysis of crash rates for the study intersections was completed to identify the average crash frequency based on the number of vehicles traveling through the study intersections. The typical measure for determining crash rates at intersections is the number of crashes per million entering vehicles (MEV).

Critical Crash Rate

The observed crash rate at intersections was compared to a critical crash rate calculated for each intersection to compare among study intersections that have similar characteristics. For the study intersections in the City, the intersections were grouped into three categories: traffic signals; side-street stop-control; and all-way stop-control intersections. This is consistent with guidance provided in Chapter 4 of the *Highway Safety Manual* (AASHTO, 2010). Table 3-2 summarizes the factors and calculations to determine the critical crash rate for the study intersections.

Table 3-2 Intersections with Crash Rates Exceeding the Critical Crash Rate

Intersection	Peak Hour TEV[1]	Intersection Control	Observed Crash Rate[2]	Weighted Average Crash Rate[3]	Critical Crash Rate[4]	Observed Greater than Critical?
1. W Valley Highway E/Jovita Blvd/Stewart Rd SE (8th St E)	1,885	Signal	0.87	0.40	0.68	Yes
31. SR-162/Pioneer Way E	1,825	Signal	0.90	0.40	0.69	Yes
2. SR-167 SB Ramps/Stewart Rd SE (8th St E)	1,600	Side-Street Stop	1.30	0.34	0.62	Yes
10. 136th Ave E/24th St E	1,280	Side-Street Stop	1.03	0.34	0.66	Yes

1. Total Entering Vehicles. Total Entering Vehicles.
2. Crashes per Million Entering Vehicles (MEV).
3. Calculated according to Equation 4-10 in the *Highway Safety Manual*, 2010.
4. Calculated according to Equation 4-11 in the *Highway Safety Manual*, 2010.

As shown in the table, 4 of the 46 study intersections had an observed crash rate higher than the intersection's critical crash rate. No all-way stop-control intersections had observed crash rates higher than critical crash rates.

Collision Summary

The intersections identified in Table 3-2 have observed crash rates higher than the critical crash rate and consistent with guidance provided in the *Highway Safety Manual*, these locations are flagged for further review. The type and severity of reported collisions provides insight into the circumstances that resulted in higher crash rates at these intersections. Table 3-3 summarizes the type and severity of reported collisions reported during the study period at the intersections identified for further review based on the critical crash rate analysis.

Table 3-3 2011-2013 Collision Types for Intersections Exceeding Critical Crash Rate

Intersection	Type of Collision							Severity		
	Rear-End	Turning	Fixed Object	Angle	Side-swipe	Ped/Bike	Other	PDO[1]	Injury	Fatality
1. W Valley Highway E/Jovita Blvd/Stewart Rd SE (8th St E)	3	9	0	1	2	0	0	11	4	0
31. SR-162/Pioneer Way E	11	3	1	0	0	0	0	12	3	0
2. SR-167 SB Ramps/Stewart Rd SE (8th St E)	3	2	1	12	0	0	1	15	4	0
10. 136th Ave E/24th St E	1	3	1	7	0	0	0	11	1	0

1. Property Damage Only

As shown in Table 3-3, the most frequent type of collision at the W Valley Highway/Jovita Boulevard/Steward Road SE intersection was turning. This signalized intersection has permitted left-turn phasing and as volumes increase consideration of protected left-turn phasing could be considered to minimize turning collisions. At the unsignalized SR 167 SB Ramps/Steward Road SE and 136th Avenue E/24th Street E intersections, the most common collision type was angled. This type of collision is common at side-street stop controlled intersections where it is difficult for side street traffic to enter the traffic stream due to high traffic volumes or speeds on the major street. Both of these intersections operate at LOS F and would meet the MUTCD criteria for the four- and eight-hour signal warrants. Provision of traffic signals would reduce the occurrence of angle collisions. Rear-end collisions were the most frequent type at the SR 162/Pioneer Way E intersection. This type of collision is common at signalized intersections, where there is stop-and-go traffic and when drivers may rapidly alter vehicle speeds while approaching the intersection in response to signal timing changes or turning vehicles.

DISCLAIMER: Under Section 409 of Title 23 of the United States Code, crash data is prohibited from use in any litigation against the state, tribal or local government that involves the location(s) mentioned in the crash data.

Transit Service and Rail Service

Transit Service

Sound Transit provides bus service in the City of Sumner (Figure 3-6). The majority of the routes provide transit service to the Sumner Sounder Train Station facility located on the west side of Traffic Avenue at Maple Street. Based on Sumner 2014 conditions, transit routes that serve the Sumner Train Station include Routes 577/578 and 596. In addition, Pierce County provides Beyond the Borders Connector bus service for eligible residents to public transportation, medical services, employment, shopping, and social activities. Sumner area transit route descriptions and service characteristics are shown on Figure 3-6.

Route 577/578 provides service between Seattle to Puyallup. This is intended to be a train shadow and currently runs with stops in Puyallup, Sumner, Federal Way, and has three stops in Seattle. The route operates on 30 minute headways on weekdays and hour headways on weekends.

Route 596 provides shuttle service between Bonney Lake Park and Ride to Sumner Sounder Station. The route operates on 20-30 minute headways on weekdays and no weekend

service. This route is scheduled in coordination with the train schedule to shuttle commuters to and from the Bonney Lake Park and Ride.

Beyond the Borders Connector

Pierce County provides a local bus service called Beyond the Borders, which helps eligible residents access public transportation, medical services, employment, shopping, and social activities. There is no cost to riders. Use of the service is unlimited and riders can get on and off at all stops throughout the community and ride multiple times each day.

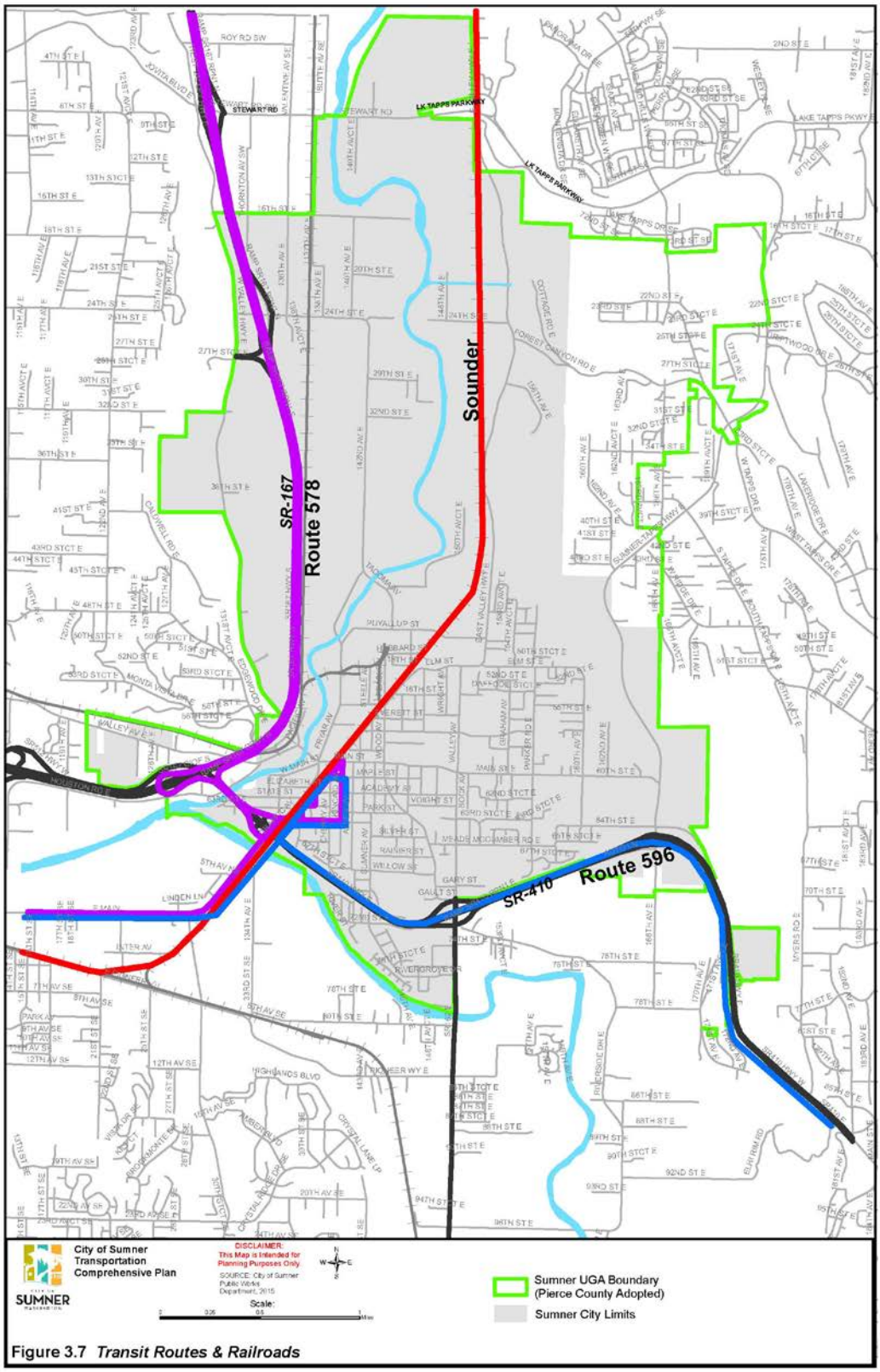
Commuter Rail Service

Sound Transit's Sounder line offers commuter rail service between Lakewood and downtown Seattle with stops in Tacoma, Puyallup, Sumner, Auburn, Kent, and Tukwila. Sound Transit's Sounder service shares the Burlington Northern Santa Fe (BNSF) tracks. The Sumner Station is located south of Maple Street between Narrow and Traffic Streets in downtown Sumner. The station opened in September 2000 and was part of the first phase of Sound Transit's program to provide commuter rail service between Everett and Lakewood. There are currently eight morning and two afternoon trains serving the Sumner Station during the commute hours. Ten morning and ten afternoon trains are planned within the next three years. According to Sound Transit, 352 total parking spaces are available near the Sumner commuter rail station with an additional 529 parking spaces proposed as part of Sound Transit's Sumner Access Improvement Project.

Weekly ridership on the Sounder commuter trains has increased steadily since its start-up in September 2000. Ridership has more than doubled from 5,900 passengers in September 2000 to almost 13,000 passengers in 2014.

A new road called Station Lane has recently been built to link Thompson and Harrison Streets on the west end of the fire station. This new road provides a direct route to and from SR 410 for commuter traffic accessing the rail station. Traffic Avenue has recently been reconstructed to improve traffic circulation in the station area. Traffic Avenue was widened to four lanes with a landscaped median and dedicated left turn lanes. A drop-off lane provides access to the train station off Traffic Avenue. The City is also working on a plan for the neighborhood surrounding the station. The plan will address the future of the neighborhood in its relationship to the train station. Issues to be addressed by the plan include opportunities for transit-oriented development, and parking demand with increased commuter rail service.

Figure 3-6. Transit Routes and Railroads



Freight Train Traffic

The BNSF railroad lines run north-south through the City of Sumner. The Union Pacific (UPRR) line is located on the west side of the White (Stuck) River, paralleling SR 167. The BNSF rail line is located on the east side of the White (Stuck) River and runs through downtown Sumner paralleling Traffic Avenue. Sound Transit's Sounder Service uses BNSF tracks. There are currently 41 trains that run through Sumner on the BNSF tracks and 10 trains on the UPRR line. The projected rail system use by 2035 is 62 on the BNSF tracks and 27 on the UPRR tracks.

The City of Sumner has been a participant in the Freight Action Strategy for Seattle-Tacoma-Everett (FAST) corridor planning effort. WSDOT has been working with the PSRC and local jurisdictions to develop projects to help improve the movement of freight and goods in the region. The FAST project is focused on north-south travel between Everett and Tacoma and east-west movement between the ports and the warehousing and industrial areas they serve, as well as interregional freight movements. The FAST effort includes segments of I-5 and SR 167 in the Puget Sound region, and the rail corridor within its scope with a focus on grade separation projects.

The FAST program identified a series of 15 projects between Everett and Tacoma that would separate rail lines from highways and/or improve access to and from major shipping ports. There is one remaining project of three that were identified for the Sumner Area. This project is a grade separation on 24th Street E and the UPRR rail line. The grade separation project on 24th Street E has scored well enough to be considered for future partnership support with the proper funding source. No specific construction date has been set for this project.

WSDOT and PSRC will jointly sponsor the second phase of FAST called FASTrucks, which will look at ways to improve truck mobility on regional roadways through strategies to improve infrastructure roadway operations, and institutional improvements.

Pedestrian and Bicycle Facilities

The City's existing transportation system was historically designed and constructed for vehicular traffic. Sidewalks exist along some of the study area arterials. Where sidewalks are not available, pedestrians must use the roadway shoulders. The majority of the roadways that have sidewalks are located within Sumner's central business district and nearby neighborhoods.

Arterial and collector roadways that currently have sidewalks include:

- Main Street (Traffic Avenue to 158th Avenue Court East)
- Valley Avenue (SR 410 to Elm Street)
- Fryar Avenue (Puyallup Street to Main Street)
- Traffic Avenue (Main Street to Thompson Street)
- Thompson Street (Traffic Avenue to Alder Avenue)
- Alder Avenue (Main Street to Thompson Street)
- 142nd Avenue E (24th Street E to Tacoma Avenue)
- Wood Avenue (Southern terminus to Zehnder Street)
- Meade McCumber (158th Avenue East to Wood Avenue)

- Rivergrove Drive (SR-162 to 72nd Street East)
- Puyallup Street (Fryar Avenue to East Valley Highway East)
- East Valley Highway East (Elm Street East to Salmon Creek)
- Elm Street (Wright Avenue to 154th Avenue Court East)
- Parker Road East (Daffodil Street Court East to 59th Street Court East; and Main Street to Meade McCumber Road East)
- Washington Street (Parker Road East to Wood Avenue)
- West Valley Highway East (SR-167 overpass to 38th Street East; and 3300 block to 2800 block)
- 24th Street East (136th Avenue East to White River/Sumner Link Trail)
- 136th Avenue East (2500 Block to city limits)
- 8th Street East (White River/8th Street Bridge to city limits)
- 64th Street East (158th Avenue East to 16200 block)

Many arterials provide paved or gravel shoulders for pedestrians; however, several major roadways have limited or nonexistent pedestrian facilities of any sort. These roadways include portions of West Valley Highway, East Valley Highway, Forest Canyon Road, 160th Avenue E, Elm Street, 64th Street E, and Sumner-Tapps Highway. 160th Avenue E, Elm Street and 64th Street E are identified on the TIP for sidewalk improvements. Pedestrians on most roads will have a paved sidewalk or shoulder to use. The City of Sumner requires that for all new development, including remodels on single-family homes, street improvements which will include at minimum a 5-foot sidewalk.

There are limited formal bicycle facilities in Sumner. For the most part, bicyclists share the road with motorized traffic or use paved roadway shoulders, where available. Formal bike lanes are present on both sides of Valley Avenue and both sides of Fryar Avenue from Main Street to the Fryar Avenue Bridge.

4. Travel Forecasts and Alternatives Evaluation

The Transportation Plan must address future transportation issues as well as existing deficiencies. The GMA requires that the planning horizon year be at least ten years in the future. This provides for a longer-range planning program than an agency's annual six-year TIP. The Transportation Plan is based on a 2035 planning horizon.

Primary analyses of the 2035 traffic forecasts were initially based on the following travel forecasting assumptions:

1. Committed Improvement projects in the City of Sumner's current Transportation Improvement Program (TIP);
2. Improvement projects in available transportation plans from adjacent jurisdictions;
3. Puget Sound Regional Council's (PSRC) Transportation 2040 Update Regional Capacity Projects List (as of May 7, 2014) and PSRC's 2035 travel demand model network coding;
4. WSDOT's improvement project descriptions from the WSDOT web site;
5. City of Sumner's forecast land use data (for three alternatives);
6. PSRC 2035 Land Use Targets forecasts and regional trip end data from the 2035 regional travel demand model.

Based on these assumptions, travel forecasts were developed for the Sumner area through an update of the prior City of Sumner travel demand model. The 2015 Sumner travel demand model included revising the prior 2030 transportation network assumptions to reflect current regional assumptions based on the Vision 2040 regional plan. Land use forecasts were also adjusted to a 2035 horizon year.

Transportation Network Assumptions

Table 4-1 describes the future baseline roadway system improvement projects that were assumed to be completed as part of the 2035 transportation system. The improvement projects were input into the model for each of the land use alternatives.

Alternative roadway projects were then evaluated in order to understand the effect they would have on travel patterns within the citywide study area and in the East Sumner Planning Area. One major citywide alternative included extending 24th Street E from approximately 148th Avenue E to East Valley Highway. The extension would be a second phase of the 24th Street E corridor project identified in the 2002 Sumner Transportation Plan. The City has already initiated design of the phase 1 improvement between 142nd Avenue E to 148th avenue E which includes a bridge over the White (Stuck) River. The phase 1 project will provide access to/from the Sumner Golf Course site, which has been recently designated to be redeveloped as industrial land uses. The phase 2 extension would take 24th Street E over the existing rail line and provide a five lane arterial between West Valley Highway and East Valley Highway serving the City of Sumner's industrial area. The extension of 24th Street E to East valley Highway was evaluated for all three land use alternatives.

The second transportation alternative that was evaluated is in the East Sumner Planning Area and is only included with Alternative 3 (Assertive Action). It includes construction of a

new two to three lane arterial between 160th Avenue E and Sumner-Tapps Highway. With construction of the new 62nd Street E roadway, Main Street E (60th Street E) would be closed just west of Sumner-Tapps Highway. The existing intersection of Main Street E (60th Street E) at Sumner-Tapps Highway has a relatively poor alignment and limited sight distances. Left-turns from eastbound Main Street E (60th Street E) to northbound Sumner-Tapps Highway are not allowed and are physically restricted with curbing within Sumner-Tapps Highway.

Figure 4-1 illustrates the locations of these two alternatives. Additional improvements at intersections were evaluated as part of the traffic operations analyses to develop the transportation improvement program. These changes would not greatly affect the overall travel patterns in the City or region.

Table 4-1 2035 Baseline Model
Assumed Transportation Capacity Improvements

Roadway	Project Limits	Project Description
SR 167 Extension	I-5 to SR 161	Phase 1 improvement including 1 lane in each direction between the existing SR 167 freeway terminus at the Meridian interchange in Puyallup to I-5. There will be two lanes in each direction from the I-5/SR 167 Extension to SR167/54th Avenue.(WSDOT)
SR 167	SR 410 to 15th Street SW/NW	Extend HOV/HOT lanes from current termini to SR 410 in Sumner. (WSDOT)
Canyon Road Widening	Pioneer Way E to 99th Street Court E	Widen existing arterial in phases (Pierce County)
Canyon Road Extension	Pioneer Way E to SR 167 Extension/ Puyallup River	Construct new major arterial between existing Canyon Road to interchange with new SR 167 Extension crossing over 2 railroad lines and the Puyallup River (Pierce County)
SR 161	24th Street E to 36th Street E	Widen roadway to five lanes. (City of Edgewood)
I-5	Various	Add HOV/HOT lanes (WSDOT)
SR 512	I-5 to Meridian Street	Convert shoulders to serve as additional lane during peak periods in peak direction of travel. (WSDOT)
Rhodes Lake Road Extension	198th Avenue E to SR 162	Construct new arterial (Pierce County)
198th Avenue E	S Prairie Road to Tehaleh Master Planned Development	Complete Tehaleh Phase 1 improvements including construction of "missing link" north of Rhodes Lake Road and widening south of Rhodes Lake Road. (Pierce County/private)
SR162	SR 410 to 96th Street E	Widen southbound direction from one lane to two lanes. Note: PSRC project calls for widening in both directions; however, prior discussions with WSDOT indicated only southbound would be initially widened. (WSDOT)
136th Avenue E	24th Street E to 16th Street E	Improve to minor arterial standards with three lanes. (City of Sumner)
Bridge Street Bridge Replacement	Bridge Street at White River	Replace existing steel truss bridge. (City of Sumner)
Stewart Road (8th Street East)	East Valley Highway to West Valley Highway	Widen to five lanes including bridge over White (Stuck) River. (City of Pacific, City of Sumner, Pierce County)

Land Use Data

As part of the 2015 Comprehensive Plan, the City's project team developed 2035 forecasts of land use growth throughout the City and its Urban Growth Area (UGA). The 2035 land use data built upon other recent studies by the City, including the designation of the Sumner Meadows golf course and surrounding areas for industrial and commercial development. Three land use alternatives were prepared to evaluate different levels and types of growth in

the City. The alternatives included changes being considered as part of the East Sumner Neighborhood Plan, as well as changes in the level of development of residential and employment in various other areas of the City and its UGA.

Table 4-2 summarizes 2035 land use data by district within the City and districts immediately adjacent to the City. Figure 4-2 illustrates the boundaries of these districts. The land use data are based on the model transportation analyses zones (TAZs) and do not specifically match the planned East Sumner Neighborhood Plan or other subareas of the City or its UGA.

Figure 4-1. Alternatives Evaluation – Roadway Network

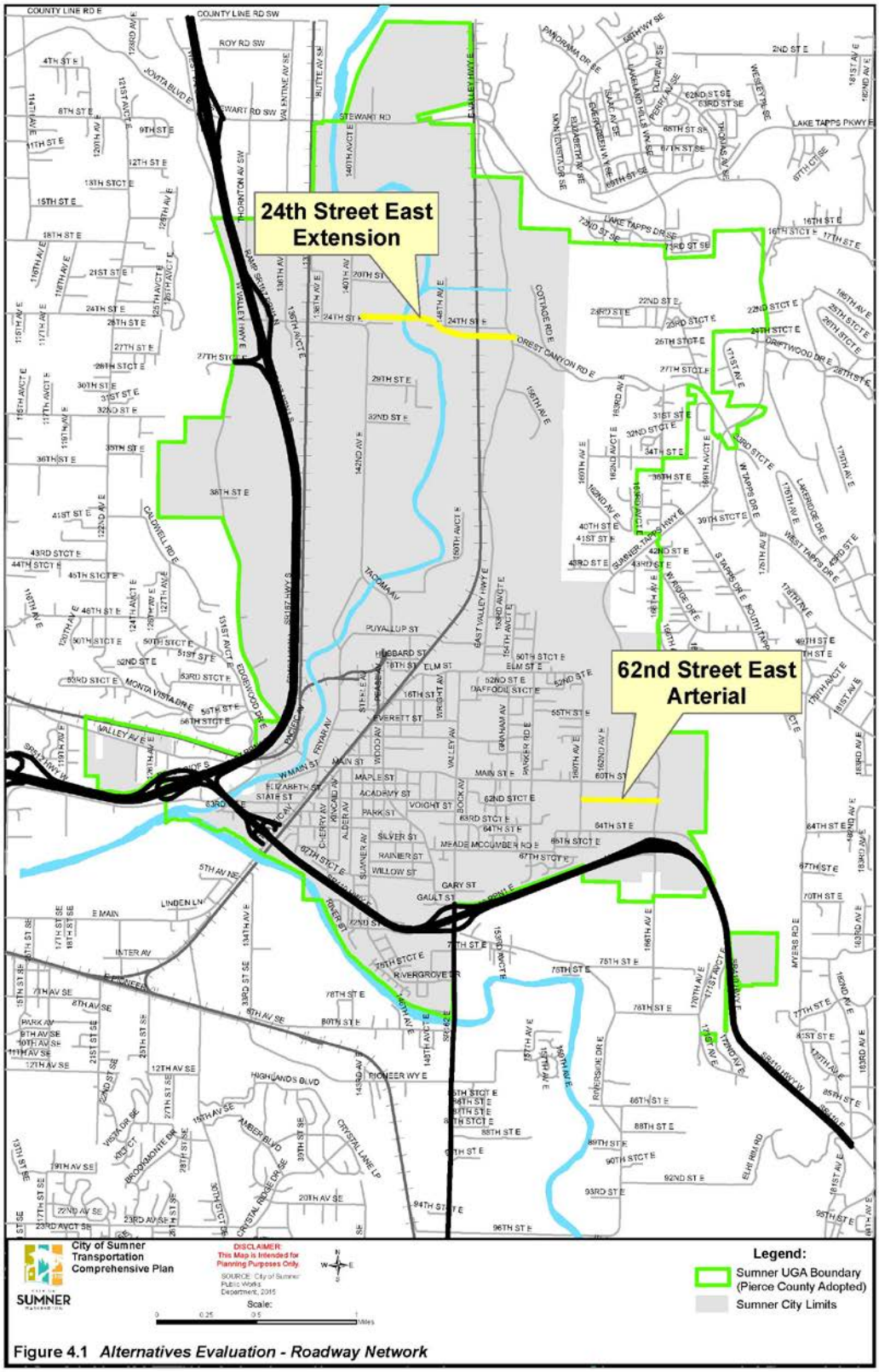


Figure 4-2. Travel Forecasting Subareas

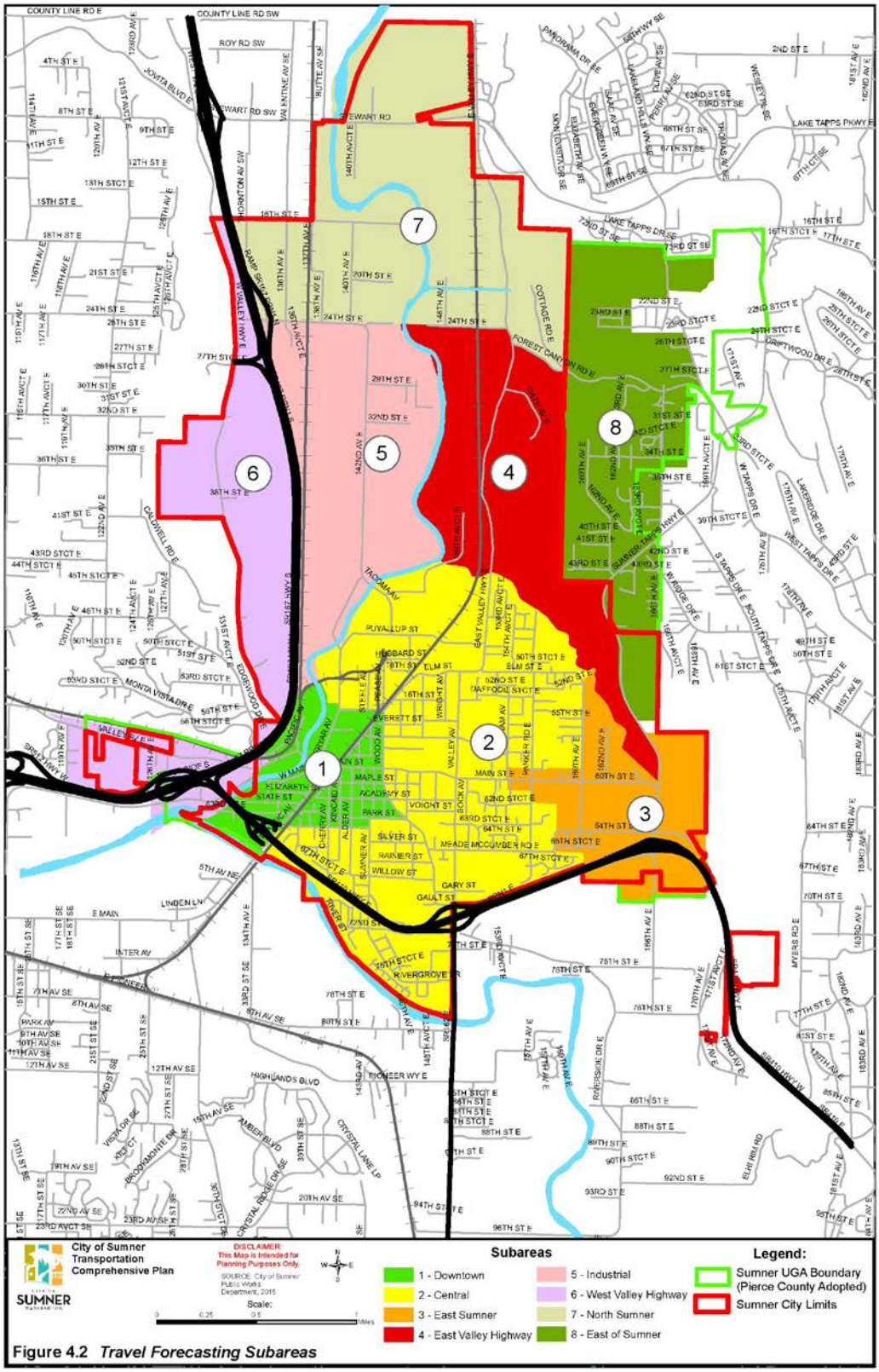


Figure 4.2 *Travel Forecasting Subareas*

Table 4-2 2035 Land Use Summary

Households (Dwelling Units)				
		Households		
Map ID #[1]	Subarea	No Action Alt 1	Minimal Rezone Alt 2	Assertive Action Alt 3
1	Downtown	813	870	927
2	Central	4,247	4,247	4,247
3	East Sumner	1,002	1,111	1,256
4	East Valley Hwy	126	126	126
5	Industrial Area	112	112	112
6	West Valley Hwy	447	447	447
7	North Sumner/ Sumner Meadows Golf Course	333	333	159
8	East of Sumner	1,369	1,369	1,369
Sumner Study Area Total[2]		**8,449**	**8,615**	**8,643**
Employment				
		Employees		
Map ID #[1]	Subarea	No Action Alt 1	Minimal Rezone Alt 2	Assertive Action Alt 3
1	Downtown	1,767	1,870	1,870
2	Central	3,253	3,422	3,422
3	East Sumner	1,102	1,314	1,453
4	East Valley Hwy	747	951	951
5	Industrial Area	3,393	4,111	4,111
6	West Valley Hwy	3,025	3,597	3,597
7	North Sumner/ Sumner Meadows Golf Course	8,825	10,267	10,430
8	East of Sumner	37	37	37
Sumner Study Area Total[2]		**22,149**	**25,569**	**25,871**

See Figure 4-2. The land use data are based on the model transportation analyses zones (TAZs) and do not specifically match the planned East Sumner Neighborhood Plan or other subareas of the City or its UGA
City total plus the surrounding area total (total of Districts 1 through 8).

Housing

As previously noted, the districts summarized in Table 4-2 do not directly correspond to the City limits and UGA boundaries, but do provide a general level of development in and around the City of Sumner expected by 2035. By 2035, the City anticipates that there will be 8,400 to over 8,600 dwelling units within the City and surrounding study area. The majority of the residential land uses will continue to be in the Central Sumner subarea (District 2), with over 4,200 dwelling units. This represents approximately one-half of the long-range dwelling units in the City and UGA. The hillside area east of Sumner (District 8) will have

nearly 1,400 dwelling units by 2035, which represents approximately 15 percent of the total units. The land use alternatives did not affect these two districts.

East Sumner is projected to have between 1,000 and 1,250 residential units depending on the land use alternative (District 3). The No Action (Alternative 1) has the lowest forecast housing units and the Assertive Action (Alternative 3) has the highest with 25 percent more units in East Sumner compared to the No Action Alternative.

The number of housing units in the Sumner downtown area increase by approximately 12 percent with the Assertive Action (Alternative 3) compared to No Action (Alternative 1). The relative changes are, however, relatively minor in terms of projected traffic generation.

The other districts have much lower levels of housing forecast. Furthermore, there are no differences forecast in 2035 housing units in Districts 4, 5, or 6. Under the Assertive Action (Alternative 3), the level of residential growth in North Sumner (District 7) is estimated to be approximately one-half of the level of housing under the No Action (Alternative 1) and Minimal Rezone (Alternative 2).

Employment

Forecast employment in Sumner and adjacent areas is expected to be in the range of 22,000 to 26,000 by 2035. The highest level of employment will be in the North Sumner/ Sumner Meadows Golf Course area (District 7) with 8,800 to 10,400 employees by 2035. Much of this area was designated by the City for light industrial, manufacturing, and commercial land uses in 2014. The Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) scenarios would have 15 to 20 percent more employees in the district compared to the No Action (Alternative 1).

Districts 2, 5, and 6 (Central, Industrial Area and West Valley Highway, respectively) are also planned to accommodate relatively high levels of employment by 2035. Each of these districts is forecast to have approximately 3,000 to 4,100 employees by 2035. All three of these districts are forecast to have greater levels of employment under the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) scenarios compared to the No Action (Alternative 1).

Employment in the East Sumner Planning Area also is expected to be higher under the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) scenarios compared to the No Action (Alternative 1). The highest number of employees in the subarea would occur under the Assertive Action (Alternative 3) which would include City investments in transportation (such as the new 62nd Street E) and other infrastructure to support increased development. Retail and other commercial development would be the predominate types of employment in the East Sumner Neighborhood Plan subarea (District 3).

Employment in the City of Sumner Downtown (District 1) and East Valley Highway (District 4) would be lower than the above subareas. Employment in these two districts would be similar under all three alternatives, with slightly higher levels under the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) scenarios. The downtown area would have retail and commercial employment while the East Valley Highway corridor would be predominately light industrial or manufacturing type of employment.

District 8, the east hillside above East Valley Highway, is not expected to have any significant levels of employment under any of the three land use alternatives.

Alternatives Evaluation

Six transportation/land use alternatives were evaluated as part of developing the 2015 Sumner Transportation Plan. Each of the three land alternatives was modeled without and with the extension of 24th Street E to East Valley Highway. In addition, construction of a new 62nd Street E arterial between Sumner-Tapps Highway and 160th Avenue E in the East Sumner Neighborhood Plan area was included in the development and evaluation for 2035 traffic forecasts for the Assertive Action (Alternative 3).

The resulting PM peak hour traffic forecasts for the six 2035 alternative forecasts are shown on Figure 4-3a and 4-3b. The following describes key findings of the alternatives evaluation.

2035 Forecast Traffic Impacts of Land Use Alternatives

Trip generation was developed through the modeling process, which converts estimates of housing and employment (by category) into daily person trips by trip purpose for each TAZ. The daily person trips are then converted into weekday PM peak hour vehicle trips based on factors from the PSRC regional travel demand model.

Traffic volumes increase over time under all alternatives. The higher levels of development under the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) alternatives results in somewhat higher weekday PM peak hour traffic generation compared to the No Action (Alternative 1) scenario. For the City and adjacent areas covered by the districts shown on Figure 4-2, the three land use alternatives are forecast to generate the following number of vehicle trips during the PM peak hour:

- No Action (Alternative 1) – 18,300 PM peak hour vehicle trips
- Minimal Rezone (Alternative 2) – 21,750 PM peak hour vehicle trips
- Assertive Action (Alternative 3) – 21,950 PM peak hour vehicle trips

The additional housing and employment under the Minimal Rezone (Alternative 2) and the Assertive Action (Alternative 3) result in approximately 20 percent more PM peak hour trips generated in the eight districts shown in Figure 4-2. The higher trip generation is primarily due to additional growth in the North Sumner (District 7) and East Sumner (District 3) areas. The Assertive Action (Alternative 3) results in slightly more trips generated than the Minimal Rezone (Alternative 2).

Smaller changes in PM peak hour traffic volumes are shown in south part of the City (see Figure 4-3b). The largest differences in PM peak hour traffic volumes in the downtown and East Sumner Neighborhood Plan Area between the three alternatives are shown along Valley Avenue between Elm Street and SR 410 and on Fryar Avenue north of Main Street. These reflect the connection of traffic generated in the north part of the City connecting within the core residential and downtown areas and to SR 410.

The three land use alternatives have relatively limited impacts on the adjacent state highways serving Sumner. As shown on Figure 4-3a, the forecast 2035 PM peak hour volumes on SR 167 south of 8th Street E would be expected to increase by fewer than 200 vehicles per hour (vph) under the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) compared to the No Action (Alternative 1) scenario. This represents about a 2 percent increase. The forecast 2035 PM peak hour traffic volume differences on SR 410 in the Sumner area are even less, with a difference of 60 vph or fewer. Similarly, the traffic forecasts on SR 162 south of SR 410 are relatively unchanged between the three land use

alternatives. In part, the relatively limited impact on traffic volumes on the state highways of the alternatives reflects the location of the changes in development in the north and east parts of the City. In addition, the limited changes in total housing units and employment levels within Sumner under the different land use alternatives are relatively minor compared to the overall 2035 land use forecasted for the north and central parts of Pierce County (including Edgewood, Puyallup, Bonney Lake, Orting and unincorporated areas of Pierce County).

24th Street Extension to East Valley Highway

The City is proceeding with the extension of 24th Street E across the White (Stuck) River to approximately 148th Avenue E to serve the rezoned former Sumner Meadows Golf Course site. The 2015 Sumner Transportation Plan assumed that that section between 142nd and 148th Avenues E would be constructed and therefore, was part of the baseline 2035 network. The 24th Street extension from 148th Avenue E to East Valley Highway was tested in the travel demand model for all three land use alternatives.

As shown on Figures 4-3a and 4-3b, the changes in forecast traffic volumes with the extension of 24th Street E to East Valley Highway are consistent with those described without the extension. For example, traffic forecasts on 8th Street E and 24th Street E are higher under the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) compared to the No Action (Alternative 1) scenario. A key difference with the 24th Street E extension is the reduction of traffic on 8th Street E and the increase in traffic on 24th Street E. Forecast volumes on 8th Street E are projected to decrease by 400-500 vph with a future 24th Street E connection to East Valley Highway. The majority of that traffic directly shows up on 24th Street E.

Forecast volumes on 24th Street E between West Valley highway and 142nd Avenue E would be accommodated with the existing five-lane arterial. The forecast volumes on 24th Street E east of 142nd Avenue E would require a three-lane arterial. However, specific improvements may be needed at key intersections along both of these sections of 24th Street E. These are discussed in the forecast traffic operations section and transportation improvements discussions.

The increase on 24th Street E is also directly reflected in higher 2035 PM peak hour volumes on Forest Canyon Road east of East Valley Highway. Forecast volumes on Forest Canyon Road are projected to increase by nearly 80 percent compared to the forecasts without the 24th Street E Extension. The increase in traffic would not require widening of Forest Canyon Road except at its intersection with East Valley Highway.

Forecast traffic volumes on East Valley Highway, Sumner-Tapps Highway, and 142nd Avenue E south of 24th Street E also decline with the addition of the 24th Street E Extension. These decreases result from traffic having an additional alternative corridor to connect with the areas east of Sumner without traveling through Sumner.

62nd Street E Arterial

As part of the Assertive Action (Alternative 3), the City is evaluating construction of a new east-west arterial as part of the East Sumner Neighborhood Plan. The new arterial would have one lane in each direction and turn lanes, as appropriate, at intersections or to serve property access. The arterial would connect between 160th Avenue E and Sumner-Tapps Highway. The new corridor would essential replace the existing Main Street (60th Street E) connection to Sumner-Tapps Highway. As discussed above, the intersection of Main Street (60th Street E)/ Sumner–Tapps Highway is substandard and the east-to-north left-turn movements are not currently permitted via a physical barrier. The new arterial intersection

would allow the left-turns to northbound Sumner-Tapps Highway to be permitted to serve the planned growth in East Sumner.

Except for the shift in traffic from Main Street (60th Street E) to 62nd Street E there are no major changes in traffic volumes that result from construction of the new arterial. Some of the traffic that would otherwise use Main Street (60th Street E) or 64th Street E to access Sumner-Tapps Highway would shift to 62nd Street E. This shift would provide a more central arterial connection within the East Sumner Neighborhood Plan and also would serve traffic connecting to/from other areas of Sumner west of 160th Avenue E. The traffic operations analyses provides a more detailed evaluation of the potential impacts and benefits of the 62nd Street E arterial and closure of the existing intersection of Main Street E (60th Street E) /Sumner-Tapps Highway intersection.

2035 Traffic Operations Evaluation

Traffic operations were evaluated based on intersection operations and the HCM methodology consistent with the existing conditions analysis. Specific intersection improvements were assumed based on the assumptions outlined at the beginning of this chapter and the transportation network alternative being evaluated. Traffic signal timing was optimized for each land use/network alternative in consideration of changes that would occur with intersection maintenance to address growth in traffic volumes. A summary table of study intersection LOS and delay for each Alternative is provided in Attachment C.

As shown in Attachment C, along 8th Street E the majority of the study intersection would operate at LOS F during the weekday PM peak hour under Alternatives 1, 2, and 3 without the extension of 24th Street E. The extension of 24th Street E to East Valley Highway alleviates some of the congestion along 8th Street E and improves intersection operations with all three alternatives. The 8th Street E/SR 167 interchange would continue to operate at LOS F conditions under all three alternatives both with and without the extension of 24th Street E. Along 24th Street E increases in traffic volumes with the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) degrade intersection operations as compared to the No Action (Alternative 1). Furthermore, the 24th Street E extension results in higher traffic volumes and further degradation in intersection operations along 24th Street E, which results in a need for additional improvements at key intersections along the corridor.

In the southern portion of the City, differences in intersection operations across all alternatives are minimal, which is consistent with the smaller changes in weekday PM peak hour traffic volumes previously described. The area where increases in traffic volumes with the Minimal Rezone (Alternative 2) and Assertive Action (Alternative 3) impacts intersection operations the most is along Elm Street/East Valley Highway between Valley Avenue and Puyallup Street where operations are anticipated to be LOS E/F as compared to LOS D/E under the No Action (Alternative 1).

Given the number of intersections operating at LOS E and F with all of the alternatives, consideration will need to be given to potentially changing the City's adopted LOS standards at several intersections. Resolving the LOS deficiencies at these locations would require impacting existing businesses and would likely adversely affect the ability to safely support pedestrian and bicycle activity in the core parts of Sumner. Allowing LOS E or F conditions along certain corridors or at key locations will allow the City to focus efforts on key improvements that will impact travel within and connections outside the City. Consideration should be given to LOS E or F standards where improvements are not feasible or the character of the facility would be changed (e.g., pedestrian corridors).

East Sumner Neighborhood Plan

The 2035 forecast PM peak hour traffic operations in the East Sumner Neighborhood Plan show differences associated with the closure of Main Street at Sumner-Tapps Highway and construction of the new 62nd Street E arterial as well as the need for additional transportation improvements to support the East Sumner Neighborhood Plan.

As part of the Assertive Action (Alternative 3), the City is evaluating construction of a new east-west arterial in the East Sumner Neighborhood Plan. The new arterial would be 2 to 3 lanes with the center turn lane serving property access. The evaluation shows that a traffic signal would be needed at the Sumner-Tapps Highway/62nd Street E intersection to support the anticipated growth and shift traffic from 64th Street E to use of 62nd Street E as the primary route. The new corridor would essentially replace the existing Main Street (60th Street E) connection to Sumner-Tapps Highway. As discussed above, the intersection of Main Street (60th Street E)/ Sumner –Tapps Highway is substandard and the east-to-north left-turn movements are not permitted via a physical barrier.

The 64th Street E and SR 410 interchange with Sumner-Tapps Highway would have LOS F operations under all alternatives. Improvements could be difficult given the close spacing of the intersection. The analysis explored an alternative where the SR 410 westbound ramps were reconfigured to access 64th Street E. This configuration would alleviate some of the congestion in the interchange area and allow for additional spacing between the SR 410 eastbound ramp intersection and 64th Street E. This configuration would support all alternatives, but works best in concert with the new 62nd Street E roadway intersecting with Sumner-Tapps Highway to better distribute traffic.

Under the other alternatives (No Action and Minimal Rezone), the intersection of Sumner-Tapps Hwy/64th Street E would need to be improved to include additional turn lanes to provided adequate capacity and to reduce the negative impacts of northbound traffic queues extending to the SR 410 interchange and eastbound traffic queues along 64th Street E. The needed turn lanes include second northbound left-turn lane and left- and right-turn lanes for the eastbound and westbound approaches.

For all of the Alternatives, in order to improve the operations of the SR 410 Westbound/166th Avenue E interchange ramp intersection without reconfiguring the westbound ramps to connect to 64th Street E (as discussed above), the intersection would need to be signalized and the existing northbound left-turn only lane would need to be converted to a shared left-turn/through lane or a left-turn lane would need to be provided. This would provide two northbound lanes for through traffic. This would require two northbound lanes on Sumner-Tapps Highway at least north of the 64th Street E intersection, as described above. At the eastbound interchange ramp intersections it is recommended that the existing through lane be converted to a through/left-turn lane or an additional southbound left-turn lane be provided to accommodate the high volume of left-turns during the 2035 PM peak hour. This may require widening along 166th Avenue E and would require widening the eastbound on-ramp to two lanes which could then merge into a single lane prior to the mainline of SR 410. This may require modification and/or extending the width of the on-ramp and the merge distance on eastbound SR 410. The improvement at the eastbound ramps at the SR 410/166th Avenue E interchange is recommended for all alternatives.

In addition, other intersection improvements in the East Sumner Neighborhood Plan subareas would be needed under all three land use alternatives, with or without the extension of 24th Street E to Forest Canyon Road. These improvements include:

- Main Street/160th Avenue E – Install traffic signal under all alternatives, when warranted.
- 64th Street E/160th Avenue E - Under the No Action (Alternative 1) and Minimal Rezone (Alternative 2) a traffic signal could be provided, when warranted to better facilitate the major movements between the north and east legs of the intersection. A signal would not be need under the Assertive Action (Alternative 3) because traffic would shift to 62nd Street E to access Sumner-Tapps Highway.
- Main Street (60th Street E)/160th Avenue E- Install traffic signal under all alternatives, when warranted. Depending on the level and pace of development in the East Sumner Neighborhood the signal would not likely be needed for many years.
- Main Street/Parker Avenue – Install a traffic signal under all alternatives. The intersection currently operates at LOS F during the PM peak hour so a traffic signal may be needed at this intersection in advance of signalizing Main Street (60th Street E)/160th Avenue E.

Figure 4-3a. 2035 PM Peak Hour Traffic Volumes

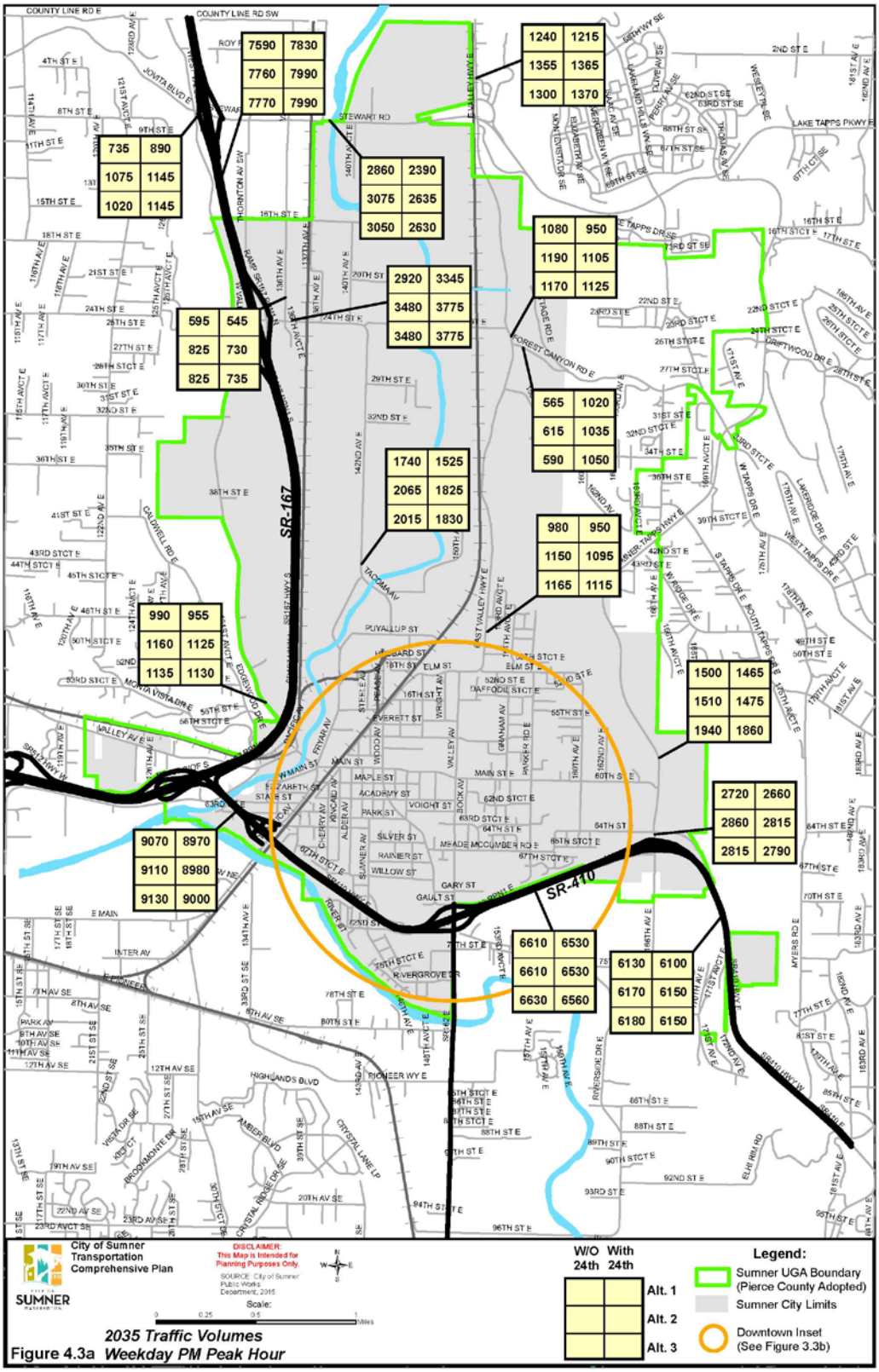
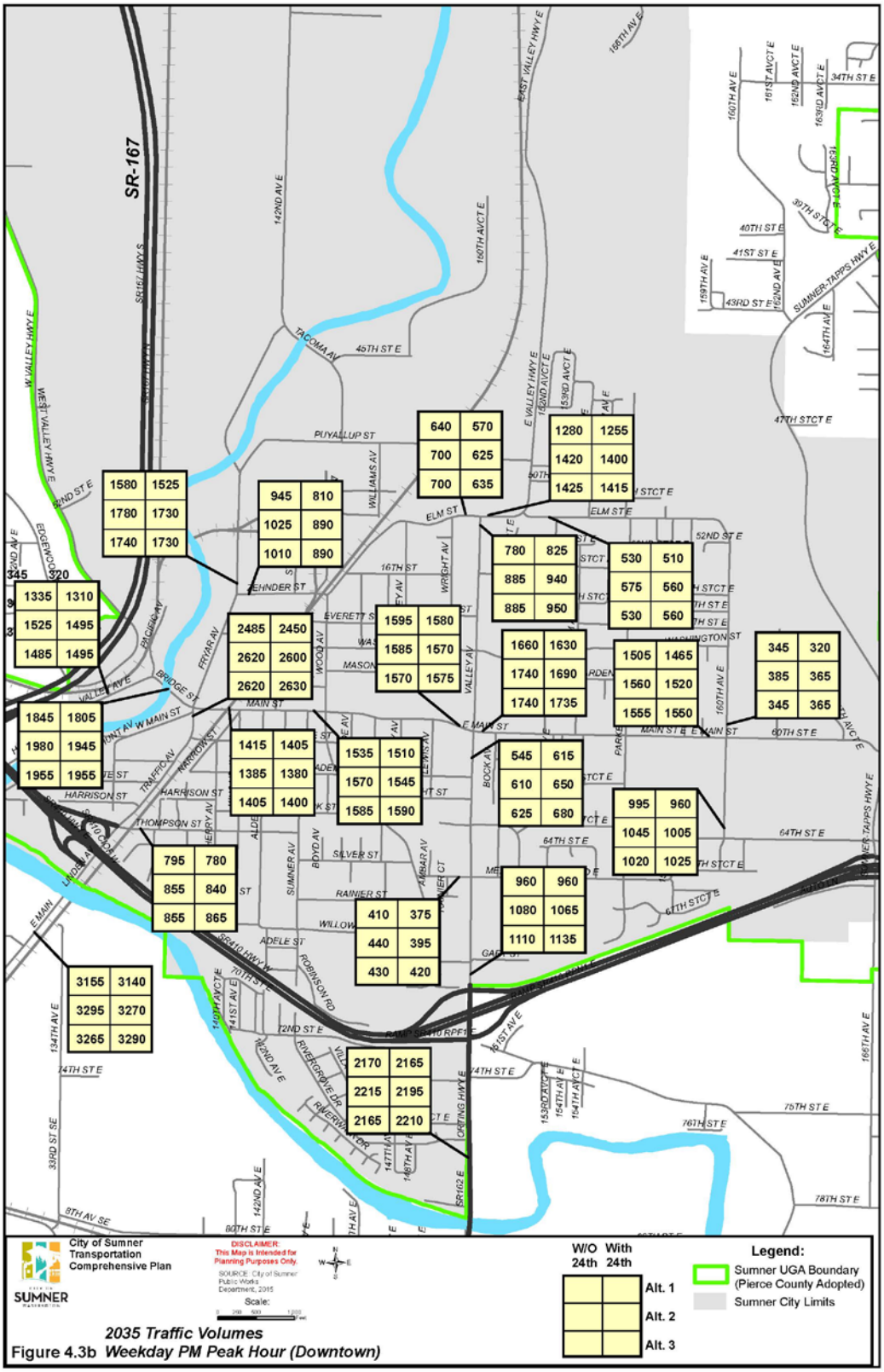


Figure 4-4b. 2035 PM Peak Hour Traffic Volumes (Downtown Inset)



5. Transportation Improvement Program

The analyses of alternatives, financing, and City goals and policies were used to develop a comprehensive transportation improvement program for the City. The program addresses existing and forecast needs through 2035 based on the projected growth in and around the City of Sumner. The transportation improvement program is organized by travel mode, although the improvement projects and programs overlap between modes (e.g., sidewalks are included as part of a roadway widening project).

Street and Highway Element

The street and highway element provides the core system of the 2015 Sumner Transportation Plan. The street system provides for general vehicular movement, including passenger cars, trucks, and buses. Much of the pedestrian and bicycle travel in the City also relies on the street system. The following summarizes the street and highway element, including:

7. Functional classification
8. Design standards
9. Improvement projects
10. Truck route plan
11. Collector and local street connectivity
12. Maintenance and operations
13. Neighborhood traffic control program

Roadway Functional Classification and Design Standards

The roadway functional classification system provides a hierarchy of roadways. They range from limited access freeways that support regional through traffic movements to local streets that primarily serve access to individual properties. The system is used to identify the desired function of each roadway regarding the type and level of traffic it would carry, design standards, and eligibility for a range of funding programs.

Table 5-1 provides guidelines for the classifications used in the City of Sumner. Washington State has also classified some highways that provide transportation functions that promote and maintain statewide travel and economic linkages as being of statewide significance or Highways of Statewide Significance (HSS). In the Sumner planning area, SR 167 is designated as an HSS. SR 512, in Puyallup, is also a designated HSS. Because of its designation as an HSS, the State is responsible for setting the level of service standard for the SR 167 freeway. Furthermore, the City cannot include SR 167 in its concurrency program.

Similarly, SR 410 is a State Highway of Regional Significance. Level of service standards for SR 410 are established by the Puget Sound Regional Council (PSRC), in consultation with WSDOT. The City also cannot include SR 410 in its concurrency program.

Figure 5-1 summarizes the functional classification plan for the City of Sumner. There no additional functional classification changes since the 2002 Sumner Transportation Plan was

adopted. The 2002 Sumner Transportation Plan provided classifications for several proposed roadways; some of these have now been constructed as arterials. These include the extension of Puyallup Street between Williams Avenue and East Valley Highway as a minor arterial. In addition, the 2002 Transportation Plan showed the extension of Shaw Road as a principal arterial connecting Pioneer Way to E Main Street/Traffic Avenue in the City of Puyallup and unincorporated Pierce County; that extension is complete.

Planning and design is underway for extending 24th Street E east to 148th Avenue E to serve future development of the Sumner Meadows Golf Course. The 2015 Sumner Transportation Plan confirms the prior Plan's recommendation to extend 24th Street E to East Valley Highway as a two-to three lane minor arterial. The timing of the future extension will depend on type and intensity of development in that corridor. The City will work to preserve the right-of-way for the potential future extension of the arterial.

Table 5-1 Functional Classification Guidelines

Classification	Definition	Typical Range of Daily Traffic Volumes[1]
Freeway/ Limited Access	Inter-regional divided highways connecting major centers. Typically, freeways have two or more lanes for traffic in each direction; access is limited to interchanges designed for higher speed merging/diverging traffic.	>30,000
Principal Arterial	Inter-community roadways connecting community centers or major facilities. Principal arterials are generally intended to serve predominantly "through" traffic with minimum direct service to abutting land uses. Spacing between parallel principal arterials is generally 2 miles or greater.	5,000–40,000
Minor Arterials	Provides for intra-community travel for areas bounded by the principal arterial system. Minor arterials serve trips of moderate length and provide more direct access to abutting properties than principal arterials. Spacing of minor arterials is typically less than 2 miles.	3,000–15,000
Collector	Provides for movement within a community, including connecting neighborhoods with smaller community centers. Collector arterials also provide connections to minor and principal arterials. Property access is generally a higher priority for collector arterials with a lower priority for through traffic movements. Spacing of collector arterials is generally 1 mile or less.	1,000–5,000
Local Access Streets	Primary function of local/access streets is access to abutting properties. Local streets include a variety of designs and spacing depending on access needs.	0–1,000
Alley	Provide direct property access to residential or commercial properties. Also provide for service vehicles.	0-300

[1] Average Daily Traffic Volume - Source: The Transpo Group, Inc.

Consistent with the previous Plan, the planned 62nd Street E roadway would be designated as an arterial between 160th Avenue E and Sumner-Tapps Highway. This arterial is identified as part of the East Sumner Neighborhood Plan. It will serve additional traffic growth associated with development and redevelopment of the neighborhood into a mix of residential and commercial land uses. The 62nd Street E arterial will also replace the existing East Main Street (60th Street E) arterial connection to the Sumner-Tapps Highway. The Plan identifies closing the existing Main Street (60th Street E) arterial intersection at Sumner-Tapps Highway due to safety and operational problems related to poor sight distance at the intersection.

The short section of 160th Avenue E between East Main Street and 62nd Street E would be designated as a minor arterial. This would provide a continuous minor arterial route between Sumner-Tapps Highway and Valley Avenue. The east-west arterial would continue west of

Valley Avenue to West Valley Highway.

The proposed 162nd Avenue E roadway between 64th Street E and 60th Street E would not be an arterial. It would serve as a local neighborhood circulation road.

Figure 5-1. Functional Classification

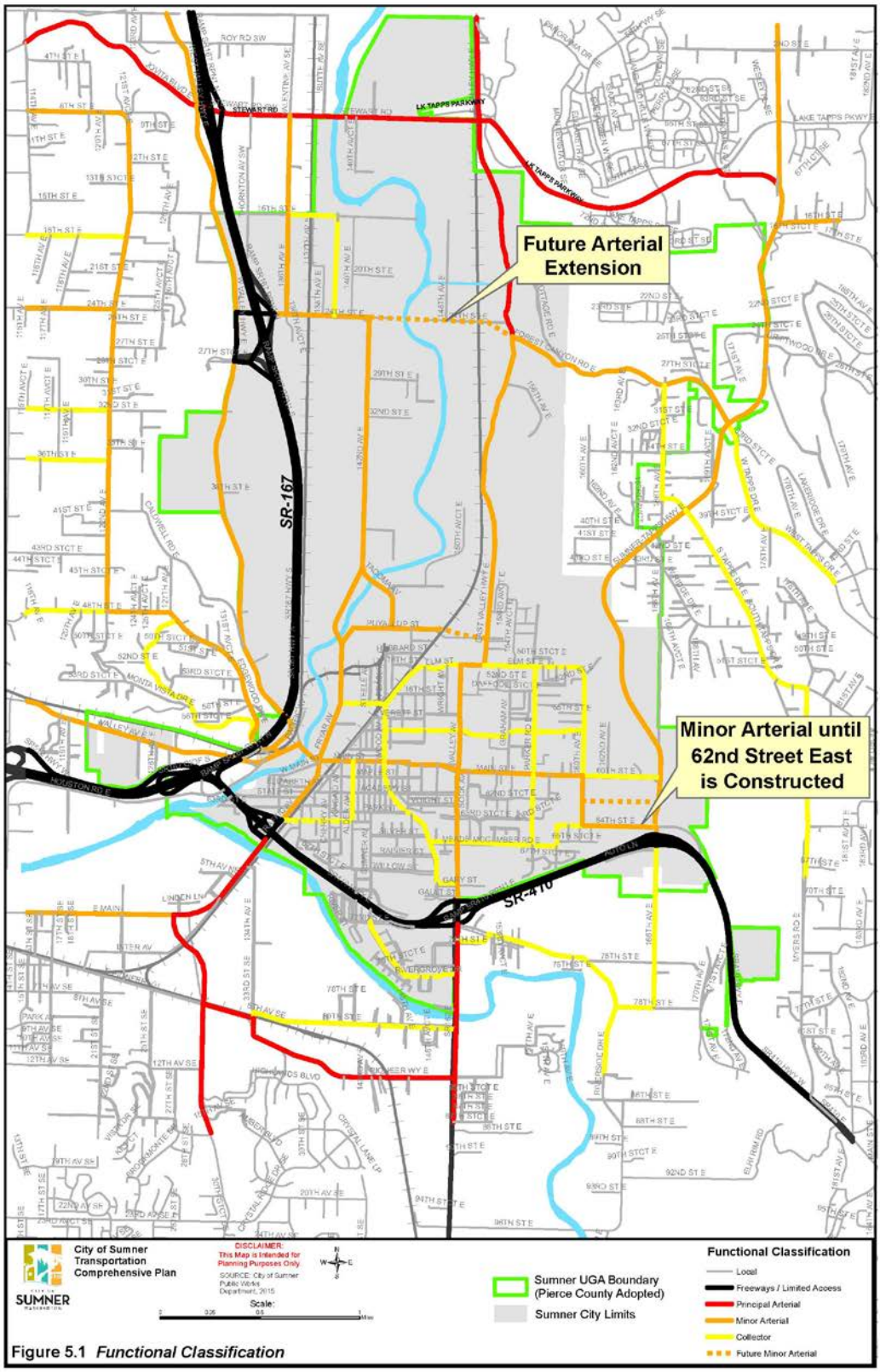


Figure 5.1 *Functional Classification*

Other collector roads are identified primarily in the residential areas of the City. As part of the updated Sumner Transportation Plan, Washington Street between Wood Avenue and Parker Road has been designated as a collector. This collector designation provides a better spacing of arterials and collector streets to help serve traffic circulation and access to/from these areas.

Design Standards

Historically, the City of Sumner has defined design standards for its roadway system based on functional classification. The design standards cover right-of-way needs, pavement width, type and width of pedestrian and bicycle facilities, and roadway and intersection radii.

The City has determined that one size and/or design does not fit all situations. For example, minor arterial needs in the industrial area require specific standards to accommodate trucks, while minor arterials serving the downtown commercial district may require wider sidewalks to accommodate higher levels of pedestrian activity.

In order to accommodate the different design needs in different parts of the City, conceptual street standards have been developed. The standards are summarized in Appendix B and are consistent with the previous Transportation Plan. The City has adopted Development Specifications and Standard Details to address the different types of roadways, sidewalks and other transportation types in March 2011.

Roadway Improvement Projects

Figure 5-2 and Table 5-2 provide a comprehensive list of improvement projects and programs to meet the existing and forecast transportation needs of the City. The project list covers roadways, transit, and non-motorized improvements and programs, since the overall system needs to address all needs.

The projects in Table 5-2 are categorized into limited access facilities, arterial improvements, a collector road program, transit service, and citywide transportation programs. The list identifies the roadway, project limits, and a description of the needed improvements. A map identification number is provided to assist in referencing projects on Figure 5-2.

Planning level project cost estimates and the City of Sumner's allocation of those costs are also listed. For projects completely under the jurisdiction of WSDOT or another agency, the City's cost is set at $0. In addition, a potential funding strategy for each project is listed. The funding strategy is discussed in more detail in the next section of the plan report.

A relative priority (high, medium, low) is presented based on the project's importance to the City's transportation needs. The priority also takes into account the overall needs of the regional transportation system for north Pierce County.

The project timing listed for a project reflects both the anticipated need for the project based on existing and forecast deficiencies, and an evaluation of the actual time needed to fund, design, and implement the improvement.

Freeway System and State Highway Improvements

The SR 167 and SR 410 freeways provide regional access to/from Sumner. The SR 167 freeway currently operates at congested levels during the peak travel periods.

The 2015 Sumner Transportation Plan includes two additional improvements to SR 167. WSDOT plans to add HOV/HOT lanes on SR 167 between SR 18 in Auburn and SR 410. This includes the freeway segment serving Sumner. WSDOT has also developed plans for extending the SR 167 freeway from Puyallup to the Port of Tacoma. This project would not relieve congestion in and around Sumner, but is an important regional link that would serve Sumner residences and businesses. Currently, only Phase 1 of the extension is assumed to be constructed, as discussed in the Travel Forecast and Alternatives Analyses for the Plan.

The SR167 interchange at 24th Street E has been constructed since the 2002 Sumner Transportation Plan was prepared. The new interchange is a split diamond configuration. The northbound on- and off-ramps are located at 24th Street E. The southbound ramps are accessed via West Valley Highway at approximately 28th Street E. Improvements to West Valley Highway and 24th Street E were included as part of the project. Based on the updated 2035 travel forecasts and operations analyses additional improvements will be needed at the interchange intersections with West Valley Highway and 24th Street E. Additional left-turn capacity is needed on southbound West Valley Highway to the southbound on ramp at the 24th Street E interchange. The additional turn lane will require a second lane on the southbound on-ramp. Designs for the ramp modification could be incorporated with the design and construction of WSDOT's planned HOV/HOT lanes on this section of SR 167. In addition, improvements would be needed at the intersection of West Valley Highway/24th Street E in order to provide adequate capacity and operations in the vicinity of this interchange. A northbound right-turn lane is recommended on West Valley Highway at 24th Street E to accommodate the increased traffic using southbound SR 167 to eastbound 24th Street E. alternatively, West Valley Highway could be reconfigured to provide for a continuous southbound through lane that would not be controlled by the traffic signal since this is a T-intersection.

Interchange improvements at the SR 167/8th Street E interchange in the City of Pacific are also identified. The improvement plans would be developed by WSDOT working with local agencies and Pierce County. These improvements are needed to complete the 8th Street E/ Lake Tapps Parkway corridor which extends east of Sumner. The Cities of Sumner and Pacific are working with Pierce County to complete the widening of 8th Street E to a five lane principal arterial. In addition, The SR 167/8th Street E interchange improvement would serve increased traffic volumes using Jovita Boulevard to/from the west.

Improvements to SR 410 in and around Sumner were previously included in the *Washington State Highway System Plan, 2003-2022* (WSDOT, February 2002) and incorporated as part of the 2002 Sumner Transportation plan. Funding for those improvements have not been carried forward in recent WSDOT plans and therefore were not included in the City's travel forecasting assumptions. The 2015 Transportation Plan continues to support WSDOT in funding freeway capacity and operational improvements to SR 410 between SR 167 and 184th Avenue E. These could include auxiliary or collector/distributor lanes, HOV lanes, direct HOV lanes connections between SR 167 and SR 410, or other strategies that have previously been identified by WSDOT. Improvements would also be needed at the three SR 410 interchanges that serve Sumner – Traffic Avenue, SR162/Valley Avenue, and 166th Ave E/Sumner-Tapps Highway.

The Sumner Transportation Plan identifies improvements to three local area interchanges with SR 410. The Plan identifies a need for major widening of the Traffic Avenue/SR 410 interchange. The improvement would include additional lanes on the eastbound off-ramp and westbound on-ramp, in conjunction with additional turn lanes at the ramp intersections. These improvements would serve traffic from Sumner as well as Pierce County and

Puyallup. Preliminary designs for improvements at this interchange are underway as part of work being completed for Sound Transit in coordination with WSDOT.

The Sumner Transportation Plan identifies a need for improving the SR 410/SR 162 interchange. This interchange serves Sumner to the north and Pierce County and Orting to the south. The interchange improvements are important in resolving capacity deficiencies and to keep traffic from backing onto the SR 410 mainline travel lanes. WSDOT does not currently have funding identified/programmed for this improvement. The City's Transportation Plan identifies this improvement as a low priority unless it is part of a broader project to add capacity and improve operations along SR 410 and SR 167. Without the broader regional freeway improvements, the interchange improvements would likely draw additional cut-through traffic in Sumner. The City will continue to accept a poor level of service and additional traffic congestion until a more comprehensive project is implemented for SR 410 and SR 167 in Sumner.

The interchange SR 410/SR 162 improvement also would support widening of SR 162 south of SR 410 consistent with prior WSDOT, regional, and City plans. The current 2007-2026 *Highway System Plan* includes a need for a 3-lane strategy from SR 410 eastbound on/off ramps to 96th Street East on SR 162.

The SR 410/166th Avenue E (Sumner-Tapps Highway) interchange will also need to be widened to provide turn channelization and traffic signal improvements. The 2015 Transportation Plan and East Sumner Neighborhood Plan propose reconfiguring the westbound interchange ramps to connect to 64th Street E and add lanes at the intersection of 64th Street E/Sumner-Tapps Highway. This would also include the City constructing a new arterial roadway in the 62nd Street E corridor between 160th Avenue and Sumner-Tapps Highway to provide an alternative for traffic west of Sumner-Tapps Highway. Changes in the lane configuration and operations also will be needed at the SR 410 Eastbound ramps with 166th Avenue E. This may require widening the eastbound on-ramp to two lanes at the traffic signal. These are discussed more in the traffic operations analyses in Section 4 of this document.

Figure 5-2. Transportation Improvement Projects

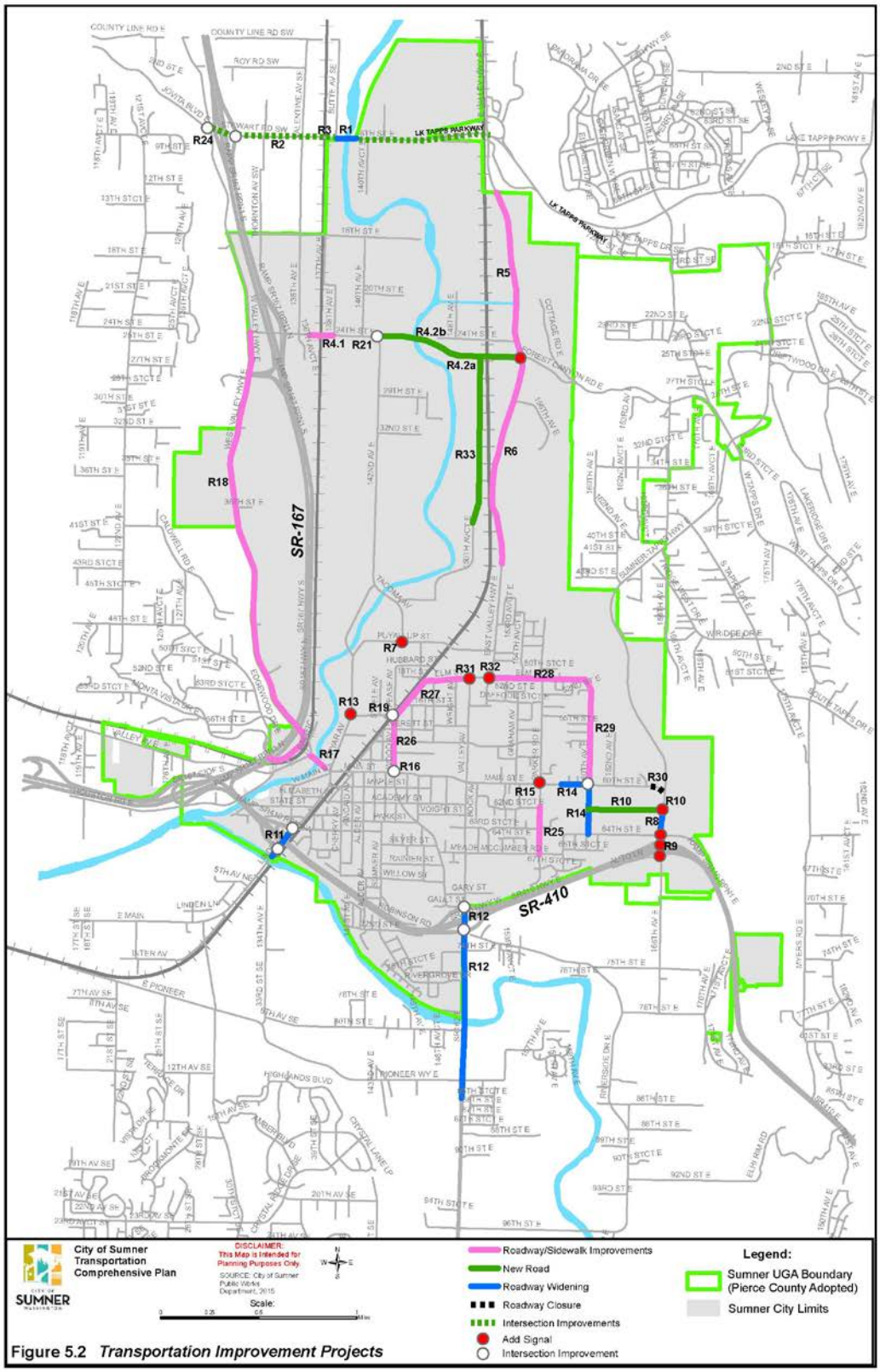


Table 5-2 Transportation Improvement Project List

Map ID[1]	Roadway	Project Limits	Description	Total Costs ($ 1000's)	Estimated Sumner Cost ($1,000)	Sumner Financing Strategy				Relative Priority	Timing	Comments
						Grants	Developer Mitigation/LID	Impact Fee	General City Transportation Funds			
Arterial Street Program												
R1	8th St E	8th St at White River Crossing	White River Bridge - 4 lanes	$14,000	$14,000	$11,200	$500	$2,300	$0	H	H	In design with projected complete date of 2020
R2	8th St E	W Valley Hwy to Lake Tapps Parkway E	Coordinate traffic signal along 8th St E (see R50). (Coordinate with City of Pacific, WSDOT, & UPRR)	$3,400	$100.00	$1,500	$0	$75	$25	M	M	
R3	8th St E	8th St at UPRR crossing and Butte Ave SE intersection signal	UPRR crossing on 8th St E. and new signalized intersection at Butte Ave SE. (City of Pacific project)	$3,400	$75	$2,720	$100	$0	$75	H	H	
R4.1	24th St E	24th St E at UPRR Crossing	Construct railroad undercrossing of 24th St E to improve freight mobility.	$8,000	$8,000	$6,400	$0	$1,600	$0	L	L	
R4.2a	24th St E	142nd Ave E to East Valley Hwy	Reserve right-of-way to extend 24th St E as a 2/3-lane roadway across the Stuck River to East Valley Hwy. Provide signalized intersection at 24th Street E/E Valley Hwy. Provide improvements to the 24th St E/142nd Avenue E including potential NB right-turn lane and closing of the north leg driveway access. Construct railroad overcrossing of 24th St E to improve automotive mobility and connection to East Valley HWY E	$16,000	$16,000	$12,800	$0	$3,200	$0	L	L	
R4.2b	24th St E	24th St E White River Crossing	White River Bridge - 2 lanes. Provide signalization at 24th St E. and 142nd Ave East.	$12,000	$12,000	$0	$2,000	$9,000	$1,000	M	M	In design with projected complete date of 2018
R5	East Valley Hwy	Sumner City Limits to Forest Canyon Rd	Widen roadway to provide left-turn lanes, where needed and improve to minor urban arterial standards with curb, gutter, sidewalks, and bike lanes (see also R5.3).	$4,000	$4,000	$2,800	$800	$400	$0	L	L	Road is in need of repair.
R6	East Valley Hwy	Forest Canyon Rd to Salmon Creek	Widen roadway to provide left-turn lanes, where needed and improve to minor urban arterial standards with curb, gutter and sidewalks on one side.	$6,300	$6,300	$4,410	$840	$1,050	$0	L	L	Work includes new box culvert crossing of Salmon Creek.
R7	Puyallup St	Puyallup St/Tacoma Ave	Install new signal, when warranted.	$400	$400	$0	$0	$300	$100	M	M	
R8	Sumner-Tapps Hwy	SR 410 interchange to 62nd St E	Widen roadway to 4/5 lanes and improve to minor urban arterial standards with curb, gutter, and sidewalks. Reconstruct intersection at 64th St E.	$1,750	$1,750	$1,400	$0	$350	$0	L	L	
R9	Sumner-Tapps Hwy Interchange	Sumner Tapps Hwy/SR 410 On/Off Ramps	Reconfigure/resconstruct interchange including widen area to provide 4/5 lane cross-section with turn lanes. Reconfiguration could include consideration of realignment of WB ramps to use 64th St E, provision of a Single Point Urban Interchange (SPUI), etc. (WSDOT)	$6,000	$1,000	$0	$0	$1,000	$0	H	M	
R10	62nd St	160th Ave E to Sumner Tapps Hwy	Construct a 2/3-lane minor arterial to serve East Sumner in accordance with the approved neighborhood plan. Install signal at Sumner-Tapps Hwy/62nd St with associated turn lanes. Close Main St (60th St E) at Sumner-Tapps Hwy.	$5,000	$5,000	$1,000	$3,000	$1,000	$0	M	M	Planning phase. 2/3 lanes
R11	Traffic Ave/SR 410	Thompson St/WB SR 410 Ramps to the Puyallup River Bridge	Widening Traffic Ave to provide a 5 lane overpass. Reconfigure interchange to provide additional capacity and upgrade signals. (WSDOT)	$20,000	$2,000	$12,000	$6,000	$2,000	$0	H	M	
R12	SR 162	SR 410/SR 162 Interchange	Widening Traffic Ave to provide a 5 lane overpass. Reconfigure interchange to provide additional capacity and upgrade signals. (WSDOT)	$8,100	$1,000	$0	$0	$1,000	$0	M	M	
R12	SR 162	SR410 to Puyallup River	Widen to 3 lanes with geometric and intersection improvements along corridor. (WSDOT)	$5,400	$500	$0	$0	$500	$0	M	M	
R13	Fryar Ave	Fryar Ave/Zehnder St Intersection	Install new signal, when warranted.	$350	$350	$0	$0	$315	$35	L	L	
R14	Main St E and 160th Ave E	Main Street from 158th to 160th and 160th Ave E from Main St to 64th St E	Improve intersection at Main Street and 160th including widen streets to minor arterial standards with bike paths and sidewalks. Install traffic signal at Main St E/160th Ave E intersection, when warranted.	$3,530	$3,530	$2,824	$0	$706	$0	M	M	
R15	Main St E	Main St E/Parker Rd	Installation traffic signal, when warranted to alleviate problems associated with increasing traffic. Underground conduit for signals installed as part of LID No. 60 in 1994. Intersection improvements should be in coordination with the East Main St Design Strategy Plan.	$350	$350	$0	$100	$250	$0	H	H	
R16	Main St E	Main St E/Wood Ave	Upgrade signal and improve intersection operations by adding protected-permitted left-turn phasing on the eastbound-westbound directions to avoid queuing. Restripe to provide westbound left-turn lane. Provide pedestrian signal upgrades to comply with ADA standards. Reconstruct intersection to minor arterial roadway standards.	$350	$350	$175	$0	$135	$40	L	L	
R17	Bridge Street	Traffic Ave to Pacific Ave	Replace and upgrade existing bridge to improve safety.	$12,000	$12,000	$11,000	$0	$0	$1,000	H	H	In design and environmental. Construction bid fall 2015.
R18	West Valley Hwy	24th St E to Sumner-Heights Dr E	Widen to provide turn lanes and/or refuge/merge lanes as needed at key access points along the corridor.	$1,500	$1,500	$0	$1,000	$500	$0	M	L	
R19	Wood Ave	Wood Ave/Zehnder St	Improve intersection safety and reconstruct railroad crossing.	$300	$75	$0	$200	$50	$25	L	L	
Limited Access Facilities												
R20	SR 167	I-5 to SR 161	Phase 1 improvement including 1 lane in each direction between the existing SR 167 freeway terminus at the Meridian interchange in Puyallup to I-5. There will be two lanes in each direction from the I-5/SR 167 Extension to SR167/54th Avenue.(WSDOT)	$764,000	$0	$0	$0	$0	$0	H	M	
R21	SR 167	SR 410 to 15th Street SW/NW	Extend HOV/HOT lanes from current termini to SR 410 in Sumner. (WSDOT)	$62,000	$0	$0	$0	$0	$0	H	M	
R22	SR 410	SR 167 / 410 Interchange to White (Stuck) River Bridge	EIS and right-of-way preservation for future freeway to freeway HOV connection between SR 167 and SR 410. (WSDOT)	$20,000	$0	$0	$0	$0	$0	H	M	
R23	SR 410	White (Stuck) River Bridge to 184th Ave E	Widen from 4 to 6 lanes creating one HOV lane each direction, interchange improvements, etc. (WSDOT)	$65,000	$0	$0	$0	$0	$0	M	L	
R24	SR 167 Interchange at 8th St E	W Valley Hwy to SR 167 Northbound Ramps	Widen interchange area to provide 4/5 lane cross-section with turn lanes. (WSDOT)		$0	$0	$0	$0	$0	M	L	
Collector Street Program												
R25	Parker Rd	62nd St to Meade McCumber	Reconstruction of existing road to collector street standards with curbs, gutters, sidewalks, and drainage facilities.	$400	$400	$0	$100	$0	$300	L	M	
R26	Wood Ave	Wood Ave from Main Street to Elm Street	Reconstruction of existing road to collector street standards with curbs, gutters, sidewalks, and drainage facilities.	$2,000	$2,000	$1,600	$0	$0	$400	L	L	

Table_5-2_Project_List_2015 7-7-15_Final

Table 5-2 Transportation Improvement Project List (Continued)

Map ID[1]	Roadway	Project Limits	Description	Total Costs ($ 1000's)	Estimated Sumner Cost ($1,000)	Sumner Financing Strategy				Relative Priority	Timing	Comments
						Grants	Developer Mitigation/LID	Impact Fee	General City Transportation Funds			
R25	Parker Rd	62nd St to Meade McCumber	Reconstruction of existing road to collector street standards with curbs, gutters, sidewalks, and drainage facilities.	$400	$400	$0	$100	$0	$300	L	M	
R26	Wood Ave	Wood Ave from Main Street to Elm Street	Reconstruction of existing road to collector street standards with curbs, gutters, sidewalks, and drainage facilities.	$2,000	$2,000	$1,600	$0	$0	$400	L	L	
R27	Elm Street	Elm St from Wood Ave to Valley Ave	Reconstruction of existing road to collector street standards with curbs, gutters, sidewalks, and drainage facilities.	$2,500	$2,500	$2,000	$0	$0	$500	L	L	
R28	Elm Street	Elm St from East Valley to 160th Ave E	Reconstruction of existing road to collector street standards with curbs, gutters, sidewalks, and drainage facilities.	$1,500	$1,500	$1,200	$0	$0	$300	L	L	
R29	Van Tassel (160th Ave)	Elm St to Main St	Improve to collector street standards with curb, gutter, and sidewalks each side. Overlay roadway. Portions may be completed as parts of development prior to this time.	$3,000	$3,000	$1,800	$600	$0	$600	M	L	Interim asphalt walkways should be constructed as part of citywide sidewalk program to facilitate school access.
R30	E Main Street	E Main St/ 166th Ave	Close East Main St at Sumner-Tapps Hwy to improve safety. Improvement would be tied to construction of the 62nd St project (R11).	$80	$80	$0	$20	$0	$60	M	H	
R31	Elm Street	Elm Street/Valley Avenue	Install traffic signal when warrented, underground conduit installed with Valley Ave widening.	$350	$150	$200	$0	$150	$0	L	L	
R32	Elm Street	Elm Street/East Valley Highway East	Install traffic signal when warrented.	$350	$150	$200	$0	$150	$0	L	L	
R33	150th Avenue East	36th St. E. to 24 St. E.	Construct 150th Ave Ct E to 24th Street.	$5,000	$1,500	$0	$3,500	$1,000	$500	L	L	
Transit Projects												
	SR 167	Sumner Vicinity	Construct a 500-stall park-and-ride lot between mileposts 9 and 10. (WSDOT)	$19,000	$0	$0	$0	$0	$0	L	L	WSDOT Transportation Plan "Congested" HSS High End Estimate
x	Sumner Sound Transit Station		Additional parking		$0	$0	$0	$0	$0	H	H	
x												
City-Wide Transportation Programs												
	Arterial Maintenance/Street Overlay	City Wide	Conduct systematic maintenance of arterials and local streets based on pavement management system.	$2,500	$2,500	$0	$0	$0	$2,500	H	H	Budget at $100,000 / year
	Sidewalk Rehabilitation Program	City Wide	Ongoing pedestrian system improvement program to repair sidewalks and add wheelchair ramps.	$800	$800	$0	$320	$0	$480	H	H	Budget at $40,000 / year.
	Sidewalk Construction Program	City Wide	Program to construct missing sidewalks throughout the City.	$850	$850	$340	$340	$0	$170	H	H	
	Sumner Trail System	City Wide	Construct city wide trail system, including trails, landscaping, and other amenities,.	$1,100	$1,100	$8,480	$0	$0	$2,120	H	H	Budget at average of $100,000 year for 12 years. Subtracted $1.5 million Pacific cost & $3.0 million for trail segments outside Sumner City Limits.
	Sumner Ave Non-Motorized Overcrossing	Downtown	Construct non-motorized overcrossing from Rivergrove Dr to Sumner Ave over SR 410. Crossing will provide a pedestrian and bicycle link between the downtown and the Rivergrove areas.	$1,500	$1,500	$1,000	$0	$0	$500	L	L	
	Neighborhood Traffic Control Program	City Wide	Modify residential streets to enhance pedestrian safety, slow traffic, and minimize cut-through travel.	$500	$500	$150	$0	$0	$350	M	M	Budget at $25,000 / year
				$1,084,560	$108,810	$87,199	$19,420	$27,031	$11,080			

Capacity	$77,105	$59,229	$14,240	$24,816	$1,140	$99,425
Non-Capacity	$13,175	$11,000	$300	$915	$1,160	$13,375
Collector road Program	$11,280	$7,000	$4,220	$1,300	$2,660	$15,180
Maint/Operations/City Wide Programs	$7,250	$9,970	$660	$0	$6,120	$16,750
	$109,810	$87,199	$19,420	$27,031	$11,080	$144,730
General Admin	$4,180				$4,180	$4,180
	$112,990	$87,199	$19,420	$27,031	$15,260	$148,910
Existing Grants/LID	$12,900	$12,900	$0			$12,900
Total	$100,090	$74,299	$19,420	$27,031	$15,260	$136,010

$120,750	new grants/LID/Impact Fees
$12,900	existing grants
$133,650	all revenues except City
$32,813	City revenues
$166,462.9	Total Revenues
$112,990	Total Cost
$53,472.9	Surplus/deficit

Table_5-2_Project_List_2015 6-29-15_for TIF

Arterial Improvements

Improvement projects to widen minor arterials serving Sumner are needed to resolve existing and future deficiencies, especially on routes providing access/egress to the City. In the north part of the City, these include completion of the 8th Street E widening, including a wider bridge over the White River is a key project in the Plan. This is a multi-agency improvement to complete the 4/5 lane arterial between Lake Tapps Parkway and West Valley Highway, including widening at the SR167/8th Street E interchange.

The 2015 Transportation Plan reconfirms the desire to extend 24th Street E to East Valley Highway East. This is an important route to serve truck access to/from the industrial area. It also serves significant residential traffic to/from the hillside east of Sumner. Five lanes would be needed on 24th Street East at and just east of its intersection with 142nd Avenue East. Further east of the intersection the arterial would transition to a three-lane configuration which would connect with the intersection of East Valley Highway/ Forest Canyon Road. West of 142nd Avenue E, additional intersection improvements including adding turn lanes and installing new traffic signals are recommended. Providing a grade-separated crossing of the railroad tracks east of 136th Avenue E is recommended. This section of 24th Street will carry significantly higher volumes of traffic at this crossing; grade-separating the crossing will improve safety and reduce delays for traffic including high volumes of trucks.

Based on the 2035 forecasted operations, limited improvements are generally needed for the north-south arterials as compared to the previous 2002 Transportation Plan. Improvements identified along East Valley Highway and West Valley Highway include providing left and/or right turn lanes as well as refuge/merge lanes, as needed, to facilitate access to and from properties and to help separate property access from through traffic. These will improve traffic operations and safety.

The 2015 Transportation Plan calls for replacing the existing Bridge Street two-lane bridge, consistent with the City's 2015- 2020 Transportation improvement program (TIP). Trucks are prohibited from using the Bridge Street bridge since they can use 24th Street E and the new SR 167 interchange. The restriction of trucks is intended to improve safety and operations associated with the narrow lanes, short distances between intersections, and high forecast traffic volumes.

West of the White (Stuck) River, traffic signals and turn lanes have been installed on both sides of the short segment of Sumner Heights Drive that includes a crossing of the Union Pacific Railroad tracks. Additional capacity is needed at these two intersections and on Sumner Heights Drive to provide LOS D operations. These improvements would include additional turn lanes resulting in a need for three lanes (two southeast bound and one in the northwest direction) on Sumner Heights Drive. This would result in a right and left-turn lane approaching Valley Avenue E. West valley Highway would be widened to provide two left-turn lanes onto Sumner Heights Drive. Instead of constructing these more difficult and costly improvements in this corridor, the City has decide to reset the level of service standard to LOS F at the intersections of Sumner Heights Drive/West Valley Highway and Sumner Heights Drive/Valley Avenue E.

On the east side of the bridge, the Main Street/Traffic Avenue/Fryar Avenue intersection has been improved since the 2002 Transportation plan was approved. However, the 2035 traffic forecasts indicate that the intersection will operate at LOS F with the current configuration. The poor level of service reflects a nearly doubling of traffic between 2014 and 2035 under all of the alternatives. Given the difficulty in implementing any additional

improvements, it is recommended that the City consider continuing the LOS F standard at this intersection.

Improvements along Valley Avenue identified in the 2002 Transportation Plan have been constructed. Those improvements should continue to meet the transportation system needs based on the 2035 forecasts.

A traffic signal will ultimately be needed at the intersection of Valley Avenue/Elm Street. This could be installed separately or as part of a larger improvement along Elm Street, which would include realigning and signalizing the intersection of Elm Street/East Valley Highway.

Consistent with the East Sumner Neighborhood Plan, a new arterial would be constructed along 62nd Street E between 160th Avenue E and Sumner-Tapps Highway (166th Avenue E). The new intersection of 62nd Street E/Sumner-Tapps Highway will be signalized and will have additional turn lanes. The new arterial would replace 60th Street E, which would be closed at Sumner-Tapps Highway. A section of 160th Avenue E would also be improved to facilitate the arterial traffic flow between Main Street (60th Street E) and 62nd Street E. Sumner-Tapps Highway would need to be widened to 4/5 lanes add capacity between 62nd Street E and the SR 410 interchange. These improvements include:

- Sumner-Tapps Highway/64th Street E – add through lanes and turn lanes in conjunction with improvements at the SR 410/166th Avenue E interchange (see discussion in Freeway System and State Highway Improvements)
- Main Street/160th Avenue E – Install traffic signal under all alternatives, when warranted.
- 64th Street E/160th Avenue E - Under the Assertive Action (Alternative 3) a traffic signal would not be needed because some traffic will shift to 62nd Street E to access Sumner-Tapps Highway.
- Main Street (60th Street E) /160th Avenue E- Install traffic signal, when warranted.
- Main Street/Parker Avenue – Install a traffic signal, when warranted.

Other Plan improvements are generally focused on upgrading intersections with traffic controls and/or turn lanes. Improvements are identified for along the Main Street corridor, as well as other locations (see Figure 5-2 and Table 5-2).

Collector Street Program

Collector streets connect neighborhoods with local community centers and the arterial system. The majority of the City's collector system meets the City's current or previous design standards, providing adequate travel lanes and facilities for non-motorized travel (pedestrians and bicyclists). The 2015 Transportation Plan includes improvement projects for several collector streets. These projects typically include reconstructing the streets to bring them up to standards, including sidewalks, drainage, and pavement improvements. Sections of some of the collector streets have been improved as part of adjacent developments. This has resulted in a piecemeal facility connecting the various neighborhoods to the arterial system. The collector street program covers reconstruction of the following streets:

- Parker Road
- Elm Street
- 160th Avenue E

Truck Routes

Sumner has significant trucking activity consisting of distribution centers, warehousing, and light industrial activity. Trucks have a significant impact on traffic operations and safety. They also impact air quality and noise levels in the City. Therefore, the City has established regulations for truck activity within the City. The designated truck routes are shown on Figure 5-3.

The designated truck routes include all State highways serving the City, principal arterials, and most of the minor arterials. These routes provide connections from industrial land uses and the regional transportation system. These roadways are (or will be) designed to handle the higher volume of heavy vehicles, including provisions for lane width, turning radii, and turn lane storage distances. The City will also address the needs of pavement wear on these routes as part of its ongoing maintenance and operations program.

The designated truck routes include several new roadway extensions, as defined in the arterial improvement program. The SR 167/24th Street E Sumner interchange and associated improvement of 24th Street E is a key element of the truck route system. The new interchange provides a more central connection to the regional highway system for existing and future trucking activity in north Sumner.
The recently completed extension of Puyallup Street to East Valley Highway also serves as a primary truck route. This arterial connection provides a new crossing of the BNSF railroad tracks. Completion of the Puyallup Street extension resulted in the closure of Williams Avenue at the railroad crossing near Wood Avenue. With the completion of the Puyallup Street extension, the prior truck route designations of Wood Avenue, Zehnder Street, and Elm Street (west of Valley Avenue) were eliminated. Zehnder Street, Steele Avenue, and Pease Avenue would continue to serve local truck deliveries.

Trucks entering/exiting the City to/from a destination within the City should use only the designated truck routes between the regional system (or City limits) and the intersection nearest the destination/origin within the City. The truck shall limit its travel on non-truck route streets to the shortest distance between the truck route and the origin/destination within the City.

Collector and Local Street Connectivity

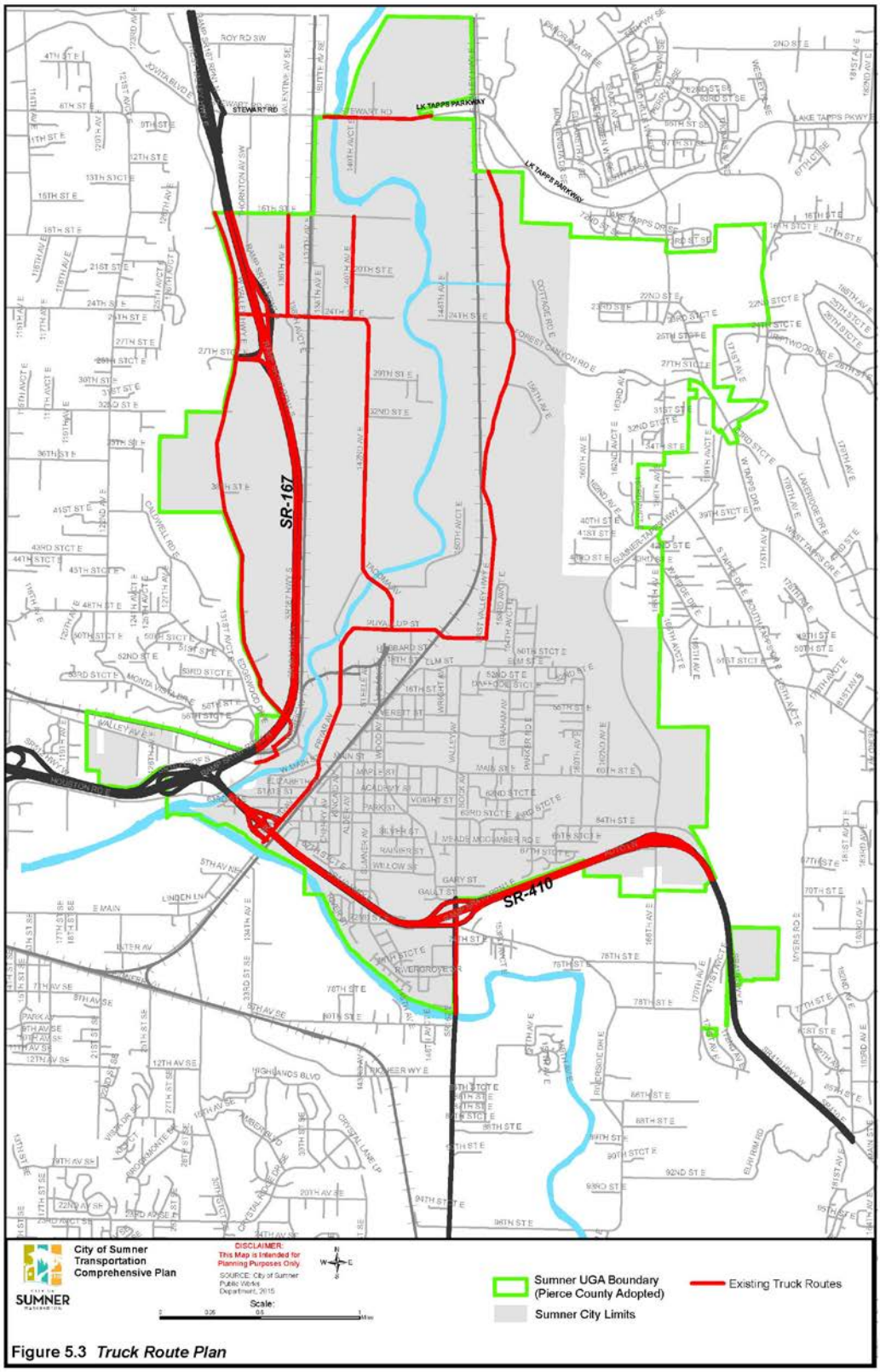
The goals and policies of the 2015 Transportation Plan emphasize expansion of the City's roadway network as a flexible grid. A grid is the most efficient arrangement of arterials and secondary access streets, and is intended to provide travel options for drivers, bicyclists, and pedestrians as well as reduce the practical distance and travel time between points in Sumner. Cul-de-sacs, dead-end streets, and loop roads create barriers in the network, increase travel distances, and, in residential areas, increase dependence on the automobile for daily activities.

The grid model differs in its application to various land uses. In residential areas, non-motorized movement must be accommodated and the land is platted into smaller units. Therefore, the distance between streets should be smaller than in industrial areas, where efficient movement of vehicles, particularly freight vehicles, is emphasized and development generally occurs on large tracts of land.

The older residential neighborhoods in the vicinity of the downtown represent the general prototype for future residential development. Land is arranged into blocks of about 250 by 500 feet. This pattern should be maintained, to the extent practical, for future residential development. Blocks of this size encourage pedestrian movement and provide opportunities for alley access. In addition to the subdivision of land into a regular system of blocks,

existing arterials should be extended to provide continuous transportation corridors and, where possible, to connect to other arterials. This benefits the community by reducing the volume of pass-through traffic on local streets.

Figure 5-3. Truck Route Plan



In the industrial area, continuing development will place greater strain on the existing transportation system. The arterial system is generally in place now, although some arterial improvements have been completed or are planned to increase capacity. However, improvements are needed to create a grid system of local service streets in these areas to reduce dependence on dead-end access roads and to create more options for circulation and access to the arterials. Much of the development has occurred with direct access to existing streets and with dead-end service streets branching off from the arterials. The Transportation Plan envisions a more integrated system of collector and service roads to allow multiple points of access to the arterials. The City has identified a preferred interval of about ¼ mile between links in the grid to provide sufficient circulation.

Potential locations for new industrial service streets and local residential streets are shown on Figure 5-4. These areas are only conceptual, and do not reflect specific alignments or reflect site-specific analyses of potential constraints. However, they identify areas of apparent access deficiencies where a local grid could be established through development or redevelopment. Other opportunities may also exist and should be considered concurrent to development proposals.

In both residential and industrial areas, opportunities to create and expand a grid system have been forestalled by past platting and development activities. It is the intent of the City to take full advantage of all future opportunities as they occur to implement grid systems in both infill and newly developing areas. However, the policy should be applied with a degree of flexibility. The financial burden of roadway dedication and improvements required as a condition of development approval should be as proportional as possible to the scale of development proposed. Flexibility in the alignment of new local roads should be sufficient to locate the right-of-way along property lines and to avoid smaller lots where the requirements may remove significant economic use of the property. It is the intent of the policies that additions to the grid system benefit both the new development and the general community. Application of the policies should occur as equitably as possible, while ensuring that opportunities for realization of the policies are not lost.

Maintenance and Operations Program

To maximize use of the existing and future transportation infrastructure, the City of Sumner should continue with a comprehensive, systematic maintenance program. The maintenance program should evaluate all arterials for pavement condition, signing, sight distance enhancement (such as vegetation removal), and improper parking practices. The maintenance program should also review applying resilient options to reduce long-term costs associated with maintenance and operations. Traffic control devices, such as traffic signals and flashing beacons, should be monitored and serviced regularly.

The program should use a PMS to provide a consistent approach for identifying when roadway overlay or reconstruction is needed. Some of the maintenance program will be based on visual inspection or public input. These programs should systematically cover all City arterials on a regular schedule with immediate response to potential safety issues that are observed.

The maintenance program also should include evaluation of speed limits on facilities based on functional classification, design, and current roadway conditions. The speed limit evaluations should consider designs, actual travel speeds, intersection control, traffic safety, and possible impacts on adjacent corridors or neighborhood streets.

In order to implement the program successfully, the City will need to allocate annual budget resources for transportation operations. These would include development of a system to monitor traffic and land use changes for use in setting project priorities. The operations budget also will need to provide time and staff resources to develop and submit grant applications and to coordinate with other jurisdictions.

Neighborhood Traffic Control Program

Providing safe and convenient local streets is an important element of the Transportation Plan. This includes keeping travel speeds at or below adopted/posted limits, improving safety for pedestrians and bicyclists, and minimizing the intrusion of non-local traffic on collectors and local streets. The Plan acknowledges that congestion on the arterial system can result in traffic diverting to collector and local access streets, resulting in undesirable impacts on neighborhoods. Much emphasis in the project list focuses on providing additional capacity to arterial streets and intersections. Until these and other improvements on the principal and minor arterials are implemented, some traffic may choose to divert onto neighborhood streets.

A Neighborhood Traffic Control Program (NTCP) is included as an element of the City of Sumner Transportation Plan. The program provides a systematic approach to identify and prioritize possible neighborhood traffic issues throughout the City, including cut-through traffic, local pedestrian and bicycle needs, and traffic speeds. The program is intended to provide a consistent and equitable approach for dealing with neighborhood traffic issues. The program provides a comprehensive evaluation of neighborhood transportation needs instead of a program of sporadically implemented spot improvements, which may simply move the problem to an adjacent street.

Program Implementation. In selecting locations for implementing NTCPs, the City should focus on areas that are currently impacted by cut-through traffic, high travel speeds, or identified safety problems. The locations can be identified based on technical data, such as traffic counts or speed studies, observation, and input from the community. Some input from the community is already available based on the public involvement program for this plan and other planning activities. The identification of neighborhood issues will come from existing data and perceptions of the City staff, including public works, planning, police/fire administration, the Planning Commission, and City Council. School district staff also can help identify issues to be considered.

After compilation of the issues in a neighborhood, traffic engineering studies would be completed to document the extent of the perceived problem. Data can include field observations, 24-hour machine traffic counts, peak hour turning movement counts, trip generation estimates, speed studies, truck classification counts, and accident records. Based on the resulting data, a range of program options can be identified. The types of devices for each location will need to be considered on a case-by-case basis because of the roadway of existing conditions throughout the City.

Figure 5-4. Potential Street Grid System

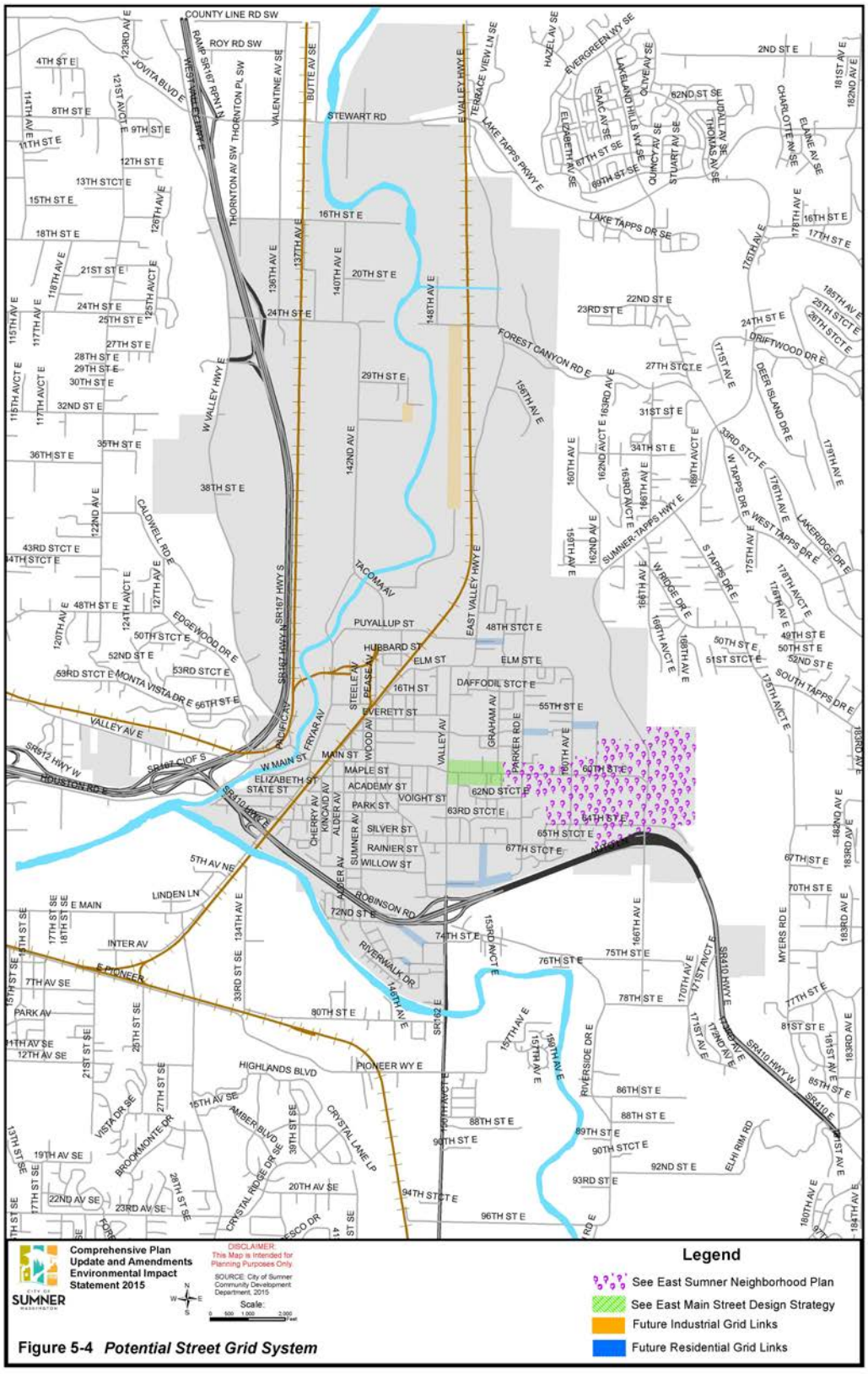


Figure 5-4 ***Potential Street Grid System***

Funding sources for implementing the NTCP could include the City's capital improvement and maintenance funds, LIDs, community block grants, school district safety funds, and/or other grant allocations. The specific components of a program for each neighborhood would be selected and implemented based on available funding levels and priorities. The effectiveness of the specific program elements should then be monitored and evaluated six to twelve months following implementation. This will provide the City with specific information on the effectiveness of various elements, and will help inform the residents of the success of the program.

NTCP Options. A wide range of NTCP options exist. These range from physical devices that restrict or prohibit traffic flow, to signing, to neighborhood speed watch programs. As mentioned above, one of the key elements of a NTCP is increasing the capacity of the adjacent arterial system and reducing the road width of the local system to reduce the potential for non-local traffic to use neighborhood streets.

In general, it is recommended that sidewalks and NTCP options that do not physically constrain traffic movements be used whenever possible. These options include signing programs (e.g., speed limits, no outlet, local access only, no left turns from 4 to 6 p.m.), increased police enforcement, and neighborhood speed watch programs. These programs can be supplemented with sidewalks on one or both sides of local access streets to improve safety for pedestrians.

Devices that physically restrict traffic movements can result in circuitous traffic patterns, which can effectively shift the problem to another location instead of actually solving it. Physical barriers also can negatively impact access for emergency vehicles.

Devices that control traffic movements without prohibiting them (such as traffic circles or speed humps) also can impact access by emergency vehicles. These devices have had various levels of success in reducing speeds and reducing cut-through traffic.

It is recommended that the NTCP options be prioritized as follows:

1. Implementation of capacity improvements on adjacent arterials pursuant to the CTP;
2. Use of nonphysical devices to regulate and educate the traveling public;
3. Development of sidewalks on local access streets near schools to improve pedestrian safety;
4. Physical traffic control devices such as traffic circles, bulbouts, chicanes, and speed humps, reduction in road width; and
5. Physical traffic restriction devices such as a median barrier or street closure.

Of particular concern in Sumner is the width of many local streets or collectors. The width allows traffic to exceed the speed limit, and may also attract truck traffic. The conceptual design standards included in the Transportation Plan include narrower widths for future streets to help reduce these issues. For existing streets, the City could consider curb bulbs, chicanes, and roadway lane striping to provide narrower travel lanes to help slow traffic without adversely affecting emergency vehicle or school bus access. Speed humps also may be appropriate in neighborhoods.

Pedestrian and Bicycle Element

Pedestrian

Sidewalks, walkways, and trails are integral parts of the pedestrian system. The City desires to have sidewalks as both sides of all City streets, unless special circumstances on topography make it cost prohibitive. The Public Works Director will make the determination. Sidewalks should especially be located along streets providing access to the downtown areas, schools, parks, shopping areas, office buildings, and the transit station and routes.

The City has established two sidewalk funding programs that will help maintain the existing sidewalk system by adding more wheelchair ramps, and completing missing or damaged sidewalk sections. The Sidewalk Rehabilitation Program sets aside $80,000 per year to improve or repair sidewalks, or add wheelchair ramps to meet Americans with Disability Act (ADA) standards. The City will explore options with neighboring property owners for sidewalk construction and maintenance. The sidewalk funding programs help maintain and improve the existing sidewalks already found throughout the City.

The Transportation Plan contains a project (see Table 5-2) to construct a non-motorized overcrossing of SR 410. The non-motorized crossing is anticipated to connect Sumner Avenue to the Rivergrove area. The overcrossing is an important pedestrian and bicyclist connection and helps link the southern part of the City to the shopping and residential areas of the downtown area. In addition, the overcrossing provides an alternate route for pedestrians to cross SR 410 rather than using the existing SR 162/Valley Avenue Bridge or bridges at the other interchanges. In addition, the Transportation Plan contains multiple projects (East Valley Hwy E, 62nd Street East, East Main Street, 160th Avenue East) to provide sidewalks as part of the roadway improvement.

The roadway improvement projects identified in the plan that involve new road construction or reconstruction include the addition of sidewalks. Along with the system of planned and existing sidewalks, the Sumner Link Trail is a major pedestrian facility linking the communities north of Sumner to the areas south of Sumner. The Sumner Link Trail is a Class 1 (separate right-of-way) trail along the White (Stuck) and Puyallup Rivers. The trail provides a connection to the existing King County Interurban Trail that ends just north of the County line. When combined with the existing pedestrian facilities, the proposed sidewalks and trail will provide the major system of pedestrian facilities shown on Figure 5-5.

Given that Sumner does not have the population to justify the need for a pedestrian capacity analysis for sidewalks, the LOS standards for sidewalks for the City of Sumner will be determined based upon existence (pass) or non-existence (fail) standard. In areas of high pedestrian activity (Sounder Station) the pedestrians are found to disperse onto multiple existing pedestrian facilities and do not create capacity issues in the network. When development occurs it will be required along their frontage to provide a passing LOS for pedestrians. Sumner will continue to analyze potential pedestrian connections and provide connections as part of our transportation improvement projects.

Bicycle

A good portion of the proposed bicycle system within the City of Sumner will be designated bicycle routes along the existing roadways. Bicycle routes are streets that are signed for bicycle travel. However, the project list (Table 5-2) does include sections of the Sumner Link Trail will be constructing bicycle facilities. Combined the Sumner Link Trail and the bicycle lanes along Valley Avenue and Fryar Avenue, the bicycle routes help to provide a complete bicycle system throughout the City and connections to the regional system.

In addition to the trail system and low traffic volume on a gridded network bicycle traffic can easily traverse through Sumner. Sumner's road widths are 60 feet, in most cases, which allows for bicycles and cars to share the roads.

Figure 5-5. Major Pedestrian System Plan

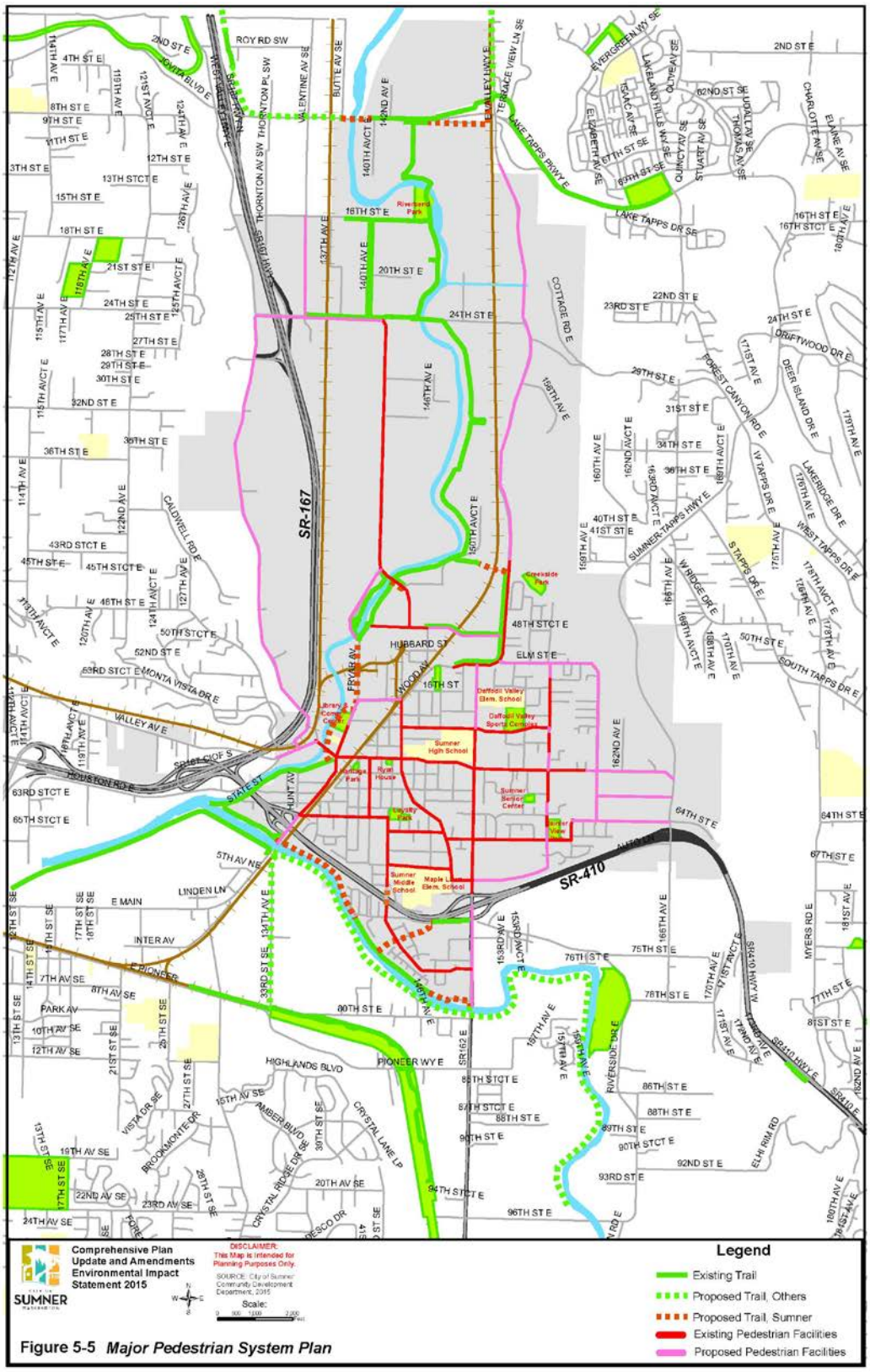


Figure 5-5 *Major Pedestrian System Plan*

The proposed trail routes, bike lanes, and designated bicycle route locations are shown in Figure 5-6 and were refined from the routes identified in the Sumner/Pacific Trail Master Plan document. The Transportation Plan uses the Master Plan as a basis for identifying future bicycle route connections and trail locations. The East Sumner Neighborhood Plan document also identified possible bicycle routes and facilities within that neighborhood.

Due to costs and right-of-way constraints, designated bicycle routes are thought to be better suited for the City. Roadways that are designated as bicycle routes may have a widened shoulder or curb lane, in order to provide room for bicyclists, but allow vehicles to safely pass (See Appendix B).

Transit and Transportation Demand Management

In order to provide viable transportation alternatives, the City of Sumner Transportation Plan recognizes the importance of Transit and TDM programs. In general, these programs build on regional programs with some refinements to reflect the specific needs of the City. As previously noted, some reductions in future peak hour traffic generation were incorporated into the travel forecasting process to reflect the potential effect of regional and local transit/TDM programs.

Transit

The City of Sumner Transportation Plan includes projects for enhancing transit facilities and suggested service improvements. The facility improvements are summarized and illustrated in Figure 5-7. The suggested changes in transit service to the area are consistent with Sound Transit's *Express 2014 Service Implementation Plan* and *Sound Move*.

Successful use of transit and other HOV modes in the City is largely tied to the development of a regional system of HOV facilities and programs. In the vicinity of the City, the *Washington State Highway System Plan: 2007-2026* identifies several HOV projects. The WSDOT projects under construction include southbound HOV lanes on SR 167 between 8th Street to 277th Street (Project R-2), Puyallup River bridge replacement on SR 167 northbound (Project R-11), Puyallup River bridge (McMillin Bridge) replacement on SR 162 (Project R-12). Other projects identified in the state's 20 year plan include:

SR 167/SR 509 to I-5 Stage One - New Freeway (Project R-20) – the project is funded for some preliminary engineering and right-of-way – construction not funded - it is anticipated that only Stage One of SR 167 Extension would be completed within the next 20 years. Stage One includes one lane in each direction from the existing SR167 terminus at the Meridian interchange in Puyallup to I-5. There will be two lanes in each direction from the I-5/SR 167 Extension to SR 167 / 54th Avenue; and

SR 167 Auburn to Puyallup HOT lane extension (Project R-21). Extends the HOT lanes from 8th St E (Jovita Blvd) on SR 167 northbound lanes to 15th St SW in Auburn. This project is unfunded.

To enhance existing transit service, additional north-south transit service across the County line is desirable, particularly between Sumner and the employment centers in the Green River Valley. Evaluation of the forecast travel patterns indicate that more direct transit service is needed between the Sumner area and major employment centers in Kent, Auburn, and the Renton Valley Industrial area. Sound Transit currently offers transit service to the Green River Valley from the Sumner area with the Sounder Commuter Rail and ST Express

Route 587. Local routes should also be evaluated to increase mobility options for residents who are not peak-hour commuters and park-and-ride lot users. Unfortunately, there are no service providers for these local routes at this time.

Sound Transit is currently studying options to increase accessibility to the Sumner Sounder Station. Options studied include adding a parking garage facility near the station, enhance walkways within ¼ mile of the station and enhance bicycle access within ½ mile of the station. An Environmental Impact Statement (EIS) has been prepared and will be completed prior to the adoption of this document. If possible, all improvements identified in the Final EIS will be included in this Plan.

The City of Sumner should also coordinate with transit agencies and work with other jurisdictions, such as Bonney Lake, to evaluate future transit routes to serve downtown Sumner. Sound Transit Route 596 serves both Sumner and Bonney Lake, but is only a weekday peak period route. Increased frequency of bus service between neighboring residential communities should be evaluated as Sumner is projected to become more of an employment center in the future.

Transportation Demand Management Program

In addition to the increased transit service and HOV facilities identified above, additional TDM programs are recommended as part of the City of Sumner Transportation Plan. The goal of the TDM programs would be to reduce the overall amount of travel by single occupant vehicles (SOVs) within the City. The City of Sumner TDM program shall build on State, Pierce County, and other local legislation.

The City of Sumner has adopted a CTR program. The CTR program establishes goals consistent with State legislation. The individual demand management strategies that are typical elements of the CTR and TDM programs are different for employment and residential developments. The following discussion highlights elements of a TDM program for a broad spectrum of employment- and residential-based developments.

Employment-Based Strategies

Employment-based strategies have been found to be effective in reducing traffic in peak commute times. In most cases, an employee transportation coordinator directs employer-based strategies. Strategies focus on providing incentives for transit, management of the parking supply, and various work scheduling options.

The City of Sumner has an extensive warehouse/light industrial employment base and other types of employment. TDM programs for light industrial and distribution typically focus on ride-matching services. Service businesses, such as hotels and restaurants, have shift times that do not necessarily overlap with the typical peak commute hours. These businesses can also have a significant component of part-time staff, which makes carpooling and some other TDM options more difficult to implement.

Figure 5-6. Bicycle and Trail Systems Plan

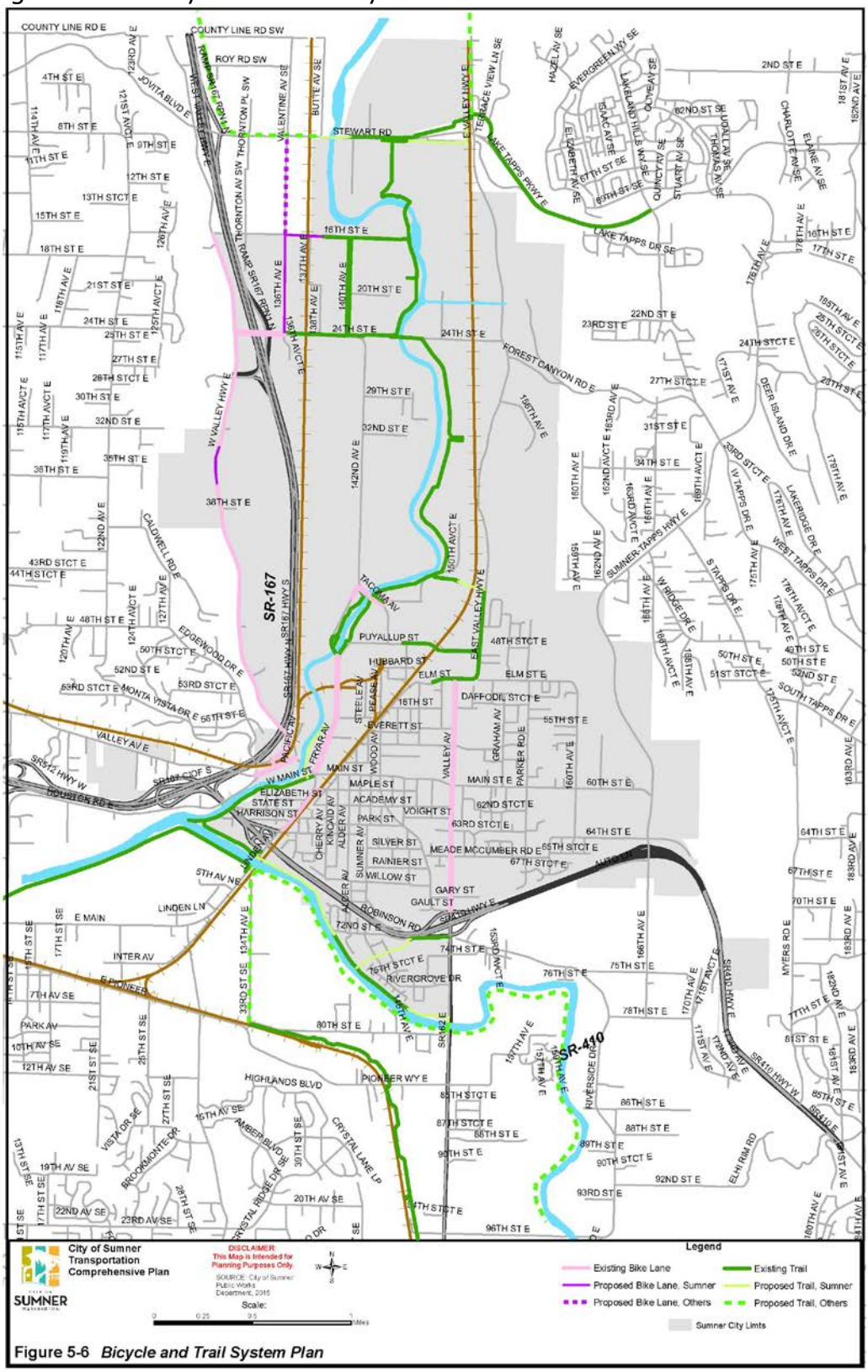


Figure 5-6 *Bicycle and Trail System Plan*

Figure 5-7. Transit Service and Facility Improvements

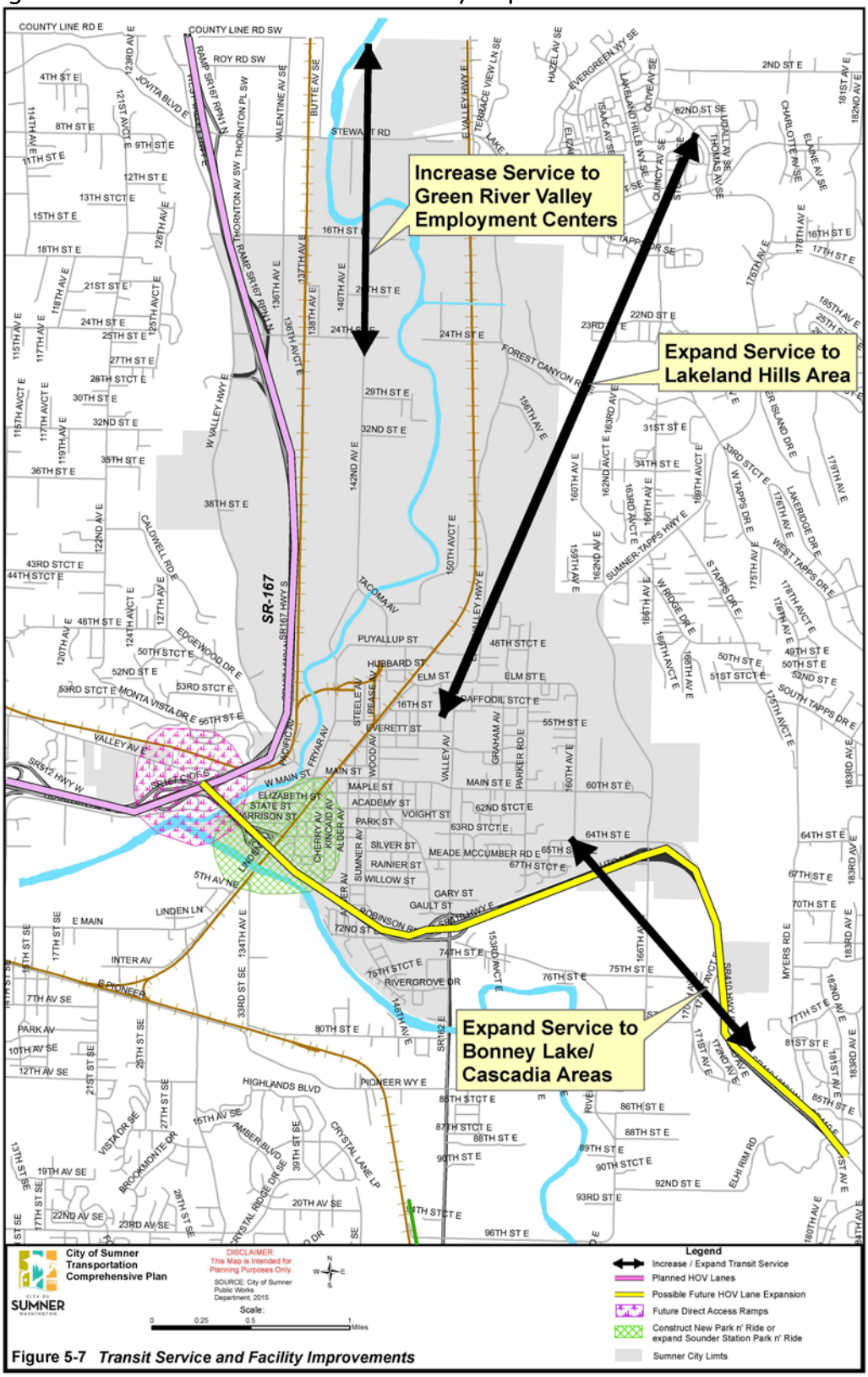


Figure 5-7 *Transit Service and Facility Improvements*

The following provides an overview of employee-based TDM program elements.

Employee Transportation Coordinator (ETC). An ETC could be designated for large employment centers. Smaller employers should work together to share a coordinator. This could be in the form of a Transportation Management Association (TMA). The ETC could have the following managerial and administrative responsibilities:

- Carpool/Vanpool Matching Service
- Promotional Events
- Commuter Information Center
- Secured Bicycle Parking
- Guaranteed Ride Home
- Provide information packets in lobby kiosks
- Communicate smart phone apps and real time websites

Alternative Mode Incentives. Employers could provide free or reduced-rate transit passes to all employees if served by transit, free bike tune-ups or bike equipment, paying for walking shoes, . This approach would likely be limited to an initial trial period of six months or so.

Parking Management. Parking strategies that can be successful in reducing SOV commuting can focus on either the supply or demand sides. On the supply side, limiting parking to slightly less than or equal to the most accurate estimate of parking demand should be considered. An oversupply of parking may undermine the effects of other demand management strategies. The parking supply for SOV commuters could also be limited by requiring special permits for SOV parking or charge for SOV parking and providing free parking for HOV, motorcycles, and electric cars. This typically is applied to office uses and does not match well with warehousing and distribution centers. An alternative or additional approach would be to designate some parking spaces for rideshare vehicles (i.e., carpool or vanpool), motorcycles and electronic vehicles. These spaces should be conveniently located next to major building access locations.

Bicycle Racks and Facilities. Conveniently located, secure bicycle racks (preferably in a weather-protected area) can help promote bicycle travel to employment centers. Locker facilities, including showers, further enhance the potential use of bicycles.

Telecommuting. The use of telecommunications technology for some employees to work from a remote site or their home can be an effective TDM strategy by shortening or eliminating peak-period commute trips to primary office locations. This strategy has proven to be successful in many demonstration projects throughout the nation and one in this region. They would not typically work with the distribution/warehouse centers in Sumner, but can work with professional office use employers.

Compressed Work Week. Encourage employers to participate in compressed workweek programs. A typical compressed workweek schedule is four 10-hour days. There would be a need to coordinate with the various employers to stagger the off-days for the compressed workweek schedules.

Flexible Work Schedules. Encourage employers to provide flexible work schedules that would allow their employees to adjust their schedules to accommodate carpool, vanpool, or transit opportunities. The flexible work schedule program also can be expanded to allow

employees to commute during non-peak hours, which would help decrease future congestion in key corridors.

Residential-Based Strategies

Residential-based TDM strategies for the City of Sumner will likely rely on increasing the availability of convenient transit service to major employment centers, such as the Green River Valley. Carpool and vanpool programs can also be promoted in existing and new multi-family developments through use of an ETC. The following provides an outline of residential-based TDM strategies. The elements are primarily focused on new developments since it will likely be difficult to implement these programs on existing developments without direct assistance from transit agencies or the City of Sumner.

Transportation Coordinator. The ETC (retained by the developer or building manager) would have duties similar to those described under the employee-based strategies. The ETC could be the building manager, resident of the complex, or shared ETC with other nearby developments.

Information Packet and Transit Incentives. The ETCs should prepare and distribute an information packet containing transit schedules, carpool/vanpool, smartphone apps, real time information in the lobby, and other information on programs to reduce SOV travel. This information can be distributed as part of any orientation for new residents at a housing development. Distribution of a free, one-month transit pass also could be required if convenient transit service is provided near a proposed residential development. The free transit service will educate new residents of the availability of transportation alternatives.

Site Design. Sidewalks or other hard surface pathways should be provided on site, connecting to the arterial system. The on-site design also should not restrict direct pedestrian access to arterials and existing or possible future bus stops. The design/layout of walkways, sidewalks, building entrances, parking areas, etc., could incorporate Crime Prevention Through Environmental Design (CPTED) features.

If a development fronts on an existing or identified future transit street, provisions should be made for possible future construction of transit shelters or bus pullouts meeting the transit agency's design requirements

Freight Rail Service

The City of Sumner is traversed by both BNSF and UPRR railroad lines. They generally travel north-south. As described in the transit section, Sound Transit's Sounder commuter rail service provides public transit service from the Sumner Train Station on Traffic Avenue. The majority of the use of the rail links is for regional freight movement through the City. The rail lines do not provide for any significant local rail access for businesses in Sumner.

The City of Sumner Transportation Plan identifies projects to provide grade-separated crossings of rail lines in at the Union Pacific and Burlington Northern Santa Fe 24th Street E corridors (Projects R-4.2c). Options for grade separation of Puyallup Street and a future realignment of West Valley Highway were not feasible given the short distances to the connecting arterials.

The improvement program also includes projects to improve the existing crossing at Zehnder Street/Wood Avenue. The City of Puyallup's extension of Shaw Road provides an

additional crossing of the rail lines in the study area. The industrial access circulation system will also need to take rail crossing limitations into consideration.

The City will work with the railroads, developers, and property owners to improve existing crossings and to assure all future crossings meet federal and state standards, or approved variations.

Air Transportation

There are no airports in the immediate Sumner planning area. Regional, national, and international air travel for Sumner is provided via Sea-Tac International Airport, located approximately 20 miles northwest of Sumner. The airport is accessed via SR 167 in Sumner. North of Sumner, Auburn Municipal Airport provides for local general aviation. It is accessed from Sumner via SR 167 or East Valley Highway.

6. Finance and Implementation Program

The comprehensive list of transportation improvements and programs must be implemented to meet existing and future travel demands in and around Sumner. Funding and implementation strategies are discussed in this section of the Plan. Implementation strategies include coordination with other agencies for regional projects. It also addresses the City's development review program covering LOS standards and concurrency.

Financing Program

The GMA requires the Transportation Element of the Comprehensive Plan to include a multi-year financing plan based on the identified needs. The financing plan is to be the basis of the annual six-year transportation program that is required of the City. If probable funding is less than the identified needs, then the transportation financing program must also include a discussion of how additional funding will be raised or how land use assumptions will be reassessed to assure that the LOS standards will be met. Alternatively, the City can adjust its LOS standard.

The transportation financing program becomes a subset of the City's Capital Facilities Plan (CFP) Element. The GMA requires the CFP Element to include at least a six-year plan that finances capital facilities and identifies the sources of public money for the projects.

Figure 6-1 shows the general process used in balancing the financing program with growth projections and the LOS standards. Based on the travel forecasts and initial LOS standards, the comprehensive list of transportation improvement projects was defined. Planning level cost estimates were prepared for each project and program. The improvements were categorized as capacity- or non-capacity-related. An evaluation of potential applications of TIFs was applied to the capacity-related improvements needed for new growth. Analysis of the City's capability to fund the projects (capacity and non-capacity) was also completed. This included review of existing revenues and potential grants. The Plan was refined to balance the funding and costs. In addition, the plan provides a strategy for adjusting the funding program over time if identified revenues fall short of expectations.

Project Cost Summary

Table 5-2 summarizes the list of improvement projects and programs. Cost estimates are included for each program item, except transit-related projects. Sound Transit fund and implement transit service-related programs serving Sumner. The improvement program includes projects that are also under the jurisdiction or lead of WSDOT, Pierce County, and the Cities of Auburn, Pacific and Puyallup. Costs for these projects were derived from those agencies. If Sumner is financially participating in the projects, the Sumner share is listed in the adjacent column.

Table 6-1 provides a summary of roadway costs allocated to the City of Sumner to implement the plan through 2035. The costs are all in 2015 dollars. The table separates out costs for roadway capacity and non-capacity roadway capital projects. Additional capacity and non-capacity costs are related to citywide maintenance, sidewalk programs, construction of the Sumner Link Trail, and general administration.

Table 6-1 Project Cost Summary
City of Sumner Project Responsibilities

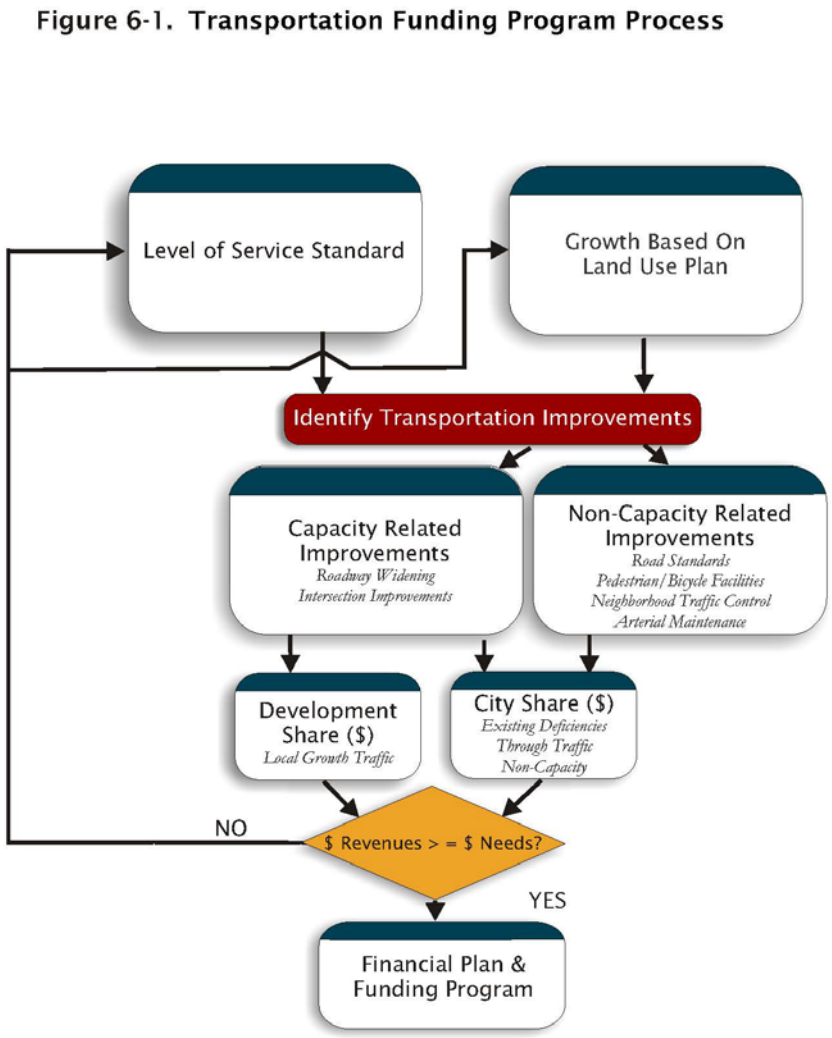
Roadway Capital Projects[1]	
Capacity Related[2]	$77,105,000
Non-Capacity Arterial	$13,175,000
Collector Street Program	$11,280,000
Total	**$101,560,000**
Cost/year	$5,078,000
Citywide Transportation Programs[1]	
Arterial Maintenance/Street Overlay	$2,500,000
ADA Transition	$2,000,000
Sidewalk Rehabilitation Program	$800,000
Sidewalk Construction Program	$850,000
Sumner Avenue Non-motorized Overcrossing	$1,500,000
Sumner Trail System	$1,100,000
Neighborhood Traffic Control Program	$500,000
General Administration	$4,180,000
Total	**$13,430,000**
Cost/year	$671,500
Total Cost (Capital Projects and Non-Capital Needs)	**$114,990,000**
Cost/year	$5,749,500

Planning level cost estimates in 2015 dollars.
Includes Sumner roadway and intersection projects that add travel lanes.

Nearly $101.6 million will be needed to address roadway capital projects. More than $77.1 million (76 percent) of the costs are related to addition of capacity by 2035. The additional capacity is needed to accommodate growth in Sumner and additional through traffic. Approximately 75 percent of the cost for capacity improvements are related to projects such as 8th Street E, East Valley Highway, 24th Street E, Sumner Tapps Hwy, Valley Avenue East, and the Pacific Avenue/Bridge Street/ West Valley Highway corridor. These improvements are needed to resolve forecast deficiencies at these major entries to the City.

Costs for improvements to the three Sumner interchanges with SR 410 are not included in the cost totals. These projects are important to the City's transportation system, but need to be coordinated with WSDOT and other local agencies since they are critical regional corridors. The WSDOT State Highway Systems Plan includes projects to widen the SR 410/Traffic Avenue and SR 410/SR 162 interchanges. WSDOT's planned improvement to add high occupancy vehicle lanes to SR 410 also calls for interchange improvements. Preliminary designs are underway for the SR 410/Traffic Avenue interchange as part of the Sound Transit project. The SR 162/SR 410 interchange projects will not likely be funded until after 2035. This will result in extensive congestion on the freeway as traffic on the off-ramps will continue to back up and affect the flow of the mainline travel lanes. Congestion on Traffic Avenue/Main Street and SR 162 will also be severely constrained. Much of the traffic using these two interchanges will come from Pierce County or the City of Puyallup.

Figure 6-1. Transportation Funding Program Process



In addition to the roadway capital costs, nearly $13.2 million (in 2015 dollars) will be needed to construct non-capacity-related arterial improvements. The non-capacity arterial improvements include installing signals on Puyallup Street and Fryar Avenue to improve operations and maintain safety when warranted. In addition, reconstruction of Main Street East and Wood Avenue intersection to improve intersection operations. Also, Wood Avenue and Zehnder Street railroad crossing is included in this category.

Almost $11.3 million is identified for improvements to the collector street system. These projects cover reconstructing collector streets to meet the City's standards. These projects help fill in the gap of missing sidewalks and drainage facilities, and to provide adequate lane widths. The program covers improvements to Parker Avenue, Wood Avenue, Elm Street, 160th Avenue E, and East Main Street.

Non-roadway or citywide transportation improvement projects and programs are estimated to cost almost $13.5 million over the 20-year life of the Transportation Plan. This includes $4 million in general administration, $2.5 million in maintenance, and $5.9 million in sidewalk, train station access, downtown improvements, and neighborhood traffic calming. The cost of the Sumner Trail System remaining segments are estimated at $1.1 million for the portion within the City.

Combined, the total costs for the City of Sumner are estimated at approximately $115 million. This equates to an average of $5.75 million each year for the life of the Plan through 2035.

Existing Revenues

Table 6-2 summarizes existing revenue sources used by the City to fund transportation projects and programs. The City of Sumner annually applies funds from various sources to finance transportation programs. These include the City's share of State fuel taxes and Plan Check Fees. The City also applies funds from its general fund and other minor miscellaneous programs. This would result in $22.8 million during the 20-year life of the plan (in 2015 dollars). The proposed general government funding is 19 percent higher than funding in recent years.

During recent years, the City has applied for and been awarded grants for key projects. These projects include the replacement of Bridge Street Bridge and 8th Street E/Steward Road Bridge. In addition, the City has used LIDs to help fund projects that benefit a specific area or group within the City.

The combined revenues, grants, LIDs, and other funding cover $21 million of the $115 million costs identified as the City's portion of the improvement program. This represents roughly 18.3 percent of the total funding needed.

Table 6-2 Existing Revenues

General Revenue Source	Annual Revenue (2015 dollars)	2015-2035 20-year Revenue (2015 dollars)
Motor Vehicle Fuel – City	$193,590	$3,871,800
Local Parking Tax	25,000	500,000
Street & Curb Permits	12,500	250,000
Plan Check Fees	36,750	735,000
General Government	869,680	17,393,600
Miscellaneous Fees, Interest	3,125	62,500
Total	**$1,140,645**	**$22,812,900**
Existing Grants or Other Funding		
Bridge Street Bridge Replacement		$10,180,640
Stewart Road Bridge Replacement		1,911,000
Puyallup Street Overlay		595,400
Transportation Improvement Board		541,400
Total		**$13,228,440**
Total Existing Revenue and Other Funding		**$36,041,340**

New Revenue Sources

To help cover the remaining two-thirds of Sumner's transportation program, other funding sources will need to be pursued. These include additional grants, continued application of LIDs and developer improvements, GMA-based TIFs, or other available general funding resources. Table 5-2 shows a conceptual funding strategy for each of the projects/programs. The table includes existing grants and LID funding, since the project costs also include those items.

Additional Grants

Several sources of grant funding are available to assist the City in funding its needed transportation projects. A total of $78 million is identified for potential grant funding, which includes $21 million in existing grant funding, leaving $57 million in new grants money to help fund the program.

Partial grant funding was allocated to projects based on the type and location of the improvement. Projects that would serve Sumner as well as regional traffic and provided multimodal solutions are excellent candidate for grants. Projects that also support economic development, such as the growth in the Sumner industrial area, are also good candidates.

Many transportation grant programs are very competitive. In order to improve the chances of the City obtaining the grants, the funding strategy allocates only 50 percent of the project cost for many projects. This process also reduces the reliance of the City in obtaining future grants. Some of the exceptions to the 50-percent limit include the Sumner Regional Trail System (80 percent), the 24th Street E railroad crossing grade separation (80 percent), Fryar Avenue (80 percent), and the Sumner Avenue non-motorized overcrossing (90 percent).

Projects with existing grants, such as the Traffic Avenue (Phase 2), Sumner Train Station, and SR 167/24th Street E interchange are listed based on actual funding.

The 24th Street E corridor and Bridge Street Bridge projects account for more than 41 percent of the proposed new grant funding. These projects are important to the City, but would not result in arterial LOS deficiencies if they cannot be fully funded over the life of the plan. Without the grant funding for these three projects, the City would need approximately $48 million in grants during the next 19 years.

Local Improvement District and Developer Improvements

As shown on Table 5-2, the strategy calls for approximately $13.6 million in funding from LIDs or other developer improvements. The LIDs or developer improvements would cover the cost of curb, gutter, sidewalks, planter strips, and a portion of the street lighting. This is estimated at approximately 25 percent or less of many of the identified arterial improvements. The improvements to West Valley Highway from Pacific Avenue to 36th Street E have a higher (65 percent) proportion of developer funding assigned since much of it would be completed as part of frontage requirements.

The collector road program generally allocates 25 percent of the improvement cost to LIDs or other funding by adjacent development. The City would work to set up the LIDs to provide at least that much benefit to the adjacent property owners. In order to accomplish the projects, the City could pursue low interest loans from the Public Works Trust Fund (PWTF) and then pay off the loans with annual proceeds from the LIDs.

Developers would also need to provide frontage improvements (if not covered by an established LID or other funding program). Other traffic mitigation could also be required through SEPA, which is the City's current mechanism for obtaining off-site improvements impacted by traffic from a development. If the City adopts a TIF (see below), then SEPA would be used to assess impacts and mitigation at locations that are not covered by the TIF.

Transportation Impact Fees

The GMA allows agencies to develop and implement a Transportation Impact Fee (TIF) program to help fund some of the costs of transportation facilities needed to accommodate growth. GMA requires that TIFs are:

- Related to improvements to serve new developments, not existing deficiencies;
- Assessed proportional to the impacts of new developments;
- Allocated for improvements that reasonably benefit new development; and
- Spent on facilities identified in the Capital Facilities Plan (CFP).

TIFs can only be used to help fund improvements that are needed to serve new growth. The projects can include recently completed projects to the extent that they serve future growth and did not solely resolve existing deficiencies. Costs of projects that add capacity to the transportation system can be included in the TIF program. The cost of the projects to resolve existing capacity deficiencies cannot be included. Costs for projects that only bring a street up to standards, such as addition of curbs, sidewalks, or drainage were defined as resolving existing deficiencies based on the City's road standards. Costs for the annual maintenance and operations program or general administration would also not be included in the TIF program since they are not directly addressing growth needs.

In order to arrive at conceptual TIFs for the Sumner Transportation Plan, the list of projects and programs was categorized as being candidates for inclusion in the TIF. Figure 6-2 includes a cost in the "Impact Fee" column for projects that met the GMA criteria and the City did not have funding already committed to. Figure **6-2** shows the projects identified for inclusion in the TIF.

The Sumner share of the project costs were allocated to other potential sources of revenues. As discussed above, these include possible grants, LIDs or other developer-related improvements, and general City funds. The travel forecasting model was used to define the proportion of growth-related traffic that was generated within Sumner versus growth in through traffic. Based on other potential funding and the relationship of local Sumner versus through traffic, the maximum share of the costs that could be allocated to the TIF program was calculated. The TIF allocation defined as part of the City's funding strategy will cover a relatively low percentage of the total project cost. The other part of the project costs would be funded through grants, direct developer frontage improvements, and the City's general fund. These other funds would cover the cost of resolving any existing operational or capacity deficiencies. It would also offset other funding that may be reasonably anticipated to be made by new development for system improvements through user fees, taxes, or other payments for the same improvements.

Table **6-3** summarizes the derivation of a cost per new PM peak hour trip generated by growth within Sumner. A total of $11,640,000 in project costs was allocated to the TIF program. Since the City has a large number of truck trips, the new trip generation between 2015 and 2035 was converted to passenger car equivalents based on an estimated percentage of new truck trips and relative impact of trucks versus cars. Trucks have been identified as having an impact of two to five (or more) passenger cars as it relates to traffic operations. Trucks have a significantly higher equivalent axle load impact on arterials than cars (up to 100-car equivalents). For purposes of the TIF calculations, each truck is considered as a four-passenger-car equivalent.

The City previously evaluated establishing the TIFs by district. This would result in different fees depending on the location of development. The fee for each district would cover all TIF projects throughout the City; however, the largest share of a districts fee would be for the improvements that most directly serve the developments in that part of the City. The TIF rates for the various areas of the City and its UGA were relatively close to the TIF rate for the City as a whole. Therefore, the City opted to adopt a single service area to reflect that new developments benefit from transportation projects throughout the City and simplify the implementation of the program.

Figure 6-2 shows the City and its UGA that are covered by the TIF program (upon incorporation of the UGA).

Table **6-3** shows the resulting TIF rates per new PM peak hour passenger car equivalent for the City and its UGA.

Figure 6-2. Traffic Impact Fee Projects

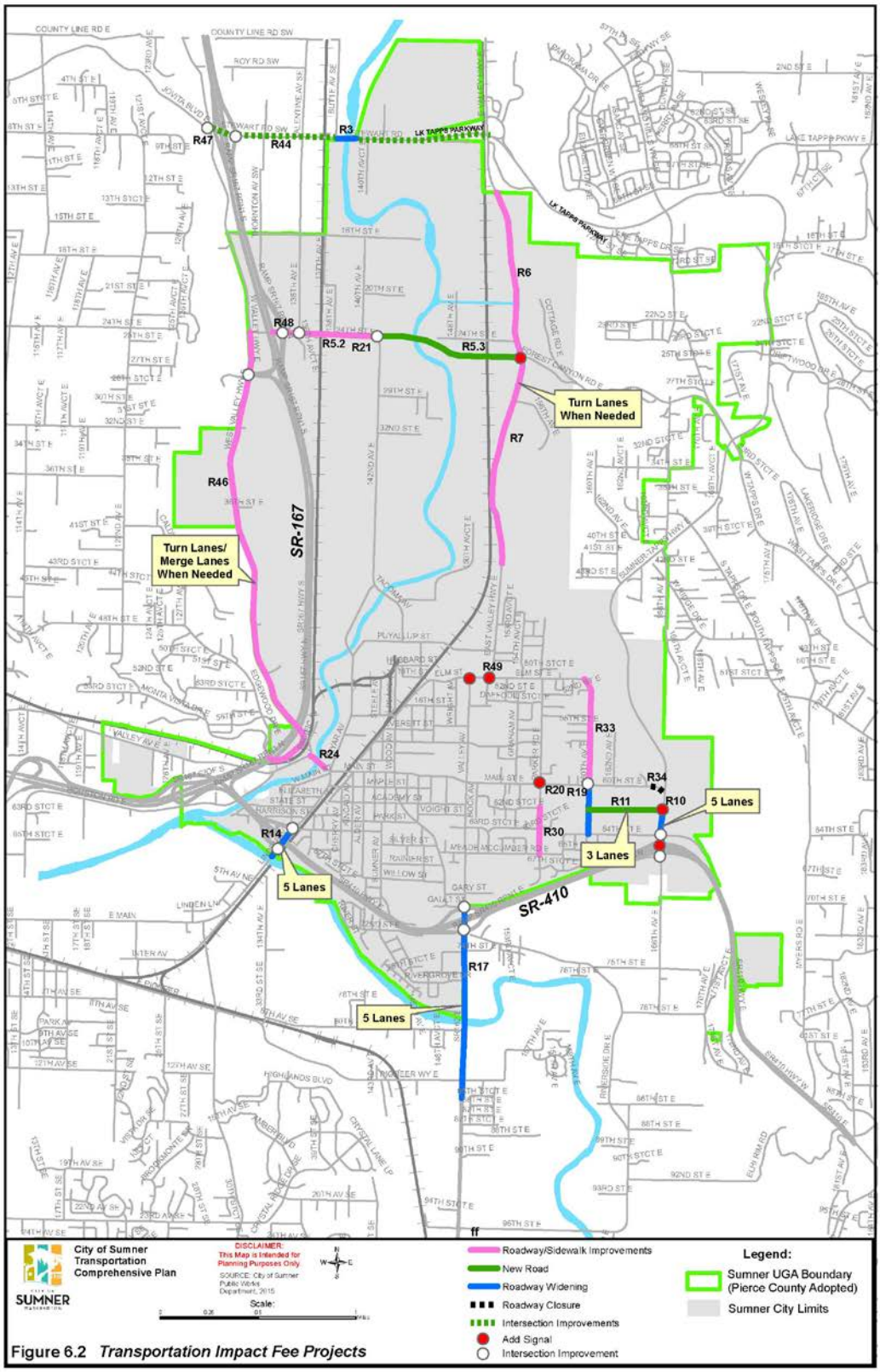


Table 6-3 Calculation of Transportation Impact Fee Rate

	Citywide Including UGA
Total Cost Share[1]	$27,031,000
Total New PM Peak Hour Trips (passenger car equivalents)	11,044
Cost Per New PM Peak Hour Trip (passenger car equivalents)	$2,448

[1] Total Cost Share in 2015 dollars, based on relative impact of 2015-2035 traffic growth

The cost per new PM peak hour trip is converted into a cost per unit of new development in the TIF rate schedule. This is based trip generation rates as compiled in the current edition of *Trip Generation Manual* (Institute of Transportation Engineers, 9th Edition, 2012). Adjustments for pass-by trips also are included in the rate schedule, especially for retail developments. The conversion also accounts for the percentage of truck trips generated and the passenger car equivalents by land use category. This process provides a single fee schedule for the City developers to use to calculate fees for standard land uses. Per GMA, the City needs to provide for consideration of additional studies or data provided by a developer in calculating the final fee. The City's TIF ordinance will need to be updated to reflect the revised TIF rate.

In addition, the City's TIF ordinance provides for applicants to receive credits against the TIF if they are required to construct all or a portion of a system improvement to the extent that they are funded by the TIF. Costs associated with dedication of right-of-way would also be credited to the extent that they were included in the TIF cost allocation. Credit provisions must take into account the overall funding program, which assigned a relatively low proportion of the total eligible costs to the TIF.

The City can reduce the TIF rate per net new PM peak hour trip as a matter of policy. This would result in the City and/or regional cost share increasing to cover the reduced TIF charges.

Exemptions for low income housing or other development projects that serve a broad public purpose also can be provided. These could include schools, parks, or City facilities. Again, the City would need to provide or obtain additional funding to offset the reduced fees due to the exemptions.

Summary of Financing Strategy

Table 6-4 summarizes the resulting transportation funding strategy for the Sumner Transportation Plan. All costs are in 2015 dollars for comparison. The identified funding with grants, LIDs, TIFs, and City transportation and general funds would result in $70.1 million in revenues over 19 years. This is $900,000 (1.3 percent) more than the estimated City share of the costs of improvement projects and programs.

The program is essentially balanced, but relies on significant funding through grants. As noted previously, more than 40 percent of the grant funding is identified for the Sumner Regional Trail System ($8.5 million), the grade separation of 24th Street E with the UPRR railroad tracks ($4.4 million), and the Sumner Avenue pedestrian overcrossing of SR 410.

Table 6-4 Funding Summary

	2015-2035 (in 2015 dollars)
City Transportation and General Funds	$32,812,900
Existing Grants/Other Funding	12,900,000
Other Potential Grants	74,299,000*
Local Improvement Districts/Developer Improvements	19,420,000
Developer Impact Fees	27,031,000
Total Funding	**$166,462,900**
Total Project Costs	**$112,990,000**
Estimated Surplus	***$53,472,900*** **

*This is not a guaranteed amount of funding.
**This calculation does not take into account other jurisdiction's cost to a project and does not accurately depict surplus to Sumner.

Future development TIFs would provide a significant level of additional funding. Overall, the TIF would be expected to generate 22 percent of the transportation funding for the Plan. The City will need to adopt a separate ordinance for the TIF. The ordinance could include a provision for reducing the overall fees by some factor or could provide exemptions for public facilities. These would reduce the available funding that would need to be made up from other sources.
In order to maintain the vitality of the City's transportation system, the City should adhere to the following principles in its funding program:

- As part of the development of the annual Six-Year Transportation Improvement Program, the City will balance improvement costs with available revenues;
- Coordinate with WSDOT to implement improvements on the State highway system to help keep regional through traffic off City streets;
- Pursue grants from State and Federal programs;
- Work with local agencies to develop multi-agency grant applications for projects that serve regional travel; and
- Provide priority for improvements that maintain the City's LOS standard.

Implementation Program

Implementation of the Sumner Transportation Plan involves several strategies. These include City design and construction of projects and partnering with other agencies to complete key regional or local area improvement projects. This may include defining phases of larger projects to resolve immediate safety or operations deficiencies.

Partnering with Other Agencies

The City is currently partnering with City of Pacific, City of Auburn, and Pierce County on the 8th Street E bridge replacement project and with WSDOT and City of Puyallup for the Traffic Avenue/SR 410 interchange project. These types of partnering will be critical in the implementation of the Transportation Plan.

Key projects to seek partners for include:

- SR 410/Traffic Avenue interchange
- SR 410/SR 162 interchange
- SR 410/Sumner-Tapps Highway
- 8th Street Bridge Replacement
- East Valley Highway north of Forest Canyon Road

All of these projects serve regional travel patterns as well as provide access to/from Sumner. Without partners, the City will not put a high priority on the improvements since they will likely attract additional through traffic. These projects should be considered for joint submittal of grants, with the local match being combined from benefiting agencies.

Project Phasing and Priorities

Many of the transportation improvement projects are fairly large and costly. As part of preliminary design studies, the City should identify opportunities for phasing projects. For example, widening of East Valley Highway could be phased by constructing intersection turn lanes and traffic signals as a first phase. This would likely resolve near term capacity or safety problems.

The City also could use the annual update of the Six-Year TIP to identify phasing opportunities. The Six-Year TIP also will be used to reevaluate priorities based on the adopted policies. This would include a review of traffic growth, accident records, and the location and intensity of growth in the City. This would allow the City to direct funding (including impact fees) to the areas that are most impacted by growth or may fall below the City's LOS standard.

Development Review and Concurrency Management

As part of the review of developments applications, the City will apply its level of service standards, and other regulations related to transportation. The City has identified general guidelines for traffic impact studies for development applications. The guidelines identify the general requirements for scoping the traffic analyses needs to assess potential traffic impacts and mitigation. In order to ensure fair and equitable review of development application, the City will work to refine the guidelines into a more formal program.

Key elements of the traffic study process under SEPA will cover:

- Evaluation of impacts on level of service;
- Transportation concurrency; and
- Mitigation of off-site impacts through impact fees (if adopted), LIDs, or direct developer mitigation.

The City will implement its concurrency requirements through the SEPA review process of development applications. This process is used since the City has limited availability of staff and limited technical resources to apply to implement systems that are more complex found in larger jurisdictions. The SEPA process also ties the concurrency to specific development applications, instead of applying it citywide or to subareas of the City.

The following summarizes the framework for the SEPA-based concurrency review:

- Traffic study required, scope to be based on traffic thresholds and impacts;

- Baseline traffic forecasts to be developed and based on existing traffic, historical growth rates, and pipeline development traffic;
- Project traffic based on trip generation, distribution, and assignment;
- Future conditions evaluated based on City or other agency improvements that are funded for construction within six years;
- Assess project impacts at locations that fall below the City's adopted LOS standard;
- Require mitigation to resolve LOS deficiencies, unless exempt from concurrency based on policies;
- If deficient location is exempt from concurrency, require appropriate mitigation (such as payment of impact fees or proportionate share mitigation, construct partial improvements to offset project impacts, or reduce development impacts through phasing or TDM programs);
- If adequate mitigation is not defined to resolve the LOS deficiency, then the City will deny the development; and
- Identified LOS deficiencies will be used to seek grants or other funding and as an input to the annual Six-Year TIP process.

7. Consistency with Other Agencies

The update of the Sumner Transportation Plan was conducted in coordination with WSDOT, Pierce County, and other local agencies in the vicinity of the City. This included establishing a Technical Advisory Committee (TAC) to provide input on the various plan tasks. This process also provided for coordination with regional and local transportation plans.

Overall, the City of Sumner Transportation Plan is consistent with local and regional transportation plans. It is a multimodal transportation plan incorporating transit (bus and rail), bicycle, pedestrian, and ridesharing programs. The plan identifies the need to preserve and maintain the existing street system to preserve prior capital expenditures in the transportation system serving Sumner and the surrounding communities.

The following summarizes the consistency of the Sumner Transportation Plan with the plans of other affected agencies.

Washington State Department of Transportation

As required by the 1998 amendments to the GMA, the Sumner Transportation Plan addresses the state highway system. Specifically the Transportation Plan addresses the following elements related to the state highway system:

- An inventory of existing facilities;
- Level of service standards;
- Concurrency on state facilities;
- Analysis of traffic impacts on state facilities; and
- Consistency with the *State Highway Systems Plan*.

Section 3 of the Transportation Plan provides an inventory of state facilities serving Sumner. These include SR 167, SR 410, and SR 162. SR 167 is designated as an HSS. Since SR 167 is an HSS, the State sets the LOS standard for the freeway and it cannot be included in the City's concurrency program.

The City's LOS standard of D or better is consistent with WSDOT's adopted LOS D standard for urban areas. The City's LOS D standard would apply to intersections along SR 162 within the City and at the interchange ramp intersections at SR 410/Traffic Avenue, SR 410/Valley Avenue (SR 162), and SR 410/Sumner-Tapps Highway. The standard also would apply to the future ramps of the new SR 167/North Sumner (24th Street E) interchange.

The LOS standard on State highways is used to monitor the performance of the system and to evaluate improvement strategies. It also aids in coordinating improvement programs between the City and State. The City's plan explicitly exempt the SR 162 corridor and the SR 410 interchange ramps from its concurrency program. This was done since WSDOT has indicated that while improvements are included in the *Highway Systems Plan 2003-2020*, the state does not have funding for needed improvements included in the next 20 years. The City will not deny developments that impact those locations that connect the City with the regional highway system. The City will coordinate with WSDOT on identifying improvements, potential mitigation of development impacts, and developing a regional funding approach for these facilities. This is consistent with Appendix G of the *State Highway Systems Plan 2003-2022*.

The travel forecasts developed for the Sumner Transportation Plan show the forecast traffic conditions and operations on the State highway system. The 2035 traffic projections take into account growth in Sumner and adjacent communities, consistent with the PSRC land use forecasts. Section 4 of the Transportation Plan Summarizes the travel forecasting methods and assumptions related to improvements on the state highway system.

The improvements to state highways identified in the City's Transportation Plan are consistent with those in the *State Highway Systems Plan 2003-2022*.

Table 7-1 compares improvements the improvements on state facilities listed in the State Highway Systems Plan and the Sumner Transportation Plan. The Sumner Transportation Plan provides additional detail to needed improvements at the SR 410 interchanges at Traffic Avenue, SR 162, and at Sumner-Tapps Highway. The Sumner Transportation Plan can be used by WSDOT in its next Plan Update to further define improvement needs and costs. The improvements at the SR 410/Sumner-Tapps Highway are not specifically listed in the State Highway Systems Plan. However, the State plans to add HOV lanes to SR 410 and call for improvements at interchanges in the corridor, which would include the Sumner-Tapps Highway location. The City will work with the State to define and implement appropriate structural and vegetative sound abatement as part of freeway widening projects.

As part of the TAC review, WSDOT staff indicated that the State does not have funding identified for the widening of SR 162 and its interchange at SR 410 through 2020. Funding for the HOV lanes on SR 410 and widening of the SR 410/Traffic Avenue interchange also are not currently funded before 2020.

Pierce County

The travel forecasts for the update of the Sumner Transportation Plan were developed using the Sumner travel demand model, which was originally based on the Pierce County model. The Sumner travel demand model was updated to reflect PSRC 2035 land use forecasts. Application of the Pierce County model provides consistency in modeling process and assumptions. More detail on the travel forecasting process and assumptions is presented in Section 4.

The most significant improvement project in the Transportation Plan involving Pierce County is the widening of 8th Street E Bridge over the White (Stuck) River. This project is being led by the City of Sumner with participation by Pierce County and the Cities of Auburn and Pacific. It provides the principal east-west route in the north part of the City of Sumner connecting with the recently constructed Stewart Road from the SR 167 interchange to Lake Tapps Parkway.

Pierce County's Transportation Plan also calls for widening of SR 162 between SR 410 and Orting. This is consistent with the State Highway Systems Plan and the Sumner Transportation Plan.

The Sumner Transportation Plan also includes Pierce County to widen the 166th Avenue E/78th Street E/Riverside Drive E corridor to three lanes from SR 410 to 96th Street. This widening would tie into the identified improvements at the SR 410/Sumner-Tapps Highway Interchange. It also includes Pierce County to participate in improvements to SR 410/SR 162 interchange and road widening from the interchange to the Puyallup River.

The Functional Classifications of arterials and collectors are consistent between the City's and County's Plans.

Table 7-1 State Highway Improvement Plans

State Route (limits)	Project ID#	Sumner Transportation Plan – General Description	State Highway Systems Plan Project Description	Comments
SR 162 (SR 410 to Puyallup River)	R-17.2 and 17.3	Widen overpass to five lanes and modify off-ramps. Widen SR 162 to 4/5 lanes.	Widen from 2/3 lanes to 4/5 lanes per Route Development Plan	Both plans also call for access management in corridor.
SR 167 (I-5 to SR 161)	R-1	Build 6-lane limited access freeway, including 2 HOV lanes.	Extend limited access freeway including 4 general purpose and 2 HOV lanes.	Would be built in stages.
SR 167 (37th St NW to SR 161	R-2	Add HOV lanes in each direction.	HOV lanes, interchange improvements, and Intelligent Transportation Systems.	Puget Sound Core HOV lanes.
SR 167 (Sumner Vicinity)	TBD	Construct park-and-ride lot.	Construct 500-space park-and-ride.	WSDOT Congested HSS improvement.
SR 167/SR 410 Interchange	37	Future HOV lane connection between SR 410 and SR 167. Implement structural and vegetative sound abatement, as appropriate.	EIS and right of way preservation for freeway to freeway HOV connection between SR 410 and SR 167.	WSDOT Congested Non-HSS.
SR 410 (White (Stuck) River Bridge to 184th Ave E)	38	Add HOV lanes in each direction and interchange improvements. Implement structural and vegetative sound abatement, as appropriate.	Widen from 4 to 6 lanes, creating 1 HOV lane in each direction and interchange improvements.	Per WSDOT Route Development Plan
SR 410 (Traffic Avenue Interchange)	R-14.3	Widen overcrossing to 4/5 lanes and modify ramps and traffic signals.	Widen bridge from to 2 to 4 lanes	WSDOT Congested Non-HSS
SR 410 (Sumner-Tapps Highway Interchange)	R-10.2	Add turn lanes and traffic signals to off-ramps and Sumner-Tapps Highway	Not specifically listed but interchange improvement included in SR 410 HOV improvements.	

HSS = Highway of Statewide Significance
HOV = High Occupancy Vehicle
EIS = Environmental Impact Statement

Sound Transit

The future transit recommendations in the Sumner Transportation Plan are consistent with Sound Transit's short and long-term plans for the area. Sound Transit's Route 578 offers off-peak and weekend service with overall reductions in headway. While Sound Transit

Route 596 offers peak weekday service from the Bonney Lake Park & Ride to the Sumner Station.

City of Auburn

The Sumner Transportation Plan only includes one improvement in Auburn. The City is planning on widening East Valley Highway to five lanes north of 8th Street E. This provides a continuation of the Auburn Way principal arterial to connect to the 8th Street E/Lake Tapps Parkway corridor.

City of Pacific

The Cities of Sumner and Pacific transportation systems connect in the northwest part of Sumner. The Sumner Transportation Plan is consistent with Pacific's improvement programs for 136th Avenue E (Valentine Road), West Valley Highway, and 138th Avenue E. These north-south routes provide for access and circulation in the industrial areas of both cities. The City of Pacific is also participating in Pierce County's expansion of 8th Street Bridge.

The Sumner Regional Trail system along the White (Stuck) River also will connect with segments in Pacific. Trail project is being coordinated between the two cities and Pierce County.

City of Edgewood

The City of Edgewood is located west of Sumner. The primary transportation system interface is in the Pacific Avenue/West Valley Highway corridor. Traffic using Sumner Heights Drive or Edgewood Drive E in southeast Edgewood access either Valley Avenue or Pacific Avenue. Traffic using Pacific Avenue can access SR 410 via Bridge Street and Traffic Avenue. As shown in Table 5-2 and on Figure 5-2, the Sumner Transportation Plan identifies improvements at the Traffic Avenue/SR 410 interchange . Future funding for these improvements may include grants. It would be important for Sumner to partner with Edgewood to secure these grants. The City of Sumner will require partnerships for funding the improvements, which are used by significant levels of regional traffic.

Traffic to/from Edgewood are able to use the 24th Street interchange with SR 167.

City of Puyallup

The Sumner Transportation Plan includes the City of Puyallup's extension of Shaw Road from Pioneer Way to E Main Avenue. The extension has drawn significant traffic to the SR 410/Traffic Avenue interchange. The City of Sumner understands the desire of Puyallup for the corridor. However, due to the traffic impacts at the SR 410/Traffic Avenue interchange, the City of Puyallup will support the extension of the SR 410/Traffic Avenue interchange and will contribute with the City of Sumner to the local costs associated with the improvements.

City of Puyallup has acknowledged the need for working with Sumner. This should include working together with WSDOT and Pierce County for regional funding of the SR 410/Traffic Avenue interchange.

Appendix A

Glossary of Acronyms

Glossary of Acronyms

ADA	Americans with Disabilities Act
ADB	Average Daily Boardings
ADT	Average Daily Traffic
BNSF	Burlington Northern Santa Fe Railroad
CFP	Capital Facilities Plan
CPTED	Crime Prevention Through Environmental Design
CTR	Commute Trip Reduction
EMME/2	A travel demand forecasting software package
ETC	Employee Transportation Coordinator
FAST	Freight Action Strategy for Seattle-Tacoma-Everett
FAZ	Forecast Analysis Zone
GMA	Growth Management Act
HB	House Bill
HCM	*Highway Capacity Manual*
HOV	High Occupancy Vehicle
HSS	Highway of Statewide Significance
LID	Local Improvement District
LOS	Level of Service
MTP	Regional Metropolitan Transportation Plan
NTCP	Neighborhood Traffic Control Program
PMS	Pavement Management System
PSRC	Puget Sound Regional Council
PWTF	Public Works Trust Fund
SEPA	State Environmental Policy Act
SOV	Single Occupant Vehicle
TAC	Technical Advisory Committee
TAZ	Transportation Analysis Zone
TC	Transportation Coordinator
TDM	Transportation Demand Management
TEA-21	Transportation Efficiency Act (Federal funding program)
TIF	Traffic Impact Fee
TIP	Transportation Improvement Program
TMA	Transportation Management Association
TSM	Transportation Systems Management
UGA	Urban Growth Area
UPRR	Union Pacific Railroad
v/c	Volume-to-capacity ratio
vph	Vehicles per hour
WSDOT	Washington State Department of Transportation

Appendix B

Conceptual Street Design Standards

Conceptual Street Design Standards

The Conceptual Street Design Standards are intended to provide consistency in the planning of City streets. This information should be used in conjunction with the City of Sumner's Zoning Code, the Sumner Urban Design and Development Guidelines, the City's Development Specifications, and where applicable, specific neighborhood plans. The matrices are not intended to supersede the recommendations or directions of the City of Sumner engineering staff and do not include detailed design criteria. However, they do provide a framework to develop valid roadway components within the City's overall transportation network.

Street Design Standards — General Considerations

The proposed Standards are intended to apply to all newly constructed public and private streets. As required by the City, these Standards would apply to the reconstruction of roadways identified in the current capital improvement program. They would also be required, at the discretion of the City, as development-related improvements for the following situations:

1. A development that is anticipated to impact the level of service or safety of an existing street would be responsible for street improvements in accordance with the Sumner Transportation Plan's Level of Service and Safety Standards. The extent of responsibility towards improvement would be based upon an assessment of development impacts directed by the City of Sumner.
2. A proposed development abutting an existing street would be responsible for frontage improvements in accordance with the Standards. The extent of responsibility towards the frontage improvement would be based upon an assessment of development impacts directed by the City of Sumner.
3. Any proposed development that contains internal roadways would construct them to meet Standards, or improve the existing internal street to meet the Standards.

Alternatives to the Standards may be proposed in writing to the City, and must be based upon site-specific factors and supported by sound engineering principles that maintain safety, function, and appearance as priorities.

Area Classifications

These classifications, in combination with *street classifications*, can be used to determine the standards for any street within the Sumner city limits. The intent is to allow flexibility consistent with the needs and character of each area and its land uses. A brief description of the proposed area classifications is as follows:

- **Downtown District**. This classification focuses on the characteristics of streets in the central business district and historic residential sections of Sumner. This area would generally be defined along Main Street bounded by Cherry, Park, and Meeker Streets.
- **Commercial**. This classification defines the characteristics of arterials in the mixed-use districts and neighborhood centers located along minor transportation corridors.
- **Industrial**. This classification applies to areas characterized by a predominance of manufacturing and warehousing uses. The need to accommodate tractor-trailer combinations is assumed.

- **Residential**. This classification applies to streets located in residential areas. Preserving neighborhood character and the comfort and safety of pedestrians are primary emphases.

  NOTE: Refer to the City of Sumner Urban Design Concept Plan and Design and Development Guidelines for additional information on each of these areas.

Street Classification

The standard functional street classification, (i.e., *Principal Arterial, Minor Arterial, Collector, Local Access Street, and Alley)* describes the majority of City streets and provides the basis for the transportation matrices.

Standards provided for the following classifications, in conjunction with the *area classifications*, are intended to serve as the basis for roadway design in the City of Sumner.

- **Principal Arterial**. Principal arterials are inter-community roadways connecting community centers or major facilities. Traffic generally flows at moderate speeds with limited access to adjacent land uses. Examples of principal arterials in Sumner include 8th Street E, East Valley Highway (north of Forest Canyon Road), and SR 162.
- **Minor Arterial**. Minor arterials collect and distribute traffic between higher classification streets, business centers, commercial centers, and neighborhoods. Minor arterials provide mobility and access to adjacent land uses. Examples of minor arterials include East Valley Highway, Valley Avenue, 142nd Avenue E, and Traffic Avenue.
- **Collector**. Collectors distribute traffic between higher classification streets and local destinations. Local traffic circulation and land access is emphasized over through traffic movements. These corridors are designed for low speeds. Meade-McCumber Road, Parker Road, Washington Street, and 16th Street East are Collector Street examples.
- **Local Access**. Local access streets are all city streets not listed as freeway, arterial or collector. These streets are intended to provide access to adjacent properties and form the connections of the grid street network. Local Access Streets are not intended to convey large volumes of pass-through traffic or to provide connections between areas outside of the immediate vicinity. The category is divided into three sub-classifications: Local Residential, Neighborhood s, and Local Non-Residential Access.
  - **Local Residential**. These streets are intended to serve property primarily designated for residential uses. Local Residential Streets are designated in those areas where Neighborhood Streets are not appropriate for the amount of through traffic and the adjacent land uses. Local Residential Streets are appropriate where adjacent land uses such as schools, parks, and commercial activities result in use of the street for extraordinary parking and circulation.
  - **Neighborhood**. Neighborhood Streets are primarily intended for residential areas developed with traditional neighborhood design. These streets are intended to support low traffic volumes. Neighborhood Streets typically have less than a 300-foot run between turns at street termini or offset intersections.
  - **Local Non-Residential**. These streets constitute the local-area street grid in commercial and industrial areas.

- **Alleys**. Alleys are intended to provide direct access to adjacent residential uses and businesses. They include a minimal width of paving and are designed for slow speeds. Alleys can accommodate both pedestrian and vehicle traffic. Paving materials vary depending on use. Alleys are present in Sumner's downtown commercial district, older residential sections, and in some newer residential developments. Design guidelines for alleyways are outlined within the City's Design Strategies and individual neighborhood plans.

Street Standards

The street standards should be used as a planning guide for the development or redevelopment of City streets. These standards serve as a benchmark for vehicular circulation and are determined by traffic volumes, speed, construction, and maintenance requirements. They are to be used in conjunction with the City of Sumner's Urban Design and Development Guidelines, Bicycle Plan, neighborhood plans, Zoning Code, and Development Specifications. Tables B-1 through B-11 outline the proposed street standards for the City. These standards have been developed through close coordination with the Public Works and Community Development Departments of the City.

The standards are presented in two separate tabular layouts, each presenting the same information to facilitate comparative review: Tables B-1 through B-4 present the Standards arrayed by area or character classifications: Downtown District, Commercial, Industrial, and Residential. Tables B-5 through B-11 present the same information arrayed by street classifications: Principle Arterial, Minor Arterial, Collector, Local Non-Residential Street, Local Residential Street, Neighborhood Street, and Alley. These standards include the descriptions and/or requirements for the planning data such as number of lanes, lane widths, medians, sidewalks, streetscape elements, bike lanes, and on-street parking.

Information used for the various areas and street classification matrices was derived from the following sources: Sumner Municipal Code, City of Sumner Design and Development Guidelines, Time-Saver Standards for Landscape Architecture, Sumner Comprehensive Transportation Plan (1998), East Main Street Design Strategy, and East Sumner Neighborhood Plan. The matrices reference these sources.

Table B-1

Conceptual Area Standards – Downtown District

	Street Classification						
	Principal Arterial	Minor Arterial	Collector	Local Non-Residential	Local Residential	Neighborhood	Alley
Property	N/A					N/A	
Right-of-Way		60’	60’	60’	60’		20’
Paved		40’	40’	36’	36’		20’
Traffic Lanes							
Number of Lanes		2	2	2	2		2
Interior Width		12’	12’	10’ (12’ w/out Parking)	10’ (12’ w/out Parking)		10’
Exterior Width		N/A	N/A	N/A	N/A		N/A
Left-Turn Lane		N/A	N/A	N/A	N/A		N/A
Right-Turn Lane		N/A	N/A	N/A	N/A		N/A
Medians							
Requirement		N/A	N/A	N/A	N/A		N/A
Min/Max Width							
W/Pedestrian Refuge							
On-Street Parking							
Requirement		Both Sides	Both Sides	Both Sides	Both Sides		None
Width		8’	8’	8’	8’		
Sidewalks							
Requirement		Both Sides	Both Sides	Both Sides	Both Sides		N/A
Walkway Width		8’ – 10’	8’-10’	8’-10’	5’		
Bulbs at Key Intersections		Optional			Optional		
Planting Strip Minimum		N/A	N/A	N/A	5’		
Bike Lanes/Widened Shoulder							
Requirement		See Bike Plan	See Bike Plan	See Bike Plan	See Bike Plan		N/A
Streetscape							
Trees		Required	Required	Required	Required		N/A
Street Furniture (benches, etc.)		Guidelines	Guidelines	Guidelines	Guidelines		N/A
Lighting (see Guidelines)		Required	Required	Required	Required		Required
Ped. Crosswalks		Required	Required	Required	Required		Required

Additional right-of-way/paving required if street accommodates bicycles.

Table B-2

Conceptual Area Standards – Commercial

	Street Classification						
	Principal Arterial	Minor Arterial	Collector	Local Non-Residential	Local Residential	Neighborhood	Alley
Property					N/A	N/A	
Right-of-Way *	66'-82'	60'	60'	60'			24'
Paved *	40'-60'	38'	40'	36'			24'
Traffic Lanes							
Number of Lanes	3/5	2-3	2	2			2
Interior Width	11'	12'	12'	10' (12' w/out Parking)			12'
Exterior Width	13'	N/A	N/A	N/A			N/A
Left-Turn Lane	Continuous	Channelized	Channelized	N/A			N/A
Right-Turn Lane	Channelized	Channelized	Optional	N/A			N/A
Medians							
Requirement	Optional	Optional	Optional	Optional			N/A
Min-Max Width	10'	8'-10'	8'-120'	8'-10'			
Pedestrian Refuge Width	10'	8'	6'-10'	6'-10'			
On-Street Parking							
Requirement	None	0-2 Sides	Both Sides	Both Sides			None
Width	N/A	8'	8'	8'			
Sidewalks							
Requirement **	Both Sides	Both Sides	Both Sides	Both Sides			N/A
Walkway Width	7.5'-10'	7.5'	7.5'	7.5'			
Bulbs at Key Intersections	N/A	Optional	N/A	None			
Planting Strip Minimum	N/A	0'	0'	0'			
Bike Lanes/Widened Shoulder							
Requirement	See Bike Plan	See Bike Plan	See Bike Plan	See Bike Plan			N/A
Streetscape							
Trees	Required	Required	Required	Required			N/A
Street Furniture (benches, etc.)	Transit Stop	Guidelines	Guidelines	Guidelines			N/A
Lighting (see Guidelines)	Required	Required	Required	Required			Required
Ped. Crosswalks	Required	Required	Required	Required			Required

* Additional right-of-way/paving required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-3

Conceptual Area Standards – Industrial

	Street Classification						
	Principal Arterial	Minor Arterial	Collector	Local Non-Residential	Residential Street	Neighborhood	Alley
Property					N/A	N/A	
Right-of-Way *	66'/82'	66'/72'	66'/72'	60'			24'
Paved *	40'/60'	40'/50'	40'/50'	38'			24'
Traffic Lanes							
Number of Lanes	3-5	3	3	2			2
Interior Width	11'	12'	12'	10' (12' w/out Parking)			12'
Exterior Width	13'	14'	14'	N/A			N/A
Left-Turn Lane	Continuous	Channelized	Channelized	N/A			N/A
Right-Turn Lane	Channelized	N/A	N/A	N/A			N/A
Medians							
Requirement	Optional	Optional	Optional	Optional			N/A
Min/Max Width	10'	8' – 10'	8' – 10'	8'-10'			
W/Pedestrian Refuge	N/A	6'-10'	6'-10'	6'-10'			
On-Street Parking							
Requirement	None	None	None	Both Sides			None
Width	N/A	N/A	N/A	8'			
Sidewalks							
Requirement **	Both Sides	Both Sides	Both Sides	Both Sides			N/A
Walkway Width	5'	5'	5'	5'			
Bulbs at Key Intersections	N/A	N/A	N/A	None			
Planting Strip Minimum	5'	5'	5'	5'			
Bike Lanes/Widened Shoulder							
Requirement	See Bike Plan	See Bike Plan	See Bike Plan	See Bike Plan			N/A
Streetscape							
Trees	Required	Required	Required	Required			N/A
Street Furniture (benches, etc.)	Transit Stop	Transit Stop	Transit Stop	Guidelines			N/A
Lighting (see Guidelines)	Required	Required	Required	Required			Required
Ped. Crosswalks	Required	Required	Required	Required			N/A

* Additional right-of-way/paving required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-4

Conceptual Area Standards - Residential

	Street Classification						
	Principal Arterial	Minor Arterial	Collector	Local Non-Residential	Local Residential	Neighborhood	Alley
Property				N/A			
Right-of-Way*	66'/82'	60'	60'		60'	50'	16'
Paved*	40'/60'	38'	36'		34'	28'	16'
Traffic Lanes							
Number of Lanes	3/5	2-3	2		2	2	1
Interior Width	11'	11'	11'		10'	10'	16'
Exterior Width	13'	12'	N/A		N/A	N/A	N/A
Left-Turn Lane	Continuous	Channelized	12'		N/A	N/A	N/A
Right-Turn Lane	Channelized	Channelized	N/A		N/A	N/A	N/A
Medians							
Requirement	Optional	Optional	Optional		Optional	Optional	N/A
Min/Max Width	10'	8'-10'	8'-10'		8'-10'	6'	
Min. W/Pedestrian Refuge	10'	6'-10'	6'-10'		6'	6'	
On-Street Parking							
Requirement	None	Both Sides	Both Sides		Both Sides	One Side	None
Width	N/A	8'	7'		7'	8'	
Sidewalks							
Requirement**	Both Sides	Both Sides	Both Sides		Both Sides	Both Sides	N/A
Walkway Width	5'	5'	5'		5'	5'	
Bulbs at Key Intersections	N/A	Optional	Optional		Optional	N/A	
Planting Strip Minimum	6'	6'	6'		7'	5'	
Bike Lanes/Widened Shoulder							
Requirement	See Bike Plan	See Bike Plan	See Bike Plan		See Bike Plan	N/A	N/A
Streetscape							
Trees	Required	Required	Required		Required	Required	N/A
Street Furniture (benches, etc.)	Transit Stop	Guidelines	Guidelines		Guidelines	Optional	N/A
Lighting (see Guidelines)	Required	Required	Required		Required	Required	Required
Ped. Crosswalks	Required	Required	Required		Required	Required	N/A

* Additional right-of-way/paving required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-5

Conceptual Street Standards – Principal Arterials

	Area Classification			
	Downtown District	Commercial	Industrial	Residential
Property	N/A			
Right-of-Way Minimum *		66'/82'	66'/82'	66'/82'
Paved Minimum *		40'/60'	40'/60'	40'/60'
Traffic Lanes				
Number of Lanes		3/5	3/5	3/5
Interior Widths		11'	11'	11'
Exterior		13'	13'	13'
Left-Turn Lane		Continuous	Continuous	Continuous
Right-Turn Lane		Channelized	Channelized	Channelized
Medians				
Requirement		Optional	Optional	Optional
Width		10'	10'	10'
Min. W/Pedestrian Refuge		10'	10'	10'
On-Street Parking				
Requirement		None	None	None
Width		N/A	N/A	N/A
Sidewalks				
Requirement**		Both Sides	Both Sides	Both Sides
Walkway Width: Minimum		7.5'-10'	5'	5'
Bulbs at Key Intersections		N/A	N/A	N/A
Planting Strip Width: Min.		N/A	5'	6'
Bike Lanes/Widened Shoulder				
Requirement		See Bike Plan	See Bike Plan	See Bike Plan
Streetscape				
Trees		Required	Required	Required
Street Furniture (benches, etc.)		Transit Stop	Transit Stop	Transit Stop
Street Lighting		Required	Required	Required
Ped. Crosswalks		Required	Required	Required

* Additional right-of-way required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-6

Conceptual Street Standards – Minor Arterials

	Area Classification			
	Downtown District	Commercial	Industrial	Residential
Property				
Right-of-Way Minimum *	60’	60’	66’/72’	60’
Paved Minimum *	40’	38’	40’/50’	38’
Traffic Lanes				
Number of Lanes	2	2-3	3	2-3
Interior Widths	12’	12’	12’	11’
Exterior	N/A	N/A'	14’	12'
Left-Turn Lane	N/A	Channelized	Channelized	Channelized
Right-Turn Lane	N/A	Channelized	N/A	Channelized
Medians				
Requirement	N/A	Optional	Optional	Optional
Min/Max Width		8’ to10'	8’-10’	8’ to10'
Min. W/Pedestrian Refuge		8’	6’-10’	6’-10’
On-Street Parking				
Requirement	Both Sides	0-2 Sides	None	Both Sides
Width	8’	8’	N/A	8’
Sidewalks				
Requirement **	Both Sides	Both Sides	Both Sides	Both Sides
Walkway Width: Minimum	8’ – 10’	7.5’	5’	5’
Bulbs at Key Intersections	Optional	Optional	N/A	Optional
Planting Strip Minimum	0’	0’	5’	6’
Bike Lanes/Widened Shoulder				
Requirement	See Bike Plan	See Bike Plan	See Bike Plan	See Bike Plan
Streetscape				
Trees	Required	Required	Required	Required
Street Furniture (benches)	Guidelines	Guidelines	Transit Stop	Guidelines
Lighting (see Guidelines)	Required	Required	Required	Required
Pedestrian Crosswalks	Required	Required	Required	Required

* Additional right-of-way required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-7

Conceptual Street Standards – Collector Streets

	Area Classification			
	Downtown District	Commercial	Industrial	Residential
Property				
Right-of-Way Minimum	60’	60’	66’/72’	60’
Paved Minimum	40’	40’	40’/50’	36’
Traffic Lanes				
Number of Lanes	2	2	3	2
Interior Widths	12’	12’	12’	11’
Exterior	N/A	N/A	14’	N/A
Left-Turn Lane	N/A	Channelized	Channelized	12’
Right-Turn Lane	N/A	Optional	N/A	N/A
Medians				
Requirement	N/A	Optional	Optional	Optional
Min/Max Width		8'-10’	8’-10’	8’-10’
Pedestrian Refuge Width		6’-10’	6’-10’	6’-10’
On-Street Parking				
Requirement	Both Sides	Both Sides	None	Both Sides
Width	8’	8’	N/A	7’
Sidewalks				
Requirement **	Both Sides	Both Sides	Both Sides	Both Sides
Walkway Width: Minimum	8’-10’	7.5’	5’	5’
Bulbs at Key Intersections	N/A	N/A	N/A	Optional
Planting Strip Minimum	0’	0’	5’	6’
Bike Lanes/Widened Shoulder				
Requirement	See Bike Plan	See Bike Plan	See Bike Plan	See Bike Plan
Streetscape				
Trees	Required	Required	Required	Required
Street Furniture (benches)	Guidelines	Guidelines	Transit Stop	Guidelines
Lighting (see Guidelines)	Required	Required	Required	Required
Pedestrian Crosswalk Markings	Required	Required	Required	Required

* Additional right-of-way required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-8

Conceptual Street Standards – Local Non-Residential Streets

	Area Classification			
	Downtown District	Commercial	Industrial	Residential
Property				N/A
Right-of-Way *	60’	60’	60’	
Paved *	36’	36’	36’	
Traffic Lanes				
Number of Lanes	2	2	2	
Interior Widths	10’ (12’ w/out Parking)	10’ (12’ w/out Parking)	10’ (12’ w/out Parking)	
Exterior	N/A	N/A	N/A	
Left-Turn Lane	N/A	N/A	N/A	
Right-Turn Lane	N/A	N/A	N/A	
Medians				
Requirement	N/A	Optional	Optional	
Min/Max Width		8’-10’	8’-10’	
Pedestrian Refuge Min/Max		6’-10'	6’-10'	
On-Street Parking				
Requirement	Both Sides	Both Sides	Both Sides	
Width	8’	8’	8’	
Sidewalks				
Requirement **	Both Sides	Both Sides	Both Sides	
Walkway Width: Minimum	8’-10’	7.5’	5’	
Bulbs at Key Intersections	None	None	None	
Planting Strip Minimum	N/A	N/A	5’	
Streetscape				
Trees	Required	Required	Required	
Street Furniture (benches)	Guidelines	Guidelines	Guidelines	
Lighting (See Guidelines)	Required	Required	Required	
Ped. Crosswalk Markings	Required	Required	Required	
Bike Lanes/Widened Shoulder				
Requirement	See Bike Plan	See Bike Plan	See Bike Plan	

* Additional right-of-way required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-9

Conceptual Street Standards – Local Residential Streets

	Area Classification			
	Downtown District	Commercial	Industrial	Residential
Property		N/A	N/A	
Right-of-Way	60’			60’
Paved	36’			34’
Traffic Lanes				
Number of Lanes	2			2
Interior Widths (with Parking)	10’ (12’ w/out Parking)			10’
Exterior	N/A			N/A
Left-Turn Lane	N/A			N/A
Right-Turn Lane	N/A			N/A
Medians				
Requirement	N/A			Optional
Min/Max Width				8’-10’
Pedestrian Refuge Min/Max				6’
On-Street Parking				
Requirement	Both Sides			Both Sides
Width	8’			7’
Sidewalks				
Requirement	Both Sides			Both Sides
Walkway Width: Minimum	5’			5’
Bulbs at Key Intersections	Optional			Optional
Planting Strip Minimum	5’			7’
Streetscape				
Trees	Required			Required
Street Furniture (benches)	Guidelines			Guidelines
Lighting (See Guidelines)	Required			Required
Ped. Crosswalk Markings	Required			Required
Bike Lanes/Widened Shoulder				
Requirement	See Bike Plan			See Bike Plan

* Additional right-of-way required if street accommodates bicycles.
** In areas of limited right-of-way, sidewalk requirements shall be provided on one-side of the street.

Table B-10

Conceptual Street Standards – Neighborhood Streets

	Area Classification			
	Downtown District	Commercial	Industrial	Residential
Property	N/A	N/A	N/A	
Right-of-Way				50’
Paved (Min/Max)				28’
Traffic Lanes				
Number of Lanes				2
Interior Widths				10’
Exterior				N/A
Left-Turn Lane				N/A
Right-Turn Lane				N/A
Medians				
Requirement				Optional
Minimum Width				6’
Pedestrian Refuge – Min. Width				6’
On-Street Parking				
Requirement				One Side
Width				8’
Sidewalks				
Requirement				Both Sides
Walkway Width: Minimum				5’
Bulbs at Key Intersections				N/A
Planting Strip Minimum				5’
Bike Lanes/Widened Shoulder				
Requirement				N/A
Streetscape				
Trees				Required
Street Furniture (benches)				Optional
Lighting (See Guidelines)				Required
Pedestrian Crosswalk Markings				Required

Table B-11

Conceptual Street Standards – Alleys

	Area Classification			
	Downtown District	Commercial	Industrial	Residential
Property				
Right-of-Way	20’	24’	24’	16’
Paved	20’	24’	24’	16’
Traffic Lanes				
Number of Lanes	2	2	2	1
Interior Widths	10’	12’	12’	16’
Exterior	N/A	N/A	N/A	N/A
Left-Turn Lane	N/A	N/A	N/A	N/A
Right-Turn Lane	N/A	N/A	N/A	N/A
Medians				
Requirement	N/A	N/A	N/A	N/A
Min/Max Width				
Min. W/Pedestrian Refuge				
On-Street Parking				
Requirement	None	None	None	None
Width				
Sidewalks				
Requirement	N/A	N/A	N/A	N/A
Walkway Strip: Minimum				
Bulbs at Key Intersections				
Planting Strip Minimum				
Bike Lanes/Widened Shoulder				
Requirement	N/A	N/A	N/A	N/A
Streetscape				
Trees	N/A	N/A	N/A	N/A
Street Furniture (benches)	N/A	N/A	N/A	N/A
Lighting	Required	Required	Required	Required
Pedestrian Crosswalk Markings	Required	Required	N/A	N/A

Appendix C

Level of Service Definitions

Level of Service Definitions

Roadway level of service (LOS) is based on average through-vehicle travel speed for the segment or for the entire street under consideration. Travel speed is the basic service measure for urban streets. The average travel speed is computed from the running times on the urban street and the control delay of through movements at signalized intersections.

The control delay is the portion of the total delay for a vehicle approaching and entering a signalized intersection that is attributable to traffic signal operation. Control delay includes the delays of initial deceleration, move-up time in the queue, stops, and re-acceleration.

The LOS for urban streets is influenced both by the number of signals per mile and by the intersection control delay. Inappropriate signal timing, poor progression, and increasing traffic flow can degrade the LOS substantially. Streets with medium-to-high signal densities (i.e., more than two signals per mile) are more susceptible to these factors, and poor LOS might be observed even before significant problems occur. On the other hand, longer urban street segments comprising heavily loaded intersections can provide reasonably good LOS, although an individual signalized intersection might be operating at a lower level. The term "through vehicle" refers to all vehicles passing directly through a street segment and not turning.

Table C-1 lists urban street LOS criteria based on average travel speed and urban street class. It should be noted that if demand volume exceeds capacity at any point on the facility, the average travel speed might not be a good measure of the LOS.

Table C-1
Level of Service Criteria for Roadways by Class

Urban Street Class[1]	I	II	III	IV
Range of FFS[2]	55 to 45 mph	45 to 35 mph	35 to 30 mph	35 to 25 mph
Typical FFS	50 mph	40 mph	35 mph	30 mph
LOS	Average Travel Speed (mph)			
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	≤ 16	≤ 13	≤ 10	≤ 7

From *Highway Capacity Manual* (2000)
FFS = Free-Flow Speeds

Signalized intersection LOS is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection

capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the Highway Capacity Manual 2010 (Transportation Research Board, 2010).

Table C-2
Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay Per Vehicle (Seconds)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F[1]	> 80	Forced flow (congested and queues fail to clear)

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into three intersection types: all-way stop, two-way stop, and roundabout control. All-way stop and roundabout control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table C-3
Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Total Delay (sec/veh)
A	0 -10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F[1]	>50

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay