VI. Transportation Element

Introduction

Purpose and Intent

The purpose of the Transportation Element is to establish goals and policies which will accommodate the anticipated levels of growth within Duvall and the designated Urban Growth Area (UGA). This element, an integral part of the overall Comprehensive Plan, includes land use projections establishing transportation needs, and identifies the specific transportation projects for the Capital Facilities Element. The Transportation Element addresses street classifications, levels of service, travel forecasts, travel improvements, alternative modes, funding strategies and concurrency management.

During 2002-2003, with the assistance of a planning consulting firm, the City held visioning forums in which citizens clearly identified transportation as one of their highest priorities to address. Since transportation issues in Duvall are generated on a local and regional level, the intent of this element is to create strategies that will:

- Encourage mitigation of traffic congestion;
- Increase vehicular and pedestrian safety;
- Ensure adequate infrastructure is planned for future growth within the City and surrounding area;
- Encourage alternative cost-effective modes of transportation such as transit;
- Protect neighborhoods from the negative impacts of highway and arterial roads;
- Protect the human and natural environment from noise, air, and visual impacts;
- Improve traffic flow and efficiency, and;
- Promote Healthy Communities.

The Transportation Element was updated in 2006 to include revised land use classifications, additional land use information, and a revised Transportation Improvement Plan (TIP) as part of the South UGA annexation.

The Transportation Element was updated in 2009 to include new baseline information, revised land use and population forecast information based on current zoning, travel demand modeling, greater emphasis on non-motorized transportation planning, and revised Capital Improvement Program (CIP) and transportation impact fee (TIF) calculations. The most significant changes to the plan included the 2007 TNR annexation (located north of the Legacy Ridge neighborhood in the northeast corner of the City) and the 2008 zoning revisions that allowed an increase in mixed use development east of the Safeway Plaza in southwest portion of the City along Big Rock Road. In addition, the 2009 update addresses the Growth Management Act Healthy

Communities initiative by promoting increased physical activity through improved non-motorized transportation planning.

The 2009 Transportation Element update was completed with the assistance of Transpo Group, the City's transportation planning consulting firm, and cooperation between the City's Planning and Public Works Departments. Details of the transportation modeling are located in the "City of Duvall Travel Demand Model Documentation" (Transpo Group, December 2009). The land use and population forecasts are presented in the November 28, 2008 report titled "Housing and TAZ Capacity Analysis Study" (See Appendix B). Details of the TIF update are documented in the City of Duvall TIF background spreadsheets and the December 2009 City of Duvall Transportation Impact Fee schedule.

Regulatory Setting

Growth Management Act

Under the Growth Management Act (GMA) (RCW 36.70A.070), the Transportation Element is required to assess the needs of a community and determine how to provide appropriate transportation facilities for current and future residents. The element must contain:

- Inventory of existing facilities;
- Assessment of future facility needs to meet current and future demands;
- Multi-year plan for financing proposed transportation improvements;
- Forecasts of traffic for at least 10 years based on adopted land use plan;
- Level of Service (LOS) standards for arterials and public transportation, including actions to bring deficient facilities into compliance;
- Transportation Demand Management (TDM) strategies, and;
- Identification of intergovernmental coordination efforts.

Additionally, under the City's concurrency management policy, development may not occur if the development causes the transportation facility to decline below the City's adopted LOS standard unless existing infrastructure exists or strategies to accommodate the impacts of the development are made within six years of the development. Finally, the Element must include a reassessment strategy to address how the plan will respond to potential funding shortfalls.

Puget Sound Regional Council- VISION 2040

VISION 2040 was adopted as the central Puget Sound region's long-range strategy for growth management, the environment, economic development, and transportation in April 2008. While *VISION 2040* builds on previous regional plans for the four-county region, including the *VISION 2020* (1995) and *VISION 2030* (2001) updates, it also introduces new provisions to guide and coordinate regional and local planning in King, Kitsap, Pierce, and Snohomish counties. Successful implementation of *VISION 2040* relies on successful implementation of local comprehensive plans.

In order to address *VISION 2040*, updated countywide planning policies need to be completed by December 2010 and the GMA requires review and update of local comprehensive plans in 2013. The City of Duvall will comply with the *VISION 2040* requirements as part of the next plan amendment.

Countywide Planning Policies

The King County Countywide Planning Policies (CWPPs) require that local jurisdictions develop a balanced Transportation Element that is consistent with *VISION 2040* and proposed regional mobility (i.e. autos, transit, bicycle, pedestrian, air, etc). The CWPPs promote high capacity transit, non-motorized transportation, high-occupancy vehicle travel, mode-split goals, preservation and maintenance of existing transportation facilities, and development of financing strategies to meet future needs. LOS calculations should be consistent to aid in determining accountability and impacts of projects. Each comprehensive plan should include timelines for improvements, focusing on preservation and maintenance of existing infrastructure with additions as necessary to accommodate future growth. When funding falls short of projected needs, alternative funding sources should be sought. These sources may include developer contributions, impact fees, local improvements districts, etc.

Clean Air Conformity Act

The Transportation Element is also subject to the Washington State Clean Air Conformity Act that implements the directives of the Federal Clean Air Act. Because air quality is a region wide issue, the City of Duvall's Comprehensive Plan must support the efforts of state, regional, and local agencies as guided by WAC 173-420-080.

Healthy Communities

Recognizing the growing need for physical activity among citizens, the Washington State Legislature amended the GMA in 2005 with the Healthy Communities Amendment, ESSB 5186. Comprehensive plans are directed to address the promotion of Healthy Communities through urban planning and transportation approaches. The two amendments to the GMA require that communities:

1. Consider urban planning approaches that promote physical activity in the Land Use Element of a comprehensive plan, and:
2. Include a bicycle and pedestrian component in the Transportation Element of a comprehensive plan.

Organization

The Transportation Element is organized into seven parts:

- Identification of community transportation issues;
- Assessment of existing transportation facilities that identify existing transportation needs;
- Travel forecasts and analysis of future conditions that identifies where changes to the transportation system are needed;
- Recommended transportation plan;

- Transportation finance plan;
- Development review and concurrency program, and;
- Goals and policies.

Community Transportation Issues

As part of the 2003 City-Wide Visioning Plan, Duvall residents identified the conditions and issues that face the City of Duvall's transportation system. A primary concern of community residents is how future growth will affect the City and how to preserve the small town feeling as traffic growth continues and needs for transportation improvements increase. A focus of the community's concern surrounded the future of the SR-203/Main Street corridor and possible improvements necessary to accommodate future traffic growth.

Although traffic capacity was an issue of concern, traffic calming measures, rather than high-speed capacity improvements, were considered the top priority by planning participants to mitigate traffic along Main Street. Some of the issues identified by the participants in the visioning process include:

- Community Character – retaining the look and feel and pedestrian scale of "Old Town";
- Truck Traffic – reducing the number of trucks and impact of truck traffic in Old Town pedestrian areas, either by creating mechanisms to slow traffic or considering alternate routes;
- Economic Preservation – ensuring that future economic viability is maintained for businesses, including the retention of parking on Main Street;
- Safety – providing safe crossings for pedestrians and vehicles;
- Operations – allowing for the efficient movement of local and through traffic, including facilities for non-motorized vehicles and pedestrians;
- Connectivity – providing strong access to parks, the Snoqualmie River and old and new parts of town. Ensuring connected bicycle and pedestrian facilities throughout the City, and;
- Environmental – preserving air and water quality.

The north section of NE Main Street was improved from NE Bird Street to Ring Street NE in 2008 and 2009. The improvements included traffic calming medians, curb extensions, differentiated pedestrian street crossing materials, dedicated parking, and new bike lanes and sidewalks. Utility improvements, undergrounding of overhead utilities, way-finding signs, and art elements were also completed as part of the improvements. Future phases of improvements are planned for the section of NE Main Street south of NE Ring Street.

Healthy Community issues were identified as part of the 2009 update. Public participation along with Planning Commission and City Council input were solicited as part of the Healthy Communities portion of the 2009 Transportation Element update.

Comments from the Healthy Communities public involvement process are incorporated into the plan along with visioning for non-motorized transportation.

Existing Transportation Services and Facilities

The assessment of existing transportation services and facilities allows the identification of transportation issues and needs. An inventory of these facilities provides a reference point of the operation of transportation facilities and services and allows identification of where needs exist. This inventory updates the 2006 Transportation Element Update and includes the following areas:

- Roadway system
- Transportation Demand Management (TDM)
- Pedestrian facilities
- Air services
- Transit
- Parking
- Bicycle facilities
- Freight movement

Roadway System & Traffic Controls

Roadway Classifications

Streets function as a network. The efficiency of the street network system is dependent upon how streets move traffic through the system. Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. The main classes of streets in Duvall include: principal arterials, minor arterials, and collector arterials along with residential and commercial access streets. The City of Duvall's functional classification system is set forth in the *City of Duvall Development Design Standards* (2007). These standards provide detailed specifications for the use and construction of roadways.

Both existing and future arterials are shown on Figure T-1: Roadway Functional Classifications.

Principal Arterial

Principal arterials are highways connecting major community centers and outlying areas, or roads that have relatively high traffic volumes within the City, often constructed with partial limitations on access through intersections and common driveways. Principal arterials can have between two and five lanes and are generally intended to serve "through" traffic. Principal arterials in the Duvall area include Main Street (SR-203) and Woodinville-Duvall Road.

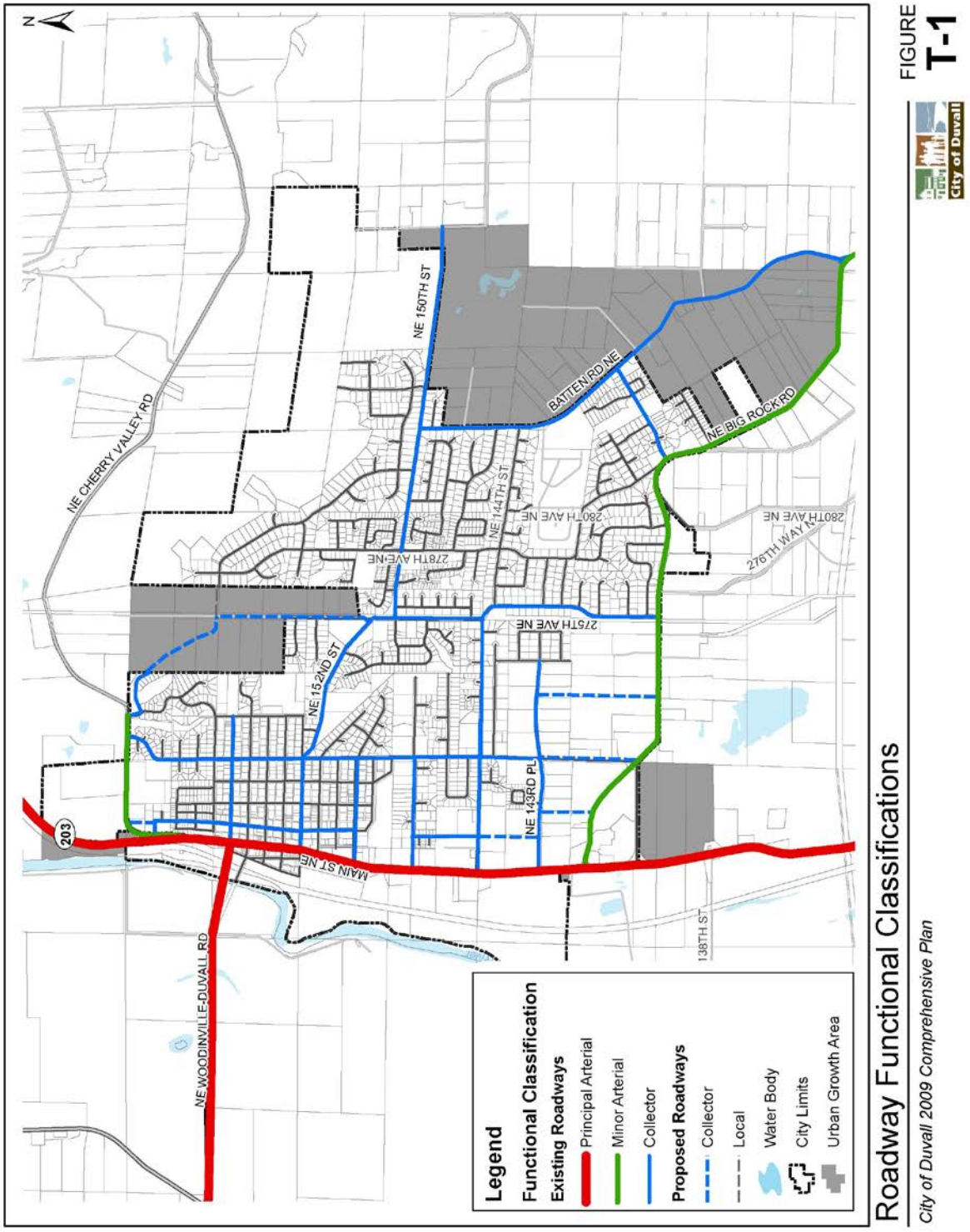
Minor Arterial

Minor arterials are roads and highways that connect centers and facilities within the community, provide connections to outlying areas of the community, and distribute traffic to/from principal arterials. Minor arterials can vary from two to five travel lanes. Cherry Valley Road and Big Rock Road are classified as minor arterials within the City. East of the City, these two roads are classified as collector arterials by King County.

Collector Arterial

Collector arterials connect two or more neighborhoods, carry traffic within neighborhoods and provide connections to principal and minor arterials. Collector arterials are limited to a maximum of three lanes. NE 143rd Place, NE 145th Street, Stephens Street, NE 150th Street, Bruett Road (NE 152nd Street), 275th Avenue NE, Batten Road (284th Avenue NE), 1st Avenue NE, 3rd Avenue (268th Avenue NE), NE Kennedy Drive, NE Roney Road, NE Valley Street, and NE Virginia Street are classified as collector arterials.

Figure T – 1: Roadway Functional Classifications



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Roadway Descriptions

The following section describes the use and function of the principal, minor and collector arterials around and within the City of Duvall. For each, specific information is given about the current features of the facilities within the roadway right-of-way (ROW).

Principal Arterials

Main Street/SR-203

Main Street/SR-203 is a 2-lane principal arterial highway that connects the City of Monroe and US-2 in Snohomish County, through the City of Duvall, to its terminus at the junction with SR-202 at Fall City. Because its route roughly parallels I-405 and due to the location of nearby gravel pits, SR-203 attracts a high volume of truck traffic connecting to SR-522 or I-90. Within the City limits, Main Street functions as the primary north-south corridor for both local and regional traffic.

The 2008-2009 Main Street Reconstruction project completed improvements from NE Bird Street to NE Ring Street. The improvements included traffic calming medians, curb extensions, differentiated pedestrian street crossing materials, dedicated parking, and new bike lanes and sidewalks. Improvements included two 12-foot travel lanes, 7- to 10-foot wide median, bike lanes, and a dedicated parking lane on both sides of the street.

Left turn lanes are provided at Stephens Street and onto westbound Woodinville-Duvall Road. There are traffic signals at the intersections of Main Street and Woodinville-Duvall Road (NE Virginia Street), Main Street and NE Stephens Street, and at Main Street and NE Big Rock Road. South of Stephens Street, Main Street is a 2-lane facility with a ROW varying between 60 and 80 feet. South of NE Valley Street, there are no sidewalks on Main Street/SR-203, except along Copperhill Square. North of NE Valley Street, there are sidewalks on both sides of the street except along two properties on the west side of Valley/Main Street and except along some properties north of the Woodinville-Duvall Bridge to the north city limits. Appendix D includes the WSDOT-required State facility inventory.

Woodinville-Duvall Road

Woodinville-Duvall Road is a 2-lane, 24-foot wide principal arterial under King County jurisdiction which connects the cities of Woodinville and Duvall. At the Woodinville-Duvall Bridge, the roadway consists of 2-lanes with curb and railing on both sides of the bridge section. This road carries high traffic volumes from Main Street westbound through King County to the Woodinville area. NE Virginia Street connects to Main Street at the intersection of Woodinville-Duvall Road and Main Street and is slightly offset from Woodinville-Duvall Road. The signalized intersection at Main Street has poor turning characteristics, particularly for trucks turning west from the southbound direction. The City will support the County and the State when those agencies secure funding for improvements to the Woodinville-Duvall Bridge and the bridge access to Main Street.

Minor Arterials

Cherry Valley Road

Cherry Valley Road is a 2-lane collector arterial primarily under King County jurisdiction. Within Duvall, the City classifies it as a minor arterial. The roadway is generally 21 feet wide with narrow shoulders and no sidewalks. Cherry Valley Road terminates at Main Street at a skewed, stop-controlled intersection. Past studies by WSDOT explored various options for correcting this intersection, which has poor turning characteristics, particularly for vehicles turning left from southbound Main Street and right from westbound Cherry Valley Road.

Big Rock Road

Big Rock Road for most of its length is a 2-lane, 22-foot wide collector arterial with narrow shoulders and limited sidewalks. Big Rock Road has experienced increased volumes as more residential development is built in the eastern portions of Duvall and unincorporated King County. In addition, commercial development at the intersection of Big Rock Road and Main Street has generated the need for a traffic signal, turn lanes and the relocation of the intersection. This new stretch consists of a traffic signal at Big Rock Road and Main Street, and on Big Rock Road, three lanes with 5-foot wide bike lanes on both sides and approximately 400-feet of sidewalk on the south side. The old intersection of Main Street and Big Rock Road has been closed.

Collector Arterials

NE 143rd Place

NE 143rd Place is a 2-lane, 22-foot wide residential access street with no sidewalks or curbs located between Main Street and 274th Place NE except for a short length on the north side west of 3rd Avenue NE.

NE 145th Street

NE 145th Street is a 2-lane, 18-foot wide residential access street with short section of sidewalk and curb located between Main Street and 3rd Avenue, sidewalk on the north side between 3rd Avenue NE and 275th Avenue NE, and sidewalk between approximately 272nd Place NE and 275th Place NE. The City completed half road improvements in 2008 to connect the unimproved section of the roadway between 3rd Avenue NE and 272nd Place NE and completed roadway improvements in 2009 to install sidewalks from 272nd Ave NE to 275th Ave NE.

Stephens Street

Stephens Street between Main Street and 3rd Avenue is a 2-lane, 26-foot wide collector arterial with a 6-foot bike lane on the south side and sidewalks on both sides. Stephens Street angles and intersects with Bruett Road at 3rd Avenue, providing the primary east-west connection between the east side and west sides of Duvall. There are stop signs for side street intersections with all-way stops at 2nd and 3rd avenues. There is also a signalized intersection at Stephens Street and Main Street.

NE 150th Street
NE 150th Street is part of the Stephens Street/Bruett Road corridor that connects Main Street to residential development on the east side of the City and to Cedarcrest High School. NE 150th Street consists of 2-lanes with sidewalks on both sides for the entire length except for the south side east of 276th Place NE to 278th Avenue NE and the south side of the road east of 286th Avenue NE.

Bruett Road (NE 152nd Street)
Bruett Road (NE 152nd Street) is the primary east-west connection between Historic Duvall and the eastern side of the City. Between 3rd Avenue and 275th Avenue, Bruett Road was improved with State and City funding as a 2-lane, 24-foot wide collector arterial with a 6-foot bike lane on the south side and curb, gutter and sidewalks on both sides.

275th Avenue NE
275th Avenue is classified as a collector arterial that has developed as the central north-south arterial spine in Duvall, serving many of the new housing developments in the City. The roadway varies in width and features a curvilinear alignment that provides vehicle traffic calming. The City completed sidewalk and roadway improvements, including bike lane installation and drainage improvements, between NE 145th and NE 144th streets in 2009.

Sidewalks are located along the west side of 275th Avenue NE from NE 145th Street to just north of NE 155th Place to the north city limit. Sidewalks were constructed in 2009 and 2010 to provide sidewalk connections on both sides of the roadway from NE 145th Street to NE Big Rock Road. 275th Avenue NE north of NE 150th Street will be classified as a minor arterial upon annexation of the North UGA.

Batten Road (284th Ave NE)
Batten Road (284th Ave NE) is a 2-lane, 22-foot wide collector arterial with no sidewalks or curbs, except intermittently where development has occurred. The road is the primary eastern connection between NE 150th Street and Big Rock Road. The road is primarily under King County jurisdiction within the UGA.

1st Avenue NE
1st Avenue NE is a 2-lane, approximately 20- to 32-foot wide collector arterial. 1st Avenue NE terminates at NE Valley Street and NE Kennedy Drive and does not connect through Taylor Park. Sidewalks and curbs are present along portions of the developed frontage north of NE Valley Street including the section north of NE Virginia Street and the section between NE Stephens Street and NE Stella Street. South of NE Kennedy Drive sidewalk is present to NE 145th Street. The roadway does not exist at this time south of NE 145th Street but is planned to connect to NE Big Rock Road along the 1st Avenue NE/2nd Avenue NE alignment in the future. The road is a secondary route parallel to Main Street.

3rd Avenue (268th Ave NE)

3rd Avenue is considered as an important north-south connection between Cherry Valley Road and NE 143rd Place. From Virginia Street to Stephens Street, 3rd Avenue is classified as a collector arterial. The road is 25 feet wide with 2-lanes with curb, gutter, and sidewalk on both sides between Virginia and Stephens streets. In this section, the traffic control includes two-way stops at both NE Virginia Street and NE Stephens Street for north-south traffic. There is a sidewalk on the west side of 3rd Avenue just south of Stephens Street. The remaining ROW has either an informal paved or dirt path or no sidewalks. Proposed developer-driven improvements include construction of the 3rd Avenue extension south from NE 143rd Place to NE Big Rock Road. The 3rd Avenue extension will include sidewalks and bike lanes and will also include intersection improvements at NE Big Rock Road.

Proposed City and/or developer improvements to 3rd Avenue NE north of NE 143rd Place will include pedestrian, bicycle, and roadway improvements. The portion of 3rd Avenue NE between NE Kennedy Drive and NE Stephens Street is constrained by slopes and steeply-inclined approaches at east/west cross streets. Reduced roadway width and/or joint use pedestrian and bicycle paths or a single (one-side) multi-use trail may be required along this area due to topographic and ROW constraints.

NE Kennedy Drive

NE Kennedy Drive is a 2-lane, 18-foot wide residential access street with no sidewalks or curbs located between Main Street and approximately 4th Ave NE. The road grade is approximately 20 percent between Main Street and 1st Avenue.

Roney Road

Roney Road is a 2-lane, 30-foot wide residential access street with sidewalks, curbs and gutters on both sides, including a 5-foot wide bike lane on both sides. This road connects Big Rock Road and Batten Road in the far southeast corner of the City.

Valley Street

NE Valley Street is a 2-lane, 22-foot wide residential access street with sidewalks, curbs and gutters up to approximately 2nd Avenue NE, where the road narrows to 18-feet. This road serves the southern business district and residential areas of Old Town.

NE Virginia Street

NE Virginia Street between Main Street NE and 3rd Avenue NE is a 2-lane collector arterial with a sidewalk on the north side of the road from Main Street NE to 1st Avenue NE and intermittent sidewalks on the north side from 1st Avenue NE to 2nd Avenue NE. The roadway is approximately 43 feet wide from Main Street to 1st Avenue NE and then narrows to 22-feet to the east. Between Main Street and 2nd Avenue, the road grade is about 15%.

Traffic Volumes

Daily

Daily traffic volumes along SR-203 were obtained from counts in 2008. Approximately 12,200 vehicles per day (vpd) travel on SR-203 south of the City. This compares to 11,000 vpd in 2002, and is consistent with historical trends: between 1998 and 2002, WSDOT data show an increase of approximately 1,000 vpd over a five-year period. Daily truck classification counts were not available from WSDOT for locations within the vicinity of Duvall. However, WSDOT data in 2002 for a location in Carnation show 13 percent of the daily traffic on SR-203 is trucks. Four percent of the total traffic along SR-203 in Carnation is double or triple unit trucks, and nine percent is single unit trucks.

Daily counts in 2008 show 10,200 vpd on Woodinville-Duvall Road west of Main Street. This compares to 9,700 in 2002 and 8,000 vpd in 1994. Cherry Valley Road just east of SR-203 had a count of approximately 4,100 vpd in 2003. Further east of the City, Cherry Valley Road had 2,600 vpd in 2003 which had grown to 3,300 vpd in 2008. In 2003, Big Rock Road carried 6,400 vpd just east of Main Street (SR-203) which had grown to 8,145 vpd in 2007. In 2003, Big Rock Road east of town carried 2,500 vpd (just west of Kelly Road) which had grown to 3,600 vpd (just east of Batten Road) in 2008.

PM Peak Hour

PM Peak Hour is defined as the 60-minute interval that contains the largest volume of traffic during the PM time period. Recent PM peak hour traffic volumes were assembled from available count data. The traffic counts are from 2006, 2007, and 2008. Figure T-2 shows the existing PM peak hour traffic volumes at several locations throughout the City. The PM peak hour volumes account for 8.5 to 10 percent of the total daily traffic, which is typical in the outlying areas of an urbanized area.

Approximately two-thirds of the PM peak hour traffic on Main Street is in the northbound direction. Eastbound traffic on Woodinville-Duvall Road comprises 75 percent of the total PM peak hour traffic on the bridge entering Duvall. These values are indicative of the travel patterns due to regional jobs and other activities being located west or southwest of the City.

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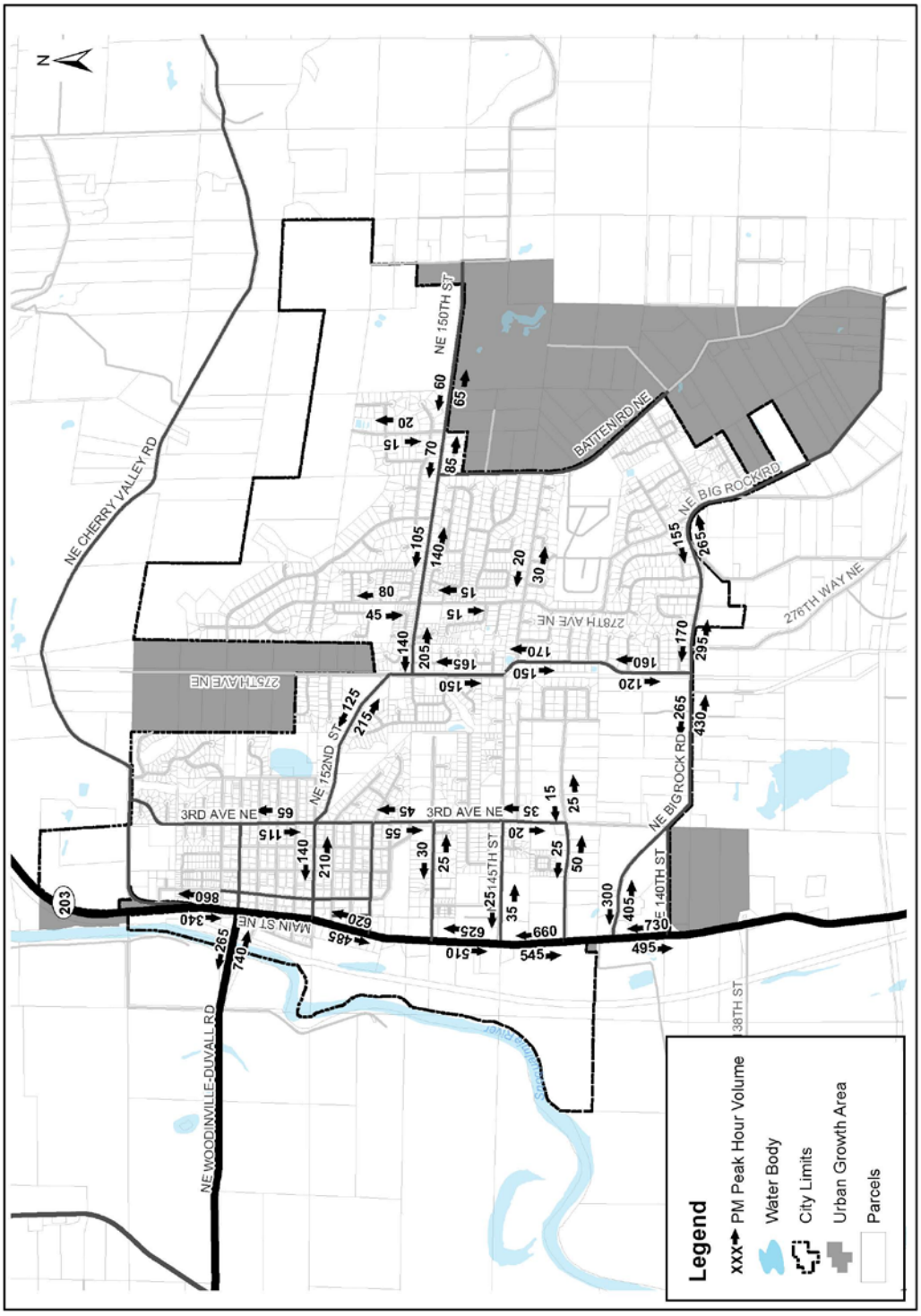
Figure T – 2: Existing PM Peak Hour Weekday Traffic Volumes



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Level of Service

The GMA requires the City to establish service levels for the street network and to provide a means for correcting current deficiencies and meeting future needs. Transportation planners and engineers use the term "level of service" to measure the operational performance of transportation facility (street or intersection). This measure considers perception by motorists and passengers in terms of speed, travel time, freedom to maneuver, traffic interruptions and delays, comfort, and convenience.

Level of service or LOS, is a qualitative measure describing operational conditions within a traffic flow, and the perception of these conditions by drivers and passengers. Levels of service are given letter designations, from A to F, with LOS A representing the best operating conditions (little delay) and LOS F the worst (congestion, long delays). Generally, LOS A and B are good, LOS C and D are moderate, and LOS E and F are poor. The City of Duvall focuses the evaluation of LOS at intersections. Traffic conditions at intersections are the primary contributor to travel delay during peak hours.

For urban streets and highways within rural town centers, the LOS is based on the average travel speed of through vehicles along the corridor, such as Main Street. The average travel speed takes into account the speed between signalized intersections and the amount of delay incurred at the signalized intersections. For Main Street in Duvall, LOS A would have an average travel speed of greater than or equal to 25 mph. Average travel speeds of less than 7 mph through the corridor would represent LOS F conditions.

Signalized Intersections

LOS at signalized intersections is defined in terms of average vehicle control delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table T-1 below shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual*.

Table T-1
Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay Per Vehicle (Seconds)	General Description (Signalized Intersection)
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	>80	Forced flow (jammed)

Source: 2000 Highway Capacity Manual

Unsignalized Intersections

LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all the movements, much like that of a signalized LOS as defined in terms of the average vehicle delay of the individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table T-2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table T-2
Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Total Delay (seconds)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Source: 2000 Highway Capacity Manual

In addition to LOS analysis based on the 2000 HCM (Highway Capacity Manual), the City also requires the implementation of street standards for urban developments. These include sidewalks and other facilities to support pedestrians and bicycles.

City Level of Service Standards

The City of Duvall adopted level of service standards for all arterials, including Main Street/SR-203.

The LOS standards for the City of Duvall are as follows:

- LOS C for intersections with roadways with functional classification of Principal Arterial;
- LOS C for intersections with roadways with functional classification of Minor Arterial;
- LOS C for intersections with roadways with functional classification of Collector Arterial, and;
- LOS D for intersections on SR-203 (Main Street NE).

State Highway Level of Service Standards and Concurrency

Level of Service

The 1998 GMA amendment, also known as the "Level of Service" bill (passed as HB 1487 and codified as RCW 47.06.140), required the Washington State Transportation Commission to designate and the Legislature to adopt Highways of Statewide Significance (HSS). The bill exempts HSS facilities from concurrency. SR-203 is not an HSS. Levels of service standards for other state-owned (regionally significant) facilities are jointly set by WSDOT and the Regional Transportation Planning Organization (RTPOs). The Puget Sound Regional Council (PSRC) is designated as the RTPO for the Puget Sound region. In October 2003, PSRC adopted LOS standards for regionally significant State highways, including SR-203. The full length of SR-203 between Fall City and Monroe is classified by PSRC as a Tier 2 state highway. Tier 2 highways serve the "outer" urban area, which are beyond a three-mile buffer of major regional highways, such as I-405 or designated urban centers. The PSRC adopted standard for SR-203 is LOS D or better. The PSRC has identified that the standard shall apply to the PM peak hour. WSDOT will use the LOS D standard for SR-203 to evaluate capacity deficiencies. This analysis will be used to identify improvement strategies for the highway including capacity enhancements, access management, or operations/safety improvements. The City has adopted LOS D for SR-203, including intersections with City streets.

Concurrency

The City of Duvall has no authority to alter the level of service on SR-203 nor does the City have the responsibility to make ultimate decisions concerning improvements to the state highway system or to raise needed funding. The City of Duvall will not apply concurrency regulations to SR-203 in the City. This is a reflection of the state's authority over SR-203 and also reflects the City's desire to:

- Retain the look and feel of "Old Town";
- Reduce the volume and impacts of trucks through town;
- Retain parking on Main Street to support economic growth, and;
- Recognize that regional traffic increases will adversely affect levels of service at intersections along Main Street, even with no development in Duvall.

Existing Traffic Operations

For the City's 2009 Comprehensive Plan update, 18 study intersections were evaluated to determine existing traffic operations at major intersections within the City as shown on Figure T-3 and Table T-3. Intersection operations were evaluated during the weekday PM peak hour, which represents worse-case traffic conditions for a typical weekday. All of the intersections are stop-controlled, except for three signalized intersections along Main Street (SR-203).

All study intersections operated at or above the City's LOS standard, with the exception of the NE 143rd Place/Main Street intersection. NE 143rd Place/Main Street operated at LOS E, exceeding the SR-203 LOS standard of D. The sub-standard LOS at this location is due to higher Main Street traffic, reducing opportunities for side-street traffic

to enter Main Street and creating delays. RCW 36.70A.070(3) requires that the capital facilities element include a six year plan for financing needed improvements. Because the city of Duvall is not applying concurrency to SR-203/Main Street, such a financing plan is not required for the state-owned SR-203/Main Street or intersections with SR-203. Traffic impacts on SR-203 and its intersections will be evaluated through the SEPA review process with appropriate mitigation determined at the project review level.

Figure T – 3: Existing Intersection Levels of Service

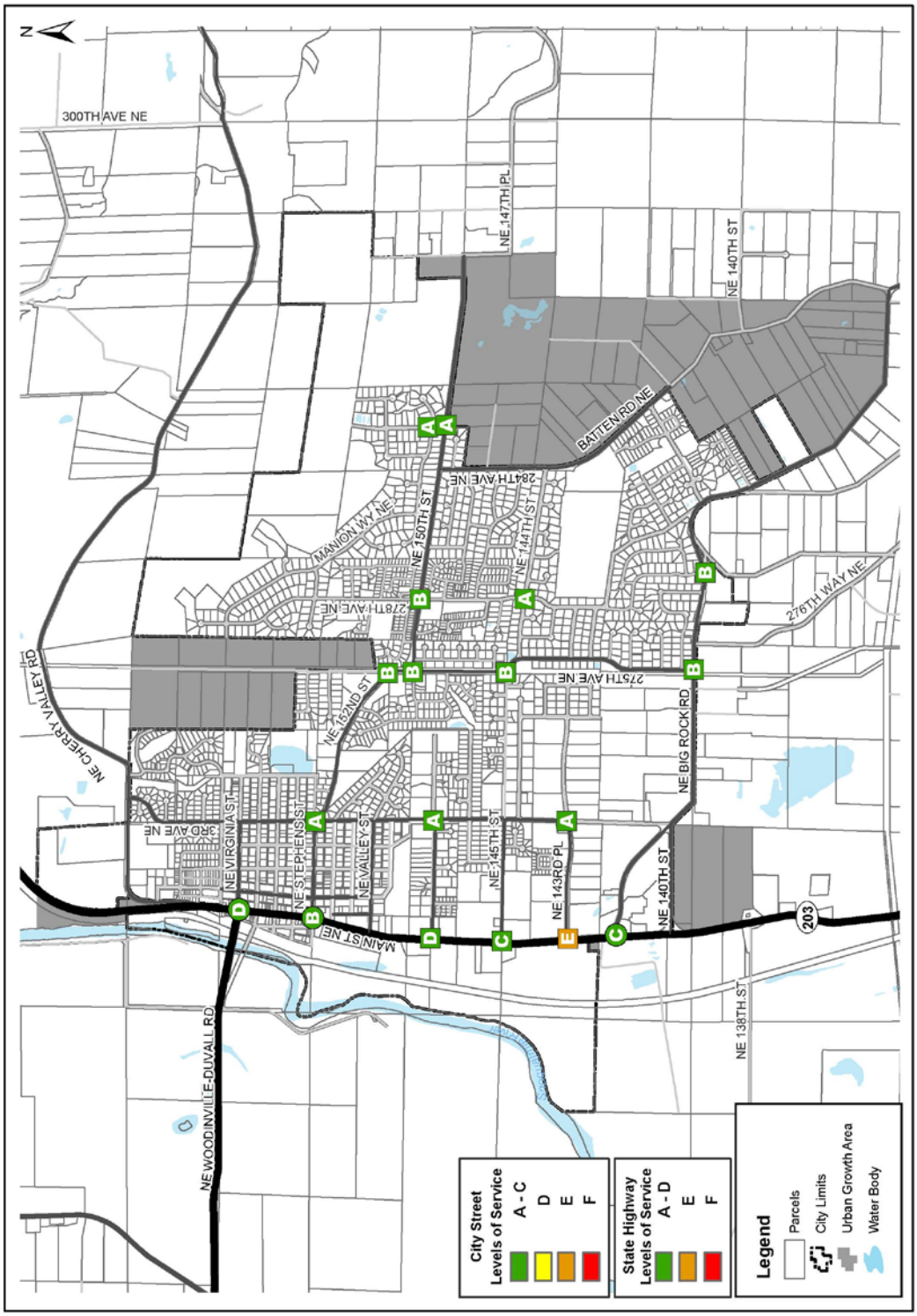

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Table T-3
Existing PM Peak Hour Intersection Level-of-Service

Intersection	Control Type[1]	Delay[2]	LOS	LOS Standard
Woodinville-Duvall Road & SR-203	Signal	38.7	D	D
NE Stephens Street & SR-203	Signal	10.2	B	D
NE Kennedy Drive & SR-203	TWSC	25.1	D	D
NE 145th Street & SR-203	PSC	18.5	C	D
NE 143rd Place & SR-203	PSC	46.4	E	D
NE Big Rock Road & SR-203	Signal	21.0	C	D
NE Stephens Street & 3rd Avenue NE	AWSC	9.0	A	C
NE Kennedy Drive & 3rd Avenue NE	AWSC	7.2	A	C
NE 143rd Place & 3rd Avenue NE	PSC	8.7	A	C
275th Avenue NE & NE 152nd Street	PSC	10.2	B	C
NE 150th Street & 275th Avenue NE	TWSC	13.1	B	C
NE 145th Street & 275th Avenue NE	PSC	10.2	B	C
NE 150th Street & 278th Avenue NE	TWSC	11.2	B	C
NE 144th Street & 278th Avenue NE	AWSC	7.1	A	C
151st Street & 286th Avenue NE	Yield	7.0	A	C
NE 150th Street & 286th Avenue NE	PSC	8.7	A	C
NE Big Rock Road & 275th Avenue NE	PSC	10.6	B	C
NE Big Rock Road & 279th Lane NE	PSC	10.6	B	C

1. *Signal = Signalized intersection; AWSC = All-Way Stop Controlled intersection; TWSC = Two-Way Stop Controlled intersection; PSC = Partially Stop Controlled intersection.*
2. *Delay listed in seconds per vehicle*

Accident Data

Accident rates are another means of measuring the adequacy of roadways in the City. Accidents are an indication of where safety issues may exist within a transportation system. For this analysis, high accident locations are defined as follows:

- Unsignalized Intersections: an average of 5 or more accidents per year over a three-year period;
- Signalized Intersections: an average of 7 or more accidents per year over a three-year period, and;
- Any intersection with a collision rate greater than one collision per million entering vehicles (MEV).

The data shown in Table T-4: Collision Data Between 2007-2009 summarizes reported collisions by the City of Duvall Police Department over a three-year period. Locations with a collision rate per year of 1.0 or greater are shown.

The historical collision rates over the last three years suggest that there are no locations which pose safety concerns within the City limits. The majority of the reported collisions

occurred along Main Street between Woodinville-Duvall Road and NE Valley Street. Of those, the majority are rear-end type collisions. It should be noted that two separate collisions involving pedestrians were reported over the three year time period (Main Street/Kennedy Drive and Ring Street/1st Avenue). In addition two locations reported collisions with animals (SR-203/Cherry Valley Rd and SR-203/Big Rock Road).

Table T-4
Collision Data 2007 - 2009

Intersection	Average Collisions per Year	Daily Entering Vehicles	Collisions per MEV[1]	Collision Type (Majority)
Main St/Woodinville-Duvall Rd	2.8	1,750	0.44	Lost control
Main St/NE Stella St	3.2	1,300	0.67	Rear-end
Main St/Cherry Valley Rd	3.2	1,300	0.67	Rear-end / Pulled in front
Main St/NE Stewart St	2.4	1,300	0.51	Rear-end / Pulled in front
Main St/NE Cherry St	2.4	1,300	0.51	Rear-end
Main St/NE Valley St	2.0	1,300	0.42	Rear-end
Carnation-Duvall Rd (SR-203) / NE Big Rock Rd	2.0	1,595	0.34	Rear-end
NE 150th/NE 284th Ave	1.6	550	0.80	Rear-end / Lost control
Main St/NE Stephens St	1.2	1,335	0.25	Rear-end / Side swipe
Main St/Kennedy Dr[2]	1.2	1,165	0.28	Rear-end / Pulled in front / Pedestrian
NE 150th/ Cedarcrest HS	1.2	550	0.60	Rear-end / Pulled in front / Side swipe
3rd Ave/Cherry Valley Rd	1.2	400	0.82	Rear-end

Source: City of Duvall Police Department
1. Collisions per million entering vehicles
2. Pedestrian collision

Healthy Communities

The Transportation Element promotes Healthy Communities and supports aspects related to pedestrian and bicycle connectivity. Recognizing the growing need for physical activity among citizens, the Washington State Legislature amended the GMA in 2005 with ESSB 5186. The amendments require that communities:

1. Consider urban planning approaches that promote physical activity in the Land Use Element of a comprehensive plan, and;
2. Include a bicycle and pedestrian component in the Transportation Element of a comprehensive plan.

The key policy areas in the Healthy Communities portion of this element are:

- Plan for all users;
- Plan complete streets for all users;
- Require connectivity;
- Create a safe pedestrian network;
- Consider multimodal concurrency;

- Identify and develop safe routes to school;
- Use parking management strategies to enhance bicycling and walking;
- Provide facilities to support bicyclists and pedestrians, and;
- Provide encouragement, education, and law enforcement to support bicyclists and pedestrians.

This Transportation Element plans for bicycles, pedestrians, and public transit in order to support a physically active population. Street system design including connectivity, traffic calming, parking, and a grid system provide multiple options for non-motorized modes of transport. Such design is included in this element and is supported by the Duvall Municipal Code and construction standards. The amount of parking available affects the decision to walk, bicycle, or drive and is considered for both private development and development of public rights-of-way. Other facilities such as bicycle racks, public art, educational signage (interpretive and way finding), and resting or plaza stops with benches or other amenities also support Healthy Communities. Education regarding pedestrian and bicycle safety and enforcement of traffic laws for bicycles, pedestrians, and drivers is also stressed within this element to support Healthy Communities.

As part of the Healthy Communities concept, the City held public hearings at the August 21, 2008 Planning Commission meeting and the September 11, 2008 City Council meeting. Planning commissioners, City councilpersons, and residents identified healthy community issues to be addressed following a staff presentation. Primary concerns included:

- Low Impact Development approaches where appropriate and alternative road standards to promote non-motorized transportation and healthy communities;
- Signage and Education to promote healthy use, self-education, and interest. Specifically increase education for pedestrian, parking, and cross-walk safety, and;
- Expand existing sidewalk and bicycle trail network and connections. Specific requested connections included a pathway within the PSE corridor located along the west side of 275th Avenue NE from NE Big Rock Road to NE 145th Street and the east side of 275th Avenue NE from 145th Street NE to the north City limits, pedestrian pathway connections to Taylor Park and other park and recreation areas, and bicycle paths on 145th Street NE and 3rd Avenue NE. Americans with Disabilities Act (ADA) provisions were also identified as important improvements.

Description of pedestrian and bicycle facilities are presented below and additional Healthy Community initiatives are presented in the “Goals and Policies” section of this element.

Non-Motorized System

The City of Duvall values walking and bicycling as an integral part of a complete transportation system. Duvall is interconnected by multi-use trails, bicycle lanes, pedestrian walkways, and sidewalks. The City desires to protect, enhance and expand

this existing infrastructure to meet pedestrian and bicyclist's needs. The City's planning policies and goals encourage safe, barrier free mobility for all members of the community.

The planning and development of a strong non-motorized network supports several state and national acts, including Washington's GMA, Clean Air Act, and Commute Trip Reduction Act, the federal Clear Air Act, the ADA, and the Intermodal Surface Transportation Efficiency Act (ISTEA) and its successors. Supporting the non-motorized system helps ensure compliance with these initiatives and the healthy community principles espoused by PSRC through Destination 2030 and the Vision 2040 update process. It also increases funding opportunities for City projects.

Pedestrian Facilities

Figure T-4, Non-Motorized Routes, indicates the location of existing and future pedestrian facilities and links within the City of Duvall. Sidewalks are primarily found along Main Street between Valley Street and Bird Street, along NE Stephens Street and Bruett Road, 3rd Avenue north of Stephens and along portions of NE 150th. There are pedestrian crosswalks along Main Street at Stephens Street, Cherry Street, and Woodinville-Duvall Road.

The City of Duvall has worked to enhance pedestrian corridors, including sidewalk improvements, as part of roadway projects. Newer developments have been built with sidewalks, providing mobility within developments; however, there is currently little connectivity to areas outside of developments and to primary destinations such as schools, retail areas and other public facilities. Where sidewalks are not available, pedestrians must use roadway shoulders, if available.

The existing *City of Duvall Development Design Standards* require that concrete sidewalks be constructed on both sides of all arterials, neighborhood collectors, subcollectors, subaccess, multiple-dwelling and business access streets. Sidewalks are required to be a minimum of 5 feet wide in residential areas, and 8 to 12 feet wide in commercial, mixed use, and industrial corridors in accordance with the Unified Development Regulations.

Missing major sidewalk links include, but are not limited to:

- NE 150th Street east of 286th Street (south side);
- Big Rock Road from Safeway to 275the Avenue NE and from NE 138th Place to Big Rock Ballfields (north side) and from Safeway to Big Rock Ballfields (south side);
- Majority of 1st Avenue NE – city limit to city limit;
- Majority of 3rd Avenue NE – city limit to city limit;
- Main Street south of Valley Street;
- 275th Avenue- east side, north of 145th Street to northern city limit;
- Majority of NE 143rd Place – city limit to city limit;
- Batten Road;

- Cherry Valley Road, and;
- Connections from neighborhoods to Snoqualmie Valley Trail.

As part of the plan update, the City conducted a sidewalk inventory of classified streets. Based on City measurements, there are sidewalks along 38 percent of the 33.5 miles of roadway within the City. Table T-5 summarizes the miles of pedestrian facilities along the selected streets within the City and the adjacent UGA. To calculate the mileage, a roadway having a walkway on at least one side is counted as a street with pedestrian facility.

Table T-5
Pedestrian Facilities located Along Select Arterials

Street	Functional Classifications	Length of Street (miles)	Length with Ped. Facilities (%)	Length without Ped. Facilities (%)
Main Street NE	Principal Arterial	1.27	40%	60%
NE Big Rock Road	Minor Arterial	1.64	25%	75%
3rd Avenue NE	Collector Arterial	1.25	47%	53%
NE 143rd Place	Collector Arterial	0.70	16%	84%
NE 145th Street	Collector Arterial	0.75	35%	65%
275th Avenue NE	Collector Arterial	1.13	74%	26%
NE 150th Street	Collector Arterial	1.11	70%	30%
Stephens/152nd	Collector Arterial	0.80	89%	11%
NE Virginia Street	Collector Arterial	0.38	9%	91%

The Public Health Department, Seattle & King County published a Duvall Walking Map (December 2003). The map identifies numerous walking routes within the City as a way to improve community connections and promote health for Duvall residents. Those walking routes are identified on Figure 8-6, Proposed Trail System, of the 2008 City of Duvall Parks, Trails and Open Space Plan.

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Figure T – 4: Non-Motorized Routes

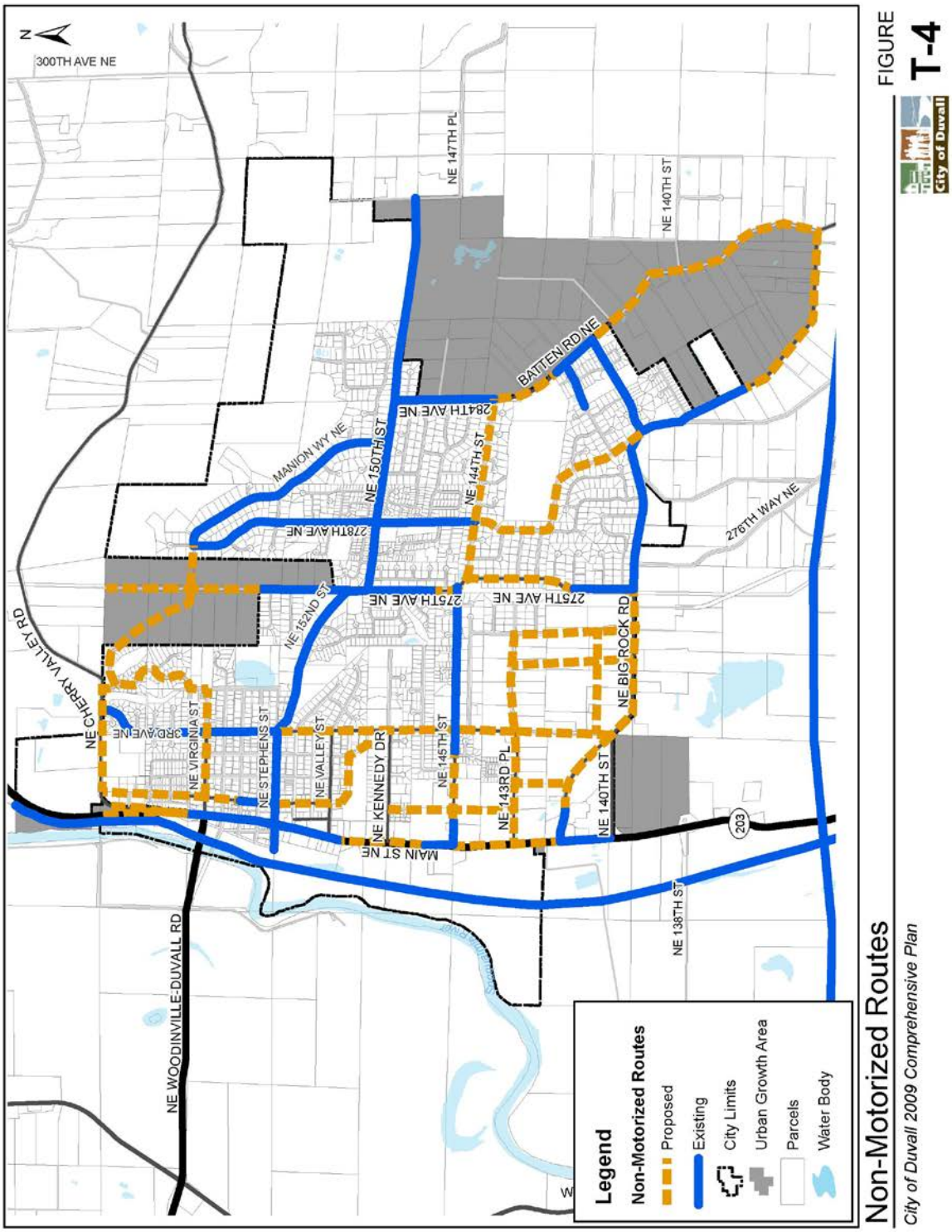

FIGURE T-4

Non-Motorized Routes

City of Duvall 2009 Comprehensive Plan

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Trail Network

Duvall's developing trail network provides local and regional connections for recreational use, commuting and travel in general. The City has a two tiered trail system; local trails and regional trails. Local trails are single or multi-purpose soft or hard surfaced trails located within parks, open spaces, or connecting neighborhoods. Local trails also include connector trails between parks or other community features. Regional trails are single or multi-purpose hard or soft surface trails that cross community boundaries and connect significant recreational facilities. Currently the only regional trail that has been developed is the Snoqualmie Valley Trail. The Snoqualmie Valley Trail is located to the west of SR-203 and was once the Burlington Northern Railroad ROW. The county owns and maintains the trail. A non-motorized network analysis was conducted on existing Duvall trails and sidewalks to determine key linkages in 2008 as part of the 20-Year Park, Trails, and Open Space Plan. Figure 5-2 in the Parks and Recreational Element illustrates existing trails and sidewalks and Figure 8-6 illustrates the 20-Year Park and Recreation capital improvement plan.

Accessible Routes of Travel

The ADA requires that all new public, commercial and institutional developments meet ADA standards. Furthermore, existing public buildings, public outdoor facilities, and public ROW should be retrofitted to achieve accessibility under certain conditions. An accessible route of travel is designated to accommodate the needs of many different people including those who are blind, using wheelchairs, pushing a stroller or cart, or are injured. The law requires municipalities to have a transition plan in place to address ADA issues. The City of Duvall details the ADA design specifications in the City's Development Design Standards.

School Accessibility

School safety is a major concern for parents, students, the school district and the City. The City will encourage Riverview School District to establish walking routes for Cherry Valley Elementary and Cedarcrest High schools based on the presence of sidewalks or walking paths; the safety on neighborhood streets; availability of safe street crossings and the traffic conditions in the surrounding neighborhoods. These routes would be designated as part of the "safe route to school" program.

Bicycle Facilities

Bicycle facilities are an important component of Duvall's transportation and recreation infrastructure. Bicycling provides a clean, non-motorized form of transportation and allows citizens to maintain a healthy lifestyle. It also helps improve traffic congestion and air quality by providing an alternative to driving.

Bicyclists generally share the roadway with automobiles in the City of Duvall. King County has identified SR-203, Big Rock Road, Cherry Valley Road and Woodinville-Duvall Road as preferred routes in its *Bicycling Guidemap*. These facilities are identified by King County as low to moderate traffic roadways without a curb lane or shoulder. As discussed above, these roads have the highest volumes of traffic in the City. Several bicycling routes have also been identified in Figures 5-2 and 8-6 of the 2008 Parks,

Trails and Open Space Plan. In addition to the routes identified above, the Snoqualmie Valley Trail provides an excellent opportunity for non-motorized recreation, including off-road bicycling. This trail passes through the City of Duvall and traverses south through the cities of Carnation, Fall City, and North Bend, and will eventually connect to the Mountains to Sound Greenway located along Interstate 90.

The *City of Duvall Development Design Standards* sets specific standards for the development of bicycle facilities, varying from bicycle lanes to shared roadway bicycle ways. Figure T-4, Non-Motorized Routes, indicates the existing bicycle facilities within Duvall, which include paved and striped shoulder areas along Main Street, Stephens Street and Bruett Road. Most of the existing facilities are not marked and are sometimes provided on only one side of the roadway. As commercial, industrial and residential development occurs, the need for walking, biking and jogging paths must be monitored and the smaller systems should be incorporated into the city and regional trail facilities system.

Bicycle routes are missing or deficient on the following roadways/areas:

- Main Street - Stephens to NE Big Rock Road;
- NE Big Rock Road east of Safeway;
- Cherry Valley Road;
- Stephens Street;
- 150th Street;
- 3rd Avenue;
- 1st Avenue;
- 275th Avenue NE;
- NE 143rd Place;
- NE 145th Street, and;
- Connections to the Snoqualmie Valley Trail

Equestrian Facilities

The Snoqualmie Valley Trail serves local and regional equestrian needs within the City and surrounding area.

Transit Services

King County Metro provides transit service to the City of Duvall. Transit is currently limited to weekday service and primarily focused on commuter services based on the Summer 2009 service program.

Route 232 provides peak period commute service from Duvall to Bellevue. In addition to Duvall and Bellevue, other points served by this route include the King County communities of Cottage Lake, the Bear Creek Area, Overlake, and Redmond.

Route 311 provides peak period commute service from Duvall to downtown Seattle. From Duvall, the 311 bus travels west through Woodinville, becoming an express bus traveling along SR-522, I-405 and SR-520, with limited stops from Woodinville to downtown Seattle. Other points served include the City of Kirkland, the City of Bellevue, and the Montlake Station (University of Washington).

Route 929 provides weekday daytime service between Redmond and North Bend. In addition to Duvall, Redmond and North Bend, other areas served by this route include the Bear Creek Area, Cottage Lake, Stillwater, Fall City, and Snoqualmie.

Table T-6, Existing Transit Service, summarizes the routes in Duvall served by King County Metro.

Table T-6
Existing Transit Service

Route No.	Route	Service	Number of Buses	Frequency (Peak)	Frequency (Midday)	Average Weekday Trips (Duvall bus stops)
232	Duvall to Bellevue	Peak	5 morning inbound 5 evening outbound	30 – 60 minutes	N/A	41 trips/day
311	Duvall to Seattle	Peak	6 morning inbound 6 evening outbound	15-30 minutes	N/A	39 trips/day
929	North Bend to Redmond	All Day	7 morning inbound 7 evening outbound	N/A	3.5 hours	16 trips/day

Source: King County Metro, Fall 2009

The Microsoft Corporation

The Microsoft Corporation "Connector" bus service provides private transit services to the large Microsoft employee population within Duvall. Currently, the Connector provides daily service during the week to approximately 75 Microsoft employees at various pick-up and drop-off times. Expanded Connector service is being considered by Microsoft provided that additional parking can be accommodated.

Park-and-Ride Facilities

There is currently one park-and-ride facility in Duvall, located on the corner of Main Street and Woodinville-Duvall Road. The Duvall Community Car Park has 48 spaces and is jointly operated by King County Metro and the City of Duvall, who owns the facility. This parking facility is also used as a community parking facility for residents and visitors to McCormick Park, the Snoqualmie Valley Trail and downtown Duvall businesses.

Snoqualmie Valley Transportation

Snoqualmie Valley Transportation (SVT) is a non-profit project of Mt Si Senior Center and the Snoqualmie Tribal Nation. SVT provides transportation on demand Monday – Friday for anyone ages 13+ within the Snoqualmie Valley.

Freight Mobility

The movement of freight is a major issue for the City of Duvall. Trucks from as far away as British Columbia and eastern Washington use SR-203 to bypass congestion on I-5 and I-405. The Washington State Freight and Goods Transportation System (FGTS) is used to classify state highways, county roads, and city streets according to average annual gross truck tonnage they carry as directed by RCW 47.05.021. The FGTS is primarily used to establish funding eligibility for the Freight Mobility Strategic Investment Board (FMSIB) grants. In addition, it also supports HSS designations, pavement upgrades, traffic congestion management, and other State investment decisions.

The FGTS classifies roadways using five freight tonnage classifications, T-1 through T-5. Routes classified as T-1 or T-2 are considered strategic freight corridors and are given priority for receiving FMSIB funding. The classifications are as follows:

- **T-1:** Over 10,000,000 annual gross tonnage (over approximately 800 trucks per day);
- **T-2:** 4,000,000 to 10,000,000 annual gross tonnage (approximately 320 to 800 trucks per day);
- **T-3:** 300,000 to 4,000,000 annual gross tonnage (approximately 24 to 320 trucks per day);
- **T-4:** 100,000 to 300,000 annual gross tonnage (approximately 8 to 24 trucks per day), and;
- **T-5:** Over 20,000 gross tonnage in a 60 day period.

Within the City of Duvall vicinity, the following roadways are classified as T-3 facilities (300,000 to 4 million tons per year):

- SR-203;
- NE Cherry Valley Road;
- NE Woodinville-Duvall Road, and;
- NE Big Rock Road (Kelly Road NE to Batten Road NE).

Of these facilities, SR-203 carries the most tonnage with and average of approximately 1,300 trucks per day and 4,100,000 annual tons per year based on King County data for 2009. The 2009 values were greater than those for 2007 which were approximately 1,200 trucks per day and 3,730,000 annual tons per year based on King County data. SR-203 will be revised to FGTS T-2 classification once the 4,000,000 annual ton per year threshold is exceeded for multiple consecutive years.

Within Duvall, Main Street, Big Rock Road, Stephens Street, Bruett Road, portions of 3rd Avenue, and Cherry Valley Road see the highest truck volumes. Primary issues related to truck traffic include (1) pedestrian safety; (2) noise; (3) the configuration of the Woodinville-Duvall Bridge at Main Street; and (4) the alignment of the intersection of NE Cherry Valley Road/Main Street. The geometrics of these intersections, along with truck turning characteristics, often result in trucks blocking travel lanes and even may require backing movements to negotiate the turns.

The Duvall City-Wide Visioning Plan identifies truck traffic as a primary issue of the community and supports efforts to reduce the impact and the volume of trucks within the City limits. The City recommends cooperation with King County and WSDOT to develop near and long term solutions to truck traffic within and adjacent to the City, including the investigation into a bypass route for trucks.

Air Services

The City of Duvall does not have either freight or passenger airplane facilities within or adjacent to the City limits. The nearest airport facility is a general aviation facility in Monroe, located approximately 15 miles north of Duvall. King County International Airport (Boeing Field) is the closest facility that provides national and international airfreight services. Boeing Field is located approximately 25 miles southwest of Duvall. Seattle-Tacoma (SeaTac) International Airport is the closest facility that provides regional, national, and international passenger services. SeaTac is located approximately 35 miles southwest of Duvall.

Forecast Transportation Conditions

This section describes the expected impact of future development and region wide growth on the transportation system. The analysis builds on the 2004 Transportation Element Update, revising regional transportation forecasts and the transportation improvement program. For this update, the travel forecasts are based on the land use assumptions found in Land Use Element and the land use forecast presented in the November 28, 2008 report titled "Housing and TAZ Capacity Analysis Study" (See Appendix B). The analysis focuses on growth up to 2022, providing an indication of the expected travel needs within the next 13 years.

Recent System Improvements

The existing roadway system currently meets the needs of the community. With traffic signals at Main Street/Woodinville-Duvall Road, Main Street/Stephens Street and Main Street /Big Rock Road, mobility along current arterials remains high. Since 1994, the Public Works Department has overseen the completion of a number of projects improving mobility within Duvall. These include, but are not limited to the following:

- Main Street reconstruction from NE Bird Street to NE Ring Street;
- NE 145th Street connection from 3rd Avenue NE to 275th Avenue NE;
- NE Stephens Street/NE 152nd Street/NE 150th Street (sidewalks, bike lanes, width);
- Improvements to NE Big Rock Road from 279th Lane NE to NE Roney Road;
- Improvement of 278th Ave NE from 145th Place to NE 148th Lane;
- Improvements to 275th Ave NE from NE 145th Street to NE 144th Street;
- Extension of 3rd Avenue to Cherry Valley Road;
- Improvement of Bruett Road, including sidewalks and bike lanes;
- Connection of 275th Avenue NE to Big Rock Road;

- Improvement of 275th Avenue NE near 150th Street;
- Improvement of 275th Avenue NE from Big Rock Road to NE 142nd Place;
- Installation of traffic signal at Main Street and Stephens Street;
- Installation of traffic signal at Main Street and Big Rock Road;
- Realignment of Big Rock Road and Main Street;
- Development of Community Car Park at Main Street/Woodinville-Duvall Road;
- Improvements to a portion of Batten Road between Big Rock Road and Roney Road;
- Improvements to Roney Road, and;
- Cherry Valley Vista Pedestrian Bridge.

Forecast Land Use

The travel forecasts presented in the Transportation Element were developed using a travel demand forecasting model. The model uses anticipated land use growth to estimate future traffic volumes. To provide the best estimates for future traffic volume, the City used a rigorous process to forecast future land uses.

The land use forecast process used in the 2009 Comprehensive Plan Update is presented in the November 28, 2008 report titled "Housing and TAZ Capacity Analysis Study" (See Appendix B). The land use forecast was completed by the City of Duvall Public Works and Planning Departments in conjunction with the City's transportation consultant. The land use forecast includes baseline measurements of existing residential and commercial uses within the City. Forecasts of future growth were developed using analysis of vacant land, land that is likely to redevelop, current "pipeline" project (entitled but not built), and current zoning. The report compares estimates with past forecasts and regional forecasts.

The number of residential units for the City and UGA are forecast to increase from 2,383 to 4,506 by 2022, or an 89% increase. Most of these units will develop in UGA areas around the City. The number of employees is forecasted to increase from 956 to 3,091 by 2022. The largest portion of employment growth is anticipated to be office or office related, within current City limits. Detailed land use model information can be found in *City of Duvall Travel Demand Model Documentation* (Transpo Group, December 2009).

External Traffic Forecasts

External traffic represents trips that start or stop outside the City, and may not be reflected in land use estimates. An existing origin-destination survey was used to understand the level of trips that travel through the City without stopping. Forecast external traffic volumes were estimated using WSDOT historical growth data and volumes from the 2020 PSRC model on links entering and leaving the network representing Duvall streets. Annual growth rates along SR-203 were approximately 2 to 3 percent. Other roadways had annual growth rates ranging from 1 to 5 percent.

Forecast Traffic Volumes

Applying the land use forecasts and external traffic forecast to the travel demand model provided future traffic volumes for study intersections and roadways. Detailed model information can be found in *City of Duvall Travel Demand Model Documentation* (Transpo Group, December 2009).

Figure T-5 shows the resulting 2022 PM peak hour traffic forecasts for key streets in the City. The forecasts assume extension of several streets that were identified in the prior Comprehensive Plan. The extensions include the 3rd Avenue (268th Avenue) extension south from 143rd Street to Big Rock Road and extension of 1st/2nd Avenue Corridor between NE 145th Street to Big Rock Road. These corridors will be constructed to serve new developments that are the basis for the travel forecasts.

Table T-7 shows the 2008 traffic volumes and the resulting 2022 PM peak hour forecasts along SR-203, Woodinville-Duvall Road, and Big Rock Road. The resulting growth rates are higher than the PSRC or King County models since they account for additional growth in the City as estimated in the Land Use forecast in Appendix B.

Table T-7
Existing and Forecast PM Peak Hour Traffic Volumes at Key Locations

	2008 Actual Volumes	2022 Forecast Volumes	Annual Growth Rate[1]
Main Street (SR-203) north of Woodinville-Duvall Road - Northbound - Southbound	 860 340	 1,160 395	 2.2% 1.1%
Main Street (SR-203) south of Big Rock Road -Northbound -Southbound	 730 495	 990 685	 2.2% 2.3%
Woodinville-Duvall Road west of Main Street (SR-203) -Eastbound -Westbound	 740 265	 1,180 405	 3.4% 3.1%
Big Rock Road east of Main Street (SR-203) -Eastbound -Westbound	 405 300	 555 435	 2.3% 2.7%

[1] Compound annual growth rate

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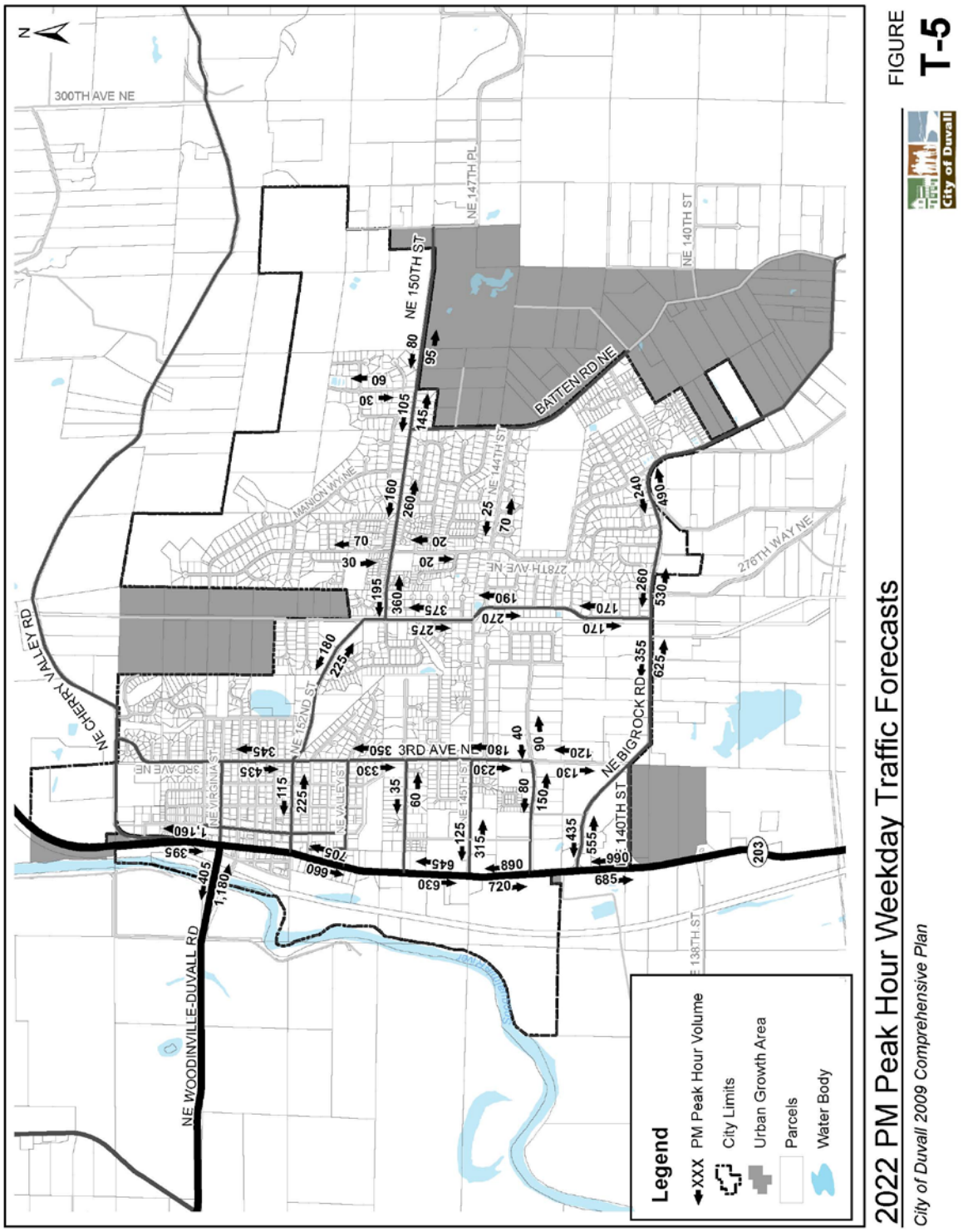
Figure T – 5: 2022 PM Peak Hour Weekday Traffic Forecasts



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Forecast Traffic Operations

Based on the 2022 forecast, PM peak hour traffic volume intersection levels of service were calculated at study intersections. The LOS analysis was used to identify needed improvements. Results for the LOS analysis are summarized in Table T-8.

Main Street (SR-203) Intersections

As part of its vision process and Downtown Sub-Area Plan development, the City has adopted a policy for maintaining Main Street as a 2-lane roadway. Traffic signals and turn lanes would be located at five intersections:

- Woodinville-Duvall Road/Virginia Street;
- NE Stephens Street;
- NE Big Rock Road;
- NE 145th Street, and;
- NE 143rd Place.

Woodinville-Duvall Road/Virginia Street: The signalized intersection of Main Street at Woodinville-Duvall Road/Virginia Street would operate at LOS F during the 2022 PM peak hour. The poor LOS is due to the high volume of traffic trying to use a limited number of lanes at the intersection. During the PM peak hour, the single eastbound approach lane is the bottleneck that demands a high portion of intersection green time. Providing exclusive left- and right-turn lanes would alleviate this bottleneck, but would require changes to the bridge structure. Aligning the eastbound and westbound approaches would also help to remove the split signal phasing at the intersection, providing more green time to north-south movements. The Downtown Plan identifies addition of a south-to-east left turn lane to provide access to the downtown business district via 1st Avenue. The south-to-east left turn lane also would provide access to residential areas in the east part of the City via Virginia Avenue and 3rd Avenue. This would reduce the volume of traffic on Main Street traveling through downtown. The City will support the County and the State when those agencies secure funding for improvements to the Woodinville-Duvall Bridge, the bridge access to Main Street, and this intersection.

NE Stephens Street: The signalized intersection of Main Street/Stephens Street is forecast to operate at LOS B by 2022.

NE Big Rock Road: The signalized intersection at Main Street /Big Rock Road is forecast to operate at LOS C during the 2022 PM peak hour.

NE 145th Street: The City has identified a new traffic signal for Main Street/145th Street. The NE 145th Street intersection currently operates at LOS C. When signalized, this intersection is would operate at LOS A during 2022 PM peak hour. Based on the 2022 forecast, this intersection will operate at a LOS F without a signal. A project to add a signal at this location has been added to the 2009 TIP.

NE 143rd Place: The City has previously identified a new traffic signal for Main Street/143rd Street. This intersection currently operates at LOS E. When signalized, this

intersection would operate at LOS A during 2022 PM peak hour. The intersection would provide access to a major development on the west side of Main Street. Left-turn lanes along Main Street would help reduce Main Street queues, which would improve overall operations.

The unsignalized study intersection of Kennedy Drive/Main Street would be LOS D during 2022 PM peak hour conditions. Generally, the high volume of north-south through traffic along Main Street would result in traffic delays for side street traffic at unsignalized intersections. Traffic entering Main Street from the side streets could operate at LOS E to LOS F, given moderate levels of traffic demand. However, parallel streets such as 3rd Avenue NE would provide alternate routes to several signalized Main Street intersections, particularly for left-turning traffic. If excessive delays occur at unsignalized locations, traffic would likely shift to the signalized intersections. The Downtown Sub-Area Plan identifies monitoring of traffic operations and safety along Main Street. If problems develop, left-turn restrictions could be implemented at unsignalized intersections. Restriction of left turns would generally result in smoother traffic flows and less delay.

As previously noted, PSRC has established LOS D for the SR-203 corridor, including Main Street in Duvall. Based on the 2022 PM peak hour traffic forecasts, three of the total of five signalized intersections will meet the standard. The high volume intersection of Main Street /Woodinville-Duvall Road/Virginia Street would operate at LOS F and would not meet the standard. In addition, side streets accessing Main Street also would operate below LOS D during the 2022 PM peak hour. The City acknowledges the increased congestion and as noted on Page V-19, will exempt the State highway from its concurrency program.

Other Intersections

With the extension of 3rd Avenue NE south to Big Rock Road, a new intersection would be created. This extension provides an important alternate route, reducing the need for Main Street to accommodate local traffic circulation. Improving this intersection to an all-way stop control, roundabout, or signal would improve operations. However, an all-way stop control will likely not be constructed at this location because of delays associated with high east-west traffic volumes and pedestrian safety concerns.

The 2022 PM peak hour levels of service at remaining study intersections are forecast to be LOS C or better with the completion of improvements identified in the Transportation Element. Depending on the pace of development versus completion of identified improvements, some locations may fall below the LOS C standard between 2009 and 2022. The intersections that would fall below LOS C if improvements are not completed by 2022 are intersections with SR-203, which is exempt from the City's concurrency requirements.

Table T-8
Forecasted PM Peak Hour Intersection Level-of-Service

TIP#[1]	Intersection	2008 LOS	2022 LOS Base.[2]	2022 LOS with Imp.[3]	Improvement
I-1	Woodinville-Duvall Road & SR-203	D	F	D	Reconstruct intersection to align east and west approaches, add turn lanes, and traffic signal adjustments.
(R-2)	NE Stephens Street & SR-203	B	B	B	
(R-2)	NE Kennedy Drive & SR-203	D	D	D	
I-3	NE 145th Street & SR-203	C	F	A	Add traffic signal and/or dedicated turn lanes (Baseline assumption)
I-2	NE 143rd Place & SR-203	E	F	A	Add traffic signal and/or dedicated turn lanes (Baseline assumption)
(R-2)	NE Big Rock Road & SR-203	C	C	C	
(R-13)	NE Stephens Street & 3rd Avenue NE	A	C	C	
(R-14) (R-13)	NE Kennedy Drive & 3rd Avenue NE	A	B	B	
(R-15) (R-16) (R-13)	NE 143rd Place & 3rd Avenue NE	A	C	B	Add turn lanes (Baseline assumption)
(N-2)	275th Avenue NE & NE 152nd Street	B	B	B	
(N-1)	NE 150th Street & 275th Avenue NE	B	C	C	
(N-1)	NE 145th Street & 275th Avenue NE	B	C	C	
	NE 150th Street & 278th Avenue NE	B	B	B	
(N-3)	NE 144th Street & 278th Avenue NE	A	A	A	
	151st Street & 286th Avenue NE	A	A	A	
	NE 150th Street & 286th Avenue NE	A	A	A	
(R-17)	NE Big Rock Road & 275th Avenue NE	B	B	B	
(R-17)	NE Big Rock Road & 279th Lane NE	B	B	B	
(R-11) (M-2)	NE Big Rock Road & 3rd Avenue NE	NA	D	C	Add turn lanes (Baseline assumption). Upgrade intersection to traffic signal or roundabout.
(R-11) (M-4)	NE Big Rock Road & 5th Avenue NE	NA	C	C	

1 Transportation Improvement Project number. Projects with parenthesis () indicate related or nearby project.

2. "2022 Baseline" assumption include improvements that would be built by 2022 based on private funding.

3 "2022 With Improvement" assumes Transportation Improvement Projects.

Transportation Systems Plan

Based on existing and forecast traffic volumes, operations, and safety, a comprehensive package of transportation improvement projects and programs was identified. The improvement projects and program will help the City implement the vision of the overall Comprehensive Plan.

The core part of the improvement projects and program are related to street and highway improvements. The street system provides for the majority of travel to/from,

within, and through the City. The street system also provides the general framework for other travel modes including transit, pedestrians, and bicyclists.

Figure T-6 and Table T-9 summarize the recommended Transportation Improvement Projects and Programs. The project list is organized by location of the improvement in the City. In addition, Table T-9 includes three City-wide transportation improvement programs.

Table T-9 includes a project identification number for referencing to Figure T-6. The project name, limits, and description of improvements are also included. Projects included in the City's existing 2009-2015 Transportation Improvement Program are identified since the City has potentially already invested funding into those projects. Planning level cost estimates, a relative priority, and anticipated timing for the improvement are identified.

The following highlights key improvement projects and strategies. Since Main Street is the key transportation facility serving the City it is discussed first. Improvement strategies are then presented for Old Town/Riverfront/North Duvall, South Duvall, East Duvall, and the City-wide transportation programs.

Main Street Improvements

As Duvall and surrounding communities continue to grow, there are concerns about additional traffic and safety along Main Street. The Duvall City-Wide Visioning and Downtown Sub-Area Plans indicate the following recommendations for Main Street Improvements (through the approximate one-mile of SR-203 that is within the City limits):

- Coordinate traffic controls that reduce speeds;
- Provide a narrower road width that will help reduce speeds;
- Install curb bulbs, pedestrian level street lights and other design treatments that reduce travel speeds, enhance the pedestrian environment, and improve pedestrian safety;
- Provide on-street parking on both sides;
- Where feasible alternatives exist, direct bicyclists to parallel corridor to reduce safety conflicts and use of existing ROW;
- Work with WSDOT, King and Snohomish counties to redirect truck traffic from Main Street (for example, to the existing West Snoqualmie Road), and;
- Work with WSDOT to establish a 25 mph speed limit to promote tourism, improve pedestrian safety, and reduce the impacts of commuter and truck traffic through the City.

The 2008-2009 Main Street Reconstruction project included safety, parking, and transportation improvements between NE Bird Street and NE Ring Street. The project added concrete crossings and curb extensions to all intersections, shortening the distance pedestrians have to be in the travel lanes. The project also reduced vehicle

speeds and improved channelization with the installation of a low center median, 11- to 12-foot wide travel lanes, and 12-foot wide joint bicycle and parking lanes. The project included sidewalks, tree grates, road and pedestrian lighting, small public spaces, public art, and other public amenities.

Main Street within the south portion of town would also be maintained as 2-lanes with left and/or right turn lanes at signalized intersections. Additionally, left-turn lanes also may be required at unsignalized access streets/driveways for major developments. A traffic signal and turn lanes may be required at Main Street/NE 143rd Place and Main Street/NE 145th Street.

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Figure T – 6: Long Range (2009-2022) Transportation Improvement Projects

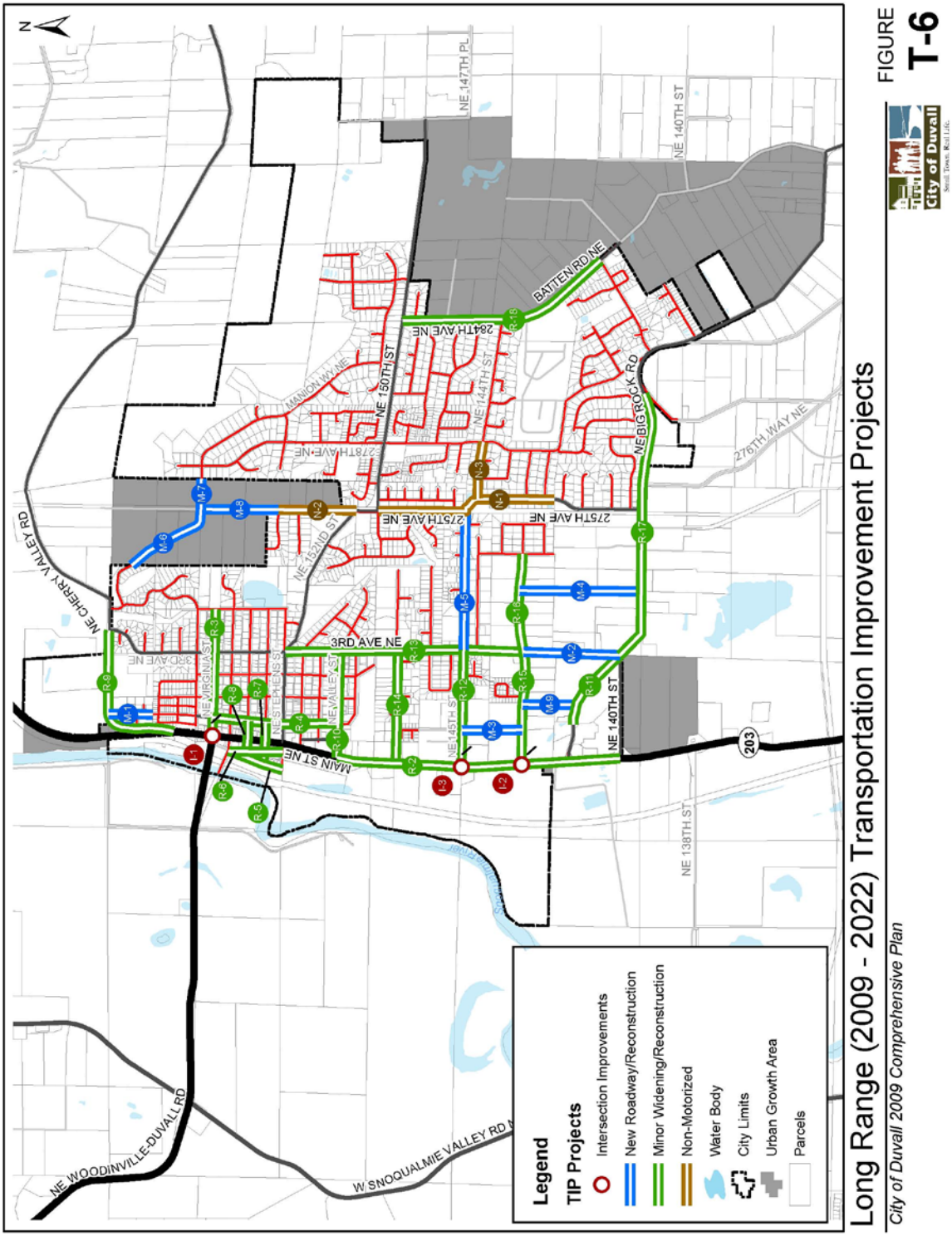

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Table T – 9: Transportation Improvement Projects and Programs

Table T-9 City of Duvall Transportation Improvment Projects and Programs

Project Group	Map ID	Project Name	Project Limits	Project Description	In Existing TIP? (1)	TIF Eligible?	Project Cost ($1,000s)	Time Frame
INTERSECTION IMPROVEMENTS	I-1	Main Street NE (SR 203) at Woodinville-Duvall Road / NE Virginia Street	Intersection	Reconstruct intersection to align Virginia Street with Woodinville-Duvall Road at Main Street in conjunction with King County improvements to the Snoqualmie River Bridge to accommodate growth. Construct south-to-east left-turn lane, improve turning radii, and modify traffic signal.	No	Yes	$1,493	Mid
	I-2	Main Street NE at NE 143rd Place	Intersection	Install turn lanes and traffic signal to improve channelization and level of service to serve growth	Yes	Yes	$909	Developer-Driven
	I-3	Main Street NE at NE 145th Street	Intersection	Install traffic signal and channelization improvements as needed to accommodate growth.	No	Yes	$1,075	Developer-Driven
NEW ROADWAYS AND MAJOR WIDENING OR RECONSTRUCTION IMPROVEMENTS	M-1	1st Avenue NE Extension	NE Anderson Street to NE Cherry Valley Road	Construct new 1st Avenue NE connection from NE Anderson St to NE Cherry Valley Road including bike lanes to improve local vehicular and non-motorized circulation and accommodate growth.	No	Yes	$1,973	Developer-Driven
	M-2	3rd Avenue NE Extension	NE 143rd Place to NE Big Rock Road	Construct new collector arterial segment to provide connection and capacity to serve growth including two travel lanes, curb, gutter, sidewalk, curb-bulbs, bike lanes and on-street parking/turn lanes/medians within commercial or residential areas as required. Project will include storm drainage system improvements	Yes	Yes	$2,510	Developer-Driven
	M-3	1st Avenue NE Extension	NE 145th Street to NE 143rd Place	Construct new collector arterial segment to provide connection and capacity to accommodate growth including acquisition of right-of-way, road, bike lane, parking, curb, gutter, sidewalk, and storm drainage system. Alignment will need to consider wetlands and property ownership.	No	Yes	$2,535	Developer-Driven
	M-4	5th Avenue NE Corridor	NE 143rd Place to NE Big Rock Road	Construct new access/circulation roadway to provide connection and capacity to accommodate growth including two travel lanes, curb, gutter, sidewalks, and drainage. Specific alignment to be defined.	No	Yes	$4,787	Developer-Driven
	M-5	NE 145th Street	3rd Avenue NE to 275th Street NE	Widen roadway to collector arterial standards to accommodate growth and serve east-west travel.	Yes	Yes	$2,709	Developer-Driven
	M-6	Duvall North Annexation, NE 164th Street	4th Avenue NE to 275th Avenue NE	Construct new collector arterial between 4th Avenue NE and 275th Ave NE to accommodate growth and provide access and circulation to developing properties. Roadway would include two travel lanes, bike lanes, curbs, gutter, and sidewalks and would likely extend from the east end of NE 164th Place.	No	Yes	$4,483	Developer-Driven
	M-7	NE Virginia Street	275th Ave NE to Manion Way	Construct new neighborhood collector to accommodate growth and provide access and circulation to developing properties. Roadway would include two travel lanes, curbs, gutter, and sidewalks.	No	Yes	$1,764	Developer-Driven
	M-8	275th Avenue NE	NE 155th Street to NE Virginia Street	Construct new roadway to collector arterial standards to accommodate growth including bike lanes, curb, gutter, sidewalk, and storm drainage system.	No	Yes	$1,593	Developer-Driven
	M-9	2nd Avenue NE Extension	NE 143rd Place to NE Big Rock Road	Construct new collector arterial segment to provide connection and capacity to accommodate growth including acquisition of right-of-way, road, bike lane, parking, curb, gutter, sidewalk, and storm drainage system. Alignment will need to consider wetlands and property ownership.	No	Yes	$2,098	Developer-Driven

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Table T-9 City of Duvall Transportation Improvment Projects and Programs

Project Group	Map ID	Project Name	Project Limits		Project Description	In Existing TIP? (1)	TIF Eligible?	Project Cost ($1,000s)	Time Frame
MINOR WIDENING AND RECONSTRUCTION IMPROVEMENTS	R-2	Main Street NE (SR-203) South Improvements	South City Limits to NE Ring Street		The City will work with WSDOT to define and construct improvements to accommodate growth and channelization, signalization, and safety, including construction of curb, gutter, sidewalk, curb bulbs, bike lanes, medians, storm drainage system, and repair/reconstruction of the Coe-Clemmons Culvert. City will maintain a two-lane roadway, with turn lanes at signalized intersections. The roadway will include on-street parking and gateway treatments and speed transition areas at the south end of the City.	Yes	Yes	$15,144	Long
	R-3	NE Virginia Street	Main Street NE to 4th Avenue NE		Reconstruct roadway to collector arterial standards to improve channelization to accommodate growth and capacity including two-travel lanes, curb, gutter, sidewalk, curb-bulbs, and on-street parking. Project will include storm drainage system improvements and may require retaining walls.	No	Yes	$2,266	Mid
	R-4	1st Avenue NE	NE Valley Street to NE Virginia Street		Reconstruct to collector arterial standards to improve channelization and capacity to accommodate growth including two-travel lanes, bike lanes, on-street parking, sidewalks, and curb bulbs. Street will serve north-south local access and circulation east of Main Street.	No	Yes	$2,927	Mid
	R-5	Railroad Avenue NE	NE Stephens Street to NE Stewart Street		Where feasible, reconstruct to improve channelization and capacity to accommodate growth including two-travel lanes, on-street parking, and sidewalks. Street will serve north-south local access and circulation west of Main Street.	No	Yes	$1,725	Mid
	R-6	Riverside Avenue NE	NE Stephens Street to NE Stewart Street		Where feasible, reconstruct to improve channelization and capacity to accommodate growth including two-travel lanes, on-street parking, and sidewalks. Street will serve north-south local access and circulation west of Main Street.	No	Yes	$1,189	Mid
	R-7	NE Stella Street	1st Avenue NE to Railroad Avenue NE		Where feasible, reconstruct to improve channelization and capacity to accommodate growth including two-travel lanes, on-street parking, and sidewalks. Project will improve local circulation and serve as pedestrian travel in downtown.	No	Yes	$852	Mid
	R-8	NE Cherry Street	1st Avenue NE to Railroad Avenue NE		Where feasible, reconstruct to improve channelization and capacity to accommodate growth including two-travel lanes, on-street parking, and sidewalks. Project will improve local circulation and serve as pedestrian travel in downtown.	No	Yes	$740	Mid
	R-9	NE Cherry Valley Road	Main Street NE to 3rd Avenue NE		Reconstruct road to minor arterial standards to improve channelization and capacity to accommodate growth including two travel lanes, curbs, gutters, sidewalks.	No	Yes	$3,861	Mid
	R-10	NE Valley Street	Main Street NE to 3rd Avenue NE		Reconstruct roadway to collector arterial standards to improve channelization and capacity to accommodate growth including two-travel lanes, curb, gutter, sidewalk, curb-bulbs, on-street parking, and bike lanes extending from Main Street NE to 3rd Avenue NE.	No	Yes	$2,399	Long
	R-11	NE Big Rock Road	Main Street NE to 3rd Avenue NE		Reconstruct roadway to minor arterial standards to improve channelization and capacity to accommodate growth including curb, gutter, sidewalk, curb-bulbs, bike lanes, and on-street parking/turn lanes/medians within commercial or residential areas as required. Project will include storm drainage system improvements	Yes	Yes	$2,094	Short
	R-12	NE 145th Street	Main Street NE to 3rd Avenue NE		Reconstruct roadway to collector arterial standards to improve channelization and capacity to accommodate growth including two travel lanes, curb, gutter, sidewalks.	Yes	Yes	$2,405	Mid

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Table T-9 City of Duvall Transportation Improvment Projects and Programs

Project Group	Map ID	Project Name	Project Limits	Project Description	In Existing TIP? (1)	TIF Eligible?	Project Cost ($1,000s)	Time Frame
MINOR WIDENING AND RECONSTRUCTION IMPROVEMENTS	R-13	3rd Avenue NE	NE Stephens Street to NE 143rd Place	Reconstruct roadway to collector arterial standards to improve channelization and capacity to accommodate growth including two travel lanes, curb, gutter, sidewalks.	Yes	Yes	$5,800	Short
	R-14	NE Kennedy Drive	Main Street NE to 3rd Avenue NE	Reconstruct roadway to collector arterial standards to improve channelization and capacity to accommodate growth including two travel lanes, curb, gutter, sidewalks.	No	Yes	$2,466	Mid
	R-15	NE 143rd Place	Main Street NE to 3rd Avenue NE	Reconstruct roadway to collector arterial standards to improve channelization and capacity to accommodate growth including two travel lanes, bike lanes, curb, gutter, sidewalks.	No	Yes	$2,327	Developer-Driven
	R-16	NE 143rd Place	3rd Avenue NE to 272nd Pl NE	Reconstruct roadway to collector arterial standards to improve channelization and capacity to accommodate growth. Project will include curbs, gutters, sidewalks, and drainage.	No	Yes	$2,325	Developer-Driven
	R-17	NE Big Rock Road	3rd Avenue NE to NE Roney Road	Reconstruct roadway to arterial standards to improve channelization and capacity to serve growth including roadway realignment, curb, gutter, sidewalk, curb-bulbs, bike lanes, and on-street parking/turn lanes/medians within commercial or residential areas as required. Project to serve increased traffic and to improve sight distance, visibility and safety of non-motorized travel.	Yes	Yes	$7,740	Developer-Driven
	R-18	Batten Road NE	NE 150th Street to NE Roney Road	Reconstruct roadway to collector arterial standards to accommodate growth including curb, gutter, sidewalk, bike lanes, and storm drainage system.	Yes	Yes	$4,318	Mid
NON-MOTORIZED IMPROVEMENTS	N-1	275th Avenue NE	NE 141st Court to NE 150th Street	Construct remaining segments of sidewalk or pedestrian pathway to accommodate growth and increased pedestrian requirements along collector arterial and curb extensions/parking as possible.	Yes	Yes	$1,801	Short
	N-2	275th Avenue NE	NE 152nd Street to NE 155th Street	Construct sidewalk or pedestrian pathway on east side of roadway to accommodate growth and increased pedestrian requirements.	No	Yes	$687	Mid
	N-3	NE 144th Street	275th Ave NE to 278th Ave NE	Upgrade/realign intersection at 275th Street/ 144th Street to accommodate growth and construct sidewalk or pedestrian pathway on both sides of roadway.	No	Yes	$692	Mid
CITYWIDE PROGRAMS	O-1	Sidewalk Improvement Program	Citywide	Annual program to construct missing sidewalk links not covered by specific improvement projects to accommodate growth.	No	No	$2,251	On-going
	O-2	Traffic Calming Program	Citywide	Annual program to construct curb bulbs or other traffic calming on collector arterials to accommodate growth and improve pedestrian safety and neighborhood quality.	No	No	$650	On-going
	O-3	Maintenance and Operations	Citywide	Complete maintenance and operations include overlay, repair, cleaning, striping, sealing, crack repair, and other activities	No	No	$5,135	On-going
						Total	**$99,720**	

Notes:

(1) Project is identified in City's current Transportation Improvement Program (TIP).

(2) Represents planning level project cost estimates. Project costs will be refined during the project design phase.

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Old Town/Riverfront/North Duvall Improvements

In addition to the Main Street enhancements, the Transportation Element incorporates other improvements identified in the Downtown Sub-Area Plan. These include realigning/reconstructing the intersection of Main Street with Woodinville-Duvall Road/Virginia Street. This improvement is needed to improve safety and traffic operations. It also will facilitate traffic access and circulation to 1st Avenue and residential areas east of 3rd Avenue. This will result in decreasing the volume of traffic which uses Main Street for local access and circulation.

The Transportation Element also calls for reconstructing Virginia Street, 1st Avenue, Railroad Avenue, Riverside Avenue, and Valley Avenue in the downtown area. These collector arterials will provide alternative routes for access and circulation to the expanding business district and new mixed-use developments envisioned for downtown Duvall. Other local streets, such as Stella Street and Cherry Street, also would be improved to serve pedestrian circulation and provide access to parking.

A potential connection along the 3rd Avenue NE corridor, from Cherry Valley Road to SR-203 north of the City, was identified as a potential project in the 2004 comprehensive plan update. In 1993, WSDOT conducted a preliminary evaluation of improvements to the SR-203/Cherry Valley Road intersection. The WSDOT study identifies the route as feasible, but identified potential impacts to wetlands and the 100-year flood plain for the new road. This project has been removed from the TIP because of environmental impacts and high cost.

3rd Avenue Improvements

Extension of 3rd Avenue from NE 143rd Place to Big Rock Road will provide alternatives for local traffic circulation and access to areas identified for substantial growth in the Comprehensive Plan. A new north-south corridor alignment between 143rd Place and Big Rock Road and a new east-west corridor alignment between 268th Avenue NE and 275th Avenue NE also are needed to provide access/circulation for growth in the south Duvall area. For the purposes of this element, the south Duvall area is defined as the area bounded by NE 143rd Place to the north, NE Big Rock Road to the south, 3rd Avenue NE to the west, and 275th Avenue NE to the east. These alignments would provide access to properties through a localized circulation system which would minimize direct access to Big Rock Road, the north-south corridor, and 143rd Place. The road system shown in TIP M2 and M4 on Figure T-6 for South Duvall is conceptual only; specific road locations will be determined at time of development.

Other transportation improvements identified in the plan call for reconstructing several east-west collector arterials to handle higher volumes of traffic and also would include pedestrian facilities. These include 145th Street, Kennedy Drive, and 143rd Place. In addition, 3rd Avenue would be reconstructed between Stephens Street and 143rd Place to improve north-south traffic flows. These 3rd Avenue NE improvements will likely be completed in phases and may include:

- Full frontage improvements including curb, gutter, sidewalk, landscape strip, and bicycle lane where sufficient ROW exists, and;

- Reduced frontage improvements in areas of reduced ROW widths, adverse (steep) topography, or environmental constraints such as the reduced-width Coe-Clemons Creek crossing located immediately north of NE Kennedy Drive. The reduced frontage improvements will likely be located between NE Stephens and NE Kennedy Streets and may include joint use pedestrian/bicycle paths, reduced roadway width, reduced landscaping, and possibly limiting non-motorized improvements to only one side of the ROW.

Pedestrian improvements are identified for Big Rock Road between Main Street and 3rd Avenue. Additional localized pedestrian and non-motorized improvements would serve properties within the South UGA.

East Duvall Improvements

Improvements east of 3rd Avenue primarily include reconstructing existing roadways to better accommodate increased volumes of traffic and to provide pedestrian facilities. Other improvements include construction of needed circulation roads as development occurs.

As shown in Table T-9 and Figure T-6, the plan calls for reconstructing and improving pedestrian facilities along sections of Big Rock Road, 145th Street, Batten Road, Virginia Street, and 275th Avenue NE.

A new collector arterial roadway would be developed by improving and extending Virginia Street between 3rd Avenue and 275th Street. East of 275th Street, the roadway would be a neighborhood collector connecting with the existing Manion Way and would be constructed as part of developer improvements. These streets, along with improvements to 275th Street, will provide the basic circulation system for anticipated future growth in that part of the City.

City-Wide Improvement Programs

The Transportation Element includes three City-wide improvement programs:

- Street Overlay, Maintenance, and Operations;
- Sidewalk Improvements, and;
- Traffic Calming.

The street overlay, maintenance, and operations program will be used to preserve and enhance the City's existing and planned transportation system. The program provides the City with a systematic approach for evaluating arterials and local roadways for pavement conditions, signage, sight distance restrictions, and other similar issues. Traffic control devices, such as traffic signals, will be monitored. To ensure that the transportation infrastructure is preserved in a cost-effective manner, the City will need to consider allocating a significant annual budget including funding for staff resources to administer the maintenance, operations, and capital programs. The staff resources also will be used to prepare grants and for coordination with WSDOT and King County for regional improvements

The sidewalk improvement program will be used by the City to maintain and enhance pedestrian routes in the City. The program will focus on locations not covered by a specific capital project shown in Table T-9. The program will allow the City to fill in missing gaps in sidewalks or pathways that are needed to provide a continuous route to schools, parks, commercial areas or other pedestrian destinations. Where possible, the City will have new developments construct the sidewalk system as part of their frontage improvements. In some locations, developments have already been constructed without the improvements, which will require the City to fund and construct the missing links. The program also can be used to construct wheelchair ramps or other improvements to improve existing sidewalks.

Traffic calming is the third citywide improvement program. Providing safe and convenient local streets is important to the City. This involves assuring that travel speeds are kept at or below the adopted/posted speed limits. The Transportation Element acknowledges that congestion will result along Main Street. This could result in drivers taking alternative routes using neighborhood streets or collector arterials. A traffic-calming program is included in the program to allow the City to address the impacts of travel speeds and/or cut-through traffic within its neighborhoods. The program is intended to provide a consistent, equitable, and comprehensive approach for addressing these issues.

Access Management Analysis

Access management is the control of the number and location of access points along a roadway in order to provide for the following: access to property, maximize safety for all roadway users, optimize roadway operations, and protect the public's roadway investment. Access management is a primary focus of WSDOT's Department of Urban Mobility and is supported by RCW 47.50 and RCW 47.52.

Access management focuses on the number, location, and size of roadway access points such as driveways and streets. To maximize roadway capacity on major roadways, driveways should be consolidated, located on side streets, and controlled through driveway standards designating the number, spacing, and width.

Development along the Main Street corridor will continue to occur. Access management policies, standards, and strategies will best protect the operation of this facility from poorly located or too numerous access points. While Old Town generally has few driveways onto the state route, its tightly spaced blocks often can result in high levels of turning movements, reducing traffic flows and creating conflict points.

The City should continue to work with WSDOT and King County to implement access management along the Main Street/SR-203 corridor. The Transportation Element identifies extension/completion of additional north-south streets to help reduce the impacts of development on Main Street. These include 1st, 3rd, Railroad, and Riverside avenues. Improvements to connecting east-west streets also are included in the plan.

The access management program will identify where traffic mobility could be improved using access management techniques. The City needs to balance access management with economic development.

Truck Traffic Analysis

Truck traffic will remain an issue within the City of Duvall for the foreseeable future. Some of the causes for high truck volumes include sand and gravel operations in the area, and high volumes on regional roadways such as I-5 and I-405 that result in drivers using SR-203 as an alternative route from I-90 to US-2.

The City, in conjunction with WSDOT and King and Snohomish counties, should investigate the feasibility of designating a truck route that would re-route trucks from SR-203 in Duvall. One potential route would cross the Snoqualmie Valley near the Reformatory Farm on the High Bridge north of Duvall or at Woodinville-Duvall Road, or both, and continue on West Snoqualmie Valley Road to 124th Street, crossing the Novelty Bridge to re-connect to SR-203. Truck route signs would inform drivers of the appropriate routing. This route would require extensive improvements/upgrades to High Bridge Road in Snohomish County and West Snoqualmie Valley Road in King County.

Regional Impacts Analysis

The future operation and adequacy of the City of Duvall transportation system and nearby growth within adjacent land in King County are closely linked. As population continues to grow throughout the region beyond the 2022 study year, traffic pressures may result in congestion at critical locations along the regional travel facilities.

Through the inclusion of PSRC model data, the future regional growth and its impact is considered within the parameters of the analysis and is expected to meet regional travel needs. The City of Duvall has been an active participant in past, current, and future regional planning efforts and will continue a high level of involvement with nearby communities.

Regional Traffic Improvements

There has been much discussion in past years about the possible construction of a new north-south regional facility in eastern King County to bypass the congested I-5 and I-405 corridors; however, no action is likely to occur within the next 20 years. In addition, the County has voiced concerns regarding a regional bypass route because of issues regarding wildlife habitat, development sprawl, and project viability.

The WSDOT Office of Urban Mobility's *Corridor Needs Study for East King County* (December 1999) investigated three scenarios to relieve traffic on major state facilities, while improving mobility within eastern King County. The three scenarios were a North-South Freeway, an Arterial Parkway System, and a Major Transit Investment Strategy. While the study did establish the need for additional north-south capacity, the regional benefits of the capacity improvements in east King County may be lower than improvements to existing transportation facilities. Results of the scenario analysis are as follows:

- A new North-South freeway would have little travel time savings for through trips due to longer travel distances and expected congestion on US 2 and SR-18;
- Development of the Arterial Parkway System scenario would improve local mobility, but have substantially longer travel times for through trips, and;

- The Major Transit Investment Strategy would increase ridership and have similar mobility and congestion characteristic to the Arterial Parkway scenario.

The plan asserts that action should be taken to meet the future travel needs of the region; however, these improvements may be more focused on existing congested corridors than in the development of new corridors. The City should continue to participate and follow discussions about regional transportation strategies.

Transportation Demand Management (TDM)

TDM consists of strategies that seek to maximize the efficiency of the transportation system by reducing the number, length and need of private automobile trips. Typically, TDM measures include provision of park and ride lots, improvements to pedestrian and bicycle facilities, and promotion of ridesharing activities. Most recently, the City of Duvall worked closely with King County and WSDOT to develop a park-and-ride facility to encourage the formation of carpooling and the use of transit. The Duvall Community Car Park, on the northeast corner of the intersection of Woodinville-Duvall Road and Main Street, was completed in 2001.

Within the State of Washington, alternative transportation solutions are necessitated by the objective of the Commute Trip Reduction (CTR) Law, which applies to employers with 100 or more employees. The purpose of CTR is to help maintain air quality in metropolitan areas by reducing congestion and air pollution. Currently, the City does not have any employer with 100 or more employees working during a shift between 6am and 9am. When such an employer does exist, the City could develop a Commute Trip Reduction Ordinance consistent with the Commute Trip Reduction Act. The ordinance should include TDM actions for employers, such as carpool matching, transit pass subsidies, and bicycle parking to discourage employees from commuting alone.

Duvall is a growing community in a rural area. TDM strategies are typically most effective in denser and larger urban areas. However, strategies coordinated with King County, WSDOT and PSRC can provide alternatives for residents and employees in Duvall. Potential TDM strategies the City could promote through policy or investment include, but are not limited to:

- Transit-oriented and pedestrian friendly street design;
- Transportation coordinators for large employers;
- Telecommuting;
- Flexible/Alternative work schedules;
- Additional Park & Ride facilities, and;
- Ridesharing/Carpooling.

Transportation Finance and Implementation Program

The list of transportation improvement projects must be funded and implemented to meet existing and future travel demands in and around the City of Duvall. Estimated project costs and future revenues are presented and options to fund the projects are

described. Implementation strategies are discussed and include items such as coordination with WSDOT and King County to prioritize and fund regional improvements. Other strategies include strengthening the transportation concurrency and impact fee programs to ensure development helps fund transportation improvements necessary to support new growth. The implementation plan sets up the framework for the City to prioritize and fund the improvements identified in the transportations systems plan.

Financing Program

The GMA requires the Transportation Element of the Comprehensive Plan to include a multi-year financing plan based on the identified improvement needs in the transportation systems plan. The financing plan is to be the basis in developing the required annual Six-Year TIP. 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 standards.

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

Based on the travel forecasts and the City's LOS standards, the comprehensive list of transportation improvement projects was defined (see Table T-9). Planning level cost estimates were prepared for each project and program. Analysis of the City's capability to fund the projects was also conducted. This included review of existing and projected revenues and potential grants or other agency funding. 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 T-10 provides a summary of the project costs including total Capital Improvements and on-going Citywide Programs. The improvement projects and programs are estimated to cost approximately $99.7 million in 2009 dollars. Approximately $55.5 million of the total project costs are associated with frontage improvements that will be constructed as part of future development. The remaining $44.3 million of total project costs represents the City's portion of the costs. This requires approximately $3.4 million per year of City and/or grant funds over the 13-year life of the plan.

The highest priority capital projects account for over $38 million in costs. One-half of that amount is for the Main Street improvement project. Another $26.3 in capital projects are identified as medium priority, with $3.8 million identified as a lower priority.

Table T – 10
2009 to 2022 Project Cost Summary

Capital Improvements		Citywide Programs		Total
Description	**Costs ($1000's)**	**Description**	**Costs ($1000's)**	**Costs ($1000's)**
Intersections	$3,467	Sidewalk Improvement Program	$2,251	
New Roadways & Major Widening/Reconstruction	$24,450	Traffic Calming Program	$650	
Minor Widening/Reconstruction	$60,577	Maintenance & Operations	$5,135	
Non-Motorized	$3,180			
Subtotal	**$91,684**		**$8,036**	**$99,720**

Over 20 percent of the $91.7 million in capital transportation improvements is needed for improvements to Main Street (SR-203) within the study area. Of the $18.6 million in improvements to Main Street, over $15.1 million is needed to improve Main Street (SR-203) from Valley Street to the south City limits. Almost $3.5 million is needed to install signal and/or channelization improvements at three locations along Main Street (NE Woodinville-Duvall Road, NE 145th Street, and NE 143rd Place).

The highest costs for non-state highway improvements include the reconstruction of NE Big Rock Road and 3rd Avenue NE. These two projects account for almost 20 percent of the non-state highway improvements.

Approximately $12.8 million is identified for improvements to areas within or adjacent to the City's UGA. That accounts for approximately 14 percent of all identified transportation capital improvements.

Existing Revenues and Projections

The City utilizes a number of fees and tax revenues to construct and maintain their transportation facilities. The description of available funding sources and projected average yearly revenue is listed in Table T-11. The revenue projections were estimated based upon the City's 2009 budget, historical revenues, and input from the City's finance department. Based on recent historical data, it is estimated that annual revenues will be approximately $2 million if an average of approximately $1.6 million in grant and TIF funding is collected each year. The largest City generated revenue sources are impact fees, property taxes, and fuel taxes.

Table T-11
Projection of Existing Transportation Revenues

Revenue Category	Estimated Annual Revenues[1]	2010-2022 Revenues[1]
Motor Vehicle Fuel Taxes[2]	$152,000	$1,976,000
Property Taxes	$200,000	$2,600,000
General Fund and/or Other Utility Fund	$50,000	$650,000
Street Use Permits, Inspection Fees, Misc.	$14,000	$182,000
Transportation Impact Fees	$530,000	$6,890,000
Grant Funding	$1,101,000	$14,313,000
Total	**$ 2,047,000**	**$26,611,000**

Source: City of Duvall Public Works Department
1 2009 dollars
2 Includes restricted and unrestricted fuel taxes

Funding Options

Funding options include the use of existing revenue sources such as motor vehicle taxes and other City revenues identified in Table T-11. Grant programs will continue to be another funding component of the City. Developers will also continue to contribute through frontage improvements, environmental mitigation, and TIFs. To help cover the $99.8 million in total project costs, additional revenue will need to be generated from these sources.

Other agencies such as WSDOT will need to share the cost of state highway improvements to meet regional transportation needs. The City and King County also should continue to join together to fund transportation projects within the UGA. To generate more revenue, the City also could increase TIFs further, require developers to contribute through SEPA or other mitigation programs, and seek additional grants. Even with increased fees or new revenues sources, several projects could be unfunded during the life of the Plan. However, the Plan will provide capacity for growth beyond 2022.

Tax Revenues

The existing tax revenues identified in Table T-11 will need to be maintained as one source of revenue to fund transportation projects and programs. These revenue sources include the motor vehicle fuel excise tax, property taxes, and other tax revenues that support the City's general fund. These sources of revenue contribute approximately $5.2 million over the life of the Plan. An increase in tax revenues to support implementation of the Plan is not assumed. The majority of the existing tax revenue sources will be used for maintenance, or to provide the matching funds for grants or to complete a portion of the roadway widening projects not covered by other agencies.

Grants

Over the past several years the City has secured grants for transportation improvements. Based on the recent grant revenues, this source would provide up to $14.3 million in revenues to fund the Plan.

Grant funding is typically tied to specific improvement projects and distributed on a competitive basis. Given the types and costs of improvements, the City will need to secure a higher level of grant funding in the future. Regional transportation grants may be available for major improvements to the Main Street (SR-203) and NE Woodinville-Duvall Road corridors. Local transportation grants may be available for other projects on the TIP.

Other Agency Funding

The City will need to partner with WSDOT and King County to fund and implement the Plan. Main Street (SR-203) and NE Woodinville-Duvall Road serve regional traffic. The traffic forecasts indicate that approximately 15 percent is related to through traffic growth. Therefore a significant portion of the funding of improvements to the state highways should be allocated to WSDOT, King County, or grant funding.

Transportation Impact Fees

The GMA allows agencies to develop and implement a TIF program to help fund some of the costs of transportation facilities needed to accommodate growth. State law (RCW 82.02) requires that TIFs are:

- Related to improvements to serve new developments and 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 adopted CFP.

As shown on Table T-11, by 2022, the City would generate a net of $6.9 million in TIFs not including TIF credit given to developers. The Plan includes a range of improvement projects necessitated by growth and to address regional traffic improvements.

Developer Improvements

The City has adopted specific development related requirements which will help fund the planned improvements. These include frontage improvements and mitigation under the State Environmental Policy Act (SEPA) or concurrency. The City requires developments to fund and construct certain roadway improvements as part of their projects. These typically include constructing abutting local streets and arterials to meet the City's design standards. These improvements can include widening of pavement, drainage improvements, and curbs, gutter, and sidewalks.

Developers pay a TIF to pay for the developer portion of the cost associated with the TIP. 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. The cost of projects needed to resolve existing deficiencies cannot be included.

The TIF program allows developers to receive credits if they are required to construct all or a portion of TIP improvements to the extent that the required improvements were

included in the TIF calculation. Therefore, if development completes improvements included on the TIP, then TIF credits would be provided up to, but not exceeding, TIF associated with the development. Each TIP project has a specific percent credit available based on the percent of developer growth trips related to total growth trips for the project. Actual TIF credit shall be provided in accordance with the project percent credit of the actual improvement cost or City estimated cost in the TIF calculation, whichever is smaller. If a developer completes improvements not included in the TIP, then credits against the TIF would not be provided.

The City also evaluates impacts of development projects under SEPA. The SEPA review may identify adverse transportation impacts that require mitigation beyond payment of the TIF. These could include impacts related to safety, traffic operations, non-motorized travel, or other transportation issues. The needed improvements may or may not be identified as specific projects in the Plan. As with frontage improvements, if the required improvements are included in the TIF, then the City must provide credits to the extent that the costs are included in the impact fee.

The City also requires an evaluation of transportation concurrency for development projects. The concurrency evaluation may identify impacts to facilities that operate below the City's LOS standard. To resolve that deficiency, the applicant may fund and/or construct improvements to provide an adequate LOS.

Summary of Financing Strategy

Table T-12 summarizes the City's proposed transportation financing strategy for the $44.3 million City of Duvall portion of the TIP costs. All values are presented in 2009 dollars. The plan results in a potential shortfall of $17.7 million. This assumes that the level of grants and development impact fees will be generated as estimated in this Plan. The deficit could be greater if the level of development or the level of grant funding is less than forecasted. This would be offset by a reduced need for transportation improvements necessitated by growth. If the City is more successful in obtaining grants or other outside funding for projects then the potential deficit could be reduced.

Table T-12
Transportation Funding Strategy Summary

Revenue Sources	2010-2022 (in 2009 dollars)
Street and Arterial Funds	$5,408,000
Transportation Impact Fees	$6,890,000
Grant Funds	$14,313,000
Total Revenues	**$26,611,000**
Total Expenditures	**$44,293,000**
Estimated Shortfall	**($17,682,000)**

Source: City of Duvall Public Works Department

Monitoring, Evaluation, and Reassessment Strategy

The Transportation Element, a long-range plan with the horizon year 2022, anticipates the needs and conditions of the future transportation systems, enabling the City to plan for its current and future needs. Nonetheless, the transportation network is dynamic, constantly changing circumstances beyond the scope and influence of this plan. Hence, regular updates are necessary to ensure the plan remains current and relevant. The financing strategy identifies a balance between revenues and expenditures over the life of the Plan. However, the City is committed to reassessing their transportation needs and funding sources each year as part of their annual six-year TIP. This allows the City to match the financing program with the shorter-term improvement projects and funding. The Plan also includes goals and policies to periodically review land use growth, adopted LOS standards, and funding sources to ensure they support one another and meet concurrency requirements.

Annual Updates

The Transportation Element will be amended regularly as part of the City's regular Comprehensive Plan amendment cycle, which ensures proposed changes go through a public review process before the amended plan is adopted by the City. In preparation for the annual amendment cycle, the City will review the plan and propose updates as needed. These proposed updates may be due to shifts in City priorities, the availability of new information, or the relevance of certain plan components.

The annual evaluation process is an opportunity to ensure that the Transportation Element is consistent with the other element of the City's Comprehensive Plan, including the Land Use Element, Economic Development Element, the City's Parks and Recreation Plan and the CFP. Hence, as part of the annual amendment cycle, the City will ensure the plan components are consistent with and supportive of each other and reflect the City's most recent assumptions about traffic patterns, growth and development.

Multi-Year Updates

Although the City will go through a formal process of updating the Plan annually, a more exhaustive process is periodically necessary, hence, a through rewrite of the Plan should be completed every five to eight years. This endeavor would include a broad public outreach effort with input from neighboring jurisdictions, state and regional agencies, and Duvall residents and businesses. Much like the process for the 2008-09 update, it would present an opportunity to holistically examine the current transportation system and lay the framework for development of the future system.

Reevaluation

During the annual reevaluation process, the City can evaluate progress made in implementing the plan, as well as identify new needs that have arisen since the previous update. The City will review its street, non-motorized, and transit systems, and assess whether the Plan is adequately addressing the implementation strategies necessary to ensure the transportation infrastructure continues to grow in line with the City's objectives.

As part of this process, the City will review its future project list and update the CFP as needed. It will also review its future projects list in the policies and funding sections of the Plan, in order to remain consistent with the City's vision and current with available funding strategies.

Technical Information

The Transportation Element contains technical data which is used in other elements of the Comprehensive Plan. As part of the annual amendment cycle, the City will update technical information, such as traffic volumes, current LOS, roadway classifications, and transit route and ridership information and update other affected elements of the Comprehensive Plan. The evaluative process will make use of this new information and enable the City to measure system changes over a period of time leading to informed decisions in planning the future system.

Model Updates

The City will update the traffic model on a regular basis, every few years, as new land use, employment, and housing data becomes available. Model updates are important as they ensure the City has an accurate understanding of how land use patterns, employment, and other factors impact future transportation conditions. The model also provides an understanding of the impacts associated with different projects, allowing the City to develop a revised list of future projects to improve capacity and safety, as well as achieve other City priorities. The City can make informed policy decisions using the updated traffic model.

Reassessment Policy

In the event that the City cannot fund the transportation capital improvements needed to maintain adopted transportation service standards, then the City shall take one or a combination of the following actions:

1. Phase proposed developments that are consistent with the land use plan until adequate resources can be identified to provide adequate transportation improvements;
2. Reassess the City's transportation financing strategy to find additional opportunities with federal and regional grants and funding programs, and develop new partnerships with WSDOT, King County, and the private sector;
3. Reassess the City's adopted transportation service standards to reflect service levels that can be maintained given known financial resources. The LOS standard for SR-203, a regionally significant state highway, is set by PSRC. Therefore, the City cannot independently adjust the LOS standard for Main Street (SR-203). The City would need to work with PSRC and other agencies served by SR-203 to address potential changes to LOS standards for SR-203, and;
4. Phase improvement projects to extend the funding needs beyond 2022. During the first five to ten years of the Plan, the City will focus on the highest priority improvements, unless specific developments trigger specific improvement needs. The City also could prioritize overlays and maintenance improvement programs to reduce annual costs.

The improvement program and financing strategy will be evaluated each year as part of the annual Six-Year TIP. This will allow the City to match available financing with specific near-term improvement needs. This will also take into account the level and location of future development within the City consistent with concurrency requirements.

In order to maintain and develop the City's transportation system, the City will apply the following principles:

- Balance improvement costs with available revenues as part of the annual Six-Year TIP;
- Coordinate with WSDOT to secure grants and other funding for improvements to Main Street;
- Pursue transportation grants and economic assistance programs to improve downtown streets in accordance with the Transportation Element and Downtown Sub-Area Plan, and;
- Work with private developments to implement new access/circulation improvements identified in the Transportation Element.

Development Review and Concurrency Management

As part of the review of development applications, the City will apply its LOS standards and other regulations related to transportation impacts of new growth. 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 LOS (LOS D for Main Street; LOS C for all other arterials);
- Transportation concurrency; and;
- Mitigation of off-site impacts through impact fees, Local Improvement Districts, and/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 city-wide or to sub areas 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; concurrency will not be applied to Main Street or intersections along Main Street;
- If a 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.

Goals and Policies

The Transportation Element goals and policies are statements that reflect the goals and objectives of the community. These goals and policies frame the development of transportation strategies and incorporate regional and state mandates into the Comprehensive Plan. Goals and policies for the Transportation Element are based primarily on the City-Wide Visioning Plan and the Downtown Sub-Area Plan, as well as the 2004 and 2009 Transportation Element Updates.

Goal T – 1 **Develop a transportation system that supports the desired quality of life and addresses the needs of the community, is consistent with the Land Use Element and transportation priorities, and incorporates regional transportation linkages.**

Policies

T – 1.1 Work with King and Snohomish counties, the cities of Monroe and Carnation, WSDOT and PSRC, to encourage state and federal funding of the Rural Town Centers and Corridors Program to plan and fund projects on SR-203.

T – 1.2 Work collaboratively with the Washington Traffic Safety Commission and WSDOT regarding safety improvements on SR-203. Encourage the state to designate SR-203 a Highway Safety Corridor from Monroe to Fall City.

T – 1.3 Update and revise as necessary, a functional roadway classification system designed to facilitate different types of traffic flows and access needs and to ensure that transportation system improvements are compatible with adjacent land uses and will minimize potential conflicts. Street classifications should reflect the desired function of the street. Street classifications shall include principal, collector, and minor arterials.

T – 1.4 Encourage the development of low-impact street designs throughout Duvall.

T – 1.5 Implement the transportation system improvements as identified in Table T-9, Transportation Improvement Projects and Programs and as prioritized in the 6-year TIP.

T – 1.6 Use grants, local taxes and funds, impact fees, and other funding sources to implement capital projects as identified in the City's CIP.

Goal T – 2 **Ensure that roadways are improved and/or developed to facilitate an efficient and effective road network system, while taking into consideration aesthetics and safety concerns.**

Policies

T – 2.1 Review and amend street standards to include street trees between sidewalks and travel lanes on all roads. Maintenance of such street trees shall be by the adjacent property owner.

T – 2.2 Ensure new residential and commercial developments that front public roads are landscaped adjacent to and in, if appropriate, the ROW, in a manner that is attractive to the traveling public.

Landscaping shall be located outside of fences and shall be privately maintained.

T – 2.3 Minimize the number of access drives onto Main Street and arterials to maintain capacity and safety.

T – 2.4 Coordinate with WSDOT to implement the Access Management Guidelines to control land use development and local street access patterns around Main Street intersections to protect the functional viability of the arterial road and to support economic development.

T – 2.5 Provide for connectivity within and between developments, while allowing for cul-de-sacs within a development. Where cul-de-sacs are permitted, provide pedestrian access through to the adjacent parcels and ROW and allow for landscape circles in the center of the cul-de-sac.

T – 2.6 Establish speed limits on City roadways that allow for pedestrian safety and efficient vehicular traffic throughout Duvall.

T – 2.7 Develop a grid system of collector arterials to serve South Duvall, including extension of 3rd Avenue to Big Rock Road; extension/reconstruction of NE Kennedy Street, NE 145th Street, NE 143rd Place; and development of a new 1st/2nd Avenue NE corridor between NE 143rd Place and Big Rock Road if feasible.

T – 2.8 Develop a new north-south corridor between NE 143rd Place and Big Rock Road to serve South Duvall. Establish a local access circulation road system through South Duvall properties to minimize access points onto NE Big Rock Road, NE 143rd Place, and the new north-south corridor and to create a cohesive, walkable neighborhood.

T – 2.9 Improve the NE 145th Street arterial east of 2nd/3rd Avenue NE which will be limited in width due to ROW constraints and to minimize impacts to existing neighborhoods.

T – 2.10 Extend and enhance 1st Avenue NE north of Virginia Street to connect to NE Cherry Valley Road.

T – 2.11 Improve 1st Avenue NE between NE Valley and NE Virginia streets to serve local circulation and access to parking within Old Town on the east side of Main Street.

T – 2.12 Improve Railroad and Riverside avenues between NE Stephens Street and NE Stewart streets to city standard.

T – 2.13 Work with private developments to extend NE Virginia Street or an alternate connection from 3rd Avenue NE to Manion Way NE if

practical and to improve 275th Avenue NE north of Bruett Road to serve new growth.

T – 2.14 Improve NE Stella and NE Cherry Streets to provide for local circulation and to serve key pedestrian routes.

Goal T – 3 Develop Main Street throughout the Duvall City Limits as a 2-lane road with wide sidewalks, on-street parking and provisions for bicycles.

Policies

T – 3.1 Develop Main Street through the City including on-street parallel parking and bike lanes on both sides of the street.

T – 3.2 Provide pedestrian improvements along Main Street, including wide sidewalks, improved marked crosswalks and curb bulbs at unsignalized intersections.

T – 3.3 Realign Virginia Street with Woodinville-Duvall Road at Main Street and improve Virginia Street between Main Street and 3rd Avenue.

T – 3.4 Provide left-turn lanes at Main Street / Woodinville-Duvall Road / Virginia Street and Main Street / Stephens Street intersections.

T– 3.5 Provide improvements along Main Street that enhance the flow of traffic without increasing the speeds or compromising the pedestrian environment.

T – 3.6 Monitor traffic operations and safety along Main Street. If problems develop, restrictions to left-turning traffic may be required.

T – 3.7 Work with WSDOT, King County and Snohomish County to identify a truck bypass route of Main Street to minimize truck traffic through the City.

T – 3.8 Reduce the speed limit to 25 mph or less on Main Street to promote pedestrian safety and a walkable community.

T – 3.9 Create transition zones at the gateways to Duvall through the use of medians, landscaping, curb bulbs or other entry features.

T – 3.10 Traffic signals shall be minimized on Main Street.

T – 3.11 Develop a design plan that addresses street lighting, street trees, street furniture, public art, banners, signage, medians, etc. that promote a sense of a “Main Street Corridor” along the length of Main Street through Duvall.

Goal T – 4 **Preserve and enhance the economic vitality and character of Main Street by implementing design improvements along the corridor.**

Policies

T – 4.1 Develop a design plan that addresses street lighting, street trees, street furniture, public art, banners, signage, medians, etc. that promote a sense of a 'Main Street corridor' along the length of Main Street through Duvall.

T – 4.2 Enhance Downtown streetscapes and pedestrian access in conjunction with redevelopment along Main Street.

T – 4.3 Create a signage and way-finding program that directs vehicles and pedestrians to parking areas, public facilities, and attractions in Old Town.

T – 4.4 Existing aboveground utilities on Main Street shall be undergrounded if feasible during public or private improvements to Main Street.

Goal T – 5 **Maintain and expand on and off-street parking opportunities in Duvall.**

Policies

T – 5.1 Provide on-street parking along Main Street, 1st, Railroad and Riverside avenues.

T – 5.2 Support narrow street design and on-street parking throughout Duvall.

T – 5.3 Encourage Old Town businesses to reserve on-street parking spaces for business patrons.

T – 5.4 Allow for more short-term parking in Old Town to support businesses.

T – 5.5 Explore opportunities to provide off-street parking lots within Old Town.

T – 5.6 Consider a 2-4 hour parking limit on some public streets to minimize use by Metro transit users, and encourage use of the Duvall Community Car Park.

T – 5.7 Continue to provide public parking for McCormick Park jointly with the temporary police facility at Stephens Street and Railroad Avenue.

T – 5.8 Encourage and/or require parking areas for private developments to locate at the back or side of the development.

Goal T – 6 **Create safe and convenient pedestrian and bicycle access throughout Duvall consistent with Healthy Communities Elements.** *(Additional goals and policies are found in the Parks and Recreation Element)*

Policies

T – 6.1 Facilitate safe bicycle access along Main Street.

T – 6.2 Enhance bicycle and pedestrian access to the Snoqualmie Valley Trail and other downtown parks.

T – 6.3 Enhance streetscapes and pedestrian access and circulation in conjunction with new development.

T – 6.4 Ensure that there are pedestrian walkways through parking facilities and between land use developments and encourage multimodal and Low Impact Development improvements and alternative walkway/trail surfacing where appropriate.

T – 6.5 Require pedestrian amenities as part of all new public and private development and include passive recreation components such as resting spots or “eddies”.

T – 6.6 Coordinate with WSDOT and King County to improve pedestrian and bicycle safety on State and County roads that provide pedestrian and bicycle connections.

T – 6.7 Link residential neighborhoods to schools, parks and community facilities with trails and link those trails to other existing and proposed trails, including the Snoqualmie Valley Trail, the 145th Street corridor, Main Street south of Valley Street, and Taylor Park and other parks and recreational interests within the City.

T – 6.8 Encourage King and Snohomish counties to extend the Snoqualmie Valley Trail northward from Duvall.

T – 6.9 Encourage King and Snohomish counties to implement Snoqualmie Valley Trail improvements consistent with the “SR-203 Pilot Study: Corridor Concept Plan (PSRC, 2004).

T – 6.10 Encourage Duvall residents to walk and bicycle by providing paths and sidewalks and ensuring that residents know where such paths and sidewalks are located.

T – 6.11 Update and implement Duvall's pedestrian corridor system design guidelines.

T – 6.12 Ensure that the development in South Duvall provides circulation for pedestrians and bicycles, and linkages to the surrounding community to create a walkable mixed-use community. Specifically, promote increased non-motorized connections for east-west corridors within the City.

T – 6.13 Promote Low Impact Development approaches where appropriate and alternative road standards including possible road width reductions to promote non-motorized transportation and healthy communities.

T – 6.14 Encourage and support signage and education to promote healthy use, self-education, and interest. Specifically, increase education for pedestrian, parking, and crosswalk safety.

T – 6.15 Expand existing sidewalk and bicycle trail network and connections. Specific connections included a pathway within the PSE corridor located along the east side of 275th Avenue NE from 145th Street NE to the north City limits, pedestrian pathway connections to Taylor Park and other park and recreation areas, and bicycle paths on 145th Street NE and 3rd Avenue NE.

T – 6.16 Expand ADA improvements to provide access to all users.

T – 6.17 Encourage the Riverview School District to create a "Safe Routes to School Program" consistent with surrounding districts.

Goal T – 7 Support and enhance public transportation services in Duvall.

Policies

T – 7.1 Develop transportation facilities that support transit, car-pooling and non-motorized transportation modes to reduce the use of single occupancy vehicles and associated impacts to air and water quality.

T – 7.2 Coordinate with King County Metro to improve transit service within the Duvall area, particularly between Duvall and major commercial and employment districts within the Puget Sound region and in the surrounding Snoqualmie Valley region.

T – 7.3 Coordinate with King County Metro to expand transit service to the south end of Duvall and to the upper residential neighborhoods when there is a demand for such service.

T – 7.4 Continue to encourage high-density residential development within walking distance of Duvall's business districts and the Community Car Park in order to promote transit use and pedestrian access.

T – 7.5 Support improvements for pedestrian access to transit facilities in Old Town to support transit ridership.

T – 7.6 Provide bus shelters and other enhancements at higher volume bus stops.

T – 7.7 Enhance transit service commensurate with population growth and increased activity in Duvall.

T – 7.8 Coordinate with King County Metro to improve bus and pedestrian access to the Duvall Community Car Park to help establish it as a more usable park-and-ride facility and work to increase the visibility of the Car Park.

T – 7.9 Coordinate with King County Metro to improve bus service to the planned Lake Washington Technical College branch in the South UGA as enrollment makes service feasible.

Goal T – 8 Develop and implement Transportation Demand Management strategies to reduce the dependency of single occupancy vehicles.

Policies

T – 8.1 Encourage the development of TDM strategies to increase use of high occupancy vehicles and support the efficient use of transportation facilities.

T – 8.2 Participate in the education and promotion of City and regional non-motorized transportation and public transit facilities and services.

T – 8.3 Develop a CTR ordinance at such time when an employer or commercial development has 100 or more employees working a shift.

T – 8.4 Develop transportation plans and programs that consider the impact to air and water quality and support county, regional and state air quality goals and requirements. Educate residents about air quality impacts, alternative modes of transportation and alternative fuels.

Goal T – 9 **Coordinate the development of transportation facilities concurrent with development of land use to ensure the viability of the transportation system.**

Policies

T – 9.1 Adopt a LOS standard C for all arterials in the City, except for Main Street, which should be adopted at LOS D.

T – 9.2 The LOS for minor side streets or driveways intersecting with an arterial will be assessed at the time of the development application. If the LOS falls below the City's standards, the city engineer will identify appropriate mitigation or possible denial.

T – 9.3 Implement a concurrency management system to assess the expected transportation impact of proposed development on the available capacity of the arterial system. New development shall be allowed only when and where all transportation facilities are adequate at the time of development, or unless a financial commitment is in place to complete the necessary improvements or strategies that will accommodate the impacts within six years.

T – 9.4 The City will not apply concurrency to the Main Street Corridor or intersections along Main Street.

T – 9.5 Exempt the development of critical public facilities, such as schools, libraries, emergency services and municipal facilities from concurrency. Such exemptions do not relieve the developments from required transportation fees and improvements unless provided for under specific ordinance.

T – 9.6 Implement a reassessment strategy that alters either land use or transportation assumptions or delays projects if funding levels cannot be met to implement the planned improvements.

T – 9.7 Require new developments to plan for, design, and construct local streets that facilitate access, circulation, and emergency vehicle response.

T – 9.8 Actively solicit action by the Washington State DOT and the King County DOT to program and construct those improvements to State and County arterial systems that are needed to connect Duvall to regional employment and commercial districts.

T – 9.9 Work with King County to determine future configuration and location of the Woodinville-Duvall Bridge. Any changes to the configuration and/or location of the bridge shall be reviewed in light of Old Town development.

T – 9.10 Establish development review guidelines that implement the City's transportation policies, including LOS standards, concurrency, and mitigation requirements.

T – 9.11 Establish requirements for traffic studies that will be required by all new developments above a specified threshold.

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