

3.13 Transportation

3.13.1 Affected Environment

This section describes the affected environment within the identified study area. Study area characteristics are provided for the roadway network, planned improvements, existing volumes, traffic operations, traffic safety, and transit and non-motorized facilities.

Current Plan Area

The City's current Transportation Plan consists of the *2002 Sumner Transportation Plan* (The Transpo Group 2003) as amended by the *Transportation Analysis for the 2004 Comprehensive Plan Update* (The Transpo Group 2004). These two documents serve as the basis for the Transportation Element of the *City of Sumner Comprehensive Plan* (City Comprehensive Plan). The existing transportation system within the current plan area is described in the *2002 Sumner Transportation Plan*. Between 2000 and 2010 the City of Sumner (City) and other agencies have constructed improvements to the area transportation system. These improvements include roadway widening, traffic control, completion of the State Route (SR) 167/24th Street interchange, and some non-motorized improvements. This is described below in more detail.

Transportation Network

Street System

Freeways

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

- SR 167 is a four-lane freeway. To the south and west, it connects to Puyallup and Tacoma. To the north, it connects to Auburn, Kent, and Renton. Within the current plan area, SR 167 has a posted speed of 60 mph, and access is limited to grade-separated interchanges at 8th Street E (Stewart Road in Sumner), 24th Street E, SR 410, and SR 512. The freeway portion of SR 167 presently terminates at SR 512 west of Sumner.
- SR 410 is an east-west limited access divided four-lane state highway that provides a regional connection from SR 167 (west of the study area) to Yakima Valley, east of the Cascade Mountains. More information is described under the Orton Junction expansion area.

The state has designated SR 167 as a Highway of Statewide Significance (HSS). HSS facilities provide and support transportation functions that promote and maintain significant statewide travel and economic linkages. The state plans for this HSS facility are developed from a statewide perspective. This planning includes policy development and accompanying funding support to represent a broad range of interests that depend on the facility. Because of its designation as an HSS facility, the state has the authority of setting the level of service (LOS) standards for SR 167, and it cannot be included in the City's concurrency transportation program. (Concurrency refers to improvements in place at the time of development or within six years of development to meet a community's LOS standards.)

Arterials

The major north-south arterials serving the current plan area include: East Valley Highway, West Valley Highway, Sumner-Tapps Highway, 142nd Avenue E, 136th Avenue E, Valley Avenue, and Traffic Avenue.

The major east-west arterials serving the current plan area include Main Street, Bridge Street, Pacific Avenue/Valley Avenue E, Forest Canyon Road, 8th Street E, and Elm Street. All of these major east-west arterials are located in the southern section of Sumner. The lack of east-west arterials (except for 8th Street E, also known as Stewart Road) affects the general traffic circulation patterns in Sumner, especially in the industrial areas to the north.

Collectors

A number of collector arterials provide connections between the residential areas in Sumner, arterials, and the regional freeway system. The collectors are also vital in connecting the residential areas to the Central Business District. In general, these are two-lane roadways with turn lanes and signals provided at a limited number of cross streets. From generally northwest to southeast, the collectors include the following facilities.

- Sumner Heights Drive
- Zehnder Street
- Alder Avenue
- Thompson Street
- Wood Avenue
- Elm Street
- 158th Avenue E
- Meade-McCumber Road
- Parker Road
- Washington Street
- 160th Avenue E
- 64th Street E
- Rivergrove Drive
- Riverside Drive.

Local Streets

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

Traffic Safety

The *2002 Sumner Transportation Plan* reviewed the collision history between 1997 and 2000 to determine potential safety hazards within the current plan area. Most intersections and roadways

averaged less than one collision per year in that time frame. The intersection with the highest average rate of collisions per year was Main Street and Valley Avenue, averaging over 3 collisions per year, while the roadway with the highest average collision rate was Parker Road (south of Main Street), with an average over 5 collisions per year. Recent traffic safety information is provided with the Orton Junction expansion area discussion below.

Traffic Volumes

Traffic volumes for the current plan area were obtained from 2007 count data provided by the City. These roadway volumes were compared to 2001 traffic volumes from the Comprehensive Plan to ascertain if and how much growth was happening in the area. This comparison is shown in Table 3.13-1 below.

Table 3.13-1. Comparison of 2001 and 2007 PM Peak-Hour Traffic Volumes

Location	Weekday PM Peak-Hour Volumes	
	2001 ¹	2007 ²
Main Street west of Valley Avenue	980	795
Main Street east of Traffic Avenue	775	705
Traffic Avenue north of Harrison Street	1,415	1,365
Thompson Street east of Traffic Avenue	615	570
Zehnder Street east of Fryar Avenue	340	355
Fryar Avenue north of Zehnder Street	545	620
142nd Avenue E south of 32nd Street E	415	735
W Valley Highway north of city limits	690	700
E Valley Highway north of Forest Canyon Rd	1,255	1,135
Forest Canyon Rd east of E Valley Highway	610	375
160th Avenue E north of 60th Street E	205	195
60th Street E east of 160th Avenue E	440	480

¹ Volumes taken from Sumner 2002 Comprehensive Plan.

² Volumes obtained from City 2007 count data.

When comparing the 2001 and 2007 data, most roadways experience a negligible change in traffic volumes. These roadways include Traffic Avenue, Thompson Street, Zehnder Street, Fryar Avenue, W Valley Highway, 160th Avenue E, and 60th Street E. Traffic volumes increased along 142nd Street E most likely due to the opening of the SR 167 interchange at 24th Street E. The volumes along Forest Canyon Road decreased by over a 50% due to the opening of the Lake Tapps Parkway connection. The volume changes reflect the successful development of new transportation improvement projects identified in the Transportation Element of the City Comprehensive Plan.

Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection operational LOS, and are described alphabetically (A through F). LOS is measured in average control delay per vehicle and is typically reported by approach movement for two-way, stop-controlled intersections. Detailed LOS definitions are included in Appendix H.

The City has adopted LOS D or better as the intersection standard along most arterials and collector roadways; however, LOS F is the adopted standard at the following two intersections:

- Traffic Avenue/Main Street/Fryar Avenue
- Main Street/Alder Avenue

Levels of service for non-arterial collector roads, streets, and driveways intersecting with arterials are evaluated at the time of development review to establish appropriate mitigation of potential operational or safety impacts

Intersection operations were compared between the 2002 Comprehensive Plan and current intersection operations from recent studies that have occurred within the city limits. This primarily reflects data and information from the Calvary Community Church Expansion TIA (Heath & Associates, Inc. 2007). Upon review of this study there were a few intersections that could be compared to previous analyses. In general five years of growth was shown to slightly increase the average delay experienced and three intersections degraded from LOS B to LOS C as described below.

Valley Avenue & Gary Street is a minor-leg stop-controlled intersection. The *2002 Sumner Transportation Plan* reported an LOS B for the eastbound direction (the worst movement), while the 2007 TIA reported an LOS C in the eastbound direction. The 2007 TIA also reported LOS for the westbound direction, operating at LOS D. This movement was not reported in the *2002 Sumner Transportation Plan* as the volumes are negligible during the PM peak hour.

Valley Avenue & Meade-McCumber Road E is a signalized intersection with reported operations of LOS B in the *2002 Sumner Transportation Plan*. The 2007 TIA reported this intersection as operating at LOS C. The same holds true for Valley Avenue & Main Street, which is also a signalized intersection operating at LOS B in the *2002 Sumner Transportation Plan* and LOS C in the 2007 TIA.

The changes experienced in the LOS and operations correspond with the projected growth identified in the Comprehensive Plan.

Non-Motorized

The non-motorized network has changed only slightly from what was described in the *2002 Sumner Transportation Plan*. Changes mostly consist of adding curb, gutter, and sidewalk to existing roadways. Below outlines the changes to the system since the publication of the *2002 Sumner Transportation Plan*:

- Valley Ave E (city limits to Bridge Street): curb, gutter, and sidewalk were added,
- W Valley Hwy (Pacific Avenue to West Valley Hwy): curb, gutter, and sidewalk were added,
- W Valley Hwy (Pacific Avenue to 36th Street): curb, gutter, and a sidewalk were added to one side of roadway,
- Zehnder Street (Fryar Avenue to Wood Avenue): curb, gutter, and sidewalk were added,
- Puyallup Street (Williams Avenue to E Valley Hwy): curb, gutter, and sidewalk were added, and
- Valley Avenue (Main Street to Elm Street): curb, gutter, sidewalk, and bike lanes were added.

Transit and Rail

The Union Pacific and Burlington Northern Santa Fe (BNSF) railroads traverse the current plan area. The Union Pacific railroad serves mostly freight traffic within the current plan area, while the BNSF railroad serves commuter traffic via Sumner Station, in conjunction with Sound Transit, and freight traffic within the current plan area.

Sound Transit provides commuter passenger rail service via the Sounder, which serves Sumner Station. The Sounder runs every half an hour in the peak direction during peak hours (northbound in the AM peak hours and southbound in the PM peak hours), as well as a few runs in the off-peak direction during peak hours. Sumner Station is located at 810 Maple Street and provides bus, rail, and park and ride services. Several Sound Transit bus routes also serve the station. Route 574 provides service to Seattle via Puyallup on weekdays and weekends; route 496 provides connector service between the Bonney Lake Park & Ride and Sumner Station on weekdays only. The station is also served by Pierce Transit Routes 408 (described previously), 409 (providing service between the 72nd Street Transit Center, through Puyallup to Sumner on the weekends), and 496 (provided service between Bonney Lake and Sumner Station on weekdays).

Planned Improvements

The *2002 Sumner Transportation Plan* identified a list of planned improvements, which is provided in Appendix. Since the plan was published, several projects have been completed, partially completed, or are under construction. These are listed below, by project number as identified in the plan:

The following projects are completed:

- Arterials Street Program Projects:
 - R5.1—24th Street E (142nd Ave E to W Valley Hwy)
 - R9—Puyallup Street (Williams Avenue to E Valley Hwy)
 - R12—Valley Avenue (Main Street to Elm Street)
 - R13—Valley Avenue (SR 410 to Main Street)
 - R14—Traffic Avenue, Phases 1 & 2 (Main Street to Thompson Street/Westbound SR 410 Ramps)
 - R25—Valley Avenue E (city limits to Bridge Street)
 - R26—W Valley Hwy (Pacific Avenue to W Valley Hwy/Sumner Heights Drive)
 - R27—W Valley Hwy (Pacific Ave to 36th St E)
- Collector Street Program Projects:
 - R29—Zehnder Street (Fryar Avenue to Wood Avenue)

The following projects are partially completed:

- Arterials Street Program Projects:
 - R10—Sumner-Tapps Hwy Interchange (Sumner-Tapps Hwy/SR 410 On/Off Ramps): improvements to the eastbound ramps at SR 410 are complete, improvements to westbound ramps still to be completed.

- R24—Bridge Street (Traffic Avenue to Pacific Avenue): project mostly complete, minor finishing elements to be completed.

The following projects are under construction:

- Arterials Street Program Projects
 - R3—8th Street E (Lake Tapps Parkway to the White River Bridge)
 - R15—Shaw Road (E Pioneer Avenue to E Main Street)
 - R23—Fryar Avenue (Traffic Avenue/Main Street E and north to Zehnder Street)

Orton Junction Expansion Area

The primary focus of the transportation analysis is on the UGA Expansion (Orton Junction) Alternative since it would increase land use densities and associated travel demands. More detailed information on the transportation system serving that subarea is presented below.

Transportation Network

Street System

The Orton Junction expansion area is located south of the southeastern portion current plan area, just south of SR 410. The existing street system serving the site consists of both regional and local facilities that are more rural in character. This regional system includes two state routes that provide east-west and north-south regional access and the local streets are primarily two-lane roads designed for auto use with few pedestrian and bicycle facilities. Many of the local roadways are not built to current City standards as they do not include curb, gutter, or sidewalk. The specific details for each roadway are described in more detail below, as well shown in Figure 3.13-1, and include a discussion of their street classification, service area, and speed limits. Street classifications are based on the Pierce County *2008 Arterial Classification List (Ordinance No. 2008-19s)*, and on the *2002 Sumner Transportation Plan* for roadways within the city limits.

SR 410 is an east-west, limited access divided four-lane state highway that provides a regional connection from SR 167 (west of the study area) to Yakima Valley, east of the Cascade Mountains. This regional route provides primary connections between Sumner and nearby cities such as Puyallup, Buckley, and Enumclaw but also serves as a primary route for the movement of freight and goods as well as recreational travel. There are two interchanges that primarily serve the annexation area, which includes SR 162 (Orting Highway East) along the western portion and Sumner-Tapps Highway/166th Street E along the eastern portion of the Orton Junction expansion area. Within the study area, the posted speed limit is 55 miles per hour (mph).

SR 162 (Orting Highway E) is a rural state route that extends north-south along the western portion of the study area. This is primarily a three-lane facility that is classified as a minor arterial by Pierce County. This roadway serves as a connection between Sumner and the City of Orting to the south but also continues east through Orting to the City of Buckley. Near SR 410 the roadway is more urban in nature with some pedestrian amenities. This includes curb, gutter, sidewalks and a posted speed limit of 35 mph. South of Pioneer Way, SR 162 transitions to more rural in character and provides 4-6 foot wide paved shoulders with the speed limit increasing to 50 mph.

Sumner-Tapps Highway provides north-south access through Sumner between the City of Pacific and SR 410 along the west side of Lake Tapps. This is a three-lane roadway classified as an arterial in Sumner and provides minimal paved shoulders with no curb, gutter or sidewalk. The posted speed limit is 35 mph in the vicinity of the study area. This roadway transitions into 166th Avenue E (Whal Road E) south of SR 410.

166th Avenue E (Whal Road E) is a north-south collector arterial along the eastern boundary of the Orton Junction expansion area with a posted speed limit of 35 mph providing direct access to SR 410. This is a four-lane roadway with curb, gutter, and sidewalks from SR 410 to the Winco access. South of the Winco driveway, this roadway has two travel lanes with minimal shoulders and no pedestrian or bicycle facilities.

Riverside Drive E is currently the only east-west collector arterial that extends along the southern edge of the Orton Junction expansion area. Riverside Drive E transitions into 74th Street E to the west providing access to SR 162. East of SR 162 the roadway follows the Puyallup River and heads south passing by Riverside County Park and many of the existing rural residential areas south of the Orton Junction expansion area. This is a rural roadway with minimal to no shoulders and a posted speed limit of 35 mph.

74th Street E is a collector arterial in Pierce County that connects SR 162 to Riverside Drive E. It is a two lane roadway serving single-family residences. It has relatively narrow travel lanes with gravel shoulders that can be used for parking. It has a posted speed limit of 35mph.

78th Street E (Wood McCumber Road) is an east-west collector arterial with posted speeds ranging from 25 mph to 35 mph. This roadway provides a link between Riverside Drive and 166th Ave E and has minimal to no paved shoulders. Some gravel shoulders are available along this corridor but no curb, gutter, or sidewalk exists.

75th Street E (Orton Road) is a local east-west street along the southern boundary of the Orton Junction expansion area that provides access to single-family residences. The road is narrow and in poor condition with no striping, shoulders, or pedestrian and bicycle facilities.

96th Street E is a secondary arterial connecting SR 162 to Riverside Drive. It is a two lane road with a centerline existing just east of SR 162. It has narrow travel lanes and limited gravel shoulders. The posted speed limit is 35 mph.

Traffic Safety

The study area intersections were evaluated for potential traffic safety issues through the review of the most-recent complete five-year accident history. This data was obtained from the Washington State Department of Transportation (WSDOT) and is shown in Table 3.13-2.

Table 3.13-2. Intersection Crash Summary—2005 to 2009

Intersection	Number of Crashes					Total	Annual Rate	Rate per MEV ¹
	2005	2006	2007	2008	2009			
SR 162 / SR 410 WB Ramps	0	2	2	3	2	9	1.8	0.28
SR 162 / SR 410 EB Ramps	7	3	8	3	5	26	5.2	0.69
SR 162 / 74th St E	2	2	5	2	2	13	2.6	0.39
SR 162 / Rivergrove Dr	7	6	3	1	4	21	4.2	0.65
SR 162 / Pioneer Way	4	5	3	2	5	19	3.8	0.56
SR 162 / 96th St E	3	5	5	5	1	19	3.8	0.58
Sumner Tapps Hwy / 64th St E	6	5	3	2	3	19	3.8	0.59
166th Ave E / SR 410 WB Ramps	2	1	3	0	1	7	1.4	0.22
166th Ave E / SR 410 EB Ramps	1	2	3	0	1	7	1.4	0.27
166th Ave E / John Deere Dr	1	1	1	0	1	4	0.8	0.29
166th Ave E / 78th St E	1	1	1	1	0	4	0.8	0.48
Riverside Dr / 78th St E	0	1	1	1	0	3	0.6	0.34

Source: Davis pers. comm.

¹ Accident rate per million entering vehicles.

By incorporating the traffic volume at the intersection, the rate of accidents per million entering vehicles (MEV) was calculated and allows a uniform standard for evaluating accident history. Generally, an accident rate greater than 1.0 collision per MEV is considered high and would warrant further analysis. Given that all of the study intersections have collision rates of less than 0.70 per MEV no safety problem were evident.

Planned Improvements

Several documents were reviewed to identify planned improvements in the study area. The following summarizes the currently planned improvements.

- **Pierce County 2010–2015 Transportation Improvement Program (TIP).** This TIP does not show any improvements in or adjacent to the Orton Junction expansion area.
- **City of Sumner 2009–2014 TIP.** This TIP shows the following improvements in the study area:
 - **SR 410 ramp signals and channelization at 166th Avenue E (Whal Road).** Install signals at interchange ramps and widen 166th Ave E to three lanes to provide dedicated left turn lanes (partially completed).
 - **Transportation Analysis for the 2004 Comprehensive Plan Update.** The following planned transportation improvements are included in the Transportation Element of the City Comprehensive Plan:
 - **R10 Sumner-Tapps Highway (SR 410 interchange to 62nd Street E).** Widen roadway to 3 lanes and improve to minor urban arterial standards with curb, gutter, and sidewalks. Reconstruct intersection at 64th Avenue. Change existing northbound through/left lane to a left turn lane only. Add an eastbound right turn lane and a southbound left turn lane. Revise signal timing to include protected left turns for the north-south movements, while keeping permitted phasing for the east-west phases. Add a right turn overlap phase for the eastbound right movements. (WSDOT)

- **R10 Sumner-Tapps Highway Interchange (Sumner-Tapps Highway/SR 410 On/Off Ramps).** At the westbound ramps, install a new signal and add a southbound right turn lane, northbound left turn lane, and a westbound left turn lane. Signal timing to include protected-permitted phasing for the northbound left turn movement. At the eastbound ramps, install a new signal and add a southbound left turn lane, and a westbound left turn lane. Signal timing to including protected-permitted phasing for the southbound left movement. (WSDOT) (Partially completed)
- **R17 SR 162 (SR 410 to Military Road).** Improvements include roadway overlay, pavement and guardrail repair, placement of pavement markings and guideposts, and the installation of two traffic signals at Pioneer Way and at Military Rd. (WSDOT Completed)
- **R17 SR 162 (SR 410/SR 162 Interchange).** Widen overpass at SR 410 to 5 lanes. At the westbound ramps intersection, add additional westbound and northbound through lanes with northbound lanes merging into one lane just before Gary Street intersection. Modify westbound right turn lane to a left-through-right lane. At the eastbound Ramps intersection, add additional southbound and northbound through lanes and an eastbound right turn lane. (WSDOT)
- **R17 SR 162 (SR 410 to Orting).** Widen to 4/5 lanes with geometric and intersection improvements along corridor. (WSDOT)
- **R42 166th Ave E/78th St E/ Riverside Dr (SR 410 to 96th St E).** Realign, reconstruct; shoulder improvements. (Pierce County)

These improvements are included in the future year analyses, consistent with the City's adopted Comprehensive Plan.

Traffic Volumes

The existing roadway volumes are based on recent traffic counts collected in the area. Volumes along SR 162 were collected in April 2010 and volumes along 166th Avenue E were obtained from the *Sumner Shopping Center Traffic Impact Analysis* (Shea Carr & Jewell 2008), which were collected in April 2008. A comparison count was collected at the 166th Avenue E/ SR 410 eastbound ramp intersection in 2010 to determine if there were any changes significant changes with data collected in 2008. The 2010 peak-hour volumes at this intersection were found to have decreased by approximately 10%. Given that the volumes along the 166th Avenue E had decreased over the last couple of years, a conservative approach was taken and 2008 volumes were used for the existing year analysis. Traffic volumes in many areas have decreased in the last couple of years given the weaker economic conditions with fewer people working and less freight and goods being moved along the roadway system.

The highest traffic volumes within the Orton Junction expansion area are along SR 410. This state highway carries almost 60,000 vehicles per day (vpd) west of SR 162 and 49,000 vpd east of the 166th Avenue E interchange. SR 162, the north-south state highway that connects Orting to Sumner, carries approximately 22,000 vpd just south of SR 410. The volume decreases to 18,000 vpd south of Pioneer Way. During the PM peak hour, SR 162 serves close to 1,800 vehicles. Over two-thirds of the traffic during the PM peak hour is in the southbound direction, representing connections from jobs and other activities in Tacoma, Auburn, Sumner, and other locations to residential uses to the south.

South of Pioneer Way, PM peak-hour traffic volumes on SR 162 are approximately 1,650 vehicles per hour (vph). At this location, 70% of the traffic was counted in the southbound direction.

Traffic volumes on other streets serving the Orton Junction expansion area are much lower. In 2008, PM peak-hour traffic volumes on 166th Avenue E just south of SR 410 were 530 vph. Only 50% of the traffic was in the southbound direction, which reflects the retail land uses that exist along that section of roadway. PM peak-hour traffic volumes on 166th Avenue E decrease to 440 vph south of 78th Street E. Over 80% of the PM peak-hour traffic volumes on 166th Avenue E south of 78th Street E are in the southbound direction.

Traffic volumes on other roadways within the Orton Junction expansion area are generally less than 200 vph during the PM peak hour. For example, PM peak-hour traffic volumes on 74th Street E just east of SR 162 are approximately 150 vph. Traffic volumes on Riverside Road E just north of 78th Street E are approximately 100 vph. These low volumes are reflective of the low-density land uses in the Orton Junction expansion area and are within the capacity of the existing county roadways.

Traffic Operations

As stated previously, the City has adopted LOS D or better as the intersection standard along most arterials and collector roadways; however, LOS F is the adopted standard at the following two intersections:

- Traffic Avenue/Main Street/Fryar Avenue
- Main Street/Alder Avenue

Levels of service for non-arterial collector roads, streets, and driveways intersecting with arterials are evaluated at the time of development review to establish appropriate mitigation of potential operational or safety impacts

WSDOT, in conjunction with the Puget Sound Regional Council (PSRC), establishes the LOS standards for State Highways of Regional Significance (HRS). SR 162 and SR 410 are both HRS facilities and have a standard of LOS D. The City has adopted exemptions to concurrency requirements at several locations until the improvements identified in the Transportation Element of the Comprehensive Plan are funded and constructed. These exemptions include intersections along SR 162 and at the interchanges of SR 410 at SR 162 and SR 410 at 166th Avenue E.

Existing PM peak-hour LOS results were calculated at study intersections based on methodologies contained in the *Highway Capacity Manual* (Transportation Research Board 2000). *Synchro 7.0* (Build 773, Rev 8) was used for the calculations. Results are summarized in Table 3.13-3. Detailed LOS worksheets for each intersection analysis are included in Appendix.

Table 3.13-3. 2010 Existing Intersection Peak-Hour LOS—Orton Junction Expansion Area

Intersection	2010 Existing		
	LOS ¹	Delay ²	V/C or WM ³
SR 162 / SR 410 WB Ramps	B	19	0.73
SR 162 / SR 410 EB Ramps	C	21	0.73
SR 162 / 74th Street E	D	31	EB
SR 162 / Rivergrove Drive	B	13	0.85
SR 162 / Pioneer Way	B	16	0.75
SR 162 / 96th Street E	B	13	0.82
Sumner-Tapps Highway / 64th Street E	B	17	0.83
166th Avenue E / SR 410 WB Ramps	F	>150	WB
166th Avenue E / SR 410 EB Ramps	B	18	0.68
166th Avenue E / John Deere Dr	C	15	EB
166th Avenue E / 78th Street E	B	10	WB
Riverside Dr / 78th Street E	B	13	WB

¹ Level of Service (A–F) as defined by the *Highway Capacity Manual* (Transportation Research Board 2000)

² Average delay per vehicle in seconds, by approach movement

³ Volume-to-capacity ratio reported for signalized intersections; worst movement reported for unsignalized intersections (EB = eastbound, WB = westbound)

All study intersections, except the SR 410 westbound ramps at 166th Avenue E, currently operate at LOS D or better during the PM peak hour, meeting the City’s adopted LOS standards. The stop-controlled intersection of SR 410 westbound ramps at 166th Avenue E currently operate at LOS F. While the LOS F condition is below both City and WSDOT LOS standards, the City has elected not to apply concurrency to the SR 410 interchange ramps. As discussed above, the City’s Transportation Element identifies construction of turn lanes and installation of a traffic signal at this intersection to improve operations. The analysis of future intersection operations, which assumes these improvements are in place, shows that this intersection is anticipated to operate at LOS B during the PM peak hour.

Non-motorized

Formal pedestrian facilities are only located along small portions of SR 162 and 166th Avenue E near SR 410. This includes curb, gutter, and sidewalks at the SR 162/SR 410 interchange and along 166th Avenue E from SR 410 to the existing Sumner UGA boundary to the south. The remainder of the Orton Junction expansion area has limited to no pedestrian facilities. This mainly includes two-lane rural roads that have limited to no shoulders, typical of the rural nature of the roadways.

Transit and Rail

The Orton Junction expansion area is not currently served by transit. The nearest transit stop is located north of SR 410, at Parker Road and 62nd Court E, approximately 1 mile away from the northern Orton Junction expansion area study intersections. The stop is served by Pierce Transit route 408, which provides service between Sumner Station and Bonney Lake park and ride lot on weekdays.

Sumner Station is located at 810 Maple Street and is the nearest multi-modal transit hub, which provides bus, rail, and park and ride services. See “Current Plan Area” for more information.

East Hill Reduction Area

Because the UGA Modification Alternative would reduce the number of potential housing units within the study area, the potential for traffic impacts would be reduced; therefore, only a limited summary of the transportation system affected by the alternative is presented. It is based on available mapping, aerial imaging, the *2002 Sumner Transportation Plan*, and the *Transportation Analysis for the 2004 Comprehensive Plan Update*.

The transportation system for the East Hill reduction area is currently operated and maintained by Pierce County. The primary roadway serving the area is the Sumner-Tapps Highway. The Sumner-Tapps Highway is classified as a secondary arterial between the city limits and the Auburn city limits. In the vicinity of 166th Avenue E and South Tapps Drive, Sumner-Tapps Highway has two northbound travel lanes and one southbound lane. The second northbound lane helps separate slower traffic going up the hill. The roadway has approximately four-foot wide paved shoulders and a posted speed limit of 45 mph. A traffic signal provides for traffic control at the intersection of Sumner-Tapps Highway at South Tapps Drive E.

Sumner-Tapps Highway extends south through the Sumner to an interchange at SR 410 at 166th Avenue E. This section of roadway is classified as a minor arterial by the City. North of SR 410, Sumner-Tapps Highway has two northbound lanes and one southbound lane, consistent with the cross section in Pierce County. The road shoulders along much of this section of Sumner-Tapps Highway are very narrow. The speed limit is 45 mph north of 60th Street E and 35 mph south of 60th Street E. The second northbound lane becomes a left-turn lane at 60th Street E, which is unsignalized.

The north boundary of the East Hill reduction area is Forest Canyon Road or N Tapps Highway. Forest Canyon Road is classified as a secondary arterial by Pierce County. In the vicinity of 166th Avenue E, it has two travel lanes with limited shoulders and a posted speed limit of 30 mph. Within the city limits, Forest Canyon Road is classified as a minor arterial. This section also has two travel lanes with limited should and a speed limit of 25 mph.

Traffic Safety

No significant traffic safety issues were identified along Forest Canyon Road or Sumner-Tapps Highway in the *2002 Sumner Transportation Plan*.

Traffic Volumes

In 2008, the PM peak-hour traffic volumes on Sumner-Tapps Highway just north of 64th Street E were just under 1,200 vph. This volume is essentially unchanged from the year 2000 traffic counts collected for the *2002 Sumner Transportation Plan*. Approximately 55% of the traffic flow is in the northbound direction during the PM peak hour.

The *2002 Sumner Transportation Plan* shows approximately 600 vph on Forest Canyon Road just east of East Valley Highway. Almost 75% of this volume is in the eastbound direction during the PM peak hour.

Traffic Operations

As presented above, the intersection of Sumner-Tapps Highway at 64th Street E operates at LOS B during the PM peak hour.

The *2002 Sumner Transportation Plan* reports LOS D during the PM peak hour at the unsignalized intersection of East Valley Highway and Forest Canyon Road.

Non-Motorized

As discussed above, the major roadways serving the East Hill reduction area only have limited road shoulders for pedestrian and/or bicycle use.

Transit and Rail

The East Hill reduction area is not currently served by transit. The nearest transit stop is located west of Sumner-Tapps Highway and south of Forest Canyon Road and is served by Pierce Transit route 408. Sumner Station, also located southwest of the East Hill reduction area, is the nearest multi-modal transit hub, which includes a park and ride served by bus and rail service.

Planned Improvements

As presented “Orton Junction Expansion Area,” above, project R10 of the City’s Transportation Element includes an improvement to modify the intersection of Sumner-Tapps Highway at 64th Street E and upgrade Sumner-Tapps Highway to urban standards.

The Transportation Element also includes projects to upgrade East Valley Highway in the vicinity of Forest Canyon Road (projects R6 and R7). The projects call for widening the roadway to three lanes with curb, gutters, and sidewalks, and bike facilities. The R6 project would also include installation of a traffic signal at the intersection of Forest Canyon Road and East Valley Highway.

Pierce County’s 2010–2015 TIP includes a project to install a traffic signal and construct turn lanes at the intersection of Sumner-Tapps Hwy/S Tapps Drive. This intersection is located east of the East Hill reduction area. The project is not fully funded.

3.13.2 Impacts

Travel Forecasts

Travel Forecasting Methodology

The City’s travel demand model was used as the basis for the traffic forecasts for each of the three alternatives. The travel demand model was developed as part of the *2002 Sumner Transportation Plan*. The model is based on a refinement of Pierce County’s travel demand model that was in place in 2000–2002. The model encompasses the Puget Sound region, including Pierce, King, Snohomish, and Kitsap counties. As part of the *2002 Sumner Transportation Plan*, the Pierce County model was refined and updated for the areas in the current plan area. The current plan area and vicinity are covered by over 130 transportation analysis zones (TAZs) which provide more detailed traffic forecasts on city arterials, collectors, and key local roadways.

In 2004, the travel forecasting model was updated to support an update of the *Transportation Analysis for the 2004 Comprehensive Plan Update*. The 2004 update primarily tested changes in land uses in the Town Center area. The 2004 update also included some relatively minor changes in land uses outside the Town Center. In addition, the forecasts include traffic associated with the Winco

development along 166th Avenue E, based on the *Sumner Shopping Center Revised Traffic Impact Analysis* (Shea Carr & Jewell 2008).

Land Use Assumptions

Based on historical growth and the land capacity assumptions identified in Chapter 2, the model land use data for the current plan area was updated by TAZ and used to develop PM peak-hour traffic forecasts for the UGA Expansion (Orton Junction) Alternative and the UGA Modification Alternative. The model also was used to develop forecasts for the No Action Alternative. Land use data for areas outside the current plan area were not updated and remain consistent with the forecasts used in model assumptions used in preparing the 2004 Comprehensive Plan Update. This allows the traffic volume and operations impacts due to the changes in the land use plans within the current plan area to be compared.

As noted in Chapter 2, the UGA Expansion Alternative would result in more household units than the No Action Alternative. Under the UGA Modification Alternative, the number of households in the East Hill reduction area would decrease compared to the UGA Expansion Alternative and the No Action Alternative. In addition, the number of households in the Orton Junction expansion area would decrease compared to the UGA Expansion Alternative. The UGA Expansion Alternative and the UGA Modification Alternative would have greater employment than the No Action Alternative principally in the Orton Junction expansion area. Employment was estimated based on land capacity and allocated to job categories consistent with the city's mix of manufacturing, retail, service, and other types of jobs. This is exclusive of resource and construction employment which tends to fluctuate in location; therefore, this use was not used in the travel forecasting model.

Transportation System Assumptions

The future transportation system network assumptions for the traffic forecasts and analyses for the UGA Alternatives were not modified from those used in the prior 2004 Comprehensive Plan Update evaluation. The travel forecast model assumes completion of the transportation improvements identified in the *2002 Sumner Transportation Plan*. It also assumed completion of WSDOT's identified improvements from the earlier Highway Systems Plan and improvements to state highways needed to accommodate the forecast travel demands would be constructed. Without funding and construction of the assumed transportation improvements, the forecast traffic volumes and associated operations would be different than reported; however, the relative impacts of the three alternatives would still be valid.

A status of the Highway Systems Plan (HSP) and funding of projects on the state highways is included above, under "Affected Environment." The most recent HSP (2007–2026) is similar with the earlier HSP and other state highway plans (WSDOT 2007). The *2002 Sumner Transportation Plan* assumed the completion of an extension of the SR 167 freeway between I-5 and SR 161 near Puyallup (WSDOT 2010). WSDOT is moving forward with this project, including environmental studies and right-of-way acquisition. The current HSP also continues to identify completion of the high occupancy vehicle (HOV) lanes on SR 167 in Pierce County. This is also consistent with the *2002 Sumner Transportation Plan*.

The *2002 Sumner Transportation Plan* assumed construction of the SR 167/24th Street E interchange. This project is complete and open to traffic.

The *2002 Sumner Transportation Plan* includes a WSDOT project to modify the SR 167/SR 410 interchange to support future HOV to HOV connections and also included construction of HOV lanes on SR 410 between SR 167 and Bonney Lake. These projects are not in the current HSP; however, they would not affect the travel forecasts because they were not assumed in the travel demand model.

The *2002 Sumner Transportation Plan* identified needs for improvements at the three SR 410 interchanges serving the city. The plan noted that although improvements have been identified by the City and WSDOT, no funding had been identified. The City will continue to work with WSDOT, Pierce County, and other stakeholders to address these needs.

The *2002 Sumner Transportation Plan* also identified a need for widening SR 162 to five lanes south of SR 410. The improvement was also included in prior state plans and in Pierce County's transportation plans. The current WSDOT HSP includes a project to add one southbound lane to SR 162 between SR 410 and 96th Street E, which is not funded. The traffic forecasts from the *2002 Sumner Transportation Plan* show the need for widening this section of SR 162 to five lanes.

Forecast Traffic Volumes

Table 3.13-4 provides a comparison of the forecast PM peak-hour traffic volumes for the three alternatives. The first part of the table lists two freeways followed by intersections throughout the current plan area. The later locations are located in the vicinity of the Orton Junction expansion area.

Table 3.13-4. Comparison of Forecast PM Peak-Hour Traffic Volumes

Location	UGA Expansion (Orton Junction) Alternative		UGA Modification Alternative		No Action Alternative	
	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
SR 167 south of 8th Street	4,050	5,830	4,150	5,860	4,040	5,830
SR 410 west of Traffic Avenue	5,400	3,330	5,380	3,350	5,350	3,240
SR 410 east of SR 162	3,330	2,490	3,340	2,530	3,320	2,430
SR 410 east of 166th Avenue E	3,200	2,160	3,230	2,210	3,190	2,140
Main St west of Valley Ave	835	550	850	550	830	530
Main St west of Main St	935	635	940	340	935	625
Fryar Ave north of Zehnder Ave	570	1,205	580	1,225	565	1,205
E Valley Hwy north of 8th St E	415	1,065	410	1,065	415	1,070
8th St E west of E Valley Hwy	70	260	70	260	70	260
E Valley Highway south of Forest Canyon Rd	330	705	330	735	325	705
Forest Canyon Rd east of E Valley Highway	500	150	450	130	505	150
E Valley Highway north of Forest Canyon Rd	345	1,075	340	1,065	345	1,080
E Valley Hwy north of E Elm St	465	950	470	970	460	940
W Valley Highway north of Sumner Heights Rd	420	785	430	495	415	790
166th Ave E south of SR 410	660	725	660	720	595	555
74th St E east of SR 162	245	225	210	210	85	50
Riverside Dr south of 78th St E	205	305	205	305	130	225
SR 162 south of Pioneer Way	660	1,765	685	1,795	660	1,765
SR 162 south of SR 410	825	1,990	830	1,985	705	1,860
SR 162 north of SR 410	415	885	415	890	390	875
Sumner-Tapps Highway n/o 64th Street E	850	790	825	770	835	780

UGA Expansion (Orton Junction) Alternative

Traffic forecasts on SR 167 and SR 410 near the City of Sumner are generally comparable (within 110 vehicles per hour) between the three alternatives. The largest differences are found in the “off-peak” travel direction (i.e., northbound on SR167 and westbound on SR 410). The UGA Expansion (Orton Junction) Alternative would result in slightly higher traffic volumes on SR 410 between SR

167 and just east of 166th Avenue E. These volumes reflect the increased trip generation in the Orton Junction subarea. The increase in volumes would be generally unnoticeable (less than 3%) compared to the No Action Alternative.

On other streets in and near the City of Sumner, the forecast PM peak-hour traffic volumes under the UGA Expansion (Orton Junction) Alternative are generally similar (within 20 vph) to the other two alternatives, except in the immediate vicinity of the Orton Junction expansion area. This indicates that the UGA expansion would not have any significant impact outside of the primary access and internal circulation corridors.

The primary difference in forecast PM peak-hour traffic volumes under this alternative are for traffic entering/exiting the Orton Junction expansion area. The largest differences are on 74th Street E, just east of SR 162. With the increased land uses under this alternative, the forecast traffic volumes on 74th Street E are estimated to be 160 vph higher in the eastbound direction and 175 vph higher in the westbound direction compared to the No Action Alternative. These volumes would require upgrading the existing rural roadway to urban standards.

This alternative also increases PM peak-hour traffic volumes on Riverside Drive south of 78th Street E by 155 vph (75 vph northbound and 80 vph southbound) compared to the No Action Alternative. This is an increase of 45%. While the traffic volumes would be within the capacity of the existing roadways, some improvements to the road shoulders would be desirable to improve non-motorized safety and travel.

Under this alternative, forecast traffic volumes on 166th Avenue E south of SR 410 are estimated to be 65 vph higher in the northbound direction and 170 vph higher in the southbound direction compared to the No Action Alternative.

The above three locations provide a “cordon” for the majority of traffic generated in the Orton Junction expansion area. Although there is some traffic that travels through the expansion area, as well as existing traffic generated within the area, the combined difference provides an overall assessment of the potential impact of the alternative. This alternative results in an increase of approximately 725 vph (340 entering and 385 entering) in the Orton Junction expansion area compared to the No Action Alternative.

Traffic volume impacts on other roadway segments near the Orton Junction expansion area would be relatively lower.

UGA Modification Alternative

This alternative would have fewer households in the Orton Junction expansion area and fewer household projected for the East Hill reduction area. Similar to the UGA Expansion (Orton Junction) Alternative, forecast traffic volumes on the two freeways and on most of the arterial and collectors outside of the Orton Junction area would be similar to the other alternatives.

Similar to the UGA Expansion (Orton Junction) Alternative, the UGA Modification Alternative would result in slightly higher traffic volumes on the SR 167 and SR 410 freeways compared to the No Action Alternative. The increases would be largest in the “off-peak” direction (i.e., northbound on SR 167 and westbound on SR 410). The increases would not generally be noticeable compared to the overall forecast traffic volumes especially in the peak travel direction. The traffic forecasts on the freeways serving Sumner are projected to be slightly higher than those for the UGA Expansion (Orton Junction) Alternative. The differences are due to the modeling process which adjusts travel

distribution patterns with changes in land uses. These forecast differences are insignificant and would not require any additional improvement, compared to the other two alternatives.

Total forecast PM peak-hour traffic volumes entering and exiting the UGA Modification Alternative via 74th Street E, Riverside Road, and 166th Avenue E are expected to be 60 vph lower than the UGA Expansion (Orton Junction) Alternative and 645 vph higher than the No Action Alternative.

The boundary change to exclude the East Hill reduction area from the UGA and associated lower number of housing units are estimated to reduce the PM peak-hour traffic volume forecasts on Forest Canyon Road by approximately 70 vph compared to both of the other alternatives. The largest difference would be in the eastbound direction (a 50 vph decrease), reflective of the reduction in housing to the east of this location.

Forecast PM peak-hour traffic volumes on Sumner-Tapps Highway north of 64th Street E would be slightly (20 to 45 vph) lower under this alternative compared to the other alternatives. This would not affect the overall traffic flow on the roadways.

No Action Alternative

Traffic forecasts under the No Action Alternative would generally be similar to or lower than the other alternatives, as discussed above. They would be consistent with the City's current Transportation Plan.

Vehicle Miles Traveled

The forecasted vehicle miles travel (VMT) for the three alternatives during the weekday PM peak-hour are summarized in Table 3.13-5. The table separates out state highways, arterials, and collectors. The estimated VMT is derived from the travel demand forecasting model. It is essentially the sum of the forecast volumes multiplied by the length of the roadway segments for the City of Sumner.

Table 3.13-5. City of Sumner Vehicle Miles Traveled (VMT) Summary¹

Roadway Type	UGA Expansion (Orton Junction) Alternative	UGA Modification Alternative	No Action Alternative
State Highways	71,632	72,364	71,289
Principal and Minor Arterials	28,197	28,090	28,014
Collector Arterials and Collectors	3,860	3,809	3,353
<i>TOTAL</i>	<i>103,689</i>	<i>104,263</i>	<i>102,656</i>

¹ For the current plan area and immediately adjacent areas.

UGA Expansion (Orton Junction) Alternative

The increase in development in the Orton Junction expansion area is forecast to result in an increase of approximately 1% more VMT compared to the No Action Alternative. The largest increase is on collector arterials and collectors. This reflects the use of 74th Street E, River Side Drive, and 166th Avenue E for access and circulation within the UGA Expansion Area. This alternative also results in a slight increase (less than 0.5%) in a VMT for state highways serving Sumner. This is consistent with the numerical increase in traffic volumes forecast for the state highways as discussed above.

UGA Modification Alternative

The travel forecasting results in the UGA Modification Alternative having the highest total VMT of the three alternatives. The forecasting model results in approximately 1% more VMT on state highways serving the City of Sumner and surrounding areas under this alternative compared to the UGA Expansion (Orton Junction) Alternative. This results from the slightly higher traffic volumes, especially in the “off-peak” direction under this alternative, as discussed above. The higher volumes and VMT on state highways results from less “internalization” of trips within the study area with the decrease in housing. The current plan area has a significantly higher number of employees compared to housing units. The reduction in housing units requires longer trips on the freeways for people working in Sumner to access housing further away from the city.

The VMT on arterials and collectors is lower under the UGA Modification Alternative compared to the UGA Expansion (Orton Junction) Alternative. This primarily reflects the lower traffic generation within the Orton Junction expansion area, as well as fewer trips connecting to/from East Hill via Sumner-Tapps Hwy and Forest Canyon Road.

No Action Alternative

The No Action Alternative would generate the lowest VMT of the three alternatives. The VMT is projected to be 1 to 1.5% lower than the UGA Expansion (Orton Junction) Alternative and UGA Modification Alternative, respectively.

Forecast Traffic Operations

The updated travel forecasts were used to evaluate traffic operations at intersections throughout the city and in the vicinity of the Orton Junction expansion area. The analysis of citywide intersections includes the majority of the locations covered by the *2002 Sumner Transportation Plan* and the *Transportation Analysis for the 2004 Comprehensive Plan Update*. Traffic operations were also evaluated at additional intersections in the vicinity of the Orton Junction expansion area.

The operations analysis assumes completion of the intersection and roadway improvements identified in the City’s current Transportation Plan as described previously. This provides consistency with the adopted plans and allows this analysis to focus on the potential impacts of the specific alternatives, which may require additional improvements above and beyond those already needed.

Table 3.13-6 summarizes the resulting forecast levels of service at city study intersections outside of the Orton Junction expansion area. Table 3.13-7 compares the levels of service for the intersections in the vicinity of the Orton Junction expansion area. The same intersections are reported in Table 3.13-3 for the affected environment. Figure 3.13-2 provides a graphical comparison of the forecast levels of service at these same intersections.

As shown on Table 3.13-6, the two action alternatives do not generally result in changes in the forecast PM peak-hour levels of service at citywide intersections compared to the No Action Alternative. The slight differences in the calculated operations are primarily due to optimization of the signal timing. It is reasonable to assume that the signal timing at study intersections would be revised to reflect changes in travel patterns anticipated to occur between existing and future conditions. The signal splits (the amount of time allocated to each movement) and the coordination between adjacent signalized intersections were optimized to account for the forecast traffic volumes

under each alternative. This approach provides the best possible intersection operations for each alternative. The only intersection that degrades in LOS is Alder Avenue at Main Street where under the No Action Alternative this intersection is forecast to operate at LOS E, with LOS F conditions under the other two alternatives. The City has adopted an LOS F standard for this intersection and additional delays and operational issues at this intersection are known and described in more detail below under each alternative.

Two other intersections are forecast to operate at LOS E or F under all three alternatives:

- Traffic Avenue at Main Street
- Main Street at 160th Avenue E

During the PM peak hour, the intersection of Traffic Avenue at Main Street is forecast to operate at LOS E for the No Action alternative, and LOS for the F for the other two alternatives. This is generally consistent with the prior *2002 Sumner Transportation Plan* and *2004 Comprehensive Plan Update*. The city has acknowledged this condition and has elected to adopt LOS F as the standard for this intersection.

The intersection of Main Street at 160th Avenue E is forecast to operate at LOS F under all three alternatives. The poor LOS is due to the potential removal of the free-flow east-to-south right-turn lane, which is desired by the city to improve the safety of pedestrians crossing the street. The city may consider leaving the free-flow east-to-south right-turn lane to maintain the LOS or consider installation of a traffic signal which would resolve the LOS issues. This would require signal warrants to be met.

Table 3.13-6. Forecast Intersection Peak-Hour LOS—Citywide Locations

Intersection	UGA Expansion (Orton Junction) Alternative			UGA Modification Alternative			No Action Alternative		
	LOS ¹	Delay ²	V/C or WM ³	LOS	Delay	V/C or WM	LOS	Delay	V/C or WM
<i>Signalized Intersections</i>									
Valley Ave/ Meade-McCumber Rd	B	16	0.56	B	15	0.56	B	16	0.55
Valley Ave/Main St	B	18	0.67	B	19	0.73	B	18	0.72
Valley Ave/ Elm St	A	9	0.55	A	9	0.55	A	9	0.53
Traffic Ave/ SR 410 WB ramps	C	28	0.79	C	29	0.81	C	28	0.79
Traffic Ave/SR 410 EB ramps	C	27	0.89	C	27	0.92	C	26	0.88
Wood Ave/ Main St	C	27	0.77	C	28	0.79	C	26	0.76
Traffic Ave/ Main St	E ⁴	65	1.00	E ⁴	66	1.01	E ⁴	63	1.00
W Valley Highway/ Pacific Ave	C	25	0.87	C	26	0.89	C	25	0.87
W Valley Hwy/ Sumner-Heights Rd	B	19	0.80	B	20	0.82	B	20	0.80
Forest Canyon Rd/ E Valley Hwy	A	6	0.48	A	6	0.50	A	6	0.48
Fryar Ave/ Zehnder Ave	B	12	0.77	B	13	0.79	B	12	0.77
<i>Unsignalized Intersections</i>									
Alder Ave/ Main St	F ⁴	56	-	F ⁴	56	-	E ⁴	48	-
Valley Ave/ Gary St	B	14	EB	B	14	EB	B	14	EB
Elm St/ E Valley Highway	D	32	WBL	D	32	WBL	D	30	WBL
Main St/ 160th Ave E	F	85	-	F	83	-	F	85	-
Traffic Ave/ Maple St	B	12	WBR	B	12	WBR	B	12	WBR

¹ Level of Service (A–F) as defined by the *Highway Capacity Manual* (Transportation Research Board 2000). The level of service standard is LOS D for all intersections with the exception of Traffic Ave/Main Street and Alder Ave/Main Street where the standard is LOS F.

² Average delay per vehicle in seconds, by approach movement.

³ Volume-to-capacity ratio reported for signalized intersections; worst movement reported for unsignalized intersections (EB = eastbound, NBL = northbound left, WBL = northbound left, WBR = westbound right).

⁴ LOS F Standard

Note: Shading indicates a location where conditions do not meet the City of Sumner level of service standards.

Table 3.13-7. Forecast Intersection Peak-Hour LOS—Orton Junction Expansion Area

Intersection	UGA Expansion (Orton Junction) Alternative			UGA Modification Alternative			No Action Alternative		
	LOS ¹	Delay ²	V/C or WM ³	LOS	Delay	V/C or WM	LOS	Delay	V/C or WM
SR 162 / SR 410 WB Ramps	C	32	0.86	C	34	0.87	C	30	0.79
SR 162 / SR 410 EB Ramps	C	24	0.78	C	23	0.76	C	23	0.70
SR 162 / 74th St E	C	24	WB	C	22	WB	B	13	WB
SR 162 / Rivergrove Dr	A	7	0.68	A	7	0.69	A	6	0.67
SR 162 / Pioneer Way	C	22	0.81	C	23	0.83	C	22	0.81
SR 162 / 96th St E	A	8	0.67	A	8	0.68	A	7	0.65
Sumner Tapps Highway / 64th St E	D	37	0.93	D	36	0.93	D	36	0.92
166th Ave E / SR 410 WB Ramps	B	19	0.79	B	19	0.80	B	17	0.74
166th Ave E / SR 410 EB Ramps	D	43	1.00	D	42	1.00	D	39	0.97
166th Ave E / John Deere Dr	C	16	EB	C	16	EB	C	14	EB
166th Ave E / 78th St E	B	10	WB	B	10	WB	A	10	WB
Riverside Dr / 78th St E	B	13	WB	B	13	WB	B	11	WB

¹ Level of Service (A–F) as defined by the *Highway Capacity Manual* (Transportation Research Board 2000). All of the above intersections have a level of service standard of LOS D or better.

² Average delay per vehicle in seconds, by approach movement.

³ Volume-to-capacity ratio reported for signalized intersections; worst movement reported for unsignalized intersections (EB = eastbound, WB = westbound).

UGA Expansion (Orton Junction) Alternative

As shown on Tables 3.13-6 and 3.13-7, the higher traffic volumes with this alternative result in a decline in PM peak-hour levels of service at three study intersections compared to the No Action Alternative. As noted previously, one of the intersections is Alder Avenue at Main Street; this intersection declines from LOS E under the No Action Alternative to LOS F under the UGA Expansion (Orton Junction) Alternative. The decline is due to an increase of approximately 40 vph. As previously discussed, the city has established LOS F for this intersection, so the decline in LOS would not result in a need for improvements.

The unsignalized intersection of SR 162 at 74th Street E would decline from LOS B under the No Action forecasts to LOS C with the UGA Expansion (Orton Junction) Alternative. The intersection of 166th Avenue E at 78th Street E is forecast to operate at LOS B under this alternative compared to LOS A under the No Action Alternative. Both of these intersections would not require improvements

to meet LOS standards; however, at the SR 162/74th Street E intersection, construction of a west-to-north right-turn lane may be desirable to reduce delays caused by west-to-south left-turns blocking right-turn movements.

UGA Modification Alternative

Results for the UGA Modification Alternative are similar to the UGA Expansion Alternative in terms of LOS and vehicle delay results, with slight variations in volume-to-capacity ratios. As shown on Tables 3.13-6 and 3.13-7, this alternative would also result in a decline in PM peak-hour levels of service at three study intersections compared to the No Action Alternative. As noted previously, none of these intersections would require improvements to meet LOS standards; however, at the SR 162/74th Street E intersection, construction of a west-to-north right-turn lane may be desirable to reduce delays caused by west-to-south left-turns blocking right-turn movements.

No Action Alternative

At most study intersections, the resulting forecast levels of service for the No Action Alternative are similar to the other alternatives. Where there are differences, the levels of service for the No Action Alternative are better than the other alternatives.

The intersection of Alder Avenue at Main Street is forecast to operate at LOS E under the No Action Alternative. This is slightly better than that reported in the 2004 Comprehensive Plan Update. No improvements would be needed because the city has established LOS F as the standard for this unsignalized intersection.

No other intersections are forecast to operate below the adopted LOS standards assuming completion of the improvements in the Comprehensive Plan.

Access and Circulation

The access and circulation needs are generally described below and include brief descriptions of how to best serve vehicular traffic for each Alternative. There are no specific development plans to evaluate; therefore, the discussion provides general practices and considerations for best accessing and circulating through the site. The access and circulation plans will need to be evaluated in more detail once specific development plans are proposed.

UGA Expansion (Orton Junction) Alternative

Under this alternative, a combination of residential and commercial uses adjacent to each other would need carefully planned circulation systems. At a minimum, it is recommended that an internal collector roadway, developed to City of Sumner standards, be included through the site to provide access between 166th Avenue E and Riverside Drive E. From the collector system a series of local roadways could be developed to serve specific groups of parcels or development areas. The internal roadway system would provide access through the development to improve connectivity and is intended to minimize the number of access points to the main arterials. Consideration should be given to locating collector roadways along the zoning boundaries between commercial and residential uses to provide a natural boundary and so that each use can share the primary circulation system through the area. Driveway access points for individual parcels should be shared when feasible along the internal roadway system developed for the site and should avoid having

direct access to 166th Avenue E and Riverside Drive E. Managing access to these corridors would help maintain safe and efficient operations on these through streets.

In the East Hill reduction area, there would be little to no impact with regards to access and circulation.

UGA Modification Alternative

Under the UGA Modification Alternative the zoning would primarily be for commercial uses and the residential zoning along the west and south portions of the UGA Expansion (Orton Junction) would not be included. With commercial zoning, access should primarily be oriented toward 166th Avenue E along the eastern portion of the Orton Junction expansion area. This would provide the quickest and most direct route to the regional system and minimize the impacts to residential areas to the south and west. Direct access to 166th Avenue E should be limited and meet city spacing standards to manage access along the 166th Avenue E corridor. Allowing too many closely spaced access points along 166th Avenue E would increase congestion and could pose a safety hazard; therefore, driveway access points to individual lots should be along the internal roadway system developed for the site. As in the UGA Expansion (Orton Junction) Alternative, a collector road providing circulation through the site connecting 166th Avenue E and Riverside Drive E would still be necessary.

In the East Hill reduction area, the projected growth and allowable land use densities would be reduced and in turn would reduce the need for additional access and circulation roads. Future developments in this area would need to meet Pierce County's road standards related to access and circulation streets.

No Action Alternative

Under the No Action Alternative the level of anticipated development would be minimal and no significant improvements are needed. Any new development would have to provide access and circulation that would meet City or Pierce County standards depending on the location of unincorporated areas.

Traffic Safety Impacts

The traffic safety needs for each Alternative are generally described below and include brief descriptions of how safety would be incorporated into the development of each Alternative.

UGA Expansion (Orton Junction) Alternative

Through the development of this alternative some of the existing roadways (identified in the mitigation section) would be upgraded to accommodate the additional traffic demands, and new proposed roadways internal to the site would need to meet the City of Sumner street design standards. The street design standards are intended to provide a safe and efficient system and include minimum sight distance requirements, intersection spacing requirements, and roadway cross-sections. The cross-sections would include the development of a more robust non-motorized system through the developable areas to provide curb, gutter, sidewalks, and bike lanes where appropriate. In addition, special considerations should be given to areas where potentially high levels of pedestrians would be anticipated, which might include traffic calming feature and enhanced pedestrian crossings.

In the East Hill reduction area, there would be little to no impact with regards to traffic safety.

UGA Modification Alternative

Same as in the UGA Expansion (Orton Junction) Alternative, some of the existing roadways (identified in the mitigation section) would be upgraded to accommodate the additional traffic demands through the development of this alternative, and new proposed roadways internal to the site would need to meet the City of Sumner street design standards. Cross-sections of the roadways would include the development of a more robust non-motorized system through the developable areas to provide curb, gutter, sidewalks and bike lanes where appropriate. Special considerations should be given to areas where potentially high levels of pedestrians would be anticipated, which might include traffic calming feature and enhanced pedestrian crossings.

The lower levels of development in the East Hill reduction area would likely reduce the potential for traffic safety impacts. Overall accident rates per vehicle mile travelled in the subarea would likely remain relatively unchanged compared to the other alternatives.

No Action Alternative

With the No Action Alternative, less development would occur and each development proposal's impacts would be evaluated individually and safety improvements would be developed in a piecemeal fashion. With less development, less traffic and safety problems would be anticipated; therefore, rural street design standards would likely suffice; however, with the lack of existing non-motorized facilities, consideration should be given to enhancing non-motorized facilities such as shoulder conditions, trails, or other amenities to provide for a safer and more efficient pedestrian and bike travel.

Non-motorized Impacts

The non-motorized needs for each Alternative are generally described below and include brief descriptions of how the pedestrian and bike network would be incorporated into the development of each Alternative.

UGA Expansion (Orton Junction) Alternative

Through the development of this alternative some of the existing roadways (identified in the mitigation section) would be upgraded and new proposed roadway systems would need to meet the City of Sumner street design standards. The standards are designed to promote multiple travel modes, taking into consideration the complete use of the transportation system including pedestrian and bike facilities. All of the urban street standards include curb, gutter, and sidewalk for pedestrian connectivity as well as provisions for bike lanes for a well rounded and balanced transportation system. The design of individual developments would also need to carefully integrate non-motorized street components with the proposed site frontages and allow for safe and efficient non-motorized internal connections within sites. Providing a connected and integrated pedestrian and bicycle system throughout the proposed development enhances the livability of the community and allows options for those desiring an alternative from vehicular travel.

In the East Hill reduction area, there would be little to no impact with regards to non-motorized impacts.

UGA Modification Alternative

Same as in the UGA Expansion (Orton Junction) Alternative, the development of this alternative would require that some of the existing roadways (identified in the mitigation section) would be upgraded and any new proposed roadway system would need to meet the City of Sumner street design standards. These are multi-modal design standards that take into consideration the complete use of the transportation system including pedestrian and bike facilities. All of the urban street standards incorporate curb, gutter, and sidewalk for pedestrian connectivity as well as provisions for bike lanes to provide for a well rounded and balanced transportation system. The design of individual developments would also need to carefully integrate the non-motorized street components with the proposed site frontages and allow for safe and efficient non-motorized connections through sites. Providing for a connected and integrated pedestrian and bicycle system throughout the proposed development enhances the livability of the community and allows options for those desiring an alternative from vehicular travel.

In the East Hill reduction area, the projected growth and allowable land use densities would be reduced and in turn would reduce the non-motorized impacts in this area. Under this alternative the Pierce County Road Standards would continue to be applied to streets in the East Hill reduction area. Because this area would be removed from the UGA, the streets would have shoulders to serve non-motorized travel.

No Action Alternative

The existing area currently has limited non-motorized facilities as roadways are rural in nature so have minimal to no shoulders. As developments are proposed, frontage improvements should be considered to continue to enhance the non-motorized system. This may include extending the curb, gutter, and sidewalks along 166th Street E and SR 162, widening and enhancing shoulders along Riverside Drive and 78th Street E, and looking for opportunities for other non-motorized facilities as developments occur.

Transit and Rail Impacts

The transit and rail impacts for each Alternative are generally described below and include brief descriptions of how the transit and rail systems would be impacted.

UGA Expansion (Orton Junction) Alternative

With the development of this Alternative it is anticipated that a small amount of transit and rail ridership would be generated that would primarily use the Sumner Station facility. Given the mix of land uses and zoning in this alternative, a fixed route service or flexible transit service could be considered depending on the actual mix and density of land use that is developed.

In the East Hill reduction area, there would be little to no impact with regards to transit and rail.

UGA Modification Alternative

With the development of this Alternative it is also anticipated that a small amount of transit and rail ridership would be generated in the Orton Junction expansion area that would likely offset the loss of transit/rail ridership from the reduction in housing for the East Hill reduction area. With the proposed land use (for this alternative) in the Orton Junction expansion area mainly consisting of

commercial uses, it is unlikely that there would be enough density and mix of uses to justify serving the area with fixed transit service. However, proposed Planned Mixed Use Development (PMUD) Overlay regulations include a criterion that the PMUD shall incorporate and encourage multi-modal transportation options. See Appendix D.

The reduction of housing units in the East Hill reduction area would not significantly affect transit demands in or near Sumner. The East Hill reduction area is not directly served by transit removal of the area from the UGA would reduce the potential future need to provide direct transit service to that area

No Action Alternative

Under the No Action Alternative minimal additional transit and rail ridership is anticipated and the densities would not support the need for direct transit service to the Orton Junction area. Existing plans and policies would support the anticipated transit and rail needs for the area. No significant changes in transit demand would be expected in other areas of the city or the East Hill reduction area compared to the City's current Transportation Plan.

3.13.3 Mitigation Measures

Incorporated Plan Features

There are many planned transportation improvements identified by the City of Sumner, WSDOT, and Pierce County that are proposed to support future land use plans regardless of any proposed UGA expansion or reductions. The various agencies have been systematically funding, designing, and constructing the improvements serving the City of Sumner, which are described in the Affected Environment section of the Draft EIS.

Consistent with the City current Transportation Plan, the following roadway improvements are identified for the Orton Junction expansion area, and are assumed completed under all of the Alternatives.

- R10 Sumner-Tapps Highway (SR 410 interchange to 62nd Street E)
- R10 Sumner-Tapps Highway Interchange (Sumner-Tapps Highway/SR 410 On/Off Ramps): (WSDOT) (Partially completed)
- R17 SR 162 (SR 410/SR 162 Interchange)
- R17 SR 162 (SR 410 to Orting): (WSDOT)
- R42 166th Ave E/78th St E/ Riverside Dr (SR 410 to 96th St E): (Pierce County)

These improvements are described in more detail under "Affected Environment," above. The specific schedule for funding and completing some of these projects is not known at this time but are included in the baseline assumptions for all of the Alternatives studied in this transportation analysis. This provides consistent baseline assumptions of planned improvements to best be able to compare differences among the land use Alternatives. In addition these planned improvements have been identified in the City Comprehensive Plan, Pierce County Transportation Plan, and WSDOT transportation plans.

These transportation projects are needed to satisfy the City's Transportation Concurrency Policies, as required under the Washington State Growth Management Act (GMA). Without the development of these transportation improvements, traffic forecasts would likely be lower and the projected traffic operations along the improvement corridors would likely be worse than reported; therefore, may not meet the current Concurrency requirements. This would affect the City's ability to implement its current Comprehensive Plan and any of the Alternatives since every proposed development in the city is required to go through a permitting and approval process. This process requires proposed developments to comply with all adopted policies and standards, including Concurrency. The City's Transportation Plan identifies a range of funding strategies for the city and other agencies to pursue to implement projects concurrent with development. If improvements cannot be funded concurrent with development, the city would need to reassess its funding strategy, LOS standards, land use plan, as required under GMA. The Concurrency process is described in more detail under the Applicable Regulations and Commitments section below.

Applicable Regulations and Commitments

UGA Expansion (Orton Junction) Alternative

In addition to No Action measures, the following would apply:

- Development in the UGA expansion area (once annexed) would be required to pay the City's transportation impact fees. The impact fee program should be updated to take into account the additional growth forecasts of the area when the area is annexed. Prior to annexation, development in the area would be subject to Pierce County's impact fees, which cover roads in the unincorporated parts of the county. Alternatively, the city and Pierce County could develop an inter-local agreement for calculating and applying impact fees for new development in the Orton Junction expansion area.
- Upon annexation, development within the Orton Junction expansion area would need to comply with the City's LOS standards and concurrency requirements. Prior to annexation, new development would be subject to Pierce County's LOS and concurrency requirements.
- Development in the UGA expansion area would also be required to meet the City's street design standards upon annexation. Prior to annexation, Pierce County's road standards would apply. The city and county could develop an inter-local agreement which applies the City's street standards for new and upgrading roadways within the Orton Junction expansion area prior to annexation.

UGA Modification Alternative

In addition to No Action measures, the following would apply:

- Within the reduced Orton Junction expansion area, applicable transportation regulations under this alternative would be the same as for the UGA Expansion (Orton Junction) Alternative. The City's impact fee program should be updated to account for new growth projections once the area is annexed.
- For development in the East Hill reduction area, Pierce County street standards, LOS standards, concurrency programs, and transportation impact fees would apply.

No Action Alternative

Under the No Action Alternative, no additional mitigation beyond that required per existing regulations would be required. Development within the City of Sumner would need to comply with current city regulations; developments in unincorporated Pierce County would need to meet Pierce County's development regulations.

The following summarizes applicable City of Sumner development regulations required under the No Action Alternative, as well as the other two Alternatives:

- **Transportation Concurrency Management.** The City's transportation concurrency program is a requirement of the GMA. It is set forth in Policy 3.3 of the Transportation Element of the City's Comprehensive Plan. The city has identified exceptions to concurrency on SR 167, SR 410, SR 162, the three SR 410 interchanges serving the city, and other city roadways and intersections until the previously described transportation improvements are funded and constructed. These locations are impacted by significant levels of regional traffic, which the City of Sumner cannot control. The city is continuing to work with other agencies to define regional funding strategies for these improvements. The Transportation Element does; however, the city will coordinate with WSDOT to identify appropriate mitigation of development traffic impacts on SR 162 and at the three SR 410 interchanges.

The city implements its concurrency requirements as part of the SEPA review and development applications. This process is outlined in the *2002 Sumner Transportation Plan* as follows:

- Traffic study required, scope to be based on traffic thresholds and impacts;
 - Baseline traffic forecasts to be developed and based on existing traffic, historical growth rates, and pipeline development traffic;
 - Project traffic based on trip generation, distribution, and assignment;
 - Future conditions evaluated based on city or other agency improvements that are funded for construction within six years;
 - Assess project impacts at locations that fall below the City's adopted LOS standard;
 - Require mitigation to resolve LOS deficiencies, unless exempt from concurrency based on policies;
 - If deficient location is exempt from concurrency, require appropriate mitigation (such as payment of impact fees or proportionate share mitigation, construct partial improvements to offset project impacts, or reduce development impacts through phasing or TDM programs);
 - If adequate mitigation is not defined to resolve the LOS deficiency, then the City will deny the development; and
 - Identified LOS deficiencies will be used to seek grants or other funding and as an input to the annual Six-Year TIP process.
- **Transportation Impact Fees (TIF).** The City of Sumner adopted transportation impact fees following adoption of the *2002 Sumner Transportation Plan*. The TIF is codified in SMC Chapter 12.36 and complies with GMA requirements. The City's TIF is charged and collected for developments within the corporate city limits. Areas that are annexed to the city are also subject

to the fees. The city does provide for some exemptions, which apply to developments that do not increase the PM peak-hour trip generation in the city.

- **Commuter Trip Reduction (CTR).** Chapter 16.06 of the SMC implements the City of Sumner Commuter Trip Reduction requirements. The CTR applies to affected employers with “100 or more full-time employees at a single worksite who are scheduled to begin their regular work day between 6:00 a.m. and 9:00 a.m. (inclusive) on two or more weekdays for at least 12 continuous months” (SMC 16.06.010.B). The CTR program requires affected employers to designate a transportation coordinator and distribute information on alternative commuting options. Other CTR program elements are also described in SMC 16.08.070C.
- **State Environmental Policy Act (SEPA).** The City of Sumner also implements the requirements of SEPA for new development. These are adopted in SMC Chapter 16.04. Significant adverse impacts of projects need to be documented and potential mitigation requirements need to be identified.

Other Potential Mitigation Measures

UGA Expansion (Orton Junction) Alternative

The increase in land uses and associated trip generation in the Orton Junction expansion area would not result in any additional improvements at intersections previously studied in the City’s Comprehensive Plan. This assumes completion of the improvements previously identified in the Comprehensive Plan with the exception of Main Street and 160th Avenue E. The intersection of Main Street at 160th Avenue E is forecast to operate at LOS F based on the currently proposed transportation improvements. The LOS F condition is forecasted to occur in all three alternatives. The reduced LOS compared to the prior Comprehensive Plan reflects removed of the free-flow east-to-south right-turn lane to enhance non-motorized crossings at this location. Installation of a traffic signal would resolve the poor LOS and meet the City’s standard. Alternatively, the city could continue to provide the free-flow right-turn movement. Another option would be to change the standard at this intersection to LOS F and not make additional improvements.

Although the forecast levels of service will be adequate at the intersection of SR 162 at 74th Street E, construction of a west-to-north right-turn pocket could be considered. This would help serve the increase traffic generated under this alternative to alleviate potential queuing impacts. Currently Riverside Drive E turns into 74th Street E to access SR 162; however, there have been previous considerations to divert Riverside Drive E to the south of the 74th Street E alignment and provide a connection to SR 162 at Rivergrove Drive where a traffic signal exists. Although this is not necessary to meet the minimum operational requirements it could be considered to provide for improved operations and safety for access to the west side of the Orton Junction UGA Expansion Area. This would also be an improvement to consider if much of the density were to occur along the western portion of the Orton Junction UGA Expansion Area, which may increase the distribution of traffic to and from the west. If this were to occur access to 74th Street E could be restricted to right-in/right-out, or completely closed.

Other potential mitigation includes upgrading access roadways such as 74th Street E, Riverside Road that are under Pierce County’s jurisdiction. The upgrades will include wider travel lanes and potentially urban features such as curb, gutter, and sidewalks based on coordination with Pierce County and the adjoining neighborhoods.

In addition to many of the planned transportation improvements for the surrounding area, the UGA Expansion (Orton Junction) Alternative and the UGA Modification Alternative would require development of an internal roadway system to serve the proposed land use densities. The layout of the Orton Junction expansion area local street network should be defined to assure internal connectivity, circulation, and access to minimize impacts on the 166th Avenue E and Riverside Road arterials. New streets would be developed to the current urban design standards, which include curb, gutter and sidewalk. In addition, traffic controls and turn lane needs for internal access intersections would also need to be defined.

The UGA Expansion would also require updating the City's pedestrian and bicycle system plans within the Comprehensive Plan.

UGA Modification Alternative

The only additional mitigation needed under this alternative compared to the prior Comprehensive Plan would be at the intersection of Main Street at 160th Avenue E. Installation of a traffic signal will provide an acceptable LOS. Alternatively the city could reinstitute the free-flow east-to-south right-turn lane. This would adversely affect non-motorized travel at the intersection. The city also could modify the LOS standard at this intersection to LOS F, similar to other intersections where additional improvements have been identified as not desired.

Similar to the UGA Expansion (Orton Junction) Alternative, the existing connecting streets such as 74th Street E and Riverside Road could be upgraded to accommodate the higher traffic volumes. These could include wider travel lanes with curb, gutters, and sidewalks or with wider shoulders. These improvements should be coordinated with Pierce County and adjoining neighborhoods.

Although the forecast levels of service will be adequate at the intersection of SR 162 at 74th Street E, construction of a west-to-north right-turn pocket could be considered. This would help serve the increase traffic generated under this alternative. Currently Riverside Drive E turns into 74th Street E to access SR 162; however, there have been previous considerations to divert Riverside Drive E to the south of the 74th Street E alignment and provide a connection to SR 162 at Rivergrove Drive where a traffic signal exists. Although this is not necessary to meet the minimum operational requirements it could be considered to provide for improved operations and safety for access to the west side of the Orton Junction UGA expansion area. This would also be an improvement to consider if much of the density were to occur along the western portion of the Orton Junction UGA expansion area, which may increase the distribution of traffic to and from the west. If this were to occur access to 74th Street E could be restricted to right-in/right-out, or completely closed.

Similar to the UGA Expansion Alternative, any proposed development within the reduced Orton Junction expansion area would incorporate city street standards. The local circulation street system within the reduced UGA expansion area also should be defined to assure adequate access and circulation to minimize impacts on the access arterials.

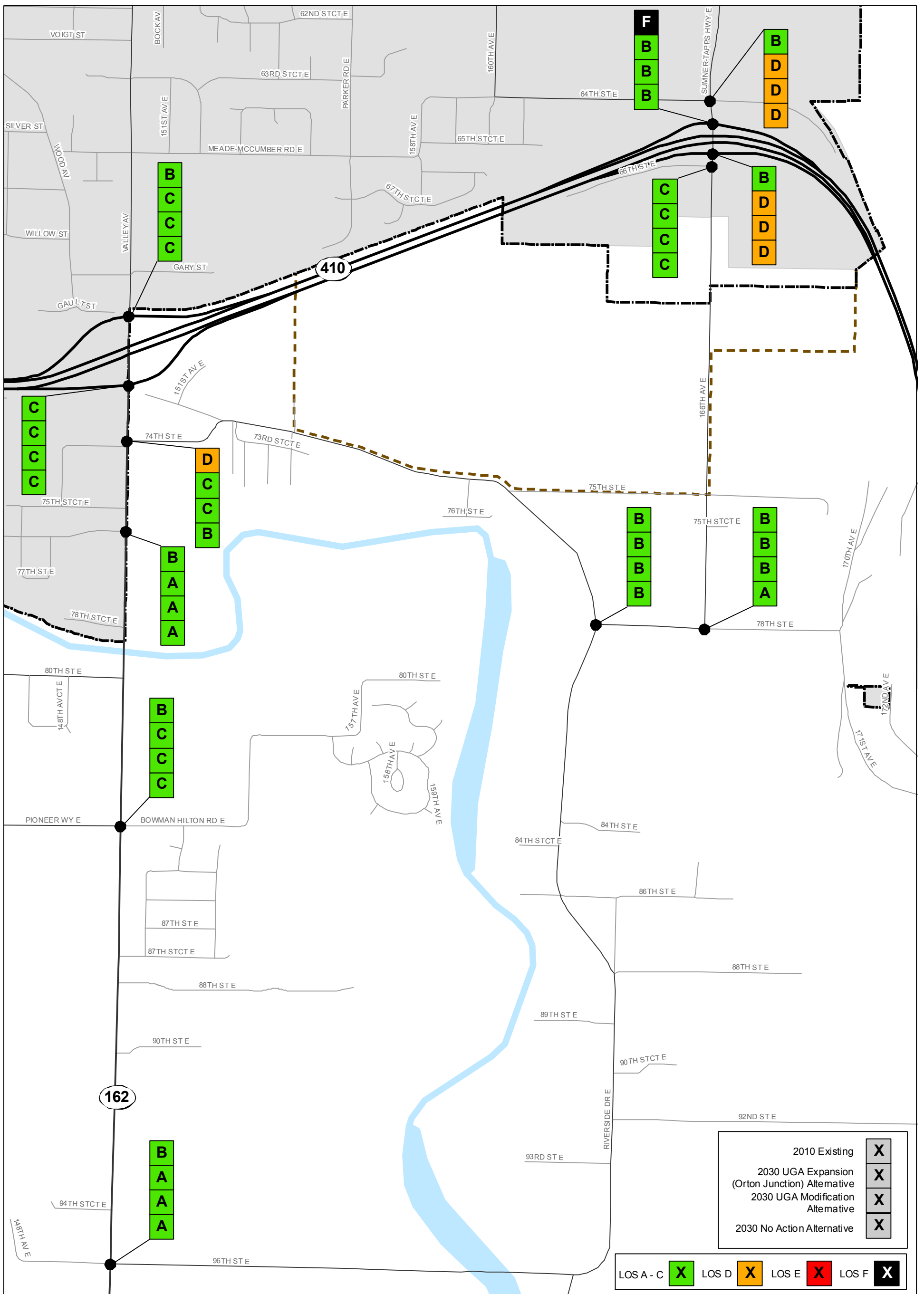
The East Hill reduction area would remain under Pierce County jurisdiction. The street system serving the East Hill reduction area would be developed under Pierce County's street design standards for rural areas.

No Action Alternative

Under the No Action Alternative the intersection of Main Street at 160th Avenue E would need to be improved or the LOS standard modified, as discussed in for the other alternatives.

3.13.4 Significant Unavoidable Adverse Impacts

Although the effects of additional vehicles on traffic congestion can be mitigated to varying degrees through the proposed transportation improvements, the actual increase in traffic volume may be considered a significant unavoidable adverse impact. A significant adverse impact could also result if one or more mitigation measures that have been identified to address expected impacts are not implemented. The combination of recommended roadway improvements that the City selects will reflect a balance between desired improvement in traffic operations, policy decisions, and available revenue.



**Comprehensive Plan Update and Amendments
Environmental Impact Statement**



Figure 3.13-2 Existing & Forecast PM Peak Hour LOS - Orton Junction Expansion Area