

Section 3: Highway Classification and Characteristics

What Type of Facility is SR 167?

SR 167, also known as the Green River Valley Freeway, is an important 27-mile route that links south King County and north Pierce County to I-405. In conjunction with I-405 and SR 512, SR 167 is one of two north-south routes in the region and provides an alternative to I-5. A large percentage of the south King County and north Pierce County trips, during the morning and afternoon peak hours, travel on portions of SR 167 and I-405.

SR 167 is functionally classified as an Urban Principal Arterial and, like I-5 and I-405, is an access-controlled highway where drivers must use on-ramps and off-ramps to merge onto or exit off of the highway. It is also designated a Highway of Statewide Significance (HSS).

In the spring of 2006, WSDOT began construction to extend the northbound HOV lanes from its current terminus at 15th Street NW, in Auburn, to 15th Street SW, an extension of two miles through the congested SR 18 interchange area. The new HOV lane was open to traffic in the fall of 2007 and the project was complete by the spring of 2008.

In 2007, WSDOT began construction to convert all SR 167 HOV lanes to High Occupancy Toll (HOT) lanes, from Renton to Auburn. This includes from 15th Street SW to I-405 northbound and from I-405 to 37th Street NW southbound. This conversion allows single-occupant vehicles to use the HOT lane by paying an electronic toll. This is a four-year pilot project and is WSDOT's first use of HOT lanes in the state. This project began tolling in the spring of 2008.

The Washington Freight and Goods Transportation System (FGTS) have classified SR 167 as a T-1 freight route. There was 52.2 million tons of freight on SR 167 in 2007, and this number has continued to grow every year. In Washington State only portions of I-5 carry more freight than SR 167.

Highway of Statewide Significance (HSS)

An HSS includes interstate highways and interregional state principal arterials including ferry connections that serve statewide travel.

Designation of a state highway as an HSS means the state sets the level-of-service standards, is exempt from local transportation concurrency requirements, and is identified as an essential public facility and cannot be excluded by local plans.

High Occupancy Toll (HOT) Lanes

HOT Lanes allow single-occupancy vehicles to use HOV lanes by paying a toll. The amount of the toll varies during the day to insure that the lane allows users to travel at 45 mph or more.

HOV vehicles, such as carpools and buses, and motorcycles may use the lanes for free.

Washington Freight and Goods Transportation System (FGTS)

The Washington Freight and Goods Transportation System (FGTS) identifies the highways and roadways most heavily used by trucks and provides factual data to support funding for projects that improve conditions for freight transportation. State highways, county roads and city streets are classified according to the average gross annual truck tonnage they carry.

- T-1 more than 10 million tons per year
- T-2 4 million to 10 million tons per year
- T-3 300,000 to 4 million tons per year
- T-4 100,000 to 300,000 tons per year
- T-5 at least 20,000 tons in 60 days

Currently, SR 167 includes two general purpose lanes in each direction from SR 161 in Puyallup to 15th Street SW in Auburn. North of this point, there is an additional HOV lane in the northbound direction and north of 37th Street NW there is an HOV lane in each direction. See Exhibit 3-1 for current lane configurations.

The route connects the cities of Renton, Kent, Auburn, Algona, and Pacific in King County and Sumner and Puyallup in Pierce County. SR 167 serves the Tukwila and Kent designated Manufacturing Industrial Centers and the designated Urban Centers in Renton, Tukwila, Kent, Auburn, and Puyallup.

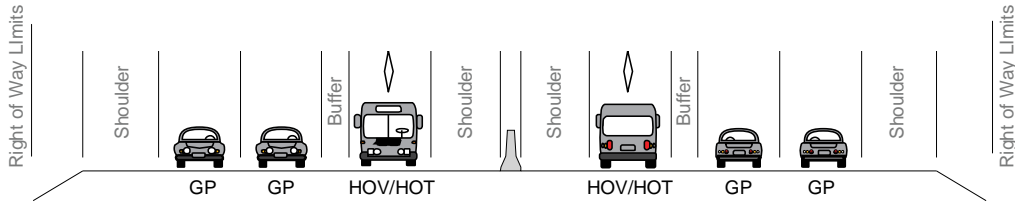
The combination of I-405, SR 167, SR 512, and the proposed SR 167 extension into the Port of Tacoma create a vital 60-plus mile economic corridor for the Puget Sound region.

Travel lanes are approximately 12-feet wide and shoulder widths vary from approximately 4-feet to 14-feet wide.

**Exhibit 3-1
Existing Lane Configurations along SR 167**

SR 167 between I-405 and 37th Street NW (Renton to Auburn)

The SR 167 Corridor north of 37th Street NW has two general purpose (GP) lanes and one HOV/HOT lane in each direction with a concrete median barrier



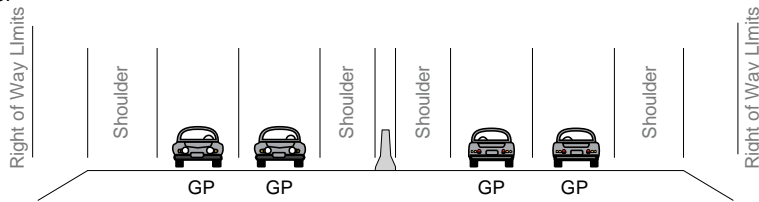
SR 167 between 37th Street NW and 15th Street SW (Auburn)

Between 37th Street NW and 15th Street SW the SR 167 Corridor has two general purpose (GP) lanes in each direction, a HOV/HOT lane in the northbound direction only, and a grass median



SR 167 between 5th Avenue N and 4th Avenue SW (Algona, Pacific)

Between 5th Avenue N and 4th Avenue SW the SR 167 Corridor has only two general purpose (GP) lanes in each direction with a concrete median barrier



**SR 167 between 15th Street SW and 5th Avenue N (Auburn, Algona), and
SR 167 between 4th Avenue SW and SR 512 (Pacific to Puyallup)**

Between 15th Street SW and 5th Avenue N and between 4th Avenue SW and SR 512 the SR 167 Corridor has two general purpose (GP) lanes in each direction with a grass median



How Much Right-of-Way Does WSDOT Have Along the SR 167 Corridor?

What is Right-of-Way?

Right-of-way is the property the state owns.

For this document it is the land for the highway corridor and all its facilities, including land for detention ponds, wetland mitigation, and other necessities to maintain the transportation system.

The right-of-way along the SR 167 Corridor is approximately 144-feet to 250-feet wide. Larger areas are located around each of the interchanges.

In some locations there are properties adjacent to or near SR 167 that are owned by the state. These properties are primarily used for stormwater detention ponds and enhanced wetland sites that were developed as mitigation for previous improvement projects.

From Auburn to Puyallup, available space for highway widening is primarily in the median between the northbound and southbound travel lanes. From Renton to Auburn, available space for highway widening is typically to the outside edges of the highway.

The existing right-of-way is sufficient to construct at least two additional lanes in each direction. However, additional land will be needed for stormwater management (such as detention ponds) and wetland mitigation. Depending on the mitigation strategy and regulations in place at the time of project implementation, a significant amount of additional right-of-way could be required.

What About the Interchanges?

Access to SR 167 is provided at 11 interchanges with ramps that connect with arterial streets, plus freeway to freeway ramps at I-405, SR 18, SR 410, and SR 512 (see Exhibit 3-2). The interchanges are generally spaced one mile or more apart with the exception of 15th Street SW, which is located within a half-mile of the SR 167 / SR 18 interchange.

The SR 167 off-ramps terminate at intersections on local arterial streets that are, with few exceptions, controlled with a traffic signal. Congested intersections at ramp terminals can limit traffic access to SR 167 or result in lines of cars (queues) backing onto the highway. *Section 4: Existing Travel*

Conditions of this document has additional information on interchange congestion.

One additional lane can be added in each direction throughout the corridor without having to replace/rebuild any bridges that cross over SR 167. All bridges over SR 167 provide sufficient lateral width to accommodate four lanes in each direction. However, some narrowing of the shoulders and/or lanes may be necessary to avoid significant bridge reconstruction.

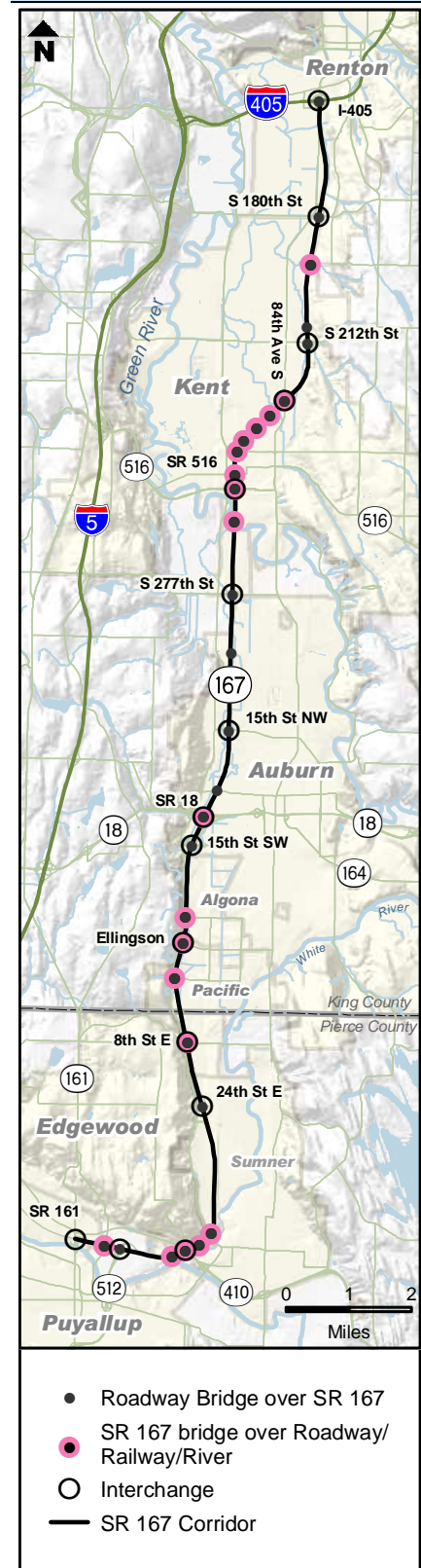
What About the Bridges and Other Major Structures Along the Corridor?

There are 54 bridge structures along SR 167. Most of the bridges cross roadways with two bridges crossing the Green River in Kent. Four bridges cross railroad tracks. Exhibit 3-2 contains a detailed listing of bridge and interchange locations.

Nearly all the existing bridges along the corridor were constructed in the 1970's. Today's design standards for earthquakes (seismic standards) are more stringent than they were 30 years ago. Some of the existing bridges have already been retrofitted to the new standards and the rest are scheduled for upgrades as funding becomes available. In 2006, new liquefaction standards for bridges were enacted. Liquefaction occurs when the existing water-saturated soil beneath the bridge footings lose strength during earthquake shaking (similar to quicksand). Such failure of the foundations could result in the bridge collapsing. – see *Section 6: Natural and Built Environment* for more detail.

There are existing retaining walls along SR 167 in the Kent area. In one location, noise walls have been constructed on top of the retaining walls. SR 167 crosses over a number of large and small drainage culverts, both round and box style. The U.S. Army Corp of Engineers has classified many of these drainage ditches as streams. Classification as a stream imposes additional requirements when constructing improvements nearby.

Exhibit 3-2
SR 167 Bridges and Interchanges



Source: WSDOT & Perteet

What is Liquefaction?

Liquefaction occurs when water-saturated sandy or silty soil loses strength during earthquake shaking. It can cause major structural (bridges) failure if not properly accounted for. Liquefaction only occurs in water-saturated soil. Its effects are most commonly observed in low-lying areas near bodies of water such as rivers, lakes, bays, and oceans.

Noise walls exist along the east shoulder of SR 167 between 4th Avenue N and W James Street, and on the west shoulder between W James Street and SR 516, in Kent. These noise walls serve to mitigate some freeway traffic sound towards adjacent residences and the Kent Commons Park.

What are the Major Arterials Near the Corridor?

SR 167 provides a link to many city streets and county roads along the corridor; the major arterials then provide connection to minor streets, residential, and commercial/industrial areas. Also, just as SR 167 can serve as an alternate to I-5, there are several major arterial streets in the Green River Valley that can provide an alternative to driving on SR 167.

The following is a list of major arterials along the corridor:

- Renton: West Valley Highway, Talbot Road S, Carr Road/43rd Street
- Kent: SE 180th Street, 84th Avenue/Central Avenue N, S 212th Street, SR 516/Kent-Des Moines Road, S 272nd Street, W Meeker Street/Smith Street, S 277th Street, West Valley
- Auburn: S 277th Street, 37th Street NW, 15th Street NW, W Main Street, Auburn Way N, SR 18, 15th Street SW, Ellingson Road, West Valley Highway
- Algona: Algona Boulevard, Ellingson Road, West Valley Highway
- Pacific: 8th Street E, Ellingson Road, West Valley Highway
- Sumner: 24th Street E, West Valley Highway, East Valley Highway, Main Street, 8th Street (Stewart Road), SR 410
- Puyallup: E Main, Stewart Avenue, SR 512, SR 161

What about Signal Coordination and Priority?

Signal coordination is one method of improving traffic flow and reducing vehicle accidents along roadways. Signal coordination promotes the platooning of vehicles and requires interconnecting the individual signals' computer systems together, which can require upgrading the signal controller.

Signal coordination generally works best for signals that are within a half mile of each other on a major route, or in a network of major routes. Signals spaced farther than a half mile can also be candidates for coordination if platooning can be maintained.

Increased platooning of vehicles can create more defined gaps of increased length for permissive vehicle movements at intersections and can result in improved intersection operation. Increased platooning of vehicles may also result in a decrease in rear-end crashes.

The following section describes existing or planned signal coordination programs for the agencies along or near the SR 167 Corridor.

City of Renton

The City of Renton has operated a Traffic Management Center since the early 1980's, one of the first in the Puget Sound Region. From the center, the City manages and coordinates virtually all of the signals within the City, including along Rainier Avenue (SR 167). King County operates (with the City's cooperation) the signals along the Trans-Valley Corridor, which includes SW 43rd, SE Carr Road, SE 176th Street. The signals are coordinated during most of the day with the exception of late evening.

City of Kent

The City of Kent's traffic signal system operates almost entirely by the signal detecting hardware embedded in the pavement that is triggered when a vehicle approaches the intersection. In the near term, the City will be adding video

Platooning of Vehicles

Platooning of vehicles is getting a particular priority direction of traffic to flow in a group, with each traffic signal timed to turn green just as the flow of traffic approaches the intersection. Traffic should be able to flow at the posted speed limit without needing to stop.

processing equipment to create a small traffic management center. In 2009, the city will construct a larger traffic management center. With the added capability of viewing real traffic conditions, the City will be able to activate stored traffic management programs as needed, or create a unique response to unusual traffic conditions, to improve traffic movement in Kent.

City of Auburn

The City of Auburn has an agreement with WSDOT that provides for the City to control signals at all ramps at SR 167. The City has interconnected the traffic signals on most of its major corridors, and is planning to upgrade to a citywide traffic signal program tied to its Traffic Management Center. Corridors near SR 167 that are interconnected include 15th Street NW and 15th Street SW. S 277th Street and Auburn Way N will be interconnected in the Spring of 2009 to allow for signal coordination. Signals will be coordinated for the morning and afternoon peaks, during concert periods along SR 164, and for special events and or emergencies.

City of Federal Way

The City of Federal Way operates a coordinated traffic signal system for a number of arterials. The arterials include SW 288th Street, SW 312th Street, SW 320th Street, SW 348th Street, 21st Avenue SW, 1st Avenue S, SR 99, SR 161, and Military Road. The signals are coordinated between 6 a.m. and 10 p.m. on weekdays, and operate toward a morning peak, mid-day peak, and afternoon peak. There are also one to two weekend peak periods. The City provides time-based coordination with King County for two locations, including SW 320th at Military Road, and S 321st Street at Peasley Canyon Road. In general, as the City implements Capital Investment projects, signal interconnection/coordination is added or upgraded. The City is also working with King County Metro for a system upgrade, including Transit Signal Priority, along SR 99 where a future Bus Rapid Transit route will operate.

City of Pacific

The City of Pacific does not currently have any signals that are coordinated. The City is planning to improve Stewart Road, which is currently scheduled to be constructed in 2011. WSDOT recently installed a signal at the Stewart / SR 167 northbound off-ramp terminus. The City is planning to install a signal at Thornton Avenue SW, and a signal at Valentine Avenue. Both signals will be coordinated with the WSDOT signal at the SR 167 ramp.

City of Puyallup

The City of Puyallup currently has a number of corridors that have signal coordination, including N Meridian (SR 161) through the downtown, and River Road (SR 167) between 11th Street NW and 2nd Street NW. On these two corridors, the signals are coordinated for a morning peak period, and afternoon peak period. The City is planning to improve the coordination on these two arterials in the near future. Along Meridian, the City controls the signals within downtown. The signals at the SR 167 ramps at Meridian are owned and controlled by WSDOT. WSDOT is planning to improve the signal so that it is coordinated with the signal to the immediate north at the intersection of Meridian and Valley Avenue.

WSDOT

WSDOT currently has a fiber optic connection along SR 167 from I-405 to 15th Street SW. This allows interconnection of all signals at the on- and off-ramps, and coordination with various cities' signal systems. This fiber optic link allows WSDOT to have closed-captioned television (CCTV) cameras along SR 167 to provide real-time views of traffic conditions to the public via the WSDOT web site and allows WSDOT to provide faster incident response. This fiber optic link also provides data flow information to WSDOT and the WSDOT Traffic Flow Map.

What is Happening at the North and South Ends of the SR 167 Corridor?

I-405 Corridor Program

For additional details on the I-405 Corridor Plan, go to:
www.wsdot.wa.gov/projects/I405

WSDOT is currently working on improvements at both ends of the SR 167 Corridor. See *Section 8: Long-Term Improvement Options* for additional detail.

SR 167 Extension and SR 161 Interchange – At the south end of the SR 167 freeway corridor, the freeway stops at the SR 161 interchange in Puyallup. WSDOT has design plans for extending the SR 167 freeway west past SR 161, then northwest over I-5 into the Port of Tacoma. The interchange of SR 161 and SR 167 is planned for fully directional ramp connections.

I-405 Interchange and SR 167 – At the north end, the I-405 corridor connects to the SR 167 Corridor in the City of Renton. There is an approved list of projects associated with the I-405 corridor. There are two key projects that directly affect SR 167:

- Extending the southbound I-405 to southbound SR 167 ramp to S 180th Street. This is a funded improvement.
- Direct HOV to HOV flyover ramp connection between I-405 and SR 167. This improvement remains unfunded.

Key Findings of This Section

Classification & Type

- The SR 167 Corridor is functionally classified as an Urban Principal Arterial located in King and Pierce counties. It is a fully access controlled facility that carries more than 10 million tons of freight each year. SR 167 has also been designated by the state legislature as a Highway of Statewide Significance (HSS).
- There are 15 total interchanges located throughout the corridor.
- SR 167 has two general purpose (GP) travel lanes in each direction. There is an additional travel lane designated for high-occupancy vehicles (HOV) that exists in both the northbound and southbound lanes from south of I-405 in Renton to near SR 18 in Auburn. The HOV lanes have recently been converted to high-occupancy toll (HOT) lanes as a four-year pilot project.

Right-of-Way

- The available right-of-way ranges from approximately 144 feet to 250 feet in width. The SR 167 Corridor has sufficient right-of-way for additional lanes, but additional land will likely be needed for stormwater and wetland mitigation.

Bridges

- There are 54 bridge structures along SR 167. Most of the bridges cross over or under roadways/streets, with one bridge crossing the Green River in Kent and four bridges crossing over railroad tracks.

Arterials

- There are several major and minor arterial routes that parallel and cross the SR 167 freeway.
- Many cities along the corridor have or are planning for signal interconnection coordination and priorities for more efficient traffic movement during peak periods and events.

Signal Coordination and Priority

- WSDOT and all the cities along the corridor have plans or are currently coordinating traffic signal systems to provide for more efficient use of the arterials and major roadways. Signal priority is given to the primary direction of the peak commute.

Ends of the Corridor

- Significant improvements are currently being developed at each end of the corridor. At the north end, improvements associated with the I-405 Corridor are being implemented on southbound SR 167. At the sound end of the corridor, a four lane, limited access extension is being planned from SR 161 to the Port of Tacoma.