

## Safety

Over a three-year period from 2002 to 2005, 1,600 collisions occurred on SR 167 mainline and ramps. The study identified 10 high-accident locations in the corridor. Most of the collisions are related to high congestion levels and they occurred during the peak traffic periods in the morning and afternoon. Collisions involving trucks were similar in the rate of occurrence and severity as total traffic.

The computer traffic forecasting model predicted a decrease in collisions with additional lanes. The auxiliary lanes will add lanes to those areas where merging conflicts occur, thereby reducing collisions and streamlining traffic flow. Improving ramps will enhance safety and truck mobility by providing more room for vehicles to gain speed or slow down when entering and exiting SR 167.

## Costs

The preliminary estimated cost to add one lane in each direction of SR 167 between I-405 and SR 161 is \$1.5 to \$2.2 billion (2007 CEVP dollars). These costs reflect the rising costs of construction and the Green River Valley's geologic history. The presence of wetlands, liquefiable soils, and the difficulties of retaining and treating stormwater in this flood-prone area contribute to higher than average construction costs.

## Next Steps

The SR 167 Corridor Plan was undertaken to provide a "master plan" for the corridor that can be built in stages. The plan will be incorporated into other regional and statewide plans to ensure consistency and give decision makers the tools they need to prioritize projects for implementation. The corridor plan will also give local leaders an agreed-upon list of projects to take to the legislature for future funding.

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*New lanes and longer ramps will reduce weaving as vehicles enter/exit.*

The **SR 167 Corridor Working Group** is composed of agency representatives from the cities of Auburn, Algona, Edgewood, Kent, Puyallup, Renton and Sumner; the Muckleshoot Tribe; the Ports of Seattle and Tacoma; King and Pierce Counties; the Puget Sound Regional Council; Sound Transit; Metro Transit; WSDOT and the Washington State Patrol. The Corridor Working Group was formed to advise WSDOT on the needs, priorities and potential improvements for SR 167.

## For More Information

### Visit us online:

[www.wsdot.wa.gov/Projects/SR167/ValleyFreewayCorridorPlan/](http://www.wsdot.wa.gov/Projects/SR167/ValleyFreewayCorridorPlan/)

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## WSDOT and Local Partners Recommend Projects to Improve Traffic on State Route 167

The Washington State Department of Transportation and the SR 167 Corridor Working Group have completed the SR 167 Valley Freeway Corridor Plan which contains a list of recommendations to improve safety and relieve congestion on 27 miles of SR 167 between Renton and Puyallup.

A corridor plan is the first step toward obtaining funding for transportation improvement projects. It identifies existing and emerging safety and mobility problems, and proposes specific recommendations to be implemented over the next 20 - 25 years.

The SR 167 Project team – WSDOT staff and consultants – sought input from local communities to learn more about the safety and mobility problems they are encountering and to document their ideas for solutions.

## Would Adding More Lanes Improve Traffic?

Yes. The project team undertook an extensive analysis of current and future growth and travel conditions in the study area, examining the affects on traffic and the environment of adding one to two additional lanes. We also examined projects that would provide near-term relief by addressing specific bottlenecks where traffic bogs down. After comparing many different combinations of options, costs and benefits, we have finalized the recommendations, summarized inside, with a map showing current and future projects on SR 167.

## Why Did WSDOT Undertake the SR 167 Corridor Plan?

The last few decades have transformed the Green River Valley from farmland to a mix of busy residential, commercial, retail and industrial activity. Between 1980 and 2000 population grew by 68 percent. By 2030 it is projected to grow another 39 percent. Employment has nearly doubled between 1980 and 2000 with growth projections of another 50 percent, adding 90,000 jobs in the Valley by the year 2030. Unfortunately, increasing development often brings an increase in traffic congestion and collisions. A corridor that carried 15,000 vehicles per day in 1970, now carries 127,000 vehicles on an average weekday. If current trends continue and no investments are made by 2030, the time to drive the corridor could go from an average of 20 minutes to over an hour.



Map of the SR 167 Corridor Study area

## Draft Recommendations for the next 20 years: by 2030

A summary of the recommendations in the SR 167 Corridor Plan Report:

Today's SR 167 has six lanes north of SR 18 and four lanes south of SR 18.

### Add One Lane in Each Direction, as outlined below:

The corridor plan recommends adding a northbound and southbound lane the length of the highway between I-405 in Renton and SR 161 in Puyallup.

The new lane between I-405 and SR 18 would be operated as a general-purpose lane to improve traffic flow in areas where there are traffic bottlenecks. An additional auxiliary lane would be added in two locations. Auxiliary lanes, also called add-drop lanes, start at one interchange and end at the next interchange (shown on the map at right).

The added lanes south of SR 18 would be operated as high-occupancy toll (HOT) lanes and would connect to the existing HOV/HOT lanes in King County.

The existing right of way is sufficient to build one lane in both directions in most places; however, additional land will be needed for stormwater runoff and wetland mitigation. In some cases, a significant amount of right of way could be required. The lanes would be built in stages as they are funded. Below is a summary of the recommendations and priorities:

### Complete the HOT lanes on SR 167 from I-405 to SR 410:

- 1. Add a southbound HOT lane from S 277th St to 8 St E**  
This project is already being designed and has partial funding for construction.
- 2. Add a northbound HOT lane from 15th St NW to 8th St E**  
This project would complete the SR 167 HOT lanes in King County and is currently unfunded.
- 3. Add a northbound and southbound HOT lane between 8th St E and SR 410**  
No regional or state funds have been identified, but completing the "core" HOT lane system by extending the HOT lanes to SR 410/SR 512 in Pierce County is a high priority for WSDOT.

### Build Additional Lanes in Areas to Reduce "Bottlenecks":

The worst traffic congestion on SR 167 is in the southbound direction during the afternoon peak periods. Adding lanes in key areas would help ease congestion. Auxiliary lanes will help reduce merging conflicts – give drivers more space to

exit and enter the highway – and improve traffic flow. The projects are unfunded:

- **Add a northbound and southbound lane between I-405 and SR 18**
- **Add an additional (auxiliary) lane from I-405 to S 180th St and from SR 516 to S 277th St**

Given the number of trucks using SR 167, highway designs should include wider lanes on the curves of interchanges and longer ramps for trucks to accelerate before merging with mainline traffic.

The recommendations also encourage the addition of express and local transit service and other transportation demand management strategies to provide more transportation options to address the growing needs in the corridor.

## 2030 and Beyond: Proposed Recommendations

The following recommendations are proposed for the vision beyond the year 2030. They are not included in the 20-year plan's recommendations, and therefore, are not shown on the map. They are unfunded.

### Add a second lane to the SR 167 corridor from I-405 to SR 512:

Future projections, including truck traffic, indicate the need for a total of 10 lanes on SR 167, so the recommendations include accommodating an ultimate footprint of 10 lanes by preserving right of way for interchange and bridge expansion. There are 54 bridges and 14 interchanges on SR 167 from I-405 to SR 410 (see page 5).

Although there was interest in adding two new lanes each way, the larger footprint would require that most, if not all, bridges and overpasses be rebuilt, including three major interchanges, which would add \$7 billion or more (planning-level cost estimates) for all the improvements.

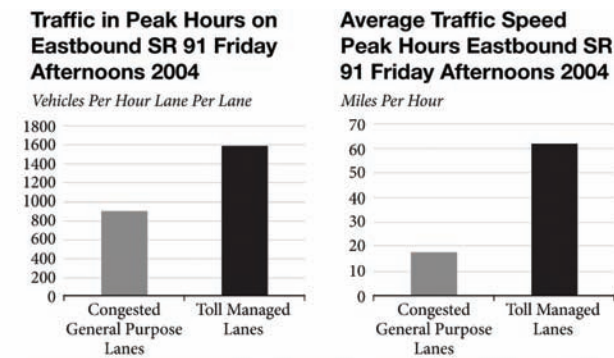
- **Adding an additional lane in each direction would require rebuilding three major interchanges:**
  - o 180th Street Interchange
  - o SR 18 Interchange
  - o SR 410/512 Interchange

It is recommended that the new lanes should be designed to allow for a possible conversion to HOT lanes in the future. That would require more width to allow for a four-foot buffer between the HOT lanes and the regular lanes. The vision is to have at least one northbound and southbound HOT lane between I-405 and SR 410, but how that added capacity is operated will be determined at a later date.

## Making Highways Smarter (cont'd)

Buses, vanpools, carpools and motorcycles will continue to use the lanes toll-free. HOT lanes can maintain speeds of 45 mph or more on average using a flexible toll rate to regulate the number of tolled-vehicles that enter the lane. HOT lanes not only give drivers the option of paying for a faster trip, they also improve the efficiency of the roadway. When traffic jams occur, fewer cars can move along a highway lane. Traffic jams are prevented in HOT lanes and they can therefore increase traffic flow by about 50 percent when compared with congested general purpose lanes, especially during peak travel periods (see SR 91 table below). HOT lanes also preserve a lane for transit as congestion in the region continues to grow.

### SR 91 Express Lanes in California



Used with permission from No More Just Throwing Money Out the Window, Environmental Defense, 2008

Two toll-managed lanes carry as much peak-hour traffic – at three times the speed – as moved in four free, but congested lanes.

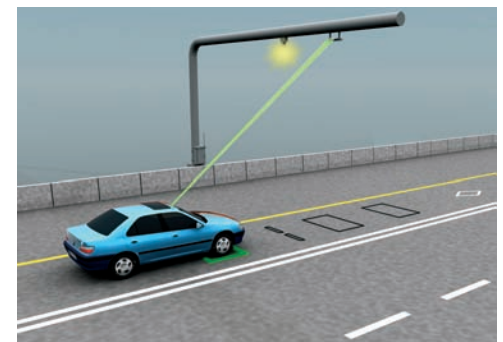
## Keeping Freight Moving

Trucks carrying goods to our local stores and also to/from the Ports of Tacoma and Seattle play a vital role in our region's economy. **One-third of the region's warehouses are located in the Green River Valley, and it is the third largest distribution center on the West Coast.** An estimated 33 percent of all regional truck trips generated by the Ports of Seattle and Tacoma are destined to locations in the Green River Valley. More than 12,000 trucks use SR 167 every week-day with freight representing 10 percent of total traffic volume. By the year 2030 there will likely be twice as many trucks on the highway.

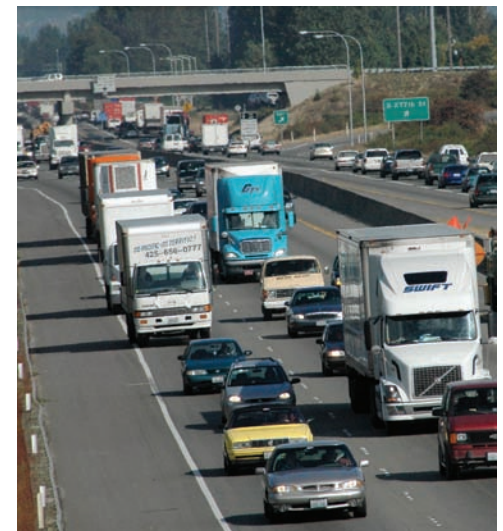
The recommendations include special considerations for trucks including reducing roadway curves and lengthening on-ramps at key locations to provide additional time and space for large trucks to gain speed before merging into traffic more easily and safely.



For a virtual tour of the HOT lanes visit: [www.wsdot.wa.gov/Projects/SR167/HotLanes](http://www.wsdot.wa.gov/Projects/SR167/HotLanes)



When a driver with a valid Good To Go! transponder enters the HOT lanes, the transponder is "read" and a light flashes to indicate the driver has paid.



When possible, freight haulers avoid peak travel periods by scheduling their travel during off-peak times, but many must drive during the peak period to meet customers' needs. (UPS, FedEx, home deliveries, etc.)



The primary reason that SR 167 corridor cities have seen a rise in population is due to the relative affordability of housing in the corridor. The median home price in the Green River Valley is 20 to 34 percent lower than in the greater Seattle-Bellevue area.



Sound Transit, King County Metro, and Pierce Transit provide transit service on within the Valley.



Photo simulation showing the SR 167 HOT lanes that will open in spring of 2008.

### A Mix of Solutions is Needed

The study found that growth in future population, employment and freight movement on SR 167 would overwhelm any added lanes that could reasonably be assumed to be built by 2030. Therefore, WSDOT recommends that a mix of solutions is needed to address growing transportation demand. Highway and street improvements will need to be accompanied by increases in local and express transit service, commute trip reduction programs, and operating new lanes as high-occupancy toll (HOT) lanes.

### Ways to Manage Growing Demand


Currently, travel by different modes on SR 167 is as follows: 59 percent drive alone; 33 percent carpool; 4 percent use Sound Transit rail; and 4 percent use buses (southbound p.m. peak hour).

Over 4,000 people use local transit routes in the study area, with 800 people using express buses (to Bellevue/Overlake). Currently there is no express bus service to downtown Seattle, but Sounder Rail carries 3,600 commuters each day to/from downtown Seattle. A comparison of current travel times showed that traveling by rail was faster than traveling by car from all Sounder Rail stations in the Valley except Tukwila where the times were equal.

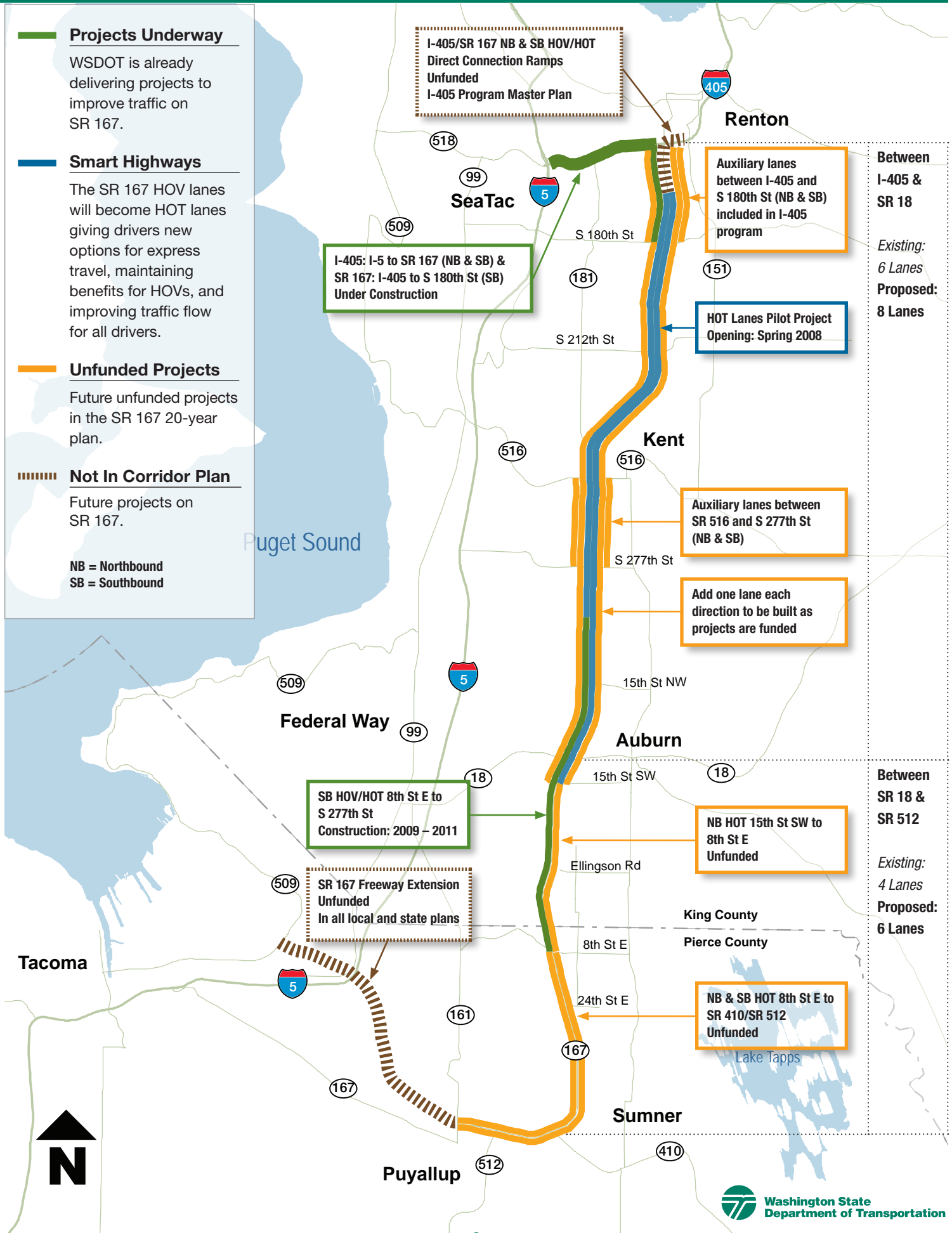
WSDOT and the Corridor Working Group recommend that the jurisdictions adopt policies and implement actions that support transit investments. (An analysis of the cost to increase transit service was not included in this study.)

### Making Highways Smarter

In addition to analyzing the costs and benefits of adding general-purpose lanes to SR 167, the project team also examined how the lanes would perform as high-occupancy toll lanes. HOT lanes have been successful and popular in other states, such as California, Texas, Minnesota and Colorado. Next spring, the SR 167 HOT Lanes Pilot Project will give local drivers the opportunity to try out the first HOT lanes in our state. The project will convert approximately nine miles of HOV lanes on SR 167 to HOT lanes giving solo drivers who are *Good To Go!* the option of using the HOV lanes by paying a toll.



**Good To Go!** is a high-tech toll collection system that allows customers to pay tolls electronically while traveling at highway speeds and without leaving the highway to stop at a toll booth. The toll is automatically deducted from the prepaid *Good To Go!* account via a window transponder. This is the same transponder that works on the Tacoma Narrows Bridge.





Open houses gave people the opportunity to interact with the SR 167 project team.



A mobile display takes information to communities along the SR 167 corridor.



Wetlands are areas that are regularly or seasonally saturated by surface water or groundwater and are characterized by vegetation that is adapted for life in saturated soils.



The Valley is very wet and flat with a high underground water table; water does not drain well and the area floods easily.

### How Do We Know These Projects Are Important for Residents in the Green River Valley?

The project team engaged members of the public to assure that their feedback guided corridor plan development, including:

- Corridor Working Group meetings: Staff members from local public agencies and jurisdictions identified project issues, provided local knowledge and expertise, and developed a list of recommendations to improve safety and mobility on the SR 167 corridor.
- Open houses: Four open houses were held for the public to view project information and speak to the project team.
- Informal outreach: Project team members went to community events and reached approximately 700 people.
- Project Web site: A consistent source for information and comments throughout this planning process.

### What Did We Hear from Citizens?

We received many comments from citizens throughout the corridor, below are the top two questions with our responses.

- Q1. "Why can't you simply add more lanes by laying more asphalt all at the same time?"
- A1. Adding lanes to such a flat stretch of highway seems like an easy project, but a significant challenge in this corridor is the natural environment of the Valley. Efforts to minimize impacts to the environment will add to the costs of improvements.
- Q2. "Why don't we complete the HOV lanes in Pierce county?"
- A2. We are planning to extend the HOV lanes as HOT lanes down to SR 410, but the projects will be built in stages (see map and "Beyond 2030 Recommendations").

### Water-soaked Terrain Increases Project Costs

The Green River Valley was historically a fjord called Lake Russell. Today it is criss-crossed by numerous streams, large areas of wetlands and floodplains, and it contains unstable soils, called liquefiable soils.

In addition to providing habitat for wildlife, wetlands help to retain flood waters during periods of rain, and they filter pollution out of the water. Flood plains temporarily store excess water when rivers, streams and lakes periodically overflow.

The study identified the potential of up to 105 wetlands and 27 wetland ditches within 300 feet of the highway. Affected wetlands will require mitigation by creating new wetlands or enhancing existing wetlands.

### Earthquakes Can Cause Unstable Soils to Liquefy

Mount Rainier has had two lahars (massive mud flows) in the Valley that contributed to the soil's susceptibility to liquefaction. Liquefaction is when water-saturated, sandy soil loses strength during earthquake shaking. The land proved fertile for hops, peas, and lettuce that used to grow in the Valley, but creates challenges for building stable structures. When quakes occur, liquefiable soil can turn into a liquid that destabilizes bridges and overpasses causing them to crack or collapse.

The Washington State Department of Natural Resources produces maps that identify locations with liquefiable soils (shown at right). SR 167 is located in an area with a moderate to high susceptibility to liquefaction. Special measures will be required to stabilize bridges and structures when they are built and bring older structures up to modern earthquake standards by retrofitting or replacing them. These measures are expensive, increasing the estimated costs of improvements.

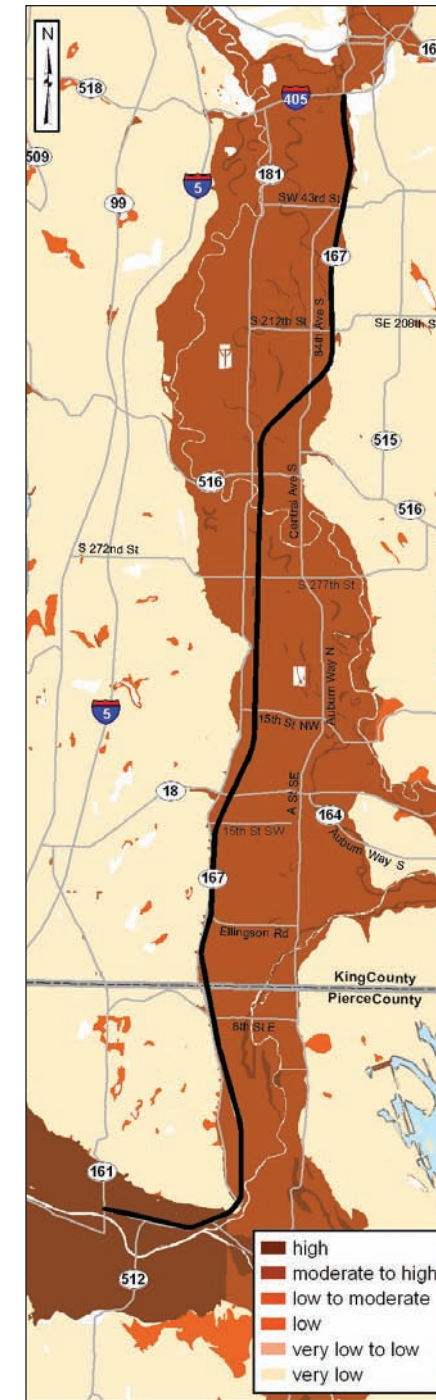
### From Planning to Design: Each Project Will Need More Environmental Analysis

The environmental and geologic sensitivity of this area requires WSDOT to conduct rigorous analysis and meet heightened design standards when designing each project, particularly in the areas of:

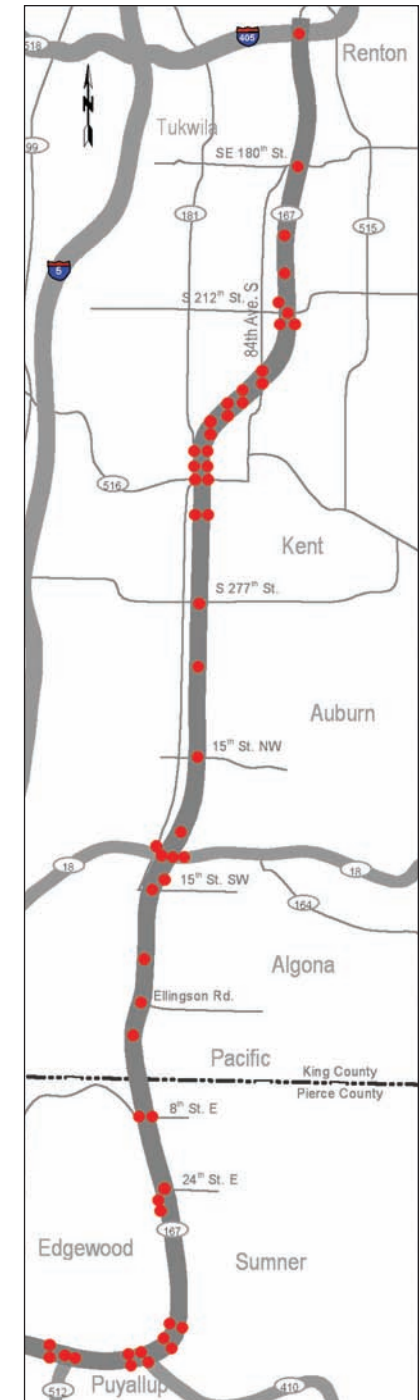
- Wetlands, floodplains, and stormwater runoff
- Soil stability
- Fish-bearing culverts
- Protected fish and wildlife species
- Aquifer recharge areas



About 5,600 years ago a massive mudflow occurred on Mt. Rainier and flowed into the Green River Valley.



Liquefaction susceptibility in the SR 167 corridor.



There are 54 bridges on SR 167 that may require retrofit or replacement.