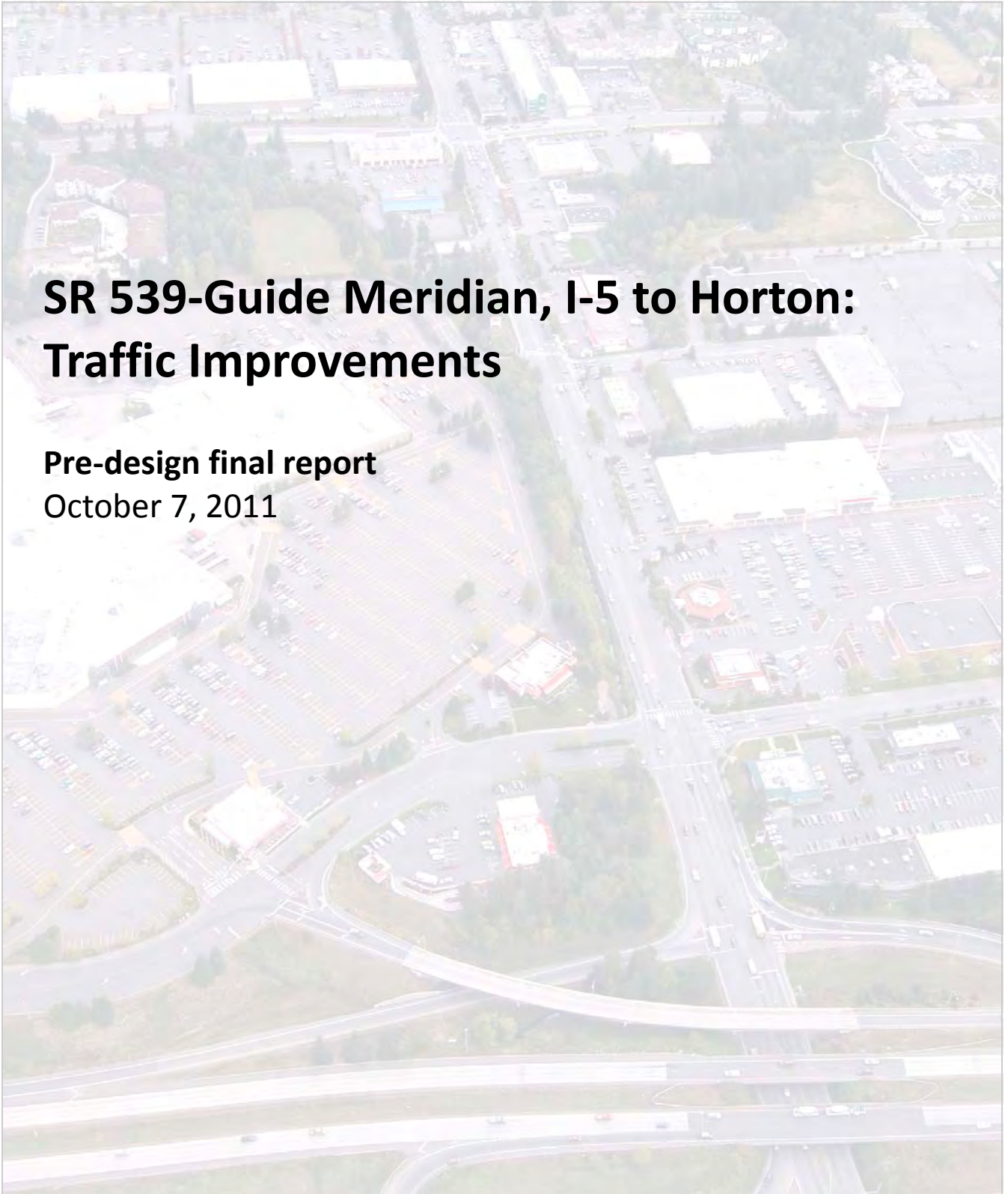




# **SR 539-Guide Meridian, I-5 to Horton: Traffic Improvements**

**Pre-design final report**  
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Produced by:



With support from:



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# SR 539/Guide Meridian Traffic Improvements

The SR 539/Guide Meridian is easily one of the busiest roads in Bellingham. It serves one of the region's most important retail centers and provides a key transportation link between I-5 and the Canadian border.

Consequently, it can get quite congested. The high volume of traffic plus all the turns in and out of driveways and cross-roads are a bad combination. The problem is, there's just too much activity squeezed into too small a space. These conditions delay travel through the corridor, make it difficult to get in and out of businesses, and could stifle future economic development.

Our long-term plan calls for replacement of the existing interchange at a cost of \$50 million or more. We don't currently

***"The problem is, there's just too much activity squeezed into too small a space."***

have funding for that type of improvement, but WSDOT was able to secure funds from the federal border

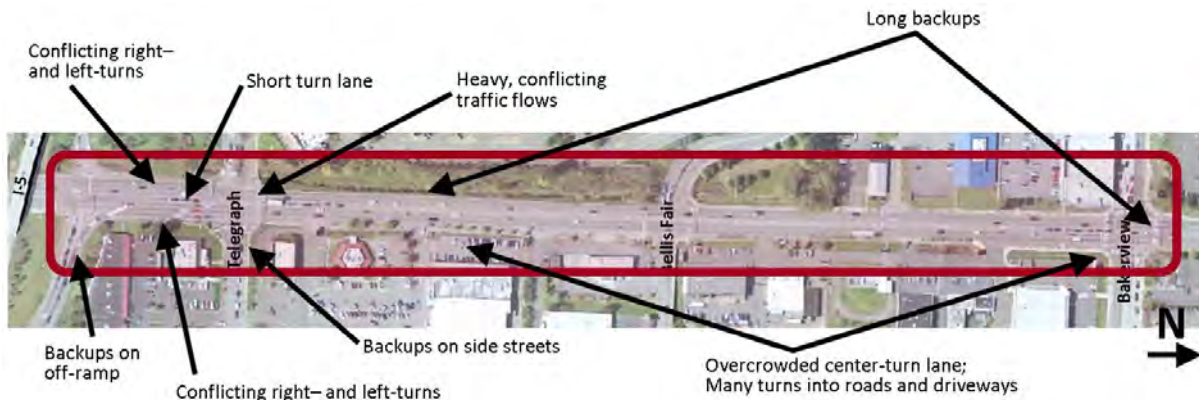
highway program to make smaller-scale improvements. There is about \$2.75 million available to construct a project in 2013 that will help provide for "the safe movement of motor vehicles to and across land-border crossings." We're focused on improvements that will help improve efficiency, reduce collisions and provide a high benefit for low cost.



## What will the project address?

Community members voiced their concerns about the highway, and the data confirm the following key findings concerning too much activity in too small a space:

- Backups on the I-5 northbound off-ramp contribute to conflicts between vehicles stopped and those traveling 60 mph on the interstate.
- Traffic conflicts occur as I-5 northbound off-ramp vehicles (exiting the interstate and traveling north) merge left while vehicles traveling north on Meridian merge right to turn right on Telegraph.
- Long delays at the traffic signals create long backups, particularly southbound.
- Numerous driveways and an overcrowded, unrestricted center-turn lane create conflict points between turning vehicles throughout the corridor.



*I-5 interchange on the far left; Bakerview Road intersection on the far right. This illustration highlights the problem of "too much activity in too small a space."*

This problem of too much activity in a small space results in consequences for the community:

- More than 700 collisions in 5 years.
- Conflicts on I-5 at the northbound off-ramp between vehicles stopped and those traveling 60 mph on the interstate.
- Difficult to get in and out of businesses.
- Driver impatience and increased risk-taking.
- Hard for pedestrians to predict drivers' actions at driveways.
- Wasted time for drivers, freight and transit passengers.
- Increased greenhouse gas emissions from idling traffic.
- Current and worsening traffic congestion could hurt existing businesses and stifle future development in the corridor.

It's common sense that unrestricted access on a busy corridor creates too many traffic conflicts.



*Backup on the northbound off-ramp*

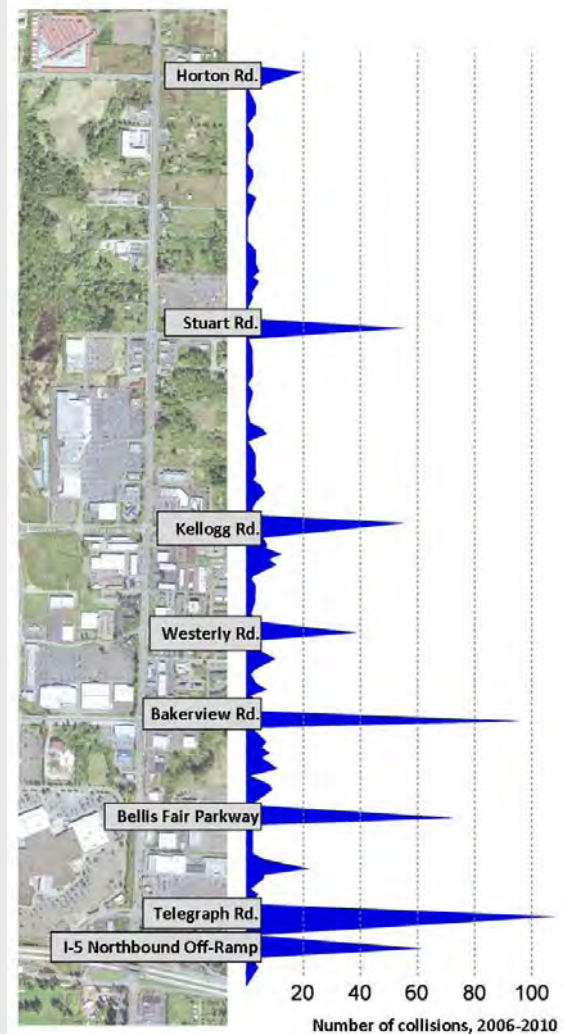


*Traffic congestion north of Telegraph Road*



*Traffic congestion south of Kellogg Road*

## Collisions, Jan 2006—Dec 2010



## What does this information tell us?

Traffic congestion at the intersections contributes to collisions.

Traffic congestion between I-5 and Kellogg Road contributes to collisions between signalized intersections.

# How did we decide which improvements to construct?

This pre-design analysis is a precursor to a full design and engineering effort that gives us an opportunity to assess several options before selecting improvements for the highway. With support from city of Bellingham we completed technical analysis and solicited public input to inform the evaluation. The following summarizes the steps involved in the pre-design.

|                                            | Corridor inventory                                                                                                                                                                | Improvement option analysis                                                                                            | Pre-design analysis                                                                                                                |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                             | Understand the problem and define improvement needs                                                                                                                               | Evaluate potential projects and weigh benefits and disadvantages                                                       | Further analyze remaining options and determine which will be selected for full engineering and construction in 2013.              |
| <b>Timing</b>                              | February – April 2011                                                                                                                                                             | April – June 2011                                                                                                      | July - September 2011                                                                                                              |
| <b>Technical analysis and public input</b> | Intersection level-of-service<br>Collisions<br>Local land use plans<br>Future transportation projects                                                                             | Traffic flow and safety<br>Benefits and disadvantages<br>Feasibility<br>Order of magnitude cost                        | Conceptual plans<br>Risk analysis<br>Preliminary cost estimate                                                                     |
| <b>Report date</b>                         | April 11, 2011                                                                                                                                                                    | July 13, 2011                                                                                                          | October 7, 2011                                                                                                                    |
| <b>Public outreach</b>                     | City council<br>Local media<br>City advisory committees<br>Webpage<br>Email list serve<br>Online comment form<br>Interviews with community groups, property owners and businesses | Local media<br>Webpage<br>Email list serve<br>Online comment form<br>Meetings with businesses<br>Door-to-door contacts | Local media<br>Webpage<br>Email list serve<br>Online comment form<br>Meetings with businesses and community groups<br>City council |

## Results

We will move forward with full design of the following improvements and implement them as funding allows:

- ☒ Restrict northbound left turns at the Telegraph Road traffic signal
- ☒ Remove center-turn lane and add curb to restrict left-turns; consolidate driveways
- ☒ Extend northbound right lane from Bellis Fair Parkway to Bakerview Road
- ☒ Improve right turn at I-5 northbound off-ramp
- ☒ Implement complementary improvements such as new signs and adjustments to traffic operations

These improvements will address the key problem of too much activity squeezed into too small a space by simplifying traffic flow patterns, eliminating conflict points to reduce confusion, and reducing wait times, backups and collisions.

We will also modify highway signs, adjust traffic signal operations, and update equipment as funding allows.

☒ **Installing curb between I-5 and Telegraph** will not be part of the 2013 construction project. Other improvement options—such as eliminating northbound left turns to Telegraph Road and extending the northbound right lane—will improve traffic flow and safety with fewer detrimental effects to traffic circulation and access to businesses.

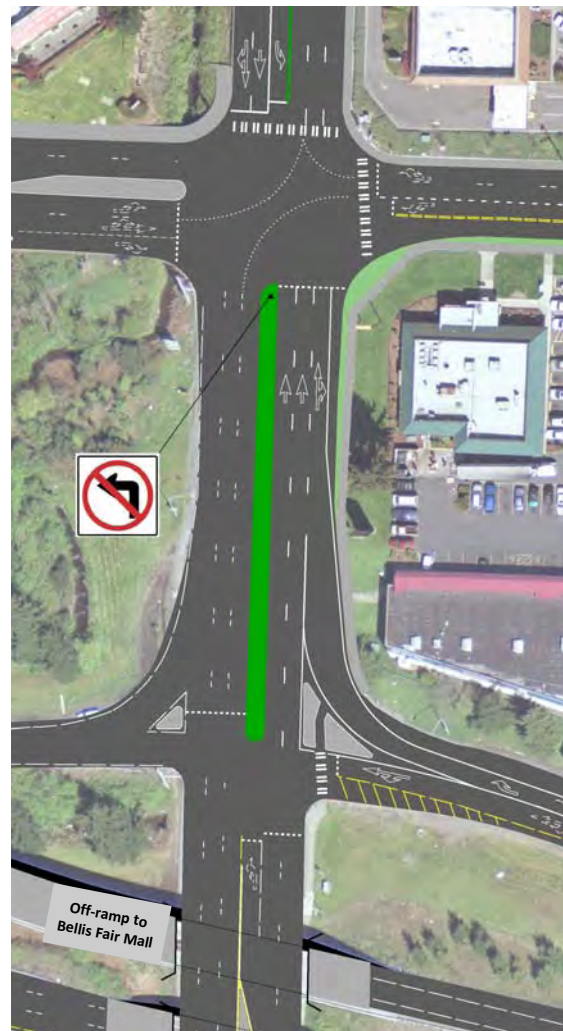
## ✓ Restrict northbound left-turns at Telegraph Road

**Description** In the existing configuration, left turns are permitted to and from all legs of this intersection. With this option, left turns from northbound SR 539 to westbound Telegraph Road would not be permitted. It would be necessary for drivers headed north on SR 539 to travel an additional 0.2 miles to the next light and turn left at Bellis Fair Parkway. Drivers on northbound I-5 could use the Exit 256B ramp that goes directly to the mall parking lot.



*SR 539/Guide Meridian, looking north towards Telegraph Road intersection.*

**Assessment** Backups on southbound SR 539 often extend to Bakerview Road and even further north. Restricting the northbound left-turn at Telegraph Road reduces the number of turning activities happening at the intersection to allow more time for traffic to move south on the SR 539/Guide Meridian. Ultimately, that will reduce backups - in fact, it is anticipated that this change would reduce southbound delays by 30 percent. The disadvantage is that drivers wanting to make those left turns will have to do so elsewhere, so it may mean a slightly longer trip and more left turns at the next intersection. New signs would be provided to guide drivers; for example, directing those exiting northbound I-5 to utilize the direct-access ramp into Bellis Fair Mall.



**Estimated cost range** \$40,000 - \$90,000

## ✓ Remove center-turn lane and install curb to restrict left turns; consolidate driveways

**Description** SR 539/Guide Meridian currently includes a center-turn lane. We will replace the center-turn lane with curbing to restrict left turns. Left-turn pockets will be created for specific, high-demand locations between intersections. Left-turn pockets would remain at existing signalized intersections. The specific design of the curb and location of left-in turns must conform to state standards and will be determined in coordination with property owners and businesses.

**Assessment** Traffic volumes on SR 539/ Guide Meridian far exceed federal and state standards for a center-turn lane. State law requires public agencies to manage access to improve safety and traffic flow on highways. Therefore, this project must support the city of Bellingham's effort to initiate, implement and maintain an access management program for the SR 539/Guide Meridian. Removal of the center-turn lane is an access management strategy to manage left turns that's been shown to significantly reduce collisions and improve in travel speeds in congested corridors.

**Estimated cost range** \$240,000 - \$510,000



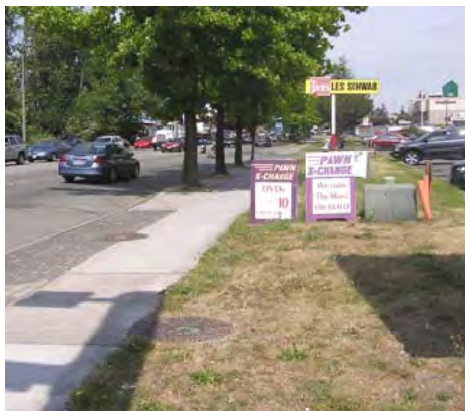
*An illustration of where turns might be located when the center-turn lane is replaced with curb.*

## ✓ Extend northbound right lane between Bellis Fair Parkway and Bakerview Road

**Description** This improvement closes an existing gap by extending the northbound lane between Bellis Fair Parkway and Bakerview Road. It will involve widening on a section of publicly-owned right-of-way that is approximately 600 feet long.

**Assessment** Extending this lane provides significant benefits for reducing wait times and backups, including on the I-5 northbound off-ramp. Utility relocation may be required, which would increase the estimated cost. Designing drainage will be a challenge and will require close cooperation with the city of Bellingham.

**Estimated cost range** \$440,000 - \$940,000



*Looking north from Bellis Fair Parkway*



## ✓ Improve right-turn at I-5 northbound off-ramp

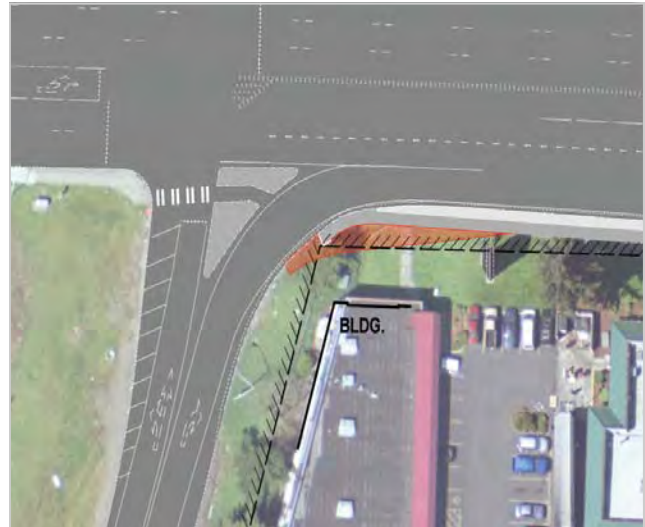
**Description** Currently it is difficult for large trucks to turn from the I-5 northbound off-ramp onto the SR 539/Guide Meridian without crossing into the adjacent through-lane. A recent roadway survey and analysis with a computer-generated model shows that modifying the ramp where it connects with the SR 539/Guide Meridian will help trucks make this turn more smoothly.

**Assessment** This improvement will help reduce backups and improve sight distance. It will be especially beneficial for large trucks and pedestrians. It is a sensible, low-cost strategy to improve traffic flow at the intersection.

**Estimated cost range** \$120,000—\$260,000



*I-5 northbound off-ramp*



## ✓ Complementary improvements

There are several types of minor improvements that we will consider to complement projects selected for construction in 2013. These will be implemented by WSDOT or city of Bellingham as funding allows:

- Analyze the speed limit between Kellogg and Horton Road.
- Update equipment to provide more efficient real-time traffic management.
- Adjust traffic signal operations to complement constructed improvements.
- Modify highway signs to complement implemented improvements.
- Develop and adopt an access management plan to set expectations for future redevelopment.



*A motorist information sign south of the I-5/SR 539 interchange (milepost 255.49) seems to direct traffic to the congested northbound off-ramp to access restaurants located at Bellis Fair Mall. We will adjust signs to match highway improvements. For example, a modified sign could direct drivers on northbound I-5 to use Exit 256B, thereby avoiding the congested section of SR 539 between I-5 and Telegraph Road.*



*The project will bring vehicle detection and signal control equipment up to modern standards. This equipment allows our Traffic Management Center to adjust traffic operations in real time to maximize efficiency.*



*The city of Bellingham has plans to add a dedicated left-turn for northbound traffic at SR 539/Guide Meridian and Horton Road.*



## Implementation strategies

We worked extensively with businesses and property owners and will continue to do so as we design and ultimately construct the project. The following principles and commitments will guide our work.

We will:

- Develop improvements consistent with state law (RCW 47.50, WAC 468-51 and WAC 468-52) and in accordance with state design standards.
- Look for opportunities to reduce construction costs and impacts on existing businesses.
- Prioritize left and u-turn opportunities as follows: signalized intersections, immediately upstream of signalized intersections, at local streets, and at high-volume or shared driveways.
- Work with property and business owners during design to consolidate driveways, share driveways and potentially to share parking and inter-business access across property lines. Be creative and sensitive to the parking needs of businesses and shoppers.
- Minimize impacts to businesses and shoppers during construction by:
  - Continuously, pro-actively communicating with affected businesses;
  - Investigating opportunities for non-invasive night work and shortening construction periods during the holidays;
  - Creatively and clearly delineating driveways and access points;
  - Providing adequate advance signing to pro-actively direct traffic when major delays are anticipated or construction activities are planned;
  - Parking construction vehicles so as to not block access or visibility of businesses, especially during non-construction hours;
  - Moving non-safety construction materials and cones out of roadway during non-work hours.
- Use traffic management tools, including signal timing, to avoid backups on the I-5 northbound off-ramp and prevent left-turn backups at signals on SR 539/Guide Meridian from stretching into the through-lanes.
- Provide support for businesses before, during and after construction. The City of Bellingham is committed to supporting and retaining our business community, and enhancing economic development. The Office of Business Relations and Economic Development (BRED) staff are available to assist you with your business-related questions and direct you to community resources to support your business. Please contact BRED staff at: [business@cob.org](mailto:business@cob.org) or 360-778-8105 or visit [www.cob.org/services/business/economic-development.aspx](http://www.cob.org/services/business/economic-development.aspx).

## Next steps

### Design and construction milestones

|             |                                           |
|-------------|-------------------------------------------|
| Fall 2011   | Begin design engineering                  |
| Winter 2013 | Advertise project and select a contractor |
| Spring 2013 | Begin construction                        |
| Fall 2013   | Finish construction                       |

Project information is available online at: [www.wsdot.wa.gov/projects/sr539/i5tohorton/](http://www.wsdot.wa.gov/projects/sr539/i5tohorton/).  
Sign up for Whatcom County email updates at: [www.wsdot.wa.gov/emailupdates](http://www.wsdot.wa.gov/emailupdates)

### Future access management

City of Bellingham will complete an access management plan for the corridor, with a particular emphasis on the area north of Kellogg Road. The plan will develop minimum spacing standards and identify left-turn opportunities that are consistent with state law. The plan will address new development as well as guidance for redevelopment – for example, it may be a condition of redevelopment that developers provide back of lot (rear) access roads/alleys when possible to provide rear access to signalized intersections.

Completing the plan and implementing regulations in the short-term, in advance of development, is a pro-active approach that would provide traffic flow and safety benefits in the long-term without expensive retrofits and access purchases.

## Long-range plans

Our long-term plan calls for a full rebuild of the I-5/SR 539 interchange that we can't currently afford. As indicated in the 2008 *Interstate 5 Master Plan: Fairhaven to Slater*, WSDOT will work with project partners and local agencies to move forward with design and construction of high-priority improvements as funding becomes available. Future steps may include:

- Coordinate I-5 improvements with local land use and transportation plans.
- Partner with local agencies and private developments on funding improvements.
- Complete an Interchange Justification Report (IJR).
- Design and conduct environmental review.
- Obtain approvals from the Federal Highway Administration (FHWA).
- Construct improvements.

The *Interstate 5 Master Plan: Fairhaven to Slater* is available online at: [www.wsdot.wa.gov/projects/i5/fairhaventoslater/](http://www.wsdot.wa.gov/projects/i5/fairhaventoslater/).

## References and Resources

- **Project webpage:** [www.wsdot.wa.gov/Projects/SR539/I5toHorton/](http://www.wsdot.wa.gov/Projects/SR539/I5toHorton/)
- **Interim Report: Evaluation of Improvement Options.** SR 539/ Guide Meridian, I-5 to Horton Road—Mobility Improvement Project. [www.wsdot.wa.gov/NR/rdonlyres/13B30AD9-A8E8-4FA2-9D6E-5C3846B222E4/0/SR539InterimReport7132011.pdf](http://www.wsdot.wa.gov/NR/rdonlyres/13B30AD9-A8E8-4FA2-9D6E-5C3846B222E4/0/SR539InterimReport7132011.pdf)
- **Interim Report Summary.** SR 539/Guide Meridian, I-5 to Horton Road—Mobility Improvement Project. [www.wsdot.wa.gov/NR/rdonlyres/11C4114F-B5CA-41D6-9A0A-42DB71F2D3AE/0/SR539InterimReportSummary7132011.pdf](http://www.wsdot.wa.gov/NR/rdonlyres/11C4114F-B5CA-41D6-9A0A-42DB71F2D3AE/0/SR539InterimReportSummary7132011.pdf)
- **What is Access Management?** SR 539/Guide Meridian, I-5 to Horton Road—Mobility Improvement Project. <http://www.wsdot.wa.gov/NR/rdonlyres/414246F3-F682-477B-8EAB-7AE2C571B3CC/0/SR539AccessManagement7292011.pdf>
- **Interstate 5 Master Plan: Fairhaven to Slater:** [www.wsdot.wa.gov/projects/i5/fairhaventoslater/](http://www.wsdot.wa.gov/projects/i5/fairhaventoslater/)
- **City of Bellingham The Office of Business Relations and Economic Development (BRED):** [business@cob.org](mailto:business@cob.org) or 360-778-8105 or [www.cob.org/services/business/economic-development.aspx](http://www.cob.org/services/business/economic-development.aspx)