DRAFT: Congested Interstate Corridor Report for WA State Highway System Plan

I-5: US 12 West I/C (Grand Mound) to SR 121 I/C (Maytown) Vicinity

<table>
<thead>
<tr>
<th>Route</th>
<th>County</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Thurston</td>
<td>8.13</td>
</tr>
</tbody>
</table>

Segment Number: 1

Region: Olympic

Number of GP Lanes | Number of HOV Lanes | Lane Width | Shoulder Width | Median Width | Posted Speed |
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>MAX</td>
<td>MIN</td>
<td>MAX</td>
<td>MIN</td>
<td>MAX</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>0</td>
<td>12</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

Corridor Description:
This I-5 segment begins south of the Community of Grand Mound near the US 12 West Interchange and ends near the Community of Maytown immediately north of the SR 121 Interchange. It is in rolling terrain with 1.34 miles of Southbound climbing lane in the Maytown Safety Rest Area Vicinity. I-5 in Thurston County is a T-1 Freight and Goods Transportation Facility that hauled 107,920,000 tons of freight in 2005. There are two heavily used safety rest areas within this segment: Scatter Creek and Maytown. The Chehalis Confederated Tribes are a major employer in the vicinity with Lucky Eagle Casino located west of the Rochester Community. There is a major resort, Great Wolf, proposed adjacent to I-5 north of the US 12 West Interchange (Grand Mound). I-5 in Thurston County is within the consultation areas of the Chehalis, Cowlitz, Nisqually, Snoqualmie, Squaxin Island, and Yakama Tribes.

Known Environmental Issues:

- There are ~27 storm water outfalls within this segment of I-5. There are also 2 out of 4 fish passage locations that require repair. Wetlands along the north half of the 8.13 mile segment could be an environmental issue, particularly near the Maytown Safety Rest Area.

Previously Identified Bottlenecks/Chokepoints:

An emergent bottleneck/checkout not previously identified is the I-5 Southbound off ramp stop controlled intersection terminal at the US 12 West Interchange (Grand Mound).

Known Restrictions:

Roadway realignment south of the US 12 West Interchange (Grand Mound) is complicated by steep terrain along the east side of I-5 and by the existing parallel railroad tracks along the west side (1433-ft horizontal curve not desirable for 70 mph speeds). Prairie Creek Bridges have narrow inside shoulders. SB on ramp at US 12 West has short accel taper and NB off ramp has a sharp radii and short deceleration lane. Scatter Creek Bridges have narrow inside shoulders. Wetlands in the vicinity of the Maytown Safety Rest Area could restrict future improvements. SB off ramp into Maytown Rest Area has sharp radii and short deceleration lane. SR 121 Bridges have narrow shoulders and interchange has sharp ramp radii. Programmed project should address these known restrictions.

Studies:


Recommended: (Identify Purpose, Need, Study Limits, Estimated Time to Complete, and Approximate Cost)

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Identify Purpose, Need, Study Limits and Estimated Time to Complete</th>
<th>Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>85.58</td>
<td>98.69</td>
<td>The purpose of this Phase 2 study is to analyze the feasibility of I-5 High Occupancy Vehicle (HOV) lanes within rural Thurston County and consider other issues such as dedicated freight lanes, high speed ground transportation, commuter rail, transportation demand management (TDM), and intelligent transportation systems (ITS). Need: Widening from 4 lane facility to 6 general purpose lanes will not cause future congestion to drop below LOS C/D rural threshold within next 20 years. Assume one year to complete rural phase 2 study.</td>
<td>$1.5 million</td>
</tr>
</tbody>
</table>

88.4 Old Highway 99/Grand Mound Highway Corridor Study. This project will evaluate the Old Highway 99 corridor between Tenino and I-5 in light of pending sewer availability and near-term demand for industrial development, and identify any infrastructure investments that may be needed to accommodate this growth. This appears to be a Thurston Policy Board recommendation.

HOV/HOT Lanes:

**Existing:**
NONE

**Planned:**
The current highway system plan proposes widening from 6 lanes to 8 lanes creating high occupancy vehicle (HOV) lanes.
Comments:

Mainline I-5 in this segment is Hot Mix Asphalt (HMA).

Number of Medium Priority Concrete Miles:

Number of Low Priority Concrete Miles:

Concrete Data

Deficiencies:

Current

This section of I-5 is experiencing congestion during peak hours. The project, I-5/Grand Mound to Maytown - Widening will construct one additional lane northbound and southbound from south of the US 12 West (Grand Mound - Rochester) Interchange to the Maytown Interchange, reconstructing the Grand Mound Interchange and realigning I-5 south of the Grand Mound Interchange. When complete, this project will relieve congestion and reduce the risk of collisions.

Future (5-10 years)

If the scope of work for the programmed project is reduced, there may be a need for additional interchange ramp improvements. In particular, the I-5 Southbound off ramp stop controlled intersection may require improvements. Implementation of the Intelligent Transportation System (ITS) Master Plan in rural Thurston County would also alleviate future deficiencies.

Future (15-20 years)

Study the feasibility of High Occupancy Vehicle (HOV) lanes and other alternatives as part of the Phase 2 rural Thurston County Study.
Future Corridor Vision:
Near-term to mid-term is three general purpose lanes in each direction (creating minimum 6-lane facility) into Lewis County. Long-term vision is widening from 6 lanes to 8 lanes creating High Occupancy Vehicle (HOV) lanes that could be general purpose during off peak period. Other options like auxiliary lanes between interchanges, dedicated freight lanes (commerce corridor), improving local frontage roads, etc. would be studied as part of a Phase 2 feasibility study for rural Thurston County. There may be a need to expand one or both of the safety rest areas (Maytown and/or Scatter Creek) to accommodate freight trucks and vehicles.

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Near-term (Minimum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>88.4</td>
<td>88.4</td>
<td>I-5/US 12 West (Grand Mound) Southbound Off Ramp Stop Control Intersection may require improvements due to higher than anticipated growth (e.g. New development like the proposed Great Wolf Resort or other developments triggered by the new effluent treatment facility in Grand Mound). An interim conceptual solution is a Westbound auxiliary lane on US 12 from the stop controlled intersection at I-5 to Old Hwy 99 (Elderberry).</td>
<td></td>
<td></td>
<td>$3,799,000</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Mid-term (10-years) (Moderate Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>85.58</td>
<td>96.69</td>
<td>Implement rural elements of the Intelligent Transportation System (ITS) Master Plan. Also consider supplementing this plan with ITS kiosk information booths at the Scatter Creek and Maytown Safety Rest Areas.</td>
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</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Long-term (15-20 years) (Maximum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
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</tr>
</thead>
</table>
HSP Corridor Series
Interstate
Assets

Thurston County

Begin MP: 87.50
End MP: 95.63

HSP Corridor Location
Assets
- Signalized Intersection
- At Grade Railroad Crossings
- Bridge
- FerryTerminals
- Ferry Route
- Park and Ride
- WeighStations
- Rest Area Sites

Corridor Pavement Type
- HMA
- BST
- PCCP

Other Features
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- Airport
- County Line

November, 2006
Washington State Department of Transportation
Thurston County

Begin MP: 87.50

End MP: 95.63

HSP Corridor Series
Interstate Needs

HSP Corridor Location
Bridge Replacement Priority
- Replacement
- Seismic
- Special
- Scour
- Painting
- Miscellaneous
- Bridge Deck

Other Bridge Issues
- 2 Lane BW Narrow Bridge
- Restricted Bridge
- Posted Bridge
- Vert. Clearance 15.5' Or Less

Fish Barriers
- Require Repair
- Little Gain
- Undetermined

Unstable Slope
- Debris Flow
- Erosion
- Landslide
- Rockfall
- Settlement

Paving Due
- Past Due
- 2005 - 2007
- 2008 - 2009
- 2010 - 2011
- 2012 - 2026
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- County Line

November, 2006

Washington State Department of Transportation
The current highway system plan proposes a feasibility study for widening from 6 lanes to 8 lanes creating high occupancy vehicle (HOV) lanes or other alternative conceptual solutions.

**HOV/HOT Lanes:**

- **Existing:**
  - NONE

- **Planned:**
  - The current highway system plan proposes a feasibility study for widening from 6 lanes to 8 lanes creating high occupancy vehicle (HOV) lanes or other alternative conceptual solutions.

### Recommended: (Identify Purpose, Need, Study Limits, Estimated Time to Complete, and Approximate Cost)

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Identify Purpose, Need, Study Limits and Estimated Time to Complete</th>
<th>Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>85.58</td>
<td>98.69</td>
<td>The purpose of this Phase 2 study is to analyze the feasibility of I-5 High Occupancy Vehicle (HOV) lanes within rural Thurston County and consider other issues such as dedicated freight lanes, high speed ground transportation, commuter rail, transportation demand management (TDM), and intelligent transportation systems (ITS). Need: Existing 6 lane general purpose lanes will not cause future congestion to drop below LOS C/D rural threshold within next 20 years. Assume one year to complete rural phase 2 study.</td>
<td>$1.5 million</td>
</tr>
</tbody>
</table>

### Known Environmental Issues:

- There are ~5 storm water outfalls and ~5 fish passages within this segment of I-5. There are wetlands on both sides of I-5 in the middle third of this segment.

### Known Restrictions:

- Wetlands could pose a restriction to widening of mainline Interstate 5. The median and inside shoulders at SR 121/93rd Ave SW I/C Vicinity are narrow.

### Previous Identified Bottlenecks/Chokepoints:

- An emergent bottleneck/chokepoint not previously identified is the I-5 Southbound off ramp stop controlled intersection terminal at the SR 121 Interchange (93rd Ave SW - Tumwater). The Northbound off ramp stop controlled intersection at this same interchange may also be emerging as a bottleneck/chokepoint as new development occurs along 93rd Avenue SW (portion of SR 121).

### Known Environmental Issues:

- There are ~5 storm water outfalls and ~5 fish passages within this segment of I-5. There are wetlands on both sides of I-5 in the middle third of this segment.

### Studies:

- **Existing Study Name**
  - NONE

- **Current/Underway:**
  - **Study Name**
    - NONE

<table>
<thead>
<tr>
<th>Study Name</th>
<th>Expected Completion Date</th>
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<tbody>
<tr>
<td>NONE</td>
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</table>

### Regional Data:

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<th>Region:</th>
<th>County:</th>
<th>Route:</th>
<th>BARM</th>
<th>EARM</th>
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<tr>
<td>Olympic</td>
<td>Thurston</td>
<td>5</td>
<td>95.70</td>
<td>99.55</td>
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</tbody>
</table>

### HOV/HOT Lanes:

- **Existing:**
  - NONE

- **Planned:**
  - The current highway system plan proposes a feasibility study for widening from 6 lanes to 8 lanes creating high occupancy vehicle (HOV) lanes or other alternative conceptual solutions.
Comments:

Mainline I-5 in this segment is Hot Mix Asphalt (HMA).

Concrete Data

<table>
<thead>
<tr>
<th>(lane miles calculated exclude bridges, other major gaps, add/drop lanes)</th>
<th>Lane Miles</th>
<th>BARM</th>
<th>EARM</th>
<th>BARM</th>
<th>EARM</th>
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<tr>
<td>Number of High Priority Concrete Miles:</td>
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<tr>
<td>Number of Medium Priority Concrete Miles:</td>
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<td></td>
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</tr>
<tr>
<td>Number of Low Priority Concrete Miles:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Deficiencies:

Current

The I-5 Southbound off ramp stop controlled intersection at SR 121 I/C (39rd Ave SW - Tumwater) may require a signal and channelization. Another emerging bottleneck/chokepoint location may be the I-5 Northbound off ramp stop controlled intersection at the same interchange.

Future (5-10 years)

Implementation of the Intelligent Transportation System (ITS) Master Plan in rural Thurston County would alleviate future deficiencies.

Future (15-20 years)

Study the feasibility of High Occupancy Vehicle (HOV) lanes or other alternatives as part of the Phase 2 rural Thurston County Study.

Programmed Projects:

<table>
<thead>
<tr>
<th>PIN</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>300520B</td>
<td>I-5/SR 121 to Tumwater Blvd - Paving, MP 99.15 to MP 101.23, Hot Mix Asphalt (HMA).</td>
</tr>
</tbody>
</table>

Not Fully Funded: (List the PIN and project title for each project that is not fully funded through construction)

<table>
<thead>
<tr>
<th>PIN</th>
<th>Project Title</th>
</tr>
</thead>
</table>

Fully Funded: (List the PIN and project title for each project funded through construction)

<table>
<thead>
<tr>
<th>PIN</th>
<th>Project Title</th>
</tr>
</thead>
</table>
Future Corridor Vision:

Near-term to mid-term is minor interchange improvements at SR 121/93rd Ave SW ramp terminal(s) and intelligent transportation systems (ITS) master plan improvements. Long-term vision is widening from 6 lanes to 8 lanes creating High Occupancy Vehicle (HOV) lanes that could be general purpose during off peak period. Other options like auxiliary lanes between interchanges, dedicated freight lanes (commerce corridor), improving local frontage roads, etc. would be studied as part of a Phase 2 feasibility study for Thurston County.
Tumwater

Begin MP:  95.63
End MP:  99.48

HSP Corridor Series
Interstate Assets

November, 2006

HSP Corridor Location

Assets
- Signalized Intersection
- At Grade Railroad Crossings
- Bridge
- FerryTerminals
- Ferry Route
- Park and Ride
- WeighStations
- Rest Area Sites

Corridor Pavement Type
- HMA
- BST
- PCCP

Other Features
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- Airport
- County Line

November, 2006
Washington State Department of Transportation
I-5: SR 121 I/C (93rd Ave SW - Tumwater) to Trosper Rd I/C Vicinity

**Segment Number:** 3

<table>
<thead>
<tr>
<th>Route</th>
<th>BARM</th>
<th>EARM</th>
<th>Length</th>
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<tbody>
<tr>
<td>5</td>
<td>99.55</td>
<td>102.59</td>
<td>3.04</td>
</tr>
</tbody>
</table>

**Region:** Olympic

**County:** Thurston

**Number of GP Lanes** | **MIN** | **MAX**
---|---|---
6 | 6 | 6

**Number of HOV Lanes** | **MIN** | **MAX**
---|---|---
0 | 0 | 0

**Lane Width** | **MIN** | **MAX**
---|---|---
12 | 12 | 4

**Shoulder Width** | **MIN** | **MAX**
---|---|---
4 | 10 | 12

**Median Width** | **MIN** | **MAX**
---|---|---
16 | 16 | 60

**Posted Speed** | **MIN** | **MAX** | **MIN** | **MAX** | **MIN** | **MAX**
---|---|---|---|---|---|---
60 | 70 | 60 | 70 | 60 | 70

**Corridor Description:**

This I-5 segment begins north of the SR 121 I/C (93rd Ave SW - Tumwater) and ends south of the Trosper Road I/C. It is in level terrain and the major employment is government agencies on the east side of I-5 and commercial retail on the west side (Costco, Fred Meyer, Home Depot, future Wal-Mart). The City of Tumwater's population was 12,740 in 2003. The Olympia Municipal Airport and City government is located east of I-5 in this segment. I-5 in Thurston County is a T-1 Freight and Goods Transportation Facility that hauled 107,920,000 tons of freight in 2005. I-5 in Thurston County is within the consultation areas of the Chehalis, Cowlitz, Nisqually, Snoqualmie, Squaxin Island, and Yakama Tribes.

**Known Environmental Issues:**

There are ~2 storm water outfalls within this segment of I-5 with minimal wetlands north of SR 121 I/C (93rd Ave SW - Tumwater) on the west side of I-5.

**Previously Identified Bottlenecks/Chokepoints:**

I-5: Northbound Off/On Ramp Terminal at Tumwater Boulevard (MP 100.93) and Southbound Off/On Ramp Terminal at Tumwater Boulevard (MP 101.62) were previously identified as 2005 bottleneck/chokepoint locations. Tumwater Boulevard Interchange was previously known as Airdustrial Interchange.

**Known Restrictions:**

Further widening of I-5 mainline may be restricted by the existing storm water treatment facility located on the west side of I-5.

**Studies:**

<table>
<thead>
<tr>
<th>Existing Study Name</th>
<th>Completion Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Current/Underway: Study Name</th>
<th>Expected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Tumwater, Tumwater Boulevard Interchange Improvement Study currently underway for ~$50,000</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

**Recommended: (Identify Purpose, Need, Study Limits, Estimated Time to Complete, and Approximate Cost):**

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Identify Purpose, Need, Study Limits and Estimated Time to Complete</th>
<th>Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.69</td>
<td>114.93</td>
<td>I-5 High Occupancy Vehicle and/or Collector-Distributor (C-D) Feasibility Study. Phase 1 would analyze I-5 within the urban boundaries of Tumwater, Olympia, and Lacey. This study is needed because I-5 will be approaching or exceeding capacity in the PM peak within 5 years along portions of the urban interstate. Assume 2 years to complete a feasibility study of this magnitude.</td>
<td>$2.5 million</td>
</tr>
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</table>

**HOV/HOT Lanes:**

**Existing:**

NONE

**Planned:**

I-5 High Occupancy Vehicle (HOV) and/or Collector-Distributor (C-D) Feasibility Study. Phase 1 of the study would concentrate on urban Thurston County.
Mainline I-5 in this segment is Hot Mix Asphalt (HMA)
Future Corridor Vision:
Near-term are ramp terminal improvements at Tumwater Boulevard that won’t require an Interchange Justification Report (IJR) or significant environmental documentation. Mid-term are Interchange improvements at Tumwater Boulevard that will require an IJR and environmental documentation. Implementation of the ITS Master Plan is also a mid-term investment. Long-term vision is widening from 6 lanes to 8 lanes creating High Occupancy Vehicle (HOV) lanes that could be general purpose during off peak period or auxiliary lanes between major interchanges as needed. Other options like dedicated freight lanes (commerce corridor), improving local frontage roads, etc. would be studied as part of a Phase 1 feasibility study for urban Thurston County.

### New Solutions:

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Near-term (Minimum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>101.00</td>
<td>101.00</td>
<td>New traffic signal at the Northbound Off/On Ramp Terminal with Eastbound acceleration lane on Tumwater Boulevard.</td>
<td>30% placeholder</td>
<td>$3.418 million</td>
<td></td>
</tr>
<tr>
<td>101.69</td>
<td>101.69</td>
<td>Phase 1 improvement at the Southbound Off/On Ramp Terminal that includes modifying the existing signal system, a new right turn lane on the Southbound off ramp and on Eastbound Tumwater Boulevard, doubling the length of the Southbound off left turn lane, and providing an acceleration lane on the I-5 on ramp. Consider a Westbound left turn if enough storage between existing bridge and ramp terminal.</td>
<td>30% placeholder</td>
<td>$6.264 million</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Mid-term (10-years) (Moderate Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.93</td>
<td>101.62</td>
<td>Phase 2 design concerns could address items like loop ramps and bridge widening since Tumwater Boulevard Interchange would be approaching or exceeding congestion with just Phase 1 bottleneck/chokepoint improvements. Also implement urban elements of the Intelligent Transportation System (ITS) Master Plan for this segment.</td>
<td>30% placeholder</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BARM</th>
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<th>Long-term (15-20 years) (Maximum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.55</td>
<td>102.59</td>
<td>Consider additional High Occupancy Vehicle lanes that revert to general purpose use in the off peak period. Other options could include auxiliary lanes between interchanges or local frontage road improvements (e.g. Tyee Drive Extension on west side of I-5).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101.37</td>
<td>101.37</td>
<td>New 100-stall park and ride lot near Labor and Industries</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Future Corridor Vision:
Near-term are ramp terminal improvements at Tumwater Boulevard that won’t require an Interchange Justification Report (IJR) or significant environmental documentation. Mid-term are Interchange improvements at Tumwater Boulevard that will require an IJR and environmental documentation. Implementation of the ITS Master Plan is also a mid-term investment. Long-term vision is widening from 6 lanes to 8 lanes creating High Occupancy Vehicle (HOV) lanes that could be general purpose during off peak period or auxiliary lanes between major interchanges as needed. Other options like dedicated freight lanes (commerce corridor), improving local frontage roads, etc. would be studied as part of a Phase 1 feasibility study for urban Thurston County.
Begin MP: 99.48
End MP: 102.52

Other Features
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Wetlands
- Tribal Lands
- Military Reservation
- City Limits
- Urban Area
- County Line

Corridor Location
November, 2006
End MP: 102.52

Begin MP: 99.48

HSP Corridor Location

Safety Analysis Areas
- HAC 07-09
- HAL Corridor 07-09
- HAL Spot 07-09

Freight Classification
- T-1
- T-2
- T-3

Traffic Sections AADT
- < 3,000
- 3,001 - 10,000
- 10,001 - 20,000
- 20,001 - 40,000
- 40,001 - 80,000
- 80,001 - 100,000
- 100,001 - 120,000
- > 120,000
- Trucks 10% and Over

Other Features
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Tribal Lands
- Military Reservation
- City Limits
- Urban Area

November, 2006
I-5: Trosper Rd I/C Vicinity to Capitol Boulevard Vicinity (US 101)

**Segment Number:** 4

**Route:** 5  **BARM:** 102.95  **EARM:** 104.82  **Length:** 1.87

**Region:** Olympic  **County:** Thurston

<table>
<thead>
<tr>
<th>Number of GP Lanes</th>
<th>MIN</th>
<th>MAX</th>
<th>Number of HOV Lanes</th>
<th>MIN</th>
<th>MAX</th>
<th>Lane Width</th>
<th>MIN</th>
<th>MAX</th>
<th>Shoulder Width</th>
<th>MIN</th>
<th>MAX</th>
<th>Median Width</th>
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<th>MAX</th>
<th>Posted Speed</th>
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</table>

**Corridor Description:**
This segment begins south of the Trosper Rd I/C and ends near the Capitol Boulevard Undercrossing (near US 101). It is in rolling terrain with significant vertical and horizontal curves at the junction with US 101. The City of Tumwater transitions into the City of Olympia in this segment with the major employer being State Government in downtown Olympia with County Government, South Puget Sound Community College, and large retail developments nearby off US 101 (Westlake Mall, Tumwater Hill, etc.). I-5 in Thurston County is a T-1 Freight and Goods Transportation Facility that hauled 107,920,000 tons of freight in 2005. I-5 in Thurston County is within the consultation areas of the Chehalis, Cowlitz, Nisqually, Snoqualmie, Squaxin Island, and Yakama Tribes.

**Known Environmental Issues:**
There are ~8 storm water outfalls within this segment of I-5. Capitol Lake and the storm water outfalls into it are a known environmental issue. Capitol Lake (an impounded river) may eventually become a fresh water marsh or be restored to a functioning estuary. Sediment coming down the river is deposited in the lake near Heritage Park, Marathon Park, and the Interpretive Center. The lake is on the State's list of impaired water bodies.

**Previously Identified Bottlenecks/Chokepoints:**
There were two conceptual solutions in this segment. One included ramp metering in both directions between Trosper Rd I/C and the Thurston/Pierce County Line (~15 on-ramp locations). The other conceptual solution was at the I-5 southbound off ramp to north 2nd Avenue (N 2nd Avenue and Desoto) intersection. The proposal was to install stop signs on the local arterials (Desoto and N 2nd Avenue) creating a 3-way stop. Currently, the only stop controlled movement is the I-5 and US 101 off ramp approaches.

**Known Restrictions:**
The steep terrain near the Capitol Boulevard Undercrossing and Capitol Lake are likely to restrict widening in this vicinity. The I-5/US 101 service interchange is also located in this steep terrain with nearby historical structures that could be impacted by additional widening (Old Tumwater Brewery near Heritage park and two historical houses in Tumwater off Dechutes Way). The inside shoulders are narrow (less than 6-ft effective).

**Studies:**

<table>
<thead>
<tr>
<th>Existing Study Name</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitol Lake - Deschutes River Estuary Feasibility Study (or Restoration Study)</td>
<td>2006</td>
</tr>
<tr>
<td>West Olympia Access and Circulation Study</td>
<td>2008</td>
</tr>
</tbody>
</table>

**Recommended: (Identify Purpose, Need, Study Limits, Estimated Time to Complete, and Approximate Cost)**

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Identify Purpose, Need, Study Limits and Estimated Time to Complete</th>
<th>Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.69</td>
<td>114.93</td>
<td>I-5 High Occupancy Vehicle and/or Collector-Distributor (C-D) Feasibility Study. Phase 1 would analyze I-5 within the urban boundaries of Tumwater, Olympia, and Lacey. This study is needed because I-5 will be approaching or exceeding capacity in the PM peak within 5 years along portions of the urban interstate. Assume 2 years to complete a feasibility study of this magnitude.</td>
<td>$2.5 million</td>
</tr>
</tbody>
</table>

**HOV/HOT Lanes:**

**Existing:**

NONE

**Planned:**
I-5 High Occupancy Vehicle (HOV) Feasibility Study, I-5/US 101 Interchange, High Speed Ground Transportation or commuter rail, Transportation Demand Management, and Intelligent Transportation System. Phase 1 of the study would concentrate on urban Thurston County.
Mainline I-5 in this segment is Hot Mix Asphalt (HMA).

The I-5 Southbound segment between the Trosper Road off ramp and the US 101 on-ramp to I-5 Southbound will be impacted by pipeline development (Wal-Mart near Trosper and Littlerock SubArea development. West Olympia development will increase traffic on the US 101 on-ramp to I-5 Southbound (Westlake Mall expansion, Tumwater Hill, etc.). The Southbound horizontal curve on I-5 immediately followed by a moderately steep vertical hill slows down heavy trucks. As traffic volumes increase in this segment from the US 101 to I-5 on ramp and from I-5 to Trosper Road off ramp, the interaction between these weaving vehicles and slow moving trucks will generate congestion.

Study the feasibility of High Occupancy Vehicle (HOV) lanes or other alternatives as part of the Phase 1 urban Thurston County Study as I-5 will be failing.

**Concrete Data**

<table>
<thead>
<tr>
<th>(lane miles calculated exclude bridges, other major gaps, add/drop lanes)</th>
<th>Lane Miles</th>
<th>BARM</th>
<th>EARM</th>
<th>BARM</th>
<th>EARM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of High Priority Concrete Miles:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Number of Medium Priority Concrete Miles:</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Low Priority Concrete Miles:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments:

Mainline I-5 in this segment is Hot Mix Asphalt (HMA).
The congested I-5/Troper Rd I/C could be improved by adding a new undercossing at nearby Lee Street opening up opportunities for a split-diamond type operation in the future. Other I-5/Troper Rd I/C alternatives should also be considered. The existing I-5/US101 Service-Level I/C could be modified to include HOV-to-HOV connections. Other I-5/US 101 Service Level I/C alternatives should also be considered. There may be opportunities to utilize parallel local arterials as frontage roads for local traffic.

Future Corridor Vision:

The congested I-5/Troper Rd I/C could be improved by adding a new undercossing at nearby Lee Street opening up opportunities for a split-diamond type operation in the future. Other I-5/Troper Rd I/C alternatives should also be considered. The existing I-5/US101 Service-Level I/C could be modified to include HOV-to-HOV connections. Other I-5/US 101 Service Level I/C alternatives should also be considered. There may be opportunities to utilize parallel local arterials as frontage roads for local traffic.

### New Solutions:

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Near-term (Minimum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>102.93</td>
<td>114.93</td>
<td>Ramp metering between Troper Rd I/C and Thurston County Line.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104.05</td>
<td>104.05</td>
<td>Install stop signs on local arterials (Desoto and N 2nd Avenue) to create a 3-way stop at the US 101 off ramp and I-5 off ramp to N 2nd Ave.</td>
<td></td>
<td>30% placeholder</td>
<td>$2,000 (Could increase to $6 thousand with labor)</td>
</tr>
</tbody>
</table>

### Mid-term (10-years) (Moderate Fix) Delay Reduction Accident Reduction Estimated Cost

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Mid-term (10-years) (Moderate Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>102.95</td>
<td>104.82</td>
<td>Intelligent Transportation Systems (ITS) Master Plan Improvements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104.05</td>
<td>104.05</td>
<td>A signal with acceleration lane or other alternative at Desoto/N 2nd Ave./US 101 off ramp and I-5 off ramp to N 2nd Ave. to improve LOS (LOS E with stop signs)</td>
<td></td>
<td></td>
<td></td>
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</table>

### Long-term (15-20 years) (Maximum Fix) Delay Reduction Accident Reduction Estimated Cost

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Long-term (15-20 years) (Maximum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need phase 1 of the I-5 High Occupancy Vehicle and/or</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
November, 2006

HSP Corridor Series
Interstate
Needs

Begin MP: 102.52
End MP: 104.75

HSP Corridor Location
Bridge Replacement Priority
- Replacement
- Seismic
- Special
- Scour
- Painting
- Miscellaneous
- Bridge Deck

Other Bridge Issues
- 2 Lane BW Narrow Bridge
- Restricted Bridge
- Posted Bridge
- Vert. Clearance 15.5' Or Less

Fish Barriers
- Require Repair
- Little Gain
- Undetermined

Unstable Slope
- Debris Flow
- Erosion
- Landslide
- Rockfall
- Settlement

Paving Due
- Past Due
  - 2005 - 2007
  - 2008 - 2009
  - 2010 - 2011
  - 2012 - 2026
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- County Line

Washington State Department of Transportation
HOV/HOT Lanes:
Existing: NONE

Planned:
I-5 High Occupancy Vehicle (HOV) Feasibility Study, freight lane, high speed ground transportation (HSGT) or commuter rail, high capacity transit (HCT to Eastside St), transportation demand management (TDM), Intelligent Transportation System (ITS), and a 80-stall park and ride lot near Lilly Road.

Previously Identified Bottlenecks/Chokepoints:
There are four conceptual solutions in this segment. They are ramp metering between Trosper Rd I/C and Thurston/Pierce County Line, install a double left turn at the I-5 northbound off ramp to Westbound Pacific Avenue at the ramp terminal, study feasibility of collector-distributor (C-D) or auxiliary lanes from Pacific Avenue I/C to Martin Way I/C, and a Southbound acceleration taper and/or auxiliary lane on Steater Kinney to allow free right turn movement.

Known Restrictions:
The steep terrain near the Capitol Boulevard Undercrossing and Capitol Lake are likely to restrict widening in this vicinity. There is a major traffic weave at the neck of the Capitol Boulevard Arch Bridge that produces traffic queuing Southbound. There are short sections where the inside shoulders are narrow (less than 6-ft effective). The I-5 Class I bike trail, proposed Woodland Trail extension, and nearby parks may restrict widening on the right side of I-5.

Known Environmental Issues:
There are ~14 storm water outfalls and ~3 fish passages within this segment of I-5. Two of the fish passages require repair.

There are four conceptual solutions in this segment. They are ramp metering between Trosper Rd I/C and Thurston/Pierce County Line, install a double left turn at the I-5 northbound off ramp to Westbound Pacific Avenue at the ramp terminal, study feasibility of collector-distributor (C-D) or auxiliary lanes from Pacific Avenue I/C to Martin Way I/C, and a Southbound acceleration taper and/or auxiliary lane on Steater Kinney to allow free right turn movement.

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Known Restrictions:
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Known Environmental Issues:
There are ~14 storm water outfalls and ~3 fish passages within this segment of I-5. Two of the fish passages require repair.
Comments:

Mainline I-5 in this segment is Hot Mix Asphalt (HMA)

Number of Medium Priority Concrete Miles:

Number of Low Priority Concrete Miles:

Concrete Data

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<tr>
<th>PIN</th>
<th>Project Title</th>
<th>Lane Miles</th>
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<th>EARM</th>
<th>BARM</th>
<th>EARM</th>
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<tbody>
<tr>
<td>300580B</td>
<td>I-5/Capitol Blvd. Bridge - Paint</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>300590E</td>
<td>I-5/Capitol Blvd. Overcrossing - Bridge Rail</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Deficiencies:

Current
The I-5/US 101 Interchange on/off ramp weaving causes PM peak traffic queuing. The most significant queue/shock wave is from the I-5 Southbound off ramp to US 101 (includes effects of on ramp weaving from 14th Ave. and Henderson Blvd.). The next major weaving deficiency is the on ramp from Plum Street to Northbound I-5 that generates queues/shock waves between the Plum Street on ramp and Pacific Avenue off ramp.

Future (5-10 years)
Mainline I-5 will fail within 5 years with the Southbound direction being congested between US 101 and Exit 105 City Center with the PM peak hour spreading.

Future (15-20 years)
Future Corridor Vision:

A Phase 1, I-5 High Occupancy Vehicle (HOV) Feasibility Study is needed to clarify a future corridor vision. One scenario is implementation of the Olympic Region Intelligent Transportation System (ramp metering, etc.). Another alternative is a new commerce corridor for trucks East of I-5 between I-90 in King County and Centralia/Chehalis in Lewis County. An offshoot idea to the commerce corridor could involve an Eastern ring road or bypass within or close to the urban boundaries of Tumwater, Olympia, and Lacey (SR 121/93rd I/C in Tumwater to Nisqually I/C North of Lacey). Options could include commuter train with high speed ground transportation (HSGT) between Portland and Seattle and redirecting slower Freight Access by Rail (FAR) to other nearby railroad tracks in Thurston County. Creating a deck or Olympia lid for high capacity transit (HCT) and express service along I-5 could be an alternative for consideration too (e.g. I-10 deck in Phoenix, AZ).

### New Solutions:

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Near-term (Minimum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>107.09</td>
<td>107.09</td>
<td>Double left turn lane on the Northbound off ramp to Westbound Pacific Avenue at the ramp terminal along with other intersection improvements.</td>
<td>30% placeholder</td>
<td>$3.533 million</td>
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<tr>
<td>107.51</td>
<td>109.19</td>
<td>Study Collector-Distributor lane or auxiliary lane feasibility from Pacific Avenue I/C to Martin Way I/C and purchase right-of-way.</td>
<td>30% placeholder</td>
<td>$23.823 million (~$40 million if no deviations)</td>
<td></td>
</tr>
<tr>
<td>107.93</td>
<td>107.93</td>
<td>Southbound acceleration taper and/or auxiliary lane on Sleater Kinney to allow free right turn movement from the Northbound (EB direction) off ramp onto Southbound Sleater Kinney.</td>
<td>30% placeholder</td>
<td>$0.945 million</td>
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<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Mid-term (10-years) (Moderate Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>104.82</td>
<td>106.17</td>
<td>High Capacity Transit Southbound off ramp and bridge to Eastside Street. Consider study extending this proposed facility as a high-level ribbon ramp structure to US 101 off ramp for transit and/or HOV use (Exit 105 City Center/Plum connecting to Eastside Street and possibly into off ramp into US 101).</td>
<td>Implement Olympic Region ITS Master Plan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Long-term (15-20 years) (Maximum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>104.82</td>
<td>106.17</td>
<td>Study feasibility of adding a deck or lid over I-5 in this vicinity.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>107.94</td>
<td>107.94</td>
<td>New 80 stall park and ride lot near Lilly Road undercrossing.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
End MP: 108.01

Corridor Pavement Type
- HMA
- BST
- PCCP

Other Features
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- Airport
- County Line

November, 2006
**I-5: College/Sleeter Kinney Vicinity to Martin Way Vicinity**

**Segment Number:** 6

**Route:** 5  
**BARM:** 108.06  
**EARM:** 109.59  
**Length:** 1.53

<table>
<thead>
<tr>
<th>Number of GP Lanes</th>
<th>Number of HOV Lanes</th>
<th>Lane Width</th>
<th>Shoulder Width</th>
<th>Median Width</th>
<th>Posted Speed</th>
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</thead>
<tbody>
<tr>
<td>MIN</td>
<td>MAX</td>
<td>MIN</td>
<td>MAX</td>
<td>MIN</td>
<td>MAX</td>
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<tr>
<td>6</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>12</td>
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</table>

**Corridor Description:**
This rolling terrain segment begins south of the College/Sleeter Kinney I/C (near the City of Olympia and City of Lacey incorporation boundary) and ends north of the Martin Way I/C in Lacey. The South Sound Mall and other large retail developments are located around the two interchanges. Saint Martins College and the Department of Ecology Headquarters are also nearby. I-5 in Thurston County is a T-1 Freight and Goods Transportation Facility that hauled 107,920,000 tons of freight in 2005. I-5 in Thurston County is within the consultation areas of the Chehalis, Cowlitz, Nisqually, Snoqualmie, Squaxin Island, and Yakama Tribes.

**Known Environmental Issues:**
There is one storm water outfall at the Martin Way I/C Undercrossing.

**Previously Identified Bottlenecks/Chokepoints:**
There are four conceptual solutions in this segment. They are ramp metering between Trosper Road I/C and Thurston/Pierce County Line, collector-distributor (C-D) or auxiliary lanes from Pacific Avenue I/C to Martin Way I/C, a northbound deceleration lane into the Martin Way I/C off ramp, and ramp terminal improvements (double right) at the Martin Way I/C southbound off/on intersection.

**Known Restrictions:**
The Exit 108B Northbound off ramp to Sleater Kinney has a sharp ramp radii and deceleration lane appears short. The Southbound off ramp to Sleater Kinney also has a sharp ramp radii and short deceleration lane.

**Studies:**

<table>
<thead>
<tr>
<th>Existing Study Name</th>
<th>Completion Date</th>
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</thead>
<tbody>
<tr>
<td>High Capacity Transit Feasibility Study</td>
<td>1995</td>
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</table>

**Current/Underway:**

<table>
<thead>
<tr>
<th>Study Name</th>
<th>Expected Completion Date</th>
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<tbody>
<tr>
<td>I-5 Martin Way Interchange Predesign for $250,000 under PN 5102</td>
<td>2007</td>
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</table>

**Recommended:** (Identify Purpose, Need, Study Limits, Estimated Time to Complete, and Approximate Cost)

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Identify Purpose, Need, Study Limits and Estimated Time to Complete</th>
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</tr>
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<tr>
<td>98.69</td>
<td>114.93</td>
<td>I-5 High Occupancy Vehicle and/or Collector-Distributor (C-D) Feasibility Study. Phase 1 would analyze I-5 within the urban boundaries of Tumwater, Olympia, and Lacey. This study is needed because I-5 will be approaching or exceeding capacity in the PM peak within 5 years along portions of the urban interstate. Assume 2 years to complete a feasibility study of this magnitude.</td>
<td>$2.5 million</td>
</tr>
</tbody>
</table>

**HOV/HOT Lanes:**

**Existing:**
NONE

**Planned:**
I-5 High Occupancy Vehicle (HOV) Feasibility Study, freight lane, high speed ground transportation (HSGT) or commuter rail, high capacity transit (HCT) to 6th between Sleater Kinney and College, transportation demand management (TDM), Intelligent Transportation System (ITS), collector-distributor (C-D) lanes, and expand the existing park and ride lot near Martin Way I/C by 60 stalls.
Mainline I-5 in this segment is Hot Mix Asphalt (HMA) between College/Sleater Kinney I/C and Martin Way I/C. North of the Martin Way I/C, mainline I-5 is Portland Cement Concrete Pavement (PCCP).

### Deficiencies:

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**Current**

There are long traffic queues at the Martin Way I/C off ramps. The longest queues are at the southbound off ramp to Martin Way. These queues typically extend back to the I-5 shoulder in the PM peak period. The Martin Way I/C signalized ramp terminals are over capacity.

---

**Future (5-10 years)**

Mainline I-5 will fail within 5 years with the PM peak hour spreading.

---

**Future (15-20 years)**

---

### Concrete Data

<table>
<thead>
<tr>
<th>(lane miles calculated exclude bridges, other major gaps, add/drop lanes)</th>
<th>Lane Miles</th>
<th>BARM</th>
<th>EARM</th>
<th>BARM</th>
<th>EARM</th>
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<tbody>
<tr>
<td>Number of High Priority Concrete Miles:</td>
<td>2.34</td>
<td>109.24</td>
<td>109.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Medium Priority Concrete Miles:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Low Priority Concrete Miles:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Future Corridor Vision:
The congested I-5/Martin Way I/C may become an urban interchange with double left and double right ramp turning movements. I-5 mainline would be widened for inside high occupancy vehicle (HOV) lanes and/or outside collector-distributor (C-D) lanes. If a new Carpenter Road I/C is pursued to the north, it may require collector-distributor (C-D) lanes through the Martin Way I/C.
Begin MP: 108.01
End MP: 109.52

HSP Corridor Location
Anticipated Accident Areas
PAL Spot 07-09
PAL Corridor 07-09
HAC 07-09
HAL Corridor 07-09
HAL Spot 07-09

Traffic Sections AADT
25 - 3,000
3,01 - 10,000
10,01 - 20,000
20,01 - 40,000
40,01 - 80,000
80,01 - 100,000
100,01 - 120,000
120,01 - 140,291

Trucks 10% and Over
U.S. Interstate
U.S. Highway
State Route
Local Roads
Railroad
Tribal Lands
Military Reservation
City Limits
Urban Area
County Line

November, 2006
HSP Corridor Series
Interstate
Solutions
DRAFT: Congested Interstate Corridor Report for WA State Highway System Plan

I-5: Martin Way I/C Vicinity to Marvin Road (SR 510) I/C Vicinity

<table>
<thead>
<tr>
<th>Route</th>
<th>BARM</th>
<th>EARM</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>109.59</td>
<td>112.83</td>
<td>3.24</td>
</tr>
</tbody>
</table>

**Region:** Olympic, **County:** Thurston

<table>
<thead>
<tr>
<th>Number of GP Lanes</th>
<th>Number of HOV Lanes</th>
<th>Lane Width</th>
<th>Shoulder Width</th>
<th>Median Width</th>
<th>Posted Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>MAX</td>
<td>MIN</td>
<td>MAX</td>
<td>MIN</td>
<td>MAX</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

**Corridor Description:**
This rolling terrain segment begins north of the Martin Way I/C and ends north of the Marvin Road (SR 510) I/C in the City of Lacey. There are large retail developments (Wal-Mart, Costco, etc.) and large residential subdivisions located south of the Marvin Road (SR 510) I/C and industrial development (Target Distribution Center and industrial park) and large residential subdivisions located north of the Marvin (SR 510) I/C. South Puget Sound Community College also has satellite classrooms and offices near the I/C. I-5 in Thurston County is a T-1 Freight and Goods Transportation Facility that hauled 107,920,000 tons of freight in 2005. I-5 in Thurston County is within the consultation areas of the Chehalis, Cowlitz, Nisqually, Snoqualmie, Squaxin Island, and Yakama Tribes.

**Known Environmental Issues:**
There are ~4 storm water outfalls and one fish passage within this segment of I-5. There is a covered landfill and the Thurston County Waste and Recovery Center in the northeast quadrant of the Marvin Road (SR 510) I/C. The Ostroms Mushroom Facility is south of I-5 and east of SR 510. There are known leaking underground tank locations (LUST) from nearby gas stations along SR 510 in the vicinity of the Marvin (SR 510) and Martin Way intersection. Siltation into Woodland Creek Wetlands located north of Martin Way on the right side has been a concern for developments.

**Previously Identified Bottlenecks/Chokepoints:**
There is one conceptual solution in this segment. The proposal is for an exclusive right turn lane on the I-5 Southbound (Westbound direction) off ramp to Marvin Road with an acceleration lane to the north on Marvin Road. The existing right turn could then be restriped as a second left (with through movement to the I-5 SB on ramp).

**Known Restrictions:**
Widening of mainline I-5 at the Carpenter Road undercrossing and the Marvin Road (SR 510) undercrossing are impacted by the existing bridge columns. Woodland Creek and associated wetlands located north of the Martin Way I/C may be a restriction, particularly for extending the Class I separated bike facility to the north.

**Studies:**

<table>
<thead>
<tr>
<th>Existing Study Name</th>
<th>Completion Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Current/Underway:</th>
<th>Study Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenter Road Interchange Feasibility Study sponsored by the City of Lacey.</td>
<td>2007</td>
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</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.69</td>
<td>114.93</td>
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</table>

**Recommended:**

<table>
<thead>
<tr>
<th>Identify Purpose, Need, Study Limits, Estimated Time to Complete, and Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BARM</strong></td>
</tr>
<tr>
<td>98.69</td>
</tr>
</tbody>
</table>

**HOV/HOT Lanes:**

- **Existing:**
  - NONE

- **Planned:**
  - I-5 High Occupancy Vehicle (HOV) Feasibility Study, freight lane, high speed ground transportation (HSGT) or commuter rail, transportation demand management (TDM), Intelligent Transportation System (ITS), collector-distributor (C-D) lanes if Carpenter Road I/C pursued, and a new 400+ stall park and ride lot near Marvin Road (SR 510) I/C.
Comments:
The deceleration lane on Northbound I-5 exiting to Marvin Road (SR 510) I/C appears to be Hot Mix Asphalt (HMA). Mainline I-5 in this segment is Portland Cement Concrete Pavement (PCCP) with recent dowel replacement in the outside travel lane.

Deficiencies:

Current
There are long traffic queues developing at the Marvin Road (SR 510) off ramps. The longest queues are at the Southbound (Westbound direction) off ramp to Marvin Road. These queues for vehicles desiring to turn left are beginning to extend back to the I-5 shoulder in the PM peak period.

Future (5-10 years)
The existing Marvin Road (SR 510) I/C phase 1 work was forecast to become deficient in 2008. Mainline I-5 will fail within 5 years with the PM peak hour spreading.

Future (15-20 years)
The proposed ultimate Marvin Road (SR 510) I/C phase 2 single point urban interchange (SPUI) will have failing ramp/mainline merges and diverges in 2019.

Concrete Data

<table>
<thead>
<tr>
<th>Lane Miles calculated exclude bridges, other major gaps, add/drop lanes</th>
<th>Lane Miles</th>
<th>BARM</th>
<th>EARM</th>
<th>BARM</th>
<th>EARM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of High Priority Concrete Miles:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Number of Medium Priority Concrete Miles:</td>
<td>19.5</td>
<td>109.59</td>
<td>112.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Low Priority Concrete Miles:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Comments:**
  The deceleration lane on Northbound I-5 exiting to Marvin Road (SR 510) I/C appears to be Hot Mix Asphalt (HMA). Mainline I-5 in this segment is Portland Cement Concrete Pavement (PCCP) with recent dowel replacement in the outside travel lane.
Future Corridor Vision:
The congested Marvin Road (SR 510) I/C will become a single point urban interchange with bridge widening and ramp relocation. I-5 mainline would be widened for inside high occupancy vehicle (HOV) lane and/or outside collector-distributor (C-D) lanes. If a new Carpenter Road I/C is pursued to the south, it may require collector-distributor (C-D) lanes through the Marvin Road (SR 510) I/C. If a Carpenter Road I/C is not pursued there may be a need for additional auxiliary lanes between on and off ramps to improve weaving, merging, and diverging levels of service.

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Near-term (Minimum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>112.32</td>
<td>112.32</td>
<td>Ramp terminal improvements. This project will construct an exclusive right turn lane on the I-5 Southbound (Westbound direction) off ramp to Marvin Road. Dropping the right turn lane behind the mast arm in the NE quadrant into an acceleration lane and taper for free right turns may minimize traffic signal impacts. The existing right turn would then be restriped as a second left (with through movement to the I-5 SB on ramp). It may be cost effective to widen to the inside of the existing ramp. Consider an auxiliary Southbound climbing lane from the Nisqually on ramp to the Marvin Road Undercrossing.</td>
<td>30% placeholder</td>
<td></td>
<td>$3.967 million (~$10 million if HMA climbing lane included or ~$25 million if PCCP climbing lane)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Mid-term (10-years) (Moderate Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>112.01</td>
<td>112.01</td>
<td>Access Point Decision Report Phase 2 work. This project would construct a single point urban interchange at the Marvin Road (SR 510) Interchange, relocate the Northbound on-ramp to Quinault, and possibly ramp meter the on-ramps.</td>
<td></td>
<td></td>
<td>$1.867 million (~$4 million if both phases completed)</td>
</tr>
<tr>
<td>112.01</td>
<td>112.01</td>
<td>Install 400+ park and ride lot in the vicinity of the Marvin Road (SR 510) I/C.</td>
<td></td>
<td></td>
<td>$1.4 million (~$6 million if both phases completed)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Long-term (15-20 years) (Maximum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
</table>
Lacey

Begin MP: 109.52
End MP: 112.76

HSP Corridor Series
Interstate
Needs

Begin MP:  109.52
End MP:  112.76

HSP Corridor Location
Bridge Replacement Priority
  Replacement
  Seismic
  Special
  Scour
  Painting
  Miscellaneous
  Bridge Deck
Other Bridge Issues
  2 Lane BW Narrow Bridge
  Restricted Bridge
  Posted Bridge
  Vert. Clearance 15.5' Or Less
Fish Barriers
  Require Repair
  Little Gain
  Undetermined
Unstable Slope
  Debris Flow
  Erosion
  Landslide
  Rockfall
  Settlement
Paving Due
  Past Due
  2005 - 2007
  2008 - 2009
  2010 - 2011
  2012 - 2026
  U.S. Interstate
  U.S. Highway
  State Route
  Local Roads
  Railroad
  Military Reservation
  Tribal Lands
  City Limits
  Urban Area
  County Line

November, 2006

Washington State Department of Transportation
Lacey

Begin MP: 109.52

End MP: 112.76

Other Features
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Tribal Lands
- Military Reservation
- City Limits
- Urban Area
- County Line

November, 2006

HSP Corridor Series
Interstate

Solutions
I-5: Marvin Road (SR 510) I/C Vicinity to Nisqually I/C Vicinity

Segment Number: 8

Route: 5

Region: Olympic

BARM: 112.83

County: Thurston

EARM: 114.93

Length: 2.1

Known Environmental Issues:
There are ~3 storm water outfalls and one unstable slope (landslide) within this segment of I-5. Wetlands along the east half of the 2.10 mile segment in the Nisqually Basin will be an environmental issue. The preferred alternative (D) in the Nisqually National Wildlife Refuge (NWR) Final Comprehensive Conservation Plan and Environmental Impact Statement calls for a potential Refuge boundary expansion of 3,479 acres primarily to the south of I-5 in the basin. The NWR is a category 1 wetland. There have been prior efforts to convert the existing farmlands south of I-5 into wetlands similar to those found north of I-5 in the wildlife refuge. The Nisqually River is a salmon bearing stream of particular importance and the fine

Previously Identified Bottlenecks/Chokepoints:
There is one conceptual solution in this segment for ramp metering between Trosper Road I/C and Thurston/Pierce County Line. However, a second emerging bottleneck/chokepoint may be the steep hill along I-5 Southbound between the I-5 Marvin Road (SR 510) Southbound off ramp and the I-5 Southbound on ramp from Nisqually. This steep hill in combination with high off ramp volumes to Marvin Road may trigger the need for a deceleration lane to improve the diverge level of service or an auxiliary truck climbing lane to allow slower moving vehicles more time to merge from the Nisqually on ramp.

Known Restrictions:
Nisqually I/C Southbound on ramp is located on a steep incline. McAllister Creek Bridges have narrow inside shoulders, and Meridian Road Undercrossing bridge columns may restrict widening. The Nisqually River Bridges, just outside these limits, are steel truss structures that will require replacement when I-5 is widened. Additional right-of-way (ROW) and mitigation for wetland impacts are anticipated to be high (450-ft ROW corridor in Thurston County and a 400-ft ROW corridor in Pierce County with ~100 acres of wetland mitigation in the vicinity of Nisqually Basin for widening I-5 in both Thurston and Pierce Counties)

Studies:

<table>
<thead>
<tr>
<th>Existing Study Name</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nisqually National Wildlife Refuge (NWR) Final Comprehensive Conservation Plan and Environmental Impact Statement</td>
<td>2004</td>
</tr>
</tbody>
</table>

Current/Underway:

<table>
<thead>
<tr>
<th>Study Name</th>
<th>Expected Completion Date</th>
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<tbody>
<tr>
<td>NONE</td>
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Recommended: (Identify Purpose, Need, Study Limits, Estimated Time to Complete, and Approximate Cost)

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Identify Purpose, Need, Study Limits and Estimated Time to Complete</th>
<th>Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.69</td>
<td>114.93</td>
<td>I-5 High Occupancy and/or Collector-Distributor (C-D) Feasibility Study. Phase 1 would analyze I-5 within the urban boundaries of Tumwater, Olympia, and Lacey. This study is needed because I-5 will be approaching or exceeding capacity in the PM peak within 5 years along portions of the urban interstate. Assume 2 years to complete a feasibility study of this magnitude.</td>
<td>$2.5 million</td>
</tr>
</tbody>
</table>

HOV/HOT Lanes:

Existing:

NONE

Planned:
I-5 High Occupancy Vehicle (HOV) Feasibility Study, freight lane, high speed ground transportation (HSGT) or commuter rail, transportation demand management (TDM), and Intelligent Transportation System (ITS). A Southbound deceleration or auxiliary lane is an emerging need.
Comments:
Mainline I-5 in this segment is Portland Cement Concrete Pavement (PCCP) with recent dowel replacement in the outside travel lane. There is 0.93 lane miles of Hot Mix Asphalt (HMA) in this segment.

Number of Medium Priority Concrete Miles: 11.73
Number of Low Priority Concrete Miles: 112.83
Number of High Priority Concrete Miles: 114.93

Deficiencies:
Current
The vertical curve in the Southbound direction appears to meet the Design Manual speed reduction warrant and multilane level of service warrant for a Truck Climbing lane. Constructing an auxiliary lane between the Nisqually Southbound (Southwest direction) on ramp and the Marvin Road (SR 510) off ramp would provide this climbing lane, a deceleration lane into the off ramp, and an acceleration lane for the on ramp reducing weaving conflicts.

Future (5-10 years)
Mainline I-5 will fail within 5 years with the PM peak hour spreading.

Future (15-20 years)

Concrete Data

<table>
<thead>
<tr>
<th>PIN</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>300507B</td>
<td>I-5/McAllister Creek - Stormwater (bioswales, access road, and retaining wall)</td>
</tr>
<tr>
<td>300507E</td>
<td>I-5/McAllister Creek Bridge - Repair (columns)</td>
</tr>
<tr>
<td>300522B</td>
<td>I-5/Nisqually River Bridge - Special Repair (steel stringer modification and sealing deck joints)</td>
</tr>
</tbody>
</table>

Not Fully Funded: (List the PIN and project title for each project that is not fully funded through construction)

<table>
<thead>
<tr>
<th>PIN</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
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</table>

Fully Funded: (List the PIN and project title for each project funded through construction)

<table>
<thead>
<tr>
<th>PIN</th>
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<tbody>
<tr>
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</tr>
</tbody>
</table>

Printed at 2:09 PM on 12/1/2006
Future Corridor Vision:

I-5 mainline would be widened for inside high occupancy vehicle (HOV) lanes and/or general purpose lanes. Meridian Road Undercrossing would be replaced due to bridge column spacing. Even though the Nisqually steel truss bridges are outside of this segment they will also require replacement to add mainline capacity. The length of these new bridges are likely to be significantly longer extending into this segment. There have been discussions about removing fill, dikes, etc. to allow the path of the Nisqually River to not be restricted and to have farmlands south of the Nisqually National Wildlife Refuge restored to wetlands (See National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Impact Statement with a record of decision adopting Alternative D in November 1, 2004). A future 450-ft wide right-of-way corridor is anticipated in this segment due to cuts and fills associated with future widening. Widening I-5 in wetlands could result in ~100 acres or more of wetland mitigation.

New Solutions:

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Near-term (Minimum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>112.77</td>
<td>113.77</td>
<td>Southbound climbing lane from the Nisqually on ramp past crest of 3% vertical curve near the Marvin Road (SR 510) I/C. This auxiliary lane would also function as an acceleration lane and deceleration lane from the Nisqually on ramp to the Marvin Road off ramp and help reduce weaving conflicts.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BARM</th>
<th>EARM</th>
<th>Mid-term (10-years) (Moderate Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Implement Olympic Region Intelligent Transportation System (ITS) Master Plan.</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>BARM</th>
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<th>Long-term (15-20 years) (Maximum Fix)</th>
<th>Delay Reduction</th>
<th>Accident Reduction</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Need phase 1 of the I-5 High Occupancy Vehicle (HOV) and/or</td>
<td></td>
<td></td>
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</tbody>
</table>
Lacey

Begin MP: 112.76

End MP: 114.86

HSP Corridor Location

Anticipated Accident Areas

PAL Spot 07-09
PAL Corridor 07-09
HAC 07-09
HAL Corridor 07-09
HAL Spot 07-09

Freight Classification

T-1
T-2
T-3

Traffic Sections AADT

25 - 3,000
3,001 - 10,000
10,001 - 20,000
20,001 - 40,000
40,001 - 80,000
80,001 - 100,000
100,001 - 120,000
120,001 - 140,291

Trucks 10% and Over

U.S. Interstate
U.S. Highway
State Route
Local Roads
Railroad
Wetlands
Tribal Lands
Military Reservation
City Limits
Urban Area
County Line

HSP Corridor Series
Interstate
Characteristics

Other Features

U.S. Interstate
U.S. Highway
State Route
Local Roads
Railroad
Wetlands
Tribal Lands
Military Reservation
City Limits
Urban Area
County Line
November, 2006

HSP Corridor Series
Interstate
Assets

- Signalized Intersection
- At Grade Railroad Crossings
- Bridge
- FerryTerminals
- Ferry Route
- Park and Ride
- WeighStations
- Rest Area Sites

Corridor Pavement Type
- HMA
- BST
- PCCP

Other Features
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- Airport
- County Line

Lacey

Begin MP: 112.76
End MP: 114.86
Lacey

Begin MP: 112.76
End MP: 114.86

5/342N-E
5/345E

HSP Corridor Series
Interstate
Needs

HSP Corridor Location
Bridge Replacement Priority
- Replacement
- Seismic
- Special
- Scour
- Painting
- Miscellaneous
- Bridge Deck

Other Bridge Issues
- 2 Lane BW Narrow Bridge
- Restricted Bridge
- Posted Bridge
- Vert. Clearance 15.5' Or Less

Fish Barriers
- Require Repair
- Little Gain
- Undetermined

Unstable Slope
- Debris Flow
- Erosion
- Landslide
- Rockfall
- Settlement

Paving Due
- Past Due
- 2005 - 2007
- 2008 - 2009
- 2010 - 2011
- 2012 - 2026
- U.S. Interstate
- U.S. Highway
- State Route
- Local Roads
- Railroad
- Military Reservation
- Tribal Lands
- City Limits
- Urban Area
- County Line

November, 2006