SR 518 Corridor Planning Study
Highline Forum: Des Moines, WA.

November 20, 2019
Thomas Noyes,
Senior Transportation Planner
Today’s Presentation

Study Background
Practical Solutions
Communications/Outreach
Traffic Analysis/Quick overview of corridor conditions
Alternatives Screening
Recommended Packages
Next Steps
SR 518 Study Background

• 2017 legislative proviso to conduct study of SR 518 corridor, updating previous corridor study (2002 - RDP)
  – Study funding (legislature): $500,000
  – WSDOT to use a Practical Solutions approach in this study

• WSDOT hired WSP America Inc. in summer 2018 to help complete study

• The Port of Seattle provided addtl. funding of $400,000 for supplemental traffic/modeling work (SR 518 corridor/subarea analysis)
SR 518 Study Background

Cont.

• Rise in population and employment resulting in higher demands on SR 518 and connecting corridors
  – Capacity levels already limited
  – Sea-Tac International Airport passenger and air cargo growth
  – Growth in communities on the SR 518 corridor (Burien, Des Moines, Sea-Tac, Tukwila)

• No plans to modify I-5/I-405 interchange

• I-405 BRT project may compete for limited ROW on SR 518 near Tukwila International Boulevard Station (TIBS)
SR 518 Corridor

SR 518 Corridor Study Area

Extended Traffic Analysis Area
SR 518 Study: Practical Solutions Framework

Law/Legislature

Maintenance & Operations

Planning

Planning

Scoping

Programming

Designing

Implementing

Establish Policy Framework

Manage System Assets

Identify Needs

Assess Alternative Strategies

Refine Solutions

Assign Resources

Develop Funded Solutions

Implement Solutions

SR 518 Corridor Planning Study
Stakeholder Committee

- Burien, Des Moines, SeaTac, Tukwila
- King County Metro
- Port of Seattle
- Puget Sound Regional Council (PSRC)
- Sound Transit
- Tribes
- WSDOT HQ
- WSDOT NW Region
Communications and Outreach: Web Survey

94% use private vehicles

How often do you travel on SR 518?

- Daily: 23%
- Monthly: 17%
- Weekly: 38%
- Multiple times a day: 12%
- Rarely: 10%
- - 2% Never

For what purpose do you use SR 518?

- Work commute: 41%
- School commute: 4%
- Shopping, errands, etc.: 65%
- Visiting friends/family: 44%
- Recreational activities: 35%
- Freight/commercial travel: 16%
- Airport travel: 61%
- Other: 5%
Web Survey – Overview (Cont.)

What priorities are important to SR 518 users?

- Improve travel reliability: 24%
- Improve safety: 24%
- Manage congestion: 28%
- Improve transit service: 8%
- Other: 16%

What do users want done on SR 518?

- Improve I-5/SR 518 interchange: 72%
- Widen SR 518 with general purpose lanes: 54%
- Improve ramps at S 154th or SR 99: 42%
- Operational Strategies (adjusted signal timing or improved signage): 38%
- Widen shoulders: 29%
- More transit options: 23%
- Widen SR 518 with HOV lane: 23%
- Other: 15%
Regional Projects

- WSDOT SR 509 Extension (Gateway Program)
  - Stage 2 completion by 2028

- WSDOT I-405 Corridor Program
  - ETL expansion Renton-Canyon Park by 2024-2025

- Sound Transit I-405 BRT Project
  - Expected opening of 2024 (To Burien TC via SR 518)

- Sound Transit Link Extensions (Lynnwood, Redmond, Federal Way, Tacoma, West Seattle)
  - Expected openings 2024-2030

- Port of Seattle SAMP
  - Near-Term Projects by 2027
Traffic Analysis: Corridor Speeds (SR 518)

EB 518 (SR 99 to W of I-5)

- PM congestion on EB 518 near the I-5 interchange

WB 518 (W of I-5 to SR 99)

- Acceptable conditions for WB SR 518
Traffic Analysis: Corridor Speeds (I-405) (Cont.)

- PM congestion on I-405 NB all along the segment
- AM congestion NB near SR 167
- Some AM and PM congestion near I-5 interchange
DTA Modeling

• As with PSRC model, DTA model reflects high airport growth in traffic

• SR 509 extension draws traffic away from SR 518 (note drop between NAE ramps)

• Congestion on I-5 would limit growth in demand on SR 518 between NAE and I-5

• Trips redistribute to pathways where reserve capacity is available (ex. NB SR 509 to EB SR 518)

• I-405 is constrained thereby limiting growth

• AM peak period shows similar growth
Alternatives Screening

Preliminary Screening (Level I)
- Screened five primary categories
- Simplified 1-3 rating system
- Some very low scoring strategies eliminated
- Most strategies carried forward for further evaluation

Final Screening (Level II)
- Screened subcategories under the five primary categories
- Rated strategies using expanded 1-5 scale
- Some screened qualitatively and some screen quantitatively with modeling/analysis
- Weighting applied to individual subcategory scores
- Some strategies eliminated throughout the process
Screening Criteria

- Safety (consistency with Target Zero, Crash-reduction, etc.)
- Mobility (travel times, trip reliability, etc.)
- Local Access (to local communities from SR 518 corridor)
- Airport Access (to/from Airport for passengers and freight)
- Environmental (displacements, steep slopes, sensitive areas, etc.)
- Constructability (cost, technical feasibility, etc.)
- Community Support
Recommended Packages
## Near-Term Strategy Packages

<table>
<thead>
<tr>
<th>TSMO: Signage Improvements</th>
<th>Estimated Cost</th>
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</thead>
<tbody>
<tr>
<td>• Signage: Wayfinding to Airport</td>
<td></td>
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<tr>
<td>• Improved signing from rental car facility/S 160th to WB 518</td>
<td>$2-4 million</td>
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<tr>
<td>• Review local street signing to and from the airport</td>
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<table>
<thead>
<tr>
<th>TSMO: Crash Reduction on EB SR 518</th>
<th>Estimated Cost</th>
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<tr>
<td>• ATMS: Speed and corridor management on EB SR 518</td>
<td></td>
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<tr>
<td>• Expand Incident Response Team presence on SR 518</td>
<td>$10-20 million</td>
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<tr>
<td>• High Friction Surface Treatment (HFST) on EB SR 518 to NB I-5</td>
<td></td>
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<tr>
<td>• Lane Markings: Around I-5 interchange</td>
<td></td>
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<tr>
<td>• 2nd EB lane on SR 518 to I-405, merging to one lane just west of I-5</td>
<td></td>
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## Near-Term Strategy Packages

### TSMO: Crash Reduction on WB SR 518
- **Lane Markings:** Delineation WB towards Airport exit (two lanes solid marking)
- **Marking/Signage:** Signal Ahead - WB approaching SR 518/509 Signal
- **Marking/Signage:** Lane Ends - WB approaching Des Moines Memorial Drive S Off-Ramp
  - Estimated Cost: $100k-1 million

### TSMO: Active Transportation Improvements
- Non-motorized safety improvements at SR 99 ramps
- Non-motorized safety improvements at Des Moines Memorial Drive S
  - Estimated Cost: $250k-1 million

### TSMO: ITS/ATMS
- **Ramp Metering:** SR 99 to EB 518 All Lanes
- **Ramp Metering:** 51st Ave S to WB 518
- **ATMS:** Travel Time Signs on NAE - Seattle via SR 509 or I-5
- Complete ITS throughout corridor and add ATMS Bidirectional on SR 518 near SR 509
- Transit Signal Priority on SR 99
  - Estimated Cost: $6-12 million
# Transportation Demand Management and Capital Improvements

## Near-Term Strategy Packages

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<thead>
<tr>
<th>Transportation Demand Management (TDM)</th>
<th>Cost</th>
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<tr>
<td>• Parking Management Strategies</td>
<td></td>
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<tr>
<td>• Airport Transportation Management Association &amp; Tukwila TMA</td>
<td>$4-8 million</td>
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<tr>
<td>• Prioritize/incentivize vanpools for employees</td>
<td></td>
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<tr>
<td>• Employee commuter trip reduction strategies</td>
<td></td>
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<tr>
<td>• 1st/last mile services</td>
<td></td>
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<tr>
<td>• Vanpool/Carpool Incentives Program for airport travelers</td>
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## Capital Improvement: Ramp Improvements near SR 99

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<tr>
<th>Capital Improvement: Ramp Improvements near SR 99</th>
<th>Cost</th>
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<tbody>
<tr>
<td>• 152nd On-ramp to WB SR 518 (CD roadway)</td>
<td>$34-49 million</td>
</tr>
<tr>
<td>• 154th On-Ramp Roundabout to allow EB to WB left movement</td>
<td></td>
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<tr>
<td>• Relocation of WB SR 518 Off-Ramp from SR 99 to 32nd Ave S</td>
<td></td>
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## Mid-Term Strategy Packages

<table>
<thead>
<tr>
<th>Capital Improvement</th>
<th>Estimated Cost</th>
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<tr>
<td><strong>Eastbound SR 518</strong></td>
<td>$190-244 million</td>
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<tr>
<td>- 2nd EB lane on SR 518 to I-405, including improvements to I-405 to accommodate demand</td>
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<tr>
<td>- Auxiliary Lane Widening of EB SR 518 from SR 99 to Klickitat Curve/51st Ave S exit</td>
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<tr>
<td><strong>Airport South Link Access</strong></td>
<td>TBD</td>
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<tr>
<td><strong>SR 518/SR 509 Interchange</strong></td>
<td>$50-70 million</td>
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<tr>
<td><strong>Widening of Westbound SR 518</strong></td>
<td>$33-45 million</td>
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<tr>
<td><strong>Improvements at SR 518 Ramp Termini</strong></td>
<td>$200k- $5 million/ per location</td>
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<tr>
<td>- Ramp Terminal Treatments - Roundabouts</td>
<td></td>
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<td>- Ramp Terminal Treatments - Signal</td>
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<tr>
<td>- Ramp Terminal Treatments - Revised Channelization</td>
<td></td>
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<tr>
<td><strong>Active Transportation Bridge Connections</strong></td>
<td>$5-$10M per location</td>
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## Long-Term Strategy Packages

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<tr>
<td>Capital Improvement: Managed Lanes on SR 518</td>
<td>$150-200 million</td>
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<tr>
<td>Capital Improvement: Full Rebuild of the I-5/I-405/SR 518 Interchange</td>
<td>TBD</td>
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Next Steps

• WSDOT – final report preparation (NOW)
• Delivery to Legislature - November 30th
• Briefings to Study Partners (Highline Forum – Today! SeaTac City Council 12/5, SCATBd, PSRC, other TBD)
• Implementation?
QUESTIONS?

Thomas A. Noyes – WSDOT

noyest@wsdot.wa.gov  (206) 464-1272