SR 520 Catastrophic Failure Plan

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Washington State
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Presentation agenda

- SR 520 vulnerabilities.
- Plan overview.
- Transportation management plan.
- Communications plan.
- Next steps.

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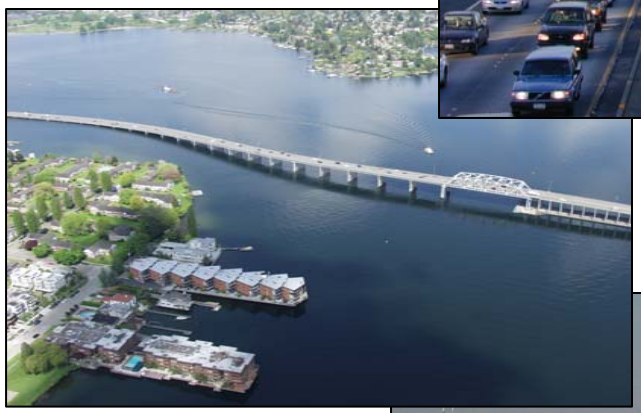
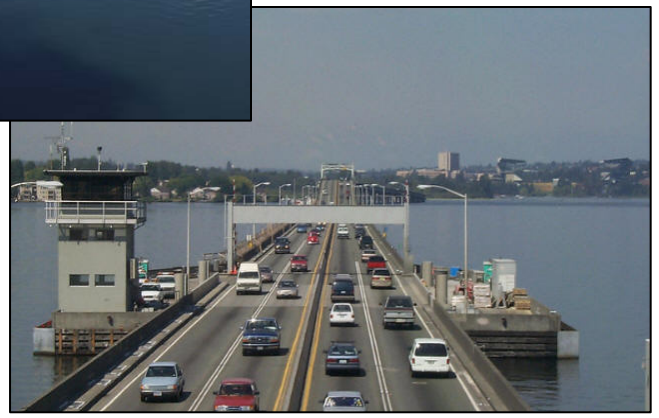
SR 520 vulnerabilities

- The SR 520 bridge is vulnerable to earthquakes and windstorms.
- WSDOT is addressing SR 520 vulnerability by:
  - Accelerating the project schedule.
  - Advancing pontoon construction.
  - Developed a catastrophic failure plan.

Portage Bay Bridge – Facing West



West Approach – Facing Northwest



Midspan of the Floating Bridge – Facing West

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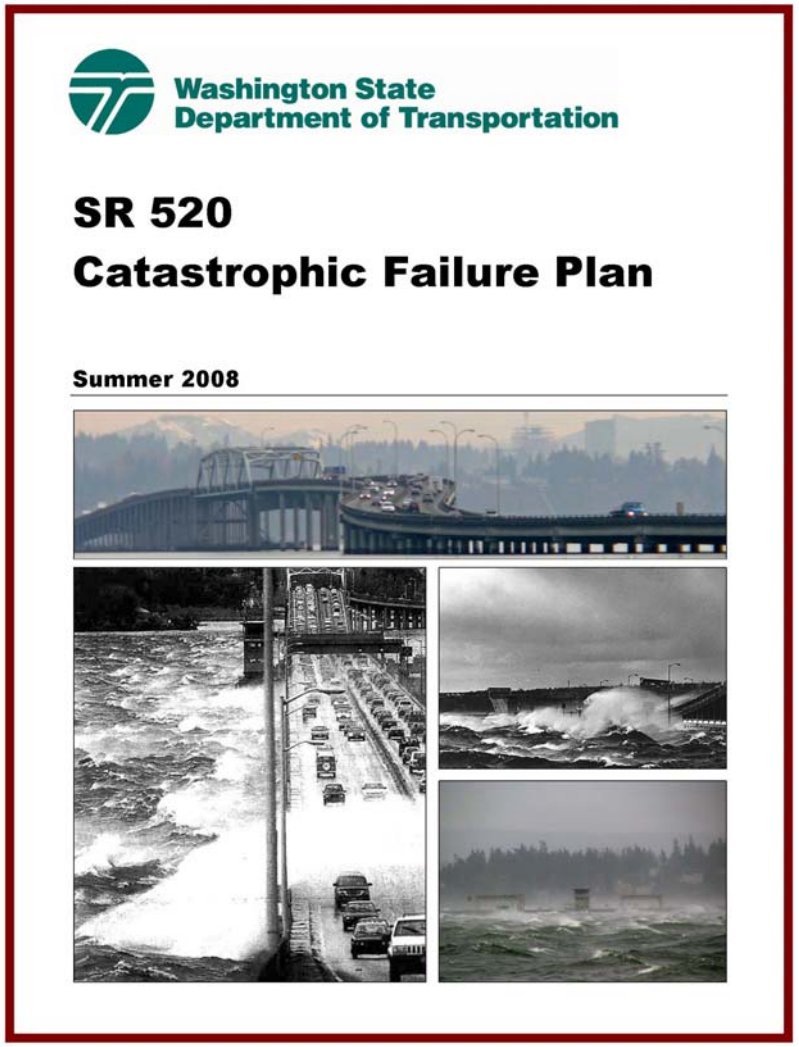
Catastrophic failure plan

- Builds on established emergency management procedures.
- Highlights short-term and long-term traffic management and communications strategies.
- Was developed in collaboration with emergency responders, jurisdictions, transit agencies and businesses.



Jurisdiction and agency collaboration

Overall catastrophic failure plan

- Catastrophic failure planning kick-off.
- Tabletop exercise.
- Action strategy workshop.

Transportation management plan

- Level 1 evaluation—development of packages.
- Level 2 evaluation—development of strategies.
- Level 2 evaluation review.

Communications plan

- Public information officer work session.

Transportation management plan

- Traffic management strategies in key corridors.
- Regional transit service.
- Transportation demand management and transportation system management.

Strategy development and analysis

Current Cross-Lake Washington Traffic Patterns

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Strategy development and analysis

Projected Cross-Lake Washington Traffic Patterns Following a SR 520 Bridge Failure

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Strategy development and analysis

Central Puget Sound Regional Chokepoints Affected by a SR 520 Bridge Failure

I-90 Corridor

- W1 148th Avenue/150th Avenue ramps
- W2 Richards Road on-ramp
- W3 E Mercer Way weave
- W4 Exit ramps to I-5
- E1 Rainier on-ramp
- E2 Mt. Baker tunnel
- E3 Approaching I-405
- E4 Richards Road
- E5 Approaching 148th Avenue/150th Avenue

I-5 Corridor

- S1 Reversible lanes entrance (HOV)
- S2 Reversible lanes entrance (general purpose)
- S3 SR 522
- S4 Ship Canal Bridge
- S5 SR 520 on-ramp
- S6 Mercer Street
- S7 Reversible lanes - Mercer Street/ Stewart Street ramps
- S8 Downtown Seattle ramps
- S9 Reversible lanes exit
- S10 I-90 collector-distributor
- N1 Approaching I-90
- N2 Reversible lanes entrance
- N3 I-90 collector-distributor
- N4 Olive Way on-ramp
- N5 Mercer Street
- N6 To eastbound SR 520
- N7 Reversible lanes - HOV start
- N8 Reversible lanes end

SR 522 Corridor

- 1 I-5 interchange
- 2 15th Avenue/80th Street signals
- 3 NE 145th Street intersection
- 4 SR 104 intersection
- 5 61st Avenue NE
- 6 68th Avenue NE
- 7 96th Avenue NE
- 8 SR 527/Main Street

SR 520 Corridor

- E1 I-5 ramps merge
- E2 Montlake interchange
- E3 Lake Washington Boulevard on-ramp
- E4 108th Avenue NE to 124th Avenue NE
- E5 148th Avenue NE interchange
- E6 NE 40th Street/NE 51st Street interchanges
- E7 Redmond Way
- E8 Avondale Way (SR 520 ends)
- W1 NE 40th Street/NE 51st Street interchanges
- W2 124th Avenue NE to I-405
- W3 SR 520 interchange
- W4 Outside HOV lane
- W5 Outside HOV lane ends
- W6 Montlake interchange
- W7 I-5 interchange

I-405 Corridor

- S1 SR 522 merge
- S2 NE 85th Street
- S3 NE 70th Street
- S4 SR 520 interchange
- S5 SR 520 eastbound on-ramps
- S6 NE 8th Street
- S7 SE 8th Street
- S8 I-90
- S9 Coal Creek Parkway
- S10 Coal Creek Parkway
- N1 I-90 on-ramps
- N2 SE 8th Street
- N3 NE 8th Street weave
- N4 NE 70th Street
- N5 Approaching SR 522

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Traffic management strategies

SR 520 Closure Detour and Alternate Routes

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I-5 traffic management strategies

Strategies for Immediate Implementation (Within One Month of SR 520 Bridge Failure)

- **A** Add a southbound mainline through lane between NE 70th Street off-ramp and Boylston Avenue. Create a ramp add/drop configuration at NE 45th Street/50th Street interchange
- **B** Remove HOV designation from Mercer Street on-ramp to south of the I-90 collector-distributor off-ramp.
- **C** Add a northbound mainline through lane between Seneca Street and the NE 70th Street on-ramp without an additional through lane would not be provided between the University Street on-ramp and the Olive Way on-ramp.

Other Strategies to Consider (Within Six Months of Bridge Failure)

- **E** Provide additional northbound express lane from the 104th Avenue off ramp to the I-5 Northgate Way bridge.

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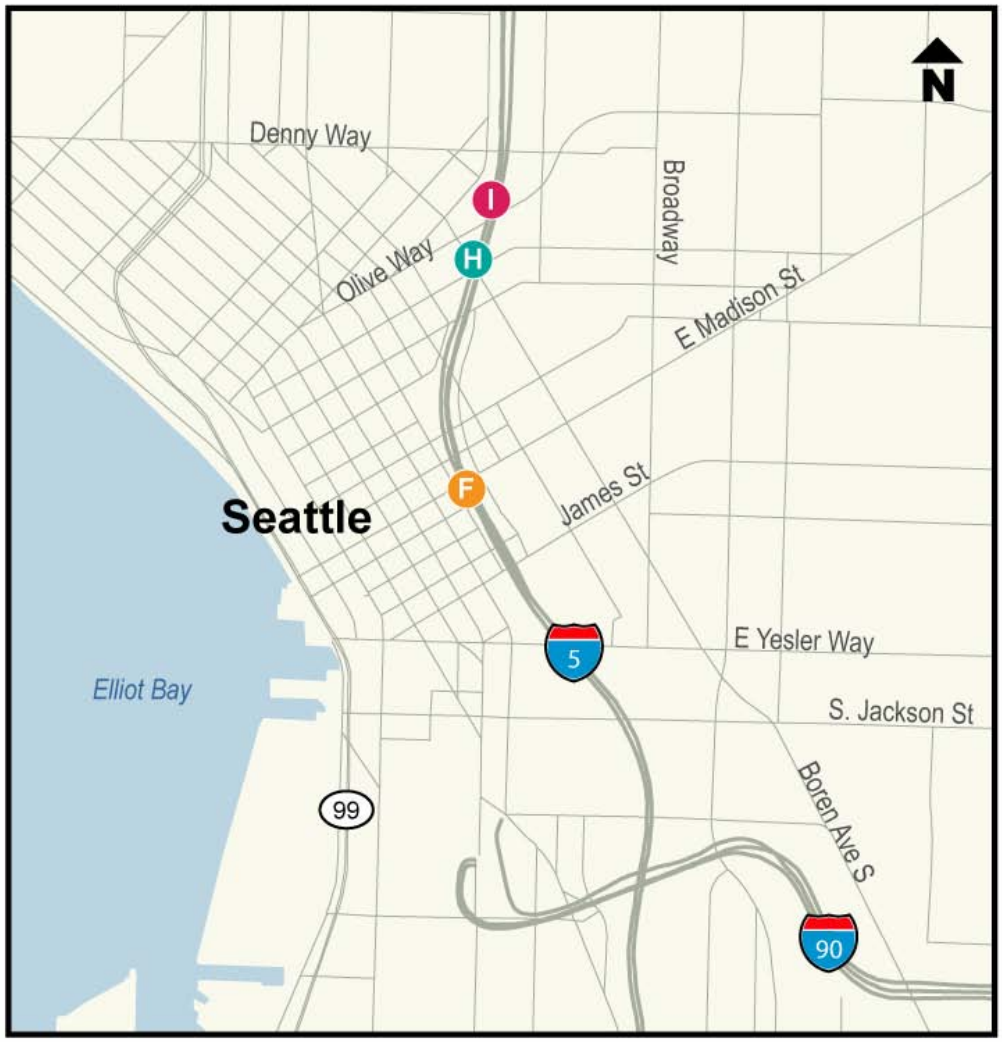
I-5 traffic management strategies—downtown Seattle



Strategies for Immediate Implementation (Within One Month of SR 520 Bridge Failure)

- **F** Provide a two-lane ramp from the northbound I-90 collector-distributor roadway onto the northbound I-5 mainline.
- **H** Meter the Yale Avenue southbound on-ramp.
- **I** Meter the Olive Way northbound on-ramp.

I-90 traffic management strategies

Strategies for Immediate Implementation
(Within One Month of SR 520 Bridge Failure)

A Provide HOV lanes in both directions on the outer roadway based on the (R-8A) configuration.

E Redirect Island Crest Way westbound on-ramp traffic to the reversible lane in the morning.

Other Strategies to Consider
(Within Six Months of SR 520 Bridge Failure)

B C D **I-90 Center Roadway Options:**

- Operate reversible lanes two-way transit only.
- Consider ways for shared use of center roadway by general purpose/HOV/transit.
- Improve access to center roadway at east and west termini.

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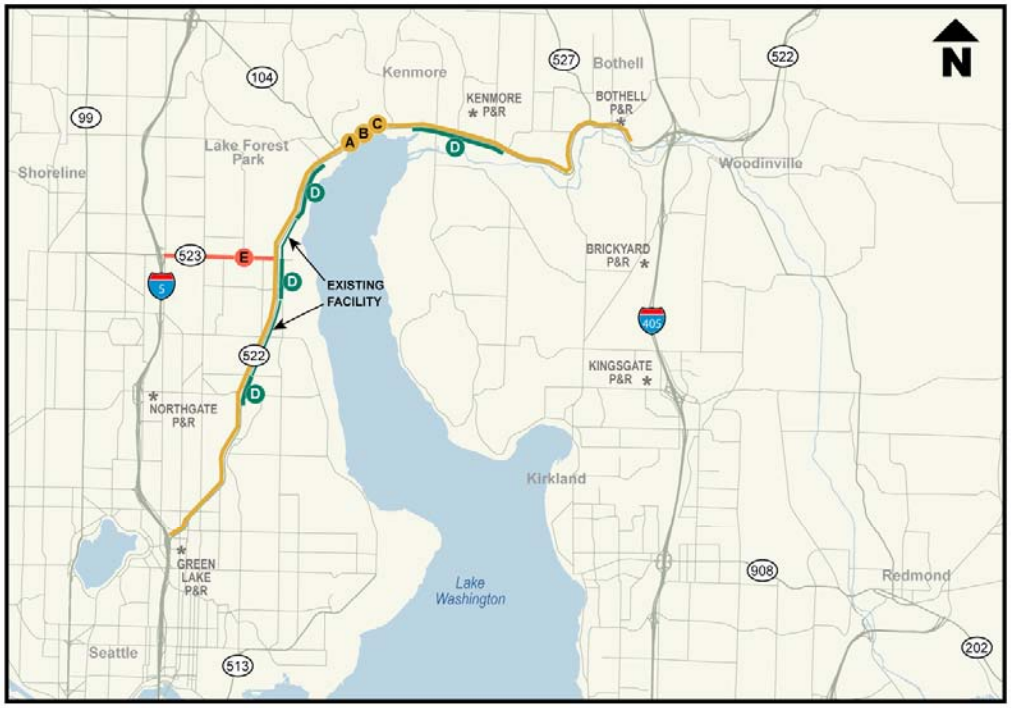
SR 522 traffic management strategies



Strategies for Immediate Implementation (Within One Month of SR 520 Bridge Failure)

A B C Implement intersection spot improvements and some access restrictions to balance regional throughput and local circulation along SR 522:
- Modify signal timing and phasing to prioritize through trips on SR 522.
- At intersections with principal arterials – Apply spot improvements to reduce conflicts and/or give priority to SR 522 through movements. This includes signal timing adjustments and channelization changes.
- At intersections with minor arterials – Allow right-in/right-out access only to SR 522 or implement no left-turn restrictions at minor arterial legs.
- At intersections with collector arterials – Provide right-in/right-out access only or close minor roadway approaches to SR 522.
- At intersections with local streets – Close minor roadway approaches if other local circulation options exist. If few or no other routing options are available, access to and from SR 522 should be revised to allow right-in and right-out movements only.

D Add business access transit (BAT) lanes in one direction on SR 522:
- Provide southbound-only BAT lane between 20th Avenue NE and NE 145h Street, with a short gap between NE 143rd Street and NE 145th Street.
- Provide northbound-only BAT lane between 20th Avenue NE and NE 170th Street.

E Implement left-turn restrictions on NE 145th Street (SR 523) and prohibit left-turns at intersections without left-turn lanes.

Other Strategies to Consider (Within Six Months of SR 520 Bridge Failure)

D Add business access transit (BAT) lanes in both directions on SR 522 between 20th Avenue NE and NE 145th Street.

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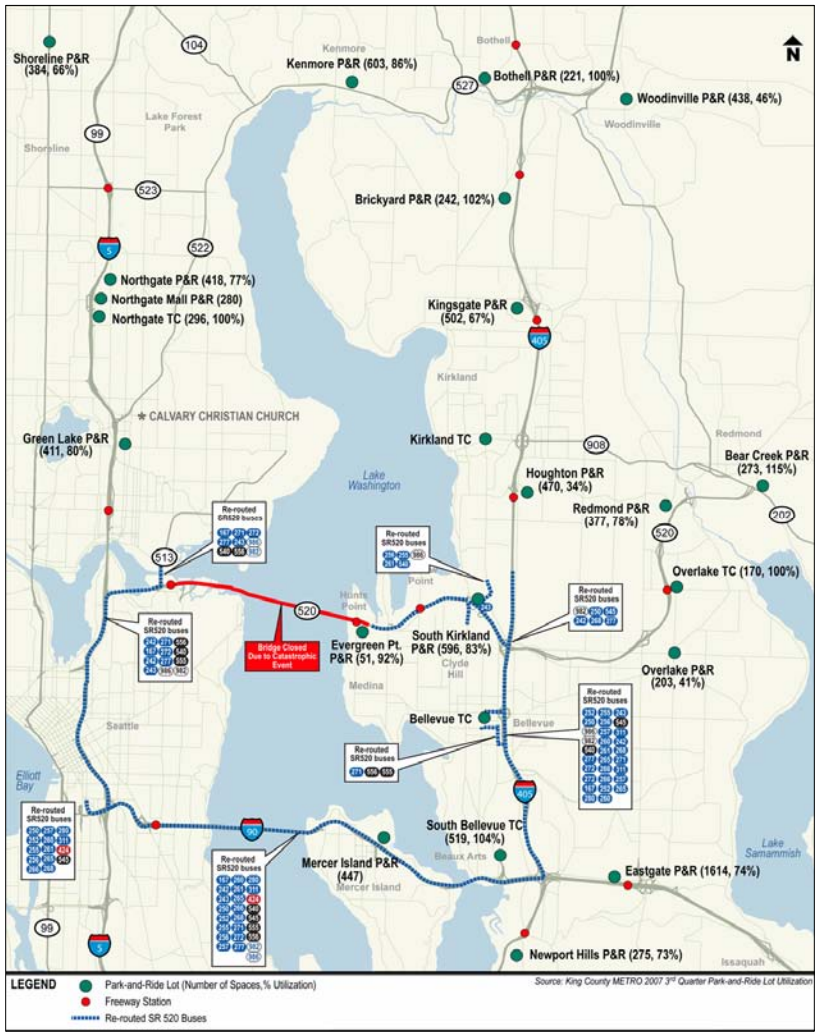
SR 520 traffic management strategies

Strategies for Immediate Implementation (Within One Month of SR 520 Bridge Failure)

- A Create a temporary, additional westbound SR 520 access at the Montlake interchange using the eastbound on-ramp.
- C Convert the eastbound on-ramp at 108th Avenue NE to two add lanes.
- H Add a second lane on the westbound SR 520 to southbound I-405 ramp.

Emergency transit rerouting and shuttle service

Key Regional Transit Facilities and Emergency Rerouting



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Transit service during recovery

Projected Cross-Lake Washington Transit Connections Following a SR 520 Bridge Failure

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Key transit strategies

- Enact emergency reroute procedures on detour and affected routes.
- Increase transit service.
- Implement public awareness and incentives.
- Provide additional park-and-ride capacity.
- Consolidate routes and reprioritize service hours.

Transportation demand management and transportation system management

TDM

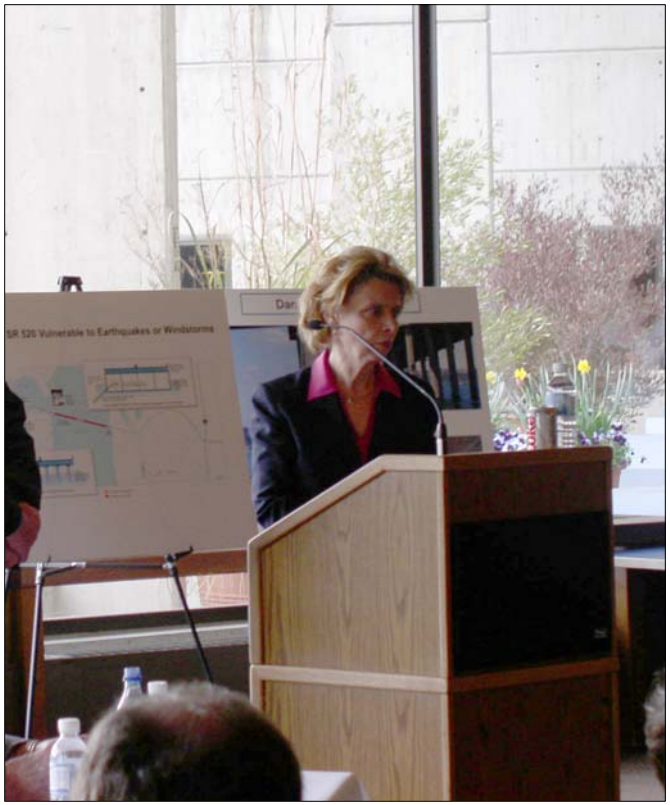
- Alternative work arrangements.
- Trip consolidation.
- Proposed cross-Lake Washington ferry.
- Growth and transportation efficiency centers (GTECs).

TSM

- Incident response teams.
- Ramp metering.
- Variable message signs and highway advisory radio.
- Internet traffic reports and 5-1-1 system.

Communications plan—purpose

- Consistent messaging across agencies and jurisdictions.
- Guidelines, strategies and tools for WSDOT.
- Suggestions for jurisdictions and agencies.



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Communications plan—audiences

- Emergency service providers.
- Local, regional, state and federal transportation decision-makers.
- Local jurisdictions, neighbors and community organizations.
- Media.
- Transit agencies.
- Utilities.
- Drivers and commuters.
- Freight carriers.
- School districts and higher education institutions.
- Businesses and employers.
- Traditionally under-represented and special needs groups.
- Tribal nations.
- Regulatory agencies.

Communications plan—approach

- Phases
  - Pre-storm.
  - Response.
  - Recover and restoration.
- Roles and responsibilities
  - Field staff.
  - Within WSDOT.
  - Suggestions for jurisdictions and agencies.
- Activities and strategies
  - Key questions.
  - Basic messages.

Next steps

- Tool for jurisdictions.
- Regional readiness and response.
- Ongoing dialog and coordination.

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Questions?

For more information visit the project website at:

www.wsdot.wa.gov/projects/SR520Bridge