

WSDOT'S STATEWIDE CLIMATE VULNERABILITY ASSESSMENT:

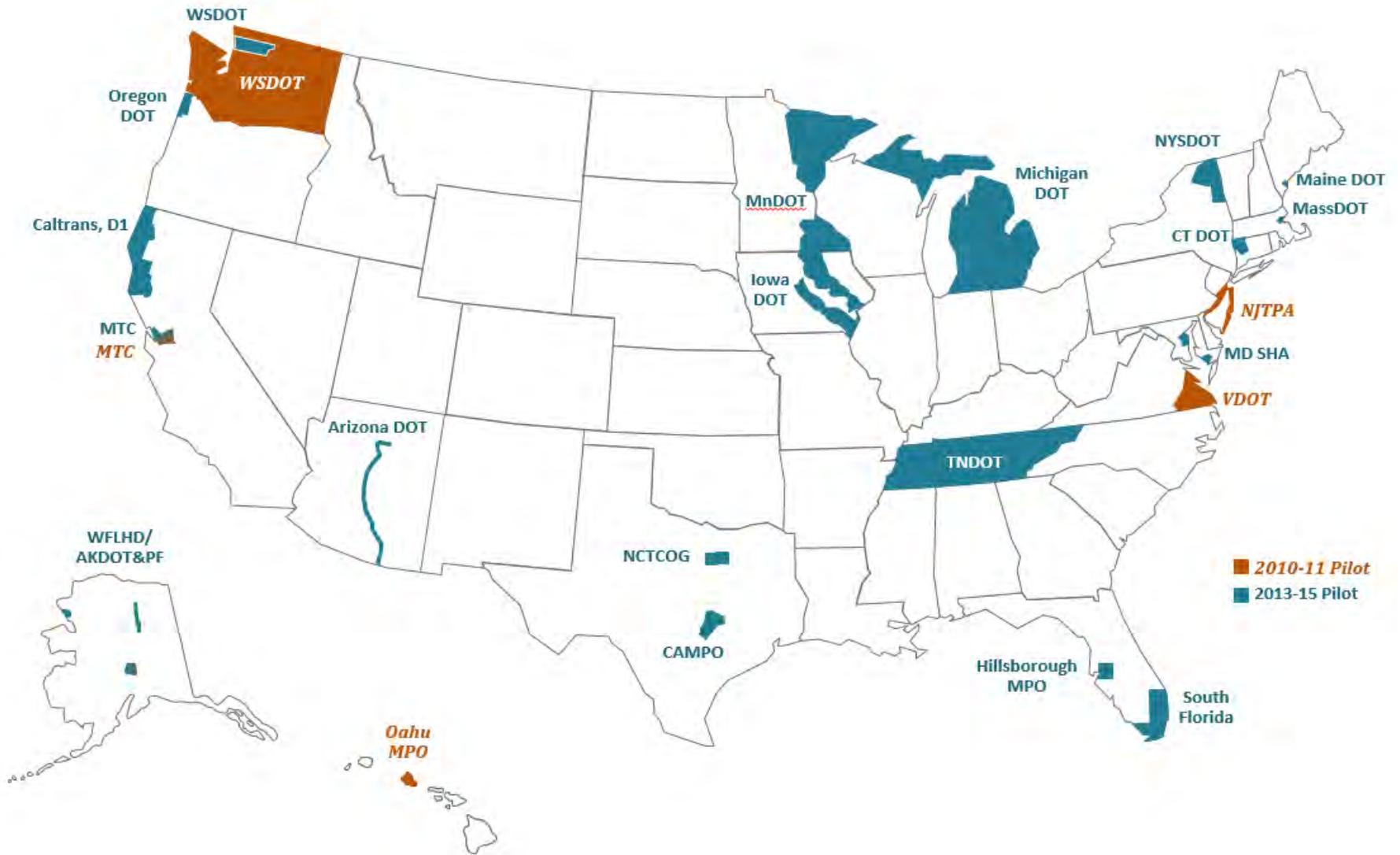
WORKING TOWARD A MORE RESILIENT WASHINGTON



Carol Lee Roalkvam
Policy Branch Manager
WSDOT Environmental Services Office

Tribal State Transportation Conference
Suquamish, WA
September 29, 2016

Federal Highways Climate Pilot Projects

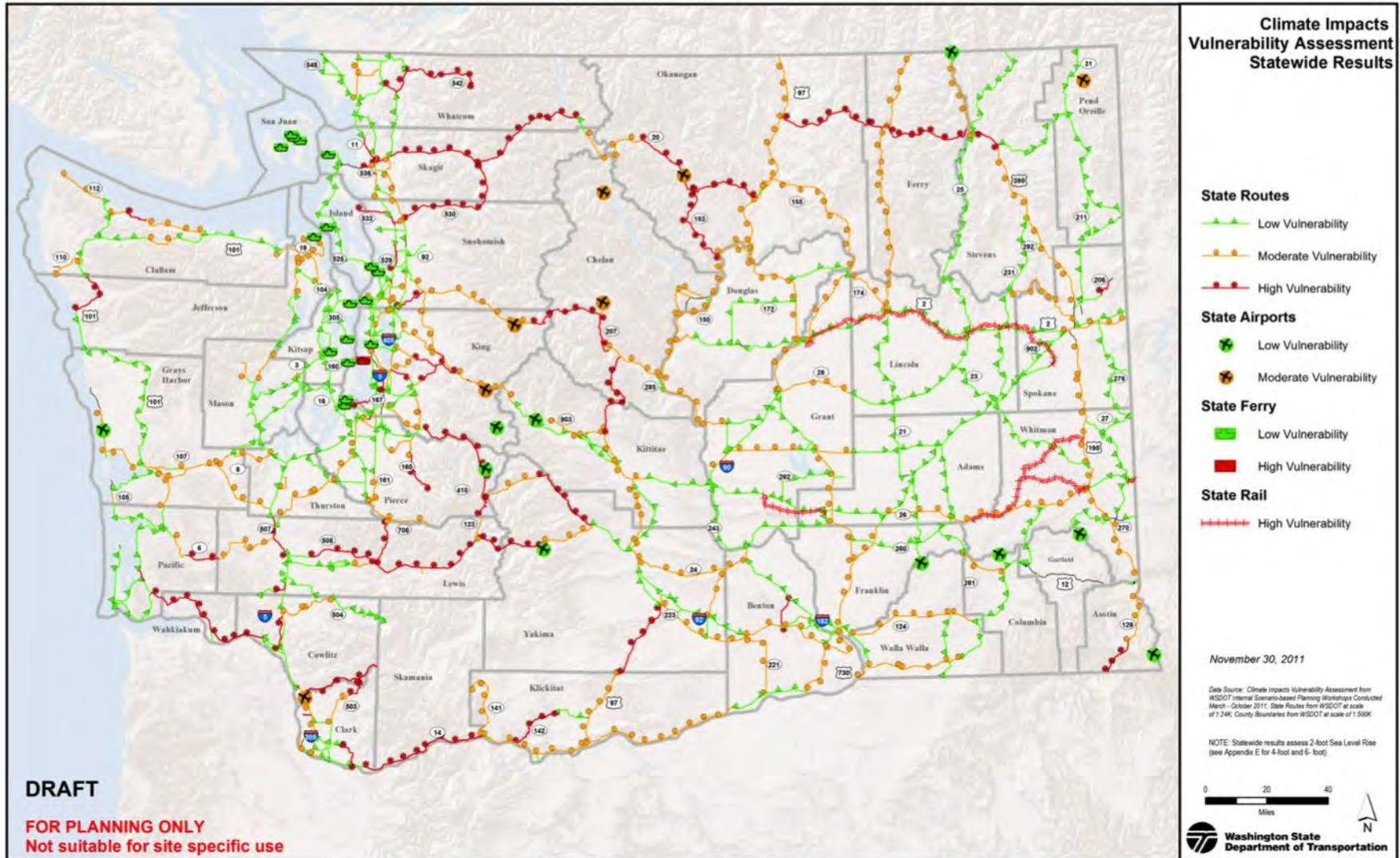


WASHINGTON STATE DOT'S CLIMATE ASSESSMENT KEY FACTS:

- FHWA \$189,500 funds matched by state staff time
 - One of 5 national climate risk assessment pilots (2011)
- WSDOT test of the FHWA's model leveraged:
 - Our asset management approach
 - Pacific Northwest climate change data from UW
 - Field personnel intimate knowledge
- Easily replicable process
 - 14 workshops across state & simple Microsoft Excel & GIS tools
- Qualitative rankings for all state-owned assets!
 - State highway & interstate routes, ferry terminals, freight rail lines, state-managed airports

STATEWIDE RESULTS

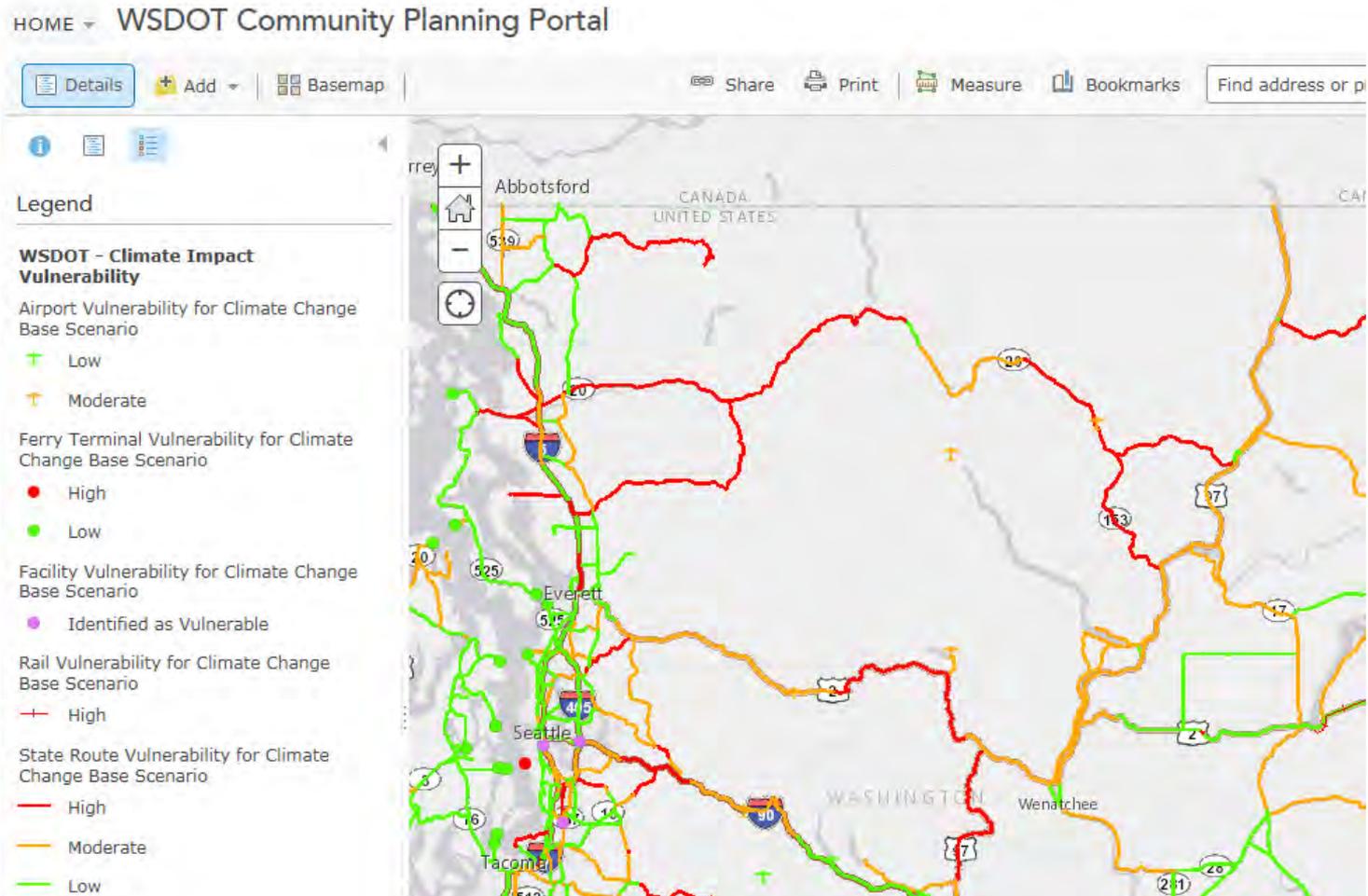
(map shows results with 2 foot sea-rise & all other threats)



WSDOT Community Planning Portal

Transportation Efficiency:

GIS tool for regional and local planning



<http://www.wsdot.wa.gov/planning/community/WSDOTCommunityPlanningPortal.htm>

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Legend

Climate Impact Vulnerability

Airport Vulnerability for Climate Change Base Scenario

- Low
- Moderate

Ferry Terminal Vulnerability for Climate Change Base Scenario

- High
- Low

Facility Vulnerability for Climate Change Base Scenario

- Identified as Vulnerable

Rail Vulnerability for Climate Change Base Scenario

- High

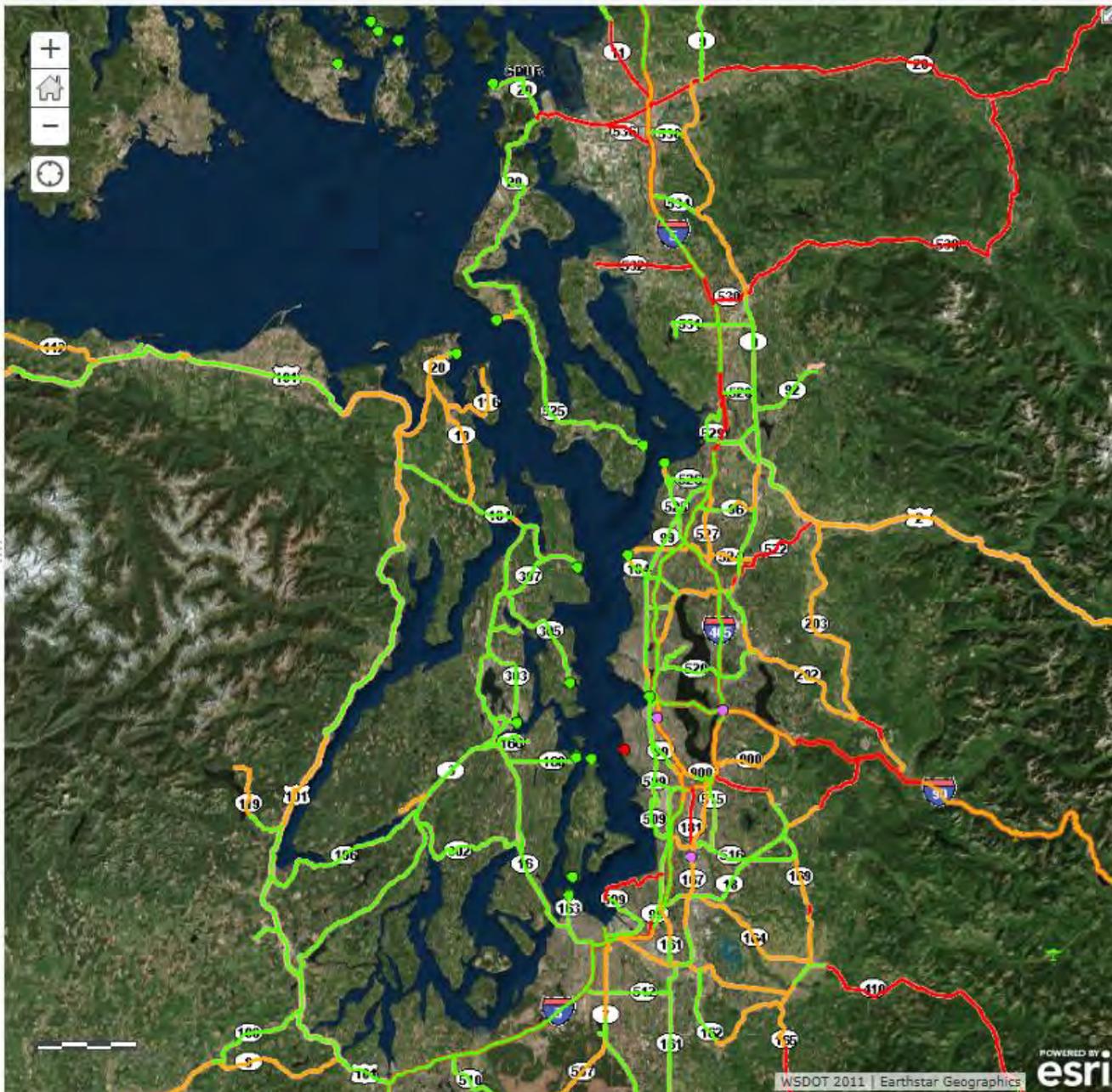
State Route Vulnerability for Climate Change Base Scenario

- High
- Moderate
- Low

State Routes

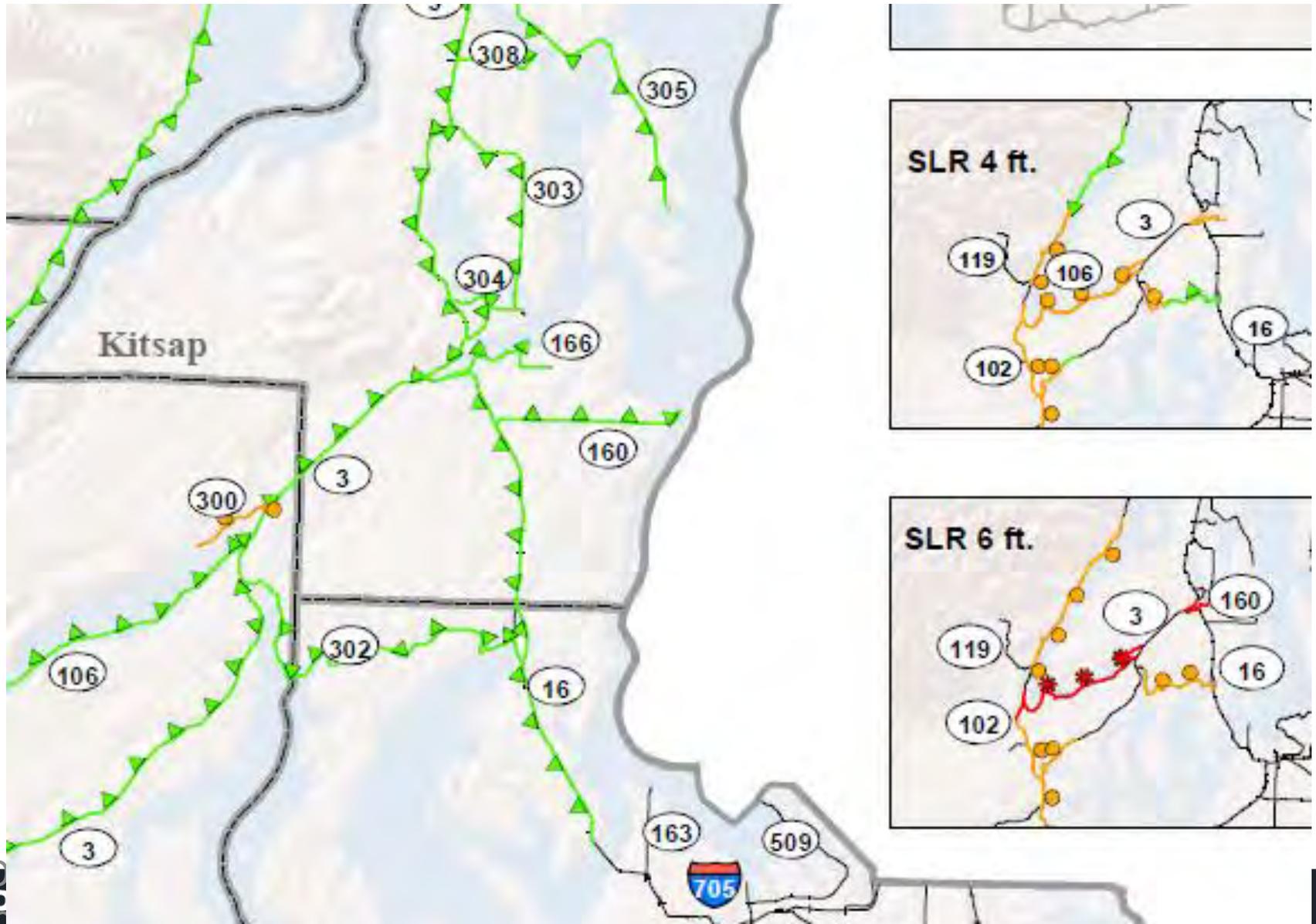
State Routes Increase

- U.S. Interstate
- U.S. Highway
- State Route



2, 4 and 6 ft Sea-Level Rise Scenarios

(Only 2' is on the portal, see WSDOT's report for more info)

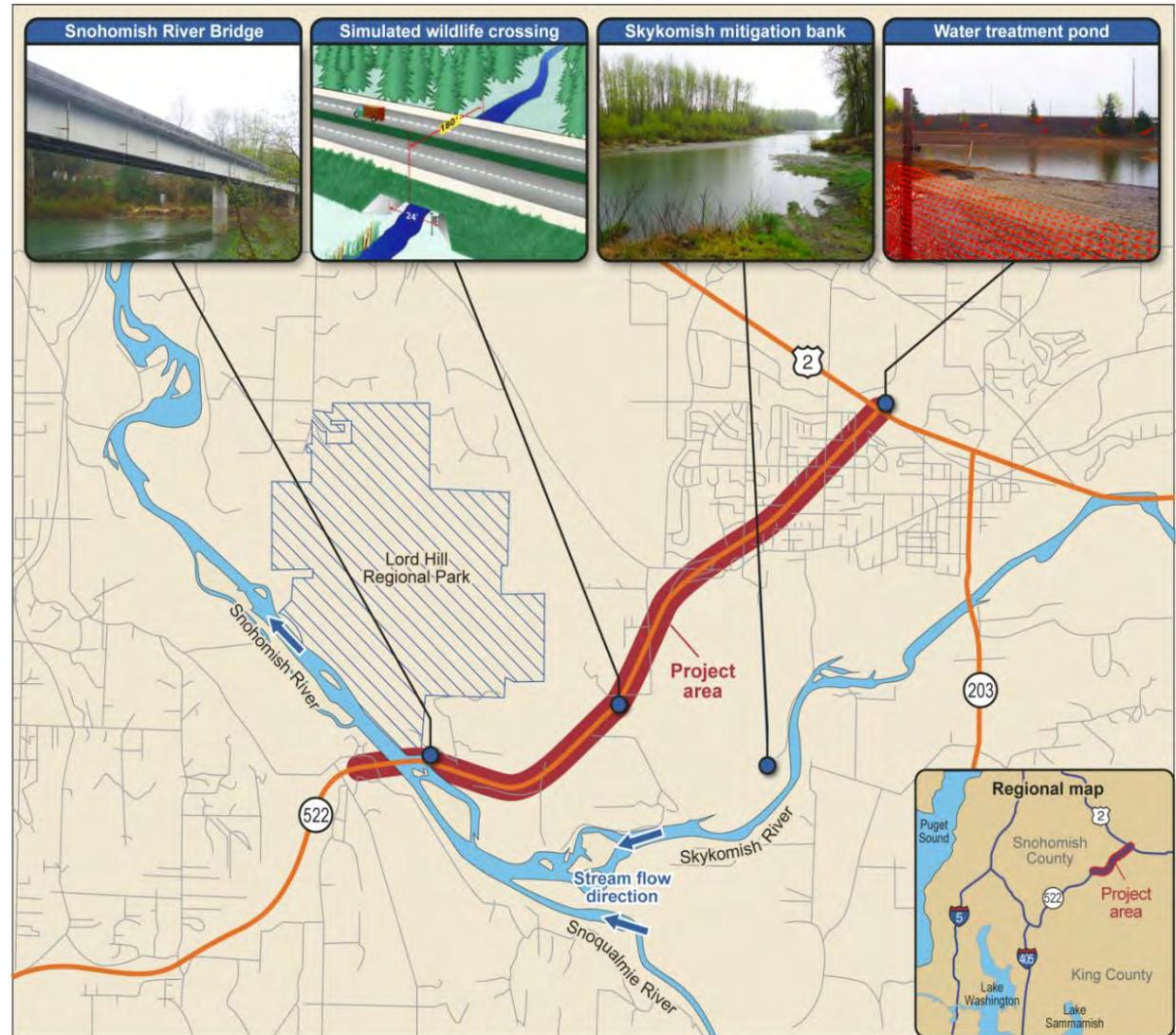


HOW IS WSDOT INCORPORATING THE VULNERABILITY ASSESSMENT RESULTS INTO OUR WORK?

Planning	Bring awareness of the potential climate vulnerabilities of WSDOT facilities when doing corridor studies and plans
Design & Environmental Review	Evaluate potential risks during the environmental and design phase. Project teams follow WSDOT's NEPA /SEPA guidance http://www.wsdot.wa.gov/SustainableTransportation/adapting.htm
Construction	Look at potential for new issues: salt water corrosion, heat or precipitation changes for long-term impacts on materials
Maintenance & Operations	Multi-hazard risk reduction, awareness of maintenance activities that may be affected by heat or extreme weather events

SR 522/US 2 PROJECT

Example of a completed highway project with elements that add resilience



Sources: Parametrix (map); Washington State DOT (wildlife crossing diagram); and GAO.

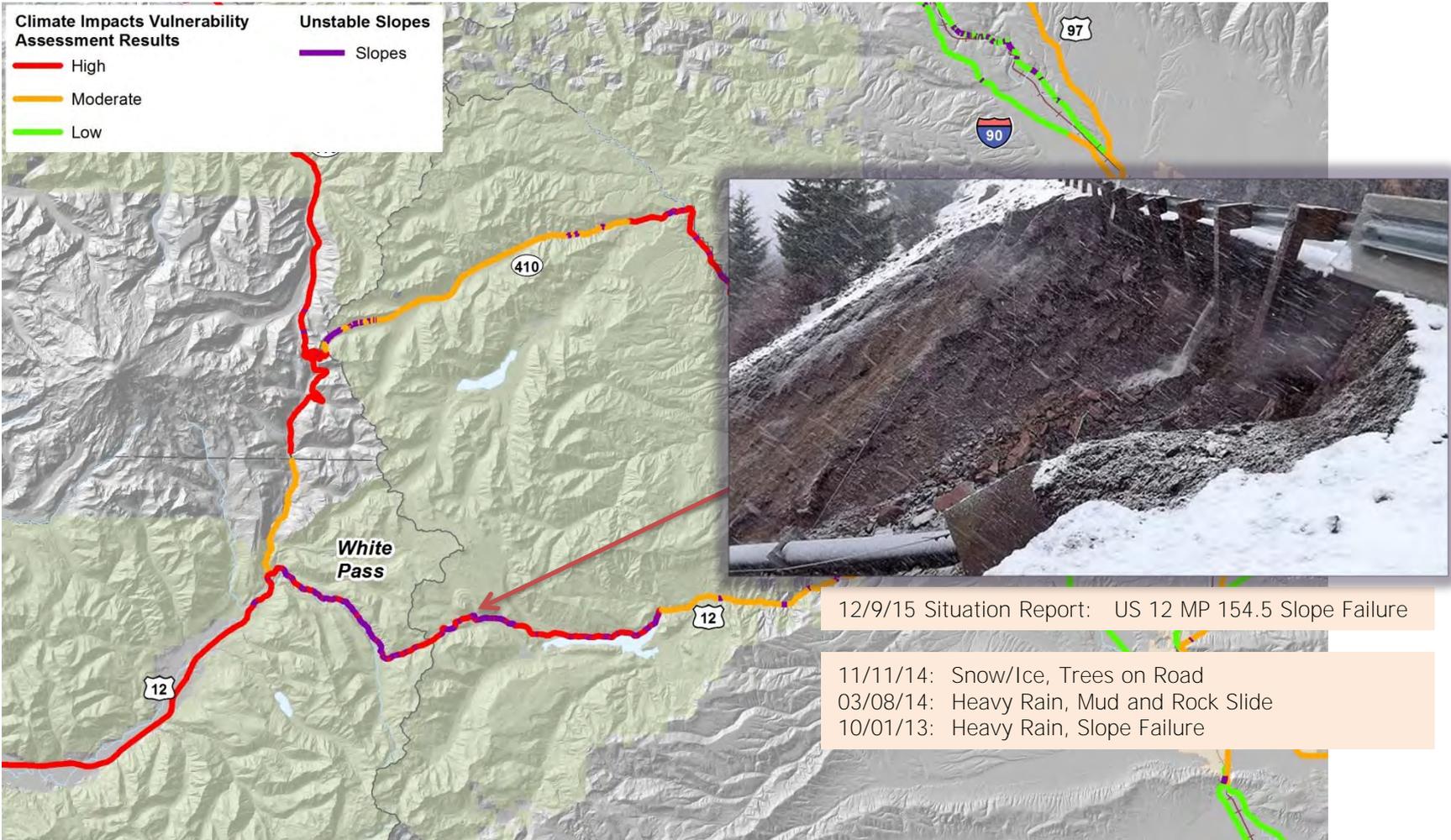
Mukilteo Multimodal Ferry Terminal 2 and 4 foot Sea Level Rise



Preferred Alternative simulation in Final EIS



INCORPORATING WHAT WE KNOW TODAY WITH PROJECTED FUTURE





Flickr "WSDOT opens White Pass"

<https://www.flickr.com/photos/wsdot/23171763893/in/album-72157659996537344/>



FROM DISASTER TO RESILIENCY: HIGHLIGHTING CURRENT PRACTICES THAT ARE EFFECTIVE ADAPTATION STRATEGIES



Drilled shaft bridges like this one on I-90 near Gold Creek make those structures more resistant to high-velocity flooding.

COMMUNICATING “CO-BENEFITS” OF CURRENT PROGRAMS: FISH PASSAGE & HABITAT CONNECTIVITY

- Provides Steelhead, Bull Trout, & resident trout with access to 13.7 mi of stream habitat
- Provides deer with a safe crossing in one our worst deer-vehicle collision areas
- Uses 1.5 mi of fencing to funnel animals to the crossing
- ***More Resilient US 97!***



Butler Creek, north of Goldendale



US 97 GOLDENDALE



US 97 GOLDENDALE



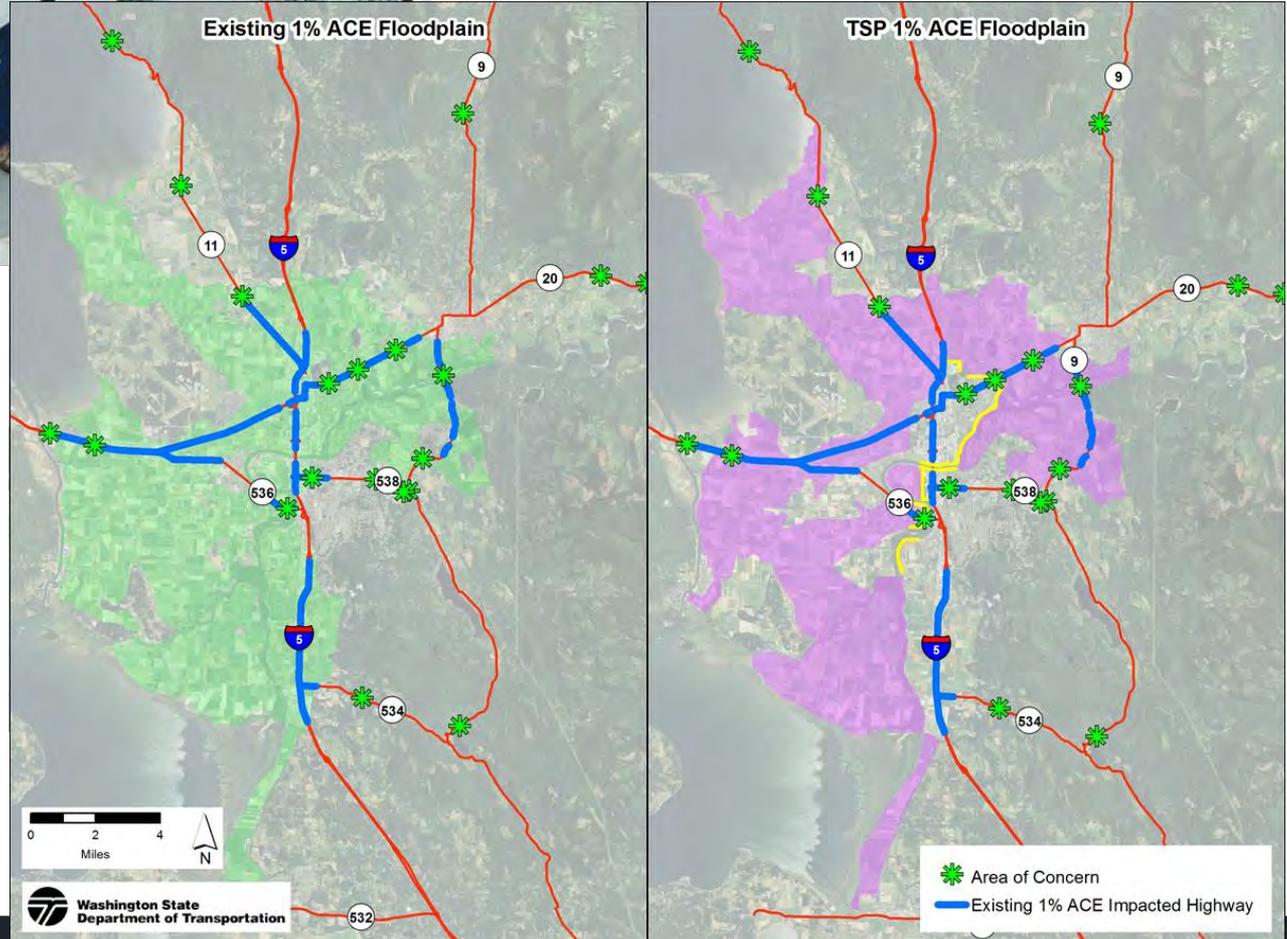
Community Resilience: All sectors



Mount Vernon flood wall

Engage others: Locals, tribes, neighborhoods are investing in hazard reduction projects

Integrate long-range flood hazard, transportation & land use plans



BUILDING A CLIMATE-READY TRANSPORTATION SYSTEM

Essential elements:

- Understand the climate forecast
- Assess our risks
- Integrate into planning and design
- Look for co-benefits
- Partner with others

For more information:

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