



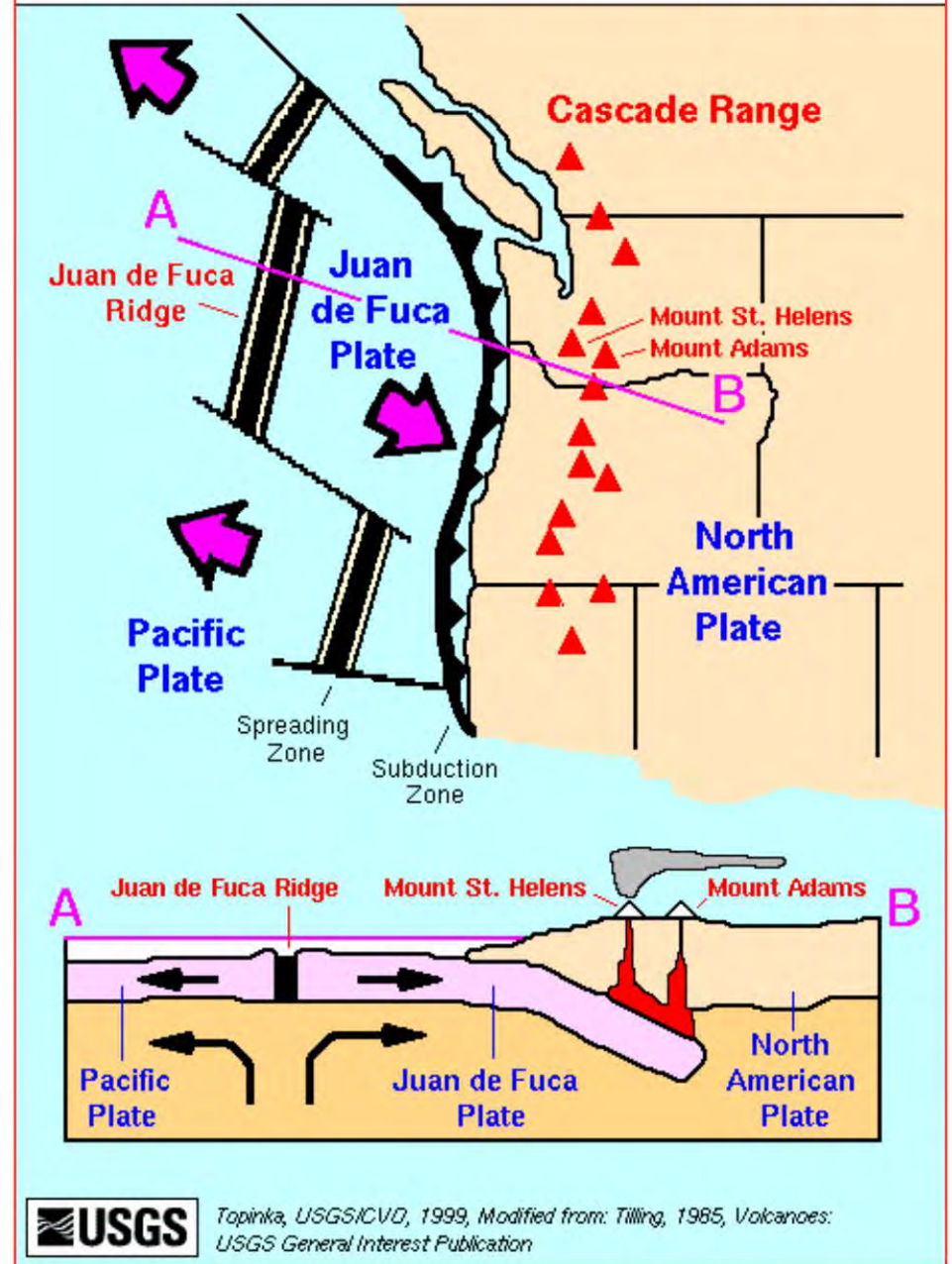
Seismic Readiness of Oregon's Highways

Tri State Commission Meeting
June 17, 2016



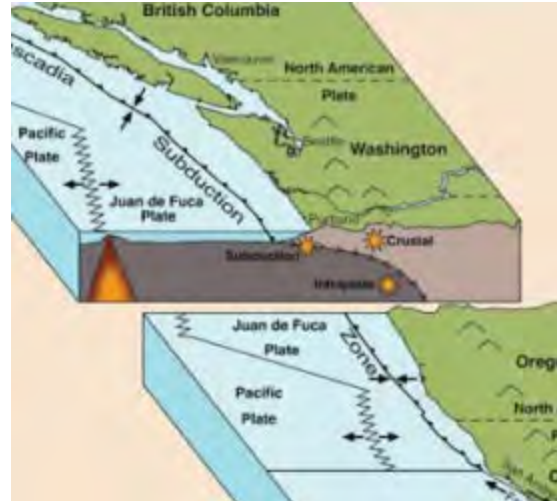
The Cascadia Subduction Zone

Plate Tectonics – Cascade Range



The Oregon Resilience Plan

Required by the legislature, supported by Governor

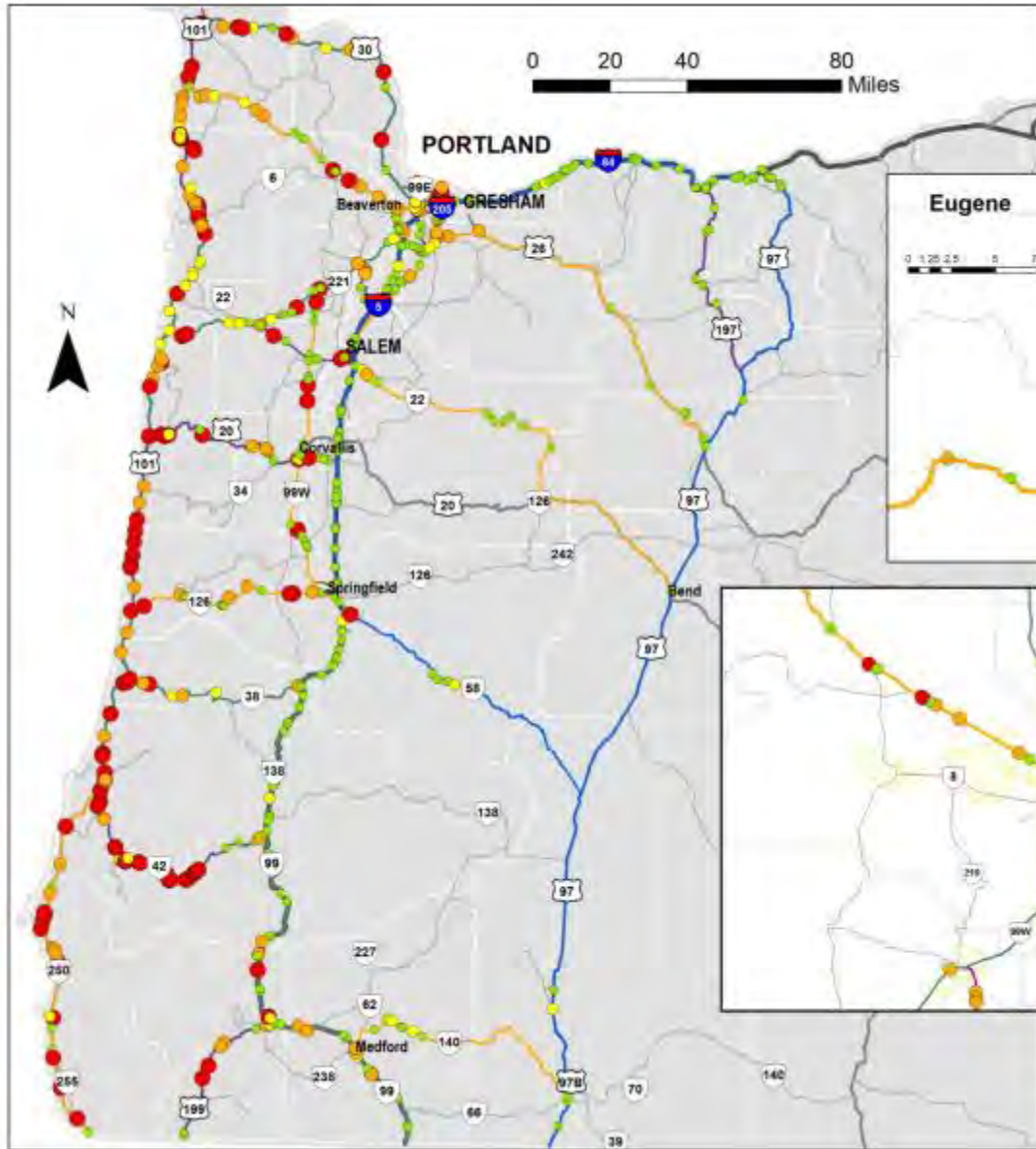


Transportation is critical

Comprehensive plan, developing a strategic approach



Seismic Plus Program Bridges by Expected Damage State



- Bridge Damage State**
- DS5 - Collapse
 - DS4 - Extensive
 - DS3 - Moderate
 - DS2 - Minor
- Program Phases**
- Phase 1
 - Phase 2
 - Phase 3
 - Phase 4
- Phase 5:
Replacements Only**
- Interstate Route
 - U. S. Route
 - Oregon Route
 - County
 - City Limits



August 2014

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Collapse

I-5 Interstate Bridge



Collapse

Astoria-Megler Bridge



Collapse

US 30 Longview-Rainier Bridge





Slight to Moderate

I-205 Glenn Jackson Bridge



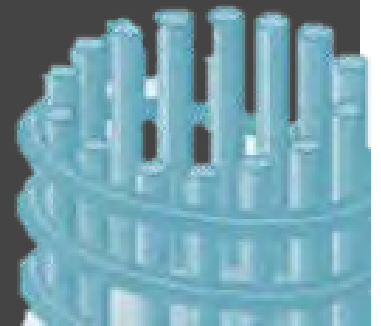
The solution

RETROFIT

For **life safety** to prevent collapse

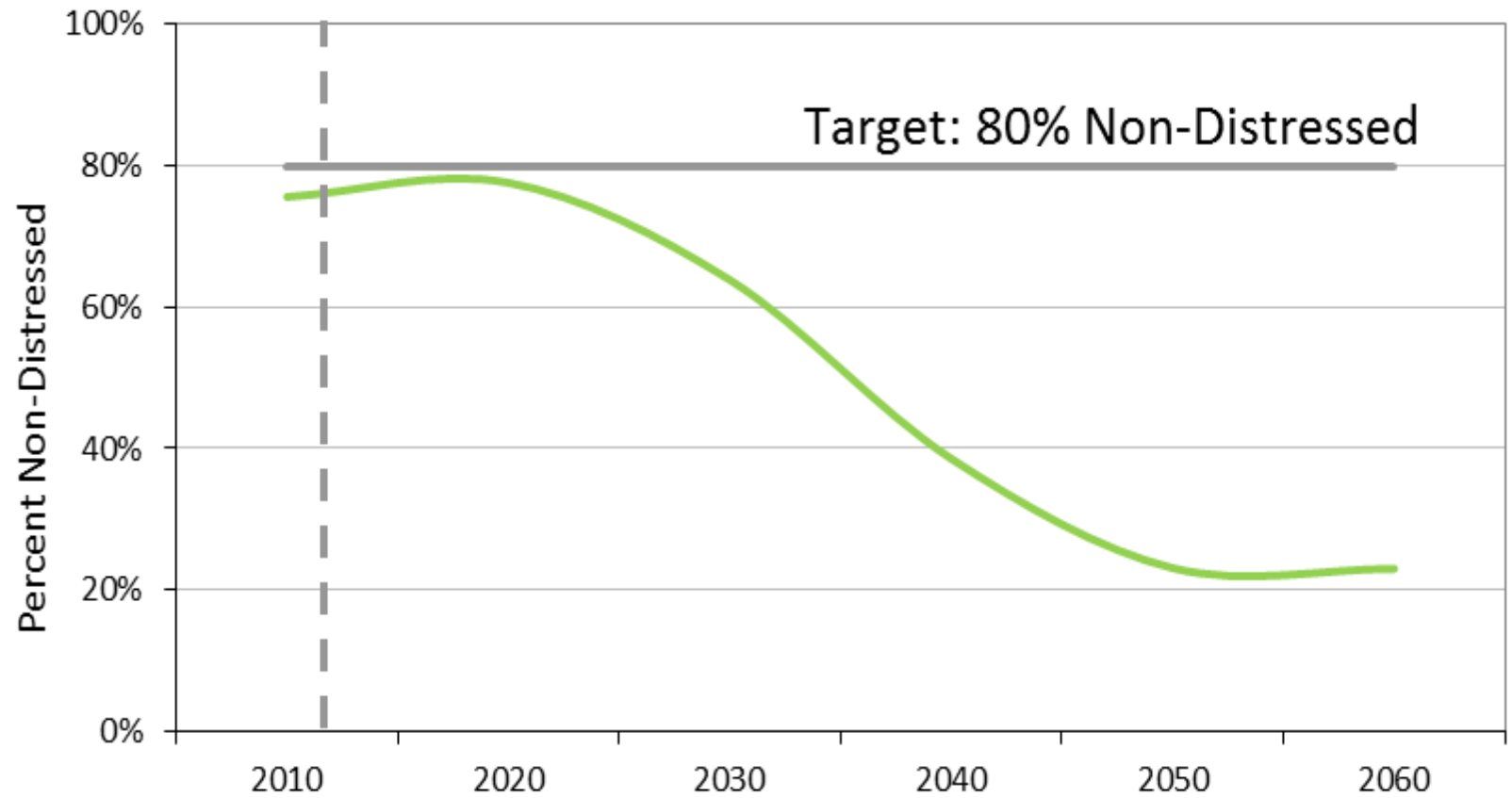


For **serviceability** to keep the bridge functional



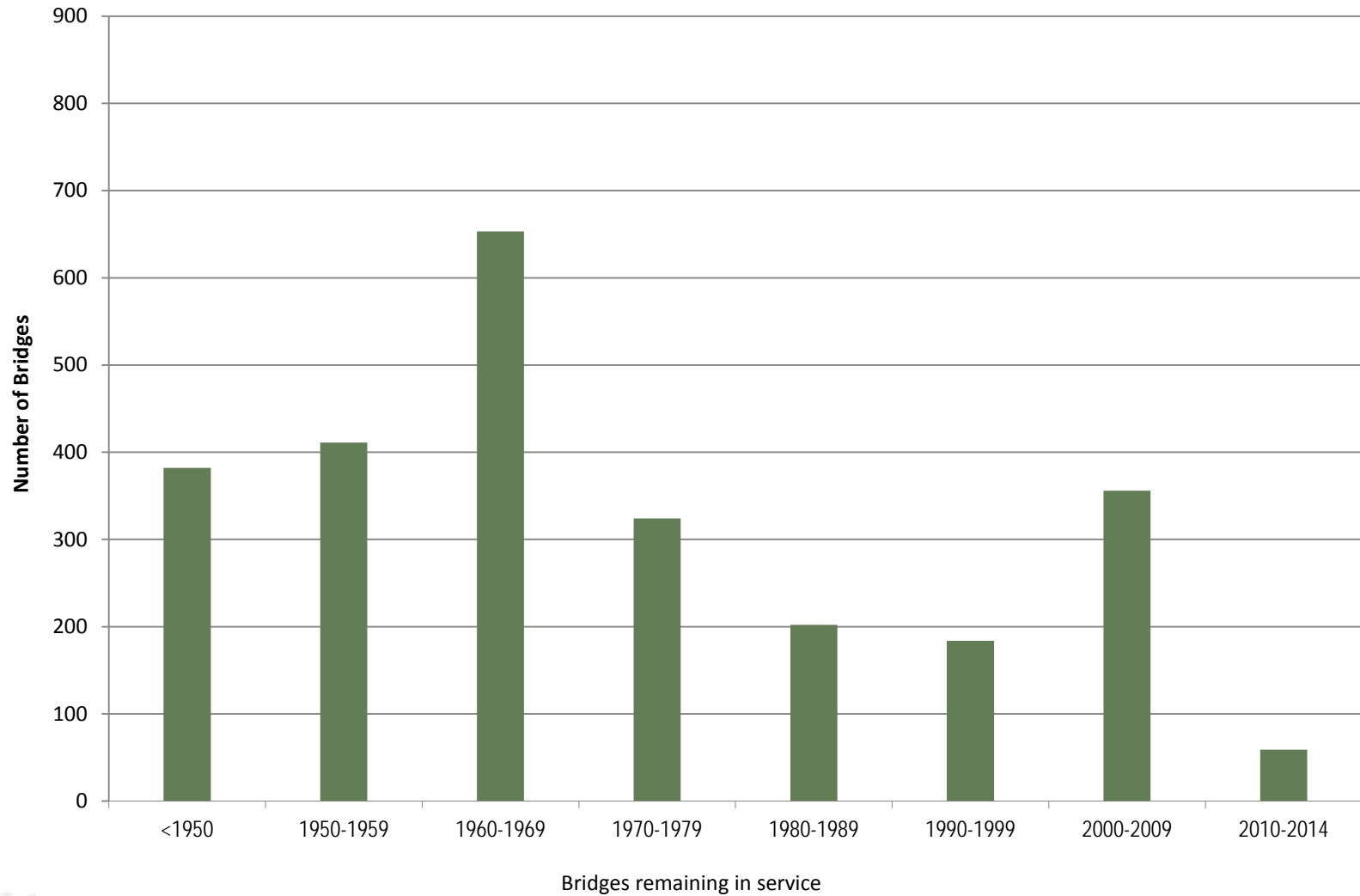


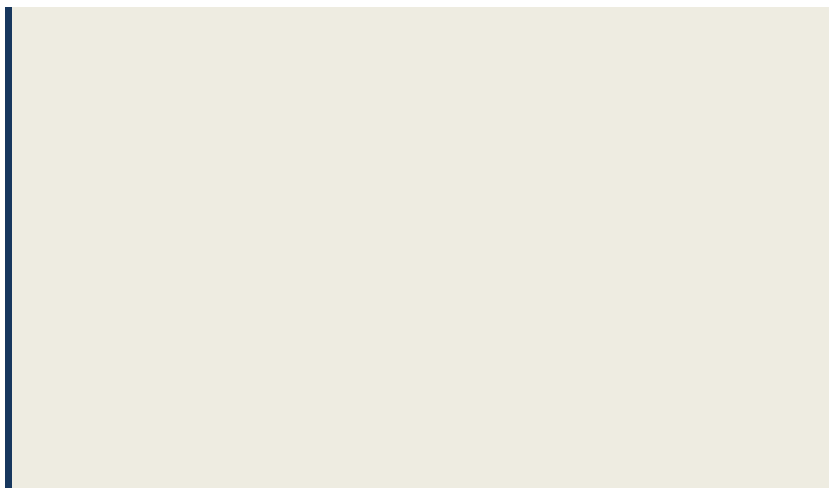
Bridge Conditions Decline





Most bridges beyond design life



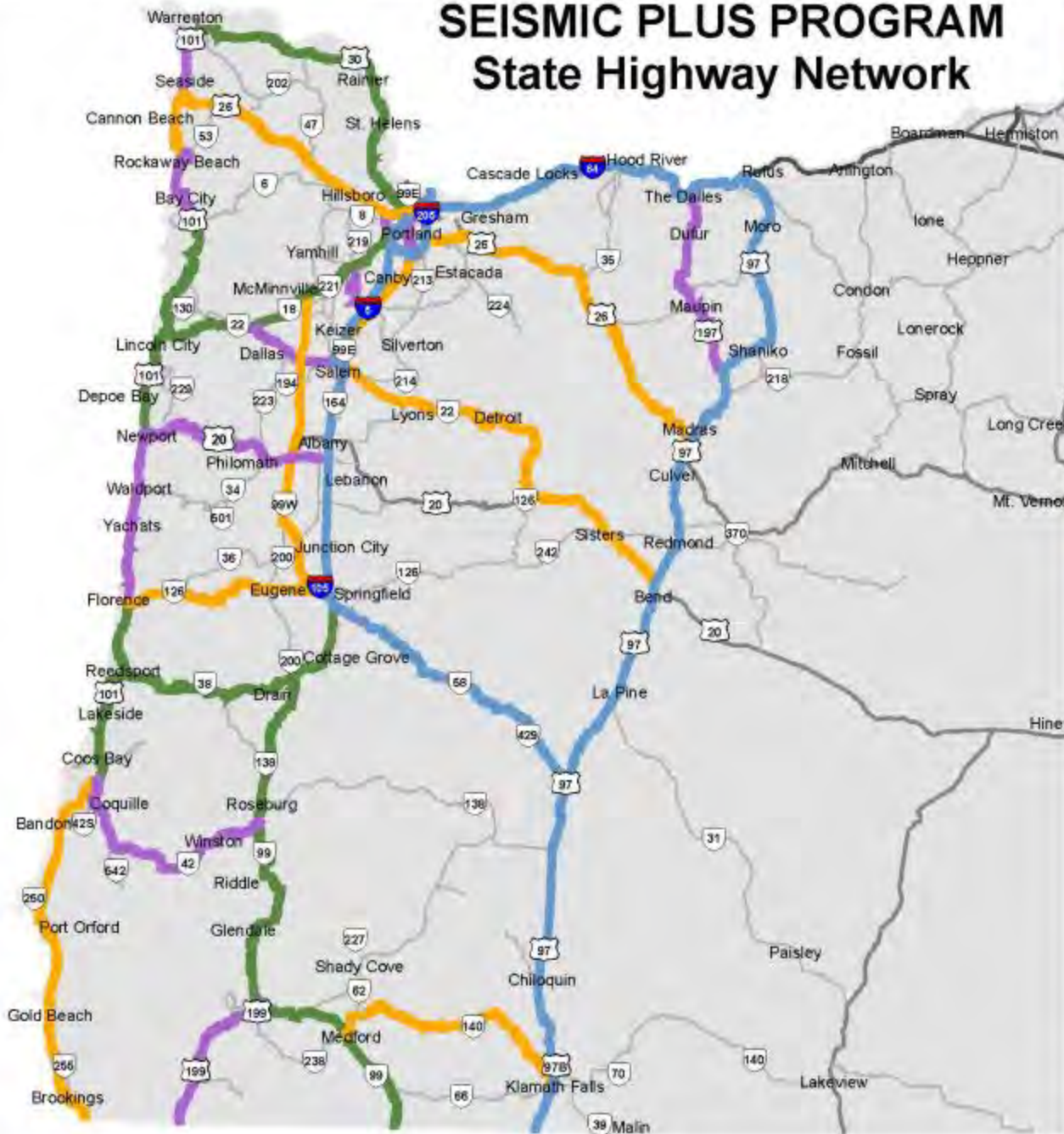


Route selection

Survivability	<ul style="list-style-type: none">• Emergency responders• Critical care facilities
Life Support	<ul style="list-style-type: none">• Critical care facilities• Life support resources• Evacuation routes
Economic Recovery	<ul style="list-style-type: none">• Critical freight corridors• Mobility into and out of the region• Routes between large metro areas



SEISMIC PLUS PROGRAM State Highway Network



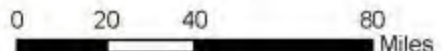
LEGEND

- Program Phase 1
- Program Phase 2
- Program Phase 3
- Program Phase 4

Phase 5 (replacements) not shown for clarity

- Interstate
- U.S. Routes
- Oregon Routes
- County
- City Limits

1 in = 39 miles



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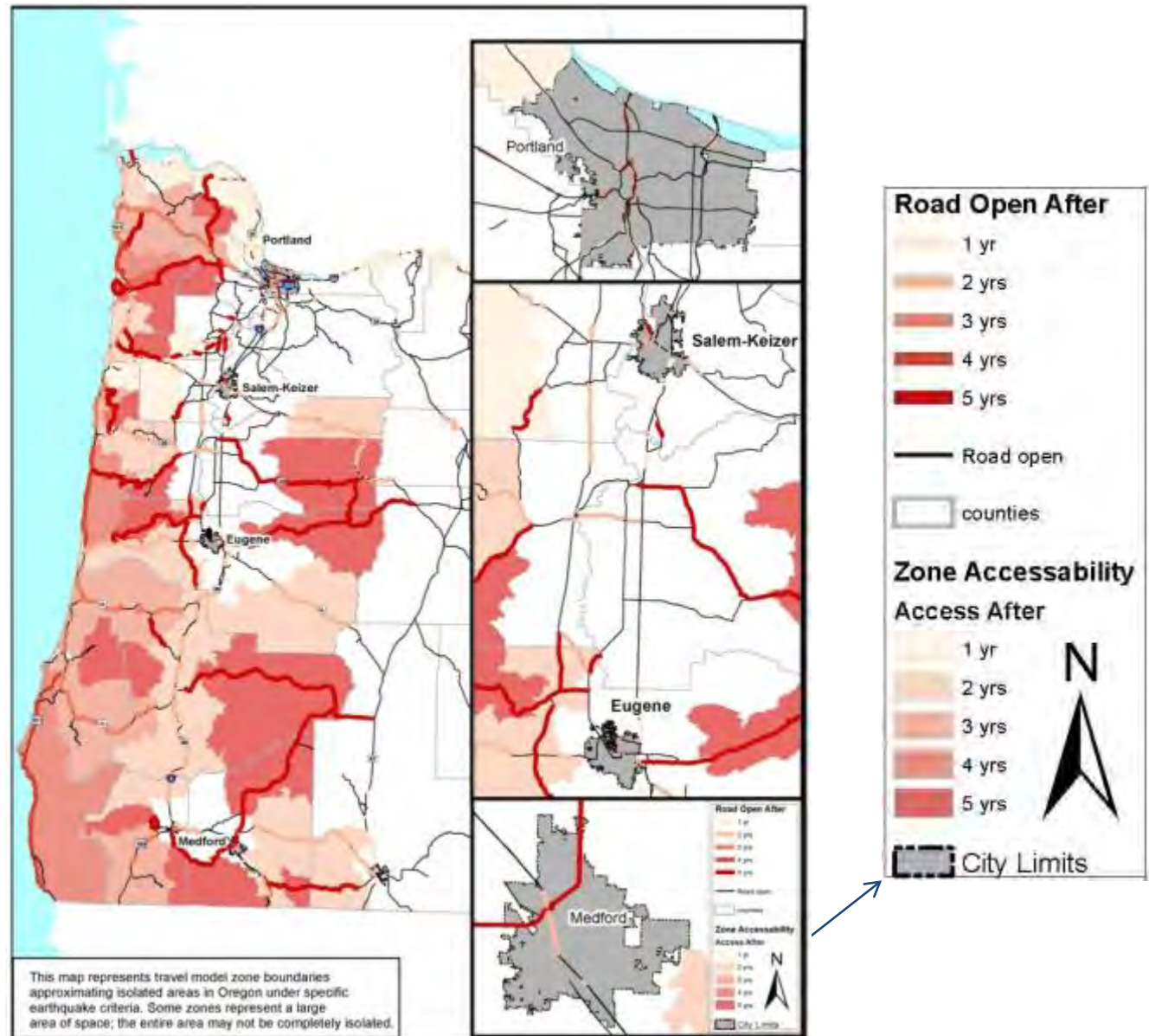
Total Seismic PLUS Program Cost

Program Phases	Total Bridge Cost	Landslides/Rockfalls Cost	Total Seismic PLUS Program Costs
1	\$738 Million	\$197 Million	\$935 Million
2	\$632 Million	\$272 Million	\$904 Million
3	\$612 Million	\$483 Million	\$1,095 Million
4	\$640 Million	\$126 Million	\$766 Million
5	\$1,432 Million	\$0	\$1,432 Million
Total	\$4.1 Billion	\$1.0 Billion	\$5.1 Billion



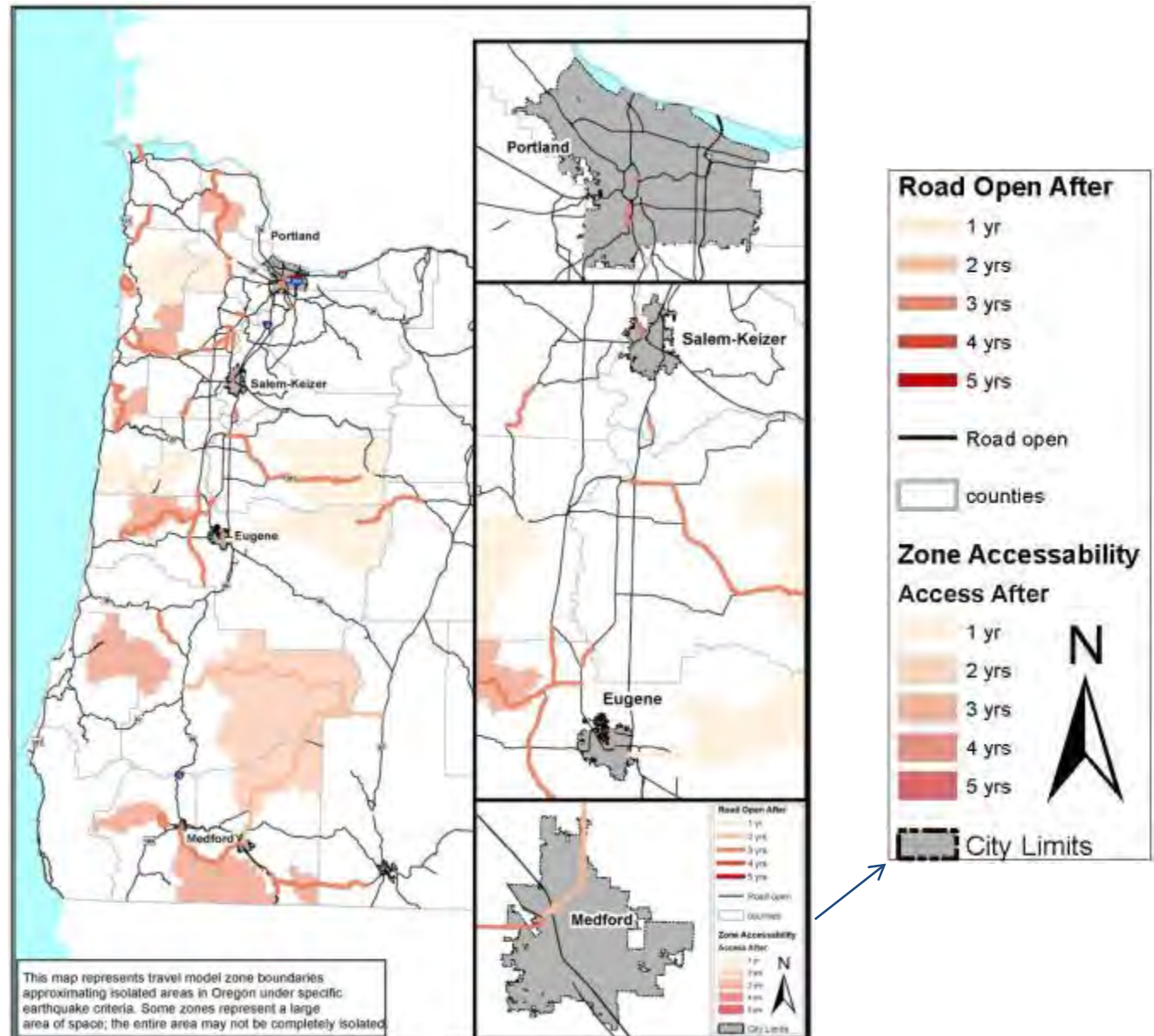
Major Seismic Event: Isolated Areas

Total economic loss: **\$350 B**



Isolated Zones: Full Seismic Program

Reduce economic loss by:
\$84 B



We need to start **NOW**

Transportation is key to the overall response

Seismic Retrofit by State

5147 Bridges
\$13 Billion



416 Bridges
\$177 Million



143 Bridges
\$44 Million



Next Steps ...

Route Continuity

- I-5/I-205
- US 97

Design Standards

- Life Safety
- Serviceability

