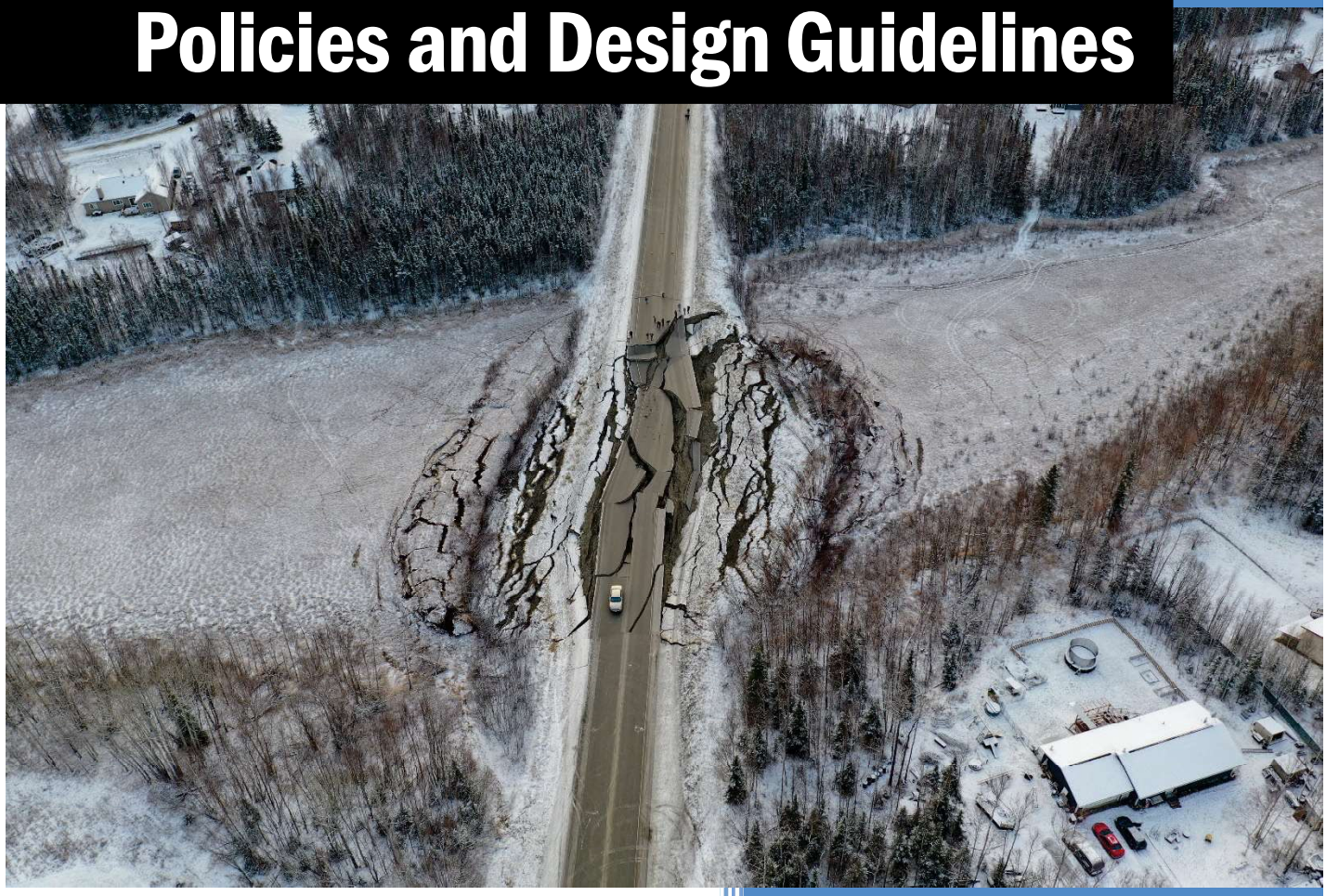
2021

ODOT's Seismic Implementation: Policies and Design Guidelines



Oregon Department of Transportation

April 2021

ODOT's Seismic Implementation: Policies and Design Guidelines

I have reviewed and approve the implementation of the following policies and guidelines.

Karen Rowe, Delivery and Operations Division Administrator — April 15, 2021 (Date)

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The cover photo, courtesy of the Alaska Department of Transportation and Public Facilities, is from Vine Road following the November 30, 2018 earthquake measured as a magnitude 7.0 between Palmer and Anchorage.

ODOT's Seismic Implementation: Policies and Design Guidelines

Purpose and Need

ODOT's Seismic Program includes project planning around a Cascadia Subduction Zone Earthquake (CSZE) that could result in tsunamis, landslides and soil liquefaction. The program touches many aspects of the transportation system including maintenance and operations, facilities, state and local bridges, and unstable slopes. ODOT will address seismic resilience by prioritized phases on the routes shown on the map.

This document provides guidance to planners, project teams, scoping teams, designers, program managers and ODOT maintenance and operations as they implement the Seismic Program. In addition, the document communicates ODOT's priorities and policies for implementation, provides a consistent decision-making structure for program/project changes and integrates ODOT's work with local agency plans.

The policies and guidelines presented here follow the guidance in the *2013 Oregon Resilience Plan*. We will also amend the policies and guidelines to follow future plans such as the governor's report entitled *Resiliency 2025: Improving Our Readiness for the Cascadia Earthquake and Tsunami*. The policies and guidelines will also align with the statewide objectives of enhancing our infrastructure resilience, helping to preserve our communities and protecting our state economy by managing risk to our transportation system.

The document is intended to provide guidance, not design details. The guiding principles are intended to ensure consistent decision making in order to provide statewide seismic resiliency around the far reaching interconnected damage the earthquake will create.

There is not enough funding to fully armor the transportation system in a reasonable timeframe. As such, this document takes an approach that aims to be strategic, opportunistic, and includes leverage opportunities between jurisdictions when applying available funding. Strong partnerships across the transportation sector will be required for successful implementation.

Background

Over the last several years, ODOT has prepared plans to help define the resiliency issues associated with Oregon's highway infrastructure and to help quantify the costs of associated upgrades in response to a Cascadia Subduction Zone Earthquake. The most recent effort is documented in the *2014 Seismic Plus Report*. Now that Keep Oregon Moving (HB2017) has provided on-going funding, we need overarching policy to help guide implementation.

Part of the policy considers the recommendations made in the *2013 Oregon Resilience Plan Status Report* which states:

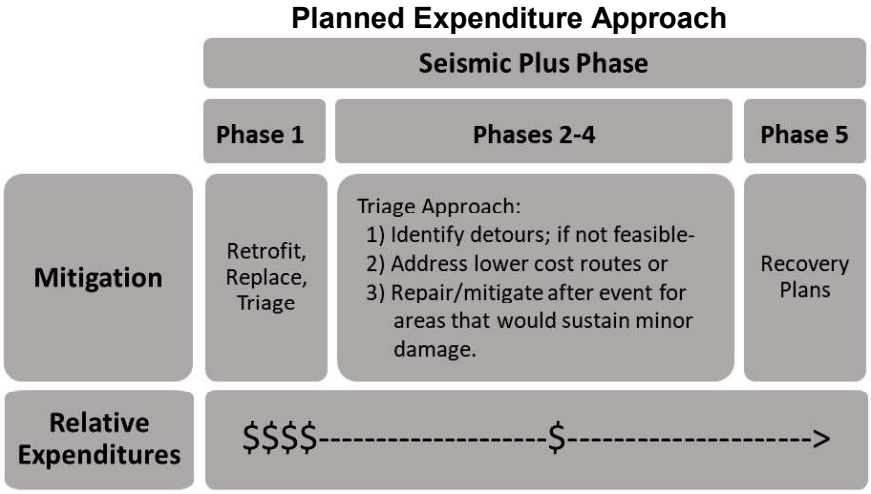
> *"Enhance the proposed Highway Lifeline Maps by considering the use of highway segments owned by cities and counties to provide access to critical facilities. Prioritize local routes to provide access to population centers and critical facilities from the identified Tier-1 routes. When developing projects for seismic retrofit of highway facilities, consider whether a local agency roadway may offer a more cost effective alternative for all or part of a lifeline route."*

ODOT's Bridge Seismic Standards engineer and other ODOT leaders, are working collaboratively with Oregon counties and select cities to develop planning reports documenting local agency routes that could potentially be used as detour routes for vulnerable state bridges. Furthermore, local agencies are re-evaluating their local emergency transportation routes based on the new information on the state lifeline routes. While the information is useful for local planning, we will compare the state seismic bridge and unstable slope priorities to determine possible state highway detour routes that may be more cost effective to seismically address. By 2021, the planning work underway with local governments to triage the system will either be complete or underway.

The local agency triage approach looks beyond ODOT's system to find lower cost alternatives that will provide vital connections within the framework of ODOT's Seismic Plus five phased approach. Incorporating the triage information into an updated policy is important guidance for both ODOT and local governments and is in alignment with the *Oregon Resilience Plan*.

Strategy

Considering funding limitations, this strategy has multiple approaches that are intended to happen concurrently. The strategy combines a long-term full mitigation approach for the most important corridors in Phase 1, a triage approach for Phases 2-4, and a recovery planning effort for bridges in Phase 5. Partnerships between ODOT and local agencies will be key in the triage and recovery planning efforts. The figure below details the planned approach to address bridges and unstable slopes by Seismic Plus Phase.



Part of the Seismic Program will also include enhancing ODOT maintenace stations and pre-staging critical supplies in the most affected areas. This approach aims to leverage exsiting funding and co-location with local partnerships. The three first priority locations that have been identified are Coos Bay, the central coast, and Astoria.

Seismic Program Roles/Responsibilities and Governance

Each significant program in the Statewide Transportation Improvement Program (STIP) has a designated program owner. The program owner is responsible for tracking progress toward achieving the program goals by using performance measures, developing program strategies and working with the regions during STIP development and project delivery. In the past, the Bridge Engineering Section and the Director's Office have done ad-hoc program management for the Seismic Program. Given the level of investment and the expectation set by HB2017, we need a more formal and intentional program management role. The following section details the program management roles.

Delivery and Operations Division Administrator: The Delivery and Operations Division administrator is responsible for the funding split between STIP projects and facilities which typically occurs during STIP development. The Administrator is also responsible for the overall resiliency strategy for ODOT's assets and seismic implementation status reports for the Oregon Transportation Commission (OTC).

STIP Projects

Chief Engineer: The Chief Engineer is the designated program owner. When project level discrepancies arise, the Chief Engineer is also the final decision maker to determine the scope of work, funding and/or design. The Chief Engineer will collaborate with the Seismic Program Advisory Group, stakeholders and technical experts to reach a decision. The single point of contact is intended to provide statewide consistency around implementation and route connectivity. This position is also responsible for preparing the seismic implementation status report section for bridges and unstable slopes, county triage reports, and recovery plans.

Seismic Program Advisory Group: The Chief Engineer will assemble the Seismic Program Advisory Group (Advisory Group) to assist with strategic decisions and program direction during program implementation. The group will consist of diverse members identified by the Chief Engineer and will include key technical disciplines and region representation. The Chief Engineer will act as the chair of the Advisory Group or will delegate this responsibility to another member of the Advisory Group.

Bridge Engineering Section: The Bridge Engineering Section will work closely with the Geotechnical Engineering and Engineering Geology Section to ensure progress is made securing resilient route segments for both bridges and unstable slopes. These sections will also coordinate closely with the regions. The Bridge Engineering Section will provide progress reports on both bridges and unstable slopes in the annual Bridge Condition Report.

Regions: The regions will be responsible for project delivery and managing scope, schedule and budget for each project. They will also work with local agencies to find opportunities to optimize investments and ensure ODOT and local governments have response plans for high priority facilities.

Maintenance Facilities

Maintenance and Operations Engineer: The Maintenance and Operations Engineer is the designated Maintenance Facilities program owner and is responsible for managing the maintenance facilities portion of the Seismic Program. The work will include:

- Working with Facilities and the Maintenance Leadership Team to select projects. ODOT will give priority funding to isolated coastal areas, opportunities to co-locate with other agencies and opportunities to match existing facility funding.
- Ensuring seismic funds are used to supplement funding on coastal maintenance facilities consistent with the seismic strategy.

- Working closely with facilities and regions to deliver projects and provide a change management process as needed. Overseeing purchase, placement, and storage of forward supply materials.
- Producing the seismic implementation status report section for facilities and documenting strategies for moving forward.

Facilities: Facilities will work with the regions and the Maintenance and Operations Branch to deliver facility projects. Facilities will also identify opportunities to maximize the use of available funding.

Regions: The regions will assist in the selection and delivery of facility projects.

Phase 1 Corridor Serviceability

Due to limited funding and extensive needs, we know that we cannot mitigate every location before the Cascadia Subduction Zone Earthquake occurs. To maximize current funding, our approach is to focus on larger bridges over rivers and unstable slopes that would have a long repair time. Smaller bridges and some unstable slopes will not be mitigated but will be part of the post-earthquake response. While a highway segment may be considered "complete", many will likely be closed for two or three months, depending on the accessibility of the location, to address the minor features purposely left for the recovery. This strategy will allow us to mitigate more critical bridges and slopes, allowing more of the system to open within the two to three-month timeframe.

As we triage what work will be prioritized as recovery work, we will use a three-month planning window as our target. We will plan to repair locations that are not mitigated prior to the Cascadia Subduction Zone Earthquake, to a traversable condition (one lane gravel road in most cases) within the three-month target. The planning window will allow resources to get to the most critical areas on the most routes before the event. However, the planning target means the public should be prepared for a three-month closure, even on "completed" lifeline routes.

Seismic Funding and Project Identification

Funds from HB2017, designated for seismic work, will be used for:

- Seismic bridge replacements and retrofits,
- Unstable slope seismic mitigation,
- Supplementing facility funds to enhance our coastal maintenance facilities to provide forward supplies in advance of a Cascadia event.

Funding Splits: Managing a program this diverse presents challenges. Given the differences in the STIP development/management process and the budget process for Facilities, program responsibilities should be split as described. These splits will be made during STIP development and not "managed" as the STIP is executed.

The HB2017 funds designated for seismic improvement will be split approximately as follows:

- 60-80% Phase 1 highway segments (see map),
- 5-15% maintenance facilities and forward supplies,
- 10-30% triage opportunities. The funding could be used for work like addressing multiple bridges in a corridor that benefit both ODOT and other agency needs or a single bridge that is critical to both ODOT and another agency that provides additional funding.

Seismic Plus Phase Priority Changes: When selecting projects, ODOT will follow the Seismic Program Phase priorities as documented in the *2014 Seismic Plus Report.* If during the STIP project selection process, ODOT identifies opportunities for allocating seismic funds to a lower priority route, the Advisory Group will develop a "Pros and Cons Matrix" for each case and discuss the value of such investment with the Chief Engineer. If the proposal receives the support of the Advisory Group and the Chief Engineer, a "Priority Adjustment Memo" will be provided to the Delivery and Operations Division Administrator for consideration and approval. Changes within program phases, for example specific bridge priorities, that gain support of the Advisory Group will be approved by the Chief Engineer.

Seismic Plus Bridges in Future STIPS: As we develop future STIPs, all projects should be evaluated in the context of seismic triage opportunities. In addition, we will address projects that include bridges identified in the *2014 Seismic Plus Report* for seismic needs or document an exception. Conversely, we will evaluate Seismic Plus bridges funded for seismic work for rehabilitation work. We recognize the Bridge Program is underfunded and cannot fund all needs. However, where cost effective, it is critical to address both bridge condition and seismic resiliency to ensure we have completed resilient sections.

Prioritizing and Scoping STIP Projects over River Crossings: As we prioritize work, we will prioritize major river crossings over minor river crossings, smaller facilities and landslides that would have a shorter recovery time. Small, easy to replace bridges/unstable slopes will be a low priority or not addressed.

Interstate Bridges: Unless there is an economic cost savings, parallel bridges should focus on just one direction. Interchange overcrossings with feasible up and over ramps are a lower priority compared to projects that extend the route segment.

Selection Criteria for Local Bridge Program: ODOT will coordinate with the Local Agency Bridge Selection Committee to ensure that the needs of high priority bridge projects on local triage plans are included in the selection process. We will evaluate opportunities to incentivize the selection of high priority projects consistent with local triage plans.

Addressing Non-Seismic Plus Bridges: When we prioritized limited resources on the most critical highway segments as identified in the *2014 Seismic Plus Report*, many highway segments, while important to local emergency response and recovery, were not included. We recognize that we need to make decisions around mitigating non-Seismic Plus bridges on these segments and will develop guidance in the future.

Design Criteria and Considerations

1. **Design Criteria**
    a. Design earthquake – Full rupture of the Cascadia Subduction Zone Earthquake.
    b. Design standards – Seismic retrofit of existing bridges will be designed according to the requirements of the ODOT Bridge Design Manual (BDM) for the "Operational" criteria, whereas new bridges will meet both the "Operational" and "Life Safety" criteria as described in the BDM. "Life Safety" criteria may be considered for existing bridges if the associated cost is nominal and determined to be cost effective by the Chief Engineer.
        - "Life Safety" criteria is defined as: Significant damage is sustained during an earthquake and service is significantly disrupted, but life safety is assured. The bridge may need to be replaced after a large earthquake.
        - "Operational" criteria is defined as: Damage sustained is minimal and full service for emergency vehicles should be available after inspection and clearance of debris. Bridge should be reparable with or without restrictions on traffic flow.
    c. Unstable slopes – Unstable slopes have been prioritized based on potential traffic impacts and will be mitigated based on the prioritization to a level that will allow easy mitigation to get traffic moving.
    d. Rockfall Sites – Rockfall Sites will be addressed as part of the prioritization process of unstable slopes. In most cases rockfall, especially those above the roadway, can be readily removed following an event so they will not be proactively addressed.

2. **Project Selection Considerations to Optimize Funding**
    a. Parallel structures – For parallel structures carrying traffic in the opposite direction (I-5 NB versus SB, for example) an evaluation should be made to determine the need to address both structures. Items to consider:
        - What are the opportunities for crossovers? Is the grade separation prohibitive?
        - What are the costs for addressing individual bridges versus addressing the bridges collectively, including all associated costs like environmental and staging? Is there a significant cost savings if both bridges are addressed simultaneously?
        - If a crossover is not feasible and either bridge collapses, is there alternate accessibility?

b. Impact of deferral – In general, all structures and unstable slopes should be evaluated to determine the impact of deferral. Items to consider:
   - Accessibility – can the bridge/debris be readily moved out of the way and traffic restored in a reasonable timeframe? Can the slide material be moved or regraded reasonably quickly to provide a traversable pathway? Factors involved in evaluating this include length of bridge/unstable slope, facility crossed.
   - Active stream – for bridges over active streams, a starting point to consider that may allow a bridge to be deferred is whether the stream could be contained within three 36-inch diameter culverts for a five-year storm event. The 36-inch diameter culvert is assumed to be readily available and easy to handle if an event occurs.
   - Response time – what is the response time to the site? Think in terms of the distance to a rock source, the quantity of material available at the rock source and the vicinity of a maintenance station nearby that is equipped to respond.
   - Utilities – what utilities like electricity, communication, and/or water lines does the bridge carry that could significantly impact a community? Are there utilities crossing an embankment or buried along or under the highway or bridge?

Mitigation Options

ODOT completed a planning level evaluation for all bridges and unstable slopes on the Seismic Plus Phase 1-4 highway segments in 2014. While we developed concept plans for either retrofitting or replacing vulnerable bridges, we did not evaluate other options. As we develop the program, we need to remember that alternative evaluations are a critical component of the project selection decision making process.

Bridge and unstable slope mitigation or deferral options will be evaluated at the same time along either the lifeline corridors or triage routes. For clarification, mitigation options for unstable slopes include either full or partial stabilization. Deferral options for bridges and unstable slopes include either a detour or restoration following the seismic event.

Bridges: Retrofit and Rehabilitation versus Replace Considerations

As noted in the previous section, each bridge should be evaluated to determine if a deferral option exists. That is, a course of action following the earthquake that meets the corridor serviceability expectations. When the only option is to mitigate (retrofit or replace) the bridge, we will complete an analysis to optimize the course of action.

Seismic retrofit costs vary significantly from bridge to bridge, based on bridge type, size, and location. Decisions on bridge retrofit and rehabilitation (bridge repairs) versus replace are challenging to quantify. For bridges with estimated replacement costs less than $30M, the following matrix *provides a starting point* for discussion. Items to consider include:

- The age of the bridge,
- The bridge condition based on the estimated remaining service life (RSL) available from the Bridge Planner,
- The ratio of the retrofit and rehabilitation costs to replacement costs (**R_c**).

Retrofit and rehab. versus replace considerations		Ratio Retro+Rehab Costs / Replacement (R_c)		
AGE in CN Year	**RSL, yrs**	**R_c<0.35**	**0.35≤ R_c ≤0.65**	**R_c>0.65**
NA	<16	Replace	Replace	Replace
≤ 50	16 ≤ RSL ≤30	Add'l Analysis	Add'l Analysis	Replace
≤ 50	> 30	Retro+Rehab	Add'l Analysis	Replace
> 50	16 ≤ RSL ≤30	Add'l Analysis	Replace	Replace
> 50	>30	Add'l Analysis	Add'l Analysis	Replace

The bridge *deficiency rating* which is based on the ODOT Bridge Key Performance Measure that incorporates aspects beyond bridge condition, like functional operation, will also be considered as part of the analyses.

Because the current STIP seismic funding amount is limited, bridges with costs greater than $30M will need individual funding strategies. Since one of the overall long-term goals of the Seismic Program is to provide continuity along corridors, the pros and cons of expending a large sum of money on one bridge at the expense of many bridges needs to be addressed.

Unstable Slopes: Mitigation Considerations on Seismic Plus Phase 1 Routes

Landslides

Landslide repair and mitigation decisions are based on professional judgement due to their high variability. Each site differs with respect to size, composition, geometry, and mechanism of failure. They are further complicated by the limited information available, most of which must be collected by constrained subsurface data collection. The variability and inexact nature of landslide investigation and analyses defies establishment of general standards concerning which landslides to repair or mitigate, or what magnitude of deformation is tolerable for each and every site.

Decisions concerning landslide mitigation and repair on seismic lifeline routes should be based on the desired performance of the site and its effect on the lifeline route overall. In this regard, a required timeframe to open the site to a particular level of service is a more appropriate criteria than a set amount of post-earthquake deformation of a landslide. This allows other conditions to be considered and applied to each site such as:

- Corridor serviceability
- Proximity of material sources and equipment,
- Cost-benefit of mitigating deformation,
    - Cost-benefit of the amount of deformation to mitigate,
- Size of the landslide,
- Viability of alternative routes after the earthquake.

Analysis of trade-offs is an integral part of these considerations. For example, a site that would experience significant slide movement but is close to a viable material source and maintenance yard might not be a good option for a high cost project to stabilize ahead of time. Rather, spending money on an isolated site far away from materials and equipment would be a better candidate to stabilize to a tolerable amount of deformation.

Further consideration should be given to overall corridor performance. Relying entirely on post-event repair, even in areas where resources are available, should be carefully considered with respect to the overall volume of material that has to be moved and the number of slides that can be worked on at any given time. Combinations of pre-Cascadia mitigation and post-event response will likely be needed to restore services to a highway corridor in the desired timeframe.

A final matter to consider is the longer-term performance of the corridor. Post-event mitigations are by their nature a somewhat hurried undertaking and may not perform well in subsequent months due to aftershocks and climate events. Additionally, slopes affected by seismic activity can exhibit increased activity for a long period of time afterward. These issues could inhibit recovery once the initial emergency is over. At the very least, Oregon may face additional difficulties on compromised highway segments that are already challenging.

In previous lifeline resilience cost-estimating efforts, we gave emphasis to those landslides that, in the event of catastrophic failure, would most likely close the highway for a significant period of time. The high cost of landslide repair coupled with the limited available budget makes this limited scope more challenging. However; without at least this baseline goal, seismic resilience would be severely limited by not addressing these sites in some way.

The general criteria for selecting landslides to mitigate should continue to focus on those sites that close all lanes of traffic in the event of complete failure. Additional refinement criteria includes:

- Size of the landslide,
- Volume of displacement,
- Post-seismic stability,
- Ability to repair post-event,
- Viable detours including existing infrastructure and temporary detours such as shoe-fly's or frontage roads.

Smaller slides that have a high amount of displacement and leave only a narrow roadway section after failure should also be scrutinized. Routing traffic over a remaining unstable slide block is not desirable.

Rockfall Sites

Rockfall sites have largely been disregarded in past efforts due to the short amount of time that they take to clear. Rockfall will continue to be a hazard during the event and rockfall sites that have the potential to create a long-term obstruction should also receive consideration.

Recovery Plans

Coordination of Recovery Plans: The regions will work with local agencies and emergency services to develop plans to address recovery following the Cascadia Subduction Zone Earthquake, based on the local triage plans developed with the counties. As local triage plans are completed, local agencies will work with emergency services to identify other critical bridges and unstable slopes that need to be prioritized.

Phase 5 Bridges-Recovery Plans: The Seismic Plus Phase 5 bridges (see map for locations) will have an independent funding plan. These bridges are either unique and/or historic, or significant in size resulting in cost prohibitive design alternatives. The bridges are currently identified for replacement in order to provide seismic resilience at a total cost of more than $2 billion. This list was compiled at the time the Seismic Plus study was done, however, more bridges may be added as implementation continues.

Prior to the Phase 5 bridge replacements, the region managers, in coordination with the Maintenance Operations Branch, will work with local emergency services to develop plans to address recovery following the Cascadia Subduction Zone Earthquake. At a minimum, we expect recovery plans to include options for accommodating long term bridge closures such as detours and alternative transportation modes like waterways and airways. Each agency needs to document how they are preparing for and executing this plan. Following completion of the recovery plans, more will be known as to which bridges are the most vital to provide seismic resiliency and priorities can be established around the funding and timing for replacements.

The Phase 5 bridges (*green dots on map*) include:

1. I-5: Medford Viaduct
2. US 26: Ross Island Bridge (Portland)
3. US 26: North Fork Quartz Creek Bridge
4. US 26: Deschutes River Bridge
5. OR 42: Beaver Creek Bridge
6. OR 99E: SE Water Street Viaduct (McLoughlin Blvd-Portland)
7. OR 99E: Pudding River Bridge
8. US 101: Yaquina Bay Bridge (Newport)
9. US 101: Cape Creek Bridge
10. US 101: Siuslaw River Bridge (Florence)
11. US 101: McCullough Bridge (Coos Bay)
12. US 101: Rogue River Bridge (Gold Beach)

Next Steps

As we developed this seismic implementation plan, we realized there are logical next steps that should be highlighted for further implementation. This work will need to be prioritized with other work and available funding. The program owners will be responsible for the following tasks:

Task	Reference Section	Who?
Distributing and promoting this document to ODOT stakeholders including Region Managers, Area Managers, District Managers, project leaders, technical experts and other stakeholders.	NA	Chief Engineer and Maintenance and Operations Engineer
Establishing expectations of triage routes for consideration in lieu of ODOT lifeline routes (e.g. traffic capacity, load capacity).	Background	Delivery and Operations Division Administrator with Chief Engineer
Developing performance measures to track progress.	Seismic Program Roles/Responsibilities and Governance	Chief Engineer and Maintenance and Operations Engineer
Producing the seismic implementation status report section for facilities and documenting strategies for moving forward.	Seismic Program Roles/Responsibilities and Governance	Maintenance and Operations Engineer
Initiating the development of Local Agency Bridge Program incentives to select projects that support local triage projects.	Seismic Funding and Project Identification, Selection Criteria for Local Bridge Program	Chief Engineer
Developing guidance for addressing Non-Seismic Plus routes.	Seismic Funding and Project Identification, Selection Criteria for Local Bridge Program	Delivery and Operations Division Administrator with Chief Engineer
Establishing expectations for post-earthquake corridor performance.	Unstable Slopes: Mitigation Considerations on Seismic Plus Phase 1 Routes	Delivery and Operations Division Administrator with Chief Engineer
Developing Phase 5 bridge recovery plans. Includes work with each region to ensure each plan fits the local needs while fitting into a statewide strategy.	Recovery Plans	Maintenance and Operations Engineer
Presenting progress reports to the OTC.	NA	Delivery and Operations Division Administrator

Resources

- 2014 Seismic Plus Report
- Resiliency 2025: Improving Our Readiness for the Cascadia Earthquake and Tsunami
- FHWA Seismic Retrofitting Manual for High Structures: Part 1 -Bridges
- Triage reports by county, including high priority opportunities (linked when available)
- Prioritized maintenance stations (this will be created by the Task Force)
- Bridge and Landslide Phase 1 priorities (linked when available)

Steering Committee

The Steering Committee provided guidance in developing the details for the Seismic Implementation document through multiple meetings and document reviews. The Steering Committee included:

Paul Mather, Delivery and Operations Division deputy director (retired)
Steve Cooley, ODOT chief engineer
Ray Mabey, ODOT State Bridge engineer
Stu Albright, ODOT State Geotechnical engineer
Liz Hunt, ODOT Bridge planner
Tova Peltz, ODOT Region 1 Project Delivery manager
Albert Nako, ODOT Seismic engineer
Curran Mohney, ODOT Engineering geologist
Bert Hartman, ODOT Bridge Program and Standards engineer

Additional Oversight

The Additional Oversight group assisted the Steering Committee with comments and suggested edits on the initial DRAFT document and the Final DRAFT. The Additional Oversight group included:

Mac Lynde, Delivery and Operations Division deputy director
David Kim, ODOT Statewide Project Delivery manager
Susan Ortiz, ODOT Bridge Geotechnical senior engineer
Christina LeClerc, ODOT Emergency Operations manager
Sonny Chickering, Region 2 manager
Chris Hunter, ODOT Region 3 area manager (also, participated with the Steering Committee)
Jim Gamble, ODOT District 5 Maintenance manager
Erik Havig, ODOT Statewide Policy and Planning manager
Michael Rock, ODOT Transportation Planning Unit manager
Luci Moore, ODOT State Maintenance and Operations engineer
Brian Worley, County Road Program manager (Association of Oregon Counties)
Andrew Phelps, Oregon Emergency Management director
Matt Marheine, Oregon Emergency Management deputy director
Mike Harryman, State Resilience officer (Julie Tasnday, executive support)