

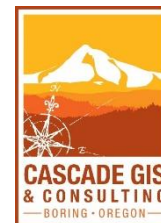
# Regional Emergency Transportation Routes Update

## Metro Policy Advisory Committee Review of Phase 1 Draft Report

February 24, 2021



Project Team: RDPO, Metro  
Thuy Tu Consulting, LLC, Salus Resilience, Cascade GIS & Consulting, FLO  
Analytics



# Project Purpose



To update designated Regional Emergency Transportation Routes (RETRs) for the five-county region.

- Update 1996 and 2005/2006 ETRs
- Improve understanding of resilience of ETRs
- Raise visibility of ETRs
- Facilitate regional dialogue regarding resilience and recovery
- Set the stage for Phase 2 and future planning and investment

# Project Team



Thuy Tu  
Thuy Tu Consulting, LLC



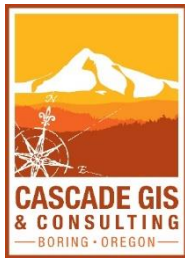
Allison Pynch, PE, GE  
Salus Resilience



Erica McCormick  
Cascade GIS & Consulting



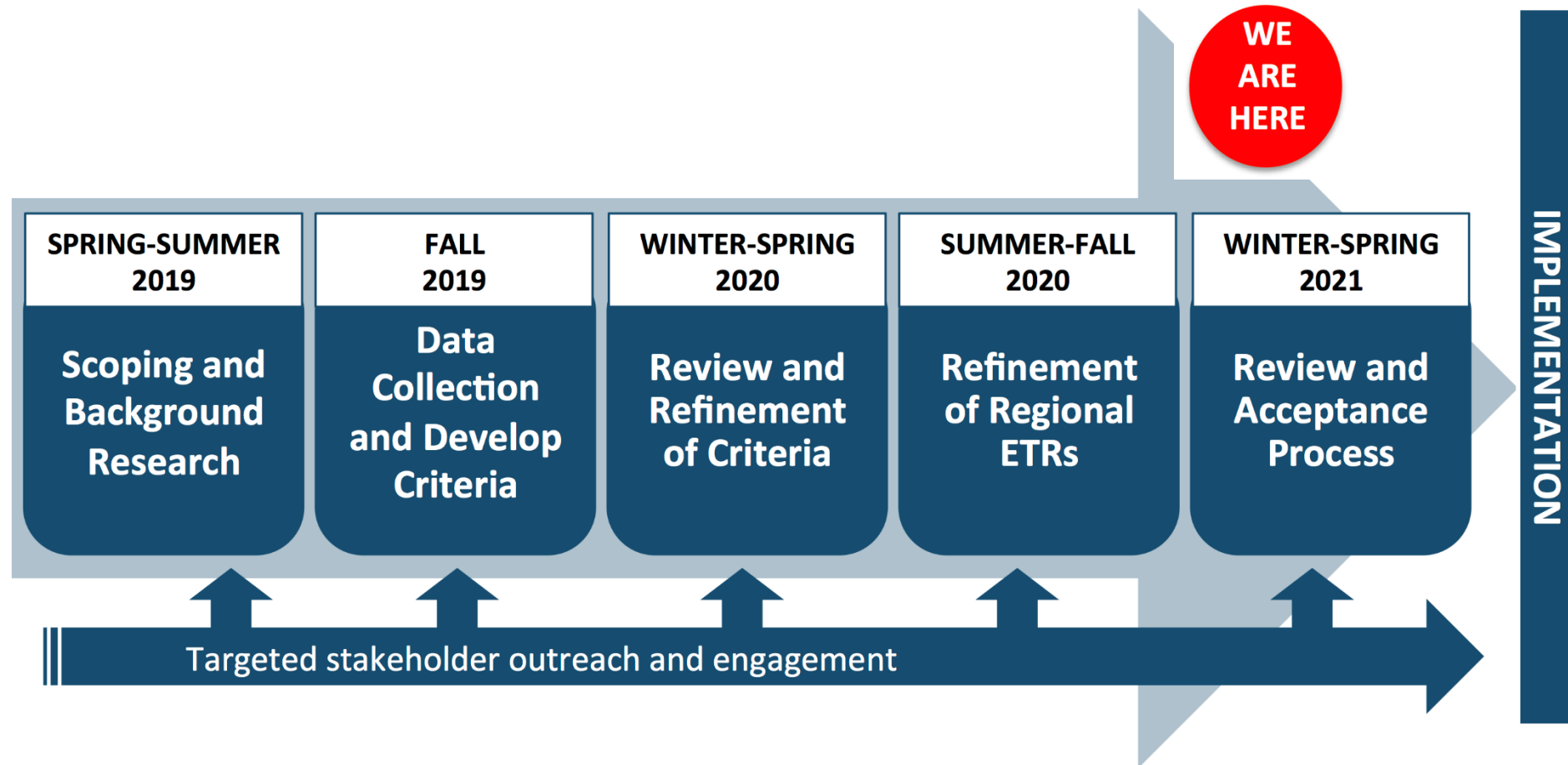
Jed Roberts  
FLO Analytics



# Regional ETR Update Work Group



# Project Timeline





# Stakeholder engagement | 2019 and 2020

- 7 Regional ETR work group meetings (2019-2020)
- 2 TPAC/MTAC workshops (2019-2020)
- 1 community leaders' forum (2019)
- 10 county-level coordinating committee briefings (staff and policy) (2020)
- 3 county-level coordinating committee meetings (policy) (2020)
- 8 jurisdictional specific meetings to review draft maps (2020)
- 3 REMTEC briefings (2019-2020)
- 2 Public Works work group briefings (2020)
- 3 RDPO Steering Committee briefings (2019-2020)
- 1 Joint Policy Advisory Committee on Transportation briefing (2019)
- 1 Metro Council briefing (2020)
- 1 Southwest Washington Regional Transportation Council briefing (2020)



**More than  
40  
touch points  
in 2019 and  
2020**



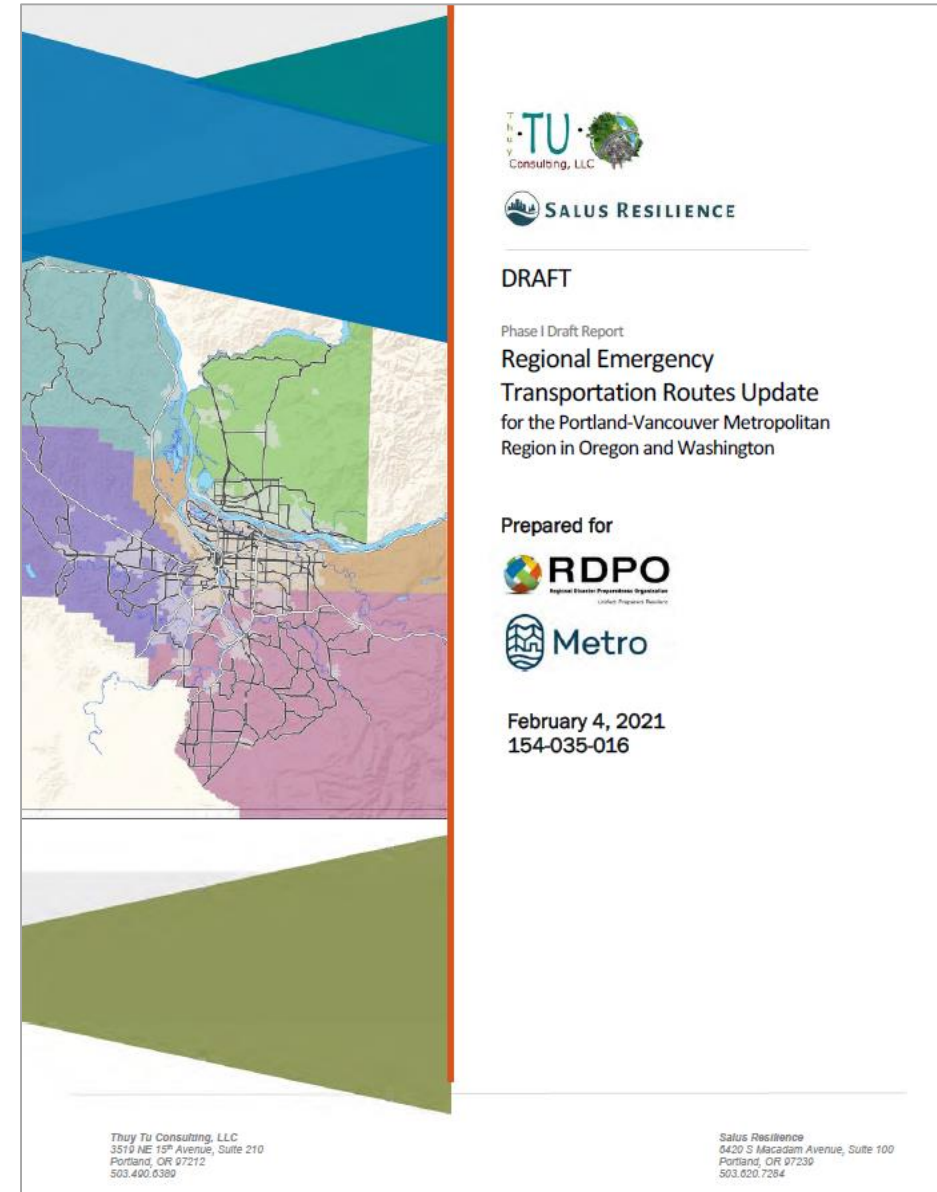
**zoom**

# Overview of Draft Final Report

## Table of Contents

- 1 Introduction
- 2 Stakeholder Engagement
- 3 Background and History
- 4 Overview of Concepts and Methods
- 5 Data Collection and Analyses
- 6 Analysis Results & Recommendations
- 7 Updated Route Summary
- 8 Recommendations for Future Work

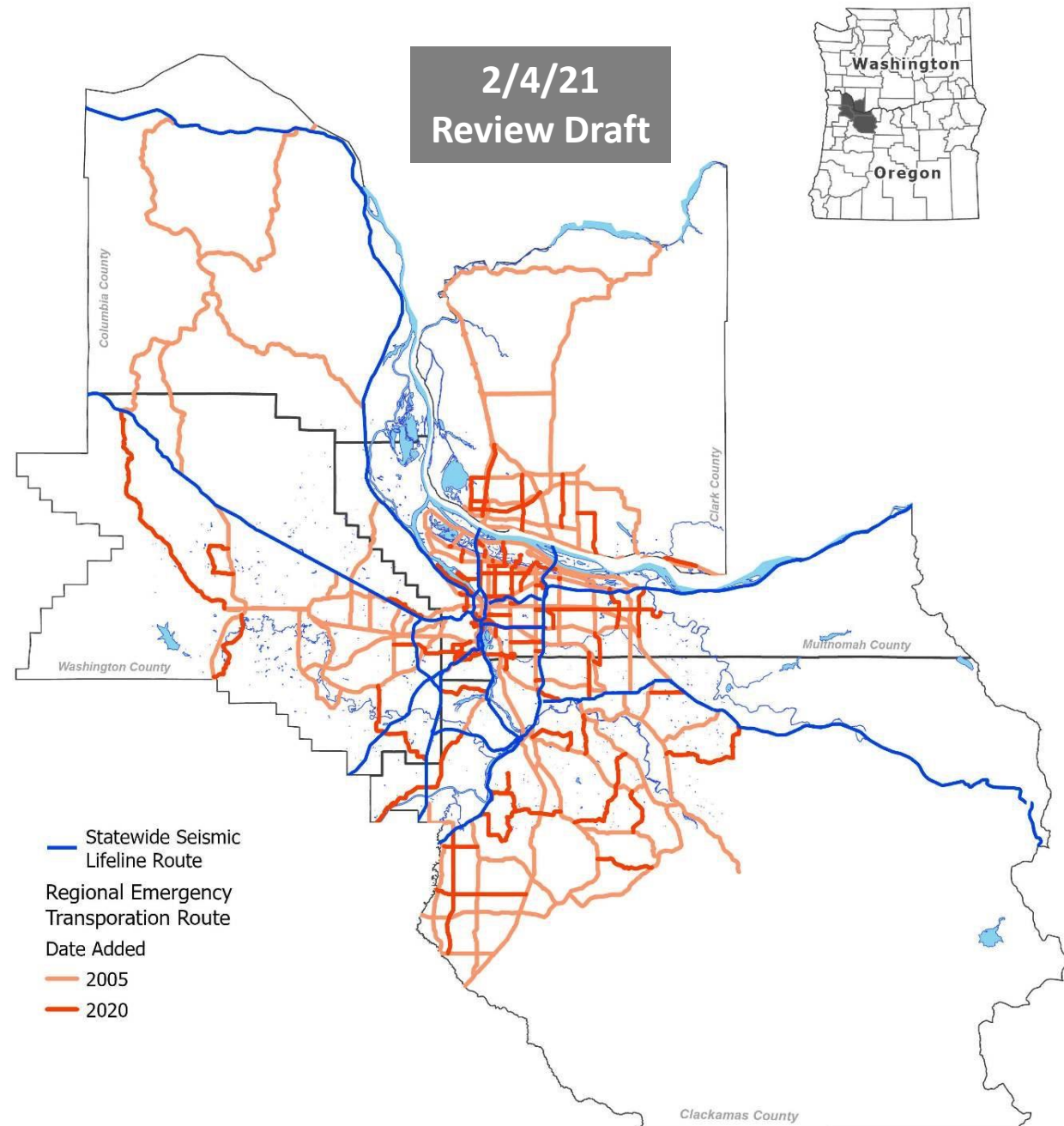
## Appendices



# DRAFT Updated RETRs

~40 routes added by jurisdictional partners to:

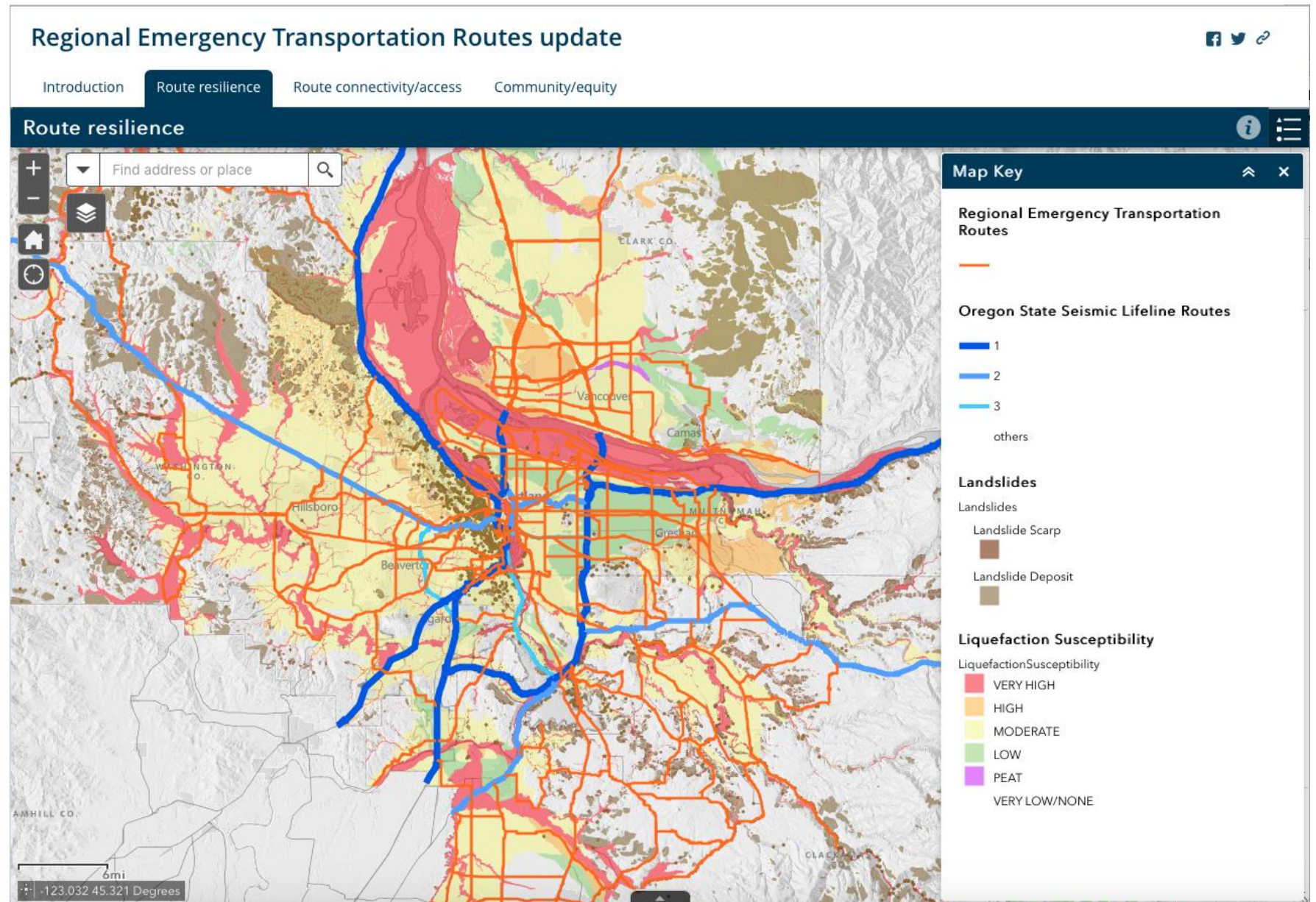
- connect to more state/regional critical assets
- reflect updates recommended through local planning and ODOT/County seismic lifeline bridge detour reviews
- add new and improved facilities





# On-line viewer

<https://arcg.is/0rWCX5>

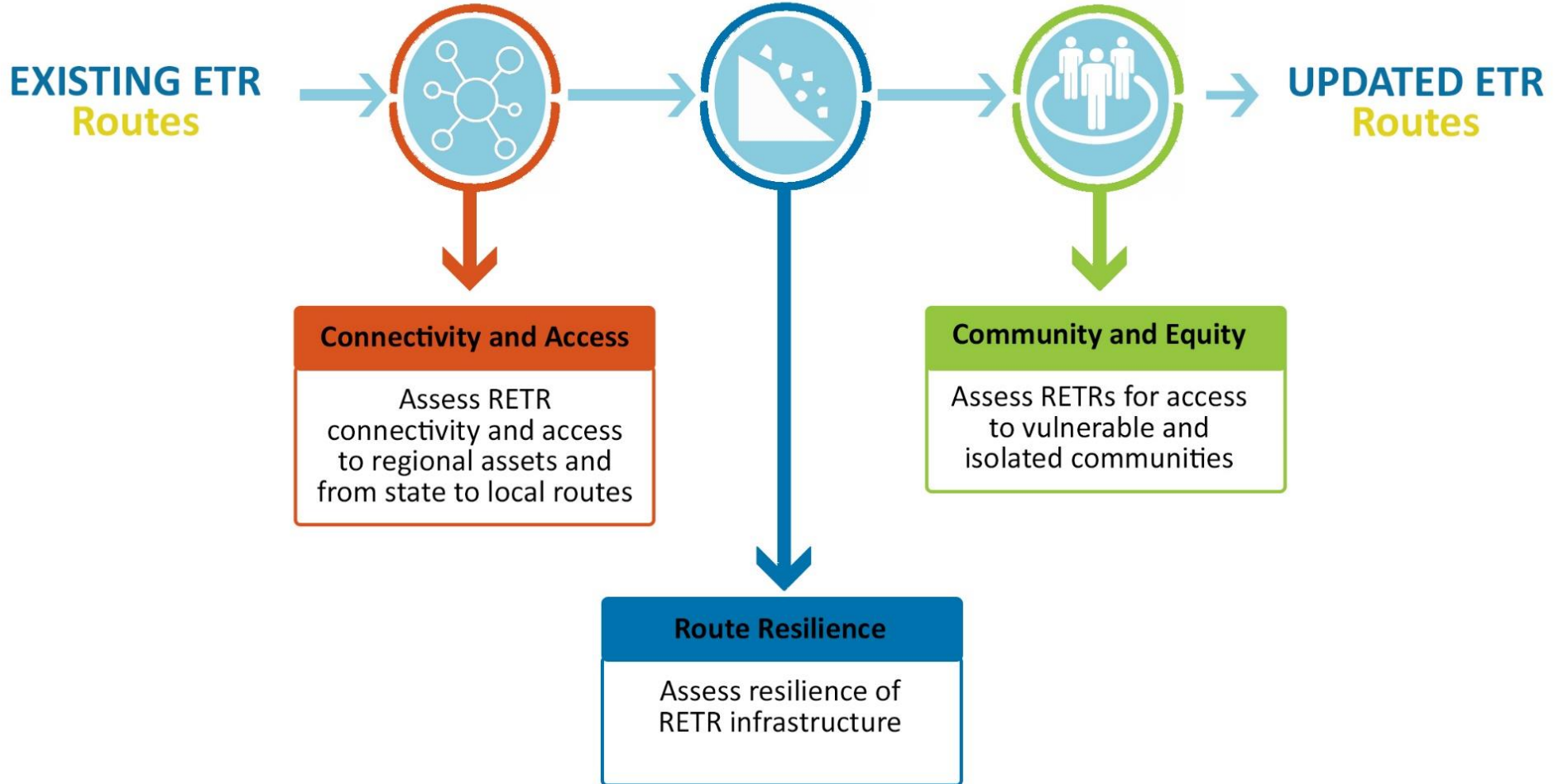


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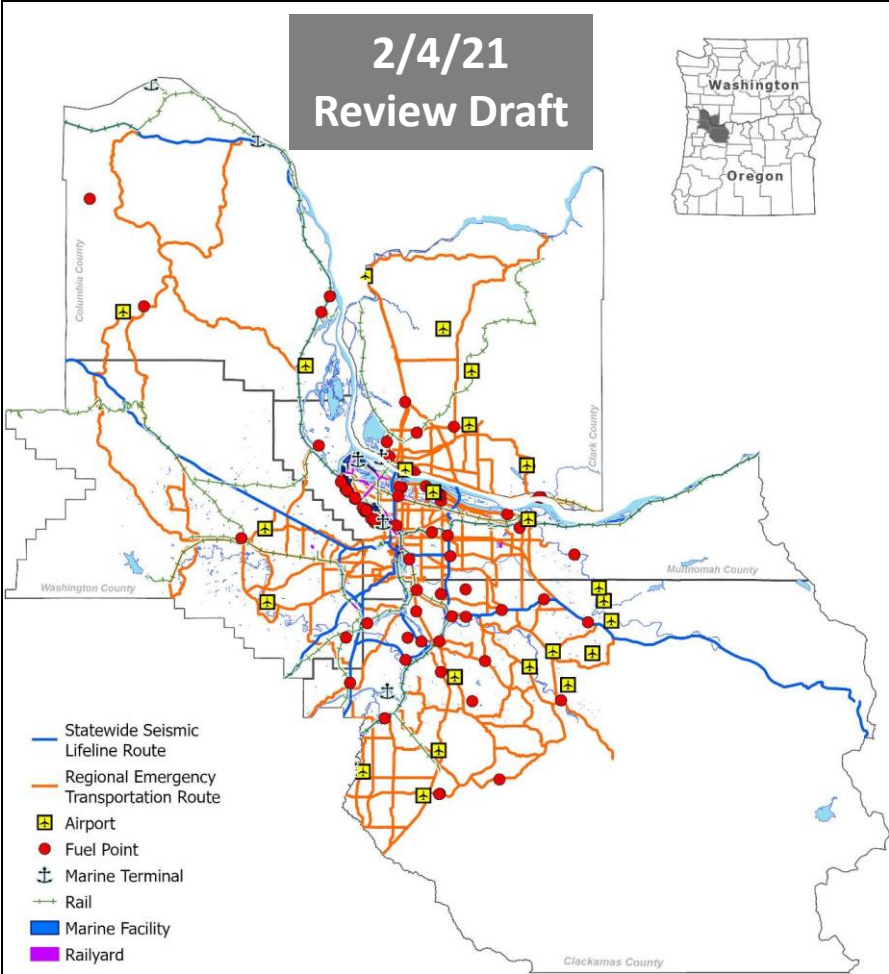
# Factors Applied in RETR Update



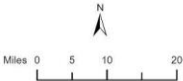
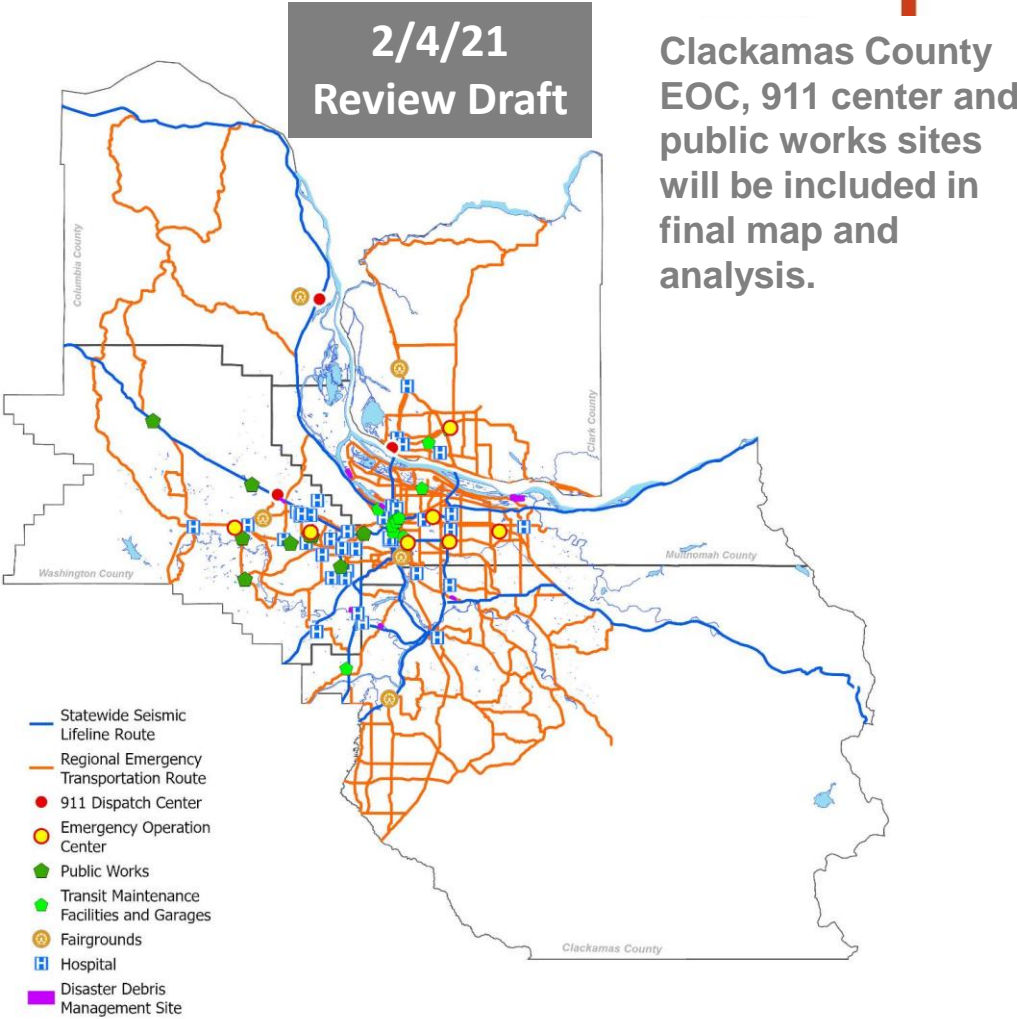


# RETR Connectivity and Access Findings

## State/Regional critical assets



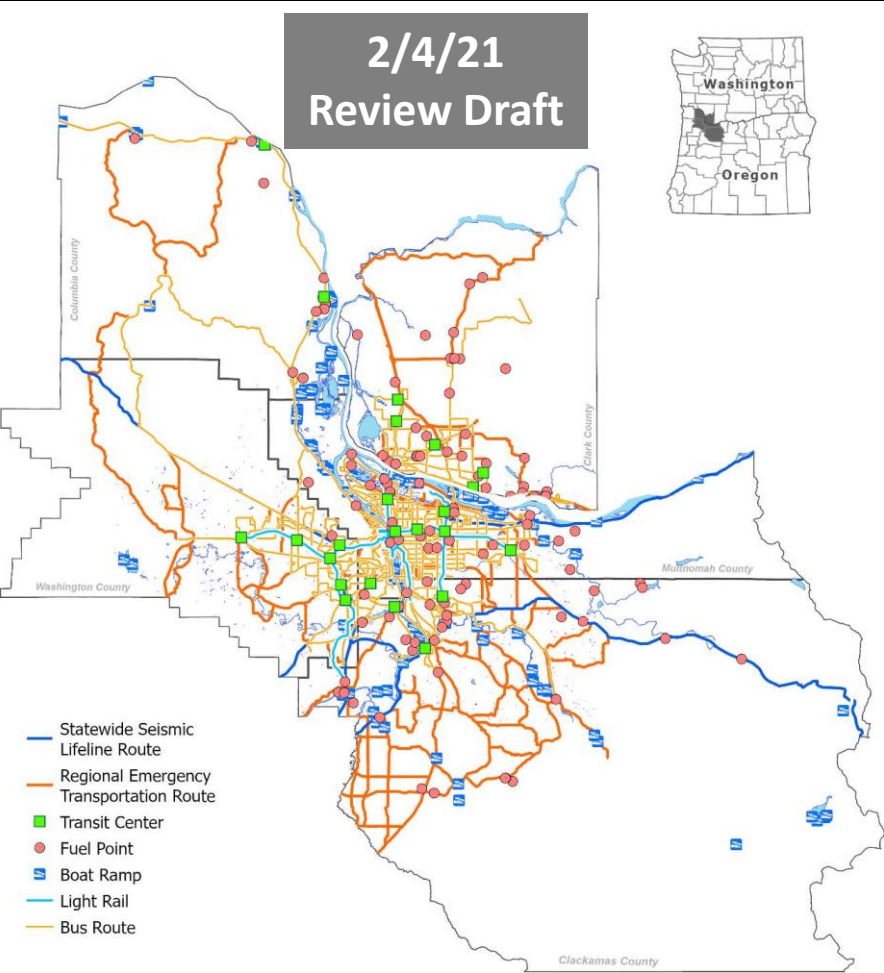
Data Sources: See Appendix E, Table 1 for complete list of critical infrastructure data and sources.



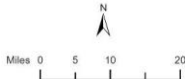
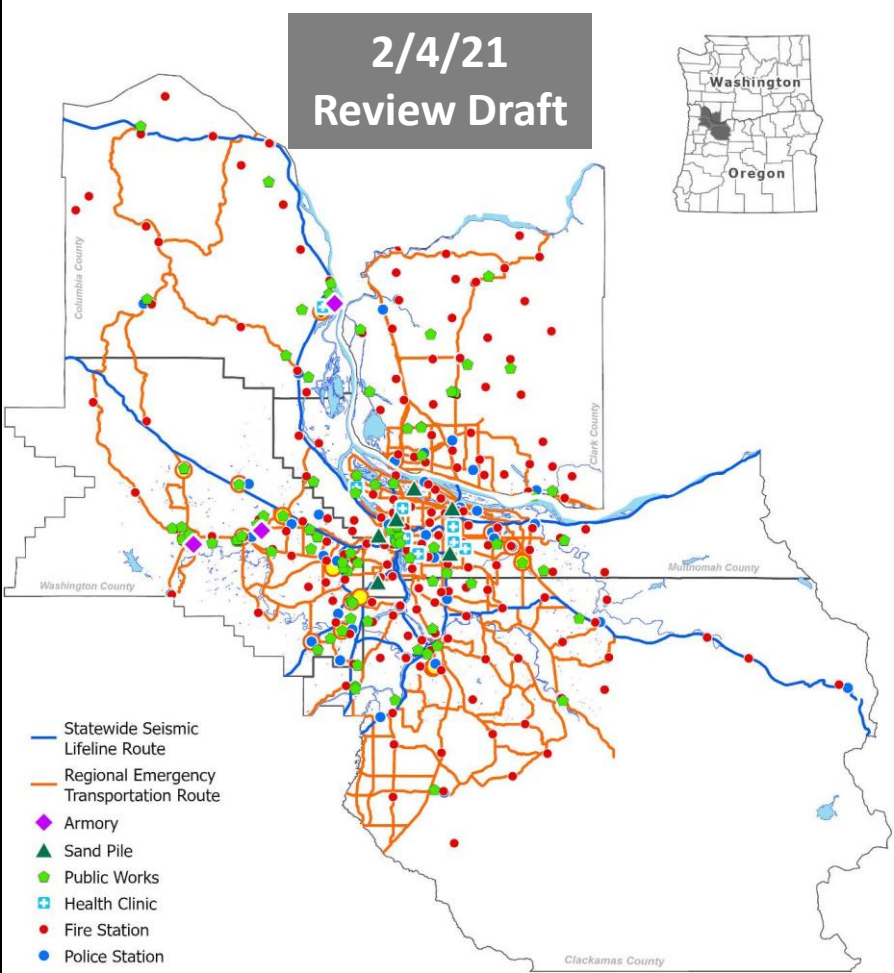
Data Sources: See Appendix E, Table 1 for complete list of essential facilities data and sources.

# RETR Connectivity and Access Findings

## County/City critical assets



Data Sources: See Appendix E, Table 1 for complete list of critical infrastructure data and sources.

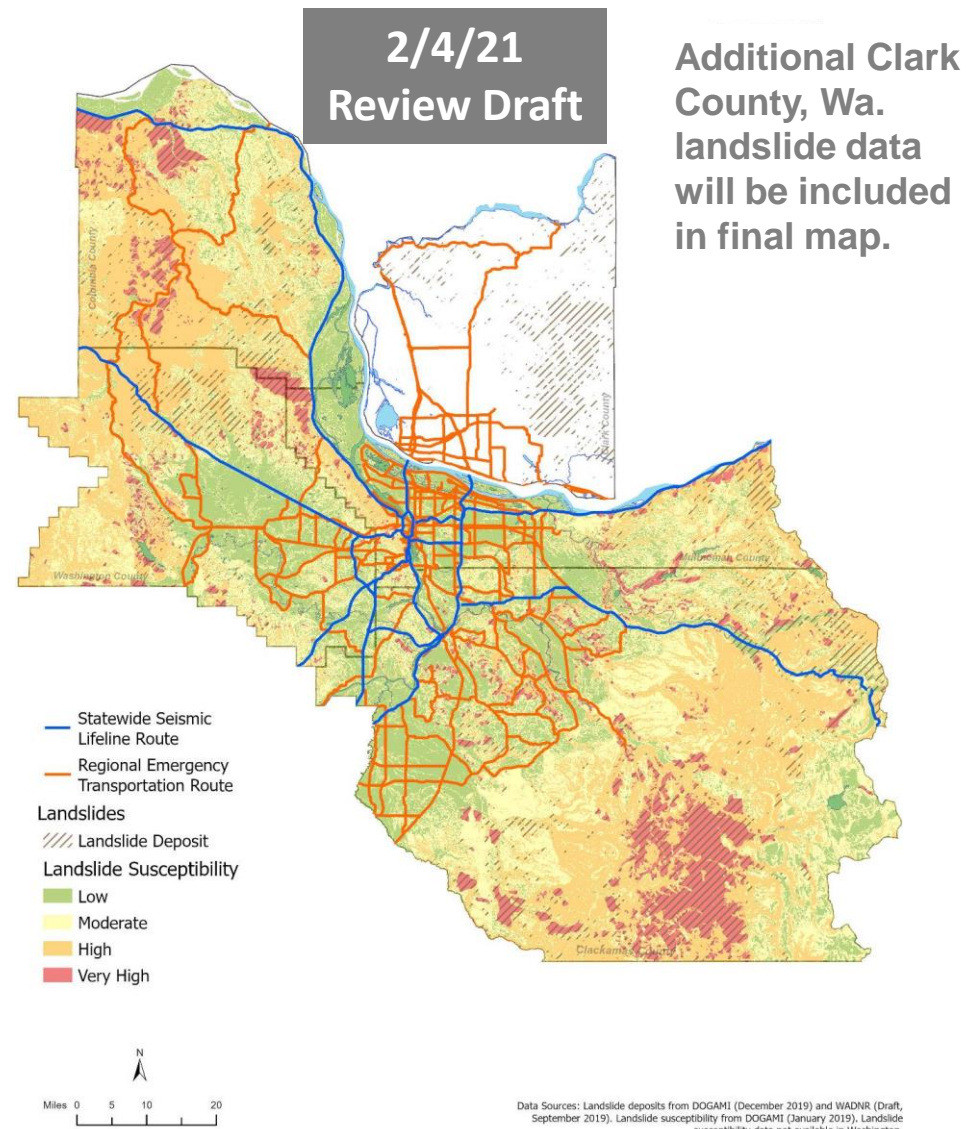
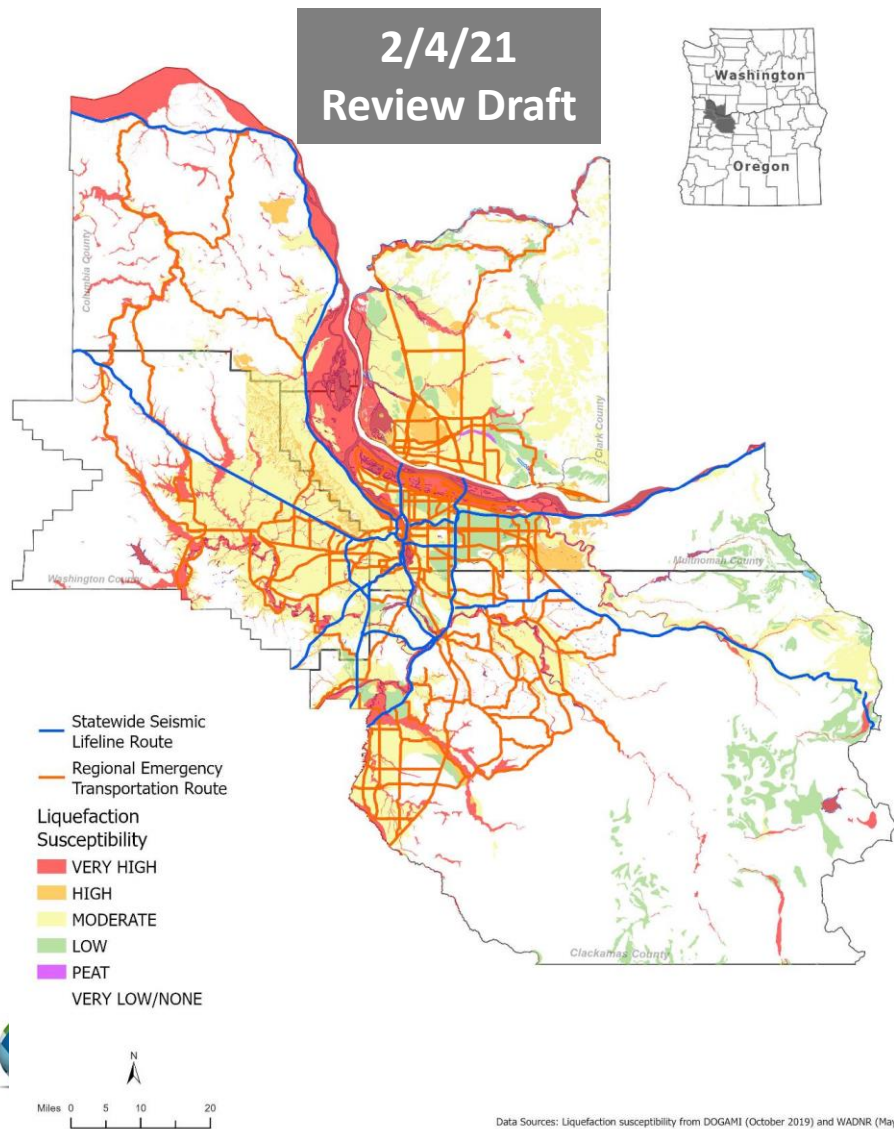


Data Sources: See Appendix E, Table 1 for complete list of essential facilities data and sources.



# RETR Resilience Findings

## Liquefaction and Landslide Hazards

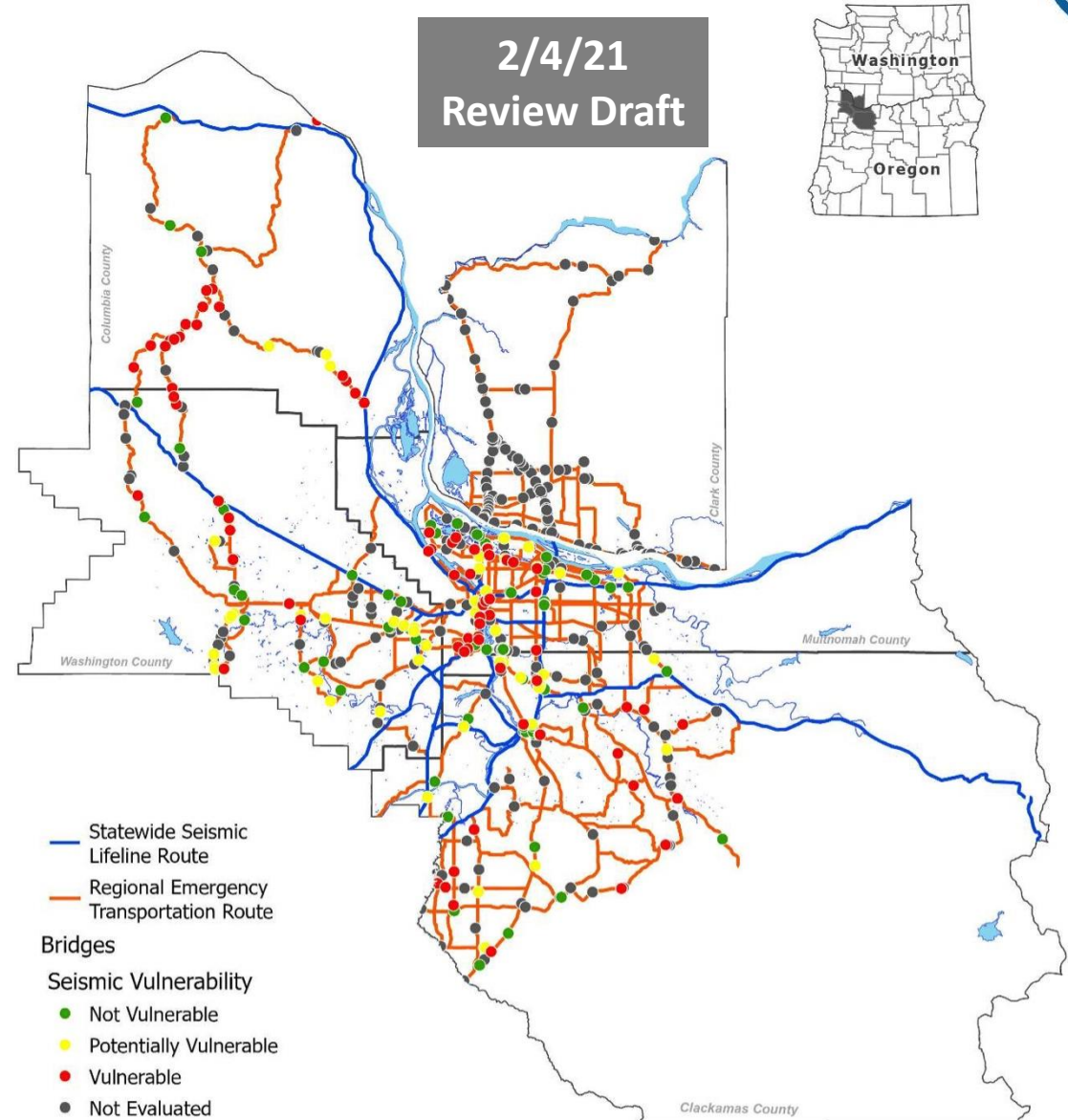




# RETR Resilience Findings

## Vulnerable Bridges

- Vulnerable bridges greatly increase risk in region.
- Crossings of the Columbia and Willamette rivers are very vulnerable.
- Seismic and landslide impacts to roads and bridges will likely hinder connectivity and access during an emergency.



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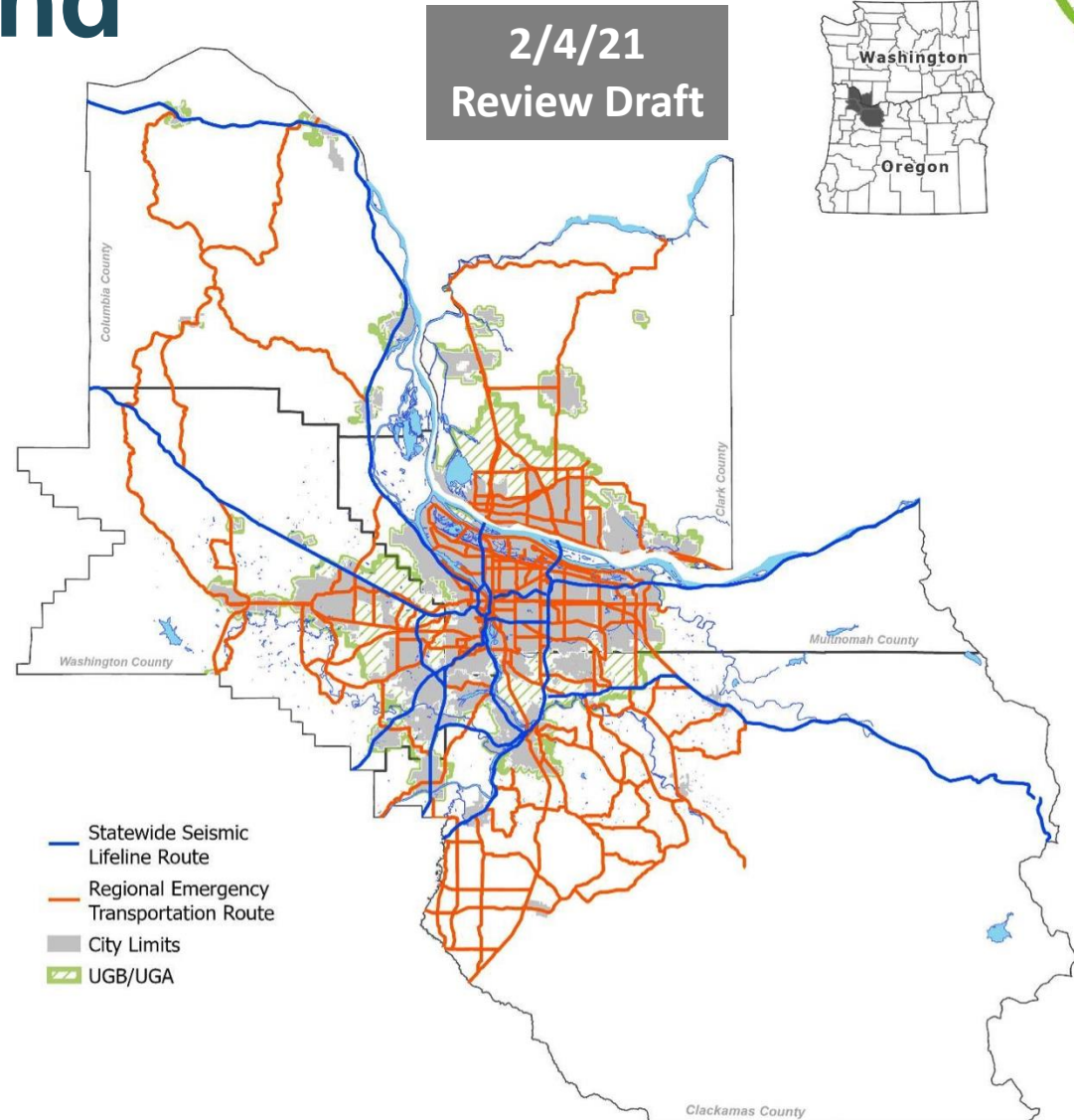
**Metro**

# RETR Community and Equity Findings

## Population Centers and Growth Areas



- provides adequate connectivity and access to communities
- limited alternate routes and transportation services in some rural areas with fewer travel options
- more in-depth equity analysis and community-specific engagement needed in future work



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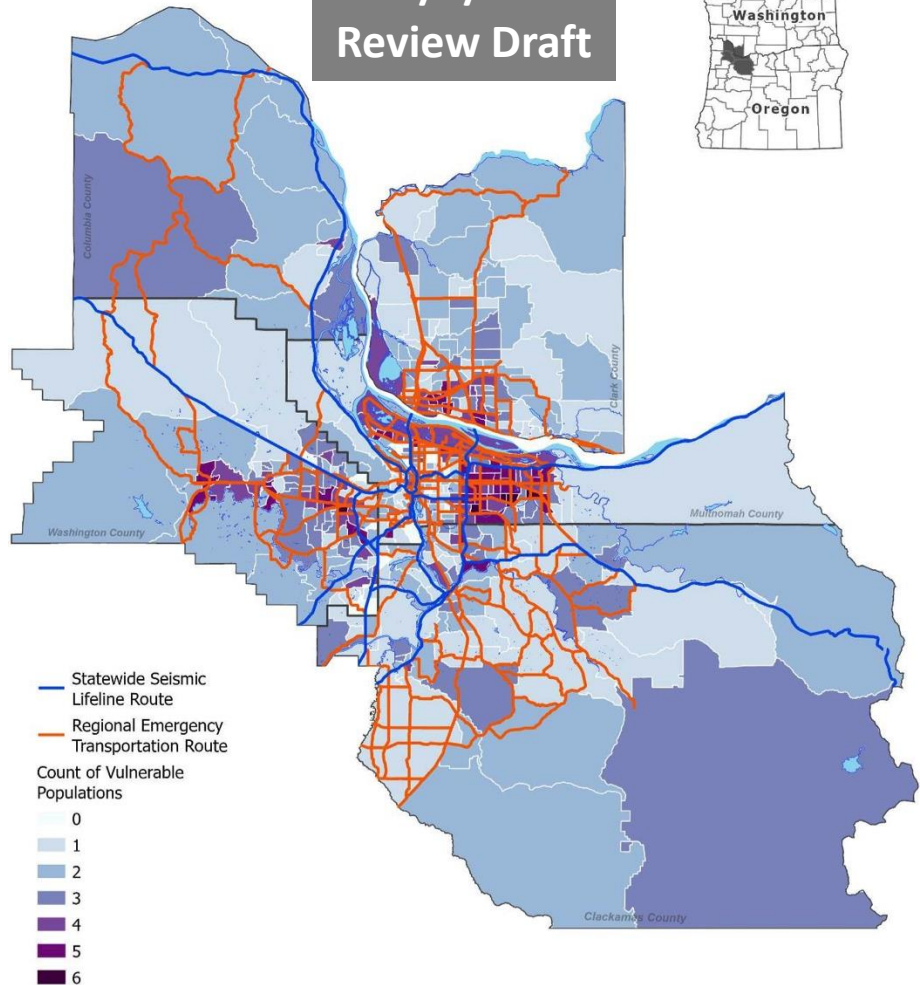
**Metro**



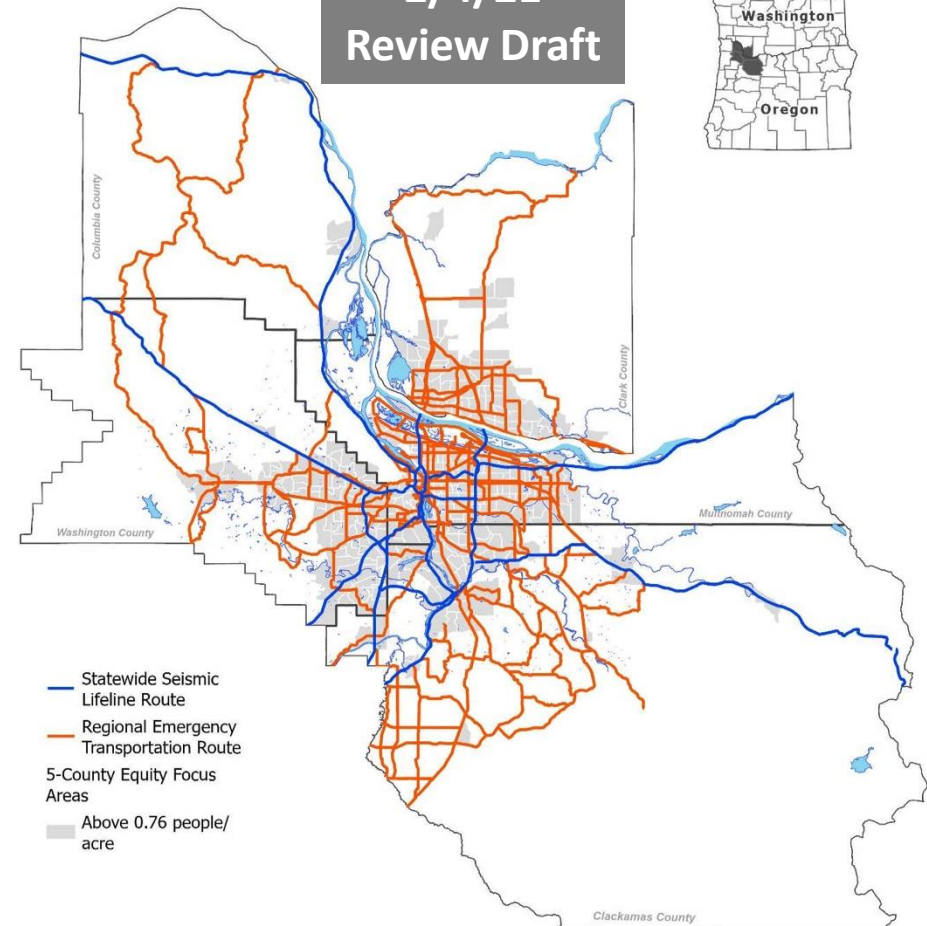
# RETR Community and Equity Findings

## Vulnerable Populations and Equity Focus Areas

2/4/21  
Review Draft



2/4/21  
Review Draft





# Recommendations for Future Work

Recommendation	Level	Lead/Key Partner(s)
1. Integrate regional ETRs into other planning and investment decision-making processes	Regional	Various
2. Prioritize or tier the regional ETRs	Regional	RDPO & Metro (RETR Phase 2)
3. Develop RETR management plans to include: RETR operations in an emergency, evaluation of specific hazard events, maintenance and coordination between jurisdictions and transition to recovery	Local with regional facilitation	Local jurisdictions with facilitation by RDPO & Metro (RETR Phase 2)
4. Better address vulnerable populations	Regional	RDPO & Metro (RETR Phase 2 and Social Vulnerability Tool)
5. Integrate RETR and LETRs into evacuation planning	Local and regional	Various
6. Formalize the RETRs and agree to a plan for consistent updates	Regional	RDPO & Metro (Phase 2)
7. Engineering evaluation of top priority/tier routes for seismic upgrades	Local and regional	TBD
8. Evaluate river routes	Regional/State	Ports, Coast Guard & State Resilience Office
9. Develop equity-centered public messaging for transportation in emergencies	Regional	RDPO Public Messaging Task Force
10. Evaluate bike and pedestrian options for emergency transportation	Local	Various

# RETR Update Phase 2 – Tiering and Operationalization of Routes

- **Tiering Methodology and Prioritization Framework**
  - Develop and apply a GIS-based tiering methodology for comparing the different RETR segments
  - Designate which routes should be evaluated, cleared and opened first, next and last, in a catastrophic scenario
- **Operationalization Guidelines and Agreement(s)**
  - Establish facility owner and operator roles and responsibilities and related coordination activities



# Next Steps

Feb. and March

Broad stakeholder review

March

Refine draft maps and report to address feedback

April/May

SW RTC, JPACT and the Metro Council consider action

May

RDPO Policy Committee considers action

Dissemination Webinar

# Discussion and feedback

- Feedback on the updated regional ETRs or future planning work recommended in the draft report?
- Feedback on the draft resolution accepting the draft report?

# Thank you!

**Laura Hanson, RDPO**

Laura.hanson@portlandoregon.gov

**Kim Ellis, Metro**

kim.ellis@oregonmetro.gov



[rdpo.net/emergency-transportation-routes](https://rdpo.net/emergency-transportation-routes)

# Supplemental Slides



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# RETR Update Acceptance by Policy Makers

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ACCEPTING THE FINDINGS AND RECOMMENDATIONS IN THE REGIONAL EMERGENCY TRANSPORTATION ROUTES UPDATE PHASE ONE REPORT ) RESOLUTION NO. 21-5160  
Introduced by Chief Operating Officer  
Marissa Madrigal in concurrence with  
Council President Lynn Peterson

WHEREAS, our region's infrastructure systems need to be resilient and prepared for multiple natural hazards, which include earthquakes, wildfires, landslides, floods, severe weather and volcanic events, and the increasing impacts of climate change; and

WHEREAS, emergency management planning will help mitigate the risks these hazards pose to the public health and safety of communities and the region's economic prosperity; and

WHEREAS, research and experience demonstrate that climate change and natural hazards have a disproportionate effect on historically marginalized communities, including Black, Indigenous and people of color (BIPOC), people with limited English proficiency, people with low income, youth, seniors, and people with disabilities, who typically have fewer resources and more exposure to environmental hazards, and are, therefore, the most vulnerable to displacement, adverse health effects, job loss, property damage and other effects; and

WHEREAS the Regional Disaster Preparedness Organization (RDPO) was created by intergovernmental agreement in 2015 as a partnership of government agencies, non-governmental organizations, and private-sector stakeholders in the Portland-Vancouver metropolitan region collaborating to build upon and unify various regional preparedness efforts and increase the region's resilience to disasters; and

WHEREAS, as a member of the RDPO Metro plays an important role in transportation and emergency management planning related to regional functions, such as data and mapping, disaster debris management and emergency transportation route designations to improve disaster response coordination and help reduce loss of life, injury and property damage during disasters; and

WHEREAS, the Regional Emergency Transportation Routes (ETR) Update is a joint planning effort between the Regional Disaster Preparedness Organization (RDPO) and Metro, exemplifying regional collaboration and coordination to prepare for disasters that affect the transportation system; and

WHEREAS, the 2018 Regional Transportation Plan (RTP) identified the need for an update to the region's designated regional emergency transportation routes to support future planning and investment related to regional emergency management, transportation recovery and resiliency; and

WHEREAS, Regional ETRS were first designated within the Metro jurisdictional boundary in 1996 by the Regional Emergency Management Group (REMIG) at the recommendation of the Regional Emergency Transportation Route Task Force facilitated by Metro, as priority routes targeted for rapid damage assessment and debris removal during a major regional emergency or disaster and used to transport emergency resources and materials, including first responders (e.g., police, fire and emergency medical services), essential supplies, debris, equipment, patients and personnel; and

WHEREAS, the Regional ETRs were last updated in 2005 and a Memorandum of Understanding was signed by local jurisdictions, the Port of Portland and the Oregon and Washington Departments of Transportation that formalized commitments for assessing and reporting the status and condition of

identified emergency transportation routes following an earthquake and coordinating activities under emergency conditions in relation to those routes; and

WHEREAS, since 2005, the region has experienced significant growth and demographic changes, and new technology, data and mapping have greatly expanded understanding of current hazard risks in the region, particularly seismic, wildfire, landslide, and flooding risks; and

WHEREAS, the RDPO ETR work group, a multi-disciplinary team of more than 30 local, regional, and state emergency management, transportation planning, engineering, operations and public works staff from 17 agencies within the five counties, supported the Phase 1 planning effort, including development of recommendations for future planning work; and

WHEREAS, the geographic scope of the planning effort was the five-county Portland-Vancouver metropolitan area, including Clark County in the state of Washington, and Columbia, Clackamas, Multnomah and Washington counties in the state of Oregon; and

WHEREAS, RDPO and Metro staff coordinated and consulted with cities, counties and agencies throughout the process to address specific needs of each agency or jurisdiction and facilitate collaboration and coordination among the agencies and jurisdictions, including: transportation, emergency management, and public works departments of each of the five counties and the City of Portland, the Oregon Department of Transportation (ODOT), the Washington Department of Transportation (WSDOT), the Oregon Department of Geologic and Mineral Industries (DOGAMI), transit providers, port districts, and cities within each of the five counties; and

WHEREAS, updates to the Regional ETRs incorporate changes recommended by the City of Portland, Clackamas, Columbia, Multnomah and Washington counties and ODOT through recent work that evaluated seismic risks along Statewide Seismic Lifeline Routes (SSLRs) identified in the Oregon Highway Plan; and

WHEREAS, agencies and jurisdictions recommended additional updates to the Regional ETRs and critical infrastructure and essential facilities to be included in the analysis through a series of consultation meetings convened by RDPO and Metro in Fall 2020; and

WHEREAS, the Regional Emergency Transportation Routes Update Report identifies a network of 193 local and state-owned route segments in the region that should be designated as Regional ETRs, and summarizes key findings about the resilience and connectivity of these routes and recommendations for future planning work, including a second planning phase to tier and operationalize the routes; and

WHEREAS, the analysis found many of the Regional ETRs and their bridges are vulnerable to significant seismic and other hazard risks, such as flooding, landslides and liquefaction; and

WHEREAS, the analysis found the network of Regional ETRs provide adequate connectivity and access to the SSLRs as well as the region's population centers, isolated populations, areas with high concentrations of vulnerable populations, and critical infrastructure and essential facilities of state and regional importance; and

WHEREAS, the report was developed in collaboration with the ETR work group and reflects input from regional committees and elected bodies, such as the Transportation Policy Alternatives Committee (TPAC), the Metro Technical Advisory Committee (MTAC), the Regional Transportation Advisory Committee (RTAC), the County Coordinating Committees, Southwest Washington Regional Transportation Council (SW RTC), the Joint Policy Advisory Committee on Transportation (JPACT), the Metro Council, and the RDPO Steering and Policy Committees and work groups, including the RDPO emergency management work group; and

WHEREAS, by accepting the report and updated routes, the Metro Council hereby recognizes all routes designated in the report are of state and regional importance during an emergency; and

WHEREAS, by accepting the report and updated routes, the Metro Council further recognizes the value in using the findings and recommendations in this report to inform the recommended second phase of work and ongoing local, regional and state efforts to improve the region's resilience and to develop funding strategies to make these routes more resilient; now therefore,

BE IT RESOLVED THAT:

- The Metro Council hereby accepts:
  - the updated Regional ETRs for the metropolitan planning area (MPA) boundary, as shown in the attached Exhibit A;
  - the updated Regional ETRs for the five-county Portland-Vancouver region, as shown in the attached Exhibit B; and
  - the findings and recommendations in the Regional Emergency Transportation Routes Update Phase 1 Report, as shown in the attached Exhibit C.
- The Metro Council hereby directs staff to use the updated Regional ETR maps and report to inform planning, policy and investment priorities in the 2023 Regional Transportation Plan update and ongoing efforts to improve the region's resilience and to develop funding strategies to make these routes more resilient.

ADOPTED by the Metro Council this \_\_\_\_\_ day of \_\_\_\_\_, 2021.

\_\_\_\_\_  
Lynn Peterson, Council President

Approved as to Form:

\_\_\_\_\_  
Carrie MacLaren, Metro Attorney



# DRAFT LANGUAGE (1 of 2)

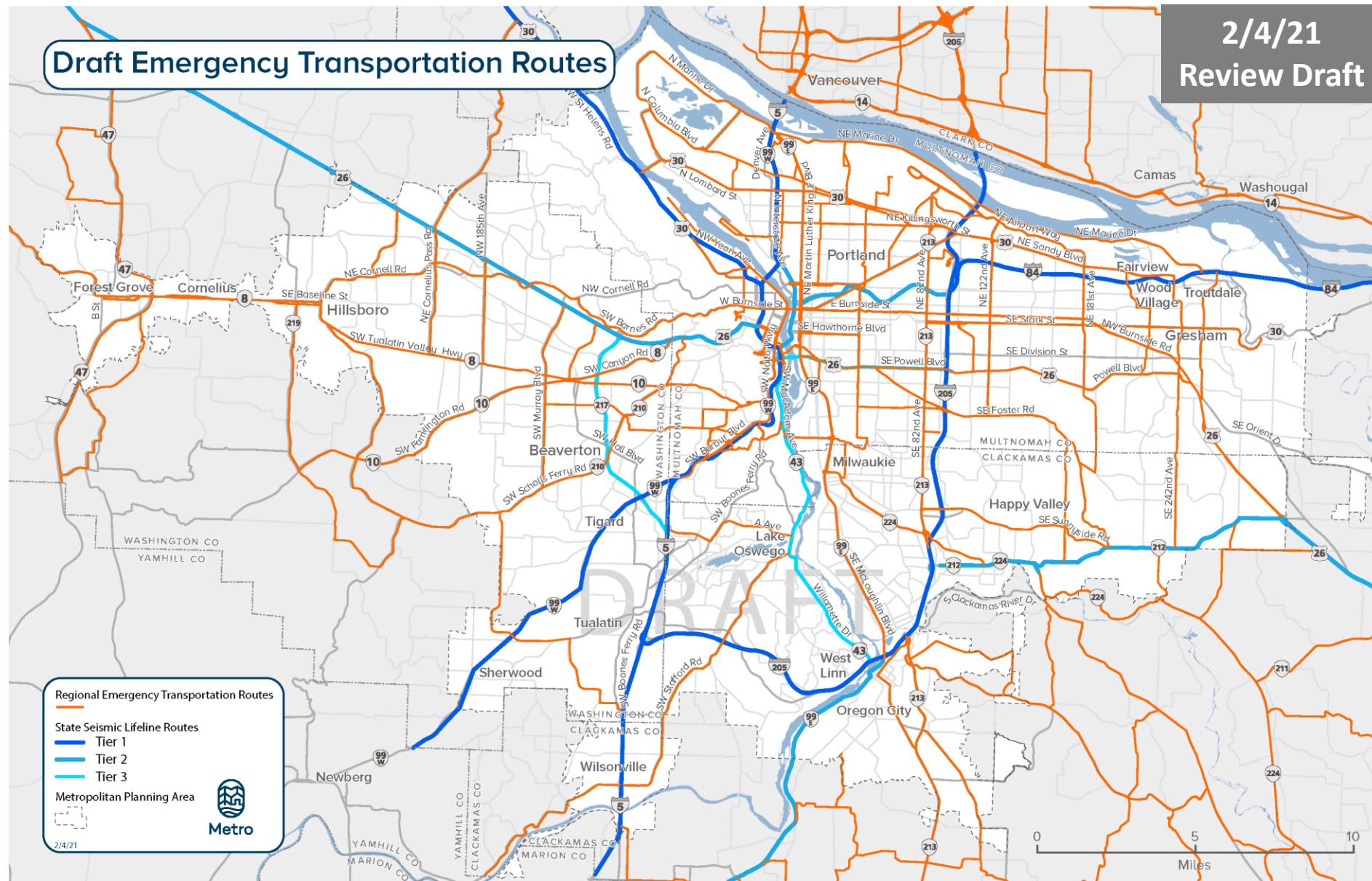
## BE IT RESOLVED

- The Metro Council hereby accepts:
  - the updated Regional ETRs for the metropolitan planning area (MPA) boundary, as shown in the attached Exhibit A;
  - the updated Regional ETRs for the five-county Portland-Vancouver region, as shown in the attached Exhibit B; and
  - the findings and recommendations in the Regional Emergency Transportation Routes Update Phase 1 Report, as shown in the attached Exhibit C.

## Draft Emergency Transportation Routes

2/4/21  
Review Draft

# Exhibit A Draft Metropolitan planning area map



# Exhibit B

## Draft

### five-county map

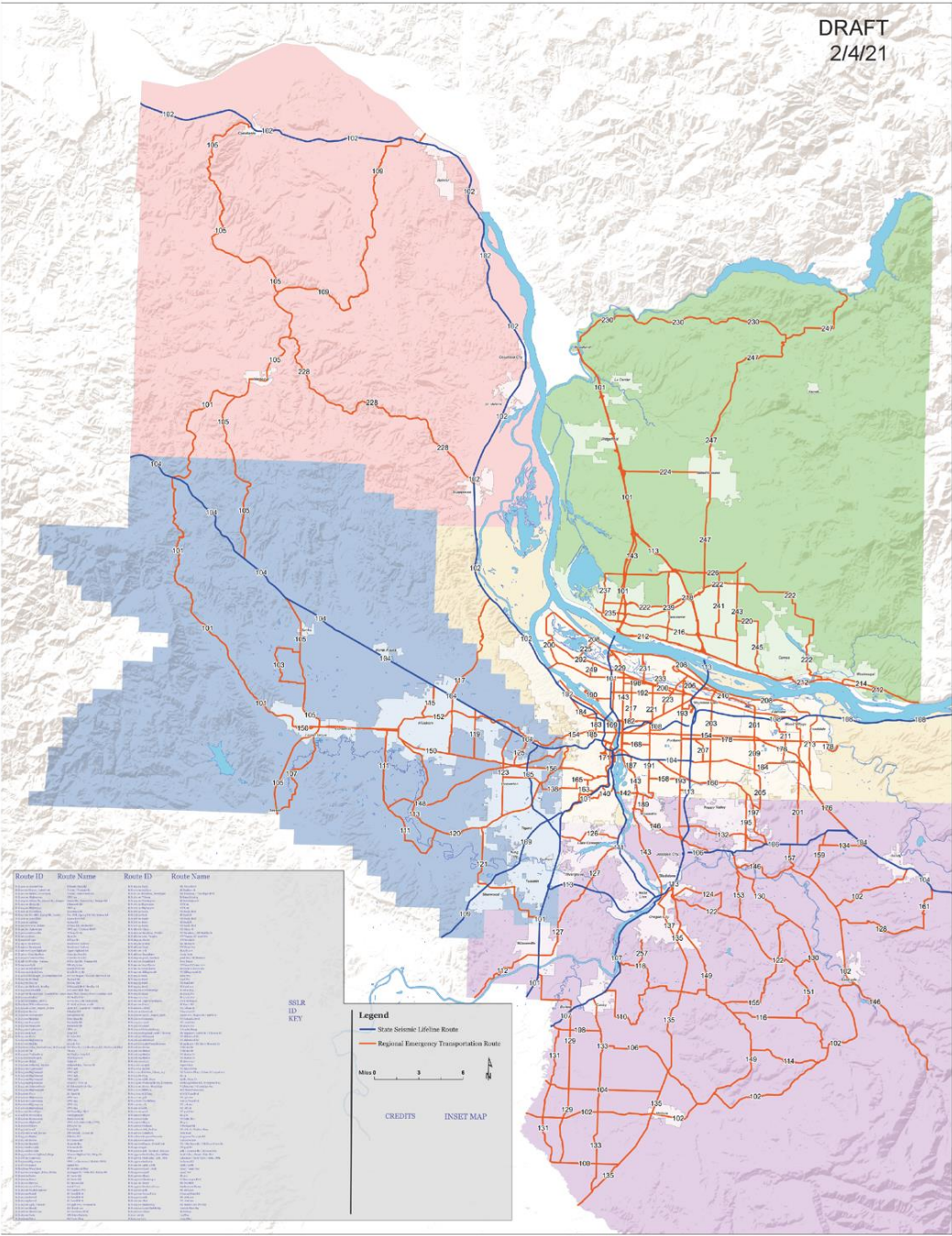
- Statewide Seismic Lifeline Route
- Regional Emergency Transportation Route



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# DRAFT LANGUAGE (2 of 2)

## BE IT RESOLVED

- That the Metro Council hereby directs staff to use the updated Regional ETR maps and report to:
  - inform planning, policy and investment priorities in the 2023 Regional Transportation Plan update and ongoing efforts to improve the region's resilience, and
  - to develop funding strategies to make these routes more resilient.






# RETR Connectivity and Access Critical Emergency Response Assets



Category	Critical Infrastructure Considered	Essential Facilities Considered
State/Regional	<ul style="list-style-type: none"> <li>• Airports</li> <li>• Marine port terminals</li> <li>• Rail yards</li> <li>• Regional level lifeline facilities, such as power and water transmission lines and state and regional fuel PODs</li> <li>• Regional transit facilities, such as transit EOCs, bus barns, and maintenance facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Regional hospitals</li> <li>• State, regional and county Emergency Operations Centers (EOCs)</li> <li>• State and regional Points-of-Distribution (PODs)</li> <li>• State and county public works facilities and equipment stores</li> <li>• Regional debris management sites</li> <li>• Fairgrounds</li> </ul>
County/City	<ul style="list-style-type: none"> <li>• Local lifeline facilities, such as local water transmission infrastructure</li> <li>• Local river connections (boat ramps)</li> <li>• Transit hubs and transit centers</li> </ul>	<ul style="list-style-type: none"> <li>• Health clinics and local hospitals and health care facilities</li> <li>• Police and fire stations</li> <li>• City EOCs</li> <li>• County and city PODs</li> <li>• City and utility public works facilities</li> <li>• Designated debris management sites</li> <li>• Local Transit Centers</li> </ul>
Community/Neighborhood	<ul style="list-style-type: none"> <li>• Lifeline distribution systems</li> <li>• Isolated lifeline distribution infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Churches</li> <li>• Schools</li> <li>• Community centers</li> <li>• Shelters</li> <li>• Community PODs</li> </ul>



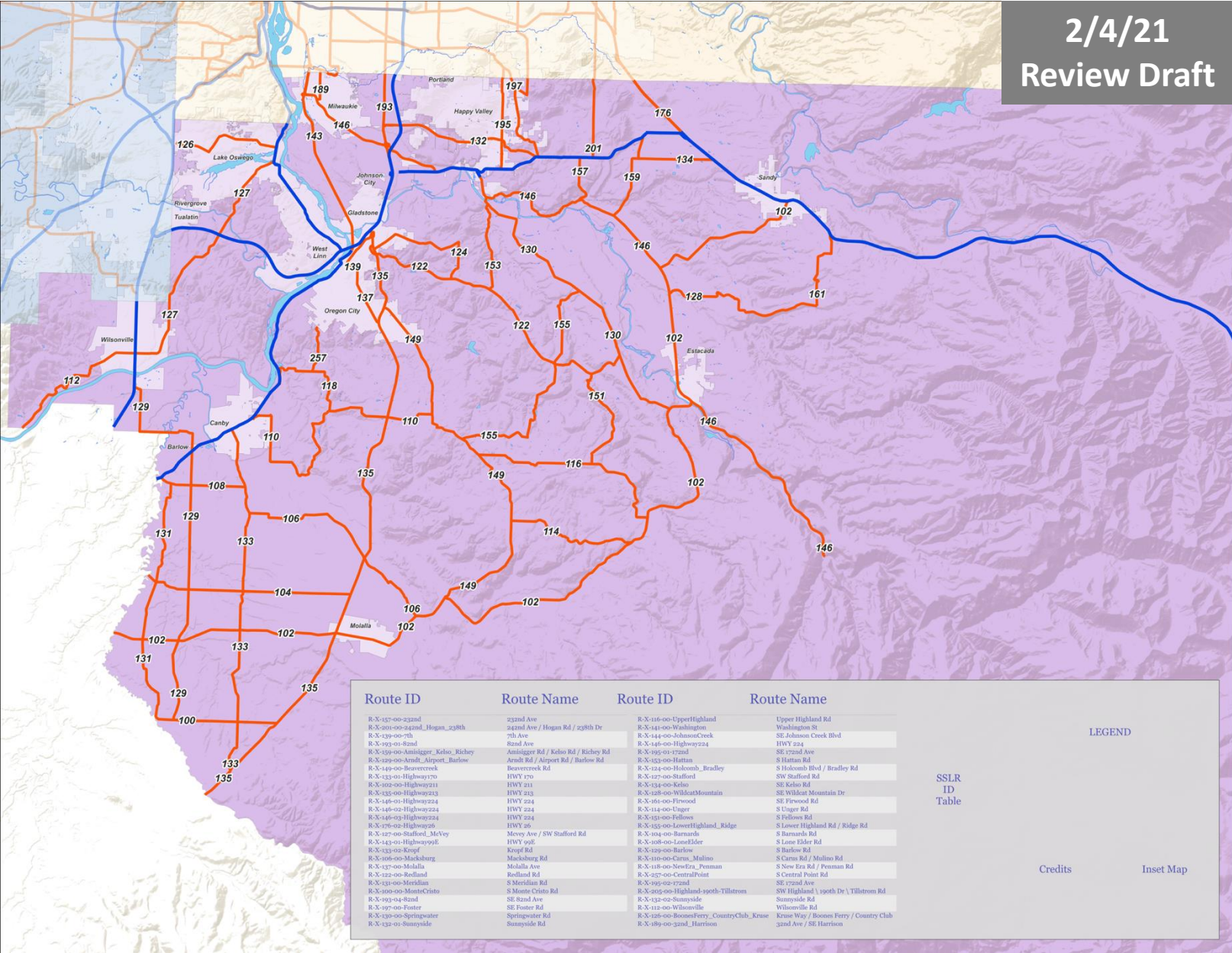
# Key findings

Factor	Findings
 <p>Connectivity and access</p>	<ul style="list-style-type: none"> <li>• provide adequate connectivity and access to the routes and critical infrastructure and essential facilities</li> <li>• some areas have limited alternate routes, including areas with higher hazard vulnerability</li> <li>• some areas rely on state routes</li> <li>• further study of critical infrastructure and essential facilities will help with operational decisions and future RETR updates</li> </ul>
 <p>Route resilience</p>	<ul style="list-style-type: none"> <li>• seismic and landslide impacts will hinder connectivity and access during an emergency</li> <li>• further planning and investment is needed to seismically strengthen bridges, particularly for crossings of the Columbia and Willamette rivers</li> <li>• future analysis that anticipates transportation impacts and closures that may result from a major earthquake, landslide, wildfire and flood will be beneficial</li> <li>• engineering analysis would be necessary to identify roads and bridges at risk and propose specific retrofits</li> </ul>
 <p>Community and equity</p>	<ul style="list-style-type: none"> <li>• provides adequate connectivity and access to the region's population centers and areas with concentrations of vulnerable populations, particularly people of color, people with limited English proficiency and people with low-income</li> <li>• limited alternate routes and transportation services in some rural areas where there is also a higher prevalence of older adults, youth and low-income households, with fewer travel options</li> <li>• more in-depth equity analysis and community-specific engagement is needed to better understand and address the unique needs of urban and rural communities</li> </ul>

# Draft Clackamas County Map

- Statewide Seismic Lifeline Route
- Regional Emergency Transportation Route

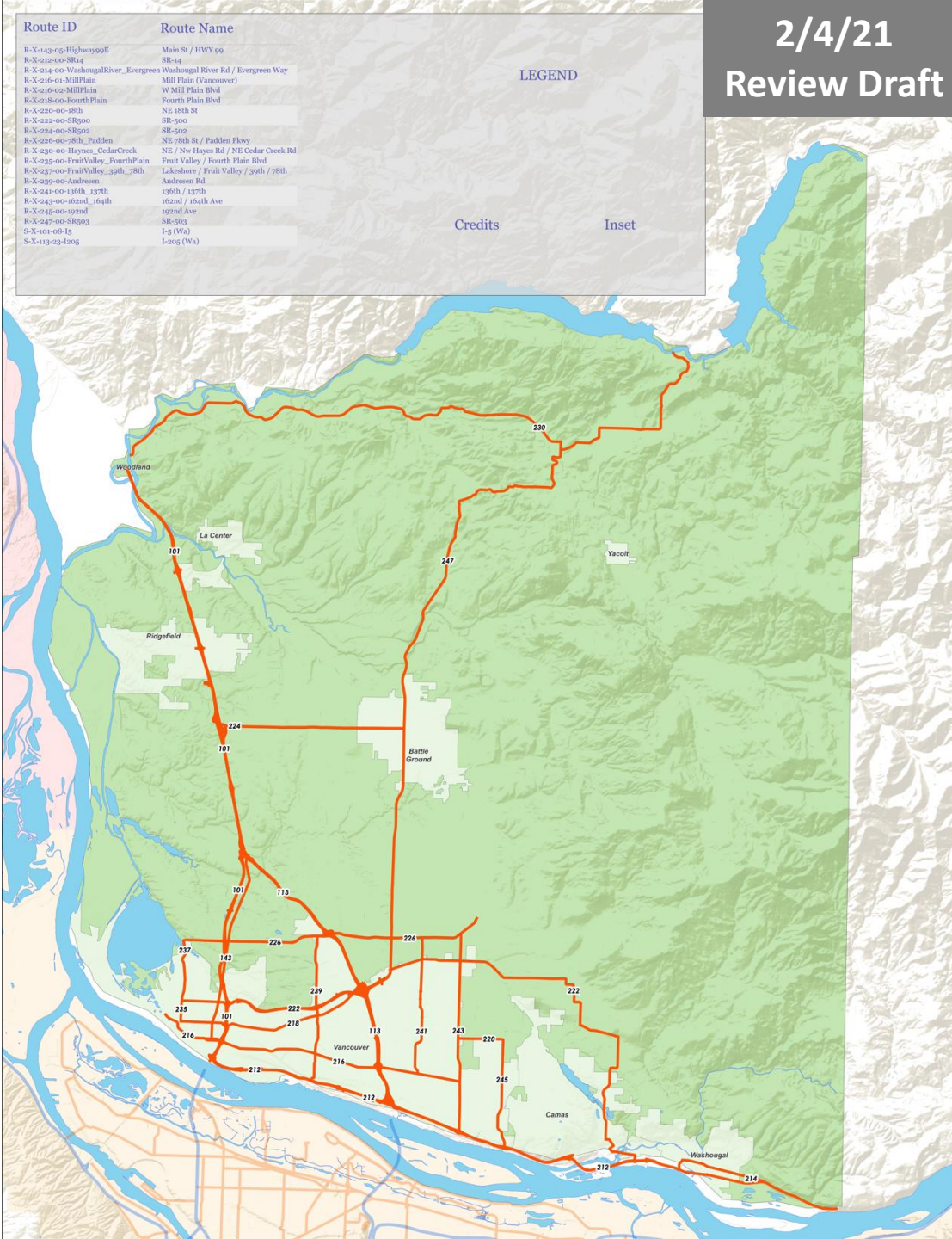
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# Draft Clark County Map

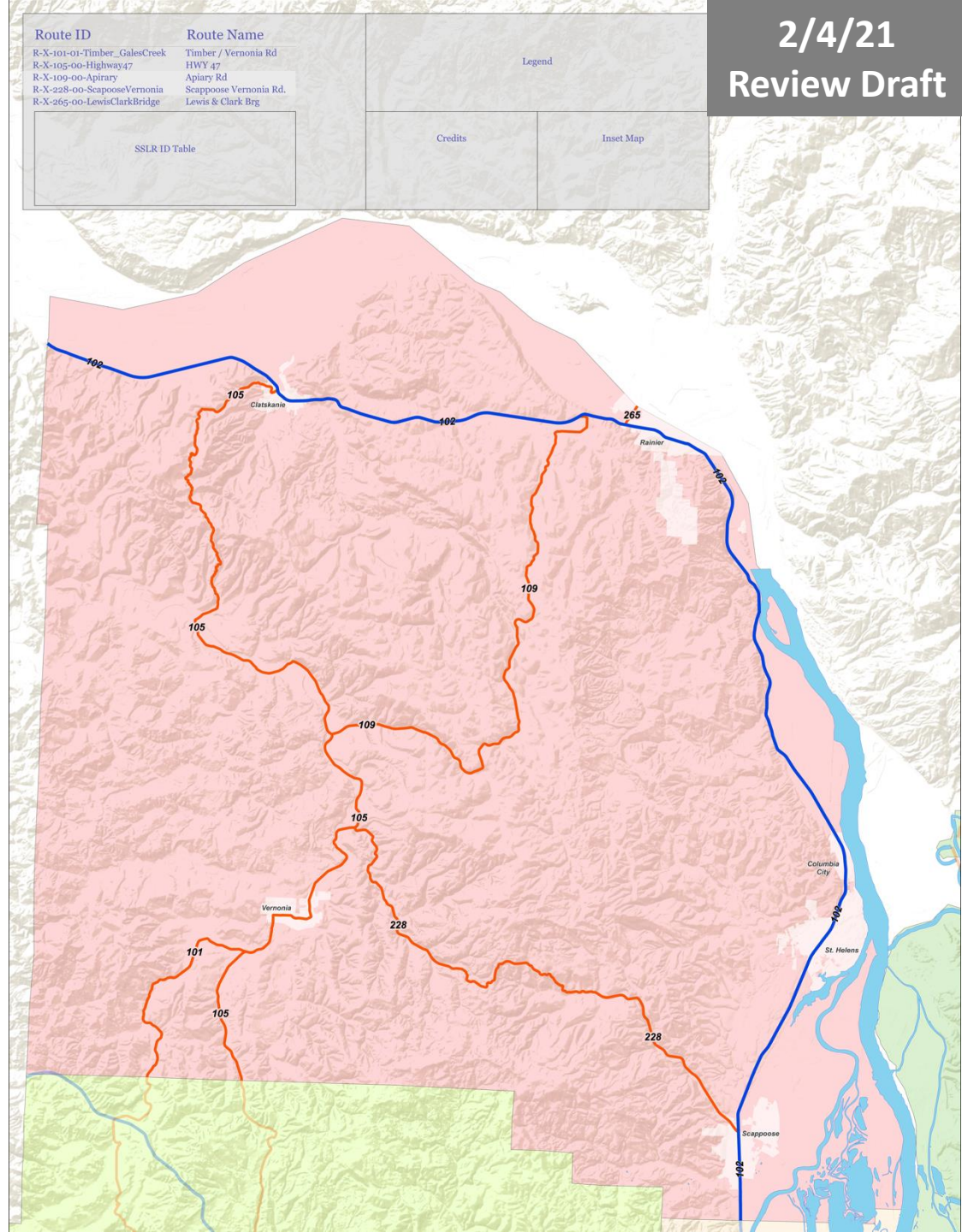
- Statewide Seismic Lifeline Route
- Regional Emergency Transportation Route







# Draft Columbia County Map

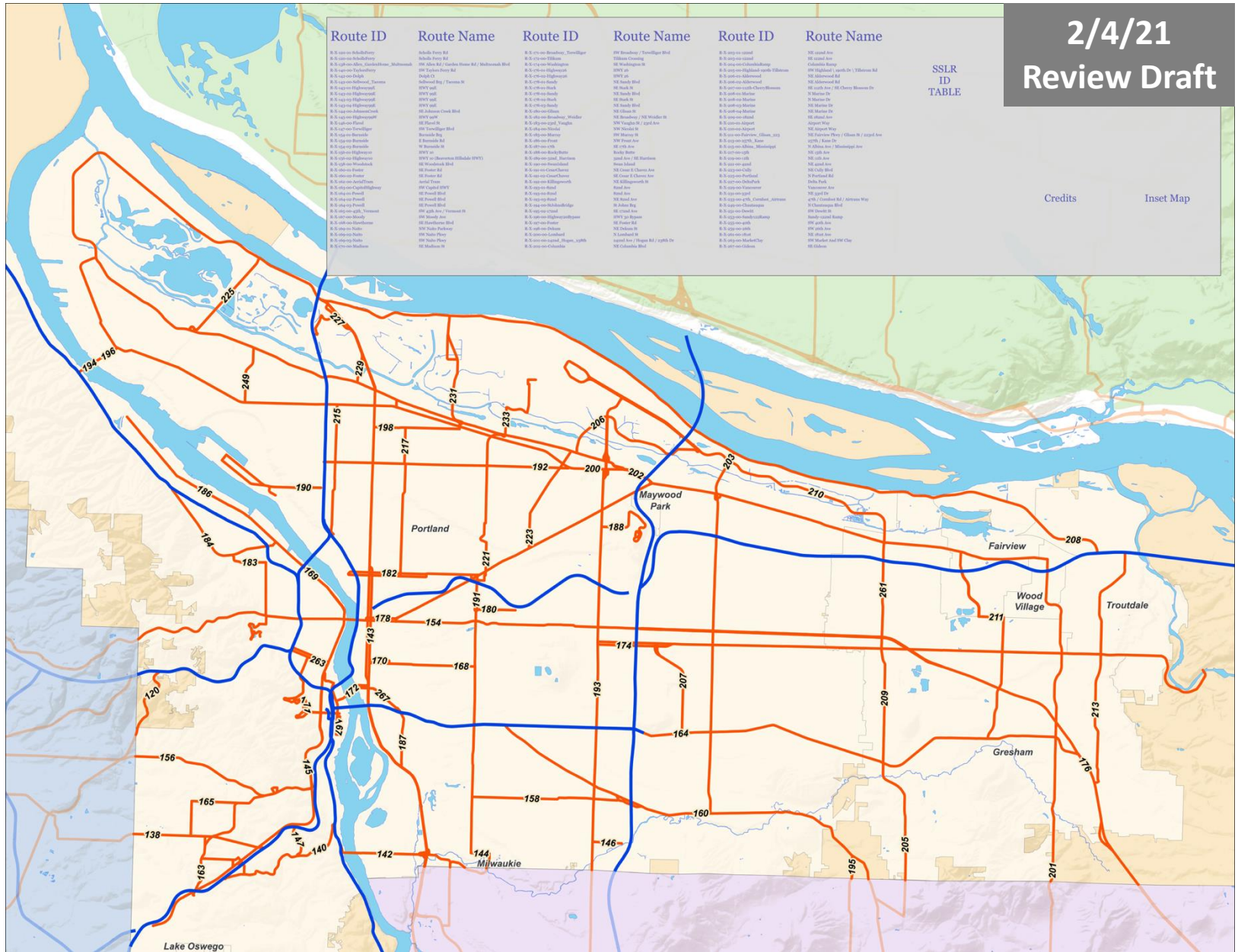
- Statewide Seismic Lifeline Route
- Regional Emergency Transportation Route





# Draft Multnomah County Map

 Statewide Seismic Lifeline Route  
 Regional Emergency Transportation Route





# Draft Washington County Map

- Statewide Seismic Lifeline Route
- Regional Emergency Transportation Route

