

Mayors of the Aurora State Airport Area Communities

Aurora



Wilsonville

December 13, 2021

The Honorable Kate Brown, Governor of Oregon
c/o Staff of the Office of the Governor
Gina Zejdlik, Chief of Staff
Amira Streeter, Policy Advisor–Climate, Energy and Transportation
Annie McColaugh, Director–Federal Affairs
Jason Miner, Policy Director–Natural Resources
Leah Horner, Director–Regional Solutions
Jody Christensen, Mid Valley Regional Solutions Coordinator

Submitted via email to:
gina.zejdlik@oregon.gov
amira.streeter@oregon.gov
annie.mccolaugh@oregon.gov
jason.miner@oregon.gov
leah.horner@oregon.gov
jody.christensen@oregon.gov

**RE: Issues of Public Concern with Oregon Department of Aviation’s
Aurora State Airport Master Planning Process**

Dear Governor Brown:

We write to you as the elected leaders of the communities located in closest proximity to the Aurora State Airport to express our profound disappointment at the Oregon Department of Aviation’s biased handling of the Aurora State Airport Master Planning process. Our communities bear the brunt of impacts of the airport’s operations, and yet the Aviation Department appears to be discounting our concerns and is primarily responsive to vested financial interests at the airport.

This observation is true in general, as Department of Aviation staff and board members indicate meeting constantly with private-sector airport interests, while rarely meeting with local community members, city councilors and staff. Multiple communications from officials at the Cities of Aurora and Wilsonville to the Aviation Department over the past several years are generally ignored and not responded to.

The Cities of Aurora and Wilsonville, along with other Planning Advisory Committee (PAC) members to the Department of Aviation’s Aurora State Airport Master Planning process such as 1000 Friends of Oregon and Friends of French Prairie, seek to raise significant issues of public concern. This federally funded master plan has gotten off to a rocky start in a manner that demonstrates the Department’s apparent bias and inability at providing fair public processes that meet Oregon’s standards for meaningful public engagement.

We are concerned that the Department of Aviation is again making similar mistakes as it did with the 2011 or 2012 Aurora State Airport Master Plan process that both the Oregon Supreme Court and the Oregon Court of Appeals found in 2021 violated Oregon land-use and public-process laws. We request that the Governor’s Office demonstrate decisive leadership that provides confidence to local-government officials that federal and state planning processes are

conducted in a legal and ethical manner above reproach, which at this time appears questionable.

A primary concern pertains to the extremely lopsided membership composition of the Planning Advisory Committee (PAC). The Department of Aviation has stacked the Planning Advisory Committee with self-dealing financial interests at the Airport that benefit from taxpayer-funded Airport operations and capital improvements. A review of the PAC membership demonstrates that well over half of the PAC membership is comprised of entities with direct pecuniary interest in furthering airport expansion at taxpayer expense.

The same pro-airport expansion entities are represented multiple times on the PAC. Two associations placed on the PAC are composed of a majority of Airport financial interests:

- The attorney for the Aurora Airport Improvement Association represented at the June 3, 2021, Oregon Aviation Board meeting that most of the businesses at the Aurora State Airport belonged to the Aurora Airport Improvement Association.
- In a similar manner, most of the same airport entities are also members of Positive Aurora Airport Management association, a local airport operations management group.

By all appearances, the process and committee composition has the appearance of a “tick the box” exercise in public involvement. This leaves us to conclude that the outcome is predetermined and that the inevitable result will lead to airport expansion regardless of the impacts on safety, the environment and surrounding infrastructure.

Another key problem is that the Department of Aviation has omitted two key state agencies as PAC members: Department of Agriculture and Department of Environmental Quality (DEQ). The Aurora State Airport is located in the heart of the Oregon's best “foundation farmland” of French Prairie, which hosts some of Oregon's foremost traded-sector ag producers, nurseries and food processors. Real-estate speculation and uncontrolled urban-level development—as are occurring at the Aurora State Airport area—are harmful to this prime ag-sector economic cluster. By excluding the Department of Agriculture from the public process, the Department of Aviation continues a trend of excluding parties that may provide valuable information or may question the Aviation agency's objectives.

We read in the media that the US Environmental Protection Agency (EPA) indicates that 750 Oregon sites could expose residents to 'forever chemicals' of per- and poly-fluorinated substances or PFAS, where growing evidence points to their adverse health effects, including some cancers. In Oregon, the state Department of Environmental Quality (DEQ) is testing locations including the Aurora State Airport for known or suspected PFAS use. Again, the Department of Aviation's exclusion of DEQ demonstrates an on-going pattern of discriminatory conduct.

We understand that the Governor's Office Executive Order 20-04 on Climate Action “Directing State Agencies to Take Actions to Reduce and Regulate Greenhouse Gas Emissions” (GHG)

directs DEQ to develop strategies that “Cap and Reduce Greenhouse Gas Emissions.” We are concerned that representatives of the Governor’s Office appointed to the Oregon Aviation Board and Department of Aviation staff simultaneously are advocating for major expansion of the Aurora State Airport that results in substantial increases in aviation-gas fossil-fuel consumption and GHG emissions, contrary to the Executive Order on Climate Action.

One of the major reasons stated by aviation interests for Aurora State Airport runway extension is to increase the sale of aviation fuel so that a larger class of aircraft may takeoff from the airport with full tanks of gas. We note that the tax on aviation fuel is the primary source of operational revenue for the Department of Aviation. Thus, the Department of Aviation has a direct pecuniary interest in advocating for increased aviation-gas fuel sales that would accompany expansion of the Aurora State Airport, seemingly in direct conflict with the Governor’s Executive Order on Climate Action.

Additionally, DEQ data appears to indicate that the NMPDES (National Pollution Discharge Elimination System) permit for the Department of Aviation’s Aurora State Airport discharge into Mill Creek-Pudding River watershed expired June 30, 2017. We understand that area residents have expressed concerns for surface-water, ground-water and well-water quality due to prospective airport run-off pollutants, unregulated septic systems and potential ground water pollution. Cumulatively, these all appear to be good reasons from the Department of Aviation’s perspective to exclude DEQ from Airport planning efforts.

The Department of Aviation’s tightly controlled master planning process fails to meet the test for meaningful public engagement. The Zoom meeting format used by the Department of Aviation does not list or show all participants in the meeting and provide clear labeling of names and affiliations. It is unclear to the public who is attending the meetings and who or what entity that participants represent. At the November 16, 2021, PAC meeting, it was difficult to ascertain from many of the name labels who was attending in what role. Names and affiliations of all PAC members and staff/consultants should be clearly evident.

Additionally, some PAC members were allowed to have two representatives participate in the meeting, while some PAC members were ignored and not allowed to participate in the meeting. These elements indicate a failure of meaningful public process.

The facilitators for the PAC meeting used a series of unscientific “polls” to gauge participants’ thoughts or perspectives; however, it was unclear who was participating — was it PAC members, Aviation staff and consultants, and/or the public? Moreover, the facilitators interpreted the results of the poll that may or may not be an accurate reflection of the participants involved.

The Department of Aviation states that “As the airport sponsor, ODA staff will be the final decision-making authority. They will decide what is included in the Master Plan.” Setting aside the fact that this pronouncement at the start of a “public involvement” process sends a message that is contrary to Oregon’s Statewide Planning Goal Number 1, we believe this is false

information; only the appointed body (*i.e.*, the Oregon Aviation Board) can legally approve a master plan. The failure of the Aviation Board to adopt the 2011 or 2012 Aurora State Airport Master Plan was a centerpiece for the Oregon Supreme Court's affirmation of the Court of Appeal's decision against the Department of Aviation for failure to comply with Oregon law.

During the November 16, 2021, PAC meeting, aviation consultants indicated that they would consider nearby external "outside the fence" proposed urban-level developments in the Airport master-planning process — implying that such proposed developments would favor Airport expansion. However, the consultants gave no indication of reviewing such information in light of Oregon's EFU land-use laws, nor the potential reality of such proposed developments ever actually occurring. Additionally, consultants gave no indication of considering the "negative" aspects of proposed developments outside the Airport, such as increased surface-transportation impacts/traffic congestion and potential mitigation, increased land-speculation harming the ag industry, and increased pollution and environmental impacts.

The Department of Aviation has allowed and promoted the dissemination of false information about the seismic resilience of the Aurora State Airport. At the October 6, 2021, Oregon Aviation Board planning session and at the November 16, 2021, PAC meeting, misinformation about the seismic conditions of the Aurora State Airport area was provided without rebuttal. At the October meeting, the Aviation Board had considerable discussion on resilience, and the importance of selling the resilience concept to the public and government officials as a component of building support for state and federal funds for the Aurora State Airport expansion. Aviation Board Chair Meeker indicated a desire to improve "lines of communication" between the Governor's Office and airport businesses to promote resilience.

Contrary to statements that depict the Aurora State Airport as a crucial facility for the projected 9.0 Cascadia Subduction Zone Earthquake, the Aurora State Airport is listed at the lowest-level of Tier 3 airports in the Oregon Resilience Plan. The Tier designations "indicate the priorities for making future investments." In other words, the Department of Aviation is effectively targeting one of the lowest priority airports to prepare for recovery in the Oregon Resilience Plan for potentially one the largest airport capital improvement projects ever planned by the state.

With respect to the airport's ability to withstand a Cascadia Subduction Zone Earthquake, reports by the Oregon Department of Geology and Mineral Industries (DOGAMI) show that the Aurora State Airport is located in an area subject to major potential damage in a projected 9.0 Cascadia Subduction Zone Earthquake. The "Mid/Southern Willamette Valley Geologic Hazards, Earthquake and Landslide Hazard Maps, and Future Earthquake Damage Estimates," DOGAMI publication IMS-24, shows that the Aurora State Airport specifically is located in an area:

- Rated High for Ground Shake Amplification
- Rated High for Amplification Susceptibility
- Rated Moderate to High for Liquefaction Susceptibility

The same deep, fine soils that make the French Prairie area such exemplary foundation farmland also mean these soils are subject to amplification and liquefaction. As a result of such an earthquake, the airport runway would likely be unserviceable for a long period of time (6-12 months) post-earthquake. Rather than allow aircraft to take off or land due to an inoperable runway, the most likely role of the Aurora State Airport will be to accommodate vertical take-off and landing of heavy-lift helicopters with locally-based Columbia Helicopters and Helicopter Transport Services, neither of which require a runway extension to operate.

In all of our years of government service, we have never seen a state agency act with such disregard to the concerns of the local communities, and appropriate and fair public process. We request your intervention now to provide for an unbiased process that produces trust-worthy results. We believe that if the Department of Aviation were to comply with—rather than seek to evade—the letter and spirit of Oregon's land-use and public-process laws, judicial intervention to set a course correction would not be a necessary remedy that must be pursued by local governments and concerned citizens.

Again, we appreciate your time and consideration of these important issues, and we look forward to your response. Thank you.

Sincerely,



Brian Asher, Mayor
City of Aurora



Julie Fitzgerald, Mayor
City of Wilsonville

Enc:

- Letter from Cities of Aurora and Wilsonville to Sen. Lee Beyer and Rep. Susan McLain, Co-Chairs Joint Committee on Transportation, RE Request for Public Hearing on HB 2497 – Proposed Legislation to Create Transparent Public Process for State Aviation Department Agency Communications and Coordination with Local Governments and Communities on Aurora State Airport Issues of Concern, March 11, 2021
- Aurora State Airport in Relation to The Oregon Resilience Plan and DOGAMI Earthquake Susceptibility Maps – 2019

cc: Oregon Aviation Board
Senator Ron Wyden
Senator Jeff Merkley
Congressman Kurt Schrader
Congresswoman Suzanne Bonamici
House Speaker Tina Kotek
Senate President Peter Courtney
Representative Susan McLain (HD 29)
Representative Courtney Neron (HD 26)
Representative Christine Drazan (HD 39)
Senator Bill Kenemer (SD 20)
Metro Council President Lynn Peterson
Metro Councilor Garrett Rosenthal

Clackamas County Board of County
Commissioners
Marion County Board of County
Commissioners
FAA Mountain Region staff
Heather Fernuik, Director
Chris Schaffer, Planning & Programming
Manager
Warren Ferrell (Acting) Manager, Seattle
Airports District Office



March 11, 2021

Senator Lee Beyer, Co-Chair
Representative Susan McLain, Co-Chair
Joint Committee on Transportation
Oregon Legislative Assembly

Sen.LeeBeyer@oregonlegislature.gov
Rep.SusanMcLain@oregonlegislature.gov
patrick.h.brennan@oregonlegislature.gov

RE: Request for Public Hearing on HB 2497 – Proposed Legislation to Create Transparent Public Process for State Aviation Department Agency Communications and Coordination with Local Governments and Communities on Aurora State Airport Issues of Concern

Dear Co-Chairs Beyer and McLain and Members of the Committee:

We are writing to you as the elected leaders of two cities each located near the Aurora State Airport to request your support this legislative session in resolving a decade’s-long controversy between the Oregon Department of Aviation (ODA) and our communities regarding the agency’s uncooperative attitude with respect to the Aurora State Airport Master Plan and management of the airport.

At the request of the Aurora and Wilsonville City Councils, Representative Courtney Neron (HD-26) has introduced HB 2497 as a “process bill” that does not dictate predetermined results. Rather, the proposed legislation creates an open transparent, public process to establish formal channels of intergovernmental communication and coordination between the state Aviation agency and directly impacted local governments, which has been sorely lacking over the past 10 years.

We believe that ODA circumvented Oregon public-process laws regarding the purported adoption of the *2012 Aurora State Airport Master Plan*. Ever since we began disputing what we view as an illegal process, the state agency has been virtually unresponsive to our local communities. We are alarmed about the agency’s efforts to promote increasingly urbanized levels of activity in unincorporated county territory of high-value EFU farmland without inviting meaningful public input and without supporting public infrastructure — all contrary to Oregon Goals for citizen-involvement and land-use planning. The PSU Oregon Solutions’ *Aurora State Airport Assessment Report* commissioned by the legislature in 2018 found a host of agency management troubles, improper influence and poor public engagement and communications problems regarding ODA’s operations and planning at the Aurora State Airport.

HB 2497 also provides for updating the controversial *2012 Aurora State Airport Master Plan* that has been the subject of significant community concern and litigation, conducting a much-needed environmental assessment of current airport pollution levels, and planning for eventual annexation of the airport by the City of Aurora to provide municipal governance and urban services.

We respectfully request that the Joint Committee on Transportation provide a public-hearing opportunity for HB 2497 as a way to prepare a roadmap forward for resolving the 10-year-long Aurora State Airport conflict between the state agency and local communities. To date, *the only open public forum* on ODA’s efforts to expand the Aurora State Airport was held by the Wilsonville City Council in November 2018 that drew 200 attendees.

Sincerely,

Brian Asher, Mayor
Mayor@ci.aurora.or.us

Julie Fitzgerald, Mayor
Mayor@ci.wilsonville.or.us

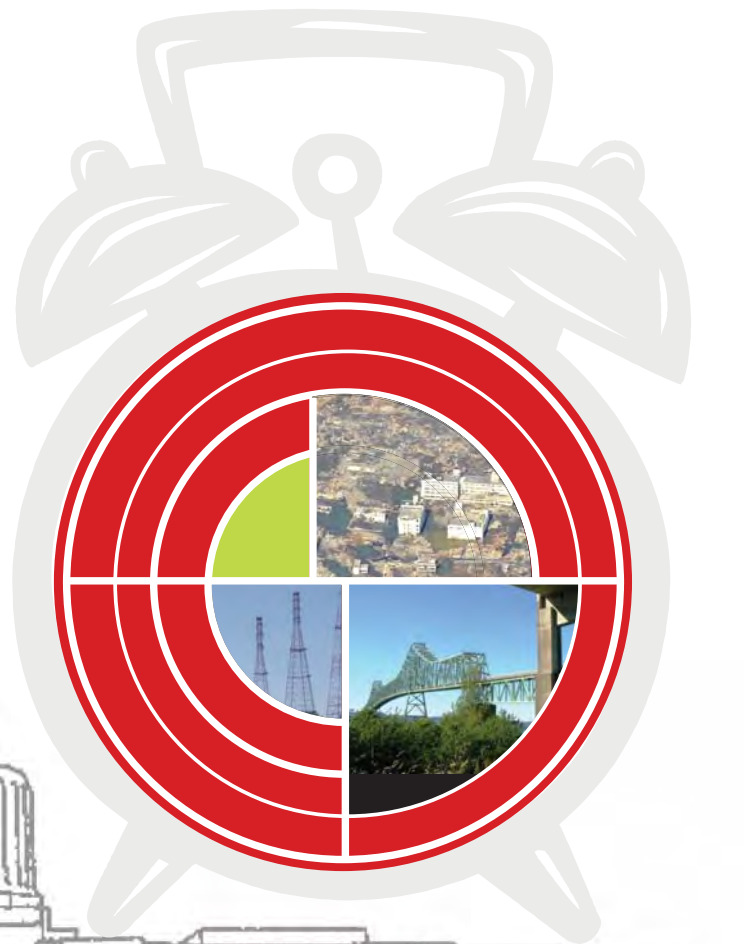
cc: Senate President Peter Courtney; House Speaker Tina Kotek; Gina Zejdlik, Governor’s Chief of Staff

The Oregon Resilience Plan

**Reducing Risk and Improving Recovery
for the Next Cascadia Earthquake and Tsunami**

Report to the
77th Legislative Assembly

from
Oregon Seismic Safety Policy
Advisory Commission (OSSPAC)



Salem, Oregon
February 2013

Air Transportation

The state of Oregon has an extensive aviation system that provides valuable transportation options for the public, ranging from small airports in remote regions of the state to large commercial service airports. Ninety-seven public-use airports provide support to the economic health and vitality of Oregon and contribute to the quality of life for its citizens and visitors.

- Fifty-seven public-use airports are partially supported by FAA and included in the National Plan of Integrated Airport System (NPIAS).
- Sixteen public-use airports are either owned by other municipalities or are privately owned.
- Over 400 private airports and landing strips are located within Oregon.

The 2007 Oregon Aviation Plan established five categories of airports, based on the definitions outlined within the National Plan of Integrated Airports System (NPIAS), the design criteria outlined by the Airport Reference Code (ARC), and the facilities inventory.

CATEGORY I: COMMERCIAL SERVICE AIRPORTS

These airports support some level of scheduled commercial airline service in addition to a full range of general aviation aircraft. This includes both domestic and international destinations.

CATEGORY II: URBAN GENERAL AVIATION AIRPORTS

These airports support all general aviation aircraft and accommodate corporate aviation activity including business jets, helicopters, and other general aviation activity. The primary users are business related and service a large geographic region, or they experience high levels of general aviation activity.

CATEGORY III: REGIONAL GENERAL AVIATION AIRPORTS

These airports support most twin and single engine aircraft, may accommodate occasional business jets, and support regional transportation needs.

CATEGORY IV: LOCAL GENERAL AVIATION AIRPORTS

These airports primarily support single engine, general aviation aircraft, but are capable of accommodating smaller twin-engine general aviation aircraft. They also support local air transportation needs and special use aviation activities.

CATEGORY V: REMOTE ACCESS AND EMERGENCY SERVICE AIRPORTS

These airports primarily support single-engine, general aviation aircraft, special use aviation activities, and access to remote areas; or they provide emergency service access.

The following list identifies airports within each category that have the potential to maintain or quickly restore operational functions after a major earthquake. The Transportation Task Group arranged these 29 airports into a tier system to indicate the priorities for making future investments. Tier 1 (T1) is comprised of the essential airports that will allow access to major population centers and areas

considered vital for both rescue operations and economic restoration. Tier 2 (T2) is a larger network of airports that provide access to most rural areas and will be needed to restore major commercial operations. Tier 3 (T3) airports will provide economic and commercial restoration to the entire region after a Cascadia subduction zone event. ←

Category I	Category II	Category III	Category IV	Category V
*Redmond (T1)	Scappoose (T2)	Tillamook (T2)	Mulino State (T3)	Independence State (T3)
PDX (T1)	Troutdale (T3)	Roseburg (T1)	Albany (T3)	Siletz Bay State (T2)
Salem (T1)	Hillsboro (T2)	Bandon State (T2)	Lebanon (T3)	Cape Blanco State (T2)
Eugene (T1)	Portland Heliport (T3)	Grants Pass (T3)	Florence (T3)	
Rogue Valley Medford (T1)	Aurora State (T3) ←		Creswell (T3)	
Klamath Falls (T1)	McMinnville (T3)		Cottage Grove State (T3)	
	Newport (T2)		Myrtle Creek (T3)	
	Corvallis (T3)		Brookings (T2)	

*Primary emergency response airport for FEMA Region X: Redmond municipal airport, centrally located in central Oregon, is ideally situated to be the primary FEMA emergency response airport.


Figure 5.16: Oregon Airports (Source: Oregon Department of Aviation)

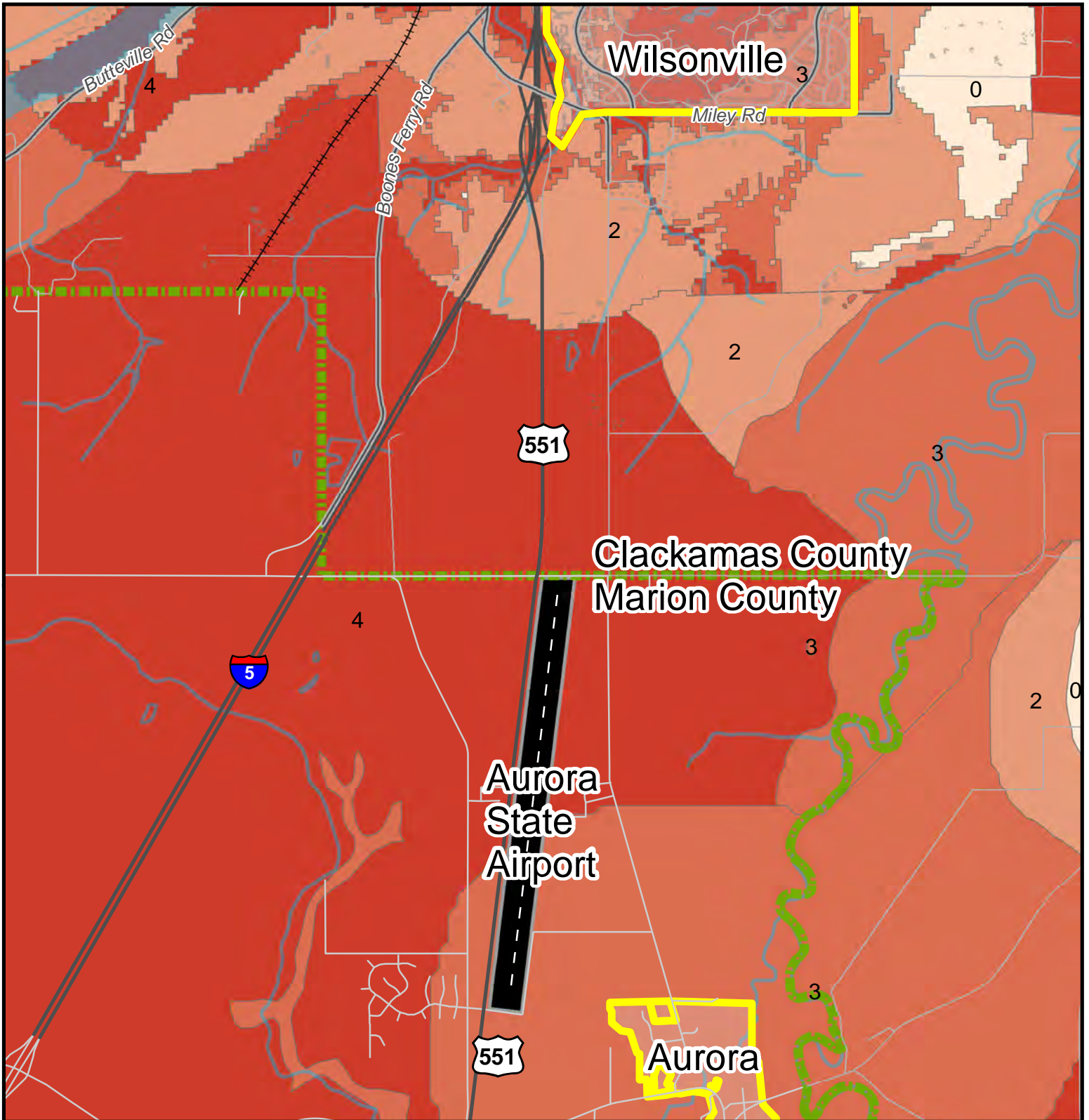
The Portland International Airport (PDX) is one of Oregon’s vital transportation network links. As the state’s major airport, PDX will play a key role in re-establishing our economy by facilitating the movement of people, goods, and services after a major statewide emergency event. Other airports in Oregon will also play a vital role during the post-disaster emergency response and initial recovery phase. During the emergency response, for example, displaced residents, injured people, and the elderly may need to be evacuated by means of airports; and airports will also provide a staging area for needed supplies (such as water, food, medical supplies, and materials for temporary housing). Until highway and rail transportation can be fully restored, air transportation, along with ships off the coast, will be the lifelines for Oregon’s citizens.

Oregon Transportation Resiliency Status

***Key to the Table**

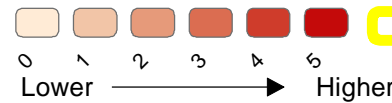
<i>TARGETS TO ACHIEVE DIFFERENT LEVELS OF RECOVERY:</i>										
Minimal: (A minimum level of service is restored, primarily for the use of emergency responders, repair crews, and vehicles transporting food and other critical supplies.)										R
Functional: (Although service is not yet restored to full capacity, it is sufficient to get the economy moving again— e.g. some truck/freight traffic can be accommodated. There may be fewer lanes in use, some weight restrictions, and lower speed limits.)										Y
Operational: (Restoration is up to 90% of capacity: A full level of service has been restored and is sufficient to allow people to commute to school and to work.)										G
ESTIMATED TIME FOR RECOVERY TO 60% OPERATIONAL GIVEN CURRENT CONDITIONS:										S
ESTIMATED TIME FOR RECOVERY TO 90% OPERATIONAL GIVEN CURRENT CONDITIONS:										X
Comparison of Target States and Estimated Time for Recovery										
<i>Infrastructure Facilities</i>	<i>Event Occurs</i>	<i>0 – 24 hours</i>	<i>1 – 3 days</i>	<i>3 – 7 days</i>	<i>1 – 4 weeks</i>	<i>1 – 3 months</i>	<i>3 – 6 months</i>	<i>6 – 12 months</i>	<i>1 – 3 years</i>	<i>3+ years</i>
Central Oregon Zone										
► OREGON STATE HIGHWAY SYSTEM										
State Highway System - Tier 1 SLR ¹⁾										
Roadways			R	Y	G			S	X	
Bridges			R	Y	G/S		X			
Landslides			R	Y	G			S	X	
State Highway System - Tier 2 SLR										
Roadways			R		Y	G			S	X
Bridges			R		Y	G/S		X		
Landslides			R		Y	G		S	X	
State Highway System - Tier 3 SLR										
Roadways				R		Y	G		S	X
Bridges				R		Y	G/S		X	
Landslides				R		Y	G		S	X
State Highway System - Other Routes										
Roadways					R		Y	G	S	X
Bridges					R		Y	G	S	X
Landslides					R		Y	G	S	X
► AIRPORTS & AIR TRANSPORTATION										
Tier I - Oregon Airports System										
Redmond Municipal Roberts Field Airport - FEMA		R	S		Y	G	X			
Klamath Falls Airport		R	S		Y	G	X			
FAA Facility										
			R	Y	G					
► OREGON RAIL TRANSPORTATION										
UPRR										
CA/OR State Line to Bieber Line Jct. (Klamath Falls)			Y	G	S	X				

<i>Infrastructure Facilities</i>	<i>Event Occurs</i>	<i>0 – 24 hours</i>	<i>1 – 3 days</i>	<i>3 – 7 days</i>	<i>1 – 4 weeks</i>	<i>1 – 3 months</i>	<i>3 – 6 months</i>	<i>6 – 12 months</i>	<i>1 – 3 years</i>	<i>3+ years</i>
Bieber Ln Jct. (Klamath Falls) to Chemult (Shared Chemult to Eugene)			Y	G	S	X				
BNSF										
CA/OR State Line to Bieber Line Jct. (Klamath Falls)		G	S	X						
Chemult to Redmond		G	S	X						
Redmond to O.T. Jct. (connection with UP at Columbia)			Y	G	S	X				
► OREGON PUBLIC TRANSIT										
Admin & Maintenance Facilities ²⁾						R	Y	G	S	X
Local Area Paratransit On-Demand Service (critical)				R	Y	S	G	X		
Local Area Paratransit On-Demand Service (full)						R	Y	G	S	X
Local Roadway Fixed Route Service (emergency)				R	Y	S	G	X		
Local Roadway Fixed Route Service (regular)						R	Y	G	S	X
Intercity & Commuter Bus ⁴⁾						R	Y	G	S	X
Willamette Valley Zone										
► OREGON STATE HIGHWAY SYSTEM										
State Highway System - Tier 1 SLR ¹⁾			R	Y	G			S	X	
Roadways			R	Y	G		S	X		
Bridges			R	Y	G			S	X	
Landslides			R	Y	G			S	X	
State Highway System - Tier 2 SLR			R		Y	G			S	X
Roadways			R		Y	G	S	X		
Bridges			R		Y	G			S	X
Landslides			R		Y	G			S	X
State Highway System - Tier 3 SLR				R		Y	G		S	X
Roadways				R		Y	G	S	X	
Bridges				R		Y	G		S	X
Landslides				R		Y	G		S	X
State Highway System - Other Routes					R		Y	G	S	X
Roadways					R		Y	G	S	X
Bridges					R		Y	G	S	X
Landslides					R		Y	G	S	X
► AIRPORTS & AIR TRANSPORTATION ⁵⁾										
Tier I - Oregon Airports System										
Portland International Airport (PDX) (Tier 1)		R			Y	S		G	X	
Salem McNary Field		R			Y	S		G	X	
Eugene Mahlon Sweet Filed		R			Y	S		G	X	
Rogue Valley International Medford		R			Y	S		G	X	
Roseburg Regional Airport		R			Y	S		G	X	
Tier III Oregon General Aviation Airport System										
Troutdale			R		S	Y		G		X
Portland Heliport			R		S	Y		G		X
→ Aurora State			R		S	Y		G		X
McMinnville Municipal			R		S	Y		G		X
Corvallis			R		S	Y		G		X



The City of Wilsonville, Oregon
Clackamas and Washington Counties

Liquefaction Susceptibility



- County Boundary
- City Limits

Aurora State Airport Area Earthquake Liquefaction Susceptibility



M:\projects\2018\100918_Liq\Liq.mxd

Summary: This map shows liquefaction susceptibility for Oregon calculated following the methods of FEMA's 2011 HAZUS-MH MR4 technical manual. The map was prepared in support of a series of ground motion and ground failure maps for a scenario Magnitude 9.0 Cascadia Subduction Earthquake developed by the Oregon Department of Geology and Mineral Industries. The scenario maps were prepared for the Oregon Seismic Safety Policy Advisory Commission for its use in preparing a report to the 77th Oregon Legislative Assembly entitled "The Oregon Resilience Plan; Reducing Risk and Improving Recovery for the Next Cascadia Earthquake and Tsunami".

**OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
INTERPRETIVE MAP SERIES 24**

GEOLOGIC HAZARDS, EARTHQUAKE AND LANDSLIDE HAZARD MAPS, AND FUTURE EARTHQUAKE DAMAGE ESTIMATES FOR SIX COUNTIES IN THE MID/SOUTHERN WILLAMETTE VALLEY INCLUDING YAMHILL, MARION, POLK, BENTON, LINN, AND LANE COUNTIES AND THE CITY OF ALBANY, OREGON

**APPENDIX E:
MARION COUNTY**

CRUSTAL EARTHQUAKE SCENARIO

Scenario Details
Ground Motion Map

SUBDUCTION ZONE EARTHQUAKE SCENARIO

Scenario Details
Ground Motion Map

GEOLOGIC HAZARD MAPS

Relative Ground-Shaking Amplification Susceptibility Map
Relative Liquefaction Hazard Susceptibility Map
Relative Earthquake-induced Landslide Susceptibility Map
Identified Landslide Areas Map

HAZUS-MH GLOBAL REPORT FOR CRUSTAL SCENARIO

HAZUS-MH GLOBAL REPORT FOR SUBDUCTION ZONE SCENARIO

CRUSTAL EARTHQUAKE SCENARIO DETAILS FOR MARION COUNTY

Crustal Earthquake Scenario: A magnitude 6.9 earthquake on the Mount Angel Fault.

For the magnitude 6.9 earthquake on the Mount Angel Fault scenario, we defined the fault source using the “deterministic seismic source” option within HAZUS-MH (Figure E1) (FEMA, 2003b). The fault and earthquake event were chosen by examination of USGS (2004) data and data in the Geomatrix Consultants, Inc. (1995) *Seismic Design Mapping, State of Oregon* report prepared for the Oregon Department of Transportation. In general, a likely worst-case scenario was selected. Figure E1 has the location of the fault, shown as the dark line, and the census tracts within Marion County. Figure E2 displays the peak ground acceleration (PGA) for the crustal scenario.

Scenario Name	Mount Angel M6.9
Type of Earthquake	Source
Fault Name	Mount Angel Fault
Historical Epicenter ID #	67
Probabilistic Return Period	NA
Longitude of Epicenter	-122.83
Latitude of Epicenter	45.05
Earthquake Magnitude	6.90
Depth (km)	0.00
Rupture Length (km)	30.69
Rupture Orientation (degrees)	0.00
Attenuation Function	Project 2000 West - Non Extensional

Crustal Earthquake Scenario Ground Motion Map

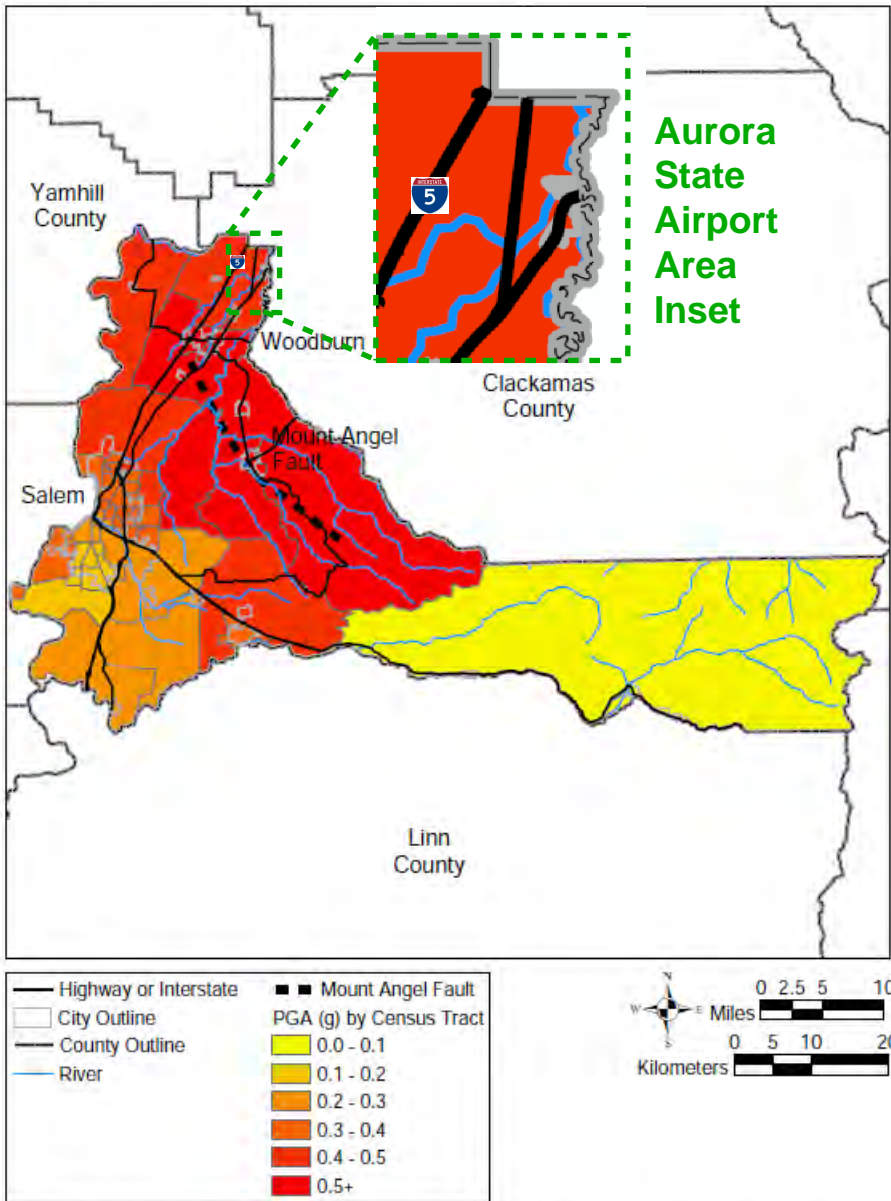


Figure E2. Peak ground acceleration (PGA) by census tracts map for the crustal earthquake scenario, Marion County, Oregon (FEMA, 2003b)

GEOLOGIC HAZARD MAPS

Relative Ground-Shaking Amplification Susceptibility Map

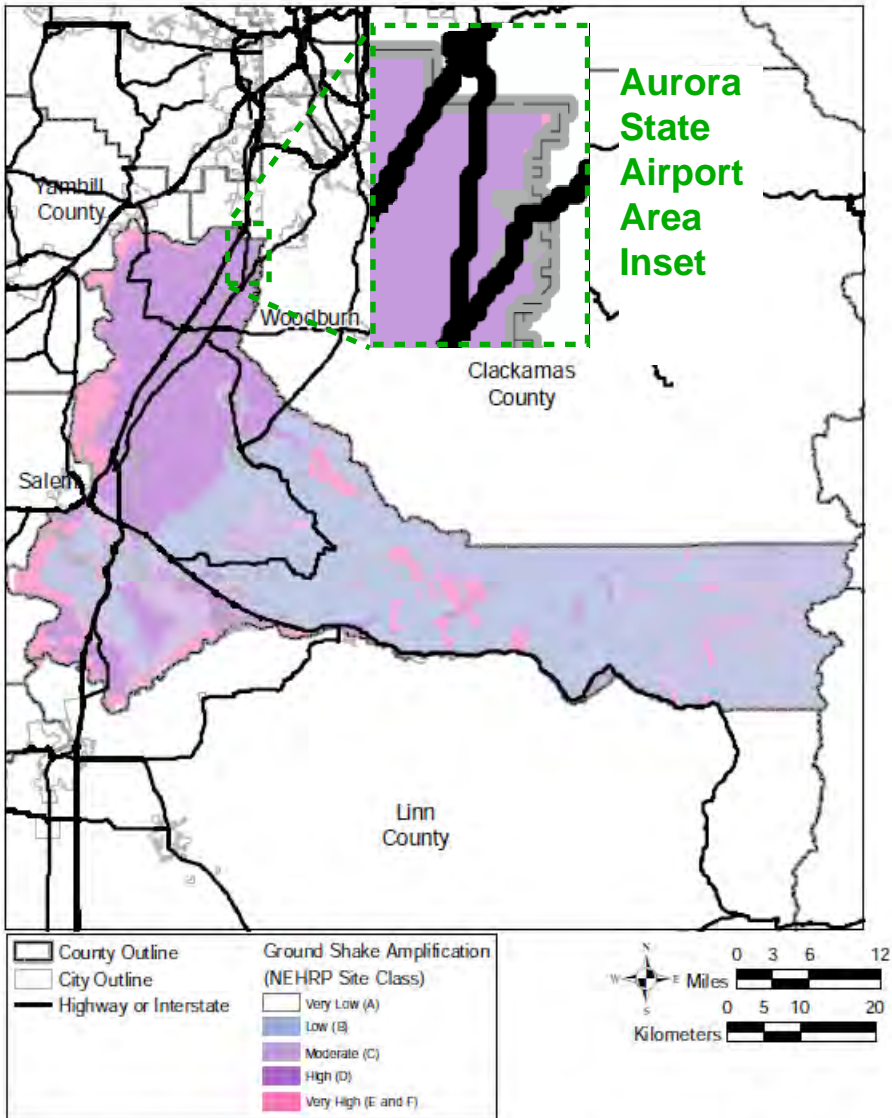






Figure E5. Relative ground-shaking amplification susceptibility map for Marion County, Oregon.

Relative Amplification Hazard Map

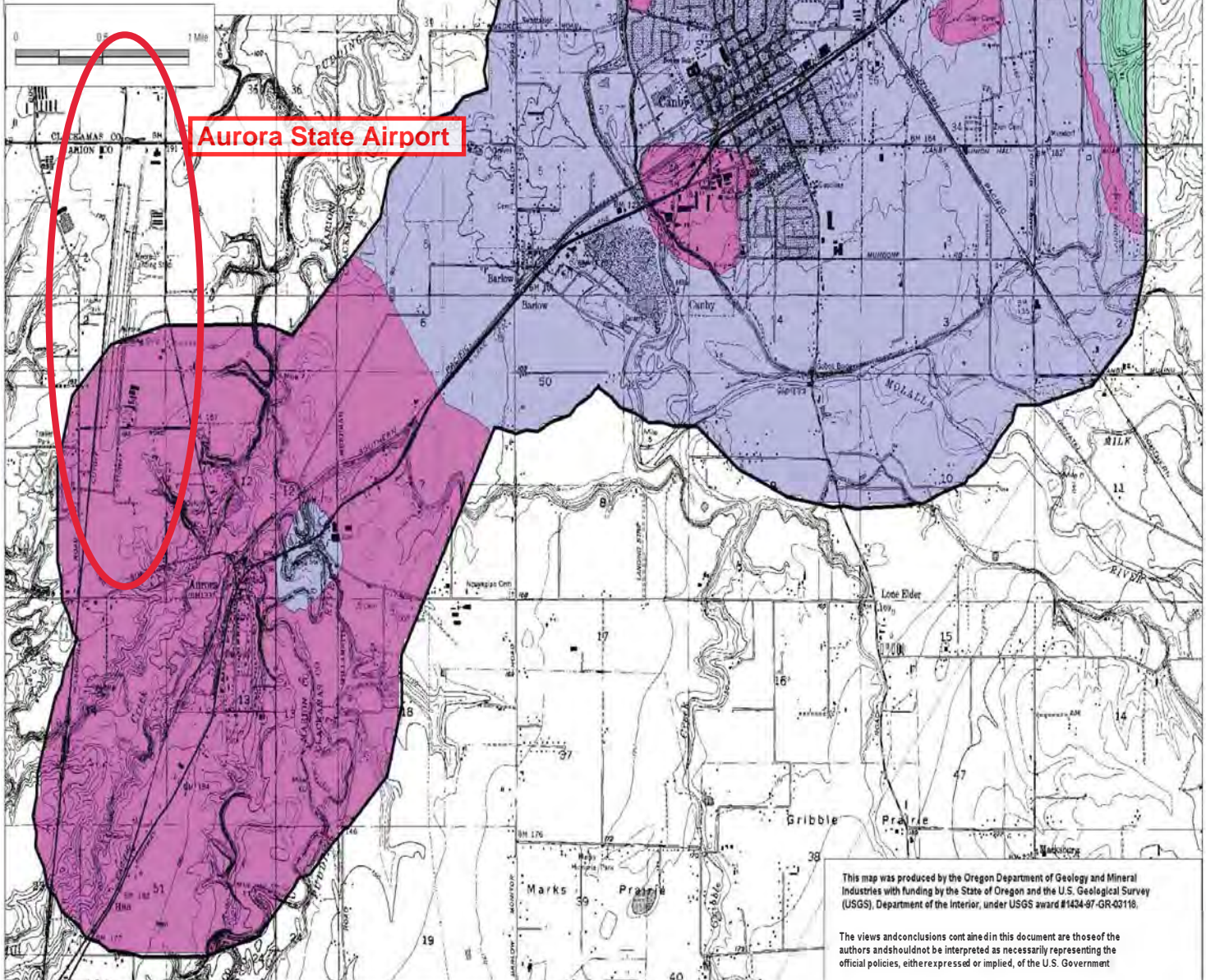
Hazard zones are based on the degree to which ground shaking from a given earthquake is likely to be amplified.

-  Highest amplification hazard (UBC soil type E)
-  Medium amplification hazard (UBC soil type D)
-  Low amplification hazard (UBC soil type C)
-  No amplification hazard (UBC soil type B)

See the accompanying text for an explanation of how these zones were defined and what the various levels of hazard mean.

IMPORTANT NOTICE

This map depicts only amplification hazard zones that are based on limited geologic and geophysical data as described in the accompanying report. At any given site in the map area, the maps for other types of hazards may show different hazard levels and need to be taken into consideration along with this map. This map cannot replace site-specific investigations. Some appropriate uses are discussed in the accompanying report.






Canby-Barlow-Aurora Urban Area

By Ian P. Machin and Zhenming Wang

CANBY-BARLOW-AURORA

Relative Earthquake Hazard Map

Hazard zones are based on the combined effects of ground shaking amplification, liquefaction, and earthquake-induced landsliding.

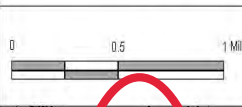
-  Zone A -- Highest hazard
-  Zone B -- Intermediate to high hazard
-  Zone C -- Low to intermediate hazard
-  Zone D -- Lowest hazard

See the accompanying text for an explanation of how these zones were defined and what the various levels of hazard mean.

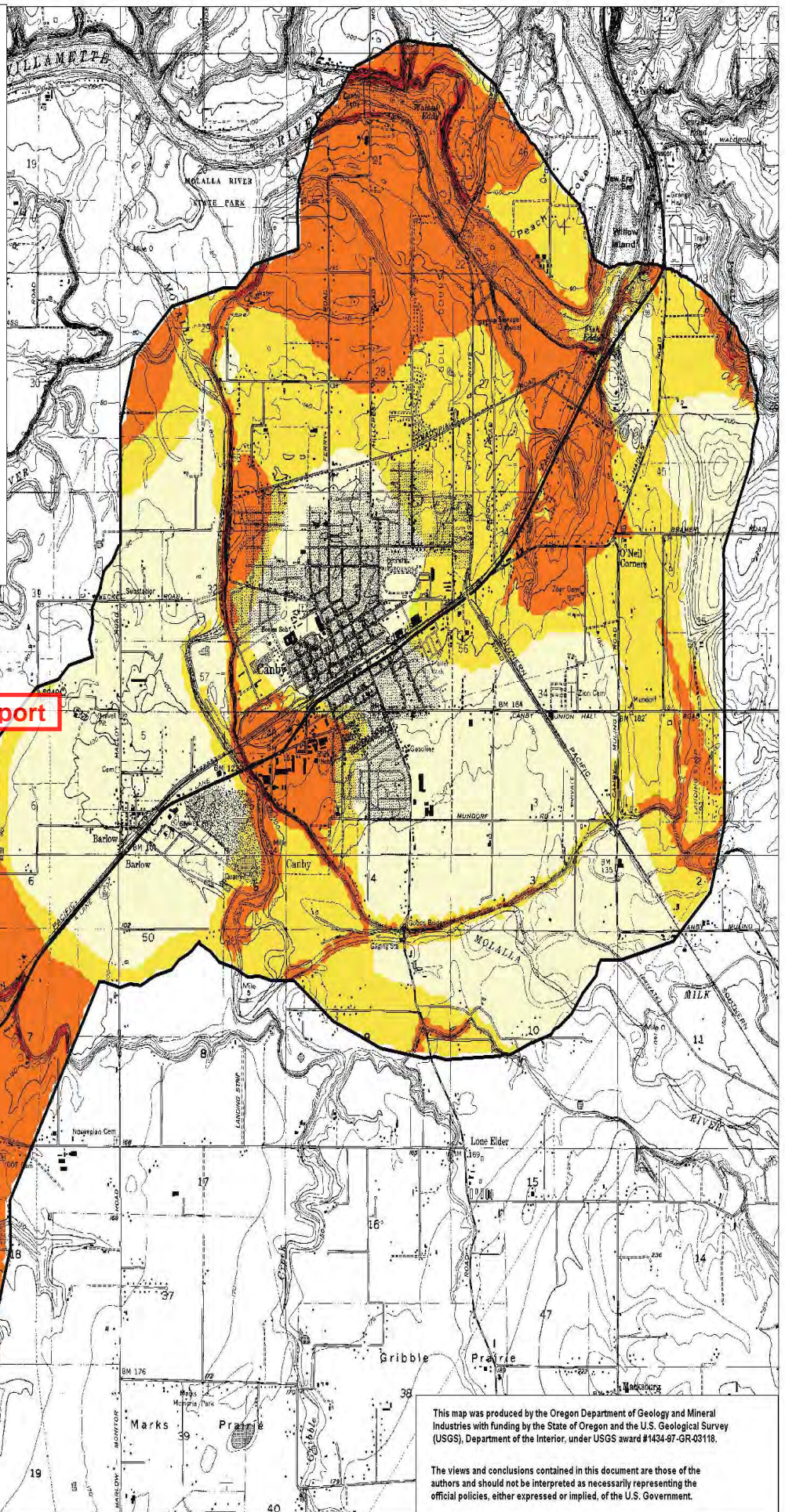
IMPORTANT NOTICE

This map depicts earthquake hazard zones that are the result of combining the maps of individual hazards and are based on limited geologic and geophysical data. These hazards and data are described in the accompanying report. At any given site in the map area, site-specific data could give results that differ from those shown on this map. This map cannot replace site-specific investigations. Some appropriate uses are discussed in the accompanying report.

This map shows areas that are relatively more or less hazardous due to local geological conditions within a community. For a complete understanding of the earthquake hazard, see also GMS-100, Earthquake Hazard Maps for Oregon.



Aurora State Airport



This map was produced by the Oregon Department of Geology and Mineral Industries with funding by the State of Oregon and the U.S. Geological Survey (USGS), Department of the Interior, under USGS award #1434-97-GR-0318.

The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

Relative Hazard Map of Earthquake-Induced Landslides

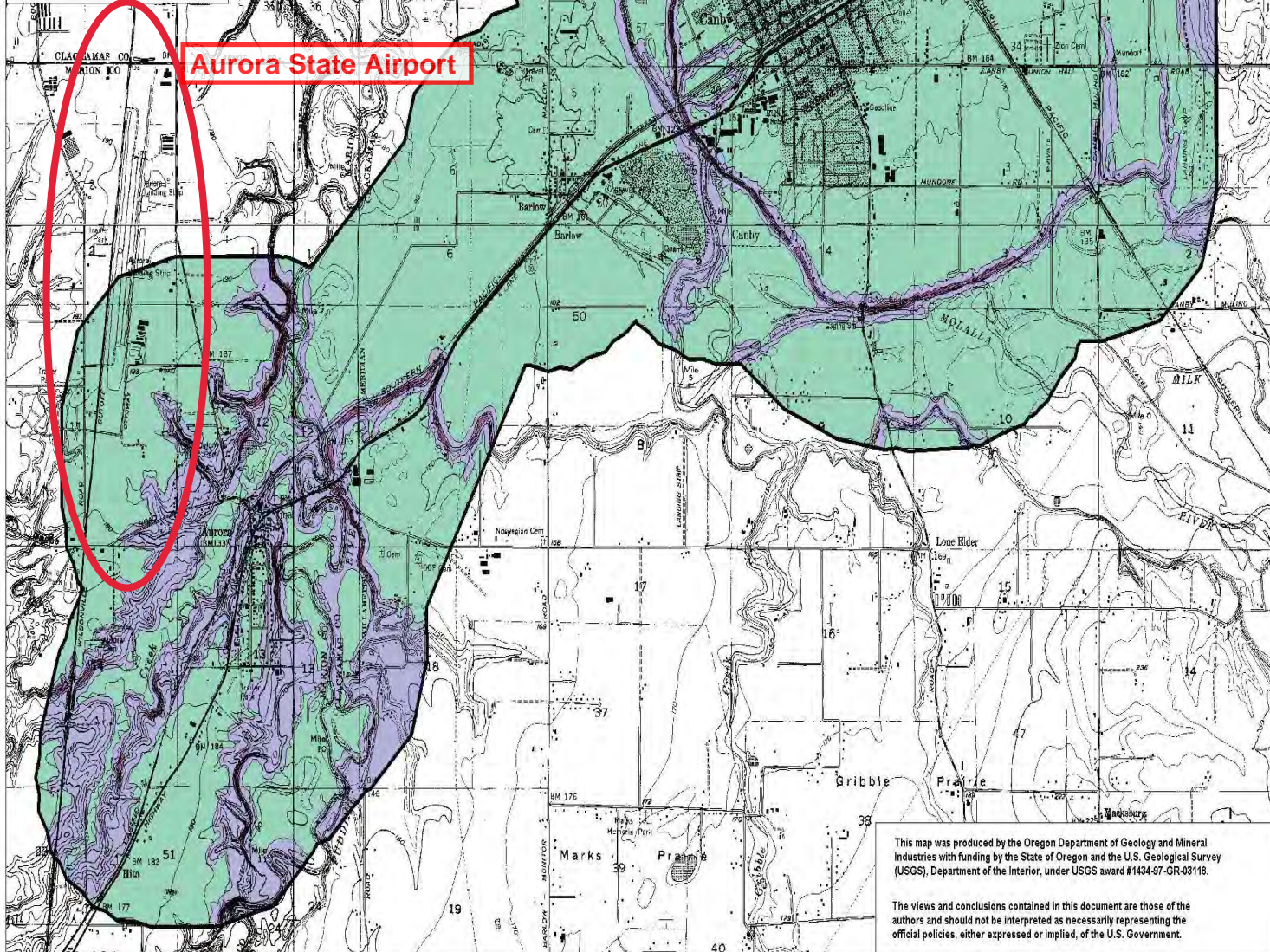
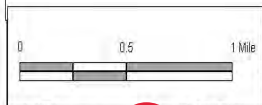
Hazard zones are based on the possibility that
a given earthquake will trigger landslides.

-  High landslide hazard
-  Medium landslide hazard
-  Low landslide hazard

See the accompanying text for an explanation of how these zones
were defined and what the various levels of hazard mean.

IMPORTANT NOTICE

This map depicts only landslide hazard zones that are based
on limited geologic and geophysical data as described in the
accompanying report. At any given site in the map area, the
maps for other types of hazards may show different hazard levels
and need to be taken into consideration along with this map.
This map cannot replace site-specific investigations. Some
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Canby-Barlow-Aurora Urban Area

Relative Liquefaction Hazard Map

Hazard zones are based on the likelihood that liquefaction will occur in a given earthquake.

- Highest liquefaction hazard
- Medium liquefaction hazard
- Low liquefaction hazard
- No liquefaction hazard

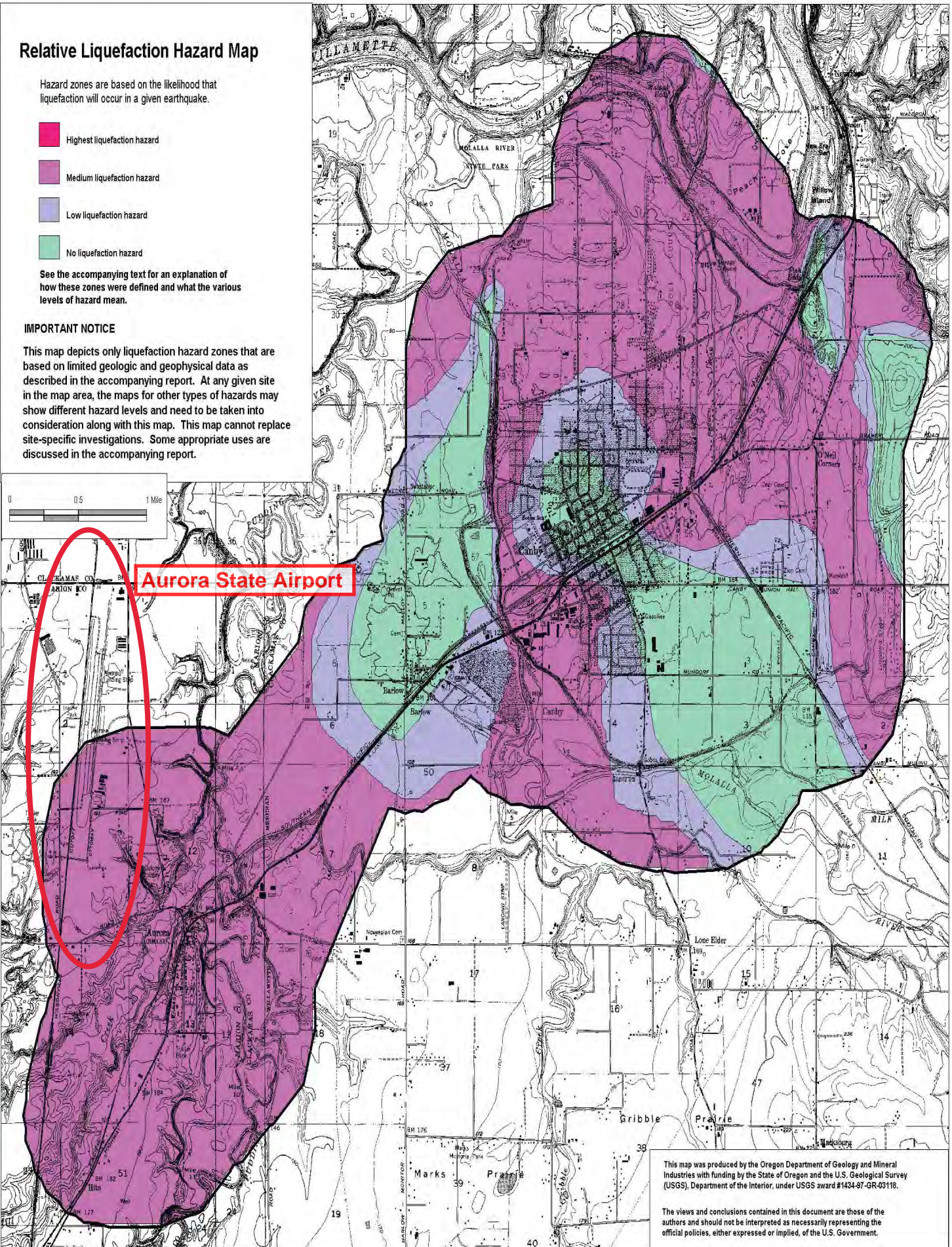
See the accompanying text for an explanation of how these zones were defined and what the various levels of hazard mean.

IMPORTANT NOTICE

This map depicts only liquefaction hazard zones that are based on limited geologic and geophysical data as described in the accompanying report. At any given site in the map area, the maps for other types of hazards may show different hazard levels and need to be taken into consideration along with this map. This map cannot replace site-specific investigations. Some appropriate uses are discussed in the accompanying report.



Aurora State Airport



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