

Appendix F: Data Resources – Natural Resource and Hazard Constraints

Last updated May 2026.

Use Cases

This document contains a list of data sources that can be used to estimate land constrained by natural resources or hazards, including for implementation of Oregon Administrative Rules related to Goal 10, Housing, and Goal 14, Urbanization. A couple excerpts are pasted below.

Goal 10: Mapping constraints as part of a Buildable Lands Inventory

OAR 660-008-0005(7); 660-008-0100 Housing Capacity Analysis

(7) “Buildable Land” means land designated or zoned to allow residential use within the planning boundary, including vacant land, partially vacant land, and developed land likely to be redeveloped, that is suitable, available, and necessary for the development of needed housing over a 20-year planning period. Publicly owned land is generally not considered available for the development of needed housing unless otherwise determined by the local government to be available through coordination with public entities. Land is generally considered “suitable and available” unless it:

- (a) Is severely constrained by **natural hazards** as determined under Statewide Planning Goal 7;
- (b) Is subject to **natural resource protection measures** determined under Statewide Planning Goals 5, 6, 15, 16, 17 or 18;
- (c) Has **slopes** of 25 percent or greater;
- (d) Is within the 100-year **flood plain or floodway**; or
- (e) Cannot be provided with public facilities.

Goal 14: Excluding land as part of a UGB Study Area analysis

OAR 660-024-0065

- (3) The city may exclude land, including whole tax lots or parcels, from the preliminary study area if it determines that:
- (b) The land is subject to **significant development hazards**, due to a risk of:

(A) **Landslides:** The land consists of a landslide deposit or scarp flank. If the owner of a lot or parcel provides the city with a site-specific analysis by a certified engineering geologist demonstrating that development of the property would not be subject to significant landslide risk, the city may not exclude the lot or parcel under this paragraph;

(B) **Flooding,** including inundation during storm surges: the land is within the Special Flood Hazard Area (SFHA) identified on the applicable Flood Insurance Rate Map (FIRM);

(C) **Tsunamis:** the land is within a tsunami inundation zone established pursuant to ORS 455.446;

(D) **Other hazards** identified in an acknowledged comprehensive plan or development code that the local government determines as presenting a significant risk to life or property including those that would be identified if the land was already within the city's jurisdiction.

(c) The land consists of a **significant scenic, natural, cultural or recreational resource** described in this subsection:

(A) Land that is designated in an acknowledged comprehensive plan prior to initiation of the UGB amendment, or that is mapped on a published regional, state or federal inventory at a scale sufficient to determine its location for purposes of this rule, as:

(i) **Critical or essential habitat** for a species listed by a state or federal agency as threatened or endangered;

(ii) Core habitat for **Greater Sage Grouse**; or

(iii) **Big game migration corridors or winter range**, except where located on lands designated as urban reserves or exception areas;

(B) **Federal Wild and Scenic Rivers and State Scenic Waterways**, including Related Adjacent Lands described by ORS 390.805, as mapped by the applicable state or federal agency responsible for the scenic program;

(C) **Designated Natural Areas** on the Oregon State Register of Natural Heritage Resources;

(D) **Wellhead protection areas** described under OAR 660-023-0140 and delineated on a local comprehensive plan;

(E) **Aquatic areas** subject to Statewide Planning Goal 16 that are in a Natural or Conservation management unit designated in an acknowledged comprehensive plan;

(F) Lands subject to acknowledged comprehensive plan or land use regulations that implement Statewide Planning **Goal 17, Coastal Shoreland**, Use Requirement 1;

(G) Lands subject to acknowledged comprehensive plan or land use regulations that implement Statewide Planning **Goal 18**, Implementation Requirement 2;

(H) **Lands identified by a Tribal government** as not compatible with urbanization because they consist of important scenic, natural, or cultural resources.

Datasets for Estimating Land Constraints

The table below includes recommended data sets for estimating and mapping natural resource and hazard constraints to assist with implementation of the above rules. These datasets are not necessarily required to be used, though in some places in the rule the data source is specified. Generally speaking, these data are not intended to be a ‘be all, end all’ in deciding whether or not to classify land as buildable or suitable for future urbanization but can help inform decision making by highlighting areas to investigate further. Use professional judgment and local knowledge, including whether risks can be mitigated and local data sources where available, to provide additional context.

Please also note that these data sets, like all data, are imperfect. They include margins of error and may not always be updated in a timely manner. These are DLCD’s recommendations as of April 2026, but we recommend using the best available data at the time of analysis.

Table 1. Recommended Data Sets for Natural Resources and Hazards

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
Natural Hazards				
OAR 660-008-0005(7)(a) OAR 660-024-0065(3)(b)(A)	Landslide Susceptibility	Oregon Department of Geology and Mineral Industries Statewide Land Slide Information Database SLIDO landing page Download data from: Statewide Landslide Information Database for Oregon (SLIDO)	Statewide	Includes information about land slide susceptibility, including low, moderate, high, and very high susceptibility. This data must be processed in GIS to create a polygon, which will provide information about landslide susceptibility.

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
OAR 660-008-0005(7)(d) OAR 660-024-0065(3)(b)(B)	Floodplains and floodways	FEMA Flood Insurance Rate Maps (FIRMs) FEMA National Flood Hazard Layer Download data from: National Flood Hazard Layer (NFHL) Viewer or FEMA Flood Map Service Center Metro-specific: Metro's RLIS database includes Title 3 lands, Information about Title 13 Lands - Download data from: here	Digitized NFHL data is available most counties west of the Cascades, with some availability east of the Cascades. ¹	FIRMs are available nationally for communities with flooding hazards. FIRMs may be old and outdated. Updating the maps may be a lengthy process. In some parts of Oregon, FIRMs may be old enough (such as from the 1980's) that digital versions of the FIRMs are not available. is most likely to be the case in eastern and southern Oregon counties. Counties that do not have FIRMs may have preliminary flood hazard data, which may provide information that could be used in a BLI, especially where the city regulates riparian corridors or other natural resources related to rivers and streams.
OAR 660-008-0005(7)(d)	Metro Stream and Floodplain Protections (Title 3)	Metro's RLIS database includes Title 3 lands Information about Title 3 Lands Download data from: here	Cities within Metro	The Title 3 Land data delineates places protected by the Stream and Floodplain Protection Plan. This data specifically delineates areas impacted by Title 3 for the following purposes: 1. protect against flooding, 2. enhance water quality in the region's streams, rivers, and wetlands, and 3. protect

¹ [Map of counties with FIRMs.](#)

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
				regionally significant fish and wildlife habitat areas.
OAR 660-008-0005(7)(a) OAR 660-024-0065(3)(b)(C)	Tsunami Inundation Zone	Oregon Department of Geology and Mineral Industries Tsunami Inundation Map (TIM) Download data from: here	Coastal Communities	The data has small to 2x large inundation scenarios. It would be appropriate to discuss which scenario to use.
OAR 660-008-0005(7)(a)	Liquefaction	DOGAMI's liquefaction susceptibility under their earthquake hazard map layer		
-	Wildfire	Oregon CWPP Planning Tool	Statewide	
-	Shoreline erosion/change	Statewide: NANOOS NVS : Beach and Shoreline Changes		
-	Sea level rise	Oregon Sea Level Rise Impacts Explorer		
-	Beach and dune	Dune Classifications USDA 1975 Ocean Shores Viewer		
OAR 660-008-0005(7)(a) OAR 660-024-0065(3)(b)(D)	Other hazards	Locally adopted and acknowledged maps and policies in their comprehensive plan and		A Natural Hazard Mitigation Plan is a non-regulatory document. Unless adopted or its information is integrated into the Comp Plan/Dev Code, it does

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
		development code where the hazard is determined to present a significant risk to life or property		not hold weight in regards to making land use decisions such as BLI, UGB analysis
Natural Resources				
OAR 660-008-0005(7)(b)	Wetlands	Department of State Lands Statewide Wetlands Inventory (SWI). Download data from: here Local Wetlands Inventories (LWIs). Download data from: here National Wetlands Inventory (NWI). Download data from: here	SWI is available statewide. LWIs are available for some cities. NWI is nationwide and available for all cities.	DSL maintains the SWI, which displaces the approximate locations of wetlands and waters throughout Oregon. DSL is working to integrate information from all approved LWIs into the SWI. Some cities do not have an approved LWI. Some cities have approved LWIs, which are or will be incorporated into the SWI. LWIs identify significant and non-significant wetlands. In addition, cities may have site-specific delineation data. The NWI does not differentiate between significant and non-significant wetlands. The accuracy of the NWI is lower than an LWI.
OAR 660-008-0005(7)(b)	Riparian, wetland, and other water resource setbacks	Locally available data in some cities Best available data may be the National Hydrography Dataset, if a	Not commonly available statewide, but may be available	Some cities regulate riparian, wetland, or other water resources via a setback in their zoning ordinance. Some cities may have locally available data This data may come from the city or county. If it is not available from the

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
		city does not have local data. Download data from: here	from city-specific data	city or county, use the streams information from the National Hydrography Dataset. The size of the buffer used to identify the area of constraint depends on the local regulations.
OAR 660-008-0005(7)(b)	Other local natural resource and conservation zones	Locally available data in some cities	Not commonly available statewide but may be available from city-specific data	Some cities have local wildlife habitat areas, conservation easements, natural resource protection zones, or other conservation resource zones. These data are from individual cities and the regulations about areas of constraint are defined in the city's zoning ordinance.
OAR 660-024-0065(3)(c)(A)	Habitat Boundaries	Oregon Department Fish and Wildlife's Compass tool Relevant map layers: • Species of Greatest Conservation Need • Key Habitats • Priority Wildlife Connectivity Areas	Statewide	The ODFW Compass tool provides coarse-scale, non-regulatory fish and wildlife information, and crucial habitat layers emphasize areas documented as containing important natural resources. Compass is intended to support early planning for large-scale land-use, development, or conservation projects, and most layers do not provide detailed information on site-specific locations. Results identified in the Compass tool provide a starting point for developers to consider which key habitats or species may exist and are not intended to confirm the location.

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
				For questions, see contact information provided at the end of this document.
OAR 660-024-0065(3)(c)(A)	Habitat Boundaries	Priority Wildlife Connectivity Areas	Statewide	Priority Wildlife Connectivity Areas (PWCAs) represent the parts of the landscape with the highest overall value for facilitating wildlife movement. This interconnected network of PWCAs was developed by extracting the top 1% of priority connectivity areas for 54 surrogate species evaluated in the Oregon Connectivity Assessment and Mapping Project and linking these areas using an optimal network analysis, with an emphasis on additional high-priority areas (i.e., the top 2% of priority areas were preferred over the top 3%, which were preferred over the top 4%, etc.) as well as climate refugia and permanent streams/riparian climate corridors.
OAR 660-024-0065(3)(c)(A)	Habitat Boundaries	Conservation Opportunity Areas	Statewide	Conservation Opportunity Areas (COAs) are places where broad fish and wildlife conservation goals would best be met. COAs were developed to guide where to implement voluntary conservation actions in Oregon.
OAR 660-024-0065(3)(c)(A)(ii)	Greater Sage-Grouse	Greater Sage-Grouse Core and Low-Density Habitat	Eastern and Central Oregon	ODFW maps are used to identify significant sage-grouse habitat per OAR 660-023-0115.

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
				Visit ODFW's website for questions specific to ODFW's Sage Grouse Mitigation Program.
OAR 660-024-0065(3)(c)(A)(iii)	Big Game Habitat, Eastside	ODFW Deer and Elk Winter Range for Eastern Oregon	Eastern Oregon	ODFW designated deer and elk winter range, which is occupied by big game from December – April.
OAR 660-024-0065(3)(c)(A)(iii)	Big Game Habitat, Westside	ODFW Western Oregon Deer and Elk Habitat, including Winter Concentration	Western Oregon	ODFW designated deer and elk habitat for Western Oregon.
OAR 660-024-0065(3)(c)(A)(i)	Threatened and Endangered Species	US Fish and Wildlife Service Critical Habitat for Threatened and Endangered Species	Statewide	The ECOS critical habitat on-line mapper includes (some, not all of the) proposed and final critical habitat for species listed as Threatened and Endangered by the FWS, or that are jointly managed by FWS/NMFS. The on-line mapper does not include species which are under the sole jurisdiction of NMFS.
OAR 660-024-0065(3)(c)(A)	Habitat Boundaries	Oregon Department of Forestry Willamette Valley Hardwood Map	Willamette Valley	ODF's Willamette Valley Hardwood Map depicts the spatial distribution of common hardwood species. This map can provide a more refined tool for substantiating areas of key oak habitat within the Willamette Valley and aligns with the ODFW key habitats layer at a more refined scale.

Relevant Rule(s)	Constraint	Data Source(s)	Availability	Considerations
OAR 660-024-0065(3)(c)(A)	Metro Habitat Conservation Areas (Title 13)	Metro's RLIS database includes Title 13 lands Information about Title 13 Lands Download data from: here	Cities within Metro	The Title 13 data depict the Metro Fish and Wildlife regulatory program to Metro Resolution No. 04-3506A. The layer divides the region's significant habitat into high, moderate, low, or no conservation area.
Other Land Constraints				
OAR 660-008-0005(7)(c)	Steep Slopes	Oregon Department of Forestry Oregon Digital Elevation Model DEM Download data from: here	Statewide	Slope data is available for 10-meter elevations, which show elevations in 10-meter increments. This data must be processed in GIS to create a slopes polygon, which will provide information about slopes.
OAR 660-008-0005; 008-0100	Bonneville Power Administration (BPA) Easements	Bonneville Power Administration Land & Rights of Ways Resource Library Download data from: here	For communities with BPA lines with easements	Cities with BPA transmission lines generally have areas with easements that are unbuildable.

Helpful ODFW Contacts

For questions or technical assistance related to the Oregon Department Fish and Wildlife's Compass tool and mapping habitat boundaries, see contact information below.

- **ODFW Statewide Land Use and Waterway Alterations Coordinator:** Joy Lovett; Joy.R.Lovett@odfw.oregon.gov

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- The **Regional Habitat Biologists** have a primary role in coordinating with local governments on land use. Regional Habitat Biologist contacts are provided below:
 - North Willamette Watershed District: Ariana Scipioni; Ariana.R.Scipioni@odfw.oregon.gov
 - South Willamette Watershed District: Joe Stack; Joseph.P.Stack@odfw.oregon.gov
 - Umpqua Watershed District: Amy Darr; Amy.E.Darr@odfw.oregon.gov
 - John Day Watershed District: Lindsay Somers; Lindsay.N.Somers@odfw.oregon.gov
 - Deschutes Watershed District: Jamie Bowles; Jamie.L.Bowles@odfw.oregon.gov
 - Klamath Watershed District: Michael Moore; Michael.Moore@odfw.oregon.gov
 - Grande Ronde Watershed District: Jon Paustian; Jon.A.Paustian@odfw.oregon.gov
 - Malheur Watershed District: Tom Segal; Thomas.P.Segal@odfw.oregon.gov