

Shoreland Hazards

Ocean Flooding

Ocean flooding is the inundation of lowland areas along the coast by salt water due to tidal action, storm surge, or tsunamis (seismic sea waves). Landforms in Newport subject to ocean flooding include beaches, the bases of sea cliffs, marshes and low-lying interdune areas. All areas shown on the Flood Insurance Rate Map in Zone V and areas below the 10 foot elevation south of and adjacent to the south jetty are considered to be areas subject to ocean flooding.

The National Flood Insurance Program (FIA) requires that all living areas or residences built or rebuilt within the floodplain be built so that the lowest habitable floor is at least one foot above the base flood level. In addition, buildings, foundations, and other structures must be built so that flood problems are not worsened in other areas. The City of Newport flood plain management regulations for coastal high hazard zones have been recognized as appropriate by FEMA.²¹

Shoreline Protection Measures

Ocean wave undercutting and consequent sea cliff erosion has been identified as a major source of beach sand. The following description of landslide areas also notes the role of ocean wave action. In an effort to protect property from cliff retreat, sand movement, and ocean flooding, several shoreline protection features have been built.

RNKR Associates mapped riprap armor along the shoreline in order to inventory these features. These are shown on the Ocean Shorelands map beginning on page 50. Control of shoreline protection features by local authorities is needed to prevent unexpected changes in beach equilibrium or aggravated erosion of adjacent lands. RNKR suggested several questions to be answered in the review of new shoreline protection structures which have been incorporated into ordinances controlling development along the shoreland.

In addition to city policies and regulations, beach areas within the vegetation line established by ORS 390 are under the jurisdiction of the Oregon State Parks and the Division of State Lands. A permit is required from those agencies prior to the construction of any beach front protective structures.

Landslide and Coastal Erosion Areas

Landslide and Coastal Erosion areas were mapped within the Newport urban growth boundary in the 2004 document titled Evaluation of Coastal Erosion Hazard Zones Along Dune and Bluff Backed Shorelines In Lincoln County, Oregon: Cascade Head to Seal

Rock, by the Oregon Department of Geology and Mineral Industries (OFR O-04-09). The document and maps is included here by reference. The report describes several types of mass movement (mud flow, slump, soil creep, and debris avalanche) and defines the mapped landslide areas:

Prehistoric Mass Movements: Generally speaking, these are very large landslide and slide blocks that predate historical observations on the Oregon coast (about 150 years) and are deeply eroded with no evidence of recent slide activity.

Potentially Active Mass Movements: These are areas of mass movements that are currently stable (no bowed trees or cracked soil and pavement) but with evidence of recurrent movement in the last 150 years. Unlike the prehistoric slides, these features are generally not extensively eroded and have well preserved topography indicative of recent movement. Many show no evidence of movement since 1939 or 1967 aerial photography but are probably more likely to have movements than the prehistoric slide areas.

Active Mass Movements: These areas have evidence such as bowed trees and cracked soil or pavement that indicate ongoing down slope movement of large masses of soil or rock.

Quaternary Landslides: Quaternary landslides were mapped by Snavely and others (1976 and 1996). These landslides are shown in inland portions of the City and were not investigated in the 2004 DOGAMI report.

Landslide Terrain: Areas identified as landslide terrain were interpreted by Schlicker and others (1973) from aerial photos and reconnaissance-level fieldwork. The terrain may be landslide or just rolling topography similar to that produced by landslide processes and needs to be field checked.

Bluff and Dune Backed Shoreline Hazard Areas: Coastal bluff and dune backed shoreline areas characterized by existing, active erosion processes and three zones of potential future erosion (high, moderate, and low) that respectively depict decreasing risk of becoming active in the future as modeled in the DOGAMI report. The respective hazard zones are more particularly described as follows:

Active Erosion Hazard Zones – For dune backed shorelines, the active hazard zone encompasses the active beach to the top of the first vegetated foredune, and includes those areas subject to large morphological changes adjacent to the mouths of bays due to inlet migration. On bluff backed shorelines the active hazard zone includes actively eroding coastal bluff escarpments and active or potentially active coastal landslides.

High Risk Erosion Hazard Zones – For dune backed shorelines, the high risk scenario is based on a large storm wave event (wave heights 47.6 ft high) occurring over the cycle of an above average high tide, coincident with a 3.3 ft storm surge.

For bluff backed shoreline areas, the high risk zone portrays bluff retreat that would occur if only gradual erosion at a relatively low mean rate were to occur over a 60 year period after the slope reaches and maintains its ideal angle of repose (for talus of the bluff material).

Moderate Risk Erosion Hazard Zones – For dune backed shorelines, the moderate risk scenario is based on an extremely severe storm event (waves 52.5 ft high) coupled with a long term rise in sea level of 1.31 ft. For bluff backed shoreline areas, the moderate risk zone portrays an average amount of bluff retreat that would occur from the combined processes of block failures, retreat to an angle of repose, and erosion for 60 to 100 years.

Low Risk Erosion Hazard Zones – For dune backed shorelines, the low risk scenario is similar to the moderate risk approach but incorporates a 3.3 ft vertical lowering of the coast as a result of a Cascadia subduction zone earthquake. For bluff backed shoreline areas, the low risk zone illustrates a worst case for bluff retreat in 60-100 years considering maximum bluff slope failure, erosion back to an ideal angle of repose, and gradual bluff retreat for 100 years.

Shoreland Resources

Significant Habitats

Significant material regarding shoreland and wetland biological habitats and riparian vegetation along the ocean shoreline in Lincoln County were compiled by Dr. D.W. Thomas in September 1981.²² Recent aerial photographs and additional information from the Nature Conservancy, Oregon Department of Fish and Wildlife (ODFW), the U.S. Army Corps of Engineers, OCC&DC, and the U.S. Fish and Wildlife Service National Wetlands Inventory were obtained during that study. In July 1983, the City of Newport, in coordination with Lincoln County and the Oregon Department of Fish and Wildlife, reexamined the Thomas Study in the South Beach dune complex. The Ocean Shorelands Map (beginning on page 50) was amended to include only those areas considered by ODFW to be significant shoreland and wetland biological habitat (see the description of South Beach's significant habitat areas on the next page).

²² D.W. Thomas, Significant Shoreland and Wetland Biological Habitat and Riparian Vegetation, 1981.

The City of Newport also amended the Ocean Shoreland map to exclude the Yaquina Estuary north and south jetties and existing jetty access roads as significant habitat.

The following significant shoreland and wetland biological habitats on Newport's ocean shorelands have been noted and are shown on the Ocean Shorelands map (beginning on page 50):

- > Grant Creek west of Highway 101.
- > An unnamed drainage east and west of Highway 101 just to the north of the Newport Municipal Airport property and south of South Beach State Park.
- > South Beach dune complex.
- > The cliffs and offshore rocks at Yaquina Head.

Coastal Headlands

There are two headlands within the Newport urban growth boundary, and one is the well-known Jump-Off Joe Rock. A prominent headland in the last century, only skeletal remains are left, and it is now a minor promontory of the marine terrace upon which most of the City of Newport is located. It has been subject to rapid and substantial marine erosion and seacliff retreat. (See the History and the Parks and Recreation sections of this plan.)

The remaining and more prominent coastal headland is Yaquina Head. This headland is formed by the Cape Foulweather basalt. The surficial extent of this geologic unit was mapped in 1973 by Schlicker.²³ The seaward exposure of this unit is included within the shorelands boundary as a major visual resource of the Newport area. Walker, Havens, and Reickson's Visual Resources Analysis of the Oregon Coastal Zone identified Yaquina Head as an area with potential for an exceptional coastal experience. Congress designated about 100 acres of the Head as an Outstanding Natural Area (ONA) on March 5, 1979, in Section 119 of Public Law 96-199. The act also provided for wind energy research within the ONA. The boundary of the Yaquina Head ONA established by this act is shown on the Ocean Shorelands map.

Once the site of a privately-owned commercial quarry, the primary developed land uses on this headland now are the Yaquina Head Lighthouse and a few residences.

²³ State of Oregon, Bulletin 81: Environmental Geology of Lincoln County, Oregon, 1973.

Recreation Associated with the Pacific Ocean

Yaquina Head, city and state parks, and several public rights-of-way to the ocean beaches provide for recreational opportunities along the ocean shorelands. The designation of the beaches as a special recreational area by the State of Oregon and the acquisition and development of Agate Beach, South Beach, and Yaquina Bay State parks encompass all of the area that is especially suited for recreation along the ocean shorelands within the Newport UGB. Public access to the beach outside of state parks occurs over public rights-of-way or specially acquired parcels. Major public access points are noted on the Ocean Shorelands map and the Inventory Of Oregon Coastal Beach Access Sites, published by Benkendorf and Associates,²⁴ hereby included within this plan by reference.

Navigation Facilities

Navigation facilities are important uses in the ocean shorelands area. Navigation facilities currently consist of the jetties at the mouth of Yaquina Bay, the Yaquina Bay Lighthouse, and the Yaquina Head Lighthouse.

GOALS/POLICIES NATURAL FEATURES

Goal 1: To protect life and property, to reduce costs to the public, and to minimize damage to the natural resources of the coastal zone that might result from inappropriate development in environmentally hazardous areas.

Policy 1: In areas of known hazards, the City of Newport shall require a site evaluation of the potential dangers posed by environmental hazards prior to city review and approval of a proposed development. It shall be the applicant's burden to show that construction in an environmentally hazardous area is feasible and safe. Site investigations in geologic hazardous areas shall be prepared by a registered geologist or engineer.

Policy 2: The city shall maintain and, where necessary, update ordinances that control development in an environmentally hazardous area.

Policy 3: Where hazardous areas have not been specifically identified but there is reason to believe that a potential does exist, a site specific investigation by a registered geologist or engineer shall be required prior to development.

²⁴ Benkendorf and Associates, Inventory of Oregon Coastal Beach Access Sites, 1989.

Policy 4: The city shall continue its participation in the Flood Insurance Program administered by the Federal Emergency Management Agency.

Policy 5: Development within the Ocean Shorelands Boundary, as identified on the Ocean Shorelands Map, shall comply with development criteria established within the Zoning Ordinance, except to the extent development is permitted in accordance with the variance procedures of the Zoning Ordinance. The city shall, from time to time, evaluate those regulations to assure compliance with city goals.

Policy 6: Nonstructural solutions to problems of erosion or flooding shall be preferred to structural solutions. Where flood and erosion control structures are shown to be necessary, they shall be designed to minimize adverse impacts on water currents, erosion, and accretion patterns.

Policy 7: Engineering solutions or other measures to provide appropriate safeguards shall be required prior to issuance of building permits in identified hazardous areas if required by a geological report.

Goal 2: To protect and, where practical, enhance identified environmentally sensitive areas.

Policy 1: Identified environmentally sensitive areas shall be mapped on the Ocean Shorelands Map.

Policy 2: Residential development and commercial and industrial buildings shall be prohibited on active foredunes, conditionally stable foredunes that are subject to ocean undercutting or wave overtopping, and beaches and deflation plains that are subject to ocean flooding. Other development in these areas shall be permitted only if the findings required in Policy 8, below, are met and it is demonstrated that the proposed development:

- > Is adequately protected from any geologic hazards, wind erosion, undercutting, ocean flooding and storm waves; and
- > Is designed to minimize adverse environmental effects.

Policy 3: Foredunes shall not be breached by non-natural causes except in an emergency and shall be restored after the emergency by the party causing the breach.

Policy 4: The city shall cooperate with federal and state agencies, private individuals, and others in the determination of natural areas.

Policy 5: The city will complete the Goal 5 process for wetlands identified on the

U.S. Fish and Wildlife Service Wetland Inventory maps by the next regularly scheduled periodic review.

Policy 6: The criteria for review of all shore and beach front protective structures shall provide that:

- > Visual impacts are minimized;
- > Necessary access to the beach is maintained;
- > Negative impacts on adjacent property are minimized; and
- > Long-term or recurring costs to the public are avoided.

Policy 7: Significant shoreland and wetland biological habitats and coastal headlands shall be protected. Uses in these areas shall be consistent with the protection of natural values.

Policy 8: Development in beach and dune areas other than older, stabilized dunes shall only be permitted if the following issues are examined and appropriate findings are made:

- > The type of use proposed and the adverse effects it might have on the site and adjacent areas;
- > Temporary and permanent stabilization programs and the planned maintenance of new and existing vegetation;
- > Methods for protecting the surrounding area from any adverse effects of the development; and
- > Hazards to life, public and private property, and the natural environment that may be caused by the proposed use.

Policy 9: Excavations and fill shall be limited to those minimal areas where alteration is necessary to accommodate allowed development. Cleared areas, where vegetation is removed during construction, shall be revegetated or landscaped to prevent surface erosion and sedimentation of near shore ocean waters.