

Article 7: Natural Hazards

A thorough understanding of natural hazards and their potential impacts can help a community prepare for the unexpected. Through conscientious planning and coordination, the City of Toledo can help reduce the vulnerability of people, property, and critical services to natural hazard events.

Context

Statewide Planning Goal 7 aims to protect life and property from natural disasters and hazards. Due to its location and geography, many types of natural hazards— earthquakes, floods, landslides, wildfires, droughts, windstorms, and winter storms—have the potential to impact Toledo. Natural disaster events vary in the threat that they pose to people, facilities, and infrastructure. This risk increases when land is developed, as the natural environment is changed when natural resources are removed, pavement is added, and people are brought closer to places where natural hazards may occur.

Figure XX Understanding Risk (Copied from the Toledo Natural Hazards Mitigation Plan)



Toledo is planning to prevent injuries and loss from natural hazards as a partner in Lincoln County's Emergency Plan and has outlined an all-hazard disaster response and recovery strategy in the Lincoln County Multi-Jurisdictional Natural Hazard Mitigation Plan (NHMP). As part of this effort, a number of critical public facilities, including the city and regional infrastructure such as transportation routes, bridges, water systems, and utilities, have been found to be vulnerable to natural disasters. Increasing the resilience of these facilities will require a coordinated approach among jurisdictions, and capital investment directed towards retrofitting existing facilities and developing infrastructure redundancies. Based on the 2020 NHMP Hazard Analysis Matrix, Toledo's highest threats are landslides and windstorms.

Natural Hazard Goals and Policies

Overarching Goal: Toledo's citizens value a safe community where natural resources are protected and there is minimal danger from both natural and man-made hazards.

Goal 1 Natural Hazard Safeguards. Prevent loss of life and property damage by requiring appropriate safeguards for all development of properties within known natural hazard areas. Natural hazards include: floods, tsunamis, earthquakes, landslides and slope hazards, weak foundation soils, high groundwater, wind/windthrow/winter storms, ~~and~~ wildfires, and drought.

Goal 2 Natural Hazards Mitigation Plan (NHMP). Integrate natural hazards information from the Lincoln County Natural Hazards Mitigation Plan (NHMP) into the City of Toledo plans, policies, programs, and implementation provisions.

Goal 3 Education and Outreach. Promote risk reduction to people and property from natural hazards through education and outreach, thus increasing community preparedness and resilience. Inform residents and business owners about preparedness measures.

GENERAL POLICIES

Policy 1 Identify Natural Hazard Areas. Identify potential natural hazard areas where development may occur when appropriate safeguards can minimize the impact of hazards upon development and impacts of new development upon adjoining properties.

Policy 2 Preserve Natural Hazard Areas. Identify and preserve known natural hazard areas best retained for open space, yards, natural resource areas, wildlife habitats, recreation, or other non-structural uses.

Policy 3 Inventory Natural Hazards. Maintain an inventory of areas subject to natural disasters and hazards. The inventory shall be used to determine the suitability of a location for development and, if necessary, be used to limit the development to a level consistent with the degree of hazard, the disaster potential and the environmental protection policies in the Comprehensive Plan. Adopt and update maps, plans, inventories, policies, and implementing measures that reduce risk to people and property from natural hazards.

- ~~a. The City shall utilize the Soil Survey of Lincoln County Area, Oregon July, 1997 (and later editions), the Environmental Geology of Lincoln County Oregon – Bulletin 81 (Department of Geology and Mineral Industries, 1973), the Environmental Hazard Inventory Coastal Lincoln County (RNKR Associates, 1977), the All Hazard Mitigation Plan: Lane, Lincoln, and Linn Counties, Oregon (G & E Engineering Systems, Inc. 1998) and other appropriate materials as guides for developing policies and regulations to minimize damages from developing in hazardous areas.~~

Policy 4 Special Design and Construction Standards. Develop comprehensive and effective safeguards for developments within known natural hazard areas by requiring the use of special

design and construction features to reduce potential risks/damages in accordance with state building codes, other state codes, federal regulations, and local codes.

Policy 5 NHMP Mitigation Actions. Mitigation actions in the Lincoln County Natural Hazards Mitigation Plan shall be followed.

Policy 6 Emergency Operations Plans. Recommendations in the Emergency Operations Plan shall be followed.

Policy 7 CERT Programs. Encourage participation in Community Emergency Response Team (CERT) Programs.

Policy 8 Stormwater Management. Develop and maintain citywide stormwater management infrastructure.

Policy 9 Emergency access and Evacuation Routes. Identify and address emergency access and evacuation routes and areas when making development decisions. Recognize that evacuation routes can be different depending on the natural hazard.

Policy 10 Grant Funding. Access and utilize federal and other grant dollars to implement measures to reduce risk to people and property, and protect against natural hazards. Apply for hazard mitigation funding as able to advance mitigation projects.

Policy 11 Site Essential Facilities Outside of Hazard Areas. Minimize the siting of essential facilities in identified natural hazard areas where the risk to public safety cannot be mitigated, unless an essential facility is needed to provide essential emergency response services in a timely manner.

Policy 12 Allow Construction of Temporary Housing. Facilitate the expedient provision of temporary or private housing immediately following a disaster event. The length of time shall be established through a resolution or ordinance.

Specific Hazards Addressed include:

1. Flood Hazards
2. Tsunami Hazards
3. Geologic Hazards
4. Windthrow/ Windstorms
5. Wildfire Hazards
6. Drought Hazards

Polices related to Specific Hazards

FLOODPLAIN

Policy 1 Minimize Potential Damage. Control development in the 100-year ~~floodway fringe~~ floodplain in accordance with state and federal requirements by local ordinances and standards to minimize potential damage on-site, upstream, and downstream to life and property; to transport flood waters; and to protect the economic, environmental, and open space qualities of the land and adjacent waterways.

- a. Nonstructural solutions to prevent flood damages shall be preferred to structural solutions.
- b. Long-term maintenance costs and risks shall be considered when reviewing development applications and recommended solutions.

Policy 2 Floodplain Development Location. Provide for proper precautions reflecting the type of activities taking place and the risk factor of the site and activities when allowing development within the 100-year ~~floodway fringe~~ floodplain in accordance with state and federal law.

- a. The City will encourage residential development to locate outside of the 100-year floodplain by providing a sufficient supply of appropriately zoned land. When residential development does occur within the 100-year floodplain, the homes and accessory units are to be elevated to one foot above the 100-year floodplain elevation in accordance with state and federal law. Residential uses within the 100-year floodplain and areas of severe shrink-swell soils along the east side of Sturdevant Road should remain in low to medium densities with agricultural uses remaining. ~~The typical density should be no more than 3.11 units per acre.~~

Policy 3 FEMA Compliance. Continue to regulate land uses within the 100-year ~~floodway fringe~~ floodplain in compliance with the Federal Emergency Management Agency (FEMA) National Flood Insurance Program and the State of Oregon.

Policy 4 Special Design and Construction Standards. Retain as open space those portions of the ~~floodway fringe~~ floodplain which contain natural assets such as wildlife and scenic areas, productive agricultural lands, wetlands and/or significant vegetation. These areas shall be retained by designating appropriate areas with a zone designation of natural resources and/or by pursuing a program of purchasing lands or conservation easements through a mix of public and private funds to serve the community by absorbing flood waters, filtering drainage waters, and providing wildlife habitats, view vistas and recreational opportunities.

Policy 4 Special Design and Construction Standards. Prevent property damage from smaller but more frequent and localized flood events by using stormwater mitigation techniques.

- a. The City shall develop a Storm Water Master Plan and erosion control measures to minimize flooding and storm water runoff.
- b. Public infrastructure systems shall be designed and maintained to control leakage and storm water flows which cause flooding, erosion or subsidence of adjoining properties.
- c. Continue to require compliance with the grading and excavation regulations in the Uniform Building Code.

Policy 6 Flood Insurance. Encourage the purchase of flood insurance for properties located within the 100-year floodplain and other properties subject to flooding.

Policy 7 Adopt New or Revised FIRM Maps. Adopt new or revised FIRM maps as necessary for continued participation in the National Flood Insurance Program.

Policy 8 Adopt, Revise and maintain SFHA regulations. Adopt, revise and maintain regulations for development in identified Special Flood Hazard Areas as necessary for continued participation in the NFIP.

Policy 9 Buyout Programs. Encourage property owners with historically vulnerable and impacted properties to consider buyout programs.

TSUNAMI

Policy 1 State and Federal Standards. Review development permit applications for compliance with applicable state and federal law regarding development in tsunami hazard areas.

Policy 2 Emergency Access and Evacuation Routes. Provide information regarding tsunamis and maps of the tsunami zone within public buildings to make the community aware of the risks and evacuation areas. Support tsunami preparedness and related resilience efforts, including outreach to residents.

Policy 3 Cascadia Subduction Zone Tsunami Protection. Protect life and property to the fullest extent feasible from the impact of a local source Cascadia Subduction Zone tsunami.

Policy 4 DOGAMI Tsunami Maps. Use the Oregon Department of Geology and Mineral Industries (DOGAMI) Tsunami Inundation Maps (TIM) applicable to the City of Toledo to develop tsunami hazard resilience measures.

GEOLOGIC HAZARDS (liquefaction, earthquake, landslide, erosion) *[Note: combined earthquakes, and landslides and slope hazards]*

Policy 1 Oregon Structural Building Codes. Require new construction to meet the standards of the adopted Oregon structural building codes to assure earthquake hazards are considered in all new construction.

Policy 2 Erosion Control and Drainage. Require standards regarding drainage, footings and foundations, compaction, retaining walls and excavation in compliance with the Oregon structural building codes. In addition, require erosion control measures for all activities which create bare soils, opportunities for erosion, or filling. Landslides and slope hazards are the major threats to geological stability in Toledo.

Policy 3 Retention of sloped Areas. Encourage the use or retention of lands exceeding 25% in slope as vegetated open space.

- a. The City shall exclude areas of 15% slopes and greater from density standard requirements in partitions, subdivisions and planned developments.
- b. Planned developments and other design techniques shall be available to encourage clustering development away from steep hillsides.

Policy 4 Clustering Development. Encourage the preservation of the steep, forested hillsides by clustering development into the flatter portions of the community/sites so that the forested hillsides of Toledo remain a characteristic feature of the community.

- a. The City shall adopt standards for development of lands exceeding 15% slopes to mitigate the risk of developing on such hillsides. As the slope increases, the standards shall be adjusted to reflect the increased hazards associated with the development.
- b. Within the City limits and the Urban Growth Boundary, encourage the preservation of vegetation on hillsides prior to development through the use of selective logging rather than clear cutting.
- c. Encourage the preservation of the tree cover on hillside developments through site designs that minimize the loss of existing trees to the extent that it is safe and practicable or that provide a sufficient number of new trees to recreate the wooded hillside.

Policy 5 Minimize Disturbing Natural Grades. On hillsides, encourage development patterns and practices which minimize disturbances to the natural grades, soil disturbances and removal of the natural vegetation. Developments shall be designed to fit the topography, soil characteristics, geology and hydrology of the hillsides to ensure hillside stability both during and after development.

- a. When land is divided, an analysis of the topographical features including soil types and contour lines shall be included in the review. The creation of new lots that would require construction on hillsides with more than 15% slope may require additional safeguards.
- b. Require that vegetation disturbed during development be replaced or enhanced through revegetation of the area.
- c. Wherever feasible, align public infrastructure, such as roads and drainages, with the natural contours of the terrain to minimize cutting and filling.
- d. Avoid soil disturbances and the removal of native vegetation during winter months unless adequate erosion control measures are used to mitigate impacts of the development.

Policy 6 Code Requirements. Applicable municipal code requirements for development on slopes shall reflect the above concerns by providing flexibility in the requirements for development to allow the above objectives to be met.

WINDTROW/ WINDSTORMS

Policy 1 Tree Removal. Require that excavations and tree removal activities in the public right-of-ways do not destabilize adjacent trees.

Policy 2 Removal of Dangerous Trees. Continue to require the removal of trees which present a danger to life or property due to being unhealthy or uprooted.

Policy 3 Vegetated Hillsides. Encourage the vegetation of hillsides with trees suitable for the soil types and climate.

WILDFIRE

Policy 1 Tree Removal. Reduce the cost of fire protection insurance by maintaining a fire protection service which meets the standards established by the insurance industry. Maintaining an insurance rating of at least 4 at all times is a goal of the community.

Policy 2 Uniform Fire and Life Safety Code. Continue to regulate property development and use by the most recent edition of the Uniform Fire and Life Safety Code and by good fire protection service delivery and prevention practices.

Policy 3 Fire Access Standards. Continue to improve public streets and roadways to meet fire access lane standards. Private driveways and roadways shall be required to meet fire access lane standards for all new development. Fire access shall be designed to provide access for fire trucks, to allow for evacuation from properties, and to act as fire breaks.

Policy 4 Business Inspection. Continue to inspect businesses and other public meeting spaces to assure compliance with the Uniform Fire and Life Safety Code.

Policy 5 Lincoln County Roads Fire Access. Encourage Lincoln County to require fire access lanes which meet the standards of the Uniform Fire and Life Safety Code for all development within the City and Urban Growth Boundary.

Policy 6 Inform Builders and Residents. Continue to inform builders and residents of site design, construction and landscape methods and other practices which reduce the loss of life and property from wildfires.

Policy 7 Structure and Roadway Design. Adopt standards to locate new structures and roadways in a manner which reduces the spread of wildfires.

Policy 8 Water Storage Capacity. Maintain adequate storage capacity, water flows, water pressure, and hydrant locations to assure the ability to fight wildfires throughout the community.

Policy 9 Mutual Aid Agreements. Continue to participate in mutual aid agreements to assure the use of other agencies' personnel and equipment to fight wildfires within the community.

Policy 10 Community Wildfire Protection Plan. Support the Lincoln County Community Wildfire Protection Plan (CWPP). Implement recommendations and mitigation actions supported by the citizens of Toledo.

Policy 11 Fire Safe Design. Encourage fire safe design (fire resistant building materials, etc.) and fire safe landscape maintenance.

DROUGHT

Policy 1 Support Drought Preparedness Efforts. Support drought preparedness and related resilience efforts, including outreach to residents. Engage state, regional and local organizations in a collaborative effort to prepare and distribute water conservation information.

Policy 2 Water Conservation Plan. Support the City of Toledo Water Conservation Plan. Implement recommendations and mitigation actions.