

## **Goal 7      Areas Subject To Natural Disasters And Hazards**

### **□ Section 1, Flood Hazards**

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#### **BACKGROUND**

#### **Statewide Planning Goal 7: Areas Subject To Natural Disasters And Hazards**

*"To protect life and property from natural disasters and hazards"*

Statewide Planning Goal 7 requires development subject to damage or loss of life not to be planned or located in known areas of natural disasters and hazards without appropriate safeguards. Plans are to be based on an inventory of known areas of natural disaster and hazards, including flooding, erosion, landslides, earthquakes, weak foundation soils or other hazards which may be unique to local or regional areas.

Because of Lake Oswego's topography, flooding\* does not represent as significant a hazard as it does for other communities in the Willamette Valley. However, waters from a 100 year flood\* would inundate lands adjacent to major water bodies in the area, which include the Willamette and Tualatin Rivers; Oswego Lake, its bays and canals and Springbrook Creek. A flood of this magnitude would also pose hazards to properties immediately abutting smaller streams such as Lost Dog Creek and the southern tributary to Tryon Creek.

Within these areas, flooding is a significant natural hazard. Its effects range from inconvenience to the potential for loss of life and property. Development and other activities within the floodplain, such as filling and vegetation removal, can make flooding worse by decreasing the area available for storage and conveyance of floodwaters. When this occurs, floodwaters are displaced onto lands previously not subject to flooding and the velocity of floodwaters is often increased. Also, buildings and bridges within the floodplain can function as dams during flooding and cause greater upstream inundation. The removal of vegetation along river and stream banks and in the floodplain also reduces the floodplain's storage capacity and increases soil erosion.

The annual flood season in the Willamette Valley extends from October to April. The greatest potential for flooding occurs during December and January when water-laden soils and streams can no longer convey runoff from heavy winter rains.

A 100 year flood, which is also called the "base flood,"\* has a one percent chance of occurring in any one year. The floodplain\* is divided into the floodway\* and the floodway fringe\* (Figure 6). The floodway is defined as the channel and adjacent land areas which are the minimum needed for the passage of floodwaters so that upstream flood elevations are not increased. Floodplain management regulations require preservation of an adequate floodway area to discharge the waters of a 100 year flood without cumulatively increasing the water surface elevation by more than one foot. The floodway fringe is the area bordering, but outside, the floodway. The floodway fringe is subject to flooding but does not contribute appreciably to the passage of flood flows.

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The Federal Emergency Management Agency (FEMA) provides Lake Oswego with mapped floodplain information which identifies flood plain elevations and areas subject to flooding. The most recent FEMA floodplain study was completed in 1987.

Lake Oswego participates in the National Flood Insurance Program which is administered by FEMA. Floodplain insurance studies are used by FEMA to assess risks of developing in the floodplain and to establish flood insurance rates. Other federal, state and local sources are used to estimate the floodplain's location if an area subject to flooding has not been mapped by FEMA. The Flood Insurance Program enables property owners to obtain federally subsidized flood insurance. The program also makes an area eligible for disaster relief if extensive area-wide flooding ever occurs. Participation in the program by local jurisdictions requires the adoption of land use controls meeting FEMA standards. In response, the City adopted Development Standard 17, "Floodplains" in 1988. The Floodplains Standard applies to all development within flood hazard areas.

#### **Summary of Major Issues**

The following are some of the issues and changed circumstances and conditions which were considered in the 1993 update of this element of the Comprehensive Plan.

- The Federal Emergency Management Agency (FEMA) updated floodplain information for lands within the City of Lake Oswego Urban Services Boundary in 1987.
- The City adopted "The 1987 Flood Insurance Study for the City of Lake Oswego, Oregon," and; Development Standard 17, "Floodplains" in 1988.

### **GOALS POLICIES AND RECOMMENDED ACTION MEASURES**

<p><b>GOAL</b></p> <p>The City shall protect life and property from flood hazards.</p>
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#### ***POLICES***

1. Continue to participate in the National Flood Insurance Program\* and comply with all Federal Emergency Management Agency (FEMA)\* standards.
2. Limit new development in the FEMA-regulated floodway, including filling and removal of earth, to the following uses provided there is no increase in base-year flood levels.\*
  - a. Public and private open space and recreational uses;
  - b. Water-dependent structures\* such as docks, piers, bridges, and floating marinas; and,
  - c. Public facilities including unpaved roads and private access ways.
3. Review development proposals, including public facilities, filling and grading, within areas subject to flooding to ensure:
  - a. Conformance with FEMA and other regulatory agencies;
  - b. Reasonable protection of public facilities;
  - c. The flow, velocity and elevation of flood waters are not changed so as to endanger other property;
  - d. Natural systems such as fish and wildlife habitat, vegetation, wetlands and stream corridors are protected; and,
  - e. Other problems associated with flooding such as ponding, poor drainage, high water tables and unstable soils are addressed.
4. Protect, restore and maintain the natural systems of floodplains including riparian vegetation, wooded areas, wetlands and fish and wildlife habitat.
5. Allow development density within the flood fringe to be transferred to higher portions of the development site.
6. Designate floodplains as Protection Open Space\*.
7. Prohibit the storage of hazardous substances\* within the floodplain.
8. Ensure that filling in the flood fringe is conducted in accordance with City and applicable state and federal regulations, and is the minimum necessary for development to conform with FEMA standards.
9. Protect, restore and maintain watercourses\* within the floodplain.

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10.      Require new or replacement water and sanitary sewer systems within the floodplain, constructed to prevent infiltration of floodwaters and discharge of untreated waste water during flooding.

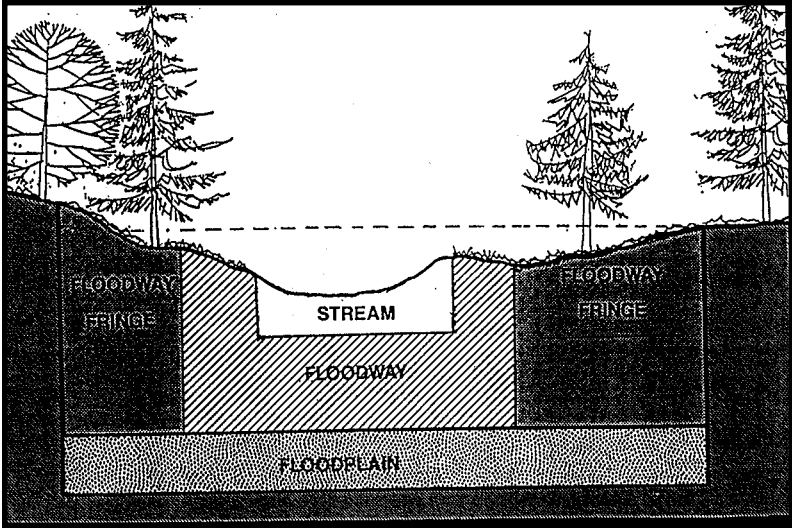
### **RECOMMENDED ACTION MEASURES**

- i.        Maintain current floodplain information for the Lake Oswego Urban Services Boundary and make it easily available to the public.
- ii.        Coordinate with the Army Corps of Engineers, Federal Emergency Management Agency and other responsible state, regional and local agencies regarding:
  - a.        Periodic review and update of floodplain information;
  - b.        Review of major development which could have flood impacts across jurisdictional boundaries; and,
  - c.        Emergency operations planning necessary to protect life and property during a major flood.
- iii.        Encourage acquisition within the flood plain, of property and easements, as designated by the Lake Oswego Surface Water Management Plan, for conveyance and storage of floodwaters and for natural open space and passive recreation uses.
- iv.        Encourage Clackamas County not to approve on-site sewage treatment systems within the unincorporated Urban Services Boundary which would be impaired during flooding and which could contaminate floodwaters.
- v.        Utilize other federal, state and local sources to estimate the floodplain's location if an area suspected to be subject to flooding has not been mapped by FEMA. If these sources are not available, the required information shall be provided by the developer.
- vi.        Encourage uses within the floodplain which do not require protection by dams, dikes or levees such as parks, open space areas, wetlands, and storm water detention facilities.
- vii.        Establish development regulations and standards to protect and restore watercourses within the floodplain which require:
  - a.        Buffers between development and water courses;
  - b.        Maintenance and restoration of natural vegetation;
  - c.        Erosion control and protection of water quality, and;

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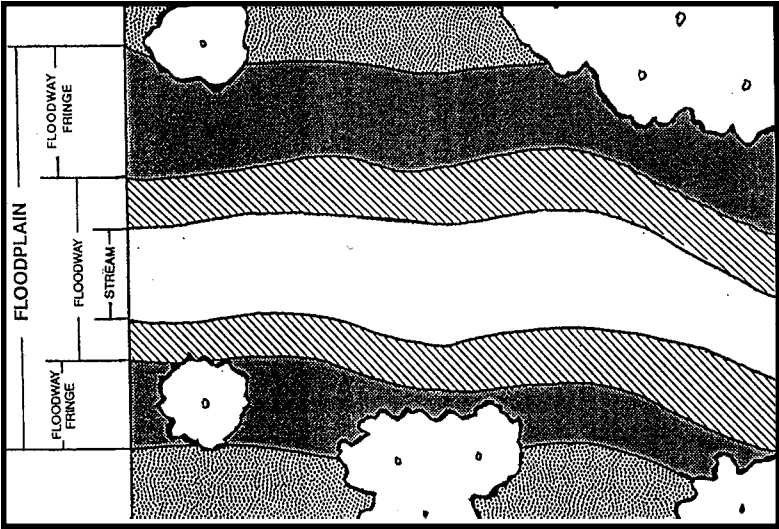
- d. Implementation of other measures necessary to maintain the water carrying capacity of water-courses and preserve their natural functions.



Floodplain Cross Section

Figure 6

Floodplain Overhead View



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