

CMZ Glossary of Terms and Definitions
Last updated 10/1/08

100-year flood	Flooding which has a 1% chance of occurring in any given year. Also referred to as the Base Flood, Special Flood Hazard Area or One Percent Chance Flood
Alluvial Fan	A sedimentary deposit located a topographic break such as the base of a mountain front, escarpment, or valley side, that is composed of streamflow and/or debris flow sediments and which has the shape of a fan, either fully or partially extended.
Alluvial Fan Flooding	Flooding occurring on the surface of an alluvial. Active alluvial fan flooding is a type of flood-hazard that occurs only on alluvial fans. It is characterized by flow path uncertainty so great that this uncertainty cannot be set aside in realistic assessments of flood risk or in the reliable mitigation of the hazard. (FEMA definition)
Alluvium	A general term for all deposits laid down by present-day rivers, especially at times of flood.
Base Flood Elevation	The water surface elevation, measured in feet, above the mean sea level for the base flood and referenced to a vertical datum accepted by Pierce County (North American Vertical Datum of 1988 – NAVD88 or National Geodetic Vertical Datum of 1929 – NGVD29).
Benefit-Cost Analysis (BCA)	A quantitative procedure that assesses the desirability of a hazard mitigation measure by taking the long-term view of avoided future damages as compared to the cost of a project. The outcome of the analysis is a benefit-cost ratio, which demonstrates whether the net present value of benefits exceeds the net present value of cost.
Best management practices (BMPs)	Physical, structural, or managerial practices which have gained general acceptance for their ability to prevent or reduce environmental impacts.
Buffer	A tract or strip of land that separates one type, category or use of land from another. Buffers typically serve to provide a defined area between a more intensive use of land and a land use that is less intensive. Buffers are typically referenced by the associated critical area such as wetland buffer, riparian buffer, etc.



Building Footprint	The outer perimeter of a building excluding eave overhangs, and other cantilevered portions of the building projecting no more than 18 inches.
Channel Migration Zone (CMZ)	The area within the lateral extent of likely stream channel movement due to stream bank destabilization and erosion, rapid stream incision, and shifts in location of stream channels. The CMZ is approximated by evidence of channel locations in the last 100 years, but shall not be strictly bounded by this criteria alone.
Compensatory Storage	New excavated storage volume equivalent to the flood storage capacity eliminated by filling or grading within the floodplain. Equivalent shall mean that for any fill placed below the BFE will have an equal volume removed from the floodplain at the same elevations as the placed fill. Additionally the excavated area must be hydraulically connected to the floodway through their entire depth (i.e. must drain out).
Critical Areas	Wetlands, flood hazard areas, fish and wildlife habitat areas, aquifer recharge areas, and geologically hazardous areas.
Datum (Horizontal)	A reference system used to ensure that all horizontal records are properly related. NAD83 is a national standard that is used by Pierce County and FEMA
Datum (Vertical)	A reference system used to ensure that all vertical (elevation) records are properly related. NGVD29 and NAVD88 are two national standards that are used by Pierce County and FEMA
Deep and Fast Flowing Water	A combination of water depth and/or velocity, as shown in the graph in Section 18E.70, that can be dangerous to walk or drive through and can cause structural failures. For the purposes of Title 18, Pierce County considers deep and/or fast-flowing water to be a floodway area.
Development	Any man-made change to improved or unimproved real property including but not limited to construction of buildings or other structures, additions, reconstruction, placement of manufactured home/mobile home, mining, dredging, logging, clearing, filling, grading, paving, excavation, drilling operations, storage of equipment or materials, any activity that results in the removal of vegetation or alteration of natural site characteristics or the division of property pursuant to the subdivision regulations.
FEMA	Federal Emergency Management Agency, a division of the Department of Homeland Security authorized by Congress to regulate the National Flood



Insurance Program (NFIP).

FEMA Flood Zones	<p>A: Area of special flood hazard without water surface elevations determined</p> <p>A1–30, AE: Area of special flood hazard with water surface elevations determined</p> <p>VE: Area of special flood hazards, with water surface elevations determined and with velocity, that is inundated by tidal floods (coastal high hazard area)</p> <p>B, X (shaded): Areas of moderate flood hazards or areas of future-conditions flood hazard.</p> <p>C, X: Area of minimal hazards</p> <p>D: Area of undetermined but possible, flood hazards</p> <p>E: Area of special flood-related erosion hazards</p>
Flood Hazard Areas	<p>In Pierce County Code, flood hazard areas are defined as the floodplain areas of land located in floodplains that are subject to a one percent or greater chance of flooding in any given year. These areas include, but are not limited to, streams, rivers, lakes, coastal areas, wetlands, and the like. In areas where the base flood elevation has not been determined FEMA zones B and/or X (shaded) are also regulated as flood fringe.</p>
Flood Insurance Rate Map (FIRM)	<p>The official map on which the Federal Insurance Administration has delineated areas of special flood hazard and the risk premium zones applicable to Pierce County. Through FEMA’s Map Modernization program the FIRM being replaced with the Digital Flood Insurance Rate Map – DFIRM that utilized modern computer Geographic Information Systems – GIS to show the flood hazard areas.</p>
Flood Insurance Study	<p>The official report provided by the Federal Insurance Administration, a division of FEMA, that includes flood profiles, a map of the 100-year floodplain and floodway boundaries, and the water surface elevation of the base flood.</p>
Flood Routing	<p>An analytical technique used to compute the effects of system storage dynamics on the shape and movement of flow represented by a hydrograph.</p>
Flood fringe	<p>The area subject to inundation by the base flood, but outside the limits of</p>



the floodway, and which may provide needed temporary storage capacity for flood waters. Structures in fringe areas in Pierce County must be elevated at least 2 feet above the 100-year flood elevation.

Floodplain	An area which is covered by water during a flood (e.g., “the 100-year floodplain”). Development within this area is regulated. Parts of the floodplain may also be considered a floodway.
Floodproof	Structural provisions or adjustments to nonresidential buildings for the purpose of eliminating flood damages to those structures including their utilities and contents.
Floodway	The channel of a river and the adjacent land areas that must be reserved in order to convey and discharge the base flood without cumulatively increasing the water surface elevation by more than one foot, those areas designated as deep and/or fast-flowing water, and Channel Migration Zones where detailed CMZ studies have been adopted by Pierce County. No filling or development is allowed in the floodway.
Floodway Map	The official map on which the Federal insurance Administration has delineated a floodway base on criteria of 44 CFR.
Geomorphology	The study of landforms and the processes that shape them. Fluvial Geomorphology is the study of processes associated with riverine or stream environments.
Hard Armoring	The use of large rock and/or human-made materials to protect property from shoreline erosion. Such techniques include cement/concrete bulkheads, steel structures, rock wall revetments, and rock gabion structures. Hard armoring typically does not utilize or integrate any of soft armoring or soil bioengineering techniques.
Hazard Mitigation	Any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.
Highest and Best Use	A concept in real estate appraisal that states that the value of a property is directly related to the use of that property. The highest and best use is the reasonably probable use that produces the highest property value. This use, the Highest and Best Use, may or may not be the current use of the property.
Levee	A flood-control structure designed to protect an area from flooding. Levees are often rated by the level of protection they offer. Pierce County currently



does not have any levee certified to provide 100-year flood protection per FEMA criteria.

Ordinary High Water Mark	As defined by the Department of Ecology and regulated under the Shorelines Management Act. The mark on all lakes, streams, and tidal water that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on the effective date of this Chapter or as it may naturally change thereafter. Provided, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining fresh water shall be the line of mean high water.
Passive Recreation	An outdoor leisure time activity which usually occurs in a setting that has been preserved, as nearly as possible, in the original or natural condition. Passive recreation may occur in common open lawn areas and, where determined appropriate, critical area buffers, aquifer recharge, and flood water storage areas. Activities may include: picnicking, sightseeing, walking, hiking, biking, horseback riding, and nature walks.
Revetment	A flood-control structure that reduces erosion along a riverbank and may act as a levee during smaller floods.
Riparian	The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. Riparian habitat begins at the ordinary high water mark and includes riparian areas of wetlands that are directly connected to the stream course and may include the entire extent of the floodplain.
Riprap	Broken stone placed on shoulders, slopes, or other such places to protect them from erosion. Typically range in size from 6” diameter rock to several feet diameter.
Setback Levee	A levee that is set away from the river in a manner to allow the river channel to migrate in the areas between levees. Setback levees in Pierce County include the Soldiers Home and Ford Levees on the Puyallup River.
Side Channel	The portion of the active channel that does not carry the bulk of the stream flow. Side channels may carry water only during high flows, but are still considered part of the active channel.
Special Flood	Term used by FEMA to describe areas with a one percent or greater chance of flooding in any given year. These areas are required to be regulated by



Hazard Area communities participating in the NFIP and structures in a SFHA are required to purchase flood insurance

Substantial Damage Damage to a structure for which the valuation for the reconstruction/restoration work exceeds 50% of the valuation of the existing structure prior to receiving damage.

Acronyms

ASCE - American Society of Civil Engineers

ASFPM - Association of State Floodplain Managers

BFE - base flood elevation

CMZ - Channel Migration Zone

CRS - Community Rating System

DEM - digital elevation model

DFIRM - Digital Flood Insurance Rate Map

DMA - Defense Mapping Agency

DOQQ - Digital Orthophoto Quarter Quadrangle

DTM - digital terrain model

EOC - Emergency Operations Center

FEMA - Federal Emergency Management Agency

FIRM - Flood Insurance Rate Map

FIS - Flood Insurance Study

GIS - geographic information system

GPS - Global Positioning System

GRS80 - Geodetic Reference System of 1980

HEC - Hydrologic Engineering Center (USACE)

HMS - Hydrologic Modeling System

LIDAR - light detection and ranging

LOMA - Letter of Map Amendment

LOMR - Letter of Map Revision

NAD27 - North American Datum of 1927

NAD83 - North American Datum of 1983

NAVD88 - North American Vertical Datum of 1988



NFIP - National Flood Insurance Program
NGVD29 - National Geodetic Vertical Datum of 1929
NOAA - National Oceanic and Atmospheric Administration
OHW - Ordinary High Water
RAS - River Analysis System
SFHA - Special Flood Hazard Area
TIN - triangulated irregular network
USACE - U.S. Army Corps of Engineers
USGS - U.S. Geological Survey
WGS84 - World Geodetic System of 1984

