

NON-STRUCTURAL RISK REDUCTION STRATEGIES

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Pierce County Surface Water Management

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Puyallup River Executive Task Force

Flood Risk Reduction Strategies

1. Improve Flood Hazard Management and Channel Migration Zone Information
2. Management of Land Uses
3. River Channel Management (e.g., Sediment, Debris)
4. Flood Hazard Education, Flood Preparedness, Flood Warning and Emergency Response
5. Flood Protection Facilities (e.g., Levees, Revetments, Flood Walls, Flood Gates)

Ask yourself...

- Should my community do this?
- Should this activity be coordinated and uniformly applied by neighboring communities?
- Should Pierce County provide this service on a regional basis?

1. Improve Flood Hazard Mapping



- Flood Hazard Studies and Maps
 - Hydrologic/Hydraulic Analyses and Modeling
 - Flood Hazard Mapping
 - FEMA Flood Map Modernization Program
 - Future Conditions Mapping
- Channel Migration Zone Studies and Mapping

Channel Migration Zone Mapping



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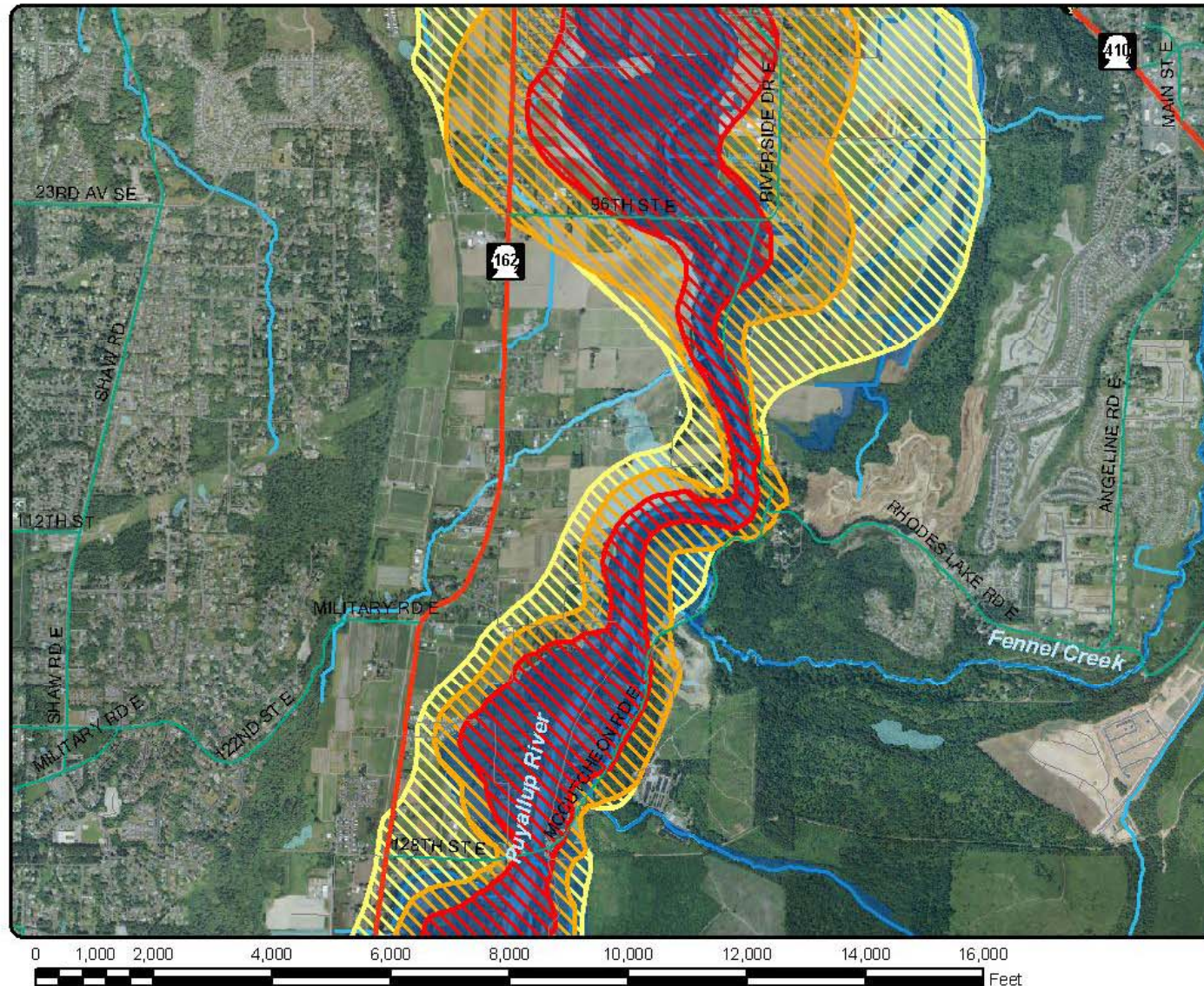
The Puyallup River - 1931 to 2005



CMZ in the Middle Puyallup

Floodplain Review - For Information Only
Channel Migration Zone Potential
Alderton-McMillian Reach

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.



Legend

Pre-DFIRM Floodplains

- 1% Annual Chance Flood
- X or 0.2% Annual Chance Flood

CMZ Potential

- Low
- Moderate
- Severe

Aerial Photo From 2008
Plotted by Dennis Dixon, CFM
2-8-2010



Channel Migration Zone Mapping Status



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- Mapped and adopted by Pierce County
 - Puyallup, Carbon and White Rivers (2003)
- Mapped but not yet adopted
 - Upper Nisqually (2005), South Prairie (2007)
- Still to be mapped
 - Middle Nisqually, Greenwater River, Mashel River

2. Management of Land Uses

- Flood Hazard Areas and CMZ Regulations
 - Development within Floodplain or flood fringe
 - Zero-rise Analysis – no increase in BFE, displacement of flood volume or flow conveyance reduction
 - Compensatory Storage – excavated storage volume and live storage volume replaced
 - Regulation of Development within the Floodway
 - FEMA Regulatory Floodway
 - Deep and/or Fast Flowing Water Areas
 - CMZ Floodway (Severe CMZs)

2. Management of Land Uses

- Technical Assistance and Coordination
 - Flood Hazard Identification – work closely with FEMA
 - Review and Coordination
 - Roads and bridges
 - Residential, Commercial and Industrial Development
 - Agriculture, Recreation and Open Space Uses
- Home Elevations, Relocations and Acquisitions
 - Home buyouts
 - Open space acquisition to prevent development
 - Acquisition to facilitate flood facilities (e.g., levee setback)

3. River Channel Management

- Gravel and Sediment Management
 - Channel Monitoring
 - Sediment Management Actions and Gravel Removal
 - In-channel deepening or dredging
 - Gravel bar scalping (begin at low water's edge and excavate at 2 percent grade – see WAC 220-110-140)
- Management of Logs, Woody Debris, Vegetation
 - Historically, woody debris routinely removed
 - Recently, LWD only removed where it poses an imminent flood threat to infrastructure or public safety
 - Vegetation risks: levee stability, channel roughness
 - Vegetation benefits: shade, bank stability, habitat benefits, food chain support

Large Landslides



3. River Channel Management

- Management of Large Landslides
 - Can affect channel flow, contribute large quantities of sediment, and result in channel migration that increases flood risks
 - Can improve habitat by contributing wood and sediment that creates new mainstem and side-channel habitat
 - Need to balance potential flood risk impacts with habitat benefits

4. Flood Hazard Education, Flood Preparedness, Flood Warning and Emergency Response

- Flood Hazard Education and Flood Preparedness
 - Brochures and Annual Bulletin
 - What to do before, during and after a flood
 - Do I need flood insurance?
 - What can I do to protect my property from flood damage?
 - Outreach to Repetitive Loss Properties
 - Pierce County Emergency Preparedness
 - Find out what could happen to you
 - Create a (flood) disaster plan
 - Complete Emergency Preparedness Checklist



Pierce County FLOODING



Are You Prepared?

We've sent you this informational booklet because your property is in or near an identified flood hazard area.

This booklet includes information to help keep you, your loved ones and your property safe in the event of a flood.

See INSIDE for:

- Flood Warning System
- Flood Insurance
- Flood Control Zone District
- Emergency Contact Information

And more...

www.piercecountywa.org/flood



Pierce County
PUBLIC WORKS AND UTILITIES
Surface Water Management

Flood Warning

- Pierce County and National Weather Service (NWS) provide alerts and warnings of impending floods
 - NWS issues forecasts and declares public flood watches and warnings
 - Flood Watch – risk of flooding has increased significantly, but its occurrence, location or timing is uncertain
 - Flood Warning – flooding is imminent or already occurring and there is serious threat to life and property
 - Pierce County Flood Warning System Map
 - Web-based system that provides information on predicted and current flooding conditions for Puyallup, Carbon, White and Nisqually Rivers

Emergency Response

- Emergency Response
 - Pierce County Emergency Operations Center
 - Pierce County Sheriff and city police response
 - Emergency evacuations as necessary
 - Flood fighting and sand bagging
 - Inspection of flood management facilities during and after flood events (Pierce County, ACOE)
- Emergency Declarations
 - Governor’s State of Emergency Proclamation (RCW 38.52.050)
 - Presidential Emergency Declaration or a major Disaster Declaration

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