



- **Problems, Issues, and Goals**
- **Major Findings**
- **Summary of Proposed Solutions**
- **List of Recommended Actions**

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(Draft) Section 1

## EXECUTIVE SUMMARY

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### PROBLEMS, ISSUES, AND GOALS

This Flood Hazard Reduction Plan (FHRP) details the planning process, technical analysis, and improvement recommendations to reduce flood hazards in Grayland, Washington. Grayland, a coastal community in Grays Harbor County, has a history of regional and localized flooding. The area is characterized by flat low-lying land and wetlands. Precipitation in the region exceeds 70 inches annually, with 80 percent of this occurring between October and March.

An advisory committee, made up of Grayland property owners and agency representatives, was established to guide the planning process of developing the FHRP. Although the possibility of widespread flooding from a main drainage channel running through the community was investigated, the consensus of the advisory committee is that the more frequent, localized drainage issues are their main concern.

There are numerous locations throughout the planning area that are frequently inundated by stormwater. Figure 5-1 in Section 5, Flood Damage History, shows a historic record of flooding in Grayland, based on information gathered during the advisory committee and public meetings. Although no official property damage reports have been filed, residents and local jurisdictions report the following concerns:

- **Public Health and Safety:** Emergency access can be limited by inundated intersections and segments of roadway. Numerous large ponds along State Route (SR) 105 create driving hazards.
- **Nuisance Flooding:** Garages and lawns in some areas flood during the rainy season. Non-critical roadways and the bridge at Grange Road are flooded several times during the rainy season.

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- **Water Quality:** Flooding increases erosion, sedimentation, and the risk of moving pollutants to otherwise uncontaminated areas. This can impair agricultural and natural resources.

The main goals of this FHRP are as follows:

- To develop a positive working relationship among the community and governmental agencies. To ensure that all parties are aware of the issues, processes, and implications of an FHRP, and to reach public and agency consensus on solutions and funding options.
- To improve the protection of public health and safety from flooding threats in the Grayland study area drainage basin.
- To provide practical, cost-effective solutions that will result in measurable reductions in flooding frequency, duration, and frequently flooded area damages.
- To improve appropriate regulations to control future growth impacts on flooding.
- To document solutions consistent with Ecology's Flood Control Assistance Account Program (FCAAP) to permit further grant funding opportunities for plan implementation.

## **MAJOR FINDINGS**

By performing detailed hydrologic and hydraulic modeling of the main channel, analyzing local drainage conditions and working with the advisory committee, the major issues related to stormwater runoff and conveyance in Grayland were identified and preliminary solutions were developed. The key findings of this FHRP are as follows:

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- There are numerous areas of localized flooding.
    - The large puddles along and on SR 105 are the greatest flood hazard and affect the largest number of people in the area.
    - Most of the remaining ponding in the area is creating nuisances in yards.
    - There are a few areas where hazards are more serious as a result of water on the roadway or where septic drain fields are saturated and do not perform.
    - Problems are getting worse with development because of increased run-off from impervious areas, fill that blocks surface and subsurface flows, and increased water entering the shallow groundwater system through septic drainfields.
  - Major flooding associated with the main drainage ditch is limited.
    - The bridge on Grange Road and the road in front of the Post Office are the only roads subject to flooding.
    - Only a few homes, which are south of the Post Office and west of the channel, have been flooded. One home has been elevated above flood levels since the last flood.
    - Cranberry bogs are occasionally flooded, but generally this is not a significant problem.
    - Other flooding is nuisance flooding and is not causing significant property damage.
  - The County has no funding available for problems that are not related to roadways.

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- Much of the area is wetlands and/or floodplain.
    - Flooding in these areas cannot be prevented.
    - Permits will be needed for work in floodplains and wetlands.
    - Solutions to flooding should focus on reducing damages and hazards rather than on preventing flooding. Solutions should not damage wetlands, nor should they simply move the flooding problem to other locations.
  - Historic drainage outlets to the ocean have been obstructed by drifting sand and accretion of ocean beaches.
  - Since there has been minimal property damage, local residents will not likely be willing to spend large amounts of their own money on solutions.
  - It is particularly important to maintain water quality in areas tributary to the main drainage channel to avoid contamination of cranberry bogs.

## **SUMMARY OF PROPOSED SOLUTIONS**

The recommended flood hazard reduction measures were selected by consensus of the advisory committee. A summary of these policy and capital improvement recommendations, for both the main drainage channel and local drainage issues, is presented here. Three example projects were selected for the development of improvements, which can be used as a guide to develop further improvements.

**Table 1-1  
Grayland Flood Hazard Reduction Plan  
Recommendations**

	<b>Policy and Program Recommendations</b>	<b>Capital Improvement Project Recommendations</b>
<b>Area-Wide Issues</b>	<ul style="list-style-type: none"> <li>• Regulate development in flood-plains and impacts to drainage course</li> <li>• Develop flood hazard and water quality public education programs</li> <li>• Elevate affected homes and businesses that are still subject to flooding after improvement projects</li> </ul>	<ul style="list-style-type: none"> <li>• Elevate Affected Homes and Businesses</li> </ul>
<b>Main Drainage Ditch</b>	<ul style="list-style-type: none"> <li>• Develop water quality monitoring program/protect agricultural and natural resources</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Local Drainage Issues</b>	<ul style="list-style-type: none"> <li>• Create local drainage district for areas west of SR 105; maintain drainage courses to the ocean</li> </ul>	<ul style="list-style-type: none"> <li>• Example Project No. 1 - Tingstrom Lane Area: Convey runoff to ocean outfall along private property</li> <li>• Example Project No. 2 - Post Office Site: Elevate road to 10-year event level/improve conveyance to main channel</li> <li>• Example Project No. 3 - Mutiny Lane/Lamplighter Site: Convey runoff to main drainage channel</li> </ul>

**LIST OF RECOMMENDED ACTIONS**

Several general actions have been identified that will substantially reduce flood hazards in the Grayland area. The following general actions should be considered as the basis for expanding upon the specific recommendations that follow this discussion; the County and the State should resolve roadway flooding.

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- Drainage pathways should be protected so that local drainage and floodwaters can recede; therefore, the County should do the following:
    - Identify permanent drainage courses
    - Prevent filling of drainage pathways through vigorous enforcement of regulations
    - Reduce filling of land beneath homes to the minimum necessary for elevation of the homes and their septic systems.
  
  - The community needs to solve problems locally and should not rely on big government (county, state or federal) to solve local drainage problems. Therefore, local residents should organize their neighbors to pursue solutions together. Technical assistance for legal and engineering issues will be needed from the County.
  
  - Drainage should follow traditional pathways.
  
  - Drainage from west of the highway should go to the ocean, not to the drainage ditch, wherever possible.
  
  - Permanent outlets to the ocean should be established. Outlets to the ocean will require regular maintenance due to the movement of sand. The following actions are needed:
    - Individual homeowners identify pathways
    - Prevent filling by enforcing regulations
    - Establish a stable funding mechanism
    - Obtain permanent easements
    - Obtain permits
    - Maintain drainage courses and outfalls



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- After implementation of recommended capital improvements, individual homeowners and businesses that are still flooded should elevate their structures as needed.
  - Solutions to flood hazards should protect water quality; therefore, the following measures should be taken:
    - Septic drainfield should be elevated when necessary to ensure their performance
    - Stormwater runoff should be treated before it is discharged to natural systems

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