

## Purpose

### **Twin Cities Flood Damage Reduction Project**

#### Announcements

In the 2007 Water Resources Development Act, Congress gave the U.S. Army Corps of Engineers authorization for the Centralia, Chehalis River, Lewis County, Washington Flood Damage Reduction Project. The approved plan consists of:

- Construction of a 100-year level of protection levee system along the Chehalis River from approximately river mile (RM) 75 to RM 64 and along most of the lower 2 miles of both Dillenbaugh Creek and Salzer Creek;
- Construction of a levee along the lower approximately 2 miles of Skookumchuck River to the confluence with Coffee Creek that would provide 100-year level of protection;
- Raising in elevation approximately eight structures that would incur induced damages from increased inundation as a result of the project;
- Modification of Skookumchuck Dam to allow 11,000 acre-feet of flood control storage.

Below is the list of alternatives that the Corps provided to Congress.

#### Alternative #1 - No Action Alternative

Under the no action alternative, no project features are implemented. Technical studies conducted in the General Reevaluation Study indicate that this alternative would result in continued flooding in the study area.

#### Alternative #2 - Skookumchuck Dam Modifications

Skookumchuck Dam is located on the Skookumchuck River at approximately RM 22. The dam was constructed in 1970 to supply water for the Centralia steam generating plant. The dam is an earthfill structure approximately 190 feet high with the top of the dam at elevation 497 feet. This alternative consists of modifications to the existing Skookumchuck dam for the purpose of providing flood control. The current dam has an uncontrolled spillway at elevation 477 feet and a limited capacity to release water from the reservoir when the pool is lower than elevation 477 feet. As a result, the current project configuration provides little flood control benefit since most incoming flow is passed through the reservoir with little attenuation. There is currently about 11,000 acre-feet of storage space available in the reservoir between elevation 455 feet (proposed lower elevation of flood control pool) and 477 feet. Future modifications to the dam for flood control purposes could include modification of the outlet works to allow a maximum flood storage pool of elevation 492 feet (compared to the current maximum flood pool elevation of 477 feet). Modifications would also likely include additional low-level outlet works to allow the rapid evacuation of

stored water above an elevation of about 455 feet. Storage of water to a maximum pool elevation of 492 feet would add an additional 9,000 acre-feet of flood control storage to the reservoir such that the total storage space between elevations 455 and 492 feet would be about 20,000 acre-feet. Four basic alternatives for modifications at Skookumchuck Dam are being studied, and they are listed below. These alternatives were chosen based on analysis and findings from previous studies. The following sections describe each of the alternatives in greater detail. Alternative 2B1 - Spillway Sluices with Gates and Rubber Crest Weir Alternative 2B2 - Short Tunnel with Gates and Rubber Crest Weir Alternative 2B3 - Tainter Gates in Rock Cut with Rubber Crest Weir Alternative 2B4 - Tainter Gates Rock Cut with Emergency Spillway

#### Alternative #3 - Overbank Excavation and Flowway Bypass

This floodplain modification alternative would consist of three primary components. The first component, common to all alternative variations of this feature, is modifications to Skookumchuck Dam to provide flood control storage. The second component is floodway modifications in the vicinity of Mellen St. Bridge between River Mile (RM) 65.90 and RM 68.25. One of the alternatives would also include modifications to the existing Mellen St. Bridge abutment. The third component is floodplain modifications in the vicinity of Chehalis/SR-6 to provide flood flow bypass and storage.

#### Alternative #4 - Levee System

This alternative consists of constructing a system of levees to protect flood-prone areas in the vicinity of Chehalis and Centralia. Levees would be constructed at selected locations along the Chehalis and Skookumchuck Rivers as well as along several tributaries (i.e., Salzer Creek, Coffee Creek). This alternative was considered both with and without the benefit of flood control operations at Skookumchuck dam. The levee alignment would protect residential and commercial structures, highway and other transportation infrastructure from flooding. Proposed protection would extend along the Chehalis River from approximately River Mile 75 to River Mile 64, along the Skookumchuck River from approximately River Mile 5 to near the mouth, as well as along most of the lower two miles of both Dillenbaugh Creek and Salzer Creek. The proposed levee alignment is displayed in Plate 7.

#### Alternative #5 - Upstream Flow Restriction Structures, and Upstream Storage

Flow restrictors are any kind of structure that intentionally restricts and holds back flow in order to help reduce downstream flooding, or to increase upstream inundation. Increased upstream inundation can be beneficial for wetlands and fisheries in some cases. For all structures, it was assumed that upstream inundation levels would not be allowed to exceed the current hundred-year flood level.

#### Alternative #6 - Non-Structural Alternative

Non-structural measures include watershed management, flood-proofing structures, evacuation plans, and removal of structures from the floodplain. These measures do not directly address flood elevations, but reduce economic damages and safety hazards. Flood-proofing structures would require elevation of residential buildings to the 100-yr flood level, and making commercial first floor buildings watertight. Also, no new construction would be allowed in the floodplain. Evacuation plans assist floodplain dwellers in avoiding flooding impacts. Relocation of a selected number of structures in the floodplain, or even all the structures in the floodplain, has been proposed. Because there are no flood control structures proposed for construction, no footprint value is calculated.

#### Alternative #7 - Interagency Committee Alternative

The Alternatives Subcommittee reviewed a variety of different flood hazard reduction measures and used a format of facilitated workshops to sift through potential combinations of measures. The approach that was agreed to begins by describing the major elements (these could be individual measures or measures in combination) that make up the combination alternative of nonstructural and structural flood reduction features.

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