

## Skagit Feasibility Alternatives for Analysis

### Alternative 1

1. 25 year event contained within the existing levees.
2. In 3 bridge corridor, between Burlington and Mount Vernon, set back levee 500 feet including 20 foot deep bank excavation. Lengthen the 3 bridges.
3. Inlet structure on River Bend will allow 80,000 cfs into a 2,000 foot wide by-pass channel that will empty into the Swinomish Channel. Channel will only be used in floods with a greater frequency then once every 25 years. Grade control will be built into the channel along with habitat and flooded areas. Provide 2 bridges across the channel to cross channel during 100 year event. Remainder of local roads would be flooded once every 25 years. Provide sheet pile grade control structure in the channel.

### Alternative 2

1. 50 year event contained within the setback levees.
2. In 3 bridge corridor, between Burlington and Mount Vernon, set back levee 500 feet including 20 foot deep bank excavation. Lengthen the 3 bridges.
3. Inlet structure on River Bend will allow 40,000 cfs into a 1,000 foot wide by-pass channel that will empty into the Swinomish Channel. Channel will only be used in floods with a greater frequency then once every 50 years. Grade control will be built into the channel along with habitat and flooded areas. Provide 2 bridges across the channel to cross channel during 100 year event. Remainder of local roads would be flooded once every 50 years. Provide sheet pile grade control structure in the channel.
4. In West Mount Vernon; set back levee to Ball Street and include 20 foot deep bank excavation. Lengthen highway bridge.
5. Downstream of MV, set back levees combined total of 500 feet, no bank excavation. Taper back to natural channel at bridges on both North and South Forks.

### Alternative 3

1. 25 year event contained within the existing levees.
2. In 3 bridge corridor, between Burlington and Mount Vernon, set back levee 500 feet including 20 foot deep bank excavation. Lengthen the 3 bridges.
3. In West Mount Vernon; set back levee to Ball Street and include 20 foot deep bank excavation. Lengthen highway bridge.
4. Dike for 100 year protection 1. between Sedro Woolley and Burlington, 2. ring dike Burlington, 3. West mount Vernon, 4. Mount Vernon and 5. Levee from South end of Mount Vernon to mouth. This will protect the transportation corridor, also.

5. Provide overtopping sections for 25 year events or greater at 1. River Bend, to the East, 2. River Bend to the West, 3. Fir Island and 4. North of the North Fork to flood the area towards La Conner, Swinomish Channel and Padilla Bay. Overtopping levees prevent catastrophic failure of dike when higher floods overtop levee design heights.

#### **Alternative 4**

1. 25 year event contained within the existing levees.
2. In 3 bridge corridor, between Burlington and Mount Vernon, set back levee 500 feet including 20 foot deep bank excavation. Lengthen the 3 bridges.
3. In West Mount Vernon; set back levee to Ball Street and include 20 foot deep bank excavation. Lengthen highway bridge.
4. Dike for 100 year protection 1. ring dike Burlington, 2. West Mount Vernon, 3. Mount Vernon and 4. South end of Mount Vernon. This will NOT protect the transportation corridor.
5. Provide overtopping sections for 25 year events or greater at 1. Downstream of Sedro Woolley, 2. River Bend, 3. Fir Island, 4. North of the North Fork to flood the area towards La Conner, Swinomish Channel and Padilla Bay and 5. East from the South Fork, flooding the area South of Mount Vernon. Overtopping levees prevent catastrophic failure of dike when higher floods overtop levee design heights.

#### **Alternative 5**

1. All 100 year event contained within the setback levees.
2. In 3 bridge corridor, between Burlington and Mount Vernon, set back levee 500 feet including 20 foot deep bank excavation. Lengthen the 3 bridges.
3. In West Mount Vernon; set back levee to Wall Street and include 20 foot deep bank excavation. Lengthen highway bridge. 4. Downstream of MV, set back levees combined total of 1,000 feet, no bank excavation. Taper back to normal at bridges on both North and South Forks.