

Memorandum

To: Ric

From: Lorna

Date: May 2, 2007

Re: Rough cost estimate for FCZD planning purposes

Here are rough cost estimates for a list of measures currently being evaluated by the Corps and the County under the Skagit GI study process. There is some overlap in the areas protected by these projects so the total cost could be reduced and the actual project cost may vary depending on the order and timing of project implementation.

Proposed Measures	Construction Costs	Assessed Value	Total Project Cost	Local Match 25% of Total
Sedro Woolley Water Treatment Plant	\$1,278,259	\$95,800	\$1,374,059	\$343,515
SR-9 to BNSF Levee Alignment	\$17,011,871	\$9,023,500	\$26,035,371	\$6,508,843
3-Bridge Corridor Right Bank Setback	\$18,888,198	\$23,774,500	\$21,362,698	\$5,340,675
3-Bridge Corridor Left Bank Alignment	\$7,205,415	\$29,895,500	\$37,100,915	\$9,275,229
Anacortes Water Treatment Plant	\$1,480,693	\$ -	\$1,480,693	\$370,173
Mount Vernon Left Bank Levee Alignment	\$3,401,682	\$10,766,700	\$14,168,382	\$3,542,095
Mount Vernon Right Bank Levee Alignment	\$1,904,844	\$15,597,500	\$17,502,344	\$4,375,586
Riverbend Cut-off Levee Alignment	\$8,365,572	\$8,334,900	\$16,700,472	\$4,175,118
Riverbend Diversion – Segment 1	\$5,491,382	\$5,283,500	\$10,774,882	\$2,693,721
Mount Vernon Diversion – Segment 2	\$8,365,572	\$5,903,300	\$14,268,872	\$3,567,218
Fir Island Diversion – Segment 3	\$11,443,241	\$2,985,700	\$14,428,941	\$3,607,235
Diversion Measure sub-total	\$25,300,196	\$14,172,500	\$39,472,696	\$9,868,174
Clear Lake Levee Alignment	\$5,979,341	\$1,709,700	\$7,689,041	\$1,922,260
Water Surface Control Structure (no land)	\$13,197,868	\$29,504,400	\$42,702,268	\$10,675,567
Left Bank Levee	\$12,351,256	\$9,259,300	\$21,610,556	\$5,402,639
Right Bank Levee	\$6,416,406	\$9,040,400	\$15,456,806	\$3,864,202
Total	\$122,781,598	\$161,174,700	\$262,656,298	\$65,664,075
15 years - 25% of Total Project	\$4,377,604			
15 years - Land Acquisition	\$10,744,980			

The Technical Committee of the Skagit County Flood Control Zone District could develop a set of short term and long term objectives/projects to recommend to the Board for funding. The annual funding coming from the Zone taxation could be used to help implement projects to obtain incremental flood protection over the long term (5-10 – 30 years) and or provide the match for other available state and federal funding sources. With the development of the flood control project, some areas may not receive 100-year protection and a variety of floodplain management techniques will need to be evaluated. This may include buy-outs, elevation of structures, flood proofing, and changes to the current zoning and regulations to prevent development in areas that have been identified as flood prone.

Conceptual Design of Measures – The proposed Flood damage reduction measures were designed so that the Corps hydraulic analysis can evaluate a range of flows with an attempt to optimize the benefit to cost ratio. All measures have been designed to the conceptual stage and include an itemized construction cost estimate at the 40% contingency level. The development of the measures was made in concert with the existing diking districts, local cities and Corps input. Measures currently being evaluated, utilizing the Corps screening process, fall into five major components:

Storage: Additional upstream storage in the Skagit/Baker River reservoirs system and modifications to reservoir operation procedures during flood events.

- Upper/Lower Baker additional storage (FERC Relicensing)
- Ross Dam additional storage

Further reduction of flood peaks with the addition of side channel storage through the use of levees and control structures.

- Sterling – RM 22 to 18:

Conveyance: Upgrade or modifications to existing levee system along the I-5 Corridor to provide additional flood damage protection to state transportation infrastructure.

- Sterling Levee – RM 22 to 19: Protection to Burlington “back door”
- Right Bank Levee Improvements – RM 19 to 17: Improve existing levee for protection of Burlington.
- Right Bank Setback – RM 17 to 13: Increase conveyance through 3-Bridge Corridor.
- Left Bank Levee Improvements – RM 17 to 4: Protection to MV, I-5, Railroad.
- Riverbend Cutoff Levee – RM 15.5 to 12: Levee protecting North MV.
- Downtown MV Levee/floodwall – RM 12 to 11: Protection of downtown MV.
- Right Bank Levee Improvements – RM 13 to 1: Level that meets County needs.

Overflow Floodways: Construction of emergency overflow floodways and water surface control structure near the I-5 Bridge to provide for by-pass of extreme flows.

- Ring Dikes: Protection of Sedro Woolley, Burlington, MV, LaConner.
- Water Surface Control Structure – RM 16: Release flood waters onto floodplain exceeding 140,000 cfs (existing conveyance).
- Swinomish Bypass (aka Avon Bypass) – RM 16: Redirection of excess flood waters out to Padilla Bay.
- MV Bypass – RM 13 to 10: Increase conveyance through downtown MV.
- Dry Slough Conveyance – RM 6: Increase conveyance at the Forks.

Debris Management: Identification and implementation of river debris management program and associated operation and structural measures to reduce threats to transportation infrastructure.

- WSDOT BNSF Debris Management Study: Ongoing study to look at ways to manage debris on the BNSF railroad bridge and other bridge structures.
- BNSF railroad bridge replacement.

Site Specific Protection: Other measures including ring dikes around urban areas and public facilities.

- Sedro Woolley waste water treatment plant ring dike – RM 23.
- Anacortes waste water treatment plant ring dike – RM 14.
- Clear Lake Levee – RM 22: Protection for the Clear Lake community.