



Bureau of Planning and Sustainability

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MEMO

DATE: March 26, 2013
TO: Planning and Sustainability Commission
FROM: Eric Engstrom, BPS
CC: Mike Rosen, BES
SUBJECT: West Hayden Island Work Session #5 - Floodplain Follow-Up

Background

At the February 26th PSC work session staff presented an assessment of potential floodplain mitigation alternatives and ranges of costs. The memo included three alternative mitigation packages that could replace floodplain functions impacted by marine terminal development. These conceptual alternatives were intended to explain how different packages of actions would fare in terms of full replacement of floodplain functions.

Staff reviewed actual floodplain restoration projects in the region to generate cost estimates. The range of actual project actions and costs were included in the memo. The project actions were varied and included a mix of actions such as floodgate removal, levee breach, levee reconstruction, excavation and vegetation work. None of the actual projects lined up directly with the three conceptual alternatives. However, staff were able to extrapolate the actual project costs and assign cost ranges to each alternative. The costs ranged from \$50K to \$178K for simple floodgate work and from \$4.8M to \$62.6M for a 200 acre floodplain reconnection.

Staff Recommendation

The Commissioners asked staff to return with additional information about costs to narrow the range. This is functionally not possible without having a specific project and property to evaluate. Each project has site specific conditions (e.g., land value, soil type, structure removal/protection, contamination, etc.) that make the costs only relevant to that site. So staff took a different approach.



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Staff is recommending to PSC a floodplain mitigation project similar to Alternative 3 to reclaim a disconnected flood area. The minimum cost for 200 acres is \$18M (\$90K/acre). After reviewing a range of examples from our region, staff feel this is the minimum investment to replace floodplain function at a 1:1 ratio. This would include:

- levee breach to reconnect 200 acres of floodplain with the river;
- some excavation and grading to aide in reconnecting the floodplain, but not full balanced-cut-and-fill; and
- newly created shallow water and possibly new wetlands.

The \$18M cost assumes:

- no new set-back levee is required to protect property and infrastructure
- a project at the lower end of staff's fill removal assumptions

The cost estimate includes project management, design/engineering, permits, construction and O&M. Such a project could include vegetation management or planting, but this cost estimate excludes those actions. It also does not include purchasing a site.

Adding the floodplain mitigation to the other mitigation elements, the total draft mitigation package would include the following rounded-off acreages:

- 200 acres floodplain re-establishment
- 5 acres shallow water habitat mitigation
- 30 acres wetland mitigation
- 150 acres grasslands grant
- 680 acres forest mitigation (mix of re-establishment, enhancement and protection)

As discussed previously with the Commission, there is a preference to co-locate and consolidate mitigation actions. If all mitigation actions took place at one site, then the mitigation package would look like Alternative 3 from the floodplain memo. Co-locating actions would result in multiple features that function together in a mosaic and better replace what is lost on WHI. Co-locating could also reduce costs by taking advantage of economies of scale.

