

SKAGIT RIVER GENERAL INVESTIGATION

Seattle District 2011 Response to HQUSACE Comments to the 2009 FSM Read-Ahead Packet

Enclosure 4

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SKAGIT RIVER GI PATH FORWARD ALTERNATIVES FORMULATION STRATEGY

Purpose: The purpose of the Skagit River GI Path Forward Alternatives Formulation Strategy is for the PDT to establish an alternatives formulation process that efficiently utilizes time and resources.

The Alternatives Formulation Strategy will be implemented in FY12 pending funding.

Step 1: Identify schedule and resource use limits for alternatives formulation process and develop schedule for alternatives formulation. The below recommendations will be further refined by the PDT in FY 12 pending funding.

A. Utilize a mediation process for issue resolution.

- Purpose: To prevent inefficient use of resources, to simplify the decision process, and to ensure the integrity of Corps data and Corps reports.

- Recommendation: Utilize a mutually agreed upon mediator. Disagreements on technical issues should be elevated to the appropriate Corps technical manager. The issue will be clearly defined to the mediator and the decision will be documented. Once an issue is resolved it cannot be reopened unless significant new information is made available.

B. Schedule for alternatives formulation process. Schedule will outline time allocations and due dates of tasks listed in this strategy.

- Purpose: To track progress, establish and meet interim milestones, and avoid over-analysis of alternatives or schedule over-runs due to non-necessary alternatives analysis.

- Recommendation: Recommend PDT develop a 6 month schedule (assuming full funding and capability) to move from the current list of measures to preliminary selection of NED and LPP. Additionally, the PDT will conduct an overview of existing information to determine whether or not additional tasks are needed. Specific allocation of time/resources for each analysis can be defined as a dollar amount, labor hours, or due date. The mediation process created in Step 1a. will be utilized if needed to maintain the project schedule.

C. Limit H&H Modeling to focus on 10% alternatives design development.

- Purpose: To prevent over-analysis during 10% alternatives design development.

-Recommendation: Modeling will focus on development of hydraulic effectiveness curves for 10% alternatives design.

Step 2 Identify preliminary alternatives: The alternatives formulation process will create alternatives that address study objectives. The preliminary suite of alternatives will be formulated to address varying levels of protection to infrastructure and commercial, residential, and agricultural areas. Infrastructure has been identified as a key driver for alternatives formulation because it directly corresponds to damages avoided as well as life safety. Corps planning guidance requires that the PDT develop No Action Alternative and Non-Structural Alternative.

Preliminary Alternatives to be formulated:

1. No Action Alternative
2. Non-structural only
3. Protect Critical infrastructure only (e.g. water treatment facility, hospital, I-5)
4. Protect only infrastructure/commercial/residential/agricultural damage areas (e.g. Mt. Vernon and Burlington city centers) that show the greatest benefit.
5. Protect infrastructure/commercial/residential/agricultural damage areas in the entire study area.

- Purpose: To provide the PDT a framework for formulating alternatives.

- Recommendation: The PDT will initially develop limited number (7) alternatives, including the no action and non-structural.

Step 3 Preliminary Formulation of Alternatives (10% design): The PDT will combine various measures to form alternatives that fit into the alternatives categories listed above. Measures will be selected from list already developed for the study. This step is iterative, involving incremental addition or subtraction of measures to develop alternatives. Measures may need to be further refined or evaluated to be incorporated into an alternative. A limited number (7) of alternatives (including the no action and non-structural) will be the product of this step.

- Purpose: Conduct preliminary alternatives formulation.

- Recommendation: PDT may conduct exercises such as meeting and drawing out alternatives on a map, analyzing the system as water runs upstream to downstream.

Step 4 Evaluate and compare 10% alternative designs and reduce number of alternatives: PDT will conduct a preliminary benefit cost ratio for alternatives if the PDT cannot determine whether or not an alternative should be brought forward based on qualitative analyses. Alternatives with low or negative benefit cost ratios will be eliminated. PDT will also conduct an evaluation based on criteria listed in the P&G and study objectives.

- Purpose: To develop a method for evaluating alternatives. To ensure that the PDT does not formulate an alternative that contains measures that cannot be implemented.

- Recommendation: These preliminary benefit cost ratios will be developed by engineers and economists utilizing the minimum cost and maximum benefits to develop the best case benefit cost ratio. Cost estimates will be developed to a level adequate for making decisions as equally as possible for each alternative. Other considerations for screening will include environmental and socio-economic impacts and residual public risk.

Step 5 Reformulate existing alternatives if needed. .

- Purpose: Refine remaining alternatives. This step may be reiterative, involving incremental addition or subtraction of measures, or combination of alternatives.

- Recommendation: PDT may conduct exercises such as meeting as drawing alternatives on a map, analyzing the system as water runs upstream to downstream.

Step 6 Evaluate and compare refined alternative designs

-Purpose: To begin process of selection of NED and LPP.

- Recommendation: Develop benefit cost ratios for the refined alternatives. BCRs will be developed by engineers and economists utilizing the minimum cost and maximum benefits to develop the best case benefit cost ratio. Cost estimates will be developed to a level adequate for comparing alternatives, equally developed for each alternative. Other considerations for screening will include environmental and socio-economic impacts and residual public risk. PDT will also conduct an evaluation based on criteria listed in the P&G and study objectives.

Step 7 Recommendation of NED and LPP:

- Purpose: Select the recommended NED and LPP.