

## Independent Expert Panel Report

- The project is part of DNRP's emphasis on increased efficiency and effectiveness, and responds to complaints about engineering and construction methods.
- DNRP Director's Office contracted with Montgomery Watson Harza (MWH) to manage the review, including vetting potential Panel members, developing the scope of the review with the assembled Panel, and coordinating the Panel's work through product delivery.
- The Panel evaluated how well project scoping and implementation practices for river and floodplain projects address the specific policy objectives of protecting public safety, preventing property damage from flooding, recovering salmon, and providing recreation.
- WLRD sections involved included the River and Floodplain Management Section; the Rural and Regional Services Section – Ecological Restoration and Engineering Services Unit; and the Stormwater Services Section

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- The Panel included
  - Dr. Paul DeVries, P.E., R2 Resource Consultants;
  - Dr. Chris Frissell;
  - Dr. Yung-Hsin Sun, P.E., MWH;
  - Dr. Doug Whittaker, Confluence Research and Consulting;
  - Tracy Yount, Sapere Consulting.
- The Panel convened twice in Seattle to meet with staff from relevant WLRD sections/programs to explore aspects of the project delivery process; meet with stakeholders to gain perspective on concerns about the subject projects; visit project sites; and conduct Panel business.
- The project site visits included the Cedar Rapids project, the Lower Tolt Floodplain Reconnection project, the Herzmann Levee (Cedar), and other projects on the Cedar and Green River providing examples of bank stabilization and other project types

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- Guiding Questions for the project:
  - Are King County project implementation practices considered appropriate, adequate, and reasonable relative to standard professional practice?
  - What specific improvements could be implemented to better ensure that projects effectively balance all project objectives and meet industry standards?
- Focus areas included:
  - Project effectiveness
  - Balancing project objectives
  - Use of appropriate standards and practices
  - Engagement of outside stakeholders
  - Standard safety components
  - King County practices

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- The Panel found (p. 67) that “... WLRD uses scientifically accepted principles for managing floodplains within the context of balancing other stated policy objectives” and that “... no consistent or systemic design or siting failures invalidate the new approaches to floodplain management or urge a moratorium on additional projects.”
- The Panel (p. 67) “... recommends several connected procedural reforms that will better help select, design, construct, and monitor projects (or address post-project impacts as necessary).” They recommend actions including:
  - Communicate an overarching river management strategy;
  - Clarify objectives at the project scale;
  - Involve stakeholders earlier in project development;
  - Involve stakeholders more formally and systematically;
  - Recognize and manage inherent uncertainties;
  - Standardize and act on project monitoring;
  - Comprehensively assess and manage current programmatic risk

## Expert Panel Major Findings and Recommendations

#1

### **General support for ecological/dynamic floodplain management strategies**

The scientific literature supports a shift from “hard engineering” to “ecological/dynamic” floodplain management strategies when possible. King County has missed opportunities to clearly describe these strategies and show how individual projects meet strategic goals or fit with current scientific theory and practice.

Develop a Strategic River Management Plan for river and floodplain project. This document should:

- Summarize the legal drivers and policy mandates that encourage use of ecological/dynamic floodplain management strategies when possible.
- Broadly describe the scientific and applied practice support for implementing ecological/dynamic floodplain strategies (while also identifying when more traditional approaches may be needed).
- Clearly document WLRD’s river and floodplain management strategy, including project objectives and implementation approaches at the multi-basin, watershed, and river segment scale.
- Summarize programmatic processes by which individual projects are selected, funded, designed and sited, constructed, and monitored.
- Connect policy and programmatic elements to existing FHMP and WRIA plans.
- Suggest potential improvements in the upcoming revision of the FHMP to more clearly identify strategic planning objectives, management actions, and criteria for project selection and implementation.
- Be concise and accessible to staff, agencies, stakeholders and the general public.

## Expert Panel Major Findings and Recommendations

#2

### **Project-level objectives need clarity**

County ordinances and policies prescribe the overall management directives and goals, but individual projects may have more specific objectives contributing to the overall goals, with prioritized actions associated with river basin, segment, and site considerations. These specific objectives should be clarified and linked to larger basin strategies, and potential tradeoffs identified between objectives. Improved objectives will better communicate why an individual project has been developed, what it intends to accomplish, how it fits with other projects, and how it collectively contributes to the overall program goals.

Based on the overall management plan(s) that delineate the overall goals and specific objectives (anticipated outcomes) from specific projects, develop concise summaries for individual projects. This short standardized document for each project should:

- Clarify site-specific project goals and objectives and explain how they fit into the larger basin-wide or multi-basin strategies.
- Identify potential tradeoffs between objectives for individual projects.
- Communicate key project features and illustrate potential outcomes to help the public and stakeholders understand how those will help meet larger strategic objectives.

## Expert Panel Major Findings and Recommendations

#3

### **Public and stakeholder collaboration should more timely and uniform**

County procedures for public and stakeholder input during project planning, design and review could be more uniformly implemented to encourage stronger public support and stakeholder engagement.

Encourage earlier and more collaborative stakeholder involvement:

- Encourage stakeholder engagement at basin-wide river management and strategic planning scales.
- Develop earlier recognition when projects will have substantial recreational safety impacts and match levels of engagement with recreation stakeholders.
- Design opportunities for stakeholders and the public to address potential problems through initial design and siting decisions, developing outreach to warn of potential hazards, or post-project mitigation.

## Expert Panel Major Findings and Recommendations

#4

### **Engagement of stakeholders regarding recreational usage should be more formal**

Public safety continues to be a primary concern as floodplain projects are conceived and implemented. Increased large wood recruitment, placed wood, and engineered log jams are likely to increase hazards for recreation users in some river segments. Formalized collaboration with recreation stakeholders and external recreation experts through the project lifecycle can improve project design and siting. Systematic inventories and explicit criteria can also help assess potential hazards in light of recreation use factors to help guide potential management actions to reduce, mitigate, or warn users about hazards.

Develop a dedicated “Office of River Public Use” (one to two staff) to coordinate recreational aspects of projects. This office should:

- Encourage recreation stakeholder involvement in project selection, design, and siting.
- Invite external recreational expertise to assist with recreation-sensitive projects.
- Participate in project designs as an independent advisor.
- Support or initiate recreation use monitoring to anticipate the types and amounts of recreation use that may be exposed to project related hazards, and develop management actions that can reduce risks from these hazards.
- Support hazard monitoring to inform systematic public outreach programs.
- Support and maintain a systematic record of wood-related safety or injury incidents.
- Serve as a liaison to river recreation users.
- Work with stakeholders and education/outreach specialists to raise awareness of river safety and potential hazards.

## Expert Panel Major Findings and Recommendations

#5

### **Uncertain aspects of project consequences should be recognized**

Dynamic flood plain management strategies have inherently uncertain consequences even as standards can assure that projects' structural designs are sound. Project siting involves experimentation that increases the need for systematic monitoring and potential post-project mitigation to address flood management, ecological response, or recreation hazards. The extent of uncertainty should also be explicitly acknowledged to stakeholders and the public throughout the project life cycle.

Acknowledge inherent uncertainty with some project outcomes and identify responsibilities to mitigate adverse impacts (when possible) or avoid similar problems in future projects. This includes:

- Improving documentation of considerations and recommendations in siting and design of structures to reflect the project-specific needs and local hydrological and hydraulic conditions.
- Improving project-specific conceptual or feasibility planning document(s) that illustrate broader agreements about project objective priorities, proposed project details, anticipated and potential beneficial and adverse outcomes, performance measures and indicators of success.
- Properly characterizing the reliability and longevity of structural designs and siting decisions relative to intended outcomes during the design phase.
- Establish efficient and comprehensive monitoring to identify whether designs and siting are providing ecological, recreation, or flood protection successes so policy makers can review potential trade-offs for future projects.
- Revise both internal and external (public) documents to clearly identify project uncertainty, and avoid implying that project outcomes can be predicted with great certainty.

## Expert Panel Major Findings and Recommendations

#6

### **Standardize project monitoring and improve post-project mitigation response**

WLRD conducts monitoring and post-project mitigation, but efforts are uneven and opportunities exist for improvement. Monitoring should assess cumulative effects across multiple projects in a basin, focusing on simple measures of ecological and flood management effectiveness that can help assess whether structure design and siting are achieving stated project objectives.

Establish standardized project monitoring approaches for all WLRD projects at watershed, river segment, and project scales. Monitoring should:

- Focus on simple measures of effectiveness and tests of design and siting assumptions.
- Include river-scale monitoring and evaluations to determine cumulative basin-wide project effectiveness.
- Examine levels of recreation hazards in higher use recreation segments, and assess the proportion associated with placed or engineered large wood projects vs. natural large wood recruitment.
- Formalize regular public monitoring reports at the river basin level.
- Proactively communicate through reporting and/or documentation the nature of unexpected or undesired project performance and the selected remedial actions.

## Expert Panel Major Findings and Recommendations

#7

### **Lack of integrated program elements creates an increased risk profile**

A comprehensive program that includes objectives, system definition, regulatory strategy, stakeholder strategy, and aligned project procedures is not currently present.

Independent but related program elements have converged to increase the County's enterprise-level risk profile. These include the use of experimental designs, recent program expansion, inconsistent application of procedures, varied levels of stakeholder involvement, and intermittent success in consistently balancing or communicating varied objectives.

Perform a comprehensive programmatic risk assessment that includes:

- Risk Assessment - Perform a risk assessment that evaluates the impact to the DNRP of procedures, policy changes, organizational changes, new and reassigned staff, and new processes etc. that relate to department actions and objectives.
- Program Assessment/Define System - Define how interrelated programs, procedures, objectives, and policies relate to each other to better prepare for intended and unintended consequences of planned actions.
- Regulatory Strategy - Develop (or formalize) an enterprise level regulatory strategy in conjunction with oversight agencies that is built upon objectives and legal drivers. Focus on the paradigm evolution of King County flood/safety project balance with environmental restoration objectives.

Formalize and Integrate enterprise level regulatory strategies and objectives within the project identification, scoping, design, and execution procedures.

Establish formal policy, program planning, project coordination, and dispute resolution frameworks with each regulatory organization that have action or funding authority over King County.

- Stakeholder Strategy - Create a stakeholder engagement strategy that incorporates risk assessment findings, paradigm shifts, competing regulation prioritization, and lessons learned that influence project execution.