



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF THE REGIONAL
ADMINISTRATOR

May 23, 2016

Colonel John G. Buck, Commander
U.S. Army Corps of Engineers, Seattle District
CENWS-PM-PL
P.O. Box 3755
Seattle, Washington 98124

Dear Colonel Buck:

The U.S. Environmental Protection Agency has reviewed the U.S. Army Corps of Engineers' March 2016 Puyallup River Basin Flood Risk Management General Investigation Draft Integrated Feasibility Report and Environmental Impact Statement (EPA Region 10 Project Number: 11-4126-COE) (DFR/EIS). Our review was conducted in accordance with the EPA's responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Our review of the DFR/EIS considers the expected environmental impacts of the proposed action and the adequacy of the EIS in meeting the purposes of NEPA.

The DFR/EIS presents the results of a Corps' Flood Risk Management feasibility study undertaken to identify and evaluate alternatives to manage flood risk in the Puyallup River Basin. The Corps is undertaking this action in partnership with Pierce County, Washington. The DFR/EIS analyzes three alternatives: Alternative 1 – No Action; Alternative 2 – Levee Modification; and, Alternative 3 – Sediment Management with Levee Modification. The Corps has identified Alternative 2, the Levee Modification Alternative, as the Tentatively Selected Plan (TSP).

The Corps did not select Alternative 3 due to the significant impacts on Endangered Species Act-listed fish species and designated critical habitats that would result from dredging, the higher operation and maintenance costs associated with dredging, and its lower assessed effectiveness at reducing flood risks. Alternative 2, the TSP, would manage flood risk by setting back one existing levee (North Levee Road) on the Lower Puyallup River, increasing existing levee heights, strengthening existing levees, constructing new levees and floodwalls, and one property acquisition. The TSP includes approximately 11.2 total miles of new levee and/or floodwall construction and approximately 8.7 total miles of modification to existing features, including the levee setback. The Corps states that all locations, lengths, heights and other characteristics of TSP measures would be refined during feasibility-level design analysis, based on additional sedimentation modeling, geotechnical and utility survey data, and comments on the DFR/EIS.

Water quality in affected river segments of the Puyallup/White system is identified as being impaired on Washington Department of Ecology's (Ecology) 2010 Clean Water Act Section 303(d) list and the draft 2014 list for in-stream flow, temperature, mercury, bacteria, pH and dissolved oxygen.¹ The draft 2014

¹Washington Department of Ecology. Accessed online 5/13/16 at: <https://fortress.wa.gov/ecy/wats/approvedsearch.aspx>

303(d) list also identifies additional “pollutants of concern” (i.e. lead, turbidity and copper). Also, according to the Puget Sound Partnership’s “2015 State of the Sound: Report on the Puget Sound Vital Signs,” the Puyallup River has the lowest Water Quality Index of 14 major rivers in the Puget Sound watershed.²

The River contains Endangered Species Act Listed (ESA-listed) Puget Sound chinook, Puget Sound steelhead, and Coastal-Puget Sound bull trout and their designated critical habitats. These stocks are currently imperiled to the point that all sport fishing for Puget Sound salmon and steelhead has been closed, with restrictions highlighting the need to protect Puyallup River runs. Biodiversity Management Areas, which need protection, have been identified in the project riparian areas and adjacent uplands. While the lower reaches of the Puyallup River have been altered by levees, channelization, and bank armoring, potential for improving water quality, restoring habitat, and recovering ESA-listed species remains. The flood risk reduction strategies chosen will either move this watershed toward recovery, or thrust it in a trajectory of decline.

Based on our review, we are rating the Draft FR/EIS “3 – Inadequate,” primarily because the DFR/EIS does not examine reasonable alternatives. Consideration of alternatives is required under Federal policy and directives on use of floodplains and is important under NEPA, to explore if there are alternatives that would reduce the serious impacts that the preferred alternative would cause. Our rationale is summarized below and detailed in the enclosure. A copy of our rating system is enclosed.

The DFR/EIS does not present a range of reasonable alternatives, which should, at a minimum, be consistent with Federal policy and directives on use of floodplains³ and the need to protect and restore natural floodplain ecosystems. In our 2011 scoping comments, we stated that consideration of a natural process alternative would be consistent with the Corps’ responsibilities under the Puget Sound Action Agenda, which the EPA has approved as the Comprehensive Conservation and Management Plan for Puget Sound under the Federal Clean Water Act. A natural process alternative has potential to provide flood risk reduction and restore natural floodplain structure, function, and processes, contribute to recovery of ESA-listed salmonids. Such an alternative has not been considered.

The DFR/EIS also does not adequately analyze and disclose the environmental consequences of the Tentatively Selected Plan (TSP) or the viability of the TSP for achieving long term flood risk reduction. Climate change effects, which have been the focus of considerable study in the Puyallup watershed, are likely to be particularly pronounced in this high hazard watershed. Climate change effects are acknowledged in the DFR/EIS but are not integrated with the analysis of the effectiveness, efficiency, or acceptability of the TSP. This is a significant shortcoming of this analysis because climate change projections are that peak flows will be higher and sediment loads will increase and these changes will have major and significant impacts on the effectiveness and impacts from this project. Consequently, the DFR/EIS fails to adequately inform the public and decision maker about very important impacts that could affect the decision, and thus does not achieve the purposes of NEPA.

² See “Table 4. Water Quality Index” Accessed online 5/15/16 at: <https://pspwa.app.box.com/v/2015-sos-vitalsigns-report>

³ CEQ Updated Principles, Requirements and Guidelines for Water and Land Related Resources Implementation Studies; NOAA/NMFS Biological Opinion on FEMA NFIP for Puget Sound (2013, 2014); E.O. 11988 on Floodplain Management (5-24-77), as amended by EO 13690 (1-29-15); USFWS Fish and Wildlife Coordination Act Report; Memo from OMB, CEQ, and OSTP: Incorporating Ecosystem Services into Federal Decision Making; Presidential Memo: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment; Puget Sound Federal Caucus “Treaty Rights at Risk” paper.

Additional deficiencies include the following:

- The DFR/EIS does not adequately reflect or account for numerous federal directives aimed at protecting and restoring floodplains. The DFR/EIS alternatives are inconsistent with the Puget Sound Action Agenda's Strategic Initiatives "Prevent Pollution from Stormwater" and "Protect and Restore Habitat." The EPA has approved the Puget Sound Action Agenda as the Comprehensive Conservation and Management Plan for Puget Sound under the Federal Clean Water Act, and it has been integrated with the salmon recovery plan for Puget Sound. The DFR/EIS alternatives are inconsistent with several other key federal directives,⁴ including the Council on Environmental Quality Updated Principles, Requirements and Guidelines for Water and Land Related Resources Implementation Studies (PR&Gs).⁵ The PR&Gs call for a collaborative and transparent process that seeks to avoid unwise use of floodplains and flood-prone areas and protect and restore the functions of natural systems.
- Given that neither of the DFR/EIS action alternatives nor any of the DFR/EIS initial array of alternatives are responsive to or show adequate consideration of a natural process alternative, we do not believe that the DFR/EIS range of alternatives includes a Least Environmentally Damaging Practicable Alternative, which must be identified for consistency with Section 404 of the Clean Water Act. The 404(b)(1) Evaluation in Appendix G does not provide an alternatives analysis.
- The DFR/EIS does not provide information regarding the availability of adequate compensatory mitigation for the proposal's impacts to Waters of the United States. The DFR/EIS includes an estimate that 96 acres of mitigation land would be required for the TSP alternative, but does not describe a means to determine adequate, suitable mitigation.
- The DFR/EIS does not adequately account for or analyze potential adverse effects to restoration efforts that are completed or ongoing in the basin. In particular, the DFR/EIS does not address the TSP's relationship to and potential effects on the feasibility of implementing the 32 potential levee setbacks identified in Pierce County's 2008 Levee Setback Feasibility Analysis for the Puyallup River Watershed.⁶

The deficiencies identified and the new information that is needed to analyze the potentially significant environmental impacts are of such a magnitude that they should have full public review and comment at a draft stage. The rating of the FR/EIS as "Inadequate" indicates EPA's belief that the DFR/EIS does not meet the purposes of NEPA, and should be formally revised and made available for public comment in a supplemental or revised draft EIS.

We understand the challenge that supplementing or revising the DFR/EIS will entail and want to emphasize the importance of the Corps' leadership in developing a long-term solution to flood risk in the Puyallup Basin. We recognize the need for a comprehensive basin-wide perspective to avoid

⁴ Other key Federal directives include: NOAA/NMFS Biological Opinion on FEMA NFIP for Puget Sound; E.O. 11988 on Floodplain Management, as amended by EO 13690; USFWS Fish and Wildlife Coordination Act Report; Memo from OMB, CEQ, and OSTP: Incorporating Ecosystem Services into Federal Decision Making; Presidential Memo: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment; Puget Sound Federal Caucus "Treaty Rights at Risk" paper.

⁵ <https://www.whitehouse.gov/administration/eop/ceq/initiatives/PandG>

⁶ Accessed online 5/15/16 at <http://hws.ekosystem.us/project/230/11078>.

unsustainable historic and ongoing river channelization and its associated flood risk and environmental impacts.

Our primary recommendations include the following:

- Prepare a supplemental or revised Draft FR/EIS to ensure adequate public review and comment on the new proposed action.
- Lead a collaborative effort to consider, in detail, a natural process alternative⁷ designed to emphasize consistency with the Federal directives toward floodplain protection and restoration.
- Account for reasonably foreseeable climate change scenarios in estimates of the proposal's impacts and flood protection benefits.
- Identify and analyze the relationships between the action alternatives and the full array of completed, current, funded, proposed, and aspirational floodplain restoration projects in the Puyallup Watershed.
- Include additional analysis and information with regard to the project's direct, indirect, and cumulative effects on water quality and aquatic resources, including CWA 303(d) listed waters and waters meeting water quality standards. Demonstrate compliance with Section 404 of the Clean Water Act; include a 404(b)(1) alternatives analysis; provide an acceptable mitigation plan for any unavoidable impacts to wetlands or Waters of the U.S.
- Provide adequate species-specific evaluations of the proposed action's potential for adverse effects on ESA-listed species, candidate species, and other species of concern. Quantify the direct, indirect, and cumulative effects on designated critical habitats. Disclose, in quantitative terms where possible, the extent to which the Corps' proposed action would contribute to species' recovery. Avoid future species listings by protecting the Biodiversity Management Areas identified in the project study area.

We appreciate this opportunity to comment and look forward to meeting with the Corps to discuss these comments, answer questions, and assist with next steps. If you have any questions, please contact me or Christine Littleton at (206) 553-1601 or by electronic mail at Littleton.Christine@epa.gov.

Sincerely,



Dennis J. McLerran
Regional Administrator

⁷ The natural process alternative could include various design options, as needed. Compare the effects of any design options in the revised or supplemental EIS to inform decision making.

Enclosures:

U.S. Environmental Protection Agency Detailed Comments on the Puyallup River Flood Risk Management General Investigation Draft Feasibility Report and Environmental Impact Statement

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

**U.S. Environmental Protection Agency
Detailed Comments on the
Puyallup River Flood Risk Management General Investigation
Draft Feasibility Report and Environmental Impact Statement**

The detailed comments below cover the following major topics:

- Context of the Proposed Action
- Key Concerns Regarding the DFR/EIS Action Alternatives
- Need for and Objectives of Action/Purpose and Need
- Plan Formulation/Range of Alternatives
- Affected Environment and Environmental Consequences

Context of the Proposed Action

The U.S. Fish and Wildlife Service characterizes the Puyallup River as "...one of the more extreme examples of floodplain modification in the Puget Sound region."⁸ Currently, 45.1 total miles of the watershed on both the right and left banks are confined by dikes, levees, and revetments. Channelization and the system of levees within the project area have resulted in diminished side channel habitat, increased water velocity, potential for streambank scouring, and sediment transport. Mature riparian vegetation in the lower sub-basin is scarce with less than 5% of the riparian area considered functional. The DFR/EIS (p. 145) states that, "The historic loss of estuarine, wetland, and channel habitat has been cited as a significant limiting factor in salmonid recovery within the watershed. Commencement Bay has lost more than 98% of its intertidal and subtidal habitat to development."

In the Puyallup River Basin, the following fish species are listed as threatened, and critical habitat has been designated for them in the Basin: Puget Sound chinook, Puget Sound steelhead, and Coastal-Puget Sound bull trout.⁹ In 2008, NOAA/NMFS issued a jeopardy Biological Opinion for the FEMA National Flood Insurance Program for Puget Sound that identifies limiting factors and impaired habitat conditions for the threatened salmonids. The specific limiting factors and impairments include continued levee construction and development in the floodplain, channelization/disconnection of the river from its floodplain and loss of side channel habitat/refugia, poor water quality/elevated stream temperatures, diminished and degraded riparian habitat, loss of large woody debris, and altered hydrology, geomorphology, and sedimentation.

Key Concerns Regarding the DFR/EIS Action Alternatives

As set forth in the Council on Environmental Quality's NEPA regulations,¹⁰ the range of alternatives is the heart of the NEPA document. In addition to the No Action Alternative 1, the DFR/EIS contains two action alternatives: Alternative 2, the Tentatively Selected Plan (levee construction/modification), and Alternative 3 (dredging and levee construction/modification).

⁸ USFWS Fish and Wildlife Coordination Act Report for the Puyallup River General Investigation, January 2014, Draft FR/EIS Appendix G.

⁹ USFWS Fish and Wildlife Coordination Act Report for the Puyallup River General Investigation, January 2014, Draft FR/EIS Appendix G.

¹⁰ 40 CFR 1502.14.

- The Corps' process for planning and generating alternatives does not incorporate recent, relevant Federal directives (see detailed comments below regarding the Corps Planning Process) that should serve as foundation and guidance for the planning process and alternatives development. As a result, none of the initial array of alternatives nor the proposed alternatives are responsive to the need for protection and restoration of natural ecosystem processes. EPA recommended a natural process alternative in our 2011 scoping letter to the Corps. In light of continued near and long-term habitat and species decline due to human population and development, maintenance/repairs of existing flood infrastructure, and climate change, further alternative development is an opportunity for the Corps to design a project to reverse the trend of adverse impacts within the floodplain.
- Neither alternative, as currently proposed, would avoid serious direct, indirect, and cumulative impacts to ESA-listed species and their designated critical habitat or contribute to their recovery. Dredging of the rivers ceased in the mid-1990s to prevent the detrimental effects on aquatic habitat of ESA-listed Puget Sound chinook and steelhead.
- Alternative 2/TSP, levee construction and modification, would continue to disconnect the river from its floodplain, reduce riparian habitat and wetlands, encourage additional development in the floodplain, and exacerbate the negative direct, indirect, and cumulative effects upon water quality, hydrology, sedimentation, stream flows and other aquatic habitat features. The one proposed levee setback at North Levee Road, would not remove or breach the existing concrete barriers and would be inundated only during flood stage. While retaining the silt bench and its existing riparian vegetation would be helpful, retention of the concrete barrier would fail to provide side channel habitat and myriad other benefits during non-flood stage and may result in fish stranding when flood waters recede.
- Construction of 11.2 miles of new levee and/or floodwall and 8.7 miles of modification (increased height and strength) of existing levees would result in 19.9 miles of additional adverse impacts to riparian vegetation and associated natural features, such as shading, wood recruitment, insect fall, nutrient inputs, and off-channel habitat. These natural processes are essential to support water quality, watershed health, and wildlife and fish, including Puget Sound chinook, Puget Sound steelhead, and Coastal-Puget Sound bull trout, all listed as threatened under the Endangered Species Act.¹¹
- Construction of 1.7 miles of new levee adjacent to the water's edge would result in the most severe reduction of bank complexity, shade, and nutrient inputs and would cause and contribute to adverse impacts to water quality and watershed health.¹²
- Construction of 840 feet of new in-water levee with bank armoring would cause adverse impacts to aquatic habitat and water quality within an important biodiversity corridor.¹³
- The proposed action would further degrade designated critical habitat for federally listed Puget Sound chinook, Puget Sound steelhead, and Coastal-Puget Sound bull trout. The bull trout recovery

¹¹ DFR/EIS, p. 134.

¹² DFR/EIS, p. 134.

¹³ DFR/EIS, p. 139.

plan calls for maintaining and improving water quality, restoring impaired stream channel and riparian areas, and identifying upland conditions negatively affecting habitats. The chinook recovery plan calls for setback levees and floodplain reconnection and restoring riparian and habitat diversity through plantings and installing large woody debris.¹⁴

- The TSP would both directly and indirectly support development in high hazard floodplains.
- Based upon the general, conceptual discussion of mitigation in the DFR/EIS, there is currently no apparent proposed, reliable mitigation that would feasibly offset the significant additional impacts to aquatic resources, threatened salmonids, or their critical habitat.
- The National Marine Fisheries Service's Biological Opinion for the FEMA National Flood Insurance Program in Puget Sound identifies numerous Reasonable and Prudent Alternatives relevant for consideration here.¹⁵ The measures call for no further development in the floodway, the channel migration zone plus 50 feet, and the riparian buffer zone, or, alternatively, they require the local permitting authority to demonstrate that any proposed development does not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmonids. The measures also either prohibit development in the 100-year floodplain, or call for avoidance, rectification, or compensation for any loss of floodplain storage and mitigation of indirect adverse effects (effects to stormwater, riparian vegetation, bank stability, channel migration, hyporheic zones, wetlands, etc.) of development in the floodplain to equivalent or better conditions.
- In addition to the above jeopardy BiOp from NMFS, which directly pertains to continued levee construction and floodplain development, the current year sport fishery for Puget Sound is now closed. The additional levee construction and floodplain development proposed in the TSP would further adversely impact ESA-listed salmonids.
- Additional levees and floodwalls would result in increased temporary and permanent losses of vegetation, disconnection from the floodplain that limit off-channel habitat, and increased length of hardened banks in the watershed. This results in continued simplification of riparian and aquatic habitats and permanent reduction of refuge habitat for fish, including ESA-listed species.
- Long-term negative water quality impacts from removal of riparian vegetation on existing levees and building new structures with additional riprap, and continued development and industrialization in the floodplain would contribute to higher water temperatures and pH, lower dissolved oxygen and exacerbate climate change effects on water temperature.
- The Tentatively Selected Plan, levee and floodwall construction and fortification in the Puyallup and White River floodplains, would result in negative direct, indirect, and cumulative effects on natural riverine structure, function, and process and (1) further decline of water quality and watershed health, exacerbating pollutant levels in Clean Water Act 303(d) listed waters; (2) support development in the floodplain; (3) undermine recovery of Endangered Species Act-listed salmonids and their critical habitat; (4) negatively affect other depressed fish species; and (5) impede efforts to

¹⁴ USFWS Fish and Wildlife Coordination Act Report for the Puyallup River General Investigation, January 2014, Draft FR/EIS Appendix G.

¹⁵ Accessed online 5/11/16 at: <https://www.fema.gov/media-library/assets/documents/30021>.

protect and restore Tribal Treaty protected fisheries resources. Further developing alternatives to the TSP presents an opportunity to take restorative actions as required by federal directives and at a time when numerous federal, state, local, and tribal entities have undertaken substantial commitments to protect and restore environmental resources in Puget Sound.

Need for and Objectives of Action/Purpose and Need

Corps Planning Process and National Objective

The Corps' planning process appears to be based upon an outdated National Objective. The DFR/EIS stated National Objective is "...to contribute to national economic development (NED) consistent with consideration of impacts to the Nation's environment pursuant to national environmental statutes, applicable Executive Orders, and other Federal Planning requirements. Contributions to NED include increases in the net value of the national output of goods and services over a certain period of time, expressed in monetary units."¹⁶ The Council on Environmental Quality's updated *Principles, Requirements and Guidelines for Water and Land Related Resource Implementation Studies* emphasizes that water resources projects should avoid the unwise use of floodplains, and protect and restore natural ecosystems.¹⁷ The updated PR&G also emphasize collaboration and broader partnership to effectively address water resources problems and opportunities,¹⁸ and that no hierarchical relationship exists among the three priorities of maximizing economic development, avoiding unwise floodplain use, and protecting and restoring natural systems.

The updated PR&G priorities are not reflected in the Draft FR/EIS's prioritization of monetary units as a primary method of designing solutions and measuring the plan's effectiveness. The updated PR&G directs that, "A narrow focus on monetized or monetizable effects is no longer reflective of our national needs, and from this point forward, both quantified and unquantified information will form the basis for evaluating and comparing potential Federal investments in water resources to the Federal Objective." This is in order to "...allow decision makers to view a full range of effects of alternative actions and lead to more socially beneficial investments."

Recommendations:

- Include information in the FR/EIS describing CEQ's March 2013 Principles & Requirements and December 2014 Interagency Guidelines.¹⁹ If the Corps conducted the General Investigation according to the 1983 PR&G, then document the agency rationale and decision process for not using the updated PR&G, which is a peer-reviewed and modernized policy intended to advance sustainability, transparency and consistency for Federal investments in water resources.
- In the FR/EIS, incorporate and reflect CEQ's updated PR&G. For example, consider giving the DFR/EIS's Objective 5 "Optimize natural floodplain functions and sustainability, including

¹⁶ DFR/EIS, p. 19-20.

¹⁷ The updated Principles and Requirements for Federal Investments in Water Resources were issued in March 2013. The final updated Interagency Guidelines were issued December 2014. Accessed online 5/11/16 at: <https://www.whitehouse.gov/administration/eop/ceq/initiatives/PandG>.

¹⁸ As stated in the Principles and Requirements, Federal agencies should collaborate fully on water resources related activities with other affected Federal agencies and with Tribal, regional, state, local, and non-governmental entities, as well as community groups, academia, and private land owners to realize more comprehensive problem resolution and better informed decision making.

¹⁹ The Interagency Guidelines took effect 180 days after their December 2014 publication; the DFR/EIS was published March 2016.

conveyance and storage, within the Puyallup River Basin” equal weight as the DFR/EIS’s Objective 1 “Reduce flood risks to life, safety, property, and critical infrastructure in the Puyallup River Basin through the planning period of analysis.”

- Establish a robust, inclusive, collaborative approach to planning and developing a range of action alternatives that avoid increasing the potential for high risk development in the floodplains, and that demonstrate net environmental benefits with respect to protection and restoration of natural ecosystems.
- Ensure that the FR/EIS is in accord with the updated PR&G as well as the Memorandum to Federal Agencies issued October 7, 2015 from CEQ, OMB, and OSTP on *Incorporating Ecosystem Services into Federal Decision Making*.²⁰ Include in any assessment of monetary units and in the assessment of public benefits relative to costs: the value of the natural capital and ecosystem services that are or could be derived from (1) what currently remains of natural ecosystem structure and function in the Puyallup/White/Carbon River watersheds, (2) what could potentially be restored within the Puyallup/White/Carbon River watersheds, and (3) what would potentially be lost pursuant to proposed actions that would further reduce natural capital and ecosystem services for purposes of flood risk management.
- Incorporate use of best available science and objectivity. For example, fully incorporate the most up to date reports, modelled projections, and syntheses of climate change effects and other scientific information to inform the planning process.

Other applicable Federal programs and directives

The Corps’ planning process and FR/EIS should acknowledge and incorporate other applicable Federal directives. These include but are not necessarily limited to the following:

Clean Water Act National Estuary Program for Puget Sound

The Puget Sound Action Agenda, and in particular the Strategic Initiatives “Prevent Pollution from Stormwater” and “Protect and Restore Habitat”. We reiterate our 2011 scoping comment that full consideration of a natural processes alternative in the EIS would be consistent with federal agencies’, including the Corps,’ responsibilities to the Puget Sound Action Agenda. EPA has approved the Action Agenda as the Comprehensive Conservation and Management Plan for cleaning up Puget Sound under the Federal Clean Water Act. The Action Agenda is also integrated with the National Marine Fisheries Service Puget Sound Salmon Recovery Plan.

NOAA/NMFS Biological Opinion on the FEMA National Flood Insurance Program for Puget Sound²¹

The DFR/EIS mentions the NMFS BiOp for the FEMA National Flood Insurance Program for Puget Sound, but does not adequately incorporate its relevant findings or directives to FEMA, which are relevant to the Corps’ activities and which should be coordinated with and significantly influence the Corps’ plans, programs, and activities regarding floodplains. Relevant findings and directives that should be incorporated include the following:

²⁰ Accessed online 5/17/16 at <https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m-16-01.pdf>.

²¹ Accessed online 5/11/16 at: http://www.fema.gov/media-library-data/20130726-1900-25045-9907/nfip_biological_opinion_puget_sound.pdf.

- The integration and synthesis of effects on salmonids, which highlights the importance of floodplains, floodplain connectivity, shallow water refugia, low volume and low velocity flows to juvenile salmonid growth rates, fitness, and survival.
 - Acknowledgement that the negative effects attributed to features of the FEMA National Flood Insurance Program (such as floodplain mapping, floodplain management criteria) that would jeopardize survival of ESA-listed Puget Sound chinook and steelhead, include the same negative effects that would result from the Corps' Puyallup River TSP.
 - Work with local sponsors to identify levees that restrict floodplain function, set back levees and restore floodplain functions.
-
- Coordination among FEMA, the Corps, and the Services to revise levee maintenance protocols in a watershed-based approach that reduces floodplain encroachment and minimizes flood volume, velocity, and scour problems caused by confining the channel by levees.
 - Coordination among FEMA, the Corps, and NMFS to develop joint levee vegetation standards to allow retention of native riparian vegetation, based on the most recent best available science.
 - Acknowledgement that the negative effects on ESA-listed and non-listed Puget Sound salmonids also jeopardizes continued existence of Southern Resident Killer Whales, which are listed as endangered and feed mainly on salmonids, showing a strong preference for Chinook salmon.
 - Planning under advisement that the FEMA BiOp reasonable and prudent measures call for:
 - Notifying Puget Sound communities of the FEMA National Flood Insurance Program jeopardy opinion;
 - Identifying the risk of flooding behind 100 year levees based on anticipated future conditions and the cumulative effects from future land use change that considers changes in the watershed, its floodplain, its hydrology, and climate change;
 - No development in the floodway, the CMZ plus 50 feet, and the riparian buffer zone, OR a demonstration that any proposed development in these areas does not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmonids; and
 - Prohibiting development in the 100-year floodplain, or avoiding, rectifying, or compensating for any loss of floodplain storage, (e.g., through a balanced cut and fill program that provides fish refugia habitat and prevents fish stranding). Also, there must be mitigation for the indirect adverse effects of the floodplain development (effects to stormwater, riparian vegetation, bank stability, channel migration, hyporheic zones, wetlands, etc.) and use of Low Impact Development methods.
-

Executive Order 11988 – Floodplain Management (as amended by EO 13690 on 1/29/2015)²²

The stated purpose of EO 11988 is "...to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect

²² Accessed online 5/11/16 at:

http://energy.gov/sites/prod/files/2015/12/f27/EO%2011988_as%20amended%20by%20EO%2013690_2015.pdf.

support of floodplain development wherever there is a practicable alternative.” In addition, the EO directs that “Each agency shall take floodplain management into account when formulating or evaluating any water and land use plans and shall require land and water resources use appropriate to the degree of hazard involved.”

Neither the initial nor final range of alternatives generated from the Corps’ planning process are adequately responsive to this Executive Order. The TSP would both directly and indirectly support continued floodplain development in high hazard floodplains. Both historic and current flooding and sedimentation regimes within the Puyallup/White/Carbon Rivers are well known, and future climate change-driven studies for the project study area are available. The University of Washington Climate Impacts Group November 9, 2015 report, *Summary of Projected Changes for the City of Tacoma*, characterizes sedimentation and flooding in the watershed:

“The Puyallup, White and Carbon Rivers drain the glaciated, volcanic landscape of Mt. Rainier, delivering large amounts of sediment downstream to Commencement Bay. In the past, vast volumes of sediment were regularly dredged from the lower Puyallup basin, offsetting the immense inputs from the upper basin....When dredging ceased, the conveyance capacity of the watershed declined as sediment increased in the lower portion of the basin, contributing to recent higher flood flows in the lowlands...Data indicate significant aggradation [from 1984 to 2009]: channel elevations of the Puyallup, White and Carbon Rivers rose by 7.5 ft, 6.5 ft and 2 ft., respectively....sediment loads in the Puget Sound rivers are expected to increase as declining snowpack and glacial recession expose more unconsolidated soils to rain, floods, and disturbance events.”

Recommendation:

- Based on the nature and level of hazard inherent in the project study area, and in light of the NMFS BiOp for the FEMA National Flood Insurance Program, we recommend (1) working with appropriate entities to prevent/limit new floodplain development, purchase flood prone properties, and restore floodplain connectivity and processes within the Puyallup/White/Carbon River systems; and (2) develop one or more action alternatives that seek to maximize the rivers’ ability to naturally move and adapt to current and future climate-driven hydrological and sedimentation regimes. Give full consideration to these actions in order to best minimize flood risk to the public and economic interests in a sustainable and long-term manner.

USFWS Fish and Wildlife Coordination Act Recommendations for the proposed project²³

The January 2014 USFWS Fish and Wildlife Coordination Act Report for the Puyallup River General Investigation (DFR/EIS Appendix G) provides a list of recommendations that we support and commend to the Corps. Most of the recommendations appear fully within the control and jurisdiction of the Corps, and are capable of being implemented as part of this General Investigation. Those dependent on local control, such as land use planning, zoning, Low Impact Development requirements, etc. can be coordinated with and implemented by the local sponsor as part of this planning process.

Building upon the USFWS recommendations, EPA offers the following.

²³ DFR/EIS, Appendix G

Recommendations:

- Adopt the USFWS FWCA Report recommendations.
- Incorporate into the FR/EIS and its cumulative effects analysis a full accounting of completed and proposed levee setbacks, land acquisitions, and other restoration or mitigation projects by any entity within the Basin. Identify the likelihood that proposed projects will be implemented. For completed projects, identify how it was funded, area of stream affected, resource functions affected, and the extent to which mitigation/restoration goals were achieved for each project.
- In addition to the USFWS recommended surveys for yellow-billed cuckoo, fully incorporate and provide for the protection and long-term maintenance of the natural processes that support the identified Biodiversity Management Areas²⁴ within the Puyallup/White/Carbon River watershed.
- Designate channel migration zones to protect natural processes and inform development interests.

Memorandum for Executive Departments and Agencies from OMB, CEQ, and OSTP: Incorporating Ecosystem Services into Federal Decision Making, 10/7/15

This Memorandum is discussed above within the context of applying CEQ's updated PR&G.

Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment, 11/3/15²⁵

This Memorandum encourages agencies to set 'no net loss' and 'net benefit' environmental goals.

Puget Sound Federal Caucus "Treaty Rights at Risk" paper

Working toward achieving a net environmental benefit would also be consistent with commitments expressed by the Puget Sound Federal Caucus to address the concerns raised in the Western Washington Treaty tribes' "Treaty Rights at Risk" paper, which outlined threats to salmon habitat and other important treaty-protected resources. In this capacity, member federal agencies, including the EPA and the Corps, have agreed to work together to explore ways in which our regulations and resources can be aligned to promote recovery of resources important to treaty tribes. Any opportunity to restore natural processes in the Puyallup/White/Carbon River watershed would be consistent with this broader federal effort.

Plan Formulation/Development of the Range of Alternatives

Coordinate closely with agencies, tribes and others.

We recommend that the Corps support a transparent and collaborative process with resource agencies, tribes, and other entities to develop solutions that avoid environmental impacts, incorporate reasonably foreseeable climate change projections for the project area, advance community sustainability, support Tribal Treaty Rights and recovery of ESA-listed species, and maximize environmental benefits.

²⁴ Biodiversity Management Areas identified by the Pierce County Biodiversity Alliance are discussed in more detail on the final page of these detailed comments. http://www.rco.wa.gov/documents/biodiversity/PCBA_one_pager.pdf

²⁵ <https://www.whitehouse.gov/the-press-office/2015/11/03/mitigating-impacts-natural-resources-development-and-encouraging-related>.

Fully consider a natural process alternative.

Alternatives are the “heart of the environmental impact statement” (40 CFR 1502.14). Our view is that a natural process alternative would lead to a mix of management measures that would improve floodplain connectivity, surface-groundwater interactions, and riparian vegetation and wetland development. The DFR/EIS does not include, even in the initial array of alternative plans, a natural process alternative or an alternative to remove existing levees. Because a natural processes alternative did not receive consideration in the DFR/EIS, there is no basis to determine that it would not outperform the TSP even from a flood risk, life safety, or economic perspective.

The DFR/EIS fails to consider a natural process themed alternative and is unresponsive to our primary scoping recommendation and inconsistent with the Corps’ responsibilities to the Puget Sound Action Agenda, which the EPA has approved as the Comprehensive Conservation and Management Plan for Puget Sound under the Federal Clean Water Act. The Action Agenda is also integrated with NOAA/NMFS salmon recovery plan for Puget Sound.

Recommendations:

- In the FR/EIS, include one or more natural process alternatives that would provide equal or greater protection and restoration for the natural environment and ecological processes. In developing natural process alternatives, consider removal of existing levees. Natural process alternatives should also emphasize levee setbacks that would restore natural hydrologic, geomorphic, and biological functions. A natural process alternative would seek flood risk reduction solutions that emphasize protection and restoration of floodplains and their natural ecological structure, function (including flood capacity), and processes; aim to avoid continued simplification of riparian and aquatic habitats in the urban and rural river corridors; and achieve permanent increases of refuge habitat for fish, including ESA-listed species.
- Consider, as a key factor for a natural processes alternative, ensuring that the management measures would implement or facilitate the levee setback projects identified and analyzed in the June 19, 2008 Levee Setback Feasibility Analysis: Puyallup River Watershed and its related update, the December 29, 2014 Flood Plain Reconnection Feasibility Study.²⁶
- Disclose in the FR/EIS how each of the proposed action alternatives is responsive to the policy directions articulated by the array of federal directives pertaining to water resource projects, floodplains, and ESA-listed species discussed in this letter.
- Identify in the FR/EIS the full array of completed, current, funded, proposed, and aspirational floodplain restoration projects in the Puyallup Watershed to inform the cumulative effects analysis, and to identify best opportunities for advancing floodplain protection, restoration, and ESA-species and critical habitat recovery.

Fully describe levee modifications proposed within the TSP alternative.

Alternative 2, the TSP, is the DFR/EIS levee modifications alternative. It does not appear to include all of the levee modifications listed in Table 3-3, Measures Siting Summary. We understand that the TSP does not include existing authorized projects, but we believe that Table 3-3 could be improved to clearly show which levee modification projects have been excluded because they are already authorized and

²⁶ Accessed online 5/5/16 at: <https://www.co.pierce.wa.us/ArchiveCenter/ViewFile/Item/4496>.

funded, and which projects have been excluded from the TSP for other reasons. We are particularly interested in additional information on whether and how the following levee modification projects from Table 3-3 are accounted for in the TSP:

- Pacific Park Levee Setback
- Freeman Oxbow Setback Levee Alignment
- 116th Street Levee Setback
- McCutcheon Road and 128th Street East Levee Setbacks
- Calistoga Levee Setback

We are also interested in all of the 32 levee setback projects from the June 19, 2008 Levee Setback Feasibility Analysis: Puyallup River Watershed.

Recommendation:

- In the FR/EIS, disclose whether all of the levee setback projects that would benefit natural processes and are either mentioned in DFR/EIS Table 3-3 or in the June 19, 2008 Levee Setback Feasibility Analysis: Puyallup River Watershed, are already authorized. If they are not authorized, present rationale for why they are or are not included in the TSP.

Screen management measures and alternatives for their potential to induce floodplain development.

The DFR/EIS does not include an explicit description of how the Corps' screening of measures and alternatives considered minimizing induced development. Continued development in the floodplains of the Puyallup/White/Carbon system would exacerbate current and projected flood risks and undermine recovery of ESA-listed salmonids.

Recommendation:

- Describe how the Corps' screening process for measures and alternatives considered minimizing induced development. Disclose whether any measures were included because they specifically minimized induced floodplain development or, conversely, whether any measures were screened out because they had the potential to induce floodplain development either directly or indirectly.

Use appropriate evaluation criteria when identifying the Tentatively Selected Plan.

The nature and appropriateness of criteria used to evaluate alternative plans, specifically the use and definition of "Other considerations" within the "Acceptability" criterion are unclear. By adding "Other considerations", defined in Table 3-9 as meeting the non-federal sponsor's objectives, to the acceptability criterion the DFR/EIS potentially double counts flood risk management and improvements to life safety.

Although the DFR/EIS does not explicitly define the non-federal sponsor's objectives, it does state that the No Action Alternative is "not acceptable to the non-federal sponsor and study stakeholders due to its inability to reduce flood risks in the Basin." The non-federal sponsor's objective appears to be reducing flood risk and this is already covered in the DFR/EIS as Objective 1 and in the "effectiveness" criterion.

Given that flood risk is already covered under the effectiveness criterion it should not also be covered under the acceptability criterion because the acceptability criterion is focused mainly on environmental resources – wetlands, fish, riparian habitat and floodplain connectivity. The acceptability criterion

should be focused on Wetlands Adversely Impacted, Fish (Salmonid) Habitat Adversely Affected, Riparian Habitat Adversely Affected and Floodplain Connectivity.

The non-Federal sponsor's objectives are important but, to the extent they are covered by flood risk and improvements to life safety, we believe that they should not result in making both the "Effectiveness" and "Acceptability" criteria potentially dependent on the same evaluating factor – flood risk.

Recommendation:

- In the FR/EIS, disclose the non-federal sponsor objectives. If the non-federal sponsor objectives are not addressed or covered by the DFR/EIS's five objectives, describe why the DFR/EIS's five objectives do not cover or are not consistent with the non-federal sponsor's objectives. To the extent that the non-federal sponsor's objectives are covered by the DFR/EIS's objectives, including Flood Risk Management and Improvements to Life Safety, we recommend removing any potential double counting in Table 3-10 as "Other considerations."

Identifying the NED Range of the TSP

Include additional information describing why net economic benefits are relatively high along the White River

It is important to fully explain the net economic benefits of project actions in the White River area because the White River benefits appear to account for 81% of the total economic benefits associated with the project.²⁷ In other words, 81% of the \$20 million per year net benefits of the project are due to actions along the White River. The net benefit is relatively high along the White River because the Federal funds used to help implement the TSP would serve to protect recent, dense development directly adjacent to the river and within the floodplain.

Recommendations:

- Include in the FR/ESI additional information describing why the net benefits of the TSP are relatively high along the White River.
- Include a summary history of development within the White River floodplain. Address whether that development is consistent with wise use of floodplain. Analyze and disclose how the Corps' actions along the White River avoid direct or indirect support of floodplain development.
- Discuss consistency of the TSP with Executive Order 11988 in the context of plans for development along the left bank of the White River, such as the Sumner-Pacific Manufacturing Industrial Center and whether utilizing Federal funds to implement the TSP on the right bank to protect recent development is an example of indirectly inducing planned development on the left bank.

TSP Performance in the Lower Puyallup River

The following explanation in the DFR/EIS as to why the TSP has marginal benefits in the Lower Puyallup area is unclear:

"Marginal justification on the Lower Puyallup is related to higher costs to construct projects in this reach and consideration of damages from the full range of flood events

²⁷ DFR/EIS, Table 3-11.

and the existing flood risk infrastructure that exists through this reach. The Lower Puyallup measures address high residual risks to property and life safety associated with larger, less frequent flood events to the largest proportion of population, critical infrastructure, and development in the study area.”²⁸

Residual risk in the Lower Puyallup is, in our view, a potential indicator that primary dependence on management measures that do not re-connect the floodplain are an inadequate long-term solution to flood risk in the Puyallup watershed. These residual risks are particularly important to focus upon given uncertainties associated with climate change and sediment transport.

Recommendation:

- Provide additional information explaining why the TSP has marginal benefits in the Lower Puyallup area. Please clarify the existing language in the DFR/EIS on page 96.

Affected Environment and Environmental Consequences

Inadequate Information due to Key Uncertainties

DFR/EIS Section 3.2.1 (p. 77) lists several key uncertainties (i.e., key missing information) that are critical to inform decision making regarding the development and selection of a preferred alternative. Our comments regarding these key uncertainties are detailed below. We recommend that the FR/EIS more fully analyzes the following issues to assess environmental consequences. We would welcome the opportunity to consult with the Corps to determine adequate levels of analysis and methodologies.

Future sedimentation regime

We agree that a risk-informed strategy is needed to evaluate any proposed alternative for flood risk reduction over the 50-year planning period. The DFR/EIS does not indicate whether the Seattle District agrees with the USACE Committee on Channel Stabilization’s recommendation for providing “limited sediment transport modeling.” The DFR/EIS also does not provide a rationale for why “limited sediment transport modeling” would be adequate in terms of quantifying the sustainability of the TSP. We believe that sediment transport is a key factor, and would emphasize that a TSP that is based on inadequate sediment transport modeling may be an inadequate long-term solution for flood risk and life safety in the Puyallup River Basin.

Recommendation:

- Engage USGS, the UW Climate Impacts Group, and other entities with expertise on appropriate methods to model sediment transport. We encourage the Corps’ recognition of recent science/reports that indicate sedimentation in the Puyallup River is likely to increase due to climate change.²⁹

Degree of environmental and cultural resources impacts and subsequent needed mitigation

While ESA Section 7 consultation is yet to be conducted for this proposed action, the FEMA National Flood Insurance Program Biological Opinion, which reached a jeopardy conclusion, has been available since 2008. This BiOp identifies the effects of large scale habitat alteration, which are identical to the

²⁸ DFR/EIS, p. 96.

²⁹ For example, *Summary of Projected Changes for the City of Tacoma*, UW Climate Impacts Group, November, 2015. The Final Report states that sediment loads in Puget Sound rivers are expected to increase as declining snowpack and glacial recession expose more unconsolidated soils to rain, floods, and disturbance events.

effects from existing conditions in the Puyallup watershed and from the proposed action in the DFR/EIS, as the primary limiting factors for each listed species of Puget Sound salmonid. Habitat alterations include floodplain fill, levee construction, stream channelization, freshwater and estuarine floodplain disconnection, and removal/destruction of riparian habitat. These result in decreased channel complexity, altered hydrology, sedimentation, nutrient exchange, and diminished natural habitat forming processes, particularly in river systems that are constrained by levees. These same habitat factors also limit productivity, preventing salmonid recovery to adequate abundance levels.

The BiOp's Reasonable and Prudent measures direct that there be no further development in the floodway or in the 100-year floodplain unless there are no adverse effects on water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmonids.

Recommendation:

- Use updated hydrologic modeling, sediment modeling, real estate information and other sources to reduce the DFR/EIS uncertainty with regard to the degree of environmental and cultural resources impacts. The DFR/EIS conceptual analysis is exemplified by statements such as, "The effects of the proposed levee modifications and new levees in Alternative 2 and Alternative 3 would further degrade the already poor quality habitat conditions; however mitigation efforts would be designed to offset these impacts."³⁰ Such conceptual conclusions help reviewers and decision makers to understand the generally adverse direction of the project's impacts, and the Corps' intention to mitigate impacts, but they are inadequate to characterize or quantify specific impacts, to recommend corrective measures, or to disclose the likelihood that any proposed mitigation would be implemented and effective.

Potential areas of induced flooding/transferred risks

The proposed action may impact other levees or areas within the system thereby inducing and/or transferring flood risks to other locations in the watershed. This information is needed to assess the effectiveness and viability of the TSP as a flood risk management alternative, as well as its environmental consequences. The DFR/EIS also does not disclose whether the Corps has accounted for all of the projects in the watershed. For example, the DFR/EIS does not state whether the 32 levee setback projects listed in the Pierce County 2008 Levee Setback Feasibility Study were accounted for--either from the perspective of whether those projects would impact the performance of measures in the TSP, or from the perspective of whether measures in the TSP would impact those potential levee setback projects and other related programs.

Recommendation:

- Analyze and disclose in the FR/EIS the induced flooding/transferred risk from the full suite of projects and programs occurring and likely to occur in the Puyallup River Watershed.

Mud Mountain Dam Operations. Due to sediment deposition and resulting reduced channel capacity, releases from Mud Mountain Dam can be no more than 6,000 to 8,500 cfs without flooding areas along the White River, yet the DFR/EIS assumes releases of 12,000 cfs. No reliable conclusions regarding the suitability of the proposed action for purpose of flood risk reduction can be derived from using this assumption.

³⁰ DFR/EIS, p. 151.

Property acquisition. There is uncertainty regarding the number of acres and the cost of property acquisition, which limits the evaluation of alternative performance and feasibility.

Future without-project construction. We note that other County projects that are not part of the feasibility study, where funding was certain, have been identified and included in the future without-project analysis of the Study. However, these need to be more clearly identified in the FR/EIS in order to fully analyze the Affected Environment and Environmental Consequences of the No Action and the action alternatives.

Recommendation:

- Clearly list and map in the FR/EIS what projects have been included and accounted for in the future without-project analysis. Consider including a list and map of all potential/aspirational projects offered in the Pierce County study of potential levee setbacks.

Water Quality/Quantity

Water quality concerns in the affected environment

The DFR/EIS's description of water quality impairments could be edited for clarity, completeness and to more closely reflect data and information from the Washington State Department of Ecology and the Puget Sound Partnership.

Recommendations:

- In the FR/EIS, consider using the following language from Ecology's website.

“Water bodies in the Puyallup River Basin have been listed for several parameters because they did not meet Washington State's water quality standards. Parameters of concern include biological oxygen demand (BOD); ammonia; fecal coliform bacteria; pH; sediment; and temperature.”³¹

We note that water quality impairments identified by Ecology on the 2010 and the Candidate 2014 303(d) lists include: bacteria, mercury, temperature, pH, dissolved oxygen and in-stream flow.

- Include information from the Puget Sound Partnership's 2015 State of the Sound Report on the Puget Sound Vital Signs. In particular, Table 4 “Water Quality Index 2000-2013” gives a useful overall sense of water quality in the Puyallup River relative to other major rivers in the Puget Sound watershed. The Puyallup River received the lowest Water Quality Index score of the 14 major rivers analyzed. The water quality context for the Puyallup River is one of the reasons for EPA's significant level of concern; it is a waterbody that is relatively sensitive to adverse water quality impacts and pressures.
- In the FR/EIS, list or display the water quality impairments in a table and on a map.

³¹ Accessed online 5/13/16 at: <http://www.ecy.wa.gov/programs/wq/tmdl/puyallup/>

Sources of existing water quality problems

The DFR/EIS does not adequately describe the sources of water quality impairments and concerns in the Study Area. The DFR/EIS's limited affected environment description is focused mainly on nutrients and wastewater treatment.

Recommendation:

- To convey the TSP's potential water quality impacts, consider discussing it within the context of the likely/possible causes of current water quality impairments and concerns in the Puyallup River Basin. The FR/EIS should discuss likely/possible causes for the following pollutants of concern in the basin: dissolved oxygen; ammonia; fecal coliform bacteria; pH; turbidity; and temperature; and mercury. EPA is available to work with you to appropriately characterize the state of science on likely/possible causes of water quality impairments and concerns in the Puyallup basin.

Current pollutant control recommendations

Pollutant control recommendations in the Study Area in the DFR/EIS are limited to those listed in the Puyallup River Watershed Fecal Coliform TMDL.³² Given the long-term effects of the TSP, this limitation takes too narrow and short-term a scope of analysis. Due to the cause and effect relationships between disconnected floodplains, floodplain development, riparian and watershed degradation and water quality impairment, it is important to take a broader and longer view of pollutant control recommendations.

Recommendation:

- Add other non-fecal coliform pollutant control recommendations to the DFR/EIS list. For example, consider including the following and also EPA is interested in collaborating with you to ensure a comprehensive set of pollution control recommendations is accounted for in the FR/EIS.
 - "Further negative impacts to the Puyallup River RM 2.9 DO (Dissolved Oxygen) levels should be prevented because the DO levels are already very close to the new, more restrictive, minimum Washington State water quality criteria."³³
 - "Efforts should be explored to reduce the Puyallup and White River stream temperatures because Washington State water quality criteria are not be met at all times."³⁴

Operational and long-term impacts to water quality

The DFR/EIS does not adequately describe the potential long-term water quality impacts. We are concerned that the TSP would lead to decreased dissolved oxygen and increased fecal coliform bacteria; pH; sediment; and temperature; and mercury water pollution problems. Adequate analysis of potential long-term water quality impacts is critical, given that these parameters can be affected by the following potential outcomes of the proposed project.

³² Accessed online 5/13/16 at: <https://fortress.wa.gov/ecy/publications/documents/1110040.pdf>.

³³ Puyallup and White Rivers Dissolved Oxygen and Temperature Data Summary Report, 2008. Accessed online 5/13/16 at: <https://fortress.wa.gov/ecy/publications/documents/0803013.pdf>.

³⁴ *Ibid.*

- Facilitating the development of ecologically important undeveloped lands behind federally funded levee improvement and construction projects;
- Reducing riparian vegetation.

Recommendation:

- We recommend that the FR/EIS include additional information regarding the project's potential to contribute to increased water quality problems by facilitating the development of ecologically important undeveloped lands. Our interest is for the FR/EIS to clearly analyze and disclose the potential for federal funds to modify levees in such a way that those modifications or construction would lock-in existing pressures, miss opportunities to protect or restore natural processes, or facilitate development that would increase long-term water quality impairments and concerns.

Hydrology and Hydraulics (including Climate Change and Sea Level Change)

We are concerned that the DFR/EIS does not appear to account for reasonably foreseeable climate change scenarios and sea level change in the flood protection analysis. For example, according to the DFR/EIS, "Areas of the middle Puyallup and lower White Rivers would see an increase in level of protection from 50-5% to 1% ACE" with the TSP.³⁵ The DFR/EIS does not explicitly state whether this increase of protection accounts for future climate change scenarios in Washington State. This is an important consideration because future climate change scenarios in Washington State could translate a present day 1% ACE flow into a 5% ACE.³⁶

In other words, if the DFR/EIS's analysis of flood protection benefits from the project has not taken the DFR/EIS's own future climate change information into account, the flood risk reduction benefit of the project may not occur. If the project increases protection from 5% ACE to 1% ACE but climate change reduces that protection from 1% ACE to 5% ACE, what are the overall long-term flood risk benefits? In this case, flood risk would remain constant. There are presumably no net economic benefits of the project if flood risk remains constant.

Recommendations:

- Specify, in the FR/EIS's Hydrology and Hydraulics section, whether flood protection estimates for the project account for reasonably foreseeable climate change scenarios in Washington State. Consider, for example, the University of Washington Climate Impact Group's 2015 report, *State of Knowledge: Climate Change in Puget Sound*. Figures D-9a and D-9b indicate that future peak flows in the Puyallup watershed will be substantially higher in the 2040s and 2080s.
- Disclose in the FR/EIS whether or not the net economic benefit assumptions for the TSP account for climate change effects.

³⁵ DFR/EIS, p. 114.

³⁶ "Prediction of future climate change in Washington state has included an 11.6% increase in runoff for 2010-2034 and an 18.1% increase in runoff for 2035-2059 (Czuba et al., 2012). Over the project life, an 18% change would translate a present day 0.01 ACE flow into a 0.05 ACE." (DFR/EIS, p. 57).

Geomorphology and Sediment Transport

We are concerned that the development and evaluation of alternatives is based on “preliminary methods to estimate water surface change from observed changes in channel bed material volume...”³⁷ For example, due to the lack of sediment modeling at the DFR/EIS stage, there remains a high level of uncertainty about the risk of levee failures due to perched channels over the long-term. The DFR/EIS summarizes this issue:

“The consequence of continuing to raise levees in depositional areas is the river channel can become perched above the surrounding floodplain. This would add an additional risk of damages caused by levee failures that would not exist if the channel were dredged to maintain a consistent bed elevation. As levee projects age the risks associated with a perched channel increase. The residual risk after the design life may be much greater than current levels.”³⁸

In addition to the lack of necessary sediment modeling, the DFR/EIS’s Geomorphology and Sediment Transport analysis fails to account for the Corps’ own reference on the relationship between sediment deposition in leveed areas and climate change. According to the DFR/EIS, “The USGS has estimated that bedload in these rivers may increase on the order of 30-50% with increased flows.”³⁹

The DFR/EIS’s lack of sediment modeling and integration of climate change information presents substantial questions and uncertainties with regard to the TSP’s potential benefits for reducing flood risk and protecting life and safety.

Recommendations:

In the FR/EIS,

- Incorporate adequate additional sediment modeling and address modeling results.
- Include additional information regarding the long-term risk of perched channels and associated levee failures.
- Include sediment and climate dependent criteria to help the Corps and other interested stakeholders compare the likely long-term effectiveness of the alternatives.

Biodiversity Management Areas

The DFR/EIS does not adequately disclose the potential effects of the TSP on the Biodiversity Management Areas in the watershed, which were identified and delineated by the Pierce County Biodiversity Alliance.⁴⁰ In particular, riparian areas dominated by hardwood trees and small shrubs within the Lower White River were found to protect a special biological richness along with highly intact ecosystems. The Lower White River BMA, which is delineated with approximately a 300 ft buffer on each side of the River, is approximately 1,593 acres in size. The footprint of the proposed Sumner-Pacific Manufacturing Industrial Center is centered over a portion of the Lower White River BMA. The Corps’ TSP includes a new levee on the right bank. The FR/EIS should analyze and disclose the effects of the proposed new levee on the Lower White River BMA.

³⁷ DFR/EIS, p. 113.

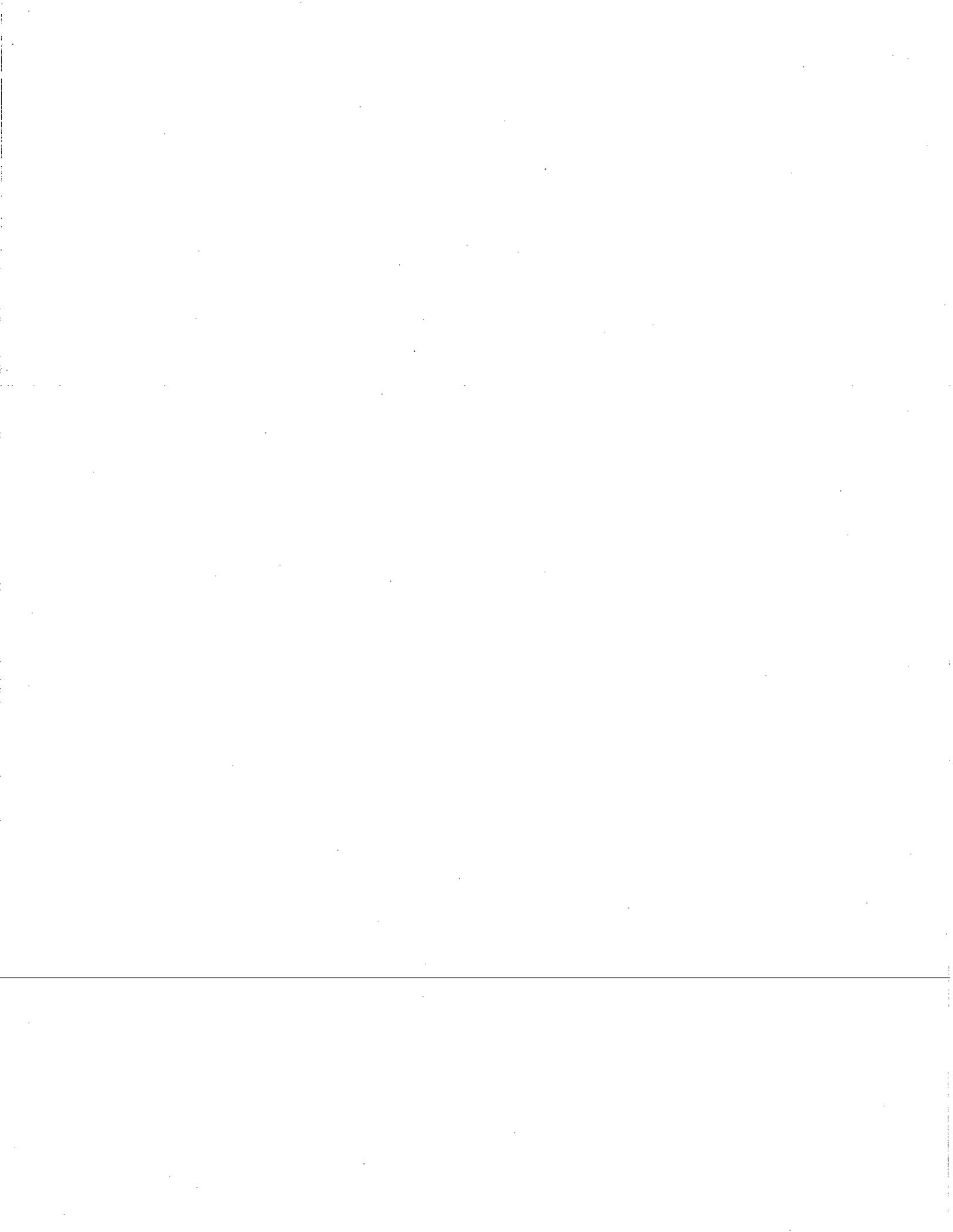
³⁸ DFR/EIS, p. 114.

³⁹ DFR/EIS, p. 57.

⁴⁰ February 23, 2016 letter from the Pierce County Biodiversity Alliance to Paul Inghram, Puget Sound Regional Council.

Recommendations:

- In the FR/EIS, fully analyze and disclose the potential effects of the proposed new White River levee on Lower White River Biodiversity Management Area. Fully analyze and disclose the effects of all other proposed flood risk reduction measures on any of the known Biodiversity Management Areas. Work closely with the Pierce County Biodiversity Alliance to ensure that any proposed action alternative is designed to avoid direct, indirect, and cumulative impacts to all known BMAs within the Puyallup/White/Carbon River systems.
-
-



**U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action***

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment, February, 1987.

