

December 23, 1999

CECW-PE (10-1-7a)

SUBJECT: Columbia and Lower Willamette Rivers Federal Navigation Channel, Oregon and Washington

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on navigation and ecosystem restoration improvements for the Columbia and Lower Willamette Rivers, Oregon and Washington. It is accompanied by the reports of the district and division engineers. These reports are in final response to a resolution of the Committee on Public Works and Transportation of the House of Representatives, adopted 3 August 1989. The resolution requested an investigation to determine the advisability of modifying the existing deep draft navigation project on the Columbia and Willamette Rivers. The Energy and Water Development Appropriations Act of 1994, Public Law 103-126, directed the Secretary of the Army to limit the feasibility study to an investigation of the feasibility of constructing a navigation channel no deeper than 43 feet. Preconstruction engineering and design activities for Columbia River Channel, Oregon and Washington, will continue under the authorization cited above.

2. Section 101(b)(13) of the Water Resources Development Act of 1999 authorized construction of a project for navigation, Columbia River Channel, Oregon and Washington, subject to completion of a favorable report of the Chief of Engineers no later than 31 December 1999, and subject to the conditions recommended in that favorable report. This report constitutes the final report of the Chief of Engineers in response to that legislation. The authorizing language for the Columbia River project reflects an earlier project cost estimate of \$183,623,000. The cost estimate for the authorized project in this report has been refined to reflect current information.

3. The reporting officers recommend authorization of a plan for modification of the existing Federal navigation project for the Columbia and Willamette Rivers and construction of ecosystem restoration features. The recommended plan, which is the locally preferred plan, consists of the following:

a. The existing 600-foot-wide, 40-foot-deep navigation channel would be deepened from -40 feet to -43 feet Columbia River Datum (CRD), from river mile 3 to river mile 106.5 on the Columbia River;

b. The existing 600-foot-wide, 40-foot-deep navigation project channel would be

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deepened from -40 feet to -43 feet CRD, from river mile 0 to river mile 11.6 on the Willamette River;

c. Three of the existing five turning basins on the Columbia River (located at river miles 15, 73.5, and 101.5, respectively) would be deepened to -43 feet CRD;

d. The three turning basins located at river miles 4, 10, and 11.7 on the Willamette River would be deepened to -43 feet CRD;

e. A total of 29 upland disposal sites, with a total land area of 1,681 acres; three beach nourishment and two ocean disposal sites for the disposal of construction and subsequent channel maintenance dredged material. Fourteen of the upland disposal sites totaling 1,025 acres, are currently in use;

f. Ecosystem restoration features including the use of a combined pump/gravity water supply for restoring wetland and riparian habitat at Shillapoo Lake. Tide-gate retrofits with fish slides for salmonid passage would be installed at selected locations along the lower Columbia River. Connecting channels would be constructed at the upstream end of Walker-Lord and Hump-Fisher Islands to improve fish access to embayment rearing habitat for juvenile salmonids; and

g. Environmental mitigation features on a total of 74 acres of land located at the Woodland Bottoms, Martin Island and Webb mitigation sites.

4. Construction of the 43-foot channel would require the removal of 20 million cubic yards (mcy) of sandy material, 220,000 cubic yards of hard basalt rock and 450,000 cubic yards of cemented sand, gravel and boulders. The amount of dredged material estimated for ocean disposal for the 43-foot channel alternative is estimated at 7 mcy from construction and a total of 9 mcy for maintenance over 20 years. This would be in addition to the existing average annual ocean disposal of 4.5 mcy from the maintenance of the Mouth of the Columbia River project. The amount of in-water disposal for the 43-foot channel alternative would be less than for the existing 40-foot channel, because of a shift from in-water to upland disposal sites. The recommended disposal alternative would result in the direct loss of 200 acres of agricultural lands, 67 acres of riparian habitat, and 20 acres of wetland habitat. Mitigation features would be implemented to address impacts to wildlife resources and their habitats. This mitigation is principally associated with new disposal sites.

5. The estimated first cost of the national economic development (NED) plan is \$181,891,000 (October 1998 price level). This plan includes deepening the navigation channel to 43 feet and environmental restoration. The initial implementation cost of channel deepening is 176,992,000, and the cost of the ecosystem restoration component is \$4,899,000. Total average annual charges of both components, based on a discount rate of 6.875 percent and a 50-year period of economic

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analysis, are estimated at \$17,400,000. Average annual economic benefits of the channel deepening component are estimated at \$34,419,000. The benefits of improving the navigation channel would result from a reduction in ocean transportation costs due to better utilization of ship capacity for benefiting commodities. The net benefits of the navigation component amount to \$17,019,000. The benefit-to-cost ratio of the navigation improvement is 2 to 1. The equivalent annual cost for the ecosystem restoration features is \$387,400, including annual O&M costs of \$38,000. The incremental average annual habitat units (AAHU) at the Shillapoo Lake restoration site amount to 3,120. Fish passage would be improved on 38 miles of stream spawning grounds, and there would be 335 acres of improved habit for juvenile migrating salmonids. Identical environmental restoration measures are included in both the NED and recommended plans. The HEP analysis indicated a project-related loss of 445 AAHUs. Three sites, Woodland Bottoms, Martin Island and Webb, totaling 74 acres were identified as the best locations for cost efficient mitigation actions. Mitigation actions at these locations would provide 608 AAHUs. The initial cost of the mitigation for the recommended plan is \$3,540,000 and the annual mitigation site maintenance costs are \$150,000. The present value of the annual mitigation site maintenance costs, at a discount rate of 6 7/8 percent and over a 50-year period, are estimated at \$2,100,000.

6. The estimated cost of the LPP, including the same environmental restoration component as the NED plan, is \$188,319,000 (October 1998 price level), which consists of \$183,420,000 for navigation and \$4,899,000 for environmental restoration. The net difference in first cost between the LPP and the NED plans amounts to \$6,428,000. The construction footprint for channel deepening of the LPP is identical to the NED plan except that it differs from the NED plan in the selection of disposal sites. It utilizes three sites preferred by the sponsors, including a port owned site. The net additional annual operation and maintenance cost of the LPP as compared to the NED plan is \$450,000. The annual cost for operation and maintenance of the recommended LPP is estimated at \$4,373,000, consisting of \$4,335,000 for navigation and \$38,000 for environmental restoration. Total average annual cost of both components, based on a discount rate of 6.875 percent and a 50-year period of economic analysis, is estimated at \$18,308,000. Estimated average annual economic benefits of the channel deepening component are identical to the NED plan at \$34,419,000. The net benefits of the navigation component amount to \$16,077,000. The benefit-to-cost ratio of the navigation improvement is 1.9 to 1. Costs and benefits for the environmental restoration features are identical for the LPP and the NED plans.

7. The Federal share of the combined locally preferred navigation plan is estimated at \$110,052,000, the amount of the Federal Government share to construct the NED plan. The first cost recommended for authorization includes GNF and associated lands, easements, rights-of-way, and relocations (LERR) and ecosystem restoration. NED plan GNF accounts for approximately \$142,490,000, while \$18,165,000 is associated with the non-Federal LERR requirements, and \$4,899,000 with the ecosystem restoration. The Federal share of the first cost of the GNF is estimated at \$106,868,000 and the non-Federal share of the GNF is estimated at \$35,623,000, including the additional 10 percent (\$14,249,000) non-Federal share of GNF, less the creditable

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LERR of \$14,249,000 required by Public Law 99-662. There is no remaining non-Federal cash required upon completion of construction and payable over 30 years because LERR amounted to \$18,165,000 which is in excess of 10 percent of GNF. Also included in the recommended plan at 100 percent non-Federal responsibility are non-Federal associated costs for construction and development of berthing areas at \$1,198,000 and other utility owner cost for removals at \$15,139,000 (subject to a determination of compensability). Also at 100 percent non-Federal responsibility is \$6,428,000 associated with LPP in excess of NED plan costs. The environmental restoration cost of the recommended LPP is \$4,899,000. The non-Federal interest is to provide the lands, easements, rights-of-way, relocations and dredged material disposal areas for the environmental restoration and pay during construction any additional costs as necessary to make its total contribution equal to 35 percent of the separable project costs allocated to environmental restoration. The Federal and non-Federal shares of the environmental restoration component are \$3,184,000 and \$1,715,000, respectively. The total combined cost of the Columbia River and Willamette portions of the recommended LPP is \$188,319,000, with an estimated Federal share of \$110,052,000 and an estimated non-Federal cost of \$78,267,000, as shown below.

<u>Columbia & Willamette River Channel Cost Sharing</u>	<u>Total</u> (\$1,000s)	<u>Federal</u> (\$1,000s)	<u>Non-Federal</u> (\$1,000s)
<u>General Navigation Features (75%/25%)</u>	\$ 142,490	\$106,868	\$ 35,623
Lands & Damages (LERR)	\$ 18,165		\$ 18,165
<u>Ecosystem Restoration (65%/35%)</u>	<u>\$ 4,899</u>	<u>\$ 3,184</u>	<u>\$ 1,715</u>
Total Navigation & Ecosystem Restoration	\$ 165,554	\$110,052	\$ 55,502
<u>Additional Non-Federal Funding Requirement 10% GNF</u>		\$(14,249)	\$ 14,249
Adjustment for LERR Credit		\$ 14,249	\$ (14,249)
Berths	\$ 1,198		\$ 1,198
Utility Owner Cost for Removals	<u>\$ 15,139</u>		<u>\$ 15,139</u>
<u>Locally Preferred Plan Costs Excess of NED Plan</u>	<u>\$ 6,428</u>		<u>\$ 6,428</u>
Estimated Total First Cost	\$ 188,319	\$110,052	\$ 78,267
Columbia River Portion Total First Cost	\$ 155,621	\$ 94,793	\$ 60,828
Willamette River Portion Total First Cost	\$ 32,697	\$ 15,259	\$ 17,438

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8. The operation and maintenance costs for navigation include an estimated \$450,000 in incremental annual operation and maintenance costs over the operation and maintenance costs of the NED navigation plan which will be paid by the non-Federal sponsors. The remainder of the navigation operation and maintenance costs are Federal.

9. Based on October 1998 price levels, the total estimated Federal and non-Federal cost of the Columbia River portion of the project is \$155,621,000. The total estimated Federal and non-Federal cost of the Willamette River portion of the project is \$32,697,000.

10. The non-Federal sponsors for the proposed project have requested that the Willamette River deepening be delayed to allow coordination with the Oregon Department of Environmental Quality (ODEQ) investigation and remediation planning for the Portland Harbor. Because of the evolving Portland Harbor Sediment Management Plan (PHSMP), further work to complete these investigations, complete the Willamette River disposal site alternative analysis, and deepen the Willamette River would be deferred until the completion of the remediation investigation and remediation decisions related to contaminated sediments in the Portland Harbor.

11. The reporting officers recommend several unique provisions for plan implementation as discussed below. I concur in these recommendations and provisions for plan implementation and operation, maintenance, repair, replacement, and rehabilitation (OMRR&R).

a. Where confined disposal facilities are located on port property, the disposal facility operations, maintenance and management should be authorized to be accomplished at full non-Federal cost without reimbursement. Specifically, the sponsor would operate, maintain, and manage the disposal facilities in exchange for the opportunity to beneficially use the dredged material. Where private property owners propose to use dredged material deposited on their property, the potential value obtained for use of the material would be reflected in the payment for the real estate interest for use of the property.

b. Subject to the availability of funds, the Federal Government should be authorized to reimburse the non-Federal sponsors an amount equal to the Federal share of the actual costs of the operation and maintenance of disposal facilities performed that fiscal year or the actual fiscal year appropriation identified for operation and maintenance of disposal facilities, whichever is less. When the non-Federal sponsors sell material from a disposal facility, the proceeds from the sale, less any State royalties, be deducted from the Federal payment for operation, maintenance and management of the disposal facilities.

c. The Federal Government should be authorized to allow the non-Federal sponsor to assist in the work of maintaining the main ship channel in the Columbia and Willamette Rivers by making available to the United States a suitable pipeline dredge in good operating condition, with full crew and equipment, without charge other than reimbursement for the full operating cost of

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the dredge on a basis approved by the Chief of Engineers. The reimbursement to be afforded, subject to Government audit, would be based on the full operating cost of the Port of Portland's dredge while performing maintenance dredging of the project. This would include the proportionate cost of maintenance of the dredge based on the period of time the dredge is performing work for the United States that fiscal year or the actual fiscal year appropriations identified for that portion of maintenance dredging that are made available, whichever is less.

d. The non-Federal sponsors should be authorized to be given a pro-rated share of the value of LERR for disposal sites needed for operation and maintenance of the existing 40-foot project against the additional 10 percent cost share for the 43-foot project if the sites will also be needed for disposal facilities for construction and subsequent operation and maintenance of the 43-foot project. The pro-rated value would be based on the actual proportionate use of disposal site capacity for the maintenance of the existing project versus the projected capacity that would be used for the construction, maintenance and operation of the 43-foot project.

e. The non-Federal sponsor should be authorized to construct, and be granted credit for construction of that portion of the project from river mile 95 to the upstream end of the project at river mile 106.5 and improvement of the embayment circulation portion of the ecosystem restoration features of the project. The proposed credit to be afforded, subject to Federal Government audit, would be applied toward the non-Federal sponsor's cash contribution required for construction. The reporting officers believe that the port dredge can accomplish the work at lesser cost than a contracted private dredge, because of the avoided mobilization and demobilization costs of a private dredge. The estimated cost of this work is about \$10,000,000 representing a small part of the non-Federal share of GNF. The credit to be afforded, subject to Government audit, would be based on the Government estimate of the work if it were to be performed by the Government, or the full operating cost of the Port of Portland's dredge while performing initial construction dredging of the project including proportionate cost of maintenance of the dredge based on the period of time the dredge is performing work for the United States, whichever is less.

f. The Federal Government should be authorized to make lump sum payment to the Oregon Department of Fish and Wildlife and the Washington Department of Fish and Wildlife to fulfill the Federal Government's responsibility to operate and maintain mitigation areas, subject to agreement by these agencies to accomplish the operation and maintenance of the mitigation areas without further cost to the Federal Government. The annual operation and maintenance costs for the mitigation areas are estimated at about \$150,000 for the recommended LPP, and the lump sum payment is estimated at \$2,100,000, which represents the Federal Government's 100 percent share over 50 years.

12. During Washington level review of the project, letters have been received from the States of Oregon and Washington. The Oregon letter was signed by Governor Kitzhaber and Washington

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letter co-signed by Governor Locke and Commissioner of Public Lands (Belcher). Both states recognize the economic benefits that could result from the deepening project but each state indicates that natural resources problems and environmental impacts be addressed before proceeding with construction of the project. Both states wish to actively participate in the studies and evaluation of remaining environmental concerns. In addition to the Governor's letter the Oregon Department of Land Conservation and Development provided comments on the consistency of the project with enforceable policies of the approved Oregon Coastal Management Program. The Department of Land Conservation and Development disagreed with the reporting officers consistency finding based on insufficient information and certain project inconsistencies with state enforceable policies. Issues that the states believe need to be addressed include: (1) concern about the estuarine impacts of dredging and disposal and the linking of the environmental restoration aspects of the project with the recommendations of the Lower Columbia River Estuary Program; (2) concern about the impact of ocean disposal sites on marine resources including Dungeness crab and the need for more study and potentially mitigation for ocean disposal sites; (3) the need for additional study of the impacts of the project on White Sturgeon and smelts; (4) concern about disposal as it relates to avian predation on juvenile salmon ; (5) concern about bank erosion and wave action; and (6) procedural concerns relating to water quality certification. In addition to the issues raised by the states, a biological opinion of the National Marine Fisheries Service was also received during the Washington level review. The National Marine Fisheries Service biological opinion raised many of the same concerns as the states and recommended additional studies be conducted and measures considered to address losses of river, estuary and ocean habit and contribute to the recovery of threatened and endangered salmon species. In particular, concerns were expressed on uncertainties regarding the ecological effects of channel deepening and the difficulty of distinguishing them from the estuary's broader ecological problems. In response to these concerns I find that additional studies and extensive coordination will be required during the engineering and design phase to address concerns of the states and Federal resource agencies. Modifications to the project mitigation and environmental restoration plans will be considered within the limits of the discretion of the Chief of Engineers. In addition, use of other applicable ecosystem restoration authorities of the Corps of Engineers will be investigated to identify opportunities for Federal, state and local partnerships to restore habitat particularly with the Columbia River Estuary separate from the Columbia and Lower Willamette Rivers Federal Navigation Channel Project.

13. Washington level review indicates that the proposed plan is technically sound, economically justified, and environmentally and socially acceptable. The plan conforms with essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and complies with other administration and legislative policies and guidelines. Also, the views of interested parties, including Federal, State and local agencies have been considered. I concur with the findings, conclusions and recommendations of the reporting officers, including their recommendation for credit for work in kind and a lump sum payment for the Federal share of mitigation area

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OMRR&R as described in paragraph 11 of this report. Accordingly, I recommend that navigation improvements for the Columbia and Willamette Rivers of components and an environmental restoration component be authorized generally in accordance with the recommended plan, with such modifications as in the discretion of the Chief of Engineers may later be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of the Water Resources Development Act (WRDA) of 1986 and WRDA 1996 for this kind of project. Also, this recommendation is subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies, including the following requirements:

a. Enter into an agreement, which provides, prior to execution of the project cooperation agreement, 25 percent of design costs;

b. Provide, during construction, any additional funds needed to cover the non-Federal share of design costs;

c. Provide, during the period of construction, a cash contribution equal to the following percentages of the total cost of construction of the general navigation features (which include the construction or improvement of land-based and aquatic dredged material disposal facilities that are necessary for the disposal of dredged material required for project construction, operation, or maintenance and for which a contract for the Federal facility's construction or improvement was not awarded on or before October 12, 1996): 25 percent of the costs attributable to dredging to a depth in excess of -20 feet MLLW but not in excess of -45 feet MLLW;

d. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the project, up to an additional 10 percent of the total cost of construction of general navigation features depending upon the amount of credit given for the value of lands, easements, rights-of-way, and relocations provided by the non-Federal sponsor for the general navigation features. If the amount of credit exceeds 10 percent of the total cost of construction of the general navigation features, the non-Federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of lands, easements, rights-of-way, and relocations in excess of 10 percent of the total cost of construction of the general navigation features;

e. Provide all lands, easements, and rights-of-way, and perform or ensure the performance of all relocations determined by the Federal Government to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features (including all lands, easements, and rights-of-way, and relocations necessary for dredged material disposal facilities);

f. Provide the lands, easements, rights-of-way, relocations and dredged material disposal areas for the ecosystem restoration features and pay during construction, any additional costs as

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necessary to make its total contribution equal to 35 percent of the separable project costs allocated to environmental restoration;

g. Provide, operate, maintain, repair, replace, and rehabilitate, at its own expense, the local service facilities in a manner compatible with the authorized project purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

h. Accomplish all removals determined necessary by the Federal Government other than those removals specifically assigned to the Federal Government;

i. Grant the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the general navigation features and ecosystem restoration features for the purpose of inspection and, if necessary, for the purpose of operating, maintaining, repairing, replacing, and rehabilitating the general navigation features;

j. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

k. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of construction of the general navigation features and ecosystem restoration features, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 CFR, Section 33.20;

l. Perform, or cause to be performed, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, maintenance, features. However, for lands that the Government determines to be subject to the navigation repair, replacement, or rehabilitation of the general navigation features and ecosystem restoration servitude, only the Government shall perform such investigation unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

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m. Assume complete financial responsibility, as between the Federal Government and the non-Federal sponsor, for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features and ecosystem restoration features;

n. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA;

o. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987, and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features and ecosystem restoration features, and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

p. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army;"

q. Provide a cash contribution equal to the non-Federal cost sharing percentage of the total project's historic preservation, mitigation and data recovery costs that are in excess of 1 percent of the total amount authorized to be appropriated for the project;

r. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized; and

s. Where confined disposal facilities are located on port property, the disposal facility operations, maintenance and management be accomplished at full non-Federal cost without reimbursement. Specifically, the sponsor would operate, maintain, and manage the disposal facilities in exchange for the opportunity to beneficially use the dredged material.

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/s/

JOE N. BALLARD
Lieutenant General, U.S. Army
Chief of Engineers