The original documents are located in Box 70, folder "10/22/76 S3823 Water Resources Development Act of 1976 (3)" of the White House Records Office: Legislation Case Files at the Gerald R. Ford Presidential Library

94TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
2d Session } { No. 94–1755

AUTHORIZING CONSTRUCTION, REPAIR AND PRESERVATION OF CERTAIN PUBLIC WORKS ON RIVERS AND HARBORS FOR NAVIGATION, FLOOD CONTROL, AND FOR OTHER PURPOSES

OCTOBER 1, 1976.—Ordered to be printed

Mr. JONES, from the committee of conference, submitted the following

CONFERENCE REPORT

[To accompany S. 3823]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the House to the bill (S. 3823) authorizing the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its disagreement to the amendment of the House and agree to the same with an amendment as follows:

In lieu of the matter proposed to be inserted by the House amendment insert the following:

SECTION 101. (a) The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized to undertake the phase I design memorandum stage of advanced engineering and design of the following water resources development projects, substantially in accordance with, and subject to the conditions recommended by the Chief of Engineers in, the reports hereinafter designated.

MIDDLE ATLANTIC COASTAL REGION

The project for beach erosion control, navigation, and storm protection from Hereford Inlet to the Delaware Bay entrance to the Cape May Canal, New Jersey: Report of the Chief of Engineers dated September 30, 1975, at an estimated cost of $2,062,000.

The project for beach erosion control, navigation, and storm protection from Barnegat Inlet to Longport, New Jersey: Report of the Chief of Engineers dated October 24, 1975, at an estimated cost of $2,396,000.

Wallkill River Basin

The project for flood control of the Black Dirt Area, Wallkill River, New York and New Jersey: House Document Numbered 94–499, at an estimated cost of $330,000.

Passaic River Basin

The project for flood control in the Passaic River Basin, New Jersey and New York: Report of the Chief of Engineers dated February 18, 1976, at an estimated cost of $12,000,000.

Susquehanna River Basin

The project for flood control at Lock Haven, Pennsylvania: House Document Numbered 94–577, at an estimated cost of $430,000.

The project for flood control at Wyoming Valley, Susquehanna River, Luzerne County, Pennsylvania: House Document Numbered 94–482, at an estimated cost of $450,000.

James River Basin

The project for flood control at Richmond, Virginia: Report of the Chief of Engineers dated January 7, 1976, at an estimated cost of $800,000.

South Atlantic Coastal Region

The project for navigation at Brunswick Harbor, Georgia: Report of the Chief of Engineers dated August 18, 1976, at an estimated cost of $300,000, except that the Secretary of the Army, acting through the Chief of Engineers, shall include as part of the phase I study consideration of dredging a navigation channel to Colonel's Island.

Cooper River Basin

The project for navigation improvements at Charleston Harbor, South Carolina: House Document Numbered 94–436, at an estimated cost of $500,000.

Commonwealth of Puerto Rico

The project for navigation improvements at San Juan Harbor, Puerto Rico: House Document Numbered 94–574, at an estimated cost of $300,000.

Upper Mississippi River Basin

The project for local flood protection and other purposes of La Crosse, Wisconsin, on the Mississippi River: House Document Numbered 94–598, at an estimated cost of $400,000.

Great Lakes Basin

The project for beach erosion control of Presque Isle Peninsula at Erie, Pennsylvania: Report of the Chief of Engineers dated April 8, 1976, at an estimated cost of $700,000. At the expiration of the authorization provided in section 57 of the Water Resources Development Act of 1974, the Secretary of the Army, acting through the Chief of Engineers, may provide periodic beach nourishment in accordance with the cost sharing provisions of section 103(a)(2) of the Act of October 23, 1962 (76 Stat. 1178).

The project for flood control and other purposes on Little Calumet River in Indiana: Report of the Chief of Engineers dated July 19, 1976, at an estimated cost of $1,400,000.

Siuslaw River

The project for navigation improvements on the Siuslaw River and Bar at Siuslaw, Oregon: In accordance with the final report of the Chief of Engineers, at an estimated cost of $50,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

Papillon Creek Basin

The project for local flood protection on Papillon Creek at Omaha, Nebraska: In accordance with the final report of the Chief of Engineers, at an estimated cost of $75,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

Ohio River Basin

The project for abatement of acid mine drainage in the Clarion River Basin, Pennsylvania: Report of the Secretary of the Army dated April 1971, entitled "Development of Water Resources in Appalachia", at an estimated cost of $600,000.

Lower Mississippi River Basin

The project for flood protection for St. Johns Bayou and New Madrid Floodway, Missouri: Rport of the Chief of Engineers dated September 26, 1975, at an estimated cost of $300,000.

The project for flood protection for Nonconnah Creek, Tennessee and Mississippi: Report of the Chief of Engineers dated June 23, 1976, and as an independent part of this project, improvements for flood control and allied purposes on Horn Lake Creek and tributaries, including Cowpen Creek, Tennessee and Mississippi, at an estimated cost of $400,000.

Texas Gulf Coast Region

The project for natural salt pollution control in the Brazos River: Report of the Chief of Engineers dated June 1, 1976, at an estimated cost of $650,000.

Rio Grande Basin

The project for flood control and other purposes, on the Rio Grande and Rio Salado, (Rio Puerco) New Mexico: Report of the Chief of Engineers dated September 27, 1976, at an estimated cost of $1,500,000.

MISSOURI RIVER BASIN

The project for flood protection for Jefferson City on Wears Creeks, Missouri: Report of the Chief of Engineers dated October 21, 1975, at an estimated cost of $50,000.

COLUMBIA RIVER BASIN

The project for construction and installation of a second powerhouse at McNary Lock and Dam, Columbia River, Oregon and Washington: Report of the Chief of Engineers, dated June 29, 1976, at an estimated cost of $1,800,000.

PEMBINA RIVER BASIN

The project for flood control on the Pembina River at Walhalla, North Dakota: Report of the Division Engineer dated May 24, 1976, at an estimated cost of $930,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

CALLEGUAS CREEK BASIN

The project for flood control and other purposes on Calleguas Creek, Simi Valley to Moorpark, Ventura County, California: Report of the Chief of Engineers dated June 21, 1976, at an estimated cost of $1,060,000.

SACRAMENTO-SAN JOAQUIN BASIN

The project for flood control and other purposes on Morrison Creek Stream Group, California: Report of the Chief of Engineers dated March 2, 1976, at an estimated cost of $750,000.

NORTH-EASTERN ATLANTIC COASTAL REGION

The project for navigation improvements in New London Harbor and Thames River at New London, Connecticut: Report of the Chief of Engineers dated February 20, 1975, at an estimated cost of $8,022,000.

RED RIVER OF THE NORTH BASIN

The project for local flood protection at Grafton, North Dakota, on the Park River: Report of the Chief of Engineers dated June 11, 1976, at an estimated cost of $10,973,000.

(b) The Secretary of the Army is authorized to undertake advanced engineering and design for the projects in subsection (a) of this section after completion of the phase I design memorandum stage of such projects. Such advanced engineering and design may be undertaken only upon a finding by the Chief of Engineers, transmitted to the Committees on Public Works of the Senate and Public Works and Transportation of the House of Representatives, that the project is without substantial controversy, that it is substantially in accordance with and subject to the conditions recommended for such project in this section, and that the advanced engineering and design will be compatible with

any project modifications which may be under consideration. There is authorized to carry out this subsection not to exceed $5,000,000. No funds appropriated under this subsection may be used for land acquisition or commencement of construction.

(c) Whenever the Chief of Engineers transmits his recommendations for a water resources development project to the Secretary of the Army for transmittal to the Congress, as authorized in the first section of the Act of December 22, 1944, the Chief of Engineers is authorized to undertake the phase I design memorandum stage of advanced engineering and design of such project if the Chief of Engineers finds and transmits to the Committees on Public Works and Transportation of the House of Representatives and Public Works of the Senate, that the project is without substantial controversy and justifies further engineering, economic, and environmental investigations. Authorization for such phase I work for a project shall terminate on the date of enactment of the first Water Resources Development Act enacted after the date such work is first authorized. There is authorized to carry out this subsection not to exceed $4,000,000 per fiscal year for each of the fiscal years 1978 and 1979.

SEC. 102. Sections 201 and 202 and the last three sentences in section 203 of the Flood Control Act of 1968 shall apply to all projects authorized in this section. The following works of improvement for the benefit of navigation and the control of destructive floodwaters and other purposes are hereby adopted and authorized to be prosecuted by the Secretary of the Army, acting through the Chief of Engineers, substantially in accordance with the plans and subject to the conditions recommended by the Chief of Engineers in the respective reports hereinafter designated.

UPPER MISSISSIPPI RIVER BASIN

The project for local flood protection and other purposes at Chaska, Minnesota, on the Minnesota River: Report of the Chief of Engineers dated May 12, 1976, at an estimated cost of $10,498,000.

JAMES RIVER BASIN

The project for flood control at the Richmond, Virginia, filtration plant: House Document Numbered 94–543, at an estimated cost of $4,617,000.

LOWER MISSISSIPPI RIVER BASIN

The project for flood control for Harris Fork Creek, Tennessee and Kentucky: House Document Numbered 94–221, except that highway bridge relocations and alterations required for the project shall be at Federal expense, at an estimated cost of $5,000,000.

NECHES BASIN

The project for salt water control on the Neches River and Tributaries, Salt Water Barrier at Beaumont, Texas: Report of the Chief of Engineers dated April 12, 1976, at an estimated cost of $14,300,000, except that the non-Federal share for such project shall not exceed $2,100,000.

WESTERN COASTAL REGION

The project for navigation in Los Angeles-Long Beach Harbors, California: House Document Numbered 94–594, at an estimated cost of $16,850,000.

COLUMBIA RIVER BASIN

Fish and Wildlife Compensation Plan for the Lower Snake River, Washington and Idaho, substantially in accordance with a report on file with the Chief of Engineers, at an estimated cost of $58,400,000.

SEC. 103. The flood control project for San Antonio Channel improvement, Texas, authorized by section 203 of the Flood Control Act of 1954 (68 Stat. 1260) as a part of the comprehensive plan for flood protection on the Guadalpe and San Antonio Rivers, Texas, is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to construct such additional flood control measures as are needed to preserve and protect the Espada Acequia Aqueduct, located in the vicinity of Six Mile Creek, at an estimated Federal cost of $2,050,000. Construction of such flood control measures shall be subject to the same conditions of local cooperation as required for the existing flood control project.

SEC. 104. The project for flood protection on the Minnesota River at Mankato and North Mankato, Minnesota, authorized by section 203 of the Flood Control Act of 1958, as modified, is hereby further modified to provide that changes to the highway bridges in Mankato-North Mankato at United States Highway 169 over the Blue Earth River and at Main Street over the Minnesota River, including rights-of-way, changes to approaches and relocations, made necessary by the project and its present plan of protection shall be accomplished at complete Federal expense, at an estimated cost of $8,175,000.

SEC. 105. The general comprehensive plan for flood control and other purposes for the White River Basin approved by the Flood Control Act of June 28, 1938, as amended, is hereby modified to provide that an amount not to exceed $6,000,000 may be used for the construction at Beaver Dam, Carroll County, Arkansas, of trout production measures (including a fish hatchery) in compensation for the reduced number of fresh water fish in the White River and other streams in Arkansas which has resulted from the construction of the Beaver Dam and other dams in the State of Arkansas, and for the acquisition of necessary real estate, construction of access roads and utilities, and performance of services related thereto, as deemed appropriate by the Secretary of the Army, acting through the Chief of Engineers.

SEC. 106. (a) The project for hurricane-flood control protection at New London, Connecticut, authorized by the Flood Control Act of 1962 (76 Stat. 1180) is hereby modified to delete the Powder Island-Bentleys Creek hurricane protection barrier; and to authorize construction of the Shaw Cove hurricane protection barrier, pressure conduit, and pumping station works substantially in accordance with the revised plan "New London Hurricane Protection", dated June 1976, on file in the Office of the Chief of Engineers and estimated to cost $7,745,000; with such modifications as the Chief of Engineers may deem advisable.

(b) Prior to initiation of construction of the project, appropriate non-Federal interests shall agree—

(1) to provide without cost to the United States all lands, easements, and rights-of-way necessary for construction and operation of the project;

(2) to hold and save the United States free from damage due to construction, operation, and maintenance of the project not including damages due to the fault or negligence of the United States or its contractors;

(3) to accomplish without cost to the United States all modifications or relocations of existing sewerage and drainage facilities, buildings, utilities, and highways made necessary by construction of the project not to include sewerage and drainage facilities at the line of protection;

(4) to maintain and operate all features of the project after completion in accordance with regulations prescribed by the Secretary of the Army; and

(5) to bear 30 per centum of the total first cost.

(c) Notwithstanding subsection (b) of this section, or any other provision of law, non-Federal interests shall bear no part of the cost of any design for this project rejected or otherwise not accepted by such interests prior to the date of enactment of this section.

SEC. 107. Section 107(b) of the River and Harbor Act of 1970 (84 Stat. 1818, 1820), as amended, is further amended by striking out "December 31, 1976" and inserting in lieu thereof "September 30, 1979" and striking out "$9,500,000" and inserting in lieu thereof "$15,968,000". Such section 107(b) is further amended in the second sentence thereof by striking out "environmental and ecological investigation;" and inserting in lieu thereof "environmental and ecological investigations, including an investigation of measures necessary to ameliorate any adverse impacts upon local communities;"

SEC. 108. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the Chicagoland underflow plan project for flood control and other purposes in accordance with the report of the Board of Engineers for Rivers and Harbors dated July 27, 1976, at an estimated cost of $12,000,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 109. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project for flood control and other purposes on the Santa Ana River, California, in accordance with the recommendations of the division engineer dated February 27, 1976, at an estimated cost of $700,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 110. The project for navigation for the Atlantic Intracoastal Waterway Bridges, Virginia and North Carolina, authorized by section 101 of the Rivers and Harbors Act of 1970 (84 Stat. 1818) is

hereby modified in accordance with the recommendations of the Chief of Engineers in House Document Numbered 94–597 with respect to Wilkerson Creek Bridge, North Carolina, and Coinjock Bridge, North Carolina, at an estimated cost of $2,875,000.

SEC. 111. The project for the Saylorville Reservoir on the Des Moines River, Iowa, authorized by section 203 of the Flood Control Act of 1958 (72 Stat. 310) is hereby modified in accordance with the recommendations of the Chief of Engineers in House Document Numbered 94–487 at an estimated cost of $7,374,000. The Secretary of the Army, acting through the Chief of Engineers, may carry out each segment of such recommendations independently if he deems appropriate. The Secretary of the Army, acting through the Chief of Engineers is further authorized to (1) undertake such measures, including renegotiating existing easements and the acquisition of additional interests in land, as are appropriate to operate Saylorville Lake and Lake Red Rock projects, singly or as a system, to obtain the maximum benefits therefrom in the public interest and to properly indemnify owners of such easements or interests in land; and (2) provide for the full development of campground and other recreation sites and access thereto for the Lake Red Rock and Saylorville Lake projects at Federal cost, including the improvement of existing county or State roads outside the project limits to provide better access into recreation areas.

SEC. 112. The project for navigation improvements on Mobile Harbor, Theodore Ship Channel, Alabama, approved by resolutions of the Committee on Public Works of the Senate and the Committee on Public Works of the House of Representatives dated December 15, 1970, is hereby modified in accordance with the report of the Board of Engineers for Rivers and Harbors dated May 28, 1976, at an estimated cost of $42,800,000.

SEC. 113. The flood control project for Del Valle Reservoir, Alameda Creek, California, authorized by section 203 of the Flood Control Act of 1962 is hereby modified in accordance with the report of the Chief of Engineers dated July 27, 1976, to increase the contribution made by the United States to the State of California toward the cost of construction, maintenance, and operation from $4,080,000 to $4,650,000.

SEC. 114. The project for the replacement of Vermilion Lock, Louisiana, on the Gulf Intracoastal Waterway is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in the report dated August 3, 1976 at an estimated cost of $20,683,000.

SEC. 115. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase 1 design memorandum stage of advanced engineering and design of modification of the Gallipolis Locks and Dam project, Ohio River, limited to a single 1,200 foot replacement lock, in accordance with the recommendations of the Chief of Engineers dated July 14, 1975, at an estimated cost of $2,800,000.

SEC. 116. The last sentence of section 91 of the Water Resources Development Act of 1974 (88 Stat. 39) is amended to read as follows: "There are authorized to be appropriated not to exceed $28,725,000 to carry out such project.".

SEC. 117. The Secretary of the Army, acting through the Chief of Engineers, is authorized to investigate and study, in cooperation with

interested States and Federal agencies, through the Upper Mississippi River Basin Commission the development of a river system management plan in the format of the "Great River Study" for the Mississippi River from the mouth of the Ohio River to the head of navigation at Minneapolis, incorporating total river resource requirements including, but not limited to, navigation, the effects of increased barge traffic, fish and wildlife, recreation, watershed management, and water quality at an estimated cost of $9,100,000.

SEC. 118. (a) Whenever the Secretary of the Army finds that—

(1) the Intracoastal Waterway is no longer routed along a part of the segment of the Louisiana-Texas Intracoastal Waterway right-of-way described in subsection (b) of this section;

(2) maintenance of such part of the right-of-way has been abandoned by the Corps of Engineers; and

(3) such part of the right-of-way is no longer navigable by watercraft;

he shall convey, without monetary consideration, any easements or other rights or interests in real property which the United States acquired for the construction, operation, or maintenance of such part of the right-of-way to each owner of record of the real property which is subject to such easements, rights, or interests of the United States.

(b) The segment of the Louisiana-Texas Intracoastal Waterway right-of-way referred to in subsection (a) of this section is that segment of the right-of-way for the Louisiana-Texas Intracoastal Waterway, Calcasieu-Sabine section, which (1) is within the portion of the right-of-way for the old Intracoastal Waterway channel (known locally as the "East-West Canal") extending from the east bank of the Calcasieu River at a point approximately twenty miles south of Lake Charles, Louisiana, to the Choupique Cutoff in the Intracoastal Waterway, and (2) is located on the southeast quarter of the southeast quarter of section 25, township 11 south, range 10 west, and in the west half of the southwest quarter of section 30, township 11 south, range 9 west, Calcasieu Parish, Louisiana.

SEC. 119. Section 4 of the Act of June 21, 1940, as amended (54 Stat. 498; 33 U.S.C. 514), is amended in the first sentence by striking out "It shall be the duty of the bridge owner to prepare and submit to the Secretary, within ninety days after service of his order" and inserting in lieu thereof "After the service of an order under this Act, it shall be the duty of the bridge owner to prepare and submit to the Secretary of Transportation, within a reasonable time as prescribed by the Secretary".

SEC. 120. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized to contract with States and their political subdivisions for the purpose of obtaining increased law enforcement services at water resources development projects under the jurisdiction of the Secretary of the Army to meet needs during peak visitation periods.

(b) There is authorized to be appropriated $6,000,000 per fiscal year for the fiscal years ending September 30, 1978, and September 30, 1979, to carry out this section.

SEC. 121. (a) The project for flood protection on the North Branch of the Susquehanna River, New York and Pennsylvania, authorized by section 203 of the Flood Control Act of 1958 (72 Stat. 306) is

hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, in connection with the construction of the Cowanesque Dam to relocate the town of Nelson, Pennsylvania, to a new townsite.

(b) As part of such relocation, the Secretary of the Army, acting through the Chief of Engineers, shall (1) cooperate in the planning of a new town with other Federal agencies and appropriate non-Federal interests, including Nelson, (2) acquire lands necessary for the new town and to convey title to said lands to individuals, business or other entities, and to the town as appropriate, and (3) construct necessary municipal facilities.

(c) The compensation paid to any individual or entity for the taking of property under this section shall be the amount due such individual or entity under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 less the fair market value of the real property conveyed to such individual or entity in the new town. Municipal facilities provided under the authority of this section shall be substitute facilities which serve reasonably as well as those in the existing town of Nelson, except that such facilities shall be constructed to such higher standards as may be necessary to comply with applicable Federal and State laws. Additional facilities may be constructed, only at the expense of appropriate non-Federal interests.

(d) Before the Secretary of the Army acquires any real property for the new townsite appropriate non-Federal interests shall furnish binding contractual commitments that all lots in the new townsite will be either occupied when available, will be replacements for open space and vacant lots in the existing town, or will be purchased by non-Federal interests at the fair market value.

SEC. 122. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to review the requirement of local cooperation with respect to providing a spoil disposal area for the project at Deep Creek, Warwick County (now within the city of Newport News), Virginia, authorized by the Act of August 26, 1937 (commonly referred to as the River and Harbor Act of 1937, 50 Stat. 846), to determine if (1) such requirement should be eliminated, and (2) Craney Island disposal area should be used as the spoil disposal area for dredged material from such project. Such review shall be completed and submitted in a report to Congress within two years after the date of enactment of this section.

(b) Beginning on the date of enactment of this section, (1) the requirement of local cooperation described in subsection (a) shall be suspended, and (2) Craney Island disposal area shall be used as the spoil disposal area for dredged material from such project, until Congress, by a statute enacted after the date on which the report required by subsection (a) is submitted, removes such suspension.

SEC. 123. The Secretary of the Army, acting through the Chief of Engineers, is authorized to operate and maintain the Los Angeles-Long Beach harbor model in Vicksburg, Mississippi, for the purpose of testing proposals for the improvement of navigation in, and the environmental quality of, the harbor waters of the ports of Los Angeles and Long Beach to determine optimum plans for future

expansion of both ports. Such testing shall include, but not be limited to, investigation of oscillations, tidal flushing characteristics, water quality, improvements for navigation, dredging, harbor fills, and physical structures.

SEC. 124. (a) The Corpus Christi ship canal project for navigation in Corpus Christi Bay, Texas, authorized by the Rivers and Harbors Act of 1968 (P.L. 90-483) is hereby modified to provide that the non-Federal interests shall contribute 25 per centum of the costs of areas required for initial and subsequent disposal of spoil, and of necessary retaining dikes, bulkheads, and embankments therefor. Credit shall be allowed in connection with the above project in an amount equal to the reasonable expenditures made by non-Federal interests in the acquisition of spoil areas and construction of necessary retaining dikes, bulkheads, and embankments prior to the effective date of the Water Resources Development Act of 1976.

(b) The requirements for appropriate non-Federal interests to contribute 25 per centum of the construction costs as set forth in subsection (a) shall be waived by the Secretary of the Army upon a finding by the Administrator of the Environmental Protection Agency that for the area to which such construction applies, the State of Texas, interstate agency, municipality, and other appropriate political subdivisions of the State and industrial concerns are participating in and in compliance with an approved plan for the general geographical area of the dredging activity for construction, modification, expansion, or rehabilitation of waste treatment facilities and the Administrator has found that applicable water quality standards are not being violated.

SEC. 125. For purposes of section 9 of the Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 401), the consent of Congress is hereby given to the State of Louisiana to construct such structures across any navigable water of the United States as may be necessary for the construction of the following highways:

(1) Ivanhoe-Jeanerette, State project numbered 431-01-01 and 431-01-02 in Iberia and Saint Mary Parishes, Louisiana;

(2) Larose-Lafitte Highway, State Route La 3134 in Jefferson and Lafourche Parishes, Louisiana, starting at Estelle in Jefferson Parish and proceeding southwesterly to Larose in Lafourche Parish; and

(3) United States 90 Relocated (La 3052), in Saint Mary, Assumption, Terrebonne, and Lafourche Parishes, Louisiana, starting at United States 90 west of Raceland and proceeding westerly to a connection with United States 90 at or near Morgan City, Louisiana.

SEC. 126. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of a project for flood prevention and development of incidental recreation, preservation of the natural floodways, and protection of the watershed's soil resources, at an estimated cost of $370,000, substantially in accordance with the Floodwater Management Plan, North Branch of the Chicago River Watershed, Cook and Lake Counties, Illinois, dated October 1974, and also substantially in accordance with the watershed implementation program dated February 1974.

SEC. 127. The project for Wister Lake, Arkansas River Basin, Oklahoma, authorized by section 4 of the Act of June 28, 1938, entitled "An Act authorizing the construction of certain public works on rivers and harbors for flood control, and for other purposes" (52 Stat. 1218) is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to recover and preserve important data from significant archeological sites located on project lands which will be adversely affected as a result of a change in seasonal pool operations. The costs of such work shall not exceed $250,000.

SEC. 128. (a) The Secretary of the Army is authorized and directed to convey by quitclaim deed to C. B. Porter Scott and Dorothy Boren Scott of the county of Randall, State of Texas, all rights, title, and interest of the United States in and to the following described tract of land acquired as part of the project for Belton Lake, Texas, authorized by the Flood Control Act of 1946:

A tract of land situated in the county of Bell, State of Texas, being part of the Stephen P. Terry Survey (A–812), and being part of a 271-acre tract of land acquired by the United States of America from Frank Morgan, and others, by Declaration of Taking filed September 11, 1952, in Condemnation Proceedings (civil numbered 1311) in the District Court of the United States for the Western District of Texas, Waco Division, and being designated as "Tract Numbered F–505 for Belton Lake", and being more particularly described as follows, all bearings being referred to the Texas Plane Coordinate System, Central Zone:

Beginning at Government marker numbered F–503–2, situated in a northeasterly boundary line for said tract numbered F–505 for the point of beginning, said point of beginning being the southeast corner for a 0.25 acre tract of land acquired by the United States of America from Edward Cameron, et ux, by deed dated January 13, 1953, and recorded in volume 679 at page 456 and by correction deed dated May 25, 1955, and recorded in volume 722 at page 550 of the deed records of Bell County, Texas, and being designated as "Tract Numbered F–503 for Belton Lake", said point of beginning also being located south 74 degrees 21 minutes east, 38.3 feet from a point on top of the bluff for a re-entrant corner for said tract numbered F–505;

thence along the boundary line for said tract numbered F–505 as follows: south 74 degrees and 21 minutes east, 271.70 feet to a point;

thence south 45 degrees 14 minutes west, 154.5 feet to a point;

thence south 28 degrees 09 minutes east, 185 feet to a point;

thence north 73 degrees 45 minutes west, 324.23 feet to Government marker numbered A–65–9 for a northeast corner for a 79.70-acre tract of land acquired by the United States of America from Eleanor M. Paulk, and others, by deed dated July 28, 1952, and recorded in volume 672 at page 233 of the deed records of Bell County, Texas, and being designated as "Tract Numbered A–65 for Belton Lake";

thence departing from the boundary line for said tract numbered F–505, north 27 degrees 53 minutes west, 169.85 feet to a point;

thence north 55 degrees 26 minutes east, 184 feet more or less, to the point of beginning, containing 1.87 acres, more or less.

(b) The grantees shall, as a condition to the conveyance authorized by subsection (a), pay to the United States an amount equal to the sum originally paid by the United States for the tract of land described in subsection (a) of this section.

SEC. 129. (a) The project for Blue Marsh Lake, Berks County, Pennsylvania, a part of the plan for the comprehensive development of the Delaware River Basin, as authorized by section 201 of the Flood Control Act of 1962 (76 Stat. 1183), is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to relocate and restore intact the historic structure and associated improvements known as the Gruber Wagon Works located on certain Federal lands to be inundated upon completion of the project, at an estimated cost of $922,000.

(b) Upon completion of the relocation and restoration of the Gruber Wagon Works at a site mutually agreeable to the Secretary of the Army and the County of Berks, title to the structure and associated improvements and equipment shall be transferred to the County of Berks upon condition that such county agree to maintain such historic property in perpetuity as a public museum at no cost to the Federal Government.

SEC. 130. The authorized McClellan-Kerr Arkansas River navigation system is hereby modified to provide a nine-foot deep navigation channel, one hundred feet in width, extending approximately ten miles from the McClellan-Kerr navigation sailing line upstream on the Big Sallisaw Creek and Little Sallisaw Creek to and including a turning basin, near United States Highway 59, in a location generally conforming to Site I, as described in the Tulsa District Engineer's Project Formulation Memorandum entitled "Big and Little Sallisaw Creeks, Oklahoma, Section 107 Navigation Project" dated August 1973, at an estimated cost of $1,200,000.

SEC. 131. (a) The first sentence of section 201(a) of the Flood Control Act of 1965 (Public Law 89–298) is amended by striking out "$10,000,000, and inserting in lieu thereof "$15,000,000.".

(b) Section 201(b) of such Act is amended by striking out $10,000,000" and inserting in lieu thereof "$15,000,000".

SEC. 132. The project for flood protection on the Souris River at Minot, North Dakota, approved by resolutions of the Committee on Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives under authority of section 201 of the Flood Control Act of 1965 (42 U.S.C. 1962–5), and modified by section 105 of the Water Resources Development Act of 1974 (88 Stat. 42), is hereby further modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to reimburse the designated non-Federal interest for the estimated additional expense (exceeding that set forth in such section 105) incurred by such non-Federal interest in undertaking its required cooperation for the proposed channel realinement in the downstream area of the project near Logan, North Dakota, except that such reimbursement shall not exceed $250,000.

SEC. 133. (a) Subsection (b) of section 107 of the River and Harbor Act of 1960 (74 Stat. 480) is further amended by striking out "$1,000,000" and inserting in lieu thereof "$2,000,000".

(b) Section 61 of the Water Resources Development Act of 1974 (88 Stat. 12) is amended as follows:

(1) By striking out "$1,000,000" and inserting in lieu thereof "$2,000,000".

(2) By striking out "$2,000,000" and inserting in lieu thereof "$3,000,000".

(c) The amendments made by this section shall not apply to any project under contract for construction on the date of enactment of the Water Resources Development Act of 1976.

SEC. 134. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed within ninety days after enactment of this Act to institute a procedure enabling the engineer officer in charge of each district under the direction of the Chief of Engineers to certify, at the request of local interests, that particular local improvements for flood control can reasonably be expected to be compatible with a specific, potential project then under study or other form of consideration. Such certification shall be interpreted to assure local interests that they may go forward to construct such compatible improvements at local expense with the understanding that such improvements can be reasonably expected to be included within the scope of the Federal project, if later authorized, both for the purposes of analyzing the costs and benefits of the project and assessing the local participation in the costs of such project. This subsection shall cease to be in effect after December 31, 1977.

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to include in the survey report on flood protection on Mingo Creek and its tributaries, Oklahoma, authorized by section 208 of the Flood Control Act of 1965, the costs and benefits of local improvements initiated by the city of Tulsa for such flood protection subsequent to January 1, 1975, which the Chief of Engineers determines are compatible with and constitute an integral part of his recommended plan. In determining the appropriate non-Federal share for such project, the Chief of Engineers shall give recognition to costs incurred by non-Federal interest in carrying out such local improvements.

SEC. 135. The project for Port San Luis, San Luis Obispo Harbor, California, authorized by section 301 of the River and Harbor Act of 1965, is hereby modified substantially in accordance with the plan described in the Los Angeles District Engineers report on "Port San Luis, California" dated April 1976, and the conditions of local cooperation specified in subparagraphs 1.a. through 1.o. of appendix 7 thereof, at an estimated cost of $6,040,000.

SEC. 136. (a) The project for flood control on the Napa River, Napa County, California, authorized by section 204 of the Flood Control Act of 1965, is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to acquire approximately 577 acres of land for the purpose of mitigating adverse impacts on fish and wildlife occasioned by the project. The non-Federal share of the cost of such lands shall be the percentage as that required for the overall project.

(b) Such project is further modified to include construction by the Secretary of the Army acting through the Chief of Engineers, of the Napa Creek watershed project of the Soil Conservation Service approved June 25, 1962.

(c) No part of the cost of the modified project authorized by this section shall include the cost of the Secretary of the Army, acting through the Chief of Engineers, performing maintenance dredging for the navigation project for the Napa River.

SEC. 137. The project for flood control in East St. Louis and vicinity, Illinois, authorized by section 204 of the Flood Control Act approved October 27, 1965, is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to construct the Blue Waters Ditch segment of the overall project independently of the other project segments. Prior to initiation of construction of the Blue Waters Ditch segment, appropriate non-Federal interests shall agree, in accordance with the provisions of section 221 of the Flood Control Act of 1970, to furnish non-Federal cooperation for such segment.

SEC. 138. The Secretary of the Army, acting through the Chief of Engineers, shall continue studies and construction of bank protection works pursuant to the project for the Sacramento River, Chico Landing to Red Bluff, California, authorized by the Flood Control Act of 1958, notwithstanding the completion of the remaining ten sites proposed for construction at the time of enactment of this Act.

SEC. 139. The project for Waurika Dam and Reservoir on Beaver Creek, Oklahoma, authorized by the Act of December 30, 1963 (P.L. 88-253), is hereby modified to provide that the interest rate applicable to the repayment by non-Federal interests of the cost of the water conveyance facilities shall be the same as the interest rate established for repayment of the cost of municipal and industrial water supply storage in the reservoir.

SEC. 140. In the case of any authorized navigation project which has been partially constructed, or is to be constructed, which is located in one or more States, and which serves regional needs, the Secretary of the Army, acting through the Chief of Engineers, may include in any economic analysis which is under preparation at the time of enactment of this Act such regional economic development benefits as he determines to be appropriate for purposes of computing the economic justification of the project.

SEC. 141. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to make a study and report which shall include his conclusions and recommendations to the Congress on the advisability and feasibility of providing flood protection by dredging the Susquehanna River in the Wyoming Valley, Pennsylvania, and the surrounding region.

SEC. 142. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to investigate the flood and related problems to those lands lying below the plane of mean higher high water along the San Francisco Bay shoreline of San Mateo, Santa Clara, Alameda, Napa, Sonoma and Solano Counties to the confluence of the Sacramento and San Joaquin Rivers with a view toward determining the feasibility of and the Federal interest in

providing protection against tidal and fluvial flooding. The investigation shall evaluate the effects of any proposed improvements on wildlife preservation, agriculture, municipal and urban interests in coordination with Federal, State, regional, and local agencies with particular reference to preservation of existing marshland in the San Francisco Bay region.

SEC. 143. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to make a study in cooperation with the government of the Territory of American Samoa with particular reference to providing a plan for the development, utilization, and conservation of water and related land resources. Such study shall include appropriate consideration of the needs for flood protection, wise use of flood plain lands, navigation facilities, hydroelectric power generation, regional water supply and waste water management facilities systems, general recreation facilities, enhancement and control of water quality, enhancement and conservation of fish and wildlife, and other measures for environmental enhancement, economic and human resources development, and shall be compatible with comprehensive development plans formulated by local planning agencies and other interested Federal agencies.

SEC. 144. The Secretary of the Army, acting through the Chief of Engineers, in cooperation with the State of Hawaii and appropriate units of local government, shall make a study of methods to develop, utilize, and conserve water and land resources in the Hilo Bay Area, Hawaii, and Kailua-Kona, Hawaii. Such study shall include, but not be limited to, consideration of the need for flood protection, appropriate use of flood plain lands, navigation facilities, hydroelectric power generation, regional water supply and waste water management facilities systems, recreation facilities, enhancement and conservation of water quality, enhancement and conservation of fish and wildlife, other measures for environmental enhancement, and economic and human resources development. Based upon the findings of such study, the Secretary of the Army, acting through the Chief of Engineers, shall prepare a plan for the implementation of such findings which shall be compatible with other comprehensive development plans prepared by local planning agencies and other interested Federal agencies.

SEC. 145. The Secretary of the Army, acting through the Chief of Engineers, is authorized upon request of the State, to place on the beaches of such State beach-quality sand which has been dredged in constructing and maintaining navigation inlets and channels adjacent to such beaches, if the Secretary deems such action to be in the public interest and upon payment of the increased cost thereof above the cost required for alternative methods of disposing of such sand.

SEC. 146. The project for harbor improvement at Noyo, Mendocino County, California, authorized by the River and Harbor Act of 1962 (76 Stat. 1173), is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to construct such breakwaters as may be needed to provide necessary protection, but not more than two, and to construct such additional channel improvements, including, but not limited to, deepening, widening, and extensions, as he deems necessary to meet applicable economic and environmental criteria.

SEC. 147. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to conduct hydrographic surveys of the Columbia River from Richland, Washington, to Grand Coulee Dam for the purpose of identifying navigational hazards and preparing maps of the river channel at an estimated cost of $500,000, and providing information necessary for establishment of aids to navigation.

SEC. 148. The Secretary of the Army, acting through the Chief of Engineers, shall utilize and encourage the utilization of such management practices as he determines appropriate to extend the capacity and useful life of dredged material disposal areas such that the need for new dredged material disposal areas is kept to a minnimum. Management practices authorized by this section shall include, but not be limited to, the construction of dikes, consolidation and dewatering of dredged material, and construction of drainage and outflow facilities.

SEC. 149. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to remove Shooters' Island located north of Staten Island, New York, at the mouth of Arthur Kill and to utilize such removed material for fill and widening of Arthur Kill.

SEC. 150. The Secretary of the Army, acting through the Chief of Engineers, is authorized to plan and establish wetland areas as part of an authorized water resources development project under his jurisdiction. Establishment of any wetland area in connection with the dredging required for such a water resources development project may be undertaken in any case where the Chief of Engineers in his judgment finds that—

(1) environmental, economic, and social benefits of the wetland area justifies the increased cost thereof above the cost required for alternative methods of disposing of dredged material for such project; and

(2) the increased cost of such wetland area will not exceed $400,000; and

(3) there is reasonable evidence that the wetland area to be established will not be substantially altered or destroyed by natural or man-made causes.

(b) Whenever the Secretary of the Army, acting through the Chief of Engineers, submits to Congress a report on a water resources development project after the date of enactment of this section, such report shall include, where appropriate, consideration of the establishment of wetland areas.

(c) In the computation of benefits and cost of any water resources development project the benefits of establishing of any wetland area shall be deemed to be at least equal to the cost of establishing such area. All costs of establishing a wetland area shall be borne by the United States.

SEC. 151. The project for the Chief Joseph Dam authorized by the Act of July 2, 1946 (Public Law 525, 79th Congress) is modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to provide such temporary school facilities as he may deem necessary for the education of dependents of persons engaged in the

construction of additional hydroelectric power facilities at Chief Joseph Dam and Reservoir, Washington. When he determines it to be in the public interest, the Secretary, acting through the Chief of Engineers, may enter into cooperative arrangements with local and Federal agencies for the operation of such Government facilities, for the expansion of local facilities at Federal expense, and for contributions by the Federal Government to cover the increased cost to local agencies of providing the eduactional services required by the Government.

SEC. 152. The Secretary of the Army, acting through the Chief of Engineers, is authorized to participate in the construction of a levee and protective seawall at Liberty Park, New Jersey, at an estimated cost of $12,600,000. Appropriate non-Federal interests shall furnish all necessary lands, easements and rights-of-way necessary for such project and shall contribute 30 per centum of the total cost exclusive of land costs.

SEC. 153. The last sentence under the center heading "ARKANSAS-RED RIVER BASIN" in section 201 of the Flood Control Act of 1970 (84 Stat. 1825) is amended to read as follows: "Construction shall not be initiated on any element of such project until such element has been approved by the Secretary of the Army.".

SEC. 154. The prohibitions and provisions for review and approval concerning wharves and piers in waters of the United States as set forth in section 10 of the Act of March 3, 1899 (30 Stat. 1151) and the first section of the Act of June 13, 1902 (32 Stat. 371) shall not apply to any body of water located entirely within one State which is, or could be, considered to be a navigable body of water of the United States solely on the basis of historical use in interstate commerce.

SEC. 155. (a) Subsection (c) of section 32 of the Water Resources Development Act of 1974 (Public Law 93-251) is amended by striking out the period at the end thereof and inserting in lieu thereof a semicolon and by adding at the end thereof the following:

"(5) the delta of the Eel River, California.

"(6) the lower Yellowstone River from Intake, Montana, to the mouth of such river.".

(b) Subsection (e) of such section 32 is amended to read as follows:

"(e) There is authorized to be appropriated not to exceed $50,000,000 to carry out this section.".

SEC. 156. The Secretary of the Army, acting through the Chief of Engineers, is authorized to provide periodic beach nourishment in the case of each water resources development project where such nourishment has been authorized for a limited period for such additional period as he determines necessary but in no event shall such additional period extend beyond the fifteenth year which begins after the date of initiation of construction of such project.

SEC. 157. (a) Section 12(b) of the Water Resources Development Act of 1974 (88 Stat. 17) is amended by striking out "one hundred and eighty" each time it appears and inserting in lieu thereof "ninety".

(b) The amendment made by subsection (a) of this section shall take effect on January 1, 1977.

SEC. 158. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to make a comprehensive study

and report on the system of waterway improvements under his jurisdiction. The study shall include a review of the existing system and its capability for meeting the national needs including emergency and defense requirements and an appraisal of additional improvements necessary to optimize the system and its intermodal characteristics. The Secretary of the Army, acting through the Chief of Engineers, shall submit a report to Congress on this study, within three years after funds are first appropriated and made available for the study, together with his recommendations. The Secretary of the Army, acting through the Chief of Engineers, shall, upon request, from time to time make available to the National Transportation Policy Study Commission established by section 154 of Public Law 94-280, the information and other data developed as a result of the study.

SEC. 159. The Marysville Lake project, California, authorized by the Flood Control Act of 1966 (80 Stat. 1405), is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to undertake the phase I design memorandum stage of advanced engineering and design for a multiple-purpose project located at the Parks Bar site, including power development with pumped storage, at an estimated cost of $150,000.

SEC. 160. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project for hydroelectric power on the Susitna River, Alaska, in accordance with the recommendations of the Board of Engineers for Rivers and Harbors in its report dated June 24, 1976, at an estimated cost of $25,000,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 161. Section 32 of the Water Resources Development Act of 1974 (88 Stat. 12) is amended as follows:

(1) In subsection (c)(3) strike "; and" and add ", including areas on the right bank at river miles 1345; 1310; 1311; 1316.5; 1334.5; 1341; 1343.5; 1379.5; 1385; and on the left bank at river miles 1316.5; 1320.5; 1323; 1326.5; 1335.7; 1338.5; 1345.2; 1357.5; 1360; 1366.5; 1368; and 1374;";

(2) A new subsection (f) is added as follows:

"(f) The Secretary of the Army shall make an interim report to Congress on work undertaken pursuant to this section by September 30, 1978, and shall make a [final] report to the Congress no later than December 31, 1981.".

SEC. 162. For the purposes of section 10 of the Act of March 3, 1899 (30 Stat. 1151) (32 U.S.C. 401) the following bodies of water are declared nonnavigable: Lake Oswego, Oregon; Lake Coeur d'Alene, Idaho; and Lake George, New York.

SEC. 163. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to study water and surface transportation needs resulting from the expansion and further development of the San Pedro Bay ports. Such study shall include, but not be limited to, the feasibility and advisability of enlarging the Dominguez Channel for flood control purposes.

SEC. 164. The project for the Snake River, Oregon, Washington, and Idaho, authorized in section 2 of the River and Harbor Act of 1945 (59 Stat. 21) is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to construct at full Federal expense a four-lane, high-level highway bridge and approaches thereto connecting the cities of Lewiston, Idaho, and Clarkston, Washington, at or near river mile 141.3 of the Snake River, approximately two miles upstream of the present United States Highway 12 bridge. Before construction may be initiated the non-Federal interests shall agree pursuant to section 221 of the Flood Control Act of 1970 (P.L. 91-611) to (1) hold and save the United States free from damages resulting from construction of the bridge and its approaches, (2) provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction of the bridge and its approaches, and (3) own, maintain, and operate the bridge and its approaches after construction is completed, free to the public. There is authorized to carry out this section not to exceed $21,000,000.

SEC. 165. That portion of the first section of the Act of September 1, 1916 (39 Stat. 693) entitled "Washington Aqueduct" is hereby repealed.

SEC. 166. (a) In order to alleviate water damage on the shoreline of Lake Michigan and others of the Great Lakes during periods of abnormally high water levels in the Great Lakes, and to improve the water quality of the Illinois Waterway, the Secretary of the Army, acting through the Chief of Engineers, is authorized to carry out a five-year demonstration program to temporarily increase the diversion of water from Lake Michigan at Chicago, Illinois, for the purpose of testing the practicability of increasing the average annual diversion from the present limit of three thousand two hundred cubic feet per second to ten thousand cubic feet per second. The demonstration program will increase the controllable diversion by various amounts calculated to raise the average annual diversion above three thousand two hundred cubic feet per second up to ten thousand cubic feet per second. The increase in diversion rate will be accomplished incrementally and will take into consideration the effects of such increase on the Illinois Waterway. The program will be developed by the Chief of Engineers in cooperation with the State of Illinois and the Metropolitan Sanitary District of Greater Chicago. The program will be implemented by the State of Illinois and the Metropolitan Sanitary District of Greater Chicago under the supervision of the Chief of Engineers.

(b) During the demonstration program a controllable diversion rate will be established for each month calculated to establish an annual average diversion from three thousand two hundred cubic feet per second to not more than ten thousand cubic feet per second. When the level of Lake Michigan is below its average level, the total diversion for the succeeding accounting year shall not exceed three thousand two hundred cubic feet per second on an annual basis. The average level of Lake Michigan will be based upon the average monthly level for the period from 1900 to 1975.

(c) When river stages approach or are predicted to approach bankfull conditions at the established flood warning stations on the Illinois Waterway or the Mississippi River, or when further increased diversion of water from Lake Michigan would adversely affect water levels

necessary for navigational requirements of the Saint Lawrence Seaway in its entirety throughout the Saint Lawrence River and Great Lakes-Saint Lawrence Seaway, water shall not be diverted directly from Lake Michigan at the Wilmette, O'Brien, or Chicago River control structures other than as necessary for navigational requirements.

(d) The Chief of Engineers shall conduct a study and a demonstration program to determine the effects of the increased diversion on the levels of the Great Lakes, on the water quality of the Illinois Waterway, and on the susceptibility of the Illinois Waterway to additional flooding. The study and demonstration program will also investigate any adverse or beneficial impacts which result from this section. The Chief of Engineers, at the end of five years after the enactment of this section, will submit to the Congress the results of this study and demonstration program including recommendations whether to continue this authority or to change the criteria stated in subsection (b) of this section.

(e) For purposes of this section, controllable diversion is defined as that diversion at Wilmette, O'Brien, and Chicago River control structures which is not attributable to leakage or which is not necessary for navigational requirements.

SEC. 167. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to conduct a study of the most efficient methods of utilizing the hydroelectric power resources at water resource development projects under the jurisdiction of the Secretary of the Army and to prepare a plan based upon the findings of such study. Such study shall include, but not be limited to, an analysis of—

(1) the physical potential for hydroelectric development, giving consideration to the economic, social, environmental and institutional factors which will affect the realization of physical potential;

(2) the magnitude and regional distribution of needs for hydroelectric power;

(3) the integration of hydroelectric power generation with generation from other types of generating facilities;

(4) measures necessary to assure that generation from hydroelectric projects will efficiently contribute to meeting the national electric energy demands;

(5) the timing of hydroelectric development to properly coincide with changes in the demand for electric energy;

(6) conventional hydoelectric potential, both high head and low head projects utilizing run-of-rivers and possible advances in mechanical technology, and pumped storage hydroelectric potential at sites which evidence such potential;

(7) the feasibility of adding or reallocating storage and modifying operation rules to increase power production at corps projects with existing hydroelectric installations;

(8) measures deemed necessary or desirable to insure that the potential contribution of hydroelectric resources to the overall electric energy supply are realized to the maximum extent possible; and

(9) any other pertinent factors necessary to evaluate the development and operation of hydroelectric projects of the Corps of Engineers.

(b) Within three years after the date of the first appropriation of funds for the purpose of carrying out this section, the Secretary of the Army, acting through the Chief of Engineers, shall transmit the plan prepared pursuant to subsection (a) with supporting studies and documentation, together with the recommendations of the Secretary and the Chief of Engineers on such plan, to the Committee on Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives.

(c) There is authorized to be appropriated to carry out subsections (a) and (b) of this section not to exceed $7,000,000.

(d) The Secretary of the Army, acting through the Chief of Engineers, is authorized with respect to previously authorized projects to undertake feasibility studies of specific hydroelectric power installations that are identified in the course of the study authorized by this section, as having high potential for contribution toward meeting regional power needs. There is authorized to be appropriated to carry out this subsection not to exceed $5,000,000 per fiscal year for each of the fiscal years 1978 and 1979.

SEC. 168. Subsection 22(b) of the Water Resources Development Act of 1974 (Public Law 93-251) is amended by striking out "$2,000,000" and inserting in lieu thereof $4,000,000".

SEC. 169. Notwithstanding any other provision of law, the project for Pine Mountain Lake on Lee Creek, Arkansas and Oklahoma, authorized by section 204 of the Flood Control Act of 1965 (79 Stat. 1073), shall be constructed, operated, and maintained in accordance with the Federal Water Project Recreation Act (Public Law 89-72).

SEC. 170. The Little Dell Project, Salt Lake City Streams, Utah, authorized in section 203 of the Flood Control Act of 1968 (P.L. 90-483; 82 Stat. 744) is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to decrease the amount of storage capacity so as to more adequately reflect existing needs.

SEC. 171. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project element involving the lower-most 10.1 mile-long segment of channel modification of Sowashee Creek at Meridian, Mississippi, substantially in accordance with the plan of development approved by the Administrator, Soil Conservation Service, United States Department of Agriculture, on October 15, 1974, at an estimated cost of $450,000.

SEC. 172. The project for assumption of maintenance of the Mermentau River and the Gulf of Mexico Navigation Channel, Louisiana, is hereby adopted and authorized to be prosecuted by the Secretary of the Army, acting through the Chief of Engineers, substantially in accordance with the plans and subject to the conditions contained in the report of the Board of Engineers for Rivers and Harbors dated January 16, 1976, at an estimated annual cost of $155,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 173. The project for flood protection in the Bassett Creek Watershed, Minnesota, is hereby adopted and authorized to be prosecuted by the Secretary of the Army, acting throuh the Chief of Engineers, substantially in accordance with the plans and subject to the conditions contained in the report of the Board of Engineers for Rivers and Harbors dated July 26, 1976, at an estimated cost of $7,593,000. This shall take effect upon submitted to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 174. The project for Caddo Dam and Reservoir, Louisiana, authorized by the Flood Control Act of 1965 (79 Stat. 1077, P.L. 89-298) is hereby modified to provide that the operation and maintenance of the project shall be the responsibility of the Secretary of the Army, acting through the Chief of Engineers.

SEC. 175. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project for harbor modification at Cleveland Harbor, Ohio, in accordance with the report of the District Engineer, dated June 1976, at an estimated cost of $500,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 176. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to cause a survey to be made at the Navajo Indian Reservation, Arizona, New Mexico, and Utah for flood control and allied purposes, and subject to all applicable provisions of section 217 of the Flood Control Act of 1970 (Public Law 91-611), at an estimated cost of $2,000,000; and to submit reports thereon to the Congress with the recommendations.

SEC. 177. The authorization of the Gaysville Dam and Lake project, Stockbridge, Chittenden, and Rochester, Vermont, provided by section 5 of the Flood Control Act of 1936, as modified by the Acts of Congress approved May 25, 1937, June 28, 1938, and August 18, 1941, is terminated upon the enactment of this Act.

SEC. 178. (a) If the Secretary of the Army, acting through the Chief of Engineers, finds that the proposed project to be erected at the location to be declared nonnavigable under this section is in the public interest, on the basis of engineering studies to determine the location and structural stability of any bulkheading and filling and permanent pile-supported structure, in order to preserve and maintain the remaining navigable waterway and on the basis of environmental studies conducted pursuant to the National Environmental Policy Act of 1969, then that portion of the Hudson River in Hudson County, State of New Jersey, bounded and described as follows is hereby declared to be nonnavigable water of the United States within the meaning of the laws of the United States, and the consent of Congress is hereby given to the filling in of all or any part thereof and the erection of permanent pile-supported structures thereon:

Such portion is in the township of North Bergen in the county of Hudson and State of New Jersey, and is more particularly described as follows: At a point in the easterly right-of-way of New Jersey Shore Line Railroad (formerly New Jersey Junction Railroad) said point being located northerly, measured along said easterly right-of-way, 81.93 feet from Station 54+42.4 as shown

on construction drawing dated May 23, 1931, of River Road, filed in the Office of the Hudson County Engineer, Jersey City, New Jersey:

thence (1) northerly and along said easterly right-of-way on a bearing of north 12 degrees 11 minutes 14 seconds east, a distance of 280 feet to a point;

thence (2) south 75 degrees 28 minutes 24 seconds east, a distance of 310 feet to a point;

thence (3) south 17 degrees 15 minutes 41 seconds east, a distance of 101.70 feet to a point;

thence (4) south 62 degrees 18 minutes 12 seconds east a distance of 355.64 feet to a point in the exterior solid fill line of April 7, 1903, and the bulkhead line of April 28, 1904, on the Hudson River;

thence (5) along said exterior solid fill and bulkhead lines south 28 degrees 55 minutes 51 seconds west, a distance of 523 feet to a point in the northerly line of lands now or formerly of New York State Realty and Terminal Company;

thence (6) north 61 degrees 34 minutes 29 seconds west, and along said northerly line of the New York State Realty and Terminal Company, a distance of 590.08 feet to a point in the aforementioned easterly right-of-way of the New Jersey Shore Line Railroad;

thence (7) northerly and along said easterly right-of-way of the New Jersey Shore Line Railroad on a curve to the left a radius of 995.09 feet, an arc length of 170.96 feet to a point therein;

thence (8) northerly, still along the same, on a bearing of north 12 degrees 11 minutes 14 seconds east, a distance of 81.93 feet to the point and place of beginning.

Said parcel containing 8 acres being the same more or less.

(b) The declaration in subsection (a) of this section shall apply only to portions of the above-described area which are either bulkheaded and filled or occupied by permanent pile-supported structures. Plans for bulkheading and filling and permanent pile-supported structures shall be approved by the Secretary of the Army, acting through the Chief of Engineers. Local interest shall reimburse the Federal Government for engineering and all other costs incurred under this section.

SEC. 179. (a) If the Secretary of the Army, acting through the Chief of Engineers finds that the proposed project to be erected at the location to be declared nonnavigable under this section is in the public interest, on the basis of engineering studies to determine the location and structural stability of any bulkheading and filling and permanent pile-supported structure, in order to preserve and maintain the remaining navigable waterway, and on the basis of environmental studies conducted pursuant to the National Environmental Policy Act of 1969, then those portions of the Hackensack River in Hudson County, State of New Jersey, bounded and described as follows are hereby declared to be nonnavigable waters of the United States within the meaning of the laws of the United States, and the consent of Congress is hereby given to the filling in of all or any part thereof and the erection of permanent pile-supported structures thereon:

Beginning at a point where the southeasterly shoreline (mean high water line) of the Hackensack River intersects the easterly line of the Erie Railroad said point property being 2,015.38 feet northerly along said railroad property from where it intersects the northerly line of the Meadowlands Parkway (100 feet wide) and running from:

thence north 19 degrees 20 minutes 54 seconds west 50.00 feet;
thence north 37 degrees 30 minutes 08 seconds east 615.38 feet;
thence north 03 degrees 02 minutes 56 seconds east, 2,087 feet;
thence north 31 degrees 11 minutes 06 seconds east 577 feet;
thence north 74 degrees 29 minutes 18 seconds east 541.25 feet;
thence south 62 degrees 01 minute 31 seconds east 400 feet;
thence south 55 degrees 46 minutes 27 seconds east 612.52 feet;
thence south 34 degrees 13 minutes 33 seconds west 517.79 feet;
thence south 55 degrees 46 minutes 27 seconds east 158.81 feet;
thence south 34 degrees 13 minutes 33 seconds west 310 feet;
thence north 55 degrees 26 minutes 27 seconds north 15 feet;
thence south 34 degrees 13 minutes 33 seconds west 592 feet;
thence running in a southwesterly direction along the shoreline (mean high water line) of the Hackensack River, a distance of 2,360 feet being the same more or less to the easterly property line of the Erie Railroad and the point or place of beginning.

Said parcel containing 67.6 acres being the same more or less.

(b) The declaration in subsection (a) of this section shall apply only to portions of the described area which are either bulkheaded and filled or occupied by permanent pile-supported structures. Plans for bulkheading and filling and permanent pile-supported structures shall be approved by the Secretary of the Army, acting through the Chief of Engineers. Local interests shall reimburse the Federal Government for engineering and all other costs incurred under this section.

SEC. 180. (a) The Secretary of the Army, acting through the Chief of Engineers, is directed to develop a plan for shoreline protection and beach erosion control along Lake Ontario, and report on such plan to the Congress as soon as practicable. Such report shall include recommendations on measures of protection and proposals for equitable cost sharing, together with recommendations for regulating the level of Lake Ontario to assure maximum protection of the natural environment and to hold shoreline damage to a minimum.

(b) Until the Congress receives and acts upon the report required under subsection (a) of this section, all Federal agencies having responsibilities affecting the level of Lake Ontario shall, consistent with existing authority, make every effort to discharge such responsibilities in a manner so as to minimize damage and erosion to the shoreline of Lake Ontario.

(c) There is authorized to be appropriated to carry out this section $2,000,000.

(d) This section may be cited as the "Lake Ontario Protection Act of 1976".

SEC. 181. (a)(1) Subject to paragraph (2) of this subsection, the consent of Congress is granted under section 9 of the Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 401), to the Washington Suburban Sanitary Commission to construct a water diversion structure, with an elevation not to exceed one hundred and fifty-nine feet above sea level, from the north shore of the Potomac River at the Washington Suburban Sanitary Commission water filtration plant to the north shore of Watkins Island.

(2) *The structure authorized by paragraph (1) of this subsection, may not be constructed (A) until the Secretary of the Army, acting through the Chief of Engineers, and the State of Maryland, the Commonwealth of Virginia, the Washington Suburban Sanitary Commission, and such other governmental authorities as the Secretary of the Army, the State of Maryland, and the Commonwealth of Virginia deem desirable signatories enter into a written agreement providing an enforceable schedule for allocation among the parties to such agreement for the withdrawal of the waters of that portion of the Potomac River located between Little Falls Dam and the farthest upstream limit of the pool of water behind the Chesapeake and Ohio Canal Company rubble dam at Seneca, Maryland, during periods of low flow of such portion of such river, and (B) unless such construction is not in conflict with the report of the Secretary of the Army, acting through the Chief of Engineers, submitted pursuant to section 85 of the Water Resources Development Act of 1974.*

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized to enter into the agreement referred to in subsection (a)(2) of this section and any amendment to or revision of such agreement.

(c) Except as may be provided in the agreement referred to in subsection (a)(2) of this section, nothing in this section shall alter any riparian rights or other authority of the State of Maryland, or any political subdivision thereof, the Commonwealth of Virginia, or any political subdivision thereof, or the District of Columbia, or authority of the Corps of Engineers existing on the date of enactment of this section relative to the appropriation of water from, or the use of, the Potomac River.

SEC. 182. (a) The authorization for the Richard B. Russell Dam and Lake (formerly Trotters Shoals Reservoir), contained in section 203 of the Flood Control Act of 1966 (80 Stat. 1405) is hereby amended by deleting the following: "Nothing in this Act shall be construed to authorize inclusion of pumped storage power in this project.".

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized to install a fifth hydropower unit at the Hartwell Reservoir on the Savannah River, South Carolina and Georgia, approved in the Flood Control Acts of December 22, 1944, and May 17, 1950, at an estimated increased cost of $15,700,000.

SEC. 183. The West Tennessee tributaries feature Mississippi River and tributaries project (Obion and Forked Deer Rivers), Tennessee, authorized by the Flood Control Acts approved June 30, 1948, and November 7, 1966, as amended and modified, is hereby further amended to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to construct, to main-stem levee standards, a levee with appurtenant works for flood protection immediately east of the authorized diversion channel of the Obion River, authorized by the Flood Control Act of June 22, 1936, as amended by the Flood Control Act of July 24, 1946, and further amended by section 7 of the River Basin Monetary Authorization Act of 1971, from near the mouth of the diversion channel to the vicinity of Highway 88 and thence to high ground in the vicinity of Porter Gap, at an estimated cost of $1,000,000.

SEC. 184. Section 108 of Public Law 93-251 is amended as follows:

(a) At the end of subsection (a) add the following: "The Secretary may acquire sites at locations outside such boundaries, as he determines necessary, for administrative and visitor orientation facilities. The Secretary may also acquire a site outside such boundaries at or near the location of the historic Tabard Inn in Ruby, Tennessee, including such lands as he deems necessary, for the establishment of a lodge with recreational facilities as provided in subsection (e)(3).";

(b) In subsection (b), after the "(b)" insert "(1)" and at the end of such subsection insert the following:

"(2) The Secretary may by agreement with the Secretary of the Interior provide for interim management by the Department of the Interior, in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535) (16 U.S.C. 1, 2-4) as amended and supplemented, of any portion or portions of the project which constitute a logically and efficiently administrable area. The Secretary is authorized to transfer funds to the Department of the Interior for the costs of such interim management out of funds appropriated for the project.";

(c) In subsection (c)(1), after the phrase "States of Kentucky and Tennessee or any political subdivisions thereof" insert the following: "which were in public ownership at the time of enactment of this section.";

(d) At the end of subsection (e)(2)(A), strike the period and insert the following: "and except that motorboat access into the gorge area shall be permitted up to a point one-tenth of a mile downstream from Devil's Jumps; and except for the continued operation and maintenance of the rail line currently operated and known as the K & T Railroad. The Secretary shall acquire such interest in the K & T Railroad right-of-way by easement as he deems necessary to protect the scenic, esthetic, and recreational values of the gorge area and the adjacent areas.";

(e) In subsection (e)(2)(C), strike the period at the end and insert the following: ", the road entering the gorge across from the mouth of Station Camp Creek."; and

(f) In subsection (e)(2)(K), strike "$32,850,000" and insert in lieu thereof "$103,522,000".

SEC. 185. The Secretary of the Army, acting through the Chief of Engineers, is directed to make a maximum effort to assure the full participation of members of minority groups, living in the States participating in the Tennessee-Tombigbee Waterway Development Authority, in the construction of the Tennessee-Tombigbee Waterway project, including actions to encourage the use, wherever possible, of minority owned firms. The Chief of Engineers is directed to report on July 1 of each year to the Congress on the implementation of this section, together with recommendation for any legislation that may be needed to assure the fuller and more equitable participation of members of minority groups in this project or others under the direction of the Secretary.

SEC. 186. The Act entitled "An Act to authorize construction of the Mississippi River-Gulf outlet", approved March 29, 1956 (70 Stat. 65), is amended by inserting before the period at the end thereof a colon and the following: "And provided further, That such conditions

of local cooperation shall not apply to the construction of bridges (at a cost not to exceed $71,500,000) required as a result of the construction of the Mississippi River-Gulf outlet channel if the Secretary of the Army, after consultation with the Secretary of Transportation, determines prior to the construction of such bridges that the Federal Government will not assume the costs of such work in accordance with section 132(a) of the Federal-Aid Highway Act of 1976 (Public Law 94-280); and before construction of the bridges may be initiated the non-Federal public bodies involved shall agree pursuant to section 221 of the Flood Control Act of 1970 (Public Law 91-611) to (a) hold and save the United States free from damages resulting from construction of the bridges and their approaches, (b) provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction of the bridges and their approaches, and (c) maintain and operate the bridges and their approaches after construction is completed".

SEC. 187. The project for navigation and bank stabilization in the Red River Waterway, Louisiana, Texas, Arkansas, and Oklahoma, authorized by the Rivers and Harbors Act of 1968 (82 Stat. 731) is hereby modified to provide that the non-Federal interests shall contribute 25 per centum of the construction costs of retaining dikes, bulkheads, and embankments required for initial and subsequent disposal of dredged material, and the Federal cost shall be 75 per centum (currently estimated at $3,700,000). The requirements for appropriate non-Federal interests to furnish an agreement to contribute 25 per centum of the construction cost set forth above shall be waived by the Secretary of the Army upon a finding by the Administrator of the Environmental Protection Agency that for the area to which such construction applies, the State or States involved, interstate agency, municipality, other appropriate political subdivisions of the State, and industrial concerns are participating in and in compliance with an approved plan for the general geographical area of the dredging activity for construction, modification, expansion, or rehabilitation of waste treatment facilities and the Administrator has found that applicable water quality standards are not being violated.

SEC. 188. Notwithstanding any other provision of law, the Secretary of the Army, acting through the Chief of Engineers, at the request of the city of Williston, North Dakota, is authorized and directed to take such action as may be necessary to relocate certain water intakes, located on a pier of the Lewis and Clark Bridge on the Missouri River, threatened by siltation. There is authorized to be appropriated not to exceed $1,000,000 to carry out the provisions of this section.

SEC. 189. (a) The project for Tuttle Creek Lake, Big Blue Lake, Kansas, authorized as a unit of the comprehensive plan for flood control and other purposes, Missouri River Basin, by the Flood Control Act approved June 28, 1938, as modified, is hereby further modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to (1) provide a residential access road near Waterville, Kansas, from a point of intersection with FAS Route 431, located approximately 0.2 miles south of the northeast corner of section 16, township 4 south, range 6 east, and extending in an east southeasterly direction to a point of intersection with the existing

township road located near the center of section 14, township 4 south, range 6 east, and (2) to replace the existing Whiteside Bridge, located one mile northwest of Blue Rapids, Kansas, so as to obtain an elevation of 1128.0 mean sea level.

(b) There is authorized to be appropriated not to exceed $630,000 to carry out the purposes of this section.

SEC. 190. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design on the Days Creek unit of the project for flood control and other purposes on the Red River below Denison Dam, Texas, Arkansas, and Louisiana, substantially in accordance with the report of the Board of Engineers for Rivers and Harbors at an estimated cost of $300,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized to construct the project for flood control and other purposes on the Red River below Denison Dam, Texas, Arkansas and Louisiana, in accordance with the report of the Chief of Engineers dated August 3, 1976, at an estimated cost of $4,131,000.

SEC. 191. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the non-structural flood protection project on Galveston Bay at Baytown, Texas, in accordance with the final report of the Chief of Engineers, at an estimated Federal cost of $15,680,000; and provided that non-Federal interests shall be required to pay 20 per centum of the project costs.

SEC. 192. The project for flood protection and other purposes on the Deep Fork River in the vicinity of Arcadia, Oklahoma, authorized in section 201 of Public Law 91-611, is amended and reauthorized so as to delete the benefits for water quality and to include benefits for water supply.

SEC. 193. In order to assure an adequate supply of food to the Nation and to promote the economic vitality of the High Plains Region, the Secretary of Commerce (hereinafter referred to in this section as the "Secretary"), acting through the Economic Development Administration, in cooperation with the Secretary of the Army, acting through the Chief of Engineers, and appropriate Federal, State, and local agencies, and the private sector, is authorized and directed to study the depletion of the natural resources of those regions of the States of Colorado, Kansas, New Mexico, Oklahoma, Texas, and Nebraska presently utilizing the declining water resources of the Ogallala aquifer, and to develop plans to increase water supplies in the area and report thereon to Congress, together with any recommendations for further congressional action. In formulating these plans, the Secretary is directed to consider all past and ongoing studies, plans, and work on depleted water resources in the region, and to examine the feasibility of various alternatives to provide adequate water supplies in the area including, but not limited to, the transfer of water from adjacent areas, such portion to be conducted by the Chief of Engineers to assure the continued economic growth and vitality of the region. The Secretary shall report on the costs of reasonably available options,

the benefits of various options, and the costs of inaction. If water transfer is found to be a part of a reasonable solution, the Secretary, as part of his study, shall include a recommended plan for allocating and distributing water in an equitable fashion, taking into account existing water rights and the needs for future growth of all affected areas. An interim report, with recommendations, shall be transmitted to the Congress no later than October 1, 1978, and a final report, with recommendations, shall be transmitted to Congress not later than July 1, 1980. A sum of $6,000,000 is authorized to be appropriated for the purposes of carrying out this section.

SEC. 194. The project for the Cochiti Reservoir in New Mexico as part of the project for the improvement of the Rio Grande Basin, authorized in the Flood Control Act of 1960 (74 Stat. 488), is modified in order to direct the Secretary of the Army, acting through the Chief of Engineers, to construct, for public recreation purposes, an access road from United States highway numbered 85 to such reservoir. There is authorized to be appropriated not to exceed $1,500,000 to carry out the purposes of this section.

SEC. 195. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized to construct a project for local flood protection on the Santa Fe River and Arroyo Mascaras at and in the vicinity of Santa Fe, New Mexico, pursuant to the report of the Chief of Engineers dated June 29, 1976, for flood control and allied purposes, at an estimated cost of $8,200,000: Provided, That the project shall not include construction of any impoundments east of the existing Nichols Dam: And provided further, That in any earth-moving operations in connection with the construction of such project, the sources of material, and the routes for transporting such materials to the construction sites shall be selected in a way that minimizes any adverse effect on normal transportation movements within the city of Santa Fe, New Mexico.

(b) Notwithstanding any other provision of law, the project for Pine Mountain Lake on Lee Creek, Arkansas and Oklahoma, authorized by section 204 of the Flood Control Act of 1965 (79 Stat. 1073), shall be constructed, operated, and maintained in accordance with the Federal Water Project Recreation Act, Public Law 89-72, as amended.

SEC. 196. The project for Lucky Peak Lake, Idaho, authorized by the Flood Control Act of 1946, is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to modify the outlet works in the Lucky Peak Dam at a Federal cost not to exceed $4,100,000, to assure maintenance of adequate flows along the Boise River: Provided, That provisions of section 102(b) of the Federal Water Pollution Control Amendments of 1972 (86 Stat. 816), shall apply to this modification.

SEC. 197. Section 50 of the Water Resources Development Act of 1974 (88 Stat. 12), is amended by striking out "$350,000" and inserting in lieu thereof "$380,000".

SEC. 198. The sum of $250,000 is hereby authorized to complete the phase I design memorandum stage of advanced engineering and design of the Days Creek Dam, South Umpqua River, Oregon, authorized by section 1(a) of the Water Resources Development Act of 1974 (88 Stat. 12).

SEC. 199. The project for navigation improvements, Cook Inlet, Alaska (Anchorage Harbor, Alaska), authorized by the Rivers and Harbors Act of 1958, approved July 3, 1958, is hereby modified to provide that the Secretary of the Army, acting through the Chief of Engineers, is authorized to maintain a harbor bottom depth of −35.0 feet MLLW, for a length of 3,000 feet at the existing Port of Anchorage Marine Facility, at an estimated annual cost of $150,000.

SEC. 200. Section 35 of the Water Resources Development Act of 1974 (Public Law 93-251) is amended as follows:

(a) Inserting "(a)" "SEC. 35";

(b) Inserting new subsection "(b)", as follows:

"(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to make a detailed study of such plans as he may deem feasible and appropriate for the removal and disposal of debris and obsolete buildings remaining as a result of military construction during World War II, and subsequently, in the vicinity of Metlakatla and Annette Island in southeastern Alaska, at an estimated cost of $100,000. Such study shall include an analysis of appropriate measures to restore the area to its natural condition.".

SEC. 201. (a) Section 204(b) of the Act of October 23, 1962 (76 Stat. 1173, 1174), is amended by striking the period at the end of the second sentence and insert the following ": Provided, The Secretary of the Interior, in determining reimbursable costs, shall not include the costs of replacing and relocating the original Salisbury Ridge section of the 138-kilovolt transmission line: Provided further, That the Secretary of the Army, acting through the Chief of Engineers, shall relocate such transmission lines, at an estimated cost of $5,641,000.".

(b) The Crater-Long Lakes division of the Snettisham project near Juneau, Alaska, as authorized by section 204 of the Flood Control Act of 1962, is modified with respect to the reimbursement payments to the United States on such project in order to provide (1) that the repayment period shall be sixty years, (2) that the first annual payment shall be 0.1 per centum of the total principal amount to be repaid, (3) thereafter annual payments shall be increased by 0.1 per centum of such total each year until the tenth year at which time the payment shall be 1 per centum of such total, and (4) subsequent annual payments for the remaining fifty years of the sixty-year repayment period shall be one-fiftieth of the balance remaining after the tenth annual payment (including interest over such sixty-year period).

SEC. 202. (a) The Congress finds that drift and debris on or in publicly maintained commercial boat harbors and the land and water areas immediately adjacent thereto threaten navigational safety, public health, recreation, and the harborfront environment.

(b)(1) The Secretary of the Army, acting through the Chief of Engineers, shall be responsible for developing projects for the collection and removal of drift and debris from publicly maintained commercial boat harbors and from land and water areas immediately adjacent thereto.

(2) The Secretary of the Army, acting through the Chief of Engineers is authorized to undertake projects developed under paragraph (1) of this subsection without specific congressional approval when the total Federal cost for the project is less than $400,000.

(c) The Federal share of the cost of any project developed pursuant to subsection (b) of this section shall be two-thirds of the cost of the project. The remainder of such costs shall be paid by the State, municipality, or other political subdivision in which the project is to be located, except that any costs associated with the collections and removal of drift and debris from federally owned lands shall be borne by the Federal Government. Non-Federal interests in future project development under subsection (b) of this section shall be required to recover the full cost of drift or debris removal from any identified owner of piers or other potential sources of drift or debris, or to repair such sources so that they no longer create a potential source of drift or debris.

(d) Any State, municipality, or other political subdivision where any project developed pursuant to subsection (b) of this section is located shall provide all lands, easements, and right-of-way necessary for the project, including suitable access and disposal areas, and shall agree to maintain such projects and hold and save the United States free from any damages which may result from the non-Federal sponsor's performance of, or failure to perform, any of its required responsibilities of cooperation for the project. Non-Federal interest shall agree to regulate any project area following project completion so that such area will not become a future source of drift and debris. The Chief of Engineers shall provide technical advice to non-Federal interests on the implementation of this subsection.

(e) For the purposes of this section—

(1) the term "drift" includes any buoyant material that, when floating in the navigable waters of the United States, may cause damage to a commercial or recreational vessel; and

(2) the term "debris" includes any abandoned or dilapidated structure or any sunken vessel or other object that can reasonably be expected to collapse or otherwise enter the navigable waters of the United States as drift within a reasonable period.

(f) There is authorized to be appropriated to carry out this section not to exceed $4,000,000 per fiscal year for fiscal years 1978 and 1979.

SEC. 203. (a)(1) The Congress finds that the expeditious development of hydroelectric power generating facilities in Alaska that are environmentally sound to assist the Nation in meeting existing and future energy demands is in the national interest.

(2) The Congress therefore declares that the expertise of the Chief of Engineers can and should be utilized for the benefit of local public bodies in the development of projects which yield 90 per centum or more of the benefits of the project are attributable to hydroelectric power generation when the project is fully operational.

(b) To meet the goals of this section, there is hereby established in the Treasury of the United States an Alaska Hydroelectric Power Development Fund (hereafter referred to as the "fund") to be and remain available for use by the Secretary of the Army (hereinafter referred to as the "Secretary") to make expenditures authorized by this section. The fund shall consist of (1) all receipts and collections by the Secretary of repayments in accordance with subsection (e) of this section and payments by non-Federal public authorities to the Secretary to finance the cost of construction of projects in accordance

with subsection (f) of this section, and which the Secretary is hereby directed to deposit in the fund as they are received, and (2) any appropriations made by the Congress to the fund.

(c) There is authorized to be appropriated to the Secretary for deposit in the fund established by subsection (b) of this section the sum of $25,000,000.

(d)(1) If the Secretary determines that moneys in the fund are in excess of current needs, he may request the investment of such amounts as he deems advisable by the Secretary of the Treasury in direct, general obligations of, or obligations guaranteed as to both principal and interest by, the United States.

(2) With the approval of the Secretary of the Treasury, the Secretary may deposit moneys of the fund in any Federal Reserve bank or other depository for funds of the United States, or in such other banks and financial institutions and under such terms and conditions as the Secretary and the Secretary of the Treasury may mutually agree.

(e) The Secretary is authorized to make expenditures from the fund for the phase I design memorandum stage of advanced engineering and design for any project in Alaska that meets the requirements of subsection (a) (2) of this section, if appropriate non-Federal public authorities, approved by the Secretary, agree with the Secretary, in writing, to repay the Secretary for all the separable and joint costs of preparing such design memorandum, if such report is favorable. Following the completion of the phase I design memorandum stage of advanced engineering and design under this subsection, the Secretary shall not transmit any favorable report to Congress prior to being repaid in full by the appropriate non-Federal public authorities for the costs incurred during such phase I. The Secretary is also authorized to make expenditures from non-Federal funds deposited in the fund as an advance against construction costs.

(f) In connection with water resources development projects which meet the criteria established by subsection (a) (2) of this section and which are to be constructed by the Secretary, acting through the Chief of Engineers, in accordance with an authorization by Congress and a contract between the non-Federal public authorities and the Secretary, pursuant to subsection (g) (1) of this section occurring on or subsequent to the date of enactment of this Act, the Secretary, acting through the Chief of Engineers, is authorized to construct such projects including activities for engineering and design land acquisition, site development, and off-site improvements necessary for the authorized construction by making expenditures from (1) the Fund established in subsection (b) of this section of funds deposited by non-Federal public authorities as payments for construction and (2) payments of non-Federal public authorities held by the Secretary as payment of construction costs for a project authorized by this section.

(g)(1) Prior to initiating any construction work under the authorities of this section, the Secretary and the appropriate non-Federal public authorities shall agree in writing, and submit such agreement to the Committees on Public Works and Appropriations of the Senate and House of Representatives for review and reporting to the Congress for its consideration and approval that the appropriate non-

Federal public authorities will pay the full anticipated costs of constructing the project at the time such costs are incurred, together with normal contingencies and related administrative expenses of the Secretary, and such payments shall be deposited in the fund or held by the Secretary for payment of obligations incurred by the Secretary on an authorized project under this section. The agreement shall provide for an initial determination of feasibility and compliance by the project with law. The total non-Federal obligation shall be paid on or prior to the date the Chief of Engineers has estimated by agreement, that the project concerned will be available for actual generation of all or a substantial portion of the authorized hydroelectric power of the project.

(2) In consideration of the obligations to be assumed by non-Federal public authorities under the provisions of this section and in recognition of the substantial investments which will be made by these authorities in reliance on the program established by this section, the United States shall assume the responsibility for paying for all costs over those fixed in the agreement with the non-Federal public authorities, if such costs are occasioned by acts of God, failure on the part of the Secretary, acting through the Chief of Engineers, to adhere to the agreed schedule of work or a failure of design: Provided, That payments by the Secretary of such costs shall be subject to appropriations acts.

(h) The Secretary is authorized and directed, pursuant to the agreement, to convey all title, rights, and interests of the United States to any project, its lands and water areas, and appurtenant facilities to the non-Federal public authorities which have agreed to assume ownership of the project and responsibility for its performance, operation, and maintenance, as well as necessary replacements in accordance with this section upon full payment by such non-Federal public authorities as required under subsection (g)(1) of this section. Such conveyance shall, pursuant to the agreement required by subsection (g) of this section, to the maximum extent possible, occur immediately upon the project's availability for generation of all or a substantial portion of the authorized hydroelectric power of the project, and shall include such Federal requirements, reservations, and provisions for access rights to the project and its records as the Secretary finds advisable to complete any portion of project construction remaining at the time of conveyance and to assure that the project will be operated and maintained in a responsible and safe manner to accomplish, as nearly as may be possible, all of the authorized purposes of the project including, but not restricted to, hydroelectric power generation.

(i) This section shall be cited as the "Alaska Hydroelectric Power Development Act".

SEC. 204. No funds specifically authorized for any project in this Act will be available for expenditure prior to fiscal year 1978.

SEC. 205. This Act may be cited as the "Water Resources Development Act of 1976".

And the House agree to the same.

ROBERT E. JONES,
RAY ROBERTS,
HAROLD T. JOHNSON,
ROBERT ROE,
JIM OBERSTAR,
WILLIAM HARSHA,
DON H. CLAUSEN,
GENE SNYDER,
Managers on the Part of the House.

MIKE GRAVEL,
JENNINGS RANDOLPH,
QUENTIN BURDICK,
JOHN CULVER,
JAMES A. MCCLURE,
HOWARD BAKER,
Managers on the Part of the Senate.

JOINT EXPLANATORY STATEMENT OF THE COMMITTEE OF CONFERENCE

The managers on the part of the House and the Senate at the conference on the disagreeing votes of the two Houses on the amendment of the House to the bill (S. 3823) authorizing the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes, submit the following joint statement to the House and the Senate in explanation of the effect of the action agreed upon by the managers and recommended in the accompanying conference report:

The House amendment struck out all of the Senate bill after the enacting clause and inserted a substitute text.

The Senate recedes from its disagreement to the amendment of the House with an amendment which is a substitute for the Senate bill and the House amendment.

The Senate bill is the biannual authorization of the rivers and harbors works of the Corps of Engineers for flood control, navigation, and other purposes. The total cost of the bill, as reported, is approximately $1.1 billion for projects recommended by the Corps and other provision affecting the operation of the water resources program generally.

All projects of improvement authorized in this bill are to be carried out in accordance with existing law and stipulations contained in the appropriate project documents as modified by the Committee on Public Works in the development of this legislation. The new authorizations provided in the bill are for fiscal year 1978 and succeeding fiscal years.

The House amendment is a water resources development project authorization and basin monetary authorization bill. Title I of the bill includes water resources development project authorizations and provisions modifying previously authorized projects and relating generally to the water resources development program. A total of 44 projects are contained in Title I. The projects cover all types of works under the jurisdiction of the Committee on Public Works and Transportation and within the province of the Corps of Engineers. The total estimated cost of Title I is $403,777,880. Since enactment of the last monetary authorization bill, there are twelve basins which need additional authorization in order that appropirations can be requested to contiue work in the basins. Title II authorizes an increase in the amount of $590,000,000 in the monetary authorizations for the twelve comprehensive river basin plans previously approved by Congress. The authorization for the appropriation of these additional amounts commences with fiscal year 1978.

The conference substitute is the same as the Senate bill and the House amendment except for major substantive changes noted below and clerical corrections and conforming changes made necessary by agreements reached by the conferees.

All projects which can be authorized by committee resolution were eliminated from the Senate bill as well as projects relating to watersheds. The sum of $50,000 was added to the project for Nonconnah Creek, Tennessee, for the Horn Lake Creek provisions included from the House amendment.

The sections relating to dredging and title II of the river basin authorizations in the House amendment were eliminated.

ROBERT E. JONES,
RAY ROBERTS,
HAROLD T. JOHNSON,
ROBERT ROE,
JIM OBERSTAR,
WILLIAM HARSHA,
DON H. CLAUSEN,
GENE SNYDER,
Managers on the Part of the House.

MIKE GRAVEL,
JENNINGS RANDOLPH,
QUENTIN BURDICK,
JOHN CULVER,
JAMES A. MCCLURE,
HOWARD BAKER,
Managers on the Part of the Senate.

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Calendar No. 1189

94TH CONGRESS
2d Session

SENATE

REPORT
No. 94-1255

WATER RESOURCES DEVELOPMENT ACT OF 1976

REPORT

OF THE

COMMITTEE ON PUBLIC WORKS
UNITED STATES SENATE

Together With

SUPPLEMENTAL VIEWS

TO ACCOMPANY

S. 3823

SEPTEMBER 16, 1976.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE
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Calendar No. 1189

94TH CONGRESS } SENATE { REPORT
2d Session } { No. 94–1255

WATER RESOURCES DEVELOPMENT ACT OF 1976

SEPTEMBER 16, 1976.—Ordered to be printed

Mr. GRAVEL, from the Committee on Public Works, submitted the following

REPORT

together with

SUPPLEMENT VIEWS

[To accompany S. 3823]

The Committee on Public Works reports an original bill (S. 3823) authorizing the construction, repair, and preservation of certain rivers and harbors for navigaiton, flood control, and for other purposes, and recommends that the bill do pass.

PURPOSE

This legislation, designated as hte Water Resources Development Act of 1976, is the biannual authorization of the rivers and harbors works of the Corps of Engineers for flood control, navigation, and other purposes. The total cost of the bill, as reported, is approximately $1.1 billion for projects recommended by the Corps and other provision affecting the operation of the water resources program generallly.

All projects of improvement authorized in this bill are to be carried out in accordance with existing law and stipulations contained in the appropriate project documents as modified by the Committee in the development of this legislation. The new authorizations provided in the bill are for fiscal year 1978 and succeeding fiscal years.

GENERAL STATEMENT

The Congress last acted on a general authorization bill for water resources activities in 1974 with the enactment of the Water Resources Development Act (Public Law 93–251). It has been the practice of

the Congress to consider authorizations in this area every two years. This bill continues that practice by providing the recommendations of the Committee on Public Works for the consideration of the Senate.

Since the last authorization bill, many reports have been prepared by the Corps of Engineers. Favorable reports on 38 projects have been transmitted to the Congress by the Chief of Engineers. Either advanced engineering and design or construction is recommended for these projects. Several matters of general legislation also are included in this bill.

The Corps of Engineers has recommended projects to prevent or reduce damages caused by flood waters; to provide water for municipal, agricultural, and industrial use; to generate hydroelectric power; to protect beaches and streambanks; to provide recreational facilities; and to develop and improve the Nation's navigation facilities. These projects will provide lasting improvements which will benefit the country for many years.

In the Water Resources Development Act of 1974, the Congress made many significant changes in Corps procedures so as to provide an economical and efficient program. The principal modification was two-stage authorization. Under this procedure, a project is authorized after preparation of a favorable survey report for phase I design memorandum stage of advanced engineering and design. A report is then transmitted to the Congress recommending construction if continuing work on the project is favorable. Congress may then approve construction if it finds the project to be beneficial.

The bill reported by the Committee authorizes phase I engineering on 25 projects and construction on 31 projects recommended by the Corps. This bill does not contain any authorization for construction of projects on which phase I was authorized by the 1974 Act. The Committee felt that it would be inappropriate to consider any phase I report on which Administration review was incomplete.

Only two of the 1974 phase I projects have reports and neither has a final report of the Chief of Engineers. Since the Committee intends to review phase I reports carefully before approving construction, action on Libby Re-regulating Dam and Days Creek Dam, Oregon, was deferred. If timley authorization of projects is to be accomplished, the Corps should consider developing a procedure which recognizes the legislative cycle of the Congress for authorizing water resources projects.

One of the most controversial issues facing the Committee this year was the replacement of Locks and Dam 26 on the Mississippi River. The proposed replacement of this facility on the inland waterday system raised questions regarding Corps policy with respect to repair or replacement of facilities which are no longer structurally sound or economically efficient. Prior to 1975, the Corps replaced obsolete facilities under the authority of the Act of March 3, 1909, if the Secretary of the Army approved, based upon a finding of essential for continued use and consistent with other proposed improvements for the system.

In 1974, a court suit challenged the Secretary of the Army's authority to replace Locks and Dam 26. Judge Charles Richey of Federal District Court for the District of Columbia ruled for the plaintiffs (environmental groups and the midwestern railroads) that the Secretary had

exceeded his authority since the replacement proposal was significantly different than the existing facility. Subsequently, the Secretary of the Army revoked his authorization and determined that a proposal to replace Locks and Dam 26 would be submitted to the Congress for approval.

During the Committee's discussion of Locks and Dam 26, the underlying issue of improvements to the inland navigation system was reviewed thoroughly. The Committee was faced with the issue of the proper level of maintenance of navigation facilities and the desirability of the continuation of inland waterways as a mode of transportation. Since Congress initiated the navigation program in 1824, considerable sums of money have been appropriated for improving and maintaining the navigable waterways of the Nation. The Committee was, therefore, faced with the decision of determining the continued relative importance of waterways to transportation of interstate commerce.

The Committee determined that water transportation continues to have an important and useful role in the national economy and is an integral part of the country's transportation system. Recognition was given to the importance of other modes of transportation, but Committee members felt that a viable waterway system is essential to shippers and consumers of goods. It is in the national interest to have an inland waterway network in sufficient repair to move goods economically and efficiently from producer to consumer. Competition among transportation modes is required for such movement of goods.

With respect to the general issue of replacement of facilities, the Committee adopted a procedure which requires that the Secretary of the Army seek specific authorization from the Congress of repair or replacement projects which exceed a cost of $10 million. The Secretary is authorized to proceed on his own initiative for projects costing less than $10 million subject to appropriations covering such repair or replacement costs. This procedure will give the Congress the ability to continually review and determine the scope of major improvements to the inland navigation system. The authority provided to the Secretary is in keeping with the policy of allowing the Corps to proceed with flood control, navigation, and other similar projects without an act of Congress, if the Federal cost is less than $10 million. The Committee intends, therefore, to examine each proposed replacement carefully to determine its implication for the entire network.

In a decision related to the issue of navigation system improvement, the Committee adopted a provision which authorizes collection of user charges on the inland waterways. Such charges are to be implemented over a ten-year period and are designed to collect 50 percent of the operation, maintenance, and new construction costs for the inland system from that time forward. User charges were imposed because the Committee believes that various users of federally supported transportation facilities should pay some portion of the costs of developing and maintaining the facilities for their users.

Regulations establishing the level of charges and method of collection are to be prepared by the Corps of Engineers. The bill also directs a study of the equity and form of user charges by the National Transportation Policy Study Commission and a report to the Congress. The Committee will carefully examine this report and the reg-

ulations developed after their submittal to Congress on January 15, 1978, to determine if the charges achieve the results expected. The Committee will not take lightly its authority to recommend disapproval of the regulations and will consider changes at that time if the regulations fail to achieve the requirements of the section to make user charges equitable for all commercial users of the inland waterway system.

It is the view of the Committee that the user charges provision is tied unexorably to the approval of the major new inland navigation projects: Locks and Dam 26, Gallipolis, and Vermillion. They were included as a package because there is no rational way to separate them.

Another major innovation in this bill is the establishment of a mechanism to allow non-Federal public authorities to finance the construction of hydroelectric power projects. A hydroelectric power development program is set up so that Corps of Engineers may study the feasibility of hydropower development at a specific site and then act as construction agent for the local authority which will finance and own the generating facilities.

A project developed under this program will follow the typical authorization cycle of Corps projects. Congress must authorize phase I, the cost of which will be repaid by local sponsors if the project is determined to be feasible. Construction is then authorized by Congress based upon such report and the required contract between the Corps of Engineers and the local authority. A hydroelectric power development fund is established from which the Corps may draw Federal funds to finance phase I costs. Local authorities are expected to finance construction from bond sales which would be deposited in the hydropower fund for the use of the Corps.

The Committee believes this procedure will provide a mechanism to develop needed power generating facilities at a rate faster than Federal construction. With typical Corps construction, the project must compete with all other Corps projects for funding under the appropriations process. Large hydropower projects can take 30 to 40 years to complete with Federal financing. It is believed this program can reduce the time to 8 to 14 years. This could lead to considerable construction cost savings since inflation tends to significantly increase costs over the years. It will also reduce the burden on the Federal Treasury while still providing power to regions which experience the need for new or additional power generating capability.

The waters of this Nation are a valuable resource and we must seek to utilize them to the maximum advantage for economic development. This, however, must be accomplished in an environmentally sound manner. The procedure of project authorization under this hydropower program will assure that environmental issues are considered and addressed in project development.

Section-by-Section Analysis

SECTION 2—PHASE I AUTHORIZATIONS

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to undertake the Phase I design memorandum

stage of advanced engineering and design of major water resources development projects substantially in accordance with, and subject to, conditions recommended by the Chief of Engineers in the reports designated in this section. Subsection (a) authorizes prosecution of this work as soon as funds are available. Subsection (b) authorizes work to commence only after the project is approved by the President. Subsection (c) authorizes work contingent upon the approval of the Secretary of the Army and the President.

The Phase I design memorandum stage of advanced engineering and design is defined to include post-authorization studies that are necessary to establish the basic design and scope of the project, and to appraise its justification and public acceptability under current conditions.

A summary of the projects in this section follows. The table lists the projects, project document numbers and estimated Federal costs for the Phase I design memorandum stage of advanced engineering and design. Pertinent information follows for each project.

Project:	Federal cost
Section 2(a)	
New London Harbor, Conn	$250,000
New Jersey coastal inlets and beaches (group II)	2,062,000
New Jersey coastal inlets and beaches (group III)	2,396,000
Southern Branch of Elizabeth River, Va	100,000
Wallkill River, N.Y., N.J	330,000
Lock Haven, Pa	430,000
Wyoming Valley, Pa	450,000
Richmond, Va. Flood Control	800,000
Charleston Harbor, S.C	500,000
San Juan Harbor, P.R	300,000
Presque Isle, Pa	700,000
Little Calumet River, Ind	1,400,000
Minnesota River at Chaska, Minn	300,000
Mississippi River at La Crosse, Wis	400,000
Park River Sub-Basin, N. Dak	570,000
Neches River Salt Water Barrier, Tex	500,000
St. Johns Bayou, Mo	300,000
Callequas Creek, Calif	1,060,000
Los Angeles-Long Beach Harbors, Calif	50,000
Morrison Creek, Calif	750,000
Section 2(b)	
Brazos River Basin, Tex	650,000
McNary Second Powerhouse, Oreg., Wash	1,800,000
Section 2(c)	
Brunswick Harbor, Ga	300,000
Chicagoland Underflow Plan (TARP), Ill	12,000,000
Pembina River, N. Dak	930,000
Papillon Creek, Nebr	75,000
Rio Grande Basin, N. Mex	1,500,000
Santa Ana River, Calif	700,000
Siuslaw River, Oreg	50,000
Upper Susitna River Basin, Alaska	25,000,000

New London Harbor and Thames River, Conn.

Location.—New London Harbor and the Thames River are in southeastern Connecticut, 13 miles west of the Connecticut-Rhode Island border.

Existing projects.—In New London Harbor—a 3.8 mile entrance channel originally 600 feet wide and 33 feet deep which has been further deepened by the U.S. Navy to 36 feet at a width of 500 feet; a 6,000 foot channel, 400 feet wide and 23 feet deep along the waterfront; two branch channels and a maneuvering area and dredging Shaw Cove to a depth of 15 feet. In the Thames River an 8.6 mile channel to Norwich, Connecticut, 200 to 350 feet wide, 25 feet deep, and five training walls.

Needs.—There is a need for general deepening and widening of the existing Federal navigation channel and anchorages in New London Harbor and the Thames River. The present depth of the harbor channel is 36 feet and is not of sufficient dimensions to accommodate large vessels coming into prominent use for transporting petroleum and general commerce. In addition, the approach to the State Pier is too limited in depth and area for today's traffic. The channel in the Thames River has numerous bends which are hazardous and impede navigation. There are nine major terminal facilities which would benefit from the proposed improvements. Five in New London Harbor and four along the Thames River.

Deep-draft petroleum tanker receipts at New London Harbor are estimated to quadruple in fifty years. Connecticut Light and Power Company's new generating unit at Montville has created a need for 900,000 tons of residual fuel oil annually. Along the Thames River chemical processing at Allyn's Point is expected to increase ten fold during the period 1975–2014.

Recommended plan of improvement.—The recommended plan provides for deepening the New London Harbor channel to 40 feet for a distance of 15,000 feet upsttream from deep water in Long Island Sound; a 30-foot deep, 40-acre turning basin at the north end of the channel, and a 32-foot-deep, 4.9-acre maneuvering area just south of the Connecticut State Pier. The 40–foot channel depth was selected as the result of maximization of net benefits when considering depths of 34 to 42 feet. Enlargement and deepening of the maneuvering area at the State Pier will permit safe docking and unloading.

Estimated cost (price level of November 1974)

Federal	[1] $7,772,000
Non-Federal	
Total	7,772,000

[1] Excludes $20,000 for aids to navigation.

PROJECT ECONOMICS

[Interest rate of 6⅛ percent]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$503,000		$503,000
Maintenance and operation	50,000		50,000
Total	553,000		553,000

Annual benefits

Transportation savings	$1,851,000
Damage prevention	29,000
Total	1,880,000

Benefit-cost ratio.—3.4.

Environmental impact of recommended plan.—Dredging effects are temporary and some localized degradation of fish and wildlife resources will occur. Specific environmental effects are identified as follows:

(1) Localized alteration of habitats due to physical and chemical changes.

(2) Destruction and redistribution of benthic biota.

(3) Temporary and localized increase in turbidity and siltation.

(4) Release of offensive gases such as hydrogen sulfide.

(5) Resuspension of non-biodegradable chemical pollutants and organics.

(6) Temporary increase in BOD & COD.

(7) Synergistic effects of heavy metals, organics, temperature and salinity anomalies on zooplankton, finfish and benthic invertebrates.

(8) Possible environmental enhancement effects through the removal of polluted sediments.

Spoiling effects cannot be fully evaluated until the disposal sites are selected. The fact that little information is available concerning the effects of dredge spoil in the ocean environment suggests that definitive studies should be initiated before the project is fully developed. A sum has been included in the project cost to study site selection and for monitoring studies of the project.

New Jersey coastal inlets and beaches (group II) Hereford Inlet to the Delaware Bay entrance to the Cape May Canal

Location.—The southernmost 16 miles of the New Jersey Atlantic Coast.

Existing projects.—The existing Federal projects consist of navigation channels at Hereford Inlet and Cape May Inlet, bulkheads along Five Mile Beach and North Wildwood, and groins at Cape May City.

Need.—Prevention of loss of beaches and of the migration and shoaling of the channel through Hereford Inlet.

Recommended plan of improvement.—Hereford Inlet and Five Mile Beach—Jetties and deposition basis, navigation channel, beach and sand fill, bulkhead and backfill, and groins.

Cape May Inlet to Lower Township.—Breakwater with weir, deposition basin, and fill, seawall rehabilitation, and groins.

Cape May Point.—Sand fill, groins, and dikes.

ESTIMATED COST

[1976 price level]

	Federal	Non-Federal	Total
Hereford inlet and Five Mile Beach	$10,440,000	6,211,000	16,651,000
Cape May inlet to Lower Township	18,452,000	3,282,000	21,734,000
Cape May Point	2,894,000	1,498,000	4,392,000
Total	31,786,000	10,991,000	42,777,000

PROJECT ECONOMICS

[Interest rate of 5⅝ percent]

	Federal	Non-Federal	Total
Annual charges:			
Hereford Inlet and Five Mile Beach:			
Interest and amortization	$408,000	$244,000	$652,000
Maintenance and operation	75,000	395,000	470,000
Total	483,000	639,000	1,122,000
Cape May Inlet to Lower Twnship:			
Interest and amortization	722,000	128,000	850,000
Maintenance and operation	355,000	80,00	435,000
Total	1,077,000	208,000	1,285,000
Cape May Point:			
Interest and amortization	125,000	64,000	189,000
Maintenance and operation		51,000	51,000
Total	125,000	115,000	240,000
Total project:			
Interest and amortization	1,255,000	436,000	1,691,000
Maintenance and operation	430,000	526,000	956,000
Total	1,685,000	962,000	2,647,000

	Hereford and Five Mile Beach	Cape May Inlet to Lower	Cape May Point	Total
Annual benefits:				
Navigation	$415,000	0	0	$415,000
Beach erosion cont	1,438,000	$2,123,000	$45,000	3,606,000
Storm protection	1,062,000	2,202,000	249,000	3,513,000
Jetty sport fish	7,000	0	0	7,000
Total	2,922,000	4,325,000	294,000	7,541,000

Benefit-cost ratio

Hereford Inlet and Five-Mile Beach	2.6
Cape May Inlet to Lower Township	3.4
Cape May Point	1.2

NOTE.—At 6⅛-percent interest, benefit-cost ratios are 2.4, 2.9, and 1.3, respectively.

Environmental impact of recommended plan.—Favorable impacts would include improved recreation conditions and greater navigational safety; unfavorable impacts would be temporary such as disturbance of marine life and turbidity during construction.

New Jersey coastal inlets and beaches—Barnegat Inlet to Longport (group III)

Location.—39 miles in the middle of the Atlantic Coast of New Jersey.

Existing projects.—A Federal navigation channel at Barnegat Inlet with jetties; and a Federal navigation channel at Absecon Inlet; shore protection measures, including groins, bulkheads, revetments, and beach fill by Federal and non-Federal interests along the coast.

Needs.—Preventive measures against continuing erosion of the beaches and tidal flooding due to tidal storms, as well as improvement of navigation conditions.

Recommended plan of improvement.—

Barnegat Inlet: Jetty and navigation channel.

Long Beach Island: Beach fill, groins, jetty maintenance, and periodic nourishment.

Brigantine Island: Beach fill, groins, and periodic nourishment.

Absecon Island: Sandfill, periodic nourishment, breakwater and deposition basin, as well as completion of authorized project.

ESTIMATED COST

[1976 price levels]

	Federal	Non-Federal	Total
Barnegat Inlet	$13,266,000	$10,487,000	$23,753,000
Long Beach Island	8,465,000	8,388,000	16,853,000
Brigantine Island	5,069,000	2,485,000	7,554,000
Absecon Island	7,673,000	7,689,000	15,362,000
Total	* 34,473,000	29,049,000	63,422,000

* Excludes $7,000 for Long Beach Island and $14,000 for Absecon Island for navigation aids.

PROJECT ECONOMICS

[5⅝ percent interest]

Annual charges	Federal	Non-Federal	Total
Barnegat Inlet:			
Interest and amortization	679,000	536,000	1,215,000
Maintenance and operation	279,000	1,000	280,000
Total	958,000	537,000	1,495,000
Long Beach Island:			
Interest and amortization	438,000	434,000	872,000
Maintenance and operation	154,000	358,000	512,000
Total	592,000	792,000	1,384,000
Brigantine Island:			
Interest and amortization	266,000	131,000	397,000
Maintenance and operation	41,000	289,000	330,000
Total	307,000	420,000	727,000
Absecon Island:			
Interest and amortization	393,000	393,000	786,000
Maintenance and operation	274,000	335,000	609,000
Total	667,000	728,000	1,395,000
Total project:			
Interest and amortization	1,776,000	1,494,000	3,270,000
Maintenance and operation	748,000	983,000	1,731,000
Total	2,524,000	2,477,000	5,001,000

	Barnegat Inlet	Long Beach Island	Brigatine Island	Absecon Island	Total project
Annual benefits:					
Recreation	$2,406,000	$4,138,000	$201,000	$4,763,000	$11,508,000
Commercial fishing	282,000	0	0	0	282,000
Damage prevention	64,000	0	0	0	64,000
Reduced maintenance	45,000	0	0	35,000	80,000
Total	2,797,000	4,138,000	201,000	4,798,000	11,934,000

	Interest rate (percent)	
	5⅝	6⅛
Benefit-cost ratio:		
Barnegat Inlet	1.9	1.7
Long Beach Island	3.0	2.7
Brigantine Island	1.4	1.3
Absecon Island	3.4	3.3

Local cooperation.—

For all features: Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction and subsequent maintenance of the project, or of any of its separable and independent elements, and for aids to navigation upon the request of the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of dredged material and including necessary retaining dikes, bulkheads, and embankments therefor, or the costs of such retaining works; hold and save the United States free from damages due to construction and subsequent maintenance work, not including damages due to the fault or negligence of the United States or its contractors; accomplish without cost to the United States all alterations and relocations of buildings, transportation facilities, storm drains, utilities, and other structures and improvements made necessary by the construction, except storm drain extensions located within beach fill areas; provide a cash contribution for the non-Federal share of the total project cost, or for the non-Federal cost sharing of appropriate separable and independent project elements, such contributions to be paid either in a lump sum prior to construction or in installments prior to commencent of pertinent items in accordance with construction schedules as required by the Chief of Engineers, the final apportionment of costs to be made after actual costs have been determined and as provided elsewhere in these items of local cooperation.

For navigation and recreational fishing features: Provide a cash contribution for the navigation facilities equal to 50 percent of the final construction cost allocated to recreational navigation, exclusive of lands, easements, rights-of-way, alterations, and relocations; provide a cash contribution equal to one-half of the initial cost of jetty sport fishing facilities; bear all costs for operation and maintenance of the jetty sport fishing facilities and adjoining public recreation land areas.

For beach erosion control and storm protection features: Provide a cash contribution for beach erosion control, based on a percentage of construction costs, exclusive of lands, easements, rights-of-way, and relocations, with the actual amount to be based on existing law and conditions at the time of construction, and the percentage to be based on shore ownership and use then existing; provide a cash contribution for periodic nourishment for the life of the project, such contributions to be made prior to each nourishment operation, with the actual amount to be based on existing law and conditions of ownership and use at the time of each periodic nourishment operation; maintain all works for storm protection and beach erosion control after completion in accordance with regulations prescribed by the Secretary of the Army, including maintenance and necessary replacements of groins; provide without cost to the United States appropriate access and facilities, including parking and sanitation, necessary for realization of the public benefits upon which Federal participation is based; and administer and maintain the beach for continued public use open to all on equal terms during the life of the project; control water pollution to the extent necessary to safeguard the health of the bathers; adopt appropriate ordinances or provide other means to insure preservation of the beach fill and dune areas; at least annually, inform affected interests that the project will not provide complete protection from storms and hurri-

canes, but if maintained will provide protection from oceanfront waves and the floods associated with a tide that is 9.6 feet above m.l.w.; maintain the shoreline zones qualifying for 70 percent Federal participation in a manner which (1) excludes permanent human habitation and prevents development which would be vulnerable to damage by ocean waters so as to eliminate hazards to human life and property; (2) includes a beach suitable for recreation; and (3) includes parks or conservation areas to be developed, operated, and maintained so as to preserve the desirable features of the local environment; the parks or conservation areas must extend landward a sufficient distance to include natural protective features such as dunes and swamps which absorb wave energy or flood effects of storm tides; and take appropriate measures, including adopting such regulations as necessary, to insure compatibility between future development and protection levels provided by the projects and to prevent encroachments upon the beach areas and protective works which would result in an undue increase in the storm damage potential.

Environmental impact fo recommended plan.—Enhanced recreation and navigation conditions and benthic disruption.

Southern Branch of Elizabeth River, Chesapeake, Va.

Location.—In the southern portion of the Hampton Roads area of Virginia.

Existing project.—A Southern Branch of Elizabeth River channel 40 feet deep and 450 feet wide from the junction with the Eastern Branch to the Norfolk and Portsmouth Belt Line Railroad Bridge; thence 40 feet deep and 375 feet wide to the downstream Norfolk and Western Railroad Bridge; thence 35 feet deep and 250 feet wide to a point 2,500 feet above the upstream Norfolk and Western Railroad Bridge, terminating with a turning basin 35 feet deep and 600 feet square.

Need.—The area has a great need for deepwater sites for further industrial development.

Recommended plan of improvement.—Modification of the existing project to extend the 35-foot-deep and 250-foot wide channel from its present terminus upstream for a distance of 1.5 miles to the Norfolk and Portsmouth Belt Line Railroad Bridge, and to provide an 800-foot square turning basin, one-half mile from the upstream end of the extended channel.

Estimated cost (1976 price level)

Federal	$4,030,000
Non-Federal	3,370,000
Total	7,400,000

PROJECT ECONOMICS

[Interest rate of 5⅝ percent]

	Federal	Non-Federal	Tota
Annual charges:			
Interest and amortization	$131,200	$102,200	$233,400
Maintenance	33,000	11,200	44,200
Total	164,200	113,400	277,600

Annual benefits

Transportation savings	$280,000
Land enhancement	42,000
Total	862,000

Benefit-cost ratio.—3.1 (2.8 at 6⅛ percent).

In addition to the normal requirements of local cooperation, local interests are required to contribute in cash 2.4 percent of the construction cost, including engineering and design and supervision and administration thereof, of all work to be provided by the Corps of Engineers, a contribution now estimated at $54,000 for land enhancement benefits, to be paid in a lump sum priod to start to construction, or in installments prior to start of pertinent work items in accordance with construction schedules as required by the Chief of Engineers, the final apportionment of cost to be made after the actual costs have been determined; and contribute annually, until such time as multiple use of the extended channel actually occurs, 50 percent of the annual charges for interest and amortization of the Federal first cost of the improvement, presently estimated at $66,000, and that such annual contributions shall end when the Chief of Engineers determines that multiple use of the channel extension has commenced.

Environmental impact fo recommended plan.—Such impacts would be minimal or temporary, and include turbidity during dredging and temporary displacement of aquatic fauna.

Remarks: The Committee notes that deepwater sites for further industrial development are needed in the Southern Branch of Elizabeth River, Chesapeake, Virginia. Further, the Committee notes that the Foster Grant Corp. will make use of the improvement and that additional users are expected in the future. Local interests are seeking new industries to locate in the area adjacent to the project, which is zoned for industrial development. Recently, a second company, Davis Grain, received a permit for a terminal in the project area. The Committee believes that the cost sharing arrangements recommended by the Chief of Engineers are appropriate until multiple use is made of the project.

Wallkill River, New York and New Jersey (black dirt area)

Location.—The Black Dirt Area is in Orange County, New York, just north of the New Jersey—New York State line, and consists of about 14,400 acres.

Existing projects.—There are no Corps of Engineers projects in the area. In 1938, a Civilian Conservation Corps effort cleared and straightened about four miles of the Wallkill River. Non-Federal channel improvements were made periodically, and with assistance by the Soil Conservation Service, an extensive area of on-farm drainage ditches and laterals were developed throughout the Black Dirt Area.

Need.—Flood control improvements are needed to prevent damages due to flooding of the Wallkill River and its tributaries and due to subsurface saturation. Average annual losses amount to $2,179,000 and are predominantly in agricultural crops and improvements.

Recommended plan of improvement.—22 miles of channel improvement, to include low-flow control structures as a mitigation measure to assure maintenance of flow levels necessary to provide a proper degree of soil moisture.

Estimated cost (1976 price levels)

Federal	$17,290,000
Non-Federal	120,000
Total	17,410,000

PROJECT ECONOMICS

[Interest rate of 5⅝ percent]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$760,800	$5,400	$766,200
Operation and maintenance		29,100	29,100
Total (2)	760,800	34,500	795,300

Annual benefits

Flood control	$1,924,000

Benefit-cost ratio.—(2.2 (2.1 at 6⅛ percent).

Environmental impact of recommended plan.—Flood damages would be reduced, resulting in the enhancement of the regional economy. Some farmland would be taken out of production. Removal of fallen trees and channel excavation would reduce the value of the streams for aquatic life.

Remarks: The Committee notes that the Black Dirt Area of New York is subject to damaging floods due to subsurface saturation, amounting to about $2,179,000 yearly. Flood protection works are urgently needed. The Committee believes that the project is flood control not drainage. Flooding is caused by overflow from natural stream, and the flood runoff originates in the water shed above the project. The project would not result in any land reclamation or significant changes in cropping which are the basic reasons for establishment of special cost sharing requirements. The basic problem is the need to convey flood flows through the Black Dirt area or to prevent its reaching the area. The Committee further notes the suggestion that lack of maintenance of the CCC project, constructed in the late 1930's contributes to flooding which now occurs as a result of insufficient channel capacity. However, questions remain as to whether the CCC project was completed as designed and whether local maintenance was required at that time. The riprap work was never completed and excavating material was placed immediately adjacent to the work area, rather than away from the area as originally designed. As a result, the spoil recharged the soft bank material causing displacement into the completed channel.

Lock Haven, Clinton County, Pa.

Location.—The city of Lock Haven is situated on the right bank of the West Branch Susquehanna River, in Clinton County, about 70 miles northwest of Harrisburg.

Existing projects.—There are no existing flood control improvements constructed by either Federal or State agencies at Lock Haven.

Need.—Flood control improvements are needed to prevent flood damages at Lock Haven due to flooding of the West Branch Susquehanna River and Bald Eagle Creek. The main business district, the city's three major industries, and many residences are subject to flood-

ing. Severe floods have occurred in May 1946, November 1950, March 1964 and June 1972. The June 1972 flood caused $50 million in damages at Lock Haven.

Recommended plan of employment.—The most practical plan for the protection of Lock Haven against damaging floods is a system of levees and floodwalls. The system would consist of approximately 9,900 lineal feet of concrete floodwall along the West Branch, and approximately 18,700 feet of earthen levee along the West Branch and Bald Eagle Creek. Interior drainage facilities would consist of gravity outlets, five pumping stations and five ponding areas.

Estimated Cost (1976 price levels)

Federal	$30,400,000
Non-Federal	5,460,000
Total	35,860,000

PROJECT ECONOMICS

[Interest rate of 5⅞ percent]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$1,371,100	$127,100	$1,498,200
Operation and maintenance		30,700	30,700
Total	1,371,100	157,800	1,528,900

Annual benefits

Flood control	$2,333,500

Benefit-cost ratio.—at 5⅞ percent equal 1.5 and at 6⅛ percent equal 1.4.

Environmental impact of recommended plan.—The primary environmental concern is the effect of the project on other communities along the West Branch. The effect on Lockport, directly across the West Branch, will be to cause slightly higher flood levels during the larger floods. Downstream of Lock Haven the effect would be minimal. The proposed wall will partially restrict the view and may be visually displeasing.

Local cooperation.—In addition to the normal requirements of local cooperation, local interests are required to provide an initial cash contribution equal to the incremental cost of extending the levee to protect the industrial waste ponds of the Hammermill Paper Company.

Wyoming Valley, Pa.

Location.—In Luzerne County, northeastern Pennsylvania, about 16 miles southwest of Scranton, Pennsylvania.

Existing project.—Four independent projects are located on both banks of the Susquehanna River. They are the Swoyersville-Forty Fort, the Kingston-Edwardsville, the Wilkes-Barre and Hanover Township, and the Plymouth flood protection projects. Upstream of the area, fourteen reservoirs, on tributaries of the Susquehanna, have been authorized. Six of these have been completed and two are under construction.

Need.—Flood protection is needed. Damaging floods have covered communities in the Wyoming Valley many times. The June 1972 flood, the maximum of record, caused damages estimated at $730 million.

Recommended plan of improvement.—Raising of approximately 12 miles of levees and floodwalls with associated interior drainage and bridge modifications and channel clearing at the existing local flood protection projects of Kingston-Edwardsville, Swoyersville-Forty Fort, Plymouth, and Wilkes-Barre and Hanover Township.

Estimated cost (1976 price level)

Federal	$45,300,000
Non-Federal	45,300,000
Total	$90,600,000

PROJECT ECONOMICS

[Interest rate of 5⅞ percent]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$1,717,000	$1,717,000	$3,434,000
Maintenance and operation		48,000	48,000
Total	1,717,000	1,765,000	3,482,000

Annual benefits

Flood control	$4,236,000

Benefit-cost ratio.—1.2 at 5⅞ percent and 1.2 at 6⅛ percent.

Environmental impact of recommended plan.—The proposed project will directly and indirectly benefit in Wyoming Valley by providing improved flood protection during periods of high water; by increasing possible drainage and sewer discharge control and stabilization of ground water discharges; and through possible aesthetic improvements to existing facilities. Adverse impacts of the proposed project include the omission of flood control protection for communities not previously protected in the valley; additional costs for ancillary flood control facilities; specific local area impacts on aesthetics, ecological habitats and patterns, existing and proposed development, access, historic resources, and property values due to land acquisition and the short-term disruptive effects of project construction.

Richmond, Virginia Flood Control (James River Basin)

Location.—Along the James River in eastern Virginia.

Existing projects.—A levee now damaged, constructed on the south bank of the James River by the Navy to protect a naval training school.

Needs.—Reduction or elimination of flood damage to properties and prevention of disruption to industrial and commercial activities in Richmond.

Recommended plan of improvement.—A system of floodwalls and levees to protect the Schockoe Creek and South Side industrial-commercial areas of Richmond, Virginia, which will include pumping stations and sheet and railroad closure structures, and which will provide protection from a flood having a recurrence interval of once in 250 years. Flood proofing measures for protection of the sewage treatment plant.

ESTIMATED COST

[1976 price level]

	Local protection	Flood proofing	Total
Federal	$30,200,000	$8,328,000	$38,528,000
Non-Federal	5,460,000	2,082,000	7,542,000
Total	35,660,000	10,410,000	46,070,000

PROJECT ECONOMICS

[1976 price levels]

	Federal	Non-Federal	Total
Annual charges:			
Local flood protection:			
Interest and amortization	$1,987,600	$318,400	$2,306,000
Operation, maintenance and replacement		433,000	433,000
Total	1,987,600	751,400	2,739,000
Flood proofing:			
Interest and amortization	608,000	152,000	760,000
Operation, maintenance and replacement		121,000	121,000
Total	608,000	273,000	881,000
Total project:			
Interest and amortization	2,595,600	470,400	3,066,000
Operation, maintenance and replacement		554,000	544,000
Total	2,595,600	2,024,400	3,620,000

Annual benefits

Flood damage reduction:	
Richmond	$5,190,000
Treatment plant	241,000
Total	5,431,000

Benefit-cost ratio.—1.5.

Environmental impact of recommended plan.—The major impact would be the revitalization of the South-Side commercial-industrial area of downtown Richmond. Adverse impacts would be minor or temporary.

Remarks: The Committee notes that floods at Richmond damage property and disrupt industrial and commercial activities. Richmond suffered flood damages estimated at $59 million as a result of the June 1972 Hurricane Agnes. Flood protection works are urgently needed. The Committee further notes that sewage treatment plant is vulnerable to inundation by floods, and that the plant has not only suffered direct damage but has also been out of operation for periods up to several weeks. Serious health hazards exist during such periods when raw sewage is pumped directly into the James River. The Committee believes that flood proofing of the Richmond sewage treatment plant reflects the concern of Congress for the environment expressed in the Federal Water Pollution Control Act Amendments of 1972, in which the stated objective is to restore and maintain the chemical, physical and biological integrity of the Nation's waters.

Charleston Harbor, S.C.

Location.—Charleston Harbor is located about midway along the Atlantic Coastline of South Carolina and is the largest port in the State.

Existing and authorized projects.—The existing improvements for Charleston Harbor provide for naval and commercial navigation projects consisting of:

(*a*) A commercial channel 35 feet deep with varying widths from the Atlantic Ocean to the vicinity of Goose Creek;

(*b*) The Naval Ammunition Depot Channel extending from the head of the commercial navigation project upstream for a distance of approximately 3.5 miles, thence a channel for the United States Navy Noise Measurement Facility for a distance of one mile; both of these channels having project depths of 35 feet with varying widths;

(*c*) A channel 35 feet deep and 500 feet wide through Town Creek;

(*d*) A connection channel 10 feet deep in Shem Creek; and

(*e*) A channel 10 feet deep from Shem Creek to the Atlantic Intracoastal Waterway.

In addition, a channel 30 feet deep and of varying width is provided in the lower 6,700 feet of Shipyard River. A National Defense Channel 40 feet deep with varying widths from the sea to the Commandant's wharf (mile 12.6), and an anchorage basin, 30 feet deep, located between Shutes Folly Island and Fort Sumter, are authorized to be prosecuted as found necessary in the interest of national defense. A portion of the anchorage basin has been deepened to 30 feet. The Cooper River Rediversion Project was authorized by the River and Harbor Act of 1968 for the purpose of substantially reducing harbor shoaling. Construction of this project will redivert to the Santee River the major portion of the freshwater originating in the Santee River Basin and currently passing through the Pinopolis Hydroelectric Power Plant into the Cooper River and Charleston Harbor.

Needs.—Improvements at Charleston Harbor are needed to allow vessels with deeper drafts to use the port and to provide channel extensions for expanded port facilities.

Recommended plan of improvement.—The plan will provide for: deepening the outer bar and jetty channel to 42 feet; deepening the remaining portion of the waterway to 40 feet, including the anchorage basin; widening the Filben Creek and the North Charleston reaches to 500 feet; construction of a turning basin at the Columbus Street Terminal to provide a turning diameter of 1,200 feet; enlargement of the North Charleston Terminal turning basin to provide for a turning diameter of 1,200 feet; and easing of the bend at the junction to the Wando River. The plan for Shipyard River provides for deepening the channel to 38 feet; enlargement of the existing turning basins to provide a turning diameter of 1,000 feet, and widening of the connecting channel between the turning basins to 250 feet. The channel in both Charleston Harbor and Shipyard River will be realigned where necessary to provide 125 feet clearance between pierhead lines and the edge of the channel. Further extension of deep-

draft channels upstream on the Cooper and Wando Rivers to serve commercial interests was found to be not economically feasible. In addition the District Engineer finds that a decision concerning channel extension to the proposed State Port Authority (SPA) Wando River Terminal should be deferred until the SPA commits itself to a definite plan of expansion and has obtained the required permits.

Economics of Selected Plan (based on an economic life of 50-years, an interest rate of 5⅞ percent, and December 1973 price levels).

Estimated first cost:	
Federal	[1] $25,667,000
Non-Federal	4,710,000
Total	30,377,000
Annual charges:	
Federal	$3,275,000
Non-Federal	765,000
Total	4,040,000
Annual benefits:	
Transportation savings	$7,261,000
Reduced navigation hazards	33,000
Total	7,294,000

[1] Includes $6,000 for navigation aids.

Benefit-cost ratio.—1.8.

Updated economics.—The total first cost, based on estimated October 1976 price levels is $38,306,000, of which $32,437,800 is Federal. The average annual cost is $4,977,000, and the benefit-cost ratio is 1.7, based on the current interest rate.

Environmental impact of recommended plan.—Approximately 1,110 acres of upland diked disposal area will be needed for dredged material removed during initial construction. In addition, about 49 acres of land will be needed annually for disposal of the increased shoal material resulting from deepening during normal maintenance operations. With the recommended plan a total of 24,855,000 cubic yards of material will be removed from the harbor and 2,530,000 cubic yards from Shipyard River. Of the total amount of material, 12,095,000 cubic yards are to be disposed of at sea and the rest to be placed on the diked area on Daniel Island and Morris Island. The major environmental impacts relate to water quality effects on the ecosystems within the harbor and disposal areas. These effects include: increased turbidities and siltation in the vicinity of the dredge and disposal areas; a temporary decrease in primary productivity resulting from turbid waters; a possible loss of organisms through the leaching of toxic substances from the upland disposal area; and a possible reduction in dissolved oxygen levels as a result of the dredge disturbing organic materials undergoing anaerobic decomposition. In addition, some benthic organisms may be destroyed by the dredge cutterhead and others may be covered in the offshore disposal area. Wildlife species inhabiting the upland disposal area will be displaced by deposition of dredged materials. The existing vegetation will be

lost and regrowth prevented until the use of such areas ceases. These environmental effects cannot be avoided by any practical means within the authority and scope of the proposed project, however, most will be of short duration and not create long-term adverse impacts.

San Juan Harbor, Puerto Rico

Location.—San Juan Harbor is located on the north coast of the Island of Puerto Rico, about 75 miles from the island's west end and 35 miles from its east end. San Juan is the capitol and principal port of Puerto Rico and by far the island's dominant city.

Existing and authorized projects.—The existing improvements for San Juan Harbor consist of an entrance channel 38 by 800 feet across the outer bar with a 45 by 500-foot section within this channel, then a 36-foot channel to the inner harbor, and inner channels and turning basins with depths ranging from 30 to 36 feet. The project was completed in 1965.

Needs.—Improvements at San Juan Harbor are needed to allow larger vessels to use the harbor and to secure safer navigation conditions in the harbor entrance and inner channels.

Recommended plan of improvement.—The plan determined to be most suitable and advisable at this time includes modification of the existing project for San Juan Harbor to provide for:

(*a*) Modifying the Bar Channel to a maximum width of 800 feet, deepening it to 48 feet, shifting the centerline 350 feet west, and providing a compound widener that will give 1,300 feet of width at the intersection with Anegado Channel;

(*b*) Deepening Anegado Channel in steps from 46 to 40 feet, reducing its width to 800 feet, and easing the bend at the junction with Army Terminal Channel;

(*c*) Deepening Army Terminal Channel and turning basin to 40 feet, widening the channel to 450 feet, and easing the bend at the junction of Army Terminal and Puerto Nuevo Channels;

(*d*) Deepening Puerto Nuevo Channel to 40 feet, widening it to 400 feet, easing the bend at the intersection of Puerto Nuevo and Graving Dock Channels, and providing 4 feet of overdepth dredging over an area 500 feet wide by 1,200 feet long at the mouth of Cano de Martin Pena as advanced maintenance in that shoaling area;

(*e*) Deepening Graving Dock Channel to 40 feet at its existing 400-foot width and easing the bend at the junction with Anegado Channel;

(*f*) Deepening San Antonio Channel to 38 feet at varying widths, minimum 500 feet;

(*g*) Deepening the cruise ship basin to 36 feet at an irregular width between San Antonio Channel and the cruise ship piers on the south side of Old San Juan;

(*h*) Maintaining Sabana Approach Channel at a depth of 30 feet and a width of 250 feet; and

(*i*) Providing a 38-foot depth in Anchorage E and mooring dolphins for vessels using the area.

ECONOMICS OF THE SELECTED PLAN

[50-yr economic life, an interest rate of 5⅞ percent, and May 1974 prices][1]

	Federal	Non-Federal	Total
Estimated first costs ($1,000):			
Channels and anchorage areas	$41,425	0	$41,425
Aids to navigation	680	0	680
Berthing areas	0	$4,305	4,305
Total	42,105	4,305	46,410
Annual costs ($1,000):			
Operation, maintenance and replacement	278	164	442
Aids to navigation	28	0	28
Interest and amortization	2,886	294	3,180
Total	3,192	458	3,650

[1] Use of projected October 1976 price levels results in a first cost of $58,200,000 a Federal cost of $52,500,000. The average annual cost is $4,443,000 and the benefit-cost ratio is 1.7 using the current interest rate.

Annual benefits ($1,000) $6,198

Benefit-cost ratio.—1.7.

Environmental impact of recommended plan.—Implementation of the recommended plan would result in the environmental disturbances inherent in the dredging and disposal of 12,795,000 cubic yards of material. These include the destruction of some benthic organisms in portions of the harbor and in disposal areas, temporary degradation of water quality due to turbidity caused by resuspension of particles in the water, and pollution at disposal sites with low levels of zinc and mercury. The alternative of no improvement to the harbor would avoid the environmental disturbances but would leave the basic problems facing the port; unsafe navigational conditions, and increasing economic inequalities and inefficiency in handling ship traffic due to the trend to larger vessels. Current trends in shipping have caused the increasing employment of larger vessels with corresponding greater cargo capacity. This port has already been affected by this trend, as tankers, bulk cargo, vessels, and containerships with drafts exceeding 28 feet frequently enter the harbor underloaded to avoid risk. This results in higher operating costs for vessels and port facilities. Since the current trend toward larger vessels is expected to continue, failure to provide for the needed improvements will result in further economic losses.

Presque Isle Peninnsula, Erie, Pa.

Location.—In Pennsylvania on the South shore of Lake Erie.

Existing property.—The existing project for Presque Isle consists of a beach erosion control project completed in 1956. In 1960 an additional period of Federal participation for 10 years, in beach replenishment was authorized. In 1974 Congress extended the beach nourishment for 5 years or until this report is submitted to the Congress which ever is first.

Erosion problem.—Since completion of the cooperative project in 1956 progressive errosion has continued to occur, seriously affecting the narrow neck of the peninsula. Beaches throughout the entire project are depleted in spite of nourishment provided in 1960, 1964, 1968, 1971, and 1973.

Recommended plan of improvement.—The plan of improvement would be a sand replenishment program to provide a minimum beach berm of 60 feet along approximately 5.5 miles of lake frontage, protected by five sections of offshore rubblemound breakwaters located at critical areas of erosion. Each section of breakwaters would consist of several segments each 500 feet long and separate by a 100-foot gap. The breakwaters would have a crest height of 8.5 feet above low water datum and would be located from 800 to 1,150 feet off shore.

Economic cost (May 1974 price level)

Federal	$15,017,000
Non-Federal	6,346,000
Total	21,363,000

Project economics (interest rate 5⅞ percent)

Annual charges:[1]	
Federal	$1,409,500
Non-Federal	301,500
Total	1,711,000
Annual benefits	$3,459,000

[1] 50-year period of economic analysis.

Benefit-cost ratio.—2.0.

Environmental impact of recommended plan.—The proposed rubblemound breakwaters will interrupt the view of the horizon, but would have an appearance in harmony with the coastal area. The proposed provisions for bypassing sufficient quantities of sand to effectively nourish downdrift areas will continue to produce the desired geologic growth of the peninsula and will preserve its unique environment.

Little Calumet River, Ind.

Location.—The study area of the Little Calumet River lies a few miles south of the southern end of Lake Michigan in northwestern Indiana. The reach of river considered in this study extends 22 miles from the Illinois-Indiana state line eastward to its confluence with Lake Michigan east of the city of Gary, Indiana.

Existing project.—No Federal projects have been constructed in the study area of the Little Calumet River Basin. Several drainage projects have been undertaken by others over the years.

Flood problems.—A total of 81 floods of various magnitudes have occurred in the basin since 1907. Record floods occurred in 1947, 1954, 1957 and 1959. The flood plain, a third of which is extensively developed, includes portions of Hammond, Gary, Munster, Highland, and Griffith, Indiana. Major floods have resulted in extensive damage to homes and business, as well as several road closings. Public Utilities suffer damages to installations in the flood plains. Floods also cause production slowdowns or stoppages, wage losses and interruptions in the flow of goods and services. In addition, flooding threatens human life and endangers the health of the residents of the flood plain. In addition to the flood problem, the growing area has a need for recreation opportunity and boating access to Lake Michigan.

Recommended plan of improvement.—The recommended plan is a multiple-purpose plan for flood protection, recreation navigation, and general recreation consisting of channel improvements and levees along the main stem of the Little Calumet River within a recreation corridor, with intermittent nodes of recreation development. The water surface if the improved channel will be at the same elevation as the level of Lake Michigan for a distance of about 8 miles inland from the lake. This reach of river will be deveoped as a multiple-purpose channel to include recreational boating. The remaining 14 miles of channel will be designed to carry the 200-year flood and will include shallow pools created by three low dams for nonpower boating and fishing. The improved channel will be located within a recreation corridor which will vary from 250 to 600 feet in width and will provide continuous trails along the banks of the river. Nodes of more intensive recreation development will be provided at nine locations with marinas developed at two of the recreational nodes. A breakwater will be constructed in Lake Michigan at the mouth of Burns Waterway to provide a protected entrance for boats entering the channel.

Estimated project cost (1972 price level)

Federal	[1] $61, 145, 000
Non-Federal	51, 915, 000
Total	113, 060, 000

[1] Includes $46,000 for navigation aids.

PROJECT ECONOMICS

[Interest rate of 5⅝ percent]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$3, 841, 700	$3, 240, 000	$7, 081, 700
Maintenance	6, 300	781, 000	787, 300
Total	3, 848, 000	4, 021, 000	7, 869, 000

Annual benefits

Flood control	$22, 795, 000
Recreation navigation	981, 000
General recreation	1, 552, 000
Total	25, 328, 000

Benefit-cost ratio.—3.2.

Local cooperation.—Local interests are required to provide the normal a, b, c requirements for local protection projects; contribute 50 percent of the cost of general recreational development; provide without cost to the United States all relocations of buildings and utilities, highway bridges, sewers, related and special facilities and local betterments necessary for project purposes; provide 50 percent of the cost of general navigation facilities; provide marina facilities; prohibit encroachment on improved channels or ponding areas; notify public annually of the remaining flood risk, adopt and enforce flood plain regulations in undeveloped areas along tributary streams; establish a public body to administer the project. The Governor of Indiana furnished preliminary assurances of local cooperation in a letter dated 29 January 1974.

Environmental impact.—Adverse environmental and social impacts would be minimized by careful selection of the recommended channel alignment and the recreational corridor boundaries. The loss of certain wetland areas due to project construction will be partially offset by placing the remaining high quality wetlands in public ownership and managing them for recreational and educational purposes. Other adverse impacts may result from the temporary suspension of sediments during construction and from the diversion of additional floodflows into Lake Michigan. However, special consideration has been given to construction practices in order to minimize these adverse water quality effects. Displacement of people has been minimized by modification of the corridor boundaries. The adverse impacts will be offset by virtual elimination of flooding, preservation of open space, provision of general recreation opportunities, and provision of public access to the river and Lake Michigan for recreational boating and sport fishing activities.

Minneosta River at Chaska, Minn.

Location.—The city of Chaska is located in Carver County, Minnesota, on the left bank of the Minnesota River about 20 miles southwest of Minneapolis.

Existing projects.—Federal flood control projects on the Minnesota River have no significant effects on flood stages at Chaska. A levee to protect the city from Minnesota River flooding was constructed by local interests following floods in 1951 and 1952. The Corps of Engineers cooperated with the city in making emergency repairs to the levee after it was breached and overtopped by the 1965 flood. The levee was raised during Operation Foresight prior to the 1969 flood but was not tied into high ground at either end. Following the flood, portions of the emergency works were removed to facilitate interior drainage and normal transportation operations. In 1968, the Jonathan Development Corporation constructed Lake Grace, a 72-acre recreation lake created by a dam in the Upper East Creek watershed. The corporation also has another lake under planning. Although these lakes do not have any designated flood control storage, their combined retarding effects should tend to offset any increases in peak flows due to urbanization of the watershed.

Flood problems.—Flooding in Chaska has occurred frequently from high stages on the Minnesota River. The maximum flood of record occurred in April 1965, and caused tangible flood losses estimated at $2.5 million based on 1973 price levels. Other recent damaging floods at Chaska from the Minnesota River occurred in 1951, 1952, 1957, 1962, 1968, and 1969. The last major flood on Chaska and East Chaska occurred in July 1951. Repetition of such a flood from the creeks could cause extensive damages under present conditions since overflow could pond to depths exceeding 15 feet behind the existing levee system.

Recommended plan of improvements.—The plan of improvement consists of a 0.9-mile diversion channel on Chaska Creek, a 1.2-mile flood bypass channel on East Creek, 1.1 miles of upgraded levee, 0.6-mile of new levee and appurtenant works. The project would be designed to provide protection against the intermediate regional flood from the creeks and the Minneosta River. The proposed improvement would require construction of two city street bridges, two county high-

way bridges, one United States highway bridge, and three railroad bridges, and modification of one State highway culvert and embankment. In addition, the structural measures would be supplemented by a sound program for controlling flood plain land use and development in remaining flood plain areas in accordance with State law. Proposed recreational development consists of a levee trail system and enhancement of the existing community park at Courthouse Lake in Chaska.

Estimated costs (July 1975 price levels)

Federal	$9,748,000
Non-Federal	1,860,000
Total	11,608,000

PROJECT ECONOMICS

[Interest rate of 6⅛ percent and project life of 100 yr]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$630,000	$114,000	$744,000
Maintenance		18,000	18,000
Total	630,000	132,000	762,000

Annual benefits

Flood control	$791,000
Recreation	6,000
Total	797,000

Benefit-cost ratio.—1.05.

Environmental impact of recommended plan.—The proposed plan required the removal of 6 mobile homes and 7 houses and commits the following lands to aesthetically disruptive flood control structures: 20 acres of cleared upland; 2½ acres of wooded upland; about 5 acres of wet meadow grading to marsh; and 10 acres of floodplain wetland interspersed with bottomland trees. Drainage of about 30 acres of wetland would be completed by the East Creek bypass channel, and an additional 200 acres could be affected to an undetermined but probably limited extent. This would adversely affect organisms presently in balance with wetland environmental factors. Protection from flooding for riparian vegetation would cause decreased biological productivity and result in a species composition more characteristic of the drier uplands. The potential damage by a greater than intermediate regional flood would increase due to development and redevelopment in the project area.

Mississippi River at La Crosse, Wis.

Location.—The project area is located in western Wisconsin on the left bank of the Mississippi River in and around the city of La Crosse and the townships of Campbell, Medary, Onalaska, and Shelby.

Existing projects.—The La Crosse study area is situated on the lower end of Mississippi River navigation pool 7 (Lake Onalaska) and on the left bank of the upper end of pool 8. The Mississippi River 9-foot navigation project provides for a 9-foot channel with suitable widths

from the mouth of the Missouri River to Minneapolis, Minnesota. An extension of this project provides for commercial 9-foot navigation up the Lower Black River a distance of 1.4 miles at La Crosse. The navigation project is described in House Document No. 290, 71st Congress, 1st session. The St. Paul District portion of the project (mile 853.0 to mile 615.0) is substantially completed.

Problems.—Flooding in the La Crosse area is due principally to the high stages on the Mississippi and Black Rivers with related backup along the lower La Crosse River. A major flood on either the Mississippi or the La Crosse Rivers would cause extensive tangible damages, community disruption, human suffering, and numerous health and safety problems.

Recommended plan of improvement.—The proposed plan of improvement includes both nonstructural and structural measures. The plan provides for continuance of flood forecasting and warning systems, flood plain management regulations, and flood insurance programs along with levees and floodwalls, pumping stations with necessary collection works, raising of railroad tracks, a small bridge and streets with related access ramps and bank protection. Also included would be paved hiking and bicycling trails with related turnarounds and overlooks on some portions of the levee and aesthetic treatment measures.

Estimated cost (July 1975 price levels)

Federal	$14,218,000
Non-Federal	1,190,000
Total	15,408,000

PROJECT ECONOMICS

[Interest rate of 6⅛ percent, 100-yr life]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$927,000	$73,000	$1,000,000
Maintenance		40,000	40,000
Total	927,000	113,000	1,040,000

Annual benefits

Flood control	$1,157,000
Recreation	81,000
Total	1,238,000

Benefit-cost ratio.—1.2.

Environmental impact of recommended plan.—The project will require lands for placement of levees. Cleared emergency levee alinements for the new proposed levee system were used over much of the project to avoid forests and marshlands. Some biologically sensitive areas would be covered by the toe of the levee but were minimized as much as possible. The utilization of a wet meadow as a ponding area would severely limit the potential of this area for fish reproduction but the area would be operated to preserve its value as wildlife habitat. Water and air quality and noise may be affected by the construction of the project but would be held at a minimum.

Park River Sub-basin, N. Dak.

Location.—In northeastern North Dakota, in the Red River of the North basin.

Existing project.—The existing projects for the Park River sub-basin consists of the Homme Dam in operation since 1951, a snagging and clearing operation accomplished in 1960, 86 miles of channel improvement, and one floodwater-retarding structure.

Flood problem.—Floods usually occur in spring, when melting snow causes rapid runoff along the headwater branches. Flood damages result in the area east of the escarpment, where the land is flat and streambanks are low. The flood plain along the South Branch and main stem Park River includes about 95,000 acres, most of which is agricultural. The largest urban development in the flood plain is at Grafton, with the town of Park River also having a few low-lying developments subject to flooding. The largest flood of record occurred in April 1950, when some Grafton residents had to evacuate their homes for periods up to 6 weeks. Based on July 1972 prices and conditions, a recurrence of the 1950 flood could cause approximately $11.9 million in damages at Grafton. Other recent floods occurred in 1956, 1962, 1965, and 1969.

Recommended plan of improvement.—The plan of improvement consists of a levee around the community of Grafton, a flood bypass channel, interior drainage improvements within the protected area, road ramps, stoplog closures, construction of a new railroad and highway bridge, and railroad track relocations.

Estimated cost (July 1975 price levels)

Federal	[1] $10, 045, 000
Non-Federal	1, 442, 000
Total	11, 487, 000

Project economics (interest rate of 6⅛ percent)

Annual charges: Control of water damage	$764, 000
Annual benefits:	
Existing development	$1, 958, 000
Future development	332, 000
Total	2, 290, 000

[1] Adjusted for local cash contribution of $98,000.

Benefit-cost ratio (100 years).—3.0.

Local cooperation.—In addition to the normal requirements of local cooperation, local interests are required to provide a cash contribution for any additional project costs required to provide flood protection to developable lands, as desired by the city of Grafton, and which exceed the expected future growth land requirements of Grafton as determined by the Chief of Engineers, which contribution is presently estimated at $98,000 to be paid in a lump sum prior to start of construction or, as may be permitted by the Chief of Engineers, in installments prior to start of pertinent project units or sections and in accordance with his construction schedules.

Environmental impact of recommended plan.—The significant adverse effects of the proposed plan are the direct loss of 5 acres of natural woodland, a slight esthetic impact on the area, and minor modifications to transportation routes and community patterns. To offset the adverse environmental impacts, natural prairie grass, trees, and shrub species would be planted on project lands.

Neches River and Tributaries, salt water barrier at Beaumont, Tex.

Location.—The study area is located in Jefferson and Orange Counties on the upper coast of Texas adjacent to the lower reaches of the Neches River and Taylors Bayou.

Existing projects.—Existing Federal projects in the Neches River basin include Sam Rayburn Dam and Reservoir, Town Bluff Dam-B.A. Steinhagen Lake, and the deep-draft Sabine-Neches Waterway.

Needs.—Local interests desire construction of a permanent salt water barrier on the Neches River in the vicinity of Beaumont, Texas. They desire a structure that would control salinity intrusion, provide free and reasonably unobstructed use of the river by existing and prospective recreational and commercial navigation, and provide environmental enhancement through improved conditions for freshwater boating and fishing.

Recommended plan of development.—The project will provide a gated water barrier in the Neches River at mile 23 near Beaumont; a gated navigation by-pass channel; an access road and levee; and an auxiliary dam across a canal which drains an adjacent bayou. The proposed structure will prevent salt water intrusion as well as provide for free and unobstructed use of the existing navigable portion of the Neches River.

Estimated cost (October 1974 price level)

Federal cost	$10, 454, 000
Non-Federal cost	3, 485, 000

PROJECT ECONOMICS

	Federal	Non-Federal	Total
Interest and amortization (6⅛ percent)	$764, 600	$254, 800	$1, 019, 400
Operation and maintenance	167, 000	56, 000	223, 000
Total annual charges	931, 600	310, 080	1, 242, 400

Note: Annual benefits—$2,749,000; benefit-cost ratio: 2.2.

Local cooperation.—In addition to the normal conditions of local cooperation, local interests are required to contribute 25 percent of the first cost of the project, with local interest receiving full credit for the value of lands, easements, and rights-of-way, and alterations and relocations toward their 25 percent. The local share is to be paid either in a lump sum prior to commencement of construction, or in installments prior to commencement of pertinent work items, in accordance with construction schedules as required by the Chief of Engineers; the final apportionment of costs to be made after actual costs have been determined. Maintenance and operation of the works after completion of the project will be in accordance with regulations prescribed by the Secretary of the Army; 75 percent of the incurred cost of which would be borne by the United States.

Environmental impact of recommended plan.—The proposed projects will benefit man's environment by protecting the surface water supplies for municipal and industrial uses. Swamp area upstream from

the project would be improved for recreational swimming, boating, hunting, and freshwater fishing. Adverse impacts would stem from project lands being lost to wildlife habitat.

St. Johns Bayou and New Madrid Floodway, Mo.

Location.—The St. Johns Bayou and New Madrid Floodway basins are in southeast Missouri, adjacent to the Mississippi River.

Existing project.—The area is protected against Mississippi River flooding by levees constructed or improved by the Corps of Engineers. Part of the area is a floodway to permit rare Mississippi River floods through the area and alleviate flooding potential elsewhere. A gap exists in the floodway levee for passage of flood flows. A closure is authorized but not yet constructed.

Needs.—Although protected from Mississippi River floods the area has interior flood problems consisting of overbank flooding, and ponding of water behind the levees during high Mississippi River levels.

Recommended plan of improvement.—The recommended plan would consist of constructing a 2,000 cubic-feet-per second (cfs) pumping station in conjunction with 64.2 miles of channel improvement in the St. Johns Bayou area; channel cleanout on 5.9 miles of streams in Sikeston, Missouri; constructing a 500 cfs pumping station in the lower New Madrid Floodway. Constructing a 500 cfs pumping station, an outlet structure with two power operated lift-gates, channel improvement on 11 miles of streams, and 4 miles of new channel in the St. James Bayou area of the New Madrid Floodway; and purchase of about 2,500 acres in Techmile Pond with appropriate water control structures for fish and wildlife management, use of easements to permit annual flooding on low lands, and access for fishing in borrow areas to mitigate fish and wildlife losses.

Estimated cost (July 1974 price base)

Federal	$18,394,700
Non-Federal	5,249,500
Total	23,644,200

PROJECT ECONOMICS

[100-yr period, 5⅞ percent]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$1,083,200	$310,600	$1,393,800
Operation and maintenance	44,500	46,700	91,200
Total	1,127,700	357,300	1,485,000

Annual benefits

Flood damages prevented:	
Agricultural	$1,492,400
Urban	43,300
Increased land utilization	3,138,800
Redevelopment	139,200
Advanced bridge replacement	41,200
Total	4,855,900

Benefit-cost ratio.—3.3.

Local cooperation.—The local sponsors will furnish all lands, easements, and rights-of-way; hold and save the United States free from damages, maintain and operate the project after construction; modify or alter all utilities and bridges (except railway); prevent encroachment on the flood carrying capacity of improved channels; annually inform residents of the remaining flood hazard; adopt, enforce, and adhere to a flood plain management plan, contribute the local interest share of fish and wildlife mitigation plan; comply with Uniform Relocation Assistance and Relocation Acquisition Policies Act of 1970; and comply with provision of Section 221 of the Flood Control Act of 1970. The St. John's Levee and Drainage District provided a letter of intent to sponsor the project and furnish local cooperation.

Environmental impact of recommended plan.—The project area presently contains an estimated 9,300 acres of woodlands, some 95 percent of the two basins having been converted to agricultural production. An estimated additional 7,200 acres of woodlands are expected to be cleared as direct and indirect consequences of project construction. A total of 81 miles of existing ditches will be enlarged by excavating from one side. Four miles of new channel will be constructed. Existing bank vegetation will be left undisturbed along one side of the enlarged ditches and excavated spoil will be permitted to revegetate naturally. Aquatic resources will be permanently degraded in the altered ditches although these impacts will become less severe as the channels become restabilized. The area is currently deficient in all types of outdoor recreational opportunity. The project will further restrict recreational activities, particularly hunting and fishing. Implementation of recommended mitigation measures will effectively replace monetary values associated with hunting and fishing activity, though not in kind. Fishing opportunity will be increased at the expense of some net losses to waterfowl and small game hunting. Fee title lands in excess of those necessary to fully compensate monetary losses which will result from the project. A high value is attached to existing environmental amenities in this area because of their scarceness. No known historical or archaeological sites will be destroyed by the project. However, surveys yet to be conducted may reveal the presence of archaeological sites requiring special measures to be taken to protect them from damages resulting from the project.

Remarks: The Secretary of the Army and OMB recommend local cost sharing to include non-Federal operation of the pumping stations. In addition OMB is of the opinion that cost sharing should also be extended to cover the drainage aspects of the project.

The Committee believes that the project is flood control and not drainage and therefore the project should be undertaken at a Federal expense, except for the normal a.b.c. requirements. Further, the Committee feels that the operation and maintenance of the pumping station should be a Federal responsibility in view of the importance of the facility to operations on the Mississippi River.

Calleguas Creek, Simi Valley to Moorpark, Calif.

Location.—Ventura County, California. About 30 miles northwest of downtown Los Angeles.

Existing projects.—Calleguas Creek channels were constructed during the 1950's by the Soil Conservation Service to provide estimated 50-year flood protection to primarily agricultural land. The Soil Conservation Service channels are located in Simi Valley and Moorpark, both within the area covered by the study, and at the lower end of Calleguas Creek, The Soil Coservation Service channels in Simi Valley and Moorpark are earth-bottom with bottom stabilizing structures and rock-revetted side slopes. Both channels occupy reaches of Calleguas Creek that would be directly affected by the proposals in the study.

Needs.—

Flood problems: Flood problems along Calleguas Creek in the Simi Valley and Moorpark area result from waters exceeding the capacity of existing channels and overflowing onto adjacent lands. In both Simi Valley and Moorpark, the existing earth-bottom channels have created an illusion of flood security; and homes, particularly in Simi Valley, have been constructed immediately adjacent to the channel rights-of-way. The existing channel in Simi Valley was designed to contain flows of 3,500 c.f.s., while the existing channel in Moorpark was designed to contain flows of 4,000 c.f.s. At that time, such flows were estimated to be a 50-year flood. Corps of Engineers studies have determined that, mainly due to recent urbanization and channelization of tributary streams, the watershed has lost much of its ability to retain or delay runoff from reaching Calleguas Creek. Because of this change in the hydrologic characteristics, a 3,500 c.f.s. flood in the Simi Valley reach is now estimated to be an 8-year occurrence, and the 4,000 c.f.s. flood in the Moorpark reach is estimated to be a 7-year occurrence.

Recreation: A general plan of regional parks, shoreline development and riding and hiking trails developed by Ventura County in 1965 and revised in 1968, recognizes that existing facilities cannot satisfy the current recreation demand. The General Plan contains recommendations for an interconnecting hiking and riding trail system that would utilize Calleguas Creek as the backbone, with offshoots along tributary streams, railroad rights-of-way, and power transmission line rights-of-way.

The Simi Valley Recreation and Park District developed a General Plan for Parks, Recreation and Open Space of 1971, and concluded that the Simi Valley should have an additional 434 acres of neighborhood and community park areas, together with riding and hiking trails.

Recommended plan of improvement.—The recommended plan for the 13.2-mile reach of Calleguas Creek calls for 4.4 miles of a rectangular concrete-lined channel for standard project flood (SPF) design through Simi Valley; 4.40 miles of stream reach devoted to flood plan management to provide safe conveyance of the SPF in the area between Simi Valley and Moorpark; 1.6 miles of rectangular concrete-lined channel, 1.4 miles of earth-bottom channel, and flood plain management along the final 1.4 mile portion of stream reach—all designed to safety convey the SPF through Moorpark. These project elements would accommodate floodflows through Simi Valley and Moorpark of 26,000 c.f.s. and 40,500 c.f.s., respectively. Hiking, bicycle riding, and horseback riding trails would be provided along the entire 13.2-mile stream reach. In addition, the narrow, concrete-lined channel proposed for Simi Valley allows development of the excess existing rights-of-

way into a linear park, providing further enhancement for the trail system and existing neighborhood parks bordering on the rights-of-way. Additional recreational development proposed for Simi Valley would provide a bicycle center adjacent to the channel, with an equestrian park at one end of the Simi Valley reach, and a community park at the other end. In the Moorpark reach, two rest and staging areas would be provided—one at the beginning and one at the end of the reach. In addition, participation in the development of two regional parks totaling 80 acres adjacent to the channel would be undertaken as part of the project. Development of these two parks would be accomplished in three stages, each 3 years in length, to provide recreational features compatible with the growth in demand and the ability of local interests to pay.

Estimated costs.—The following table of costs are at October 1975 price levels:

Flood control:	
Federal	$23, 890, 000
Non-Federal	1, 990, 000
Total	25, 880, 000
Recreation:	
Federal	1, 835, 000
Non-Federal	1, 835, 000
Total	3, 670, 000
Total Federal	26, 535, 000
Total Non-Federal	3, 015, 000
Total project	29, 550, 000

Project economics.—The following table shows estimated annual charges and annual charges and annual benefits based on October 1975 price levels and an interest rate of 6⅛ percent over a 100-year period.

Annual benefits:	
Flood control	$1, 950, 000
Recreation	1, 320, 000
Total project	3, 270, 000
Annual charges:	
Flood control:	
Federal:	
Interest and amortization	1, 570, 000
Operation and maintenance	0
Total	1, 570, 000
Non-Federal:	
Interest and amortization	225, 000
Operation and maintenance	545, 000
Total	770, 000
Total annual costs	2, 340, 000

Benefit-cost ratio.—1.4.

Environmental impact of recommended plan.—The major effect of the selected plan would be the reduction in flood damages resulting from control of all floods up to SPF. The plan would also result in increased urbanization, particularly in the Moorpark flood plain, in accordance with local land use plans which express a desire for developing flood plain lands to centralize urbanization. The concrete-lined channels will reduce groundwater recharge along their length. In Simi Valley, elimination of recharge will reduce the existing serious problems associated with a high water table. In Moorpark, lost recharge in the concrete-lined section is expected to be regained in the earth-bottom section. The area between Simi Valley and Moorpark will continue to remain rich in riparian habitat and high wildlife values as a result of flood plain management.

Los Angeles-Long Beach Harbors, Los Angeles County, Calif.

Location.—Los Angeles and Long Beach harbors, Los Angeles County, Calif.

Existing projects.—Authorized by 1896 River and Harbor Act and subsequent River and Harbor Acts. House Document 401, 86th Congress, 2d session, contains the latest published map.

The existing Federal project consists of three breakwaters, an entrance channel, and turning basin both 40 feet deep for Los Angeles Outer Harbor, a 35-foot deep channel for Los Angeles Inner Harbor, a 35-foot deep entrance channel for Long Beach Outer Harbor, and a channel and turning basin both 35 feet deep for Long Beach Inner Harbor. Local interests have dredged part of the Los Angeles Harbor entrance channel to a depth of 52 feet, Long Beach Harbor entrance channel to 62 feet, and the Long Beach turning basin to 55 feet.

Needs.—Today, a large percentage of the present fleets of container ships, bulk carriers, and oil tankers cannot be effectively used in the 35-foot water depth of main channels and basins (for 33-foot maximum vessel draft) in the Inner Harbor at the Port of Los Angeles. At present, the Port can handle only first and second generation container ships with capacities up to 1,000-containers. In addition, over one-third (or 1,292 vessels) of the world's bulk carrier fleet cannot enter the Inner Harbor. Although the Outer Harbor facility with 51-foot water depth could dock a large percentage of these bulk carriers, it provides berthing space for only one ship and has a very limited amount of backland area that restricts the provision of adequate storage facilities and the installation of a rail loop, required for the efficient handling of unit trains. The deepening of the port of Los Angeles is needed to allow the free flow of goods through the port at a reasonable price.

Recommended plan of improvement.—This proposal consists of dredging Los Angeles Harbor to 45 feet by hydraulic pipeline and cutterhead dredge and disposal of the spoil behind rock-faced perimeter dikes to be constructed by local interests. About 187 acres of new land would be created for new harbor-associated uses. This plan is the NED plan.

	Estimated cost
Federal first costs:[1]	
Dredging	$14,152,000
Engineering and design	481,000
Supervision and Administration	940,000
Subtotal	15,573,000
Less Local Contribution for land enhancement	(636,000)
Total	14,937,000
Non-Federal first cost:[1]	
Dikes	12,536,000
Dredging	5,166,000
Utility relocation	2,000,000
Land enhancement contribution	636,000
Total	20,338,000
Total project costs	35,275,000
Annual cost:[2]	*Project economics*
Federal	964,000
Non-Federal	1,313,000
Total	2,277,000
Annual benefits:[2]	
Transportation savings	18,113,000
Land enhancement	1,612,000
Total	19,725,000
Net annual benefits[2]	17,448,000
Local contribution (percent of Federal first cost)	4.1

[1] All costs and benefits are based on January 1976 prices.
[2] Based on a 50-year life and a 6⅛ percent interest rate.

Benefits-to-cost ratio.—8.7.

Environmental impact of recommended plan.—An adverse environmental impact of the proposed plan would be destruction of marine bottom habitat—resulting from the creation of 187 acres of new land as part of the NED. A positive aspect of this would be the expectation that with the creation of new land, the need for the port's commercial functions to expand into areas now occupied by recreation-craft berths (some 3,000 within the Port of Los Angeles) would be deferred.

Morrison Creek Stream Group, California

Location.—Within Sacramento County in the eastern portion of the Sacramento Valley in and adjacent to the Sacramento urban area.

Existing projects.—The City and the County of Sacramento have made levee and channel improvements providing limited flood protection along the lower reaches of Morrison, Elder, Florin, and Unionhouse Creeks; however, these improvements are generally inadequate for large floods.

Needs.—In adequate channel capacities and lack of storage on any of the streams in the basin result in flood damages above the Western Pacific Railroad from the heavy rainfalls in winter storms. Flood

flows from the upper basin, backwater from the Mokelumne River system and overflow from the Cosumnes River result in flooding in the Beach-Stone Lake area below the railroad. Expansion of the Sacramento urban area makes the flood problem more acute each year. It is estimated that future average annual flood damages will amount to $1,290,000.

Additional needs in the project area include the need for recreational resources and preservation of the remaining scarce wildlife habitat and migratory waterfowl feeding areas.

Recommended plan of improvement.—The recommended plan of improvement consists of three elements. One of these elements is an 11,000 acre-foot capacity dam and lake on Elder and Laguna Creeks at the Vineyard site. The second element is 76 miles of levees and channel improvements. 66 miles of channel improvements are on Laguna Creek and 26 miles of improvements are on Elder Creek. About four miles of channel will be concrete lined in an area where there is dense urban development. The third element is the 7,800 acre-foot flood retardation basin in the Beach-Stone lakes area at the downstream end of the drainage basin. This retardation basin will be a National Wildlife Refuge Area. Planned operations of the flood control system will be combination of the upstream and downstream storage with a series of collector channel and levees.

Estimated cost.—Based on October 1975 price levels, first cost of the project are estimated to be as follows:

	Federal [1]	Non-Federal [2]	Total
Construction	$34,350,000	0	$34,350,000
Lands and relocations	16,951,000	$28,899,000	45,850,000
Total	51,301,000	28,899,000	80,200,000

[1] Includes $2,044,000 for construction of recreation facilities and $775,000 for recreation lands to be reimbursed by non-Federal interests.
[2] Does not include reimbursable costs identified in footnote 1.

Project economics.—The estimated annual costs and benefits at 6⅛ percent are:

	Federal	Non-Federal	Total
Annual costs:			
Interest and amortization	$2,978,000	$2,046,000	$5,024,000
Operation, maintenance, and replacement	45,000	761,000	
Total	3,023,000	2,807,000	5,830,000

Annual benefits	
Flood control	$3,934,000
Fish and wildlife	409,000
Recreation	2,083,000
Area redevelopment	311,000
Total	6,737,000

Benefit-cost Ratio.—1.2.

Environmental impact of recommended plan.—The proposed project best accomplishes the objectives to develop a balanced water resources program for the basin. The proposed project supports needed urban growth in the Sacramento metropolitan area, and provides wildlife habitat, scenic beauty, and related natural values; and preserves a large remnant of a diverse ecosystem of great importance for wildlife. The project is strongly supported by the Sierra Club because of its environmental impacts.

Brazos River Basin, Tex., Natural Salt Pollution Control Study

Location.—The study area is located to the southeast of Lubbock, Texas, in the vicinity of where the main stem of the Brazos River is formed by its major headwater tributaries.

Existing project.—There are 6 Federally constructed multiple-purpose lakes in the basin and several Federally constructed local flood protection projects and small watershed protection projects.

Needs.—The State of Texas and other local interests desire the construction of natural salt pollution control facilities with the objective of upgrading the quality of water in the Brazos River.

Recommended plan of development.—A system of three impoundment reservoirs on the tributaries of the Salt Fork of the Brazos is the least costly and most effective means of controlling the major sources of salt pollution. The selected plan includes pipelines and pumping facilities for interconnecting the reservoirs and drain lines through each dam for emergency drawdowns. The system would impound runoff from a 100-year storm, in addition to storage for a 100-year accumulation of brine and sediment. Control of runoff from the three principal salt-producing areas on the Salt Fork Brazos River would reduce average monthly concentrations of chlorides to approximately 250 parts per million (ppm) as far upstream as Possum Kingdom Lake. Average daily loads emanating from the Salt Fork area would be reduced by about 50 percent or 1,360 tons, by the project. At Richmond, Texas, the point of maximum water withdrawal, mean monthly concentrations of total dissolved solids (TDS) would be at or below Public Health Service standards of 500 ppm TDS about 87 percent of the time with the recommended plan as compared to 62 percent of the time without the recommended plan. The plan would not preclude development of additional salt pollution control methods or other water resources development.

Estimated cost (October 1975 price level):

Federal	$50,048,000
Non-Federal	16,683,000

NOTE.—Project economics: 6⅛ percent.

	Federal	Non-Federal	Total
Interest and amortization	$3,404,300	$1,134,700	$4,539,000
O. & M. cost		306,000	306,000
Total annual charges	3,404,300	1,440,700	4,845,000
Annual benefits			6,715,000
Benefit-cost ratio			1.4

Local cooperation.—The non-Federal interests will agree to:

a. Contribute 25 percent of the initial construction cost of the project, such contribution to be paid either in a lump sum prior to commencement of construction, or in installments prior to commencement

of pertinent work items, in accordance with construction schedules as required by the Chief of Engineers;

b. Hold and save the United States free from damages due to the construction works, not including damages due to the fault or negligence of the United States or its contractors;

c. Hold and save the United States free from all water rights claims, including those arising from hydroelectric power losses at non-Federal facilities, due to construction and operation of the project;

d. Maintain and operate all project works after completion in accordance with regulations prescribed by the Secretary of the Army; and

e. Continue active programs to reduce man-made salt pollution from oilfield, mining, and industrial operations.

Provided further that, unless otherwise stated in these recommendations, the exact amount of non-Federal contributions shall be determined by the Chief of Engineers prior to project construction.

Environmental impacts.—The periodic inundation of 47 miles of tributary streambeds will occur on Croton Creek, Salt Croton Creek, and North Croton Creek. The project will require about 19,000 acres of agricultural land of which about 4,600 acres of wildlife habitat would be lost through permanent inundation and an additional 9,400 acres would be affected by brine level fluctuations and wind driven salt. Tax receipts and income from project lands will be lost for the life of the project. The relocation and loss of all or part of established ranch and farm units will result in social discomfort and possibly in economic loss to individuals involved.

McNary Second Powerhouse, Oregon and Washington

Location.—At McNary Lock and Dam on the Columbia River, 292 miles above the mouth, 34 miles below the mouth of Snake River, 2½ miles upstream from the town of Umatilla, Oregon.

Existing project.—

a. Federal. The existing project provides a dam 7,365 feet long which raised the water surface 85 feet and created a lake extending 64 miles upstream. The dam consists of an earthfill embankment, a powerhouse with 14 units at 70,000 kw rating each, a concrete spillway section, a navigation lock 86 feet wide and 683.5 feet long, migratory fish passage facilities, and visitor facilities.

b. Non-Federal. None.

Needs.—The primary need addressed by the project is to provide increased generating capacity in the Northwest Power Pool. Most generating capacity in the Northwest has been by hydropower; however, hydro cannot provide for increasing future electrical energy needs, and other sources will be necessary to meet the rapidly growing demands. The long-range plan to meet the region's electrical power requirements anticipates conversion of the existing mainly hydro system into a combined hydro-thermal system wherein the base load will be carried by thermal generation and hydro will be increasingly used to meet peaking demands. This program requires that additional generating units be added at existing hydro plants in the Federal system. Projections prepared by Bonneville Power Administration and the Pacific Northwest Utilities Commission indicate there will be a need for additional peak generating capacity in the system by 1984–85 which could be accomplished by additional units at McNary.

Recommended plan of improvement.—The main features of the plan are as follows:

a. A 10-unit second powerhouse with a generating capacity of 105 MW each.

b. Relocated and improved visitor facilities at the dam.

c. Levee access and beautification in the Pasco-Kennewick-Richland, Washington area.

d. Mitigation measures to compensate for adverse impacts on fish and wildlife resulting from the operation of the second powerhouse.

Estimated cost (October 1975 base)

Constuction cost:	
Federal	$597,000
Federal reimbursable	[1] 431,403,000
Total project cost	432,000,000
Interest during construction	60,000,000
Total Investment Cost	492,000,000

[1] Reimbursed through power revenues.

Project economics.—(6⅛% Government interest rate, 100-year project life analysis)

Annual costs:	
Interest and amortization	$30,209,000
O. & M. and replacement	1,660,000
Total annual costs	31,869,000
Annual benefits:	
Power (incremental to existing)	97,832,000
Area redevelopment	1,738,000
Total annual benefits	99,570,000
Benefit-to-cost ratio	3.1 to 1

Local cooperation.—No local cooperation is required.

Environmental impact of proposed project.—A principal environmental effect of the proposed plan would be the reduced need for fossil and nuclear fueled power generation with their attendant air, land, and water pollution problems.

Additional generators would lessen spillway use and thus reduce nitrogen supersaturation which causes fish mortalities. However, more water passing through the turbines will result in increased mortalities of downstream fish migrants.

Operation of the second powerplant will adversely affect fish and wildlife habitat on the reservoir and in the tailwater area. This particularly will affect warm-water fish spawning, waterfowl nesting, emergent vegetation and anadromous fish passage. These adverse effects can be mitigated and minimized by measures that will provide areas of constant water levels and means to prevent downstream migrants from passing through the turbines. If necessary, hatchery replacement of fish losses can be provided.

Brunswick Harbor, Ga.

Location.—Brunswick Harbor is on the South Atlantic coast of Georgia approximately 80 highway miles south of Savannah, Georgia, and 70 highway miles north of Jacksonville, Florida.

Existing project.—The existing harbor project consists of: an outer channel 32 feet deep and 500 feet wide; interior channels in St. Simons Sound, Brunswick River, East River, Turtle River, Academy Creek, Back River, and Terry Creek ranging from 10 feet to 30 feet deep, and 80 feet to 400 feet wide; and a stone jetty 4,350 feet long at the entrance of East River.

Navigation problem.—Current vessel traffic experiences problems in the existing 30-foot channel. Light-loading and tidal delays are the rule and as the trend toward larger vessels continues, the situation will worsen. There is a need for deeper channels to more efficiently accommodate larger ships expected to serve the harbor, and to allow greater utilization of the vessels now calling.

Recommended plan of improvement.—The recommended plan would modify Brunswick Harbor to deepen the Bar Channel from 32 feet to 38 feet; deepen interior channels and a maneuvering area to 36 feet, enlarge the turning basin in East River, and provide an additional maneuvering area at the mouth of East River.

Estimated cost (1976 prices):

Federal	$30,450,000
Non-Federal	239,000
Total	30,689,000

Project economies.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$2,044,000	$15,000	$2,059,000
Maintenance	317,000		317,000
Total	2,361,000	15,000	2,376,000
Annual benefits			$2,817,000

Benefit-cost ratio.—1.2.

Environmental impact of recommended plan.—The effects on the environment are related to the dredging and disposal of approximately 16.7 million cubic yards of material. Possible ecological damages could occur with the destruction of bottom habitats in the dredging and deposition areas, and water quality will be impaired in surrounding waters during the dredging operation. These effects will be temporary. There is a possibility that some of the rock formations in the harbor channels may require blasting. Water turbidities would be increased by lasting, minor noise effects would occur, and some benthic organisms would be destroyed, however, these effects will be temporary. The diking and disposal of dredged material will adversely impact 45 acres of marshland, however, the development of this area into a parking lot and boat launching ramp will provide recreational benefits. Beneficial social effects will result from additional employment, increased property values, development of satellite services, and general diversification of the local economy. Implementation of the project will enhance future income levels and provide an impetus to economic growth. Beneficial effects on population trends would be realized, particularly on the area's ability to keep and support young families.

Chicagoland Underflow plan, Illinois

Location.—The study area is the 377 square miles served by the combined sewers of the Metropolitan Sanitary District of Greater Chicago. Principal watercourses are the Des Plaines River, Chicago Sanitary and Ship Canal, Chicago River, North Shore Channel, Calumet-Sag Channel, Calumet River, and Little Calumet River.

Existing projects.—There are no existing or authorized Federal flood control projects in the study area.

Needs.—The problems and needs of the study area are related to the purposes of flood control, water quality control, water supply, recreation, and local drainage.

Recommended plan of improvement.—The Chicagoland Underflow Plan is made up of six interrelated features that reduce water damages and improve water quality. They are: (1) tunnel system, (2) retention reservoirs, (3) sewer system upgrading, (4) treatment plant upgrading, (5) sludge management system, and (6) miscellaneous features.

Estimated costs.—First costs are estimated at $4,958,000,000, based on June 1975 price levels. The levels of Federal vs. non-Federal participation have not been determined at this time. The Administration's position on this will be defined before the report is processed to the Congress.

Project economics.—Based on an interest rate of 6⅛% and a 50-year period for economic analysis, the total estimated average annual cost is $470,970,000. Average annual benefits are estimated at $740,330,000. The benefit-cost ratio is 1.6.

Summary of average annual benefits

Water damage control	$431,690,000
Water quality control	308,640,000
Total	740,330,000

Local cooperation.—Required items of local cooperation have not yet been defined but will be addressed as the report is processed to Congress.

Environmental impact of proposed projects.—The overall plan has been formulated so as to achieve urban water damage reduction and pollution abatement with minimal adverse environmental impact. It would provide the means for eliminating point sources of pollution to the area watercourses, and it would eliminate the present need to backflow flood waters into Lake Michigan, thereby preventing the continued pollution of the lake's water. The improved watercourse quality is expected to provide suitable conditions to sustain, and in some reaches reestablish, fish and other desirable aquatic life. The reduction in flooding and pollution of watercourses should also prove beneficial to existing adjacent terrestrial habitats from both a management and aesthetic standpoint.

The main environmental problems associated with the plan concern the safe and acceptable disposal of the sludge and the material excavated during construction of the project features. We have looked at four alternative methods for the disposal of sludge, all except one of which are now being used. Several saisfactory alternatives also exist for the disposal of rock and soil excavated during construction. Both

disposal problems will be addressed in subsequent environmental impact statements as the project design is detailed. This will assure adoption of disposal programs compatible with sound environmental, aesthetic and health practices.

The Committee is concerned over the potential magnitude and interconnection of this proposal with the associated pollution control aspects.

The Committee expects to look with great care into this proposal once the Phase I work is completed.

Pembina River, N. Dak.

Location.—In northeastern North Dakota and the southcentral portion of Manitoba, Canada.

Existing projects.—Construction of a local protection project at Pembina, North Dakota, began in June 1974. This project includes a combination levee and floodwall circling the city, and associated interior drainage facilities. Emergency levees and floodwalls have been constructed at Neche, North Dakota. Non-Federal interests and Canada have constructed emergency levees and floodwalls, and Canada has also constructed a permanent levee along the border downstream of the proposed project.

Needs.—The Pembina River basin has a long history of flooding with damages occurring more frequently in recent years. Damaging floods have occurred primarily in the lower part of the basin and east of the Pembina Escarpment. The majority of damages are agriculturally related. Local interests desire to prevent flood damages.

Surface water is the principal water supply source for most water demands in the Pembina River basin. However, the community of Walhalla and most of the rural area obtain water from groundwater supplies. An additional water supply source will be needed to meet projected water supply demands of the basin. The supply of good quality ground water is limited in both distribution and quantity.

Additional water-oriented recreation is also needed in the Pembina River basin. The scarcity of lakes in the basin area has resulted in an unsatisfied demand for water-oriented recreation activities.

Recommended plan of improvement.—The recommended plan is an earth dam on the Pembina River near Walhalla, North Dakota, to provide protection against a flood having a recurrence frequency of once in 36 years. The project would consist of a rolled earthfill structure, 150 feet high, with a crest length of 2,090 feet; outlet works of 10-foot diameter gated conduit through the north abutment of the dam: a fixed crest concrete section spillway; and a reservoir of 147,000 acre-feet. The project is designed to provide 82,000 visitor-days of water-oriented recreation and will meet future water supply requirements for down-stream residents. The recommended plan provides for the acquisition of 13,200 acres of additional land for wildlife mitigation, adjacent to the project lands. All mitigation land is located within the river valley walls along the Pembina River, from the upper portion of the reservoir to the international border.

Estimated cost (Price level of Oct. 1975):	
Federal	$25,420,000
Non-Federal	1,580,000
Total	27,000,000

Project economics (Interest rate of 6⅛ percent).—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$1,561,000	$97,000	$1,658,000
Operating and maintenance	97,000	44,000	141,000
Total	1,658,000	141,000	1,799,000
Annual benefits:			
Flood control			2,706,000
Water supply			61,000
Recreation			138,000
Total			2,905,000
Benefit-cost ratio			1.6

Environmental impact of recommended plan.—A flowing stream would be converted to an impoundment extending upstream from the dam about 21 miles. This change and periodic inundation by temporary storage of floodwaters would have adverse impacts on the existing aquatic and terrestrail biological values. With the advice of the Fish and Wildlife Service, the mitigation lands included as part of the recommended plan are to compensate for these adverse environmental impacts. The proposed impoundment is expected to become periodically eutrophic; the North Dakota State Department of Health advises that with proper control and management of the reservoir and the discharge, water quality problems can be minimized without adversely affecting the primary flood protection provided by the reservoir. Additional water quality studies are to be made during advanced engineering and design studies. Based on an archeological reconnaissance of the proposed project area, no historic properties or landmarks will be affected by the recommended plan; a more detailed survey will be conducted during advanced engineering and design.

Papillion Creeks and Tributaries Lakes, Nebr.

Location.—Papillion Creek is a right bank tributary of the Missouri River and joins the latter stream south of Bellevue, Nebraska. The Creek's drainage basin encompasses portions of Washington, Douglas, and Sarpy Counties and is dominated by metropolitan Omaha, the largest city in Nebraska.

Authority.—The Papillion Creek and Tributaries Lakes Project was authorized by Public Law 90–483, the Flood Control Act of 1968. The authorizing document is House Document No. 349, 90 Cong. The Plan Evaluation Report was initiated by the District Engineer, in consonance with guidelines established by the Office of the Chief of Engineers to evaluate authorized projects periodically to determine whether any changes have occurred since authorization that may impact on the economic or structural feasibility of the project.

Authorized plan.—Public Law 90–483 authorized construction of 21 dams for the Papillion Creek Basin. Authorized purposes are flood control, water quality, recreation and fish and wildlife enhancement.

Status of authorized plan.—Site 17 was placed in the inactive category because the dam site was pre-empted by residential development. Dams 11 and 16 are essentially completed and were constructed as authorized. A reevaluation of the economic feasibility of the 8 dams in the West Branch Papillion Creek is underway at this time.

Existing projects.—Under authority of Section 208 of the 1954 Flood Control Act, as amended, the Omaha District accomplished improvements along the downstream 6 miles of Papillion Creek consisting of snagging and clearing the existing channel and relocating a portion of the channel fro mits mouth to a point 2 miles upstream. The work was completed in 1964. Construction of channel improvements on Little Pappillion Creek was authorized by the Flood Control Act of 1962. Work consisted of enlarging and straightening a 6.5 mile reach of the creek through metropolitan Omaha to its confluence with Papillion Creek and short tie-back levees at the creek's mouth to convey design flows to Papillion Creek. One element of the Papillion Creek and Tributaries Lakes Project has been constructed (Dam 16), and a second element (Dam 11) is under construction and will begin impounding water in 1976.

Needs.—The primary purpose of the authorized project is flood control. The other purposes are recreation, fish and wildlife management, and water quality. The authorized project would contribute to the needs of the region by providing flood control and water recreation. Average annual flood damages in the Papillion Creek basin are about $2,145,000 with Dams 16 and 11 in place. There is strong local desire and commitment to eliminate or minimize these damages. The metropolitan Omaha region contains 34 percent of the State's population but has only 1.5 percent of the State's recreational lands. The project would significantly reduce water-based recreation deficiencies in the area. Streamflow in the upper basin is primarily runoff from farmland and feedlots. In the lower basin, runoff is from urban and industrial areas. The authorized project includes water quality benefits to improve channel esthetics.

Recommended plan of improvement.—Dam 10 is to be constructed as authorized. This dam and dam 11 complete the authorized plan for the Little Papillion Creek basin. Dam 3a is to be constructed instead of dams one thru nine. Dams 3a and 16 constitute the recommended plan for the Bib Papillion Creek basin. Authorization of dam 3a is required because the change is beyond the discretionary authority of the Chief of Engineers.

Estimated cost Dam 3A (Oct. 1975 price levels):

Federal	$29,050,000
Non-Federal	[1] 3,405,000
Total	32,500,000

Project economics (6.25 percent interest, 100-year period for economic analysis).—

	Federal	Non-Federal	Total
Interest and amortization	$1,784,000	$212,000	$1,996,000
Operation, maintenance and replacement	50,000	465,000	515,000
Total	1,834,000	677,000	2,511,000

[1] Represents 50 percent of the separable costs estimated for the ultimate recreational development at Dam 3A.

Benefit summary.—Dam 3A

Purpose	Average annual benefit
Flood control:	
Existing conditions	$1,037,000
Future economic growth	785,000
Recreation	1,493,000
Fish and wildlife	270,000
Water quality	9,000
Total	3,594,000

NOTE.—Benefit-cost ratio 1.4.

Local cooperation.—The items of local cooperation required for Dam 3A are those specified by the authorizing document. The requirements for recreational cost-sharing will be met by the Nebraska Game and Parks Commission, which initially provided a letter of intent for 14 of the 20 dams and, on 9 December 1975, furnished a specific letter of intent and resolution to provide the cost-sharing and to meet all other requirements of Public Law 89-72 for Dam 3A.

Local interests have contracted to provide all other assurances for the authorized project. These assurances include those provided by Douglas County and the Papio Natural Resources District concerning preservation and maintenance of the downstream channels and flood plain, and the preservation of water rights in the downstream channels. For construction of Dam 3A, no downstream channel assurances would be required for Washington County since the downstream channel would be entirely within Douglas and Sarpy Counties.

Environmental impact of proposed project.—

Dams 1 through 4 would cause the loss of about 20 miles of existing creek channel and associated vegetation and wildlife. Forty-six families would be displaced, and there would be a reduction in assessed valuations for Washington County, four fire districts, and four school districts. This alternative would preserve 7,250 acres of open space of which about 2,424 acres would be used for wildlife lands. It would also provide 1,333,000 annual recreation days initially if recreation facilities were constructed as proposed.

Dam 3A was selected over Dams 1 through 4 because it would offer a greater degree of flood protection. Thirty-six families would be displaced. The reduction in assessed valuations would be about 40 percent less with Dam 3A than with the four-dam system. Dam 3A would require 5,150 acres of land of which about 1,000 acres would be used for wildlife lands. This alternative would also provide 1,175,000 annual recreation days initially if recreation facilities were constructed as proposed.

Beneficial.—Downstream water quality will be improved as the result of releases from the reservoir. These releases will augment the stream flows and thereby improve the water quality. There will be a reduction in the adverse environmental impacts resulting from floods. Provision of open space and lake recreation will improve the environment of the area.

Adverse.—Water quality of the creek will be adversely affected during construction of the dam. This affect will be short term. Increases in traffic will result from people travelling back and forth to the recre-

ation sites. There will be a loss of riparian vegetation in the permanent pool area of the reservoir, the damsite and the outlet works.

Rio Grande and Tributaries, Rio Puerco and Rio Salado, N. Mex.

Location.—The Rio Grande basin which has its headwaters in southwestern Colorado bisects central New Mexico in a north-south direction before entering the international section at El Paso, Texas. Rio Puerco and Rio Salado are major west bank tributaries which rise on the eastern slope of the Continental Divide west of Albuquerque and join the Rio Grande about sixty and seventy miles south of Albuquerque, respectively. The Rio Puerco drains a mountainous area of about 7,340 square miles and the Rio Salado drains an area of nearly 1,400 square miles adjoining on the south.

Existing projects.—There are no projects for improvement of the water resources of the Rio Puerco and Rio Salado watersheds constructed by the Corps of Engineers. The Rio Grande Floodway was authorized in the Flood Control Act of 1948 as a joint undertaking by the Bureau of Reclamation and the Corps of Engineers to provide flood protection and major drainage in the Espanola, Middle, and Lower Valleys of the Rio Grande in New Mexico. The Corps project for the Middle Valley Floodway in the immediate area consists of levees along the west bank beginning near San Acacia, about 10 miles below the mouth of the Rio Puerco, and extending downstream for about 32 miles. Three existing reservoirs—Abiquiu, Galisteo, and Jemez Canyon—have been constructed by the Corps and one reservoir—Cochiti—is under construction, which will control the flood runoff from the Rio Grande basin upstream from Albuquerque. Elephant Butte Dam was constructed by the Bureau of Reclamation to provide storage for the irrigation of farmlands along the Rio Grande between Truth or Consequences, New Mexico and Fort Quitman, Texas. It also provides storage for supplying Mexico with water under Treaty of 1906. The dam is located on the main stem of the Rio Grande about 100 miles below the mouth of Rio Puerco.

Needs.—The area subject to major flood damage from inundation, scour, and sediment deposition by the Rio Puerco and Rio Salado consists of the flood plain of the main stem of the Rio Grande from its junction with the Rio Puerco downstream to Elephant Butte Reservoir, a reach of about 62 river miles. The flood plain comprises 35,250 acres, consisting of 250 acres of urban land in the town of Socorro, 10,900 acres of agricultural land, and 24,100 acres of grazing land, transportation rights-of-way, river channel and woodland. Urban improvements include residences, business buildings, churches, schools, and utility plants and lines. Nonurban improvements subject to damage include farmlands, crops, irrigation and drainage works, the Rio Grande low-flow conveyance channel, and levees. Transportation facilities in the flood plain consist of 35 miles of railroad, highways and numerous farm roads. The Rio Puerco and Rio Salado transport inordinately large volumes of sediment to the Middle Rio Grande Valley. With the authorized upstream reservoirs operating in the Rio Grande Basin, it is estimated that the inflow from the two tributaries will constitute only about 6 percent of the Rio Grande streamflow passing San Acacia, but they will contribute about 75 percent of the sediment passing San Acacia. One of the most significant effects of the huge amount of suspended sediment from the Rio Puerco and Rio Salado is on Elephant Butte Reservoir. The sediment deposition in the reservoir increases the water losses by direct lake surface evaporation and from exposed sediment beds. The increase in lake surface area causes an increase in evaporation losses.

Recommended plan of improvement.—Construction of two dry flood and sediment control reservoirs: one dam on the Rio Puerco at the Hidden Mountain site (lower) at river mile 17, and the other on the Rio Salado at the Loma Blanca site at river mile 5. The reservoirs would be operated as units in a system to provide flood and sediment control in the Rio Grande Valley. This project would abrogate the existing authorization for construction of the levee rehabilitation in the San Acacia-Bosque del Apache Unit of the Rio Grande Floodway.

Estimated cost (price level of July 1971):

Federal	$23,855,000
Non-Federal	
Total	23,855,000

Project economics (interst rate of 5⅜ percent).—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$1,387,000		$1,387,000
Operation and maintenance	84,000		84,000
Total	1,471,000		1,471,000

Rio Grande and Tributaries, Rio Puerco and Rio Salado, N. Mex.

Annual benefits:	
Flood damages prevented	$1,035,300
Sediment retention	1,008,800
Area redevelopment	188,400
Total	2,232,500

Benefit-cost ratio.—1.5.

Local cooperation: None.

Environmental impact: Construction of the proposed flood control reservoirs and incorporation of land and watershed treatment practices proposed by the U.S. Forest Service in conjunction with continuing soil conservation practices by the Soil Conservation Service would greatly enhance the long-term productivity of the area. Flood damages would be prevented and sediment retention and prevention would be increased. Watershed areas and long-term grazing and timber potentials would be improved. Combinations of the above factors would subsequently increase the available wildlife habitat and improve the fishery in the Rio Grande by lessening sediment pollution and lowering the overall turbidity of the water. The Elephant Butte Reservoir fishery would be improved by lessening sediment deposition on the spawning beds in the upper portion of the lake, thus increasing fish production potentials.

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The recommended Hidden Mountain and Loma Blanca Reservoirs would reduce flood flows equal to the flood of record to a discharge of 20,000 c.f.s. at San Acacia and provide a high degree of protection to 35,250 acres of land including 250 acres of urban land in the town of Socorro, 10,900 acres of agricultural land, and 24,100 acres of grazing land, woodland, and right-of-way. Included in this acreage is the Federal Bosque del Apache Waterfowl Refuge.

Incidental recreation benefits could occur at both Hidden Mountain and Loma Blanca Reservoirs in association with flood detention pools which would be formed on the average of once every three years. Minimum facilities would be provided at both areas for public health and safety unless others would cost share for additional facilities with which they could more fully develop the public-use potential of the projects.

Aproximately 11,600 acres would be required for the Hidden Mountain project and 3,300 for the Loma Blanca project. In combination, the 14,900 acres of land devoted to those projects would be converted from low value grazing use to that of sediment retention and flood control. Until thees properties were rendered undesirable by sediment deposition, they would continue to be available for livestock operations. Private lands acquired for the projects would be removed from the tax rolls.

The limited amount of wildlife habitat which is presently available within the reservoir sites would be affected both by project construction activities and by changed land uses. Depending upon the extent and type of land use changes which could occur, some habitat losses would be irretrievable.

The labor and materials committed to construction of these reservoirs would be irretrievable.

Santa Ana River, Main Stem, including Santiago Creek and Oak Street drain, California

Location.—San Bernardino, Riverside and Orange Counties in southern California.

Existing projects.—The Santa Ana River Basin and Orange County Projects include the following:

1. Five completed dams: Brea, Carbon Canyon and related channel improvements, Fullerton, Prado and San Antonio.
2. Channel improvements in Lytle and Cajon Creeks, San Antonio and Chino Creeks; and Devil East Twin and Warm Creeks.
3. Levees along Lytle Creek, Mill Creek, Santa Ana River in Riverside, San Jacinto River and Bautista Creeks.
4. Authorized but inactive dams: Aliso Creek, San Juan, Trabuco, and Villa Park.
5. Cucamonga Creek project (under construction).

Needs.—Serious flood problems exist within the rapidly growing urban areas in the Santa Ana River Basin adjacent to the Los Angeles metropolitan area. The existing Prado Dam provides only 70-year flood protection to the highly urbanized areas of Orange County. A standard project flood would affect over one million people downstream of Prado and cause over $3 billion in damages. Upstream of Prado in

San Bernardino and Riverside Counties, a standard project flood would cause an additional $134 million in damages. In addition to the need for flood protection, the project area is in need of adequate water supply, outdoor recreation development and preservation of open space.

Economic alternatives for satisfying needs.—Both structural and nonstructural alternatives were investigated. The nonstructural methods which were evaluated include flood insurance, a flood-warning and evacuation system, flood-proofing, flood plain restrictions and similar regulatory methods. Structural measures which were studied singly and in combination include enlarging Prado Dam, constructing another dam in the basin, channelizing portions of the streams in the basin to enlarge their capacities, and constructing levees. The structural measures were formulated for various levels of flood protection. In each case, opportunities were explored for providing for environmental enhancement and recreational development.

Environmental impacts of alternatives.—The environmental impacts of the various alternatives were carefully evaluated. The impacts varied in degree and scope according to the alternative considered. Categories of impacts included businesses and residences affected, community cohesion, economic effects, pollution and effects on natural resources.

Recommended plan of improvement.—The recommended plan includes the following features to provide SPF protection along the main stem of Santa Ana River:

1. Construction of Mentone Dam, a rock and earthfill dam with a reservoir capacity of 151,000 acre-feet;
2. Management of the SPF overflow area on the Santa Ana between Mentone and the existing Prado Reservoir, a distance of about 17 miles;
3. Enlargement of Prado Dam to increase the reservoir storage capacity from 198,000 acre-feet to 311,000 acre-feet;
4. Provision of 2.4 miles of channel modifications along Oak Street Drain in Corona;
5. Provision of various means of flood control, including floodplain management, levees, and vertical concrete channel walls, along the 31 miles of the Santa Ana River from Prado Dam to the Pacific Ocean; and
6. Provision of channel modifications along Sanitago Creek.

In addition, the plan includes recreational development to provide a greenbelt recreation system along the project length, purchase of 8 acres of saltmarsh for mitigation of project effects and purchase of 84 acres of saltmarsh for preservation of endangered species.

Estimated cost—First costs.—Based on September 1975 prices.

	Federal	Non-Federal	Total
Flood control	$642,000,000	$73,200,000	$715,200,000
Preservation	1,800,000	0	1,800,000
Recreation	11,450,000	12,050,000	23,700,000
Total	655,450,000	85,250,000	740,700,000

Project economics (based on 100-year project life and 6⅛ percent interest)—Annual costs for operations and maintenance:

	Federal	NonFederal	Tota
Flood control	$81,000	$173,000	$254,000
Recreation	0	1,400,000	1,400,000
Total	81,000	1,573,000	1,654,000

Annual benefits:	
Flood control	$72,930,000
Recreation	3,625,000
Environmental enhancement	115,000
Area development	1,867,000
Total	78,537,000
Annual charges:	
Flood control	51,115,000
Recreation	2,877,000
Total	53,992,000

Benefit-to-cost ratio.—1.6 to 1.0.

Local cooperation.—The local interests will be required to provide usual items of local cooperation for the reaches when channel modifications are proposed and to contribute 50 percent of the total first costs for recreation. The reservoirs are a Federal responsibility. Local interests will cost-share on the mitigation lands and manage the standard-project floodplain between Mentone and Prado Dams to prevent encroachment.

Environmental impacts of recommended plan.—Major beneficial impacts include (a) protection from major floods for approximately 1 million persons, 250,000 homes, and 100,000 acres of land, (b) increased water conservation, (c) wildlife enhancement in reservoirs and in Santa Ana Canyon, (d) preservation of a 92-acre salt marsh that provides habitat for three endangered species, and (e) provision of recreational facilities.

Adverse environmental effects.—Major detrimental impacts include (a) loss of Santa Ana River wash as a scenic resource, (b) consumption of construction material resources, (c) potential adverse impact on air quality, (d) loss of 8 acres of salt marsh area from widening of lower river channel, (e) potential conflict with future use of lowland area east of river's mouth, (f) displacement of up to 25 dairies in the Prado Reservoir area, and (g) displacement of up to 154 homes.

Remarks.—The Committee notes that the Division Engineer recommended the "All River Plan" (Alternative 6) in lieu of the "National Economic Development Plan" (Alternative 7). The Committee further notes that the local sponsor strongly favors the "All River Plan" for social and institutional reasons. Preliminary reports from Washington level review indicate that the Chief of Engineers may recommend the adoption of the National Economic Development (NED) Plan, although the final report of the Chief has not been prepared. The Committee is fully aware of the fact that the NED plan is not acceptable to local interest. It is not the intention of this Committee to direct the Corps of Engineers to concentrate Phase I studies on plans that are implementable. The Phase I studies should take into account the comments of the Washington level review as much

as possible in plan formulation; however the final report should recommend an implementable project.

Siuslaw River and Bar, Oreg.

Location.—The Siuslaw River rises in the coast range of Lane County, Oregon, flows westerly about 110 miles, and then empties into the Pacific Ocean, about 160 miles south of the Columbia River entrance and 485 miles north of San Francisco Bay.

Existing project.—The authorized Federal navigation project consists of the following features: (1) Two rubble-mound jetties at the entrance; (2) entrance channel 18 feet deep and 300 feet wide from deep water to a point 1,500 feet inside outer end of existing north jetty; (3) channel 200 feet wide and 16 feet deep to Florence; (4) turning basin 600 feet long, 400 feet wide, and 16 feet deep; (5) channel 150 feet wide and 12 feet deep from river miles 8.5 to 16.5; and (6) turning basin 500 feet long, 300 feet wide, and 12 feet deep.

Problems and needs.—The Port of Siuslaw, commercial fishermen, charter boat operators, and a tug and barge company have all expressed concern over the continuing threat of damage to vessels and equipment, with corresponding danger to life. The primary difficulty presently attending navigation is that the controlling depths at the entrance are often 12 feet or less. This condition is unsafe, uneconomical, and unreliable for users navigating the entrance. Specific needs (problems and opportunities) identified during this study include: Adequate channel dimensions for tugs, barges and commercial fishing vessels; safer entrance for tugs, barges, fishing vessels and recreational craft by reducing hazardous wave conditions; elimination or reduction of vessel damages; accessible harbor of refuge; conservation and enhancement of fish and wildlife resources; and additional recreational opportunities.

Recommended plan of improvement.—The plan recommended for improving navigation of the Siuslaw River entrance is to extend the north and south jetties to the 30-foot depth contour, which would mean extending the north jetty about 2,000 feet and extending the south jetty about 2,500 feet, providing jetties of equal distance into the ocean. Maintenance dredging would be required, to insure that authorized depths are provided for as long a duration as is practicable. The major benefits that are expected to accrue from these improvements are as follows: (1) Transportation savings through reduction in vessel delays; (2) reduction in maintenance costs; (3) increased commercial, charter, and recreational use of the entrance; (4) reduction in damage to vessels navigating the entrance; (5) area redevelopment; and (6) increased use as a harbor of refuge.

	Total	General	Local
Annual benefits:			
Forrest products & miscellaneous cargo:			
Reduction of delay surcharge	$246,000	$246,000	0
Induced tonnage	335,000	335,000	0
Sand, gravel, and stone	159,000	159,000	0
Reduction in damage	180,000	180,000	0
Commercial fishing	172,000	172,000	0
Recreational boating	10,000	5,000	$5,000
Charter boats	4,000	4,000	0
Maintenance dredging	810,000	810,000	0
Area redevelopment	35,000	35,000	0
Harbor of refuge	10,000	9,000	10,000
Total	1,961,000	1,955,000	6,000
Percent	(100)	(99.7)	(0.30)

The estimated average annual benefits and costs for the plan of improvements are:

Annual benefits	$1,961,000
Annual costs	1,240,000

Benefit-to-cost ratio.—1.6 to 1.0.

Local cooperation.—In addition to the normal requirements of local cooperation, local interests are required to contribute in cash 0.3 percent of the Federal cost of construction estimated to be $17,200,000, exclusive of navigation aids; such contribution, presently estimated at $52,000, to be paid in a lump sum prior to commencement of construction. The net cost to the United States for the recommended improvements, exclusive of aids to navigation, is $17,146,000 for construction and $128,000 annually for additional maintenance.

Environmental impacts of proposed project.—The environmental impacts are as follows: (a) Temporary changes in water quality; (b) temporary increase in air and noise quality during construction; (c) slight changes in the circulation and sedimentation patterns at the entrance; (d) elimination of approximately 24 acres of unstable sandy bottom as benthic habitat due to jetty construction; (e) an increase of about 20 acres of irregular rocky habitat on the jetty for attachment of algae and crustaceans. These organisms, in turn, serve as food sources for fish that feed on or near the rocky habitat, or seek shelter in the crevices; (f) interception and disruption of littoral currents by the jetty extensions, which could possibly affect the exchange of phytoplankton, zooplankton, pelagic larvae and other current-borne organisms; and (g) short-term alteration of currents and/or tidal prisms within the estuary. Many of these impacts would occur during maintenance dredging of the entrance with or without construction of the plan of improvement.

Upper Susitna River Basin, Southcentral Railbelt Area, Alaska

Project.—Southcentral Railbelt Area, Alaska—Internal Feasibility Report, on the Upper Susitna River Basin.

Needs.—The Southcentral Railbelt comprises the lands along and convenient to the Alaska Railroad, including the two largest cities of the State, Anchorage and Fairbanks; the major potential agricultural areas of the State, the Matanuska and Tanana Valleys; and the Kenai Peninsula. The economy of the region is varied. The Railbelt contains almost three-fourths of the population of the State, 245,000 out of 330,000 as of 1973 and is expanding at the rate of three percent per year, mostly by natural increase, but with about one-fifth by immigration. This rate is expected to continue for many years to come.

With the population increase and expansion of economic activities, the growth in power demand has been at a rate of 14 percent annually for the past decade. The present demand, 2.03 billion kilowatt-hours annually, comprised of 80 percent utility, 19 percent national defense, and 1 percent industrial, is projected to grow but at a steadily decreasing rate, being on the order of 6 percent by the year 2000. The industrial share is projected to increase to 20 percent by 2000, while the national defense and utility shares are projected to decrease to 3 percent and 77 percent respectively. Total demand is projected to be 7.6 billion killowat-hours annually in 1990 and 15 billion kilowatt-hours annually in 2000.

In the interest of multi-objective planning, other needs (water resource development) of the Railbelt area were examined. Needs identified which could reasonably be addressed in conjunction with the directed study power objective include flood control, recreation, conservation, and enhancement of fish and wildlife resources, air quality, conservation of nonrenewable resources, and national energy independence.

Existing projects.—The Anchorage-Cook Inlet area had a total installed capacity of 414.8 MW in 1974. Natural gas-fired turbines were the predominant energy source with 341.7 MW of installed capacity. Hydroelectric capacity of 45 MW was available from two projects, Eklutna and Cooper Lakes. Steam turbines comprised 14.5 MW of capacity and diesel generation, mostly in standby service, accounted for the remaining 13.5 MW. Eklutna is the only Federal hydropower project existing in the Railbelt area.

The Fairbanks-Tanana Valley area utilities had a total installed capacity of 12.7 MW in 1974. Steam turbines provided the largest block of power in the area with an installed capacity of 53.5 MW. Gas turbine generation (oil-fired) provided 42.1 MW of power, and diesel generators contributed 32.1 MW to the area.

Economic alternatives for satisfying needs.—A broad range of alternative means of accomplishing the primary study objective were examined for technical, economic, and environmental feasibility. Included were both conventional power producing systems based on coal, oil, gas, nuclear energy, and hydroelectric energy, and less conventional systems based on wind, tides, solar energy, solid wastes, wood, and geothermal energy. Coal and hydroelectric energy were found to be both feasible. An in-depth evaluation of these alternatives was then made giving equal consideration to economic and environmental aspects of their performance.

Environmental impacts related to alternatives.—Each alternative was found to have a range of unavoidable adverse effects on the environment, mainly on fish and wildlife, and esthetic values.

Coal.—This alternative would involve construction of two generating plants (near Healy and Beluga) with the following adverse impacts:

a. Strip mining would destroy a minimum of 20,000 acres of moose, caribou and waterfowl habitat. All of the acreage is classified as either critical or important.

b. Possible water quality reductions on both Nenana River and Beluga River could have adverse effects on migratory salmon as well as resident species.

c. Air Quality would be reduced by smokestack emissions, even at minimum legal levels and the odor of burning coal would pervade a wide area.

d. Non-renewable coal resource would be depleted by 5.85 million tons annually.

The coal alternative would have little potential for beneficial impacts on the environment, would provide no recreational enhancement, and would not contribute to flood control.

Hydropower.—Each of the hydropower alternatives would have both adverse and beneficial impacts on the environment. These are summarized as follows:

Fish and wildlife.—Would inundate from 50,550 to 104,550 acres of land. Included would be 4–10,000 acres of important moose habitat, 0–52,000 acres of important caribou habitat, and 0–400 pothole lakes used by migrating waterfowl. Minor numbers of resident fish could be impacted as could salmon downstream of the dam sites. Beneficial contributions would include increase in water surface to 50,550–104,550 acres which could benefit migrating waterfowl, possible enhancement of downstream salmon from river control, and possible development of a resident lacustrine fish population.

Air quality.—By delaying and/or displacing increased combustion of coal, air quality (especially in Fairbanks) could be improved measurably.

Nonrenewable resources.—The alternatives would each save the use of 5.85 million tons of coal (or 112.2 billion cubic feet of natural gas) annually.

In addition, the hydropower alternatives would provide lake oriented recreation of 77–100,000 visitor use days annually and would provide minor flood control downstream.

Recommended plan of improvement.—The selected plan consists of a two-dam development on the upper Susitna River in the south-central part of Alaska. A transmission system will connect the developments to the Anchorage and Fairbanks market areas. The dams, in the sequence in which they will be constructed, are:

Watana.—The development consists of an earthfill dam with saddle spillway that discharges into adjacent Tsusena Creek. The project's underground powerhouse has a capacity of three 236 MW generating units totaling 708 MW. The damsite is at river mile 165, about 45.5 miles upstream of Gold Creek, the closest point on the Alaska Railroad.

Devil Canyon.—The development consists of a concrete thin-arch dam with a spillway through the left abutment. The project's underground powerhouse has a capacity of four 171.5 MW units totaling 686 MW. The damsite is at river mile 134, about 14.5 miles upstream of Gold Creek. The Devil Canyon reservoir will extend to within 2 miles of Watana Dam.

Estimated costs.—The estimated construction cost, based on January 1975 price level of the selected plan is $1,520,000,000, which includes $572,000 in non-Federal recreational costs. Adding the $11,800,000 value of public domain transferred without cost gives a total project cost of $1,531,800,000.

Interest during construction is computed as simple interest on project costs from the estimated date of expenditure to the appropriate power-on-line date. The project costs and interest during construction for the Devil Canyon Dam are discounted to the Watana power-on-line date of October 1986.

The investment cost, $1,653,136,000, is the project cost plus interest during construction, both discounted to the 1986 power-on-line date.

Project cost (present worth)	$1,401,295,000
Interest during construction (PW)	251,841,000
Investment cost	1,653,136,000

Amortization of this amount with interest at a rate of 6⅛ percent and a project economic life of 100 years results in an annual cost of $101,520,000.

The estimated average annual operation and maintenance cost over the 100-year project life of the selected plan is $1,928,000. Annual costs for replacement of mechanical equipment and other items which normally have a useful life less than the 100-year project life are estimated at $572,000.

The following table summarizes the average annual cost for the selected plan:

Interest and amortization	$101,520,000
Operation and maintenance	1,928,000
Replacement	572,000
Average annual cost	104,020,000

Project economics.—Benefits accrue to the selected plan from the sale and improved reliability of electric power provided by the project, flood damages prevented, recreational opportunity provided, and Area Redevelopment from the utilization of unemployed labor.

Power.—Power benefits are calculated by applying the project capacity and energy to power values derived by the Federal Power Commission and from increased reliability provided by the intertie of the Anchorage-Fairbanks power grids.

Summary of power benefits ($1,000)

Capacity	93,807
Prime energy	30,883
Secondary energy	2,516
Intertie	947
Total	128,153

Recreation.—Recreational benefits are calculated as the use-day value of recreational opportunity provided by the project.

Summary of recreational benefits ($1,000)

General	110
Specialized	190
Total	300

Flood control.—Flood control benefits are calculated as the value of decreased maintenance of erosion protection to the Alaska Railroad. The benefit totals $50,000 annually.

Area redevelopment.—The Area Redevelopment benefit is calculated as the value of employment provided to un- or underemployed Alaskan labor by project construction. Such employment is estimated as 4,390 man-years giving an average annual benefit of $9,373,000.

Summary of benefits.—Estimated annual benefits are summarized as follows:

	Value ($1,000)
Category:	
Power	128,153
Recreation	300
Flood control	50
Area redevelopment	9,373
Total	137,876

The following table summarizes the project economic factors:

Summary of economic factors

Item	Recreation	Nonrecreation	Total
Average annual benefits	$300,000	$137,576,000	$137,876,000
Annual costs	165,000	103,855,000	104,020,000
B/C ratio	(1.8)	(1.3)	(1.3)
Net annual benefits	135,000	33,721,000	33,856,000

The analyses show the project and the incremental recreational development to be justified.

Local cooperation.—Prior to the start of construction of recreational facilities responsible non-Federal entities provides assurances acceptable to the Secretary of the Army that they will, in accordance with the Federal Water Project Recreation Act, Public Law 89–72:

a. Administer land and water areas for recreation.

b. Pay, contribute in kind, or repay (which may be through water user fees) with interest, one-half of the separable cost of the project allocated to recreation, presently estimated to be $572,300.

c. Bear all costs of operation, maintenance, and replacement of lands and facilities for recreation, presently estimated to be $100,000 annually.

Environmental impact of proposed project.—The selection of a hydropower alternative does not preclude the possibility, or likelihood, that coal will be mined and utlized for exportation or as a supplemental source of power within the Railbelt Area itself. Gas or oil would have less overall adverse environmental impact than coal and hydropower. However, long-range outlooks for availability and costs of oil and gas, and the possibility that higher and better future uses can and probably will be made of these resources, makes them economically and socially less desirable than coal or hydropower. The oil and gas alternative was rejected largely on the basis of the national efforts to develop energy sources that limit the use of oil and gas for power generation. Significant impacts directly related to the selected plan include inundation of some 50,550 acres of land and 82 miles of natural stream (including 9 miles of a unique 11-mile reach of white-water rapids) and associated wildlife and fishery habitat, creation of reservoirs perpendicular to caribou migration routes which lead between calving grounds and winter ranges, and changes in downstream flow regime and water quality characteristics.

Adverse social effects resulting from the plan include drastic modification of the existing natural visual quality of the area, physical disturbance of an essentially wilderness setting, changes in traditional recreational usage of the project area and surrounding lands, and influx of temporary construction workers on small communities near the construction sites.

Both dams are large, the Watana structure exceeding the height of the highest present earthfill structure in the Western Hemisphere. Major considerations in the design of the structures include the possible effects of high intensity earthquakes because the project site is in a zone of high seismic activity, outlet works to allow rapid and

safe draining of the impoundments if, in spite of all design efforts, one or both of the structures is severely damaged to the point of imminent failure, and multiple-level intake works providing for selective withdrawal of waters to allow control of downstream water quality in the interest of conserving or enhancing downstream fishery values.

Remarks.—The Committee authorized an additional $15 million dollars for this project to complete an access road during Phase I of the project.

Additionally, one percent of the authorization for this project is to go to opponents, proponents and other interested parties for their study of the impacts, environmental and economic, of this project.

SECTION 3—CONSTRUCTION AUTHORIZATION

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to undertake construction of major water resources development projects substantially in accordance and subject to conditions recommended by the Chief of Engineers in the reports designated in this section. Subsection (a) authorizes construction as soon as funds are made available. Subsection (b) authorizes work to commence only after the project is approved by the Secretary of the Army and the President.

Project	Federal costs: Committee report	Federal costs: September 1976 price levels
Section 3(a):		
Jonesport Harbor, Maine	4,714,000	$4,714,000
Ardsley, N.Y.	1,500,000	1,788,000
Delaware River, Pa., N.J.	594,000	594,000
Hay Creek, Pa.	1,648,000	1,757,000
Richmond Filtration Plant, Va.	4,617,000	4,617,000
Virginia Beach Streams, Va.	1,270,000	1,425,000
Fort Fisher, N.C.	3,878,000	4,671,000
Jekyll Island, Ga.	2,628,000	3,885,000
Penee Harbor, P.R.	3,160,000	3,940,000
Fairport Harbor, Ohio	1,457,000	1,688,000
Saylorville Lake, Iowa	5,475,000	7,374,000
Iowa and Cedar Rivers, Iowa, Minn.	2,234,000	2,495,000
Petit Anse, La.	1,809,000	2,000,000
Flathead and Clark Fork Rivers, Mont.	2,917,000	3,500,000
Bear River, Calif.	3,010,000	3,336,000
Kahoma Streams, Hawaii	3,210,000	3,350,000
Wears Creek, Mo.	29,160,000	29,110,000
Grand Isle, La.	5,700,000	6,655,000
Section 3(b):		
Vermillion Lock, La.	13,200,000	20,029,000
Mermentau River, La.	155,000	[1] 686,000
Bassett Creek, Minn.	7,231,000	7,593,000
Upper Baker Project, Wash.	21,000	[2] 361,000
Mobile Harbor, Ala.	42,800,000	[3] 1,280,000
Lower Snake River, Wash., Idaho	45,788,000	58,490,000

[1] Includes initial construction costs of $261,000 plus 5 years of operation and maintenance estimated at $85,000 per year.
[2] Includes first cost of $21,000, plus 5 yrs of annual costs estimated at $68,000 per year.
[3] Includes funds for preparation of plans and specifications plus 1st yr construction costs.

Jonesport Harbor, Maine

Location.—Jonesport is on the north side of Moosabec Reach, Washington County, Maine about 190 miles northeast of Portland, Maine, and about 40 miles southwest of the Canadian border.

Existing projects.—There is no existing Federal project at Jonesport Harbor. However, thesre are three existing Federal navigation projects in the general vicinity including a channel 14 feet deep and 300 feet wide at the east end of Moosabec Reach; an anchorage at Beals Harbor opposite Jonesport dredged to 10 feet deep over an area 600 feet long and 600 to 1,000 feet wide; and a 5½ acre anchorage and channel 6 feet deep and 80 feet wide from Eastern Bay to Alley Bay through Pig Island Gut south of Jonesport.

Navigation problem.—The entire shoreline along the Jonesport waterfront offers no sheltered mooring for the local fishing fleet. Ice packs drifting through Moosabec Reach cause severe damage to the craft. It is difficult and at times impossible to land fish or cargo during rough weather. This exposure has discouraged local interests from developing any adequate terminal from which fishermen can operate. There is a need for a protected anchorage sufficient in size to accommodate the local fishing fleet and transient craft and a public landing.

Recommended plan of improvement.—Provides for an entrance channel 100 feet wide and 8 feet deep leading from deep water in Moosabec Reach into Sawyer Cove; two anchorages within the cove of 9 acres, 6 feet deep and 6 acres 8 feet deep, protected by a cellular steel pile breakwater extending southwest from Henry Point 650 feet, then west across the entrance to Sawyer Cove an additional 550 feet. The plan provides the minimum structural features necessary to provide adequate protection for the existing and prospective fishing fleets.

Estimated cost (1976 prices):	
Federal	$4,714,000
Non-Federal	
Total	$4,714,000

Project economics. (Interest rate of 6⅛ percent):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$283,500		$283,500
Maintenance and operation	21,800		21,800
Total	305,300		305,300
Annual benefits:			
Increased fish catch			$473,100
Reduction of damage			18,200
Redevelopment			12,200
Total			503,500

Environmental impacts of recommended plan.—No permanent damage to the natural ecology of Sawyer Cove or adjacent coastal waters was identified during the planning stage should navigational improvements be undertaken. To prepare for the breakwater foundation, about 90,000 cubic yards of soft material will have to be removed. Preliminary sampling shows this material to be a very soft, dark, organic silt. Dredging for the entrance channel and anchorage will necessitate the removal of an additional 57,000 cubic yards of this material. There will be some temporary increase in turbidity during construction operations. This is not expected to interfere with the natural ecology of the cove or be detrimental to other uses of the area. All of the disturbed sediment will have settled out before lobster cars are moored in the area.

The selection of location of a disposal site for the dredged material will be made during the advance design stage. Site selection for disposal of the dredged material will be coordinated with the appropriate governmental (Federal and State) agencies. At this time, it appears that the dredge material will have to be disposed of in a deep water offshore area. On or near shore disposal of this material appears unlikely in the vicinity of Sawyer Cove.

Ardsley, N.Y. (Saw Mill River)

Location.— In Westchester County, north of New York City.

Existing project.—Federal projects on the Saw Mill River are in the planning stages at Chappaqua and Yonkers, New York, respectively upstream and downstream of Ardsley. In Ardsley, New York State realigned and widened portions of the Saw Mill River and constructed culverts and retaining walls.

Needs.—Improvements are needed to alleviate frequent flooding at Ardsley, where annual flood damages amount to $105,000.

Recommended plan of improvement.—Along two reaches of the Saw Mill River, consisting of 990 feet of channel improvement, a 740-feet levee, about 206 feet of floodwalls, a concrete flume, a stilling basin, ponding area, pumping plant, land fill, and miscellaneous facilities.

Estimated costs (1976) price level):	
Federal	$1,500,000
Non-Federal	300,000
Total	1,800,000

Project economics (Interest rate of 6⅛ percent):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$96,800	$19,400	$116,200
Maintenance and operation major replacements		2,300	2,300
Total	96,800	21,700	118,500

Annual benefits: Damage prevention, $130,000.

Benefits-cost ratio: 1.1.

Environmental impact of recommended plan.—Overall, the project will improve the environment and enhance the appearance of the area. During construction, however, there would be some temporary loss of fish and wildlife. The project will reduce the risk to human life and safety, and will alleviate health hazards.

Remarks.—The committee notes that Ardsley is subject to frequent floods with average annual flood damages amounting to $105,000. Flood protection works are urgently needed. The Committee notes that the State of New York desires consideration be given to a modification at the upper end of the recommended plan that would minimize adverse environmental effects. While this modification, which was suggested by

the Department of the Interior was found to lack economic justification and local support during the original study, the Committee believes it should be given further consideration during preconstruction planning studies to reflect then current conditions.

Delaware River, Philadelphia, Pa. to Trenton, N.J.

Location: Philadelphia, Pa.

Existing project.—In this reach of the Delaware River, the existing Federal project provides for a channel 400 feet wide and 40 feet deep.

Need.—Continued efficient functioning of the existing project is predicated on this improvement, which would allow navigation by containerships.

Recommended plan of improvement.—Modification of the existing project to provide for maintenance of an increased channel width of 600 feet from Allegheny Avenue upstream for 5,600 feet, with a depth of 36 feet, and construction and maintenance of a 1,300-foot diameter turning basin at a depth of 36 feet.

Estimated cost (1976 price level):

Federal	$594,000
Non-Federal	
Total	594,000

Project economics: (Interest rate of 6⅞ percent)

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$49,000		$49,000
Maintenance	250,000		250,000
Total	299,000	0	299,000

Annual benefits: Transportation savings $4,160,000.

Benefit-cost ratio: 13.9—(14.5 at 6⅛ percent).

Environmental impact of recommended plan.—Such impacts would be minimal or temporary, such as increased levels of turbidity and reduction of dissolved oxygen content during dredging operations.

Hay Creek, Schuylkill River Basin, Pa.

Location.—Birdsboro is located at the confluence of Hay Creek and the Schuylkill River in Berks County, Pennsylvania.

Existing projects.—Dikes for an industrial plant were built by the Department of the Navy in 1942. Two authorized flood control projects in the Schuylkill Basin, upstream of the Hay Creek confluence, have not been constructed yet. (Blue Marsh and Maiden Creek Reservoirs).

Need.—Reduction of flood hazard and protection of an urban renewal project is desired. Flooding has occurred about once every five years during the last 70 years.

Recommended plan of improvement.—Local flood protection for Birdsboro, consisting of floodwalls, levees, channel and bridge modifications, and interior drainage works.

Estimated cost (1975 price level):

Federal	$1,648,000
Non-Federal	422,000
Total	2,070,000

Project economics (Interest rate of 6⅛ percent):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$106,000	$27,000	$133,000
Operation and maintenance		5,000	5,000
Total	106,000	32,000	138,000

Annual benefits.—The project is integral to a HUD urban renewal project.

Benefit-cost ratio.—The project is justified as an integral part of a HUD urban renewal project.

Environmental impact of recommended plan.—The environmental factors that were considered in formulating and evaluating the plans of improvement recommended herein include land use, water quality, fishery activities, aesthetics and the effects of construction activities. The major benefit of the proposed plan is the greatly increased flood protection. Redevelopment may occur in the protected areas since the Borough of Birdsboro is in the process of preparing an application for a Department of Housing and Urban Development (HUD) land acquisition and redevelopment grant. The water quality and fishery activities would be affected only during construction, when turbidity is expected to increase. The floodwalls and levees may have an adverse esthetic effect due to their height and close proximity to residences.

Richmond Filtration Plant, James River Basin, Va

Location.—On the left bank of the James River at Richmond, Va.

Existing projects.—There are no Federal projects but some protection is offered by a concrete wall around the plant and by railroad embankments.

Needs.—Flood control measures are needed to prevent damage to the City's water filtration plant.

Recommended plan of improvement.—Provide flood protection for the existing water filtration plant by modifying and adding to the existing walls around the plant. Concrete walls will total about 2,000 feet and will include gate closures to allow continued use of the James River-Kanawha Canal.

Estimated cost (1976 price level):

Federal	$4,617,000
Non-Federal	103,000
Total	4,720,000

Project economics (Interest rate of 5⅞ percent):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$220,700	$4,800	$225,500
Maintenance and operation		36,000	36,000
Total	20,700	40,800	261,500

Annual benefits.—Losses prevented, $459,000.

Benefit-cost ratio.—1.8 (1.7 at 6⅛ percent at current values).

Environmental impact of recommended plan.—The project involves little, if any disturbance of the natural environment. On the other hand, the beneficial effects of a water supply for Richmond, protected from flooding, are great.

Remarks.—The Committee notes that the Richmond Filtration Plant is subject to floods throughout the year. In June 1972, it was flooded and out of service for several days. Operation of the plant is critical to the needs of about 390,000 people of Richmond who depend on it for their only source of water supply. Its contamination during floods is a threat to public health and welfare of the community. As a result, protection works are urgently needed.

Virginia Beach Streams, Canal No. 2, Virginia Beach, Va.

Location.—In the City of Virginia Beach, Virginia. The Canal Number 2 watershed has an area of about 37 square miles.

Existing project.—Five canals constructed by the Soil Conservation Service in Virginia Beach when the area was predominantly agricultural.

Needs.—To prevent extensive flood damages to existing developments.

Recommended plan of improvement.—Improvement of 2.3 miles of Canal Number 2 to 80-foot width and 8-foot depth; maintenance of canal to present dimensions for 3.5 miles; modification to two bridges and replacement of another; and implementation of flood plain regulations.

Estimated cost (price level of 1976):

Federal	$1,270,000
Non-Federal	766,000
Total	2,036,000

Project economics (Interest rate of 5⅞ percent):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$62,800	$37,900	$100,700
Maintenance		9,000	9,000
Total	62,800	46,900	109,700

Annual benefits:	
Flood damage reduction	$319,300
Flood induced drainage	13,000
Laced enhancement	24,000
Total	356,300

Benefit-cost ratio.—1.3 (Same at 6⅛ percent interest).

Environmental impact of recommended plan.—Positive environmental effects should outweigh negative effects by far. The former consist of improvement of regional development and social well-being and the latter would be wildlife habitat losses and destruction of wetlands.

Fort Fisher and vicinity, N.C.

Location.—Fort Fisher, a State Historic Site, and National Historic Landmark, is located in New Hanover County, approximately 18 miles south of Wilmington, North Carolina. The study area is comprised of 5 miles of oceanshore along the peninsula separating the lower Cape Fear River from the Atlantic Ocean.

Existing project.—The State of North Carolina, and New Hanover County, have on numerous occasions undertaken emergency actions aimed at preventing further erosion of the Historic Site. Several structural improvements have been constructed including rubble-mound groins and revetments, and emergency sand fills. These emergency improvements have either been removed or severely damaged through erosion.

Beach erosion problems.—The Historic Site is experiencing extensive damage as a result of continuing ocean shoreline erosion. The Site contains restored historic relics, a museum, nature trails, and picnic areas. It constitutes the central feature of a large State complex which includes a marine research and educational center now under construction, and a planned water-oriented recreation park, conservation areas, and boating facilities. Because of the severe shoreline erosion rate, there is a high potential for the total destruction of the Historic Site.

Recommended plan of improvement.—

a. A rubble revetment, approximately 2,000 feet in length along the entire upland bluff fronting the Fort Fisher Historic Site,

b. the placement of an artificial beach fill, having a total length of about 8,000 feet,

c. and a groin system, comprised of seven groins, to compartmentalize the artificial fill within the zone of erosion. The fill between groin compartments would be maintained by a beach nourishment program.

Estimated cost (July 1974 price base):

Federal	$3,878,000
Non-Federal	1,662,000
Total	5,540,000

Project economics (Interest rate of 5⅞ percent and economic life of 50 years):

	Federal	Non-Federal	Total
Annual charges:			
Maintenance (revetment)	0	$5,000	$5,000
Maintenance (groins)	0	13,000	13,000
Beach nourishment	$119,000	51,000	170,000
Monitoring program	8,000	4,000	12,000
Interest and amortization	242,000	103,000	345,000
Total	369,000	176,000	545,000

Annual benefits:	
Visitations	$1,030,000
Highway protection	5,000
Protection of site facilities	8,000
Land loss prevention	3,000
Subtotal	1,046,000
Less future estimated site development, operation and maintenance	−62,000
Total	984,000

Benefit-cost ratio.—The benefit-cost ratio is 1.8.

Environmental impact of recommended plan.—In terms of the study region, the recommended plan of protection would create a significant long-term beneficial effect on cultural, educational, and social considerations through the preservation of the Fort Fisher Historic Site and its related facilities for use by the public. Locally, the plan would significantly improve long-term environmental conditions by preventing further land deterioration. Additionally, the plan would provide for significant long-term environmental enhancement by obtaining beach fill in a manner which would lead to an increase in the tidal exchange between the ocean and local estuary, thereby improving the local estuarine water quality and fisheries resources. Other local and long-term beneficial effects of the plan of improvement are the protection of the public investment in the facilities at the Historic Site and the maintenance of an interesting leisure activity available to tourists visiting the nearby resort communities. A minor long-term beneficial effect, associated with the plan's groin structures, would be the attraction of game fish.

Adverse effects are also associated with the recommended plan of protection, but these are primarily of short duration and of only moderate to minor intensity. Specifically, the plan would create undesirable noise and visual appearance related to actual construction which is estimated to require 2 years for completion. Additionally, the plan would have short-term adverse impacts of moderate intensity on lifeforms within the zone of fill material acquisition and along the beach strand on which the fill would be placed. These effects would exist during initial fill placement and subsequent nourishment operations. The recommended plan would also have minor adverse effects of long-term duration on those who prefer not to see groin structures in the surf zone.

Jekyll Island, Ga.

Location.—Jekyll Island is located in Glynn County, approximately 7 miles southeast of Brunswick, Georgia.

Existing projects.—A rubblemound seawall 4,240 feet long was authorized and funded by the Office of Emergency Planning and constructed by the Corps of Engineers after hurricane damage in 1964. Since 1964, the Jekyll Island State Park Authority has constructed a total of about 14,485 feet of rubblemound seawall.

Needs.—Erosion along the Atlantic Ocean has resulted in loss of shoreline, protective dunes, seawalls, and recreational beach, and is endangering public facilities. Protection from the damaging effects of hurricane is also needed.

Recommended plan of improvement.—The proposed plan would provide for restoration, stabilization, and periodic nourishment of the Jekyll Island Beach which fronts on the Atlantic Ocean. The project would include the following elements:

a. Restoration of about 27,000 feet of beach beginning at the northern end of the island and extending along the ocean shore in a southerly direction. The restored beach would have a level berm 75 feet wide and then sloping to intersect the ocean floor.

b. A 1,000-foot-long rubblemound groin would be constructed at the northern end of the beach restoration area to prevent an excessive amount of sand from spilling into the channel to the north.

c. Periodic nourishment would be provided to maintain the restored beach to project dimensions.

Estimated cost (January 1974 price base):

Federal	$2,628,000
Non-Federal	1,767,000
Total	4,395,000

Project economics (Interest rate of 5⅞ percent and economic life of 50 years):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$164,000	$110,000	$274,000
Maintenance and operation	121,000	82,000	203,000
Total	285,000	192,000	477,000

Annual benefits:	
Erosion control	$119,000
Recreation:	
General bather	1,807,000
Nonbather	769,000
Area redevelopment	37,000
Total	2,732,000

Benefit-cost ratio.—The B/C ratio is 5.7 with non-bathers benefits and 4.1 without non-bather benefits, using an interest rate of 5⅞ percent.

Environmental impact of recommended plan.—Without a project the Jekyll Island shoreline would continue to erode. Since 1856, about 900 feet have eroded from the northern tip of the island. Studies indicate that the northerly 27,000 feet is receding at an averaged rate of 4.2 feet per year. A 3,700 segment of this area is receding at an average rate of 8 feet per year. Completion of the project will assume restoration and protection of the beach throughout the life of the project. The immediate recreational impact would be the continued development and maintenance of the existing resources by the Park Authority with the assurance that the eroding segments of the beach will be contained. The restoration will increase the available beach from its present capacity of 15,200 bathers per day to 64,000 per day while reducing the density of recreational users by distributing their activities over a broader area. The increased visitations will stimulate an increase in all types of tourist accommodations throughout Glynn County. This large increase in tourist activities could have adverse environmental impacts on the area unless adequate public recreational and sanitation facilities are provided. Effective management and administration will be required to lessen the possibilities of haphazard development and associated adverse impacts. No known endangered species of biota will be adversely affected by the project. During construction and subsequent future beach nourishment, some plankton and benthic com-

munities will be destroyed at both the borrow site and beach restoration area. Water turbidity increases during periods of dredging but will not have significant effects on the aquatic biota because the rapid settling of the agitated sediments and the immediate dispersion of the plume. Beach restoration activities will be scheduled to prevent disruption of the resting areas of the logger-head sea turtles. The completed project will provide additional resting habital for these giant sea turtles. No known historical or archeological artifacts are present in the borrow sites or beach nourishment area; however, a magnetometer and penetrating sonar survey investigation will be conducted prior to construction. A careful review was made of the possibility of the proposed borrow material containing pollutants in view of prior reports that significant pollutants were present in the Brunswick River. An analysis of sediment samples taken near the proposed borrow area indicated that the sediments should meet minimum standards for use as recreational beach fill; however additional samples will be taken during subsequent detailed studies.

Ponce Harbor, Puerto Rico

Location.—Ponce Harbor is an open bay about midway on the south coast of the Island of Puerto Rico. The municipality of Ponce, the second largest city in the island, is an industrial, educational, and commercial center serving a tributary area of about 900 square miles composed of 18 municipalities.

Existing and authorized projects.—The existing improvements for Ponce Harbor consist of a seawall 362 feet long extending northwesterly across the rock reef near the landward end of the municipal pier. Construction of a breakwater extending from Carenero Point is also authorized and local interests have provided a portion between the mainland and the Ponce Yacht Club. The project also provides for the dredging of 3 contiguous areas. A portion of a 30 foot area immediately north of the municipal bulkhead was completed and the remainder was dredged irregularly to project depths and referred to as a maneuvering area. Work remaining to be done consists of completing this 30-foot maneuvering area; dredging an adjacent 18 foot area, and a 30-foot area serving the municipal pier; and a completion of the breakwater extending southwesterly from Carenero Point.

Needs.—Improvements at Ponce Harbor are needed to allow larger vessels to use the harbor and to provide service to an additional area being developed for industrial activities.

Recommended plan of improvement.—After a thorough analysis and evaluation of various alternatives, including those requested by local interests, a plan was recommended to construct a 2.8 mile main channel, 600 feet wide, from the Caribbean Sea to the port, a 400-foot wide channel into the harbor, and an irregular-shaped turning basin with a 950-foot turning diameter adjacent to the municipal bulkhead, all to a depth of 36 feet. The proposed plan recommends that the existing 18-foot project and the 30-foot project outside the proposed 36-foot project area adjacent to the municipal bulkhead be deauthorized.

Economics of the selected plan.—(50-year economic life, an interest rate of 5⅞ percent, and March 1974 prices).

ESTIMATED COSTS

[$1,000, 5⅞ percent and 50 yr) [1]

	Federal	Non-Federal	Total
First costs:			
Construction	$3,160	$410	$3,590
Land and relocations			
Total	3,160	430	3,590
Annual costs:			
Operation and maintenance	3	14	17
Interest and amortization	197	27	224
Total	200	41	241
Annual benefits	(1,000)		3,049

[1] Use of projected October 1976 price levels results int total initial cost of $4,489,000, of which $3,940,000 is Federal. The average annual cost is $304,000, and the benefit-cost ratio is 11.8, based on the current interest rate.

Note: Benefit-cost ratio—12.6.

Environmental impact of recommended plan.—Implementation of the recommended plan would result in the environmental disturbances inherent in the dredging and disposal of 1,043,000 cubic yards of material. These include the destruction of benthic organisms in the dredging and disposal areas. However, these organisms schould reestablish themselves upon completion of the construction and disposal operations. In addition, temporary degradation of water quality will occur from the increased turbidity in the dredging and disposal areas, but the loading area will be inclosed by a silt barrier to reduce this degradation during the excavation and loading process. Another adverse effect is related to the relocation of approximately 1000 persons to accommodate future plans for expansion of port facilities. Subsidized modern housing will be made available for these people improving their living conditions, but the relocation will create some adverse disruptions. Expansion of the port facilities and the increased use of the port will also increase the risk of harbor pollution from oil spills and discharge of vessel wastes. In addition, economic development spurred by port growth will create pollution sources as well as increased pressure for urbanization and industrial use of the small amount of remaining bioligically productive marshland. However, the growth and industrialization of the Ponce area is expected to continue under Commonwealth sponsorship with or without the port project.

Fairport Harbor, Ohio

Location.—Fairport Harbor, Ohio is located on the south shore of Lake Erie at the mouth of the Grand River, about 33 miles east of Cleveland.

Existing projects.—Extensive modifications have been made at Fairport Harbor in the interest of commercial navigation. Controlling depths are 25 feet in the outer harbor, 23 and 21 feet in the inner harbor, 18 feet in the turning basin, and 8 feet at the upstream end of the channel. Further improvements were authorized by the River and Harbor Act of 1960, but are in an inactive status due to lack of local assurances.

Problems and needs.—There is a lack of suitable permanent mooring facilities to meet the demand. The existing facilities on Grand River

are susceptible to damage from floodflows. The increase in smaller cruisers and sailing craft has prompted the need for harbors of refuge at about 15-mile intervals on the Great Lakes.

Recommended plan of improvement.—The proposed plan would provide for a 360-foot long detached breakwater, parallel to an 1,240 feet east of the United States East Pier; a 1,060-foot long north inner breakwater, extending east from the outer end of the United States East Pier; an approach channel 100 feet wide, about 400 feet long 8 feet deep; an L-shaped dock channel 100 feet wide, 1,590 feet long and 6 feet deep, parallel and adjacent to the proposed breakwaters; and development of pier fishing facilities.

Estimated cost (July 1975 price levels):

Federal[1]	$1,457,000
Non-Federal	1,587,000
Total	3,044,000

[1] Excludes $20,000 for aids to navigation.

Project economics (Interest rate of 6⅛% and project life of 50 years):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$99,700	$108,800	$208,500
Maintenance and operation	3,700	3,200	6,800
Total	103,400	112,000	215,400
Annual benefits:			
Recreational navigation			$266,900
Recreational fishing			84,000
Total			350,900

Benefit-cost ratio: 1.6.

Environmental impact.—Construction of the proposed plan of improvement will create temporary adverse effects, including noise, dust, traffic, and turbidity in the harbor. Approximately 2.7 acres of bottom habitat will be permanently lost, and use of an 800-foot section of beach will be preempted. Development of the shoreline with backup facilities for the small boat harbor will result in the loss of green space and the alteration of existing parklands.

The proposed small boat harbor facility would provide a harbor of refuge for small craft during periods of inclement weather. Sport fishing facilities would be materially improved. The social well-being of the community would also be improved through the stimulation of the local economy and the creation of additional employment.

Saylorville Lake, Des Moines River, Iowa—Proposed project modifications

Location.—Saylorville Dam is located on the Des Moines River 213.7 miles above the mouth and approximately five miles upstream from Des Moines, Iowa.

Authority.—The project was authorized by the Flood Control Act of 1958, Public Law 85-500. This special report recommends modifications to the project authorization in order to minimize adverse project impacts on Ledges State Park, Iowa.

Existing project.—The Saylorville Lake project is now under construction. A permanent lake will be created which will extend about 17 miles above the dam. The Lake will cover 5,400 acres and will provide a major public recreational lake in central Iowa.

Flood problem.—Concern, which includes a lawsuit, has been expressed over the adverse project impact on Ledges State Park. The park is a picturesque and popular area located partly within the reservoir and will be subject to inundation at moderate to high flood control pool elevations.

Recommended plan of improvement.—It is proposed that the Saylorville Lake Project be completed to include: (1) a maximum flood pool at elevation 890 as previously proposed; (2) a conservation pool at elevation 833 as previously proposed; (3) an increase of the minimum reservoir flood release from 8,000 c.f.s. to 12,000 c.f.s.; (4) the acquisition of a floodway corridor along the Des Moines River from the Saylorville Dam downstream to 6th Avenue in the city of Des Moines; and (5) the implementation of a vegetative management plan for Ledges State Park, consisting of (a) relocation of affected man-made facilities, (b) vegetative management of affected areas, and (c) purchase and disposal by transfer of real estate.

Estimated cost (May 1974 price level):

Plan first costs:	
Federal:	
Vebetative man. prog	$1,600,000
Floodway corridor	3,875,000
Non-Federal costs	425,000
Total first cost	5,900,000

Project economics (Interest rate of 6⅛ percent).

Annual benefits for floodway corridor—recreation: $178,000.

Annual costs for floodway corridor recreation:	
Operation and maintenance	$50,000
Interest and amortization	61,000
Total	111,000

Benefit cost ratio for floodway corridor recreation: 1.6.

Local cooperation.—Prior to implementation of these modifications, local interests furnish assurance that they will:

(1) Bear one-half of the cost for lands and facilities needed only for recreation in the floodway-recreation corridor, such amount presently estimated at $425,000;

(2) Bear all costs of operation, maintenance, and replacement of corridor recreation facilities; such average annual amount presently estimated at $50,000;

(3) Convey to the United States at no cost all lands and interest in Ledges State Park and State Game Farm lands held by the State of Iowa that are needed for project purposes;

(4) Utilize the lands conveyed by the United States to the State of Iowa solely for park-related purposes; and

(5) Undertake a vegetative management program on park lands within the reservoir area with funds provided by the United States for that purpose.

Iowa and Cedar Rivers, Iowa and Minnesota, at Evansdale, Iowa

Location.—Evansdale is located on the Cedar River in northwest Iowa, approximately 85 miles northeast of Des Moines and 90 miles west of Dubuque.

Existing projects.—There are a number of Federal and non-Federal flood control improvements in the Iowa and Cedar Rivers basin. However, the only existing improvement pertinent to the proposed Evansdale project is a local protection project on the Cedar River at Waterloo. This project, now under construction, consists of levees, floodwalls, pumping plants, and closure structures on both sides of the Cedar River and Black Hawk Creek. The proposed project at Evansdale will tie into the Waterloo levee project.

Problems.—Almost all of Evansdale is situated on flood plain land. Flooding on the Cedar River and Elk Run Creek occurs as a result of spring rains coupled with snow and ice melt, or from intense precipitation during summer thunderstorms.

Recommended Plan of Development.—Construction of an earth levee system to provide 100-year flood protection.

Estimated cost (July 1975 price levels):

Federal	$2,234,000
Non-Federal	294,000
Total	2,528,000

Project economics (Interest rate of 6⅛ percent):

	Federal	Non Federal	Total
Annual charges:			
Interest and amortization	$145,600	$19,100	$164,700
Maintenance		1,800	1,800
Total	145,600	20,900	166,500
Annual benefits:			
Flood damage reduction			$231,900
Existing conditions			(180,700)
Affluence factor			(48,200)
Location			(3,000)

Benefit-cost ratio: 1.4.

Environmental Impact.—The proposed levees would traverse cultivated fields, open and wooded pasture, and some residential area. Some wildlife habitat would be lost, and some cultural features such as streets and residences would be affected. In some reaches a levee would create a barrier between urban area and naturally wooded bottom land, improving wildlife habitat.

Petit Anse, Tigre and Carlin Bayous, Louisiana

Location.—The channels under consideration are located in Iberia Parish, north and south of Delcambre in the coastal area of south-central Louisiana.

Existing project.—The existing Federal project provides a channel, 9 feet deep and 80 feet wide, in Bayou Petit Anse from the Gulf Intra-

coastal Waterway (GIWW) to the north end of Avery Island, a distance of 6.1 miles; a channel, 9 feet deep and 80 feet wide, in Bayou Carlin from Bayou Petit Anse to Lake Peigneur, a distance of 7.6 miles; a channel, 7 feet deep and 60 feet wide, in Avery Canal from the GIWW to Vermillion Bay, a distance of 2.7 miles; and a mooring area in Bayou Carlin below Delcambre. The mooring area has a length of about 1300 feet, a width varying from about 125 feet to 200 feet, and a depth of 9 feet.

Needs.—Existing channel and bridge dimensions are inadequate to accommodate use of wider barges and multiple barge tows now operating on the inland waterway system.

Recommended plan of improvement.—The plan of improvement involves: replacement of a railroad bridge at Delcambre; enlargement of Bayou Petit Anse from the Avery Island salt mine canal to the GIWW; and enlargement of Bayou Carlin from its head at Lake Peigneur to Bayou Petit Anse. Channel dimensions would be 12 feet deep and 125 feet wide except through the developed area of Delcambre where the width will be reduced to 80 feet.

Estimated cost (Price level of July 1974):

Federal	$1,809,000
Non-Federal	1,260,000
Total	3,069,000

Project economic (Interest rate of 5⅞%):

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$112,000	$79,000	$191,000
Maintenance	19,000	6,000	25,000
Total	131,000	85,000	216,000
Annual benefits			
Transportation			$248,100
Damages prevented			8,400
Area redevelopment			4,900
Total			261,400

Benefit cost ratio: 1.2.

Environmental impact.—Implementation of the proposed action will reduce navigation hazards and will enable larger and deeper draft tows and shrimp boats to use the project channels. The major natural environmental impacts stem from dredging of approximately 1,200,000 cubic yards of material. The dredging will affect the bottom of the stream and the placement of spoil will convert some marsh area and agricultural pastureland to brush-covered spoil area. The project will require approximately 500 acres of marsh area and 400 acres of agricultural pastureland for spoil-disposal areas in addition to the existing 1,000-acre spoil area. The existing vegetation will initially be replaced with bare spoil material. Revegetation will be accomplished during the first growing season following construction. Natural succession will then proceed. The planned interval for maintenance dredging (5 years) will allow a brushy plant community to prevail on spoil areas. Construction will cause a temporary increase in turbidity and a displacement of existing bottom micro-organisms forming the lower

trophic levels of the food chain of aquatic life of the streams. No opposition was expressed by those in the immediate project area. Some opposition to the spoil disposal area requirement was expressed by environmental groups.

Flathead and Clark Fork River Basins (Flathead River near Kalispell)

Location.—The recommended project is located on the Flathead River between Columbia Falls and Flathead Lake, Montana. The project would reduce flooding in Evergreen and Days Acres communities adjacent to Kalispell in Flathead County, Montana.

Existing projects.—Federal: Hungry Horse Dam, a multiple purpose storage project constructed and operated by the Bureau of Reclamation, was placed in service in 1952. It has four generator units with a total capacity of 285 MW (nameplate rating) and a gross head of 477 feet. Total storage capacity is 3,468,000 acre-feet, including 2,982,000 acre-meet for flood control with bank storage estimated at 179,000 acre-feet the total estimated effective flood control storage is 3,161,000 acre-feet.

Non-Federal: A number of locally owned small levees, bank protection structures and miscellaneous works along the upper Flathead River prevent stream meandering and protect farmland against frequent flooding, but do not prevent inundation by large floods.

Kerr Dam constructed and operated by Montana Power Company provides flood control storage under rules prescribed by the Federal Power Commission. The project placed in service in 1939, has a capacity at 168 MW (nameplate rating) and operates under a gross head of 119 ft. Usable available storage is 1,209,000 acre-feet in Flathead Lake. Two other projects provide flood control in the basin and are of significance to this study—Hungry Horse Dam and Reservoir on the South Fork, and Kerr Dam on Flathead Lake.

Needs.—Flood damage reduction is a major water resource need in the upper Flathead valley between Columbia Falls and Flathead Lake, Montana where nearly 24,000 acres were inundated in 1964. However, this rare flood does not provide a practical base for need determination. Based on 100-year flood as a guide, about 16,700 acres are subject to flooding in the upper Flathead valley and in need of measures to reduce flood damage. The need is for protecting existing development, particularly on about 200 acres of urban development and safeguarding future development against flood damages.

Recommend plan of improvement.—The flood damage reduction plan recommended in the survey report calls for structural measures to protect the Evergreen and Days Acres communities. The project for the Evergreen area would include a setback levee and a pumping plant to pass Spring Creek discharges when the Flathead River is at flood stage. Flap gates would be installed on existing culverts through Willow Glenn Drive embankment to protect Days Acres. The flood plain in unprotected areas would be managed by local and state governments through development regulations. Local interests would be required, as part of the Federal project, to provide rights-of-way, road alterations, and any other relocations caused by project construction.

AVERAGE 1975 PRICES

Estimated cost:	
Federal cost:	
Evergreen levee, including culverts and gates	$1,280,000
Pumping plan and bypass works	1,118,000
Days Acres flood gates	4,000
Engineering and design	288,000
Supervision and administration	219,000
Total Federal cost (excluding $140,000 for preauthorization study)	2,917,000
Non-Federal cost:	
Roads	47,000
Lands, easements, and rights-of-way	39,000
Engineering and administration	12,000
Total non-Federal cost	98,000
Total estimated cost	3,015,000

Project economics—(6⅛ percent interest, 1975 prices and 100-year study period)

	Future conditions (100-years, 1980–2080)
Average annual project benefits:	
Flood prevention and reduction of flood proofing costs	$442,300
Area redevelopment [1]	38,000
Total	480,300
Investment costs	3,015,000

	Federal	Non-Federal	Total
Annual costs:			
Interest and amortization	$179,900	$6,000	$185,000
Operation and maintenance		6,000	6,000
Total	179,900	12,000	191,000

Benefit-cost ratio.—2.51.

Environmental impact at proposed project.—The recommended plan would have beneficial or minimal adverse environmental effects. The flood plain zoning portion of the plan would have beneficial impacts by controlling future development. Levee construction would adversely impact the environment, but these impacts would be minimized by locating the levee well back from the river. The pumping plant on Spring Creek could provide a possible barrier to fish passage. However, coordination with State and Federal fish and wildlife agencies during preconstruction planning should result in adequate provision for fish passage. Development could be induced in the Evergreen area resulting in additional septic tank construction. Consequently, further degradation of water quality in underlying aquifer and, in Spring Creek could occur. However, more intensive development, together with Federal and State water pollution abatement laws, should spur construction of sewage collection and treatment facilities which would eliminate septic tank pollution.

Bear River, California

Location.—In north-central California, from the Sierra Nevada foothills to the confluence of the Bear and Feather Rivers in the Sacramento Valley.

Existing projects.—Existing flood control improvements affecting the lower Bear River area are the Feather River and Bear River levee systems, both part of the Sacramento River Flood Control Project, and two existing and one authorized multiple-purpose reservoirs on upstream Feather and Yuba Rivers. Reservoir storage is also provided by three upstream reservoirs on Bear River, which are used for irrigagation, hydroelectric power, and recreation. Flowage easements for flood plain management are held by the State of California on approximately 3,300 acres of agricultural land in the Plumas Lake area.

The existing upstream reservoirs, Oroville and New Bullards Bar, the authorized Marysville Lake (when constructed), and the Bear River levee system provide flood protection against Bear River floodflows for a flood event having a frequency of occurrence of about once in 17 years on the average.

Needs.—Damage from flooding in the Plumas Lake, Linda and Olivehurst areas is usually caused by a combination of Bear River backwater and local inflow that ponds in the Plumas Lake area until Bear River stages recede. The area is not protected by levees, and some flooding can be experienced on a yearly basis. Flooding in the Plumas Lake area also restricts the discharge of runoff from the Linda and Olivehurst urban areas, which compounds flood problems in those areas. Unless protective measures are taken, future average annual damages will amount to $293,000.

Recommended plan of improvement.—The recommended plan for solution of flood problems in the Linda and Olivehurst area is the levee and channel alternative.

Estimated cost.—Using October 1975 prices, the estimate of first cost for the project is $5,730,000, including $5,695,000 for the flood control features and $35,000 for the trail-based recreation features. The Federal cost is estimated at $3,010,000 and the non-Federal cost at $2,720,000, which includes a $20,000 cash contribution by non-Federal interests at the time of construction for their share of the cost of recreational facilities.

Project economics.—Interest rate, 6⅛ percent.

	Federal	Non-Federal	Total
Annual costs:			
Interest	$185,500	$165,400	$350,900
Amortization	500	500	1,000
Operations and maintenance	0	45,100	45,100
Total	186,000	211,000	397,000

Annual benefits

Flood control	$397,000
Recreation	15,000
Area redevelopment	49,000
Total	461,000

Benefit-cost ratio.—1.2.

Local cooperation.—In addition to the normal conditions of local cooperation, local interests are required to make cash contribution for that portion of the cost of recreational facilities, presently estimated at $20,000, which, when added to the cost of recreation lands, would amount to 50 percent of the total first cost of the recreation lands and recreation facilities.

Environmental impact of the proposed project.—The recommended plan will involve loss of about 500 lineal feet (about one acre) of natural stream section and natural vegetation. The prepared channel would be unlined with selective planting for wildlife and aesthetic purposes to alleviate the visual impact of the channels. The construction of the levees would have some adverse visual impact.

Kahoma Stream

Project name.—Kahoma Stream, Lahaina, Maui, Hawaii.

Location.—Lahaina, Maui, Hawaii.

Authority.—Section 208 of the River and Harbor Act of 1960 (Public Law 86-645, 86th Congress).

Existing project.—None.

Needs.—Study area primary need is relief from periodic flooding.

Recommended plan.—The recommended plan provides for concrete-lined trapezoidal channel from the mouth to the Kelawea residential area. The channel alignment would approximate the existing stream alignment between the mouth and the Honoapoiilai Highway, but would be realigned through a natural swale upstream of the highway. Low earth berms would be constructed along the streambanks as required by topography. The bridges at Front Street, Honoapiilani Highway and the Cane Haul Road would be reconstructed to accommodate the design flood. Other features of this plan include a revetted outlet at the stream mouth, a diversion levee at the upstream end of the concrete channel to guide flows into the new channel, a rock sill to trap debris and bedload sediments, and a debris basin to prevent boulders and debris from entering the improved channel.

Cost.—The estimated cost for this single purposes flood control project is summarized below:

Federal cost	$3,210,000
Non-Federal cost	1,510,000
Total project first cost	4,720,000

Project economics.—The average annual benefits computed for this project using an economic life of 50 years and an interest rate of 6⅛ percent are summarized as follows:

Flood damage reduction (existing development)	$236,000
Location benefits	191,000
Total benefits	427,000

Based on an estimated project first cost of $4,720,000, the average annual charges based on an economic life of 50 years and an interest rate of 6⅛ percent are as follows:

Interest and amortization	$305,000
Operation and maintenance	15,000
Total average annual costs	320,000

The resultant benefit-to-cost ratio is 1.3.

Environmental impact of the proposed project.—Among the significant impacts is the reduction of serious flooding and damages to residences, businesses, and agricultural crops. The combination of the

proposed project with an active land treatment program to be developed by other governmental agencies in an independent, coordinated effort should result in an overall reduction of sediment transport to the sea and a comprehensive flood control program for the drainage basin.

By removing 13 acres of land from agricultural use, the realignment of the streambed will adversely affect the agricultural productivity of the adjacent lands for the near future, although the protection provided is consistent with the future residential uses envisioned by the Lahaina Central Plan. The adverse effects of the construction period are expected to be of a significant, but temporary nature, and measures to minimize their impacts will be specified. Adverse effects associated with channelization include stream temperature increases and loss of vegetation and wildlife habitat within and along the stream.

Wears Creek, Jefferson City, Mo.

Location.—The project encompasses the lower flood plain of Wears Creek within Jefferson City from U.S. Highway No. 54 to the Missouri River. This area is also within the boundaries of the approved Progress Urban Renewal Project which is administered by the Department of Housing and Urban Development (DHUD).

Existing projects.—The only authorized Corps of Engineers flood control project in this area is a levee along the Missouri River on the opposite bank from Jefferson City. It has not been constructed and is currently in the inactive status. DHUD has been closely involved in efforts to improve and renew Jefferson City through urban renewal programs, including the lower Wears Creek flood plain. The first of these, Campus View Urban Renewal Project, was completed in August 1973. A second major project, Progress Urban Renewal Project, was originally planned to result in renewal of selected sites throughout the central city with some improvements planned in the vicinity of the Wears Creek flood plain. However, in April 1973 this project was expanded to include the total clearing and redevelopment of the Capitol West Area, which includes a large part of the area to be protected by the potential improvements. Implementation of this renewal project is contingent upon the installation of flood control improvements. Local interests have installed a box culvert in the lower reach of East Branch, made minor channel modifications, and constructed floodwalls to provide protection from minor floods. In addition, local property owners have undertaken small protection projects on their own, but in some cases these structures have further encroached upon the channel.

Needs.—As a result of frequent flooding over much of the project area, the entire flood plain is largely one of impending blight and detracts from the surrounding flood free area, including the State Capitol. Development is limited to relatively low value properties with inadequate maintenance and rehabilitation. As a result, this area, which contains the last remaining parcels of underdeveloped land in close proximity to the State Capitol and should have a high development potential, is in a steady rate of decline. To improve the area, local interests have proposed an urban renewal project but redevelopment in the flood plain is not possible without relief from flooding conditions. Therefore, relief from the flood problem must be obtained prior to the implementation of a redevelopment plan.

Recommended plan of improvement.—The District Engineer investigated various methods of providing flood control and determined that a closed conduit for Wears Creek and its tributaries, to convey the 100-year flood through the area, combined with filling the lower flood plain, would be the only alternative which would meet the goals of the redevelopment project while providing an acceptable degree of flood protection. The conduit would start at the United States highway No. 54 crossing and proceed directly to the Missouri River. Filling of the flood plain would raise one area, located between the Missouri River and the expressway, to a level above the standard project flood (SPF) occurring from either Wears Creek or the Missouri River; and another area, located south of the expressway, would be filled to a level above the 100-year flood occurring from either type of flooding. The fill material would be dredged from the Missouri River.

Estimated cost.—Based on July 1976 price levels, the District Engineer estimates the total first cost of the proposed improvements, to be $37,013,000, of which $29,160,000 would be a Federal construction cost under the responsibility of the Corps of Engineers, $7,262,000 would be a Federal cost provided by DHUD as part of the urban renewal plan, and $591,000 would be provided by local interests.

Project economics:

Investment	Federal		Non-Federal	Total
	Corps	Other		
First cost	$29,160,000	$7,262,000	$591,000	$37,013,000
Interest on investment (6⅛ percent)	1,899,000	463,000	98,000	2,360,000
Amortization (50 yr)	89,000	22,000	2,000	113,000
Operation and maintenance			2,000	2,000
Total annual cost	1,948,000	485,000	42,000	2,475,000

Traditional methods of economic justification were not applied specifically to the recommended improvements. However, DHUD finds that the proposed flood protection plan is an essential and necessary element of the overall urban plan and the only viable solution to the flood control problem along Wears Creek within Jefferson City, Missouri. DHUD further finds that the overall urban plan, urban renewal and flood control, is economically justified.

Environmental impact of proposed project.—The selected plan would provide flood protection to about 120 acres of land adjacent to the State Capitol and the existing business district. Removal of flood threat would result in an immediate change of land use to a higher, more intensively developed area. The redevelopment would be planned in accordance with a proposed urban renewal project for Jefferson City. There would be a displacement of about 173 families and 49 individuals, involving 132 homes. There would be an enhancement of the general appearance of the Capitol complex and the core of Jefferson City by the elimination of a blighted condition. There would be some displacement or elimination of fish and wildlife as a result of destruction of habitat.

GRAND ISLE AND VICINITY, LOUISIANA

Location.—The protective works will be Grande Isle, Jefferson Parish, along the Gulf coast of Louisana.

Existing project.—At present the only Federal project is a shore protection structure to protect the Coast Guard Station on the eastern end of the island. Federal funds were used for restoration projects after the 1965 hurricane. Local interests have constructed many jetties and groins and provided beach replenishment, however, they have generally been insufficient to resist hurricane force, the 1971 jetty constructed by the State of Louisiana will be incorporated into the proposed project.

Needs.—Protection on the gulf side is needed to dissipate the force of hurricane waves and to control beach erosion.

Recommended plan of improvement.—The recommended plan would provide protection from beach erosion, and eliminate damage from hurricane-driven gulf waves generated by hurricanes having a frequency of recurrence of up to approximately once every 50 years. The recommended plan provides for a vegetated sandfill dune with a 10′ wide crown at an elevation of 11.5′ Mean Sea Level (msl) and side slopes of 1 Vertical on 5 Horizontal; a 180′ wide sandfill berm sloping from an elevation of 8.5′ msl at the dune gulfward to an elevation of 3′ msl and thence to the offshore bottom; and a 2600′ long stone jetty with a 6′ wide crown at an elevation of 4′ msl with sandfill placed on its landside to stabilize the western end of Grand Isle at Caminada Pass. The stone jetty was constructed by local interests in 1972 as an emergency measure. The recommended plan provides for periodic beach nourishment.

Estimated cost.—(Price level of July 1974):

Federal	$5, 700, 000
Non-Federal	4, 900, 000
Total	10, 600, 000

Projected economics.—(Interest Rate of 5⅞ percent).

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$356, 000	$305, 000	$661, 000
Maintenance	(1)	[1] 172, 000	172, 000
Total	356, 000	477, 000	833, 000

[1] U.S. Government will participate in initial beach nourishment for 10 yr at an annual cost of about $11,000.

Annual Benefits

Erosion prevention	$374, 000
Flood damage prevention	538, 000
Intensified land use	237, 000
Recreation	634, 000
Total	1, 783, 000

Cost-benefit ratio.—2.1.

Local cooperation.—Provide all lands, easements, rights-of-way, and relocations; hold and save the United States free from damages due to the construction works; assure maintenance, repairs, and periodic beach nourishment; provide a cash contribution for the hurricane protection function in an amount to bring the local investment to 30% of all final first costs allocated to this function; provide a cash contribution or perform additional work for the beach erosion control function; obtain approval of the Chief of Engineers prior to commencement of any work; assure continued public ownership of the shore; assurances on water pollution, protective vegetation, informing local interests of limitation on protective value, the Uniform Relocation and Real Property Acquisition Policies Act of 1970, and Section 221 of the Flood Control Act of 1970 (Noncompliance of Assurances).

Environmental impact.—The proposed project will protect the existing shoreline from damages due to beach erosion and greatly lessen the damage to existing homes, business establishments, Louisiana Highway No. 1, and the main utility lines serving the island. Benefits in the form of physical damage to or destruction of existing property caused by high intensity waves and enhanced recreational uses will result. Construction of the project will produce some esthetic impacts including moderate increase in obstruction of the ocean view from inland sites and intrusion of the jetty and artificial dune upon the natural beach. A temporary increase in turbidity adjacent to the area of fill material and in the area from which it will be dredged, along will the accompanying burial or removal of some of the natural organisms of these areas, will be experienced.

Vermilion lock replacement GIWW—Louisiana section

Location.—The project is located on the Gulf Intracoastal Waterway near Abbeville in south central Louisiana about 160 miles west of New Orleans.

Existing project.—The Gulf Intracoastal Waterway is a shallow-draft waterway generally paralleling the Gulf of Mexico shoreline which extends from Apalachee Bay, Florida, to the vicinity of the Mexican Border. In the Louisiana section existing waterway dimensions are 12 feet deep and 125 feet wide. Nine locks including Vermilion Lock are located in this section either to connect with the Mississippi and Atchafalaya Rivers or to provide for control of marsh salinities and conservation of freshwater supplies. The existing Vermilion Lock was constructed in 1933. It is an earth chamber lock 56 feet wide with a usable length of 1,182 feet, and with a depth of 11.3 feet over the sills at mean low gulf (m.l.g.) level with tumbler gates. These gates are hinged at bottom of the lock structure and mechanically raised to a vertical position. In May of 1967 the Secretary of the Army approved, under authority of Section 6 of the River and Harbor Act of 1909, replacement of the existing structure with a new lock 75 feet wide and 1,200 feet long. This replacement structure has not been constructed.

Needs.—The existing facilities require substantial repair and are inadequate in depth and width to accommodate current vessel traffic. Also, the existing facility cannot be operated jointly for navigation flood control, and control of saltwater intrusion into the adjacent marsh areas, because of the tumbler-type gates.

Recommended plan of improvement.—Construction of an earth-chambered, sector-gated structure. The replacement lock will have a width of 110 feet, a usable length of 1,200 feet, and a depth of 15 feet

over the sills. Sector gates are hinged vertically and rotate in the horizontal plane.

Estimated cost (Price level of July 1973):

Federal	$13,200,000
Non-Federal	85,000
Total	13,285,000

Project economics (6⅛ percent):

Annual charges	
Interest and amortization:	
Federal	$877,100
Non-Federal	5,500
Total	882,600
Operations and maintenance:	
Federal	33,200
Non-Federal	
Total	33,200
Total:	
Federal	910,300
Non-Federal	5,500
Total	915,800
Annual benefits:	
Transportation savings	1,247,000
Flood control	11,000
Area redevelopment	179,000
Total	1,437,000

Benefit-cost ratio: 1.6.

Environmental Impact.—The impacts of the proposed replacement lock on the natural environment would be localized. Minor alterations of flow patterns in the vicinity will be mostly beneficial. About 806 acres of marsh will be lost due to deposition of dredged material. Also, about 46 acres of marsh and 124 acres of higher ground will be required for the relocated channel and lock. Existing vegetation and wildlife on this land will be displaced or lost. Turbidity resulting from construction activities will cause temporary adverse effects on aquatic species.

Mermentau River and the Gulf of Mexico Navigation Channel, Louisiana

Location.—The study area is located in Cameron Parish, about 35 miles southeast of the City of Lake Charles in southwestern Louisiana.

Existing project.—Non-Federal interests, the East Cameron Port Harbor and Terminal District, constructed, in 1971 for about $1 million, a navigation channel in the lower reach of the Mermentau River within Cameron Parish. It begins at the community of Grand Chenier and proceeds due South to the Gulf of Mexico bypassing the lower six miles of the westward flowing Mermentau River. It is about 4.6 miles in length, has a depth of 15 feet and the width varies between 100 and 200 feet.

Needs.—Local interests have indicated that funds are not available for regular maintenance, and the project is beginning to show signs of shoaling at both ends.

Recommended plan.—The plan involves Federal maintenance to the original dimensions of the project.

Estimated cost (Price level of July 1974):

Federal*	$155,000
Non-Federal	24,000
Total	179,000

*Exclusive of $50,000 for navigation aids.

Project economics (interest rate of 5⅞ percent)

Annual charges:	
Federal*	$78,000
Non-Federal	13,000
Total	91,000

*Exclusive of $8,000 for annual cost of navigation aids.

Annual Benefits: Transportation $714,000.

Benefit-cost ratio.—7.2.

Environmental Impact.—Adverse environmental impacts include periodic slight changes in water quality, partial destruction of vegetation in disposal areas, and temporary displacement of wildlife in disposal areas. Beneficial impacts include the creation of 525 acres of tidal marsh and the maintenance or growth of the economic posture of the area.

Bassett Creek Watershed, Minnesota

Location.—The watershed is located entirely within Hennepin County in east-central Minnesota, in and immediately west of the Minneapolis-St. Paul metropolitan area, and drains about 42 square miles into the Mississippi River above St. Anthony Falls Lock and Dam.

Existing projects.—There are no existing, authorized or proposed Federal flood control improvements in the basin. Non-Federal interests have constructed stream alignment and inclosed conduits projects on the channel primarily in the vicinity of its mouth.

Needs.—Problems and needs of the basin are related to the purposes of: flood control, water supply, water quality, recreation, and fish and wildlife conservation. The last 1½ mile of the creek is inclosed by an existing outlet conduit in the state of general disrepair.

Recommended plan of improvement.—The reporting officers find that the most practical and economically feasible solution to the flood problem is the watershed consists of a new conduit, about 8000 feet long to replace the existing outlet conduit (in cooperation with the Minnesota Department of Highways) plus a ponding area, at the entrance to the new conduit, to become a 10-acre wetland area and temporarily impound floodwaters. Also included are a limited reach of channel widening and snagging and clearing, flood storage control structures, road raises, bridge removals, culvert replacements, a weir structure, wildlife enhancement and a recreation trail system for bikes and walking path. The proposed plan would provide protection

against a flood having a recurrance interval of once in 100 years. Nonstructural measures include flood proofing (raising) of 19 structures, evacuation of 3 residences, and continuation of flood plain ordinances modified to reflect proposed conditions. Water supply and water quality problems are being considered under programs of other governmental agencies.

Estimated Costs.—First costs based on October 1975 price levels are:

Federal (Flood control and $77,000 for recreation)	$7,231,000
Non-Federal (Includes $154,000 for recreation factilities)	2,909,000
Total	10,140,000

NOTE.—None of the Federal costs are reimbursable by non-Federals.

Project Economics.—Based on a 6⅛% interest rate and a 100-year period for economic analysis, average annual costs for the proposed improvements are:

Federal	$444,000
Non-Federal (Includes $10,000 for annual maintenance)	189,000
Total	633,000

Average annual benefits are estimated at $949,700 with future conditions resulting in a benefit-cost ratio of 1.5 Reverting to existing conditions only, benefits are $689,800 resulting in a benefit-cost ratio of 1.1.

Summary of Average Annual Benefits

Flood control	$674,100
Recreation	28,100
Advance replacement	162,100
Redevelopment	85,400
Total	949,700

Local cooperation.—Cooperative construction of the new outlet with the Minnesota Department of Highways would result in an estimated cost savings of about $5.5 million. In addition to the normal conditions of local cooperation, local interests are required to contribute 20% of the cost of the non-structural portion of the project.

Environmental impact of proposed project.—The selected plan was developed to preserve the aesthetic quality of Bassett Creek. Environmentally degrading features were eliminated in the more environmentally sensitive area of the creek on favor of temporary flood water storage, because of short duration, these would not cause a significant impact on the environment. The study failed to identify any archaeological or historical features of value in the project area. A potential exists for culturally valuable sites and more study is required.

The action proposed is based on a thorough analysis and evaluation of all reasonable alternative means for achieving the stated objectives; that wherever unavoidable adverse effects are found to be involved, they cannot be avoided by reasonable alternative courses of action which would achieve the congressionally specified project purpose; that the recommended action is consonant with national policy, statutes, and administrative directives; that where the proposed action results in an adverse effect, this effect is either mitigated or outweighed by other considerations. In addition, the Minnesota Department of Highways and the Bassett Creek Flood Control Commission and the communities its represents find the plan acceptable in concept. The

public interest would be best served by implementation of the recommended plan.

Additional Flood Control Storage at Upper Baker Project, Skagit River Basin, Washington

Location.—The Upper Baker Project owned and operated by Puget Sound Power and Light Company is located at the Baker River, a tributary of the Skagit River, at mile 9.3. The Skagit River basin, located in the Northwest corner of the State of Washington, comprises an area of 3,140 square miles.

Authority.—The detailed flood damage reduction study on the Upper Baker Project was undertaken as a follow-up to the Comprehensive Water and Related Land Resource Study of Puget Sound and Adjacent Waters, Washington, authorized by Section 209 of Public Law 87-874, the Flood Control Act of 1962.

Existing projects:

Federal

No Federal flood damage reduction works have been constructed in the Skagit River basin but two projects have been authorized; Avon Bypass and Skagit River Levee and Channel Improvements. The Flood Control Act of 1936 authorized the Avon Bypass which would divert excess Skagit River flow from the main river channel near Burlington to Padilla Bay. Based on 1966 studies, the project would cost about $61 million (1975 prices), with $13 million being non-Federal share. Although part of its comprehensive plan, Skagit County has been reluctant to proceed with the project at this time primarily due to the high local costs, as well as project associated loss of agricultural lands. The Flood Control Act of 1966 authorized construction of a levee and channel improvement projects along the Skagit River from just upstream to Mount Vernon downstream along both the north and south forks and Federal cost-sharing of recreation facilities as part of the Avon Bypass project. The levee and channel improvement project would provide a uniform minimum safe channel capacity of 120 cfs from just upstream of Burlington downstream through the delta. This capacity would allow safe passage of floods (under existing conditions of upstream storage) having an average recurrence interval of 8 years. In combination with the Avon Bypass, the levee and channel improvement project would provide protection against the floods having an average recurrence of up to 35 years. This project would cost $13 million (1975 prices), of which $500,000 would be non-Federal.

Non-Federal

Non-Federal Projects in the Skagit River basin include an extensive levee system and six hydroelectric power dams. In the delta area west of Sedro Woolley farmland and towns are afforded low-level protection by locally constructed levees that prevent flooding from the river and in the lower estuary from tidal saltwater. About 43 miles of main stem river levee have been constructed which give some protection against spring and winter floods. There are 16 diking districts which have 45,000 acres of land; individual owners have inclosed an additional 1,000 acres. Between Concrete and Sedro Woolley,

low levees protect several rural areas and the town of Hamilton from minor floods. The existing levees vary in level of protection and will safely withstand riverflows from 84,000 to 130,000 cfs which can be expected to recur on the average of once every 3 to about once every 10 years, respectively. The Seattle City Light has constructed three hydroelectric power dams on the main Skagit River. Ross Dam with usable storage capacity of 1,280,000 acre-feet (since 1953, 120,000 acre-feet of Ross Reservoir space has been for flood control from 1 December to 15 March). This project supplements low flows for the run-of-the-river plants and Diablo and Gorge Dams located downstream. City Light also operates a small hydroelectric power plant on Newhalem Creek. Puget Sound Power and Light operates two hydroelectric power projects on the Baker River-Lower and Upper Baker Dams. 16,000 acre-feet of storage space at the Upper Baker project is available for flood control regulation to compensate for valley storage lost as a result of the project.

Needs.—Potential for major major flood damage is very high in Skagit Basin with average annual damages estimated at $4,246,000 (1974 prices and conditions). Existing flood control projects provide only limited protection for highly developed Skagit River delta. These projects include local levees and provision of flood control storage space in Ross hydroelectric project, owned and operated by the city of Seattle. Skagit County has long sought additional flood control measures and had adopted a comprehensive plan which includes authorized and proposed Corps of Engineers projects including, additional storage at Upper Baker Dam, Avon Bypass, levee and channel improvements, and possibly additional upstream storage.

Other water related land resource needs have been previously identified in the Puget Sound and Adjacent Waters Comprehensive Study. Studies lending to the report have been limited to an evaluation of the feasibility of providing additional flood control storage space at Upper Baker project, within the provisions of the FPC license, and the determination of the effects and impacts on either resource uses, such as hydroelectric power generation and fish and wildlife production. Investigation of either basin water resource needs was beyond the scope of the study.

Recommend plan of improvement.—Combined with the effective flood plain management program being implemented by Skagit County, communities within the Skagit basin, and the State of Washington, additional flood control storage at Baker Lake would be the first major new element in Skagit County's comprehensive flood control plan. The Federal Power Commission License for the Upper Baker project contains provisions for additional flood control. Accordingly, the only action now required is for Congress to authorize Federal compensation of Puget Power for annual power losses that may result from the additional flood control. The recommended plan includes the following features:

a. Drawdown of Baker Lake from 1 October to 1 November to provide 16,000 acre-feet of storage (El. 720.6) as replacement for valley storage lost when the project was constructed.

b. Additional drawdown of Baker Lake from 1 November to 15 November to reach a level at which a total of 74,000 acre-feet of storage capacity (El. 707.8) would be available for flood control.

c. Storage space of 74,000 acre-feet reserved until the first of March, except when regulating for flood control. Puget Power could still draw the reservoir below elevation 707.8 during this period for power production purposes. The required flood control storage capacity would be gradually reduced during March to permit Puget Power to refill to full pool, elevation 724, by 1 April.

d. The Baker River's discharge into the Skagit River at Concrete regulated to a maximum of 5,000 cfs (present power generation capacity of Upper Baker project) whenever the Skagit River is forecast to reach 90,000 cfs at gage near Concrete (located below mouth of Baker River).

e. Flood plain management by Skagit County and communities of Burlington, Mount Vernon, etc., consistent with the State of Washington Flood Control Zone Act of 1935 and the State of Washington Shoreline Management Act of 1971, as well as requirements of the Department of Housing and Urban Development, Flood Insurance Administration.

Value of lost power.—The economic evaluation of annual power losses resulting from the recommended plan was based on the cost providing replacement power from new alternative power plants similar to the evaluation of power benefits attributable to new hydropower projects. Also included in the average annual costs was allowance for administration of the additional flood control at the Upper Baker project, the cost of preparing reservoir regulation manual and follow-up environmental monitoring studies. An interest rate of 5⅞ percent was used in discounting future costs. The average annual value of lost power was based on Federal Power Commission established unit costs for alternative power production plants having similar capacity factors on the Upper and Lower Baker projects. For this proposal, values reflected a thermal power project having 75 percent public (non-Federal) financing at 7¼ percent interest rate and 25 percent private financing at 10 percent interest rate. The following tabulation shows the evaluation for the recommended plan (58,000 acre-feet additional storage).

Capacity: (6,300 kW maximum quantity) times ($64.29 per kW/yr)	$405,000
Energy: (1,117 kW×8,760 hours) ($.00173/kW-hr)	17,000
Total value of power lost	422,000
Flood control administration costs	12,000
Total average annual costs	434,000

The benefit-to-cost ratio would be 2.6 to 1.0.

Financial costs.—Puget Sound Power and Light Company will be compensated for power losses with replacement power, in kind. The costs of these losses is presently estimated at $56,000, annually. Other costs include initial administrative costs of $21,000, $5,000 annually for the first 5 years for environmental impact studies, and $9,000 annually for administration. All costs would be borne by the Federal Government.

Project economics.—Benefits of the recommended plan would be the reduction in future flood damages throughout the Skagit River flood plain, downstream from the mouth of the Baker River. Future average annual flood damages prevented represent the difference in average

annual flood damage that would be expected without the project change and residual average annual damages which would exist with the change. Average annual flood prevention benefits are based on July 1974 prices and a 100-year period of analysis (1977–2077). Average annual benefits are estimated at $1,127,000. Benefit-cost ratio would be 2.6 to 1.0.

Local cooperation.—No actions are required on the part of Skagit County or other local entities to implement the proposed project except to reaffirm their intention of continuing sound flood plain management practices. This was done by the Skagit County Commissioners by letter presented at the 8 April 1975 public meeting.

Summary of costs

First costs.—Preparation of power loss agreement and reservoir regulation manual—$21,000.

Annual costs.—(Based on using a 100-year period for economic analysis, a 5⅞ percent interest rate, and 1974 prices).

Economic	[1] $434,000
Financial	68,000
Revenue foregone	[2] (56,000)
Flood control administration costs	[3] (12,000)

[1] Cost of providing replacement power from new alterative powerplant.
[2] Cost of providing replacement power from Bonneville Power Administration.
[3] Includes $5,000 annually for first 5 years for environmental impact monitoring studies.

Environmental impact proposed project.—The recommended plan would maintain and possibly enhance environmental values in the Skagit River basin. Only a change in Upper Baker project operation would be needed with no significant environmental effects expected. Possibly some limited improvement in sockeye salmon production over existing conditions would be gained incidental to flood control drawdowns. Adult fish may be discouraged from spawning in the lake bottom which is later exposed. Flood plain management aspects of the plan should help insure that open space and green belt areas are retained in the Skagit Valley. Flood plain management alone, while helpful in stemming the growth of flood damages and preserving the natural environment, would not have the attributes that the recommended plan has.

Mobile Harbor, Alabama (Theodore Ship Channel)

Location.—Mobile Harbor is located in Mobile Bay, Alabama. Theodore Ship Channel runs from the main ship channel diagonally into the western shore of Mobile Bay about 2½ miles south of the Mobile, Alabama city limits.

Authority.—Construction of Theodore Ship Channel was authorized in December 1970 under the authority of Section 201 of the 1965 Flood Control Act. However, preconstruction planning studies identified the need for significant changes in the scope and cost of the project. Accordingly, a special report was prepared, recommending construction authorization of the current modified project.

Existing and authorized projects.—The existing Federal project for Mobile Harbor provides for an existing 40′ x 400′ channel in Mobile Bay serving Mobile Harbor. The authorized Federal project for Theodore Ship Channel provides for a 40′ X 400′ channel branching from the main ship channel, about 5.3 miles to the western shore

of Mobile Bay, then a 40′ X 300′ channel via land cut about 1.9 miles to a turning basin within Theodore Industrial Park. The State has constructed a barge canal from the Mobile Bay shoreline, about 2 miles into the industrial park.

Needs.—There is limited space in the main Mobile Harbor area for expansion of terminal facilities. Theodore Industrial Park offers an opportunity for expansion of port facilities. Development of this industrial area is a joint venture by the Alabama State Docks Department and the Mobile City Industrial Development Board. Deep draft navigation access is needed to facilitate development and to serve existing industries.

Recommended plan of improvement.—The project modification would provide for a channel 40 feet deep and 400 feet wide branching from the main ship channel in Mobile Bay at a point about 2.8 miles north of Mobile Bay Light and extending north westerly about 5.3 miles to the western shore of Mobile Bay into an anchorage area 300 feet wide and 1200 feet long and a turning basin approximately 1200 feet wide and 2200 feet long to be located adjacent to the proposed ship channel near the existing bay shoreline, thence via land cut 40 feet deep, 300 feet wide, and about 1.9 miles long, to a trapezoidal turning basin 40 feet deep and approximately 42 acres in area within the Theodore Industrial Park. The plan would provide for a barge channel extension 12 feet deep, 100 feet wide and approximately 6000 feet long to a barge turning basin approximately 2 acres in area. Before appropriation of funds for construction of the shoreline turning basin is requested, responsible non-Federal entities would have to provide assurances satisfactory to the Secretary of the Army, that development making use of the Federal improvement will occur.

Estimated economic first cost:	
Federal	*$42,800,000
Non-Federal	13,300,000
Total	56,100,000

* Includes $39,000 annually for aids to navigation.

Annual charges:	
Federal	*$4,690,000
Non-Federal	1,130,000
Total	5,820,000

*Includes $39,000 annually for aids to navigation.

Annual benefits.—Transportation Savings $15,714,000.

Benefit-cost-ratio.—2.7.

Economics of selected plan.—Property Acquisition Policies Act of 1970 (Public Law 91–646); and provide a cash contribution equal to 5 percent of the final dredging costs, not including brage channel dredging, for the increased dredging costs necessary to contain the dredged material in the bay disposal area.

It is further recommended that before appropriation of funds for construction of the shoreline turning basin is requested from Congress, responsible non-Federal entities provide assurances satisfactory to the Secretary of the Army in the form of firm plans, options, and other evidence of intent that development that will make use of the Federal improvement.

Environmental impact of recommended plan.—Industrial development in the area would expand resulting in economic benefits but would also increase the residential value as a result of noise, air, and water pollution. Loss of benthic organisms interference with photosynthesis, further segmentation of the bay floor, and minor alteration of the salinity and circulation regimens would result from the project implementation. Habitat for both terrestrial and marine organisms would be disrupted or destroyed. The major, adverse environmental effects would be destroyed The major adverse environmental effects would include the loss of bottom dwelling organisms, temporarily increased turbidity, salinity intrusion, loss of physical habitat and aquatic vegetation adjacent to the inland channel, minor and localized modification of circulation patterns in the bay, degradation of the local esthetics, and displacement of a limited number of people.

Lower Snake River Fish and Wildlife Compensation Plan

Location.—Lower Snake River, Washington and Idaho.

Existing projects.—Ice Harbor, Lower Monumental, Little Goose and Lower Granite Locks and Dams.

Needs.—To compensate for losses to fish and wildlife resources of the region caused by construction of the four lower Snake River dams.

Recommended plan of improvement.—To compensate for losses to fish and wildlife, the following plan is recommended:

a. Hatchery and associated facilities to return 18,200 adult fall chinook; 58,700 adult spring and summer chinook; and 55,100 adult steelhead to compensate for projected-caused losses.

b. Hatchery facilities to produce 93,000 pounds of trout annually to replace lost resident sport fishery.

c. Acquisition of 750 acres of streambank access to replace lost steelhead sport fishery.

d. Acquisition of 400 acres of off-project riparian habitat in fee and 8,000 acres of surrounding land in easement to partially compensate project-caused losses to quail and pheasant.

e. Development of wildlife habitat on project lands to partially compensate project-caused losses to game and non-game wildlife.

f. Acquisition of 15,000 acres of land adjacent to project lands in easement to partially compensate project-caused losses for chukar partridges.

g. Enter to agreement with Washington Department of Game to provide 20,000 pheasants per year for a 20-year period until habitat and brood stocks become established.

8. *Estimated cost.*—Total first cost to the Government is estimated at $45,788,000 with annual operation and maintenance costs estimated at $2,951,000 as of June 1974. Annual non-Federal costs are estimated at $15,000 for operation and maintenance at fisherman and hunter access lands.

9. *Project economics.*—Annual costs and benefits.

	I&A	O. & M.	Benefits	B/C
Fish hatcheries:				
Fall chinook	$365,495	$450,000	$1,748,160	2.14:1
Spring-summer chinook	677,867	900,000	5,601,060	3.55:1
Steelhead and sport fishery access lands	1,270,265	1,510,000	3,476,600	1.25:1
Trout	165,800	100,000	607,500	2.29:1
Wildlife facilities	361,804	121,000	452,495	0.94:1
Total	2,841,231	3,081,000	11,885,815	2.01:1

10. *Local Cooperation.*—The reporting officers recommend that initial Federal funding for the recommended compensation plan be subject to the states agreement to fund any additional development they desire as well as the non-Federal annual operation and maintenance costs.

11. *Environmental impact of proposed project.*—The major impact will be to increase the populations of certain fish and wildlife in the region to offset those losses caused by project construction.

Construction of hatcheries will require some disturbance to the existing landscape conditions at various sites to be selected. Increase in hunters and fishermen in the wildlife habitat areas may result in an increase in problems such as littering, indiscriminate shooting or trespass on adjacent lands. There will be some loss to the local tax base. There may be some adverse impact on agricultural production.

When considering the construction of the hatcheries, the Corps is expected to provide that the bulk of this work is done in the state of Idaho above the dams. To put them down river of the dams would do nothing to mitigate the fisheries upstream, whereas mitigation upstream will indeed assist fisheries throughout the river since the migrating fish will provide fishing opportunities downstream.

The acquisition of mitigation lands is authorized in this project. But these are not mitigation lands in the normal use of the word. They are not lands for wildfowl cover or wetlands protection. Rather they will be used to provide access to the river for fishermen. Because of this unusual feature, it is expected that the Corps will proceed only on a willing-seller, willing buyer basis, and not acquire by condemnation.

Section 4—Locks and Dam 26

This section creates a broad approach to resolving the issues involving Locks and Dam 26, at Alton, Illinois. The section authorizes the reconstruction of the dam with a single, 1,200-foot lock. The section also orders an evaluation of an alternative approach, creates a mechanism for developing a master plan for the Mississippi River System, and sets the channel of the Upper Mississippi River at a depth no greater than 9 feet.

The existing Locks and Dam 26, and the site of the proposed replacement, are located on the Mississippi River about 18 miles upstream from St. Louis, Missouri. This facility is a key element in the nation's waterway system, as it is situated at a central location in the inland navigation system. All waterborne commerce shipped between the Ohio River, Lower Mississippi River, and the Gulf Intracoastal Waterway and the Upper Mississippi and Illinois Rivers must pass through these locks.

The present structure, completed in 1938, has two lock chambers: one 600 feet long and the other 360 feet long. Major problems are currently associated with this structure, centered on its deteriorating condition and its capacity in relation to future traffic growth on the river. The structure, founded on wood friction piles driven into sand, has experienced settlement and some loss of foundation material. While the system is not in danger of collapse, the costs of maintenance are growing. The increase in river traffic at Locks and Dam 26 reached about 53 million tons in 1974, and is expected to reach the project's

estimated physical capacity of 73 million tons in the early 1980s. Traffic delays are expected to increase significantly as capacity is approached. If the existing capacity of other elements in the inland navigation system were fully utilized, Locks and Dam 26 should have an annual demand of at least 108 million tons.

A variety of solutions to the problem have been considered by the Corps. Some of these solutions were:

1. Improvement of operational procedures at the existing facility.
2. Rehabilitation of existing facility with and without improvements.
3. Complete replacement upstream of Alton, Illinois.
4. Complete replacement about 2 miles downstream of present site.
5. Complete replacement at present downstream site of Locks and Dam 27.
6. Complete replacement about 30 miles downstream of present site (downstream of St. Louis).

The alternatives considered in greatest detail were those of rehabilitation of the existing facility, and the complete replacement about two miles downstream of the existing site. These two alternatives were investigated, utilizing a wide range of lock sizes and combinations. Some of those considered are:

1. One 600′ and one 360′ lock (replacement in kind).
2. A single 1200′ lock.
3. One 1200′ and one 600′ lock.
4. Two 1200′ locks.

In addition to the new dam and single lock, the plan recommended by the Corps calls for providing design space for a possible second lock, the site of which would be decided and authorized later. This solution was chosen by the Corps over the rehabilitation of the existing facility, which utilized a scheme of a canal and new temporary lock on the Missouri shore.

Corps Recommended Plan:

	Price level	
	January 1976	July 1974
Estimated cost:		
Federal cost	$388,000,000	$328,625,000
Non-Federal cost	2,000,000	1,375,000
Total	390,000,000	330,000,000

PROJECT ECONOMICS

[6⅛ percent 1976 costs]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization [1]	$30,601,000	$125,000	$30,726,000
Operation and maintenance	926,000	230,000	1,156,000
Economic losses	130,000	0	130,000
Total	30,657,000	355,000	32,012,000

[1] Includes interest during construction.

PROJECT ECONOMICS

[5⅞ percent 1974 costs]

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization [1]	$24,877,000	$101,000	$24,978,000
Operation and maintenance	865,000	195,000	1,060,000
Economic losses	112,000	0	112,000
Total	25,854,000	296,000	26,150,000

[1] Includes interest during construction.

Annual benefits: (1974 data)*:	
Transportation rate savings	$96,151,000
Delay reduction	49,239,000
Recreation	375,000
Area redevelopment	2,584,000
Total	148,349,000

*Benefits have not been reestimated for 1976 condition.

Benefit-cost ratio.—3.9.

The Committee recognizes that there has been much discussion on what form of corrective action should be undertaken. There was opposition to the 18-foot sill depth of the new proposal, which was viewed as a first step toward a 12-foot channel on the Upper Mississippi. It is argued that this will result in irreparable harm to the Upper Mississippi waterway environment. The railroad industry has objected to the economics, especially as it applies to the loss of railway traffic. Committee members have directed the General Accounting Office to have an independent report on the possibility of rehabilitation in lieu of new construction.

The Committee believes that, with the constraints of this section, proposals recommended by and listed in the report of the Office of Management and Budget and the Chief of Engineers appear to provide a logical approach to relieve the concerns for increased waterway depth, environmental impacts, and bulk commodity transportation economics. However, the Committee notes that the rehabilitation plan of the Illinois Department of Transportation merits further, brief study, which is required by this section.

Because of the importance of this project, this section also makes a number of other modifications to make it acceptable. The Corps is directed to replace and manage at Federal expense, the wildlife habitat that will be inundated as a result of the construction of the project, on an acre for acre basis, in Missouri and Illinois. The Corps is also authorized to provide project-related recreation development at Ellis Island, Missouri, and include facilities such as roads, parking lots, walks, picnic areas, a boat launching ramp, and a beach. The estimated cost is $2,750,000, of which the State of Missouri will provide a portion. These lands will be administered in accordance with the provisions of the Federal Water Project Recreation Act.

The Mississippi River channel above its confluence with the Illinois River is established at no greater than nine feet, and no Federal official is authorized to study the feasibility of deepening the navigation channels in the Minnesota River, the Black River, or the Saint Croix River unless specifically authorized by a future act of Congress.

A Mississippi River System Council is established, consisting of the Secretary of Transportaiton, the Secretary of the Army, the Secretary of the Interior, the Administrator of the Environmental Protection Agency, the Secretary of Agriculture, and the Chairman of the Council on Environmental Quality. The Council is to prepare a comprehensive master plan for the management of the Mississippi River System. For that portion of the plan that deals with the Upper Mississippi River System, the Council must work with and utilize the Upper Mississippi River Basin Commission. A preliminary plan is to be filed by July 1, 1980, and shall be subject to public hearings in each affected State. The Council shall then review all comments and make any appropriate revisions in the preliminary plan by July 1, 1981, and submit a final master plan to Congress for approval. Approval of this master plan shall be granted only by enactment of the Congress. Changes to the master plan shall require enactment by the Congress.

The master plan shall identify the various economic, recreational, and environmental objectives of Federal, State, and local agencies responsible for administration of the Mississippi River System, and recommend guidelines to achieve the objectives. There shall be methods proposed to assure compliance with these guidelines and coordination of future management decisions affecting the Mississippi River System, including any legislative proposals which may be necessary to carry out the recommendations and objectives.

To achieve this, the Council is authorized to study and test methods for improved dredging, spoil disposal, and alternative uses for dredged material. The Council may request that appropriate Federal, State, or local agencies prepare various studies, which shall include ones on the environmental effects of present and projected traffic levels on fish and wildlife, water quality, wilderness, and public recreational opportunities, including a specific analysis of the environmental effects of dredging in the Mississippi River System and the construction of any second lock at Alton. The studies will also concern the economic impacts of present and projected traffic levels, including an analysis of alternative methods for meeting future transportation needs, and a specific evaluation of the economic effects and demand for any second lock at Alton. The Fish and Wildlife Service shall develop a computerized, analytical inventory and system analysis of the Mississippi River system to facilitate evaluation of the comparative environmental effects of alternative management proposals.

The Council is instructed to utilize the resources and results of the Upper Mississippi River Resource Management (GREAT) Study.

All construction activities by the Corps in the Upper Mississippi system shall be initiated only in accordance with the guidelines set forth in the master plan. The sum of $20,000,000 is authorized for this study, of which $4,400,000 is set aside for the Upper Mississippi River Resource Management (GREAT) Study.

Prior to any construction work on the new, single lock and dam at Locks and Dam 26, authorized by this section, the Secretary of the Army must appoint a board consisting of representatives of three independent engineering firms to study the alternative of rehabilitating the existing structure, with the inclusion of a 1200-foot lock in the center of that structure, as suggested by the Illinois Department of Transportation. The board must recommend to the Secretary whether this alternative merits further consideration as a way to achieve rapid improvements and the efficient use of Federal expenditures. The board has to report to the Secretary within 120 days following its appointment. If the board recommends against the alternative, the Secretary may proceed with construction of the new facility. If, however, the board recommends consideration or redesign of the project to take into account such rehabilitation, the Secretary shall so report to the Congress, together with his recommendations. If the Congress fails to act within one hundred and twenty legislative days after submission of such recommendations, the Secretary may proceed with the new project.

Section 5—User charges

This section establishes a system of user charges that would be paid by the commercial cargo vessels that use the 25,000 miles of federally built and maintained inland waterways. The schedule of charges, to be implemented in phases over a 10-year period beginning July 1, 1978, would recover eventually 50 percent of both the Federal costs of waterway operations and new waterway construction costs, based on the appropriations in each preceding fiscal year.

Phase-In Timetable

1. January 15, 1978, Administrative Regulations and an Independent Study to be submitted to the Congress.

2. A period of 60 legislative days is granted to give the Congress an opportunity to review the charges and their impact and to disapprove the regulations.

3. If not disapproved, beginning on July 1, 1978, and each of the following years, the percentage of costs noted below will be collected by a method described by regulation:

[In percent]

	Operations and maintenance costs	Capital costs
1978	10	
1979	20	
1980	30	
1981	40	
1982	50	
1983	50	+10
1984	50	+20
1985	50	+30
1986	50	+40
1987 and thereafter	50	+50

This provision recognizes that varying levels of Federal subsidies for differing modes of transportation have distorted the Nation's transportation policy, increasing costs to the Federal taxpayer. As a matter of equity, it is declared that the commercial users of the inland waterways should pay a portion of the costs of building, operating, maintaining, and rehabilitating those waterways. These charges will establish greater equity, and will also help to demonstrate the economic feasibility of new projects on the inland waterways.

During a period of 10 months following enactment, the Secretary of the Army, after consultation with the Secretary of Transportation, is directed to study the problems and to publish preliminary user-charge regulations. Not less than 45 days must be allowed for public comment, at least one public hearing must be held on alternatives prior to such publication to allow all interested parties to comment.

Following receipt of additional comments once the preliminary regulations are published, the Secretary will, if appropriate, revise the regulations. He must publish final regulations by January 15, 1978.

During the same 15-month period, the National Transportation Policy Study Commission is directed by this section to review the question of the waterway user charges and to make its own independent recommendations to the Congress by January 15, 1978, on the equity and form of such charges.

The user-charge regulations will take effect beginning July 1, 1978, unless the Congress, in a period of 60 legislative days following January 15, 1978, votes to disapprove the regulations. This will give the Congress time to examine the actual effects on waterways users and the balance between competing forms of transportation.

The bill also provides general guidance to the Secretary on how to establish user charges that are reasonable and equitable, noting that various users and segments are to be treated equitably. He may also consider traffic volumes and seasonal peaks. The Secretary is expected to assure, to the greatest extent possible, that the rates are imposed on users of various segments in a reasonable manner in order not to lead to economic hardship for any area. He may establish user charges through licensing fees, congestion charges, ton-mile charges, lockage fees, capacity fees, or any other equitable system or combination thereof.

Two definitions are included in the section. The term "user charges" is defined as charges to be paid by the owners of shallow-draft cargo vessels, which includes both the tow vessel and barges, but excludes recreational vessels and passenger craft. The term "inland waterways" is defined to mean those waterways where the Corps of Engineers undertakes improvements such as dredging and lock building for the purposes of navigation, when those waterways are used primarily by commercial vessels in the inland trade, rather than ocean going vessels. The Great Lakes System is excluded from this definition. Whenever a segment of waterway is used by a substantial volume of ocean going vessels, but is not considered as primarily for the use of ocean going vessels, then the costs of improvement, in computing the user charge base, are to be reduced proportionally to reflect only that portion of the expense utilized by barge traffic.

In addition, the Secretary of the Army, in cooperation with the Secretary of Transportation, is directed to make a study three years after the date the user charges are effective and report to Congress with an on-going analysis of the effects of the user-charge adoption.

Failure or refusal to pay any user charge under this section will subject the violator to a fine of up to $5,000 per day, and prohibit any vessels belonging to the violator from the use of any inland waterway lock until the charge and any fines are paid.

The section also includes a provision that assures that, should the Congress in subsequent legislation impose any fuel or other special tax in waterway users, then the revenues of that tax will be subtracted from the sums to be used in computing the user charge.

Reasons for the provision.—The initial phase of improvements to the existing waterways have been accomplished at full Federal expense: some $4 billion to build the system, plus approximately an equal sum to operate and maintain it.

Free waterway transportation may have been a legitimate Federal interest at a time when there was need to find a mode of transportation to compete with the railroad monopolies. Half-free waterways are sound public policy now that competing modes are experiencing financial difficulty and the Federal taxpayer is contributing more every year toward waterway improvements.

To a great degree, the United States is about to embark on a major program to rehabilitate its inland waterways, now consisting of 25,000 miles of improved waterways and 212 navigational locks and dams. As the nation enters this second phase—the phase of major reconstruction typified by the proposals in this bill to rebuild Locks and Dam 26 at Alton, Illinois and Vermillion Lock and Dam in Louisiana—the question of who pays for those improvements must be addressed. Costs estimated at $3.4 billion in lock building remain to be completed on projects now underway.

The Committee believes that participation by the users in the financing of waterway operations and improvements will lead to a more realistic assessment of the needs for improvements, since the users will no longer be asking for something "free." It is expected that users will limit their requests for new projects that will offer a real benefit. Once such an improvement is paid for, even in part by the users, the Congress can be assured that the expense is more likely to be in the nation's interest. A user charge will provide a real-world market test of a proposed project. If the users are willing to repay half the cost of the project, then the Congress can, with far greater confidence, assume the project is economically viable. By minimizing the current subsidy advantage to the waterway users, the Committee also believes it will result in a more rational national approach to transportation policy.

The barge industry has more than doubled its market share in recent years. If achieved strictly through efficiency, this increase would be commendable. But this increase has largely been due to the free system provided to the industry, at the expense of competitors who must either finance their own rights of way or pay user taxes toward their upkeep.

Complete subsidization has led to several problems. The traffic delays at Locks and Dam 26 are symptomatic of the larger issues at stake. The capacity problem is a direct function of free funding. As long as a free system is provided, delays and future capacity problems are to be expected.

Expected results.—Revenues of the barge industry average about 1 cent for every ton of goods hauled for 3 miles. Based on industry revenues and the fact that the full user charge can be expected to recover about 10 per cent of industry revenues—in line with the capital

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investment of other modes in rights of way—the Committee provision would add about 1 penny to the cost of shipping a ton of grain or coal for 300 miles in the first year of applicability. Following the full, 10-year phase-in, the user charge would impose a cost of about a penny for every ton shipped for 30 miles.

To be more specific, this section would add a cost of about 4 cents to the cost of shipping a ton of grain over the distance of 1,200 miles from a Midwest river port to the Gulf in the first year of applicability.

Since a bushel of wheat had an average price in New Orleans in August of $3.44, and there are 33 bushels of wheat in a ton, a ton of wheat had an average value of $113.50. Thus, this provision would add about 4 cents to that $113.50 price. When fully implemented, the bill would add about 40 cents to the cost of that ton of grain, or about 0.3 per cent of the price of the grain.

Given the savings to the Federal treasury and the benefits of a user charge in fashioning a national transportation strategy, the Committee believes that the imposition of this section is reasonable and in the national interest.

OTHER PROVISIONS

SECTION 6

This section is similar to those in previous river and harbor and flood control acts providing for authorization of needed surveys at specifically named localities. It authorizes the Secretary of the Army to make survey investigations for navigation, flood control and allied purposes at the following named localities:

Navajo Indian Reservation, Arizona, New Mexico and Utah.
Hilo Bay, Hawaii.
Kailua-Kona, Hawaii.

SECTION 7

This section ends the authorization for the Corps to construct Gaysville Dam on the White River in Vermont. While authorized more than three decades ago, work on the dam has never been initiated. No funds have been appropriated since fiscal year 1969.

At the time of the most recent estimate (1969), the cost of the project was set at $28,700,000. All that has been spent is $206,600 for design work. No money has been spent to buy any of the 3,200 acres needed for the project, a requirement that would remove many permanent and vacation homes.

While the purposes of the project are listed as flood control, recreation, fish and wildlife mitigation, and low-flow augmentation, the Committee believes that the project is not necessary.

SECTION 8

This section modifies the New London, Connecticut, hurricane flood protection project, authorized by the Flood Control Act of 1962.

This project was originally designed to provide standard hurricane flood level protection for the area. In 1972, however, the city of New London requested that the project be modified in order to meet requirements of the Department of Housing and Urban Development. It

was felt that the project could be made an integral part of an urban renewal plan designed for the area.

While the project design has been modified, legislative action is required before construction can be initiated.

This section modifies the previous authorization to comply with the altered scope and character of the project.

The committee wishes to emphasize the fact that the project changes instituted in this section will result in protection from tidal floods up to a 100-year recurring level. The original project plan provided protection not only from the greatest floods of record but from even greater floods which hurricane storm and tidal surge studies indicate may occur.

The committee understands that all interested State and local parties are aware of this fact and still desire modifications which will provide a lesser degree of protection. The Committee strongly urges that local officials take steps to assure that the affected community will not have a false sense of security concerning hurricane flood protection.

SECTION 9

This section declares a portion of the Hudson River, Hudson County, New Jersey, to be nonnavigable waters of the United States. It also grants the consent of Congress to the erection of permanent pile-supported structures in, and the filling, of all or any part of the specified portion of the Hudson River. The Secretary of the Army, acting through the Chief of Engineers, however, must first determine that the proposed project to be erected at the location is in the public interest.

The pertinent portion of the Hudson River includes an area covered in a Department of the Army permit issued to the North Hudson Hospital Association to authorize certain fill and rip-rap construction. The purpose of the work authorized by the permit is to provide a portion of a site for the construction of a hospital.

The purpose of this section is to clear a technical impediment to title for the land involved.

SECTION 10

This section declares a specified portion of the Hackensack River, Hudson County, New Jersey, to be nonnavigable, and grants the consent of Congress to the erection of permanent pile-supported structures in, and/or the filling, of all or any part of the designated portion. The Secretary of the Army, acting through the Chief of Engineers, must find that the proposed project to be erected at the location is in the public interest.

The pertinent portion of the Hackensack River is located within the Hackensack Meadowlands. It includes areas covered in a Department of the Army permit issued to Hartz Mountain Industries in September, 1975, to authorize at Secaucus, New Jersey, dredge and fill for the construction of a 36-slip marina and a 632-unit residential development.

The purpose of this nonnavigability declaration is to remove the navigation servitude and remove any cloud on title, in order to assure title insurance and financing for the proposed development project.

SECTION 11

This section directs the Secretary of the Army, acting through the Corps of Engineers, to develop a plan that will lessen shoreline erosion along Lake Ontario caused by artificially maintained high lake levels.

Until Congress receives and acts on the report, every Federal agency that has responsibilities affecting the level of the lake are, consistent with their existing authorities, directed to make every effort to minimize damage and erosion to the Lake Ontario shoreline.

The Corps plan is to include recommendations on measures of protection and proposals for equitable cost-sharing, as well as recommendations for regulating the lake level to assure maximum protection of the natural environment and to prevent shoreline erosion.

It has been indicated to the Committee that owners of shoreline property on Lake Ontario are being forced to bear the costs of erosion in order that planners can extract a few more kilowatts of hydroelectric generation, or to keep the lake as deep as possible for shipping. While these may be desirable goals, the people who work and live along the lake must not be forced to sacrifice their interests.

Since efforts over the past year have proven so ineffective, this section is needed to assure that the lake's level will be kept at a more normal, traditional elevation.

SECTION 12

This section amends the Act of September 1, 1916, to repeal the authority of the Chief of Engineers to enforce traffic regulation on MacArthur Boulevard, in Montgomery County, Maryland.

The Federal Government has, since the Act of September 1, 1916, assumed exclusive control over the regulation of vehicular traffic on MacArthur Boulevard for the protection of the Washington Aqueduct facilities, including the water supply conduit beneath the road. The exercise of this responsibility, however, bears only a remote relationship to the actual administration of these facilities, and has, instead, become an administrative and financial burden. Nonetheless, under present Federal law the Washington Aqueduct Authority is required to maintain its own staff of eighteen law enforcement officers with three patrol cars at an annual cost of $130,000. This activity diverts time and resources away from the performance of the Aqueduct's primary mission which is to provide the Washington Metropolitan region with an adequate supply of clean water. In short, the expenditure of Federal funds for traffic regulation in this one area unnecessarily duplicates a service which could be provided from other non-Federal sources at no expense to the Federal Government.

Montgomery County has entered into an agreement with the Corps to take over the responsibility for maintaining and policing MacArthur Boulevard from the District of Columbia boundary line to the entrance to Great Falls Park. The repeal of this portion of the 1916 Act will allow this agreement to take effect.

SECTION 13

This section provides that authority for the construction of a weir in the Potomac River by the Washington Suburban Sanitary Commission between the Maryland shore and Watkins Island. Construction is authorized only after an allocation agreement is entered into between the Secretary of the Army, State of Maryland, Washington Suburban Sanitary Commission, Fairfax County Water Authority and towns of Lessburg, Virginia and Rockville, Maryland which provides for water withdrawals during low flow periods on this portion of the Potomac River.

This section provides the necessary authorization of the Congress under section 9 of the Act of March 3, 1899, for the placement of a structure in the navigable waters of the United States. The plans for the structure must be submitted to and approved by the Chief of Engineers and the Secretary of the Army.

The provision in this section dealing with low flow allocation is important for addressing the water use rights of all the jurisdictions which use the area of the Potomac River for water supply. Equity in the allocation of water is essential.

SECTION 14

This section authorizes the construction of a new lock at Gallipolis Locks and Dam on the Ohio River in accordance with the report of the Chief of Engineers to the Secretary of the Army dated July 14, 1975. The Committee modified this report by authorizing a single 1200 foot lock substantially in accordance with the recommendation of the Huntington District Engineer. The estimated cost of a new single lock is $146 million.

The Committee authorized construction of this replacement lock in connection with its review of the general issue of replacement of inland navigation structures. Traffic delays due to the limited capacity of the existing 600 foot locks are having serious impact on the efficient movement of traffic on the Ohio River. The Ohio River navigation system has been under a modification program since the mid 1940's. Out of the 46 lock and dam structures on the river, 14 have been or are currently being modernized, all have a main lock of 1200 feet and an auxiliary lock of 600 feet. Both the upstream and downstream locks from Gallipolis are 1200 feet. Therefore, construction of a 1200 foot lock is appropriate as part of an ongoing system modernization.

The Committee believes that the studies (including systems analysis) currently underway by the District Engineer should be completed as the Corps currently anticipates. However, construction as authorized by this section should begin as expeditiously as possible.

SECTION 15

This section modifies the project for Atlantic Intracoastal Waterway Bridges, Virginia and North Carolina, authorized by section 101 of the Rivers and Harbors Act of 1970, to provide that all first costs of the bridges shall be borne by the United States.

As originally authorized, 25 percent of the costs of these bridges were to be paid by the State of North Carolina. The State is now unable to pay these costs, estimated at approximately $7,600,000.

Because of the possibility of failure, and since the bridges are

Federally constructed, owned, and operated, the Committee feels that they should be replaced at Federal expense. The Department of the Army and the Office of Management and Budget have concurred in this view.

The plan as proposed by the Corps of Engineers follows:

AIWW Bridges, N.C.

Location.—In eastern North Carolina in the vicinity of Pamlico Sound, at Coinjock, Fairfield, Wilkerson Creek, Hobucken, and Core Creek.

Existing project.—All five bridges were provided at Federal expense to reconnect roads or highways that were served by the construction of the Atlantic Intracoastal Waterway. Construction of the existing bridges was authorized by the River and Harbor Acts of 1912 and 1933. Four were constructed during the period 1930 to 1935, the fifth was constructed in 1940.

Recommended plan of improvement.—The recommended plan provides that all first costs of the bridge replacements shall be borne by the United States, provided that upon the completion of each bridge, the State accept maintenance, replacement, and ownership thereof, and the bridges remain toll free.

Estimated cost (1976 prices)

Federal	$30,400,000
Non-Federal	----------
Total	30,400,000

Project economics, annual benefits, and benefit-cost ratio.—A benefit analysis and B/C ratios are not applicable since a cost effective analysis was made in lieu of benefit-cost analysis. The recommended plan remains the most cost effective plan regardless of the cost sharing provision.

Local cooperation.—The recommended plan provides that all first costs of the bridge replacements shall be borne by the United States, provided that, upon the completion of each bridge, the State accept maintenance, replacement, and ownership thereof, and the bridges remain toll free.

SECTION 16

This section amends section 203 of the Flood Control Act of 1966, authorizing the Richard B. Russell Dam and Lake (formerly the Trotters Shoals Reservoir), by deleting the phrase which precluded the inclusion of pumped storage power as a part of the project.

The Richard B. Russell Dam and Lake will provide hydropower, recreation, flood control, and water supply to areas of Georgia and South Carolina. Originally planned to include only a hydroelectric generating plant, it is now felt that the addition of pumped storage facilities would be desirable.

The Corps of Engineers has been conducting a study of the feasibility of adding pumped storage power to the project. This report has not yet been submitted to Congress.

This section removes the prohibition of authorized pumped storage, thus clearing the way for consideration of the feasibility report when it reaches Congress.

The State of Georgia has transmitted its concern to the Committee about environmental considerations associated with the addition of pumped storage. The Committee expects that the Corps in the course of its feasibility study and environmental impact statement, will address environmental effects on fisheries and on the oxygen content of this reservoir and other existing bodies of water in the area.

The Committee will consider the survey report on this project with great interest when it is submitted.

SECTION 17

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to install a fifth hydropower unit at the Hartwell Reservoir on the Savannah River, South Carolina and Georgia.

Hartwell Reservoir was originally authorized in the Flood Control Act of 1944 as one of eight developments in the Savannah River basin. Hartwell was authorized in accordance with the report of the Chief of Engineers in House Document Numbered 657 of the 78th Congress. That document was quite vague as to the developments envisioned at Hartwell, and completely silent as to how many power units were to be installed.

Subsequent Acts of Congress clarified that four hydropower units would be initially installed at Hartwell, and also clarified that a total of 330,000 kilowatts would be ultimately achieved.

The four power units now installed at Hartwell produce 264,000 kilowatts. While it is clear that five power units were intended, legislative authority for the fifth unit is not clear.

This section therefore authorizes the addition of a fifth power unit to the project. This is an estimated increased cost of $15,700,000, which raises the total project cost to $110,000,000.

SECTION 18

This section authorizes construction of a local protection project on Harris Fork Creek in northeastern Tennessee and southwestern Kentucky. Approval is based on the recommendation of the Chief of Engineers, except that the cost of all highway bridge relocations or alterations shall be at Federal expense.

There are no flood control projects authorized for construction by the Corps of Engineers in the watershed. Two small flood water retarding structures have been constructed upstream under a program administered by the Department of Agriculture. Downstream on the Obion River, the Corps has completed channel improvements as part of the West Tennessee Tributary project.

Harris Fork Creek and its tributary, South Fulton Branch, begin outside the urban areas of Fulton, Kentucky, and South Fulton, Tennessee, and flow through these towns and on through an agricultural area to join the North Fork of the Obion River. Both Harris Fork Creek and South Fulton Branch overflow frequently. Since June 1945 eight major floods, including the flood of record on March 12, 1975, and numerous minor floods have occurred in the watershed. The concentrated business districts of Fulton and South Fulton are located adjacent to the creek.

The recommended plan of improvement consists of about 1.2 miles of paved concrete channels in the urban areas on both Harris Fork Creek and South Fulton Branch, and about 9.4 miles of earthen channel enlargement through the rural area downstream on Harris Fork Creek to its junction with the North Fork of the Obion River. Flood plain management is recommended to local interests in order to better control flood plain use and information has been provided to serve as a basis for the program.

As originally contemplated, and as contained in the 1971 interim report on this project, the cost-sharing requirements were modeled on those of the West Tennessee Tributaries project, of which this project was to be a part. Under that umbrella, the Federal Government would have paid the cost of the relocation of the highway bridges.

Subsequent to that time, the administrative policy has been changed so that all local flood protection works are subject to the standard conditions of local participation, which would include the relocation of highway bridges. The final report on Harris Fork Creek, which has been separated from the West Tennessee Tributaries project, requires that the local interests pay for bridge relocations.

Because of this background, and the fact that the estimated cost of the bridges is $900,000, approximately seven times the annual tax receipts of the two communities, this section establishes the bridges as a Federal expense.

SECTION 19

The 1974 Water Resources Development Act authorized the Corps of Engineers to develop the Big South Fork National River and Recreation Area in the States of Tennessee and Kentucky.

In the two years since this project was authorized, the Corps of Engineers has conducted an extensive and thorough study of the project's design. This review generated several specific recommendations for modifications by the Corps of Engineers during the Committee's hearing. Amendments in this section provide several minor changes in project design, and raise the level of project authorization to reflect the Corps up-to-date cost figures.

Administrative Site Acquisition: This modification permits the Secretary of the Army to acquire sites outside the actual area boundary, which was described in the 1974 Act, if he determines such acquisitions are necessary for administrative and visitor orientation purpose. The Corps has indicated the need for an administrative headquarters to be located in the vicinity of Oneida, Tennessee, and two visitor orientation centers, one at the main western access to the project, near Jamestown, Tennessee, and one at the northern end of the project, in McCreary County, Kentucky. The total acreage involved is estimated at approximately 22 acres.

Rugby Lodge Site: The historic community of Rugby, Tennessee, is located adjacent to the project boundary and is presently undergoing extensive historic restoration through the efforts of the Rugby Restoration Association, with State and Federal technical and financial assistance. The 1974 Act requires coordination of the project with these restoration efforts. The Nashville District Office of the Corps has carefully involved the Rugby Restoration Association and local citizens in planning for the Big South Fork project. This coordination

has led to the recommendation that the lodge to be constructed in the southern portion of the project should be located in Rugby, Tennessee, near the site of the historic Tabard Inn, and that the lodge should have an architectural design similar to that landmark. The committee amendment supports that position and provides authority for acquisition of the site in Rugby, which is estimated to be approximately 20 acres.

Interim Administration: The entire project will be transferred to the Park Service for management upon completion. This new language authorizes the Secretary of the Army to contract with the Secretary of Interior to provide for management of portions of the project by the National Park Service before completion. This provision will obviate the need for the Corps to develop a separate administrative capability during project development. The project authorization includes funds for such management by the Corps of Engineers. Such funds may be transferred to the Department of Interior to cover the costs of interim management.

Reimbursement for State Acquired Lands: The 1974 Act provides that all state owned lands may be acquired only by donation. The language of the amendment in this bill provides that this limitation shall apply only where these lands were in public ownership at the time of enactment of this Act. This will allow the States of Kentucky and Tennessee to acquire, under State authority, areas within the boundary prior to project completion in order to provide protection for natural values, and then to sell these lands to the Corps of Engineers at fair value. The amendment will not increase the costs of the project.

Motorized Transportation: The Committee amendment provides for access by motorboats into the gorge area upstream from the Highway 92 bridge in Kentucky to a point one-tenth of a mile downstream from the Devils Jumps. This area of the Big South Fork is a valuable white bass fishery, and Kentucky state officials have requested that motorboat access be continued so that fishermen may fish this area as they have in the past. The limitations in the amendment assure that the gorge area exclusion on motorized transportation remains applicable for all white-water areas.

The Committee amendment also provides for continued operation of the K & T Railroad. This facility is not detrimental to the values of the project and discontinuance would foreclose development of mineral resources in an area immediately west of the project boundary.

Additional Secondary Access: The bill adds a secondary access route at the existing road that enters the gorge across from Station Camp Creek. The Corps design studies indicate that this road would serve as a valuable take out point for canoes.

Authorization: The 1974 Act authorization was based upon the Interagency Report compiled by the Corps of Engineers, Department of Interior, and the Department of Agriculture. The guidelines for the authorization were based specifically upon the recreational alternative that was included in the report, which was developed by the Department of Interior, Bureau of Outdoor Recreation.

The Corps of Engineers recent design and cost studies indicate that inflation in land values and construction costs have resulted in an increase in project costs. The Committee amendment includes the Corps of Engineers more realistic, up-to-date estimate of $103,522,000.

SECTION 20

This section seeks to assure adequate flood protection for lands in northern Lauderdale County, Tennessee, an area where serious flooding has occurred several times annually during each of the past three years. This section directs the Corps of Engineers to construct an additional levee section, approximately 4 miles in length, along the Forked Deer River, adjacent to a Corps constructed diversion channel of the Ohio River.

When other sections of the Mississippi River Levee system are completed, some 87,000 acres of land in Dyer and Lauderdale counties, Tennessee will be protected from backwater flooding by the Mississippi. But a portion of that levee in Lauderdale County will block the natural flow of the Obion River. As a result, the Congress approved as a part of an earlier flood control project a plan to divert the Obion River channel around the south end of the main-stem levee into the Mississippi.

As part of the diversion channel work and to protect partially lands newly endangered by the existence of that channel, the Corps had planned to use the material excavated from the new channel to form a protective embankment along the channel, as far as the vicinity of Highway 88.

While this embankment will be helpful, it nevertheless appears inadequate. Local officials and landowners believe that the embankment would not provide the full, necessary protection from headwater flooding. They argue for the need of an additional segment, an east-west levee, that extends from the north end of the proposed embankment, near Highway 88, to the bluff near Porter Gap. This section would correct this deficiency by directing that the Corps build the extra segment to the bluff near Porter Gap. The Corps of Engineers, estimates that the cost of this extension will run $750,000 to $1,000,000.

It is the intention of this section that the levee authorized by this legislation, as well as that portion along the Obion River diversion channel, be constructed to main-stem levee standards.

SECTION 21

"The Minority Business Enterprise Program for the Tennessee-Tombigbee Waterway project is not at present successful," the Assistant Secretary of the Army for Civil Works has informed members of the Committee by letter.

To correct that failing in the Corps' largest single construction project, which bisects an area with as heavy a minority population as any in the nation, this section directs the Chief of Engineers to make a maximum effort to assure the full participation by minority persons, both in jobs on this project and in contracting for project work.

The Committee received testimony proposing the establishment of a Minority Resource and Oversight Center for the Tennessee-Tombigbee Waterway. While the Committee has deferred action on this specific proposal, its deep concern over the lack of full minority participation in the construction of the project could lead in subsequent legislation, if this present approach fails.

To assist the Committee, the Chief of Engineers is directed to report to the Congress by July 1 of each year on the implementation of this section, together with legislative recommendations that may be needed to assure that minority groups obtain fuller and more equitable participation in Corps' civil works projects.

SECTION 22

This section authorizes the Phase I design work on the Nonconnah Creek project in Memphis, Tenn., at a cost of $350,000, and directs the Corps to make a full review of alternative approaches to solving the serious flooding problem during this Phase I review.

Nonconnah Creek is located in Southwestern Tennessee and Northwestern Mississippi, draing parts of Shelby and Fayette Counties, Tennessee and Desoto and Marshall Counties, Mississippi. The basin is about 32 miles long and drains an area of about 183 square miles. About one-half of the City of Memphis is within this drainage area.

The Flood Control Act of August 28, 1937, authorized a system of improvements along Nonconnah Creek to protect against Mississippi River backwater. In 1941 the Corps of Engineers completed 3 miles of levee at the mouth of the creek, and a pumping station to eliminate interior drainage. During 1946 and 1950 the channel was straightend to preclude damage to the levee system. No federal work has been done upstream of the levee area.

The present flood plain is in transition from rural to urban and extensive areas are subject to flooding. Recently constructed areas are on filled land to avoid flooding. Future floods, however, could exceed these elevations due to increased runoff as the area urbanizes.

The alternatives considered by the Corps are both structural and nonstructural. The most promising plans consist of various combinations of reservoir, channel and flood plain management of overbank flow, along with land treatment of upland areas to lessen erosion and sediment problems. A total of 10 major alternatives were considered in detail, and the Corps is directed to explore them in greater detail during Phase I.

The tentative plan of improvement includes 12 miles of channel improvement and 7 miles of channel cleanout, along with a 600 foot floodway for overbank flow, and a reservoir about 20 miles upstream of the mouth. The reservoir and floodway will serve the dual purposes of floodwater control and recreation. In addition, the Soil Conservation Service of the Department of Agriculture will construct three floodwater reservoirs on the Johns Creek tributary and a basinwide program of land treatment for erosion and sediment control on 35,000 acres.

ESTIMATED COST (1974 PRICE LEVEL)

	Corps of Engineers	Soil Conservation Service	Total
Federal	$48,639,000	$9,161,000	$57,800,000
Non-Federal	11,297,000	1,972,000	13,269,000
Total	59,936,000	11,133,000	71,069,000

ANNUAL CHARGES (5⅞ PERCENT INTEREST RATE)

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$3,185,000	$1,030,000	$4,215,000
Maintenance	170,000	742,290	912,290
Total	3,355,000	1,772,290	5,127,290

Annual benefits:	
Flood prevention	$5,862,800
Recreation	2,460,000
Total	8,322,800

Benefit-cost-ratio.—1.6.

A major unresolved issue is the need for the reservoir, and whether the reservoir is desirable. Specifically at question are the depth and the quality of water in the reservoir.

SECTION 23

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to conduct the Phase I design memorandum stage of advanced engineering and design of the Sowashee Creek project at Meridian, Mississippi.

Sowashee Creek is a Soil Conservation Service project which was approved by Public Works Committee resolution on May 31, 1974. It is now felt that the project is of a magnitude more suitable for implementation by the Corps of Engineers than by the Soil Conservation Service.

This section therefore transfers the Phase I study of Sowashee Creek to the Corps of Engineers.

SECTION 24

This section authorizes a modification of the Act of March 29, 1956, to provide that agreed on conditions of local cooperation for the Mississippi River-Gulf Outlet project shall not apply. The provision relieves local interests of their cost sharing responsibility for a highway and a railroad bridge which will be severed by the land-cut navigation channel of the authorized plan. The estimated Federal cost is $71,500,000.

Prior to waiving the local share, the Corps is to explore with the Secretary of Transportation the funding of this bridge project by section 132 of the Federal-Aid Highway Act of 1976. Section 132 authorizes the Secretary of Transportation to construct bridges over Federal projects.

If such funding is unavailable, the Corps may waive the cost sharing and construct the two bridges as part of the Mississippi River-Gulf Outlet project. The local cooperation requirements of section 221 of the Flood Control Act of 1970 shall be applicable to this project.

The land-cut channel was not specific part of the original project and the severing of these two bridges was not anticipated. The Committee believes that because of the project modification for this

channel, these bridges should now be excluded from the cost sharing agreement.

SECTION 25

This section modifies the project for navigation and bank stabilization in the Red River Waterway, Louisiana, Texas, Arkansas, and Oklahoma, authorized by the River and Harbor Act of 1968, to provide that non-Federal interests shall contribute 25 percent of the construction costs of retaining dikes, bulkheads, and embankments required for initial and subsequent disposal of dredged material.

The section further provides that these non-Federal requirements shall be waived by the Secretary of the Army upon a finding by the Administrator of the Environmental Protection Agency that such non-Federal interests are participating in and are in compliance with an approved plan for water pollution control and water quality standards for areas subject to construction of dredged material facilities.

The original authorization for the Red River waterway project required that non-Federal interests pay for these works as a part of their items of local cooperation.

The Red River Waterway Commission, which serves as the State agency providing local assurances for this project, is deeply concerned over its financial capability to meet the rapidly expanding costs of providing its share of project costs. Increased costs for rights-of-way, utilities, pipelines, and other relocation items have resulted in the commission requesting relief from part of its obligation for the dredge spoil disposal costs.

This section relieves the non-Federal interest of 75 percent of their responsibilities with regard to this item of local cooperation.

SECTION 26

This section amends section 107(b) of the River and Harbor Act of 1970 to extend the demonstration program for the extension of the navigation season on the Great Lakes and the St. Lawrence Seaway, and to increase the program appropriation authorization from $9,500,000 to $15,584,000.

Navigation on the Great Lakes-St. Lawrence Seaway is historically limited to eight and a half months, April 1 to December 15. Due to ice conditions, navigation shuts down for the winter. Navigation interests and shippers desire to extend the navigation season.

The 1970 Act authorized a program to demonstrate the feasibility of extending the navigation season. This program was extended to the end of calendar year 1976 by the 1974 Water Resources Development Act.

Current studies being conducted under the demonstration program are still being conducted. The latest report, now in the office of the Secretary of the Army, suggests a need for additional time and money to conduct the necessary remaining demonstration activities.

This section provides an interim measure until submission of study reports and recommendations to Congress. The demonstration program is extended to September 30, 1979, and the appropriation authorization is increased. The Committee recommends that no less

than $384,000 of this increase be allocated to extended operations of the Soo Locks and appurtenant facilities in the Saint Marys River, Michigan.

SECTION 27

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to carry out a project for flood prevention and development of incidental recreation, preservation of the natural floodways, and protection of soil resources in the North Branch of the Chicago River Watershed in Cook and Lake Counties, Illinois.

The project would be undertaken in accordance with a plan proposed by local organizations. Participation of the Corps of Engineers with regard to structural works of improvement would be subject to cooperating local government entities adopting and implementing appropriate sediment and erosion control ordinances, furnishing assurances that a flood plain management program is being accomplished, and assuring that an adequate land treatment program will be installed to protect watershed land and planned structural measures.

The Corps of Engineers did not prepare the plan for the proposed project, but has had an opportunity to participate in a review of its engineering features and economic justification. The plan is responsive to the needs of the area and appears to be economically justified. It reflects a substantial investment of time and effort and enjoys widespread support. Federal costs, as set forth in the Proposed Implementation Program document, are estimated to be $23.2 million at the 1973 price levels.

This section, therefore, authorizes the phase I study of such plan. Project data follows:

North Branch of the Chicago River, Cook and Lake Counties, Ill.

Location.—The North Branch of the Chicago River watershed study area covers 102 square miles in Cook and Lake Counties, Illinois. The study area consists of all of the natural drainage area of the North Branch of the Chicago River north of the city of Chicago.

Authority.—Watershed Protection and Flood Prevention Act (Section 6. Public Law 566, 83rd Congress (68 Stat. 666), as amended.

Existing projects.—The Metropolitan Sanitary District of Greater Chicago has constructed a 600 acre foot capacity floodwater retardation structure on the North Branch at the Lake-Cook County line.

Needs.—The major need in the basin is flood damage reduction. There is also the need for additional recreation, and fish and wildlife opportunities.

Recommended plan of improvement.—The recommended plan includes seven single-purpose excavated floodwater retarding structures, referred to as structure Numbers 4, 7, 15, 18, 27, 29 and 32, which provide a total combined storage capacity of 7,488 acre feet. The seven floodwater retarding structures will require a total of about 809 acres of land. The plan also includes a pumping plant and conduit to divert Lake Michigan Water into the Botanic Gardens, Skokie Laggons, and Skokie River, land treatment measures, flood proofing, stream channel operation and maintenance program, and flood plain use regulations.

Estimated cost.—(Price level of 1973).

Total estimated installation cost of structural measures	[1] $36, 224, 000
Estimated cost of other measures	[1 2]
Total cost of recommended plan	[1 2]

[1] Cost sharing will be determined during the Phase I study.
[2] Estimated cost to be determined during the Phase I study.

Project economics.—(Interest rate of 6⅞ percent).

Annual charges:	
Amortization of installation costs	$2, 493, 000
Operation and maintenance costs	71, 850
Total	2, 564, 850
Annual benefits:	
Floodwater reduction	2, 614, 400
Recreation	261, 600
Improvement of water quality	294, 000
Net income from project installation	413, 000
Land treatment program	30, 000
Total	3, 758, 000

Benefit-cost ratio.—1.5.

Environmental impact of recommended plan.—An Environmental Impact Statement will be prepared, and the environmental effects determined, during the Phase I advanced engineering and design stage.

SECTION 28

This section modifies the flood protection project at Mankato-North Mankato-Le Hillier, Minnesota River, Minnesota, authorized by the Flood Control Act of 1958, to authorize the Secretary of the Army, acting through the Chief of Engineers, to alter or relocate three bridges at Federal expense.

As originally authorized, bridge alterations or relocations were a non-Federal responsibility. However, the design of the project has been altered since the original authorization to provide for greater flood protection. The increased capacity is to be accomplished by raising levees and floodwalls, which in turn requires the raising of three bridges.

The cost of these bridge raisings is estimated to be over $8,000,000. The three small communities of Mankato, North Mankato, and Le Hillier are unable to meet this obligation, which they did not expect at the time of original project authorization.

This section, therefore, makes these bridge alterations a Federal responsibility.

SECTION 29

This section modifies the project for flood control on the Souris River at Minot, North Dakota, authorized by resolutions of the Committees on Public Works of the House and Senate under authority of section 201 of the Flood Works of the House and Senate under authority of section 201 of the Flood Control Act of 1965, and modified by section 105 of the Water Resources Development Act of 1974. This modification authorizes the Secretary of the Army, acting through the Chief of Engineers, to reimburse non-Federal interests for expenses exceeding those agreed to in the original authorization. The original project design for the Souris River channel improvements,

authorized in 1970, included provisions for clearing and snagging the Souris at a point near Logan, North Dakota; raising two railroad bridges and one county bridge. The estimated Federal cost of this portion of the project was $583,000. The estimated local contribution was to be $49,000.

A recent re-evaluation of the channel work led to design changes which lower the Federal responsibility to $172,000—a savings of $411,000. These same design changes, however, increase the local share of project costs by $131,000—to a total of $200,000. This change works a financial hardship on the local sponsors not expected when the cost sharing agreement was negotiated. The Committee believes that the increased local share attributable to the change in Federal plans should be assumed by the Federal government and has so provided in this section. A net saving to the Federal government amounting to $280,000 will still accrue by virtue of the recent project design changes.

SECTION 30

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to relocate certain water intakes, located on a pier of the Lewis and Clark Bridge on the Missouri River, at the request of the City of Williston, North Dakota.

The municipal water intake facilities for the City of Williston are located on the Missouri River. In the late 1950's, the uppermost reaches of Lake Sakakawea, a multiple purpose reservoir authorized by the Flood Control Act of 1944, threatened the intake facilities. Acting under section 111 of the River and Harbor Act of 1958, the Chief of Engineers entered into an agreement with the City of Williston whereby the Federal government assumed the cost of relocating the intake facilities. The work was completed in 1961. The structure had a design life of 50 years.

Thirteen years later, the relocated municipal water supply structure was blocked by siltation of this portion of Lake Sakakawea. The City of Williston was forced to take emergency action to keep some measure of water available to its citizens and has spent considerable sums since 1974 to maintain its water supply. These measures can only be a temporary solution to the city's problem. A long term solution must be found.

Evidence has been submitted to the Committee which clearly demonstrates the involvement of the Corps of Engineers in the design and location of the failing intake structure. Had the Corps adequately predicted the siltation rate of the reservoir the intake facilities should have functioned normally for at least 50 years. This section thus directs that the Corps develop and the Federal government pay for an intake which will operate successfully for at least this period of time.

SECTION 31

This section authorizes construction of a bridge and two miles of road in Marshall County, Kansas.

In 1973, flooding on the Little Blue River closed two existing bridges located between Waterville and Blue Rapids, Kansas, situated northwest of the Tuttle Creek Reservoir, which was completed in the early

1960s. One of the bridges is outside the project's boundaries, but is subject to project flooding.

When this bridge is closed, the remaining access routes to the area that lies in the fork of the Little and Big Blue Rivers are not practical for normal farming implements, school buses, or fire trucks.

Normal activities in the area, particularly farming trade, are severely disrupted when the bridge is closed. Local citizens have concluded that their problems could adequately be resolved through reconstruction of the Whiteside Bridge, along with construction of a new two-mile road. That road would efficiently connect Waterville, Blue Rapids, and the areas in between through linkage with existing roads which run north of the Little Blue River.

SECTION 32

This section authorizes the project for flood control and other purposes on the Red River below Denison Dam, Arkansas, Louisiana, and Texas, in two separate subsections.

Subsection (a) authorizes the Secretary of the Army, acting through the Chief of Engineers, to undertake the Phase I design memorandum stage of advanced engineering and design of the Days Creek unit of the project, substantially in accordance with the report of the Board of Engineers for Rivers and Harbors dated August 30, 1972.

This part of the project would include enlargement and rectification of approximately three miles of Days Creek, four miles of Nix Creek, three miles of Swampoodle Creek, six miles of Wagner Creek and three miles of Calhoun Creek.

These creeks flow through the City of Texarkana in both Texas and Arkansas. Some 5,500 acres of urban land is subject to inundation at least once a year, causing extensive damages to residences and commercial establishments. This periodic flooding has prevented the development of the city. Substantial development benefits will be realized from the completion of the project. This is particularly important due to the fact that the city has one of the highest growth rates in the nation and is expected to double in size within the next 50 years.

Business economic loss is also a significant consideration in this project. Losses of major proportion occur during frequent high-water periods when practically all commercial activities in the entire urban area of Texarkana are curtailed due to impassable roadways and congested traffic conditions.

The report of the Board of Engineers for Rivers and Harbors recommended the entire project. The Chief of Engineers, however, determined that the Days Creek portion was not economically feasible. The Office of Management and Budget concurred with the Chief of Engineers in this regard.

The Committee recognizes that the Days Creek unit of this project was not recommended for authorization by the Chief of Engineers. The Committee believes, however, that the severity of the damages being suffered by this community are such that the project merits a more detailed scrutiny.

Subsection (a), therefore, authorizes the Phase I design memorandum stage of advanced engineering and design of the Days Creek unit of the project. Construction cannot proceed until authorized by future Act of Congress.

Subsection (b) authorizes the Secretary of the Army, acting through the Chief of Engineers, to construct the remainder of the project for flood control and other purposes on the Red River below Denison Dam, Arkansas and Louisiana, in accordance with the report of the Chief of Engineers dated August 3, 1976.

A description of the project in its entirety follows:

Red River below Denison Dam West Agurs Levee, Louisiana; Days Creek and tributaries, Arkansas and Louisiana; McKinney Bayou, Arkansas and Louisiana

Location.—The Red River Basin below Denison Dam is located in southwestern Oklahoma, northeastern Texas, southwestern Arkansas, and northwestern Louisiana, and comprises an area of about 29,500 square miles. The West Agurs Levee lies immediately adjacent to the northern limits of Shreveport, Louisiana. Days Creek is a small tributary located in northwestern Texas and southwestern Arkansas. The city of Texarkana is located within the Days Creek watershed. McKinney Bayou rises in Texas about five miles northwest from Texarkana and flows east then south to enter the Red River north of the Arkansas-Louisiana state line.

Existing project.—The flood control project in the general area provides for a leveed floodway on the mainstem of the Red River from Index, north of Texarkana, downstream beyond Shreveport more than 300 miles to the north. The integrity of the levee system will be preserved by construction of the bank stabilization works authorized in 1968. The West Agurs levee was constructed by local interests on Twelve mile Bayou north of Shreveport in 1961. The existing Federal levee unit of the Red River levee system protects Agurs but excludes the West Agurs area. About 4 miles of Days Creek channel have been enlarged and realigned south of Texarkana under the authority of Section 2 of the Flood Control Act of 1937. The existing flood control project for McKinney Bayou includes about 41 miles of levee and channel improvement on the main stem and Barkman Creek. Also, modification of the existing McKinney Bayou project to provide additional levee construction and channel enlargement has been authorized but not constructed.

Needs.—The West Agurs area is subject to potential levee failure in a large flood due to underseepage with extensive damage to existing improvements now valued at about $500,000. One Days Creek and its tributaries in Texarkana about 5,500 acres of urban land is subject to inundation one or more occasions each year during periods of heavy rainfall Land and improvements in the flood prone areas are valued at more than $33,000,000. Within the McKinney Bayou basin about 50,000 acres of cleared, fertile alluvial bottomlands remain subject to headwater overflow and/or drainage problems. Cotton, grain sorghum, soybeans, hay and pasture are damaged by frequent floods.

Alternatives to satisfy needs

West Agurs.—The West Agurs area, which is presently protected by a locally constructed levee, is presently undergoing industrial development. Consequently, the alternatives were structural means to bring the local levee to Federal standards to reduce potential hazards.

Days Creek.—Nonstructural solutions including evacuation and flood plain zoning, as independent measures, were determined to be impractical because of the patterns of municipal development and associated land values. The alternative of "no action" to retain the existing environmental setting would restrict urban and industrial growth within and adjacent to Texarkana. The construction of reservoirs, levees, and flood walls were found impracticable because the problem area is located within the headwaters of several streams, as well as within a metropolitan area.

McKinney Bayou.—Nonstructural solutions and "no action" as alternatives would result in continued flooding of existing agricultural lands and substantial crop losses. The construction of reservoirs or levees are not practicable or economically feasible. Other structural alternatives that were considered singly and in combinations include modification of existing channels and outlets and construction of new channels and outlets.

Recommended plan of improvement

West Agurs Levee.—Installation of 232 relief wells along the bottom of the existing drainage canal; incorporation of the existing West Agurs Levee (constructed by non-Federal interests) into the project "Red River below Denison Dam, La., Ark., Okla., and Tex.," and deauthorization of the existing Federal levee paralleling the Texas and Pacific Railway between its junction with the West Agurs Levee and its intersection with Hearne Avenue.

Days Creek.—Enlargement and rectification of portions of Days Creek, Nix Creek, Swampoodle Creek, Wagner Creek, and Cowhorn Creek all in the Vicinity of Texarkana was considered. However, reexamination considering only those flood damage benefits creditable as a net loss to the national economy showed that the annual costs of flood protection exceed the annual benefits.

McKinney Bayou.—Enlargement of the main stem between miles 2.5 and 13.3, and 22.7 and 27.5, construction of new outlets to the Red River at Buzzard Bluff and the Arkansas-Texas state line consisting of gated control structures all in lieu of the plan of improvement authorized by the Flood Control Act approved July 14, 1960. In addition, the plan includes acquisition of 3,500 acres of woodlands adjacent to the Bois d'Arc Game Management Area and development as a green tree reservoir area to mitigate wildlife losses attributed to construction of the McKinney Bayou inprovements and also the improvements previously authorized for construction on Posten Bayou in Arkansas. In addition to the improvements recommended for construction by the Corps of Engineers the plan includes about 50 miles of interior drainage channels and four flood-flow retarding structures to be reported on and installed under programs administered by the Soil Conservation Service, of the Department of Agriculture.

ESTIMATED COST

[Price level of July 1975]

	West Agurs Levee	McKinney Bayou (Corps of Engineers)	Posten Bayou	Total
Federal	$271,000	$3,530,300	$186,800	$3,988,100
Non-Federal		1,110,700	27,200	1,137,900
Total	271,000	4,641,000	214,000	5,126,000

PROJECT ECONOMICS

[Interest rate of 6⅛ percent]

	Federal	Non-Federal	Total
Annual charges (West Agurs):			
Interest and amortization	$16,700		$16,700
Operation and maintenance		$1,300	1,300
Total	16,700	1,300	18,000
Annual charges (McKinney Bayou—Corps plan only):			
Interest and amortization	227,800	78,700	306,500
Operation and maintenance		12,100	12,100
Total	227,800	90,800	318,600

Annual benefits

West Agurs Levee:	
Flood damages prevented	$41,000
Area redevelopment	3,600
Total	44,600
McKinney Bayou:	
Flood damages prevented	65,000
Intensified land use	532,800
Area redevelopment	54,800
Wildlife & recreation	69,500
Total	722,100

Benefit-Cost Ratio:

West Agurs Levee	2.5
McKinney Bayou	2.3
Posten Bayou Project (including mitigation costs)	1.5

Environmental impact.—Implementation of the proposed West Agurs Levee project will not impose any significant physical alteration to the existing environment. Land use changes within this urbanizing area would be the same with or without the project. Major adverse impacts associated with the McKinney project will result from the clearing of 3,600 acres of alluvial bottom forest for agricultural production. These impacts include losses associated with the forest, fish, and water resources and/or the aesthetical values contained therein. Huntable wildlife resources will be reduced by 4,785 man-days hunting annually. Mitigation measures will compensate for these losses as well as the losses allocated to an earlier project on McKinney Bayou.

Issues

The Department of the Interior believes that the plan outlined in the proposed report of the Chief of Engineers, sent to agencies for review, to mitigate anticipated losses of about 6,170 acres of valuable fish and wildlife habitat from the McKinney Bayou, and also Posten Bayou (authorized in 1970) is not adequate. Therefore, the Department recommended the acquisition of about 2,600 acres of land within the 250-foot contour in the vicinity of the Bois d'Arc Game Management Area.

The Corps of Engineers subsequently undertook further coordination with the Fish and Wildlife Service of the Department of the Interior concerning mitigation of fish and wildlife losses. The additional study showed that these losses could be greater than anticipated in earlier studies. Also, that there is a need for a larger amount of land, together with certain facilities, to mitigate those losses. Therefore, the Chief of Engineers recommends the acquisition of land within the 250-foot contour to a blocked perimeter, about 3,500 acres, to mitigate the project induced fish and wildlife losses.

SECTION 33

This section modifies the flood control project for the San Antonio, Texas, channel improvement, authorized by the Flood Control Act of 1954, to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to construct such additional flood control measures as are necessary to preserve and protect the Espada Acequia aqueduct, located in the vicinity of Six Mile Creek.

The Espada Acequia Aqueduct was built between 1730–1745 and is the only remaining original, operational Spanish aqueduct in the United States. It has been designated as a National Historic Site by the Interior Department and as a National Civil Engineering Landmark by the American Society of Civil Engineers. The site represents one of the earliest recorded examples of water supply and irrigation systems in the Nation.

However, increased water flows are threatening to destroy this historic structure. Concerned about this situation, local interests, with the support of private funding, contracted with private engineering firms to study the feasibility of improvements to the project to protect it. However, it was determined that unless water flows of 6-mile creek could be adjusted, any such improvements would be futile. It was also determined that the damage was of such a nature that immediate action was necessary to preserve the facility. From a structural standpoint, considering the age, design and carrying capacity of the aqueduct, it is inevitable that it will be destroyed by flood-waters in a relatively short time if protective flood control measures are not undertaken.

The drainage area of Six Mile Creek is 14.6 square miles and the 100 year design flood flow is 16,000 cubic feet per second. The aqueduct, under present conditions, will only pass 2,000 cubic feet per second without overtopping. In 1974, the structure was overtopped on

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three occasions resulting in significant deterioration. Increased development in the watershed, including Kelly Air Force Base and Stenson Field, has resulted in accelerated runoff and more frequent flooding. In addition, to correct local flood problems, the City of San Antonio is contracting with the Army Corps of Engineers to construct a 28-mile system of watershed channelization and local drainage improvements that are expected to cost about $45.4 million. Although these flood control measures will alleviate the suburban flood damage in the upper watershed of the San Antonio Creek they will intensify peak flood flows past the aqueduct and pull increased amounts of water from Six Mile Creek thus again increasing the flood waters through the aqueduct.

Because of the Federal involvement with the air base and the channel improvements, the Corps of Engineers compiled a comprehensive study entitled "San Antonio Channel Improvement, Texas: Feasibility Report for the Espada Aqueduct Flood Protection, San Antonio, Texas," dated June 1975. This report outlined the means whereby erosion of the facility could be eased. These would include construction of channel improvements on Six Mile Creek, at an estimated cost of $1,761,000.

The Committee believes that it is in the national interest to preserve unique historic structures such as this. This section therefore authorizes the Corps of Engineers to undertake such remedial measures as are needed to protect the Espada Acequia Aqueduct.

SECTION 34

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to implement the nonstructural flood control project on Galveston Bay at Baytown, Texas, generally in accordance with the final report of the Chief of Engineers.

The Committee has been aware of the flooding situation in the Baytown area for some time and addressed it in 1974 in the passage of the Water Resources Development and River Basin Monetary Authorization Act of 1974. In the report accompanying that legislation the Committee recognized that the current flooding is resulting in adverse economic and social conditions beyond the capability of the local interests to cope with either on a physical or economic level. The Committee recognized the uniqueness of the situation and felt that correction of the situation was well within the jurisdiction of the Secretary of the Army due to the recurrent flooding and the exposure to destruction from hurricanes.

Several alternatives were studied for the relief of the flooding conditions; however, in its feasibility report the Galveston District Engineer recommended a non-structural solution. The Committee concurs with this solution. The project would consist of purchasing homes and land within the 50-year flood plain and relocating all residents.

All owners would receive relocation assistance through the Uniform Relocation Assistance Act, the area would then be reclaimed, and the City of Baytown would then manage the project lands as a park land or nature area.

It is the Committee's understanding that for purposes of relocation assistance current replacement values will be used. In addition, non-

Federal cost-sharing shall be in accordance with Section 73 of Public Law 93-251, limiting such cost-sharing to not more than 20 percent of the project cost.

SECTION 35

This section alters the procedures under which various components of the Arkansas-Red River Basin Chloride Control Project can go forward in the future. The new language allows work to go forward on components if approved by the Secretary of the Army and the Congress. With the new language the Committee intends that regular procedures will be followed with respect to this project. Whenever a design memorandum is completed, as a portion of the whole, the Committee expects that it will be submitted to the Congress for review.

This full project was authorized in the 1966 and 1970 Flood Control Acts. The project is designed to remove natural salt pollution from the Arkansas and Red River Basin, offering the opportunity to make an enormous additional quantity of water available for municipal, industrial, and agricultural uses.

But because of the nature of the authorization of the full project, it has been difficult to move components of it forward, pending the final report and design on the full project. The comprehensive restudy of the Red River Basin has just been completed at the District level. The comprehensive restudy of the Arkansas Basin will not be accomplished for about two more years.

Because of the project's scope, involving some 15 salt sources in two states, the Committee believes that some of the smaller control structures on the Arkansas River should be accelerated in advance of completion of all these studies, just as some structures were initiated on the Red River in the 1974 Water Resources Act. The Corps is directed to accelerate its review of the so-called Area IV structures in the Arkansas Basin, a small, relatively low-cost structure near Okeene, Oklahoma.

SECTION 36

This section re-authorizes the Arcadia Reservoir near Edmond, Oklahoma. The reservoir was originally authorized in 1970 as a multi-purpose project, including flood control, recreation, fish and wildlife enhancement, and water quality. The subsequent passage of the 1972 Federal Water Pollution Control Act Amendments and the Water Resources Development Act of 1974 requires reauthorization of the reservoir because water quality releases are no longer permitted as a project purpose. This section deletes those benefits for water quality, and includes benefits for water supply, for which the city of Edmond, Oklahoma, has contracted.

It is expected that the Corps will design the final project in a manner that keeps the pool elevation at as low an elevation as practicable, consistent with project purposes.

SECTION 37

This section authorizes a multi-agency study of water resources in the area of the Ogallala aquifer. The economy of the High Plains region, which encompasses large areas of Colorado, Kansas, New Mexico, Oklahoma, Texas, and Nebraska, is largely dependent for

water on the aquifer. Economic activity, particularly irrigated agriculture, has led to the withdrawal of water at rates far in excess of the rate at which the Ogallala is being recharged.

If present trends continue, widespread abandonment of irrigated agriculture will commence in the 1990s. The potential impact on the economic and social fabric of the region is further heightened by declining oil and gas reserves. The very ability of the region to survive as a productive section of the nation is at stake.

Time exists to take corrective action, if steps are taken now. The Economic Development Administration within the Department of Commerce has already begun efforts to develop a strategy for the region. EDA has fashioned a plan for studying the problem which simply awaits the funding provided in this section.

One important caveat is in order: that portion of the study dealing with water transfers, which will be conducted by the Corps of Engineers for EDA, does not contemplate long range transfers from either the Mississippi or the Pacific Northwest. Rather, the Corps is to study the feasibility of transferring water from untapped sources within the High Plains region or contiguous areas.

The study provides for an initial draft to be available in mid-1978 and a final report in 1980. The initial draft is to be given wide circulation and subject to critical review within the Executive branch, the Congress, affected States and localities, and the academic community. The final study, due to 1980 should provide a concrete program in the form of specific recommendations for action for Congress to take to solve the problems of the High Plains region.

SECTION 38

This section directs the Secretary of the Army to construct, for public recreation purposes, an access road from United States highway numbered 85 to Cochiti Reservoir in New Mexico. The sum of $1,500,000,000 is authorized for this 3.3-mile road.

An existing road to the recreation area runs across Indian lands and is not open to free passage. The alternate access road, authorized by this section, would be constructed by the New Mexico State Highway Department.

SECTION 39

This section directs the Corps to construct a project for local flood protection on the Santa Fe River and Arroyo Mascaras in the vicinity of Santa Fe, New Mexico, at an estimated cost of $8,200,000. There are two limitations on this authority: First, no impoundments can be built under this authority east of the existing Nichols Dam. Second, the Corps and its contractors are directed to select the routes for earthmoving operations and the sources of material in a way that minimizes any adverse impact on Santa Fe's normal transportation movements.

This section is the result of a study of the Santa Fe River watershed, which is an east bank tributary of the Rio Grande in north-central New Mexico. There are no existing flood control projects constructed by the Corps of Engineers in the Santa Fe River watershed, and none have been authorized by the Congress. Emergency repair work on the

Arroyo Mascaras floodway, however, was accomplished in 1959 at a Federal cost of $104,400 and repeated in 1971 at a Federal cost of $140,000.

Residents of the study area desire flood protection, a more plentiful and dependable water supply, and increased opportunities for water-oriented recreation.

The plan that was recommended by the Corps consists of construction of a flood control reservoir on the Santa Fe River, in addition to raising the Apartment Drive Bridge and replacing the College Street Bridge and the channelization of 6,300 feet of the Arroyo Mascaras through the city of Santa Fe.

As originally designed, the project called for construction of a dam that would have backed water into National Forest lands. The Forest Service has opposed that recommended plan. This section directs the Corps to go forward with the alternative that would impose the least environmental impact, possible including the acquisition and raising of the existing Nichols Dam. In whatever plan is selected, no structures may be built east of Nichols Dam.

SECTION 40

This section amends existing authority for the Corps of Engineers to construct, operate, and maintain a fish hatchery to mitigate fish losses attributable to the Libby Dam project, Kootenai River, Montana.

Libby Dam was authorized by the Flood Control Act of 1950. This Act did not provide for fish and wildlife mitigation. The 1970 River Basin Monetary Authorization and Miscellaneous Civil Works Amendment Act authorized the Corps of Engineers to participate with the State of Montana in the construction, operation, and maintenance of fish hatchery facilities to mitigate fish losses caused by the project. The amount of Federal participation was limited to $750,000, which was intended to cover the construction cost of hatchery facilities capable of producing 25,000 pounds per year of west slope cutthroat trout and approximately ten years of operation and maintenance.

This 1970 authority was amended in section 48 of the Water Resources Development Act of 1974. The major change effected by this amendment was to increase the limit on Federal participation in the hatchery from $750,000 to $4,000,000 primarily because of increased costs attributable to pollution control and water reuse requirements.

The State of Montana now asks that the Federal Government contribute $6,500,000 for construction of the fish hatchery, operation and maintenance for the life of the facility, and conveyance of the hatchery to the State.

This section authorizes $5,500,000 or half the cost, whichever is less, for the construction of a 50,000 pound cutthroat trout hatchery and for the acquisition of necessary lands.

The Committee feels that this is appropriate Federal compensation for fish losses caused by the Libby Dam project.

SECTION 41

This section directs the Secretary of the Army to construct a four-lane, high-level bridge, to be located about two miles upstream from the existing U.S. Highway 12 bridge, between Lewiston, Idaho, and Clarkston, Washington. This provision is necessary because of the impact on the two cities created by navigational improvements on the Snake River. The bridge is a legitimate Federal expense because it was the Federal navigation project that creates the basic need for the new bridge.

The Highway 12 bridge, built in 1939, is the only direct link between the two communities. Though designed in the 1930s with a lift-span to permit passage of large river boats, it had until now provided sufficient clearance for existing river traffic, without use of the lift section.

The recent completion of the Lower Granite Lock and Dam has changed the situation significantly. The river level, backed up behind the dam, has reduced clearance at the existing bridge to about 13 feet, which will require regular and frequent use of the lift. According to testimony to the Committee, this will create serious interstate traffic problems, and could lead to critical health and safety hazards if the lift bridge is open or inoperative during an emergency situation, as the two communities share hospital and fire fighting facilities.

It is also estimated that there will be substantially increased highway and river traffic as a result of the Lower Granite project. The cost of the span is beyond the financial capability of the states, the cities, and the counties involved, either within the framework of their respective highway programs or from other resources available to them.

Preliminary estimates by the Corps of Engineers place the cost of the bridge at about $20 million. While requiring Federal financing for the construction of the bridge, this section makes non-federal agencies responsible for providing the lands, easements, and rights of way for the bridge and its approaches, and for bridge maintenance following construction.

SECTION 42

This section directs the Corps to install a second outlet for flows from the Lucky Peak Dam, Idaho. This will allow continued flows of water from the dam when the main outlet pipe must be closed annually for inspection and maintenance.

This second outlet has importance to the metropolitan area of Boise, Idaho, and to the water quality of the Boise River, downstream from Lucky Peak Dam to its confluence with the Snake River. Lucky Peak Dam has only had a single river outlet. During the dam's two decades of operation, the river flows virtually cease when the outlet is closed, except for the sewage releases from the Boise metropolitan sewage treatment plants. This condition creates severe problems for the fish resources of the Boise River, and violates national pollution control standards.

While this section in no way is a replacement for adequate sewage treatment, as required by Section 102(b) of the Federal Water Pollution Control Act Amendments of 1972, the Committee recognizes that continued river flows are the only method to maintain water quality in

the River, no matter how the level of treatment from the Boise sewage treatment facility.

SECTION 43

Section 50 of the 1974 Water Resources Act authorized the Secretary of the Army to reimburse Boundary County, Idaho, for the $350,000 cost of rebuilding a bridge necessitated by high water behind Libby Dam. This work has been interrupted due to the existence of a water line, which must be relocated.

This section increases the existing authorization by $30,000 to allow for the relocation of this water line, including approximately 900 feet of the City of Bonners Ferry's water line. The cost of water-line relocation was not included in the 1974 estimate by Boundary County because its exact location in relation to the bridge work was not known at the time the estimate was prepared.

SECTION 44

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to provide temporary school facilities for dependent children of workers on the Chief Joseph Dam hydroelectric power project. Funds for this function would be available from existing funds authorized for construction of such project.

Bridgeport and Brewster, Washington school districts have been severely impacted by the construction of this project and must be granted relief from the financial burden of these extra school children.

Rather than providing school facilities, the Corps may make a cash contribution to the school districts for their use in educating this influx of students.

Prior to providing the financial assistance authorized by this section, the Secretary of the Army is directed to investigate the possibility of education funds from the Federally-impacted assistance program being available for use to provide the necessary school facilities.

SECTION 45

This section authorizes the Secretary of the Army, acting through the Chief of Engineers, to provide maintenance dredging of certain works constructed by the Port of Portland at Oregon Slough, Oregon.

Such assumption of maintenance dredging has been recommended by the Chief of Engineers and approved by the Office of Management and Budget.

Project data follow.

Oregon Slough (North Portland Harbor), Oregon

Location.—Oregon Slough, also known as North Portland Harbor, is within the city limits of Portland, Oregon, and is a side channel of Columbia River, formed by Hayden and Tomahawk Islands and the Oregon mainland.

Existing projects

a. Federal. There are two Federal navigation projects in Oregon Slough one at the downstream end and one at the upstream end. The

lower, or downstream project provides for a channel 20 feet deep and 200 feet wide at low water, extending from deep water in Columbia River to a point above Portland Union Stockyards, about 3¾ miles. The project at the upper entrance to the slough provides for a channel 10 feet deep and 300 feet wide, extending from mile 5.8 in Oregon Slough to deep water in Columbia River, at approximately river mile 109.

b. Non-Federal. The Port of Portland is actively developing the North Portland Peninsula into a planned port expansion known as Rivergate Industrial Park. Fill material is being obtained from dredging operations in Oregon Slough within the limits of the proposed channel modification. In connection with construction of the terminal facilities the Port of Portland completed dredging of the slough to mile 1.5 to a depth of 40 feet or more and completed dredging of a turning basin. These actions were done to the dimensions of the recommended plan as described below:

Needs.—The Port of Portland, local sponsor, desired that a portion of the existing project be modified to provide for a channel 40 feet deep with sufficient width at low water to allow one-way ship movement. The channel would extend from the existing 40-foot-deep Columbia River shipping channel to Oregon Slough mile 1.5.

The proposed project would provide the Portland area with an additional 362 acres of water-oriented industrial land on a deep raft (40 feet) channel. The development would result in the cash flow of approximately $9 million, an increase of approximately $1 million in annual property taxes, and between 9,000 and 11,000 jobs generating between $25 and $75 million in total annual payroll.

Recommended plan of improvement.—The existing project for Oregon Slough, North Portland Harbor, Oregon, be modified to provide for a 40 foot deep by 400 foot wide channel from Columbia River to slough mile 1.5 (average length of 1.8 miles) with a triangular turning basin about 3.000 feet long, by an average width of 1,000 feet by 40 feet deep.

ESTIMATED COST

Summary of first costs (3d quarter 1973)

Item	*40-foot channel cost*
Federal costs:	
Initial dredging costs	$634,800
Aids to navigation	4,500
Total	[1] 639,300
Non-Federal:	
Dredging and retaining dikes	344,000
Total	993,300
Use	[2] 984,000

[1] Does not include preauthorization study costs of $68,000.
[2] The Port of Portland has recently dredged the channel and turning basin to the recommended plan dimension at local costs. Recommended Federal participation at this time would be limited to maintenance dredging.

PROJECT ECONOMICS, RECOMMENDED PLAN

	As formulated	Using current values
Interest rate (percent)	6⅞	6⅞
Period of analysis (years)	50	50
Plan benefits:		
(a) Transportation cost reduction	$574,000	$620,000
(b) Land enhancement	36,000	36,000
Total annual benefits	610,000	656,000
Plan costs:		
(a) Total investment	984,000	984,000
(b) Interest and amortization	70,000	63,000
(c) Maintenance	[1] 90,000	[1] 90,000
Total annual cost	160,000	153,000
Benefit-cost ratio	3.8	4.3

[1] Includes $69,600 annual Federal costs for maintenance dredging and $20,000 local annual costs for maintenance dredging.

Environmental impact of proposed project.—Project effects considered to be most significant were:

a. Dredging in Oregon Slough will result in a net loss of about 35 acres of benthic habitat annually.

b. Disposal areas will be required for maintenance dredging.

SECTION 46

The Committee recommends authorization of $250,000 to continue planning and additional economic analyses required by the on-going study review and to continue long-range water quality studies begun during the Phase I stage of the advanced engineering and design on the Days Creek Dam, South Umpqua River, Oregon. This additional authorization is needed as an interim measure in this instance because the Corps has yet to determine whether section 1 of the Water Resources Development Act of 1974 provides sufficient authority subsequent to the completion of phase I in the field and prior to authorization of phase II to permit the continuance of analyses which may assist Congress and the State in deciding whether phase II should be authorized.

SECTION 47

This section modifies the monetary limitation on Federal participation for flood control storage in the Del Valle Reservoir, Alameda Creek, California, as authorized in the Flood Control Act of 1962.

Pursuant to Section 203 of the Flood Control Act of 1962 the Secretary of the Army entered into a contractual agreement with the State of California to contribute toward the cost of flood control storage in the Del Valle project. The Federal contribution to the State consisted of 30.7 percent of the actual project cost but not to exceed $4,080,000. In addition, the Federal Government would contribute $776,000 for the present worth of the Federal share of the estimated annual cost of maintenance and operation for 50 years allocated to flood control. Full payment of $4,856,000 has been made to the State.

At the time of this agreement the estimated Del Valle project cost exclusive of recreation facilities was $12,370,000. Actual construction cost was about $25,700,000. Because of this cost increase the State requested and the U.S. Congress authorized a study to re-evaluate the cost-sharing aspects of the Del Valle project.

Location.—The Alameda Creek Basin is located in the Coast Range adjacent to the southeast side of San Francisco Bay. The multiple-purpose Del Valle dam and reservoir project is located on Arroyo Del Valle about 11 miles upstream from its confluence with Arroyo de la Laguna, a tributary of Alameda Creek.

Existing projects.—Federal local protection works on Alameda Creek across the Coastal Plain, from Niles Canyon to San Francisco Bay. A non-Federal State owned multiple-purpose Del Valle dam and reservoir for flood control water supply, and recreation.

Recommended action.—On the basis of actual construction cost for the Del Valle project and the estimated benefits to be derived therefrom, it is determined that the Federal contribution toward the first cost of the project should be $4,650,000. There is no change in the present worth of the Federal share of estimated annual maintenance, operation, and replacement costs allocated to flood control. It is therefore recommended that the Federal Government enter into a supplementary agreement with the State of California increasing the Federal contribution by $570,000.

PROJECT COSTS

	Project document (1962)	Reevaluation report (1972)	Difference
First cost (exclusive of specific cost for recreation lands and facilities and preauthorization study costs)	$12,370,000	$25,700,000	+$13,330,000
Percent of Federal cash contributions for flood control	30.7	18.1	−12.6
Federal contribution	$4,080,000	$4,650,000	+$570,000
Present worth of operation O.M. & R. 50 yrs	776,000	776,000	Non

PROJECT ECONOMICS

[2⅝ percent interest rate Interest rate at time of authorization.]

	Flood control	Water supply	Recreation	Tota
	[Dollars in thousands]			
Allocated annual charges	$200	$480	$1,321	$2,021
Annual benefits	318	1,164	2,485	4,197
Benefit-cost ratio		1.4		

SECTION 48

This section authorizes a modification for the Port San Luis project San Luis Obispo, California. The modification recommended reduces the size of the project and reflects a saving to the Federal government of $900,000.

The Corps of Engineers concurs in this modification and recommends that it be approved by legislation since it involves a significant change in the project.

SECTION 49

This section modifies the project for navigation improvements, Cook Inlet, Alaska (Anchorage Harbor), authorized by the River and Harbor Act of 1958, to provide that the Secretary of the Army, acting through the Chief of Engineers, maintain the harbor depth of 35 feet for a length of 3,000 feet at the existing Port of Anchorage Marine Facility.

The existing Federal harbor project has an authorized pier face length of approximately 2,000 feet. The City of Anchorage, under permit authority of the Corps of Engineers, has dredged an additonal 1,000 feet past the Federal project limitation.

This section expands the Corps authority to provide that the Federal Government maintain the new dredged depths in addition to those depths already authorized.

SECTION 50

This section authorizes and directs the Secretary of the Army, acting through the Chief of Engineers, to conduct a study of the feasibility of removing debris and obsolete buildings from the vicinity of Metlakatla and Annette Island in southeastern Alaska.

Between 20,000 and 30,000 U.S. troops were quartered on Annete Island during World War II. An airfield, support installations, and additional facilities were constructed. The Coast Guard subsequently took over the facilities, but will be abandoning the island next year.

Section 35 of the Water Resources Development Act of 1974 authorized a debris removal study for several of the Aleutian Island in Alaska. This section amends that existing law to provide a similar study for Annette Island.

SECTION 51

The Crater-Long Lakes division of the Snettisham project, Alaska, was authorized by the Flood Control Act of 1962 to provide hydroelectric power and flood protection in the area of Juneau. The project was authorized to be constructed by the Corps of Engineers. The Department of the Interior was given the authority to operate and maintain the project and market the power.

The project has been subject to severe problems since its beginning. In the course of construction, contract difficulties, construction delays, and cost escallations turned an estimated $43,000,000 project into one now contemplated to cost over $90,000,000. A design deficiency in part of the completed project has caused power failures of months-long duration to the City of Juneau.

This section seeks to reduce some of the hardships caused by these factors to the people of Juneau.

Subsection (a) of the section makes the cost of replacing and relocating the Salisbury Ridge Section of the transmission line for the Snettisham project nonreimbursable.

Due to Corps of Engineers error, the Salisbury Ridge portion of the transmission line was placed on top of the ridge, in a location extremely vulnerable to ice and high winds.

Since its completion in 1972, this section of the line has suffered serious damages, resulting in power outages which have denied power to consumers for months at a time.

The Corps of Engineers is now in the process of relocating the line at a lower level. This subsection requires that the cost of such relocation be a Federal responsibility.

Subsection (b) restructures the repayment provisions for the Snettisham project by providing for: (1) a repayment period of sixty years, instead of fifty; (2) an initial annual payment of 0.1 percent of the total principal to be repaid; (3) subsequent annual payments to be increased by 0.1 percent of the total principal until the tenth year; and (4) annual payments thereafter for the remaining fifty years to be one fiftieth of the balance remaining after the tenth year.

The purpose of this subsection is to provide temporary relief to Juneau power users by altering the repayment schedule and amounts. Lower payments during the first ten years of the proposed sixty-year repayment period would be made possible by deferring the interest for this period.

The total obligation (capital costs, plus interest) will still be met, as the interest deferred during the first ten years will be recovered in the next fifty years.

This temporary relief is necessary in view of the additional standby generating facilities which local interests had to install because of the numerous power outages experience since 1972.

SECTION 52

This section declares three specific lakes as non-navigable for the purposes of Section 10 of the Rivers and Harbors Act of 1899, the provision of law requiring a Corps of Engineers permit for any wharf or pier constructed in the navigable waters of the United States.

Because of recent Court decisions, the Army Corps of Engineers has had to broaden its regulatory control under Section 10 to control the construction of private boat docks and similar facilities on bodies of water that this Committee believes were never intended for such control. This new authority is not a result of the Federal Water Pollution Control Act Amendments of 1972, and this section is in no way associated with that controversy.

The Committee has evaluated this problem in relation to the three specific bodies of water listed in the bill—Lake George, New York, Lake Oswego, Oregon, and Lake Coeur d'Alene, Idaho—and found them not to be navigable for the purposes of regular interstate commerce. This section is needed to clarify that they are non-navigable for the purposes of section 10 of the 1899 Act.

The declaration of this section is only for the purposes of regulating boat docks and similar structures that might impede navigation. It affects no other aspects of the jurisdiction of the United States, such as those that may be administered by the Environmental Protection Agency, the Coast Guard, the Fish and Wildlife Service, or even the Corps of Engineers under other provisions of law.

Because of the possibility that this is a broader problem, the Committee intends, in the next Congress, to hold hearings in an effort to establish a more defined national policy that will clarify this distinction for these and other lakes.

SECTION 53

This section establishes a new procedure for the financing of hydroelectric power projects planned and constructed by the Army Corps of Engineers. This new procedure is directed toward projects of which 90 percent or more of the benefits are for hydroelectric power.

The traditional method of planning, Congressional authorization, and construction of these projects has proven to be extremely time consuming. It is expected that this new procedure will speed the implementation of such projects to the extent that they will be built as expeditiously as construction schedules permit and at less cost.

At the direction of Congress, the Corps of Engineers now conducts a study of a specific geographic area with a view toward developing a plan to meet the required power needs of that area. If it is determined that a hydroelectric power project is the most acceptable alternative to satisfy those needs, and the Corps determines that a specific plan for such project is economically feasible, a survey report outlining the plan, with an environmental impact statement, is submitted to the Congress for consideration.

The project is then authorized by the Public Works Committees of the House and Senate for the phase I design memorandum stage of advanced engineering and design.

The new procedure authorized by the Hydroelectric Power Development Act would not come into play until after the above procedure is completed. It is after the authorization of Phase I that non-Federal interests can become an active participant in the implementation of a project. It should be made clear that this new procedure is initiated purely at the initiative of non-Federal interests. If such interests prefer to have projects built in the traditional manner, they may do so.

Section 53(b) establishes a Hydroelectric Power Development Fund for the purposes of this Act. The Fund shall consist of payments by non-Federal public authorities to the Secretary to finance the cost of construction of projects under this new procedure and Federal funds for the Secretary to draw on for use in Phase I of a project if the local authorities have agreed to repay such costs.

If a non-Federal public authority, approved by the Secretary of the Army, agrees in writing to repay the Secretary for all separable and joint costs of preparing the Phase I resign memorandum, if such report is favorable. The Secretary is authorized to withdraw funds from the Hydroelectric Power Development Fund for such work. The non-Federal authority must repay the Federal Government in full for such costs prior to the submittal of the Phase I report to Congress.

After authorization for construction by Congress, the Secretary and the non-Federal authority shall enter into a contract that the non-Federal authority will pay the full, anticipated costs of constructing the project at the time such costs are incurred, together with normal contingencies and related administrative expenses of the Secretary.

The agreement must be submitted to the Committees on Public Works and the Committees on Appropriations of the House and Senate for review. Congressional approval is required after Committee review and favorable report on such agreement.

By establishing a procedure to submit proposed construction agreements to the Committees on Public Works and on Appropriations and to the full Senate and House of Representatives for consideration and approval and by making Federal liability for acts of God and for cost overruns subjects to the appropriations process, the Committee seeks to restore to Congress a measure of control over Federal spending. The Committee is concerned that over 75 percent of the Federal budget is now deemed "uncontrollable." The Committee believes that by subjecting spending proposals to closer Congressional scrutiny the spirit as well as the letter of the new budget process is honored.

Non-Federal payments for construction can either be deposited in the Fund or held by the Secretary for payment on obligations incurred on the project.

The total non-Federal obligation must be discharged on or before the estimated date that the project is available for generation of all or a substantial portion of the authorized hydroelectric power.

Upon the project's availability for a substantial portion of the power, the Secretary is authorized and directed to convey all title, rights, and interests of the United States to the project, its lands and water areas, and appurtenant facilities to the non-Federal public authority. The authority then assumes ownership of the project and responsibility for its performance, operation, and maintenance, as well as any necessary replacement.

In recognition of the substantial investments which will be made by non-Federal public authorities under this procedure, the United States is to assume the responsibility for all costs over those fixed in the agreement which are occasioned by Acts of God, failure of the Secretary to adhere to the agreed schedule of work, or failure of design. Payments by the Secretary of such costs shall, however, be subject to appropriations acts.

"Acts of God" for the purposes of this section, is defined in the same manner as "emergency" and "major disaster" in section 102(1) and (2) of the Disaster Relief Act of 1974 (Public Law 93–288).

The Committee expects that the non-Federal public authority would finance their efforts under this new procedure from the sale of bonds. The Committee believes that this new method of public payment for Federal projects will provide a virtual "testing of the market" which will demonstrate the accuracy of Corps of Engineers estimates of economic viability and cost effectiveness of Federal projects. The bond market will provide a "real-world" testing ground for the viability of the project. If the project is not viable, the bonds will not sell.

In summation, the Committee believes that implementation of the Hydroelectric Power Development Act will result in a speedier implementation of needed projects at a cost significantly lower than is now the case.

The Committee looks forward with interest to the first project expected to move forward under this procedure, which is the project for hydroelectric development on the Susitna River in Southcentral Alaska, Phase I of which is authorized in section 2(c) of this Act.

General authority is provided in section 53(i) authorizing negotiations by the Secretary of the Army and the Secretary of the Interior for the sale of previously constructed projects to non-Federal public interests under conditions protecting the affected public from any project purpose loss of flood control, navigation, recreation, and hydroelectric power benefits. It is conceived that sales price would reflect the value of only those assets to be transferred and that the price together with the means to protect public interests would be arrived at by negotiations.

SECTION 54

This section amends section 32 of the Water Resources Development Act of 1974, the Streambank Erosion Control Evaluation and Demonstration Act, to clarify the existing authorization; to add a new site for demonstration projects; to provide for additional reports; and to authorize additional funding.

In the existing program, the Corps of Engineers was authorized to conduct a five-year program to demonstrate streambank erosion control techniques and to develop more effective protective measures. Demonstration projects were mandated at multiple sites on the Ohio River, the delta and hills area of the Yazoo River Basin and on two reaches of the Missouri River. Twenty-five million dollars was authorized over 5 years and a report of program findings and recommendations was to be sent to Congress.

The Committee has learned that the program has not been implemented as intended. Minimal attention has been given to three of the four demonstration areas, even though sufficient funds have been appropriated to begin work at all areas. As a result, it appears that the Corps of Engineers will not be able to complete the work it is required to do in the time and with the money remaining under the 1974 authority.

The Committee believes that the program can provide valuable information and assist the Congress in meeting a problem which is severe in many areas of the country. Section 54, therefore, provides that Section 32 be extended for three additional years. To provide the Corps sufficient resources to accomplish the work required, the program authority is increased from $25 to $50 million.

No funds have been programmed for the reach of the Missouri River in North Dakota at or below Garrison Dam, authorized in the 1974 Act. The severity of the erosion problem in that area has increased. The Committee recommends that the Corps give this area special attention and has included language to facilitate the Corps' work.

In addition, the Committee notes that no work has been initiated on the Missouri River between Fort Randall Dam, South Dakota, and Sioux City, Iowa, as mandated in the 1974 Act. The Committee therefore recommends that a portion of additional funds mandated in this section be used in this area.

Finally, the Committee has added to the list of mandatory study areas, a portion of the Yellowstone River in Montana and North Dakota.

SECTION 55

This section amends section 216 of the Flood Control Act of 1950, which relates to annual expenditures by the Secretary of Agriculture for emergency work in watersheds which have been impaired by floods or other natural elements. The annual limitation is raised from $300,000 to $10,000,000.

The annual limitation of $300,000 was established in 1950. This amount has been inadequate for many years. In fact, $4.0 million was

appropriated in 1969, $3.7 million in 1970, $16.5 million in 1972, $20.0 million in 1973, and $22.5 million in 1974.

A proposal was presented to the Committee which would have removed the annual limitation entitrely on such work, and would have established a revolving fund in an amount determined by the Congress to be necessary for emergency watershed protection works.

The Committee recognizes that $300,000 annually is totally inadequate. The Committee is reluctant, however, to remove the ceiling entirely. Moreover, it is inappropriate to establish a revolving fund for a Federal program such as this, when expenditure of such funds would not be subject to the usual appropriations process.

This section raises the annual limitation for emergency watershed works to $10,000,000.

The Committee directs that these funds are to be used for true emergency works such as removal of sediment and debris, repair or replacement of structural facilities, and repair to banks which are eroding as a result of storm damages or other natural catastrophies. These funds should not be used for new permanent works of construction.

SECTION 56

This section amends section 107 of the River and Harbor Act of 1960 to raise from $1 to $2 million the individual project limitation on small navigation projects initiated by the Corps of Engineers.

Under existing law, the Corps of Engineers is authorized to expend up to $25,000,000 in any one fiscal year for construction of small navigation project not specifically authorized by Congress. These projects must result in substantial benefits to navigation and must, in the opinion of the Chief of Engineers, have a favorable cost-benefit ratio. The individual monetary limitation for such projects is $1 million.

Raising this single project limitation to $2 million is justified by normal cost increases and other inflationary effects since 1970, when Congress last authorized increased cost limitations.

This section will not affect the overall project limitation of $25,000,000, but it will assure that the projects initiated under this program can be carried out in accordance with the intended purposes of the Act. The Department of the Army has recommended enactment of this amendment.

This section shall not apply to any project under contract for construction on the date of enactment of this Act.

SECTION 57

This section establishes a procedure to assure that on any water resources project in which a single land owner can be expected to receive at least 10 percent of the project's benefits, that owner shall be required to agree to contribute half the cost of those portions of the improvements that relate to his benefits. The actual cash contribution need not be made prior to construction, but no construction can go forward without agreement from the landowners that he will make the contribution either initially or no later than the time he realizes the benefits, either through development, sale or more intensified land use.

A number of projects in this bill involve aspects that create windfall benefits to the owners of land adjacent to those projects. This is particularly evident in the case of one project where the Corps has estimated that the single owner of land in the project area can expect to receive a $3,124,000 windfall benefit as a result of the project.

The Committee believes that it is an equitable national policy that such recipients be required to share directly in the project's costs, since they will be direct and major beneficiaries.

It is recognized that the 10 percent figure is arbitrary. But it is expected that the Corps will make a study of this question, possibly proposing future legislation that will assume equitable treatment to all recipients of such windfall land enhancement benefits. When such benefits are widely distributed among many land owners, the Committee recognizes that there may be no practical way that the Federal taxpayer can be relieved of some of those costs.

SECTION 58

This section augments the responsibility of Congress over the work under the direction of the Chief of Engineers. The section restrains the present broad discretion of the Corps to move forward on rehabilitation of navigation projects, without specific Congressional approval, and prescribes that this discretion is limited to projects that cost less than $10,000,000. In line with the user-charge provisions in this bill, this section also removes the outdated prohibition in the 1909 Act against the charging of tolls at locks operated by the Chief of Engineers.

The authorizing Committees of Congress have been bypassed in the past in decisions in planning and constructing of major navigational replacement facilities. This issue became most evident when the courts halted reconstruction of Locks and Dam 26 at Alton, Illinois, because it had proceeded illegally under the 1909 Act. The Secretary of the Army has stated that he will not continue to use this discretionary authority, until clarified by Congress.

Under the new procedures in this bill, the Chief may only rebuild a project on his continuing authority if it will cost less than $10,000,000, and if the work in no way alters the capacity of location of the project. This section makes it clear that any such "rehabilitation" that costs more than $10,000,000 must be submitted to Congress for full authorization, as if it were a new project.

SECTION 59

This section directs the Corps of Engineers to establish a procedure to accelerate local cooperation in solving urban flooding dangers, allowing compatible local work to go forward without endangering the cost-benefit ratio of the potential Federal project.

The Committee has long recognized that it takes many years, sometimes decades, to complete a flood-control project once a survey report is initiated. This is particularly critical when the problem involves flooding in a growing urban area. This section is intended to accelerate work to meet this problem, without committing any future Federal expenditures.

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The section directs the Chief of Engineers to develop a procedure that allows District Engineers under the Chief to consider a local proposal for compatible action to lessen flood damages prior to the time that a full Corps study may be authorized by the Congress. This provision would therefore encourage local responsibility and enable local agencies to go forward with work they might otherwise be reluctant to undertake.

A city or other local agency, for example, might consider raising and widening a bridge, or plan some work to clean out and widen the flood-prone river. If the Corps of Engineers has a study underway, the District Engineer is expected to review the local proposal. If that proposal is compatible with the anticipated scope of the Federal project, then the District Engineer should so certify. Once the District Engineer makes such a certification, the city can go forward with the assurance that its certified works can be expected to be incorporated within the project design, should the project ever be authorized.

This flexibility should in no way be interpreted as a Federal assurance of later approval of any project. While it is in no way a Federal commitment, this provision assures the city that the work it undertakes, once certified, will not be removed from the cost-benefit analysis. And it assures the city that such local work will be credited toward the local costs of cooperation, should the project be later authorized. This will not, however, qualify the community for any cash refunds. If the local costs on such certified work exceed the local share, when later computed, the local government must assume that extra cost.

The need for this approach was brought to the Committee's attention by the situation involving Mingo Creek in a rapidly growing area of Tulsa, Oklahoma. The city, confronting the serious flood problem, discussed the Corps studies, and went forward, using local funds, with works that it believes are compatible. This substantially lessened the danger of flooding, and may have produced dramatic savings in lives and property in a disastrous flood in recent months.

The Committee believes that the decision of Tulsa to move forward is commendable, and that the city should not be penalized by the possibility its works may have skimmed off the benefits from the project's heretofore favorable cost-benefit ratio. Therefore, this section also directs that the city of Tulsa receive credit for this work, should the present Corps study of Mingo Creek be later developed and authorized as a Federal project.

SECTION 60

This section establishes a three-member Water Resources Mitigation Advisory Board that will assist the Congress and the Corps of Engineers in resolving issues and problems surrounding Corps projects. One member of the Board shall be a Federal employee. The other two shall be members of the public, appointed by the President, to serve for three year terms. The only limitation on the public members is that they must never have served with the Corps of Engineers. The public members are not expected to serve full-time, but will be compensated on a per-diem basis and given travel expenses.

The Board is required to meet at least quarterly to review mitigation requests, and then the Board is expected to recommend a solution to any mitigation requests by local agencies. These reports shall be submitted to the Congress and the Corps of Engineers and shall be advisory.

For the purposes of the section, mitigation is defined as any change in project operations or construction of new facilities to alleviate any possible damages, or any change in local cost sharing involving established national policy. The Board shall review requests for mitigation presented by either State or local public agencies, the Corps of Engineers, or the Public Works Committee of the Congress, and then issue advisory opinions. The Board would be authorized to consider controversies surrounding Corps projects whether it be a request concerning damages, project scope, or Federal-local cost sharing.

The Board is expected to report to Congress from time to time with recommendations for changes in Congressional or Corps of Engineers practices and procedures, to prevent such problems from arising in future authorized projects.

The Committee on Public Works has long wrestled with the difficulties inherent in mitigating damages related to projects of the Army Corps of Engineers. Such difficulties arise in this way: The Congress directs the Corps to survey a water resources problem. The Corps does so, and recommends a structural answer. The Congress authorizes the project, which might involve a dam or a channel or a levee. Then the Corps constructs the project. Then problems appear as unexpected or undesired side effects from the project. On review, the Corps may argue that no relationship between the project and the local problem can be established. Therefore, the Corps says, the Federal taxpayer should not be expected to assume the responsibility to repair or replace the local problem. But local residents are convinced they are faced with costs imposed by the Federal project built for national benefits.

Under present procedures, there is no recourse for an independent evaluation. There is no way for the community to obtain a fair study of the problem and its relationship to the project. At best, the community can obtain an ad hoc decision, which may not be based on a full understanding of the facts and policy.

This section provides a mechanism to resolve such mitigation issues. This issue was addressed during Committee hearings with the Corps. The Corps discussed the reasonableness of creating a body somewhat like its Board of Contract Review, to review requests for mitigation. "If there were some group which would arbitrate . . . we certainly would have no problem . . . If such an arbitration group was established by the Congress . . . it would also, I think, tend to reduce litigation," the Corps testified.

The Committee emphasizes that the three-member board will have no power to direct a course of action. But the Committee anticipates that the board's recommendations will be useful to the Corps and to the Congress in weighing the equities and justification for the mitigation proposed.

Creation of such a board, of course, does not relieve the Corps or the Congress of its responsibilities. Such a board will merely provide the public and the Congress with expert and independent guidance on what decision appears to be fair and reasonable.

SECTION 61

This section establishes the authority for the Chief of Engineers to develop projects to remove drift and debris from publicly maintained commercial boat harbors of the United States and from the land and water areas immediately adjacent to such harbors. The Corps would be responsible for developing projects to collect and remove drift and debris in harbors, and could undertake such projects without specific Congressional approval when the total Federal cost for the project is less than $400,000. No more than $4,000,000 would be expended in any one fiscal year for the Federal share of projects under this continuing small-project authority.

This section also requires that on new projects the identifiable owners of sources of drift be required by local interest to pay for their removal of repair as a part of the project.

Non-Federal interests would be required to provide all lands, easements and right-of-way necessary for the project.

The bill also amends Section 91 of the Water Resources Development Act of 1974 (88 Stat. 39), which authorized Federal participation in the collection and removal of drift in New York Harbor, by raising that authorization to $28,713,000, in place of the $14,000,000 set as the Federal share of the cost of the New York Harbor project. The new figure is based upon 1976 price levels, reflecting substantial cost inflation since the earlier estimate. The provisions and requirements of the new program are not retroactive to the existing project for New York Harbor.

This section is an effort to prevent a problem that is a Corps responsibility—the removal of floating debris from shipping lanes. The source of this debris can often be removed at less Federal expense than its periodic clean up. This bill would at the same time encourage local communities to act cooperatively with the Federal Government in projects to spruce up harbor-front areas.

The cleaning of drift material off shorelines and the removal of dilapidated piers and other sources of future drift is not a minor problem. The U.S. Army Corps of Engineers has estimated that 10,000 vessels collide annually with drift material; these accidents cost the owners $5,900,000. The Corps of Engineers has estimated annual benefits to marine safety and in improved harbor environments totaling $23,768,000. The removal of dilapidated wharves and the raising of vessels and other sunken objects would bring benefits, for example, in the Detroit area of $3,800,000 a year, the Corps has estimated. Annual benefits to the Galveston, Texas, area would total $640,000; the total would be $850,000 in the Seattle area; they would exceed $220,000 in Alaska.

While the Army Corps of Engineers has broader authority in five specific harbors, including New York, to collect material in the water that may float into a shipping channel, the Federal Government lacks the general responsibility to remove material that can be expected to fall into the harbor, where it would prove far more troublesome and costly to collect and remove.

This section would, for the first time, allow the Corps to remove the cause of harbor drift. It will reduce future collection costs, which now run to several millions a year under the Corps' general authority to remove hazardous obstructions from Federal navigation channels.

SECTION 62

When submitting any report to the Public Works Committee that involves the construction of a dam, the Corps of Engineers and the Soil Conservation Service are required to provide information in the report document on the possibility of failure of the facility due to design or geologic factors. This information must identify the potential impact of a failure, as well as information on those features in the project's design that will prevent or lessen the possibility of such a failure. The Committee believes this will provide valuable information to assure against future dam failures.

SECTION 63

Under the provisions of the Watershed Protection and Flood Prevention Act (Public Law 83–566, as amended), the Secretary of Agriculture, through the Soil Conservation Service, submits watershed workplans to the Congress. Those containing structures of more than 4,000 acre-feet capacity are referred to the Public Works Committees of the House and Senate; those with structures of smaller capacity are referred to the Committees on Agriculture. All these watershed workplans are approved by Committee resolution.

Under section 201 of the 1965 Flood Control Act, Corps of Engineers projects for which the Federal share is less than $10,000,000, and which meet certain other requirements, can be approved by Committee resolution. But any project for which the Federal share is more than $10,000,000 may only be authorized after completion of the full legislative process.

Soil Conservation Service projects under the Public Law 566 program have traditionally been agricultural in nature and small in cost. The Committee notes that, in recent years, an increasing number of these projects have been in excess of $10,000,000. This is attributable not only to inflation and higher construction costs, but also to the fact that the program is now including urban areas which requires a higher degree of flood protection (i.e. larger structures), as well as agricultural areas.

The issue of urban versus agricultural benefits is addressed in section 65 of this legislation.

This section requires that Public Law 566 watershed workplans submitted to the Public Works Committees shall be authorized by resolution if the Federal cost of such workplans is less than $10,000,000. All plans with Federal costs in excess of $10,000,000 will be authorized by specific legislation.

In addition, the Committee notes that the Public Law 566 program is limited to small watershed or subwatershed areas (i.e., areas not exceeding 250,000 acres). The Department of Agriculture has submitted several workplans to this Committee which have either severed a small portion from a total watershed in order to make the project area less than 250,000 acres, or divided a watershed in half so the cost of each segment would not be excessive.

The Committee on Public Works will not accept such obvious attempts to make what was intended as an agricultural program in small watershed areas a much more far-reaching effort.

Watersheds or subwatersheds thereof in which Public Law 566 projects are planned and for which workplans are submitted to this Committee, shall not be "trimmed," fractionalized, or otherwise divided into "upper" or "lower" either to meet the existing 250,000 acre limitation or the $10,000,000 Federal cost limitation instituted by this section.

SECTION 64

This section directs the Corps of Engineers and the Soil Conservation Service, when making any project report to the Public Works Committees that involves recreational benefits, to analyze the impact of the proposed new recreation facilities on other recreational projects in the general project area. This is necessary because it appears that many recreational "benefits" may sometimes be overstated because of competing recreational opportunities, or may prove to be simply a transfer of recreational benefits from other facilities, and thus not truly an increase in recreational benefits for the nation.

For the purposes of this section, the "general area of the project" means an area within driving distance for a family that might reasonably be expected to use the existing alternative site, if the proposed recreational site were not constructed.

SECTION 65

The Small Watershed project law, known as Public Law 566, was established to assist the agricultural areas of our nation. For many years, this program, under the direction of the Soil Conservation Service in the Department of Agriculture, retained that agricultural focus.

However, in recent years the Committee has become concerned that an increasing number of the projects that it has been asked to consider have come to bear little resemblance to agricultural problems. Projects are being developed by the SCS that are heavily urban in benefits, or heavily recreational. The Committee believes that this was not the intent of Public Law 566.

In an effort to assure that the program continues as it was intended, this section prohibits the Committees of Public Works of the Congress from considering any Public Law 566 project that fails to have clearly defined agricultural benefits of at least 20 percent of the project's total benefits.

SECTION 66

This section directs the Secretary of Agriculture to study and report to the Congress on the problems involving the lack of public access to lakes built with public funds uder Public Law 566 and to make recommendations on how greater access might be assured.

A typical small watershed project under Public Law 566 may involve the construction of many small dams and reservoirs. Though many or all may be stocked with fish as an aspect of the project, it is quite normal that all or most of these lakes are closed to the public. In effect, public funds are used to build private lakes, even in connection with private housing developments and golf courses. In an effort to develop a consistent national policy that protects the interest of the

taxpayers who helped to pay for these facilities, the Committee directs the Secretary to make a study to determine how public access can be facilitated.

The Public Law 566 program has largely been an ignored, stepchild of the Congress. It is the Committee's intention to undertake a major oversight review of the Public Law 566 program, in cooperation with other interested committees, as soon as practicable. This report would aid in that review.

SECTION 67

The Committee has authorized all funds in the bill for fiscal year 1978 and beyond. No fiscal year 1977 funds have been authorized. Hence, the bill will not place any new, unanticipated demands for funds upon the ceilings established by the Second Budget Concurrent Resolution for fiscal year 1977. This Resolution assumed no funding in fiscal year 1977 for the programs authorized in this bill other than approximately $2 million in budget authority that has already been appropriated, or use of funds under general study authorities.

Committee Views

After thorough review and consideration of each section of the bill, it is the Committee's view that each of the new projects authorized, each of the modifications made in previously authorized projects, as well as the changes in substantive policy, are justified on the record established before the Committee. While questions were raised on the propriety of including a number of modification and mitigation directives to the Corps of Engineers, it is the belief of the Committee that the adjustments recommended are in keeping with long-standing Congressional policy and that the requested amendments are beneficial to the Nation as well as the areas directly affected.

The actions of the Committee were based on an examination of the facts in each case. Different responses are the natural result of differing situations. Rather than make determinations based on broad classifications or statements narrowly defining "special interest", the Committee took what it believed to be justified corrective action necessistated by errors in original authorizations, program administration or project execution.

The bill, as reported, deals fairly with the people, States and regions of the Nation, and the legislation as reported represents a wise investment in our water resources.

It is the Committee's recommendation that the bill be adopted.

Hearings

Provisions of this legislation, exclusive of Locks and Dam 26, were addressed in fourteen days of hearings in Washington in May, June, July, and August of this year. The issue of Locks and Dam 26 was considered in five days of hearings in June and July. In addition, the Water Resources Subcommittee held one-day field hearings in Oklahoma in April and New York in June to determine whether certain projects in those States should be included in the legislation.

Cost of Legislation

Section 252(a)(1) of the Legislative Reorganization Act of 1970 requires publication in this report of the Committee's estimate of the costs of the reported legislation, together with estimates prepared by any Federal agency. Estimates of the cost of activities authorized by the bill were prepared by the Corps of Engineers in preparation of the project document and were accepted by the Committee in authorizing the project. This bill authorizes the Corps to plan, construct, modify or otherwise participate in the provision of flood control, navigation, water conservation, and other water resource development projects representing an estimated Federal cost of $1,112,000,000.

Section 403 of the Congressional Budget and Impoundment Control Act requires each bill to contain a statement of the cost of such bill prepared by the Congressional Budget Office. Because of time factors involved in filing this report so as to provide time for Senate consideration before adjournment, this report does not contain the cost estimate. The Congressional Budget Office is preparing a report which will be available to Members prior to consideration of this bill.

Rollcall Votes

The Committee conducted seven rollcall votes during the consideration of this legislation. Three of those votes were conducted in the Subcommittee on Water Resources. Pursuant to section 133 of the Legislative Reorganization Act of 1970 and the Rules of Committee on Public Works, these votes are announced here.

On September 8, 1976, during consideration of this bill by the Subcommittee on Water Resources, Senator Burdick moved to strike item 5(user charges) from the proposal of Senator Domenici on Locks and Dam 26. This motion was defeated, 4–5 with Senators Bentsen, Burdick, Gravel and Morgan voting in the affirmative and Senators Culver, Domenici, Hart of Colorado, McClure, and Stafford voting in the negative.

Senator Hart moved during Subcommittee consideration to defer any action by the Subcommittee on Locks and Dam 26 until February 1, 1977. This motion failed, 1–7 with Senator Hart voting in the affirmative and Senators Bentsen, Burdick, Culver, Domenici, Gravel, McClure, and Morgan voting in the negative.

The last rollcall vote taken in Subcommittee was on Senator Domenici's motion to authorize the replacement of Locks and Dam 26 with user charges, study of alternatitve rehabilitation proposal and Upper Mississippi River studies. The motion carried, 7–1 with Senators Burdick, Culver, Domenici, Gravel, McClure, Morgan, and Stafford voting in the affirmative and Senator Hart of Colorado voting in the negative.

During full Committee consideration, Senator Domenici offered a substitute proposal to the Burdick amendment which authorized the National Transportation Policy Study Commission to study user charges and report by January 15, 1978, and modified bill language on user charges to require regulations be submitted by January 15, 1978. Substitute agreed to by vote of 9–4, with Senators Baker, Buckley, Culver, Domenici, Gravel, Hart, McClure, Muskie, and Stafford voting in the affirmative and Senators Bentsen, Burdick, Morgan and Randolph voting in the negative

Subsequently, Senator Hart of Colorado moved to defer action on Locks and Dam 26 until February 1, 1977. This motion failed, 3–7 with Senators Hart, Muskie, and Randolph voting in the affirmative and Senators Baker, Burdick, Culver, Domenici, Gravel, McClure and Morgan voting in the negative.

Senator Hart moved during full Committee consideration to sever the Locks and Dam 26 authorization from this bill and report it as a

separate bill. This motion failed, 2–8 with Senators Hart and Randolph voting in the affirmative and Senators Baker, Buckley, Burdick, Culver, Domenici, Gravel, McClure, and Muskie voting in the negative.

Senator Gravel moved to report the bill. The motion carried 11–1 with Senators Baker, Bentsen, Buckley, Culver, Domenici, Gravel, McClure, Morgan, Muskie, Randolph, and Stafford voting in the affirmative and Senator Hart voting in the negative.

SUPPLEMENTAL VIEWS OF MR. HART OF COLORADO

My objections to S. 3823 stem primarily from the Committee's decision to authorize the Army Corps of Engineers to build a brand new expanded Locks and Dam 26 rather than repair the existing structure at Alton, Illinois. This project has been the focus of national debate for a number of years.

The Committee has left unanswered a number of important questions and has proceeded as if there were some reason to rush this project.

There is no rush. S. 3823 is an authorization for fiscal year 1978. The funds authorized cannot be spent for a full year. There is plenty of time to answer serious questions before going ahead with this project.

The chief controversies clouding this issue are:

(1) The soundness of the existing structure.

(2) The cost and feasibility of rehabilitating the existing structure. structure.

(3) The estimated capacity of the existing structure and the estimates of future capacity demands.

In these remarks, I will only mention the equally important issues of the environmental impacts of this project and the effects of competing transportation modes. These and related controversies also deserve more attention before proceeding with the Locks and Dam 26 question.

1. Soundness of the existing structure.—There are a number of components of the existing facility which are in need of repair, including the scour hole in the stilling basin. Nevertheless, the Corps has found that both the dam and the two locks are in good condition. A variety of Corps reports bear this fact out:

> The lock had experienced excessive movements. It would appear, however, that the remedial efforts undertaken in 1970 have been successful in halting these excessive movements. (1974 Corps report).
>
> . . . there is no evidence of imminent structural failure nor evidence that the dam is not performing its function. (Corps report in December of 1975).
>
> The dam which is pile-supported, is surprisingly free of any cracking or signs of deterioration. (Corps report in September of 1974).

In addition, the Illinois Department of Transportation has completed its own study of the existing facility and concluded that the facility appears to be structurally sound.

2. The cost and feasibility of rehabilitating the existing structure.—The Corps claims that the cost of rehabiltation of the existing dam and two locks is equal to or greater than the cost of building the proposed

new facility several miles downstream. The Corps estimate for repair is over $400 million.

But, the Corps' cost estimates for repair have been disputed by both the Illinois Department of Transportation and the Western Railroad Association. Both the Illinois DOT and the WRA have submitted complete rehabilitation proposals at an estimated cost of between $46 million and $60 million—a mere fraction of the cost as estimated by the Corps.

While this issue is by no means the only important challenge to the Corps proposal, it is perhaps the easiest one to investigate. I suspect that I am not the only Subcommittee member who was at a loss to reconcile the three conflicting engineering proposals and cost estimates. In what must be acknowledged as a commendably honest admission of the Subcommittee's inability to reconcile this issue, the Subcommittee Chairman and Ranking Minority Member requested, on July 1, 1976, that the General Accounting Office review the three conflicting engineering proposals in terms of both engineering feasibility and cost. The GAO retained the engineering firm of Tippetts-Abett-McCarthy-Straton (TAMS) to carry out this request.

As of this date, the GAO investigation has not been concluded. In a September 10, 1976 letter to Senator Gaylord Nelson, the Acting Comptroller General, Robert F. Keller stated:

> In summary, TAMS has not completed its review; additional information has been obtained which must be evaluated; no final conclusions have been reached; and the work will not be completed by September 30, 1976, as originally planned. TAMS expects to have a final report ready for our release by October 31, 1976.

Nevertheless, with the hard data on these three proposals conspicuously absent, the Committee has gone ahead with an authorization for the replacement facility without waiting for the GAO report.

3. Estimated capacity of the existing structure and the estimates of future capacity demands.—After the question of the cost of rehabilitation versus the cost of replacement, perhaps the second largest controversy is the question of capacity and demand. Simply put, what is the capacity of the existing facility and what is the anticipated demand?

In addition to forming the basis of the benefit analysis of the proposed replacement project, these figures are used to justify the importance of immediate authorization of the project.

According to the Corps, traffic volume through Locks and Dam 26, in 1975, was 54 million tons, the capacity of the facility is 73 million tons, the volume of traffic in 1985 will be 86 million tons, and traffic volume in 2035 will be 192 million tons.

These figures have been disputed by a wide range of expert witnesses including the U.S. Department of Transportation, the Western Railroad Association, and several expert transportation economists.

First, the alleged present capacity of the two locks of 73 million tons has been challenged as too low. It was suggested in testimony before the Committee that a number of improvements in operating procedure could increase this number far beyond the anticipated 1985 demand.

Second, the short and long range forecasts of demand are disputed as being far too high both by the U.S. Department of Transportation and by other experts.

There are a number of examples cited to bear this out, but most often cited is the projection for coal and residual fuel oil. The Corps projects that the movement of these two commodities through Locks and Dam 26 will increase from 8.4 million tons in 1973 to 33 million tons in 1985.

This forecast was made before the radical price increases in fuel oil and ignores the fact that the movement of these two commodities through the facility has actually *declined* over the past several years.

With the increasing availability of Western coal, which will not travel through Locks and Dam 26, and considering the price increases for fuel oil which have occurred since the commodity forecast was made, it has been estimated by several economists that the movement of these two commodities through this facility will total, at a maximum, 11 million tons in 1985, a far cry from the Corps estimate of 33 million tons.

To the extent that these projections are incorrect, the calculation of annual benefits will also be incorrect. The Illinois DOT estimates that the Corps has exaggerated the annual benefits on this project by over 1000 percent.

In addition to these three areas of controversy, at issue are the adequacy of the Corps' assessment of the impact of the proposed new facility on competing transportation modes, and the adequacy of the Final Environmental Impact Statement.

With respect to the environmental impacts, the Council on Environmental Quality, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and a wide range of state agencies have indicated that their environmental concerns have not yet been satisfactorily resolved.

Until all of these controversies are settled, the Congress would be irresponsible in authorizing this project. The search for this information ought to *precede* authorization, not follow it, as the Committee would do.

GARY HART.

CHANGES IN EXISTING LAW

In the opinion of the Committee, it is necessary to dispense with the requirement of subsection (4) of rule XXIX of the Standing Rules of the Senate in order to expedite the business of the Senate.

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S. 3823

Ninety-fourth Congress of the United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Monday, the nineteenth day of January, one thousand nine hundred and seventy-six

An Act

Authorizing the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 101. (a) The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized to undertake the phase I design memorandum stage of advanced engineering and design of the following water resources development projects, substantially in accordance with, and subject to the conditions recommended by the Chief of Engineers in, the reports hereinafter designated.

MIDDLE ATLANTIC COASTAL REGION

The project for beach erosion control, navigation, and storm protection from Hereford Inlet to the Delaware Bay entrance to the Cape May Canal, New Jersey: Report of the Chief of Engineers dated September 30, 1975, at an estimated cost of $2,062,000.

The project for beach erosion control, navigation, and storm protection from Barnegat Inlet to Longport, New Jersey: Report of the Chief of Engineers dated October 24, 1975, at an estimated cost of $2,396,000.

WALLKILL RIVER BASIN

The project for flood control of the Black Dirt Area, Wallkill River, New York and New Jersey: House Document Numbered 94–499, at an estimated cost of $330,000.

PASSAIC RIVER BASIN

The project for flood control in the Passaic River Basin, New Jersey and New York: Report of the Chief of Engineers dated February 18, 1976, at an estimated cost of $12,000,000.

SUSQUEHANNA RIVER BASIN

The project for flood control at Lock Haven, Pennsylvania: House Document Numbered 94–577, at an estimated cost of $430,000.

The project for flood control at Wyoming Valley, Susquehanna River, Luzerne County, Pennsylvania: House Document Numbered 94–482, at an estimated cost of $450,000.

JAMES RIVER BASIN

The project for flood control at Richmond, Virginia: Report of the Chief of Engineers dated January 7, 1976, at an estimated cost of $800,000.

SOUTH ATLANTIC COASTAL REGION

The project for navigation at Brunswick Harbor, Georgia: Report of the Chief of Engineers dated August 18, 1976, at an estimated cost of $300,000, except that the Secretary of the Army, acting through

the Chief of Engineers, shall include as part of the phase I study consideration of dredging a navigation channel to Colonel's Island.

COOPER RIVER BASIN

The project for navigation improvements at Charleston Harbor, South Carolina: House Document Numbered 94–436, at an estimated cost of $500,000.

COMMONWEALTH OF PUERTO RICO

The project for navigation improvements at San Juan Harbor, Puerto Rico: House Document Numbered 94–574, at an estimated cost of $300,000.

UPPER MISSISSIPPI RIVER BASIN

The project for local flood protection and other purposes at La Crosse, Wisconsin, on the Mississippi River: House Document Numbered 94–598, at an estimated cost of $400,000.

GREAT LAKES BASIN

The project for beach erosion control for Presque Isle Peninsula at Erie, Pennsylvania: Report of the Chief of Engineers dated April 8, 1976, at an estimated cost of $700,000. At the expiration of the authorization provided in section 57 of the Water Resources Development Act of 1974, the Secretary of the Army, acting through the Chief of Engineers, may provide periodic beach nourishment in accordance with the cost sharing provisions of section 103(a)(2) of the Act of October 23, 1962 (76 Stat. 1178).

The project for flood control and other purposes on Little Calumet River in Indiana: Report of the Chief of Engineers dated July 19, 1976, at an estimated cost of $1,400,000.

SIUSLAW RIVER

The project for navigation improvements on the Siuslaw River and Bar at Siuslaw, Oregon: In accordance with the final report of the Chief of Engineers, at an estimated cost of $50,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

PAPILLON CREEK BASIN

The project for local flood protection on Papillon Creek at Omaha, Nebraska: In accordance with the final report of the Chief of Engineers, at an estimated cost of $75,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

OHIO RIVER BASIN

The project for abatement of acid mine drainage in the Clarion River Basin, Pennsylvania: Report of the Secretary of the Army dated April 1971, entitled, "Development of Water Resources in Appalachia", at an estimated cost of $600,000.

LOWER MISSISSIPPI RIVER BASIN

The project for flood protection for St. Johns Bayou and New Madrid Floodway, Missouri: Report of the Chief of Engineers dated September 26, 1975, at an estimated cost of $300,000.

The project for flood protection for Nonconnah Creek, Tennessee and Mississippi: Report of the Chief of Engineers dated June 23, 1976, and as an independent part of this project, improvements for flood control and allied purposes on Horn Lake Creek and tributaries, including Cowpen Creek, Tennessee and Mississippi, at an estimated cost of $400,000.

TEXAS GULF COAST REGION

The project for natural salt pollution control in the Brazos River: Report of the Chief of Engineers dated June 1, 1976, at an estimated cost of $650,000.

RIO GRANDE BASIN

The project for flood control and other purposes, on the Rio Grande and Rio Salado (Rio Puerco), New Mexico: Report of the Chief of Engineers dated September 27, 1976, at an estimated cost of $1,500,000.

MISSOURI RIVER BASIN

The project for flood protection for Jefferson City on Wears Creeks, Missouri: Report of the Chief of Engineers dated October 21, 1975, at an estimated cost of $50,000.

COLUMBIA RIVER BASIN

The project for construction and installation of a second powerhouse at McNary Lock and Dam, Columbia River, Oregon and Washington: Report of the Chief of Engineers dated June 29, 1976, at an estimated cost of $1,800,000.

PEMBINA RIVER BASIN

The project for flood control on the Pembina River at Walhalla, North Dakota: Report of the Division Engineer dated May 24, 1976, at an estimated cost of $930,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

CALLEGUAS CREEK BASIN

The project for flood control and other purposes on Calleguas Creek, Simi Valley to Moorpark, Ventura County, California: Report of the Chief of Engineers dated June 21, 1976, at an estimated cost of $1,060,000.

SACRAMENTO-SAN JOAQUIN BASIN

The project for flood control and other purposes on Morrison Creek Stream Group, California: Report of the Chief of Engineers dated March 2, 1976, at an estimated cost of $750,000.

NORTH-EASTERN ATLANTIC COASTAL REGION

The project for navigation improvements in New London Harbor and Thames River at New London, Connecticut: Report of the Chief

of Engineers dated February 20, 1975, at an estimated cost of $8,022,000.

RED RIVER OF THE NORTH BASIN

The project for local flood protection at Grafton, North Dakota, on the Park River: Report of the Chief of Engineers dated June 11, 1976, at an estimated cost of $10,973,000.

(b) The Secretary of the Army is authorized to undertake advanced engineering and design for the projects in subsection (a) of this section after completion of the phase I design memorandum stage of such projects. Such advanced engineering and design may be undertaken only upon a finding by the Chief of Engineers, transmitted to the Committees on Public Works of the Senate and Public Works and Transportation of the House of Representatives, that the project is without substantial controversy, that it is substantially in accordance with and subject to the conditions recommended for such project in this section, and that the advanced engineering and design will be compatible with any project modifications which may be under consideration. There is authorized to carry out this subsection not to exceed $5,000,000. No funds appropriated under this subsection may be used for land acquisition or commencement of construction.

(c) Whenever the Chief of Engineers transmits his recommendations for a water resources development project to the Secretary of the Army for transmittal to the Congress, as authorized in the first section of the Act of December 22, 1944, the Chief of Engineers is authorized to undertake the phase I design memorandum stage of advanced engineering and design of such project if the Chief of Engineers finds and transmits to the Committees on Public Works and Transportation of the House of Representatives and Public Works of the Senate, that the project is without substantial controversy and justifies further engineering, economic, and environmental investigations. Authorization for such phase I work for a project shall terminate on the date of enactment of the first Water Resources Development Act enacted after the date such work is first authorized. There is authorized to carry out this subsection not to exceed $4,000,000 per fiscal year for each of the fiscal years 1978 and 1979.

SEC. 102. Sections 201 and 202 and the last three sentences in section 203 of the Flood Control Act of 1968 shall apply to all projects authorized in this section. The following works of improvement for the benefit of navigation and the control of destructive floodwaters and other purposes are hereby adopted and authorized to be prosecuted by the Secretary of the Army, acting through the Chief of Engineers, substantially in accordance with the plans and subject to the conditions recommended by the Chief of Engineers in the respective reports hereinafter designated.

UPPER MISSISSIPPI RIVER BASIN

The project for local flood protection and other purposes at Chaska, Minnesota, on the Minnesota River: Report of the Chief of Engineers dated May 12, 1976, at an estimated cost of $10,498,000.

JAMES RIVER BASIN

The project for flood control at the Richmond, Virginia, filtration plant: House Document Numbered 94–543, at an estimated cost of $4,617,000.

LOWER MISSISSIPPI RIVER BASIN

The project for flood control for Harris Fork Creek, Tennessee and Kentucky: House Document Numbered 94–221, except that highway bridge relocations and alterations required for the project shall be at Federal expense, at an estimated cost of $5,000,000.

NECHES BASIN

The project for salt water control on the Neches River and Tributaries, Salt Water Barrier at Beaumont, Texas: Report of the Chief of Engineers dated April 12, 1976, at an estimated cost of $14,300,000, except that the non-Federal share for such project shall not exceed $2,100,000.

WESTERN COASTAL REGION

The project for navigation in Los Angeles-Long Beach Harbors, California: House Document Numbered 94–594, at an estimated cost of $16,850,000.

COLUMBIA RIVER BASIN

Fish and Wildlife Compensation Plan for the Lower Snake River, Washington and Idaho, substantially in accordance with a report on file with the Chief of Engineers, at an estimated cost of $58,400,000.

SEC. 103. The flood control project for San Antonio Channel improvement, Texas, authorized by section 203 of the Flood Control Act of 1954 (68 Stat. 1260) as a part of the comprehensive plan for flood protection on the Guadalupe and San Antonio Rivers, Texas, is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to construct such additional flood control measures as are needed to preserve and protect the Espada Acequia Aqueduct, located in the vicinity of Six Mile Creek, at an estimated Federal cost of $2,050,000. Construction of such flood control measures shall be subject to the same conditions of local cooperation as required for the existing flood control project.

SEC. 104. The project for flood protection on the Minnesota River at Mankato and North Mankato, Minnesota, authorized by section 203 of the Flood Control Act of 1958, as modified, is hereby further modified to provide that changes to the highway bridges in Mankato-North Mankato at United States Highway 169 over the Blue Earth River and at Main Street over the Minnesota River, including rights-of-way, changes to approaches and relocations, made necessary by the project and its present plan of protection shall be accomplished at complete Federal expense, at an estimated cost of $8,175,000.

SEC. 105. The general comprehensive plan for flood control and other purposes for the White River Basin approved by the Flood Control Act of June 28, 1938, as amended, is hereby modified to provide that an amount not to exceed $6,000,000 may be used for the construction at Beaver Dam, Carroll County, Arkansas, of trout production measures (including a fish hatchery) in compensation for the reduced number of fresh water fish in the White River and other streams in Arkansas which has resulted from the construction of the Beaver Dam and other dams in the State of Arkansas, and for the acquisition of necessary real estate, construction of access roads and utilities, and performance of services related thereto, as deemed appropriate by the Secretary of the Army, acting through the Chief of Engineers.

SEC. 106. (a) The project for hurricane-flood control protection at New London, Connecticut, authorized by the Flood Control Act of 1962 (76 Stat. 1180) is hereby modified to delete the Powder Island-Bentleys Creek hurricane protection barrier; and to authorize construction of the Shaw Cove hurricane protection barrier, pressure conduit, and pumping station works substantially in accordance with the revised plan "New London Hurricane Protection", dated June 1976, on file in the Office of the Chief of Engineers and estimated to cost $7,745,000; with such modifications as the Chief of Engineers may deem advisable.

(b) Prior to initiation of construction of the project, appropriate non-Federal interests shall agree—

(1) to provide without cost to the United States all lands, easements, and rights-of-way necessary for construction and operation of the project;

(2) to hold and save the United States free from damage due to construction, operation, and maintenance of the project not including damages due to the fault or negligence of the United States or its contractors;

(3) to accomplish without cost to the United States all modifications or relocations of existing sewerage and drainage facilities, buildings, utilities, and highways made necessary by construction of the project not to include sewerage and drainage facilities at the line of protection;

(4) to maintain and operate all features of the project after completion in accordance with regulations prescribed by the Secretary of the Army; and

(5) to bear 30 per centum of the total first cost.

(c) Notwithstanding subsection (b) of this section, or any other provision of law, non-Federal interests shall bear no part of the cost of any design for this project rejected or otherwise not accepted by such interests prior to the date of enactment of this section.

SEC. 107. Section 107(b) of the River and Harbor Act of 1970 (84 Stat. 1818, 1820), as amended, is further amended by striking out "December 31, 1976" and inserting in lieu thereof "September 30, 1979" and striking out "$9,500,000" and inserting in lieu thereof "$15,968,000". Such section 107(b) is further amended in the second sentence thereof by striking out "environmental and ecological investigation;" and inserting in lieu thereof "environmental and ecological investigations, including an investigation of measures necessary to ameliorate any adverse impacts upon local communities;".

SEC. 108. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the Chicagoland underflow plan project for flood control and other purposes in accordance with the report of the Board of Engineers for Rivers and Harbors dated July 27, 1976, at an estimated cost of $12,000,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 109. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project for flood control and other purposes on the Santa Ana River, California, in accordance with the recommendations of the division engineer dated February 27, 1976 at an estimated cost of $700,000. This shall take

effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 110. The project for navigation for the Atlantic Intracoastal Waterway Bridges, Virginia and North Carolina, authorized by section 101 of the Rivers and Harbors Act of 1970 (84 Stat. 1818) is hereby modified in accordance with the recommendations of the Chief of Engineers in House Document Numbered 94–597 with respect to Wilkerson Creek Bridge, North Carolina, and Coinjock Bridge, North Carolina, at an estimated cost of $2,875,000.

SEC. 111. The project for the Saylorville Reservoir on the Des Moines River, Iowa, authorized by section 203 of the Flood Control Act of 1958 (72 Stat. 310) is hereby modified in accordance with the recommendations of the Chief of Engineers in House Document Numbered 94–487 at an estimated cost of $7,374,000. The Secretary of the Army, acting through the Chief of Engineers, may carry out each segment of such recommendations independently if he deems appropriate. The Secretary of the Army, acting through the Chief of Engineers is further authorized to (1) undertake such measures, including renegotiating existing easements and the acquisition of additional interests in land, as are appropriate to operate Saylorville Lake and Lake Red Rock projects, singly or as a system, to obtain the maximum benefits therefrom in the public interest and to properly indemnify owners of such easements or interests in land; and (2) provide for the full development of campground and other recreation sites and access thereto for the Lake Red Rock and Saylorville Lake projects at Federal cost, including the improvement of existing county or State roads outside the project limits to provide better access into recreation areas.

SEC. 112. The project for navigation improvements on Mobile Harbor, Theodore Ship Channel, Alabama, approved by resolutions of the Committee on Public Works of the Senate and the Committee on Public Works of the House of Representatives dated December 15, 1970, is hereby modified in accordance with the report of the Board of Engineers for Rivers and Harbors dated May 28, 1976, at an estimated cost of $42,800,000.

SEC. 113. The flood control project for Del Valle Reservoir, Alameda Creek, California, authorized by section 203 of the Flood Control Act of 1962 is hereby modified in accordance with the report of the Chief of Engineers dated July 27, 1976, to increase the contribution made by the United States to the State of California toward the cost of construction, maintenance, and operation from $4,080,000 to $4,650,000.

SEC. 114. The project for the replacement of Vermilion Lock, Louisiana, on the Gulf Intracoastal Waterway is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in the report dated August 3, 1976, at an estimated cost of $20,683,000.

SEC. 115. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of modification of the Gallipolis Locks and Dam project, Ohio River, limited to a single 1,200 foot replacement lock, in accordance with the recommendations of the Chief of Engineers dated July 14, 1975, at an estimated cost of $2,800,000.

SEC. 116. The last sentence of section 91 of the Water Resources Development Act of 1974 (88 Stat. 39) is amended to read as follows:

"There are authorized to be appropriated not to exceed $28,725,000 to carry out such project.".

SEC. 117. The Secretary of the Army, acting through the Chief of Engineers, is authorized to investigate and study, in cooperation with interested States and Federal agencies, through the Upper Mississippi River Basin Commission the development of a river system management plan in the format of the "Great River Study" for the Mississippi River from the mouth of the Ohio River to the head of navigation at Minneapolis, incorporating total river resource requirements including, but not limited to, navigation, the effects of increased barge traffic, fish and wildlife, recreation, watershed management, and water quality at an estimated cost of $9,100,000.

SEC. 118. (a) Whenever the Secretary of the Army finds that—

(1) the Intracoastal Waterway is no longer routed along a part of the segment of the Louisiana-Texas Intracoastal Waterway right-of-way described in subsection (b) of this section;

(2) maintenance of such part of the right-of-way has been abandoned by the Corps of Engineers; and

(3) such part of the right-of-way is no longer navigable by watercraft;

he shall convey, without monetary consideration, any easements or other rights or interests in real property which the United States acquired for the construction, operation, or maintenance of such part of the right-of-way to each owner of record of the real property which is subject to such easements, rights, or interests of the United States.

(b) The segment of the Louisiana-Texas Intracoastal Waterway right-of-way referred to in subsection (a) of this section is that segment of the right-of-way for the Louisiana-Texas Intracoastal Waterway, Calcasieu-Sabine section, which (1) is within the portion of the right-of-way for the old Intracoastal Waterway channel (known locally as the "East-West Canal") extending from the east bank of the Calcasieu River at a point approximately twenty miles south of Lake Charles, Louisiana, to the Choupique Cutoff in the Intracoastal Waterway, and (2) is located on the southeast quarter of the southeast quarter of section 25, township 11 south, range 10 west, and in the west half of the southwest quarter of section 30, township 11 south, range 9 west, Calcasieu Parish, Louisiana.

SEC. 119. Section 4 of the Act of June 21, 1940, as amended (54 Stat. 498; 33 U.S.C. 514), is amended in the first sentence by striking out "It shall be the duty of the bridge owner to prepare and submit to the Secretary, within ninety days after service of his order" and inserting in lieu thereof "After the service of an order under this Act, it shall be the duty of the bridge owner to prepare and submit to the Secretary of Transportation, within a reasonable time as prescribed by the Secretary".

SEC. 120. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized to contract with States and their political subdivisions for the purpose of obtaining increased law enforcement services at water resources development projects under the jurisdiction of the Secretary of the Army to meet needs during peak visitation periods.

(b) There is authorized to be appropriated $6,000,000 per fiscal year for the fiscal years ending September 30, 1978, and September 30, 1979, to carry out this section.

SEC. 121. (a) The project for flood protection on the North Branch of the Susquehanna River, New York and Pennsylvania, authorized

by section 203 of the Flood Control Act of 1958 (72 Stat. 306) is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, in connection with the construction of the Cowansque Dam to relocate the town of Nelson, Pennsylvania, to a new townsite.

(b) As part of such relocation, the Secretary of the Army, acting through the Chief of Engineers, shall (1) cooperate in the planning of a new town with other Federal agencies and appropriate non-Federal interests, including Nelson, (2) acquire lands necessary for the new town and to convey title to said lands to individuals, business or other entities, and to the town as appropriate, and (3) construct necessary municipal facilities.

(c) The compensation paid to any individual or entity for the taking of property under this section shall be the amount due such individual or entity under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 less the fair market value of the real property conveyed to such individual or entity in the new town. Municipal facilities provided under the authority of this section shall be substitute facilities which serve reasonably as well as those in the existing town of Nelson, except that such facilities shall be constructed to such higher standards as may be necessary to comply with applicable Federal and State laws. Additional facilities may be constructed, only at the expense of appropriate non-Federal interests.

(d) Before the Secretary of the Army acquires any real property for the new townsite appropriate non-Federal interests shall furnish binding contractual commitments that all lots in the new townsite will be either occupied when available, will be replacements for open space and vacant lots in the existing town, or will be purchased by non-Federal interests at the fair market value.

SEC. 122. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to review the requirement of local cooperation with respect to providing a spoil disposal area for the project at Deep Creek, Warwick County (now within the city of Newport News), Virginia, authorized by the Act of August 26, 1937 (commonly referred to as the River and Harbor Act of 1937, 50 Stat. 846), to determine if (1) such requirement should be eliminated, and (2) Craney Island disposal area should be used as the spoil disposal area for dredged material from such project. Such review shall be completed and submitted in a report to Congress within two years after the date of enactment of this section.

(b) Beginning on the date of enactment of this section, (1) the requirement of local cooperation described in subsection (a) shall be suspended, and (2) Craney Island disposal area shall be used as the spoil disposal area for dredged material from such project, until Congress, by a statute enacted after the date on which the report required by subsection (a) is submitted, removes such suspension.

SEC. 123. The Secretary of the Army, acting through the Chief of Engineers, is authorized to operate and maintain the Los Angeles-Long Beach harbor model in Vicksburg, Mississippi, for the purpose of testing proposals for the improvement of navigation in, and the environmental quality of, the harbor waters of the ports of Los Angeles and Long Beach to determine optimum plans for future expansion of both ports. Such testing shall include, but not be limited to, investigation of oscillations, tidal flushing characteristics, water quality, improvements for navigation, dredging, harbor fills, and physical structures.

SEC. 124. (a) The Corpus Christi ship canal project for navigation in Corpus Christi Bay, Texas, authorized by the Rivers and Harbors Act of 1968 (P.L. 90–483) is hereby modified to provide that the non-Federal interests shall contribute 25 per centum of the costs of areas required for initial and subsequent disposal of spoil, and of necessary retaining dikes, bulkheads, and embankments therefor. Credit shall be allowed in connection with the above project in an amount equal to the reasonable expenditures made by non-Federal interests in the acquisition of spoil areas and construction of necessary retaining dikes, bulkheads, and embankments prior to the effective date of the Water Resources Development Act of 1976.

(b) The requirements for appropriate non-Federal interests to contribute 25 per centum of the construction costs as set forth in subsection (a) shall be waived by the Secretary of the Army upon a finding by the Administrator of the Environmental Protection Agency that for the area to which such construction applies, the State of Texas, interstate agency, municipality, and other appropriate political subdivisions of the State and industrial concerns are participating in and in compliance with an approved plan for the general geographical area of the dredging activity for construction, modification, expansion, or rehabilitation of waste treatment facilities and the Administrator has found that applicable water quality standards are not being violated.

SEC. 125. For the purposes of section 9 of the Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 401), the consent of Congress is hereby given to the State of Louisiana to construct such structures across any navigable water of the United States as may be necessary for the construction of the following highways:

(1) Ivanhoe-Jeanerette, State project numbered 431–01–01 and 431–01–02 in Iberia and Saint Mary Parishes, Louisiana;

(2) Larose-Lafitte Highway, State Route La 3134 in Jefferson and Lafourche Parishes, Louisiana, starting at Estelle in Jefferson Parish and proceeding southwesterly to Larose in Lafourche Parish; and

(3) United States 90 Relocated (La 3052), in Saint Mary, Assumption, Terrebonne, and Lafourche Parishes, Louisiana, starting at United States 90 west of Raceland and proceeding westerly to a connnection with United States 90 at or near Morgan City, Louisiana.

SEC. 126. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of a project for flood prevention and development of incidental recreation, preservation of the natural floodways, and protection of the watershed's soil resources, at an estimated cost of $370,000, substantially in accordance with the Floodwater Management Plan, North Branch of the Chicago River Watershed, Cook and Lake Counties, Illinois, dated October 1974, and also substantially in accordance with the watershed implementation program dated February 1974.

SEC. 127. The project for Wister Lake, Arkansas River Basin, Oklahoma, authorized by section 4 of the Act of June 28, 1938, entitled "An Act authorizing the construction of certain public works on rivers and harbors for flood control, and for other purposes" (52 Stat. 1218) is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to recover and preserve important data from significant archeological sites located on project lands which will be adversely affected as a result of a change in seasonal pool operations. The costs of such work shall not exceed $250,000.

SEC. 128. (a) The Secretary of the Army is authorized and directed to convey by quitclaim deed to C. B. Porter Scott and Dorothy Boren

Scott of the county of Randall, State of Texas, all rights, title, and interest of the United States in and to the following described tract of land acquired as part of the project for Belton Lake, Texas, authorized by the Flood Control Act of 1946:

A tract of land situated in the county of Bell, State of Texas, being part of the Stephen P. Terry Survey (A–812), and being part of a 271-acre tract of land acquired by the United States of America from Frank Morgan, and others, by Declaration of Taking filed September 11, 1952, in Condemnation Proceedings (civil numbered 1311) in the District Court of the United States for the Western District of Texas, Waco Division, and being designated as "Tract Numbered F–505 for Belton Lake", and being more particularly described as follows, all bearings being referred to the Texas Plane Coordinate System, Central Zone:

Beginning at Government marker numbered F–503–2, situated in a northeasterly boundary line for said tract numbered F–505 for the point of beginning, said point of beginning being the southeast corner for a 0.25 acre tract of land acquired by the United States of America from Edward Cameron, et ux, by deed dated January 13, 1953, and recorded in volume 679 at page 456 and by correction deed dated May 25, 1955, and recorded in volume 722 at page 550 of the deed records of Bell County, Texas, and being designated as "Tract Numbered F–503 for Belton Lake", said point of beginning also being located south 74 degrees 21 minutes east, 38.3 feet from a point on top of the bluff for a re-entrant corner for said tract numbered F–505;

thence along the boundary line for said tract numbered F–505 as follows: south 74 degrees and 21 minutes east, 271.70 feet to a point;

thence south 45 degrees 14 minutes west, 154.5 feet to a point;

thence south 28 degrees 09 minutes east, 185 feet to a point;

thence north 73 degrees 45 minutes west, 324.23 feet to Government marker numbered A–65–9 for a northeast corner for a 79.70-acre tract of land acquired by the United States of America from Eleanor M. Paulk, and others, by deed dated July 28, 1952, and recorded in volume 672 at page 233 of the deed records of Bell County, Texas, and being designated as "Tract Numbered A–65 for Belton Lake";

thence departing from the boundary line for said tract numbered F–505, north 27 degrees 53 minutes west, 169.85 feet to a point;

thence north 55 degrees 26 minutes east, 184 feet more or less, to the point of beginning, containing 1.87 acres, more or less.

(b) The grantees shall, as a condition to the conveyance authorized by subsection (a), pay to the United States an amount equal to the sum originally paid by the United States for the tract of land described in subsection (a) of this section.

SEC. 129. (a) The project for Blue Marsh Lake, Berks County, Pennsylvania, a part of the plan for the comprehensive development of the Delaware River Basin, as authorized by section 201 of the Flood Control Act of 1962 (76 Stat. 1183), is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to relocate and restore intact the historic structure and associated improvements known as the Gruber Wagon Works located on certain Federal lands to be inundated upon completion of the project, at an estimated cost of $922,000.

(b) Upon completion of the relocation and restoration of the Gruber Wagon Works at a site mutually agreeable to the Secretary of the Army and the County of Berks, title to the structure and associated improvements and equipment shall be transferred to the County of Berks upon condition that such county agree to maintain such historic property in perpetuity as a public museum at no cost to the Federal Government.

SEC. 130. The authorized McClellan-Kerr Arkansas River navigation system is hereby modified to provide a nine-foot deep navigation channel, one hundred feet in width, extending approximately ten miles from the McClellan-Kerr navigation sailing line upstream on the Big Sallisaw Creek and Little Sallisaw Creek to and including a turning basin, near United States Highway 59, in a location generally conforming to Site I, as described in the Tulsa District Engineer's Project Formulation Memorandum entitled "Big and Little Sallisaw Creeks, Oklahoma, Section 107 Navigation Project" dated August 1973, at an estimated cost of $1,200,000.

SEC. 131. (a) The first sentence of section 201(a) of the Flood Control Act of 1965 (Public Law 89–298) is amended by striking out "$10,000,000." and inserting in lieu thereof "$15,000,000.".

(b) Section 201(b) of such Act is amended by striking out "$10,000,000" and inserting in lieu thereof "$15,000,000".

SEC. 132. The project for flood protection on the Souris River at Minot, North Dakota, approved by resolutions of the Committee on Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives under authority of section 201 of the Flood Control Act of 1965 (42 U.S.C. 1962–5), and modified by section 105 of the Water Resources Development Act of 1974 (88 Stat. 42), is hereby further modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to reimburse the designated non-Federal interest for the estimated additional expense (exceeding that set forth in such section 105) incurred by such non-Federal interest in undertaking its required cooperation for the proposed channel realinement in the downstream area of the project near Logan, North Dakota, except that such reimbursement shall not exceed $250,000.

SEC. 133. (a) Subsection (b) of section 107 of the River and Harbor Act of 1960 (74 Stat. 480) is further amended by striking out "$1,000,000" and inserting in lieu thereof "$2,000,000".

(b) Section 61 of the Water Resources Development Act of 1974 (88 Stat. 12) is amended as follows:

(1) By striking out "$1,000,000" and inserting in lieu thereof "$2,000,000".

(2) By striking out "$2,000,000" and inserting in lieu thereof "$3,000,000".

(c) The amendments made by this section shall not apply to any project under contract for construction on the date of enactment of the Water Resources Development Act of 1976.

SEC. 134. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed within ninety days after enactment of this Act to institute a procedure enabling the engineer officer in charge of each district under the direction of the Chief of Engineers to certify, at the request of local interests, that particular local improvements for flood control can reasonably be expected to be compatible with a specific, potential project then under study or other form of consideration. Such certification shall be interpreted to assure local interests that they may go forward to construct such compatible

improvements at local expense with the understanding that such improvements can be reasonably expected to be included within the scope of the Federal project, if later authorized, both for the purposes of analyzing the costs and benefits of the project and assessing the local participation in the costs of such project. This subsection shall cease to be in effect after December 31, 1977.

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to include in the survey report on flood protection on Mingo Creek and its tributaries, Oklahoma, authorized by section 208 of the Flood Control Act of 1965, the costs and benefits of local improvements initiated by the city of Tulsa for such flood protection subsequent to January 1, 1975, which the Chief of Engineers determines are compatible with and constitute an integral part of his recommended plan. In determining the appropriate non-Federal share for such project the Chief of Engineers shall give recognition to costs incurred by non-Federal interest in carrying out such local improvements.

SEC. 135. The project for Port San Luis Obispo Harbor, California, authorized by section 301 of the River and Harbor Act of 1965, is hereby modified substantially in accordance with the plan described in the Los Angeles District Engineers report on "Port San Luis, California" dated April 1976, and the conditions of local cooperation specified in subparagraphs 1.a. through 1.o. of appendix 7 thereof, at an estimated cost of $6,040,000.

SEC. 136. (a) The project for flood control on the Napa River, Napa County, California, authorized by section 204 of the Flood Control Act of 1965, is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to acquire approximately 577 acres of land for the purpose of mitigating adverse impacts on fish and wildlife occasioned by the project. The non-Federal share of the cost of such lands shall be the percentage as that required for the overall project.

(b) Such project is further modified to include construction by the Secretary of the Army acting through the Chief of Engineers, of the Napa Creek watershed project of the Soil Conservation Service approved June 25, 1962.

(c) No part of the cost of the modified project authorized by this section shall include the cost of the Secretary of the Army, acting through the Chief of Engineers, performing maintenance dredging for the navigation project for the Napa River.

SEC. 137. The project for flood control in East St. Louis and vicinity, Illinois, authorized by section 204 of the Flood Control Act approved October 27, 1965, is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to construct the Blue Waters Ditch segment of the overall project independently of the other project segments. Prior to initiation of construction of the Blue Waters Ditch segment, appropriate non-Federal interests shall agree, in accordance with the provisions of section 221 of the Flood Control Act of 1970, to furnish non-Federal cooperation for such segment.

SEC. 138. The Secretary of the Army, acting through the Chief of Engineers, shall continue studies and construction of bank protection works pursuant to the project for the Sacramento River, Chico Landing to Red Bluff, California, authorized by the Flood Control Act of 1958, notwithstanding the completion of the remaining ten sites proposed for construction at the time of enactment of this Act.

SEC. 139. The project for Waurika Dam and Reservoir on Beaver Creek, Oklahoma, authorized by the Act of December 30, 1963 (P.L. 88–253), is hereby modified to provide that the interest rate applicable to the repayment by non-Federal interests of the cost of the water conveyance facilities shall be the same as the interest rate established for repayment of the cost of municipal and industrial water supply storage in the reservoir.

SEC. 140. In the case of any authorized navigation project which has been partially constructed, or is to be constructed, which is located in one or more States, and which serves regional needs, the Secretary of the Army, acting through the Chief of Engineers, may include in any economic analysis which is under preparation at the time of enactment of this Act such regional economic development benefits as he determines to be appropriate for purposes of computing the economic justification of the project.

SEC. 141. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to make a study and report which shall include his conclusions and recommendations to the Congress on the advisability and feasibility of providing flood protection by dredging the Susquehanna River in the Wyoming Valley, Pennsylvania, and the surrounding region.

SEC. 142. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to investigate the flood and related problems to those lands lying below the plane of mean higher high water along the San Francisco Bay shoreline of San Mateo, Santa Clara, Alameda, Napa, Sonoma and Solano Counties to the confluence of the Sacramento and San Joaquin Rivers with a view toward determining the feasibility of and the Federal interest in providing protection against tidal and fluvial flooding. The investigation shall evaluate the effects of any proposed improvements on wildlife preservation, agriculture, municipal and urban interests in coordination with Federal, State, regional, and local agencies with particular reference to preservation of existing marshland in the San Francisco Bay region.

SEC. 143. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to make a study in cooperation with the government of the Territory of American Samoa with particular reference to providing a plan for the development, utilization, and conservation of water and related land resources. Such study shall include appropriate consideration of the needs for flood protection, wise use of flood plain lands, navigation facilities, hydroelectric power generation, regional water supply and waste water management facilities systems, general recreation facilities, enhancement and control of water quality, enhancement and conservation of fish and wildlife, and other measures for environmental enhancement, economic and human resources development, and shall be compatible with comprehensive development plans formulated by local planning agencies and other interested Federal agencies.

SEC. 144. The Secretary of the Army, acting through the Chief of Engineers, in cooperation with the State of Hawaii and appropriate units of local government, shall make a study of methods to develop, utilize, and conserve water and land resources in the Hilo Bay Area, Hawaii, and Kailua-Kona, Hawaii. Such study shall include, but not be limited to, consideration of the need for flood protection, appropriate use of flood plain lands, navigation facilities, hydroelectric power generation, regional water supply and waste water manage-

ment facilities systems, recreation facilities, enhancement and conservation of water quality, enhancement and conservation of fish and wildlife, other measures for environmental enhancement, and economic and human resources development. Based upon the findings of such study, the Secretary of the Army, acting through the Chief of Engineers, shall prepare a plan for the implementation of such findings which shall be compatible with other comprehensive development plans prepared by local planning agencies and other interested Federal agencies.

SEC. 145. The Secretary of the Army, acting through the Chief of Engineers, is authorized upon request of the State, to place on the beaches of such State beach-quality sand which has been dredged in constructing and maintaining navigation inlets and channels adjacent to such beaches, if the Secretary deems such action to be in the public interest and upon payment of the increased cost thereof above the cost required for alternative methods of disposing of such sand.

SEC. 146. The project for harbor improvement at Noyo, Mendocino County, California, authorized by the River and Harbor Act of 1962 (76 Stat. 1173), is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to construct such breakwaters as may be needed to provide necessary protection, but not more than two, and to construct such additional channel improvements, including, but not limited to, deepening, widening, and extensions, as he deems necessary to meet applicable economic and environmental criteria.

SEC. 147. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to conduct hydrographic surveys of the Columbia River from Richland, Washington, to Grand Coulee Dam for the purpose of identifying navigational hazards and preparing maps of the river channel at an estimated cost of $500,000, and providing information necessary for establishment of aids to navigation.

SEC. 148. The Secretary of the Army, acting through the Chief of Engineers, shall utilize and encourage the utilization of such management practices as he determines appropriate to extend the capacity and useful life of dredged material disposal areas such that the need for new dredged material disposal areas is kept to a minimum. Management practices authorized by this section shall include, but not be limited to, the construction of dikes, consolidation and dewatering of dredged material, and construction of drainage and outflow facilities.

SEC. 149. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to remove Shooters' Island located north of Staten Island, New York, at the mouth of Arthur Kill and to utilize such removed material for fill and widening of Arthur Kill.

SEC. 150. The Secretary of the Army, acting through the Chief of Engineers, is authorized to plan and establish wetland areas as part of an authorized water resources development project under his jurisdiction. Establishment of any wetland area in connection with the dredging required for such a water resources development project may be undertaken in any case where the Chief of Engineers in his judgment finds that—

(1) environmental, economic, and social benefits of the wetland area justifies the increased cost thereof above the cost required for alternative methods of disposing of dredged material for such project; and

(2) the increased cost of such wetland area will not exceed $400,000; and

(3) there is reasonable evidence that the wetland area to be established will not be substantially altered or destroyed by natural or man-made causes.

(b) Whenever the Secretary of the Army, acting through the Chief of Engineers, submits to Congress a report on a water resources development project after the date of enactment of this section, such report shall include, where appropriate, consideration of the establishment of wetland areas.

(c) In the computation of benefits and cost of any water resources development project the benefits of establishing of any wetland area shall be deemed to be at least equal to the cost of establishing such area. All costs of establishing a wetland area shall be borne by the United States.

SEC. 151. The project for the Chief Joseph Dam authorized by the Act of July 2, 1946 (Public Law 525, 79th Congress) is modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to provide such temporary school facilities as he may deem necessary for the education of dependents of persons engaged in the construction of additional hydroelectric power facilities at Chief Joseph Dam and Reservoir, Washington. When he determines it to be in the public interest, the Secretary, acting through the Chief of Engineers, may enter into cooperative arrangements with local and Federal agencies for the operation of such Government facilities, for the expansion of local facilities at Federal expense, and for contributions by the Federal Government to cover the increased cost to local agencies of providing the educational services required by the Government.

SEC. 152. The Secretary of the Army, acting through the Chief of Engineers, is authorized to participate in the construction of a levee and protective seawall at Liberty Park, New Jersey, at an estimated cost of $12,600,000. Appropriate non-Federal interests shall furnish all necessary lands, easements and rights-of-way necessary for such project and shall contribute 30 per centum of the total cost exclusive of land costs.

SEC. 153. The last sentence under the center heading "ARKANSAS-RED RIVER BASIN" in section 201 of the Flood Control Act of 1970 (84 Stat. 1825) is amended to read as follows: "Construction shall not be initiated on any element of such project until such element has been approved by the Secretary of the Army.".

SEC. 154. The prohibitions and provisions for review and approval concerning wharves and piers in waters of the United States as set forth in section 10 of the Act of March 3, 1899 (30 Stat. 1151) and the first section of the Act of June 13, 1902 (32 Stat. 371) shall not apply to any body of water located entirely within one State which is, or could be, considered to be a navigable body of water of the United States solely on the basis of historical use in interstate commerce.

SEC. 155. (a) Subsection (c) of section 32 of the Water Resources Development Act of 1974 (Public Law 93–251) is amended by striking out the period at the end thereof and inserting in lieu thereof a semicolon and by adding at the end thereof the following:

"(5) the delta of the Eel River, California.

"(6) the lower Yellowstone River from Intake Montana, to the mouth of such river.".

(b) Subsection (e) of such section 32 is amended to read as follows:

"(e) There is authorized to be appropriated not to exceed $50,000,000 to carry out this section.".

SEC. 156. The Secretary of the Army, acting through the Chief of Engineers, is authorized to provide periodic beach nourishment in the case of each water resources development project where such nourishment has been authorized for a limited period for such additional period as he determines necessary but in no event shall such additional period extend beyond the fifteenth year which begins after the date of initiation of construction of such project.

SEC. 157. (a) Section 12(b) of the Water Resources Development Act of 1974 (88 Stat. 17) is amended by striking out "one hundred and eighty" each time it appears and inserting in lieu thereof "ninety".

(b) The amendment made by subsection (a) of this section shall take effect on January 1, 1977.

SEC. 158. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to make a comprehensive study and report on the system of waterway improvements under his jurisdiction. The study shall include a review of the existing system and its capability for meeting the national needs including emergency and defense requirements and an appraisal of additional improvements necessary to optimize the system and its intermodal characteristics. The Secretary of the Army, acting through the Chief of Engineers, shall submit a report to Congress on this study, within three years after funds are first appropriated and made available for the study, together with his recommendations. The Secretary of the Army, acting through the Chief of Engineers, shall, upon request, from time to time make available to the National Transportation Policy Study Commission established by section 154 of Public Law 94–280, the information and other data developed as a result of the study.

SEC. 159. The Marysville Lake project, California, authorized by the Flood Control Act of 1966 (80 Stat. 1405), is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to undertake the phase I design memorandum stage of advanced engineering and design for a multiple-purpose project located at the Parks Bar site, including power development with pumped storage, at an estimated cost of $150,000.

SEC. 160. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project for hydroelectric power on the Susitna River, Alaska, in accordance with the recommendations of the Board of Engineers for Rivers and Harbors in its report dated June 24, 1976, at an estimated cost $25,000,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 161. Section 32 of the Water Resources Development Act of 1974 (88 Stat. 12) is amended as follows:

(1) In subsection (c)(3) strike "; and" and add ", including areas on the right bank at river miles 1345; 1310; 1311; 1316.5; 1334.5; 1341; 1343.5; 1379.5; 1385; and on the left bank at river miles 1316.5; 1320.5; 1323; 1326.5; 1335.7; 1338.5; 1345.2; 1357.5; 1360; 1366.5; 1368; and 1374;";

(2) A new subsection (f) is added as follows:

(f) The Secretary of the Army shall make an interim report to Congress on work undertaken pursuant to this section by September 30, 1978, and shall make a [final] report to the Congress no later than December 31, 1981.".

SEC. 162. For the purposes of section 10 of the Act of March 3, 1899 (30 Stat. 1151) (33 U.S.C. 401) the following bodies of water are declared nonnavigable: Lake Oswego, Oregon; Lake Coeur d'Alene, Idaho; and Lake George, New York.

SEC. 163. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to study water and surface transportation needs resulting from the expansion and further development of the San Pedro Bay ports. Such study shall include, but not be limited to, the feasibility and advisability of enlarging the Dominguez Channel for flood control purposes.

SEC. 164. The project for the Snake River, Oregon, Washington, and Idaho, authorized in section 2 of the River and Harbor Act of 1945 (59 Stat. 21) is hereby modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to construct at full Federal expense a four-lane, high-level highway bridge and approaches thereto connecting the cities of Lewiston, Idaho, and Clarkston, Washington, at or near river mile 141.3 of the Snake River, approximately two miles upstream of the present United States Highway 12 bridge. Before construction may be initiated the non-Federal interests shall agree pursuant to section 221 of the Flood Control Act of 1970 (P.L. 91–611) to (1) hold and save the United States free from damages resulting from construction of the bridge and its approaches, (2) provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction of the bridge and its approaches, and (3) own, maintain, and operate the bridge and its approaches after construction is completed, free to the public. There is authorized to carry out this section not to exceed $21,000,000.

SEC. 165. That portion of the first section of the Act of September 1, 1916 (39 Stat. 693) entitled "Washington Aqueduct" is hereby repealed.

SEC. 166. (a) In order to alleviate water damage on the shoreline of Lake Michigan and others of the Great Lakes during periods of abnormally high water levels in the Great Lakes, and to improve the water quality of the Illinois Waterway, the Secretary of the Army, acting through the Chief of Engineers, is authorized to carry out a five-year demonstration program to temporarily increase the diversion of water from Lake Michigan at Chicago, Illinois, for the purpose of testing the practicability of increasing the average annual diversion from the present limit of three thousand two hundred cubic feet per second to ten thousand cubic feet per second. The demonstration program will increase the controllable diversion by various amounts calculated to raise the average annual diversion above three thousand two hundred cubic feet per second up to ten thousand cubic feet per second. The increase in diversion rate will be accomplished incrementally and will take into consideration the effects of such increase on the Illinois Waterway. The program will be developed by the Chief of Engineers in cooperation with the State of Illinois and the Metropolitan Sanitary District of Greater Chicago. The program will be implemented by the State of Illinois and the Metropolitan Sanitary District of Greater Chicago under the supervision of the Chief of Engineers.

(b) During the demonstration program a controllable diversion rate will be established for each month calculated to establish an annual average diversion from three thousand two hundred cubic feet per second to not more than ten thousand cubic feet per second. When the level of Lake Michigan is below its average level, the total

diversion for the succeeding accounting year shall not exceed three thousand two hundred cubic feet per second on an annual basis. The average level of Lake Michigan will be based upon the average monthly level for the period from 1900 to 1975.

(c) When river stages approach or are predicted to approach bankfull conditions at the established flood warning stations on the Illinois Waterway or the Mississippi River, or when further increased diversion of water from Lake Michigan would adversely affect water levels necessary for navigational requirements of the Saint Lawrence Seaway in its entirety throughout the Saint Lawrence River and Great Lakes-Saint Lawrence Seaway, water shall not be diverted directly from Lake Michigan at the Wilmette, O'Brien, or Chicago River control structures other than as necessary for navigational requirements.

(d) The Chief of Engineers shall conduct a study and a demonstration program to determine the effects of the increased diversion on the levels of the Great Lakes, on the water quality of the Illinois Waterway, and on the susceptibility of the Illinois Waterway to additional flooding. The study and demonstration program will also investigate any adverse or beneficial impacts which result from this section. The Chief of Engineers, at the end of five years after the enactment of this section, will submit to the Congress the results of this study and demonstration program including recommendations whether to continue this authority or to change the criteria stated in subsection (b) of this section.

(e) For purposes of this section, controllable diversion is defined as that diversion at Wilmette, O'Brien, and Chicago River control structures which is not attributable to leakage or which is not necessary for navigational requirements.

SEC. 167. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to conduct a study of the most efficient methods of utilizing the hydroelectric power resources at water resource development projects under the jurisdiction of the Secretary of the Army and to prepare a plan based upon the findings of such study. Such study shall include, but not be limited to, an analysis of—

(1) the physical potential for hydroelectric development, giving consideration to the economic, social, environmental and institutional factors which will affect the realization of physical potential;

(2) the magnitude and regional distribution of needs for hydroelectric power;

(3) the integration of hydroelectric power generation with generation from other types of generating facilities;

(4) measures necessary to assure that generation from hydroelectric projects will efficiently contribute to meeting the national electric energy demands;

(5) the timing of hydroelectric development to properly coincide with changes in the demand for electric energy;

(6) conventional hydroelectric potential, both high head and low head projects utilizing run-of-rivers and possible advances in mechanical technology, and pumped storage hydroelectric potential at sites which evidence such potential;

(7) the feasibility of adding or reallocating storage and modifying operation rules to increase power production at corps projects with existing hydroelectric installations;

(8) measures deemed necessary or desirable to insure that the potential contribution of hydroelectric resources to the overall electric energy supply are realized to the maximum extent possible; and

(9) any other pertinent factors necessary to evaluate the development and operation of hydroelectric projects of the Corps of Engineers.

(b) Within three years after the date of the first appropriation of funds for the purpose of carrying out this section, the Secretary of the Army, acting through the Chief of Engineers, shall transmit the plan prepared pursuant to subsection (a) with supporting studies and documentation, together with the recommendations of the Secretary and the Chief of Engineers on such plan, to the Committee on Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives.

(c) There is authorized to be appropriated to carry out subsections (a) and (b) of this section not to exceed $7,000,000.

(d) The Secretary of the Army, acting through the Chief of Engineers, is authorized with respect to previously authorized projects to undertake feasibility studies of specific hydroelectric power installations that are identified in the course of the study authorized by this section, as having high potential for contribution toward meeting regional power needs. There is authorized to be appropriated to carry out this subsection not to exceed $5,000,000 per fiscal year for each of the fiscal years 1978 and 1979.

SEC. 168. Subsection 22(b) of the Water Resources Development Act of 1974 (Public Law 93–251) is amended by striking out "$2,000,000" and inserting in lieu thereof "$4,000,000".

SEC. 169. Notwithstanding any other provision of law, the project for Pine Mountain Lake on Lee Creek, Arkansas and Oklahoma, authorized by section 204 of the Flood Control Act of 1965 (79 Stat. 1073), shall be constructed, operated, and maintained in accordance with the Federal Water Project Recreation Act (Public Law 89–72).

SEC. 170. The Little Dell Project, Salt Lake City Streams, Utah, authorized in section 203 of the Flood Control Act of 1968 (P.L. 90–483; 82 Stat. 744) is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to decrease the amount of storage capacity so as to more adequately reflect existing needs.

SEC. 171. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project elements involving the lowermost 10.1 mile-long segment of channel modification of Sowashee Creek at Meridian, Mississippi, substantially in accordance with the plan of development approved by the Administrator, Soil Conservation Service, United States Department of Agriculture, on October 15, 1974, at an estimated cost of $450,000.

SEC. 172. The project for assumption of maintenance of the Mermentau River and the Gulf of Mexico Navigation Channel, Louisiana, is hereby adopted and authorized to be prosecuted by the Secretary of the Army, acting through the Chief of Engineers, substantially in accordance with the plans and subject to the conditions contained in the report of the Board of Engineers for Rivers and Harbors dated January 16, 1976, at an estimated annual cost of $155,000. This shall take effect upon submittal to the Secretary of the Army by the Chief

of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 173. The project for flood protection in the Bassett Creek Watershed, Minnesota, is hereby adopted and authorized to be prosecuted by the Secretary of the Army, acting through the Chief of Engineers, substantialy in accordance with the plans and subject to the conditions contained in the report of the Board of Engineers for Rivers and Harbors dated July 26, 1976, at an estimated cost of $7,593,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 174. The project of Caddo Dam and Reservoir, Louisiana, authorized by the Flood Control Act of 1965 (79 Stat. 1077, P.L. 89–298) is hereby modified to provide that the operation and maintenance of the project shall be the responsibility of the Secretary of the Army, acting through the Chief of Engineers.

SEC. 175. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design of the project for harbor modification at Cleveland Harbor, Ohio, in accordance with the report of the District Engineer, dated June 1976, at an estimated cost of $500,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of Engineers and notification to Congress of the approval of the Chief of Engineers.

SEC. 176. The Secretary of the Army, acting through the Chief of Engineers, is hereby authorized and directed to cause a survey to be made at the Navajo Indian Reservation, Arizona, New Mexico, and Utah for flood control and allied purposes, and subject to all applicable provisions of section 217 of the Flood Control Act of 1970 (Public Law 91–611), at an estimated cost of $2,000,000; and to submit reports thereon to the Congress with the recommendations.

SEC. 177. The authorization of the Gaysville Dam and Lake project, Stockbridge, Chittenden, and Rochester, Vermont, provided by section 5 of the Flood Control Act of 1936, as modified by the Acts of Congress approved May 25, 1937, June 28, 1938, and August 18, 1941, is terminated upon the enactment of this Act.

SEC. 178. (a) If the Secretary of the Army, acting through the Chief of Engineers, finds that the proposed project to be erected at the location to be declared nonnavigable under this section is in the public interest, on the basis of engineering studies to determine the location and structural stability of any bulkheading and filling and permanent pile-supported structure, in order to preserve and maintain the remaining navigable waterway and on the basis of environmental studies conducted pursuant to the National Environmental Policy Act of 1969, then that portion of the Hudson River in Hudson County, State of New Jersey, bounded and described as follows is hereby declared to be nonnavigable water of the United States within the meaning of the laws of the United States, and the consent of Congress is hereby given to the filling in of all or any part thereof and the erection of permanent pile-supported structures thereon:

> Such portion is in the township of North Bergen in the county of Hudson and State of New Jersey, and is more particularly described as follows: At a point in the easterly right-of-way of New Jersey Shore Line Railroad (formerly New Jersey Junction Railroad) said point being located northerly, measured along said easterly right-of-way, 81.93 feet from Station 54+42.4 as shown

on construction drawing dated May 23, 1931, of River Road, filed in the Office of the Hudson County Engineer, Jersey City, New Jersey:

thence (1) northerly and along said easterly right-of-way on a bearing of north 12 degrees 11 minutes 14 seconds east, a distance of 280 feet to a point;

thence (2) south 75 degrees 28 minutes 24 seconds east, a distance of 310 feet to a point;

thence (3) south 17 degrees 15 minutes 41 seconds east, a distance of 101.70 feet to a point;

thence (4) south 62 degrees 18 minutes 12 seconds east a distance of 355.64 feet to a point in the exterior solid fill line of April 7, 1903, and the bulkhead line of April 28, 1904, on the Hudson River;

thence (5) along said exterior solid fill and bulkhead lines south 28 degrees 55 minutes 51 seconds west, a distance of 523 feet to a point in the northerly line of lands now or formerly of New York State Realty and Terminal Company;

thence (6) north 61 degrees 34 minutes 29 seconds west, and along said northerly line of the New York State Realty and Terminal Company, a distance of 590.08 feet to a point in the aforementioned easterly right-of-way of the New Jersey Shore Line Railroad;

thence (7) northerly and along said easterly right-of-way of the New Jersey Shore Line Railroad on a curve to the left a radius of 995.09 feet, an arc length of 170.96 feet to a point therein;

thence (8) northerly, still along the same, on a bearing of north 12 degrees 11 minutes 14 seconds east, a distance of 81.93 feet to the point and place of beginning.

Said parcel containing 8 acres being the same more or less.

(b) The declaration in subsection (a) of this section shall apply only to portions of the above-described area which are either bulkheaded and filled or occupied by permanent pile-supported structures. Plans for bulkheading and filling and permanent pile-supported structures shall be approved by the Secretary of the Army, acting through the Chief of Engineers. Local interests shall reimburse the Federal Government for engineering and all other costs incurred under this section.

SEC. 179. (a) If the Secretary of the Army, acting through the Chief of Engineers finds that the proposed project to be erected at the location to be declared nonnavigable under this section is in the public interest, on the basis of engineering studies to determine the location and structural stability of any bulkheading and filling and permanent pile-supported structure, in order to preserve and maintain the remaining navigable waterway, and on the basis of environmental studies conducted pursuant to the National Environmental Policy Act of 1969, then those portions of the Hackensack River in Hudson County, State of New Jersey, bounded and described as follows are hereby declared to be nonnavigable waters of the United States within the meaning of the laws of the United States, and the consent of Congress is hereby given to the filling in of all or any part thereof and the erection of permanent pile-supported structures thereon:

Beginning at a point where the southeasterly shoreline (mean high water line) of the Hackensack River intersects the easterly line of the Erie Railroad said point property being 2,015.38 feet

northerly along said railroad property from where it intersects the northerly line of the Meadowlands Parkway (100 feet wide) and running from:

thence north 19 degrees 20 minutes 54 seconds west 50.00 feet;
thence north 37 degrees 30 minutes 08 seconds east 615.38 feet;
thence north 03 degrees 02 minutes 56 seconds east, 2,087 feet;
thence north 31 degrees 11 minutes 06 seconds east 577 feet;
thence north 74 degrees 29 minutes 18 seconds east 541.25 feet;
thence south 62 degrees 01 minute 31 seconds east 400 feet;
thence south 55 degrees 46 minutes 27 seconds east 612.52 feet;
thence south 34 degrees 13 minutes 33 seconds west 517.79 feet;
thence south 55 degrees 46 minutes 27 seconds east 158.81 feet;
thence south 34 degrees 13 minutes 33 seconds west 310 feet;
thence north 55 degrees 26 minutes 27 seconds north 15 feet;
thence south 34 degrees 13 minutes 33 seconds west 592 feet;
thence running in a southwesterly direction along the shoreline (mean high water line) of the Hackensack River, a distance of 2,360 feet being the same more or less to the easterly property line of the Erie Railroad and the point or place of beginning.

Said parcel containing 67.6 acres being the same more or less.

(b) The declaration in subsection (a) of this section shall apply only to portions of the described area which are either bulkheaded and filled or occupied by permanent pile-supported structures. Plans for bulkheading and filling and permanent pile-supported structures shall be approved by the Secretary of the Army, acting through the Chief of Engineers. Local interests shall reimburse the Federal Government for engineering and all other costs incurred under this section.

SEC. 180 (a) The Secretary of the Army, acting through the Chief of Engineers, is directed to develop a plan for shoreline protection and beach erosion control along Lake Ontario, and report on such plan to the Congress as soon as practicable. Such report shall include recommendations on measures of protection and proposals for equitable cost sharing, together with recommendations for regulating the level of Lake Ontario to assure maximum protection of the natural environment and to hold shoreline damage to a minimum.

(b) Until the Congress receives and acts upon the report required under subsection (a) of this section, all Federal agencies having responsibilities affecting the level of Lake Ontario shall, consistent with existing authority, make every effort to discharge such responsibilities in a manner so as to minimize damage and erosion to the shoreline of Lake Ontario.

(c) There is authorized to be appropriated to carry out this section $2,000,000.

(d) This section may be cited as the "Lake Ontario Protection Act of 1976".

SEC. 181. (a) (1) Subject to paragraph (2) of this subsection, the consent of Congress is granted under section 9 of the Act of March 3, 1899 (30 Stat. 1151; 33 U.S.C. 401), to the Washington Suburban Sanitary Commission to construct a water diversion structure, with an elevation not to exceed one hundred and fifty-nine feet above sea level, from the north shore of the Potomac River at the Washington Suburban Sanitary Commission water filtration plant to the north shore of Watkins Island.

(2) The structure authorized by paragraph (1) of this subsection, may not be constructed (A) until the Secretary of the Army, acting through the Chief of Engineers, and the State of Maryland, the Com-

monwealth of Virginia, the Washington Suburban Sanitary Commission, and such other governmental authorities as the Secretary of the Army, the State of Maryland, and the Commonwealth of Virginia deem desirable signatories enter into a written agreement providing an enforceable schedule for allocation among the parties to such agreement for the withdrawal of the waters of that portion of the Potomac River located between Little Falls Dam and the farthest upstream limit of the pool of water behind the Chesapeake and Ohio Canal Company rubble dam at Seneca, Maryland, during periods of low flow of such portion of such river, and (B) unless such construction is not in conflict with the report of the Secretary of the Army, acting through the Chief of Engineers, submitted pursuant to section 85 of the Water Resources Development Act of 1974.

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized to enter into the agreement referred to in subsection (a) (2) of this section and any amendment to or revision of such agreement.

(c) Except as may be provided in the agreement referred to in subsection (a) (2) of this section, nothing in this section shall alter any riparian rights or other authority of the State of Maryland, or any political subdivision thereof, the Commonwealth of Virginia, or any political subdivision thereof, or the District of Columbia, or authority of the Corps of Engineers existing on the date of enactment of this section relative to the appropriation of water from, or the use of, the Potomac River.

SEC. 182. (a) The authorization for the Richard B. Russell Dam and Lake (formerly Trotters Shoals Reservoir), contained in section 203 of the Flood Control Act of 1966 (80 Stat. 1405) is hereby amended by deleting the following: "Nothing in this Act shall be construed to authorize inclusion of pumped storage power in this project.".

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized to install a fifth hydropower unit at the Hartwell Reservoir on the Savannah River, South Carolina and Georgia, approved in the Flood Control Acts of December 22, 1944, and May 17, 1950, at an estimated increased cost of $15,700,000.

SEC. 183. The West Tennessee tributaries feature Mississippi River and tributaries project (Obion and Forked Deer Rivers), Tennessee, authorized by the Flood Control Acts approved June 30, 1948, and Novmber 7, 1966, as amended and modified, is hereby further amended to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to construct, to main-stem levee standards, a levee with appurtenant works for flood protection immediately east of the authorized diversion channel of the Obion River, authorized by the Flood Control Act of June 22, 1936, as amended by the Flood Control Act of July 24, 1946, and further amended by section 7 of the River Basin Monetary Authorization Act of 1971, from near the mouth of the diversion channel to the vicinity of Highway 88 and thence to high ground in the vicinity of Porter Gap, at an estimated cost of $1,000,000.

SEC. 184. Section 108 of Public Law 93–251 is amended as follows:

(a) At the end of subsection (a) add the following: "The Secretary may acquire sites at locations outside such boundaries, as he determines necessary, for administrative and visitor orientation facilities. The Secretary may also acquire a site outside such boundaries at or near the location of the historic Tabard Inn in Ruby, Tennessee, includ-

ing such lands as he deems necessary, for the establishment of a lodge with recreational facilities as provided in subsection (e)(3).";

(b) In subsection (b), after the "(b)" insert "(1)" and at the end of such subsection insert the following:

"(2) The Secretary may by agreement with the Secretary of the Interior provide for interim management by the Department of the Interior, in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535) (16 U.S.C. 1, 2–4) as amended and supplemented, of any portion or portions of the project which constitute a logically and efficiently administrable area. The Secretary is authorized to transfer funds to the Department of the Interior for the costs of such interim management out of funds appropriated for the project.";

(c) In subsection (c)(1), after the phrase "States of Kentucky and Tennessee or any political subdivisions thereof" insert the following: "which were in public ownership at the time of enactment of this section.";

(d) At the end of subsection (e)(2)(A), strike the period and insert the following: "and except that motorboat access into the gorge area shall be permitted up to a point one-tenth of a mile downstream from Devil's Jumps; and except for the continued operation and maintenance of the rail line currently operated and known as the K & T Railroad. The Secretary shall acquire such interest in the K & T Railroad right-of-way by easement as he deems necessary to protect the scenic, esthetic, and recreational values of the gorge area and the adjacent areas.";

(e) In subsection (e)(2)(C), strike the period at the end and insert the following: ", the road entering the gorge across from the mouth of Station Camp Creek."; and

(f) In subsection (e)(2)(K), strike "$32,850,000" and insert in lieu thereof "$103,522,000".

SEC. 185. The Secretary of the Army, acting through the Chief of Engineers, is directed to make a maximum effort to assure the full participation of members of minority groups, living in the States participating in the Tennessee-Tombigbee Waterway Development Authority, in the construction of the Tennessee-Tombigbee Waterway project, including actions to encourage the use, wherever possible, of minority owned firms. The Chief of Engineers is directed to report on July 1 of each year to the Congress on the implementation of this section, together with recommendation for any legislation that may be needed to assure the fuller and more equitable participation of members of minority groups in this project or others under the direction of the Secretary.

SEC. 186. The Act entitled "An Act to authorize construction of the Mississippi River-Gulf outlet", approved March 29, 1956 (70 Stat. 65), is amended by inserting before the period at the end thereof a colon and the following: "*And provided further*, That such conditions of local cooperation shall not apply to the construction of bridges (at a cost not to exceed $71,500,000) required as a result of the construction of the Mississippi River-Gulf outlet channel if the Secretary of the Army, after consultation with the Secretary of Transportation, determines prior to the construction of such bridges that the Federal Government will not assume the costs of such work in accordance with section 132(a) of the Federal-Aid Highway Act of 1976 (Public Law 94–280); and before construction of the bridges may be initiated the non-Federal public bodies involved shall agree pursuant to section 221 of the Flood Control Act of 1970 (Public Law 91–611) to (a)

hold and save the United States free from damages resulting from construction of the bridges and their approaches, (b) provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction of the bridges and their approaches, and (c) maintain and operate the bridges and their approaches after construction is completed".

SEC. 187. The project for navigation and bank stabilization in the Red River Waterway, Louisiana, Texas, Arkansas, and Oklahoma, authorized by the Rivers and Harbors Act of 1968 (82 Stat. 731) is hereby modified to provide that the non-Federal interests shall contribute 25 per centum of the construction costs of retaining dikes, bulkheads, and embankments required for initial and subsequent disposal of dredged material, and the Federal cost shall be 75 per centum (currently estimated at $3,700,000). The requirements for appropriate non-Federal interests to furnish an agreement to contribute 25 per centum of the construction cost set forth above shall be waived by the Secretary of the Army upon a finding by the Administrator of the Environmental Protection Agency that for the area to which such construction applies, the State or States involved, interstate agency, municipality, other appropriate political subdivisions of the State, and industrial concerns are participating in and in compliance with an approved plan for the general geographical area of the dredging activity for construction, modification, expansion, or rehabilitation of waste treatment facilities and the Administrator has found that applicable water quality standards are not being violated.

SEC. 188. Notwithstanding any other provision of law, the Secretary of the Army, acting through the Chief of Engineers, at the request of the city of Williston, North Dakota, is authorized and directed to take such action as may be necessary to relocate certain water intakes, located on a pier of the Lewis and Clark Bridge on the Missouri River, threatened by siltation. There is authorized to be appropriated not to exceed $1,000,000 to carry out the provisions of this section.

SEC. 189. (a) The project for Tuttle Creek Lake, Big Blue Lake, Kansas, authorized as a unit of the comprehensive plan for flood control and other purposes, Missouri River Basin, by the Flood Control Act approved June 28, 1938, as modified, is hereby further modified to authorize and direct the Secretary of the Army, acting through the Chief of Engineers, to (1) provide a residential access road near Waterville, Kansas, from a point of intersection with FAS Route 431, located approximately 0.2 miles south of the northeast corner of section 16, township 4 south, range 6 east, and extending in an east southeasterly direction to a point of intersection with the existing township road located near the center of section 14, township 4 south, range 6 east, and (2) to replace the existing Whiteside Bridge, located one mile northwest of Blue Rapids, Kansas, so as to obtain an elevation of 1128.0 mean sea level.

(b) There is authorized to be appropriated not to exceed $630,000 to carry out the purposes of this section.

SEC. 190. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the phase I design memorandum stage of advanced engineering and design on the Days Creek unit of the project for flood control and other purposes on the Red River below Denison Dam, Texas, Arkansas, and Louisiana, substantially in accordance with the report of the Board of Engineers for Rivers and Harbors at an estimated cost of $300,000. This shall take effect upon submittal to the Secretary of the Army by the Chief of

Engineers and notification to Congress of the approval of the Chief of Engineers.

(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized to construct the project for flood control and other purposes on the Red River below Denison Dam, Texas, Arkansas and Louisiana, in accordance with the report of the Chief of Engineers dated August 3, 1976, at an estimated cost of $4,131,000.

SEC. 191. The Secretary of the Army, acting through the Chief of Engineers, is authorized to undertake the non-structural flood protection project on Galveston Bay at Baytown, Texas, in accordance with the final report of the Chief of Engineers, at an estimated Federal cost of $15,680,000; and provided that non-Federal interests shall be required to pay 20 per centum of the project costs.

SEC. 192. The project for flood protection and other purposes on the Deep Fork River in the vicinity of Arcadia, Oklahoma, authorized in section 201 of Public Law 91–611, is amended and reauthorized so as to delete the benefits for water quality and to include benefits for water supply.

SEC. 193. In order to assure an adequate supply of food to the Nation and to promote the economic vitality of the High Plains Region, the Secretary of Commerce (hereinafter referred to in this section as the "Secretary"), acting through the Economic Development Administration, in cooperation with the Secretary of the Army, acting through the Chief of Engineers, and appropriate Federal, State, and local agencies, and the private sector, is authorized and directed to study the depletion of the natural resources of those regions of the States of Colorado, Kansas, New Mexico, Oklahoma, Texas, and Nebraska presently utilizing the declining water resources of the Ogallala acquifer, and to develop plans to increase water supplies in the area and report thereon to Congress, together with any recommendations for further congressional action. In formulating these plans, the Secretary is directed to consider all past and ongoing studies, plans, and work on depleted water resources in the region, and to examine the feasibility of various alternatives to provide adequate water supplies in the area including, but not limited to, the transfer of water from adjacent areas, such portion to be conducted by the Chief of Engineers to assure the continued economic growth and vitality of the region. The Secretary shall report on the costs of reasonably available options, the benefits of various options, and the costs of inaction. If water transfer is found to be a part of a reasonable solution, the Secretary, as part of his study, shall include a recommended plan for allocating and distributing water in an equitable fashion, taking into account existing water rights and the needs for future growth of all affected areas. An interim report, with recommendations, shall be transmitted to the Congress no later than October 1, 1978, and a final report, with recommendations, shall be transmitted to Congress not later than July 1, 1980. A sum of $6,000,000 is authorized to be appropriated for the purposes of carrying out this section.

SEC. 194. The project for the Cochiti Reservoir in New Mexico as part of the project for the improvement of the Rio Grande Basin, authorized in the Flood Control Act of 1960 (74 Stat. 488), is modified in order to direct the Secretary of the Army, acting through the Chief of Engineers, to construct, for public recreation purposes, an access road from United States highway numbered 85 to such reservoir. There is authorized to be appropriated not to exceed $1,500,000 to carry out the purposes of this section.

SEC. 195. (a) The Secretary of the Army, acting through the Chief of Engineers, is authorized to construct a project for local flood protection on the Santa Fe River and Arroyo Mascaras at and in the vicinity of Santa Fe, New Mexico, pursuant to the report of the Chief of Engineers dated June 29, 1976, for flood control and allied purposes, at an estimated cost of $8,200,000: *Provided*, That the project shall not include construction of any impoundments east of the existing Nichols Dam: *And provided further*, That in any earth-moving operations in connection with the construction of such project, the sources of material, and the routes for transporting such materials to the construction sites shall be selected in a way that minimizes any adverse effect on normal transportation movements within the city of Santa Fe, New Mexico.

(b) Notwithstanding any other provision of law, the project for Pine Mountain Lake on Lee Creek, Arkansas and Oklahoma, authorized by section 204 of the Flood Control Act of 1965 (79 Stat. 1073), shall be constructed, operated, and maintained in accordance with the Federal Water Project Recreation Act, Public Law 89–72, as amended.

SEC. 196. The project for Lucky Peak Lake, Idaho, authorized by the Flood Control Act of 1946, is hereby modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to modify the outlet works in the Lucky Peak Dam at a Federal cost not to exceed $4,100,000, to assure maintenance of adequate flows along the Boise River: *Provided*, That provisions of section 102(b) of the Federal Water Pollution Control Amendments of 1972 (86 Stat. 816), shall apply to this modification.

SEC. 197. Section 50 of the Water Resources Development Act of 1974 (88 Stat. 12), is amended by striking out "$350,000" and inserting in lieu thereof "$380,000".

SEC. 198. The sum of $250,000 is hereby authorized to complete the phase I design memorandum stage of advanced engineering and design of the Days Creek Dam, South Umpqua River, Oregon, authorized by section 1(a) of the Water Resources Development Act of 1974 (88 Stat. 12).

SEC. 199. The project for navigation improvements, Cook Inlet, Alaska (Anchorage Harbor, Alaska), authorized by the Rivers and Harbors Act of 1958, approved July 3, 1958, is hereby modified to provide that the Secretary of the Army, acting through the Chief of Engineers, is authorized to maintain a harbor bottom depth of −35.0 feet MLLW, for a length of 3,000 feet at the existing Port of Anchorage Marine Facility, at an estimated annual cost of $150,000.

SEC. 200. Section 35 of the Water Resources Development Act of 1974 (Public Law 93–251) is amended as follows:

(a) Inserting "(a)" after "SEC. 35";

(b) Inserting new subsection "(b)", as follows:

"(b) The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to make a detailed study of such plans as he may deem feasible and appropriate for the removal and disposal of debris and obsolete buildings remaining as a result of military construction during World War II, and subsequently, in the vicinity of Metlakatla and Annette Island in southeastern Alaska, at an estimated cost of $100,000. Such study shall include an analysis of appropriate measures to restore the area to its natural condition.".

SEC. 201. (a) Section 204(b) of the Act of October 23, 1962 (76 Stat. 1173, 1174), is amended by striking the period at the end of the second sentence and insert the following: ": *Provided*, That the Sec-

retary of the Interior in determining reimbursable costs, shall not include the costs of replacing and relocating the original Salisbury Ridge section of the 138-kilovolt transmission line: *Provided further*, That the Secretary of the Army, acting through the Chief of Engineers, shall relocate such transmission lines, at an estimated cost of $5,641,000.".

(b) The Crater-Long Lakes division of the Snettisham project near Juneau, Alaska, as authorized by section 204 of the Flood Control Act of 1962, is modified with respect to the reimbursement payments to the United States on such project in order to provide (1) that the repayment period shall be sixty years, (2) that the first annual payment shall be 0.1 per centum of the total principal amount to be repaid, (3) thereafter annual payments shall be increased by 0.1 per centum of such total each year until the tenth year at which time the payment shall be 1 per centum of such total, and (4) subsequent annual payments for the remaining fifty years of the sixty-year repayment period shall be one-fiftieth of the balance remaining after the tenth annual payment (including interest over such sixty-year period).

SEC. 202. (a) The Congress finds that drift and debris on or in publicly maintained commercial boat harbors and the land and water areas immediately adjacent thereto threaten navigational safety, public health, recreation, and the harborfront environment.

(b) (1) The Secretary of the Army, acting through the Chief of Engineers, shall be responsible for developing projects for the collection and removal of drift and debris from publicly maintained commercial boat harbors and from land and water areas immediately adjacent thereto.

(2) The Secretary of the Army, acting through the Chief of Engineers is authorized to undertake projects developed under paragraph (1) of this subsection without specific congressional approval when the total Federal cost for the project is less than $400,000.

(c) The Federal share of the cost of any project developed pursuant to subsection (b) of this section shall be two-thirds of the cost of the project. The remainder of such costs shall be paid by the State, municipality, or other political subdivision in which the project is to be located, except that any costs associated with the collections and removal of drift and debris from federally owned lands shall be borne by the Federal Government. Non-Federal interests in future project development under subsection (b) of this section shall be required to recover the full cost of drift or debris removal from any identified owner of piers or other potential sources of drift or debris, or to repair such sources so that they no longer create a potential source of drift or debris.

(d) Any State, municipality, or other political subdivision where any project developed pursuant to subsection (b) of this section is located shall provide all lands, easements, and right-of-way necessary for the project, including suitable access and disposal areas, and shall agree to maintain such projects and hold and save the United States free from any damages which may result from the non-Federal sponsor's performance of, or failure to perform, any of its required responsibilities of cooperation for the project. Non-Fededal interest shall agree to regulate any project area following project completion so that such area will not become a future source of drift and debris. The Chief of Engineers shall provide technical advice to non-Federal interests on the implementation of this subsection.

(e) For the purposes of this section—

(1) the term "drift" includes any buoyant material that, when floating in the navigable waters of the United States, may cause damage to a commercial or recreational vessel; and

(2) the term "debris" includes any abandoned or dilapidated structure or any sunken vessel or other object that can reasonably be expected to collapse or otherwise enter the navigable waters of the United States as drift within a reasonable period.

(f) There is authorized to be appropriated to carry out this section not to exceed $4,000,000 per fiscal year for fiscal years 1978 and 1979.

SEC. 203. (a) (1) The Congress finds that the expeditious development of hydroelectric power generating facilities in Alaska that are environmentally sound to assist the Nation in meeting existing and future energy demands is in the national interest.

(2) The Congress therefore declares that the expertise of the Chief of Engineers can and should be utilized for the benefit of local public bodies in the development of projects which yield 90 per centum or more of the benefits of the project are attributable to hydroelectric power generation when the project is fully operational.

(b) To meet the goals of this section, there is hereby established in the Treasury of the United States an Alaska Hydroelectric Power Development Fund (hereafter referred to as the "fund") to be and remain available for use by the Secretary of the Army (hereinafter referred to as the "Secretary") to make expenditures authorized by this section. The fund shall consist of (1) all receipts and collections by the Secretary of repayments in accordance with subsection (e) of this section and payments by non-Federal public authorities to the Secretary to finance the cost of construction of projects in accordance with subsection (f) of this section, and which the Secretary is hereby directed to deposit in the fund as they are received, and (2) any appropriations made by the Congress to the fund.

(c) There is authorized to be appropriated to the Secretary for deposit in the fund established by subsection (b) of this section the sum of $25,000,000.

(d) (1) If the Secretary determines that moneys in the fund are in excess of current needs, he may request the investment of such amounts as he deems advisable by the Secretary of the Treasury in direct, general obligations of, or obligations guaranteed as to both principal and interest by, the United States.

(2) With the approval of the Secretary of the Treasury, the Secretary may deposit moneys of the fund in any Federal Reserve bank or other depository for funds of the United States, or in such other banks and financial institutions and under such terms and conditions as the Secretary and the Secretary of the Treasury may mutually agree.

(e) The Secretary is authorized to make expenditures from the fund for the phase I design memorandum stage of advanced engineering and design for any project in Alaska that meets the requirements of subsection (a) (2) of this section, if appropriate non-Federal public authorities, approved by the Secretary, agree with the Secretary, in writing, to repay the Secretary for all the separable and joint costs of preparing such design memorandum, if such report is favorable. Following the completion of the phase I design memorandum stage of advanced engineering and design under this subsection, the Secretary shall not transmit any favorable report to Congress prior to being repaid in full by the appropriate non-Federal public authorities for the costs incurred during such phase I. The Secretary is also author-

ized to make expenditures from non-Federal funds deposited in the fund as an advance against construction costs.

(f) In connection with water resources development projects which meet the criteria established by subsection (a) (2) of this section and which are to be constructed by the Secretary, acting through the Chief of Engineers, in accordance with an authorization by Congress and a contract between the non-Federal public authorities and the Secretary, pursuant to subsection (g) (1) of this section occurring on or subsequent to the date of enactment of this Act, the Secretary, acting through the Chief of Engineers, is authorized to construct such projects including activities for engineering and design land acquisition, site development, and off-site improvements necessary for the authorized construction by making expenditures from (1) the Fund established in subsection (b) of this section of funds deposited by non-Federal public authorities as payments for construction and (2) payments of non-Federal public authorities held by the Secretary as payment of construction costs for a project authorized by this section.

(g) (1) Prior to initiating any construction work under the authorities of this section, the Secretary and the appropriate non-Federal public authorities shall agree in writing, and submit such agreement to the Committees on Public Works and Appropriations of the Senate and House of Representatives for review and reporting to the Congress for its consideration and approval that the appropriate non-Federal public authorities will pay the full anticipated costs of constructing the project at the time such costs are incurred, together with normal contingencies and related administrative expenses of the Secretary, and such payments shall be deposited in the fund or held by the Secretary for payment of obligations incurred by the Secretary on an authorized project under this section. The agreement shall provide for an initial determination of feasibility and compliance by the project with law. The total non-Federal obligation shall be paid on or prior to the date the Chief of Engineers has estimated by agreement, that the project concerned will be available for actual generation of all or a substantial portion of the authorized hydroelectric power of the project.

(2) In consideration of the obligations to be assumed by non-Federal public authorities under the provisions of this section and in recognition of the substantial investments which will be made by these authorities in reliance on the program established by this section, the United States shall assume the responsibility for paying for all costs over those fixed in the agreement with the non-Federal public authorities, if such costs are occasioned by acts of God, failure on the part of the Secretary, acting through the Chief of Engineers, to adhere to the agreed schedule of work or a failure of design: *Provided*, That payments by the Secretary of such costs shall be subject to appropriations acts.

(h) The Secretary is authorized and directed, pursuant to the agreement, to convey all title, rights, and interests of the United States to any project, its lands and water areas, and appurtenant facilities to the non-Federal public authorities which have agreed to assume ownership of the project and responsibility for its performance, operation, and maintenance, as well as necessary replacements in accordance with this section upon full payment by such non-Federal public authorities as required under subsection (g) (1) of this section. Such conveyance shall, pursuant to the agreement

required by subsection (g) of this section, to the maximum extent possible, occur immediately upon the project's availability for generation of all or a substantial portion of the authorized hydroelectric power of the project, and shall include such Federal requirements, reservations, and provisions for access rights to the project and its records as the Secretary finds advisable to complete any portion of project construction remaining at the time of conveyance and to assure that the project will be operated and maintained in a responsible and safe manner to accomplish, as nearly as may be possible, all of the authorized purposes of the project including, but not restricted to, hydroelectric power generation.

(i) This section shall be cited as the "Alaska Hydroelectric Power Development Act".

SEC. 204. No funds specifically authorized for any project in this Act will be available for expenditure prior to fiscal year 1978.

SEC. 205. This Act may be cited as the "Water Resources Development Act of 1976".

Speaker of the House of Representatives.

Vice President of the United States and
President of the Senate.