Local cooperation.—Provide all lands, easements, and rights-of-way for dredging Ybor Channel and for maintenance of this channel and Port Sutton Channel and turning basin including spoil areas and necessary dikes; hold and save the United States free from damage; provide terminal facilities; provide depths in vessel berthing areas and local access channels commensurate with projects; contribute to Ybor Channel project 1.7 percent of construction dredging cost presently estimated at $17,000. Hillsborough County Port Authority representatives stated that it would be willing and able to comply with these requirements.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

State of Florida: Favorable.

Comments of the Bureau of the Budget.—No objection.

WALTER F. GEORGE LOCK AND DAM, CHATTAHOCHEE RIVER, GA. AND ALA.

(S. Doc. 109, 87th Cong.)

Location.—The Walter F. George lock and dam is located on the Chattahoochee River, near Fort Gaines, Ga.

Authority.—The authority for the preparation of this report is contained in provisions of the Fish and Wildlife Coordination Act, approved August 12, 1958. This act provides that fish and wildlife conservation shall receive equal consideration with other project features of water resource development programs. In accordance with that act, construction agencies are required to coordinate their planning of water resource programs with the Fish and Wildlife Service during all phases of development.

Existing project.—The project is a major component of the plan of development of the Apalachicola River System for navigation and the production of hydroelectric power. The lock and dam is located at river mile 75.3 and will back water to Columbus, Ga., or river mile 160.4. The construction of the project is about 65 percent complete.

Problem.—The Chamber of Commerce, Eufaula, Ala., expressed an interest in the establishment of a national wildlife refuge on the Walter F. George Reservoir.

Recommended plan of improvement.—In accordance with the Fish and Wildlife Coordination Act, the Secretary of the Interior proposes to establish a National Wildlife Refuge for management of migratory waterfowl in conjunction with the Walter F. George project. Establishment of the proposed refuge would require the acquisition of fee title in place of easements on 453 acres within the present project boundary, and acquisition of fee title to 1,858 acres of additional land outside of the present project boundary.

Estimated cost.—

Federal	$500,000
Non-Federal	None
Total	500,000

Project economics.—Annual charges, $37,800; annual benefits, $39,020.

Benefit-cost ratio.—1.03.

Local cooperation.—None.

Comments of the Bureau of the Budget.—The Bureau of the Budget in its letter of June 5, 1962, commenting on the report of the Corps of

Engineers concerning modification of the Walter F. George project, stated that it had asked the Department of the Interior to review its future plans for the migratory waterfowl program, including an appraisal of the role that refuge lands at water resources projects would play in the total program. The Budget further stated that in order to preserve the advantages of unified planning and financing of the migratory waterfowl refuge system within a single source of funds, consideration was being given to a procedure under which duck-stamp revenues would be used to repay the Treasury for general fund appropriations used in the prior fiscal year to acquire waterfowl lands at water resources projects. It was further stated by the Budget that if the recommended modification of the Walter F. George lock and dam was authorized by the Congress, it may later be considered appropriate to finance the acquisition of lands outside project boundaries in this manner. With this understanding, the Budget advised that there would be no objection to the submission of the report to the Congress.

PENSACOLA HARBOR, FLA.

(H. Doc. 528, 87th Cong.)

Location.—Pensacola Harbor is on the northwest coast of Florida, about 59 miles east of Mobile, Ala., and 103 miles west of Panama City, Fla.

Authority.—Resolutions of Rivers and Harbors Committee and Public Works Committee, U.S. House of Representatives, adopted November 20, 1945, and June 3, 1959, respectively; also River and Harbor Act approved March 2, 1945.

Existing project.—Provides for an entrance channel 32 feet by 500 feet, about 3.4 miles, from Gulf of Mexico to Pensacola Bay; two parallel approach channels each 30 feet by 250 feet by 3,700 feet, leading to opposite ends of Pensacola Harbor; an inner harbor channel 30 feet by 500 feet by 3,500 feet, parallel to the pierhead line; an approach channel 30 feet by 250 feet, about 1.2 miles, to the pierhead line opposite Muscogee wharf; and a channel 21 feet by 100 feet from Pensacola Bay to mouth of Bayou Chico, about 1 mile, thence 20 feet by 100 feet, about 4,400 feet terminating at a turning basin 20 feet by 500 feet by 500 feet. Present depths in Bayou Chico are 15 feet in outer channel and 14 feet in inner channel and turning basin. In 1958 and 1959 the entrance channel was enlarged to 37 feet by 800 feet, and an aircraft carrier mooring basin 35 feet deep, of about 1,200 acres, was dredged in lower Pensacola Bay at Navy expense. The Gulf Intracoastal Waterway, 12 feet by 125 feet, crosses the harbor entrance channel in the lower part of Pensacola Bay.

Navigation problem.—Controlling project depths and widths of existing channels place undue restriction on shipping and deprive Pensacola of a considerable amount of commerce that would otherwise move through the port. This situation is expected to become more critical in view of the trend toward construction and use of larger cargo vessels.

Recommended plan of improvement.—Provides for maintenance of entrance channel from gulf to Pensacola Bay, about 5 miles, to 35 feet deep and 500 feet wide; maintenance of a channel along south side of aircraft carrier mooring basin, about 2.5 miles, to 33 feet deep and 300 feet wide; a bay channel 33 feet deep, 300 feet wide, and about

2.1 miles long; parallel approach channels to opposite ends of inner harbor channel about 1.3 and 1.4 miles long, each 33 feet deep and 300 feet wide, and flared at the junctions with the inner harbor channel; and deepening the existing 500-foot-wide inner harbor channel to a depth of 33 feet and lengthening it to 3,950 feet.

Estimated cost (price level of October 1961).—All Federal, $424,000.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$16,000		$16,000
Increased maintenance	90,000		90,000
Maintenance of slips		$1,000	1,000
Total	106,000	1,000	107,000
Annual benefits:			
Transportation savings			162,000
Maintenance savings to U.S. Navy			40,000
Total			202,000

Benefit-cost ratio.—1.9.

Local cooperation.—Furnish lands and rights-of-way, also spoil disposal areas and retaining dikes; provide and maintain public terminal and transfer facilities; provide and maintain depths in berthing areas and local access channels serving the terminals commensurate with depths provided in the related project areas; and hold and save the United States free from damages. Local interests are willing to comply with the requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: No objections.

Department of the Navy: No objections.

State of Florida: Favorable.

Comments of the Bureau of the Budget.—No objections.

HOLT LOCK AND DAM, WARRIOR RIVER, ALA.

Holt lock and dam, Warrior River, Ala., was authorized by the Secretary of the Army on December 29, 1958, under the provisions of section 6 of the River and Harbor Act, approved March 3, 1909, and section 12 of the River and Harbor Act, approved July 25, 1912. Under this authority Holt lock and dam with provisions for future power, will replace the old locks and dams 13 through 16, inclusive.

The power requirements in the area need additional sources of supply. Power facilities at the project, if justified, would provide an economic source that could partly meet the expanding needs in the area.

The committee believes that the Secretary of the Army should be authorized and directed to initiate an immediate study, under the direction of the Chief of Engineers, with a view to providing hydroelectric power generating facilities in the Holt Dam as determined to be justified. The committee has accordingly included language in the bill authorizing the survey.

PASCAGOULA HARBOR, MISS.

(H. Doc. 560, 87th Cong.)

Location.—On Mississippi Sound, in Jackson County, Miss., 32 miles west of the entrance to Mobile Bay, Ala.

Authority.—Senate Public Works Committee resolution, August 21, 1961; House Public Works Committee resolution, August 24, 1961.

Existing project.—A channel 38 feet deep and 325 feet wide across the outer bar at Horn Island Pass, thence 33 feet deep and 275 feet wide across Mississippi Sound and up Pascagoula River to a turning basin of the same depth having a maximum width of 950 feet and a length of about 2,000 feet on the west side of the channel just below the railroad bridge, thence 22 feet deep and 150 feet wide up Pascagoula and Dog Rivers to Highway 63 bridge over Dog River, thence 12 feet deep and 125 feet wide, via a cutoff channel through Robertson and Bounds Lakes to mile 6 on Dog River. The River and Harbor Act approved September 3, 1954, authorized modification of the existing project in accordance with plans on file in the office, Chief of Engineers.

Navigation problem.—Insufficient depths limit the drafts of vessels calling at the port and the situation is expected to become more critical in view of the trend toward the use of larger vessels for grain and oil transport.

Recommended plan of improvement.—Pascagoula Harbor, as modified, would have an entrance channel 40 feet deep and 350 feet wide from deep water in the Gulf of Mexico through Horn Island Pass, including an impounding area for littoral drift 40 feet deep, 200 feet wide, and about 1,500 feet long adjacent to the channel at the west end of Petit Bois Island; a channel 38 feet deep and 350 feet wide in Mississippi Sound and Pascagoula River to the railroad bridge at Pascagoula, including a turning basin 2,000 feet long and 950 feet wide (including the channel area) on the west side of the river below the railroad bridge; and a channel 38 feet deep and 225 feet wide from the ship channel in Mississippi Sound to the mouth of Bayou Casotte, thence 38 feet deep and 300 feet wide for about 1 mile to a turning basin 38 feet deep, 1,000 feet wide, and 1,750 feet long. No dredging shall be done by the United States within 50 feet of any established harbor line, wharf, or other structure.

Estimated cost (price level of June 1962).—

Federal	[1] $4,870,000
Non-Federal	35,000
Total	[1] 4,905,000

[1] Exclusive of $15,000 for aids to navigation provided by the Coast Guard and $30,000 for preauthorization studies.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$138,000	$1,000	$139,000
Additional maintenance dredging	155,000		155,000
Additional maintenance of slips and retaining dikes		2,000	2,000
Total	293,000	3,000	296,000
Annual benefits:			
Transportation grain			1,275,000
Petroleum and petroleum products			2,679,000
Total			3,954,000

Benefit-cost ratio.—13.4.

Local cooperation.—Furnish lands, easements, rights-of-way, and spoil disposal areas for construction and maintenance of project and necessary retaining dikes, bulkheads, and embankments, or the cost of such retaining works; hold and save the United States free from damage; and provide and maintain depths in berthing areas commensurate with project depths.

Comments of State and Federal agency.—

Department of the Interior: No objection.

State of Mississippi: Favorable.

Comments of the Bureau of the Budget.—No objection.

MISSISSIPPI RIVER (BATON ROUGE TO GULF OF MEXICO), LA.

(S. Doc. 36, 87th Cong.)

Location.—The reach of the Mississippi River under consideration extends from Baton Rouge to the Gulf of Mexico, about 250 miles.

Authority.—Resolution of the Committee on Public Works, U.S. Senate, adopted May 8, 1958.

Existing project.—The existing Federal navigation project, Mississippi River, Baton Rouge to the Gulf of Mexico, provides for a channel in the Mississippi River 35 feet deep and 500 feet wide from Baton Rouge, mile 232.6 above Head of Passes, to New Orleans; thence 35 feet deep and not more than 1,500 feet wide measured from a line generally 100 feet from the face of the left bank wharves but not closer than 100 feet to wharves on the right bank within the port limits of New Orleans, mile 104.5 to mile 86.7; thence 40 feet deep and 1,000 feet wide to mile 0, Head of Passes; thence 40 feet deep and 800 feet wide through Southwest Pass, to mile 20.2 below Head of Passes; and thence 40 feet deep and 600 feet wide through Southwest Pass bar channel. Deepening the Southwest Pass channel and the Southwest Pass bar channel from 35 to 40 feet, has been initiated. The Mississippi River gulf outlet project is authorized to provide a 36-foot deep channel from New Orleans to the gulf via a land cut east of the river and includes a lock at New Orleans for access to the Mississippi River.

Navigation problem.—The problem covers channel enlargement of Mississippi River to Baton Rouge to allow economic loading of tankers and bulk carriers of increasing size.

Recommended plan of improvement.—Modification of the existing project, Mississippi River, Baton Rouge to the Gulf of Mexico, La., to provide for a channel 40 feet deep and 500 feet wide from one-tenth mile below the Louisiana Highway Commission bridge at Baton Rouge to the upper limits of the port of New Orleans and within the presently authorized 35- by 1,500-foot channel in the port limits of New Orleans.

Estimated cost (price level of September 1959).—

Federal	$357,000
Non-Federal	None
Total	357,000

Project economics.—

Annual charges:	
Interest and amortization	$13,400
Maintenance and operation	275,000
Total	288,400
Annual benefits: Savings in transportation	$1,310,000

Benefit-cost ratio.—4.5.
Local cooperation.—None.
Comments of the States and Federal agencies.—
Department of Interior: Favorable.
State of Louisiana: Favorable.
Comments of the Bureau of the Budget.—No objection.

GULF INTRACOASTAL WATERWAY, LA., AND TEX.

(H. Doc. 556, 87th Cong.)

Location.—The Gulf Intracoastal Waterway is a Federal shallow-draft project extending 1,115 miles from Apalachee Bay, Fla., to Brownsville, Tex., on the Mexican border.

Authority.—House Public Works Committee Resolution, June 11, 1952.

Existing project.—Several prior projects provided for inland waterways 5 feet deep and 40 feet wide from New Orleans to Sabine River, on the Louisiana-Texas boundary, and between Galveston Bay and Corpus Christi, Tex. The River and Harbor Acts of 1925 and 1927 provided for a channel 9 feet deep and 100 feet wide from the Mississippi River to Corpus Christi, and for an alternate channel of the same dimensions from the Mississippi River to Morgan City, La., via the Plaquemine River. The existing dimensions of 12-foot depth and minimum width of 125 feet were provided for by the River and Harbor Act of 1942. The existing project in Texas also provides for nine feeder or tributary channels, two side channels at Port Isabel, a railroad bridge over the main channel near High Island, floodgates or locks at the Brazos and Colorado Rivers, a flood-discharge channel in the Colorado River extending from the main channel of the Gulf Intracoastal Waterway near Matagorda to the Gulf of Mexico, and a harbor of refuge at Seadrift.

Navigation problems.—The most serious navigation difficulties result from the present width and depth of the channel which restrict efficient operation of marine equipment. Several bends are too sharp to be negotiated with modern tows except at slow speed. A large portion of the power required for towing is expended in overcoming the drag, or friction, caused by the limited channel dimensions. This characteristic also increases vessel damages and insurance rates. Furthermore, tows experience difficulty in passing in the channel. In a 6-mile reach at Houma, La., the shortsight distances at several bends, the narrow width of channel and bridge openings, and erosion of the channel banks, make it necessary for craft to proceed slowly. However, the delays that occur and hazards that exist are not considered sufficient to influence the future development of traffic.

Recommended plan of improvement.—That the existing project for the Gulf Intracoastal Waterway be modified to provide for channels

of the following dimensions through the reaches listed, except at existing locks and other structures and through intensively developed areas; a channel 16 feet deep and 150 feet wide from the Mississippi River, via Algiers Canal and a bypass route at Houma, La., to Atchafalaya River; a channel 16 feet deep and 200 feet wide through the reach from the Atchafalaya River to the Sabine River; a channel 16 feet deep and 150 feet wide through the reach from the Sabine River to the Houston Ship Channel with two relocations; a channel 12 feet deep and 125 feet wide through a relocated route in Matagorda Bay (mile 454.3 and mile 471.3); a channel 12 feet deep and 125 feet wide through a relocated route in Corpus Christi Bay (mile 439.4 and mile 550); maintenance of channel 12 feet deep and 125 feet wide through the existing Lydia Ann Channel between Aransas Bay and Aransas Pass; and maintenance of the existing waterway to 12 feet deep and 125 feet wide between mile 50.5 and mile 63.5, the reach which would be shunted by the Houma bypass.

Estimated cost (price level December 1960).—

Federal	$25, 540, 000
Non-Federal	7, 238, 000
Total	32, 778, 000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$930, 000	$337, 000	$1, 267, 000
Maintenance and operation	56, 000	66, 000	122, 000
Renewed maintenance (Lydia Ann Channel)	6, 000	}	9, 000
Maintenance of navigation aids	3, 000	}	
Total	995, 000	403, 000	1, 398, 000
Annual benefits: Savings in navigation costs			3, 008, 000

Benefit-cost ratio.—2.2.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for construction and and subsequent maintenance of the project and of aids to navigation upon the request of the Chief of Engineers. Accomplish and maintain without cost to the United States all alterations to pipelines, cables, and any other utilities necessary for the construction of the project; construct, maintain, and operate all bridges desired in connection with the bypass route around Houma, La; and hold and save the United States free from damages resulting from the construction work and the maintenance of the channels.

Comments of the States and Federal agencies.—

Department of the Interior: No objection.

State of Louisiana: Favorable.

State of Texas: Favorable.

Comments of the Bureau of the Budget.—No objection.

CALCASIEU RIVER SALT WATER BARRIER, LOUISIANA

(H. Doc. 582, 87th Cong.)

Location.—Southwestern corner of Louisiana.

Authority.—Flood Control Act 1944 and River and Harbor Act 1945.

Existing project.—The existing Federal project for Calcasieu River provides for an approach channel 42 feet deep and 800 feet wide from the Gulf of Mexico to the jetty channel; a channel 40 feet deep and 400 feet wide to the wharves of the port of Lake Charles (mile 34.0); a channel 35 feet deep and 250 feet wide to the vicinity of the U.S. Highway 90 bridge (mile 36.2); improvement of the river upstream to Phillips Bluff (mile 85.9) by removing logs, snags, overhanging trees, and by dredging; a mooring basin 40 feet deep at about mile 3.0, and turning basins 40 feet deep and 35 feet deep at miles 29.6 and 36.2, respectively; and a 12-foot by 200-foot channel from the ship channel to Cameron, La. The Federal project for the Gulf Intracoastal Waterway, which crosses the Calcasieu River at mile 22.5, provides, among other things, for the construction of a salt-water guard lock in the waterway about 0.5 mile east of the river. The lock protects the Mermentau River Basin from intrusion of salt water from the Calcasieu River.

Problem.—Land suitable for rice irrigation has been contaminated by salt intrusion or by continued application of river water with a salt content which has permitted accumulation of salt in the soil and thereby limiting or prohibiting rice production.

Recommended plan of improvement.—Construction of a salt water barrier system consisting of a diversion channel and control structure; a navigation channel with gate structure having a single pair of sector gates with a horizontal clear opening of 56 feet and a sill elevation of −13.0; closure of the existing river channel by an earthen dam in the bend of the river to be abandoned; and protective revetment of the left bank of the river above the head of the diversion channels.

First cost (price levels October 1961).—

Federal	$3,310,000
Non-Federal	43,000
Total	3,353,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest	$87,780	$1,720	$89,500
Amortization	33,080	280	33,360
Maintenance and operation	59,260		59,260
Other (replacements)	2,180		2,180
Total	182,300	2,000	184,300

Annual benefits: From prevention of damage resulting from salt water intrusion $270,000.

Benefit-cost ratio.—1.5.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for the construction and subsequent maintenance of the project; provide without cost to the United States all relocations of buildings, utilities, pipelines, roads, or

other facilities made necessary by the improvements; hold and save the United States free from damages due to the construction works and operation of the projects; and keep the river bendway channel between the closure dam at about mile 43.2 and the mouth of the cutoff channel at about mile 38.8 free from pollution to the satisfaction of the State of Louisiana Stream Control Commission without cost to the United States.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Louisiana: Favorable.

Comments of the Bureau of the Budget.—Noted that the improvements proposed means of mitigating adverse effects of a previously constructed project and believed that since local interests were aware that unmitigated damages might occur, but concurred in the project, there is an implied willingness to accept the project-induced damages to obtain the project benefits. The Bureau further believed it reasonable in this case to consider provision of measures to relieve consequential damages from adverse effects not as part of the original project, but rather as a separate project under policies applicable to conditions of Federal participation and cost sharing for the purpose served by the proposed mitigation measures; and, that, unless there are compelling reasons not evident from the record, the Calcasieu River salt water barrier should be viewed as a project for irrigation water supply, with appropriate terms of repayment. Subject to consideration of these views, the Bureau of the Budget has no objection to submission of the report to the Congress.

Recommendation of the Secretary of the Army.—The Secretary of the Army in his letter of transmittal to the Congress, dated September 24, 1962, recommended that in keeping with the views of the Bureau of the Budget and the nature of the project of which the salt water barrier system will comprise a part, the proposal of the Chief of Engineers be modified to provide that local interests bear 50 percent of the cost of construction of the salt water barrier system, an amount presently estimated at $1,655,000.

Remarks.—The committee is of the opinion that the recommendations of the Chief of Engineers follow the same pattern as exists in works for the prevention and mitigation of salt water damage in other areas along the gulf coast constructed by the Federal Government.

MISSISSIPPI RIVER AT CLARKSVILLE, MO.

(H. Doc. 552, 87th Cong.)

Location.—Clarksville, Mo., is located on the right bank of the Mississippi River about 273 miles upstream from the Ohio River and immediately below lock and dam 24.

Authority.—House Public Works Committee resolution adopted March 30, 1955.

Existing projects.—Lock and dam 24 was authorized by River and Harbor Act, July 3, 1930, and placed in operation in May of 1940.

Navigation problem.—The channel in front of Clarksville has become silted up because of the position of the lock 24 guidewall which prevents any sluicing action by the Mississippi River. In addition a sewerage problem has developed from lack of sanitary sewers emptying into the area.

Recommended plan of improvement.—The most economical and practical means of restoring waterfront depths and eliminating the sewer problem would be by removal of 38,000 cubic yards of silt initially and about 15,000 cubic yards at 5-year intervals. If the United States is to compensate for damages it is recommended that sole compensation be made by cash payment representing the cost of remedial work and the capitalized annual cost of maintenance.

Estimated cost (price level of June 1961).—Federal, $103,300.

Project economics.—Annual charges, not applicable; annual benefits, not applicable; project is remedial in nature.

Benefit-cost ratio.—Not applicable.

Local cooperation.—Provide a release from all past and future claims against the construction, and operation and maintenance of the Mississippi River 9-foot project.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Missouri: Favorable.

Comments of the Bureau of the Budget: No objection.

SANDY SLOUGH, LINCOLN COUNTY, MO.

(H. Doc. 419, 87th Cong.)

Location.—Adjacent to the right bank of Mississippi River at lock and dam No. 25.

Authority.—House Public Works Committee Resolution adopted July 31, 1957.

Existing project.—None.

Navigation problem.—In 1938, an earth closure dike was constructed along the slough to contain the pool of dam 25; Mississippi River systems. Stages at the mouth of Sandy Slough, as effected by pool operations of Dams 25 and 26, vary from 419.0 to 429.7 above mean sea level. Flash floods, principally in the Sandy Creek Basin, are the major cause of silt in Sandy Slough. There is no longer a well defined channel in the slough, and small boats are limited to its lower reaches at minimum pool stages. Docks which originally were located at the foot of high banks are no longer usable because of the accumulation of silt. Along the right bank there are 116 clubhouses, picnic areas, and accompanying recreational facilities. As a result of the unfavorable environment, caused by silting of the slough, property values have not kept pace with those in more favorable areas.

Recommended plan of improvement.—Remedial work to consist of dredging a channel with a bottom width of 60 feet, a depth varying up to 4 feet, and a length of 3.2 miles.

Estimated cost (price level, July 1960).—

Federal	$195,000
Non-Federal	6,000
Total	201,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$7,800	$300	$8,100
Maintenance and operation	4,500	500	5,000
Total	12,300	800	13,100

Annual benefits.—Plan of improvement will remedy the injurious effects of the Mississippi River navigation project.

Benefit-cost ratio.—Not applicable.

Local cooperation.—Furnish lands, easements and rights-of-way; hold and save the United States free from damages; assure availability of slough to public for navigation and recreation; prohibit dock construction within channel limits; and remove snags and other material not a part of normal silting.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Agriculture: Favorable.

State of Missouri: Favorable.

Comments of the Bureau of the Budget.—No objection.

SABINE-NECHES WATERWAY, TEX.

(H. Doc. 553, 87th Cong.)

Location.—The Sabine-Neches Waterway, located in the southeast corner of Texas about 225 miles west of New Orleans, La., and 65 miles east of Galveston, Tex., provides deepwater access to the Gulf of Mexico for Port Arthur, Beaumont, and Orange, Tex.

Authority.—Resolution of the Committee on Public Works of the House of Representatives, adopted June 3, 1959.

Existing project.—The existing Federal project provides for a channel 37 feet deep and 800 feet wide from deepwater in the gulf through the outer bar decreasing to 36 feet deep and 500 feet wide through Sabine Pass, thence 36 feet deep and 400 feet wide to Port Arthur and to the mouth of the Neches River, decreasing to 350 feet wide in the Neches River to Beaumont; a channel 30 feet deep and 200 feet wide across the north end of Sabine Lake and up the Sabine River to Orange. It also includes stone jetties at the Sabine Pass entrance, turning basins at Port Arthur and Beaumont, modification of the bridge at Port Arthur by extending the east approach to span the widened Sabine-Neches Canal and other related improvements.

Navigation problem.—The existing channel to Port Arthur and Beaumont is inadequate for the operation of fully loaded tankers greater than 27,000 deadweight tons which are replacing the older tankers in the coastwise movement of petroleum. Also, the bascule span of the Port Arthur Bridge is a bottleneck to traffic in the Sabine-Neches Canal and its location in the westerly half of the channel makes navigating that reach hazardous.

Recommended plan of improvement.—The recommended plan provides for deepening the channel to 42 feet from the gulf across the Sabine Bank into the jetty channel, thence a depth of 40 feet in all inland channels to Port Arthur and to the Beaumont turning basin, including the Sabine Pass anchorage basin, Port Arthur turning basins including approach and connecting channels; widening the Port Arthur Canal to 500 feet and the channel from the mouth of the Neches River to the Beaumont turning basin to a width of 400 feet; three turning points at junctions of channel cutoffs with natural bends in the Neches River; maintenance of a short reach of former project channel in the Neches River; a shallow-draft extension 12 feet deep and 125 feet wide in the Sabine River from the upstream end of the

existing project to a point near Echo, Tex.; and replacement of the obstructive bridge at Port Arthur.

Estimated cost (price level of March 1962).—

	Federal	Non-Federal	Total
Improved deep-draft channel	$20,541,000	$1,378,000	$21,919,000
Shallow-draft extension	289,000	170,000	459,000
Total	20,830,000	1,548,000	22,378,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Deep-draft channel:			
Interest and amortization	$636,000	$76,000	$712,000
Maintenance and operation	620,000	24,000	644,000
Total	1,256,000	100,000	1,356,000
Shallow-draft extension:			
Interest and amortization	8,000	6,000	14,000
Maintenance and operation	1,000		1,000
Total	9,000	6,000	15,000
Annual benefits:			
Deep-draft channel:			
Savings in tanker operation			2,173,000
Reduced hazards			160,000
Total			2,333,000
Shallow-draft extension savings in operation			28,000

Benefit-cost ratio.—Deep-draft channel, 1.7; shallow-draft extension, 1.9.

Local cooperation.—Furnish all lands, easements, and rights-of-way including spoil disposal areas with suitable retaining dikes, bulkheads, and embankments; hold and save the United States free from damages; make alterations to pipelines, powerlines, utility lines, cables, and highway facilities, except replacement of the bridge at Port Arthur; furnish the necessary rights-of-way and easements required for relocating the highway bridge at Port Arthur and contribute, in cash, a share of its construction cost, a sum presently estimated at $220,000 for the expired service of the existing bridge, but excluding the cost for special benefits and betterments attributable to highway use which depend upon final design; assume all obligations of ownership, operation, and maintenance of the replacement highway bridge at Port Arthur; provide and maintain at local expense depths in berthing areas and local access channels commensurate with depths in the related project areas. Local interests have indicated their willingness and ability to meet these requirements.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Commerce: Favorable.

State of Texas: Favorable.

Comments of the Bureau of the Budget.—No objection.

WALLISVILLE RESERVOIR, TRINITY RIVER, TEX.

(H. Doc. 215, 87th Cong.)

Location.—Trinity River rises in north-central Texas and flows in a southerly direction for about 700 miles and empties into Trinity Bay, a part of Galveston Bay. Wallisville Dam would be located in Chambers County near the mouth of the river.

Authority.—Resolutions, House Committee on Rivers and Harbors adopted March 31, 1944, and February 28, 1945; resolution, Senate Committee on Public Works adopted January 20, 1958; River and Harbor Act of 1958.

Existing project.—The authorized Federal navigation project for the lower Trinity River provides for a sea level channel 9 by 150 feet extending from the Gulf up to the town of Liberty, a distance of 49 miles.

Problems.—Adequate and dependable navigation is vital to support the economy of the area; similarly, water conservation for municipal and industrial uses is important to the present and future growth. A barrier against salt water intrusion is of major importance to preserve fresh water, particularly for irrigation of the rice crop, which largely sustains the local economy.

Recommended plan of improvement.—Recommended plan consists of a small reservoir (total capacity 55,700 acre-feet) for purposes of water conservation, navigation, prevention of salt water intrusion, recreation, and fish and wildlife. Also recommended is a diversion channel with appurtenant lock for navigation purposes. Further, that careful consideration to be given to the recommendations of the U.S .Fish and Wildlife Service providing for acquisition of about 2,000 additional acres of land for purposes of a national wildlife refuge at the reservoir.

Estimated cost (price level of January 1959).—

Federal	[1] $9, 162, 000
Non-Federal	[2]
Total	9, 162, 000

[1] Exclusive of cost of lands for wildlife refuge purposes, estimated at $400,000.
[2] Local reimbursable costs currently estimated at $1,682,000.

Project economics.—

Annual benefits:	
Salinity control	250, 000
Navigation	376, 000
Water supply	149, 300
F. & W. conservation	29, 000
F. & W. recreation	184, 000
General recreation	307, 000
Total	1, 295, 300

Benefit-cost ratio.—2.5.

Local cooperation.—Reimburse the United States all costs allocated to water conservation and one-half the costs allocated to salinity control, the totals being currently estimated at $1,682,000 for construction and $27,200 annually for maintenance, operation, and replacements.

Comments of the State and Federal agencies.—
State of Texas: Favorable.
Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of HEW: Favorable.
Federal Power Commission: Favorable.

Comments of the Bureau of the Budget.—No objection. Bureau expects that prior to request for construction funds, project costs would be reallocated to conform with then current administration standards.

GULF INTRACOASTAL WATERWAY—CHANNEL TO PALACIOS, TEX.

(H. Doc. 504, 87th Cong.)

Location.—Palacios, Tex., is located in Matagorda County on the west shore of Trespalacios Bay about 96 miles southwest of Galveston and 97 miles northeast of Corpus Christi.

Authority.—Resolution of the House Committee on Rivers and Harbors adopted September 13, 1944.

Existing project.—The existing Federal project provides for a channel 9 feet deep, 100 feet wide and about 13.5 miles long extending from the main channel of the Gulf Intracoastal Waterway across Matagorda and Trespalacios Bays to a turning basin at Palacios, Tex.

Navigation problem.—The present channel is inadequate for the large fishing boats that operate in the Gulf of Mexico and for fully loaded barges operating in the Gulf Intracoastal Waterway. Also prevailing winds generate considerable wave action in the turning basins making vessel maneuvering difficult during periods of strong winds.

Recommended plan of improvement.—Provides for a channel 12 feet deep and 125 feet wide extending from the main channel of the Gulf Intracoastal Waterway in Matagorda Bay to the turning basins at Palacios, two protective breakwaters at the entrance to the turning basins, and deepening and maintaining the two turning basins and connecting channel to 12 feet with dimensions of 200 feet by 700 feet in turning basin No. 1, 300 feet by 1,150 feet in turning basin No. 2, and 150 feet to 480 feet wide by 450 feet long in the connecting channels.

Estimated cost (price level of October 1961).—

Federal	$818,000
Non-Federal	70,000
Total	888,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$23,500	$3,000	$26,500
Maintenance and operation	15,000		15,000
Navigation aids	6,000		6,000
Total	44,500	3,000	47,500
Annual benefits:			
Transportation savings			41,000
Reduced hazards			14,000
Total			55,000

90048—62——4

Benefit-cost ratio.—1.2.

Local cooperation.—Furnish all lands, easements, rights-of-way, and spoil disposal areas which have been suitably diked; hold and save the United States free from damages; make alterations to pipelines, powerlines, utility lines, cables, and highway facilities; continue to provide public terminal and transfer facilities open to all; and provide depths in berthing areas commensurate with project depths. Local interests have indicated their willingness and ability to meet these requirements.

Comments of State and Federal agencies.—

Department of the Interior: Favorable.

State of Texas: Favorable.

Comments of the Bureau of the Budget.—No objection to submission of report to Congress. However, the Bureau states that in view of the relatively marginal economic justification of the project and the obvious difficulty of predicting benefits over a period as long as 100 years, it would expect that the project, if authorized, would be re-evaluated prior to any request for funds to initiate construction.

GULF INTRACOASTAL WATERWAY CHANNEL TO VICTORIA, TEX.

(H. Doc. 288, 87th Cong.)

Location.—The channel to Victoria is located in the south central part of Texas about 55 miles northeast of Corpus Christi and 95 miles southwest of Freeport, Tex.

Authority.—Resolution of the Committee on Public Works of the House of Representatives, adopted June 3, 1959.

Existing project.—Provides for a sea level channel 9 feet deep and 100 feet wide extending northwestward about 35 miles from the Gulf Intracoastal Waterway to a turning basin about 7 miles south of Victoria, and a side channel about 2 miles long to a turning basin at Seadrift. The project is essentially completed as far as the Missouri Pacific Railroad crossing at about channel mile 29 including the side channel to Seadrift. Work is underway on a 3-mile segment above the railroad crossing leaving almost 3 miles of channel and the turning basin at Victoria to be started.

Problem.—Local interests desire modification of the requirements of local cooperation for the authorized project to conform with current policy concerning construction of railroad bridges over navigation channels dredged in land cuts and construction and maintenance of turning basins.

Recommended plan of improvement.—The Federal Government construct the bridge for the Missouri Pacific Railroad crossing at channel mile 29.2; dredge and maintain a turning basin 9 feet deep, with average width of 600 feet and average length of 780 feet near Victoria, Tex.; and maintain a turning basin 9 feet deep, 250 feet wide, and 300 feet long at Seadrift, Tex.

Estimated cost (price level of June 1960).—

Railroad bridge	$1, 300, 000
Victoria turning basin	290, 000
Total	1, 590, 000

	Project cost as presently authorized	Proposed modification	Project cost including proposed modification
Federal	$6, 549, 000	+$1, 590, 000	$8, 139, 000
Non-Federal	6, 486, 000	—1, 590, 000	4, 896, 000
Total	13, 035, 000		13, 035, 000

Local cooperation.—Furnish all lands, easements, and rights-of-way required for construction of the railroad bridge, for construction and maintenance of the Victoria turning basin, and for maintenance of the turning basin at Seadrift, including suitable areas for disposal of spoil (adequately diked and bulkhead); hold and save the United States free from damages; bear all costs of owning, operating, and maintaining the new railroad bridge and related sections of railroad embankment and track; make alterations in pipelines, powerlines, utility lines, cables, and highway facilities in connection with work at the Victoria and Seadrift turning basin; and provide adequate public terminal and transfer facilities, open to all on equal terms. Local interests have indicated their willingness and ability to meet the requirements of local cooperation.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$320, 000	$262, 000	$582, 000
Operation and maintenance	193, 000	0	193, 000
Total	513, 000	262, 000	775, 000
Annual benefits:			
General navigation benefits			1, 272, 000
Flood damages prevented			15, 000
Increased land utilization due to prevention of flooding			160, 000
Total			1, 447, 000

Benefit-cost ratio.—1.9.

Comments of State and Federal agencies.—

Department of the Interior: Favorable.

State of Texas: Favorable.

Comments of the Bureau of the Budget.—No objection.

ILLINOIS WATERWAY, ILL. AND IND.

(H. Doc. 31, 86th Cong.)

Location.—The Illinois Waterway provides a channel for barge navigation between the Mississippi River, 38 miles above St. Louis, and Lake Michigan at Chicago.

Report authorized by.—House Rivers and Harbors Committee resolution adopted March 16, 1943; Senate Public Works Committee resolution adopted March 24, 1956.

Existing projects.—Provides for nine locks and six dams; navigation channel 9 feet deep in the Illinois and Des Plaines Rivers from the mouth of the Illinois River to Lockport, a distance of 291.1 miles; upstream extension and branch channels 9 feet deep in the Chicago Sanitary and Ship Canal, Chicago River, Calumet-Sag Channel, Little Calumet River, Calumet River, and Grand Calumet River; and appurtenant improvements including bridge changes. The project is complete except for construction of two locks, one on Calumet River and the other on Grand Calumet River and improvements of the branch channel in the Grand Calumet River.

Navigation problem.—Commerce on the Illinois River has increased since the improved waterway to Chicago was opened from about 1.7 million tons in 1935 to 21.4 million tons in 1955. Most of the traffic delays now occur at the locks because many tows require rearrangement to permit a single lockage and the larger tows must make a double lockage. The congestion at the locks resulting from these delays will be more critical as the traffic increases.

Recommended plan of improvement.—Modification of existing project to provide for construction of supplemental locks, 110 feet wide and 1,200 feet long, at the seven existing lock sites on the Illinois and Des Plaines Rivers. (The first two locks estimated to be needed by 1968 and the last three by 1977.)

Estimated cost (price level of January 1957).—All Federal, $114,652,000.

Project economics.—

Annual charges	$4,594,300
Annual benefits: All transportation savings	22,320,000
Benefit-cost ratio	4.9

Local cooperation.—Provided that prior to construction local interests agree that they will assume title to, and maintain and operate the new bridge across the lower approach to the Brandon Road lock when the bridge is placed in service.

Comments of State and Federal agencies.—

Fish and Wildlife Service: No interest in project.

State of Illinois. Concurs in conclusions and recommendations.

Comments of the Bureau of the Budget.—Notes that commerce on the waterway has increased at a rapid rate since 1935; however, it states that a projection of the past rate of growth is by no means certain. The Bureau of the Budget does not question the economic justification, but considers authorization 10 to 19 years in advance of the need is premature and accordingly urges that the report be regarded only as a study of future need, and that the estimates on commerce and average tons per lockage be brought up to date in a future report to Congress in 5 years.

Remarks.—The committee considers that in view of the time which has elapsed, authorization at this time is needed to permit the first lock to be completed by 1970.

KASKASKIA RIVER, ILL.

(S. Doc. 44, 87th Cong.)

Location.—The Kaskaskia River rises in Champaign County in eastern Illinois and flows southwesterly about 325 miles to the Mississippi at a point 60 miles downstream from St. Louis, Mo.

Authority.—Senate Public Works Committee resolution adopted August 17, 1954.

Existing project.—The original Federal improvement of the river for navigation by deepening to 3 feet to mile 12, and removing snags to mile 22, was abandoned in 1895. The river is not used by commercial craft at the present time. The existing Federal project for flood control and other purposes on the Kaskaskia River provides for dams and reservoirs at Carlyle and Shelbyville, and levees between Cowden and Vandalia, below Carlyle, and New Athens. Carlyle Reservoir is under construction and planning is underway on the Shelbyville project. Work has not started on the levees. The reservoirs, in addition to reducing flood flows, would aid navigation by augmenting flows in the Mississippi River, provide municipal and industrial water supply, benefit fish and wildlife, and afford opportunity for recreational developments.

Navigation problem.—Local interests desire a 9-foot navigation channel in the lower 50 miles of the Kaskaskia River to facilitate the outbound movements of coal and grain, and to augment the local economy.

Recommended plan of improvement.—Provides for a channel 9 feet deep and 200 feet wide from the mouth of Kaskaskia River to Fayetteville, Ill., by enlarging the present channel where required, and making overbank cuts to eliminate sharp bends; and a dam at mile 4 with a single lock 84 feet wide and 600 feet long. The plan of improvement also provides for modification of the storage allocations in the Carlyle and Shelbyville Reservoirs, to provide water for Kaskaskia River navigation in lieu of Mississippi River navigation; and future reallocation of storage in the two reservoirs when additional water is needed for navigation, if the use of such storage is found by the Chief of Engineers to be feasible and more economical than pumping water from below the dam into the navigation pool.

Estimated cost (price level, January 1960).—

Federal	$58, 200, 000
Non-Federal	2, 300, 000
Total	60, 500, 000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$2, 223, 300	$119, 000	$2, 342, 300
Maintenance and operation	270, 000	0	270, 000
Replacements	17, 700	0	17, 700
Navigation aids	19, 000	0	19, 000
Total	2, 530, 000	119, 000	2, 649, 000
Annual benefits: Transportation savings on coal movements			5, 120, 000

Benefit-cost ratio.—1.9.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way; hold and save the United States free from damages; make all necessary alterations to sewer, water supply, drainage, and other utility facilities; bear a proportionate share of the costs of relocations of railroad and highway bridges; remove one highway bridge at own expense; maintain all bridges over the improved waterway; provide necessary loading and mooring facilities; provide terminal and transfer facilities; and establish agency for controlling withdrawal of water from river below Carlyle Dam.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.
Department of Agriculture: No objection.
Department of Commerce: No objection.
State of Illinois: Approves project.

Comments of the Bureau of the Budget.—The Bureau of the Budget notes that the Acting Chief of Engineers refers to the uncertainty of railroad rate adjustments that may be proposed in the future and the action that the Interstate Commerce Commission may take thereon, and that he recommends, if the project is authorized, a reevaluation of project economic justification in light of rates then existing, would be made when funds are requested for construction. The Bureau of the Budget concurs in this recommendation. The Bureau of the Budget turther advises that there would be no objection to the submission of fhe proposed report to the Congress.

HARBORS ON MISSISSIPPI RIVER (MOUTH OF MISSOURI RIVER TO MINNEAPOLIS)

(H. Doc. 513, 87th Cong.)

Location.—The harbors are located in communities in Minnesota, Wisconsin, Iowa, Illinois, and Missouri along the upper Mississippi River between the mouth of the Missouri River and Minneapolis, Minn.

Authority.—Resolution of the Committee on Public Works of the House of Representatives adopted April 22, 1947, and resolutions of the Committee on Public Works of the U.S. Senate adopted March 4, 1947, and August 26, 1955; River and Harbor Act of March 2, 1945; Flood Control Act approved July 24, 1946.

Existing project.—The Federal navigation project for the upper Mississippi River provides for a navigation channel of 9-foot depth between the Missouri River and Minneapolis to be obtained by construction of locks and dams supplemented by dredging. This depth is generally available as far upstream as St. Anthony Falls in Minneapolis where work is continuing. Authorized improvements also include 10 commercial barge harbors (5 completed) and 16 small boat harbors (12 completed). In addition to these, a number of mooring basins for small craft have been established by municipalities and clubs. Other local interests have constructed more modest facilities for serving recreational boats.

Navigation problem.—There is need for additional protected harbors at various localities along the Mississippi River for existing and future recreational and commercial fishing craft.

Recommended plan of improvement.—Provides for construction and maintenance of 14 small boat harbors and for maintenance of 1 existing small boat harbor at Quincy, Ill. The 15 harbors are listed below:

Harbor:	*Location on Mississippi River*
Harriet Island, St. Paul, Minn	Mile 840.2.
Bay City, Wis	Mile 785.9.
Pepin, Wis	Mile 767.1.
Cassville, Wis	Mile 606.6.
Bellevue, Iowa	Mile 555.6.
Savanna, Ill	Mile 537.0.
Clinton, Iowa	Mile 518.8.
Moline, Ill	Mile 488.0.
Davenport, Iowa (Credit Island)	Mile 478.7.
Andalusia, Ill	Mile 473.0.
New Boston, Ill	Mile 433.1.
Keokuk, Iowa	Mile 363.5.
Warsaw, Ill	Mile 359.1.
Quincy, Ill	Mile 327.3.
Grafton, Ill	Mile 218.5.

All of the above harbor channels would be dredged to a depth of 5 feet below minimum pool level. It is further recommended that construction of individual harbors be permitted whenever funds for the purpose are available and the prescribed local cooperation for the particular harbor has been furnished.

Estimated cost.—

Location	Federal	Non-Federal	Total	Non-Federal percent of Federal construction
St. Paul, Minn	$7,000	$7,000	$14,000	50.0
Bay City, Wis	24,000	6,000	30,000	19.5
Pepin, Wis	151,000	24,000	175,000	13.6
Cassville, Wis	163,000	47,000	210,000	22.5
Bellevue, Iowa	78,000	37,000	115,000	32.4
Savanna, Ill	98,000	47,000	145,000	32.2
Clinton, Iowa	38,000	21,000	59,000	35.5
Moline, Ill	110,000	60,000	179,000	33.3
Davenport, Iowa	78,000	44,000	122,000	35.8
Andalusia, Ill	15,000	2,000	17,000	12.0
New Boston, Ill	20,000	4,000	24,000	15.8
Keokuk, Iowa	192,000	65,000	257,000	25.4
Warsaw, Ill	45,000	8,000	53,000	14.7
Quincy, Ill				
Grafton, Ill	177,000	177,000	354,000	50.0
Total	1,205,000	549,000	1,754,000	

Project economics and benefit-cost ratio.—

Location	Amortization and interest	Additional Federal annual maintenance	Total annual charges	Total annual benefits	Benefit-cost ratio
St. Paul, Minn	$1,900	$2,500	$4,400	$38,900	8.8
Bay City, Wis	1,500	2,500	4,000	18,100	4.5
Pepin, Wis	7,300	800	8,100	16,400	2.0
Cassville, Wis	8,300	1,000	9,300	16,200	1.7
Bellevue, Iowa	4,600	1,400	6,000	15,300	2.6
Savanna, Ill	6,000	2,900	8,900	23,600	2.7
Clinton, Iowa	2,600	2,500	5,100	30,400	6.0
Moline, Ill	7,300	800	8,100	14,100	1.7
Davenport, Iowa	5,200	3,000	8,200	23,600	2.9
Andalusia, Ill	700	500	1,200	8,800	7.3
New Boston, Ill	1,000	1,200	2,200	9,800	4.5
Keokuk, Iowa	10,100	700	10,800	17,500	1.6
Warsaw, Ill	2,000	1,100	3,200	14,600	4.6
Quincy, Ill		5,000	5,000	21,300	4.1
Grafton, Ill	15,200	2,100	17,300	59,000	3.4
Total		28,000			3.2

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project and of aids to navigation upon the request of the Chief of Engineers including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of spoil and necessary retaining dikes, bulkheads, and embankments therefor or the cost of such retaining works; hold and save the United States free from damages that may result from the construction and maintenance of the project; provide and maintain necessary mooring facilities and utilities, including a public landing with suitable supply facilities open to all on equal terms, and dredge berthing areas to a depth commensurate with the depth of the Federal channel improvement; reserve spaces within the anchorage and mooring facilities adequate for accommodation of transient small boats; accomplish such utility or other relocations or alterations as are necessary for project purposes; establish a competent and properly constituted public body empowered to regulate the use, growth, and free development of the harbor facilities with the understanding that said facilities will be open to all on equal terms; and make an equitable cash contribution toward the Federal first cost of each harbor development, the percentages and presently estimated amounts of which are listed in the table showing estimated costs. Local interests have indicated willingness and ability to comply with requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Commerce: Favorable.

State of Minnesota: Favorable.

State of Wisconsin: Favorable.

State of Iowa: Favorable.

State of Illinois: Favorable.

State of Missouri: Favorable. However, due to local problems the Governor requested that further consideration of the harbors at Louisiana and Clarksville be delayed.

Comments of the Bureau of the Budget.—No objection to submission of report to Congress. However, the Bureau of the Budget notes that for none of the 14 new harbors recommended by the Chief of Engineers

is the Federal cost in excess of $200,000. The Budget states that construction of these harbors could be accomplished under the provisions of section 107 of the 1960 River and Harbor Act without further action by the Congress.

ONTONAGON HARBOR, MICH.

(H. Doc. 287, 87th Cong.)

Location.—Ontonagon Harbor is located on the south shore of Lake Superior, 136 water miles east of Duluth-Superior Harbor, Minn. and Wis., and 274 water miles west of Sault Ste. Marie, Mich.

Authority.—Resolutions of the Committees on Public Works of the U.S. Senate and House of Representatives, adopted July 2, 1958 and July 16, 1958, respectively.

Existing project.—The existing Federal project, completed in 1938, provides for a channel 17 feet deep and 400 feet to 150 feet wide from the lake to the piers; a channel between the piers 150 feet wide, 17 feet deep in the outer 250 feet, thence 15 feet deep in the inner 2,200 feet; an inner basin 15 feet deep, 900 feet long, and up to 285 feet wide between limits 50 feet from existing wharves; and 4,990 feet of entrance piers. Channel maintenance since 1950 has been limited mainly to serving the needs of commercial fishing and other shallow-draft traffic.

Navigation problem.—Ontonagon Harbor is not suitable for use by modern Great Lakes vessels because of the limited project depth of 15 feet and the small maneuvering area in the inner harbor. The harbor presently affords safe vessel operation for only commercial fishing and other small craft.

Recommended plan of improvement.—Provides for a depth of 23 feet in the approach channel, with suitable widening, and in the outer 450 feet of the entrance channel; a depth of 22 feet in the next 1,150 feet of the entrance channel; a depth of 21 feet in the remainder of the entrance channel and in the basin to within 800 feet of the highway bridge; removal of the inner 955 feet of the west pier, and extension of the basin westward for 1,750 feet, at a depth of 21 feet and a minimum width of 200 feet; a sedimentation basin within the harbor, 30 feet deep, with a capacity of 155,000 cubic yards; reconstruction of the outer 370 feet of the east pier; and strengthening the remaining piers and raising them to an elevation 8 feet above low water, except the outer 96 feet of the west pier.

Estimated cost (price level of September 1960).—

Federal	$4,741,000
Non-Federal	145,000
Total	4,886,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$177,000	$7,000	$184,000
Maintenance	35,000		35,000
Maintenance, navigation aids	1,000		1,000
Total	213,000	7,000	220,000
Annual benefits:			
Transportation savings:			
Receipts			284,800
Shipments			54,400
Total			339,200

Benefit-cost ratio.—1.5.

Local cooperation.—(*a*) Provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project and of aids to navigation upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial subsequent disposal of spoil and necessary retaining dikes, bulkheads, and embankments therefor or the cost of such retaining works; (*b*) hold and save the United States free from damages due to the construction and maintenance of the improvements; (*c*) accomplish without cost to the United States alterations or relocations as may be required of roads, structures, and utility facilities; (*d*) provide and maintain adequate public terminal and transfer facilities, open to all on equal terms, including dredging of berthing areas to depths commensurate with related project depths; and (*e*) prohibit bulkhead construction or other encroachment on the southerly shore in the harbor retained as a natural spending beach for waves. Local interests have indicated willingness and ability to meet requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Commerce: States that it is the opinion of that agency that the available record does not clearly indicate sufficient economic benefits to warrant its endorsement.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—States that while there would be no objection to the submission of the proposed review report on Ontonagon Harbor to the Congress, the Bureau of the Budget would expect that if the proposed improvement is authorized by the Congress it would be reexamined prior to submission of a request for funds to initiate its construction in the light of policies that may result from the current transportation review and of local conditions existing at that time.

MUSKEGON HARBOR, MICH.

(H. Doc. 474, 87th Cong.)

Location.—Muskegon Harbor is located on the eastern shore of Lake Michigan nearly opposite and 80 miles across the lake from Milwaukee, Wis.

Authority.—Senate and House Public Works Committee Resolutions adopted May 18, 1956, and June 27, 1956, respectively.

Existing project.—Provides in general for an outer harbor formed by arrowhead breakwaters; an entrance channel 24 feet deep at entrance decreasing to 21 feet at the inner channel, thence an inner channel 21 feet deep extending to Muskegon Lake; for piers and revetments along the inner channel; and for repairing and maintaining the revetment around the old car-ferry slip.

Navigation problem.—The existing project depth is inadequate to accommodate vessels in the present and prospective fleet loaded to drafts commensurate with depths being provided in the Great Lakes connecting channels and the St. Lawrence Seaway.

Recommended plan of improvement.—Provides in general for a depth of 29 feet from deep water in Lake Michigan to a point about

1,000 feet landward of the ends of the breakwaters; thence a depth of 28 feet to the outer ends of the inner piers; thence a depth of 27 feet in the inner channel to Muskegon Lake; and for modification of the project limits to delete two triangular areas adjacent to the inner portion of the entrance channel and to reduce the project width in the inner channel from 240 feet to 200 feet.

Estimated cost (price level of May 1960).—

Federal	$609,000
Non-Federal	450,000
Total	1,059,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$22,000	$21,000	$43,000
Maintenance and operation	5,000		5,000
Total	27,000	21,000	48,000
Annual benefits:			
Transportation savings:			
Bulk cargo traffic			137,700
General cargo traffic			88,300
Total			226,000

Benefit-cost ratio.—4.7.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project and of aids to navigation, including suitable areas for initial and subsequent disposal of spoil and necessary retaining works therefor or the costs of such retaining works; hold and save the United States free from damages due to construction and maintenance of the improvements; and when and where needed, provide and maintain depths in berthing areas and access channels commensurate with the depths provided in the related project areas. Local interests have indicated a willingness and ability to comply with items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—No objection.

LELAND HARBOR, MICH.

(H. Doc. 413, 87th Cong.)

Location.—On the east shore of Lake Michigan, about 40 miles by water northeast of Frankfort, Mich.

Authority.—House Public Works Committee resolution adopted July 31, 1957, and Senate Public Works Committee resolution adopted February 8, 1957.

Existing project.—The Federal navigation project, completed in 1937, provides piers about 400 feet long, converging from shore to an entrance 60 feet wide; and an entrance channel 6 feet deep, 40 feet wide, and 300 feet long.

Navigation problem.—There is a need for additional anchorage area and greater protection for the locally based fishing fleet and mail-ferryboat and cruising recreational craft.

Recommended plan of improvement.—Construction of a breakwater about 1,000 feet long, a protected anchorage and maneuvering area about 3 acres in extent and 10 feet deep, a flared approach channel 12 feet deep with minimum width of 140 feet, and removal of the existing north pier.

Estimated cost (price level of February 1961).—

Federal	$485,000
Non-Federal	285,000
Total	770,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$19,000	$12,200	$31,200
Maintenance dredging	2,500		2,500
Maintenance to navigation aids	750		750
Total	22,250	12,200	34,450
Annual benefits:			
Recreational			21,400
Harbor of refuge:			
Recreational craft			10,000
Commercial craft			5,000
Commercial fishing			6,500
Total			42,900

Benefit-cost ratio.—1.2.

Local cooperation.—Contribute in cash 37 percent of the first cost of construction of the general navigation facilities due to benefits to recreational boating, such contribution, presently estimated at $285,000, to be paid in a lump sum prior to initiation of construction and subject to final adjustment after actual costs have been determined; provide without cost to the United States, all lands, easements, and rights-of-way necessary for construction and subsequent maintenance of the project and of aids to navigation upon the request of the Chief of Engineers, including suitable areas as may be determined by the Chief of Engineers to be required for initial and subsequent disposal of spoil and necessary retaining dikes, bulkheads, and embankments therefor, or the cost of such retaining works; hold and save the United States free from damages due to the construction and maintenance of the project; provide and maintain without cost to the United States necessary mooring facilities and utilities, including a public landing with suitable supply facilities, open to all on equal terms; the dredging of berthing areas to be commensurate with the depth of the Federal channel improvements; establish a properly constituted and competent public body empowered to cooperate financially and to provide and operate essential local facilities; reserve spaces within the anchorage and mooring facilities adequate for the accommodation of transient craft; and maintain an adequate channel for

the commercial fishing fleet in the river upstream of the Federal improvement. The local interests are willing to furnish the items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—No objection.

LITTLE BAY DE NOC, GLADSTONE HARBOR, AND KIPLING, MICH.

(H. Doc. 480, 87th Cong.)

Location.—Little Bay de Noc is a northerly arm of Green Bay in the northwestern part of Lake Michigan. Gladstone is on the west shore of the bay, about 7.5 miles north of Escanaba. Kipling is on the north side of Gladstone Harbor.

Authority.—Resolutions of the Public Works Committees of the Senate and House of Representatives adopted August 18, 1959 and June 3, 1959, respectively, and section 109 of the River and Harbor Act of 1960.

Existing project.—The existing Federal project, completed in 1905, provided for dredging to a depth of 19 feet the approach to the then existing ore dock at Gladstone. No funds have been expended on the project since 1911 and, since the ore dock was abandoned many years ago, the project was recommended for abandonment in House Document No. 467, 69th Congress, 1st session. No action in respect to abandonment was taken by Congress.

Navigation problem.—The existing locally provided channel to Kipling is inadequate for tankers calling there.

Recommended plan of improvement.—It is recommended that the existing project for Gladstone Harbor, Mich., be abandoned and that a new project be authorized, providing for a channel 24 feet deep, 200 feet wide, and about 2,400 feet long from deep water in Little Bay de Noc to the Kipling waterfront, with suitable widening at the landward end to form a turning basin 550 feet wide and 24 feet deep.

Estimated cost (price level, November 1961).—

Federal	$350,000
Non-Federal	19,000
Total	369,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$12,900	$900	$13,800
Maintenance	2,000	200	2,200
Navigation aids	100		100
Total	15,000	1,100	16,100
Annual benefits: Transportation savings			79,200

Benefit-cost ratio.—4.9.

Local cooperation.—Hold and save the United States free from damages due to the construction works and maintenance of the improvement; provide and maintain without cost to the United States depth in berthing areas commensurate with the depth provided in the related project area; and make terminal facilities for transfer of petroleum products at Kipling available to all on equal terms. It is the opinion of the district engineer that local interests are able and willing to meet the requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of Interior: Favorable.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—No objection.

GREEN BAY HARBOR, WIS.

(H. Doc. 470, 87th Cong.)

Location.—Green Bay Harbor is within the mouth of the Fox River at the south end of Green Bay, an arm of Lake Michigan.

Authority.—Similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956 and June 27, 1956, respectively.

Existing project.—Outer harbor entrance channel 10 miles long, 22 feet deep, and from 500 feet wide at outer end to 300 feet at Grassy Island; Fox River channel 22 feet deep to Chicago and North Western Railway bridge; turning basin 22 feet deep at mouth of East River; turning basin 20 feet deep above Chicago and North Western Railway bridge; and channel 3½ miles long, 18 feet deep, 150 feet wide from Chicago and North Western Railway bridge to DePere, terminating in a turning basin.

Navigation problem.—Lack of adequate depth to accommodate the vessels which will use the connecting channels and St. Lawrence Seaway and inadequate width in the lower harbor for turning vessels.

Recommended plan of improvement.—Provides generally for deepening the entrance channel in Green Bay to 26 feet from that depth in the bay to Grassy Island, at channel widths of 500 feet to Tail Point Light, thence 300 feet to Grassy Island; deepening the entrance channel to 24 feet from Grassy Island to a point 0.5 mile upstream at the presently authorized channel width of 300 feet; thence deepening the Fox River to 24 feet to a point 1,700 feet upstream from the Chicago & North Western Railway bridge, at existing channel widths; and dredging the authorized but unconstructed turning basin at the mouth of the East River to a depth of 24 feet for a maximum width of 1,000 feet; and further provides that the uncompleted part of the work authorized in 1945 be combined with the additional work recommended herein and the whole be treated as a single work item, with estimated cost of $4,610,000 for construction, including $340,000 for work previously authorized, and that this combination supersede the authorization for the uncompleted portion of the work authorized by the River and Harbor Act of 1945.

Estimated cost (price level, June 1961).—

Federal	$4,270,000
Non-Federal	215,000
Total	4,485,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$159,500	$9,900	$169,400
Maintenance of channel	20,000		20,000
Maintenance, aids to navigation	1,600		1,600
Total	181,000	9,900	191,000
Annual benefits: Transportation savings			478,000

Benefit-cost ratio.—2.5.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way for construction and subsequent maintenance, including suitable areas for initial and subsequent disposal of spoil and necessary retaining works therefor or the costs of such retaining works; hold and save the United States free from damages due to the construction and maintenance of the improvements; when and where necessary, provide and maintain depths between the new channel limits and terminal facilities commensurate with related project depths; and accomplish such alterations as required in sewer, water supply, drainage, and other utilities. Local interests have indicated willingness and ability to comply with these items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Wisconsin: Favorable.

Comments of the Bureau of the Budget.—No objection.

KENOSHA HARBOR, WIS.

(H. Doc. 496, 87th Cong.)

Location.—Kenosha Harbor, Wis., on the western shore of Lake Michigan about 35 miles south of Milwaukee and 54 miles north of Chicago, Ill., is at the mouth of Pike Creek in the city of Kenosha. The areas tributary to Kenosha Harbor includes Kenosha County, parts of Racine and Walworth Counties, and a small area along the northern boundary of Illinois.

Authority.—Full response to House Committee on Public Works resolution adopted July 31, 1957; partial response to similar resolutions of Senate and House Committees on Public Works adopted May 18, 1956, and June 27, 1956, respectively; and in partial response to Senate Public Works Committee resolution adopted April 30, 1957.

Existing project.—The existing Federal project for Kenosha Harbor, completed in 1959, provides for (*a*) a detached breakwater 796 feet long, northeast of the harbor; (*b*) two parallel piers about 250 feet apart along the entrance channel, 1,077 feet and 1,872 feet in length for the north and south piers, respectively; (*c*) an entrance channel generally 400 feet wide lakeward from the piers and 200 feet wide be-

tween the piers, the channel being 2,750 feet long and 21 feet deep from that depth in the lake to an interior basin; (*d*) an interior basin 21 feet deep; and (*e*) a channel 21 feet deep, 70 feet wide, and 475 feet long extending northwest from the basin. The lake approach to the entrance channel has been deepened to 23 feet under the general provisions of section V of the River and Harbor Act of March 4, 1951.

Navigation problem.—Kenosha Harbor is a part of the Great Lakes navigation system which includes improvements to connecting channels between the lakes and to shipping and receiving harbors. Present harbor depths of 21 feet are not commensurate with the controlling depths currently being provided in the system and with those of the St. Lawrence Seaway to accommodate the vessels carrying oversea general cargo.

Recommended plan of improvement.—A lake approach channel 800 feet wide and 27 feet deep from the detached breakwater lakeward for a distance of about 2,800 feet; an approach channel 26 feet deep between the detached breakwater and the outer end of the north pier; and an entrance channel and inner basin 25 feet deep, exclusive of the northwesterly extension.

Estimated cost (price level of July 1961).—

Federal	$673,000
Non-Federal	
Total	673,000

Project economics.—

	Federal
Annual charges:	
Interest and amortization	$25,200
Maintenance	5,000
Total	30,200
Annual benefits: Transportation savings in oversea general cargo	47,300

Benefit-cost ratio.—1.6.

Local cooperation.—Hold and save the United States free from damages that may result from construction and maintenance of the improvement; and maintain without cost to the United States depths in berthing areas when and as required at docks adjacent to the area to be improved, commensurate with the recommended project depths.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Wisconsin: Favorable.

Comments of the Bureau of the Budget.—No objection.

MANITOWOC HARBOR, WIS.

(H. Doc. 479, 87th Cong.)

Location.—West shore of Lake Michigan about 79 miles north of Milwaukee, Wis.

Authority.—Similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956, and June 27, 1956, respectively.

Existing project.—The existing Federal project provides for an outer harbor protected by breakwaters with an entrance 425 feet wide; a channel 21 feet deep and 425 feet wide from deep water in the lake to the breakwaters, thence 650 feet wide through the outer harbor to

the river mouth; a channel 21 feet deep at varying widths for a distance of 1.7 miles up the Manitowoc River; removal of the old stub pier at the river entrance; and an approach channel 21 feet deep in the outer harbor to a proposed city terminal south of the south breakwater. The lake approach has been deepened to 23 feet under the general authority provided in section 5 of the River and Harbor Act of March 4, 1915.

Navigation problem.—Existing project dimensions are not adequate to accommodate present and prospective bulk cargo vessels serving the harbor.

Recommended plan of improvement.—Provide for an approach channel 25 feet deep and 800 feet wide from deep water in the lake to the breakwater entrance, a distance of about 2,600 feet; a depth of 23 feet over a width of 800 feet in the outer harbor, thence over the existing project widths in the river to Eighth Street; a depth of 22 feet over existing widths from Eighth Street to the upstream limit of the project; and elimination of the authorized channel in the south part of the outer harbor.

Estimated cost (price level of July 1961).—

Federal	$719,000
Non-Federal	193,000
Total	912,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$26,300	$8,900	$35,200
Maintenance dredging	3,000		3,000
Maintenance navigation aids	300		300
Total	29,600	8,900	38,500
Annual benefits: Transportation savings			63,600

Benefit-cost ratio.—1.7.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for initial dredging and subsequent maintenance of the improvement and for aids to navigation, including suitable areas for initial and subsequent disposal of spoil and necessary retaining works therefor or the costs of such retaining works; hold and save the United States free from damages due to the construction works and maintenance of the improvement; provide and maintain without cost to the United States depths in berthing areas and local access channels serving the terminals commensurate with the depths provided in the related project areas; and accomplish and maintain without cost to the United States such alterations as may be required by the Chief of Engineers in sewer, water supply, drainage, and other utility facilities. Local interests have indicated willingness and ability to comply with the requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Wisconsin: Favorable.

Comments of the Bureau of the Budget.—No objection.

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MILWAUKEE HARBOR, WIS.

(H. Doc. 134, 87th Cong.)

Location.—Milwaukee Harbor is located on the west shore of Lake Michigan, 85 miles north of Chicago, Ill.

Authority.—Resolutions of the Senate and House Public Works Committees, adopted May 18, 1956, and June 27, 1956, respectively.

Existing project.—Provides for two breakwaters, 19,625 feet in length, with an opening 500 feet wide; two piers at the Milwaukee River mouth, 358 to 552 feet apart; an entrance channel 21 feet deep, 2,850 feet long, and 600 feet wide outside the piers; together with various widths and depths.

Navigation problem.—Major problem is lack of adequate depth to accommodate vessels which will utilize the connecting channels and the St. Lawrence Seaway.

Recommended plan of improvement.—Provides for (*a*) an approach channel 30 feet deep and 800 feet wide, narrowing to 300 feet through the breakwater opening; (*b*) a depth of 28 feet in the entrance channel to the inner end of the piers, over existing project widths, but not nearer than 50 feet from either pier; (*c*) a depth of 28 feet in the outer harbor south of the entrance channel to East Bay Street extended, between limits 50 feet east of the pierhead line and 400 feet west of the breakwater; (*d*) and a depth of 27 feet in the Milwaukee River to within 100 feet of the centerline of the bridge at mile 0.34, over existing project widths, and the Kinnickinnic River to widths 160 feet of the centerline of the bridge at mile 1.0, not nearer than 75 feet from adjacent docks.

Estimated cost (price level of January 1960).—

Federal	$4,029,000
Non-Federal	627,000
Total	4,656,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$150,000	$24,800	$174,800
Maintenance	16,000		16,000
Total	166,000	24,800	190,800
Annual benefits: Transportation savings			1,130,000

Benefit-cost ratio.—5.9.

Local cooperation.—Local interests must agree to (*a*) hold and save the United States free from damages due to the construction and maintenance of the improvements; (*b*) accomplish all necessary alterations to existing structures and utility facilities; and (*c*) when and where necessary, provide and maintain depths and terminal facilities and in berthing areas commensurate with related project depths. Local interests have indicated willingness and ability to provide local requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Wisconsin: Favorable.

Comments of the Bureau of the Budget.—No objection.

CALUMET HARBOR AND RIVER, ILL. AND IND.

(H. Doc. 581, 87th Cong.)

Location.—Calumet Harbor is at the south end of Lake Michigan, on the State line between Illinois and Indiana.

Authority.—Interim report is in partial response to similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956, and June 27, 1956, respectively.

Existing project.—The existing Federal project for Calumet Harbor and River provides for an outer harbor protected by a breakwater 12,500 feet long; an approach channel 3,200 feet wide and 29 feet deep; an outer harbor channel and anchorage 3,000 feet wide and 28 feet deep; a channel in the river 290 feet wide and 27 feet deep up to the Elgin, Joliet, & Eastern Railway bridge, thence at least 200 feet wide and 25 feet deep to 111th Street, 23 feet to 114th Street, 21 feet to 122d Street, and 21.5 feet to and including turning basin No. 5; widening and straightening the river, except through the rock cut, to within 20 feet of bulkhead lines; five turning basins along the river; and closing the existing gap between the breakwaters. The existing project for Lake Calumet provides for dredging to a depth of 21 feet an area 670 feet wide and 3,000 feet long at the south end of the lake and an entrance channel 300 feet wide from Calumet River at turning basin No. 5.

Navigation problem.—Existing project depths are not adequte to allow vessels calling at points along the river and in Lake Calumet to be loaded to the drafts permitted by the Great Lakes connecting channels and the St. Lawrence Seaway. Widening in the rock section of the river, enlargement of turning basins and extension of the existing project are needed for safe navigation and development of the harbor.

Recommended plan of improvement.—Provides for: a depth of 27 feet in earth and 28 feet in rock over a minimum width of 200 feet in Calumet River from the Elgin, Joliet & Eastern Railway bridge to turning basin No. 5; widening the channel through the rock section of Calumet River, together with the presently authorized widening and straightening of the river, all to a depth of 27 feet in earth and 28 feet in rock; a depth of 27 feet over the authorized limits of turning Basin No. 1 on Calumet River; enlarging turning basin No. 5, and deepening the enlarged basins to 27 feet; elimination of turning basins Nos. 2 and 4; a depth of 27 feet within authorized limits to Lake Calumet and its entrance channel; and extending the existing project limits in Lake Calumet 3,000 feet northward at a width of 1,000 feet and a depth of 27 feet. Further, that the uncompleted work authorized in 1935 for the related river section be combined with the additional work now recommended for that section (exclusive of turning basins Nos. 2 and 4) and the whole be treated as a single further improvement, with estimated cost of $13,479,000 for construction, including $2,015,000 for work previously authorized and $11,464,000 for additional work now recommended, and that this combination supersede the authorization for construction of the pertinent uncom-

pleted portion of the work authorized by the River and Harbor Act of 1935.

Estimated cost (price level).—

Federal	$11,464,000
Non-Federal	12,081,000
Total	23,545,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$433,000	$560,000	$993,000
Maintenance dredging	17,000		17,000
Total	450,000	560,000	1,010,000
Annual benefits: Transportation savings			2,393,000

Benefit-cost ratio.—2.4.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the projects, including suitable areas required for initial disposal of spoil and necessary retaining dikes, bulkheads, and embankments therefor or the cost of such retaining works; hold and save the United States free from damages due to the construction works and maintenance of the improvements; provide and maintain without cost to the United States depths in berthing areas commensurate with depths provided in the related project areas; accomplish without cost to the United States such alterations as may be required in docks, bulkheads, submarine utility facilities, and other structures; provide such bridge protection as may be required; and provide adequate bulkheads where required in connection with enlargement of the river channel and turning basins or, in lieu of such bulkheads, furnish releases saving the United States harmless against any claims for damages from erosion, bank losses, or other consequences of the work; and provided further that work on any separable feature may be undertaken independently of any other whenever funds for that feature are available and the pertinent local cooperation has been furnished.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Ilinois: Favorable.

State of Indiana: Favorable.

Comments of the Bureau of the Budget.—No objection.

CHICAGO HARBOR, ILL.

(H. Doc. 485, 87th Cong.)

Location.—Chicago Harbor is near the south end of Lake Michigan, 14 miles northerly of the Illinois-Indiana State line, on the southwestern shore of the lake.

Authority.—Similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956, and June 27, 1956, respectively.

Existing project.—The existing Federal project for Chicago Harbor generally provides for an inner breakwater, in two sections, inclosing an inner basin of about 224 acres; an exterior breakwater in three sections inclosing an outer basin of about 900 acres; maintenance dredging to a depth of 21 feet of a portion of the inner basin and also of the entrance to Chicago River to Rush Street over a varying width; and maintenance of a section of the north pier. The existing deep draft Federal project for Chicago River generally provides for maintenance dredging to 21 feet in the main river, the North Branch, the North Branch Canal, and the North Branch turning basin, all to within 20 feet of existing docks.

Navigation problem.—Existing project depths in the outer harbor are not adequate to permit vessels in the oversea traffic to take full advantage of the depth being provided in the connecting channels and the St. Lawrence Seaway.

Recommended plan of improvement.—Provide for a lake approach channel 800 feet wide and 29 feet deep from the breakwater lakeward for a distance of about 6,600 feet and a channel and maneuver area inside the harbor entrance with a maximum width of 1,300 feet and a depth of 28 feet.

Estimate cost (price level of July 1961).—

Federal	$1,505,000
Non-Federal	None
Total	1,505,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$57,000	0	$57,000
Maintenance	11,000	$1,000	12,000
Total	68,000	1,000	69,000
Annual benefits: Transportation savings			423,000

Benefit-cost ratio.—6.1.

Local cooperation.—Hold and save the United States free from damages that may result from construction and maintenance of the improvement; and maintain, without cost to the United States, depths in berthing areas serving the public terminal commensurate with the recommended project depths. Local interests have indicated a willingness and ability to comply with the terms of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Illinois: Favorable.

Comments of the Bureau of the Budget.—No objection.

NEW BUFFALO HARBOR, MICH.

(H. Doc. 481, 87th Cong.)

Location.—New Buffalo Harbor is at the mouth of Galien River on the southeast shore of Lake Michigan, about 10 miles northeast of Michigan City, Ind., and 45 miles east of Chicago, Ill.

Authority.—Resolutions adopted by the Public Works Committee of the U.S. Senate and House of Representatives on June 20, 1957, and July 16, 1958, respectively.

Existing project.—A Federal navigation project adopted in 1852 provided for a revetted entrance channel 12 feet deep and 200 feet wide. Expenditures of $83,000 to 1885, when all work was discontinued, resulted in a partially revetted channel 6 feet deep, 40 feet wide, and 1,400 feet long, which constitutes substantially the present channel. Since 1954, local interests have spent about $58,000 for a timber jetty north of the entrance and channel improvements, and about $270,000 for moorage facilities. They have under construction, or are planning, additional facilities at an estimated cost of $144,000. A public ramp for boat launching is operated by the village of New Buffalo.

Navigation problem.—The entrance lacks protection against lake storms and the channel is subject to shoaling from shifting sandbars small-craft navigation hazardous. Local attempts at channel maintenance have been inadequate. Existing project provisions are not suitable for present and future needs.

Recommended plan of improvement.—Abandon the existing inactive project and construct new project providing for construction of two breakwaters, one extending lakeward for 1,400 feet from the shore northeast of the Galien River mouth, and the other for 860 feet from the shore on the southwest side; and dredging of a channel 10 feet deep, 80 to 180 feet wide, and about 850 feet long from the lake to the river mouth, thence 8 feet deep and 80 feet wide for 1,250 feet in the river.

Estimated cost (price level of August 1961).—

Federal	$667,000
Non-Federal	615,000
Total	1,282,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$25,500	$28,000	$53,500
Maintenance	21,000		21,000
Maintenance, aids to navigation	500		500
Total	47,000	28,000	75,000
Annual benefits:			
Damages prevented			32,400
Recreational boating			49,200
Reduced local maintenance			16,000
Increased commercial fish catch			4,500
Total			102,100

Benefit-cost ratio.—1.4.

Local cooperation.—Contribute, in cash, 48 percent of the first cost of construction of the general navigation facilities due to recreational boating benefits, such contribution, presently estimated at $615,000, to be paid in a lump sum prior to initiation of construction, subject to final adjustment after actual costs have been determined; provide, without cost to the United States, all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project and for aids to navigation upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of spoil in a stockpile for beach nourishment; hold and save the United States free from damages due to the construction works and maintenance of the improvements; provide and maintain, without cost to the United States, necessary mooring facilities and utilities, including a public landing with suitable supply facilities open to all on equal terms, and including dredging of berthing areas to depths commensurate with the related project depths; and preserve mooring facilities adequate for the accommodation of transient craft. The net cost to the United States for the recommended improvements is estimated at $667,000 for construction and $21,000 annually for maintenance. The Michigan State Waterways Commission has expressed its support for the improvements and has offered to provide any required local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—No objection.

CASEVILLE HARBOR, MICH.

(H. Doc. 64, 87th Cong.)

Location.—Caseville Harbor, about 40 miles northeasterly of Bay City, Mich., is at the mouth of Pigeon River on the east shore of Saginaw Bay, an arm of Lake Huron.

Authority.—Resolution of Public Works Committee, House of Representatives, adopted April 24, 1945.

Existing project.—There is no existing Federal project at Caseville.

Navigation problem.—Navigation by light-draft vessels cruising in the vicinity of the mouth of Pigeon River is adversely affected by frequent, severe northerly and northeasterly storms sweeping across long expanses of open water in Lake Huron. The presence of rocky reefs extending from the shore and from adjacent islands in the area, constitutes an additional hazard to small craft cruising near shore and greatly increases the sailing distance between sheltered areas.

Recommended plan of improvement.—Provides for constructing a breakwater, 1,300 feet long, extending northwesterly from the bay shore at the north side of the mouth of Pigeon River; and dredging an entrance channel, 10 feet deep and 500 feet wide from that depth in Saginaw Bay, decreasing to 80 feet in width at the outer end of the breakwater and extending riverward 100 feet at the same depth; thence a channel 8 feet deep and 80 feet wide to the river mouth, de-

creasing to 60 feet in width and extending upstream approximately 1,000 feet, with widening to 80 feet in the upper 300-foot reach to serve as a turning basin, all at the same depth.

Estimated cost (price level of August 1959).—

Federal	$327,000
Non-Federal	327,000
Total	654,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$12,000	$14,000	$26,000
Maintenance and operation	2,500		2,500
Maintenance navigation aids	300		300
Total	14,800	14,000	28,800
Annual benefits:			
Recreational boating			36,700
Harbor of refuge			2,000
Total			38,700

Benefit-cost ratio—1.3.

Local cooperation.—Local interests must agree to: (*a*) contribute, in cash, 50 percent of the first cost of construction of the general navigation facilities comprising the channel and breakwater, such contribution presently estimated at $327,000, to be paid in a lump sum prior to initiation of construction, subject to final adjustment after actual costs have been determined; (*b*) provide, without cost to the United States, all lands, easements, and rights-of-way necessary for construction and maintenance of the project; (*c*) hold and save the United States free from damages due to the construction and maintenance of the project; (*d*) provide and maintain, without cost to the United States, necessary mooring facilities, and utilities, including a public landing with suitable supply facilities, open to all on equal terms; the dredging of berthing areas to be commensurate with the depth of the Federal channel improvements; (*e*) establish a properly constituted and competent public body empowered to cooperate financially and to provide and operate essential local facilities; and (*f*) reserve spaces within the anchorage and mooring facilities adequate for the accommodation of transient craft; and provided further that, if it is determined in detailed studies that spoil disposal areas are needed, local interests agree to furnish, upon request of the Chief of Engineers, and without cost to the United States, any such areas required including such dikes, bulkheads, and embankments as may be necessary, for the initial dredging and subsequent maintenance. Local interests have indicated willingness to furnish local cooperation.

Comments of State and Federal agencies.—

Department of Interior: Favorable.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—No objection.

SAGINAW RIVER, MICH.

(H. Doc. 544, 87th Cong.)

Location.—In Michigan on the east shore. Saginaw River flows 22 miles northward to the head of Saginaw Bay, a southwestern arm of Lake Huron.

Authority.—Similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956, and June 27, 1956, respectively.

Existing project.—The Federal project provides for an entrance channel 350 feet wide and 24 feet deep in the river to the Detroit & Mackinac Railway bridge, thence 22 feet deep to Sixth Street, Saginaw, and thence 16.5 feet deep to the head of the river at Green Point, a total distance of 29 miles; and three turning basins: one 20 feet deep at Essexville, another 20 feet deep at Carrollton, and the third in Saginaw 15 feet deep. Also provides for elimination from the project of the existing entrance channel in the bay upon completion of the new channel.

Navigation problem.—Existing project dimensions are inadequate to accommodate present and prospective bulk- and general-cargo vessels serving the terminals along the river.

Recommended plan of improvement.—Provide for a channel 27 feet deep and 350 feet wide from deep water in Saginaw Bay for a distance of 14 miles to the angle in the channel near the river mouth; thence a channel 26 feet deep and 200 feet wide for a distance of 0.4 of a mile to the river mouth; thence a channel 25 feet deep and 200 feet wide for 2.8 miles up the river to the Detroit & Mackinac Railway bridge; a depth of 25 feet in the Essexville turning basin over a width of 600 feet, including a triangular extension of 500 feet at the downstream end; a turning basin 22 feet deep, 650 feet wide, and 6.2 acres in area, at river mile 8.8 near the airport; a depth of 22 feet over the present width of 200 feet for a distance of 2,800 feet in the channel upstream from the Sixth Street Bridge; and a turning basin 20 feet deep, 650 feet wide, and 6.2 acres in area upstream of the Sixth Street Bridge, at about mile 17.1.

Estimated cost (price level of January 1962).—

Federal	$4,780,000
Non-Federal	110,000
Total	4,890,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$179,300	$5,100	$184,400
Maintenance dredging	32,000		32,000
Maintenance aids to navigation	3,000		3,000
Total	214,300	5,100	219,400
Annual benefits:			
Transportation savings			275,700
Vessel turning cost savings			19,100
Total			294,800

Benefit-cost ratio.—1.3.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for initial dredging and subsequent maintenance of the improvement and for aids to navigation, including suitable areas for initial and subsequent disposal of spoil and 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 the construction works and maintenance of the improvements; provide and maintain without cost to the United States depths in berthing areas and dock approaches commensurate with the depths provided in the related project areas; and accomplish and maintain without cost to the United States such alterations as may be required by the Chief of Engineers in submarine utility facilities. Local interests have indicated they are willing and able to comply with the items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—No objection.

ROUGE RIVER, MICH.

(H.Doc. 500, 87th Cong.)

Location.—Rouge River is located in southeastern Michigan and it joins the Detroit River between the cities of Detroit and River Rouge, Mich.

Authority.—Partial response to similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956 and June 27, 1956, respectively. It is also in partial response to resolution of the Committee on Public Works, House of Representatives adopted on July 21, 1950.

Existing project.—Provides for a main channel 3 miles in length from the Detroit River through the short-cut canal to the turning basin just above Dix Avenue Bridge all 21 feet deep; and an older side channel from the Detroit River 1½ miles in length joining the main channel immediately upstream of the Detroit, Toledo & Ironton Railroad bridge of varying depths from 17 to 25 feet.

Navigation problem.—Present channel depths are inadequate to permit efficient use of modern vessels.

Recommended plan of improvement.—Provides for deepening to 25 feet and widening to suitable widths the main channel of the Rouge River from the Detroit River to just below the Jefferson Street Bridge; a turning basin at the junction of the old channel and the main channel 25 feet deep; and maintenance of those portions of the existing project outside the 25-foot channel limits.

Estimated cost (price level of April 1962).—

Federal	$257,000
Non-Federal	1,240,000
Total	1,497,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$9,000	$57,700	$67,600
Increased maintenance	5,000	5,000	10,000
Total	14,900	62,700	77,600
Annual benefits: Transportation savings			157,300

Benefit-cost ratio.—2.0.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way required for construction of the improvements upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial disposal of spoil, and also necessary dikes, bulkheads, and embankments therefor or the costs of such retaining works; hold and save the United States free from damages due to the construction works and maintenance of the improvements; provide and maintain at local expense adequate terminal and transfer facilities open to all on equal terms, to accommodate the commerce to be served by the improved channel; provide and maintain without cost to the United States depths in berthing areas commensurate with the depths provided in the related project areas; accomplish and maintain without cost to the United States such alterations as may be required in docks, bulkheads, and other structures, and take such measures as may be necessary to assure stability of banks adjacent to the project channel; and provide without cost to the United States such bridge protection as may be required.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Michigan: Favorable.

Comments of the Bureau of the Budget.—No objection.

HURON HARBOR, OHIO

(H. Doc. 165, 87th Cong.)

Location.—Huron Harbor, Ohio, is at the mouth of the Huron River on the south shore of Lake Erie, about 47 miles west of Cleveland, Ohio.

Authority.—Interim report in partial response to resolutions of the Committees on Public Works of the U.S. Senate and House of Representatives, adopted May 18, 1956, and June 27, 1956, respectively.

Existing project.—The existing Federal project provides for a channel from deep water in Lake Erie to the river entrance 25 feet deep in soft material and 26 feet deep in hard material; a pier on the west side of the channel and a breakwater on the east side of the channel 3,170 feet and 1,450 feet long, respectively; and enlargement

but not maintenance of a turning basin 19 feet deep adjacent to slip No. 2. Local interests have dredged and maintained the river channel and turning basin above the limits of Federal maintenance.

Navigation problem.—The present controling depths in Huron Harbor are insufficient to accommodate modern vessels loaded with iron ore, grain, and coal, and desirous of using depths available in the connecting channnels and the St. Lawrence Seaway. The turning basin at the upstream end of deep-draft navigation is too small for safe use by vessels larger than class 5. Storms from the northeasterly direction create turbulence in the harbor which hampers loading operations in the coal slip. These storms also interfere with vessels entering and leaving the harbor. The entrance channel is narrow and exposed and the stopping or checking distance is insufficient for the larger vessels entering the confined river channel.

Recommended plan of improvement.—Provides for an approach channel 400 feet at the outer end and 300 feet at the inner end and 29 feet deep extending from the lake to a point opposite the outer end of the east breakwater; an entrance channel 28 feet deep in soft material and 29 feet in hard, 300 feet wide at the outer end and 150 feet at the inner end, extending from the outer end of the east breakwater to slip No. 1 of the New York, Chicago & St. Louis Railroad Co.; a river channel 27 feet deep in soft and 28 feet in hard material, 120 feet wide at the outer end and 350 feet at the inner end extending from slip No. 1 to the turning basin; a turning basin 750 feet wide and 22 feet deep in hard and 21 feet in soft material; a detached breakwater 1,575 feet long approximately 2,000 feet lakeward of the outer end of the west pier; and abandonment of the lakeward end of the existing approach channel not included in the plan.

Estimated cost (price level of August 1959).—

Federal	$8,557,000
Non-Federal	1,080,000
Total	9,637,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$319,500	$53,600	$373,100
Maintenance and operation	59,500	[1] −13,000	46,500
Maintenance, navigation aids	2,200		2,200
Total	381,200	40,600	421,800
Annual benefits:			
Transportation savings			443,000
Elimination of delays			6,000
Total			449,000

[1] Includes reduction of $18,000 in non-Federal maintenance in the river channel and turning basin and an increase of $5,000 non-Federal maintenance for slips Nos. 1 and 2.

Benefit-cost ratio.—1.1.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project; hold and save the United States free from damages due to the construction and maintenance of the improvements; when and where necessary, dredge the areas between the Federal improvement and

terminal facilities to adequate depths; and, regulate mooring to any dock, bulkhead, or other structure on the west side of the river, to prevent interference with the turning and passage of vessels. Local interests have indicated willingness and ability to provide requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Ohio: Favorable.

Comments of the Bureau of the Budget.—No objection.

CLEVELAND HARBOR, OHIO

(H. Doc. 527, 87th Cong.)

Location.—South shore of Lake Erie at mouth of Cuyahoga River.

Authority.—This interim report is in partial response to similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956, and June 27, 1956, respectively.

Existing project.—The existing Federal project provides for an outer harbor, 5 miles long, 1,600 to 2,400 feet wide, protected by breakwaters; a main entrance 700 feet wide; two parallel piers 325 feet apart at the mouth of Cuyahoga River; a depth of 29 feet through the lake approach channel, depths of 19 to 28 feet in the outer harbor, and a depth of 27 feet up the river to the site of the former New York Central swing bridge, thence 23 feet to mile 5.8 in Cuyahoga River, with a turning basin 18 feet deep at mile 4.8; depths of 27 and 21 feet in Old River; and Federal participation in the cost of replacing seven railroad bridges over the Cuyahoga River, and one railroad bridge and one highway bridge over Old River.

Navigation problem.—Existing project depths are not adequate to permit vessels in the oversea general cargo and newsprint commerce calling at terminals in the east basin of the outer harbor section to load to the maximum safe drafts permitted by the Great Lakes connecting channels and St. Lawrence Seaway projects.

Recommended plan of improvement.—Provide for plan A, a depth of 27 feet in an area extending easterly about 3,800 feet from the existing 28-foot project area and southerly from the existing maintenance line on the north to a limit 75 feet north of the harbor line on the south, easterly of a line 800 feet east of the west end of the east breakwater, and 28 feet westerly of the line; and provide for plan B, a depth of 25 feet in a dock approach channel to the Nicholson Cleveland Terminal Co. pier, from the 25-foot depth contour to a limit 75 feet north of the pierhead line, 400 feet wide at the shoreward end and flared toward the lake. It is further recommended that: when the necessary conditions of local cooperation for either plan A or plan B have been fulfilled, construction may be initiated on that plan, irrespective of the status of local cooperation for the other plan; the uncompleted 25-foot channel through the east basin, authorized by the River and Harbor Act of July 3, 1958, be combined with the additional work recommended herein for plan A and treated as a single item of work; and the authority for dredging to 19 feet with provisional dredging to 23 feet in the remaining portion of the east basin and for

dredging the uncompleted portion of the channel in Cuyahoga River at the upstream limit of the Federal project be eliminated from the project.

Estimated cost (price level, November 1961).—

	Plan A	Plan B	Total
Federal	$828,000	$60,000	$888,000
Non-Federal	100,000	82,000	182,000
Total	928,000	142,000	1,070,000

Project economics.—

	Plan A			Plan B		
	Federal	Non-Federal	Total	Federal	Non-Federal	Total
Annual charges:						
Interest and amortization	$31,700	$4,300	$26,000	$2,400	$3,800	$6,200
Maintenance dredging	15,000	2,000	17,000	5,000	2,500	7,500
Aids to navigation				300		300
Total	46,700	6,300	53,000	7,700	6,300	14,000
Annual benefits:						
Transportation savings:						
General cargo		252,000				
Newsprint					236,000	
Benefit-cost ratio		4.8			16.9	

Local cooperation.—Hold and save the United States free from damages due to the construction and maintenance of the improvement; when and where necessary dredge the areas between the channel limits and terminal facilities commensurate with the adjacent Federal project depth; provide the necessary terminal facilities to accommodate prospective commerce considered in the report of the district engineer; and control operations of the Burke Lakefront Airport to permit free and unrestricted navigation use of the west side of Lederer Terminal and terminals westerly therefrom and of the Nicholson Cleveland Terminal. The city of Cleveland and transportation interests directly concerned have indicated their willingness and ability to meet requirements of local cooperation.

Comments of State and Federal agencies.—

Department of Interior: Favorable.

State of Ohio: Favorable.

Comments of Bureau of the Budget.—No objection.

GREAT LAKES HARBORS—INTERIM REPORT ON CONNEAUT HARBOR, OHIO

(H. Doc. 415, 87th Cong.)

Location.—At the mouth of Conneaut River on the south shore of Lake Erie, about 73 miles northeast of Cleveland, Ohio.

Authority.—In partial response to similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956, and June 27, 1956, respectively. It is also in full response to a House committee resolution adopted April 13, 1948, and in partial response to a House committee resolution adopted June 3, 1959.

Existing project.—Provides in general for two breakwaters totaling 9,640 feet in length, with an entrance channel 600 feet wide, and a gap in the west breakwater 100 feet wide; an east pier 1,008 feet long; a depth of 25 feet in soft and 26 feet in hard material in the eastern part of the outer harbor; and a depth of 20 feet over the triangular western part.

Navigation problem.—The existing channel dimension will not accommodate existing and prospective Great Lakes bulk vessels; there is a need to eliminate dangerous crosscurrents in the outer harbor; and there is a need for an outer harbor channel for commercial fishing craft.

Recommended plan of improvement.—Provides in general for depths of 28 to 29 feet in the eastern part of the outer harbor; depths of 22 to 23 feet in the western part of the outer harbor; depths of 27 to 28 feet for a distance of 2,450 feet in the Conneaut River with width varying from 300 to 180 feet; removal of the east pier and modifications of the southern outer harbor limits; extension of the east breakwater; an access channel 8 feet deep, 200 to 250 feet wide from the outer harbor to the city dock; that the uncompleted part of the authorized work be combined with work recommended and be treated as a single improvement; and provides further that the work may be accomplished on the main harbor or the city dock channel independently of the other.

Estimated cost (price level, January 1961).—

	Main harbor	Channel to city dock	Total
Federal	$6,060,000	$119,000	$6,179,000
Non-Federal	180,000	5,200	185,200
Total	6,240,000	124,200	6,364,200

Project economics.—

	Main harbor		
	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$231,300	$8,400	$239,700
Maintenance and operation	52,000	−12,400	39,600
Total	283,300	−4,000	279,300
	Channel to city dock		
Interest and amortization	$4,400	$300	$4,700
Maintenance and operation	10,200	500	10,700
Total	14,600	800	15,400

	Main harbor	Channel to city dock
Annual benefits:		
Delays and damages prevented	$54,000	----------
Savings in transportation	1,313,000	----------
Commercial fishing	----------	$40,400
Total	1,367,000	40,400

Benefit-cost ratio.—Main harbor, 4.9; channel to city dock, 2.6.

Local cooperation.—Provide all lands, easements, and rights-of-way; hold and save the United States free from damages; provide and maintain depths in berthing areas commensurate with related project areas; and accomplish alterations as required. Local interests have indicated willingness and ability to meet the requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Ohio: Favorable.

Comments of the Bureau of the Budget.—No objection.

ERIE HARBOR, PA.

(H. Doc. 340, 87th Cong.)

Location.—Erie Harbor, Pa., is located on the south shore of Lake Erie about 78 miles southwest of Buffalo, N.Y., and is in a landlocked bay formed by Presque Isle Peninsula and the mainland.

Authority.—Similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956, and June 27, 1956, respectively.

Existing project.—The existing Federal project provides for piers and a breakwater at the harbor entrance; an entrance channel 29 feet deep; a basin and channel 28 to 29 feet deep extending within 50 feet of the harbor line opposite the iron ore dock; two basins, one 21 feet deep and the other 18 feet deep; and an inner channel and basin 23 feet deep. Local interests constructed part of an original breakwater and have provided terminal facilities, access channels, and slips for deep-draft vessels.

Navigation problem.—Harbor depths are inadequate for traffic now using the St. Lawrence Seaway and Great Lakes connecting channels.

Recommended plan of improvement.—Provides for a depth of 27 feet in soft material and 28 feet in hard material in the area in front of the Duquesne Marine Terminal; and further provides that the uncompleted part of the work authorized in 1935 be combined with the additional work recommended herein and the whole be treated as a single work item, with estimated cost of $699,000 for construction, including $28,000 for work previously authorized, and that this combination supersede the authorization for the uncompleted portion of the work authorized by the River and Harbor Act of 1935.

Estimated cost (October 1960 price level).—

Federal	$671,000
Non-Federal	-------
Total	671,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$26,000	-------	$26,000
Maintenance and operation	-------	-------	-------
Total	26,000	-------	26,000
Annual benefits: Transportation savings	-------	-------	58,000

Benefit-cost ratio.—2.2.

Local cooperation.—Hold and save the United States free from damages due to the construction and maintenance of the improvement; and maintain depths in the berths adjacent to the Duquesne Marine Terminal and in the connecting waters, thence to the Federal project, comparable to those in the related Federal project area. Local interests have indicated willingness and ability to furnish requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Pennsylvania: Favorable.

Comments of the Bureau of the Budget.—No objection.

BUFFALO HARBOR, N.Y.

(H. Doc. 451, 87th Cong.)

Location.—Buffalo Harbor is located at the eastern end of Lake Erie.

Authority.—Senate and House Public Works Committee resolutions adopted May 18, 1956, and June 27, 1956, respectively.

Existing project.—Provides in general for an outer harbor, protected by breakwaters, with depths ranging from 23 to 28 feet with two entrance channels and an inner harbor consisting of Buffalo River and Buffalo ship canal with depths of 22 to 23 feet.

Navigation problem.—The existing project depths are not commensurate with depths being provided in the Great Lakes connecting channels and St. Lawrence Seaway.

Recommended plan of improvement.—Provides in general for deepening the outer harbor to 27 feet over a 500-foot width for a distance of 2,500 feet northward from the 28-foot project area with varying widths for a distance of 1,700 feet and continuing for 7,000 feet; elimnate from the existing project the strip 25 feet wide between the presently authorized and the recommended easterly dredged limits; elimination of the easterly 50 feet of existing project extending from the proposed 27-foot depth area to the Buffalo River entrance channel; and that the uncompleted authorized work (estimated Federal cost, $313,500) be combined with the recommended work (estimated Federal cost, $2,796,500) at a total estimated cost of $3,110,000.

Estimated cost (price level of July 1961).—

Federal	$2,796,500
Non-Federal	300,000
Total	3,096,500

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$102,100	$10,900	$113,000
Maintenance and operation	18,100	1,500	19,600
Total	120,200	12,400	132,600
Annual benefits: Transportation savings			211,100

Benefit-cost ratio.—1.6.

Local cooperation.—Provide without cost to the United States suitable areas for initial disposal of spoil, and necessary retaining dikes, bulkheads, and embankments therefor or the cost of such retaining works; hold and save the United States free from damages due to the construction works and maintenance of the improvement; and, provide and maintain without cost to the United States depths in berthing areas commensurate with the depth provided in the related project area.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of New York: Favorable.

Comments of the Bureau of the Budget.—No objection.

GREAT SODUS BAY HARBOR, N.Y.

(H. Doc. 138, 87th Cong.)

Location.—Great Sodus Bay Harbor is in Great Sodus Bay on the south short of Lake Ontario, about 31 miles east of Rochester, N.Y., and 29 miles west of Oswego, N.Y.

Authority.—Resolutions of the Committees on Public Works of the U.S. Senate and House of Representatives adopted May 18, 1956, and June 27, 1956, respectively.

Existing project.—The existing Federal project, completed in 1940, provides for a channel 22 feet deep and 300 feet wide from the lake to the outer pierheads, thence 20 feet deep and 200 to 300 feet wide to deep water in the bay. The project includes two parallel entrance piers 450 feet apart, and two breakwaters inshore of the piers. The River and Harbor Act approved August 30, 1935, required the Pennsylvania Railroad Co. to dredge and maintain a channel 20 feet deep and of suitable width from deep water in the bay to its coal shipping dock, with a turning basin at the dock. The company presently maintains a channel 21 feet deep, 150 feet wide, and about one-half mile long, with a turning basin about 700 feet wide.

Navigation problem.—The principal navigation problem at Great Sodus Bay Harbor is lack of adequate depth to permit use of maximum draft by the large bulk cargo vessels engaged in carrying coal.

Recommended plan of improvement.—Provides for modification of the existing project for Great Sodus Bay Harbor, N.Y., to provide for a depth of 25 feet over a width of 300 feet in the approach channel from the lake to the piers; a depth of 24 feet over a width of 200 feet between piers; thence over a width of 450 feet to deep water bayward of the piers; and a channel 22 feet deep and 200 feet wide from deep water in the bay to the turning basin at the coal dock.

Estimated cost (July 1959 price level).—

Federal	$765,000
Non-Federal	314,000
Total	1,079,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$29,500	$14,700	$44,200
Increased maintenance	16,300	0	16,300
Total	45,800	14,700	60,500
Annual benefits: Transportation savings			198,000

Benefit-cost ratio.—3.2.

Local cooperation.—Provided that prior to construction, local interests agree to (*a*) hold and save the United States free from damages due to the construction and maintenance of the improvements; (*b*) provide and maintain a turning basin at thhe coal dock, 22 feet deep and generally 800 feet wide; (*c*) provide and maintain a depth of 22 feet over a width of 75 feet in the berthing areas at the coal dock; and (*d*) provide adequate coal handling facilities as needed to serve the prospective coal commerce. Local interests have indicated willingness and ability to provide requirements.

Comments of the State and Federal agencies.—

State of New York: Favorable.

Department of Interior: Favorable.

Comments of the Bureau of the Budget.—No objection.

OSWEGO HARBOR, N.Y.

(H. Doc. 471, 87th Cong.)

Location.—Oswego Harbor, N.Y., is near the easterly end of the south shore of Lake Ontario at the mouth of Oswego River.

Authority.—Similar resolutions adopted by the Public Works Committees of the U.S. Senate and House of Representatives on May 18, 1956 and June 27, 1956, respectively.

Existing project.—The existing Federal project for Oswego Harbor generally provides for an outer harbor formed by a system of breakwaters comprising an outer west breakwater connected with the shore, a west arrowhead breakwater, an east arrowhead breakwater, and an outer east breakwater connected with the shore; a depth of 21 feet in soft material and 22 feet in hard material in the outer harbor between the arrowhead breakwaters, in the west outer harbor, and between the harbor lines in the Oswego River north of the north line of Seneca Street; a channel 250 feet wide in the east outer harbor and an irregularly shaped basin at the easterly end, with depths of 18 feet in soft material and 19 feet in hard material; maintenance of 145 feet of the west inner breakwater; and a detached breakwater 850 feet long at the harbor entrance and the removal of shoals to a depth of 25 feet below low-water datum in the approach to the entrance. Two project features have been designated as inactive—the east outer harbor and

the triangular section along the harbor line east of the Oswego River.

Navigation problem.—Existing project depths are inadequate to accommodate vessels capable of utilizing the depths in the Great Lakes connecting channels and the St. Lawrence Seaway.

Recommended plan of improvement.—Provide for a depth of 27 feet in the lake approach channel from deep water in Lake Ontario to the entrance gap in the existing arrowhead breakwaters; a depth of 25 feet in a channel generally 800 feet wide through the outer harbor from the entrance gap terminating in a turning basin about 750 feet by 1,100 feet in size at the mouth of Oswego River with a depth of 25 feet; a depth of 24 feet in earth and 25 feet in hard material in a channel in Oswego River from the turning basin to the upstream end of the Port of Oswego Authority's east side terminal, a distance of about 1,600 feet, the limits of the channel to be parallel to and 50 feet channelward of the established U.S. harbor lines; relocation of the Federal project limits in Oswego River between the upstream end of the Port of Oswego Authority's east side terminal and the upstream limit of the Federal project, at the north line of West Seneca Street, on lines parallel to and 50 feet channelward of the established U.S. harbor lines; elimination from the Federal project of maintenance of the west inner breakwater; and elimination from the Federal project of the modification authorized by the River and Harbor Act of June 30, 1948, consisting of the construction of an outer east breakwater 4,900 feet long, removal of about 1,020 feet of the shoreward end of the existing east breakwater, provision of a channel generally 250 feet wide with an irregularly shaped basin at its easterly end with depths of 18 feet in soft material and 19 feet in hard material.

Estimated cost (price level of November 196).—Federal, $1,180,000.

Project economics.—

	Federal
Annual charges:	
Interest and Amortization	$44,200
Maintenance Dredging	4,000
Maintenance of navigation aids	500
Total	48,700
Annual benefits: Transportation savings	99,800

Benefit-cost ratio.—2.0.

Local cooperation.—Provide the necessary terminal and cargo handling facilities to accommodate vessels engaged in traffic in aluminum and general cargo; when and where necessary, dredge and maintain the areas between the Federal improvement and terminal facilities to adequate depths; and hold and save the United States free from claims for damages due to the construction and maintenance of the improvement. The Port of Oswego Authority has indicated its willingness to comply with the items of local cooperation.

Comments of States and Federal agencies.—

Department of the Interior: Favorable.

State of New York: Favorable.

Comments of the Bureau of the Budget.—No objection.

DANA POINT HARBOR, CALIF.

(H. Doc. 532, 87th Cong.)

Location.—Dana Point, Calif., is on the coast in southern Orange County. It is about 40 miles southeast of Los Angeles-Long Beach Harbor and about 60 miles northwest of San Diego Harbor. The site of the considered harbor is in a sheltered cove in the lee of Dana Point, a precipitous promontory about 220 feet high.

Authority.—Public Law 14, 79th Congress, approved March 2, 1945.

Existing project.—There is no existing Federal project at Dana Point. Since 1956, local interests have provided a paved access road, about two acres of filled land protected from wave action by stone revetment, a 300-foot long concrete pile-trestle pier, and public facilities, at an estimated cost of $350,000.

Navigation problem.—Local interests state that small craft harbor is needed in the area, not only for pleasure boating but also as a refuge for small craft during bad weather.

Recommended plan of improvement.—An entrance channel 500 feet wide, 2,000 feet long, and 20 to 15 feet deep; a main channel 400 feet wide, 3,250 feet long, and 15 to 10 feet deep; an east channel 250 feet wide, about 700 feet long, and 10 feet deep; an anchorage area 350 feet wide, about 600 feet long and 10 feet deep; a turning basin 450 feet wide, 500 feet long, and 10 feet deep; a west breakwater 5,400 feet long; and an east breakwater 2,340 feet long.

Estimated cost (1961 price level).—

Federal	[1] $3,730,000
Non-Federal	[2] 3,730,000
Total	7,460,000

[1] Excludes $30,000 for preauthorization studies and $24,000 for aids to navigation.
[2] Cash contribution.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$138,000	$174,000	$312,000
Maintenance and operation	60,000		60,000
Total	198,000	174,000	372,000
Annual benefits:			
Recreational boating			856,000
Sport fishing			4,000
Total			860,000

Benefit-cost ratio.—2.3.

Local cooperation.—Contribute in cash 50 percent of the first cost of construction of the general navigation facilities; provide all lands, easements, and rights-of-way necessary for construction and subsequent maintenance of the project and of aids to navigation; hold and save the United States free from damages; provide and maintain adequate service frontage and public landing with suitable supply facilities, necessary mooring facilities and utilities, and access roads, parking areas, and other necessary public-use shore facilities; the first phase of development to be completed within 5 years, and full development within 15 years, after completion of the general navigation facil-

ities; operate a general anchorage area and/or mooring facilities having reserved spaces adequate for accommodation of transient boat traffic and for refuge; secure and hold in the public interest all lands bordering the development to a width sufficient for proper functioning of the harbor. Orange County Board of Supervisors has indicated willingness to provide the necessary local cooperation.

Comments of State and Federal Agencies:

Department of the Interior: Favorable.

State of California: Favorable.

Comments of the Bureau of the Budget: No objections.

SANTA BARBARA HARBOR, CALIF.

(H. Doc. 518, 87th Cong.)

Location.—The harbor is on the coast of southern California about 90 miles northwest of Los Angeles.

Authority.—Resolution by House Committee on Rivers and Harbors and House Public Works Committee adopted March 19, 1946, and June 11, 1952, respectively.

Existing project.—Federal participation in existing project consists of $30,000 annual contribution toward operation of sand-intercepting plant. Local interests maintain an existing harbor comprising about 84 acres to depths varying from zero to 21 feet, and a 1,500 foot long entrance channel to at least 15 feet deep.

Navigation problem.—Present harbor inadequate and unsafe for operation of increasing number of boats.

Recommended plan of improvement.—Construction of 4,600 feet of additional breakwater; a 1,200 feet by 400 feet wide entrance channel, 20 feet deep; a turning basin 1,000 feet by 500 feet, 20 feet deep; three channels totaling 2,600 feet in length and 15 feet deep; and an anchorage area.

Estimated cost (July 1961 price level).—

Federal	[1] $3,000,000
Non-Federal	[2] 2,000,000
Total	5,900,000

[1] Excludes $39,700 for preauthorization studies, and $37,000 for aids to navigation.
[2] Includes $2,890,000 cash contribution.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$111,000	$135,000	$246,000
Maintenance and operation	[1] 89,000		89,000
Navigation aids	1,000		1,000
Total	201,000	135,000	336,000
Annual benefits:			
Recreational			838,300
Commercial fishing			19,000
Elimination of boat damage			5,200
Total			862,500

[1] In addition to $30,000 under existing project.

Benefit-cost ratio.—2.6.

Local cooperation.—(*a*) Contribute in cash 49 percent of the first cost of the general navigation facilities, such contribution, presently estimated at $2,890,000, to be paid in a lump sum prior to initiation of construction; (*b*) provide without cost to the United States all lands, easements, and rights-of-way; including suitable areas for initial and subsequent disposal of spoil and necessary retaining dikes, bulkheads, and embankments therefor or the cost of such retaining works; (*c*) repair and seal the existing west breakwater in accordance with plans approved by the district engineer, and subsequent thereto transfer ownership of the breakwater to the United States; (*d*) remove a portion of the Stearns wharf and make such other alterations or relocations as may be required for the navigation improvements; (*e*) hold and save the United States free from damages; (*f*) provide and maintain without cost to the United States necessary mooring facilities and utilities including a public landing with suitable supply facilities open to all on equal terms in accordance with plans approved by the Chief of Engineers, the first phase of development to be completed within 5 years after completion of the general navigation facilities and full development to be completed within 15 years; (*g*) provide or arrange for suitable marine repair facilities; (*h*) secure and hold in the public interest all lands bordering the development to a width sufficient for proper functioning at the harbor; (*i*) construct at their own expense the sand fillet east of the harbor concurrently with construction of the east breakwater to assure continued replenishment of beach sands to the downdrift beaches; and (*j*) bear any additional costs for replenishment of beach sand east of the harbor over the cost of maintenance dredging required for the general navigation features. Local interests have indicated willingness to furnish requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of aClifornia: Favorable.

Comments of the Bureau of the Budget.—No objection.

OAKLAND HARBOR, CALIF., FRUITVALE AVENUE BRIDGE

(S. Doc. 75, 87th Cong.)

Location.—Oakland Harbor is located on the east shore of San Francisco Bay, opposite the Golden Gate passage to the Pacific Ocean. This report considers a highway and a railroad bridge at Fruitvale Avenue.

Authority.—Resolution of Public Works Committee, U.S. Senate, adopted May 12, 1950.

Existing project.—The existing Federal navigation project provides in general for a total channel length of 8½ miles from San Francisco Bay to San Leandro Bay, varying in width from 800 feet to 275 feet and varying in depth from 35 feet to 25 feet. The project is complete except for deepening the tidal canal above the Park Street Bridge to 25 feet.

Problem.—To determine whether the Federal Government should replace the present federally owned two-lane Fruitvale highway bridge with a modern bridge adequate for the authorized 25-foot navigation project in the tidal canal.

Recommended plan of improvements.—Modification of the existing project for Oakland Harbor, Calif., to provide for Federal participation in the reconstruction of the highway bridge across the tidal canal at Fruitvale Avenue to the extent of providing a two-lane, movable bridge adequate for the authorized 25-foot navigation project.

Estimated cost (price level of June 1959).—

Federal	$1,750,000
Non-Federal	695,000
Total	2,445,000

Justification.—It is considered that the Federal Government should share in the cost of replacing the highway bridge in recognition of the fact that the United States will be required to replace the existing bridge in the near future or continue to spend exceedingly high amounts for maintenance. The recommendations are considered to be equitable under present Federal policy in regard to replacement of bridges over navigable waterways, and proposed improvements of existing waterways.

Local cooperation.—Provided local interests (*a*) construct the approaches; (*b*) make the necessary utility changes; and (*c*) upon completion of construction, take over the railroad and highway bridges and their approaches for operation, maintenance, and subsequent replacement in accordance with regulations satisfactory to the Secretary of the Army. Local interests are unwilling to cooperate on this basis.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Commerce: Favorable.

State of California.—The department of water resources indicates that the State of California is not involved in the financing of the proposed project since no flood control is involved. The district attorney of Alameda County, however, feels, that the recommendations of the Chief of Engineers impose undue burdens on the local people. The county questions the equity of the requireemnts that local interests make the necessary utility changes and take over the railroad and highway bridges for operation, maintenance, and subsequent replacement.

Comments of the Bureau of the Budget.—Although the Bureau of the Budget notes that local interests are unwilling to cooperate on the basis recommended by the Acting Chief of Engineers, it concurs in his view that local interests should have the opportunity to resolve the problem of the Fruitvale Avenue Bridge at such time as they are willing to meet the requirements of local cooperation. The Bureau of the Budget states that there would be no objection to the submission of this report to the Congress.

OAKLAND HARBOR, CALIF.

(H. Doc. 353, 87th Cong.)

Location.—Oakland Harbor is on the eastern side of San Francisco Bay, about 9 miles from the Golden Gate.

Authority.—House Public Works Committee resolution adopted March 30, 1955.

Existing project.—The existing Federal project for Oakland Harbor provides for: a channel 35 feet deep and 600 to 950 feet wide from deep water in San Francisco Bay to the Army base in the outer harbor, including a turning basin; a channel 30 feet deep and 275 to 800 feet wide through the inner harbor and Brooklyn Basin to Park Street on the tidal canal, thence 25 feet deep and 275 feet wide to San Leandro Bay, plus certain widened areas and a turning basin 30 feet deep a channel 25 feet deep and 300 feet wide at the north end of Brooklyn Basin; parallel jetties at the inner harbor entrance. The project is complete except for deepening the tidal canal above Park Street from 18 to 25 feet.

Problem.—Under existing conditions vessels with drafts of 28 to 34 feet cannot operate in the inner harbor at all tidal stages.

Recommended plan of improvement.—Modification of the existing project to provide for a depth of 35 feet in the existing inner harbor channels and tidal canal to Park Street, including the triangular area and turning basin in the Brooklyn Basin, and the widened areas except that, in front of the Grove and Market Street piers, the 35-foot depth would extend only to within 75 feet of the pierhead line; and a depth of 35 feet in the north channel of Brooklyn Basin for a distance of 1,300 feet.

Estimated cost (price level of July 1961).[1]—

Federal	$6,775,000
Nonfederal	1,200,000
Total	7,975,000

[1] See Remarks.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$207,700	$54,700	$262,400
Maintenance	28,000	18,000	46,000
Total	235,700	72,700	308,400
Annual benefits: Savings in vessel operating costs			560,000

Benefit-cost ratio.—1.8.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction and maintenance of the improvement; hold and save the United States free from damages to wharves, piers, tubes, and other marine and submarine structures due to initial dredging and subsequent maintenance; accomplish without expense to the United States alterations as may be required in sewer, water supply, drainage, and other utility facilities; provide and maintain at local expense adequate public terminal and transfer facilities, open to all on equal terms; and deepen and maintain slips and berths when and as required; and provided further that, if it is determined in detailed studies that spoil disposal areas are needed, local interests agree to furnish, upon request of the Chief of Engineers, and without cost to the United States, the required spoil disposal areas including necessary dikes, bulkheads, and embankments for the initial dredging and subsequent maintenance. Local interests have indicated willingness to furnish requirements of local cooperation.

Comments of the State and Federal agencies.—
Department of the Interior: Favorable.
State of California: Favorable.
Comments of the Bureau of the Budget.—No objection.
Remarks.—At the time the Oakland Harbor report was being prepared it was considered desirable to dispose of dredge spoil in deep water in San Francisco Bay just west of Yerba Buena Island. However, studies being made at the time have been completed and reveal the undesirability of using San Francisco Bay and tributary waters as disposal areas for dredge spoils. Accordingly, local interests will be required to provide onshore disposal areas. The current cost estimates are based on July 1961 prices, use of pipeline dredge, and onshore disposal of spoil, and are in lieu of the previous Federal and local costs of $4,716,000 and $224,000, respectively, based on November 1958 prices.

NOYO RIVER AND HARBOR, CALIF.

(S. Doc. 121, 87th Cong.)

Location.—Noyo River flows into the Pacific Ocean about 140 miles north of San Francisco, Calif. The cove at the mouth of the river forms Noyo Harbor with depths ranging up to 50 feet.
Authority.—Resolution of the Committee on Public Works of the U.S. Senate adopted September 7, 1961.
Existing project.—An existing Federal project provides for a south breakwater 1,100 feet long at the harbor entrance, two jetties at the entrance to Noyo River, a 10-foot deep channel, 100 and 150 feet wide and 0.7 mile long and a mooring basin 10 feet deep at the upper end of the channel. The breakwater, upper 400 feet of channel, and the mooring basin have not been constructed.
Navigation problem.—Local interests desire additional breakwaters to reduce wave action in the harbor, and a 30-foot channel, anchorage and turning basin to permit commercial shipping of lumber and petroleum products.
Recommended plan of improvement.—Construction of a breakwater 500 feet long at the north entrance to the harbor in addition to the authorized 1,100-foot breakwater. This would provide a protected harbor with adequate depth to allow use by oceangoing lumber barges and deep-draft vessels.

Estimated cost (1962 price level).—

Federal	$13,231,000
Non-Federal	[1] 337,000
Total	[2] 13,568,000

[1] Includes $325,000 cash contribution.
[2] Includes cost of both recommended and authorized breakwaters.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$396,000	$15,000	$411,000
Maintenance and operation	133,000		133,000
Maintenance navigation aids	3,000		3,000
Total	532,000	15,000	547,000
Annual benefits:			
Transportation savings			357,000
Commercial fishing			78,000
Recreational fishing and boating			35,000
Area redevelopment benefits			113,000
Total			583,000

Benefit-cost ratio.—1.1.

Local cooperation.—Contribute in cash 2.4 percent of construction cost; provide all lands, easements, and rights-of-way; hold and save the United States free from damages; and provide adequate terminal and transfer facilities; such facilities to be constructed prior to or concurrently with the breakwaters. Local interests are interested in cooperating in the improvements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Commerce: Favorable. The Area Redevelopment Administration advises that this project is extremely important to the overall economic development of Mendocino County. Construction of the project would lead to substantial employment in the lumber, fishing, and fish-processing industries. Substantial unemployment now existing in Mendocino County adds an urgency to the need for the project.

State of California: Favorable.

Comments of the Bureau of the Budget.—Subject to consideration of the following comments there would be no objection to submission of the report. The Bureau would expect that if the project is authorized, the corps would, prior to any request for appropriation, reevaluate the economic justification based upon the appropriate interest rate at that time and reflecting further consideration to the appropriate economic life of its various facilities.

COLUMBIA AND LOWER WILLAMETTE RIVERS, OREG. AND WASH.

(H. Doc. 203, 87th Cong.)

Location.—The Columbia River rises in British Columbia, enters the United States in northeastern Washington, flows southerly to its confluence with the Snake River, thence westerly along the Oregon-Washington boundary to the Pacific Ocean. The reach of the Columbia River under consideration in this report extends from the mouth of the Willamette River upstream 4.5 miles to Vancouver, Wash., 106 river miles from the sea.

Authority.—Resolutions by the Senate and House Public Works Committees adopted March 14, 1957, and April 9, 1957, respectively.

Existing project.—Provides for a channel 35 feet deep and 500 feet wide from the mouth of Columbia River to Portland, Oreg., a distance of 113 miles; and a channel 30 feet deep and 300 feet wide from the mouth of Willamette River to Vancouver, Wash., a distance of 5 miles, with two turning basins 30 feet deep and 800 feet wide, and approximately 2,000 and 3,000 feet long for the upper and lower basins, respectively. The project has been completed.

Navigation problem.—Inadequate channel depth and width for vessels now using the waterway between the mouth of Willamette River and Vancouver. Groundings and damage to ships have been prevented by light loading and, during low river stages, running the tides.

Recommended plan of improvement.—Provides for a channel in the Columbia River 35 feet deep and 500 feet wide from the mouth of the Willamette River to the interstate bridge at Vancouver, Wash., with two turning basins 35 feet deep, 800 feet wide, and 2,000 and 5,000 feet long for the upper and lower basins, respectively.

Estimated cost (fourth quarter price level of 1959).—

Federal	$492,500
Non-Federal	17,900
Total	510,400

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$17,660	$840	$18,500
Maintenance	48,000	0	48,000
Total	65,660	840	66,500
Annual benefits:			
Transportation savings			159,770
Land enhancement			12,000
Total			171,770

Benefit-cost ratio.—2.6.

Local cooperation.—Contribute in cash 3.5 percent of the construction cost, presently estimated at $17,900 in a lump sum prior to construction; provide all lands, easements, and rights-of-way including spoil disposal areas; provide and maintain depths in berthing areas and local access channels commensurate with project depths; hold

and save the United States free from damages; provide and maintain public terminal facilities open to all on equal terms. Local interests have indicated willingness to meet requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Washington: Favoraable.

State of Oregon: Favorable.

Comments of the Bureau of the Budget.—No objection.

COLUMBIA AND LOWER WILLAMETTE RIVERS BELOW VANCOUVER, WASH., AND PORTLAND, OREG.

(H. Doc. 452, 87th Cong.)

Location.—The Columbia River rises in British Columbia, enters the United States in northeastern Washington, flows southerly to its confluence with the Snake River, thence westerly along the Oregon-Washington boundary to the Pacific Ocean.

Authority.—Resolutions by the Committee on Public Works of the U.S. Senate and House of Representatives adopted March 14, 1957, and April 9, 1957, respectively.

Existing project.—The existing project for the Columbia and lower Willamette Rivers provides for a channel 35 feet deep and 500 feet wide in the Columbia River from about river mile 3 to the mouth of Willamette River, mile 101.5, thence 30 feet deep and 300 feet wide to Vancouver, river mile 106.5; upper and lower turning basins at Vancouver; a channel in the Willamette River 35 feet deep from the mouth to Portland, a distance of about 11.6 miles; numerous side channels and connecting waterways; a small-boat mooring basin at Astoria; and construction of stone and pile dikes and revetments. Local interests have provided channel improvements and maintenance in addition to port facilities. Several power and navigation dams upstream from Vancouver have been built by the Federal Government. Others, either under construction or authorized, will provide slackwater navigation on the Columbia River to Pasco-Kennewick, Wash., river mile 329, and on the Snake River to Lewiston, Idaho, river mile 140.

Navigation problem.—With the present trend to use of larger ships, increased operating costs will be incurred through delays, light loading, and possible ship damage. The existing project dimensions restrict the use of larger ships and eventually will limit the commerce carried by the waterway.

Recommended plan of improvement.—(*a*) A channel 40 feet deep and 600 feet wide from Vancouver, Wash., river mile 105.5, to the mouth of Columbia River, river mile 3; (*b*) a turning basin at Vancouver, Wash., 40 feet deep, 800 feet wide, and about 5,000 feet long; (*c*) a turning basin at Longview, Wash., 40 feet deep, average width of 1,200 feet, and about 6,000 feet long; and (*d*) a channel 40 feet deep in Willamette River with varying widths of 600 to 1,900 feet, from the mouth, river mile 0, to Broadway Bridge, river mile 11.6 which encompasses the Portland Harbor area; with the provision that accomplishment of that portion of the plan contained in items (*a*) and (*b*) be contingent upon accomplishment of improvements in

these areas recommended in interim report on Columbia River dated March 31, 1961.

Estimated cost (1961 price level).—

Federal	$20,100,000
Non-Federal	[1] 419,000
Total	20,519,000

[1] Cash contribution.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$733,000	$23,000	$756,000
Maintenance and operation	775,000		775,000
Total	1,508,000	23,000	1,531,000
Annual benefits:			
Elimination of delays			2,322,000
Elimination of groundings			7,800
Delays in entrance			−99,400
Land enhancement			84,800
Total			2,315,200

Benefit-cost ratio.—1.5

Local cooperation.—Provide all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project and of aids to navigation; hold and save the United States free from damages; provide and maintain at local expense adequate public terminal and transfer facilities; accomplish such alterations as are required in utility facilities; assist in the work of improving and maintaining the main ship channel in Columbia and Willamette Rivers; provide and maintain depths in berthing areas and local access channels serving the terminals commensurate with the depths provided in the related project areas; and contribute in cash 1.8 percent of the cost of construction by the Corps of Engineers. Local interests have indicated willingness to provide required cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
State of Washington: Favorable.
State of Oregon: Favorable.

Comments of the Bureau of the Budget.—No objection.

TACOMA HARBOR, PORT INDUSTRIAL AND HYLEBOS WATERWAYS, WASH.

(S. Doc. 104, 87th Cong.)

Location.—Tacoma Harbor is in west-central Washington at the head of Commencement Bay, a southeasterly arm of Puget Sound, and is about 26 nautical miles south of Seattle.

Authority.—Resolution of the Committee on Public Works of the U.S. Senate adopted May 27, 1955.

Existing project.—City, Port Industrial, and Hylebos Waterways, as well as two training walls at the mouth of Puyallup Waterway, are

the features of the existing Federal project for Tacoma Harbor. City Waterway has a depth of 29 feet in the outer portion and depths of 22 feet and 19 feet in the inner portion, and Port Industrial and Hylebos Waterways are 30 feet deep.

Navigation problem.—Development of lands, navigation channels, and related facilities are needed for the continued growth and development of water-oriented industry in the Tacoma Harbor area. There is an urgent need for waterfront industrial sites in the Puget Sound area.

Recommended plan of improvement.—Improvement of: Port Industrial Waterway by extending it about 3,900 feet at a width of 300 feet, and providing a turning basin beyond the inner end 1,200 feet wide, all at a depth of 35 feet below mean lower low water; reducing the width of the existing channed to 600 feet and deepening to 35 feet between Lincoln Avenue and East 11th Street; and reducing the width of the existing channel to 650 feet and deepening to 35 feet over a width of 300 feet from East 11th Street to the bay; and Hylebos Waterway by extending it about 2,000 feet at a width of 200 feet, and providing a turning basin beyond the inner end 770 feet wide; increasing the width of the existing channel to 200 feet; reducing the authorized width of the existing turning basin to 510 feet inclusive of the width of the existing channel; all at the existing project depth of 30 feet below mean lower low water.

Estimated cost (1961 price level).—

Federal	$2,460,000
Non-Federal	[1] 2,159,000
Total	4,619,000

[1] Includes $921,000 cash contribution.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$91,000	$133,000	$224,000
Maintenance and operation	8,000	5,000	13,000
Total	99,000	138,000	237,000
Annual benefits:			
Transportation savings	----------	----------	164,400
Land enhancement	----------	----------	185,000
Total	----------	----------	349,400

Benefit-cost ratio.—1.5 (Port Industrial Waterway has a benefit-cost ratio of 1.3; Hylebos Waterway a ratio of 2.3.)

Local cooperation.—Provide all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project; hold and save the United States free from damages; provide and maintain adequate public terminal and transfer facilities; provide and maintain depths in berthing areas commensurate with the channel depths; accomplish alteration of utilities as required; restrict the sale of waterfront sites along channels to firms requiring water transportation; and contribute in cash or equivalent work 29.5 and 19.5 percent, respectively, of the first cost of construction for the Port Industrial and Hylebos Waterways improvements, presently esti-

mated at a total of $921,000. Port of Tacoma officials have indicated a willingness to provide the necessary local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Commerce: Favorable.
State of Washington: Favorable.

Comments of the Bureau of the Budget.—No objection.

KINGSTON HARBOR, WASH.

(H. Doc. 417, 87th Cong.)

Location.—On the west side of Puget Sound about 9 miles northwest of Seattle, Wash.

Authority.—House Public Works Committee resolution adopted March 30, 1955.

Existing project.—There is no Federal project for navigation at Kingston Harbor. In 1953 the Port Commission of Kingston completed a ferry terminal which involved dredging an adjacent area of about 4 acres to a depth of 10 feet to obtain fill material. This area, together with a locally constructed wharf and float, provides temporary accommodations for transient small craft.

Navigation problem.—Small craft are subject to damage from easterly storms and additional anchorage area for refuge is needed for recreational and fishing craft.

Recommended plan of improvement.—Construction of a breakwater, 1,040 feet long and dredging an entrance channel 12 feet deep and 80 to 120 feet wide from deep water around the southerly end of the breakwater to the locally dredged boat basin.

Estimated cost (March 1961 price level).—

Federal	$428,000
Non-Federal	[1] 195,000
Total	623,000

[1] Includes cash contribution of $193,000.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$16,600	$11,500	$28,100
Maintenance	5,000		5,000
Navigation aids	300		300
Total	21,900	11,500	33,400
Annual benefits:			
Recreational boating			26,600
Commercial fishing			15,800
Total			42,400

Benefit-cost ratio.—1.3.

Local cooperation.—Contribute in cash 31 percent of construction cost of the breakwater and channel, such contribution presently estimated at $193,000, in a lump sum prior to construction; provide all

lands, easements, and rights-of-way, including spoil disposal areas; hold and save the United States free from damages; provide and maintain adequate public landing facilities, open to all on equal terms; provide access roads and parking areas; make necessary utility relocations. Local interests have indicated willingness to furnish requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Washington: Favorable.

Comments of the Bureau of the Budget.—No objection.

SWINOMISH CHANNEL, WASH.

Location.—Swinomish Channel (formerly Swinomish Slough) is a narrow tidal channel connecting Padilla Bay and Saratoga Passage, and separating Fidalgo Island from the mainland of northwestern Washington. It affords an inside passage between Puget Sound ports on the south and Billingham and other ports on the north.

Authority.—Resolutions by the Committees on Public Works of the U.S. Senate and House of Representatives adopted May 18, 1957, and February 20, 1951, respectively.

Existing project.—The existing Federal project provides for a channel 100 feet wide and 12 feet deep from Saratoga Passage to Padilla Bay, a distance of 11 miles. Local interests have provided terminal facilities and berthing areas.

Navigation problem.—The existing channel is considered unsafe due to lack of 16-feet depth, crooked alinement, and reefs. Bank erosion is threatening dikes protecting valuable farmlands. A small boat harbor is needed for moorage for recreational and other craft and as a harbor of refuge.

Recommended plan of improvement.—Improve the passage through the "Hole-in-the-Wall" by removing to a depth of 12 feet the submerged points projecting from Fidalgo and McGlinn Islands, and removing part of McGlinn Island to an elevation of 12 feet above mean lower low water to improve sight distance.

Estimated cost (1961 price level).—

Federal	$887,000
Non-Federal	1,000
Total	888,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$32,900	(1)	$32,900
Maintenance and operation			
Total	32,900		32,900
Annual benefits:			
Saving in operational cost of tugs			16,100
Reduction in vessel and raft damage			7,400
Reduction in waiting time			10,700
Savings by increased traffic			9,600
Total			43,800

[1] Negligible.

Benefit-cost ratio.—1.3.

Local cooperation.—Provide all lands, easements and rights-of-way and suitable spoil areas. Local residents are formulating plans for organizing a port district. Informal assurances have been given that local interests will cooperate in the planned improvements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Washington: Favorable.

Comments of the Bureau of the Budget.—No objection.

KAUNAKAKAI HARBOR, MOLOKAI, HAWAII

(H. Doc. 484, 87th Cong.)

Location.—On the south-central coast of the island of Molokai, about 60 miles from Honolulu Harbor on the island of Oahu.

Authority.—House Public Works Committee resolution adopted April 9, 1957.

Existing project.—Completed in 1934, provides an entrance channel 530 feet wide, and a basin 1,500 feet long, 600 feet wide and 23 feet deep at mean lower low water.

Navigation problem.—Molokai is the only large Hawaiian island without a deepwater harbor for transpacific shipping. Commerce consists principally of pineapples grown on the island and shipped by barge to Honolulu for processing. Savings could be effected by processing pineapples on Molokai for direct shipment by deep-draft vessels to the mainland. Also, additional harbor area is needed for commercial fishing and recreational boating.

Recommended plan of improvement.—Provides for: (a) a new entrance channel 500 feet wide and 40 feet deep; (b) a deepwater harbor of about 62 acres, 35 feet deep; (c) a harbor basin for light-draft vessels of about 10 acres, 15 feet deep; (d) a south breakwater 2,300 feet long; and (e) a west breakwater and stream jetty 4,000 feet long.

Estimated cost (price level of May 1961).—

Federal	$7,919,000
Non-Federal	702,000
Total	8,621,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$290,000	$33,000	$323,000
Maintenance and operation	24,000	4,000	28,000
Total	314,000	37,000	351,000
Annual benefits:			
Transportation savings			1,453,000
Land fill			19,400
Damages prevented			28,000
Recreational boating			24,400
Commercial fishing			4,400
Total			1,529,200

Benefit-cost ratio.—4.4.

Local cooperation.—Construction be contingent upon the prior or current establishment and operation on Molokai by local interests of industrial facilities related to trans-Pacific commerce, and local interests agree to: (*a*) contribute in cash 0.5 percent of the first cost of the general navigation facilities for the deepwater harbor, and 42.5 percent of the first cost of the general navigation facilities and for light-draft harbor, such contributions, presently estimated at $202,000; (*b*) provide all lands, easements, and rights-of-way, including royalty-free borrow and quarry materials, and suitable areas for disposal of spoil and necessary retaining dikes, bulkheads, and embankments; (*c*) hold and save the United States free from damage which might result from construction and maintenance of the project; (*d*) accomplish all alterations of roads and utilities; (*e*) provide and maintain berthing areas, public terminal and transfer facilities for the deepwater basin, and adequate mooring facilities, and a public landing in the light-draft harbor open to all on equal terms; and (*f*) an adequate refrigeration and storage facility at the light-draft harbor in support of commercial fishing operations. Local interests have given informal assurances that the requirements of local cooperation will be met.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

State of Hawaii: Favorable.

Comments of the Bureau of the Budget.—No objection.

STATE OF NEW HAMPSHIRE BEACH EROSION CONTROL

(H. Doc. 416, 87th Cong.)

Location.—Area includes about 18 miles of shore frontage comprising the entire Atlantic Ocean shore of the State of New Hampshire. It includes the towns of New Castle, Rye, North Hampton, Hampton, and Seabrook.

Report authorized by.—Section 2 of River and Harbor Act approved July 3, 1930 (cooperative study provisions).

Existing project.—A Federal project authorized September 3, 1954, (HD 325/83/2) provided for Federal participation in widening about 5,200 feet of beach at Hampton Beach. The work was completed in 1955 at a cost of $374,234.59 and the State subsequently reimbursed $124,744.86 as the Federal share thereof.

Beach erosion control problem.—Gradual erosion from storm wave attack and reduction in natural supply of beach material has reduced beach width fronting developed areas to such extent that these areas are exposed to wave damage during storms and beach areas are inadequate for recreational use. The existing beach restoration project at Hampton Beach includes periodic replenishment of beach fill as a project feature to be accomplished by local interests, and a groin is needed to maintain the project beach width along the northern portion of that beach. The passage of Public Law 826, 84th Congress, approved July 28, 1956, permits Federal participation in periodic nourishment of beaches. Review of the existing Hampton Beach project to determine need for modification, nourishment requirements, and eligibility for Federal participation toward their cost was also desired.

Recommended plans of improvement.—Provide for (*a*) at North Hampton Beach—widening 1,600 feet of beach to 150-foot width by direct placement of sand fill and construction of a 460-foot groin; (*b*) at Wallis Sands Beach—widening 800 feet of beach to 150-foot width by direct placement of sand fill and construction of a 350-foot groin; and (*c*) at Hampton Beach— modification of the existing project to authorize construction of a 235-foot groin and Federal contribution of one-third toward the costs of periodic nourishment of the beach for an initial period of 10 years from the year of the first nourishment operation.

Estimated costs (June 1960 price level).—

	Federal	Non-Federal	Total
North Hampton Beach	$41,000	$129,000	$170,000
Wallis Sands Beach	41,000	82,000	123,000
Hampton Beach (new work—groin)	6,000	12,000	18,000
Total	88,000	223,000	311,000

The estimated cost of periodic nourishment at Hampton Beach, a responsibility of local interests under the existing project, is $50,000 annually. The recommended modification of the project provides for Federal participation in this cost as follows:

	Per year for 1st 10 years	Per year Thereafter
Federal	$16,700	0
Non-Federal	33,300	$50,000
Total	50,000	50,000

Project economics.—Overall project at Hampton Beach includes initial construction completed in 1955 at a total cost of $374,235 and recommended new work.

Annual charges:	
North Hampton Beach	$12,700
Wallis Sands Beach	8,200
Hampton Beach (new work)	1,100
Total (new work)	22,000
Hampton Beach (overall)	[1] 66,390

[1] Includes Federal share of periodic nourishment costs estimated at $16,700 per year for 1st 10-year period.

Annual benefits:	
North Hampton Beach	$16,950
Wallis Sands Beach	18,000
Hampton Beach (new work)	6,000
Total (new work)	40,950
Hampton Beach (overall)	140,190
Benefit-cost ratio:	
North Hampton Beach	1.3
Wallis Sands Beach	2.2
Hampton Beach (new work)	5.4
Hampton Beach (overall project)	2.1

Local cooperation.—Obtain approval of the Chief of Engineers for plans and specifications and arrangements for prosecuting the work prior to its commencement; provide suitable appurtenant facilities at

North Hampton Beach to the extent necessary for realization of evaluated benefits; and furnish satisfactory assurances that local interests will maintain the protective measures and provide periodic nourishment during their economic life, but in the case of Hampton Beach, with Federal assistance as recommended; control water pollution to the extent necessary to safeguard the health of bathers; and maintain continued public ownership of the shores upon which the Federal participation is based, and their administration for public use.

Comments of State and Federal agencies.—

State of New Hampshire: Favorable.

Department of the Interior: Favorable.

Comments of Bureau of Budget.—No objection.

FIRE ISLAND INLET AND SHORE WESTERLY TO JONES INLET, N.Y., BEACH EROSION CONTROL

Location.—The study area is located on the south shore of Long Island, N.Y., and extends a distance of about 15 miles between Fire Island Inlet and Jones Inlet.

Report authorized by.—Section 2 of the River and Harbor Act approved July 3, 1930 (cooperative study provisions).

Existing project.—The existing Federal beach erosion project authorized July 3, 1958, provides for Federal participation in restoration and protection of the shore from Oak Beach at Fire Island Inlet to Jones Inlet consisting of three dredging operations over a project life of 15 years. The existing Federal navigation project authorized by the River and Harbor Act of 1950 provides a channel through Fire Island Inlet generally 10 feet deep and 250 feet wide, and a 5,000-foot jetty at the west end of Fire Island.

Beach erosion control problem.—Continuing erosion of the protective and recreational beach in the study area has progressed in recent years to such an extent that use of the beach is impaired and improvements in the shore-front areas are damaged by storms and subject to possible destruction. Presently authorized protective improvements are inadequate to provide the protection required under existing conditions. The westerly movement of littoral drift into the inlet results in shoaling and shifting of the channel and in the possibility of eventual closure of the inlet unless littoral drift is stopped or bypassed.

Considered plans of improvement.—Provide for Federal participation in the construction of a long-term solution of the erosion problem consisting generally of either an offshore breakwater or a jetty extension to trap littoral drift, placement of sand to restore the beach, provision of feeder beach areas to nourish downdrift shores, and periodic transfer of sand from lee of the breakwater or jetty to feeder beaches.

Project cost and economics.—At this time the Chief of Engineers is unable to determine definitely costs or economic justifications for the long-term plans. However, studies have advanced sufficiently to indicate that protective measures are warranted and that the anticipated benefits will probably exceed the cost.

Status.—The review report of the district engineer has not been completed and reviewed in accordance with established procedures.

A preliminary report was submitted by the district engineer, New York district on July 6, 1962, and forwarded by the division engineer on the same date to the Chief of Engineers.

Remarks.—The committee has noted that the erosion problem on the south shore of Long Island from Fire Island Inlet to Jones Inlet has been aggravated by the storms of March 1962. The erosion and silting of the inlets is a continuing problem and early solution and remedial measures are essential. It is also noted that unless littoral drift is stopped or bypassed, the inlet eventually may be closed.

VIRGINIA BEACH, VA., BEACH EROSION CONTROL

(H. Doc. No. 382, 87th Cong.)

Location.—On the Atlantic Ocean shore about 3.5 miles south of the entrance to Chesapeake Bay and 19 miles east of Norfolk.

Report authorized by.—Section 2 of River and Harbor Act approved July 3, 1930 (cooperative study provisions).

Existing project.—Authorized by River and Harbor Act of 1954 (H. Doc. No. 186, 83d Cong., 1st sess.), provided for initial widening of the beach to 100-foot width at elevation 7 feet above mean low water and deferred construction of a system of 21 groins to be built if experience demonstrates their need. Initial beach widening completed in 1953.

Beach erosion control problem.—Virginia Beach is the largest and most popular resort center in Virginia and is extensively developed for tourist trade. The existing project includes periodic replenishment of beach fill as a project feature to be accomplished by local interests. The passage of Public Law 826, 84th Congress, approved July 28, 1956, permits Federal participation in periodic nourishment of beaches. Review of the existing project to determine nourishment requirements and eligibility for Federal participation toward its cost was desired.

Recommendation.—Modification of the existing project to authorize Federal contribution of one-third of the costs of periodic nourishment of the shore for a period of 25 years from the date of commencement of operations in placing an initial quantity of nourishment material equal to the deficiency in the design beach at that time.

Estimated costs (January 1961 price levels).—The estimated costs of periodic nourishment, a responsibility of local interests under the existing project, are $150,000 to provide initial quantity of nourishment to make up existing deficiency in design beach plus $54,000 annually for normal nourishment. The recommended modification of the project provides for Federal participation in this cost as follows:

	Per year for 1st 3 years	Per year, next 22 years	Per year thereafter
Federal	$34,700	$18,000	
Non-Federal	69,300	36,000	$54,000
Total	104,000	54,000	54,000

Project economics.—Overall project including initial construction completed 1953 at total cost of $705,000.

	Exclusive of deferred groins	Including groins
Annual charges:		
Interest and amortization	$31,000	$79,700
Maintenance		22,900
Beach nourishment	[1] 57,000	37,000
Total	88,000	139,600
Annual benefits:		
Prevention of damages		216,000
Increased earning power of property		155,000
Recreational		28,000
Total		399,000

[1] Federal participation $34,700 per year for 3 years, thence $18,000 per year for 22 years.

Benefit-cost ratio.—4.5 (overall project without deferred groins): 2.9 (overall project including groins).

Local cooperation.—Continuation of conditions of local cooperation required for Federal participation in the existing project, but with Federal assistance in the costs of periodic beach nourishment as recommended.

Comments of State and Federal agencies.—

State of Virginia: Favorable.

Department of the Interior: Favorable.

Comments of Bureau of the Budget.—No objection.

FORT MACON, ATLANTIC BEACH, AND VICINITY, NORTH CAROLINA—BEACH EROSION CONTROL

(H. Doc. 555, 87th Cong.)

Location.—The study area comprises about 5 miles of shore fronting the Atlantic Ocean on the outer banks of North Carolina, immediately southwest of Beaufort Inlet, located approximately halfway between the Virginia and South Carolina boundaries.

Report authorized by.—Section 2 of River and Harbor Act approved July 3, 1930 (cooperative study provisions).

Existing project.—No existing Federal beach erosion control project.

Beach erosion control problem.—Erosion and recession of the shore has seriously reduced the width of beaches in the area; and private resort areas, public recreational facilities, and historic Fort Macon have been made seriously vulnerable to storm wave damages.

Recommended plan of improvement.—Restore approximately 1.5 miles of beach at Fort Macon State Park to a berm width of 100 feet by direct placement of sand fill; construct a stone groin about 1,670 feet in length, about 250 feet of stone revetment and about 530 feet of stone seawall; and provide Federal participation in subsequent periodic nourishment of the beach for a period of 10 years.

Estimated costs (May 1961 price level).—

Federal	$194,000
Non-Federal	389,100
Total	583,100

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$7,300	$18,500	$25,800
Maintenance	0	1,000	1,000
Beach nourishment	[1] 2,400	4,800	7,200
Total	9,700	24,300	34,000
Annual benefits:			
Prevention of damages			5,300
Prevention of land loss			30,000
Recreation			54,500
Total			89,800

[1] For 1st 10-year period.

Benefit-cost ratio.—2.7.

Local cooperation.—Obtain approval by the Chief of Engineers for plans and specifications and arrangements for prosecuting remaining work prior to its commencement; and furnish satisfactory assurances that local interests will maintain the protective measures and provide periodic beach nourishment during the economic life of the project, control water pollution to the extent necessary to safeguard the health of bathers, and maintain continued public ownership of the shore upon which Federal participation is based and their continued administration for public use.

Comments of State and Federal agencies.—

State of North Carolina: Favorable.

Department of the Interior: Favorable.

Comments of Bureau of the Budget.—No objection.

VIRGINIA KEY AND KEY BISCAYNE, FLA., BEACH EROSION CONTROL

(H. Doc. 561, 87th Cong.)

Location.—In Dade County, Fla., comprising the Atlantic Ocean shores of Virginia Key and Key Biscayne, two of a chain of barrier islands, just south of the entrance to Miami Harbor.

Report authorized by.—Section 2 of the River and Harbor Act aproved July 3, 1930 (cooperative study provisions).

Existing project.—No existing Federal beach erosion control project.

Beach erosion control problem.—Virginia and Biscayne Keys are primary recreation areas for metropolitan Dade County and the city of Miami. Instability and recession of the ocean-front shores have resulted in loss of public beach areas, both for those areas which are presently developed as parks and those for which development in the very near future will be required to provide for anticipated greatly increased recreational use.

Recommended plan of improvement.—Provides for periodic nourishment of 1.8 miles of public beach on Virginia Key and 1.9

miles on Key Biscayne at estimated rates of 80,000 and 65,000 cubic yards per year, respectively, and deferred construction of three groins on Virginia Key and one groin on Key Biscayne until such time as experience gained in nourishing the beaches should indicate the need for the groins.

Estimated costs (spring 1961 price levels).—

	Virginia Key	Key Biscayne	Total
Deferred groins:			
Federal	$182,000	$38,000	$220,000
Non-Federal	365,000	77,000	442,000
Total	547,000	115,000	662,000
Periodic nourishment:			
Federal	[1] 25,300	[1] 22,700	----------
Non-Federal	[2] 50,700	[2] 45,300	----------
Total	76,000	68,000	----------

[1] Per year for 1st 10 years.
[2] Per year for 1st 10 years (full total thereafter).

Project economics.—

	Virginia Key	Key Biscayne
Annual charges:		
Deferred groins:		
Interest and amortization	$20,100	$4,100
Maintenance	4,700	1,000
Total (deferred)	24,800	5,100
Beach nourishment (without groins)	76,000	68,000
Annual benefits:		
Prevention of damages	1,600	1,600
Recreation	214,000	225,000
Total	215,600	226,600

Benefit-cost ratio.—Computed on the basis of nourishment only as the deferred groins will be constructed only if total annual charges for both groins and nourishment are less than annual charges for beach nourishment alone.

Virginia Key	2.8
Key Biscayne	3.8

Local cooperation.—Obtain approval by the Chief of Engineers for plans and specifications and arrangements for prosecuting the work prior to its commencement; and furnish satisfactory assurances that local interests will: control water pollution to the extent necessary to safeguard the health of bathers, and maintain continued public ownership of the shores upon which Federal participation is based and their administration for public use. In the event that groins are found to be needed and justified, furnish assurances that for these works they will meet the conditions of local cooperation specified above; maintain the groins; and provide such related periodic beach nourishment as may be necessary to meet project objectives, subject to the recommended Federal participation for the 10-year initial period.

Comments of State and Federal agencies.—
City of Miami: Favorable.
Dade County: Favorable.
State of Florida: Favorable.
Department of the Interior: Favorable.
Comments of the Bureau of the Budget.—No objection.

LAKE ERIE SHORE LINE FROM THE MICHIGAN-OHIO STATE LINE TO MARBLEHEAD, OHIO BEACH EROSION CONTROL

(H. Doc. 63, 87th Cong.)

Location.—Area comprises the westernmost 35 miles of the south shore of Lake Erie and the Maume Bay shore adjacent to the city of Toledo.

Report authorized by.—Section 2 of River and Harbor Act approved July 3, 1930 (cooperative study provisions).

Existing project.—No existing beach erosion control project.

Beach erosion control problem.—Shores are principally low lying marshy or reclaimed marsh areas fronted by low barrier beaches of fine sand. The barrier beaches have a continuous history of erosion and in a number of places have been breached or so deteriorated that the marshes are directly exposed to waves from Lake Erie and recreational park area has been seriously reduced.

Recommended plan of improvements.—Restore and protect the shore at Crane Creek State Park by restoring 17,800 feet of sand barrier beach to a 50-foot width at elevation 9 feet above low water datum by placement of suitable sand fill, constructing 36 groins spaced generally at 500-foot intervals and extending lakeward about 300 feet (construction of 26 of the groins to be deferred pending determination of the need thereof), and providing Federal participation in periodic nourishment of the beach for the period during which groins are deferred.

Estimated costs (price level of November 1959).—

Federal	$658,500
Non-Federal	1,317,200
Total	1,975,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$23,800	$46,500	[1] $70,300
Maintenance (groins)	0	6,000	[1] 6,000
Periodic nourishment	[2] 40,000	80,000	[3] 120,000
Total	63,800	132,500	196,300
Annual benefits:			
Recreational	----------	----------	257,250
Land loss prevention	----------	----------	500
Total	----------	----------	257,750

[1] Includes charges for all 36 groins.
[2] For period during which construction of 26 groins is deferred.
[3] Includes nourishment required with 26 groins deferred.

Benefit-cost ratio.—1.3.

Local cooperation.—Obtain approval by the Chief of Engineers of plans and specifications and arrangements for prosecuting the work prior to its commencement; provide parking and service facilities necessary to realize expected recreational benefits; furnish satisfactory assurances that local interests will: maintain the protective measures during their economic life including periodic nourishment, control water pollution to the extent necessary to safeguard bathers, and maintain continued public ownership of the shore and its administration for public use during the economic life of the project (50 years).

Comments of State and Federal agencies.—

State of Ohio: Favorable.

Department of Interior: Favorable.

Comments of Bureau of the Budget.—No objection.

SHEFFIELD LAKE COMMUNITY PARK, SHEFFIELD LAKE VILLAGE, OHIO, BEACH EROSION CONTROL

(H. Doc. 414, 87th Cong.)

Location.—On the south shore of Lake Erie about 20 miles west of Cleveland, Ohio.

Report authorized by.—Section 2 of River and Harbor Act approved July 3, 1930 (cooperative study provisions).

Existing project.—No existing Federal beach erosion control project.

Beach erosion control problem.—Erosion of the protective beach and bluffs precludes full development and recreational use of a publicly owned community park. Restoration of the beach and stabilization of the shore is necessary to provide adequate recreational beach area and protect park facilities.

Recommended plan of improvement.—Provides for restoration of a protective beach with minimum berm width of 40 feet at elevation 8 feet above low water datum along the 800 feet of park frontage and construction of 2 groins.

Estimated costs (July 1960 price levels).—

Federal	$100,300
Non-Federal	200,700
Total	301,000

Project economics.—

Annual charges:	
Interest and amortization	$18,400
Maintenance (groins)	1,000
Beach nourishment	6,400
Total	20,800
Annual benefits:	
Elimination of protective costs by present methods	1,300
Recreation	26,000
Total	27,300

Benefit-cost ratio.—1.3.

Local cooperation.—Obtain approval by the Chief of Engineers for plans and specifications and arrangements for prosecuting the work prior to its commencement; and furnish satisfactory assurances that local interests will: maintain the protective measures during their economic life, control water pollution to the extent necessary to safeguard the health of bathers, maintain continued public ownership of the shore and its administration for general public use, and relocate the storm sewer outfall at their own expense.

Comments of State and Federal agencies.—

State of Ohio: Favorable.

Department of the Interior: Favorable.

Comments of Bureau of the Budget.—No objection.

STATE OF CALIFORNIA, APPENDIX VII, SPECIAL INTERIM REPORT ON VENTURA AREA—BEACH EROSION CONTROL

(H. Doc. 458, 87th Cong.)

Location.—The study area located in Ventura County, comprises about 4 miles of shore on the Pacific Ocean, lying between the Ventura and Santa Clara Rivers, about 55 miles northwest of Los Angeles.

Report authorized by.—Section 2 of the River and Harbor Act approved July 3, 1930 cooperative study provisions).

Existing project.—A Federal project authorized September 3, 1954 (HD 29/83/1) provided for Federal participation in construction of three groins to protect about 1 mile of shore in the northwestern portion of San Buena Ventura State Park. Within his discretionary authority the Chief of Engineers, U.S. Army, in August 1961 approved modification of the existing project to shift the locations of the three authorized groins to the downdrift (southeastern) portion of the State park frontage where the problem has become more acute. These groins are planned for construction by the State of California in 1962.

Beach erosion control problem.—Continuing erosion of the protective and recreational beach at San Buena Ventura State Park has progressed in recent years to such extent that use of the park is impaired and public and private improvements in the Pierpoint residential community landward of the park are threatened with destruction. Presently authorized protective structures are inadequate to provide the protection required under existing conditions.

Recommended plan of improvement.—In lieu of the existing project, provides for Federal participation in the construction of nine groins and artificial placement of beach fill among approximately 2 miles of shore.

Estimated costs (1961 price level).—

Federal	$515,000
Non-Federal	1,030,000
Total	1,545,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$18,720	$48,090	$66,810
Maintenance:			
Groins	0	6,000	6,000
Sand fill	0	10,000	10,000
Total	18,720	64,090	82,810
Annual benefits:			
Prevention of loss:			
Private lands and improvements			76,450
Public lands and improvements			48,880
Recreation			60,000
Total			185,330

Benefit-cost ratio.—2.2.

Local cooperation.—Obtain approval by the Chief of Engineers for plans and specifications and arrangements for prosecuting the work prior to its commencement; and furnish satisfactory assurances that local interests will maintain the protective measures during their economic life, control water pollution to the extent necessary to safeguard the health of bathers, and maintain continued public ownership of the shores upon which Federal aid is based and their administration for public use.

Comments of State and Federal agencies.—

State of California: Favorable.

Department of the Interior: Favorable.

Comments of the Bureau of the Budget.—No objection.

(Sec. 102, see p. 231.)

SECTION 103

Old lock and dam No. 7, Ohio River, near the city of Midland, Pa., was made obsolete by the construction of the New Cumberland lock and dam. Some 17.94 acres located at old lock and dam No. 7 have value for public park and recreation purposes. The land and the dam tenders' residences thereon are excess to the needs of the Ohio River navigation project.

The city of Midland, Pa., desires to obtain the subject lands for public park and recreation purposes and there is no objection to such use, provided that any grant to the city of Midland should be subject to such flowage rights as may be necessary in the operation of the New Cumberland lock and dam and that the deed contain a reversionary clause in the event the lands are not utilized for the purpose for which the grant is made.

The committee considers that this conveyance to the city of Midland is in the public interest.

SECTION 104

This section is similar to that in previous River and Harbor Acts. It provides for reimbursement of local interests for work done by them on beach erosion control measures authorized in this bill subsequent to initiation of the studies which form the basis for these measures. Certain restrictions and limitations are included to safeguard the interests of the United States. This section provides a reasonable basis for proceeding with necessary beach erosion control measures at time of need, so that costly beach restriction or irrevocable loss of beaches may be avoided. The provision has been considered equitable in previous legislation, and the committee considers that it also should apply to beach erosion control measures included in this bill. (Sec. 105, see p. 232.)

SECTION 106

This section is similar to that in previous River and Harbor Acts providing for authorization of needed surveys at specifically named localities.

SECTION 107

This section identifies title I of the bill as the River and Harbor Act of 1962.

ANALYSIS OF TITLE II

SECTION 201

This section is the same as that which has been included in the last several flood control acts. It continues the provisions of local cooperation which have been in effect for some time, and provides that project authorization shall expire if local cooperation is not forthcoming within 5 years after appropriate notification.

SECTION 202

This section is the same as that which has been included in the last several flood control acts. It continues the present procedure of submitting reports to the interested States and agencies prior to submission to Congress.

SECTION 203

This section summarizes the project authorizations for flood control, hurricane protection, and multiple-purpose works in title II. The initial table lists the projects, project document numbers, and estimated Federal costs. Pertinent information follows for each project.

TITLE II

Flood control projects

Projects	Document No.	Federal cost of new works
Alameda Creek, Calif.	S. 128, 87th Cong.	$14,680,000
Alamogordo, N. Mex.	H. 473, 87th Cong.	2,040,000
Allegheny River at Salamanca, N.Y.	H. 166, 87th Cong.	1,390,000
Arkansas-Red River Basin, Okla.	S. 105, 87th Cong.	300,000
Arkansas River, Dodge River, Kans.	H. 498, 87th Cong.	2,133,000
Asotin Dam, Snake River, Idaho and Wash.	H. 403, 87th Cong.	99,818,000
Blackfoot Dam, Idaho	H. 568, 87th Cong.	829,000

Flood control projects—Continued

Projects	Document No.	Federal cost of new works
Bradley Lake power project, Cook Inlet, Alaska	H. 455, 87th Cong	$45,750,000
Broken Bow Reservoir, Okla	S. —, 87th Cong	23,800,000
Buchanan Reservoir, Calif	S. 98, 87th Cong	13,585,000
Buckhannon River, W. Va	S. 43, 87th Cong	1,206,000
Burns Creek, Idaho	H. —, 87th Cong	52,000,000
Carolina Beach, N.C	H. 418, 87th Cong	739,000
Chattahoochee River at West Point, Ga	H. 570, 87th Cong	52,900,000
China Gardens Dam, Idaho, Oreg., and Wash	H. 403, 87th Cong	74,777,000
Chunky Creek, Chickasaway and Pascagoula Rivers, Miss	H. 549, 87th Cong	6,740,000
Clear Fork of the Brazos River at Abilene, Tex	H. 506, 87th Cong	31,200,000
Columbia Drainage and Levee District No. 3, Illinois	H. 543, 87th Cong	980,000
Corte Madera Creek, Marin County, Calif	H. 545, 87th Cong	5,534,000
Cow Creek, Kans	H. 531, 87th Cong	1,560,000
Crab Creek, Ohio	H. 440, 87th Cong	2,268,000
Cutler drain area, Florida	S. 123, 87th Cong	2,063,000
Dade County, central and southern Florida	S. 138, 87th Cong	13,388,000
Delaware River, Pa., N.J., Del., and Md	H. 522, 87th Cong	224,000,000
East Fork of Trinity River, Tex	H. 554, 87th Cong	23,760,000
Four River Basins, Fla	H. —, 87th Cong	57,760,000
Freeport and vicinity, Texas	H. 495, 87th Cong	3,780,000
French Creek, Pa	S. 95, 87th Cong	23,102,000
Guyandot River, W. Va	H. 569, 87th Cong	60,477,000
Harrisonville and Ivy Landing, Ill	H. 542, 87th Cong	1,112,000
Hidden Reservoir, Calif	S. 37, 87th Cong	14,338,000
Hugo Reservoir, Kiamichi River, Okla	S. —, 87th Cong	29,748,000
Illinois River and tributaries	H. 472, 87th Cong	71,465,000
Indian Creek, Iowa	H. 438, 87th Cong	1,270,000
Juniata River, Pa	H. 565, 87th Cong	32,150,000
Kansas River Basin	S. 122, 87th Cong	88,070,000
Kaw Reservoir, Okla	S. 143, 87th Cong	83,230,000
Kaysinger Bluff Reservoir, Mo	H. —, 87th Cong	43,245,000
Kentucky River, Ky	H. 423, 87th Cong	26,020,000
Kickapoo River, Wis	H. —, 87th Cong	15,570,000
Kokosing River, Ohio	H. 220, 87th Cong	2,438,000
Lake Kemp, Wichita River, Tex	S. 144, 87th Cong	6,410,000
Mad River, Ohio	H. 439, 87th Cong	7,930,000
Mississippi River Delta at and below New Orleans, La	H. 550, 87th Cong	7,502,000
Mississippi River, Guttenberg, Iowa	H. 286, 87th Cong	729,000
Mississippi River-Ste. Genevieve-St. Marys, Mo	H. 519, 87th Cong	2,500,000
Mississippi River upper urban areas from Hampton, Ill., to Cassville, Wis.	H. 450, 87th Cong	5,350,000
Mystic, Groton, and Stonington, Conn	H. 411, 87th Cong	1,490,000
Narragansett pier, Rhode Island	H. 195, 87th Cong	1,152,000
Natchitoches and Red River Parishes, La	H. 476, 87th Cong	1,293,000
Naugatuck, Ansonia-Derby, Conn	H. 437, 87th Cong	5,620,000
New London, Conn	H. 478, 87th Cong	2,401,000
New Melones Reservoir, Calif	H. 453, 87th Cong	113,717,000
Norfolk, Va	H. 354, 87th Cong	1,537,000
Papillion Creek, Nebr	H. 475, 87th Cong	2,122,000
Pecatonica River, Ill. and Wis	H. 539, 87th Cong	850,000
Point Judith, R.I	H. 521, 87th Cong	2,414,000
Port Arthur and vicinity, Texas	H. 505, 87th Cong	23,380,000
Potomac River, North Branch, Md	H. 469, 87th Cong	50,965,000
Prairie Dupont Levee and Sanitary District, Ill	H. 540, 87th Cong	921,000
Raritan Bay and Sandy Hook Bay, N.J	H. 464, 87th Cong	3,097,000
Redwood Creek, Calif	H. 497, 87th Cong	2,580,000
Rend Lake Reservoir, Ill	H. 541, 87th Cong	35,500,000
Richland Creek, Ill	H. 571, 87th Cong	4,995,000
Rio Grande at Las Cruces, N.Mex	S. 117, 87th Cong	3,350,000
Ririe Dam and Reservoir, Idaho	H. 562, 87th Cong	7,027,000
River Rouge, Mich	H. 148, 87th Cong	8,659,000
Rogue River, Oreg	H. 566, 87th Cong	$106,700,000
Rondout Creek and Wallkill River, N.Y. and N.J	S. 113, 87th Cong	5,111,000
Russellville, Ark		1,400,000
Russian River, Calif	H. 547, 87th Cong	42,400,000
Salt River, Mo	H. 507, 87th Cong	63,300,000
Sandusky River, Ohio	S. 136, 87th Cong	4,300,000
San Gabriel River, Tex	H. —, 87th Cong	20,259,000
Scioto River, Ohio	H. —, 87th Cong	55,847,000
Trinity River, Fort Worth, Tex.—Pt. II	H. 454, 87th Cong	5,148,000
Truckee River, Calif. and Nev	H. 435, 87th Cong	2,385,000
Twelvepole Creek, W. Va	H. 520, 87th Cong	11,000,000
Verdigris River, Okla	H. 563, 87th Cong	62,400,000
Village Creek, White River, Mayberry	H. 577, 87th Cong	1,018,000
Vince and Little Vince Bayous, Tex	H. 441, 97th Cong	2,224,000
Wareham and Marion, Mass	H. 548, 87th Cong	3,811,500
Warroad River and Bull Dog Creek, Minn	H. 449, 87th Cong	972,000
Westport, Conn	H. 412, 87th Cong	217,000
White River, Village Creek, Ark	H. 352, 87th Cong	1,968,000
Yazoo River, Gin Bayou, Miss		150,000
Total		1,895,313,500

WAREHAM-MARION, MASS.

(H. Doc. 548, 87th Cong.)

Location.—The towns of Wareham and Marion, Mass., are located in Plymouth County about 45 miles south of Boston and 35 miles east of Providence, R.I. They are situated at the upper end of Buzzards Bay, 20 to 25 miles northeast of the entrance to the bay from the Atlantic Ocean.

Authority.—Public Law 71, 84th Congress, 1st session, approved June 15, 1955.

Existing project.—There are no existing or authorized Federal hurricane protection projects or local flood protection works in the area. Federal navigation projects provide a 15-foot-deep channel from Cape Cod Canal into Onset Bay, and a partially completed 9-foot channel from Buzzards Bay into Wareham.

Problem.—A serious problem of hurricane tidal flooding exists in the towns of Wareham and Marion. The acuteness of the problem is indicated by the fact that three severe hurricanes have struck the two towns within the past 23 years and upon their recurrence would cause total flood damages of over $25 million to shore properties. In addition, a recurrence of these hurricanes would cause considerable storm damage to pleasure boat fleets presently based in the area.

Recommended plan of improvement.—Construction of a system of rock-protected, earth-fill barriers and supplemental dikes and walls consisting of a barrier 1,050 feet long across the Weweantic River about 1,300 feet above its mouth, including a 55-foot ungated navigation opening with a sill elevation at 11.0 feet below mean sea level, a dike extension on the west 900 feet long to high ground in Marion, a dike extension on the east about 1,300 feet long across Cromeset Neck to Nobska Point, and a dike about 4,800 feet long along an existing powerline north of U.S. Highway No. 6 in the town of Marion to prevent flanking of the Weweantic barrier; a barrier about 4,150 feet long across the Wareham River from Nobska Point, including a 100-foot ungated navigation opening with a sill elevation at 15 feet below mean sea level, and a dike extension from the east end of the barrier in the vicinity of Long Beach about 1,300 feet to high ground; a barrier about 2,800 feet long across Onset Bay between Burgess Point and Sias Point, including a partially gated 100-foot navigation opening with a sill elevation at 17.0 feet below mean sea level, a dike extension about 1,000 feet long to the west to high ground at Burgess Point, a dike extension about 1,800 feet long eastward to high ground at Sias Point, and a dike about 900 feet long on the south side of Great Neck Road 1.5 miles west of Burgess Point; and a wall 120 feet long and dikes totaling 3,250 feet for protection of the main business center of Wareham.

Estimated cost (price level of 1961).—

Federal	$3,811,500
Non-Federal	1,633,500
Total	5,445,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$113,000	$61,000	$174,000
Maintenance and operation		13,000	13,000
Maintenance of navigation aids	1,000		1,000
Major replacements		2,000	2,000
Estimated tax losses		2,000	2,000
Total	114,000	78,000	192,000
Annual benefits:			
Prevention of tidal-flood damages			458,000
Elimination of emergency costs			9,000
Prevention of damage to boats			290,000
Total			757,000

Benefit-cost ratio.—3.9.

Local cooperation.—Provide all lands, easements, and rights-of-way, including borrow areas and spoil disposal areas necessary for the construction of the project, at costs presently estimated at $100,000; accomplish all changes, alterations, and additions to, or relocations of, any buildings and utilities made necessary by the construction of the project, at costs presently estimated at $15,000; bear 30 percent of the total first cost of construction, a sum presently estimated at $1,633,500, to consist of the items listed above and a cash contribution presently estimated at $1,518,500, to be paid either in a lump sum prior to initiation of 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 costs to be made after actual costs and values have been determined; hold and save the United States free from damages due to the construction works; maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army; and at least annually notify those affected that the project will not provide complete protection from tidal flooding and that further local actions must be taken during hurricane emergencies. Local interests are willing to furnish the items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Commerce: Favorable.

Commonwealth of Massachusetts: Favorable.

Comments of the Bureau of the Budget.—No objection.

90048—62——8

POINT JUDITH, R.I.

(H. Doc. 521, 87th Cong.)

Location.—Point Judith is located on the Atlantic shore of Rhode Island about 40 miles south of Providence, R.I.

Authority.—Public Works Committee of the U.S. Senate resolution adopted July 1, 1949.

Existing project.—There are no Federal improvements for hurricane tidal protection in the area. The existing Federal navigation improvement provides for a 770-acre harbor of refuge, an entrance channel and east and west channels, all 15 feet deep, a 5-acre anchorage 10 feet deep, and a channel and 5-acre anchorage basin 6 feet deep. There re also beach erosion control works at Sand Hill Cove State Beach and East Matunuck State Beach.

Problems.—Local interests desire improvement of the existing navigation improvement, dredged spoil to be used to build up the beaches, and protection from hurricanes by dikes, floodwalls, dune restoration, or combination thereof.

Recommended plan of improvement.—Construction of hurricane tidal protection between Matunuck and Point Judith, consisting of rock-faced dikes, revetment, dunes, bulkheads, high beach berms, and abutments and rock dikes at the Breachway; modification of the navigation project to include: (1) Straightening and deepening entrance channel to 20 feet; (2) enlarging 10-foot deep anchorage to 16 acres; (3) dredging a channel 150 feet wide and 10 feet along the State finger piers at Galilee to an 8-acre anchorage, 8 feet deep; (4) dredging a channel and 5-acre anchorage south of Snug Harbor; (5) deepening the Wakefield channel to 8 feet; and (6) dredging an additional 7-acre anchorage at Wakefield; and in lieu of the presently authorized beach erosion project at East Matunuck State Beach, widen 3,830 feet of beach generally to 150-foot width by direct placement of suitable sand fill, construction of groins, and installation of sand fences.

Estimated cost (1961 price level):—

Federal	$2,414,000
Non-Federal	1,151,000
Total	3,565,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$89,100	$49,100	$138,200
Maintenance, operation and replacement	14,200	66,400	80,600
Maintenance of navigation aids	600		600
Total	103,900	115,500	219,400
Annual benefits:			
Hurricane protection			231,800
Navigation			73,300
Beach erosion protection			218,700
Total			523,800

Benefit-cost ratio.—2.4.

Local cooperation.—Provide without cost to the United States all lands, easements, rights-of-way, and spoil disposal, pondage, and borrow areas necessary for construction of the project and for subsequent maintenance of the navigation features, when and as required; accomplish without cost to the United States all alterations and relocations of sewerage and drainage facilities, buildings, utilities, highways, and other structures made necessary by the construction; bear 32 percent of the total first cost, a sum presently estimated at $1,151,000, to consist of the items listed above and a cash contribution now estimated at $701,000 to be paid either in a lump sum prior to initiation 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 cost to be made after actual costs and values have been determined; hold and save the United States free from damages due to construction of the project and subsequent maintenance of the navigation features; maintain and operate all the works after completion, except the navigation channels, anchorage area, and aids to navigation, in accordance with regulations prescribed by the Secretary of the Army; assure continued public ownership of the shore upon which Federal participation in beach erosion control is based and its administration for public use during the economic life of the project; control water pollution to the extent necessary to safeguard the health of bathers; provide and maintain without cost to the United States necessary mooring facilities and utilities, including addtional public landings at Snug Harbor and Wakefield, with suitable supply facilities open to all on equal terms; construct and maintain and bulkheads required for retention of dredged material discharged to spoil disposal areas from the initial construction and subsequent maintenance of navigation features; provide suitable facilities at East Matunuck State Beach to support the recreational development of the beach; and at least annually inform the public and those affected that the improvement will not provide any substantial protection from ocean surges higher in elevation than that which occurred in September 1938. Local interests have indicated willingness to furnish local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Faborable.
Department of Commerce: Favorable.
State of Rhode Island: Favorable.

Comments of the Bureau of the Budget.—No objection.

NARRAGANSETT PIER, RHODE ISLAND

(H. Doc. No. 195, 87th Cong., 1st sess.)

Location.—On the Atlantic coast near the mouth of the west passage into Narragansett Bay, about 30 miles south of Providence, R.I.

Authority.—Public Law 71, 84th Congress, 1st session, approved June 15, 1955.

Existing project.—No Federal hurricane, flood control, or navigation projects are in the area. An authorized beach erosion project provides for widening about 1 mile of beach, construction of seven rock groins, and construction of a sand barrier on Little Neck Point.

Problems.—Hurricanes have caused severe tidal flooding; erosion of the beach is reducing the usable area; and there is a need for an improved small boat harbor.

Recommended plan of improvement.—Provides for improvements in the interest of hurricane flood protection, beach erosion control, and navigation consisting of: a sand berm of about 3,000 feet long; concrete walls about 4,500 feet long and 270 feet long; four groins; a rock revetment; a land dike about 1,120 feet long with a culvert and sluice gate on Little Neck Pond; a sand barrier; a mooring basin in Narrows River of 15 acres 8 feet deep with an entrance channel 8 feet deep and 100 feet wide; and a rock jetty about 930 feet long.

Estimated cost (1959 price level).—

Federal	$1,152,000
Non-Federal	704,000
Total	1,856,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$42,700	$30,600	$73,300
Maintenance and operation	4,700	14,100	18,800
Total	47,400	44,700	92,100
Annual benefits:			
Flood damages prevented			62,500
Small boat harbor			39,400
Beach protection			22,000
Total			123,900

Benefit-cost ratio.—1.3.

Local cooperation.—Provide all lands, easements, and rights-of-way; accomplish all alterations; bear 38 percent of the total first cost presently estimated to be $704,000 which includes a cash contribution of $564,000; hold and save the United States free from damages due to construction and maintenance; maintain and operate all work except the navigation project; assure public use of the beach improvement; prevent water pollution; prevent encroachment; provide and maintain suitable public landings; and construct and maintain retention walls for dredged material. Local interests have indicated willingness to cooperate in the desired improvements.

Comments of the State and Federal agencies.—
Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Health, Education, and Welfare: Favorable.
State of Rhode Island: Favorable.
Comments of the Bureau of the Budget.—No objection.

NEW LONDON, CONN.

(H. Doc. 478, 87th Cong.)

Location.—On the west side of the Thames River estuary and the northeast shore of Long Island Sound, about 50 miles east of New Haven, Conn.

Authority.—Public Law 71, 84th Congress, 1st session.

Existing project.—There are no existing or authorized hurricane protection projects in the area. A low, rockfill, offshore barrier constructed by local interests south of Bentleys Creek provides a limited degree of wave protection for an industrial area. Completed Federal navigation projects provide a 33-foot deep channel extending 3.8 miles from Long Island Sound to State pier, a 23-foot deep channel about 6,000 feet long skirting the New London waterfront, and a depth of 15 feet in Shaw Cove.

Flood problem.—New London has experienced heavy tidal-flood losses from past hurricanes and other great storms. Recurrence of hurricanes of the magnitude of the 1938, 1944, and 1954 storms would cause losses ranging from $250,000 for the 1944 hurricane to $5,500,000 for the 1938 hurricane.

Recommended plan of improvement.—Consists of a section of barrier and walls extending about 3,260 feet from the vicinity of the ferry deck on Pequot Avenue, across Powder Island to Fort Trumbull, with a 30-foot gated navigation opening for the Bentleys Creek channel; a concrete land wall at Smith Street west of Fort Trumbull; and a 1,760-foot barrier and wall system across the mouth of Shaw Cove with a 46-foot gated navigation opening and a pumping station to dispose of interior drainage.

Estimated cost (price level of 1961).—

Federal	$2,401,000
Non-Federal	1,029,000
Total	3,430,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$91,000	$45,000	$136,000
Maintenance, operation and replacement	1,000	26,000	27,000
Loss of land productivity		3,000	3,000
Total	92,000	74,000	166,000
Annual benefits:			
Damages prevented			244,400
Increased land use			5,900
Total			250,300

Benefit-cost ratio.—1.5.

Local cooperation.—(*a*) Provide without cost to the United States all lands, easements, and rights-of-way including borrow areas and spoil disposal areas necessary for the construction of the project, at costs presently estimated at $180,000; (*b*) accomplish without cost to the United States all modifications or relocations of existing sewerage and drainage facilities, buildings, utilities, and highways made necessary by the construction of the project, at costs presently estimated at $30,000; (*c*) bear 30 percent of the total first cost of construction, a sum presently estimated at $1,029,000 to consist of items listed in subparagraphs (*a*) and (*b*) above and cash a contribution, now estimated at $619,000, to be paid either in a lump sum prior to initiation 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 cost to be made after actual costs and values have been determined; (*d*) hold and save the United States free from damages due to the construction works; and (*e*) maintain and operate all works after completion in accordance with regulations prescribed by the Secretary of the Army. Local interests have indicated their willingness to furnish the items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Commerce: Favorable.
Department of Health, Education, and Welfare: Favorable.
State of Connecticut: Favorable.

Comments of the Bureau of the Budget.—No objection.

WESTPORT, CONN.

(H. Doc. 412, 87th Cong.)

Location.—On the north shore of Long Island Sound about 40 miles northeast of New York City.

Authority.—In partial response to Public Law 71, 84th Congress, 1st session, approved June 15, 1955.

Existing project.—There are no existing hurricane flood protection projects in the area.

Flood problem.—Three severe hurricanes and several other great storms have struck the area within the past 22 years.

Recommended plan of improvement.—Provides for construction of an earthen dike with rock paving on its top and seaward slope, where necessary, together with necessary gated culverts for interior drainage, starting at high ground north of the intersection of Compo Road South and Compo Beach Road and extending southerly along Grays Creek about 2,250 feet to the vicinity of Agawam Avenue; thence eastward along the seaward side of Compo Beach Road 1,460 feet to Soundview Drive; and thence northeasterly along the seaward side of Soundview Drive about 1,510 feet to high ground at Hills Point Road.

Estimated cost (1960 price level).—

Federal	$217,000
Non-Federal	93,000
Total	310,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$8,300	$4,900	$13,200
Maintenance and operation		3,000	3,000
Total	8,300	7,900	16,200
Annual benefits: Damages prevented			39,300

Benefit-cost ratio.—2.4.

Local cooperation.—(*a*) Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project, at costs presently estimated at $50,000; (*b*) accomplish without cost to the United States all relocations and alterations of buildings and utilities made necessary by the work, at costs presently estimated at $3,000; (*c*) bear 30 percent of the total first cost of the project, a sum presently estimated at $93,000, to consist of the items listed in subparagraphs (*a*) and (*b*) above and a cash contribution now estimated at $40,000, to be paid either in a lump sum prior to initiation 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 cost to be made after actual costs and values have been determined; (*d*) hold and save the United States free from damages due to the construction works; (*e*) maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army; and (*f*) at least annually notify those affected that the project will not provide protection from surges in Long Island Sound higher in elevation than that experienced during the 1938 hurricane. They have indicated willingness to meet the items of local cooperation.

Comments of the State and Federal Agencies.—

Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
State of Connecticut: Favorable.

Comments of the Bureau of the Budget.—No objection.

MYSTIC, CONN.

(H. Doc. 411, 87th Cong.)

Location.—Mystic is located in southeastern Connecticut, on both banks of the lower Mystic River which empties into Long Island Sound.

Authority.—Public Law 71, 84th Congress, approved June 15, 1955.

Existing project.—There is no existing Federal project for hurricane protection at Mystic. The existing Federal navigation project provides for a channel 12 to 15 feet deep, extending 3.75 miles upstream from the mouth, and an anchorage and turning basin 9 feet deep. Local interests have constructed wharves, docks, and repair and service facilities.

Flood problem.—Three severe hurricanes have struck Mystic since the beginning of 1938 causing damages of serious proportion. At 1960 price levels total flood damages of about $6 million would result from a recurrence of these three hurricanes and two other severe storms which occurred during this period.

Recommended plan of improvement.—Provide for two earth fill barriers protected by armor stone and riprap with crests 16.5 feet above mean sea level, one about 3,200 feet long across the harbor in the vicinity of Sixpenny Island with a 75-foot navigation opening, and one about 1,950 feet long across the inlet east of Mason Island with a 12-foot small boat opening at the causeway bridge, together with necessary gates and stoplogs; a land dike about 450 feet long, with crest elevation 16.5 feet above mean sea level, on the west side of Mason Island with a gated drainage structure; and two land dikes with crests 15.5 feet above mean sea level, having a total length of about 2,000 feet on the mainland northeast of Mason Island, together with necessary appurtenances.

Estimated cost (price level of 1960).—

Federal	$1,490,000
Non-Federal	638,000
Total	2,128,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$57,000	$27,400	$84,400
Maintenance and operation	1,000	14,800	15,800
Estimated tax loss		200	200
Total	58,000	42,400	100,400
Annual benefits:			
Damages prevented			165,000
Elimination of emergency cost			10,000
Total			175,000

Benefit-cost ratio.—1.7.

Local cooperation.—(*a*) Provide all lands, easements, and rights-of-way necessary for construction of the project; (*b*) accomplish all relocations and alterations of sewerage and drainage facilities, buildings, utilities, highways, and other structures made necessary by the construction; (*c*) bear 30 percent of the total first cost, a sum presently estimated at $638,000, to consist of the items listed in (*a*) and (*b*) above and a cash contribution now estimated at $549,000, to be paid either in a lump sum prior to initiation 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 cost to be made after actual costs and values have been determined; (*d*) hold and save the United States free from damages due to construction of the project; and (*e*) maintain and operate all the works after completion, except aids to navigation, in accordance with regulations prescribed by the Secretary of the Army. Local interests are willing to furnish the items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Commerce: Favorable.
Department of Agriculture: Favorable.
State of Connecticut: Favorable.

Comments of the Bureau of the Budget.—No objection.

NAUGATUCK RIVER, ANSONIA-DERBY, CONN.

(H. Doc. 437, 87th Cong.)

Location.—The city of Ansonia and the town of Derby are adjoining communities located in southern Connecticut, on the Naugatuck River about 12 miles above Long Island Sound.

Authority.—A resolution of the Public Works Committee of the U.S. Senate adopted September 14, 1955, and similar resolutions of the Public Works Committee of the House of Representatives of the United States adopted June 13, 1956, and June 23, 1956, respectively.

Existing project.—Federal flood-control improvements in the basin affecting Ansonia-Derby consist of seven reservoirs, for flood control, authorized by Congress. One reservoir, Thomaston, is located at mile 30 on the main stream and has been in operation for flood control since September 1960. None of the other reservoirs are under construction.

Flood problem.—Flooding of the Naugatuck River causes damages to residential, commercial, industrial, and other properties located in Ansonia-Derby and creates health, safety, and economic problems which adversely affect the welfare of the cities.

Recommended plan of improvement.—Provides for approximately 12,470 linear feet of levee and floodwall, with appurtenant works, for the protection of approximately 232 acres of industrial, commercial, and residential areas in Ansonia-Derby.

Estimated cost (price level of January 1960).—

Federal	$5,620,000
Non-Federal	380,000
Total	6,000,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$208,900	$15,200	$224,100
Maintenance and operation	0	10,700	10,700
Net loss of productivity	0	2,300	2,300
Total	208,900	28,200	237,100
Annual benefits:			
Damages prevented			206,000
Enhancement from reduction of flood hazard			84,000
Total			290,000

Benefit-cost ratio.—1.2.

Local cooperation.—(*a*) Contribute in cash because of the more costly plan desired by local interests for the River Street area, 1.4 percent of the construction cost, presently estimated at $80,000, to be paid either in a lump sum prior to start of 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 contribution to be determined after actual costs are known; (*b*) provide, without cost to the United States, all lands, easements, and rights-of-way necessary for construction of the project, including changes to highway bridges and roads, railroad track, sewers, and other utilities; (*c*) hold and save the United States free from damages due to the construction works; (*d*) maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army; and (*e*) prevent encroachment on the improved channels or on the ponding areas, and if capacities are impaired, provide equivalently effective storage or pumping capacity without cost to the United States. Local interests are willing to furnish the items of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Commerce: Favorable.
Department of Agriculture: Favorable.
State of Connecticut: Favorable.

Comments of the Bureau of the Budget.—No objection.

RONDOUT CREEK AND WALLKILL RIVER, N.Y. AND N.J.

(S. Doc. 113, 87th Cong.)

Location.—Rondout Creek drains 1,197 square miles in southern New York and northern New Jersey and empties into the Hudson River, near Kingston, N.Y. Its principal tributary, Wallkill River, drains 786 square miles and enters the main stem just below Lefever Falls, 7.5 miles above the creek mouth.

Authority.—The report is in partial response to two resolutions of the Senate Public Works Committee adopted September 14, 1955, and November 14, 1955.

Existing project.—Clearing and snagging on Rondout Creek at Rosendale and upstream locations was authorized in April 1956 and completed in April 1957.

Flood problem.—Floods affect over 23,800 acres of rural land of the 250 acres of affected urban area, approximately 200 acres are located in Rosendale and Ellenville. At Rosendale, the flood of October 1955 was the most severe following by 2 months the previous record flood of August 1955. One drowning occurred along Beer kill. Average annual damages on Rondout Creek are $247,600; on Sandburg Creek, $267,400; and on Wallkill River and tributaries, $367,300.

Recommended plan of improvement.—The only localities for which protective works are economically justified at this time are Rosendale and Ellenville. At Rosendale improvements would be made on Rondout Creek primarily by channel excavation, floodwall and levee construction, ponding areas, a pump station, utility and road changes, and drainage structures. At Ellenville improvements would be made on Beer kill and Fantine kill by the construction of floodwalls, levees, and channel improvements with appurtenant ponding areas, drainage structures, utility changes, and bridge replacements and alterations; and improvement of north gully, by a concrete chute, bridge reconstruction, upstream debris dam, utility changes, and drainage structures.

Estimated cost (price level of June 1960).—

Federal	$5,111,000
Non-Federal	836,100
Total	5,947,100

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$193,700	$30,200	$223,900
Maintenance and operation	0	24,500	24,500
Major replacements	0	5,100	5,100
Total	193,700	59,800	253,500
Annual benefits: Damages prevented			311,800

Benefit-cost ratio.—1.2 to 1.

Local cooperation.—Furnish without cost to the United States all lands, easements, and rights-of-way necessary for construction of the improvements; hold and save the United States free from damages due to the construction works; perform without cost to the United States all alterations of highways, highway bridges, utility and related facilities made necessary for construction of the project: protect the channels, ponding areas, and other flood-control works from future encroachment or obstruction that would reduce their flood-carrying capacity and control development of the fringe areas not protected by the proposed improvement with a view to preventing an undue increase in the flood-damage potential; and maintain and operate each usable element of the work after completion of the element and of all the works after completion thereof in accordance with regulations prescribed by the Secretary of the Army. Local interests have indicated their willingness to cooperate in them.

Comments of the State and Federal Agencies.—
Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Health, Education and Welfare: Favorable.
Department of Commerce: Favorable.
State of New York: Favorable.
State of New Jersey: Favorable.
Comments of the Bureau of the Budget.—No objection.

RARITAN BAY AND SANDY HOOK BAY, N.J.

(H. Doc. 464, 87th Cong.)

Location.—21-mile length of Shores of Raritan and Sandy Hook Bays between South Amboy and Highlands. The western end is about 30 miles southwest of midtown New York City.

Authority.—Section 2 of River and Harbor Act of July 3, 1930, pertaining to cooperative beach erosion control investigations; and Public Law 71, 84th Cong., 1st sess., June 15, 1955, pertaining to hurricane investigations of the eastern and southern seaboard.

Existing project.—None for hurricane or beach protection. Federal Government through the Works Progress Administration participated in constructing some protective works. Under authorized Navigation projects jetties at Cheesequake Creek were built in 1882–83 at a cost of $40,000, and the breakwater off Atlantic Highlands was completed in 1940 at a cost of $562,726, of which local interests contributed $53,790. Since 1929 considerable productive work has been accomplished by local interests at a cost of about $1 million.

Problem.—There is a need for protection of shore areas from erosion by wave attack and from inundation from storm tides.

Recommended plan of improvement.—Provides for (*a*) construction of 8,800 feet of beach fill and 1,940 feet of tie-back levee with necessary interior drainage facilities and road crossings in Madison Township; (*b*) construction of 4,800 feet of beach fill in Matawan Township; (*c*) 3,000 feet of beach fill at Union Beach; and (*d*) construction of 14,150 feet of each fill, 13,290 feet of tie-back levee, and three rock groins to be provided when required together with interior drainage facilities and road crossing at Keansburg, and East Keansburg. Provides for reimbursement to local interests of $57,000 as the Federal share of the costs incurred by them in accomplishing the beach protection work at Keausburg in 1957.

Estimated cost (price level May 1960).—

Federal	$3,097,000
Non-Federal	1,651,000
Total	4,748,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$111,400	$60,000	$171,400
Maintenance and operation		72,800	72,800
Total	111,400	132,800	244,200
Annual benefits:			
Hurricane protection			360,500
Shore protection			178,300
Total			538,800

Benefit-cost ratio.—2.2.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way, including borrow areas necesary for construction of the project; accomplish without cost to the United States all alterations and relocations of buildings, streets, storm drains, utilities, and other structures made necessary by the construction; bear 35.2 percent of the total first cost consisting of the items stated above and a cash contribution to be paid either in a lump sum prior to initiation of construction or in installments prior to commencement of construction of pertinent items, in accordance with construction schedules as required by the Chief of Engineers, the final apportionment of cost to be made after actual costs and values have been determined; hold and save the United States free from damages due to the construction works; maintain all the works after completion in accordance with regulations prescribed by the Secretary of the Army; maintain during the economic life of the project continual public ownership of the non-Federal publicly owned shares and continual availability for public use of privately owned shore equivalent to that upon which the recommended Federal participation is based; control water pollution to the extent necessary to safeguard the health of bathers; obtain approval of the Chief of Engineers of detailed plans and specifications for the work contemplated and arrangements for its prosecution, prior to commencement of any work on the recommended beach-protection phase of the project at Matawan Township and Borough of Union Beach or the beach-protection phase of the project at Madison Township for which Federal participation is planned, if undertaken separately from the recommended combined improvement; construct, concurrently with the recommended beach fill, suitable parking fields and bathhouses open to all on equal terms; and at least annually inform interests affected that the hurricane improvements will not provide substantial protection from bay surges higher in elevation than that of hurricane Donna, September 12, 1960. Local interests have indicated willingness to comply with the requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
Department of Health, Education, and Welfare: Favorable.
State of New Jersey: Favorable.

Comments of the Bureau of the Budget.—No objections.

JUNIATA RIVER AND TRIBUTARIES, PENNSYLVANIA

(H. Doc. 565, 87th Cong.)

Location.—Juniata River is located in south central Pennsylvania, and is formed by the junction of the Frankstown Branch and Little Juniata River. Meandering 102 miles easterly, the Juniata River joins the Susquehanna River about 84 miles above Chesapeake Bay. Raystown Branch is the largest tributary of the Juniata River.

Authority.—This report is in full response to authority provided in section 11 of the Flood Control Act approved December 22, 1944, and in section 204 of the Flood Control Act approved September 3, 1954.

Existing project.—The only Federal flood control project in the Juniata River Basin is one for local protection at Tyrone, Pa., authorized by the Flood Control Act approved December 22, 1944. It provides for the construction of a levee, floodwalls, improved channels, pressure conduits, and pertinent works, at an estimated cost to the United States, revised in 1960, of $9,400,000. Local cooperation has not been furnished and no work has been performed.

Flood problem.—The area subject to floods by the Juniata River extends throughout the entire length of the basin and is both urban and rural. Towns and villages affected are Williamsburg, Tyrone, Huntingdon, Smithfield Township, Bedford, Everett, Mount Union, Lewistown, Mifflin, and Newport. In the basin are farms and residences, business and commercial establishments, public utilities, railroads, and highways, all of which are subject to floods. The greatest losses were caused by the March 1936 flood. Floods have caused damages in excess of $14 million from 1936 to the present based on damage estimates made after each flood and on prices then current.

Recommended plan of improvement.—The most suitable plan of improvement to serve the water-resource needs of the basin would consist of a multiple-purpose reservoir on the Raystown Branch to provide for flood control, hydroelectric power, recreation, fish and wildlife, and low-flow augmentation for water-quality improvement. The recommended plan consists of a dam and earthfill construction with a maximum height of 225 feet above the streambed and a length of about 1,770 feet; a spillway controlled by gates, located in a saddle of a ridge near the damsite; a powerhouse located downstream from the dam; three tunnels through the ridge to supply the turbines; a re-regulating dam, located at river mile 0.5, provided to reduce fluctuation of discharges from the peaking power operation; preservation of the sites against incompatible development; and provided that installation of the power generating facilities shall not be made until the Chief of Engineers shall submit a reexamination report to the Secretary of the Army for approval of the President.

Estimated cost (price level of 1960).—

Federal	$77,361,000
Non-Federal	0
Total [1]	77,361,000

[1] $32,150,000 without power as recommended by committee.

Project economics.—

Annual charges (all Federal):	
Interest and amortization	$2,796,000
Economic cost of land	136,000
Operation, maintainance, and replacement	600,000
Taxes foregone	1,100,000
Total	4,632,000
Annual benefits:	
Power	4,189,000
Recreation	1,104,000
Flood control	576,000
Fishery	84,000
Water quality	70,000
Total	6,023,000

Benefit-cost ratio.—1.3.

Local cooperation.—None.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
Public Health Service: Favorable.
Federal Power Commission: Favorable.
Commonwealth of Pennsylvania: Favorable.

Comments of the Bureau of the Budget.—Advises that there would be no objection to submission of the report to Congress, subject to consideration of the following: That it would be preferable for authorization of the power-generating facilities to await completion and consideration by Congress of the reexamination report proposed by the Chief of Engineers, under normal preauthorization procedures; that if power-generating facilities should be conditionally authorized at this time, the reexamination report to be prepared for submission to the Secretary of the Army and approval by the President should take full cognizance of the plans of the investor-owned public utilities in the area, and contain information in sufficient detail to demonstrate that inclusion of hydroelectric power facilities in the project is financially feasible in the light of pertinent reimbursement and repayment policies in effect at the time; that the Congress should be furnished with more detailed data relative to a project without power but with provisions for future installation at the time the project is being considered for authorization; and that the Secretary of the Army may wish to consider deferring submission of the report to Congress pending completion of the comprehensive survey of the Susquehanna River now being undertaken by the Corps of Engineers.

Remarks.—The committee notes that construction of the dam and reservoir on the Raystown Branch of the Juniata River is urgently needed to reduce flood heights along the Juniata River below the

dam and the lower reaches of the Susquehanna River. In addition, it notes that the reservoir created by the dam will meet a growing demand in the area for public outdoor water-associated recreation and for conservation of the fish and wildlife resources. In view of the considerable opposition to inclusion of power as a feature of the Raystown project, the committee recommended the project with power features eliminated. It notes that a project without power will fully serve the remaining purposes and is economically justified. The committee notes that if the Chief of Engineers deems it desirable, he may submit a reexamination report on the power generating features to the Congress for its consideration. The Federal cost of the project with the power features eliminated is $32,150,000.

DELAWARE RIVER BASIN, N.Y., N.J., PA., AND DEL.

(H. Doc. 522, 87th Cong.)

Location.—The Delaware River drains a relatively long, narrow area in the Northeastern United States. The area extends approximately 265 miles southward from the western slopes of the Catskill Mountains in New York to the Atlantic Ocean at the mouth of Delaware Bay between Cape May in New Jersey and Cape Henlopen in Delaware. The basin boundary encompasses 2,362 square miles in southeastern New York, 6,422 square miles in eastern Pennsylvania; 2,969 square miles in western New Jersey; 1,004 square miles in Delaware; 8 square miles in the northeastern corner of Maryland, and 782 square miles of water surface in Delaware Bay.

Authority.—Resolution, Senate Committee on Public Works, adopted September 14, 1955, and other resolutions.

Existing project.—Federal improvements by the Corps of Engineers consist of the Prompton and Edgar Jadwin Reservoirs in the Lackawaxen River Basin, the Bear Creek Reservoir on Lehigh River and local protection works at Allentown and Bethlehem, Pa., SCS programs are underway on four watersheds and planned for 16 other watersheds. Authorized Federal navigation projects for the Delaware River provide for a channel 40 feet deep from the sea for 126.3 miles to Newbold Island, thence 35 feet deep for about 5½ miles to Trenton, thence 12 feet deep for about 1¼ miles to the head of navigation. Appurtenant facilities and numerous tributary channels on both sides of Delaware River and Bay also are provided under the existing project.

Flood problems.—Major floods in the Delaware River Basin are usually associated with severe storms resulting in widespread heavy precipitation and often accompany hurricanes. The area of major flood damages along the main stem of the Delaware River lies along the 95-mile reach from Delaware Water Gap, Pa., to Burlington, N.J. Damage centers at Honesdale and Hawley in the Lackawaxen Basin are now afforded protection by reservoirs and local protection works. In the Lehigh River Basin, the Bear Creek Reservoir, and local protection works provide protection for damage centers at Weissport, Allentown, and Bethlehem, but areas elsewhere in the basin are subject to recurring flood damages. In the Schuylkill Basin major floods occur along the 75 miles of the main stream of the Schuylkill River.

Recommended plan of improvement.—The plan of improvement consists of 11 major control projects to be constructed prior to the year 2010; 8 major control projects to be developed for recreation prior to 2010, with water supply to be added subsequently; and 39 small control projects to be developed under continuing authorizations, subject to the desires of local interests. Of the 11 major control projects to be constructed prior to 2010, all would provide for water supply and recreation, 8 would provide for flood control storage and 2 for generation of hydroelectric power. Recreation potentials at the 11 major projects proposed for early development were appraised both for that directly related to the basic water control project and for that indirectly related to the basic water control project and its directly related recreation potentials. Cost allocations were based on the basic project without consideration of the indirect values except in the case of the Tocks Island project where it was found that the widespread regional and national significance of the recreation opportunities warranted the apportionment of all specific and allocated recreation costs to Federal costs. Also, it was found that at the Tocks Island project the development of pumped storage hydroelectric facilities would probably be feasible as either a Federal or non-Federal venture. However, because of difficulties in firmly assessing production costs and power values authority for construction of the pumped storage features was not recommended. The recommended plan would reduce average annual flood damages about 43 percent along the principal waterways and about 33 percent in the upstream areas. The plan, also, would meet streamflow requirements for the basin to year 2010, including authorized diversions.

First costs and annual O.M. & R.—The first cost of the long-range plan of development of the water resources of the Delaware River Basin consisting of a 58-reservoir system, is estimated at $591 million, of which the initial and ultimate Federal costs are estimated at $232 million, and $143 million, respectively. The plan of development provides for Federal construction of six reservoirs and modification of two authorized projects, which are included in the comprehensive plan, at initial and ultimate Federal costs estimated at $224 million, and $135 million, respectively. The following table lists the projects in the comprehensive plan, together with estimated Federal and non-Federal costs of construction and annual maintenance.

00048—62——9

Comprehensive plan of development, Delaware River Basin

[Costs in thousands of dollars. Totals may not agree with sums due to rounding]

Project	Purpose	Costs					
		Construction			Annual operation, maintenance, and replacement		
		Federal	Non-Federal [1]	Total	Federal	Non-Federal [1]	Total
MAJOR CONTROL PROJECTS							
Hawk Mountain	(2)	----------	42,000	42,000	----------	291	291
Newark	(3)	----------	15,300	15,300	----------	190	190
Christiana	(3)	----------	18,000	18,000	----------	302	302
Subtotal	----------	----------	73,300	75,300	----------	783	783
Prompton [4]	(5)	470	4,500	4,970	30	54	84
Tocks Island	(6)	93,500	28,500	122,000	1,872	93	1,970
Bear Creek [4]	(5)	4,290	9,110	13,400	56	64	120
Beltzville	(6)	6,260	7,540	13,800	60	48	108
Aquashicola	(6)	8,600	10,400	19,000	41	44	85
Trexler	(6)	4,330	5,770	10,100	57	47	104
Maiden Creek	(6)	9,800	17,800	27,600	83	55	138
Blue Marsh	(6)	7,090	5,410	12,500	73	38	111
Subtotal	----------	134,900	89,100	224,000	2,260	450	2,710
Total	----------	134,900	164,400	299,300	2,260	1,240	3,500
MAJOR PROJECTS TO BE DEVELOPED IN TWO STAGES [7]							
Paulins	(3)	----------	23,100	23,100	----------	221	221
Pequest	(3)	----------	16,300	16,300	----------	115	115
Hackettstown	(3)	----------	28,000	28,000	----------	553	553
New Hampton	(3)	----------	29,600	29,600	----------	332	332
Tohickon	(3)	----------	21,800	21,800	----------	276	276
Newton	(3)	----------	46,400	46,400	----------	415	415
French Creek	(3)	----------	18,700	18,700	----------	332	332
Evansburg	(3)	----------	23,800	23,800	----------	345	345
Total	----------	----------	208,000	208,000	----------	2,590	2,590
SMALL CONTROL PROJECTS							
Parkside	(8)	1,000	[9] 21	1,020	----------	0.3	0.3
Swiftwater	(8)	1,030	[9] 47	1,080	----------	.3	.3
Jim Thorpe	(8)	445	[9] 24	469	----------	.3	.3
36 small projects	(10)	6,270	782	7,060	----------	11	11
Total	----------	8,750	874	9,630	----------	12	12
Total plan	----------	143,000	374,000	517,000	2,260	3,840	6,100
Total plan [11]	----------	203,000	388,000	591,000	5,940	4,360	10,300

[1] Excludes costs and benefits for indirectly related recreation except at Tocks Island.
[2] Water supply, recreation, and power.
[3] Water supply and recreation.
[4] Costs and benefits for adding water supply and recreation to existing flood-control project.
[5] Water supply, recreation, fish and wildlife, and flood control.
[6] Water supply, recreation, fish and wildlife, flood control, and conventional power.
[7] Operation, maintenance, and replacements costs are for initial stage only.
[8] Flood control and recreation.
[9] Excludes nominal amount for optional recreation facilities.
[10] Flood control.
[11] Includes pumped-storage hydro at Tocks Island and indirect recreation in other 18 major projects.

Project economics—

Costs and benefits in thousands of dollars

[Totals may not agree with sums due to rounding]

Project	Annual economic cost [1]	Annual benefits					Benefit-to-cost ratio	Estimated date of need
		Flood control	Directly related recreation	Power	Water supply	Total [1]		
MAJOR CONTROL PROJECTS								
Hawk Mountain	2,760	----------	291	755	2,180	3,220	1.2	2001
Newark	998	----------	876	----------	794	1,670	1.7	1975
Christiana	1,260	----------	1,730	----------	639	2,370	1.9	1980
Prompton [2]	349	295	130	----------	307	437	1.3	1975
Tocks Island	7,700	1,460	10,000	1,820	3,800	17,100	2.2	1975
Bear Creek [2]	714	1,060	161	----------	1,300	1,461	2.1	1980
Beltzville	683	286	174	----------	669	1,130	1.7	1965
Aquashicola	876	293	159	----------	485	936	1.1	1981
Trexler	553	114	281	----------	464	858	1.6	1972
Maiden Creek	1,390	244	424	----------	833	1,501	1.1	1982
Blue Marsh	643	302	217	----------	531	1,050	1.6	1969
MAJOR PROJECTS TO BE DEVELOPED IN TWO STAGES [3]								
Paulina	766	----------	960	----------	----------	960	1.3	----------
Pequest	350	----------	499	----------	----------	499	1.4	----------
Hackettstown	1,420	----------	2,400	----------	----------	2,400	1.7	----------
New Hampton	1,040	----------	1,440	----------	----------	1,440	1.4	----------
Tohickon	898	----------	1,200	----------	----------	1,200	1.3	----------
Newton	1,970	----------	1,800	----------	----------	1,800	.9	----------
French Creek	876	----------	1,440	----------	----------	1,440	1.6	----------
Evansburg	1,170	----------	1,500	----------	----------	1,500	1.3	----------
SMALL CONTROL PROJECTS [4]								
Parkside	37	42	----------	----------	----------	42	1.1	----------
Swiftwater	39	71	----------	----------	----------	71	1.8	----------
Jim Thorpe	17	18	----------	----------	----------	18	1.03	----------
36 small projects	267	457	----------	----------	----------	457	1.7	----------

[1] Excludes costs and benefits for indirectly related recreation except at Tocks Island. Costs and benefits for Tocks Island include $3,476,000 and $6,341,000, respectively, for indirectly related recreation.
[2] Costs and benefits for adding water supply and recreation to existing flood control projects.
[3] Site acquisition for recreation immediately and development for water supply as needed.
[4] To be accomplished under existing authorities and continuing programs.

Local cooperation.—Local interests are required to give assurances that they will:

(1) Make demands for the use of water storage within a period which will permit paying out of the costs allocated to water supply within the life of the project; such costs to be determined by applying the percentages given in the report to actual costs for construction, operation, maintenance, and major replacement. These water supply costs are presently estimated at $89,100,000 for construction and $450,000 annually for maintenance, operation, and major replacements.

(2) Prevent encroachment on the stream channels downstream from the reservoirs to the extent needed to provide reasonably efficient reservoir operation.

(3) Hold and save the United States free from all water-rights claims resulting from construction and operation of the reservoirs; and

(4) Agree to undertake establishment and prosecution of programs for the acquisition of lands, and to develop facilities as needed for the recreation developments assigned to them.

Comments of States, municipalities, and Federal agencies.—

State of New York: No objections to approval of eight major projects in which the Federal Government would participate but reserved any statement relative to the remainder of the plan until the basin commission has considered the plan.

State of New Jersey: Approved the eight major projects in which the Federal Government would participate but preferred to refrain from comment on the remainder of the plan until the basin commission has considered the plan.

State of Delaware: Objected to grouping of counties by subregions as used in the report; cited the urgent need for additional pollution investigations and water quality recovery research; contended that the report placed primary emphasis upon surface waters and relegated Delaware's water problems to a localized minor role; from a comparison of potentials, concluded that the two proposed reservoirs in Delaware and the Tocks Island Reservoir would be equally of national significance with regard to recreation; expressed the feeling that the flood damages in Delaware were not given sufficient coverage; questioned the estimates of future irrigable land in Delaware as used in the report; objected to the report's failure to include in the plan of development the alternate sources of water to meet Delaware's needs; questioned the treatment of the water supply potentials of the proposed Brandywine development as planned by the Commonwealth of Pennsylvania; and pointed out the continuing need for information on water uses and the need to keep the planning report a "living document."

Commonwealth of Pennsylvania: Urged that attention and urgency be given to the construction of small reservoirs under Public Law 566 and Public Law 685; expressed the view that low flow augmentation will be needed to insure reasonable water quality in the Delaware Basin; stated that the proposed Hawk Mountain project would adversely affect trout and bass fisheries in that area; requested that consideration be given to the provision of workable fish passing facilities in the proposed dams; and, except as noted, gave general approval to the proposed plan.

City of Philadelphia: Expressed concern over the treatment in the report of water quality and quantity; objected to lack of data on direct and indirect costs of the plan to the city of Philadelphia; requested evidence that the costs and benefits would be shared equitably by all parties; and pointed out that the city did not participate directly in writing the report.

City of New York: Generally favorable with comments to clarify the influence, on the plan, of New York City's existing Delaware operations.

Department of Commerce: Pointed out the inadequacy of existing control and map information for the area; agreed with estimates of highway relocation costs with one major exception and suggested coordination with State highway officials; found that Commerce could not concur in proposal for advance acquisition

to preserve reservoir sites unless financing of the relocation of affected highways is included in the proposal; and noted that the effects of the projects on highway transportation costs had not been included in the economic analyses.

Department of Labor: Acknowledged receipt of report and offered no comment.

Department of the Interior: Concurred generally in the proposed plan and the request for authorization to construct six major control projects and modify two existing Federal projects; assumed plan will be subject to continuing study, review, and modification as warranted; concurred in finding of national significance of Tocks Island recreation and full Federal funding; proposed modification of report to provide authority for corps to acquire land for conservation and development of fish and wildlife; concurred in proposal for advance acquisition of sites; agreed that proposed Tocks Island project be recommended for authorization and that further study be undertaken before conclusions regarding adjacent pumped storage potentials; requested further study of mineral activities at certain project sites; and agreed generally with the substance and recommendations of the report except as noted above.

Department of Agriculture: Noted that the report points out the need for programs concerned with the use and treatment of land and cover and advised that such programs are now underway in the basin by the Department of Agriculture; pointed out that the small control projects were appraised only for flood control and expressed the belief that additional small control project would be found economically feasible if apprasied for multiple purposes; and requested that the report recommended Federal development of the power potential, including pumped storage, found economically feasible with provisions requiring preference to public bodies and cooperatives in the dispostition of the powers.

Department of Health, Education and Welfare: Noted that the report contains no discussion of possible pollution control benefits; repeated USPHS recommendations regarding programs for water quality management and data collection; and recommended adoption of the vector control program as an integral part of the comprehensive plan.

Federal Power Commission: Reviewed the findings of the report with respect to power and concluded that the proposed plan will serve as a useful guide for continuing studies of efficient utilization of the water resources of the basin.

Comments of the Bureau of the Budget.—No objection to submission of report to Congress. However, considers that in view of recent legislation approving the Delaware compact and creating the Delaware River Basin Commission, the formal adoption by Congress of the recommended comprehensive plan for the Delaware River Basin is unnecessary but believes the eight projects recommended for construction should be authorized. Also, in connection with the complete development of the recreation potentials of the Tocks Island project, wholly at Federal expense, the Director of the Bureau of the Budge finds that such deevlopment would be appropriate and in accord with the program of the President, provided suitable entrance, admission, and other user fees are established.

NORTH BRANCH, POTOMAC RIVER, MD. AND W. VA.

(H. Doc. 469, 87th Cong.)

Location.—The North Branch of Potomac River rises near the western boundary of Maryland, flows generally northeast between Maryland and West Virginia, and joins the South Branch about 20 miles below Cumberland, Md., to form the Potomac River. It drains 1,328 square miles of predominantly mountainous terrain with elevations ranging from 4,860 to 600 feet above mean sea level.

Authority.—In full response to House Public Works Committee resolution adopted July 29, 1955, and in partial response to resolutions of the Senate Public Works Committee adopted September 14, 1955, January 26, 1956, and July 6, 1959, as amended April 27, 1960, and to resolution, House Public Works Committee adopted August 16, 1950.

Existing project.—A local flood-protection for Cumberland, Md., and Ridgeley, W. Va., completed in May 1959, provides for channel improvements, floodwalls and levees, interior drainage facilities, and an industrial dam. The cost to the Federal Government for new work was $15,600,000, exclusive of $1,400,000 contributed by local interests and $50,000 from emergency relief funds. Additional items such as bridges, streets, and rights-of-way increased the total cost to local interests to $2,900,000. In 1939, the Works Progress Administration, under sponsorship of the Upper Potomac River Commission, initiated construction of an earth and rockfill dam on Savage River about 4.5 miles above its junction with the North Branch. Work was suspended in 1942 because of World War II, and resumed in 1949 under supervision of the Corps of Engineers. The project was completed in January 1952 and transferred to the Upper Potomac River Commission on July 1, 1953, for operation and maintenance. The total cost was $6,237,000, of which $1,142,000 was contributed by local interests. The reservoir capacity of 20,000 acre-feet permits regulation of stream flow for industrial and domestic water supply and pollution abatement and provides some incidental flood control.

Flood problems.—Six damaging floods have occurred in the past 23 years. Over 11,000 acres of valley land along the North Branch and its tributaries have been subjected to frequent and severe floods. Urban areas have been flooded to depths of 10 feet. The largest flood above Cumberland in recent years occurred in March 1924 and caused the loss of five lives. Recurrence of that flood with present stage of development and with Savage River reservoir in operation would cause damages of $5,200,000. Average annual flood damages under present conditions are $891,800.

Recommended plan of improvement.—Provides for construction on the North Branch of Potomac River, Md., and W. Va., of a dam and reservoir in the vicinty of Bloomington, Md., for flood control, water supply, water quality control and recreation, generally in accordance with the plan of the district engineer. The dam would be a concrete gravity structure with an earth fill embankment on the right abutment, approximately 1,930 feet long, with a maximum height of about 287 feet above the stream bed. The dam would contain a gated spillway controlled three tainter gates.

Estimated cost (price level of January 1961).—

Federal	$50,965,000
Non-Federal	(1)
Total	50,965,000

[1] $16,935,000 to be reimbursed by local interests for water supply.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$1,288,000	$690,800	$1,978,800
Maintenance operations and major replacements	145,000	55,000	200,000
Economic cost of land	7,500	6,000	13,500
Total	1,440,500	751,800	2,192,300
Annual benefits:			
Damages prevented			585,300
Water supply			1,283,300
Water quality			1,593,400
Recreation			120,700
Total			3,582,700

Benefit-cost ratio.—1.6.

Local cooperation.—The requirements of local cooperation consist principally of the repayment of costs allocated to low-flow augmentation. Local interests must agree to pay all the costs allocated to water supply amounting to 33.2 percent of the construction cost of the project and presently estimated at $16,935,000, 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; or as an alternative, contract with the United States to repay, within a period of 50 years, a portion of the costs allocated to water supply on the basis of initial requirements, amounting to 5.8 percent of the construction cost and presently estimated at $2,943,000, plus interest during construction on this amount, with interest on the unpaid balance and with payments to begin when storage is first available for water supply; furnish assurances satisfactory to the Secretary of the Army that they will repay the remaining costs allocated to water supply on the basis of future requirements, amounting to 27.4 percent of the construction cost, presently estimated at $13,992,000, plus interest during construction on this amount with interest on the unpaid balance, beginning 10 years after storage is first available for water supply and with final payment to be made 50 years thereafter, except that no interest will be charged thereon for the first 10 years after storage is first available for water supply; contract with the United States to pay the operation and maintenance costs allocated to water supply presently estimated at $47,000 annually, beginning when storage is first available for water supply; agree to pay the major replacement costs allocated to water supply as such costs are incurred, presently estimated to average $8,000 annually; furnish assurances satisfactory to the Secretary of the Army of their intent to control pollution of the streams subject to low-flow augmentation by adequate treatment or other methods of controlling wastes at their source; and furnish assurances satisfactory to the Secretary of the Army that they

will protect downstream channels from encroachments which would adversely affect operation of the project. Many beneficiaries are involved. At present no entity has agreed to furnish the required local cooperation. Establishment of a legally constituted local body capable of performing this function is essential and is under consideration.

Comments of the State and Federal Agencies.—

Department of the Interior: Favorable.
Department of Commerce: Favorable.
Department of Health, Education and Welfare: Favorable.
Department of Agriculture: Favorable.
Federal Power Commission: Favorable.
National Capital Regional Planning Council: Favorable.
Chairman, Interstate Commission on Potomac River: Favorable.
District of Columbia: Favorable.
State of West Virginia: Favorable.
Commonwealth of Pennsylvania: Favorable.
Commonwealth of Virginia: Favorable.
State of Maryland: Favorable.

Comments of the Bureau of the Budget.—No objection.

NORFOLK, VA.

(H. Doc. 354, 87th Congress)

Location.—Norfolk, Va., is on the port of Hampton Roads, about 180 miles southeast of Washington, D.C., and about 20 miles west of the confluence of Chesapeake Bay and the Atlantic Ocean. The major portion of the city's shore frontage is on the Elizabeth River and its Eastern Branch, and is not exposed to high waves from Chesapeake Bay and the Atlantic Ocean.

Authority.—In partial response to Public Law 71, 84th Congress, 1st session, approved June 15, 1955.

Existing project.—There are no existing or authorized hurricane projects in the area. The existing Federal navigation project provides for depths of 40 feet in Elizabeth River, 18 to 25 feet in the Eastern and Western Branches, and 12 feet in the short channel up Scotts Creek. The Elizabeth River and its Southern Branch are segments of the Atlantic Intracoastal Waterway.

Flood problem.—The downtown section of the city of Norfolk is subject to periodic flooding from hurricanes and northeast storm tides. This salt water flooding causes damages to commercial, residential, and other properties located in the low-lying areas and creates health, safety, and economic problems which adversely affect the welfare of the city.

Recommended plan of improvement.—Provides for a floodwall extending for about 2,750 feet from a grade point near Tazwell and Duke Streets along Tazwell, Boush, Main, Matthews, Water, and Granby Streets to a grade point in the rear of the U.S. custom house, together with six closure structures and necessary adjustments to railroad and street crossings adjacent thereto; a storm drain pump station at the foot of the City Hall Avenue, together with necessary collector lines and appurtenances; and a sanitary sewage lift station in the floodwall

at Fayette and Water Streets, together with necessary collector lines, force mains, valve chambers, and appurtenances. Subsequent to authorization of the recommended hurricane protection works, and with prior approval of the Chief of Engineers, if the city elects at its own expense to incorporate features in highway or other development works in the waterfront area which will serve the purpose of the hurricane protection works in the area of local construction, it is further recommended that the United States participate in the cost of such features on a basis such that the overall cost to the United States for hurricane protection shall not be greater than that which would apply in the absence of such features, and such that any resultant savings in the overall cost of the dual purpose features shall be shared equitably between the United States and the city on the basis of cost allocation and cost apportionment approved by the Chief of Engineers; provided that such participation in the dual purpose features shall be subject to the undertaking of any necessary remaining hurricane protection works by the United States.

Estimated cost (price level of June 1959).—

Federal	$1,537,000
Non-Federal	724,000
Total	2,261,000

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$60,000	$39,500	$99,500
Maintenance and operation		15,500	15,500
Total	60,000	55,000	115,000
Annual benefits: Damages prevented			178,000

Benefit-cost ratio.—1.5.

Local cooperation.—(*a*) Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project, at costs presently estimated at $376,000; (*b*) accomplish without cost to the United States all relocations and alterations of sewerage and drainage facilities, buildings, utilities, and other structures made necessary by the work, exclusive of storm sewer, street, and railroad alterations forming an integral part of the protective works, at costs presently estimated at $237,000; (*c*) bear 30 percent of the total first cost of the project, exclusive of betterments, a sum presently estimated at $658,000, to consist of the items listed in subparagraphs (*a*) and (*b*) above and a cash contribution now estimated at $45,000, to be paid either in a lump sum prior to initiation 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 cost to be made after actual costs and values have been determined; (*d*) bear the entire cost of the items considered as betterments, including the sewage lift station, presently estimated at $66,000; (*e*) hold and save the United States free from damages due to the construction work; and (*f*) maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army. Local

interests have indicated willingness and ability to furnish requirements.

Comments of the State and Federal agencies.—
Department of the Interior: Favorable.
Department of Commerce: Favorable.
Department of Agriculture: Favorable.
State of Virginia: Favorable.

Comments of the Bureau of the Budget.—No objection.

CAROLINA BEACH AND VICINITY, NORTH CAROLINA

(H. Doc. 418, 87th Cong.)

Location.—The area is in New Hanover County, about 15 miles southeast of Wilmington, N.C., on the peninsula which separates the lower Cape Fear River from the Atlantic Ocean. The study covers about 7 miles of the shore and the towns of Carolina Beach and Kure Beach, also unincorporated communities of Wilmington Beach and Hanby Beach.

Authority.—Section 2 of Public Law 520, 71st Congress, approved July 3, 1930, and Public Law 71, 84th Congress, approved June 15, 1955.

Existing project.—No hurricane or beach protection projects.

Beach erosion and hurricane problem.—Intermittent surveys of the shore and offshore depths since 1938 indicate alternate erosion and accretion with a net accumulative loss of beaches. During the period 1900 to 1959, 22 hurricanes have affected Carolina Beach and vicinity. Recurrence of the maximum hurricane tide of record caused by the hurricane of October 1954, under January 1960 prices and conditions, would cause inundation and wave damages in the area estimated at $5,500,000. The average annual future tidal damages in the area are estimated at $380,800.

Recommended plan of improvement.—Provides for construction of a dune with a crown width of 25 feet at elevation 15 feet, mean low water, together with an integrated beach berm of 50 feet wide at elevation 12 feet, mean low water, extending about 25,800 feet from northern limits of Carolina Beach to southern limits of Kure Beach; initial deposition of sufficient suitable material north of Carolina Beach to serve as a feeder beach; and Federal participation in the cost of beach nourishment for a period not to exceed 10 years from the year of completion of the initial placement.

Estimated cost (price level of January 1960).—

Federal	$739,000
Non-Federal	500,000
Total	1,239,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$28,390	$23,420	$51,810
Maintenance and operation		14,600	14,600
Beach nourishment	6,600	50,100	56,700
Total	34,990	88,120	123,110
Annual benefits:			
Damages prevented			213,500
Emergency cost saved			5,300
Increased beach use			133,900
Increased property use			23,000
Total			375,700

Benefit-cost ratio.—3.1.

Local cooperation.—Furnish lands and rights-of-way; accomplish necessary relocations of buildings, streets, utilities, and other structures; bear 40.3 percent of the first cost consisting of the items above, and a cash contribution presently estimated at $500,000; hold and save the United States free from damage; maintain the works and nourish the beach, except that for the first 10 years the Federal Government will contribute an amount estimated at $6,600 annually for nourishment; maintain current public ownership and use; adopt ordinances to preserve the improvement; control water pollution; obtain prior approval by the Chief of Engineers of plans for the beach protection work; contribute in cash for wave-protection works in addition to the item above requiring a contribution of 40.3 percent, the added cost for separate construction of the beach-protection works presently estimated at $123,000; and, annually inform local interests that the project will not provide substantial wave protection during ocean surges greater than Hurricane Hazel, October 15, 1954. Local interests have indicated their willingness to comply with the requirements of local cooperation.

Comments of the State and Federal Agencies.—

Department of the Interior: No objection.
Department of Agriculture: No objection.
Department of Commerce: No objection.
Department of Health, Education, and Welfare: No objection.
State of North Carolina: Favorable.

Comments of the Bureau of the Budget.—No objection.

CHATTAHOOCHEE RIVER AT AND IN VICINITY OF WEST POINT AND FRANKLIN, GA.

Location.—Chattahoochee River forms a portion of the border between Alabama and Georgia and drains the northcentral portion of Georgia. The Chattahoochee River drainage basin is 440 miles long and averages 30 miles wide. The Chattahoochee and Flint Rivers join to form the Apalachicola River.

Authority.—Resolutions by the Committee on Public Works of the House of Representatives adopted July 29, 1955, and July 31, 1957.

Existing project.—Buford Dam in the extreme upper watershed for flood control, hydroelectric power, navigation, and other purposes;

Jim Woodruff lock and dam on the lower river for navigation and hydroelectric power; and two other locks and dams on the Chattahoochee River which would provide navigation to Columbus, Ga., are nearing completion. The Soil Conservation Service has a small dam program on Bull Creek near Columbus, Ga. Many small privately owned dams for hydroelectric power.

Problems.—Buford Reservoir controls floods in the upper watershed. Average annual flood damage for the Chattahoochee River at and below West Point are estimated at $600,000 principally in West Point, Columbus, and Phenix areas. There is also a growing demand for power in the area.

Recommended plan of improvement.—Construction of West Point Reservoir for hydroelectric power, flood control, navigation, and recreation. The dam would be located at river mile 201.4 and would form a reservoir of 553,000 acre-feet capacity; 282,000 acre-feet would be for power purposes except for flood control storage use of a maximum of 204,000 acre-feet from December through April. Storage of 158,000 acre-feet would also be usable for flood control above the power pool.

Estimated cost (1961 prive level).—Federal, $52,900,000.

Project economics.—

Annual charges:	
Interest and amortization	$1,635,000
Maintenance, operation, and replacement	518,000
Taxes foregone	518,000
Total	2,671,000
Annual benefits:	
Flood control	481,000
Power	2,085,000
Recreation	640,000
Fish and wildlife	268,000
Navigation	50,000
Total	3,524,000

Benefit-cost ratio.—1.3.

Local cooperation.—Local interests shall agree to inform annually those affected, for a period of time as determined by the Chief of Engineers to be necessary, that the proposed project will provide partial protection from floods.

Comments of the States and Federal agencies.—

Department of the Interior: No objection.
Department of Agriculture: No objection.
Department of Commerce: No objection.
Federal Power Commission: No objection.
Public Health Service, Department of HEW: No objection.
State of Alabama: Favorable.
State of Georgia: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget notes that the estimate of expected power revenues from the West Point project, furnished by the Southeastern Power Administration would be sufficient to repay the cost allocated to power only over a period of 100 years. The Bureau also notes that a major portion of the benefits and costs of this project have been assigned to power purposes.

The Bureau states that section 5 of the Flood Control Act of 1944 requires that power produced at reservoir projects under control of the Department of the Army be sold at rates which will recover costs of power production, and transmission, including capital investment allocated to power, over a reasonable period of years. The Bureau further states that, as a matter of policy, a period of 50 years has been considered appropriate for the recovery of power investment. Such a period was most recently affirmed by the Congress as a condition of the authorization of Laurel River Reservoir in the Flood Control Act of 1960.

Accordingly, the Bureau would expect that construction of the West Point Reservoir, if authorized by the Congress, would not be undertaken until there is specific assurance that all costs allocated to power can be returned with interest within a period of 50 years.

The Bureau of the Budget advises that there is no objection to the submission of the report to the Congress.

INTERIM REPORT ON SOUTH DADE COUNTY, FLA., CENTRAL AND SOUTHERN FLORIDA PROJECT

Location.—The area under consideration is in the southeastern section of Dade County, Fla., south of Miami along Biscayne Bay.

Authority.—Senate Public Works Committee Resolution, adopted November 15, 1954 (partial response).

Existing project.—The central and southern Florida project provides in part for a levee around the area considered in this report. This levee, designated as "L–31," and its control structures are for protection against most nonhurricane storm tides and for regulation of freshwater flow.

Flood problem.—There is need for an adequate system of canals to provide drainage for urban development, with water control structures to prevent overdrainage of lands and contamination of ground water by salt water encroachment.

Recommended plan of improvement.—The plan of improvement provides for construction of 12 major outlet canals to drain by gravity the south Dade County area involved.

Estimate cost (price level of October 1960).—

Federal	$13,388,000
Non-Federal	7,065,000
Total	20,453,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Primary works:			
Interest and amortization	$484,000	$255,000	$739,000
Maintenance and operation		115,000	115,000
Loss of productivity of lands (economic cost)			40,000
Total primary works	484,000	370,000	894,000
Associated work		133,000	133,000
Total	484,000	503,000	1,027,000
Annual benefits:			
Flood damages prevented			1,897,000
Increased land use			1,772,000
Total			3,669,000

Benefit-cost ratio.—3.6.

Local cooperation.—Local interests are required to contribute 19.2 percent of contract price plus supervision and administration, presently estimated at $2,953,000, to be paid prior to start of work units; construct and maintain associated lateral drainage facilities; provide all lands, easements and rights-of-way; make all bridge, road, and utility relocations except railroad bridges and approaches; hold and save the United States free from damage; prevent encroachment on the channel; maintain and operate the completed works; and inform affected interests annually that the project will provide no protection from ocean surges.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Agriculture: No objection.

Department of Commerce: No objection.

State of Florida: Concurs in plan but objects to cost-sharing features, road relocation standards, and cost estimates of maintenance.

Comments of the Bureau of the Budget.—The Bureau of the Budget notes that the Chief of Engineers, in his letter to the Department of the Interior, has stated his intention of coordinating with all interests concerned in undertaking the recently authorized investigation of means of supplementing existing water supplies to the Everglades National Park. The Bureau would, therefore, expect preconstruction planning of this project, if it is authorized, to be fully coordinated with this pending investigation in order that there will be adequate assurance before funds for construction are requested that the project will contribute to the achievement of maximum benefits to the region and the Nation from development of the water resources of the area.

The Bureau advises that there is no objection to submission of the report to Congress.

INTERIM REPORT ON CUTLER DRAIN AREA, FLORIDA CENTRAL AND SOUTHERN FLORIDA PROJECT

(S. Doc. 123, 87th Cong.)

Location.—Cutler drain area comprising about 38 square miles in Dade County is located immediately south of Miami on the Atlantic coast of Florida.

Authority.—Senate Public Works Committee resolution, adopted November 15, 1954 (partial response).

Existing project.—There are no Federal improvements within the Cutler drain area. However, the area is encompassed by works of the central and southern Florida project.

Flood problem.—There is a need for flood control and drainage in the Cutler drain area which has experienced eight damaging floods since 1946.

Recommended plan of improvement.—The plan of improvement provides for improvement of the Cutler drain area for flood control and major drainage including a connecting canal to Snapper Creek Canal to permit diversion of fresh-water supply from the north.

Estimated cost (price level April 1961).—

Federal	$2,063,000
Non-Federal	2,104,000
Total	4,167,000

Project economics (price level, April 1961).—

	Federal	Non-Federal	Total
Annual charges:			
Primary works:			
Interest and amortization	$75,800	$75,900	$151,700
Maintenance and operation		30,300	30,300
Loss in productivity of land (economic cost)			35,000
Total primary cost	75,800	106,200	217,000
Associated work		17,000	17,000
Total	75,800	123,200	234,000
Annual benefits:			
Flood damages prevented			333,000
Increased land use			1,017,000
Total			1,350,000

Benefit-cost ratio.—5.8.

Local cooperation.—Local interests are required to construct and maintain associated lateral drainage facilities; provide all lands, easements, and rights-of-way; make all bridge, road, and utility relocations except railroad bridges and approaches; hold and save the United States free from damage; prevent encroachment on the channel; and maintain and operate the completed works.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Agriculture: No objection.

Department of Health, Education, and Welfare, Public Health Service: No objection.

State of Florida: Favorable.

Comments of the Bureau of the Budget.—No objection.

FOUR RIVERS BASINS, FLA.

Location.—The Four River Basins in this report consist of the drainage areas of four main streams in central and southwest peninsular Florida which rise at or within the Green Swamp region and certain intervening streams on the west coast of Florida. The four rivers are the Hillsborough, Oklawaha, Withlacoochee, and Peace Rivers. The city of Tampa is located on Hillsborough River.

Authority.—Nine resolutions of the Senate and House Public Works Committees and two items in acts of Congress.

Existing project.—There are several authorized navigation improvements including the cross-Florida barge canal, which will provide navigable channels in the lower reaches of the Withlacoochee and Oklawaha Rivers; the Pithlachascotee River rom the Gulf of Mexico to Port Richey, Tampa Harbor; the Oklawaha River to Moss Bluff Dam; Withlacoochee River; Peace River and Anclote River. There are no flood control projects in the area.

Flood problem.—There is a water problem because of flooding and poor drainage during wet seasons and a lack of water during dry seasons to adequately meet demands for agricultural and domestic use. Salt water enters Lake Tarpon from underground and, when the lake rises, damages surrounding land.

Recommended plan of improvement.—The plan of improvement provides for improvements of southwest Florida, drained by the Hillsborough, Oklawaha, Withlacoochee, Peace, Anclote, and Pithlachascotee Rivers, and Lake Tarpon for flood control, major drainage, and other purposes.

Estimated cost (price level of October 1961).—

Federal	$57, 760, 000
Non-Federal	42, 020, 000
Total	99, 780, 000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Primary work:			
Interest and amortization	$2, 201, 000	$1, 475, 000	$3, 676, 000
Maintenance and operation		328, 000	328, 000
Loss of land productivity (economic cost)			601, 000
Total primary work	2, 201, 000	1, 803, 000	4, 605, 000
Associated work		241, 500	241, 500
Total	2, 201, 000	2, 044, 500	4, 846, 500
Annual benefits:			
Flood damages prevented			2, 906, 000
Increased land use			3, 383, 000
Fish and wildlife conservation			528, 000
Navigation			134, 000
Recreation			87, 000
Total			7, 038, 000

Benefit-cost ratio.—1.5.

Local cooperation.—Local interests are required to contribute 17 percent of the contract price plus supervision and administration presently estimated at $10,700,000; construct and maintain associated lateral drainage facilities; provide all lands, easements, and rights-of-way; make all bridge, road, and utility relocations except railroad bridges and approaches; hold and save the United States free from damage; preserve outlet waterways needed for the proposed work; and maintain and operate the completed works. The Southwest Florida Water Management District would assume responsibility for local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Agriculture: No objection.

Department of Commerce: No objection.

Department of Health, Education, and Welfare: No objection.

State of Florida: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget suggests that further consideration be given to the matter of a local cash contribution toward the cost of the project for benefits to recreational boating. The Bureau recommends that the cost allocated to fish

and wildlife enhancement features in projects of this kind be divided equally between the Federal Government and local interests.

Remarks.—The committee has made the appropriate changes to reflect the Budget views.

CHUNKY CREEK, CHICKASAWHAY AND PASCAGOULA RIVERS, MISS.

(H. Doc. 549, 87th Cong.)

Location.—The Pascagoula River drains most of southeast Mississippi and a small part of southwest Alabama, covering an area of 9,700 square miles. It discharges into the Gulf of Mexico at Pascagoula, Miss.

Authority.—This report is in full response to section 11 of the Flood Control Act adopted July 24, 1946, and to the House Committee on Public Works resolution adopted June 26, 1952.

Existing project.—Sowashee Creek channel at Meridian, Miss., was improved for flood control in 1955 under general congressional authority for construction of small flood control projects, at a Federal cost of $142,600.

Flood problem.—Okatibbee and Chunky Creeks join to form the Chickasawhay River which flows 164 miles to join the Leaf River and form the Pascagoula River. There is a serious flood problem along Okatibbee Creek for 37 miles above its mouth and along the 18-mile upstream reach of the Chickasawhay River. The total flood plain covers 27,000 acres, of which 650 acres are urban.

Recommended plan of improvement.—A reservoir, located 38 miles above the mouth of Okatibbee Creek and 7 miles northwest of Meridian, for flood control, recreation (both general and fish and wildlife), and municipal and industrial water supply. Gross storage would be 109,800 acre-feet, with 80,600 acre-feet for flood control, 8,500 acre-feet for water supply and recreation, and the balance for sediment accumulation. The flood control storage would provide partial protection as far as 18 miles downstream along the Chickasawhay River. The water supply storage would provide a dependable yield of 25 million gallons daily. Basic facilities for public access and use of the project area would be provided.

Estimated cost (price level of 1961).—Federal, $6,740,000.[1]

Project economics.—

Annual charges (Federal):	
Interest and amortization	$210,000
Maintenance and operation	60,000
Total	270,000
Annual benefits:	
Flood control	159,000
General recreation	125,000
Fish and wildlife recreation	60,000
Municipal and industrial water supply	50,000
Total	394,000

[1] Includes construction costs allocated to water supply of $1 million to be reimbursed in accordance with the Water Supply Act of 1958.

Benefit-cost ratio.—1.5.

Local cooperation.—Furnish, prior to construction, assurances satisfactory to the Secretary of the Army that they will hold and save the United States free from damages from water-rights claims resulting from construction and operation of the project; prevent encroachment and obstruction of downstream channels which would adversely affect operation of the project; and pay the United States, in accordance with the Water Supply Act of 1958 as amended, the entire amount of the construction costs allocated to water supply, presently estimated at $1 million, and the entire amount of operation, maintenance, and replacement costs allocated to water supply, presently estimated at $3,000 annually, the final amounts to be determined after actual costs are known. The city of Meridian has assured that they will cooperate in the development of plans, and, upon approval of construction by Congress or when plans are completed, will make a firm determination of the extent the city could participate in the project.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.
Department of Agriculture: No objection.
Department of Commerce: Favorable.
Department of Health, Education, and Welfare: Favorable.
Federal Power Commission: Favorable.
State of Mississippi: Favorable.

Comments of the Bureau of the Budget.—No objection. However, the Bureau would expect that prior to any request for funds to initiate construction of the project, it would be reevaluated in the light of the administration's standards and policies, pertaining to recreation, applicable at that time.

GIN BAYOU YAZOO RIVER, MISS.

Gin Bayou drains an area of about 2 square miles before it traverses the campus of the Mississippi Vocational College. It is a tributary of Muddy Bayou which in turn is a tributary of Quiver River.

Gin and Muddy Bayous have inadequate channel capacities due to obstructions caused by vegetation. In addition, road crossings have inadequate culverts resulting in severe flooding of the campus of the Mississippi Vocational College during periods of heavy rainfall.

In view of the severe damages suffered by the Mississippi Vocational College the committee has seen fit to include language in the bill authorizing a project which is designed to alleviate the present flood and drainage problem.

MISSISSIPPI RIVER DELTA AT AND BELOW NEW ORLEANS, LA.

(H. Doc. 550, 87th Cong.)

Location.—The study area covered in this report is in the coastal region of Louisiana. It includes the lands subject to inundation by hurricane tides extending on both banks of the Mississippi River from the vicinity of New Orleans to the Gulf of Mexico and from the south shore of Lake Borgne and Chandeleur Sound to Barataria Bay.

Authority.—Public Law 71, 84th Congress, 1st session, June 15, 1955.

Existing project.—The main river levees which are part of the Federal project "Flood control, Mississippi River and tributaries," range in elevation on the east bank from 24 feet mean sea level at New Orleans to 14 feet at Bohemia, La., and on the west bank from 24 feet opposite New Orleans to 9 feet at Venice, La. These levees have not been overtopped from the river side by hurricane tides since they were constructed to present grades.

Flood problem.—During the period of recorded history of Louisiana, 151 known hurricanes or tropical storms have struck or threatened the State. There have been 12 hurricanes which caused major damages and 10 hurricanes or tropical storms causing minor damages within the study area since 1893.

Recommended plan of improvement.—Prevention of hurricane tidal damages by increasing the heights of the existing back levees and modifying the existing drainage facilities where necessary in four separate reaches consisting of: the west bank for about 15 miles between cities Price and Empire (design grade 13.5); the west bank for about 21 miles between Empire and Venice and with such modifications of the main levee as may be required (design grade 13.5); the east bank for about 16 miles between Phoenix and Bohemia (design grades 13 and 14); and the east bank for about 8 miles between Violet and Verret (design grade 12).

Estimated cost.—

Federal	$7,502,000
Non-Federal	3,216,000
Total	10,718,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$226,200	$124,500	$350,700
Maintenance, operation, and major replacements		5,500	5,500
Economic loss on lands		5,400	5,400
Total	226,200	135,400	361,600
Annual benefits: Damages prevented			801,000

Benefit-cost ratio.—2.2.

Local cooperation.—(*a*) Provide all lands, easements, and rights-of-way, including borrow areas and spoil disposal areas necessary for the construction of the project, at costs presently estimated at $772,000; (*b*) accomplish all necessary alterations and relocations to roads, pipelines, cables, wharves, and other facilities required by the construction of the project, at costs presently estimated at $600,000; (*c*) bear 30 percent of the first cost, a sum presently estimated at $3,216,000; to consist of the items listed in subparagraphs (*a*) and (*b*) above and a cash contribution presently estimated at $1,844,000, to be paid either in a lump sum prior to initiation of construction or in installments prior to start of pertinent work items, in accordance with construction schedules as required by the Chief of Engineers, or, as a substitute for

any part of the cash contribution, accomplish in accordance with approved construction schedules items of work of equivalent value as determined by the Chief of Engineers, the final apportionment of costs to be made after actual costs and values have been determined; (*d*) hold and save the United States free from damages due to the construction works; (*e*) maintain and operate all works after completion in accordance with regulations prescribed by the Secretary of the Army; (*f*) prevent any encroachment on ponding areas unless substitute storage capacity or equivalent pumping is provided promptly; and (*g*) at least annually, notify those affected that the project will not provide complete protection from tidal flooding and that further local actions must be taken during hurricane emergencies.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Commerce: Favorable.

State of Louisiana: Favorable.

Comments of the Bureau of the Budget.—No objection.

RED RIVER IN NATCHITOCHES AND RED RIVER PARISHES, LA.

(H. Doc. 476, 87th Cong.)

Location.—The three projects considered are located on the Red River in central Louisiana in the vicinity of the town of Natchitoches. The areas concerned are primarily agricultural.

Authority.—Senate Public Works Committee resolutions dated March 11, 1957, and June 20, 1957; House Public Works Committee resolution dated April 21, 1950; and House Committee on Rivers and Harbors resolution dated February 25, 1938, partial response).

Existing project.—Denison Dam on Red River at mile 734; Red River below Denison Dam in Arkansas, Oklahoma, Texas, and Louisiana, which provides for construction of reservoirs; Bayou Pierre, La., which provides for improvement of its lower 30 miles; East Point, La., which provides for construction of flood protection works in Loggy Bayou to the Coushatta Bayou area; and the Overton-Red River Waterway, La., which provides for construction of a channel 206 miles long and 9 feet deep to extend from Mississippi River mile 301 to Shreveport, La.

Flood problem.—Three small agricultural areas have been subjected to flooding from the Red River, Red River backwater, and local runoff. The areas considered for protection were: Bayou Nicholas and Coushatta, Lake End to mouth of Bayou Pierre, and the Campti-Clarence area.

Recommended plan of improvement: Bayou Nicholas Basin and Coushatta.—Construct a ring levee system with one section extending from the bluff north of Highway 84 across Bayou Nicholas to the natural high Red River bank. A second segment would run from the high bank a short distance downstream to tie into the embankment of the Kansas City Southern Railway. A culvert would provide for local drainage. *Campti-Clarence area.*—A ring levee extending from Campti along Red River to Saline Bayou, thence along the west bank of the Bayou to Chivery Dam, thence westward to the hill line southwest of Clear Lake. A saddle dike would be required about 4 miles east of Campti. The levee would be about 32 miles long and average

7.5 feet in height. Seven gated pipe culverts and landside ditches would be required for interior drainage, in addition to clearing and snagging of about 11 miles of Bourbeaux Bayou, closure of Bourbeaux Bayou near Chevery Dam, and enlargement of 5 miles of Chevreuille Bayou to provide a new outlet for Bourbeaux Bayou.

Estimated cost (price level of April 1960).—

	Bayou Nicholas	Campti-Clarence
Federal	$55,000	$1,293,000
Non-Federal	6,000	220,000
Total	61,000	1,513,000

Project Economics.—

	Federal	Non-Federal	Total
Annual charges:			
Campti-Clarence area:			
Interest and amortization	$40,477	$19,225	$59,702
Operation and maintenance		7,080	7,080
Replacements	3,434	882	4,316
Economic loss of land		1,430	1,430
Drainage	764	5,942	6,706
Total	44,675	34,559	79,234
Bayou Nicholas Basin and Coushatta:			
Interest and amortization	1,988	279	2,267
Economic loss of land		43	43
Operation and maintenance		190	190
Total	1,988	512	2,500
Annual benefits:			
Campti-Clarence area:			
Flood damage prevented			61,400
Land enhancement			35,700
Total			97,100
Bayou Nicholas Basin and Coushatta: Flood damages prevented			2,700

Benefit-cost ratio.—Nicholas Basin and Coushatta, 1.1; Campti-Clarence, 1.2.

Local cooperation.—Furnish lands, easements, and rights-of-way; make necessary relocations; maintain and operate; hold and save United States free from damages; prevent encroachment on improved channels; and organize drainage district.

Comments of States and Federal agencies.—

State of Louisiana: Favorable.

Department of the Interior: Favorable.

Department of Agriculture: Favorable.

Comments of the Bureau of the Budget.—No objection.

Remarks.—Subsequent to transmission of the report to Congress, the Chief of Engineers approved a flood protection project for Bayou Nicholas (Coushatta, La.), under the special small project program authorized by section 205 of the 1948 Flood Control Act as amended by Public Law 685, 84th Congress. Accordingly, no additional authorization is required for construction of this project.

LOWER MISSISSIPPI RIVER BASIN—WILL M. WHITTINGTON AUXILIARY CHANNEL

The committee has included language in the bill authorizing the change in name of the lower auxiliary channel in honor of the late Representative Will M. Whittington, a Member of Congress from the Third District of Mississippi, and former chairman of the House Committee on Public Works.

The lower auxiliary channel is a major feature of the Yazoo Basin project in Mississippi and provides for diversion of a large portion of the flow of the Yazoo River. It leaves the river at mile 45 and reenters at mile 109. It is 32 miles in length and costs approximately $11 million. It is fitting that a project of this magnitude be named in honor of the distinguished gentleman from Mississippi.

Judge Whittingon's colleagues considered him to be "the father of flood control." Perusal of the flood control bills enacted during his congressional career and the legislative history that relates to them will show that there is ample basis for this designation.

In introducing the 1950 flood control bill on the floor of the House of Representatives Judge Whittington had this to say:

> You will pardon me for saying this, but I have had something to do with the writing of every flood-control bill on the statute books. I am not a young man any longer. My eyes are toward the setting sun. I want to provide for the protection of the people in the State where I live, but I will never ask my Government or your Government to provide for the district that I live in unless comparable relief is extended to every other congressional district in the United States.

These words of the beloved Judge Whittington echo the sentiments of the Committee on Public Works, whose duty and responsibility is to serve the needs of the Nation in the field of water resource development.

VINCE AND LITTLE VINCE BAYOUS, TEX.

(H. Doc. 441, 87th Cong.)

Location.—The watershed of Vince Bayou and its tributary, Little Vince Bayou, lies in Harris County, Tex., at and in the vicinity of Houston.

Authority.—Resolution, House Public Works Committee, adopted July 1, 1958.

Existing project.—There are no Federal improvements for flood control in the Vince Bayou watershed.

Flood problem.—Floods in this densly urbanized area are caused by thunderstorms, general storms, and torrential rainfall associated with hurricanes and other tropical disturbances. At least six major floods have occurred since 1928. Average annual damages are estimated at $253,000.

Recommended improvements.—Channel improvement of Vince Bayou from the mouth (at Houston ship channel) upstream about 7.3 miles, and of Little Vince Bayou from the mouth upstream about 4.2 miles. Improved channels would have bottom widths of 10 and 15 feet in concrete-lined sections and 20 to 50 feet in unlined, earth sections.

Estimated cost (January 1961 prices).—

Federal	$2,224,000
Non-Federal	1,956,000
Total	4,180,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$83,300	$90,000	$173,300
Maintenance and operation	0	27,000	27,000
Total	83,300	117,000	200,300
Annual benefits: Flood damage prevention			237,000

Benefit-cost ratio.—1.2.

Local cooperation.—Furnish lands, easements, rights-of-way, and spoil disposal areas; bear costs of all necessary alterations and relocations of utilities except railroad bridges; hold and save the United States free from damages; maintain and operate the project; prohibit encroachments on flood-carrying capacity of channels. Local interests agree.

Comments of States and Federal agencies.—

State of Texas: Favorable.

Department of Interior: Favorable.

Department of Agriculture: Favorable.

Comments of the Bureau of the Budget.—No objection.

HURRICANE SURVEY OF PORT ARTHUR AND VICINITY, TEXAS

(H. Doc. 505, 87th Cong.)

Location.—Port Arthur is located on the west shore of Lake Sabine in the extreme southeast corner of Texas, about 14 miles from the Gulf of Mexico.

Authority.—Public Law 71, 84th Congress, approved June 15, 1955.

Existing project.—There are no existing Federal projects for hurricane protection in the Port Arthur area. Local interests have constructed a system of earth levees and seawalls for storm tide protection for the older portions of the developed area.

Flood problem.—Occurrence of a severe hurricane in the vicinity of Port Arthur would overtop the existing improvements and cause extensive damages to residential and industrial property. Also considerable development has occurred in the low coastal lands outside the existing protection system.

Recommended plan of improvement.—Provides for enlarging, strengthening, and extending the existing levees and seawall to protect with a single enclosure about 37,000 acres of Port Arthur, Groves, Lakeview, Pear Ridge, and Griffing Park and intervening areas. Two separate industrial areas south of Taylors Bayou would be protected by ring levees. Additional pumping capacity for interior drainage would be provided.

Estimated cost (price level of September 1961).—

Federal	$23,380,000
Non-Federal	10,020,000
Total	33,400,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$710,000	$340,000	$1,050,000
Maintenance and operation		100,000	100,000
Total	710,000	440,000	1,150,000
Annual benefits:			
Damages prevented			6,388,000
Land enhancement			122,000
Total			6,510,000

Benefit-cost ratio.—5.7.

Local cooperation.—Furnish all lands, easements, and rights-of-way, including borrow areas; make alterations and relocations of buildings, pipelines and utilities; bear 30 percent of the total project cost to include the above items and a cash contribution presently estimated at $9,330,000, the final apportionment of cost to be made after actual costs and values have been determined; hold and save the United States free from damages; maintain and operate all works; and prevent encroachment on the ponding areas that would reduce the capacity unless such is offset by additional pumping capacity. Local interests have indicated their willingness and ability to meet these requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
State of Texas: Favorable.

Comment of the Bureau of the Budget.—No objection.

HURRICANE SURVEY OF FREEPORT AND VICINITY, TEXAS

(H. Doc. 495, 87th Cong.)

Location.—Freeport, Tex., is located at the mouth of the Brazos River about 43 miles southwest of Galveston.

Authority.—Public Law 71, 84th Congress, approved June 15, 1955.

Existing project.—There is no Federal flood or hurricane protection project at Freeport. Local interests have constructed a system of levees to protect the area between the Brazos River and Oyster Creek from ocean surges. Also the Freeport Harbor project provides for diversion of the Brazos River to the Gulf of Mexico southwest of the original river mouth, a dam at the point of diversion together with a levee along the diversion channel, and a deep-draft channel in the old river together with jetties at the entrance and turning basins in the harbor.

Flood problem.—Occurrence of severe storm tides in excess of 10 feet can overtop the existing protection system at low points with subsequent inundation of large residential and industrial areas.

Recommended plan of improvement.—Raising and enlarging about 40 miles of existing levee and the construction of nearly 5 miles of levee along Oyster Creek to extend the existing levee to high ground near Lake Barbara together with the necessary extension of existing drainage structures and road ramps. Also, the construction of two pumping plants for disposal of interior runoff.

Estimated cost (price level of August 1961).—

Federal	$3,780,000
Non-Federal	1,620,000
Total	5,400,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$140,000	$63,000	$203,000
Maintenance and operation		30,000	30,000
Total	140,000	93,000	233,000
Annual benefits: Damages prevented			967,000

Benefit-cost ratio.—4.2.

Local cooperation.—Furnish all lands, easements, and rights-of-way, including borrow areas; make alterations and relocations of buildings, utilities, and other structures; bear 30 percent of the total project cost, to include the above items and a cash contribution presently estimated at $1,545,000, the final apportionment of cost to be made after actual costs and values have been determined; hold and save the United States free from damages; maintain and operate after completion; and prevent encroachment on the ponding areas unless such is offset by additional pumping capacity. Local interests have indicated their willingness and ability to meet these requirements.

Comments of State and Federal agencies.—

State of Texas: Favorable.

Department of Interior: Favorable.

Department of Agriculture: Favorable.

Department of Commerce: Favorable.

Comments of the Bureau of the Budget.—No objection.

EAST FORK OF TRINITY RIVER, TEX.

(H. Doc. 554, 87th Cong.)

Location.—The East Fork basin of the Trinity River lies a few miles east of Dallas, Tex.

Authority.—Resolution of the Committee on Public Works, House of Representatives, adopted May 15, 1957.

Existing project.—Lavon Dam and Reservoir at river mile 55.9, for flood control and water supply storage, is the only Corps of Engineers project in the watershed. The SCS has completed about 100 deten-

tion reservoirs in the basin and local interests have constructed some levees downstream from Lavon Dam.

Flood problem.—Channel capacity of the river below Lavon Dam diminishes to about 500 cubic feet per second in the lower 10-mile reach, which is insufficient for uncontrolled runoff below Lavon Dam.

Recommended plan of improvement.—Enlargement of Lavon Reservoir to provide an additional 262,300 acre-feet of municipal and industrial water supply storage and channel enlargement and raising and straightening existing levees below the proposed Forney Dam site (to be built by city of Dallas) at mile 31.8 to the mouth.

Estimated cost (price level of July 1961).—

	Reservoir enlargement	Channel and levee improvement	Total
Federal	$16,700,000	$7,060,000	$23,760,000
Non-Federal		380,000	380,000
Total	16,700,000	7,440,000	24,140,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Reservoir enlargement:			
Interest and amortization	$630,300		$630,300
Maintenance and operation	8,200		8,200
Total	638,500		638,500
Levee and channel:			
Interest and amortization	255,800	$14,800	270,600
Maintenance and operation		20,000	20,000
Total	255,800	34,800	290,600
Annual benefits:			
Reservoir enlargement:			
Water supply			1,005,000
Recreation			300,000
Total			1,305,000
Levee and channel: Damages prevented			386,400

Benefit-cost ratio.—Reservoir enlargement, 2.0; channel and levee, 1.3.

Local cooperation.—(*a*) Reservoir enlargement: Make demands for use of water supply storage so that allocated costs will be repaid within project life, such costs presently estimated at 85.1 percent of the total construction cost, amounting to $14,215,000, and 80.5 percent of the additional annual maintenance, operation and major replacement costs, amounting to $6,600, with such modification in these amounts as may be necessary to reflect adjustments in the storage capacity for water supply and other purposes; hold and save the United States free from all water rights claims. (*b*) Levee and channel: Furnish all lands, easements, and rights-of-way; hold and save the United States free from damages; make all relocations and alterations to highways, highway bridges (except underpinning), utilities, buildings, pipelines, interior drainage facilities, and other structures (except railroad bridges and approaches); prevent encroachment on

the improved channels and floodway; and maintain and operate. Local interests have indicated they are willing and able to meet these conditions.

Comments of the State and Federal agencies.—
Department of the Interior: No objection.
Department of Commerce: Favorable.
Department of Agriculture: Favorable.
Department of Health, Education, and Welfare: Favorable.
Federal Power Commission: Favorable.
State of Texas: Favorable.

Comments of the Bureau of the Budget.—No objection.

FORT WORTH FLOODWAY, TEXAS

(H. Doc. 454, 87th Cong.)

Location.—On Clear Fork of Trinity River, a tributary to the West Fork in and near the city of Fort Worth.

Authority.—Resolution, House Public Works Committee, adopted June 27, 1957.

Existing projects.—Benbrook Reservoir on Clear Fork for flood control and water supply constructed by corps; existing Fort Worth floodway extending 13 miles along West Fork and 1.6 miles on Clear Fork; authorized 6.5 miles extension of existing floodway on West Fork. The Soil Conservation Service has completed and planned numerous small reservoirs in the headwaters reaches.

Flood problem.—Existing property values in the Clear Fork flood plain are in excess of $32 million. May 1949 flood was largest of record. Reoccurrence would cause damages estimated at $4,300,000. Last major flood occurred in 1957. Average annual damages under existing conditions, $375,000.

Recommended improvements.—Extend existing floodway upstream on Clear Fork a distance of about 6.5 miles; provide levee protection in two areas.

Estimated cost (January 1960 prices).—

Federal	$5,148,000
Non-Federal	2,878,000
Total	8,026,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$193,800	$149,000	$342,800
Maintenance and operation	0	59,000	59,900
Total	193,800	208,900	402,700
Annual benefits: Flood damage prevention			880,000

Benefit-cost ratio.—2.2.

Local cooperation.—Furnish lands, easements, rights-of-way, and spoil disposal areas; bear costs of all necessary alterations and relocations of utilities except railroad bridges; hold and save the United States free from damages; maintain and operate the project; prohibit

encroachments on flood-carrying capacity of the channel. Local interests agree.

Comments of States and Federal agencies.—

State of Texas: Favorable.

Department of Interior: Favorable.

Department of Health, Education, and Welfare: Favorable.

Comments of the Bureau of the Budget.—No objection.

SAN GABRIEL RIVER WATERSHED, TEXAS

(H. Doc. —, 87th Cong.)

Location.—The San Gabriel River watershed is in east-central Texas immediately north of Austin. The river, formed by the confluence of the North Fork and South Fork at Georgetown, Tex., flows eastward about 62 miles to its junction with Little River, a tributary of Brazos River.

Authority.—Resolution of the House Committee on Public Works, adopted July 29, 1955.

Existing project.—The authorized, but unconstructed, Laneport Dam and Reservoir at mile 29.7 on San Gabriel River is one of eight such projects in the Brazos River Basin planned to operate as a system for flood control and other water-related purposes. Pertinent data relative to the other seven reservoirs are given in the following tabulation:

Project	Stream	Status
Whitney	Brazos River	In operation.
Belton	Leon River	Do.
Waco	Bosque River	Under construction.
Proctor	Leon River	Do.
Stillhouse Hollow	Lampasas River	Planning underway.
Ferguson	Navasota River	Not started.
Somerville	Yegua Creek	Planning underway.

Problems.—Floods occur on the San Gabriel River at any time of the year and contribute substantially to flooding in the lower Brazos River. During the 48-year period, 1903 to 1950, inclusive, 25 floods occurred. The parts of the Little River and Brazos River flood plains affected by floodflows from San Gabriel River consist of about 1,080,000 acres, of which 598,000 are improved agricultural lands, 480,000 acres are unimproved grazing lands, and 2,552 acres are in several communities along the reach. The value of property in these reaches, based on July 1961 prices, is estimated at over $350 million. Average annual damages in the reaches, assuming none of the eight authorized projects in operation, are estimated at $9,703,300. Construction and operation of the eight authorized reservoirs would prevent average annual damages estimated at $4,117,000.

In connection with the studies for this report, the U.S. Public Health Service prepared a report on the alternative cost of conservation storage and on the existing and future needs of municipal and industrial water supply in the area which could be served by storage in the San Gabriel River watershed. The service area extends from the vicinity of Waco to the Freeport-Velasco area, generally within the Brazos River Basin. The report shows that the usage in the service

area in 1958 was about 228 million gallons per day and that the needs in the year 2010, exclusive of return flow for reusage, is estimated at 1,102 million gallons per day. In comparison, the report shows the estimated yield from existing and proposed sources (exclusive of the reservoirs being covered in this report) to meet the need in the year 2010 as 603 million gallons per day, including 117 million gallons per day from ground water.

Recommended plan of improvement.—The plan of improvement consists of the authorized Laneport Reservoir, which would be modified under existing authority and applicable laws and policies, together with the addition of two recommended upstream reservoirs to be operated in conjunction with Laneport, all to serve the primary purposes of flood control, water supply, fish and wildlife, and recreation. The recommendations of the Chief of Engineers permit discretion regarding the sequence of construction of the authorized Laneport Reservoir and the recommended North Fork and South Fork Reservoirs. Under the plan, the first cost of Laneport Reservoir would be $25,200,000 compared to a cost of $28,700,000 as now estimated, such decrease being the result of certain economies in design and construction now proposed. Also, since local interests would be required to reimburse the United States for project costs allocated to water supply, currently estimated at $10,185,000, the net cost to the United States for Laneport Reservoir would be $15,014,000, or $13,165,200 less than now estimated.

Estimated cost (price level of July 1961).—

Cost	Reservoir		Total
	North Fork	South Fork	
Federal	$12,600,000	$7,650,000	$20,250,000

Project economics.—

	Reservoir		Total
	North Fork	South Fork	
Annual charges:			
Interest and amortization	$473,700	$287,900	$761,600
Operation, maintenance, and replacement	70,300	64,000	134,300
Total	544,000	351,900	895,900
Annual benefits:			
Flood control	582,500	274,300	856,800
Water supply	512,800	273,000	785,800
Fish and wildlife	19,300	19,000	38,300
Recreation	351,700	290,000	641,700
Total	1,466,300	856,300	2,322,600
Benefit-cost ratio	2.7	2.4	2

Local cooperation.—Pay the United States in accordance with the Water Supply Act of 1958, as amended, the first costs and the annual operation, maintenance, and replacement costs allocated to municipal and industrial water supply storage, presently estimated at $10,077,000

and $62,500, respectively, for the ultimate development; and hold and save the United States free from all water-rights claims resulting from construction and operation of the projects.

Comments of State and Federal agencies.—

Department of Interior: Favorable.
Department of Commerce: Favorable.
Department of Health, Education, and Welfare: Favorable.
Federal Power Commission: Favorable.
Department of Agriculture: No comment.
State of Texas: Favorable.

Comments of the Bureau of the Budget.—No objection.

CLEAR FORK OF BRAZOS RIVER, ABILENE AREA, TEXAS

(H. Doc. 506, 87th Cong.)

Location.—Elm Creek, together with several of its tributaries, courses through the city of Abilene, and joins the Clear Fork of the Brazos. Abilene is about 150 miles west of Fort Worth, in north-central Texas.

Authority.—Resolution, House Public Works Committee, adopted July 29, 1953.

Existing project.—None.

Flood problem.—Urban flood plain at Abilene is in excess of 7,300 acres with improvements valued at $139 million. Average annual damages under existing conditions estimated at $1,067,000.

Recommended plan of improvement.—The plan consists essentially of straightening and enlarging 36 miles of existing channel; paving 7.9 miles of the enlarged channel; clearing and snagging 5.4 miles of channel; construction 2.3 miles of diversion dike; constructing, replacing, or modifying 33 highway bridges, 5 railway bridges, 19 multiple-box culverts, and 7 low-water crossings.

Estimated cost (price level of 1961).—

Federal	$31,200,000
Non-Federal	7,400,000
Total	38,600,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$946,500	$371,100	$1,317,600
Maintenance, operation, and replacement		52,000	52,000
Total	946,500	423,100	1,369,600
Annual benefits: Flood damage prevention			2,218,000

Benefit-cost ratio.—1.6.

Local cooperation.—Furnish lands, easements, rights-of-way and spoil disposal areas; bear costs of all necessary alterations and relocations of utilities except railroads; hold and save the United States free from damages; prohibit encroachments on improved channels; maintain and operate the project. Local interests agree.

Comments of the State and Federal agencies.—
State of Texas: Favorable.
Department of Interior: Favorable.
Department of Commerce: Favorable.
Department of Health, Education, and Welfare: Favorable.
Comments of the Bureau of the Budget.—No objection.

ALAMOGORDO, N. MEX.

(H. Doc. 473, 87th Cong.)

Location.—Alamogordo is located near the eastern edge of the Tularosa closed basin in south-central New Mexico about 85 miles northeast of El Paso, Tex.

Authority.—Section 206 of the Flood Control Act approved July 3, 1958.

Existing project.—No Federal flood control project in the basin. Local interests have constructed two separate channel and levee systems which are inadequate for overall protection.

Flood problem.—Thunderstorms over the canyons and arroyos, in the Sacramento Mountains, east of Alamogordo, generate high flows of short duration which spread over large sections of the city.

Recommended plan of improvement.—Provides for construction of about 6½ miles of diversion channel along the eastern city limits with a levee on the side toward the city, nearly 1 mile of channel improvement in Dilliard Draw north of the city, replacement of one railroad bridge, construction of three highway bridges, and with necessary alteration or modification at existing railroad and highway bridges.

Estimated cost (price level of July 1961).—

Federal	$2,040,000
Non-Federal	450,000
Total	2,490,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$59,600	$15,800	$75,400
Maintenance and operation		5,000	5,000
Total	59,600	20,800	80,400
Annual benefits:			
Damages prevented			101,100
Land enhancement			7,000
Total			108,100

Benefit-cost ratio.—1.3.

Local cooperation.—Furnish all lands, easements, and rights-of-way; hold and save the United States free from damages; make alterations to existing improvements, other than railroads; prevent encroachment on the diversion channel; prevent encroachment in existing drainage channels within city; maintain and operate the works, except for the opening under the Holloman railroad spur. Local

interests indicated they are willing and able to comply with these requirements.

Comments of the State and Federal agencies.—
Department of Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
Department of Health, Education, and Welfare: Favorable.
State of New Mexico: Favorable.

Comments of the Bureau of the Budget.—No objection.

RIO GRANDE AND TRIBUTARIES, LAS CRUCES, N. MEX.

(S. Doc. 117, 87th Cong.)

Location.—Las Cruces is on the east side of the Rio Grande in south-central New Mexico about 45 miles northwest of El Paso, Tex.

Authority.—Resolution by the Senate Public Works Committee, adopted July 20, 1954.

Existing project.—No specific Federal flood-control project for Las Cruces. The existing Caballo Reservoir on the Rio Grande about 60 miles upstream, constructed by the Bureau of Reclamation and the channel and levee improvements on the mainstem of the Rio Grande constructed by the International Boundary and Water Commission, provide flood protection to agricultural land in Mesilla Valley including Las Cruces. Also, the Soil Conservation Service has constructed detention dams well upstream on arroyos entering Las Cruces.

Flood problem.—Storm runoff from the mountains east of Las Cruces debauches onto the valley where it spreads and is trapped by man-made obstructions and natural depressions particularly in Las Cruces, until it finds outlets over the highly developed valley floor.

Recommended plan of improvement.—One large detention reservoir about 3 miles long and 69 feet high with a capacity of 12,500 acre-feet near the eastern edge of the city together with an outlet channel to the Rio Grande, and a small detention dam with a capacity of nearly 170 acre-feet on Campus Arroyo to protect the university.

Estimated cost (price level of July 1960).—

Federal	$3,350,000
Non-Federal	536,000
Total	3,886,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$123,900	$25,700	$149,600
Maintenance and operation		8,600	8,600
Total	123,900	34,300	158,200
Annual benefits:			
Damages prevented			215,500
Land enhancement			7,800
Total			223,300

Benefit-cost ratio.—1.4.

Local cooperation.—Furnish all lands, easements, and rights-of-way; hold and save the United States free from damages; maintain and operate after completion, make alteration to existing improvements, except railroads; prevent encroachment upon the outlet channel from Las Cruces Dam to maintain a capacity of 275 cubic feet per second; prevent encroachment on the existing capacity of Campus Arroyo from Campus Dam to the sewerage disposal plant; and prevent encroachment, other than natural sediment deposit, on the reservoir storage capacity. Local interests have indicated their willingness and ability to meet these requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Commerce: Favorable.
Federal Power Commission: Favorable.
Public Health Service: Favorable.
International Boundary and Water Commission: Favorable.
State of New Mexico: Favorable.

Comments of the Bureau of the Budget.—No objection.

CITY OF RUSSELLVILLE, ARK., SEWAGE TREATMENT FACILITIES

Locations.—The city of Russellville is located about 5 miles northeast of the Dardanelle lock and dam.

Existing facilities.—The city maintains and operates a primary sewage treatment plant northwest of the developed city area. The plant was constructed in 1951 and 1952 and is designed for an average daily flow of 1,590,000 gallons. Normally, the primary effluent flows by gravity outfall line into Prairie Creek west of the treatment plant. However, during times of high water it is necessary to pump the effluent. During dry seasons the only flow in Prairie Creek near its mouth is the primary sewage effluent which results in a nuisance and a health hazard. Prairie Creek empties into Illinois Bayou, a tributary of the Arkansas River. The treatment plant is overloaded and operational difficulties cause it to be out of service for extended periods. Because of these conditions the city, prior to the present time, has considered expansion of its present sewage collection system to handle present population needs more adequately.

Existing flood conditions.—The low area northwest of the city and bordering the city property are subject to frequent flooding from Illinois Bayou under natural conditions. Also, flooding in the downtown area caused by rapid runoff from the Prairie Creek watershed in an inadequate channel has resulted in extensive damages in the past. The flood of August 1957 occurred during low stages of the Illinois Bayou and therefore was a direct result of Prairie Creek runoff and caused damages estimated at $140,000. With Dardanelle Dam in operation and reservoir level at 338 mean sea level (top of power pool), and without a protective dike, a portion of the city of Russellville (including a portion of the Arkansas Polytechnic College campus) would be permanently flooded.

Position of the city.—The city has requested a plan consisting of a lift station, pressure and outfall lines to divert the sewage to new treatment facilities to be constructed southeast of the city which would

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empty into the Arkansas River below the Dardanelle Dam. The total estimated cost of these new facilities is $1,803,913.

Current status.—Under plans investigated by the Corps of Engineers for protection of the city and disposal of storm water and sewage effluent, a dike is proposed near Illinois Bayou. The dike would be about 6,000 feet long with a maximum height of about 40 feet and crown elevation varying from 347.5 to 350.6 mean sea level. This dike would protect the low portions of the city and adjacent low areas from flooding due to the Dardanelle Reservoir. The dike would block the flow of Prairie Creek permanently and prevent storm water and sewage effluent from discharging by gravity flow into Illinois Bayou and the reservoir. Regardless of the method of disposal of the sewage plant effluent, discharge of storm water over the dike by pumping would be required. Various plans for disposing of the storm runoff and sewage effluent have been studied by the Corps of Engineers. Each plan requires a sump storage area for ponding storm runoff.

Remarks.—The committee is aware that a portion of the city of Russellville is to be protected from pool levels of Dardanelle Reservoir by a dike. The existing sewage facilities of the city of Russellville will be damaged by construction of the dike. The committee has included provisions in the bill providing a sewage outfall for the city of Russellville. It is believed that this is equitable.

COW CREEK, KANS.

(H. Doc. 531, 87th Cong.)

Location.—Cow Creek is located in central Kansas and it enters the Arkansas River near Hutchinson, Kans.

Authority.—Resolution of the House Committee on Public Works, adopted June 3, 1959.

Existing project.—No flood control project for Cow Creek. A local flood protection project at Hutchinson, Kans., provides for diversion of Cow Creek flood flows to the Arkansas River around the north side of the city.

Flood problem.—More than 30 miles of the channel are extremely crooked and obstructed by trees and brush. Flooding of agricultural lands starts when streamflows exceed 800 cubic feet per second. The flood plain area consists of about 24,600 acres of which more than 95 percent is under cultivation.

Recommended plan of improvement.—The plan consists of straightening, snagging, clearing, and deepening the existing channel, beginning at a point on Cow Creek about 2 miles upstream from the Kansas Highway No. 14 bridge and extending downstream about 33 miles to the diversion channel of the existing Hutchinson flood control project. Two dikes and two lateral ditches would be provided to intercept flows and divert them from Santa Fe Slough to Cow Creek. Where necessary outlet structures will be provided as well as alterations to highway bridges and one railroad bridge.

Estimated cost (price level, January 1961).—

Federal	$1,560,000
Non-Federal	1,058,000
Total	2,618,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$58,000	$41,100	$99,100
Maintenance and operation		9,800	9,800
Total	58,000	50,900	108,900
Annual benefits:			
Damages prevented			247,000
Land enhancement			12,000
Total			259,000

Benefit-cost ratio.—2.4.

Local cooperation.—Furnish lands, easements, and rights-of-way; hold and save the United States free from damages; make alterations to highways, highway bridges, utilities, and related facilities, except railroad bridges; maintain and operate; prevent encroachment on the improved channel; inform individuals concerned, annually, that project will not protect against major floods. Local interests have indicated their willingness and ability to meet these requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Commented concerning certain recommendations made by the Fish and Wildlife Service which were not adopted as part of the recommended plan.

Department of Commerce: Favorable.

State of Kansas: Favorable.

Comments of the Bureau of the Budget.—No objection.

ARKANSAS RIVER, DODGE CITY, KANS.

(H. Doc. 498, 87th Cong.)

Location.—Dodge City is located on the Arkansas River in southwestern Kansas.

Authority.—Resolution of the House Committee on Flood Control, adopted July 2, 1943.

Existing project.—No Federal flood control project at Dodge City. Local interests have constructed low levees and some channel improvements.

Flood problem.—Flooding occurs when streamflows in the Arkansas River exceed the present channel capacity of about 7,000 cubic feet per second. Intense storm runoff in the basin below John Martin Dam, 188 miles upstream, presents a serious threat to the city.

Recommended plan of improvement.—The construction of 6.9 miles of levees and floodwalls with appurtenant bank protection together with 1.75 miles of channel enlargement on the Arkansas River; replacement of the existing railroad bridge; interior drainage facilities consisting of ditches, outlet structures, a storm sewer, and ponding

areas; and construction of a pumping plant to replace the existing sewerage treatment plant outlet.

Estimated cost (price level, July 1961).—

Federal	$2,133,000
Non-Federal	323,000
Total	2,456,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$77,900	$18,000	$95,900
Maintenance and operation		5,200	5,200
Total	77,900	23,200	101,100
Annual benefits:			
Damages prevented			163,900
Land enhancement			5,500
Total			169,400

Benefit-cost ratio.—1.7.

Local cooperation.—Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project, including easements required for flood-zoning purposes in the ponding areas; hold and save the United States free from damages due to the construction works and free from claims as a result of flooding from residual interior drainage during operation of the project; make any alterations to existing improvements other than the railroad, that may be required by the construction works, including the provision of a sewage pumping plant; maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army; inform periodically all concerned, in a manner satisfactory to the Secretary of the Army, that some flooding will continue to occur because of temporary ponding; and prohibit encroachment on the capacities of the interior drains and ponding areas and the flood-carrying capacity of the improved river channel, and if ponding areas and capacities are impaired, provide promptly, without cost to the United States, substitute storage or equivalent pumping capacity. Local interests have indicated their willingness and ability to meet these requirements.

Comments of the State and Federal agencies.—

Department of Interior: Favorable.
Department of Commerce: Favorable.
Public Health Service: Favorable.
State of Kansas: Favorable.

Comments of the Bureau of the Budget.—No objection.

VERDIGRIS RIVER AND TRIBUTARIES, OKLAHOMA AND KANSAS

(H. Doc. 563, 87th Cong.)

Location.—The Verdigris River Basin is in southeastern Kansas and northeastern Oklahoma. It has a drainage area of 8,300 square miles. The main stream rises near Emporia, Kans., and courses southward

about 350 miles to its confluence with the Arkansas River near Muskogee, Okla.

Authority.—Resolutions, Committee on Flood Control, House of Representatives, adopted April 23, 1942; Committee on Public Works, U.S. Senate, adopted May 25, 1960; also an item in the 1958 Flood Control Act.

Existing projects.—

Unit	Stream	Purpose	Status
Toronto Reservoir, Kans.	Verdigris River	Flood control conservation	Completed.
Fall River Reservoir, Kans.	Fall River	do	Do.
Neodesha Reservoir, Kans.	Verdigris River	Flood control	Not started.
Elk City Reservoir, Kans.	Elk River	Flood control conservation	Under construction.
Oologah Reservoir, Okla.	Verdigris River	(1)	Do.
Hulah Reservoir, Okla.	Caney River	Flood control conservation	Completed.
Lock and dam 19, Oklahoma	Verdigris River	Navigation	Not started.
Lock and dam 18, Oklahoma	do	do	Do.
Lock and dam 17, Oklahoma	do	do	Do.

[1] Flood control, power, navigation, and water supply.

Problems.—The Verdigris River is a major source of flooding along the Arkansas River in eastern Oklahoma and in Arkansas. During the 38-year period, 1922–60, 56 storms occurred over the Verdigris River Basin and 58 occurred over the Caney River-Bird Creek tributary basins. In addition, storms covering smaller areas have added to these occurrences along the tributaries to the extent that, even with the authorized reservoirs operating, flooding is expected to occur on the average of one or more times per year in the lower Caney River, the Verdigris River downstream from Caney River, and in the Bird Creek basin. The flood plains along these streams downstream from the existing and proposed damsites comprise 180,200 acres of rural lands, and 320 acres of urban lands in Oklahoma at Bartlesville, Avant, Skiatook, and the suburban area of Tulsa. Value of property in the flood plain is estimated at $87 million in rural areas and $30 million in urban areas; annual crop values are estimated at $3.8 million. Average annual damages in the basin, excluding headwater areas, are estimated at $4.8 million, of which about $3 million would be prevented by the authorized reservoirs and the proposed Big Hill Reservoir, and about $1.7 million of the remainder occurs in the study area. These damages are distributed as follows: $437,000 along Caney River below Hulah Reservoir, $408,000 along Verdigris River below Caney River, and $861,000 in the Bird Creek basin. Because large supplies of ground water are lacking and existing sources are highly mineralized, attainment of supplies of suitable quantity and quality in the Verdigris River Basin is dependent upon surface sources in the tributary streams. The U.S. Public Health Service has made a study and prepared a report on the municipal and industrial water usage and future needs, as well as the pollution problem and water-quality control needs, in the lower Verdigris River Basin. The report indicates that the projected water supply needs in the lower Verdigris River Basin will far exceed the amount which can be provided from existing, authorized, and proposed reservoirs in the area. The report also indicates that, because oilfield operations have built up the chloride concentration of streams in the area, and because standard

treatment of domestic and industrial wastes cannot prevent degradation of the quality of receiving streams, storage for stream-quality control in amount equal to that provided for municipal and industrial water supply should be included in any reservoirs planned in the area.

Recommended plan of improvement.—Plan consists of five multiple-purpose reservoirs on tributaries to the Verdigris River, all for purposes of flood control, water supply, water quality control, recreation, and fish and wildlife, as follows: Copan on Caney Creek, Sand on Sand Creek, Skiatook on Hominy Creek, Birch on Birch Creek. Candy on Candy Creek.

Estimated cost (1961 prices).—

	Copan	Sand	Skiatook	Birch	Candy	Total
Federal	$25,578,000	$6,117,000	$22,875,000	$3,245,000	$4,585,000	$62,400,000
Non-Federal	(1)	(1)	(1)	(1)	(1)	(1)
Total	25,578,000	6,117,000	22,875,000	3,245,000	4,585,000	62,400,000

[1] Non-Federal interests to reimburse the United States for construction costs allocated to water supply, such amounts currently estimated as follows: Copan, $688,000; Sand, $1,570,000; Skiatook, $4,278,000; Birch, 428,000; Candy, $590,000; total, $7,554,000.

Project economics.—

Item	Reservoir					
	Copan	Sand	Skiatook	Birch	Candy	Total
Annual charges:						
Interest and amortization	$767,300	$175,800	$682,800	$94,500	$133,600	$1,857,000
Operation, maintenance, and replacement	89,700	55,900	93,200	40,300	50,900	330,000
Total	857,000	234,700	776,000	134,800	184,500	2,187,000
Annual benefits:						
Flood control	1,279,000	385,000	861,000	472,000	357,000	3,354,000
Conservation	66,000	133,000	424,000	46,000	63,000	732,000
Recreation	123,000	81,000	168,000	41,000	41,000	454,000
Fish and wildlife	66,000	45,000	77,000	22,000	23,000	233,000
Total	1,534,000	644,000	1,530,000	581,000	484,000	4,773,000
Benefit-cost ratio	1.8	2.7	2.0	4.3	2.6	2.2

Local cooperation.—Bear all costs allocated to water supply in accordance with the Water Supply Act of 1958, as amended; hold and save the United States free from water rights claims.

Comments of States and Federal agencies.—

Department of the Interior: Recommend acquisition of additional lands for fish and wildlife purposes.

Department of Commerce: Favorable.

Department of Health, Education, and Welfare: Favorable.

Federal Power Commission: Favorable.

State of Oklahoma: Favorable.

State of Kansas: Favorable.

Comments of the Bureau of the Budget.—No objection to submission of the report to the Congress.

KAW RESERVOIR, ARKANSAS RIVER, OKLA.

(S. Doc. 143, 78th Cong.)

Location.—Kaw Reservoir would be located on the main stem of the Arkansas River in north-central Oklahoma.

Authority.—Resolution, Senate Committee on Public Works, adopted February 21, 1958.

Existing project.—The water resources of the Arkansas River basin are being extensively developed for flood control, navigation, and other purposes. These developments lie generally downstream and east of the Kaw Dam site. The navigation project provides for a 9-foot channel up the Arkansas and Verdigris Rivers to the vicinity of Catoosa, Okla. The Keystone Reservoir, a major multiple-purpose project for flood control, navigation, and other purposes, is under construction about 115 miles downstream of the Kaw Dam site. The existing Great Salt Plains Reservoir, on the Salt Fork of Arkansas River, provides 292,000 acre-feet of storage for flood control, sediment reserve, recreation, and wildlife. This major tributary enters the Arkansas River about 16 miles downstream from the Kaw Dam site.

Problems.—The principal water-resource problems of the area are the need for control of floods and for increased dependable supplies of domestic and industrial water of good quality. At present the flood plain downstream of the Kaw Dam site is predominantly rural; however, it includes 130 acres of urban lands at Ponca City. It is anticipated that urban development in the flood plain will increase considerably, resulting in substantially greater urban flood damages. Floods have occurred about once a year in the vicinity of Ponca City and major floods occurred in 1923, 1926, 1944, 1945, 1951, and 1957. The maximum flood of record was that of June 1923 which had a peak discharge estimated at 165,000 cubic feet per second at the Kaw Dam site. A recurrence of a flood of this magnitude would cause damages of $2,369,000 in the reach from the damsite to Keystone Reservoir. The total average annual flood damages in this reach under existing conditions are estimated at $433,000.

Recommended plan of improvement.—Kaw Reservoir to provide storage for flood control, municipal and industrial water supply, water-quality control, and other conservation uses, including recreation and fish and wildlife enhancement.

Estimated cost (price level of 1961).—

Federal	$83,230,000
Non-Federal	(1)
Total	83,230,000

[1] Local interests to reimburse the United States the entire construction cost allocated to water supply, currently estimated at $13,500,000.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$2,133,700	$415,000	$2,548,700
Maintenance, operation, and replacements	152,300	27,000	179,300
Total	2,286,000	442,000	2,728,000
Annual benefits:			
Damages prevented			1,128,000
Increased land use			305,000
Reduced sediment in Keystone Reservoir			80,000
Conservation			1,370,000
Recreation			887,000
Fish and wildlife			216,000
Total			3,986,000

Benefit-cost ratio.—1.5.

Local cooperation.—Local interests would be required to reimburse the United States, in accordance with the Water Supply Act of 1958, as amended, for the costs allocated to municipal and industrial water supply and the annual operation and maintenance costs chargeable to water-supply storage. These costs are presently estimated to be in the mangnitude of $13,500,000 and $27,000, respectively.

Comments of the States and Federal agencies.—

Department of Interior: Favorable.

Department of Commerce: Favorable.

Department of Agriculture: Comment that a net loss to agricultural production would result from project.

Department of Health, Education, and Welfare: Favorable.

Federal Power Commission: Favorable.

State of Oklahoma: Favorable.

State of Kansas: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget believes that pollution abatement measures are vital to the suitability of Arkansas River waters for projected uses, and, that there is uncertainty at this time of the extent of future needs for water supply and water quality control storage in the proposed Kaw Reservoir. Accordingly, the Bureau states that any request for funds to initiate construction of the project, if authorized by the Congress, should be accompanied by the results of a detailed review of the need and usefulness of storage for these purposes.

The Bureau of the Budget recommends that the decision on establishment of a national wildlife refuge in conjunction with the reservoir project be deferred until an adequate long-range plan for the refuge system is developed which will permit a meaningful evaluation of the contribution of the proposed refuge to the purposes of the National wildlife refuge system; means are developed for financing refuge land acquisitions related to water resources projects in a way which will assure the advantages of unified financing of the total refuge land acquisition program; and, there has been opportunity for further consideration of local views with respect to establishment of the refuge.

The Bureau of the Budget advises that, subject to consideration of its foregoing comments, there would be no objection to submission of the report to the Congress.

Action by the Secretary of the Army.—Concurs with the Bureau of the Budget.

VILLAGE CREEK, WHITE RIVER, AND MAYBERRY LEVEE DISTRICTS, RESTUDY OF PLAN III

(H. Doc. 577, 87th Cong.)

Location.—Along the left bank of the White River in northeast Arkansas.

Authority.—Flood Control Act of 1960 (Public Law 86-645).

Existing project.—The Flood Control Act of 1936 authorized construction of a number of local flood control improvements, consisting mainly of raising, enlarging, and connecting existing levees. The Flood Control Act of 1960 authorized improvements within the Village Creek, White River, and Mayberry Levee Districts to provide for clearing and snagging 14.7 miles of old channels and constructing 10.6 miles of new channels, together with certain facilities for mitigation of fish and wildlife losses, at an estimated Federal cost of $294,000, subject to local cooperation. (The authorized plan is referred to as plan I).

Flood problem.—About 21,340 acres of wooded, cleared, and cultivated land are subject to flooding, ponding due to interior runoff, and poor drainage. Authorized plan I would benefit about 18,400 acres.

Recommended plan of improvement.—Construction of a pumping plant with a capacity of 300,000 gallons per minute at the Taylor Slough outlet, as an element of the authorized flood control and drainage plan.

Estimated cost (price level of spring 1961).—

Federal	[1] $1,018,000
Non-Federal	[1] 29,000
Total	1,047,000

[1] Increase in cost over cost of authorized plan I.

Project economics.—

	Federal	Non-Federal	Total
Annual charges: [1]			
Interest and amortization	$36,830	$2,630	$39,460
Maintenance and operation		16,680	16,680
Total	36,830	19,310	56,140
Annual benefits: [2]			
Damages prevented			85,100
Increased land use			59,140
Total			144,240

[1] Increase in cost over cost of authorized plan I.
[2] Increase in benefits over benefits of authorized plan I.

Benefit-cost ratio.—2.6.

Local cooperation.—Contribute in cash 17.2 percent of the Federal construction cost of the pumping plant, an amount currently estimated at $211,000; provide lands, easements, and rights-of-way; effect necessary relocations; hold and save the United States free from dam-

ages; maintain and operate the project as prescribed and at their own expense, and other items as specified in authorized plan I.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Agriculture:

Department of Health, Education, and Welfare: Favorable.

State of Arkansas: Noted the requirement for a cash contribution of $211,000 and believed it desirable to review again the requirements for a cash contribution.

Comments of the Bureau of the Budget.—No objection.

VILLAGE CREEK, JACKSON AND LAWRENCE COUNTIES, ARK.

(H. Doc. 352, 87th Cong.)

Location.—Village Creek rises in Randolph County in northeastern Arkansas and flows generally southwestward through Jackson and Lawrence Counties and joins the White River near Newport, about 80 miles northeast from Little Rock.

Authority.—Resolution of the Committee on Public Works, House of Representatives, adopted October 16, 1951.

Existing improvements.—No Federal projects specifically for flood control in Village Creek Basin. However, reservoir and levee projects in the nearby White River and Black River Basins provide some flood protection by preventing overflow into Village Creek Basin. Improvements by local interests consist of excavation of drainage ditches on tributaries and along the main stem of Village Creek.

Flood problem.—Frequent flooding of agricultural lands results in serious damages to crops. Flooding results from intense local storms of short duration and from general storms extending over longer periods. The flatland and stream slopes, inadequate channels, and large valley storage cause storm runoff to concentrate slowly in the main stem with prolonged flooding of large areas.

Recommended plan of improvement.—Channel enlargement, straightening and clearing on Village Creek, from the mouth upstream a total distance of 61 miles, together with adequate on-farm and group lateral drainage facilities.

Estimated cost (price level of January 1960).—

Federal	$1,968,000
Non-Federal	2,165,000
Total	4,133,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$72,400	$91,300	$163,700
Maintenance, operation, and replacement		45,300	45,300
Loss of production		2,300	2,300
Total	72,400	138,900	211,300
Annual benefits:			
Damages prevented			74,300
Improved drainage			379,900
Total			454,200

Benefit-cost ratio.—2.1.

Local cooperation.—Contribute in cash 30.7 percent of the actual Federal construction cost, presently estimated at $871,000; furnish all lands, easements, and rights-of-way; make alterations to existing improvements, except railroad facilities; hold and save the United States free from damages; prohibit encroachments on improved channel; construct and maintain on-farm and lateral drainage facilities; and maintain the improved creek channel. Local interests have indicated they are willing and able to comply with these requirements.

Comments of State and Federal agencies.—

Department of Agriculture: Favorable.

Department of the Interior: Commented that the recommended plan would result in an annual loss to fish and wildlife resources but proposed no specific plan for mitigating such losses.

Public Health Service: Favorable.

State of Arkansas: Concurred in the recommendation; however, noted that the local costs appeared to be excessive.

Comments of the Bureau of the Budget.—No objection.

LAKE KEMP, WICHITA RIVER, TEX.

(S. Doc. 144, 87th Cong.)

Location.—Wichita River is a south bank tributary of the Red River in north-central Texas. Lake Kemp is located on the Wichita River about 70 miles upstream from the city of Wichita Falls.

Authority.—Resolution, Senate Committee on Public Works, adopted April 16, 1959.

Existing project.—There are no existing or authorized flood control projects in the Wichita Basin. Lake Kemp, with a capacity of 462,000 acre-feet, was constructed by local interests in 1923 for conservation purposes.

Flood problem.—Problem is mainly the disastrous threat to the city of Wichita Falls posed by the deteriorated Lake Kemp Dam. Average annual damages in absence of Lake Kemp would be about $1 million.

Recommended plan of improvement.—Modification of existing Lake Kemp project by replacement of the existing outlet works and spillway with a new combined structure, raising the height of the dam about 3 feet, and strengthening the embankment, to provide 526,000 acre-feet of storage, of which 200,000 acre-feet would be for flood control.

Estimated cost (price level of July 1960):

Federal	$6,410,000
Non-Federal	[1] 2,203,000
Total	8,613,000

[1] Includes cash contribution currently estimated at $1,885,000.

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$236,500	$227,400	$463,900
Maintenance and operation	45,900	33,700	79,600
Total	282,400	261,100	543,500
Annual benefits:			
Damages prevented			730,000
Conservation			649,000
Total			1,379,000

Benefit-cost ratio.—2.5.

Local cooperation.—(*a*) Retain ownership and operate and maintain the project for a minimum period of 50 years after completion; (*b*) maintain the project and operate the flood-control features in accordance with regulations prescribed by the Secretary of the Army; (*c*) accomplish, without cost to the United States, all relocations and alterations of existing buildings, highways, bridges, sewers and related and special facilities; (*d*) hold and save the United States free from damages due to the construction works; (*e*) provide, without cost to the United States, all lands, easements, and rights-of-way necessary for the construction of the project; (*f*) adopt and enforce regulations to preserve the existing capacity of the channel through the city of Wichita Falls and prevent further encroachment; (*g*) adequately inform affected interests annually concerning the probability of residual damages after construction of the modifications; (*h*) provide free access to the lake in accordance with the principles of section 4 of the Flood Control Act of 1944; and (*i*) contribute 22.7 percent of the cost for the Federal construction, a contribution presently estimated at $1,885,000, in equal annual payments, over a period of not more than 50 years beginning at the completion of construction, including interest on the unpaid balance at the rate prescribed at the time of construction for projects of this type.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Agriculture:

Department of Health, Education, and Welfare: Favorable.

State of Texas: Favorable.

Comments of the Bureau of the Budget.—No objection.

WATER QUALITY STUDY, ARKANSAS-RED RIVER BASINS

(S. Doc. 105, 87th Con.)

Location.—The Arkansas and Red Rivers, and their tributaries, drain over 250,000 square miles including all of Oklahoma and parts of Colorado, New Mexico, Kansas, Texas, Mississippi, Arkansas, and Louisiana. About 74,500 square miles of the Arkansas River basin are above Keystone Reservoir, and about 39,700 square miles of the Red River Basin are above Denison Dam.

Authority.—Resolution, Senate Committee on Public Works, adopted December 16, 1959.

Existing project.—There are no existing projects in the area for control of water quality.

Problem.—The problem is to locate and measure the sources, establish the importance and types of pollutants entering the Arkansas and Red Rivers, and to develop practical means of controlling them. Studies to date show total daily chloride loads of 10,600 tons for Arkansas River at Keystone Reservoir and 3,800 tons for Red River near Denison Dam. These chloride loads clearly indicate the need for control and management of water quality.

Recommended plan of improvement.—Construction of two experimental projects, and performance of tests to determine their effectiveness in improvement of water quality. One project would be located on Prairie Dog Town Fork of Red River near Estelline, Tex.; the other on South Fork of Wichita River near Guthrie, Tex.

Estimated cost (November 1961 prices).—

Federal	$300,000
Non-Federal	
Total	300,000

Project economics.—

Annual charges: The first costs shown in Estimated Cost include allowances for observations of test results.

Annual benefits: It is not yet possible to evaluate benefits in monetary terms. The test results will furnish valuable data and information concerning the possible economical solution of the overall problem on a basinwide scale.

Benefit-cost ratio.—Not evaluated.

Local cooperation.—None recommended.

Comments of States and Federal agencies.—

State of Oklahoma: Favorable.
State of Kansas: Favorable.
State of Arkansas: Favorable.
State of Texas: Favorable.
State of Louisiana: Favorable.
Department of Interior: Favorable.
Department of Agriculture: Favorable.
Department of Health, Education, and Welfare: Favorable.

Comments of the Bureau of the Budget.—No objection.

BROKEN BOW RESERVOIR, MOUNTAIN FORK RIVER, OKLA.

(S. Doc. 137, 87th Cong.)

Location.—On Mountain Fork River, a tributary of Little River, in southeastern Oklahoma.

Authority.—Resolution, Committee on Public Works, U.S. Senate, adopted January 6, 1961.

Existing project.—The Broken Bow Reservoir was authorized for flood control and water supply by the Flood Control Act of 1958. Construction has been initiated on the basis that power facilities, upon authorization, will be installed either initially or in the future. The authorized project is about 5 percent completed.

Problem.—The study considers the advisability of providing storage and facilities for generation of hydroelectric power at Broken Bow Reservoir.

Recommended plan of improvement.—It is recommended that the project for Broken Bow Reservoir, now authorized for flood control and water supply, be modified to provide for hydroelectric power facilities in the initial construction and to include fish and wildlife conservation as a project purpose. Gross storage capacity would be increased from 541,100 acre-feet, as authorized, to 1,368,800 acre-feet.

Estimated cost (price level of March 1961).—

Federal	$39,600,000
Non-Federal	(1)
Total	[2] 39,600,000

[1] Non-Federal interests to reimburse the United States for construction costs allocated to water supply, currently estimated at $2,970,000.
[2] An increase of $23,800,000 over estimated cost of authorized project.

Project economics.—

Annual charges:	
Interest and amortization	$1,181,900
Maintenance, operation and replacement	366,600
Taxes foregone	578,000
Total	2,126,500
Annual benefits:	
Flood control	305,500
Water supply	369,700
Power	1,959,000
Recreation	750,000
Fish and wildlife	460,000
Total	3,844,200

Benefit-cost ratio.—1.8.

Local cooperation.—Pay the United States in accordance with the Water Supply Act of 1958, as amended, the entire amounts of the construction costs and the operation, maintenance, and replacement costs allocated to water supply, these amounts being presently estimated at $2,970,000 and $6,500 annually, respectively, for the project as modified, the final amounts to be determined by allocation after actual construction costs are known.

Comments of the State and Federal agencies.—

Department of the Interior: Recommends acquisition of certain additional lands for fish and wildlife purposes.
Department of Commerce: Favorable.
Department of Agriculture: Favorable.
Department of Health, Education, and Welfare: Favorable.
Federal Power Commission: Favorable.
State of Oklahoma: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget expects that construction of power features of the Broken Bow Reservoir project, other than penstocks or other provisions for future power installations, not be undertaken until there is specific assurance that all costs including joint costs allocated to power can be returned with interest within a period of 50 years.

The Bureau of the Budget advises that, subject to consideration of the foregoing comment, there is no objection to the submission of the report to the Congress.

CLAYTON AND TUSKAHOMA RESERVOIRS, HUGO RESERVOIR, KIAMICHI RIVER, OKLA.

(S. Doc. 145, 87th Cong.)

Location.—Kiamichi River is in southeastern Oklahoma, and is a major tributary of the Red River.

Authority.—Resolution, Senate Committee on Public Works, adopted January 28, 1955.

Existing project.—Hugo Reservoir, with the damsite at mile 20.7 on the Kiamichi River, was authorized for flood control by the Flood Control Act of 1946 as a unit in the Red River below Denison Dam project, but construction has not been initiated.

Flood problem.—An average of three floods occur in the basin every year, with major flooding every 2 years. Since 1926, 10 major floods have occurred. Annual flood damages of $140,000 are estimated to occur along the Kiamichi River below the Tuskahoma Dam site, excluding the area within Hugo Reservoir. Flood losses on Red River downstream from the mouth of Kiamichi River are estimated at $3,700,000 annually, based on present conditions, with Denison Reservoir operating and with levees authorized prior to 1945 in place.

Recommended plan of improvement.—The plan of improvement consists of modification of the authorized Hugo Reservoir with the damsite at mile 17.6 on Kiamichi River and the recommended addition of two upstream reservoirs, Clayton and Tuskahoma, to provide for flood control and water conservation, including water supply, recreation, and fish and wildlife uses. The plan retains the degree of flood protection contemplated by the authorized Red River flood control project below the Denison Dam and affords additional flood protection of Kiamichi River. The recommendations of the Chief of Engineers permit discretion regarding the sequence of construction of the authorized Hugo Reservoir and the recommended Clayton and Tuskahoma Reservoirs. Under the plan the first cost of Hugo Reservoir would be $23,065,000 compared to $20,900,000 as now estimated. However, the net cost to the United States would be $3,487,000 less than the cost as now estimated since local interests would reimburse the United States an amount of $5,562,000 for water supply storage costs.

Estimated cost (1960 prices).—

	Clayton	Tuskahoma	Total
Federal	$13,174,000	$16,574,000	$29,748,000
Non-Federal	(1)	(1)	(1)
Total	13,174,000	16,574,000	29,748,000

[1] Bear construction costs allocated to water supply, currently estimated at $6,221,000 and $8,042,000 for Clayton and Tuskahoma Reservoirs, respectively.

Project economics.—

	Clayton	Tuskahoma	Total
Annual charges:			
Interest and amortization	$502,090	$631,420	$1,133,510
Operation and maintenance, replacement	62,300	73,600	135,900
Total	564,390	705,020	1,269,410
Annual benefits:			
Flood control	190,000	238,000	428,000
Water supply	325,000	397,000	722,000
Recreation	96,000	82,000	178,000
Fish and wildlife	121,000	154,000	275,000
Total	732,000	871,000	1,603,000
Benefit-cost ratio	1.3	1.2	1.3

Local cooperation.—Bear all costs allocated to water supply in accordance with the Water Supply Act of 1958, as amended; hold and save the United States free from water rights claims. Local interests are willing to comply.

Comments of the State and Federal agencies.—

Department of the Interior: Recommend additional lands for fish and wildlife.

Department of Agriculture: Favorable.

Department of Commerce: Favorable.

Department of Health, Education, and Welfare: Believe that storage for water quality control can be utilized.

Federal Power Commission: Favorable.

State of Oklahoma: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget notes that the Corps of Engineers will work with the Public Health Service during advance planning of the reservoir projects with a view to determining the need and justification of storage for water quality control. In this connection, the Bureau indicates that in the event storage for water quality control displaces in whole or in part the currently contemplated water supply storage in the reservoirs and the water quality benefits are determined to be widespread, it would appear that the currently estimated ultimate reimbursements to the United States for water supply would not be realized. The Bureau has no objection to submission of the report to the Congress.

KAYSINGER BLUFF RESERVOIR, OSAGE RIVER, MO.

(H. Doc. ——, 87th Cong.)

Location.—Kaysinger Bluff Reservoir would be located in west-central Missouri immediately upstream from the existing Lake of the Ozarks, created by Bagnell Dam.

Authority.—Resolutions, Senate and House Committees on Public Works, adopted March 25, 1961, and June 7, 1961, respectively.

Existing project.—The Kaysinger Bluff project was authorized for flood control by the Flood Control Act of 1954, with a planned total storage capacity of 4,040,000 acre-feet. The reservoir is one of a system of nine authorized reservoirs in the Osage River Basin. Two are

under construction, two are under preconstruction planning, two are being restudied, no work is underway on the remainig three.

Problems.—The Osage River Basin is subject to damaging floods at any time of year. Also, the river is a major contributor to severe floods which endanger rich farmlands along the Missouri River, the St. Louis industrial area, and lands along the middle and lower Mississippi. There is a need for conservation storage to provide hydroelectric peaking power for integration with fuel generating plants, and to support fish and wildlife, recreation, and other uses.

Recommended plan of improvement.—Modification of the Kaysinger Bluff Reservoir project to provide for a reservoir with a total storage capacity of about 5,200,000 acre-feet and with hydroelectric power generating facilities, to serve the primary purposes of flood control, power, fish and wildlife, and recreation.

Estimated cost (price level of 1961).—

Federal:	
Existing project	$99,508,000
Proposed modification	43,245,000
Subtotal	142,753,000
Non-Federal	None
Total	142,753,000

Project economics.—

Annual charges—all Federal:	
Interest and amortization	$4,344,000
Operation, maintenance, and replacement	425,000
Loss of land productivity	494,000
Taxes foregone	49,000
Total	5,312,000
Annual benefits:	
Flood control	4,264,000
Power	1,797,000
Fish and wildlife	500,000
Recreation	800,000
Total	7,361,000

Benefit-cost ratio.—1.4.

Local cooperation.—None required.

Comments of States and Federal agencies.—

Department of the Interior: Recommends mineral evaluation in preconstruction planning. Recommends national wildlife refuge as part of project.

Department of Commerce: Favorable.

Department of Agriculture: Favorable.

Department of Health, Education, and Welfare: Favorable.

Federal Power Commission: Favorable.

State of Missouri: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget concurs in the need for a reexamination of the financial feasibility of the power features during the design stage, on the basis of power values then appropriate. The Bureau advises that it would expect that construction of power features of the Kaysinger Bluff project, other than penstocks or other provisions for future power installations, not be undertaken until there is specific assurance that all costs

including joint costs allocated to power can be returned with interest within a period of 50 years. Also, the Bureau recommends that the decision on establishment of a national wildlife refuge in conjunction with the Kaysinger Bluff Reservoir project be deferred until an adequate long-range plan for the refuge system is developed which will permit a meaningful evaluation of the contribution of the proposed refuge to the purposes of the national wildlife refuge system; and, until means are developed for financing refuge land acquisitions related to water resources projects in a way which will assure the advantages of unified financing of the total refuge land acquisition program. The BOB also advises that there is no objection to submission of this report to the Congress.

Action by the Secretary of the Army.—Concurs with the Bureau of the Budget.

KANSAS RIVER, KANS., NEBR., AND COLO.

(S. Doc. 122, 87th Cong.)

Location.—Kansas River flows generally eastward and drains an area of about 60,000 square miles in eastern Colorado, southern Nebraska, and north-central Kansas. The river enters Missouri River at the Kansas Citys. Improvements recommended in the report are located in eastern Kansas and at the Kansas Citys.

Authority.—Resolutions, Senate Committee on Public Works, adopted August 20, 1953, and June 16, 1954.

Existing projects.—Completed corps reservoirs in the basin are Kanopolis and Harlan County. Corps reservoirs under construction are Tuttle Creek and Milford. Corps reservoirs authorized but not started are Perry, Wilson, and Pioneer. The corps has 17 local flood protection projects either completed, under construction, or authorized, but not started, in the basin. The Bureau of Reclamation has completed eight reservoirs in the basin. The Soil Conservation Service has completed five watershed protection projects. Local interests have completed 250 miles of levees.

Problems.—Many severe floods have occurred in the basin. The ravaging 1951 floods resulted in estimated damages of $725 million. Also, severe droughts have been experienced, indicating the need for water conservation.

Recommended improvements.—Four multiple-purpose reservoirs for flood control, water supply, and fish and wildlife and general recreation. The reservoirs would be located on tributaries to the main Kansas River in the lower, eastern end of the basin, and would range in gross capacity from 157,000 to 384,000 acre-feet. Also recommended are improvements of existing local protection works at the Kansas Citys.

Estimated cost (September 1960 prices).—

Item	Federal	Non-Federal	Total
Reservoirs	$70,240,000	(1)	$70,240,000
Local protection works	17,830,000	$3,050,000	20,880,000
Total	88,070,000	3,050,000	91,120,000

[1] Local interests to reimburse the United States an amount currently estimated at $10,919,000 for water supply. Thus, the total net cost to the United States for all recommended work is estimated at $77,151,000.

Project economics.—Reservoirs.—

Item	Reservoir				
	Woodbine	Onaga	Grove	Clinton	Total
Annual charges:					
Interest and amortization	$502,000	$850,000	$467,000	$1,023,000	$2,842,000
Maintenance, operation, and replacement	55,000	68,000	64,000	89,000	[1] 276,000
Total	557,000	918,000	531,000	1,112,000	3,118,000
Annual benefits:					
Flood control	731,000	1,205,000	509,000	1,026,000	3,471,000
Water supply	75,000	270,000	120,000	210,000	675,000
Fish and wildlife recreation	27,000	41,000	82,000	107,000	257,000
General recreation	141,000	195,000	66,000	201,000	603,000
Total	974,000	1,711,000	777,000	1,544,000	5,006,000
Benefit-cost ratios	1.7	1.9	1.5	1.4	1.6

[1] Net annual cost to the United States for maintenance, operation, and replacements currently estimated at $224,500.

Local protection works.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$645,000	$142,000	$787,000
Maintenance, operation, and replacement		5,000	5,000
Economic losses			11,000
Total	645,000	147,000	803,000
Annual benefits: Flood control			1,199,000

Benefit-cost ratio.—1.5.

Local cooperation: Reservoirs.—Prior to construction furnish assurances to make demands for use of water supply storage within a period of time which will permit repayment of costs allocated to water supply within the life of the project, as determined by the Chief of Engineers, in accordance with the Water Supply Act of 1958 as amended by the Water Pollution Control Act Amendments of 1961; hold the United States free from water rights claims; prevent encroachments on capacities of streams below reservoirs necessary for reservoir operation.

Local protection works.—Furnish necessary lands, easements, rights-of-way; make necessary alterations and relocations of utilities; hold and save the United States free from damages; maintain and operate as prescribed. Responsible local interests have indicated they will comply with all foregoing requirements.

Comments of States and Federal agencies.—

State of Kansas: Favorable. Urge early authorization and construction.

State of Missouri: Favorable.

Deparement of Interior: Favorable. Recommend that all joint costs allocated to fish and wildlife be nonreimbursable Federal costs.

Department of Agriculture: Favorable.

Federal Power Commission: Favorable.

Department of Health, Education, and Welfare: Favorable.
Department of Commerce: Favorable.

Comments of the Bureau of the Budget.—No objection to transmission of the report to Congress. However, the Bureau of the Budget notes that the Governor of Kansas and the Department of the Interior, in commenting on the proposed report, urged that joint costs allocated to fish and wildlife values be borne entirely by the Federal Government, rather than shared in the manner recommended by the Chief of Engineers; and, that in view of more recent recommendations by the Chief of Engineers on cost sharing arrangements for fish and wildlife and other recreation in connection with other reservoir projects, consideration might be given this matter before transmitting the report to the Congress.

Action of the Secretary of the Army.—The Secretary of the Army in his letter transmitting the report to Congress, recommended that local interests not be required to reimburse the United States for any portion of the construction costs and annual operation and maintenance costs of the reservoirs allocated to fish and wildlife recreation, such portions currently estimated at $1,221,000 and $4,200, respectively.

Remarks.—The committee notes that some local opposition to Woodbine Reservoir on Lyons Creek is evidenced. The committee believes that authorization of Woodbine Reservoir should be deferred subject to submission of a new feasibility report by the Chief of Engineers to the 88th Congress, which shall take into account related plans of the Soil Conservation Service, the Kansas Water Resources Board, and Lyons Creek Watershed Joint District No. 41, and preparation of such report should be authorized. Otherwise, the committee endorses at this time the plan of improvement for development of the lower Kansas River Basin.

PAPILLION CREEK AND TRIBUTARIES, NEBRASKA

(H. Doc. No. 475, 87th Cong.)

Location.—The Papillion Creek Basin is located in the western suburbs of Omaha, Nebr., and it empties into the Missouri River a few miles downstream from the city.

Authority.—Resolution of the Committee on Flood Control, House of Representatives, adopted July 23, 1946.

Existing project.—There are no Federal improvements for flood control in the basin. Local interests have constructed levees and improved the stream channels at various points in the basin.

Flood problem.—Local channel and levee improvements have been partially effective but runoff and flood intensities have increased with urbanization. The existing channel capacities on Papillion Creek and tributaries are generally inadequate for flood flows.

Recommended plan of improvement.—The proposed plan consists essentially of channel enlargement of Little Papillion Creek, together with necessary bridge modifications and intermittent riprapping, for a distance of about 6.5 miles.

Estimated cost (price level of December 1960).—

Federal	$2,122,000
Non-Federal	1,400,000
Total	3,522,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$77,000	$65,200	$142,200
Maintenance and operation	0	2,800	2,800
Total	77,000	68,000	145,000
Annual benefits: Damages prevented			199,700

Benefit-cost ratio.—1.4.

Local cooperation.—Furnish all lands, easements, and rights-of-way; hold and save the United States free from damages; make alterations to all road, highway, bridge and utilities; maintain and operate. Local interests have indicated they are willing and able to comply with these requirements.

Comments of State and Federal agencies.—

State of Nebraska: Favorable.

Department of Interior: Favorable.

Comments of the Bureau of the Budget.—No objection.

INDIAN CREEK, IOWA

(H. Doc. 438, 87th Cong.)

Location.—Indian Creek rises about 4 miles north of Council Bluffs, Iowa, on the east side of the Missouri River opposite Omaha, Neb., flows in a southerly direction through the city of Council Bluffs to the river, nearly 6 miles downstream.

Authority.—Resolution of the Committee on Public Works, House of Representatives, adopted July 22, 1947.

Existing project.—The only Federal improvements for flood control in the basin have been constructed downstream from 29th Avenue to provide an outlet and tieback levees in conjunction with the Missouri River agricultural levee project. Local interests have improved the channel from the north city limits through the highly developed section with nearly 3 miles of open concrete channel and closed conduit.

Flood problem.—The topographic characteristics of the upland area cause runoff in Indian Creek Basin to funnel into the heart of Council Bluffs and create potential for a major flood disaster. The standard project flood discharge is considerably in excess of the existing channel capacity of 4,800 cubic feet per second.

Recommended plan of improvements.—The proposed plan is part of a joint effort by the Corps of Engineers and the Soil Conservation Service which includes a dam and reservoir for flood control combined with watershed measures in the headwaters. The reservoir recommended by the corps to be located just above the north city limits would be an earth fill structure with a height of 70 feet and length of 1,900 feet creating a reservoir of about 8,600 acre-feet. The SCS portion of the plan consists of land treatment and structural measures to reduce erosion in the headwaters and silt deposition in the existing channel through the city, which will be reported on by that agency.

Estimated cost (price of level of 1960).—

Federal	$1,270,000
Non-Federal	1,260,000
Total	2,530,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$46,400	$58,600	$105,000
Maintenance and operation		3,000	3,000
Total	46,400	61,600	108,000
Annual benefits:			
Damages prevented			127,900
Reduced channel maintenance			1,300
Total			129,200

Benefit-cost ratio.—1.2.

Local cooperation.—Furnish all lands, easements, and rights-of-way; hold and save the United States free from damages; make all road, highway, and utility alterations and modifications; enter into contract for reimbursement of the entire cost of operation and maintenance, currently estimated at $3,000 annually; and provide, in cooperation with the Soil Conservation Service under continuing authorizations and funding arrangements, an adequate erosion-control program as developed by the SCS and as contemplated in the overall plan of improvement, the installation of such program to be undertaken in advance of or concurrently with construction of the dam and reservoir by the Corps of Engineers. Local interests have indicated they are willing and able to comply with these requirements.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.

Department of Agriculture: Favorable.

State of Iowa: Favorable.

Comment of the Bureau of the Budget.—No objection.

KOKOSING RIVER BASIN, OHIO

(H. Doc. No. 220, 87th Cong.)

Location.—Kokosing River rises in Morrow County, Ohio, and flows through Knox County and into Coshocton County where it joins the Mohican River to form the Wolhonding River. Mount Vernon is located in Knox County at about river mile 24.

Authority.—Resolutions of Public Works Committee, U.S. House of Representatives, adopted March 5, 1952 and June 3, 1959.

Existing project.—None.

Flood problem.—Damaging floods are exceeded on the average of once in 10 years at Fredericktown, once in 5 years at Mount Vernon, and once in 25 years at Millwood. The maximum flood of record in January 1959 had a peak flow of 38,000 cubic feet per second at Mount Vernon. Total damages from the 1959 flood are estimated at $5,300,000. The average annual damages are estimated at $151,000 on the basis of mid-1959 prices and stage development.

Recommended plan of improvement.—Construction of the North Branch Reservoir on North Branch of Kokosing River, about 2.2 miles upstream from Fredericktown, Ohio, and snagging and clearing of Kokosing River downstream from Tilden Avenue Bridge in Mount Vernon for a distance of about 24,500 feet.

Estimated cost (price level of June 1959).—

	North Branch Dam and Reservoir	Mount Vernon clearing and snagging	Total
Federal	$2,334,000	$104,000	$2,438,000
Non-Federal		113,000	113,000
Total	2,334,000	217,000	2,551,000

Project economics.—

	North Branch Dam and Reservoir	Mount Vernon clearing and snagging	Total
Annual charges:			
Federal:			
Interest and amortization	$85,300	$3,700	$89,000
Operation and maintenance	2,400		2,400
Total	87,700	3,700	91,400
Non-Federal:			
Interest and amortization		4,400	4,400
Operation and maintenance		5,500	5,500
Loss of land productivity	4,900		
Total	92,600	13,600	106,200
Annual benefits: Prevention of flood damages	114,700	28,200	142,900
Benefit-cost ratio	1.2	2.1	1.3

Local cooperation.—For channel snagging and clearing, furnish lands, and rights-of-way; hold and save the United States free of damages; maintain works, repair levees along Kokosing River at Mount Vernon; enlarge the flowage opening at West High Street Bridge; accomplish all changes, relocations, and alterations made necessary by the works, except for alteration of railroad bridge at mouth of Dry Creek; prevent encroachment; and adequately inform local interests that the combined project will not provide protection against floods greater than that of January 1959. Agree that construction of the reservoir will be contingent upon prior or simultaneous accomplishment of the snagging and clearing work. Local interests have indicated their willingness and ability to comply with the requirements of local cooperation.

Comments of State and Federal agencies.—

Department of Interior: No objection.

State of Ohio: Favorable.

Comments of the Bureau of the Budget.—No objection.

MAD RIVER ABOVE HUFFMAN DAM, OHIO

(H. Doc. 439, 87th Cong.)

Location.—Mad River is a tributary of the Miami River at Dayton, Ohio. Buck Creek, the principal tributary, flows through Springfield, Ohio, to its junction with Mad River.

Authority.—Resolution of Public Works Committee, U.S. House of Representatives, adopted February 17, 1959.

Existing project.—None.

Flood problem.—On Mad River from Springfield to Huffman Dam, a recurrence of the 1913 flood would cause greater damage than any other known past flood. At present development, damages at Wright-Patterson Air Force Base would be $1,400,000; rural losses would be $580,000, and urban damages would be $120,000. Average annual damages are estimated at $189,000. On Buck Creek where the principal development is the Springfield metropolitan area, a recurrence of the 1929 flood would result in urban damages, mostly industrial, of $2,238,000, and rural losses would be $38,000. Average annual damages for the reach are estimated at $104,000.

Recommended plan of improvement.—Provides for construction of a gravel-fill dam at mile 7.3 on Buck Creek. Total storage would be 32,800 acre-feet of which 30,400 acre-feet would be for flood control and 2,400 acre-feet would be for recreation and conservation.

Estimated cost (price level of July 1960).—Federal, $7,930,000.

Project economics.—

Annual charges:	
Interest and amortization	$295,000
Maintenance and operation	42,000
Loss of land productivity	14,000
Total	351,000
Annual benefits:	
Flood damages prevented	280,000
Higher use of land	9,000
Recreation	265,000
Total	554,000

Benefit-cost ratio.—1.6.

Local cooperation.—Prevent encroachment in Buck Creek channel below the reservoir. Local interests are willing to comply with the requirement of local cooperation.

Comments of the State and Federal agencies.—

State of Ohio: Favorable.
Department of Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
Department of Health, Education, and Welfare: Favorable.
Federal Power Commission: Favorable.

Comments of the Bureau of the Budget.—No objection to submission of report to Congress. However, the Bureau of the Budget would expect that prior to a request for funds to initiate construction of the Buck Creek Reservoir, the Corps of Engineers would review the

economic evaluation of the project in light of the water resource evaluation standards adopted by the administration.

Remarks.—The committee notes that in this project, as in others, the comments of the Bureau of the Budget merely reflect the policy of the Corps of Engineers which has always been followed in the presentation of projects to the Appropriations Committees.

KENTUCKY RIVER, KY.

(H. Doc. 423, 87th Cong.)

Location.—The Kentucky River, a tributary of the Ohio River, is located in central Kentucky.

Authority.—Resolutions of Public Works Committee of the Senate adopted April 22, 1953, and of the House of Representatives adopted April 21, 1950, and July 29, 1953, for flood control and navigation.

Existing project.—The plan of development for the basin includes the Buckhorn, Booneville, and Jessamine Creek Reservoir projects and local protection works at Jackson and Frankfort for flood control. There is a 6-foot-deep navigation project from the Ohio River to the confluence of the Middle and North Forks about 260 miles formed by 14 locks and dams.

Flood problem.—A recurrence of the January–February 1957 flood would cause damages estimated at $11.7 million; average annual damages on main stem and principal tributaries are estimated at $2.7 million.

Recommended plan of improvement.—Plan provides for 3 additional dams and reservoirs for flood control and recreation on Red River, Carr Fork and Eagle Creek. Navigation improvements were not found warranted at this time. Recommendation also provides for deletion from the plan of the Jessamine Creek project which has not been constructed.

Estimated cost (price level of January 1958).—

	Reservoir projects			
	Red River	Carr Fork	Eagle Creek	Total
Federal	$8,020,000	$9,020,000	$8,980,000	$26,020,000

Project economics.—

	Reservoir projects		
	Red River	Carr Fork	Eagle Creek
Annual charges:			
Interest and amortization	$294,000	$314,000	$322,000
Maintenance, operation, and major replacements	40,000	32,000	39,000
Loss of land productivity	2,000	8,000	19,000
Total	336,000	354,000	380,000
Annual benefits:			
Flood damages prevented	421,000	457,000	329,000
Recreation	70,000	30,000	170,000
Total	491,000	487,000	499,000
Benefit-cost ratio	1.5	1.4	1.3

Local cooperation.—None.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Agriculture: No objection. Requested recreation be made a project purpose in Red River Reservoir.

Department of Commerce: No objection.

Department of Health, Education, and Welfare, PHS: Favorable.

Federal Power Commission: No objection.

State of Kentucky: Favorable.

Comments of the Bureau of the Budget.—No objection to submission of report to Congress. However, the Bureau of the Budget would expect that prior to a request for funds to initiate construction of the Eagle Creek Reservoir, the Corps of Engineers would review the economic evaluation of the project in light of the water resource evaluation standards adopted by the administration.

BUCKHANNON RIVER, W. VA.

(S. Doc. 43, 87th Cong.)

Location.—Buckhannon River is formed in Upshur County, W. Va., by the junction of its right and left forks, thence flows generally northerly 46 miles to the Tygart River about 28 miles upstream of Tygart Dam. The city of Buckhannon, at mile 25, is on a U-bend of the river about 2.3 miles long.

Authority.—Resolution of Public Works Committee of the U.S. Senate, adopted April 30, 1958.

Existing project.—None.

Flood problem.—Floods of major proportions may occur at Buckhannon at any time of the year. The maximum flood of record, in March 1918, had a peak flow of 12,000 cubic feet per second and reached an elevation of 1,416.3, or 7.3 feet above the no-damage stage, at the Elias Street Bridge. Floods exceeding 8,000 cubic feet per second cause serious damage and occur on the average of once in 2.4 years. A recurrence of the 1918 flood under 1960 conditions would inundate 511 acres within the city and cause damages estimated at $397,000, principally to residential and commercial properties. Average annual damages, on the basis of 1960 conditions and values, are estimated at $71,300.

Recommended plan of improvement.—Provides for channel improvement by widening, deepening, and realining the channel from a point 1,280 feet below the lower Baltimore & Ohio Railroad bridge about 4 miles downstream of the corporate limits, to and through the existing raceway, a distance of approximately 4.6 miles.

Estimated cost (price level of April 1960).—

Federal	$1,206,000
Non-Federal	54,000
Total	1,260,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$45,700	$2,900	$48,600
Maintenance and operation		2,500	2,500
Total	45,700	5,400	51,100
Annual benefits: Flood damages prevented			62,900

Benefit-cost ratio.—1.2.

Local cooperation.—Furnish lands and rights-of-way; hold and save the United States free from damages; maintain all works after completion; perform all necessary relocations and alterations of utility facilities; establish channel limit lines and prevent encroachment; annually inform local interests that the project will not provide protection against maximum floods; and that under extraordinary stream runoff conditions the water level may exceed elevation 1,416 at the Elias Street Bridge. Local interests are willing to accept the terms of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.

Department of Agriculture: No objection.

State of West Virginia: Favorable.

Comments of the Bureau of the Budget.—No objection.

GUYANDOT RIVER AND TRIBUTARIES, W. VA.

(H. Doc. 569, 87th Cong.)

Location.—Guyandot River, a tributary of the Ohio River at Huntington, is located in southwestern West Virginia.

Authority.—Resolutions of the Public Works Committees, U.S. Senate and House of Representatives adopted February 16, 1957, and July 1, 1958, respectively.

Existing project.—Mud River Reservoir was authorized by Flood Control Act approved June 28, 1938. Floodwalls have been constructed at mouth of stream for protection of Huntington against Ohio River floods and Guyandot River backwater.

Flood problem.—The areas subject to greatest damages are those along and at the mouth of Dingess Run at Stallings, and along Island Creek at Logan. Other areas frequently damaged are the communities of Mullens, Pineville, Man, Baileyville, Gilbert, and Chapmanville, all along the main stem. The maximum flood of record, except at Man, occurred in January 1957. Basin damages of over $2,500,000 were concentrated principally around Logan, where losses approximated $1,750,000. The average annual damages in the Guyandot River Basin under July 1961 conditions are estimated at $407,000.

Recommended plan of improvement.—Provides for construction of a dam at about mile 117 on Guyandot River, about 5 miles upstream of Justice, W. Va. Total storage would be 196,000 acre-feet, of which 22,000 acre-feet would be for sediment storage and recreation and 174,000 acre-feet would be for flood control. Of the flood-control capacity 3,000 acre-feet would be reserved for water quality control on a seasonal basis.

Estimated cost (price level of July 1961).—All Federal, $60,477,000.
Project economics.—

	All Federal
Annual charges:	
Interest and amortization	$1,807,000
Maintenance and operation	65,000
Major replacements	2,000
Loss of land productivity	24,000
Total	1,898,000
Annual benefits:	
Flood damages prevented	1,784,000
General recreation	296,000
Fish and wildlife, recreation	35,000
Water quality control	25,000
Total	2,140,000

Benefit-cost ratio.—1.1.
Local cooperation.—None required.
Comments of the State and Federal agencies.—
Department of Agriculture: No objection.
Department of the Interior: No objection.
Department of Commerce: No objection.
Department of Health, Education, and Welfare: No objection.
Federal Power Commission: Favorable.
State of West Virginia: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget states that, if the project is authorized by Congress, the Bureau would expect any request for funds to initiate construction to be accompanied by a reevaluation report containing adequate evidence that the project is economically justified after meeting certain conditions which would minimize the loss of mineral reserves.

The Bureau further states that it believes that, if the project is authorized by the Congress, arrangements should be made in connection with preconstruction planning for further consideration of the views of affected interests within the project area. The Bureau notes that it would appear advisable that provision be made for conduct of public hearings in the locality, which under usual Corps of Engineers procedures would have appropriately preceded a recommendation for authorization of the project. Such hearing could be carried out in connection with the public meetings required under the provisions of the Land Acquisition Policy Act of 1960.

The Bureau of the Budget advises that there is no objection to the submission of the report to the Congress; however, it states that no commitment can be made at this time as to when any estimate of appropriation would be submitted for construction of the project, if authorized by the Congress, since this would be governed by the President's budgetary objectives as determined by the then prevailing fiscal situation.

TWELVEPOLE CREEK, W. VA.

(H. Doc. 520, 87th Cong.)

Location.—Twelvepole Creek, a tributary of the Ohio River, is in southwestern West Virginia.

Authority.—Resolution of Public Works Committee, House of Representatives, adopted June 13, 1956.

Existing project.—East Lynn Reservoir on East Fork, was authorized by the Flood Control Act of 1938 as a unit in the comprehensive plan for flood control in the Ohio River Basin. Floodwalls have been constructed at mouth of the stream, for protection of Huntington and Ceredo from Ohio River floods.

Flood problem.—Headwater floods cause damages from above the junction of East and West Forks to mile 25 on Twelvepole Creek. From mile 25 to mile 10, damages are caused by a combination of headwater and Ohio River backwater, while below mile 10, damages are restricted to backwater flooding. Numerous areas are subject to flooding along both forks but more extensive areas are flooded along East Fork below Stiltner, particularly at East Lynn. The maximum flood of record, February 1939, reached a crest stage of 31 feet at Wayne and had an estimated discharge of 21,900 cubic feet per second. The average annual damages in the basin are estimated at $141,500 under November 1960 prices and conditions.

Recommended plan of improvement.—Provides for construction of an earth-fill dam at mile 3.3 on Beach Fork. Total storage would be 43,785 acre-feet at which 37,530 acre-feet would be for flood control and 6,255 acre-feet would be permanent storage.

Estimated cost (price level of June 1961).—All Federal, $11 million.

Project economics.—

Annual charges:	
Interest and amortization	$325,000
Maintenance and operation	40,000
Major replacement	3,500
Loss of land productivity	11,500
Total	380,000
Annual benefits:	
Flood damages prevented	316,400
Recreation	254,800
Total	571,200

Benefit-cost ratio.—1.5.

Local cooperation.—None required.

Comments of the State and Federal agencies.—

Department of Interior: No objections.
Department of Agriculture: No objections.
Department of Commerce: No objections.
Department of Health, Education, and Welfare: Favorable.
Federal Power Commission: Favorable.
State of West Virginia: Favorable.

Comments of the Bureau of the Budget.—No objections.

CRAB CREEK AT YOUNGSTOWN, OHIO

(H. Doc. 440, 87th Cong.)

Location.—Crab Creek is a tributary of the Mahoning River at Youngstown, Ohio.

Authority.—Resolution of Public Works Committee, U.S. House of Representatives, adopted February 17, 1959.

Existing project.—None.

Flood problem.—The flood of January 1959 was the largest of modern record, with an estimated peak discharge of 2,550 cubic feet

per second downstream of the Valley Street Bridge. Five other floods, approaching that of January 1959 in magnitude, occurred in the period 1936 through April 1959. Recurrence of the January 1959 flood would result in damages of $233,900 based on 1960 prices and development. Average annual damages under 1960 conditions would be $115,000. The backwater effect of the Mahoning River during the 1959 flood was estimated to have been downstream of the damage area in the lower reach of Crab Creek.

Recommended plan of improvement.—Provides for enlarging, paving, and clearing about 2.4 miles of creek channel within the city, and for minor dredging in Mahoning River at the mouth of the creek. The work would require replacement of three railroad bridges and alteration of utilities.

Estimated cost (price level of May 1960).—

Federal	$2,268,000
Non-Federal	245,000
Total	2,513,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$85,500	$12,500	$98,000
Maintenance and operation		8,000	8,000
Total	85,500	20,500	106,000
Annual benefits: Flood damages prevented			120,000

Benefit-cost ratio.—1.1.

Local cooperation.—Furnish lands and rights-of-way; hold and save the United States free from damages; maintain and operate the works after completion; accomplish changes and alterations except the three railroad bridges; prevent encroachment; bear additional cost resulting from construction of cutoff channel near Andrew Avenue if such is desired; prevent dumping in creek; annually inform local interests of limited degree of protection; and enlarge waterway openings of restrictive bridges downstream of Valley Street. Local interests are willing to comply with the requirements of local cooperation.

Comments of the State and Federal agencies.—

State of Ohio: Favorable.

Department of Interior: Favorable.

Department of Agriculture: Favorable.

Department of Commerce: Favorable.

Comments of the Bureau of the Budget.—No objection.

SCIOTO RIVER BASIN, OHIO

(H. Doc. —, 87th Cong.)

Location.—The Scioto River, a major tributary of the Ohio River at Portsmouth, is located in central Ohio.

Authority.—Flood Control Act approved August 28, 1937.

Existing project.—Delaware Reservoir, on Olentangy River, constructed in 1951 is a Federal project. A local protection project at the mouth of the Scioto River, completed in 1950, provides a high degree of protection to Portsmouth and New Boston, Ohio, primarily

from Ohio River floods. Reservoirs on Big Darby, Deer Paint, and Rocky Fork Creeks are included in the comprehensive plan for the Ohio River Basin approved by the Flood Control Act of June 28, 1938. None have been built by the Federal Government. Rocky Fork project was constructed by the State of Ohio.

Flood problem.—The principal damage centers are at Columbus, Chillicothe, Prospect, Greencamp, LaRue, and Kenton. The maximum flood of record for most of the basin occurred in March 1913, in which 145 deaths were recorded. The January 1959 flood exceeded the March 1913 flood in the Alum Creek and Big Walnut Creek areas and caused widespread damages in other parts of the basin. The January 1959 flood caused damages in the basin estimated at about $11,950,000. Average annual damages for the basin are estimated at $3,660,000, based on July 1961 prices and conditions.

Recommended plan of improvement.—Provides for construction of Alum Creek, Mill Creek, and Salt Creek Reservoirs, all for flood control, general and fish and wildlife recreation, and related purposes; channel improvements in the Scioto River at Columbus, and flood protection at Chillicothe by construction of concrete walls, earth levees, and appurtenant works; and modification of the present authorization of Deer Creek Dam and Reservoir to provide a waterfowl management unit, consisting of additional project lands, a subimpoundment pool, and public water supply and sanitary facilities.

Estimated cost (price level of July 1961).—

	Federal	Non-Federal	Total
Local protection:			
Columbus	$445,000	$126,000	$571,000
Chillicothe	2,462,000	905,000	3,367,000
Reservoirs:			
Alum Creek	[1] 22,700,000	----------	[1] 22,700,000
Mill Creek	16,550,000	----------	16,550,000
Salt Creek	13,150,000	----------	13,150,000
Deer Creek waterfowl management unit	540,000	----------	540,000
Total	55,847,000	1,031,000	56,878,000

[1] $11,060,000 is reimbursable by local interests for water supply.

Project economics.—

Project	Annual economic costs	Annual benefits	Benefit-cost ratio
Local protection:			
Columbus	$30,000	$169,000	5.6
Chillicothe	111,000	138,000	1.2
Recommended reservoirs:			
Alum Creek	888,000	3,030,000	3.4
Mill Creek	624,000	1,131,000	1.8
Salt Creek	534,000	1,146,000	2.1
Deer Creek wildlife management unit	32,000	(1)	----------
Total	2,219,000	5,614,000	----------

[1] The additional lands and facilities in conjunction with the area which would be used jointly for waterfowl management and other project purposes would provide substantial pond fishing, farm game hunting, waterfowl hunting, and other recreational opportunities.

Local cooperation.—Reimburse the United States the first and annual costs allocated to water supply from Alum Creek Reservoir, an amount presently estimated at $11,060,000 and $30,000, respectively; for the channel improvement at Columbus, Ohio, and the local-protection works at Chillicothe, Ohio, furnish lands and rights-

of-way; hold and save the United States free from damages; maintain the improved Columbus channel and prevent encroachment thereon; maintain and operate the works at Chillicothe; and prior to construction at Chillicothe, provide a highway embankment and appurtenant drainage works, perform certain remedial works at U.S. Highway 23 bridge, backfill existing gravel pits, and widen the channel of Scioto River for a distance of 22,000 feet: *Provided further*, That construction of the individual projects recommended for authorization will not be construed as a commitment by the Federal Government nor by responsible non-Federal interests for construction of the remaining projects; *and provided further*, That construction of the local-protection works at Chillicothe be contingent upon prior construction and operation of the upstream reservoirs for flood control. Local interests are willing to comply with the requirements of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.
Department of Agriculture: No objection.
Department of Commerce: No objection.
Department of Health, Education, and welfare: Favorable.
Federal Power Commission: Favorable.
State of Ohio: Favorable.

Comments of the Bureau of the Budget.—The Bureau of the Budget recommends that authorization of the proposed modification to Deer Creek Reservoir for waterfowl enhancement and for improved hunting and fishing recreation be deferred until such time as policy matters pertaining thereto are resolved.

Action by the Secretary of the Army.—The Secretary of the Army concurred in the views of the Bureau of the Budget. On this basis the net cost to the United States is estimated at $55,307,000.

Remarks.—The committee has accepted the estimate of the Corps of Engineers.

ALLEGHENY RIVER AT SALAMANCA, N.Y.

(H. Doc. 166, 87th Cong.)

Location.—Allegheny River rises in north-central Pennsylvania, flows northwesterly to Salamanca, N.Y., and thence southwesterly to Pittsburgh, Pa., where it joins the Monongahela to form the Ohio River.

Authority.—Resolution of the Committee on Public Works, U.S. Senate, adopted May 9, 1949, and, resolution of the Committee on Public Works, House of Representatives, adopted July 6, 1949.

Existing project.—None.

Flood problem.—Flooding in Salamanca is caused by rainfall and snowmelt, coupled with the inadequacy of the river channel through the city and downstream.

Recommended plan of improvement.—Provides for construction of levees and floodwalls with apurtenant interior drainage facilities including pumping plants, in three areas, along the Allegheny River at Salamanca, N.Y.

Estimated cost (price level of July 1960).—

Federal	$1,390,000
Non-Federal	275,000
Total	1,665,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges	$51,900	$14,600	$66,500
Annual benefits: Flood damages prevented			74,500

Benefit-cost ratio.—1.12.

Local cooperation.—Furnish lands and rights-of-way; hold and save the United States free from damages; accomplish all changes, relocations, and alterations of buildings, utilities, and structures; prevent encroachment on the improved waterway; and maintain and operate the works after completion. New York State Flood Control Commission has furnished assurances of local cooperation.

Comments of State and Federal agencies.—

Department of the Interior: No objection.

State of New York: Favorable.

Comments of the Bureau of the Budget.—No objection.

FRENCH CREEK BASIN, PA.

(S. Doc. 95, 87th Cong.)

Location.—French Creek, a major tributary of the Allegheny River, is located in northwestern Pennsylvania and southwestern New York.

Authority.—Resolution of Public Works Committee, U.S. Senate, adopted May 12, 1950.

Existing project.—French Creek Reservoir below Cambridge Springs, authorized by the Food Control Acts of 1936 and 1938, would have flood control storage of 117,000 acre-feet. This project is presently classified inactive. A Federal snagging and clearing project at Cochranton, Pa., was completed in 1948.

Flood problem.—The flood problem is most severe at Meadville, but exists wherever the stream slopes are flat along the entire French Creek Valley particularly from above Cambridge Springs to and including Cochranton. The flood of April 1947, the highest of record in the upper basin, overflowed 7,000 acres of rural land and 600 acres of urban land. Its recurrence in 1960 would have caused damages estimated at $3 million. The January 1959 flood, augmented by an ice jam, resulted in the maximum stages of record at Meadville which under 1960 conditions would also have caused damages of almost $3 million. The average annual flood damages are estimated at $1,260,000.

Recommended plan of improvement.—Consists of a system of three reservoirs with the following physical features:

Item	Reservoir		
	Union City	Muddy Creek	Woodcock Creek
Stream	French Creek	Muddy Creek	Woodcock Creek.
Location, river miles	71.2	61	46.
Type	Earth	Earth	Earth.
Total storage, acre-feet	48,000	19,600	15,100.
Flood control storage, acre-feet	48,000	19,600	14,700.
Recreation, acre-feet			400.

Revocation of French Creek Reservoir authorization is also recommended.

Estimated cost (price level of May 1960).—

	Union City	Muddy Creek	Woodcock Creek	Total
Federal	$8,596,000	$7,110,000	$7,396,000	$23,102,000

Project economics.—

	Union City	Muddy Creek	Woodcock Creek	Total
Annual charges:				
Interest and amoritiztion	$324,500	$268,600	$263,800	$856,900
Maintenance and operation	9,600	11,000	30,500	51,100
Loss of land productivity (economic cost)	1,900	1,400	700	4,000
Total	336,000	281,000	295,000	912,000
Annual benefits:				
Flood damages prevented	822,000	302,000	279,000	1,403,000
Recreation			65,000	65,000
Total	822,000	302,000	344,000	1,468,000
Benefit-cost ratio	2.4	1.07	1.17	1.6

Local cooperation.—Annually inform local interests that the project reservoirs do not provide protection against maximum floods. Local interests are willing to comply with requirement of local cooperation.

Comments of the State and Federal agencies.—

Department of the Interior: No objection.
Department of Agriculture: No objection.
Department of Commerce: No objection.
Department of Health, Education, and Welfare: No objection.
Federal Power Commission: No objection.
Commonwealth of Pennsylvania: Favorable.

Comments of the Bureau of the Budget.—No objection to submission of report to Congress. However, it would expect that, prior to a request for funds to initiate construction of the Woodcock Creek project, the Corps of Engineers would review the economic evaluation of this project in light of the water resource evaluation standards adopted by the administration.

SALINE RIVER, ILL.

The plan of improvement recommended by the Chief of Engineers (H. Doc. 316, 84th Cong.) provides for channel improvements by clearing and enlargement of Saline River, and the North, Middle, and South Forks.

Estimated cost (June 1956 prices).—

Federal	**$5,272,000**
Non-Federal	**1,346,000**

Project economics.—

Annual charges	**$286,000**
Annual benefits	**386,000**
Benefit-cost ratio	**1.35**

Local cooperation.—The local requirements, as authorized, are that local interests will furnish lands, easements, and rights-of-way; hold and save; replace highway bridges and make required alterations; maintain and operate; contribute, in cash, 15 percent of the Federal cost of construction estimated at $930,000.

Remarks.—The committee notes that the contribution in the project document report was required based on policy prevailing at that time. However, the current policy of the Chief of Engineers does not require a contribution for higher land use because of the reduction in the flood hazard unless the benefit is of a windfall nature, which is not true in this case. The committee notes also that the project work will affect areas designated for economic redevelopment. In view of these factors, the committee finds that a cash contribution for the flood-control improvements should not be required.

ILLINOIS RIVER AND TRIBUTARIES

(H. Doc. 472, 87th Cong.)

Location.—The Illinois River Basin is located in portions of Illinois, Wisconsin, and Indiana.

Authority.—Resolutions adopted by the Committee on Flood Control of the House of Representatives, United States, one on July 28, 1937, and one on May 14, 1941; and in review of reports in response to an authorization contained in section 6 of the Flood Control Act approved August 11, 1939.

Existing project.—Federal improvements in that part of the basin under consideration include 53 authorized flood control projects, of which 34 local protection projects are completed, 1 is under construction, and 18, including Chandlerville No. 2 Reservoir on Sangamon River, have not been started; and the Illinois Waterway for navigation, which provides for a channel 9 feet deep over varying widths between Lake Michigan and the Mississippi River by means of 8 locks and 7 dams. Also, the former Chautauqua Drainage and Levee District has been converted to a wildlife refuge and is operated by the U.S. Fish and Wildlife Service.

Water resources problems.—Flood problems in the basin are caused by inadequate channel capacities and, in some cases, by encroachment on the stream-carrying capacity by bridges and other structures. The sources of municipal and industrial water supply in the basin are wells, streams, and reservoirs. Increasing demands are causing depletion and imposition of limited usage.

Recommended plan of improvement.—Consists of a multiple-purpose dam and reservoir at Oakley and associated downstream channel improvement project, enlargement of existing levees and/or new levees and floodwalls and channel improvement for protection of 3 urban and 13 agricultural areas, remedial work at the mouth of the Sangamon River, at a Federal construction cost of $71,465,000, the net cost to the United States is $66,866,000 after reimbursement by non-Federal interests of the costs allocated to water supply. For deauthorization of the following projects authorized in the 1936 Flood Control Act: (*a*) Sangamon River, mouth of Salt Creek to Roby, Ill.; (*b*) Sangamon River and Salt Creek (Sangamon River portion only); (*c*) Clear Lake levee at junction of Sangamon and Illinois Rivers, Ill.; and (*d*) McGee Creek Drainage and Levee District, Illinois

River. The recommendation also provides that construction of any one project may be undertaken independently of the others upon compliance with the prescribed requirements of local cooperation pertaining thereto.

Estimated cost (price level of March 1961).—

	Oakley Dam and Reservoir	Local protection projects and mouth of Sangamon River
Federal	$29,621,000	$41,844,000
Non-Federal	(1)	4,091,000
Total	29,621,000	45,935,000

[1] $4,599,000 to be reimbursed by local interests for water supply.

Project economics (in thousands of dollars, March 1961 prices).—

Project	Total cost	Total annual charges	Total annual benefits	Benefit-cost ratio
Oakley Reservoir and channel improvement	$29,621	$1,388.0	$1,624.0	1.2
Peoria, Ill.	13,686	581.0	588.0	1.01
Meredosia, Ill., and Meredosia, Willow Creek, and Coon Run Drainage and Levee Districts	2,338	95.2	121.7	1.3
Eldred, Ill.	554	21.4	40.3	1.9
Indian Creek area	3,851	153.4	173.4	1.1
Meredosia Lake and Willow Creek Drainage and Levee District	1,615	60.9	66.6	1.1
McGee Creek Drainage and Levee District	3,486	136.0	160.0	1.2
Scott County Drainage and Levee District	2,920	112.8	140.0	1.2
Big Swan Drainage and Levee District	2,513	96.9	130.0	1.3
Hillview Drainage and Levee District	2,148	82.2	127.1	1.5
Hartwell Drainage and Levee District	2,177	82.9	95.4	1.2
Keach Drainage and Levee District	1,907	72.9	78.8	1.1
Eldred and Spankey Drainage and Levee District	2,415	92.3	169.1	1.8
Nutwood Drainage and Levee District	1,652	63.1	104.2	1.7
Lake Fork of Salt Creek (Sangamon River)	1,516	76.6	116.4	1.5
Farmers Drainage and Levee District	785	34.7	70.2	2.0
Clear Lake Special Drainage District	2,334	114.3	139.8	1.2
Remedial work near mouth of Sangamon River	38	1.9		
Total	75,556			1.2

Local cooperation.—

(a) Oakley Reservoir project: Agree to pay the first cost allocated to water supply, such cost being presently estimated at 15.5 percent of the total, or $4,599,000, with such modification in these amounts as may be necessary to reflect adjustments in the storage capacity for water supply and other purposes, to be paid in a lump sum prior to construction with appropriate adjustments when actual costs are determined, or in installments prior to commencement of pertinent items, in accordance with construction schedules as required by the Chief of Engineers, or by annual payments, including interest during construction and interest on the unpaid balance, over the life of the project as determined by the Chief of Engineers, or 50 years, whichever is the lesser; agree to pay annually as they occur the costs of operation and maintenance allocated to water supply, such costs being presently estimated at 22.7 percent of the total, or $43,000, with such modification in these amounts as may be necessary to reflect adjustments in the storage capacity for water supply and other purposes; maintain all

roads and bridges in the reservoir area and over the improved channel downstream from the dam in accordance with regulations prescribed by the Secretary of the Army; hold and save the United States free from all water-rights claims resulting from construction and operation of the project, and operate the existing non-Federal dam and reservoir at Lake Decatur for flood control in accordance with regulations approved by the Secretary of the Army.

(b) Local protection projects: Furnish without cost to the United States all lands, easements, rights-of-way, and ponding and spoil-disposal areas necessary for construction of the project; hold and save the United States free from damages due to the construction works; bear the expense of relocating and altering highways, highway bridges (except underpinning), utilities, buildings, interior drainage facilities, pipelines, and other structures, except railroad bridges and approaches; prescribe and enforce regulations satisfactory to the Secretary of the Army to prevent encroachment on the improved channels and ponding areas; and maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Health, Education, and Welfare: Favorable.
Department of Commerce: Favorable.
Federal Power Commission: Favorable.
State of Illinois: Favorable.

Comments of the Bureau of the Budget.—No objection.

REND LAKE, ILL.

(H. Doc. 541, 87th Cong.)

Location.—Southern Illinois about 5 miles from Benton, Ill.

Authority.—House Public Works Committee, July 6, 1949.

Existing project.—None.

Water resources problem.—(*a*) Flooding: Storms with heavy rainfall occur most frequently during spring and early summer. The flood of May 1961 was the largest of the six major floods which have occurred in the basin since 1915. Maximum discharge at Benton was 35,800 cubic feet per second. About 103,400 acres of bottom land along Big Muddy River below the proposed Rend Lake damsite, at mile 103.7, are subject to flooding. The average annual damage is estimated at about $157,000 of which $57,000 is crop damage and $100,000, property damage.

(*b*) Water supply: Municipal and industrial water is presently obtained from wells or surface impoundments. Seasonal fluctuations and extended drought periods seriously deplete water supplies. With allowances for existing water-supply facilities, it is estimated that the net increase in water demand by 2010 within 25 miles of Benton will be about 40 million gallons per day.

(*c*) Stream pollution: It is anticipated that, under State law, municipalities will take proper measures to correct the general pollution problem for normal stream-flow conditions. However, low-flow augmentation is desirable during drought periods when there may be little or no flow in the river.

Recommended plan of improvement.—The most feasible plan of development would consist of a rolled-earth dam on Big Muddy River at mile 103.7. The dam would be 42 feet high above the flood plain with a reinforced concrete spillway and an auxiliary earth spillway located in the east abutment. The combined length of dam and spillway would be 8,900 feet. Outlet works through the earth section of the dam would consist of two 6-foot by 6-foot sluices for regulation of the pool under normal operating conditions and drawdown of the pool. The reservoir would have a capacity of 302,500 acre-feet consisting of 111,500 for flood control, 109,000 for water supply, 57,000 for pollution abatement, and 25,000 for siltation. As an adjunct to the project, two small impoundments would be provided on two of the upper arms of the reservoir for wildlife conservation.

First costs.—Federal, $35,500,000.[1]

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$838,000	$297,000	$1,135,000
Maintenance and operation including major replacements	79,000	9,000	88,000
Total	917,000	306,000	1,223,000
Annual benefits:			
Damages prevented			216,000
Recreation			536,000
Water supply			301,000
Area redevelopment			285,000
Pollution abatement			61,000
Fish and wildlife conservation			312,000
(Added transportation costs)			36,000
Total			1,675,000

Benefit-cost ratio.—1.4.

Local cooperation.—(*a*) Hold and save the United States free from damages for any water-rights claims resulting from construction and operation of the project;

(*b*) Reimburse the United States in accordance with the Water Supply Act of 1958, as amended, the first costs and the annual operation and maintenance costs allocated to municipal and industrial water-supply storage, tentatively estimated at $6,031,000 and $8,800, respectively for the ultimate development.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
Public Health Service: Favorable.
Federal Power Commission. Favorable.
State of Illinois: Favorable.

Comments of the Bureau of the Budget.—No objection.

[1] $6,031,000 to be repaid by local interests for water supply.

MISSISSIPPI RIVER AT GUTTENBERG, IOWA

(H. Doc. No. 286, 87th Cong., 2d sess.)

Location.—Guttenberg is in northeastern Iowa on the right bank of the Mississippi River.

Authority.—Two resolutions of the House Committee on Flood Control, both adopted September 18, 1944.

Existing project.—No existing Federal flood control project at Guttenberg. Lock and dam No. 10 of upper Mississipi River navigation project is at Guttenberg. Local interests have constructed some local flood protection measures.

Flood problems.—Periodic high Mississippi River stages particularly in 1951 and 1952 have resulted in large expenditures for flood fighting purposes and have caused extensive flood damages in the area.

Recommended plan of improvement.—A north levee about 3,040 feet long, a south levee about 2,000 feet long, a pumping plant, and appurtenant works.

Estimated cost (price level of January 1960).—

Federal	$729,000
Non-Federal	84,000
Total	813,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$26,800	$4,330	$31,130
Maintenance and operation		1,670	1,670
Total	26,800	6,000	32,800
Annual benefits: Damages prevented			38,700

Benefit-cost ratio.—1.2.

Local cooperation.—Provide all lands, easements, and rights-of-way necessary for the construction of the project; hold and save the United States free from damages due to the construction works; maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army; make any necessary alterations to utilities, culverts for interior drainage, roads, and highways including necessary widening of levees to provide for roadways where required, and provision of the necessary freeboard on streets and alley portions if and when needed; and obtain appropriate legal control over pondage areas and prevent encroachment in such areas until substitute areas or equivalent pump or outlet capacity have been provided.

Comments of the State and Federal agencies.—

Department of the Interior: Favorable.
Department of Agriculture: Favorable.
Department of Commerce: Favorable.
State of Iowa: Favorable.

Comments of the Bureau of the Budget.—No objection.

MISSISSIPPI RIVER BETWEEN STE. GENEVIEVE AND ST. MARYS, MO.

(H. Doc. 519, 87th Cong.)

Location.—States of Missouri and Illinois along right bank of Mississippi River between river miles 110.5 and 123.0 above the mouth of the Ohio River.

Authority.—Resolution of the Committee on Flood Control, House of Representatives, adopted July 3, 1945.

Existing project.—The 1936 Flood Control Act authorized raising the existing levee of the Ste. Genevieve Levee District No. 1. No work was done under this authority. The 1944 Flood Control Act authorized inclusion of Common Big Field in the project although all at a lesser degree of protection. No work started pending completion of this report. The 1938 Flood Control Act authorized protection of the Kaskaskia Island Drainage and Levee District. Work completed in August 1942. Completed upstream reservoirs reduce stages about 1.4 feet.

Flood problem.—Approximately 90 percent of the 17,840 acres in the area under consideration are subject to frequent flooding by the Mississippi River, Saline River, and River aux Vases. The land is primarily agricultural.

Recommended plan of improvement.—Raise the existing Kaskaskia Island Drainage and Levee District levee about 5 feet above its present height of about 13 feet. This would be raised to the design grade established and approved for Mississippi River agricultural levees in 1944.

Estimated cost (price level of January 1961).—

Federal	$2,500,000
Non-Federal	110,000
Total	2,610,000

Project economics.—

	Federal	Non-Federal	Total
Annual charges:			
Interest and amortization	$95,000	$4,900	$99,900
Maintenance and operation		2,700	2,700
Loss of productivity		1,300	1,300
Total	95,000	8,900	103,900
Annual benefits: Damages prevented			113,500

Benefit-cost ratio.—1.1.

Local cooperation.—(*a*) Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the project; (*b*) hold and save the United States free from damages due to the construction works; and (*c*) maintain and operate the project after completion in accordance with regulations prescribed by the Secretary of the Army.

Comments of the State and Federal agencies.—

State of Missouri: Favorable.

State of Illinois: Favorable.

Department of Interior: Favorable.

Department of Agriculture: Favorable.

Comments of the Bureau of the Budget.—No objection.