92d Congress, 2d Session House Document No. 92-363

POINT PLACE, TOLEDO, OHIO

LETTER

FROM

THE SECRETARY OF THE ARMY

TRANSMITTING

A LETTER FROM THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY, DATED OCTOBER 2, 1970, SUBMITTING A REPORT, TOGETHER WITH ACCOMPANYING PAPERS AND AN ILLUSTRATION, ON POINT PLACE, TOLEDO, OHIO, REQUESTED BY A RESOLUTION OF THE COMMITTEE ON PUBLIC WORKS, HOUSE OF REPRESENTATIVES, ADOPTED OCTOBER 5, 1966

SEPTEMBER 25, 1972.—Referred to the Committee on Public Works and ordered to be printed with an illustration

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1972

83-940 O

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(Only Appendix E printed)

ILLUSTRATIONS ACCOMPANYING THE REPORT OF THE DISTRICT ENGINEER
(Only Plate 1 printed)

LETTER OF TRANSMITTAL

DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 20310

September 20, 1972

Honorable Carl Albert
Speaker of the House of Representatives
Washington, D. C. 20515

Dear Mr. Speaker:

I am transmitting herewith a favorable report dated 2 October 1970, from the Chief of Engineers, Department of the Army, together with accompanying papers and an illustration, on Point Place, Toledo, Ohio, requested by a resolution of the Committee on Public Works, House of Representatives, adopted 5 October 1966.

The views of the State of Ohio and the Departments of the Interior, Agriculture, Transportation, and Health, Education, and Welfare are set forth in the inclosed communications. The environmental statement required by the National Environmental Policy Act of 1969 has been submitted to the Council on Environmental Quality.

Since this project meets all the requirements of Section 201 of the Flood Control Act of 1965 and involves little or no controversy, I recommend that the project be approved for appropriations.

Subsequent to preparation of the report of the Chief of Engineers, a new interest rate has been adopted for computing annual costs and benefits. Using the currently prescribed rate of 5-1/2 percent, the benefit-cost ratio is 1.3.

The Office of Management and Budget advises that there is no objection to the submission of the proposed 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. A copy of the letter from the Office of Management and Budget is inclosed as part of the report.

Sincerely,

Robert F. Froehlke

ROBERT F. FROEHLKE
Secretary of the Army

COMMENTS OF THE OFFICE OF MANAGEMENT AND BUDGET

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

August 17, 1972

Honorable Robert F. Froehlke
Secretary of the Army
Washington, D.C. 20310

Dear Mr. Secretary:

Mr. Kenneth E. BeLieu's letter of May 30, 1972, submitted the favorable report of the Chief of Engineers on Point Place, Toledo, Ohio, requested by a resolution of the Committee on Public Works, House of Representatives, adopted on October 5, 1966.

You are advised that there would be no objection to the submission of the proposed report to the Congress. No commitment, however, 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.

Sincerely yours,

William A. Morrill

William A. Morrill
Assistant Director

COMMENTS OF THE STATE OF OHIO

JAMES A. RHODES
GOVERNOR

FRED E. MORR
DIRECTOR

STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
OHIO DEPARTMENTS BUILDING
COLUMBUS 43215

July 16, 1970

Lieutenant General F. J. Clarke
Office of the Chief of Engineers
Forrestal Building
Washington, D. C. 20314

Dear General Clarke:

Reference is made to the Chief of Engineers report on Point Place furnished with your letter of 12 June 1970 for our review and comments including the views of the State agency responsible for fish and wildlife.

In Ohio, the Department of Natural Resources is the agency responsible for fish and wildlife activities. I concur with the Bureau of Sport Fisheries and Wildlife, U. S. Department of the Interior, that the proposed project will have little effect on the fish and wildlife resources of the area. I also concur with your environmental statement and the additional environmental benefits provided by the project.

Under the authority granted the Director of the Department of Natural Resources in Section 1501.02, Ohio Revised Code, and acting as the designated representative of the Governor in matters of mutual interest to the Corps of Engineers and the State of Ohio, I concur in the selected plan of providing improvements for flood protection at and in the vicinity of Point Place, Toledo, Ohio.

It will also be my objective, acting for the State of Ohio, to assist in the overall coordination of all agencies and municipalities concerned in the development of this project and to assist in furnishing the non-Federal assurances as required.

It is hoped that authorization and funding for this project will receive early and favorable consideration by the Congress.

Sincerely,

Fred E Morr

FRED E. MORR
Director

FEM:bg

COMMENTS OF THE DEPARTMENT OF THE INTERIOR

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

September 18, 1970

Dear General Clarke:

This responds to your June 12, 1970, request for our comments on the Corps of Engineers' proposed report and environmental statement on Point Place, Toledo, Ohio.

We have reviewed the report and have no objections to the authorization of the project. We offer the following comments for your use and consideration.

The 1969 comments of the Federal Water Quality Administration have been adequately considered and included in Appendix E of the report. To protect water quality during the construction period in accordance with provisions of Section 21(a) of the Federal Water Pollution Control Act, as amended by the Water Quality Improvement Act of 1970, and Executive Order 11507, we recommend that contract specifications require all contractors and subcontractors to:

1. Exercise care in the relocation of any petroleum product pipelines and take precautions in the handling and storage of hazardous materials, such as petroleum, herbicides, and pesticides, to prevent accidental spillages or usage that would result in water pollution.

2. Provide and operate sanitary facilities to adequately treat and dispose of domestic wastes in conformance with Federal and State water pollution control regulations.

3. Perform all construction operation so that they will keep erosion, turbidity and siltation at the lowest level practicable.

With regard to the environmental statement, we recommend that the sentence in Section 3(b), which states: "Twenty acres of open and green space will be converted to a higher land use" be changed to: "Twenty acres of open and green space will be lost." This section is an identification of adverse environmental effects which cannot be avoided should the proposal be

implemented. We do not feel it is proper to use phrases which tend to obscure environmental losses.

We appreciate the opportunity to present our views.

Sincerely,

James Stratt

Deputy Assistant Secretary of the Interior

Lt. General F. J. Clarke
Chief of Engineers
U.S. Department of the Army
Washington, D.C. 20314

COMMENTS OF THE DEPARTMENT OF AGRICULTURE

DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

July 31, 1970

Honorable Stanley R. Resor
Secretary of the Army

Dear Mr. Secretary:

This is in reply to the Chief of Engineers' letter of June 12, 1970, transmitting for our review and comment his proposed report and pertinent papers on Point Place, Toledo, Ohio.

The proposed improvement combines shoreline seawalls with inland levees around the area subject to flooding.

National Forest lands are not involved and there would be no adverse effects on nonfederal forest resource values.

The proposed works of improvement would have no adverse effects on existing or expected project activities of this Department.

We appreciate the opportunity to review and comment on this report.

Sincerely,

T. K. COWDEN
Assistant Secretary

COMMENTS OF THE DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT (AWL)
U.S. COAST GUARD
WASHINGTON, D.C.
20591

July 9, 1970

Lt. General F. J. Clarke
Chief of Engineers
Department of the Army
Washington, D. C. 20314

Dear General Clarke:

This is in reply to your letter of 12 June 1970 to Secretary Volpe concerning your proposed report on flood control for Point Place, Ohio.

The appropriate operating administrations of the Department of Transportation have reviewed your survey report and find that the study relates solely to a flood protection project for this small residential area at Toledo and consequently, have no comments to offer.

The Department of Transportation has no objections to your proposal and recommendations. The opportunity afforded this Department to review and comment on the study report is appreciated.

Sincerely,

R. Y. Edwards

R. Y. EDWARDS
Rear Admiral, U.S. Coast Guard
Chief, Office of Public and
International Affairs

COMMENTS OF THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20201

October 14, 1970

Lt. General F. J. Clarke, USA
Chief of Engineers
U.S. Corps of Engineers
Department of the Army
Washington, D.C. 20315

Dear General Clarke:

As requested in your letter of June 12, 1970, the "Survey Report on Flood Control at Point Place, Toledo, Ohio," and the enclosed environmental statement have been reviewed by the appropriate agencies of the Department that have an environmental interest.

The report describes a proposed single-purpose flood control project to be located on a peninsula in the northeast portion of the city of Toledo, Ohio. The peninsula, at the western end of Lake Erie, is bounded on the east by Maumee Bay and on the west by the Ottawa River. Designed to protect the area from floods caused by wind-induced Lake Erie storms, the proposal provides for additions and modifications to a local levee and seawall system.

The Point Place area should realize significant health benefits from the flood protection measures described in the project proposal. These benefits include reduced hazards of loss of life and injury, improved vector control and the prevention of other factors accompanying floods which tend to disrupt the maintenance of public health.

Our review indicates that the project as proposed will have no significant adverse effect on environmental factors of concern to the Department of Health, Education, and Welfare. We have no objection to the authorization of this project insofar as the Department's interests and responsibilities are concerned.

Sincerely yours,

Roger O. Egeberg, M.D.
Assistant Secretary
for Health and Scientific Affairs

POINT PLACE, TOLEDO, OHIO

REPORT OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314

IN REPLY REFER TO
ENGCW-PD

October 2, 1972

SUBJECT: Point Place, Toledo, Ohio

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress the report of the Board of Engineers for Rivers and Harbors, accompanied by the reports of the District and Division Engineers, in response to a resolution of the Committee on Public Works of the House of Representatives, United States, adopted 5 October 1966, concerning the advisability of providing flood protection at and in the vicinity of Point Place, Toledo, Ohio, with particular reference to the advisability of protection work against storm waves and wind-generated, temporary, high lake levels.

2. The District and Division Engineers find that the most practical solution to the flood problems at Point Place would be a local flood protection project which combines shoreline seawalls with inland levees around the area subject to flooding. They recommend construction of the improvements, contingent upon certain items of local cooperation, at an estimated first cost of $960,000 of which $672,000 would be the Federal construction cost; $46,200 would be the non-Federal cost for lands, easements, and rights-of-way; and $241,800 would be the non-Federal cash contribution for project costs in excess of the 70 percent Federal limitation. The annual charges are estimated at $56,600, including $5,000 for non-Federal maintenance. The annual benefits are estimated at $77,400 and the benefit-cost ratio is 1.4, based on a 50-year period of analysis and an interest rate of 4-7/8 percent.

3. The Board of Engineers for Rivers and Harbors concurs generally in the findings of the District and Division Engineers and recommends the improvements subject to certain conditions of local cooperation.

4. I concur in the views and recommendations of the Board. Use of the currently prescribed interest rate of 5-1/8 percent in computing annual charges and benefits would result in a benefit-cost ratio of 1.3.

F. J. CLARKE
Lieutenant General, USA
Chief of Engineers

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
BOARD OF ENGINEERS FOR RIVERS AND HARBORS
WASHINGTON, D.C. 20315

IN REPLY REFER TO

ENGBR

April 28, 1970

SUBJECT: Point Place, Toledo, Ohio

Chief of Engineers
Department of the Army
Washington, D. C.

1. Authority.--This report is in response to the following resolution adopted 5 October 1966:

> Resolved by the Committee on Public Works of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors is hereby requested to review the reports, Water Levels of the Great Lakes - Local Flood Protection Projects, published as House Document Number 424, 83d Congress, Second Session, and other pertinent reports, with a view to determining the advisability of providing flood protection at and in the vicinity of Point Place, Toledo, Ohio, with particular reference to the advisability of protection work against storm waves and wind generated temporary high lake levels.

2. Description.--Point Place is located on a peninsula extending into Lake Erie from the northeast portion of the city of Toledo, Ohio. Its shores are bounded on the east by Maumee Bay and on the west by the Ottawa River. The population of Point Place, based on 1960 census data, is estimated at 10,100. Land on this peninsula is devoted almost exclusively to residential and small commercial developments.

3. Existing improvements.--There are no existing Federal flood control improvements at Point Place. Local interests have made limited improvements along the eastern shore of the peninsula with a seawall and an earth levee which provide partial protection.

4. Floods and flood damages.--Flooding at Point Place can occur whenever sustained, high velocity, easterly winds prevail. The most recent flooding was experienced in April 1966 when strong winds caused a rise in Lake Erie water levels to a height of 7.1 feet above low water datum. A recurrence of that flood under present conditions would cause damages estimated at $415,000 on the basis of January 1969 price levels. Approximately 170 acres of residential property, which includes about 690 improved properties and about 25 acres of vacant land, are susceptible to flood damages during severe Lake Erie storms. The average annual flood damages are estimated at $78,300.

5. Improvement desired.--Local officials desire flood protection for Point Place and have expressed an interest in seawall and levee protection works. The city of Toledo has agreed to represent local interests in providing the required local cooperation.

6. Plan of improvement.--The District Engineer finds that a project to protect Point Place from Lake Erie flooding would be engineeringly feasible and economically justified. His plan consists primarily of seawall protection adjacent to Maumee Bay from the midpoint of 134th and 135th Streets to the end of 145th Street, modification of the existing levee east of 326th Street extending northerly from 145th Street to the Michigan-Ohio State line, and construction of an east-west earth levee adjacent to the State line. The proposed improvements would prevent damage from the maximum wave runup that can be produced by a combination of severe easterly winds and a high lake stage of 25-year frequency or less. Other plans of improvement were considered but were found to be less effective than the recommended plan.

7. Economic evaluation.--The District Engineer estimates the first cost of the proposed improvements, based on January 1969 price levels, at $960,000, of which $672,000 is the Federal cost for construction; $46,200 is the non-Federal cost for lands, easements, and rights-of-way; and $241,800 is the non-Federal cash contribution for project costs in excess of the 70 percent Federal limitation. The annual charges are estimated at $56,600, including $5,000 for non-Federal maintenance, based on a 4-7/8 percent interest rate and a 50-year period of analysis. The plan would eliminate 96 percent of the average annual flood damages and would produce average annual benefits estimated at $77,400. The benefit-cost ratio is 1.4. The District Engineer recommends authorization of his plan subject to certain conditions of local cooperation. The Division Engineer concurs.

8. Public notice.--The Division Engineer issued a public notice stating the recommendations of the reporting officers and affording interested parties an opportunity to present additional information to the Board. No communications have been received.

Views and Recommendations of the Board of Engineers for Rivers and Harbors.

9. Views.--The Board of Engineers for Rivers and Harbors concurs in general in the views and recommendations of the reporting officers. The proposed improvement is needed and is economically justified, and the requirements of local cooperation are appropriate.

10. Recommendations.--Accordingly, the Board recommends construction of a local protection project for lake flood protection at Point Place, Toledo, Ohio, consisting of seawalls and levees; all generally in accordance with the plan of the District Engineer and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable, at an estimated cost to the United States of $914,000 for construction: Provided that, prior to construction, local interests furnish assurances satisfactory to the Secretary of the Army that they will:

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;

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

d. Accomplish without cost to the United States all necessary changes to buildings, highway bridges including approaches, streets, sewers, and utilities, as may be required for construction of the project;

e. Bear 30 percent of the total first cost, a sum presently estimated at $288,000, which includes the costs of lands, easements, rights-of-way, and relocations required under subparagraphs a and d above, and a cash contribution presently estimated at $241,800; 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; and

f. At least annually inform affected interests that the project will not provide complete flood protection.

11. The net cost to the United States for the recommended improvement is estimated at $672,000 after repayment of non-Federal costs.

FOR THE BOARD:

WILLIAM F. CASSIDY
Lieutenant General, USA
Chairman

REPORT OF THE DISTRICT ENGINEER

SYLLABUS

The District Engineer finds that a serious flood problem exists at Point Place due to Lake Erie storm waves and wind generated high lake levels. Floods of major proportions occurred in 1952 and 1966 and caused severe damage to the residential areas of the subdivision. The most feasible solution to the flood problem is one which combines shoreline seawalls with inland levees to form a protective network around the damage area. It is estimated that the recommended plan of improvement will reduce flood losses by 96 percent. The improvements would return annual benefits of $77,400. The benefit-cost ratio is 1.4 to 1. The District Engineer recommends that the improvements be constructed at an estimated first cost to the United States of $672,000, subject to certain conditions of local cooperation.

83-940 O—72——3

FRONTISPIECE

EVIDENCE OF INUNDATION

FOLLOWING APRIL 1966 FLOOD

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1027
DETROIT, MICHIGAN 48231

February 10, 1970

IN REPLY REFER TO
NCEED-PB

SUBJECT: Survey Report on Flood Control at Point Place, Toledo, Ohio

Division Engineer, North Central

AUTHORITY

1. This report is submitted pursuant to the following resolution adopted 5 October 1966 by the Committee on Public Works of the United States House of Representatives:

"Resolved by the Committee on Public Works of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors is hereby requested to review the reports, Water Levels of the Great Lakes-Local Flood Protection Projects, published as House Document Number 424, 83rd Congress, Second Session, and other pertinent reports, with a view to determining the advisability of providing flood protection at and in the vicinity of Point Place, Toledo, Ohio, with particular reference to the advisability of protection work against storm waves and wind generated temporary high lake levels".

2. In compliance with the resolution cited above, the Chief of Engineers on 8 November 1966 authorized preparation of a report of survey scope for Point Place, Toledo, Ohio.

EXTENT OF INVESTIGATION

3. This review report is of survey scope and is limited to the study of the Point Place subdivision of Toledo, Ohio, which is subjected to periodic inundation from Lake Erie.

4. Field studies made for the present investigation include: (a) a reconnaissance of the area by the District Engineer, (b) subsurface soil explorations to determine soil characteristics within the study area, (c) damage surveys to determine the extent and magnitude of damages from past floods, and (d) a real estate survey to determine the value of property enhancement.

5. Office studies made in connection with this investigation included hydrologic, hydraulic, soils, real estate, design, cost, and economic studies in the detail necessary to arrive at the plan of improvement

considered to be the most practical solution to the inundation problem. Details of these studies are presented in the appendixes.

PRIOR REPORTS

6. CORPS OF ENGINEERS' REPORTS

Three Federal reports have been prepared in connection with studies made at Point Place. The first of these was a preliminary examination report on property damages along the Great Lakes. The report was submitted to the Committee on Public Works, House of Representatives, United States, on 24 June 1952, and recommended, among other things, that a study of survey scope be made to determine:

(a) The feasibility of a plan of regulation of the levels of the Great Lakes, and

(b) The advisability of adopting local protection flood control projects for areas along the shores of the Great Lakes and tributary streams that are subject to inundation as a result of fluctuations in the levels of the lakes.

7. The second Federal report concerning the flood problems at Point Place is the favorable interim survey report under review, published as House Document No. 424, 83rd Congress, 2nd Session dated 19 December 1952. The report, submitted to Congress on 26 May 1954, recommended construction of seawall protection works for Point Place. Further action has not been taken because the Bureau of the Budget's interpretation that the policy enunciated in the Flood Control Act of 1936 excluded coverage for property inundated by or due to wind or sharp changes in barometric pressure. Subsequently, several flood control acts have indicated by general language that floods aggravated by or due to wind or sharp changes in barometric pressure are within the authority of the 1936 Flood Control Act.

8. The most recent report is the Post Flood Report of Lake Erie Storm 27 April 1966 which assessed the flood damages to residential, commercial and municipal properties along the Lake Erie shoreline for the storm of 27 April 1966. Flood damages at Point Place are included in the report.

9. A report concerning navigation improvement of the Ottawa River, Michigan and Ohio, was prepared in 1968. The report recommended that Ottawa River Harbor be improved by the construction of general navigation facilities to provide adequate accomodations for locally-based and transient recreational craft. The report is currently being reviewed. The flood problems at Point Place are not related to this navigation report.

10. OTHER REPORTS

A report entitled, Point Place-Carland Beach Flood Study was prepared by the city of Toledo in November 1966. The report recommended a system of lakefront seawalls and inland levees in Ohio to protect the area from Lake Erie storm waves and wind generated high lake levels.

DESCRIPTION

11. LOCATION AND GEOGRAPHY

Point Place is located on a peninsula in the northeast portion of the city of Toledo, Ohio. Its shores are bounded on the east by Maumee Bay of Lake Erie and on the west by the Ottawa River. The peninsula extends in a northeasterly direction immediately north of the mouth of the Maumee River. The area under consideration comprises approximately 170 acres of residential property, which includes about 690 improved properties and about 25 acres of vacant land. Most of the residences abutting the lakeshore are partially protected from Lake Erie storm waves by seawall protective works and an earth levee along the eastern shore. Although generally situated on high ground, these residences incur damage from wind-driven waves during severe storms. Residences located within the interior are situated on lands lower than those adjacent to the shoreline. As a result, wind-driven floodwaters from the lake cause extensive overland flooding when the protective works are overtopped. Point Place and its relationship to Toledo, the Ottawa River, and Lake Erie is shown on plate 1 accompanying this report.

12. The topography of Point Place is relatively flat with elevations in the problem area ranging between 2 feet and 10 feet above Lake Erie low water datum, elevation 568.6 feet (International Great Lakes Datum,1955). All elevations on the drawings and hereinafter reported are referred to this datum unless otherwise noted. Under normal conditions, Lake Erie water depths of 6 feet or less extend from the peninsula for a distance of 3 miles or more. A rise in these levels can be expected however, whenever strong northeasterly winds occur. The terrain along the Ottawa River adjacent to Edgewater Drive ranges in elevation from 574.5 feet to 587.5 feet with homes generally above damage elevations due to either Ottawa River or Lake Erie high stages. Storm runoff within the study area is discharged into Lake Erie by pumping facilities located adjacent to the lake at the end of 138th Street and 324th Street. These facilities are adequate for handling normal storm runoff but do not have the capacity to handle Lake Erie flood flows.

13. SUBSURFACE SOIL INVESTIGATIONS

An on-site investigation of existing structures and soil conditions was made in 1969. The results of this field investigation and the analysis made from the data obtained are discussed in appendix B.

14. MAPS AND AERIALS

Maps prepared for the city of Toledo from aerial photography flown in May 1966 cover the area of the considered project. These maps have been supplemented by field investigations within the problem area. Point Place and its relation to Lake Erie is also shown on the U. S. Geological Survey, Oregon Quadrangle 7-1/2 minute series map, and U.S. Lake Survey Chart numbers 3, 39 and 374. Aerial photographs of the peninsula have also been obtained from the U.S. Navy and the Michigan Air National Guard.

15. LAKE ERIE WATER LEVELS

The level of Lake Erie varies from year to year and also from month to month, depending upon the balance between the quantities of water being received by the lake and the quantities of water being removed from the lake. The supplies of water to the lake and removals of water from the lake change continually with the natural variations in hydrologic factors, principally precipitation. Lake Erie water levels have been recorded since 1904 at Toledo, Ohio at the entrance to the Maumee River.

16. The Lake Erie mean stage at Toledo for the period of record is 570.16 feet. The maximum monthly mean Lake Erie water level was experienced in May 1952 at 572.76 feet. In 1969, record highs were established for July and August. The July 1969 mean level of 572.52 feet exceeded the previous high level of 572.51 feet recorded in July 1862 and July 1952, while the August 1969 level of 572.34 feet exceeded the previous high level of 572.22 feet.

17. The lake level is also subject to sudden, spectacular "rises" or "drops" in water levels which occur as the result of strong winds blowing over this large mass of water, significant differences in barometric pressure, or combinations of these forces. Strong winds act to tilt the lake's surface, causing the water to be low at one end and high at the other. Because of its shallowness, the western end of Lake Erie affords little opportunity for storm impelled water to return through reverse currents beneath the surface disturbed by storms. As a result, the water level at Point Place fluctuates markedly under the influence of the winds, varying with the direction, strength, and persistence of the winds. In extreme cases, these "wind set-ups" have produced differences of over 13 feet between lake levels at Buffalo, New York, and Toledo, Ohio. Waves affecting the study area are generated on Lake Erie west of the barrier islands between Point Pelee and Sandusky.

Lake Erie, with its general southwest-northeast orientation, lies near the mean wintertime position of the polar front which exposes it to wind action from severe storms that move across central North America on paths that tend to converge with the region. Temporary rises in lake level have been recorded up to 5.3 feet above the prevailing monthly mean level at Toledo. In the 65 years of record, an instantaneous maximum stage of 575.67 feet was recorded on 27 April 1966 at the Toledo gage. It is to be noted that the elevation of International Great Lakes Datum is 1.45 feet lower than the elevation of United States Geological Survey (USGS) datum and that the Lake Erie low water datum is elevation 568.6 feet IGLD or elevation 570.0 feet USGS. As stated in paragraph 12, elevations used in this report are referred to IGLD datum.

ECONOMIC DEVELOPMENT

18. LAND USE AND DEVELOPMENT

Point Place land use is devoted almost exclusively to residential and small commercial developments. The total population of Point Place is estimated at 10,100 persons, based on the 1960 census data. The only vacant land which appears suitable for future development is located in the northern section of the peninsula within the study area.

19. Land use within the flood-damage area has been and continues to be exclusively residential in nature with approximately 450 residences housing 1,400 persons. The available vacant land within the project limits has been zoned for residential development and can be expected to be used for such, should a project be built.

20. TRANSPORTATION

A complete network of local streets is the main system of travel through the subdivision. One Federal highway, U.S. 24, transverses the area and provides ready access to other state and Federal highways passing through Toledo. Local bus service is also provided from Point Place to downtown Toledo.

21. RECREATION

Boating facilities for recreational craft are provided for the peninsula by several marina establishments along the Ottawa and Maumee Rivers. A reported 2,755 recreational craft were based at about 20 marinas, yacht clubs, boating associations and 850 privately-owned docks located on the Ottawa River in 1965, according to a small-craft facilities survey conducted by The Associated Yacht Clubs of Toledo.

22. SEWER SYSTEMS

Separate storm and sanitary sewer systems at Point Place are provided and maintained by the city of Toledo. The major portion of runoff from storms within the project area is collected by drains and directed to two pumping facilities adjacent to Maumee Bay. The pump house at the end of 138th Street has a capacity of 4,000 gallons per minute (gpm) and the facility along 145th Street at 324th Street can handle 17,000 gpm. Normal sanitary flows are collected and transferred by sewers to the local sewage treatment plant.

CLIMATOLOGY

23. The climate of Toledo is tempered somewhat by the effect of the Great Lakes but, nevertheless, is subject to extremes in temperature and precipitation resulting from cyclonic air masses moving across the continent. The average annual temperature at Toledo is 49.0 degrees Fahrenheit, with seasonal variations ranging from means of 26.3 degrees Fahrenheit in January to 72.7 degrees Fahrenheit in July. The average annual precipitation amounts to 30.50 inches, with a recorded annual snowfall of about 36.2 inches.

FLOODS OF RECORD

24. Flooding at Point Place can happen whenever sustained easterly winds of high velocity occur over Lake Erie. Serious flooding was experienced at the subdivision in March 1952 and April 1966 due to a rise in the lake level caused by sustained northeast winds. Conditions relative to both floods are shown in table 1.

TABLE 1

LAKE ERIE FLOODS AT TOLEDO, OHIO

Date	Item	Elevation (feet)
22 March 1952	Monthly Mean	572.29
	Daily Mean	573.96
	Maximum Recorded Stage	575.07
	Temporary Rise	2.78
27 April 1966	Monthly Mean	570.34
	Daily Mean	573.97
	Maximum Recorded Stage	575.67
	Temporary Rise	5.33

MAXIMUM WATER LEVEL

25. It is to be noted that a lake elevation in excess of the recorded level is experienced adjacent to lakeside protective works during severe storms due to wave runup. The actual lake level at any location is not the water level which causes damage onshore. The wind which causes the temporary rise in the lake surface also generates surface waves. These waves break upon the shore and expend their energy by turbulence, by reflection, or by an increase in potential energy. The increase in potential energy causes the vertical rise above the actual water level which is termed the wave runup. The highest point to which the lake water reaches is termed the ultimate water level and is a combination of the lake level due to storm winds and to the runup of the storm waves. The ultimate water level determines the top elevation to which a structure must be built to prevent wave overtopping and resultant flooding on the landward side. An estimate of the maximum probable water level was made for Lake Erie at Point Place. The peak stage that could be expected is considered to be a combination of the maximum monthly mean water level, the maximum recorded temporary rise due to wind setup, and the maximum wave runup that could occur for these conditions. The wave runup determination used in this report is based on methods presented in the Coastal Engineering Research Center Technical Report No. 4. The peak ultimate water level elevation determined from this condition against a vertical seawall is 588.6 feet. This elevation is at least equivalent to the height of a flood protection structure which would afford protection against a set of conditions corresponding to a standard project flood. Further information on this matter can be found in appendix A.

EXTENT AND CHARACTER OF FLOODED AREAS

26. The area under consideration in this report has a lake frontage about 4,400 feet long and extends from 135th Street to the Michigan-Ohio State line. Approximately 120 acres were inundated and 450 homes damaged during the April 1966 flood. Standing water within the low portions of the interior reached a height of 574.6 feet and was in evidence for 3 days following the storm. Damages from the flood occurred to residences, sanitary facilities, utilities, and to protective structures in the area. Evacuation of several residents from their homes was also required during the flood. The January 1969 assessed valuation of the property flooded in 1966 is approximately $2,134,000 and the market value is approximately $4,962,000.

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27. An additional 38 acres were inundated in Michigan as a result of overtopping of the protective works along Maumee Bay. This land is low, undeveloped marsh which does not sustain damages to any significant degree and would not justify protective works.

FLOOD DAMAGES

28. Flood damages in the Point Place study area are residential in character and are experienced almost entirely between 135th Street and the Michigan-Ohio State line.

29. A flood damage survey was made in October 1952 to determine damages along the United States shoreline during a 12-month period between May 1951 and April 1952. Data obtained during this survey was used as the basis for the economic evaluation in support of the proposed project for Point Place recommended in Document No. 424. In June 1966 a second field survey was conducted to determine the total losses experienced during the April 1966 flood along the Lake Erie shoreline. Residential damages were obtained by the statistical sampling method with approximately 20 percent of the residents incurring losses interviewed. Municipal losses were prepared by responsible local officials who had direct knowledge of the flood damages. Expenditures of organized assistance agencies were also compiled and used in obtaining the total damage. Damage data was obtained for the Point Place subdivision during the survey and was subsequently used in the preparation of the flood report noted in paragraph 8.

30. Damages caused by the 1966 storm were also determined by use of synthetic damage curves and checked with values obtained by interview. Damage estimates for two alternate conditions of interior ponding were then determined and adjusted to reflect January 1969 price levels. It is estimated that a recurrence of the April 1966 flood would produce $415,000 damage. It is also estimated that damages of $152,000 and $711,900 will occur when lake conditions produce interior flooding to a height 1.0-foot below and a height 0.5-foot greater than that experienced during the April 1966 storm. These damage estimates were used to develop the stage-damage relationship which was combined with the annual maximum daily mean lake stage-frequency relationship to obtain the average annual damage. In the determination of annual damage, it was assumed that the annual maximum daily mean lake stage is a reasonable index of all variable conditions of lake level fluctuations associated with the annual inundation damage. The average annual damage caused by wind-induced high lake levels at Point Place is thus estimated to be about $78,300. No adjustment has been provided in the estimate for future flood damages due to prospective growth, since available land within the study limits is considered presently unsuitable for development.

31. A joint study is being accomplished by the International Joint Commission of Canada and the United States with assistance of various Government agencies and departments. The purpose of this study is to investigate the various factors that affect the fluctuations of the levels of the Great Lakes, as well as to investigate the feasibility of further regulation of the lake levels. Lake Erie, along with Lakes Michigan and Huron, are not regulated. In connection with this study, a field survey was conducted in 1966 along the United States and Canadian shorelines that constituted an engineering field appraisal of existing shore properties as well as for the purpose of collecting additional shoreline physical data. Very little high water damage data was obtained in this survey. The previous comprehensive survey for the purpose of shore property damage data was accomplished for the Preliminary Examination Report on Property Damage on the Great Lakes Resulting from Changes in Lake Levels, dated 9 June 1952. This report was authorized by resolution adopted 26 March 1952 by the Committee on Public Works of the House of Representatives, United States.

32. In the IJC study for specified reaches along the U. S. shoreline, an ultimate water level damage curve relationship is being prepared which will be used to determine the monetary benefits which would result from any lake regulation plan on unprotected shore properties that sustain damage. For these purposes the damage data for the period May 1951 to April 1952, updated to 1966 development and price level, was utilized to develop the upper range of dollar damages possible. Also within the reaches of shore for which local protection is considered economically feasible, computations are being made to determine the benefits which will result from reduction in construction/maintenance cost of local protection due to regulation.

33. The present schedule for the Water Levels Study provides for the completed report to the International Joint Commission to be submitted by October 1973. Since the local interests indicate an unwillingness for a seawall any higher than 580.6 the recommended design height is less than the ultimate water level height that might occur. If Lake Erie were regulated (project life for regulatory works for Lake Erie being utilized in the IJC study is 1985-2035) some reduction in the Lake Erie mean monthly high water level would result. In addition, regulation will reduce the frequency of occurrence of higher ultimate water levels of 580.6. Regulation of Lake Erie will not forestall the need for the proposed local protection but will, instead, augment it.

EXISTING CORPS OF ENGINEERS' PROJECTS

34. No Corps of Engineers' flood control projects have been authorized or completed that affect Point Place, Ohio.

IMPROVEMENT BY OTHERS

35. Concrete seawalls ranging in elevation from approximately 575.0 feet to 578.5 feet provide some protection along Lakeside Avenue and 145th Street. Because of inadequacies in design and construction, the existing works have been plagued with washouts and undermining for many years. Improvements to the walls in the past have been limited, since the cost of maintenance far exceeds the resources of the individual landowner. An earth levee along the northern and easterly most portions of the peninsula has been constructed to an approximate elevation of 577.5 feet. The levee, protected by a strip of marshland between it and the lake, appears in reasonably good condition. Since most of this protective system lies in Michigan however, only a portion is under control of local authority.

REDUCTION OF FLOOD DAMAGES

36. There are various measures for reducing the potential for flood damages. These measures can be divided into three categories. One category is the control over the lake. This involves structural measures and relies mainly on physical alterations such as seawalls, breakwaters, earth dikes, and other protective works to control the water. The ultimate goal is to prevent the lake water from inundating low land areas. Another category is the control over the land. Land-use controls are regulations which do not attempt to reduce or eliminate flooding but are designed to mold the area development in such a manner as to lessen the damaging effects of floods. These regulations imply the adoption and use of legal tools by communities with which to control the extent and type of future development which will be permitted. For these controls to be effective, it is necessary that the public understand the general flood problem, the degree of risk, and the methods than can be used to control use of the land. Zoning ordinances, subdivision regulations, building codes and health regulations are various means of effecting such land-use controls. The third category for reducing or preventing flood damages consists of such other methods as flood proofing, flood forecasting, warning signs, and temporary evacuation.

IMPROVEMENTS DESIRED

37. Representatives of Point Place have indicated that they would be interested in any reasonable plan that would provide adequate flood protection. The city of Toledo has indicated a strong interest in this matter and is in general agreement with flood protection as recommended in the 1952 report. However, the City has also expressed a desire to have the improved shoreline protective

works raised to elevation 580.6 feet and have protective levees placed adjacent to the Michigan-Ohio State line to an elevation of 578.6 feet. The plan of improvement proposed in the 1952 report considered, among other things, shoreline protective works to an elevation of 579.6 feet and incorporated earth levees along the northern portion of the problem area in Ohio. These levees have since been altered, and as a result, no protective levees proposed in the plan of improvement are located north of the problem area in Ohio.

FLOOD PROBLEMS

38. Overtopping of the low areas and seawalls in several locations along the shoreline of the Point Place subdivision can occur whenever Lake Erie water levels are raised by sustained northeast winds. Inundation is general throughout the area during these storms with depths of water as great as 4 feet above the ground elevation. Pumping capacity within the low-lying areas of the peninsula is inadequate to handle excessive overtopping during such storms. It has been determined that under present conditions, damage from wind-induced lake levels can happen whenever a lake stage greater than 572.6 feet exists in conjunction with strong easterly winds. Floodwaters from the Ottawa River do not contribute to the flood problem under consideration due to high ground along the river side of the peninsula.

SOLUTIONS CONSIDERED

39. Several methods of correcting the flood problems at Point Place have been investigated. During the preparation of the 1952 survey report, construction of an off-shore breakwater was considered, but found to be ineffective since damage from inundation due to high mean lake levels would not be prevented.

40. Construction of a system of jetties or groins, while partially effective in the reduction of wave heights and some value for erosion prevention at Point Place, would not prevent inundation.

41. Construction of spoil dikes along the bay shore at Point Place is not considered to be a feasible solution to prevention of damages. The large first cost and maintenance of such a project, including measures to prevent loss of fill by wave action, would not be economically justified by flood control benefits.

42. Although considered an effective tool in controlling future development for a region,land-use controls would not be effective in materially reducing existing flood losses at Point Place. Approximately 95 of 120 acres flooded during the April 1966 storm are currently developed for residential use. It is anticipated that no significant development of remaining usable lands will occur until the threat of periodic flooding has been eliminated.

43. Other methods considered for correcting the flood problem at Point Place included structural flood proofing and temporary evacuation. Although effective and economical when incorporated into new buildings, residential construction at Point Place does not generally lend itself readily to flood proofing because of the extensive use of materials that do not impede the passage of water. Evacuation of the flood area as a means of flood prevention is also not practical owing to the large number of persons and property requiring relocation. Damages to residential property would still be significant for such a method of prevention.

44. Improvement plans for Point Place are limited by the presence of existing seawalls and levees. Inclusion of these structures in any plan results in savings that would not otherwise accrue. The 1952 survey report recommended seawalls which incorporated much of the protective works. A review of the above plan reveals it to be, in general, still suitable. The plan, for present development, will combine shoreline seawalls with inland levees to form a protective network around the flood prone area. The plan is considered feasible and is the only flood protection scheme found that would, within economic limits, provide a high degree of flood protection.

FLOOD CONTROL PLAN

45. BASIS FOR DESIGN

As stated in paragraph 25, the maximum probable water level that could be expected at Point Place is 588.6 feet. The probability is very remote for the simultaneous occurrence of conditions necessary to obtain this stage. It is obvious that protective works to this height would be out of the question economically, entirely block the view of the lake, and make access to the lake extremely difficult. Local interests have indicated that a lakefront protective structure above elevation 580.6 feet is unacceptable to them. They fully realize that structures at this height will not afford complete protection against all possible combinations of lake level and storm wave runup, but they prefer to assume the risk of some damage rather than permanently lose the benefits of a lakeside community.

46. Steel sheet pile and rock faced concrete walls along Maumee Bay with a top elevation of 580.6 feet, in conjunction with a system of inland levees will afford a high degree of protection to Point Place. The maximum instantaneous recorded level at Toledo since 1904 was 575.7 feet which occurred during the April 1966 storm.

47. With a lake level of 575.7 feet, it is estimated that the maximum wave height which could reach a shore structure without breaking would be 5.9 feet. The crest of such an unbroken wave would have an elevation of 579.8 feet. It is therefore concluded that under particularly severe conditions, lakeside protective

works at an elevation of 580.6 feet will afford a high degree of flood protection, although some spray overtopping will still occur.

48. SELECTED PLAN

The proposed plan for flood protection at Point Place consists of construction of a steel sheet piling seawall about 2,300 feet in length, increasing the height of about 2,100 feet of existing concrete seawall and 1,900 feet of existing earth levee, and construction of an additional 1,800 feet of inland levee. Details of the project features are depicted on the accompanying report plates.

49. SEAWALLS

The residential community south of 135th Street is situated above damaging water levels and therefore precludes additional protection. From a point approximately 100 feet south of 135th Street to the extension of 141st Street, the existing concrete seawall has been undermined and partially destroyed to the extent that it cannot be safely incorporated in the plan of improvement. The proposed plan for this reach of shore provides for the construction of a steel sheet pile wall to a top elevation of 580.6 feet a minimum of 15 feet lakeward of the existing concrete seawall. The steel sheet pile wall would be a Z-27 section, 29 feet in length and would be capped with an angle. Sand fill would be provided between the steel sheet pile wall and existing concrete wall to elevation 576.6 feet, 8 feet above low water datum.

50. From the extension of 141st Street to the southerly end of the existing earth levee east of 326th Street, the existing concrete seawall would be incorporated into the plan of improvement by capping it with concrete to a top elevation of 580.6 feet. The capped seawall will be supported by 12BP53 steel piles, 50 feet in length, driven at 15-foot intervals on the landward side of the wall. Riprap would also be provided on the lakeward side and would be to elevation 570.6 at a slope of 1 vertical on 1 horizontal.

51. LEVEES

Modification of the existing earth levee located east of 326th Street is required to provide adequate protection against Lake Erie storms. Portions of this dike in the vicinity of 145th Street were severely damaged during the April 1966 storm when erosive wave action reduced its thickness to as little as 3 feet. Emergency repairs of a temporary nature were subsequently provided by the City following the storm. To prevent further damage from future storms, riprap protection would be provided on the lakeward side of the levee for a length of 500 feet immediately north of the concrete seawall at 145th Street and 326th Street. The riprap would be placed to a top elevation of 580.6 feet and would be sloped to the grade of the

existing levee, approximately 1 vertical on 2 horizontal. From here to the Michigan-Ohio State line, the earth levee is protected by a strip of marshland between it and the lake and is at an approximate elevation of 578.0 feet. It is proposed to raise this section of the levee to elevation 580.6 feet with borrow excavated from the landward side of the levee. The levee top width would be 20 feet and the sides would slope at 1 vertical on 2 horizontal.

52. Much reliance for flood protection is presently placed on the existing levees located in Michigan. Removal or alteration of these works could seriously reduce the efficiency of the proposed flood control improvements. It is therefore necessary that an earth levee be constructed in Ohio adjacent to the State line in order to provide an adequate protection network under the complete control of local authorities. The proposed levee would be about 1,800 feet long and would run in a westerly direction adjacent to the State line from the present levee system to high ground in the vicinity of Edgewater Drive. The levee would be subject to high water levels during storm periods if the existing levees in Michigan are altered; however, the levee would not experience direct wave action because of high ground at the northern end of the peninsula and because of its partially enclosed location in North Maumee Bay. The maximum wave crest for a lake level of 575.7 feet would be 577.3 feet, caused by an easterly wind. Since no significant runup would occur at the levee due to its orientation, a levee top elevation of 578.6 feet was selected to provide a safe level of protection. The levee would have a top width of 6 feet and would have sides which slope at 1 vertical on 2 horizontal. The levee surface would be seeded to provide a sod cover. Riprap would not be required since the levee would not be subjected to direct wave action. Construction of the levee will not interrupt established drainage patterns north of the protective works. Drainage in the area to be crossed by the levee now has no outlet. Due to the flat topography, water accumulating in the immediate area escapes by infiltration and transpiration. However, should future conditions warrant drainage works, an outlet structure through the existing levee could be provided.

53. INTERIOR DRAINAGE

The existing interior drainage system at Point Place includes pumping stations with a combined capacity of 21,000 gpm located at the ends of 138th Street and 324th Street adjacent to Maumee Bay. Storm water runoff is transferred to the pumping facilities by a system of storm interceptor sewers with a capacity to accomodate runoff from a 5-year frequency storm within the residential sections of the project area. These existing drainage structures preclude the need for additional interior drainage facilities. The existing pumping plants have been designed to handle a 15-year frequency storm and are therefore adequate for the removal of interior surface runoff and spray from Lake Erie storms. Construction of the proposed improvements would not alter the amount of runoff in the project area during storm periods.

MULTIPLE PURPOSE FEATURES

54. The plan of improvement at Point Place as described herewith has the single purpose of flood control and has no other water use features which could be effectively developed.

ESTIMATE OF FIRST COST

55. An estimate of the first cost of the proposed plan of improvement is summarized in table 2. The estimate reflects January 1969 prices and includes contingency allowances of 20 percent for construction items and 10 percent for land acquistition. Details are presented in appendix D.

TABLE 2

ESTIMATE OF FIRST COST

Item	Federal cost	Non-Federal cost	Total cost
Land acquisition		$ 46,200	$ 46,200
Seawalls	$662,200		662,200
Levees	80,000		80,000
Engineering & design (1)(2)	103,900		103,900
Supervision & administration(3)	67,700		67,700
Subtotal	$913,800	$ 46,200	$ 960,000
Local cash contribution (4)	-241,800	+241,800	-
Total first costs	$672,000	$ 288,000	$ 960,000

(1) Engineering and design estimated at 14 percent.
(2) Preauthorization costs of $11,500 are not included.
(3) Supervision and administration estimated at 8 percent.
(4) Project costs in excess of 70 percent Federal limitation.

ESTIMATE OF ANNUAL CHARGES

56. Annual charges, shown in table 3, were computed using an interest rate of 4-7/8 percent for both Federal and non-Federal costs and a 50-year project life. Interest during construction is not included since construction time is expected to be less than 2 years. An annual charge for maintenance of the structure is included in the estimate. Additional details are presented in appendix D.

TABLE 3

ESTIMATE OF ANNUAL CHARGES

Item	Federal	Non-Federal	Total
Investment costs	$672,000	$288,000	$960,000
Annual charges			
Interest	32,800	14,000	46,800
Amortization	3,300	1,500	4,800
Maintenance	-	5,000	5,000
Total annual charges	$ 36,100	$20,500	$ 56,600

ESTIMATE OF BENEFITS

57. TANGIBLE BENEFITS

The major tangible benefits from a local protection project at Point Place would be from the prevention of flood damages. Flood control benefits resulting from the proposed plan of improvement are derived as the difference between losses that would occur under existing conditions and losses that would occur after construction of the project. The estimated benefits are presented in table 4 and the details pertaining to their derivation are presented in appendix C. At present, periodic flooding has created a detrimental influence in the area, and as a result, no significant growth is anticipated for the area.

58. In addition to damage prevention benefits, special land enhancement benefits would be realized at Point Place as a result of the considered flood protection system. It is anticipated that a substantial portion of the protected area will be put to a higher use by an intensified development for residential purposes. Appreciable increases in the value of vacant lands in the Point Place area may be expected. It is anticipated when the periodic flooding has been reduced and effects of the project felt, a gradual increase in values over the next several years will result in a total potential enhanced value estimated to be $69,000. Since full realization of the enhancement will not be immediate, the total potential land enhancement benefits have been adjusted to reflect a deferred growth. The estimated average annual land enhancement benefits are presented in table 4 and discussed in further detail in appendix C.

TABLE 4

AVERAGE ANNUAL BENEFITS

	Average annual damage	Residual damage	Average annual benefits
Damage prevention benefits	$78,300	$ 3,000	$75,300
Land enhancement benefits			$ 2,100
Total project benefits			$77,400

59. INTANGIBLE BENEFITS

The most significant intangible benefit which would occur from the plan of improvement is the reduced threat of drowning during flood periods. Additional benefits would result by eliminating the need to evacuate homes during most high water periods. Also, damp living quarters, obstructions of the road network in the area, and inconveniences which result from floods would be reduced. It is not possible to assign monetary values to these intangible benefits. However, the cited benefits are important to the health and welfare of local residents.

PROJECT FORMULATION AND ECONOMIC JUSTIFICATION

60. Project formulation studies were made to determine the most feasible, and optimum method of flood control protection for Point Place, Ohio.

61. After proper consideration of past investigations and existing protective works at the study area, it appeared that a scheme combining shoreline seawall protection with inland levee works is the soundest method of protection. Other flood control methods considered have been presented in paragraphs 39 through 44 of the main body of the report.

62. Project formulation studies were carried out to determine the degree of protection for the considered plan of improvement that would provide the maximum excess of benefits over costs, i.e., the optimum project. Table 5 presents a summary of the pertinent data derived in these studies. Included, on both overall and incremental bases, are annual benefits, annual charges, and benefit-cost ratios for various design protection levels.

63. From the data presented in table 5, it can be seen that the proposed improvements would provide the maximum excess of benefits over costs. The improvements would prevent damage from all Lake Erie storms resulting from the maximum possible wave runup that can be produced by severe easterly winds occurring in conjunction with a high lake stage of 25 year frequency or less. Minor spray or splash overtopping could occur when a lake stage with a frequency of less than 25 years exists, but the intensity would not be sufficient to damage lawns along the back of the protective works. It is recognized that the degree of protection provided varies in proportion to the wind speed and wind direction over the lake. This degree of protection therefore represents a sound basis for design. The benefit-cost ratio for the selected plan would be 1.4 to 1. Further description and data on these studies are presented in appendix C.

TABLE 5

PROJECT FORMULATION STUDIES - DETERMINATION OF OPTIMUM PROJECT

Lake Erie stillwater elev. at Toledo(1)	Lake Seawall Top elev.	Lake Seawall Above lwd (feet)	Flood Frequencies Per-cent chance	Flood Frequencies Approximate recurrence interval (yrs)	Average annual benefits (dollars)	Average annual costs (dollars)	Benefit vs. cost ratio	Incremental average annual benefits (dollars)	Incremental average annual costs (dollars)	Incremental benefit vs. cost ratio
574.9	582.6	14.0	0.4	250	80,100	67,600	1.18	700	5.500	0.13
574.4	581.6	13.0	1.4	71	79,400	62,100	1.28	2,000	5.500	0.36
574.0	580.6*	12.0	4.0	25	77,400	56,600	1.37	5,000	4,800	1.04
573.7	579.6	11.0	9.0	11	72,400	51,800	1.40	12,400	4,800	2.58
573.3	578.6	10.0	17.3	6	60,000	47,000	1.28	16,300	4.600	3.54
573.0	577.6	9.0	27.5	4	43,700	42,400	1.16			

* Project selected for design plan of improvement.

(1) Lake Erie stillwater elevation at which damage could begin to occur.

PROPOSED LOCAL COOPERATION

64. The local cooperation required in connection with the considered plan of protection would require that local interests:

a. Provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction of the project;

b. Hold and save the United States free from damages due to the construction works;

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

d. Provide a cash contribution presently estimated at $241,800, or 30 percent of the total first cost of the project, less the fair value of lands, easements, rights-of-way and relocations;

e. Accomplish without cost to the United States all necessary changes to buildings, highway bridges, including approaches, streets, sewers, and utilities, as may be required for construction of the project; and

f. At least annually inform affected interests that the project will not provide complete flood protection.

65. Local interests have indicated a willingness to participate in, and ability to finance, a flood control project at Point Place. The city of Toledo has assured the Corps of Engineers of its full cooperation in the development of a flood control program at Point Place and that it will represent local interests in providing the non-Federal share of the cost. The city of Toledo is legally empowered to tax and to participate with the Federal government in this project. At a public hearing held on 24 October 1969 in Toledo, Ohio, representatives from the city of Toledo and State of Ohio indicated that they can each furnish 40 percent of the local share.

APPORTIONMENT OF COSTS AMONG INTERESTS

66. The initial cost of the proposed project at Point Place has been apportioned between Federal and non-Federal interests in accordance with current Federal policies. The basis for cost-sharing for single-purpose flood protection projects is contained in Engineering Regulation 1165-2-19 which provides that the costs of such projects be apportioned in accordance with the cost-sharing formula adopted in the Flood Control Act of 1958. The degree of participation by the Federal government as specified in the 1958 Flood Control Act shall not exceed 70 percent of the total first costs for single-purpose lake flood protection projects. Therefore, non-Federal interests would be required to bear at least 30 percent of the project costs. Maintenance of the improvement would be the responsibility of local interests. Apportionment of the considered improvement costs are summarized in table 6; additional details are presented in appendix D.

TABLE 6

APPORTIONMENT OF PROJECT COSTS

	First costs	Annual maintenance
Federal (excluding preauthorization costs)	$672,000	
Non-Federal	288,000	$5,000
Total	$960,000	$5,000

COORDINATION WITH OTHER AGENCIES

67. Throughout the period of preparation of this report there has been continuing coordination between the District Office and representatives of the city of Toledo. It has been determined that the city has the legal capability and financial responsibility to be the cooperating agency. The State of Michigan has been furnished details of the plan of improvement and has advised that the project does not adversely affect the lands and waters of Lake Erie lying within the boundaries of Michigan.

68. Comments concerning the considered plan of improvement were solicited from interested Federal and State agencies and no adverse comments have been received. The replies are included in appendix E.

PUBLIC HEARING

69. A late stage public hearing was held in Toledo, Ohio, on 24 October 1969 so that all interested parties could be afforded full opportunity to express their views concerning the character and extent of the proposed improvements and the need and advisability of its execution. The meeting was attended by 39 people including representatives of Federal, State and local agencies, affected property owners and private individuals. The State of Ohio representative indicated at the hearing that the State could furnish 40 percent of the local share since the City could furnish 40 percent. Local interests were generally favorable to the proposed flood control improvement works. A digest of the hearing proceedings is contained in appendix F.

DISCUSSION

70. Damaging floods have occurred at Point Place as a result of temporary rises in Lake Erie water levels and wave runup caused by strong northeasterly winds. Concrete seawalls and earth dikes have been constructed by local interests along the eastern shore of Point Place for flood prevention. While this work has reduced flood damages to some extent, a serious flood problem still exists.

71. In view of the existing protective works, any plan of improvement which includes these structures results in savings that would not otherwise accrue. The plan considered in this report consists of a seawall about 4,400 feet long, in conjunction with earth dikes 3,700 feet in length. The plan of improvement would incorporate much of the existing works and would eliminate about 96 percent of the flood damages to the residential developments within the project area. The plan of improvement would prevent damage from all Lake Erie storms resulting from the maximum possible wave runup that can be produced by severe easterly winds occurring in conjunction with a high lake stage of 25 year frequency or less.

72. The total first cost of the proposed improvement plan is estimated to be $960,000 (exclusive of $11,500 preauthorization study costs), $672,000 of which would be a Federal cost. Local interests would be required to participate in the project as detailed in paragraph 64. The first cost of this local cooperation is estimated at $288,000 and the maintenance cost is estimated at $5,000 per annum.

73. Additional information on recommended and alternative projects called for by Senate Resolution 148, 85th Congress, adopted 28 January 1958, is contained in Supplement I to this report.

CONCLUSIONS

74. The plan of improvement considered most suitable for Point Place consists of seawall protection adjacent to Maumee Bay from the midpoint of 134th and 135th Streets to the end of 145th Street, modification to the existing levee east of 326th Street extending northerly from 145th Street to the Michigan-Ohio State line, and construction of an east-west earth levee adjacent to the State line. The considered plan is economically justified with a 1.4 benefit-cost ratio. Other methods of protection have been considered and found to be less effective than the considered plan. This plan would eliminate about 96 percent of the flood damages in the protected area caused by wind-induced high lake levels. It is recognized however, that under particularly severe conditions and considerably in excess of those experienced in the past, a considerable amount of water could overtop the proposed improvement. The proposed plan of improvement would prevent damage from all Lake Erie storms resulting from the maximum possible wave runup that can be produced by severe easterly winds occurring in conjunction with a high lake stage of 25 year frequency or less. The plan of improvement is in accord with the desires of local authorities. Local interests have indicated they are both willing and able to comply with the proposed conditions of local cooperation.

75. Federal participation in works of improvements for flood level reduction by various combinations of structural systems does not prohibit the State and local communities from obtaining assistance through the Corps' Flood Plain Management Services Program. The Corps'Flood Plain Management Services program operates out of the Detroit District for the city of Toledo. The purpose is to make available to Federal, State and local governmental agencies information, guidance, and advice on the flood hazard which will permit them to proceed with such planning, engineering studies, construction, and other action as may be necessary for wise use of flood plains. The program includes: Flood plain information reports, technical services and guidance, guides, pamphlets, related research, and comprehensive flood damage prevention planning. Flood plain information reports are prepared upon request of State and local agencies to delineate flood problems in communities throughout the country. A typical report includes maps or mosaics, profiles, charts, tables, photographs, and a narrative describing the extent, depth, and duration of flooding by floods of the past and those that may reasonably be expected in the future. It is the responsibility of the State and local governmental agencies to publicize the information and put it to use through planning groups, zoning boards, private citizens, engineering and planning firms, real estate and industrial developers , and others to whom it would be useful. Federal agencies use the flood plain information in their respective considerations and decisions. Technical assistance is given State and local governments in evaluating and using flood data in making individual decisions concerning flood hazards. This includes brief, preliminary type flood plain information reports, where necessary, for specific sites. Necessary flood plain information and guidance are provided, on request, to permit wise decisions concerning locations of public buildings ,subdivisions, and other land uses. Pamphlets and guides pertaining to flood plain regulations, flood proofing, and other related actions are prepared. They are made available for use of Federal, State and local governments, and citizens in planning and taking action to reduce their flood damage. Comprehensive flood damage prevention planning, at all appropriate governmental levels, is the ultimate objective of the program. This brings State and local officials into the planning action to a greater degree and insures increased consideration of other alternative measures as well as flood control.

RECOMMENDATIONS

76. It is recommended that a Federal project be authorized for lake flood protection at Point Place, Ohio,to provide a system of seawalls and levees, incorporating the existing protective works as described in this report, subject to such modifications as in the discretion

of the Chief of Engineers may be advisable, at an estimated cost of $960,000 for construction. The recommendation for construction of this project is contingent upon the provision that no funds be expended by the United States until local interests have given assurances satisfactory to the Secretary of the Army that they will:

a. Provide without cost to the United States all lands, easements, and rights-of-way necessary for the construction of the project;

b. Hold and save the United States free from damages due to the construction works;

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

d. Provide a cash contribution presently estimated at $241,800, or 30 percent of the total first cost of the project, less the fair value of lands, easements, rights-of-way and relocations;

e. Accomplish without cost to the United States all necessary changes to buildings, highway bridges, including approaches, streets, sewers, and utilities, as may be required for construction of the project; and

f. At least annually inform affected interests that the project will not provide complete flood protection.

The net cost to the United States for the recommended improvements is estimated at $672,000 for construction.

James T. White

JAMES T. WHITE, JR.
Colonel, Corps of Engineers
District Engineer

[First endorsement]

NCDPD-PF(NCEED-PB-10 Feb 70)
SUBJECT: Survey Report on Flood Control at Point Place, Toledo, Ohio

DA, North Central Div., CE, Chicago, Ill. 27 February 1970

TO: Chief of Engineers

I concur in the conclusions and recommendation of the District Engineer.

W. W. WATKIN, JR.
Brigadier General, USA
Division Engineer

SURVEY REPORT ON FLOOD CONTROL

AT

POINT PLACE

TOLEDO, OHIO

APPENDIX E

COMMENTS FROM OTHER AGENCIES

TABLE OF CONTENTS

JAMES A. RHODES
GOVERNOR

FRED E. MORR
DIRECTOR

STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
OHIO DEPARTMENTS BUILDING
COLUMBUS 43215

August 18, 1969

Colonel James T. White, Jr.
District Engineer
U. S. Army Engineer District, Detroit
P. O. Box 1027
Detroit, Michigan 48231

Dear Colonel White:

RE: Point Place Toledo - Flood Protection Project

The location and details of the considered flood control project as shown on the drawings furnished with your letter of 30 June 1969 have been reviewed.

We concur with your considered plan of improvement and hope that this project, which will provide protection to the flood prone area of Point Place, will be favorably considered by the Congress for authorization and subsequent construction.

If we may be of further assistance, do not hesitate to contact us.

Sincerely,

FRED E. MORR
Director

FEM:vg
c. c. Eugene R. Kasper
Commissioner of Engineering
& Construction, City of Toledo

JAMES A. RHODES, Governor

EMMETT W. ARNOLD, M.D.
Director of Health

450 East Town Street
P.O. Box 118
Columbus, Ohio 43216

State of Ohio

Department of Health

Re: Toledo
Sewerage

August 13, 1969

Major Elbert A. Welsh
Detroit District Corps of Engineers
P.O.Box 1027
Detroit, Michigan 48231

Dear Major Welsh:

The preliminary plan of flood protection improvements for Point Place, Toledo, Ohio was received by this office August 1, 1969. The improvement consists of steel sheet piling, concrete seawalls, and earth dikes along the shoreline from 134th street to the Michigan-Ohio line and west along this line about 1900 feet.

The protected area is served by separate sanitary sewers discharging to the Toledo system. Storm water at times of flood will be pumped to the Maumee Bay by pumps at 138th street and 324th street.

The proposal is satisfactory to this department.

Yours very truly,

John E. Richards

John E. Richards
Engineer-in-Charge
Sewage and Industrial Waste Unit
Division of Engineering

PMF:poc

cc: Mr. James Frook
cc: Northwest District Office

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

311 Old Federal Building
Columbus, Ohio 43215

August 5, 1969

Major Elbert A. Welsh, Acting District Engineer
Department of the Army
Detroit District, Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231

Dear Major Welsh:

Thank you for giving the Soil Conservation Service the opportunity of reviewing your preliminary survey report on flood protection for Point Place, Toledo, Ohio. We have reviewed the drawings and find no objection to this project. We assume that adequate pumping or other internal drainage features are present or will be installed. We note that pump houses do show on the drawings.

If any Soil Conservation Service official, or data, would be of help to you in this project, we would be happy to furnish it.

Sincerely,

Jane L. Hoskins Acting
Raymond S. Brown
State Conservationist

Attachments

UNITED STATES
DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
GREAT LAKES REGION
33 EAST CONGRESS PARKWAY, ROOM 410
CHICAGO, ILLINOIS 60605

August 4, 1969

File Reference: NC EED-PB

Colonel James T. White, Jr.
District Engineer
U. S. Army Corps of Engineers,
Detroit District
P. O. Box 1027
150 Michigan Avenue
Detroit, Michigan 48231

Dear Colonel White:

The plans for the survey report for the Point Place Project, Toledo, Ohio, have been reviewed and discussed with your staff.

The area has separate sewers for sanitary wastes and, therefore, storm water drainage in the protected area should be suitable for pumping through the existing pump stations directly to Lake Erie. The prevention of flooding in the area will restrict the amount of storm water that enters the sanitary system through manholes and basement drains and this should reduce treatment plant bypasses.

In completing the specifications for construction, every effort should be made to eliminate schedules or construction site layout that would allow discharge or spillage of hazardous material during storage, handling or use. Likewise, the potential for erosion during construction should be carefully controlled to reduce turbidity and sedimentation in Maumee Bay.

Thank you for the opportunity to review this project in the initial stages. Please provide a copy of the completed report to facilitate the subsequent review that is required under Executive Order 11288.

Sincerely,

R. J. Schneider
Acting Regional Director

CITY OF TOLEDO OHIO

WM. J. GROSS
CITY MANAGER

August 22, 1969

Major Elbert A. Welsh
Acting District Engineer
Detroit District
Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231

Dear Major Welsh:

In reply to your letter of July 30, 1969, I am pleased to advise you that the Council of the City of Toledo has passed a resolution declaring the intent of the City to cooperate and participate financially with the federal government in the construction of a flood control project for the Point Place area. A copy of this resolution is attached.

Should you need any additional information, please contact me.

Very truly yours,

Thomas Basich

Wm. J. Gross
City Manager (acting)

Enclosure: as stated

WJG:iw

CC: Mr. C. T. Foust, w/enclosure
815 Ohio Depts. Bldg.
Ohio Dept. of Natural Resources
Columbus, Ohio 43215

Mr. Robert A. Lehsten, w/enclosure
6039 - 326th Street
Toledo, Ohio 43611

Thomas Basich, Service Director

Eugene R. Kasper, Commissioner, Engineering & Construction

Aug. 8, 1969
EME/vp

RESOLUTION NO. 234-69

DECLARING THE INTENT OF THE CITY OF TOLEDO TO COOPERATE AND PARTICIPATE FINANCIALLY WITH THE FEDERAL GOVERNMENT IN THE CONSTRUCTION OF A FLOOD CONTROL PROJECT FOR THE LAKESIDE AVENUE AND CARLAND BEACH AREA OF THE CITY OF TOLEDO AND DECLARING AN EMERGENCY.

WHEREAS, the Federal Government, through the Corps of Engineers, is proposing a flood control project for the Carland Beach and Lakeside Avenue area of Toledo; and,

WHEREAS, Federal Projects of this type require local participation for the 30% non-federal share of the cost of such projects, plus other items of local cooperation, and,

WHEREAS, the proposed federal project is presently estimated to cost $960,000 of which 30% or $288,000 is designated as the non-federal share to be borne by local interests; and,

WHEREAS, the Corps of Engineers desires a statement from the City of Toledo indicating its willingness and ability to furnish the required local cooperation; NOW, THEREFORE:-

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF TOLEDO:

SECTION 1. That the City of Toledo shall undertake the responsibility for the non-federal share of the proposed federal flood control project for the Carland Beach and Lakeside Avenue areas of the city; and in addition, shall provide the local cooperation required for the project. The local cooperation required for the project is as follows:

(a) Provide without cost to the United States all lands, easements and rights-of-way necessary for the construction of the project (Estimated cost = $46,200).

(b) Hold and save the United States free from damages due to the construction work.

(c) Assure maintenance and replacement or repair of the project after completion, in accordance with regulations prescribed by the Secretary of the Army.

(d) Provide a cash contribution presently estimated at $241,800, or 30% of the total first cost of the project, less the fair value of lands, easements, rights-of-way and relocations.

(e) Assume any additional responsibilities or contributions that may be considered warranted by the reporting officer.

SECTION 2. That the $288,000 non-federal share be apportioned between the City of Toledo and the benefiting property owners, with the City's share being 40% or $115,200 and the remaining 60% or $172,800 being assessed against the benefiting property.

SECTION 3. That the City Manager is authorized and directed to inform the Corps of Engineers of the City of Toledo's willingness and ability to furnish the required local cooperation and financial participation.

SECTION 4. That this Resolution is hereby declared to be an emergency measure and shall take effect and be in force from and after its adoption. The reason for the emergency lies in the fact that this Resolution is necessary for the protection of the lives and property of the citizens of the City of Toledo and the public property of the City of Toledo and is therefore in the interests of the public safety and welfare.

Vote on emergency clause: Yeas 8 Nays 0

Passed August 19 1969/recess session, as an emergency measure: Yeas 8 Nays 0

Mayor

Attest: Robert F. Rebensal
Clerk of Council

PUBLISHED IN TCJ 8/23/69

I hereby certify that the foregoing is a true and correct copy of an Ordinance passed by Council August 19, 1969, recess session. Robert F. Rebensal

Attest: Robert F. Rebensal, Clerk of Council

Harbor & Bridges
Management Services
Finance
Auditor
Engineering
Treasury, 3
Transcript, 2

TOLEDO METROPOLITAN AREA COUNCIL OF GOVERNMENTS
519 National Bank Building / Madison at Huron / Toledo, Ohio 43604 / Phone (419) 241-9155

September 30, 1969

Mr. Elbert A. Welsh
Major, Corps of Engineers
Acting District Engineer
Department of the Army
Detroit District, Corps of Engineers
P. O. Box 1027
Detroit, Michigan 48231

Re: Areawide Review Survey Report on Flood Control Protection for Point Place, Toledo, Ohio

Dear Major Welsh:

On September 17, 1969, the Toledo Metropolitan Area Council of Governments considered the request for regional comment on the above stated project. The Executive Committee found the proposed project to be consistent with long range goals for the development of the Toledo metropolitan area and recommends approval.

Sincerely,

C. Thomas Rice

C. Thomas Rice
Executive Director

fb

cc: Mr. Bill Herr, Toledo-Lucas County Plan Commissions

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING, LANSING, MICHIGAN 48926

RALPH A. MAC MULLAN, Director

January 27, 1970

Colonel James T. White, Jr.
District Engineer
U. S. Army Corps of Engineers
P. O. Box 1027
Detroit, Michigan 48231

Re: NCEED-PB

Dear Colonel White:

Your letter of January 15, 1970 transmitting plans for Point Place, Toledo, Ohio flood control protection has been received.

We have reviewed the plans for the proposed flood protection structures and you are advised that in our opinion, the project is not adverse to the lands and waters of Lake Erie lying within the boundaries of Michigan. This opinion includes the associated fish and wildlife interests.

This letter serves as approval of all divisions of the Department of Natural Resources, including comments in compliance with the Wildlife Coordination Act.

Thank you for informing us of proposed construction adjacent to our boundary and providing the opportunity to offer comments.

Sincerely,

Ralph A. MacMullan
OBG

Ralph A. MacMullan
Director

United States Department of the Interior

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Federal Building, Fort Snelling
Twin Cities, Minnesota 55111

IN REPLY REFER TO:
RB

January 29, 1970

Col. James T. White, Jr.
District Engineer
U. S. Army Engineer District
Detroit
P. O. Box 1027
Detroit, Michigan 48231

Dear Colonel White:

This letter concerns the proposed local flood protection project (NCEED-PB) to protect Point Place, Toledo, Ohio, against Lake Erie storm waves and wind-generated, high lake levels.

Project plans include new levee construction, seawall improvement and new construction, and riprap improvement on existing levees. Although the project area includes both Ohio and Michigan, construction is currently planned only in Ohio.

The Ohio portion of the project is in a highly developed residential area. The area inland of the levee, from just below 149th Street to the Michigan state line, is of nominal value to wildlife.

Wildlife values in the Michigan portion are significant. The Michigan peninsula segment is characterized by bog-type lowlands supporting cattails, bulrushes, smartweed, willow, and other water-oriented species. The perimeter of the peninsula is generally bounded by shoal waters containing cattails and other aquatic plants. Waterfowl and furbearers use this area. Two small manmade inland ponds support some fishing.

The proposed project, if limited to Ohio, will have little effect on the fish and wildlife resources.

We understand that project plans may be developed at a later date to include the Michigan portion. Please advise us of any changes in plans, so that we may modify our project analysis.

Sincerely,

S. E. Jorgensen

S. E. Jorgensen
Assistant Regional Director

SURVEY REPORT ON FLOOD CONTROL

AT

POINT PLACE

TOLEDO, OHIO

SUPPLEMENT NO. I

INFORMATION CALLED FOR BY SENATE RESOLUTION 148
85TH CONGRESS
ADOPTED 28 JANUARY 1958

1. RECOMMENDED PROJECT

The recommended project consists of a local levee and seawall system incorporating much of the existing protective works between 135th Street and the Michigan-Ohio State line. The considered improvement would include construction of a steel sheet pile seawall about 2,300 feet long, raising about 2,100 feet of existing concrete seawall, modification to 1,900 feet of existing levee, and construction of an additional 1,800 feet of levee. This project would substantially eliminate the Point Place flood problem caused by wind-induced Lake Erie storms.

2. FIRST COSTS

The estimated first costs of the recommended project, based on prices and conditions in January 1969, are as follows:

Federal	$672,000(1)
Non-Federal	288,000
Total	$960,000

(1) Preauthorization costs of $11,500 are not included.

3. ANNUAL COSTS AND BENEFITS

The average annual costs for the recommended project were computed on the basis of an ecomomic project life of 50 years and an interest rate of 4-7/8 percent for both Federal and non-Federal expenditures. The average annual benefits that would result from a project are damage prevention and land enhancement.

Average annual costs

	Federal	Non-Federal	Total
Capital costs	$ 36,100	$15,500	$51,600
Maintenance	-	5,000	5,000
Total	$ 36,100	$20,500	$56,600

Average annual benefits

Damage prevention	$75,300
Land enhancement	2,100
Total	$77,400

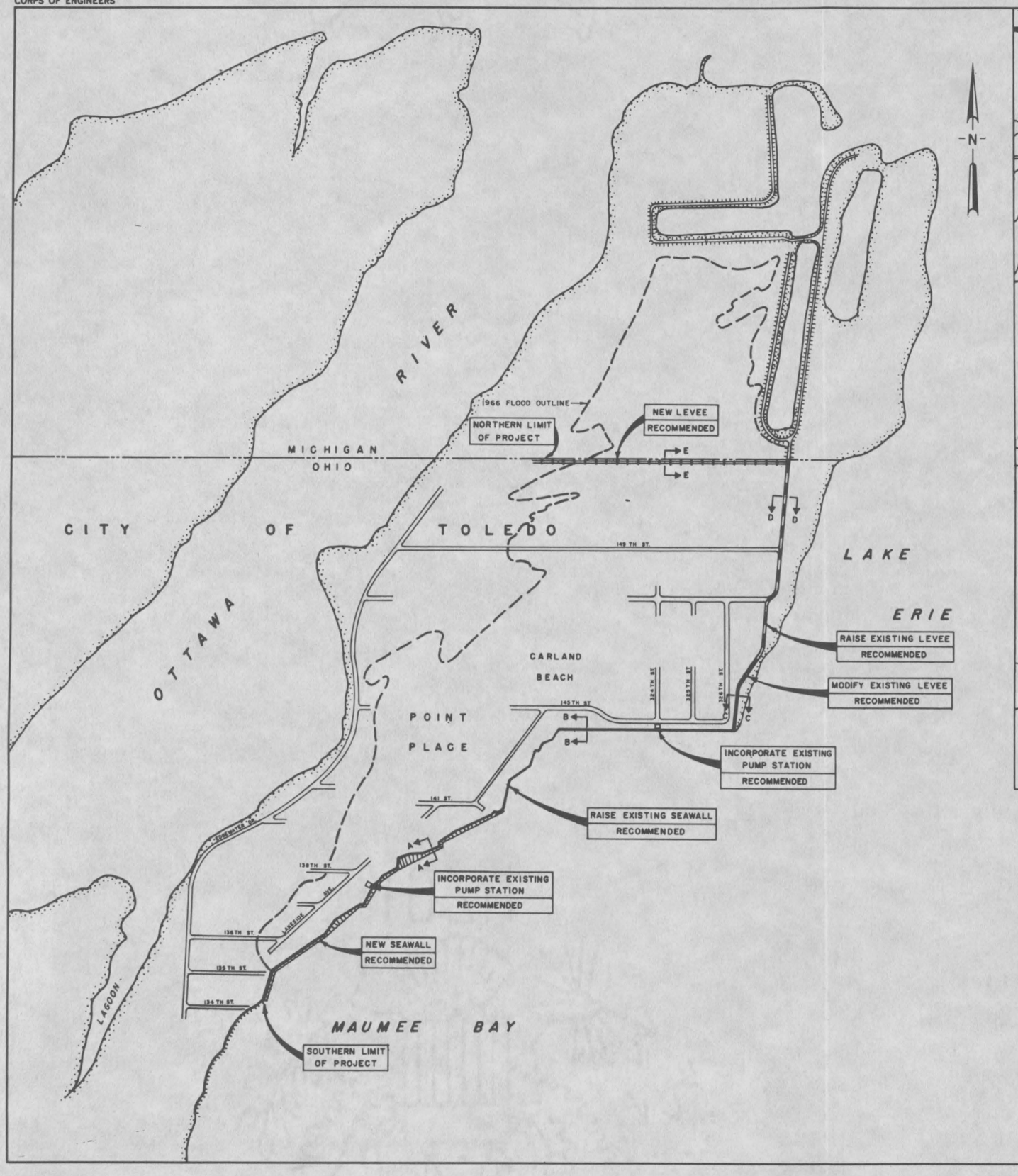
Ratio of benefits to costs 1.4 to 1

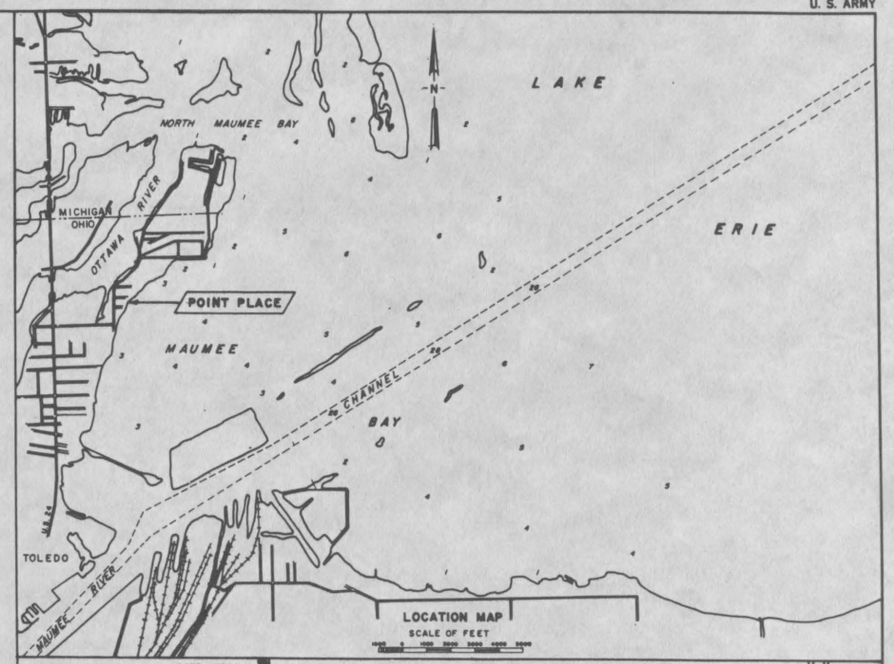
4. APPORTIONMENT OF COSTS

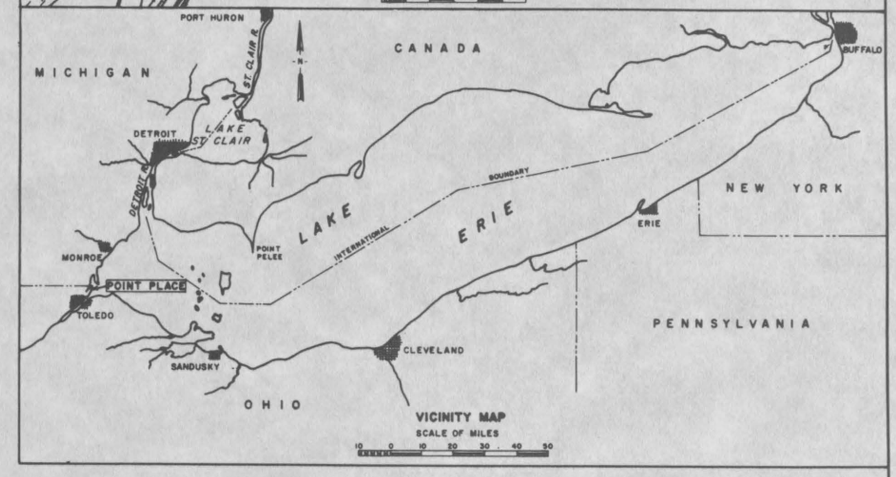
Project costs for lake flood protection projects are apportioned in accordance with the Flood Control Act of 1958, which provides for a Federal contribution not to exceed 70 percent of the allocated or total first costs, as appropriate. Under the Act, lands, easements, rights-of-way and relocations are provided by non-Federal interests and are credited to the local contribution. In accordance with this policy, it has been determined that the Federal share in the first cost of the improvement would be $672,000 and the non-Federal share would be $288,000.

5. DISCUSSION

The Point Place, Ohio flood control project would eliminate about 96 percent of the existing average annual flood damage. The recommended improvement would prevent damage from all Lake Erie storms resulting from the maximum possible wave runup that can be produced by severe easterly winds occurring in conjunction with a high lake stage of 25 year frequency or less. Other methods of protection have been considered but found to be less effective and more costly. These other methods included an off-shore breakwater, jetties and groins, spoil dikes and evacuation of flooded areas. Various degrees of protection were considered in project formulation studies and it was found that a project that would protect against a Lake Erie storm resulting from the maximum possible wave runup produced by severe easterly winds in conjunction with a high lake stage of 25 year frequency would realize the maximum excess of benefits over costs. Local officials have been informed of the selected project and generally concur with the plan. Economic analysis based on a 100-year project life would increase the economic merit of the project, but would not influence the selection of levees and seawalls as the recommended means of eliminating flood damage.







NOTES:

1. ALL DEPTHS ARE REFERRED TO LOW WATER DATUM FOR LAKE ERIE, ELEVATION 568.6 FT. ABOVE MEAN WATER LEVEL AT FATHER POINT, QUEBEC (I.G.L.D. 1955).
2. TYPICAL SECTIONS PRESENTED ON SHEET NO. 2.

LAKE ERIE

FLOOD CONTROL AT POINT PLACE, TOLEDO, OHIO

PLAN OF IMPROVEMENT

In 2 Sheets | Sheet No. 1 | Scale as shown

Scale of Feet

U. S. Army Engineer District, Detroit

Submitted	Recommended	Approved
D. McCallister	Eugene L. Beck	James L. Wilson
Chief, Planning Branch	Chief, Engineering Division	Col., C.E., District Engineer

Drawn by A.C.H.
Checked by D.M.

File No. 1-2-185 | To Accompany Survey Report | Dated 1970

PLATE 1

83-940 O——72 (Face blank p. 46)

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314

IN REPLY REFER TO

ENGCW-PD

9 November 1970

SUMMARY
COORDINATION OF ENVIRONMENTAL STATEMENT
ON
POINT PLACE, TOLEDO, OHIO

1. Coordination of Environmental Statement.

AGENCY	Date of Transmittal	Date of Comments
Department of the Interior	12 Jun 1970	18 Sep 1970
Department of Agriculture	12 Jun 1970	31 Jul 1970
Department of Transportation	12 Jun 1970	9 Jul 1970
Department of Health, Education and Welfare	12 Jun 1970	14 Oct 1970
Department of Natural Resources, State of Ohio	12 Jun 1970	16 Jul 1970

2. Summary.

The interested State and Federal Agency correspondence is attached as an nclosure to this environmental statement. With respect to the Department f the Interior's correspondence their comments and our reply have been set rth in Section 4 of the environmental statement.

8 October 1970

ENVIRONMENTAL STATEMENT
FOR
POINT PLACE, TOLEDO, OHIO

PREPARED IN CONNECTION WITH
A SURVEY REPORT OF THE
DETROIT DISTRICT, CORPS OF ENGINEERS
DETROIT, MICHIGAN

8 October 1970

POINT PLACE, TOLEDO, OHIO

ENVIRONMENTAL STATEMENT

1. Project Description. Point Place is a residential community located on a peninsula of Lake Erie northwest of Toledo, Ohio. The study area has land elevations just slightly in excess of the water level of Lake Erie and when sustained northeast winds occur the water level of Lake Erie in the Maumee Bay area increases and severe flooding of Point Place takes place. To overcome this flood problem we have recommended a project consisting of a sheet piling seawall, a levee and increasing the height of an existing levee and concrete floodwall.

The study was authorized by the Committee on Public Works of the House of Representatives on 5 October 1966. The resolution requested a review of the reports on Water Levels of the Great Lakes-Local Flood Protection Projects and other pertinent reports with a view to determining the advisability of providing flood protection at and in the vicinity of Point Place, Toledo, Ohio, with particular reference to the advisability of protection work against storm waves and wind generated temporary high lake levels. The proposed project, based on the currently prescribed interest rate of 5-1/8 percent, has a 1.3 benefit-cost ratio.

2. Environmental Setting Without the Project. The study area contains about 195 acres of real estate facing the Maumee Bay section of Lake Erie. Land use in the study area is primarily residential and commercial with about 170 acres already developed for these uses. Approximately 25 acres of the study area land is vacant because of the susceptability of these lands to being flooded. Lands in the Point Place area have little value from a wildlife viewpoint because of the intensive residential and commercial development that has already taken place. Open and green space is in short supply being limited to the 25 acres of vacant land and the shoreline area. The most valuable environmental asset of the area appears to be the view of Lake Erie.

3. Impact Statement. The following information is furnished in response to Section 102 (2)(c) of the National Environmental Quality Act of 1969.

a. Identify "the environmental impacts of the proposed action." The proposed plan will provide a marked increase in the health and safety of the Point Place residents by increasing the level of flood protection. The higher level of protection will also foster a greater sense of civic

pride leading to improvement of municipal and residential properties, which, in turn, will enhance the social well being of all residing in Point Place. The protective measures will be designed in a manner which will preserve the community's view of Lake Erie. Landscaping the work area is also contemplated in order to make the project an attractive addition to the area. Adverse effects will be discussed in the following sub-paragraph.

b. Identify "any adverse environmental effects which cannot be avoided should the proposal be implemented." Twenty acres of open and green space will be lost. Some temporary but minor adverse environmental impacts may arise during project construction when noise and dust levels are increased. No other environmental impacts of an adverse nature were identified during the study period when the planning effort was coordinated with the interested Federal and State Agencies.

c. Identify "alternatives to the proposed action." One alternative to this proposal would be to preserve the environment in its existing state. This course of action would require the residents of Point Place to forego flood protection and this will result in a loss of net benefits of $21,000 annually. However, we do not foresee the "no development" alternative being given any serious consideration as the tangible gains, both economic and environmental, stemming from the recommended course of action, appear to outweigh the merit of preserving the existing environmental setting. A number of other engineering alternatives were considered during the plan formulation phase of planning. The recommended plan was preferred due to economic advantage it had over the other alternatives and as we were unable to identify any specific environmental advantage that other alternatives would have over the recommended plan. The alternatives considered consist of: the construction of a system of jetties or groins would not prevent inundation but it would be partially effective in the reduction of wave heights and some value for erosion prevention at Point Place; the construction of spoil dikes along the bay shore at Point Place would require large first costs and annual maintenance requirements and it would not be economically justified by flood control benefits; structural flood proofing is an effective and economical technique when incorporated into new buildings, residential development at Point Place does not generally lend itself readily to flood proofing because the materials extensively used at the time of construction do not impede the passage of water and it would be extremely expensive to incorporate these materials into the existing buildings; and evacuation of the flood area as a means of flood protection is not considered practical due to the large number of persons and property that would need to be relocated.

d. Discuss "the relationship between local short term uses of man's environment and the maintenance and enhancement of long term productivity." The construction of this project would certainly fulfill our trustee relationship with future generations. Flood protection measures are absolutely essential to preserving the well being of the present and future residents of Point Place.

e. Identify "any irreversible or irretrievable commitment of resources which would be involved in the proposed action should it be implemented." One irreversible and irretrievable commitment of resources which would stem from the implementation of the proposed plan would be the conversion of 20 acres of vacant flood plain land to a higher use. Of lesser importance is the commitment of labor resources associated with project construction.

4. Coordination of Plan. All agencies of the Federal government who have an interest in water resource planning were invited to participate in this flood control study. A public hearing was held so that all interested parties could be afforded full opportunity to express their views concerning the need and advisability of providing flood protection at Point Place. Upon completion of planning, the recommended project was presented to the Ohio Department of Natural Resources, Ohio Department of Health, the City of Toledo, Toledo Metropolitan Area Council of Governments, and the Michigan Department of Natural Resources; these agencies recommend that the proposed plan be developed.

The Ohio State Conservationist, Soil Conservation Service, Department of Agriculture, reviewed the plan and has no objection to the recommended plan of improvement. The Regional Office of the Federal Water Pollution Control Administration reviewed the plan and have no objection to it. The Regional Office of the Fish and Wildlife Service reviewed the plan and stated that the proposed project, if limited to Ohio, would have little effect on fish and wildlife resources.

A draft environmental statement was prepared for this project and furnished to the State of Ohio and the interested agencies of the Federal government at the Washington level. Copies of the pertinent correspondence are attached as an inclosure to this statement and a brief summary of their comments follows:

Ohio Department of Natural Resources. The Department concurs in the draft environmental statement.

Department of Transportation. No objection was taken with the environmental statement.

Department of Agriculture. They state that the proposed works of improvement would have no adverse effects on existing or expected project activities of the Department. No objection was taken with the draft environmental statement.

Department of the Interior. They suggested that the sentence in Section 3(b) of the environmental statement, which states: "Twenty acres of open and green space will be converted to a higher land use." be changed to: "Twenty acres of open and green space will be lost." They further state in that this section is an identification of adverse environmental effects which cannot be avoided should the proposal be implemented. They felt that the stated phrase in the draft environmental statement tended to obscure environmental losses. Interior also suggested that contract specifications require all contractors and subcontractors to exercise care in relocation of any petroleum product pipelines, schedule construction activities so that turbidity and siltation will be kept at a minimum and that sanitary facilities used during construction are operated in conformance with Federal and State water pollution control regulations. Our contract specifications will contain the necessary provisions.

Department of Health, Education, and Welfare. The Department did not comment on either the report or the draft environmental statement.

STATE OF OHIO

DEPARTMENT OF NATURAL RESOURCES

OHIO DEPARTMENTS BUILDING
COLUMBUS 43215

July 16, 1970

Lieutenant General F. J. Clarke
Office of the Chief of Engineers
Forrestal Building
Washington, D. C. 20314

Dear General Clarke:

Reference is made to the Chief of Engineers report on Point Place furnished with your letter of 12 June 1970 for our review and comments including the views of the State agency responsible for fish and wildlife.

In Ohio, the Department of Natural Resources is the agency responsible for fish and wildlife activities. I concur with the Bureau of Sport Fisheries and Wildlife, U. S. Department of the Interior, that the proposed project will have little effect on the fish and wildlife resources of the area. I also concur with your environmental statement and the additional environmental benefits provided by the project.

Under the authority granted the Director of the Department of Natural Resources in Section 1501.02, Ohio Revised Code, and acting as the designated representative of the Governor in matters of mutual interest to the Corps of Engineers and the State of Ohio, I concur in the selected plan of providing improvements for flood protection at and in the vicinity of Point Place, Toledo, Ohio.

It will also be my objective, acting for the State of Ohio, to assist in the overall coordination of all agencies and municipalities concerned in the development of this project and to assist in furnishing the non-Federal assurances as required.

It is hoped that authorization and funding for this project will receive early and favorable consideration by the Congress.

Sincerely,

Fred E Morr

FRED E. MORR
Director

FEM:bg

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to
COMMANDANT (AWL)
U.S. COAST GUARD
WASHINGTON, D.C.
20591

9 July 1970

Lt. General F. J. Clarke
Chief of Engineers
Department of the Army
Washington, D. C. 20314

Dear General Clarke:

This is in reply to your letter of 12 June 1970 to Secretary Volpe concerning your proposed report on flood control for Point Place, Ohio.

The appropriate operating administrations of the Department of Transportation have reviewed your survey report and find that the study relates solely to a flood protection project for this small residential area at Toledo and consequently, have no comments to offer.

The Department of Transportation has no objections to your proposal and recommendations. The opportunity afforded this Department to review and comment on the study report is appreciated.

Sincerely,

R. Y. Edwards

R. Y. EDWARDS
Rear Admiral, U. S. Coast Guard
Chief, Office of Public and International Affairs

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

September 18, 1970

Dear General Clarke:

This responds to your June 12, 1970, request for our comments on the Corps of Engineers' proposed report and environmental statement on Point Place, Toledo, Ohio.

We have reviewed the report and have no objections to the authorization of the project. We offer the following comments for your use and consideration.

The 1969 comments of the Federal Water Quality Administration have been adequately considered and included in Appendix E of the report. To protect water quality during the construction period in accordance with provisions of Section 21(a) of the Federal Water Pollution Control Act, as amended by the Water Quality Improvement Act of 1970, and Executive Order 11507, we recommend that contract specifications require all contractors and subcontractors to:

1. Exercise care in the relocation of any petroleum product pipelines and take precautions in the handling and storage of hazardous materials, such as petroleum, herbicides, and pesticides, to prevent accidental spillages or usage that would result in water pollution.

2. Provide and operate sanitary facilities to adequately treat and dispose of domestic wastes in conformance with Federal and State water pollution control regulations.

3. Perform all construction operation so that they will keep erosion, turbidity and siltation at the lowest level practicable.

With regard to the environmental statement, we recommend that the sentence in Section 3(b), which states: "Twenty acres of open and green space will be converted to a higher land use" be changed to: "Twenty acres of open and green space will be lost." This section is an identification of adverse environmental effects which cannot be avoided should the proposal be

implemented. We do not feel it is proper to use phrases which tend to obscure environmental losses.

We appreciate the opportunity to present our views.

Sincerely,

James Watt

Secretary of the Interior

Lt. General F. J. Clarke
Chief of Engineers
U.S. Department of the Army
Washington, D.C. 20314

DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

July 31, 1970

Honorable Stanley R. Resor
Secretary of the Army

Dear Mr. Secretary:

This is in reply to the Chief of Engineers' letter of June 12, 1970, transmitting for our review and comment his proposed report and pertinent papers on Point Place, Toledo, Ohio.

The proposed improvement combines shoreline seawalls with inland levees around the area subject to flooding.

National Forest lands are not involved and there would be no adverse effects on nonfederal forest resource values.

The proposed works of improvement would have no adverse effects on existing or expected project activities of this Department.

We appreciate the opportunity to review and comment on this report.

Sincerely,

T. K. Cowden

T. K. Cowden
Assistant Secretary

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

OFFICE OF THE SECRETARY

WASHINGTON, D.C. 20201

October 14, 1970

Lt. General F. J. Clarke, USA
Chief of Engineers
U.S. Corps of Engineers
Department of the Army
Washington, D.C. 20315

Dear General Clarke:

As requested in your letter of June 12, 1970, the "Survey Report on Flood Control at Point Place, Toledo, Ohio," and the enclosed environmental statement have been reviewed by the appropriate agencies of the Department that have an environmental interest.

The report describes a proposed single-purpose flood control project to be located on a peninsula in the northeast portion of the city of Toledo, Ohio. The peninsula, at the western end of Lake Erie, is bounded on the east by Maumee Bay and on the west by the Ottawa River. Designed to protect the area from floods caused by wind-induced Lake Erie storms, the proposal provides for additions and modifications to a local levee and seawall system.

The Point Place area should realize significant health benefits from the flood protection measures described in the project proposal. These benefits include reduced hazards of loss of life and injury, improved vector control and the prevention of other factors accompanying floods which tend to disrupt the maintenance of public health.

Our review indicates that the project as proposed will have no significant adverse effect on environmental factors of concern to the Department of Health, Education, and Welfare. We have no objection to the authorization

of this project insofar as the Department's interests and responsibilities are concerned.

Sincerely yours,

Roger O. Egeberg, M.D.
Assistant Secretary
for Health and Scientific Affairs