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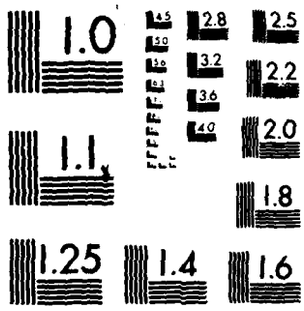

Final Environmental Impact Statement

Flood Control Mississippi River La Crosse, Wisconsin

October 1975

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ENVIRONMENTAL IMPACT STATEMENTS
FLOOD CONTROL
MISSISSIPPI RIVER
WISCONSIN
LEVEES

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The proposed action is a flood control project consisting of levees, road raises, flood wall, road and rail closures, and interior drainage facilities in the city of LaCrosse, Wisconsin. The plan would cover about 69 acres of land by levees and road raises, of which an estimated 30 acres is vegetated by productive march and floodplain forest. An additional 20 acres of undeveloped marsh would be converted into an interior drainage ponding area. About 3.4 acres of a northern pike spawning area would be filled by levees.

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FINAL

ENVIRONMENTAL IMPACT STATEMENT

FLOOD CONTROL
MISSISSIPPI RIVER AT
LA CROSSE, WISCONSIN

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

OCTOBER 1975

SUMMARY
FLOOD CONTROL
MISSISSIPPI RIVER AT
LA CROSSE, WISCONSIN

( ) Revised Draft (X) Final Environmental Statement

1. Name of Action: ( ) Administrative (X) Legislative

2. Description of Action: The proposed action is a flood control project consisting of a system of levees, road raises, flood wall, road and rail closures, and interior drainage facilities in the city of La Crosse, La Crosse County, Wisconsin.

The feasibility report prepared by the District Engineer, St. Paul, also recommended floodproofing of an industrial area, and permanent evacuation and relocation of approximately 40 residences on Barron Island. The Chief of Engineers and the Board of Engineers for Rivers and Harbors concurred in general with the recommendations of the District Engineer but decided on deletion of the evacuation and floodproofing features due to the lack of incremental economic justification of those measures. Discussions contained herein pertains to the plan as revised by the Chief of Engineers and the Board of Engineers for Rivers and Harbors reports.

3. a. Environmental Impacts: The proposed plan would result in about 69 acres of land being covered by levees and road raises, of which an estimated 30 acres is vegetated by biologically productive marsh and floodplain forest vegetation. Flood protection would be provided to an additional 39 acres of undeveloped floodplain lands by the proposed levees. Additional temporary disturbances could be expected as some existing utilities were either relocated or modified. Both negative and positive social and economic impacts would occur with the project. The positive effects would accrue to people who were provided flood protection by the proposed measures. Negative effects would be felt by the people who were relocated because of the project; however, these effects would be partially compensated for by the elimination of flooding hazards and payment of relocation assistance provided by PL 91-646. The proposed road raises in some instances would prevent easy access to some private properties and block some views of the river corridor. The proposed levee adjacent to the Black River would likewise block some scenic views of the river from Highway 53.

b. Adverse Environmental Effects: The proposed levees would cover and thus eliminate about 30 acres of marsh and floodplain forest communities. An additional estimated 20 acres of undeveloped marshland would be converted into an interior drainage ponding area. About 3.4 acres of a documented northern pike spawning area would be filled by levees. Temporary noise, increased traffic and possible airborne dust pollution would occur in the immediate construction areas.

4. Alternatives:

a. No action.

b. Permanent floodplain evacuation. (Plan 2)

c. Combined flood proofing and evacuation. (Plan 3)

d. Flood insurance. (Plan 4)

e. Floodplain regulation. (Plan 5)

f. Flood warning and emergency protection. (Plan 1)

g. Upstream reservoir storage on Mississippi, La Crosse or Black Rivers. (Plan 6)

h. Modified operation of Mississippi River Headwaters Reservoirs. (Plan 7)

i. Channel works on Mississippi River. (Plan 8)

j. Diversion of La Crosse River flood flows to Black River. (Plan 10)

k. La Crosse River levee and channel works. (Plan 11)

l. Diversion of Black River flood flows into the Mississippi River main channel. (Plan 9)

5. a. Comments Received (District Review):

U.S. Department of Interior
U.S. Department of Housing and Urban Development
U.S. Department of Transportation
U.S. Department of Agriculture
Soil Conservation Service
U.S. Environmental Protection Agency
Wisconsin Department of Natural Resources
Wisconsin Department of Justice
Wisconsin Department of Administration
Wisconsin Department of Agriculture
Wisconsin Department of Transportation
Minnesota Pollution Control Agency
City of La Crosse
Sierra Club
Burlington Northern
Chicago, Milwaukee, St. Paul and Pacific Railroad Company
Pyroil Company, Inc.
Causeway Merchants
Miss Sandra Fletcher
Mr. G. N. Growt

5. b. Comments Requested (Departmental Review):

U.S. Department of Agriculture
U.S. Department of Commerce
U.S. Department of Health, Education and Welfare
U.S. Department of Housing and Urban Development
U.S. Department of the Interior
U.S. Department of Transportation
U.S. Environmental Protection Agency
Wisconsin Department of Natural Resources
Wisconsin Department of Justice
Wisconsin Department of Administration
Wisconsin Department of Agriculture
Wisconsin Department of Transportation

5. c. Comments Received (Departmental Review):

U.S. Department of Agriculture
U.S. Department of Health, Education and Welfare
U.S. Department of the Interior
U.S. Department of Transportation
U.S. Environmental Protection Agency
Wisconsin Department of Natural Resources

6. Draft Statement to CEQ _____.
Revised Draft Statement to CEQ 30 July 1974.
Final Statement to CEQ _____.

FLOOD CONTROL

MISSISSIPPI RIVER AT

LA CROSSE, WISCONSIN

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FLOOD CONTROL

MISSISSIPPI RIVER AT

LA CROSSE, WISCONSIN

1. PROJECT DESCRIPTION

GENERAL

This section describes the plan proposed to meet the water and related land resource needs of the La Crosse area. The description includes discussion of the physical features, the accomplishments and effects of the plan, and significant design and construction information. Also discussed are variants of the selected plan which provide protection to an additional 410-acre parcel and another 30-acre parcel of sparsely developed La Crosse River floodplain lands.

The proposed plan provides for approximately 7.0 miles of levee, a short section of floodwall, 1.1 miles of street raise, related road ramps to permit access to street raises and over levees, 11 pumping stations and ancillary collection works, 16 closure structures, three track raises, bank protection at 10 La Crosse River bridges, and modification to one La Crosse River bridge. Also included are recreational hiking and/or bicycling trails on some sections of the levee system. Plate 2 provides pertinent information as to the locations, limits, and types of structures proposed. The project would generally be designed to provide protection against the 320-year flood, a discharge of 303,000 cfs (cubic feet per second) at the U.S. Weather Bureau gauge in La Crosse. French Island would be provided permanent protection against the record April 1965 flood level or the 170-year flood. Temporary freeboard

prior to a major flood period would provide protection to the 320-year flood level. The proposed project would protect approximately 1,000 acres of presently flood prone lands in the La Crosse area.

NONSTRUCTURAL FEATURES

Evacuation. - Purchase and relocation of 40 residential structures on Barron Island is planned to be done by the City of La Crosse. The Board of Park Commissioners, and the Common Council, City of La Crosse, have approved a policy whereas the resident leases on Barron Island will not be renewed after 1 April 1975, and the removal of all structures will be at the expense of the property owner. This was adopted on 8 November 1971 and in full agreement with the residents.

Thus either with or without the project, the structures on Barron Island will be removed and the residents relocated elsewhere.

The Board of Park Commissioners have proposed that the area be made available and improved for recreational use such as bicycle trails and picnic sites.

Floodplain regulation. - The City of La Crosse has not adopted a floodplain zoning ordinance which is consistent with State standards, and it is not working on regulations that would comply with State standards. Also, the City of La Crosse has indicated that they will not adopt such a floodplain zoning ordinance.

STRUCTURAL FEATURES

Flood Barriers. - The principal feature of the selected plan involves local flood barriers to protect the portion of La Crosse lying north of the La Crosse River (North La Crosse) and two areas on French Island. The North La Crosse levee works would include an 8-foot high by 3,450-foo long levee commencing in the city of

Onalaska and ending at the Interstate Highway 90 (I-90) embankment; an 8-foot high by 8,300-foot long levee from the I-90 embankment southward between the Black River and U.S. Highway 53 to about Sill Street; an 8-foot high by 9,460-foot long levee from St. James Street southward along the Black River and thence eastward to Copeland Avenue; a 6-foot high by 600-foot long floodwall with sheet pile cutoff would extend from the east side of Copeland Avenue, thence an 8-foot high by 5,200-foot long levee running northeasterly along the marsh-high ground ecotone to high ground; and a 7-foot by 7,900 foot long levee commencing near St. Cloud Street and extending northerly to high ground as shown on plate 2. The municipal airport on French Island would be protected by an 8-foot high levee, from the County B-I 90 intersection embankment northeasterly 1,000 feet to high ground. The residentially developed area of south French Island would be protected on the west by: a 6-foot high by 2,400-foot long road raise along Lakeshore Drive from high ground southward to high ground on La Crescent Street; intermittent levees, 5-foot high and 1,900 feet total length, along French Slough southward to Bainbridge Street; and an average 2.7-foot high road raise intermittently along Bainbridge Street northward to high ground for a total raise distance of 3,500 feet.

The proposed levees would have 10-foot top widths except at warped sections and 1 on 3 and 1 on 5 riverward and landward slopes, respectively. All street raises would be to existing roadway widths and have 1 on 3 landward and riverward side slopes. Riprap bank protection would be provided on the exposed reach of the Lakeshore Drive street raise. Ramps, with slopes depending on the class of roadway would be provided to permit access to the raised streets and over the levees at scattered locations. To assure that the many abandoned sewer and other lines, that once drained into the river are all accounted for and plugged, an inspection trench would be dug preceding levee or floodwall construction. Also the trench would more accurately identify the sawdust deposits known to exist in the area from the historic sawmills that once lined the La Crosse waterfront.

In all, 16 closure structures would be incorporated into the plan to provide openings in the flood barrier at road and rail crossings and properties affected by the flood barrier system. To minimize the height of closures required on the Burlington Northern and Milwaukee Road mainline tracks (closures 1, 13, and 14 on plate 2), the tracks would be raised to the design flood elevation. Only sandbag closures would be needed to provide freeboard to include the standard project flood. A permanent sheet-pile cutoff wall would be driven below the railroad closures to reduce seepage through the pervious ballast.

Interior drainage facilities. - Drainage blocked by the project flood barriers includes surface runoff from approximately 2,116 acres, approximately 45 percent of which is urban development. The general features of the proposed interior drainage plan include 11 pumping stations ranging in capacity from 12,600 gpm (gallons per minute) to 116,200 gpm, 21 gravity outlets varying in size from 36 to 96 inches in diameter and interceptor ditches and pipes draining to the pumping stations. Two new ponding areas are proposed to reduce the required capacities of stations Nos. 9 and 10. Alterations to existing sanitary and stormsewer facilities would be made as required.

Modifications. - One farm bridge would require raising 2.8 feet to provide 3 feet of freeboard over design flood levels. Riprap bridge pier protection would be provided at all La Crosse River bridges in the study area except for the Lang Drive bridge and Chicago, North Western railway bridge just upstream of Lang Drive. A planned new Lang Drive bridge will provide adequate vertical clearance and be protected with riprap as part of the highway improvement. The adjacent railroad bridge will probably be abandoned prior to construction of any flood control works. Pier protection will extend 100 feet both upstream and downstream of all bridges except for the U.S. Highway 53 bridge where it will extend 500 feet upstream and downstream. Modification or relocation of some petroleum lines, telephone and power lines, and residential waste discharge lines

would also be required. The relocation and modification of any pipelines as a result of project construction would comply with the appropriate Federal pipeline safety regulations. Depending on the final flood barrier alignment and design, the relocation of one home, three garages and one business may also be required. Grade change damages would be provided in some cases to property owners adversely affected by proposed road raises.

2. ENVIRONMENTAL SETTING WITHOUT THE PROJECT

AUTHORITY

The authorization for this study is provided by two general resolutions of the Committee on Flood Control, House of Representatives, adopted 18 September 1944, requesting the Board of Engineers for Rivers and Harbors to review the report on the Mississippi River between Coon Rapids Dam, Minn., and the mouth of the Ohio River. The resolutions were sponsored by former representatives Anton J. Johnson and Clarence Cannon. Honorable Vernon W. Thomson is now representative from the district which includes La Crosse. By letter dated 25 July 1961 to Senator Wiley, the Office, Chief of Engineers indicated that an interim study of the La Crosse flood problem would be undertaken under this general authority. Section 208 of the Flood Control Act of 1965 authorized a flood control survey on the Mississippi River north of Dubuque, Iowa. Congressman Vernon Thomson sponsored this authorization.

INTRODUCTION

The city of La Crosse (1970 population, 51,153) is located in southwestern Wisconsin on the left bank of the Mississippi River about 698 river miles above the mouth of the Ohio River, at the confluence of the La Crosse and Black Rivers with the Mississippi River. The Black River, draining about 2,270 square miles, joins the Mississippi River at mile 698.2 and the La Crosse River, draining about 480 square miles, joins the Mississippi River at mile 698.1.

A floodplain development problem exists in the La Crosse area which has been recognized for a number of years. This becomes acutely apparent during high water stages of the Mississippi River when severe flooding occurs. The La Crosse River, which passes through a low marsh (plate 1) divides an area known as North La Crosse from the remainder of the city. Backwaters from the Mississippi River create a slack-water area which extends about 4 miles upstream from the mouth of the La Crosse River. When flood flows reach the La Crosse River slack-water area, silt deposition occurs which extends 500 to 1,000 feet back from its primary riverbanks. The silt deposits reduce the waterway capacity and contribute to overbank flooding. This flooding also contributes to the maintenance of the La Crosse or Myrick marsh.

The watershed contributing to the Mississippi River in the La Crosse area conforms approximately to plan areas 1 (Mississippi Headwaters), 2 (Chippewa and Black Rivers), 16 (Minnesota River), and 15 (Cannon, Zumbro, and Root River), as recognized in the Upper Mississippi River Comprehensive Basin Study. However, this study is confined to the more immediate area of the city of La Crosse. In addition to the city of La Crosse, the study area includes the city of Onalaska and portions of the towns of Medary, Campbell, Onalaska and Shelby.

A general understanding of the resources and developmental trends of the study area is necessary for understanding its present and projected problems and needs, and in formulating various possible solutions thereto. The following pages discuss the natural resources, development, and economy of the La Crosse area.

CLIMATE

The climate of La Crosse and vicinity is moderate, characterized by wide and frequent variations in temperature, normally sufficient rainfall for crops and moderate snowfall. Summers are warm with

moderate humidity while periods of hot and humid weather lasting from a few days to a week occasionally occur. The winters are cold and humid.

Generally storms moving eastward or northeast into the area bring warmer weather and supply most of the moisture. These storms are usually followed by colder air from Canada. One major storm has been recorded which centered in La Crosse. This storm occurred from 27 to 30 October, 1900, during which 8.2 inches of rain fell in 72 hours. Of this amount, 5.0 inches fell within a 6-hour period.

The mean annual temperature for La Crosse is about 46°F with mean monthly temperatures varying from 73°F in July to 16°F in January. Extreme temperatures recorded were a high of 108°F on 14 July 1936, and a low of -43°F in January 1873. The average date for last occurrence of freezing temperatures is 25 April, while the first autumn frost usually occurs about 16 October. This results in a frost-free period or growing season of approximately 173 days.

Normal annual precipitation for La Crosse is 31.16 inches ranging from 44.74 inches in 1881 to 16.77 inches in 1910. Monthly means vary from 4.20 inches in June to 1.05 in February. About 60 percent of the precipitation occurs during the growing season. Snowfall averages about 42 inches annually which represents approximately 14 percent of the total precipitation.

Prevailing winds are from the south during May through January and from the northwest for the months of February through April. Mean monthly wind speed ranges from about 8 miles per hour during August to about 11 miles per hour during April.

TOPOGRAPHY AND GEOLOGY

The Mississippi River valley in the vicinity of La Crosse is a level, sandy plain averaging 5 miles in width. The Wisconsin and Minnesota bluffs rise sharply 450 to 500 feet above the valley floor. Mid-channel of the river is the interstate boundary. The river valley probably became well established during preglacial times but was substantially deepened and widened during the period of glacial melting. The sand and gravel which now fill the valley to a depth of about 150 feet in the La Crosse area are composed largely of riverborne glacial drift. The bluffs on each side of the river are composed of alternate beds of sandstone, shale, and dolomite capped by a 75-foot dolomite formation which is, in turn, overlaid by a thin mantle of loess (topsoil deposited by wind). Erosion of the highlands has resulted in the deposition of alluvial fans of relatively impervious material at many points where tributary streams enter the Mississippi River valley. Sand, gravel, and stone aggregate for local utilization are mined along the river valley and in the adjacent bluffs.

The city of La Crosse is situated partly upon the remnant of a glacial outwash terrace at the mouth of the La Crosse River. The terrace surface lies 20 to 40 feet above the La Crosse and Mississippi River floodplain; however, portions of the city have encroached onto the respective floodplains. The surface mantle in this area consists of a 1 1/2- to 10-foot-deep layer of clay, silt, and fluvial sand underlaid by fairly clean, fine to medium sand. Records of local wells show a depth to bedrock of about 170 feet. The elevation of the intermediate regional floodplain at La Crosse ranges from 646.6 immediately below the Onalaska spillway to 643.2 in the area of the sewage plant[1].

(1) St. Paul District, U.S. Army Corps of Engineers, April 1970, Floodplain Information, Mississippi River and Tributaries, La Crosse, Wis.

GROUNDWATER AND WATER SUPPLY

The aquifer which underlies the La Crosse area between the Wisconsin bluffs and the Mississippi River has, for all practical purposes, an unlimited supply of water. Wells located near the river generally supply greater yields than wells located near the valley walls.

To the east of the "bluff line", sandstone deposits underlie limestone in some areas and are exposed on the surface in others. Water here generally is softer than in the river sands, but there is a tendency toward a higher iron content and corrosiveness. In general, water is more costly to obtain in this portion of the planning area than to the west because wells must be drilled much deeper.

Wells in the vicinity of the La Crosse marsh have high concentrations of iron and manganese while, with one exception, all upland wells contain less than the 0.25 ppm (parts per million) of iron and manganese approved by the Wisconsin Department of Health and Social Services for municipal water supplies.

SOILS

A detailed soil survey of La Crosse County was made in 1960 by the U.S. Department of Agriculture Soil Conservation Service, which recognized six major classifications for the county. Three of these soil classifications occur in the vicinity of La Crosse. Gently sloping benches and low hills of the Mississippi and La Crosse River valleys are characterized by silty soils of the Richwood, Toddville, and Port Byron series which are deep and dark-colored. Sandy soils of the Mississippi River valley are on the level, hummocky sand plain between the wetter, river bottomlands and the bluffs. These soils are mainly of the Plainfield and Sparta series which are light-colored, deep, and sandy. In some places these soils have formed under native prairie grasses and,

therefore, have a dark surface layer. Soils of wet bottomlands along the Mississippi and La Crosse Rivers are characteristically poorly drained alluvium and marsh soils. Specific soils data are not available for intensely developed areas, and it is recommended in the La Crosse General Plan[1] that on-site borings be made in these areas when specific information is required.

SURFACE WATERS

Surface waters in the vicinity of La Crosse include the lower end of Lake Onalaska (pool 7, above lock and dam No. 7), the main channel and backwaters of the Mississippi River in the area, the Black River and its backwaters between French Island and North La Crosse, the La Crosse River which flows through the city of La Crosse, and State Road Coulee (Pammel Creek), which enters the Mississippi River from the east near the south end of La Crosse.

The lower end of Lake Onalaska is shallow, generally 3 to 12 feet, at water surface elevations of about 639 msl (mean sea level). It has a bottom of primarily clear sand with some boulders and rubble. Much of the shoreline is boulders and rubble.

The Mississippi River main channel in the vicinity of La Crosse is maintained at 9-foot depth for navigation by means of wing dams, navigation locks and dams, and dredging as part of an existing Corps of Engineers project. Backwater areas of the Mississippi River (located mainly west and south of French Island) in this area are mostly shallow sloughs which alternate with low, wooded islands. Shorelines are gradual, varying from boulders to sand, and the area supports dense aquatic vegetation.

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(1) Candeub, Fleissig and Associates, October 1969, General Plan for the La Crosse Area; and January 1969, Background Report for the General Plan for the La Crosse Area.

The La Crosse River, which ranges from about 25 to 80 feet in width and zero to 5 feet in depth during average discharges, meanders through an extensive wet bottomland, the lowermost part known locally as the La Crosse or Myrick marsh (plate 1). Standing waters within the marshland vary seasonally and from year to year. This area is noted locally for production of waterfowl and other wildlife.

The Black River has, in this area, actually become a side channel of the Mississippi River since the implementation of lock and dam No. 7. There is presently a 9-foot commercial navigation channel for 1.4 miles above the old river mouth at the south end of French Island.

State Road and Ebner Coulees drain adjacent watersheds of approximately 6 square miles and 1 square mile, respectively, on the east side of the city of La Crosse as shown on plate 1. Most of State Road and Ebner Coulee drainage areas lie in Shelby Township of La Crosse County, with the remainder located within the city limits of La Crosse. Both coulees originate in rugged terrain of high bluffs overlooking the Mississippi River and drain westward onto a sand and gravel plain before discharging into the Mississippi River. In contrast, the lower reaches of the basins are part of a terrace with gently sloping terrain. Elevations within the State Road Coulee watershed vary from about elevation 1260 in the uplands to 655 at the inlet of a 48-inch-diameter storm sewer at Farnam Street.

TERRESTRIAL VEGETATION

Natural vegetation in the vicinity of La Crosse includes portions of the Eastern Deciduous Forest and Temperate Grassland Biomes.[1] The plant communities of Kuchler[2] and the wetland

(1) Odum, Eugene P., 1971. Fundametals of Ecology (3d Edition). W. B. Sanders, Philadelphia.

(2) Kuchler, A. W., 1964. Potential Natural Vegetation of the Conterminous United States. American Geographical Society, Special Publication No. 36.

types recognized by the Bureau of Sport Fisheries and Wildlife,[1] are evident.

Prior to settlement, the uplands were covered with forest types such as Oak-Savanna, Maple-Basswood, and Oak-Hickory. Stream terraces of the Mississippi and La Crosse Rivers supported some bluestem prairie. Lowland communities included Northern Floodplains Forest and various wetland types.

Information from recent soil and forest surveys of La Crosse County indicates that a substantial portion of the present wooded acreage is found on steep, stony, or sandy soils which are generally not suitable for agricultural crops or urban development.

For purposes of this report the study area has been separated into five categories: 1-Marsh, 2-Floodplain Forest, 3-Open Water, 4-Residential and 5-Industrial. Data were gathered through field inspections by *Corps of Engineers* biologists, interviews with local biologists, and an examination of available scientific literature. A brief discussion of the five categories is presented in the following paragraphs.

MARSH

These are low-lying bottomlands within the floodplain usually connected by backwater sloughs or inlets from the main river channel. Marsh areas are subject to frequent flooding, especially during spring snowmelt and intense summer rainstorms.

The marshes are probably the direct result of frequent flooding and are maintained by that phenomenon. These sites are highly productive biological areas which trap flood waters rich in nutrients and sediments. The rich nutrient supply stimulates an abundant vegetative growth. As this vegetation matures and dies, macro, and microinvertebrate organisms become abundant and a recycling

(1) U.S. Department of the Interior, Fish and Wildlife Service Circular 39, Wetlands of the United States.

of nutrients occurs. If the above conditions prevail, three very important criteria for fish spawning success have been met. Shallow, warm waters, dense vegetative cover for concealment and an abundant invertebrate food supply for newly hatched fish are typical marsh conditions which make these areas important as nurseries for fish.

Various types of marsh can be observed in the La Crosse area ranging from wet meadows which become dry during the late summer to permanent marshes which maintain some open water through the year. These marshes provide excellent habitat for waterfowl, songbirds, shorebirds, and small mammals such as beaver and muskrats. Abundant muskrat houses can be seen along the sloughs and in these marshy areas where considerable trapping pressure for furbearers takes place. The backwater sloughs and side channels associated with the marshes are heavily utilized by fishermen seeking bass, crappie, bluegill, sunfish, walleye, and northern pike. Some of the more remote marshy areas are favored spots for waterfowl hunting.

Within the marsh category in the study area, types 1, 2, 3, and 4 of wetlands as recognized by the Bureau of Sport Fisheries and Wildlife[1] can be recognized. A description of these four wetland types is presented in the following paragraphs:

Type 1 - Seasonally flooded basins or flats. - The soil is covered with water, or is waterlogged, during variable seasonal periods but usually is well drained during much of the growing season. This type is found both in upland depressions and in overflow bottomlands. Along river courses, flooding occurs in late fall, winter, or spring. In the uplands, basins or flats may be filled with water during periods of heavy rain or melting snow.

(1) Wetlands of the United States, 1971, United States Department of the Interior, Fish and Wildlife Service Circular No. 39.

Vegetation varies greatly according to the season and the duration of flooding. It includes bottomland hardwoods as well as some herbaceous growths. Where the water has receded early in the growing season, smartweeds, wild millet, fall panicum, tealgrass, chufa, redroot cyperus, and weeds (such as marsh elder, ragweed, and cockleburs) are likely to occur. Shallow basins that are submerged only temporarily usually develop little or no wetland vegetation.

The overflow bottomlands in the southern part of the Mississippi valley provide a major wintering area for ducks as well as good shooting sites for hunters.

Type 2 - Inland fresh meadows. - The soil usually is without standing water during most of the growing season but is waterlogged within at least a few inches of its surface. Vegetation includes grasses, sedges, rushes, and various broad-leaved plants. In the north, representative plants are carex, rushes, redtop, reedgrasses, mannagrasses, prairie cordgrass, and mints. Meadows may fill shallow lake basins, sloughs, or farmland sags, or these meadows may border shallow marshes on the landward side. Wild hay oftentimes is cut from such areas.

Fresh meadows are used somewhat in the north by nesting waterfowl, but in most of the country their value is mainly as supplemental feeding areas. If shallow water can be impounded on them, their value can be increased considerably.

Type 3 - Inland shallow fresh marshes. - The soil is usually waterlogged during the growing season; often it is covered with as much as 6 inches or more of water. Vegetation includes grasses, bulrushes, spikerushes, and various other marsh plants such as cattails, arrowheads, pickerelweed, and smartweeds. Common representatives in the north are reed, whitetop, rice cutgrass, carex, and giant burreed. These marshes may nearly fill shallow lake basins or sloughs, or they may border deep marshes on the landward side. They are also common as seep areas on irrigated lands.

Marshes of this type are used extensively as nesting and feeding habitat. In combination with deep fresh marshes (type 4), they constitute the principal production areas for waterfowl.

Type 4 - Inland deep fresh marshes. - The soil is covered with 6 inches to 3 feet or more of water during the growing season. Vegetation includes cattails, reeds, bulrushes, spikerushes, and wild rice. In open areas, pondweeds, naiads, coontail, watermilfoils, waterweeds, duckweeds, water-lilies, or spatterdocks may occur. Water-hyacinth and waterprimroses form surface mats in some localities in the southeast. These deep marshes may almost completely fill shallow lake basins, potholes, limestone sinks, and sloughs, or they may border open water in such depressions.

Deep fresh marshes constitute the best waterfowl breeding habitat in the country, and they are also important feeding places.

FLOODPLAIN FOREST

This category is found primarily on the undeveloped portions of islands located within the floodplain and along portions of the river channels in the study area. They are subject to occasional flooding of short duration. Various stages of ecological succession are evident in these areas as a result of clearing practices which have occurred in previous years. Vegetative patterns are highly variable ranging from a young growth of light-tolerant trees, shrubs, and forbs in the most recently disturbed areas, to a near climax community of dominant, light-tolerant trees with an under story of shade-tolerant trees, shrubs, forbs and grasses characteristic of a less disturbed area. Woody vegetation characteristic of these areas in general includes river birch, green ash, cottonwood, oaks, maple, elm, and basswood. A diverse understory of

various shrubs, forbs and grasses is also in association in this category. Mammals associated with this general cover type include whitetailed deer, raccoon, fox, squirrels, and an occasional mink. The species composition and abundance of these mammals may vary as different successional stages in the general category are viewed. Migrating waterfowl and shorebirds utilize the backwater sloughs adjacent to these areas as resting places and some wood duck nesting occurs here. Numerous tree nesting songbirds utilize this cover type extensively for breeding and nesting grounds. Within this cover type exists a great blue heron-egret rookery located adjacent to the west bank of the Mississippi River across from Green Island.

OPEN WATER

This category includes the river channels of the Black, Mississippi, and La Crosse Rivers; Lake Onalaska, and French Lake. Rooted vegetation growth in these waters is limited by water depth, however, locally abundant floating and emergent vegetation occurs in some areas. Fish and waterfowl make some use of these areas especially as a resting place for migrating waterfowl. Lake Onalaska is of particular importance to migrating redhead and canvasback ducks. An estimated 15 percent of the Mississippi flyway's population of these declining species utilize Lake Onalaska during this fall migration.

Portions of the open water category especially side channels and backwater sloughs support abundant populations of benthic organisms, most of which are a very important food source for fish populations in the study area. Interviews with local scientists indicate tremendous numbers of mayflies (Families: Heptageniidae and Baetidae) emerge from these areas during the spring and early summer months. These species are undoubtedly an essential part of the food chain utilized by local fish and bird populations.

RESIDENTIAL

Residential areas within the study area consist primarily of floodplain forest which has been cleared or marsh lands which have been filled to facilitate construction of homes. Portions of this category are located within the floodplain and are subject to flood damages. Remnants of these floodplain forests exist in many instances providing shade and shelter for many of the homes. Included in this category are numerous public recreational parks. The parks are heavily utilized during the summer months for picnicking, hiking, fishing and water contact sports. Songbirds utilize these areas quite extensively for nesting, both in trees and in birdhouses constructed for that purpose. Few native mammals or waterfowl reside in these areas; however squirrels are common in the recreational parks.

INDUSTRIAL

This category occurs primarily along the main river channels of the Black and Mississippi Rivers. Mature woody vegetation is generally lacking in these areas as most of the vegetation has been removed to facilitate development. Annual forbs and grasses frequently establish themselves on these disturbed areas when the cleared ground is left bare. Birds and mammal populations are scarce in these areas as a result of habitat destruction. Some fish production may occur in open-water areas adjacent to these sites, however, this potential is reduced by dredging operations carried out to maintain an open navigation channel.

FISH AND WILDLIFE RESOURCES

Fish and wildlife species in the vicinity of La Crosse are varied and abundant. Species represented are characteristic of the Upper Mississippi River Wildlife and Fish Refuge, which extends 284 miles along the Mississippi River from Wabasha,

Minn., to Rock Island, Ill., and occupies much of the floodplain, islands, and open-water areas in the La Crosse vicinity. Some of the more representative species are as follows:

MAMMALS: Whitetailed deer, beaver, muskrat, raccoon, foxes, squirrels, rabbits, and mink.

BIRDS: Great blue heron, green heron, common egret, canvasback duck, redhead duck, blue-winged teal mallard, scaup, wood duck, coot, bald eagle and many species of songbirds.

FISH: Walleye, sauger, northern pike, largemouth bass, crappie, sunfish, white bass, channel catfish, sheeps-head, buffalo, and carp.

A more complete listing of fish and wildlife species in the area is presented in appendix B or is available from the District Office of the Upper Mississippi River Wildlife and Fish Refuge in La Crosse and the Wisconsin Department of Natural Resources.

Several wildlife species in La Crosse County have been rated as abundant, common, or scarce in the La Crosse area according to data from the Wisconsin Department of Natural Resources. This information is presented in tables 1 and 2.

Table 1 - Wildlife - La Crosse County

Species	Scarce	Common	Abundant
Deer			X
Squirrel			X
Woodcock	X		
Pheasant	X		
Ruffed grouse		X	
Quail		X	
Rabbit		X	
Fox			X
Raccoon			X

Table 2 - Wildlife by river valley, La Crosse area

River valley	Beaver	Muskrat	Mink	Otter	Ducks	Geese
Black River	Common	Common	Scarce	Scarce	Common	Scarce
La Crosse River	Common	Common	Scarce	None	Scarce	Scarce
Mississippi River						
Pool No. 7	Common	Abundant	Scarce	Scarce	Abundant	Common
Pool No. 8	Common	Abundant	Scarce	Scarce	Abundant	Common

Extensive trapping for furbearers is conducted in the vicinity of La Crosse especially in and along pool No. 7. An estimated 3,700 annual trapper days are expended. Fur take is estimated at 20,000 muskrats harvested from a population of about 30,000. Beaver trapping produces an annual yield of about 100 pelts. An estimated 25 raccoons are trapped annually. Red foxes are fairly common, with an annual harvest of about 20. Mink are present, but harvest is light. Otter are rare, but numbers are increasing. In addition to the commonly recognized game and furbearing animals, there are many other species of smaller, nongame wildlife which are important in the study area.

Migrating birds of the Mississippi flyway generally begin moving into and through this area in early March after the breakup of river ice. At the peak of spring migration, waterfowl populations on lower Lake Onalaska and in the more immediate vicinity of La Crosse are estimated to include 22,000 ducks, 400 geese, and 200 swans. Even more waterfowl are present in the fall, providing about 7,900 hunter days for some 1,650 hunters who bag about 30,000 ducks. Local game managers have estimated that approximately 15 percent of all Mississippi flyway canvasback and redhead ducks utilize Lake Onalaska and areas immediately downstream from the Onalaska Spillway. Habitat for these two species of waterfowl is of special concern because the numbers of canvasback and redhead ducks have been declining during recent years.

Nongame bird life is important to the area. A rookery for herons and egrets is known on the Minnesota side of the river across from Green Island. Many songbirds also nest in the area.

The Mississippi, Black, and La Crosse Rivers in this area, including side channels and sloughs, are important to fish production Both sport and commercial fisheries exist in this area. At least six northern pike spawning grounds have been identified in the study area by continuing efforts of the Wisconsin Department of Natural Resources. One of these areas which is especially vulnerable to the proposed levee project is located north of Bantom Street and southwest of the Chicago, Milwaukee, St. Paul and Pacific Railroad roundhouse. The area consists of submerged and aquatic vegetation, shaded by a stand of mature elm, ash and silver maple trees. During recent years considerable deposition of fill material and solid wastes has occurred in this area and the shore of the Black River in this reach is used for the year-round mooring of houseboats. The remaining five spawning areas are located further downstream in the vicinity of Green Island. It should be pointed out, however, that efforts to identify spawning grounds in the study area are being continued and the discovery of additional spawning areas can be expected. Recent legal action taken by the Wisconsin Department of Natural Resources has temporarily stopped spoil waste disposal from continuing at this site.

WATER QUALITY

At the present time water quality data for the Mississippi River at La Crosse are lacking, however water quality research is currently being conducted by the University of Wisconsin, La Crosse. These data should be available to be included into later reports on the proposed project.

Possible sources of water pollution in the vicinity of La Crosse consist of: (1) water coming into the area from upstream tributaries, (2) wastes from municipalities bordering the Mississippi River upstream, and (3) from extensive residential areas near Lake Onalaska and specifically in the vicinity of French Island.

The Minneapolis-St. Paul metropolitan area potentially has the greatest overall influence on water quality since all water from the metropolitan area eventually passes through La Crosse. Water quality in this area is probably much less affected by this pollution than areas further upstream; however, subtle changes brought about by deposition of organic materials and dissolved nutrients are probable.

Limited water quality information on the La Crosse River is available for the winter months of 1969(1). In that report extremely high fecal coliform counts and biochemical oxygen demands were cited as evidence that raw sewage was entering the river and by National Water Quality Criteria, the La Crosse River was unfit for human use.

Water quality data for the Mississippi River at Winona, Minn., approximately 27 river miles upstream from La Crosse are available for 2 October 1969, 18 March 1970, and 23 July 1970(2). Realizing that some variations of water quality between La Crosse and Winona could be expected, it is assumed that these data are indicative in a general way of water quality at La Crosse. Data on selected water quality parameters from the Winona site are given below in table 3.

Table 3 - Data of selected water quality parameters at Winona, Minn.

Parameters (mg/l)(1)	2 Oct 69	18 Mar 70	23 July 70
Alkalinity as CaCO3	144	143	139
Total dissolved solids	236	219	264
Nitrates	1.1	3.3	3.4
Dissolved orthophosphate	0.20	0.53	-

(1) Milligrams per liter.

(1) Dion, Kathleen R., 1 April 1970, Fecal Contamination in the La Crosse River. Unpublished Report. Biology Department, Wisconsin State University, La Crosse, Wisconsin.

(2) U.S. Department of the Interior, Geological Survey, 1970. Water Resources Data for Minnesota, Part 2, Water Quality Records.

AIR QUALITY

Air quality information is severely lacking in the La Crosse area, however data on selected parameters has been furnished by Dr. L. A. Nutter, chemistry department, University of Wisconsin at La Crosse for the period September 1971 to September 1972. Table 4 represents that data. All readings were made at a site on the university campus. The campus is located just south of the La Crosse River marsh and values obtained here are assumed to be generally indicative of values for the La Crosse area.

Table 4 - La Crosse air quality summary, September 1971 to September 1972

Monthly Averages	Particulate (ug/M^3)	SO_2 (ug/M^3)	NO_2 (ug/M^3)
September 1971	53.4	15(1)	45
October 1971	42.2	15(1)	8
November 1971	42.2	14(1)	28
December 1971	47.9	51(1)	37
January 1972	57.9	17(1)	51
February 1972	59	49	51
March 1972	45.3	10	60(2)
April 1972	48.1	12	27
May 1972	81.4	8	
June 1972	31.8	5	
July 1972	31.1	5	
August 1972	38.5	8	
September 1972	40.4	20	

(1) Hydrogen peroxide method used. Pararosaniline method used since February 1972.

(2) Hochheiser method was used but is currently not accepted by Environmental Protection Agency.

Dr. L. A. Nutter of the University of Wisconsin at La Crosse, who provided the data in table 4, has indicated that the seasonal trends are what might be expected, and has provided the following comments on the data:

a. The May 1972 particulate readings were unseasonably high because of dry weather. The filter papers were not nearly as dark in color as those from the winter months.

b. The sulfur dioxide readings have been substantially reduced since the Northern States Power plant here has changed fuel and was inoperable during the summer months while the conversion was being done. In addition, the pararosaniline method gives far more reproducible data. I would suggest that normal background level of sulfur dioxide is 10 $\pm$ 5 ug/M^3 for the region.

c. The nitrogen oxide data are speculative from the standpoint of the assumptions in the Hochheiser test.

d. Ozone (oxidant) data are available for June, July, August, and September. The June reading of 96 ug/M^3 was the only one of significance. The others range from 8 ug/M^3 in July to 2 ug/M^3 in September.

Air quality standards established by the State of Wisconsin for the selected parameters were exceeded only once from 1971 to 1972. That excess was noted in May 1972 when particulate matter was in excess of State air quality standards. Dr. Nutter suggests this probably occurred as a result of unseasonably dry weather conditions and would not be considered normal.

Based on the limited amount of air quality information available and assuming that the information presented in table 2 is generally indicative of the La Crosse area, air pollution is not considered a serious problem in La Crosse.

PUBLIC HEALTH AND SAFETY

The La Crosse area has not experienced widespread flood-related public health problems, but one death from drowning was recorded during the record 1965 flood. Potential threats to floodplain residents during flood periods include electrocution, contamination of private water supplies, increased vector production, rodent migration from flooded areas, and the backup of sewers into basements. During the 1965 flood in La Crosse, a potential fire hazard was recognized when floodwaters threatened to move some fuel storage tanks and rupture an exposed natural gas pipeline.

HUMAN RESOURCES

POPULATION CHARACTERISTICS

The total population of La Crosse County was approximately 80,468 in 1970, representing an average density of 178 persons per square mile as compared to 79 persons per square mile for the State of Wisconsin. The six political divisions comprising the study area contain 85 percent of the total county population[1]. The 1970 population of the city of La Crosse, by far the largest population center, was approximately 51,153. This total represents approximately a 7.5-percent increase over the 1960 population of 47,575. Much of this increase is probably due to La Crosse becoming an important education and trade center for western Wisconsin. Between 1950 and 1960, and from 1960 to 1970, population increases in La Crosse County were 7.2 and 11.0 percent, respectively. Ninety percent of this growth occurred within the La Crosse study area. Projections indicate that the population of the La Crosse area is expected to increase approximately 125 percent during the 1970-2020 period[2]. Population projections for La Crosse County and the study area were based upon trend lines of population as a percentage increment of Office of Business Economics area 06097 population projects. The projection of La Crosse County population is nearly coincidental with the projection utilized in "The General Plan for the La Crosse Area" up to year 1990. A projection of La Crosse County population based upon the Upper Mississippi River Comprehensive Basin Study was considered to be in excess of county capabilities. For comparative purposes, historic and projected population growth and rates of growth for the Office of Business Research area and for the Upper Mississippi River Comprehensive Basin Study planning area, of which La Crosse County is an integral part are shown in tables 5 and 6, respectively.

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(1) The La Crosse study area consists of the city of La Crosse, city of Onalaska, town of Medary, town of Campbell, town of Shelby, and town of Onalaska.

(2) Based on 1970 census and growth rates reflected in 1968 study of Business Research area 06097.

Table 5 - Historic and projected population, 1950-2030(2)

Area	Historic			Projected			
	1950	1960	1970	1980	2000	2020	2030
OBE area	254,599	257,114	269,467	296,500	349,400	417,900	452,200
UMRCBS planning area	480,688	500,072	545,106	669,000	894,000	1,184,000	1,329,000
La Crosse County(1)	67,587	72,465	80,468	93,100	121,420	158,800	178,620
La Crosse study area(3)	57,436	61,764	68,428	79,760	104,120	136,240	153,750

(1) Based on 1970 census and growth rates reflected in 1968 OBE projections.
(2) Extension of projections by interpolation from 2020 to 2030.
(3) Candeub, Fleissig and Associates, Background Report: General Plan for the La Crosse Area, January, 1969 page EP-41.

Table 6 - Indexes of population change, 1970-2030

Area	1970	1980	2000	2020	2030
OBE area 0609	100	110	130	155	168
UMRCBS planning area	100	123	164	217	244
La Crosse County	100	116	151	197	222
La Crosse study area	100	117	152	200	225

EMPLOYMENT

The rate of employment growth in La Crosse County since 1940 has been in excess of the population growth rate except for the period 1950 to 1960 when employment declined about 3 percent as shown on table 7. In 1970 there were about 19,623 persons employed in the city of La Crosse or about 65 percent of the total county employment. Together with the remainder of the La Crosse study area, the city provides the most important source of employment opportunities for most people living in the study area as well as for many persons living in surrounding communities in Wisconsin and Minnesota.

Because employment opportunities are centered in the La Crosse study area, La Crosse County employment data directly reflect the employment pattern of the study area. Agricultural employment is the exception and has steadily declined in consonance with national trends. County employment categories experiencing either a continuous and/or rapid growth from 1940 to 1970 include: (1) services, (2) government employment, and (3) finance, insurance and real estate. By 1960, employment in the services sector had become the second most important job source. Rapid expansion of Wisconsin State University, La Crosse, as well as smaller local educational and medical facilities has been an important factor contributing to the rapid growth rate.

Table 7 - Employment changes by industry, La Crosse County, Wisconsin, 1940-1970

Industry	1940 Number	1940 Percent of total	1950 Number	1950 Percent of total	1950 Percent change 1940-1950	1960 Number	1960 Percent of total	1960 Percent change 1950-1960	1970 Number	1970 Percent of total	1970 Percent change 1960-1970
Agriculture, forestry, fisheries, and mining	2,889	14.2	2,579	9.6	-10.7	1,896	7.3	-26.5	1,153	3.8	-39.2
Construction	838	4.1	1,244	4.6	+48.4	1,206	4.6	-3.1	1,500	5.0	+24.4
Manufacturing	5,443	26.6	8,884	32.9	+63.5	7,565	20.0	-14.8	7,769	25.9	+2.7
Transportation, Communications, and utilities	1,725	8.4	2,307	8.5	+33.7	1,806	6.9	-21.7	2,167	7.2	+20.0
Wholesale and retail	4,077	20.0	5,645	20.9	+38.5	5,598	21.5	-0.8	6,662	22.2	+19.0
Finance, insurance, and real estate	389	1.9	454	1.7	+16.7	627	2.4	+38.1	736	2.5	+17.4
Services	4,250	20.8	4,717	17.5	+11.0	5,929	22.7	+25.7	8,990	30.0	+51.6
Government	583	2.9	743	2.8	+27.4	859	3.3	+15.6	1,028	3.4	+19.7
Industry not reported	217	1.1	408	1.5	+88.0	600	2.3	+47.1	-	-	-
Total	20,401	100.0	26,981	100.0	+32.3	21,086	100.0	-3.3	30,005	100.0	+15.0

Source: U.S. Department of Commerce: Office of Business Economics "Growth Patterns in Employment by County 1940-1950 and 1950-1960" and Bureau of the Census 1970 Census of Population "General Social and Economic Characteristics," State of Wisconsin.

The services category increase alone approaches the net increase in total county employment of 3,919 workers during 1960 to 1970. Wholesale and retail trade employment also grew steadily except for the period 1950-1960 when no growth occurred. Employment in this sector of the local economy has consistently accounted for about one-fifth of available jobs since 1940. Manufacturing and transportation, communications and utilities employment all sustained growth in the periods 1940-1950 and 1960-1970, with both categories experiencing substantial declines in employment during the 1950-1960 period. Rail service was curtailed and consolidated away from La Crosse while some trucking operations were reduced as the transport needs of manufacturers decreased. The manufacturing base declined due to the closing of a number of industrially obsolete factories and a subsequent reduction of employment. However, since 1960 every employment sector in the La Crosse study area has experienced moderate and sustained employment growth.(1)

EDUCATION

Data extracted from the 1970 Census for Wisconsin(2) indicate a median of 12.3 years of school completed by persons 25 years or older in the La Crosse area. Of this group, 60.8 percent completed at least 4 years of high school while 12.4 percent completed at least 4 years of college. Vocational training is also an important educational means in the area. Of persons 16 to 24 years of age, 27.3 percent have experienced some form of vocational training. Educational levels attained by persons in the La Crosse area compare favorably with those of the State of Wisconsin, thus providing an attractive labor force for existing and future economic activity in the area.

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(1) Candeub, Fleissig and Associates, the General Plan for the La Crosse Area, October 1969, page 3.

(2) U.S. Department of Commerce: Bureau of the Census, 1970 Census of Population, "General, Social and Economic Characteristics," State of Wisconsin.

INCOME

Per capita income in the La Crosse Standard Metropolitan Statistical Area (SMSA) in 1970 was approximately $2,771 or 9 percent below the State average of $3,046 (1969 dollars). As might be anticipated, the city of La Crosse and the remaining urban area had higher per capita incomes of $2,815 and $2,941 (1969 dollars), respectively. Historic and projected personal and per capita income figures for OBE economic area 06097 and Upper Mississippi River Comprehensive Basin Study planning area 3 are shown in table 8.

Table 8 - Projections of total personal and per capita income for La Crosse planning areas and for the United States(1)

Item	1960	1970	1980	2000	2020	2030
Income						
OBE economic area 06097 (1958 dollars)						
Personal income (millions)	426	677	1,029	2,266	4,994	
Per capita income	1,674	2,451	3,469	6,486	11,950	14,051
Planning area 15 (1960 dollars)						
Personal income (millions)	878	-	2,137	4,851	10,471	
Per capita income	1,755	-	3,194	5,424	8,845	
United States per capita income (1958 dollars)	2,134	3,046	4,112	7,161	12,411	
Income indices						
OBE area 06097 (1958 dollars)						
Personal income (millions)						
1960 = 100	100	159	242	532	1,172	
1970 = 100		100	152	335	738	
Per capita income						
1960 = 100	100	146	207	387	714	
1970 = 100		100	142	265	488	573
Planning area 15 (1960 dollars)						
Personal income	100	-	243	553	1,193	
Per capita income	100	-	182	309	504	
United States per capita income (1958 dollars)						
1960 = 100	100	143	193	336	582	
1970 = 100		100	135	235	407	

(1) Extrapolated by straight-line extension of trend or intervention between two points.

Personal income projections of the Office of Business Economics were utilized for the Upper Mississippi River Comprehensive Basin Study and therefore are almost identical. However, per capita income projections for planning area 3 are less than Office of Business Economics projections for area 06097 due to a larger population projection rate which dampens per capita income. For this report, the per capita income projection for Office of Business Economics economic area 06097 was utilized as the most reliable data available.(1)

As the most important growth center in the Office of Business Economics economic area, per capita income would appear to be conservatively indicative of the La Crosse study area per capita income. La Crosse per capita income growth is expected to increase nearly fivefold during the period 1970-2030.

RECREATION

Many land and water-based recreational facilities are located in the La Crosse area. City-built and operated land-based recreational facilities include Pettibone Park with picnic areas and a swimming beach with bathhouse on Barron Island, a public beach and bathhouse on the left bank of the Black River between Sill and Clinton Streets, Houska Park on Isle La Plume, Copeland Park on the Black River south of Clinton Street, and Riverside Park located south of the mouth of the La Crosse River. These parks are used by the local public for sight-seeing, nature walks, bird-watching, picnicking, and cultural-musicals, concerts, etc., at Riverside and Houska Parks. A nine-hole public golf course is located in South La Crosse. A county-operated park and picnic area is located on the northernmost tip

(1) Since the Census Bureau population projection series used for Office of Business Economics economic area 06097 appears to more closely approximate the recent population trends than does the population projection series used for Upper Mississippi River Comprehensive Basin Study planning area 3, and, since the Upper Mississippi River Comprehensive Basin Study adopted personal income projection series developed by Office of Business Economics, per capita income for OBE economic area 06097 is considered appropriate.

of French Island. A local bicycle trail system utilizing existing city streets provides a very limited and somewhat dangerous opportunity for bicycling in the city of La Crosse. No traffic lanes are specifically reserved for this system. The Wisconsin Bikeway provides a regional trail system from La Crosse to Kenosha, Wis., but does not cover the city itself.

Water-based recreation in the La Crosse area consists of water-skiing and fishing on Lake Onalaska (pool 7), and general boating and swimming on the Black and Mississippi Rivers. A public marina is located on Isle La Plume. Privately operated marinas are located on the Black River at Moore Street (left bank) and on southern French Island (right bank), and on the Mississippi River at the southeast side of Barron Island and across the river at La Crescent, Minn. A sailboat mooring area is located at the northernmost tip of French Island. Numerous public and private boat-launching ramps serve the La Crosse area. Recreation boating needs in the La Crosse area are currently being investigated in a concurrent investigation under authority of section 107 of the 1960 River and Harbor Act.

LAND USE AND DEVELOPMENT

a. Commercial. - La Crosse was first settled in the 1840's. The first settler built a cabin on Barron Island in 1841 but moved to the mainland a year later. It was not until after 1850 that the real influx of settlers to the area occurred and La Crosse become an important French fur trading post for the region. Shortly thereafter, the lumber industry flourished in the region and La Crosse became an important lumber milling center. Several major saw mills were operating in the area at that time. The

coming of the railroads by the turn of the century complemented the lumber industry. As timber resources became less available most of the saw mills were eventually shut down and La Crosse began a trend toward a more diverse system less dependent upon any single employment generation.

Present urban land use and development in the La Crosse area is a mix of industrial, commercial, and residential development. Very little agricultural activity takes place in the immediate study area. Most of the industrial and commercial activity in the study area is located in the city of La Crosse. Development on French Island is principally residential with a few industries and commercial establishments on the south end of the island. Developmental conditions on flood-prone floodplain lands consist of residential developments on Barron Island, a sewage treatment plant on Lake La Plume, residential developments on Green Island and portions of the industrial and residential developments in north La Crosse. Table 9 shows the existing land use figure for the La Crosse study area.

Table 9 - Existing land use, La Crosse Study area

Subdivision of study area (usage)	City of La Crosse (ac)	City of Onalaska (ac)	Town of Onalaska (ac)	Town of Medary (ac)	Town of Campbell (ac)	Town of Shelby (ac)	Total study area (ac)	Percent of total study area
Commercial	203	20	19	30	11	57	340	0.4
Industrial	287	8	22	5	21	12	355	0.4
Transportation and utilities	2,838	325	768	925	854	552	6,262	7.7
Residential	2,015	233	465	312	297	452	3,774	4.6
Public and semipublic	339	59	13	14	17	83	525	0.6
Parks & Recreation	433	33	64	6	8	355	899	1.1
Total developed	6,115	678	1,351	1,292	1,208	1,511	12,155	14.9
Agriculture	980	560	21,767	8,971	41	13,166		
Extractive mining	-	2	17	70	-	19	108	0.1
Commercial forest	151	-	-	-	30	-	181	
Vacant land	1,538	378	2,986	560	2,046	2,053	9,561	11.7
Marshland	220	-	-	-	-	779	-	
Open water	1,009	213	4,840	100	5,198	1,737	13,097	16.0
Total undeveloped	3,897	1,153	29,611	9,700	7,315	17,755	69,481	55.1
Total land area	10,012	1,831	30,962	10,992	8,522	19,266	81,586	

Anticipated additional land needs by the year 1990 amount to an estimated 3,752 acres. Of this total, 1,020 acres would be needed for industrial expansion; 2,247 acres for residential development; and 485 acres for trade and services. Four alternative plans for future land acquisition and development are considered in the General Plan for La Crosse and are as follows:

1. Continued existing trends toward more intense development of the city of La Crosse and adjacent areas.

2. Development of bluff tops east of La Crosse.

3. Development of marshlands adjacent to the La Crosse River.

4. Planning and development of a satellite suburb in the Onalaska area.

Potential developable lands have been identified in the La Crosse marsh, northern French Island, to the north in Onalaska Township, and on the bluffs east of La Crosse.

b. Non-commercial land use. - There are few communities in the midwest with such varied topography as that which exists in the La Crosse area. Steep wooded hills, sheer rock-faced bluffs, coulees, valleys, rivers, sloughs, lakes, marshlands, and prairies are all characteristic of the area. Many of these natural features are already part of an extensive park and recreation system operated by various units of Federal, State, and local governments. Many other areas still exist that could be used to meet future recreational needs.

Areas within the immediate vicinity of La Crosse which are of particular value for their natural, scientific and aesthetic characteristics include the marsh along the La Crosse River; the high, steep bluffs along the river valley; the Mississippi, Black, and La Crosse Rivers including their side channels and backwater sloughs.

The La Crosse or Myrick marsh, which is located south of Red Cloud Park, consists of about 220 acres of aquatic and emergent vegetation which is interspersed with open water areas. The remaining undeveloped parts of the La Crosse River floodplain consist of various degrees of wet meadow-marsh communities. These areas are recognized by local naturalists and professional biologists[1][2] as important for nature appreciation, waterfowl and songbird habitat, teaching, and research activities.

A considered crosstown highway if authorized would pass through the marsh as indicated on plate 2. Members of the Southern Wisconsin Wetlands Association, the La Crosse Audubon Society, and the University of Wisconsin at La Crosse faculty have publicly recorded their objections to the highway plan.[1]

The bluffs along the Mississippi River valley, immediately east of La Crosse, provide scenic overlooks of popular aesthetic value. Large-scale recreation proposals, such as the Great River Road and the Upper Mississippi Recreation Project, are focused partly upon the scenic value of these bluffs. These wooded bluffs are also important as nesting grounds for many songbirds in the area.

The Mississippi and Black Rivers in this area, including the side channels and sloughs, are important areas for waterborne recreation, fish production and wildlife habitat. Heavy fishing pressure occurs in these areas throughout the year. Recreation use is best characterized in terms of the multiple-use program of the Upper Mississippi River National Wildlife and Fish Refuge which occupies much of the floodplain in this area. Hunting, fishing, and trapping are subject to State licensing with special use permits and tags required for the fur harvest on the refuge. Part of the

(1) Testimony by Stuart McIlraith, Fred Lesher, and James H. Zimmerman at public hearing for proposed crosstown highway, La Crosse, Wis., 28 July 1972.

(2) Sohmer, S. W., January 1973. Contributions from the herbarium V., Preliminary view of the vascular flora of the Myrick Park marsh, La Crosse, Wis.

refuge is open to public hunting during State and Federal seasons. Fourteen areas at intervals along the river, totaling some 41,000 acres, are closed for protection of migratory waterfowl during the hunting season. For management of resident game, furbearers, and predator populations, these special closed areas are opened to bow hunting for deer during authorized State seasons and to other legal hunting and trapping seasons following the close of the waterfowl season. Otherwise, and at other times, the entire refuge area is closed to hunting. Fishing for walleye, sauger, bass, perch, catfish, and other species is popular below the dams, in sloughs, and in channels between the islands.

Pleasure boating, including fishing, water-skiing, and excursion trips, is also important in the area. Some 6,300 boats were registered in La Crosse County in 1970. Many river visitors either bring boats via trailers or rent boats at marinas, landings, or municipal boatyards along the river. Safety regulations of the U.S. Coast Guard and neighboring States apply to the river and the Corps of Engineers locks pass pleasure boats between pools. Based on congested pleasure boat traffic at Mississippi River lockages and recognized needs for increased small-boat harbor facilities at La Crosse, it is expected that recreation boating will increase during the future.

Excellent facilities are available for camping, picnicking, sightseeing, and water contact sports. Thousands of visitors use the sandbars and beaches along the main channel during summer months. Camping is permitted on the refuge islands and beaches where campfires are permitted. Sightseeing tours provide excellent scenic values including views of the river bluffs.

Bird watching, natural history studies, and photography are favored activities. A list of 255 of the more regularly observed birds is available at the headquarters office of the wildlife refuge at Winona or at the district refuge offices in La Crosse.

A great blue heron and egret rookery has been identified on the Minnesota side of the Mississippi River west of Green Island. Although the actual number of birds using this rookery is not known it is considered by local scientists as the most important regional breeding area for these birds.

HISTORICAL AND ARCHEOLOGICAL SITES IN THE STUDY AREA

Correspondence with the State Historical Society of Wisconsin, the La Crosse Historical Society and a check of the "National Register of Historic Sites" reveals numerous sites in La Crosse with architectural, archeological, or historical importance. A preliminary listing of such sites (appendix C) does not identify any sites which would be affected by the proposed project. Additional investigations would be made during postauthorization studies to further document these and other sites of archaeological importance in the project area. As requested by the Wisconsin State Historical Society, close coordination would be maintained with that agency so that a specific survey of potentially important sites could be undertaken if additional project studies were warranted.

3. THE ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

If the proposed flood control project is authorized, numerous environmental, social, and economic impacts can be anticipated. The following section of this report discusses those impacts as they are now anticipated.

LAND USE CHANGES

Approximately 69 acres of undeveloped land would be covered by the levee system. Some portions of the proposed levee system would pass through areas of the floodplain that are considered biologically sensitive. One such area is the wet meadow-marsh community of the La Crosse River floodplain. The proposed levees would generally follow the east edge of the floodplain and would cover an estimated 15.5 acres of biologically productive marsh habitat. In addition, an estimated 39 acres of undeveloped floodplain would be provided flood protection by the proposed levee alignment. This 39 acres is isolated from remaining floodplain wetlands by industrial development and railroad facilities. Another 20 acres of floodplain land in the same general area has been filled by the city of La Crosse with sand material

to a height of about 5 feet above the floodplain. Another 20 acres of wet marsh adjacent to the presently filled area would be utilized as a ponding area for interior drainage facilities. To do so would possibly maintain the marsh community, however, natural flooding from the La Crosse River would not occur. Animals capable of crossing over the levee could still use this area but access to the marsh for fish would be blocked by the levee.

Two zones of floodplain forest along the Black River would also be disturbed by the proposed levee alignment. Total acreage of these communities which would be disturbed is about 9.6 acres. The proposed levee alignment would follow, in most instances, an emergency levee which was constructed in 1969; however construction of a larger permanent levee would require the removal of additional mature trees. Terrestrial mammals and avian populations associated with this cover type would be correspondingly reduced by direct habitat destruction and temporary disturbances during construction. Conversion of undeveloped lands located behind the levees to urban developments could be expected if flood protection were provided.

Another sensitive area exists immediately west of the railroad roundhouse. The area is a known northern pike spawning bed which consists of a network of shallow ponds connected by small channels. The openwater areas are shaded by mature cottonwood, ash, elm, and maple trees and support a dense growth of submergent and emergent vegetation. The proposed levee would circle landward of this area; however at least three and possibly four of the ponds would be partially filled by the levee toe. A few of the mature trees would also be removed by construction.

At the present time an area of about 3 acres has been filled in this spawning area with solid waste material. The Wisconsin Department of Natural Resources has secured a court injunction and temporarily stopped this practice. Since this area is located in the designated floodway, it may be possible that the solid waste materials dumped there will be removed at some future time.

The proposed project would protect only a limited amount of farmland which is presently flood prone and no cropland or pasture land would be lost as a result of project construction.

PROCUREMENT OF BUILDING MATERIALS FOR THE LEVEE SYSTEM

It has been proposed that some 650,000 cubic yards of fill material for the levee system would be dredged from the Black and Mississippi River and about 200,000 cubic yards would be obtained from land based borrow areas. There are economic advantages associated with dredging materials from the river close to the levee location. It costs about $1 per cubic yard for the dredged material as opposed to $1.80 per cubic yard to truck material in from land based borrow areas. However, if the dredging method is employed to obtain fill material several far-reaching environmental impacts can be anticipated.

Bottom dwelling organisms occupying the dredge sites would be destroyed by removal of the substrate they live in. A subsequent reduction of fish and other animal populations dependent upon these benthic life forms for food could be expected.

More subtle changes to aquatic environments downstream from the dredging operations could be expected. Increased water turbidity and siltation in downstream areas is probable. Possible effects of this include a temporary reduction of numbers and species composition change of benthic populations downstream as many of these species are easily suffocated by silt deposition. A reduction by sedimentation caused by upstream dredging as the eggs were covered by silt. A reduction of vertebrates which feed on these life forms could also be expected. Fish spawning success could be reduced by sedimentation caused by upstream dredging as the eggs were covered by silt.

The direct effects of river dredging would be reduced to some degree by careful selection of dredging sites. Dredging would be confined to the present 9-foot navigation channels of the rivers, thus avoiding damage to the marshes and backwater slough areas. Local biologists report large hatches of aquatic insects, especially mayflies (Families Heptageniidae and Baetidae), emerge from these areas during the spring and early summer months. These insects undoubtedly play an important role in the food web for fish and animal populations in these areas. Heavy fishing pressure also occurs in these backwater areas and dredging would not be compatible with that interest.

Biological systems which were disturbed by dredging could be expected to at least partially recover after dredging was completed. Those systems downstream from the operation would probably be disturbed less and a faster recovery could be expected. In the immediate dredged area, a longer recovery time would be necessary and possibly in the changed environment complete restoration would not occur.

It has been proposed that about 200,000 cubic yards of the 850,000 cubic yards required for the levee embankments be obtained from land based borrow pits in the La Crosse area. The environmental effects associated with the use of existing borrow pits would probably be far less than those associated with dredging. Even if new borrow pits were developed to supply the needed material, the environmental effects could be closely monitored and mitigative practices employed to reduce or eliminate any adverse effects which might occur.

A third possible source of fill material has been suggested by dredging areas in the La Crosse marsh. To do so would produce numerous adverse environmental effects to the marsh community. Large amounts of marsh vegetation would be destroyed as access roads were built and dredging operations proceeded. Additional open-water areas would be established by dredging and filled by contaminated waters from the La Crosse River. This could result in instantaneous water quality problems in these small lakes. Possible water contact recreation in these areas would be precluded by the water quality problems.

Fish and wildlife populations now adapted to the marsh community could be severely altered as additional open-water areas were made available and dredging disturbances occurred. These changes could be expected to favor some species and limit others. Vector production and associated health hazards are strong possibilities to consider in this instance. For these reasons, marsh areas and backwater sloughs would be excluded from dredging.

At this early phase of study the environmental impacts of obtaining embankment material are difficult if not impossible to adequately assess. Two sources have been proposed; 650,000 cubic yards by dredging in the Black and Mississippi Rivers and 200,000 cubic yards from land based borrow pits in the La Crosse area. Although exact sites of borrow areas would be determined in post-authorization studies, it appears that hauled fill may be obtained from borrow pits in the Onalaska area and impervious material would be obtained from upland areas east of the city. Materials for rip-rap and bedding is available in the La Crosse area from several established limestone quarries located less than 10 miles from the project area. In any event, the procurement of embankment materials is an integral component of the proposed project. Further, in-depth studies will be required to obtain specific sources of fill materials which would have the least impact or cause the fewest perturbations to the environment. For this reason, this aspect will be considered in detail in postauthorization studies.

SOCIAL CONSIDERATIONS

Several social impacts can be anticipated by construction of the proposed flood control measures.

Opposition to the proposed road raises on Bainbridge Street and Lakeshore Drive has been voiced by some residents in those areas. Local residents are aware that such raises would make access to and from their property difficult and possibly hazardous during winter driving conditions. As partial mitigation for this situation, funds would be included in the project costs for payment of road grade change damages caused by construction of the proposed project. While payment of damages incurred from the project would partially compensate those individuals affected, the opposed situation would remain. The road raise would be limited to the level of the 1965 flood without freeboard allowance in an effort to minimize the road grade change damages.

Some homeowners who now have an unobstructed view of the river would be affected by levee construction. In some instances an unobstructed river view would be replaced by a levee. This is considered objectionable by those people affected, however compensating benefits are derived by the reduction of flood damages to their property. Evacuation of about 40 permanent and seasonal residences form Barron Island is planned by the city of La Crosse but is not contingent upon project construction and is not considered part of the proposed project.

Increased noise, vehicle traffic and possible airborne dust pollution could be anticipated during the actual construction phase of the project. These conditions are considered temporary; however, their short-term effects could potentially be adverse to natural and human environments in the immediate vicinity of construction.

DISCUSSION OF PROPOSED LEVEE SYSTEM

Economic feasibility and engineering practicability have been established for a local levee system which would reduce flood damages to floodplain developments in the La Crosse area. Social and environmental concerns were considered in selecting the proposed alignments. The proposed plan provides the desired degree of protection to floodplain developments at a price which is acceptable socially in most instances. Notable environmental and social exceptions occur, however, and are discussed in the following pages.

The proposed levee alignments are of a general nature and should not be interpreted to mean that the exact alignments have been selected. The specific levee alignments would be selected during the postauthorization stage of the study and based upon detailed hydrological investigations, soil borings, social and economic considerations, and environmental factors which could influence the final levee alignments.

The proposed levee alignments are shown on plate 2, and described in detail in appendix A. A discussion of the social, economic, and environmental factors relating to the proposed levee system is presented in the following paragraphs:

FRENCH ISLAND

Airport levee. - Total length of this proposed levee is about 1,000 feet and would cover approximately 2.1 acres of vacant agricultural land. Portions of a dense stand of forbes and grasses which presently occupy this area would be removed by levee construction. Much quality wildlife habitat does not exist in this area and disturbances to biological systems by levee construction are considered minimal. Portions of the landscape would be converted from a fallow field to a flood control levee if the proposed project were constructed. This area is not considered a biologically sensitive area and no serious environmental impacts are anticipated from levee construction. Economic benefits would be realized by protecting portions of the La Crosse Municipal Airport which experienced some flood damages during the 1965 flood.

The Bureau of Sport Fisheries and Wildlife currently anticipates constructing a research facility and holding ponds in this immediate area. For this reason, close coordination with that agency would be necessary to insure that the two projects were complementary.

North Bainbridge Street road raise. - The total length of this road raise through a residential area would be about 3,000 feet to an additional average height of 2.5 feet. Because the road is already established, few biological communities exist which could be disturbed by construction activities. Social opposition could be anticipated from some residents located on either side of the road concerned that the raise would make access to their property more difficult. In an effort to minimize grade change damages, the road would be raised to the 1965 flood level without a freeboard. Additional funds would be included into the proposed project costs to compensate residents who experience damages from road grade changes, however, this payment would not eliminate the condition. Economic benefits would be realized by residents located landward of the road raise in the event flood conditions occur in the future. Property damage caused by flooding would be reduced for those residents protected by the road raise. Temporary disruption of traffic could be expected along Bainbridge Street during the construction phase of the project. Because the effects of this are temporary and alternate travel routes are available, the inconvenience is not considered severely adverse.

Lakeshore Drive road raise. - This proposed road raise is located through a residential area. Total length of road affected would be about 2,400 feet raised an average of about 6 feet. Similar conditions prevail in this area as those described previously for North Bainbridge Street. Few natural biological systems exist which could be affected by construction. Similar opposition to raising the road elevation could be expected from local residents. Social and economic benefits would be realized by residents protected from flooding and minor inconveniences could be expected for people traveling this road during construction.

French Slough levees. - The length of this levee would be about 500 feet and approximately 1.2 acres of floodplain forest community would be eliminated. An undetermined number of mature trees would be removed by construction of the levee. French Slough is recognized locally as a popular fishing spot and heavy fishing pressure occurs here. The proposed levee, if constructed in this area would follow the edge of French Slough and thereby eliminate the existing ecotone or edge effect along that portion of the slough. Vertebrate and invertebrate populations utilizing this particular zone would be reduced to some degree in the construction area. Beneficial effects of this section of proposed levee would be realized by those residents living landward of the levee who would be provided flood protection.

South Bainbridge Street road raise. - The area affected by this road raise is characteristic of residential and industrial developments. About 2,000 feet of road would be raised an additional 3 feet. Similar impacts as discussed previously for other road raises could be expected. To reduce the inconvenience to residents gaining access to their property, the road would be raised to the 1965 flood level without additional freeboard. Provisions would be included to allow additional emergency road raises if the need should arise.

NORTH LA CROSSE

Onalaska levee. - This portion of the proposed levee system totaling about 3,450 linear feet would average about 8 feet in height. Approximately 5.9 acres of land would be covered by levees. The permanent levee would be constructed along the existing emergency levee alignments. Both floodplain forest and marsh communities exist in this area, however by following the emergency levee alignments neither would be severely affected. The larger permanent levee would unavoidably remove a few of the mature trees now established in adjacent areas, however by doing so, encroachment into marsh communities could be prevented. In this instance it is considered an acceptable trade-off.

Temporary noise, increased traffic and airborne dust particles could be expected during construction, however these should cease upon completion of construction.

U.S. Highway 53 levee. - This section of the proposed levee would follow the east bank of the Black River from I-90 south to about Sill Street for a distance of about 8,300 feet. Approximately 14.1 acres of land would be covered by this section of levee.

The existing riverbank vegetation which would be partially destroyed by levee construction includes a dense stand of willow from I-90 to about George Street; scattered zones of river birch, cottonwood, elm, and maple from George Street to about Moore Street, and scattered but dense areas of forbes, willows and bottomland forest along the remainder of the alignment. A small backwater area is located near the west end of Rublee Street and a developed public beach exists between Logan and Sill Streets. The proposed levee would be offset from the riverbank in these two areas in an effort to minimize disturbances to existing biological systems and maintain access to the river from the beach.

Some adverse environmental effects could be anticipated from levee construction in this area. Approximately 14.1 acres of riparian vegetation would be destroyed as it was covered by levees. An undetermined number of mature hardwood trees would be cleared to permit construction. Fish and wildlife populations which utilize these cover types would be reduced as portions of their habitat would be destroyed. Temporary disturbances from noise and increased construction equipment traffic could potentially affect animal populations in areas adjacent to the construction site.

Social and economic benefits would be realized by those people protected from flooding behind this section of the proposed levee. Periodic flood damage would be reduced by the proposed levee as well as the public safety hazards and potential public

health problems associated with flooding in this area. An estimated 6 trailer houses would be relocated to allow levee construction without encroachment into the floodway and opposition to the relocation could be expected.

South Black River levee. - This section of the proposed levee system would be about 9,460 linear feet long and cover approximately 16 acres of land.

The extreme northern portion of this levee would pass around the outfield of a baseball field located in Copeland Park. Landscaping would be necessary for this section of the levee to restore the aesthetic quality of the park and minimize any disturbance to the baseball field. From Copeland Park the proposed levee would follow the Black River south to the embankment of the Chicago, Milwaukee, St. Paul and Pacific Railroad. Vegetation along this section of the river is scarce except for a small wooded area extending about 300 feet north of the railroad embankment. Portions of the riverbank have been covered with pieces of masonry, apparently in an attempt to stabilize bank erosion. With the exception of the small wooded area, few well developed biological systems exist along this portion of the proposed levee which could be disturbed by levee construction. A loss of an undetermined number of hardwood trees could be expected if the proposed levee were built through the wooded area.

South from the railroad embankment, the proposed levee alignment would follow the railroad tracks around a low wooded area and then south along the tracks to the La Crosse River floodplain. At this point the levee alignment would turn east to follow the edge of the La Crosse River floodplain until it tied back into Copeland Avenue.

A low wooded area, located immediately south of the railroad embankment and west of the railroad roundhouse, is recognized as a northern pike spawning area. The site supports a moderate stand of floodplain forest vegetation which is interspersed by a series of about 11 shallow, open-water areas. Abundant marsh vegetation grows in and around the shallow water areas which are shaded by mature elm, ash, maple, and cottonwood trees. The proposed levee alignment would pass around the landward edge of this site immediately west of the existing railroad embankment. Few mature trees exist along the proposed levee alignment in this section which would be destroyed by construction. At least three and possibly four open-water areas representing approximately 3.4 acres would be partially filled by the toe of the proposed levee. If this occurred the value of the area for waterfowl production and fish spawning would be significantly reduced, considering the fact that about three acres of this small area have already been destroyed by the dumping of solid wastes.

The section of proposed levee from south of the northern pike spawning area to the La Crosse River floodplain would pass along a degraded stretch of the Black River. Few, if any, well developed biological systems exist in this area and disturbances from levee construction are considered minimal. A sparse growth of herbaceous vegetation existing along the Black River would be covered by the proposed permanent levee.

From where the proposed levee meets the La Crosse River floodplain to its termination at Copeland Street, the levee would approximately delimit the edge of a wet meadow-marsh community. Portions of the marsh would be covered by the levee toe. The existing emergency levee along this community presently supports a scattered growth of young trees including cottonwood, ash, elm, and maple, most of which would be removed by construction of a large permanent levee. The areas landward of the proposed levee have been filled and are

committed to industrial development. Few if any well developed biological systems exist landward of this section of the proposed levee and minimal disturbances would be expected by construction.

Copeland Avenue - Moniter Street levee. - This section of the proposed levee and floodwall would follow the developed portions along the north side of the La Crosse River floodplain for a distance of about 5,200 feet. Total area of land which would be covered by levees would approximate 10.7 acres. The floodplain along the proposed levee alignment consists of a wet meadow-marsh community interspersed by small open-water areas. A scattered stand of trees including cottonwood, elm, ash, maple and oak is found on the drier sites in this area where these species have not been cleared to facilitate urban development.

Levee construction through this area would eliminate by covering approximately 10.7 acres of marshland and possibly fill some open-water areas. A corresponding reduction of biological productivity of the marsh could be expected as portions of it were filled with levee materials. Nesting birds, furbearers, and possibly some fish would suffer the effects of resulting habitat destruction. Comments received at the 6 March 1973 public meeting held in La Crosse on the proposed flood control project indicate part of this area behind the Lieder Lumber Company may be a spawning bed for northern pike. The area in question consists of a low-lying marsh vegetated by a dense growth of submerged and emergent vegetation. Numerous open-water areas occur throughout the marsh. A railroad embankment separates this remote marsh from the La Crosse River, but a closure structure exists through the embankment. If the closure structure were left open and the marsh area were left undisturbed, this possible spawning bed could be restored. The levee, as proposed, would avoid this sensitive area as much as possible by passing around its outer edge; however, some vegetation and possibly some open water areas would be covered by the levee.

The remainder of the proposed levee would follow the outside edge of the La Crosse River floodplain until it tied into high ground north of the Chicago and North Western Railway embankment. Portions of the wet meadow-marsh communities along the proposed levee would be covered by the levee toe and biological productivity in these areas would correspondingly be reduced. A scattered stand of about 70 hardwood trees exists along the proposed alignment. Some of these trees would be removed as construction proceeded. Temporary disturbances to animal populations in areas adjacent to the proposed levee could be expected during the actual construction phase of the project.

East Side levee. - This section of the proposed levee would generally follow the northwest edge of the upper La Crosse River floodplain for a distance of about 7,900 feet. Approximately 15.5 acres of land and vegetation would be covered by the levee. Areas riverward of this alignment are wet meadow-marsh communities vegetated by cattail, bulrushes, reed canary grass and various other plant species characteristic of a marsh environment. Numerous open water areas which appear to be remnants of old river oxbows can be seen in this area. Landward of the alignment, the area has been elevated with sandfill material and is committed to urban development. A narrow zone of mature tree including cottonwood, ash, elm and box elder occupies some of the area where levee constuction would occur from St. Cloud Street north to the railroad tracks. The proposed levee alignment would avoid as much as possible the existing trees, but an undetermined number would be removed. A corresponding reduction of birds and mammal populations which utilize these trees for cover, nesting, and feeding sites could be expected.

This proposed alignment would provide flood protection for an additional estimated 39 acres of vacant floodplain land in the area of St. James Street. Another 20 acres of floodplain land in this same general area is presently filled with sand material and is scheduled for development. Another 20 acres of wet marsh adjacent to the filled area would be used as a ponding area for interior drainage facilities.

When this undeveloped area was visited on 18 April 1973 by Corps of Engineers personnel, it was inundated by water which was one to two feet deep. The wetland is occupied by about 50 mature cottonwood trees with a dense understory dominated by willows, wild grape, wild rose and reed canary grass. A variety of other shrubs, forbs, and grasses is also in association here. Numerous songbirds including red winged blackbirds, mourning doves, and robins were observed. Two pairs of mallards and muskrats were also observed in this area. Based on these observations the area is considered a valuable natural system.

This marsh would be used as a ponding area for interior drainage facilities. To do so would possibly maintain the existing wetland, but natural flood waters from the La Crosse River would be eliminated by the proposed levee. The value of this habitat for birds and mammals capable of moving across a levee would probably not be seriously altered by the proposed levee. Access to the proposed ponding area for fish species would be cut off by the levee.

La Crosse marsh alternative levee. - Construction of this alternative La Crosse River floodplain levee alignment would result in numerous social, economic, and environmental impacts. Economic justification has not been demonstrated for this alignment unless a proposed interstate highway feeder embankment were constructed through the marsh. Because of opposition from environmental and other interest groups, the future of the highway is uncertain at the present time. Construction of this alternative levee would cover about 20 acres of productive marsh and pasture lands and provide

flood protection for an additional estimated 410 acres of undeveloped floodplain. If flood protection were provided, this area would probably be converted to urban developments in future years. As discussed earlier in this report, La Crosse anticipates a future need for additional developable land and portions of the La Crosse River floodplain are already committed to such developments. Considerable economic benefits to the city would be realized if the additional floodplain land were provided flood protection. La Crosse city officials have publicly voiced support for this alternate alignment throughout the study, anticipating a future need for developable land.

Although much of the upper La Crosse River floodplain is presently utilized for domestic livestock pasture, numerous small wooded and marsh areas remain which provide quality resting, feeding and nesting habitat for some wildlife species. The same environmental interest groups which oppose the considered highway, could be expected to vigorously oppose this alternate levee alignment. The marsh areas are considered most valuable for their fish and wildlife production, nature appreciation, and for teaching and research activities. The close proximity of the river floodplain to the University of Wisconsin, La Crosse, makes it a valuable resource which can be easily reached for field trips.

Copeland Avenue - Monitor Street Alternate Levee. - The city of La Crosse, the Causeway Merchants and property owners requested consideration of a levee realignment behind the Lieder Lumber Company to include protection to an additional 30 acres of marsh separated from the La Crosse River and marsh by the Burlington Northern, Inc., railroad embankment. This would reduce the required length of the levee by about 900 feet and would make available 30 acres of land for future commerical development.

The owners of the property agree that the dike as presently proposed would make the property useless to them economically as they could not sell the real estate for commercial development. Further, the development that could take place on the area would expand the tax base of the city of La Crosse.

The proposed levee alignment was selected because of economic and environmental considerations. Although the alternate alignment is shorter by about 900 feet, it would require a higher and larger levee section costing about $40,000 more than the proposed alignment which follows the existing emergency levees along the perimeter of the marsh.

Inasmuch as this property is part of the La Crosse marsh, it has many of the same values as does the rest of the marsh in regards to biological values. It is thought to be a fish spawning area, as fish migrate into the area during spring high water periods through the railroad flap gated culverts from the La Crosse marsh and river. Youngsters and other persons have been known to open the flap gates to let fish into the area and then to block off the culverts in an attempt to trap fish in this area once they have migrated into the area. It probably receives useage from the same animal species as are found in the La Crosse marsh but in less numbers, of course. The vegetation and wetlands are similar to the remainder of the marsh.

Opposition to the alternate alignment could be expected from environmental and conservation groups due to the adverse effects of this proposal on the marsh. General taxpayers might object to this alternate alignment because they in effect would be subsidizing direct floodplain development instead of just protecting existing developments. On the other hand it would provide for some additional expansion space for new development in La Crosse and is supported by development-oriented groups. Landowners would be required to pay if land enhancement is probable.

Sewage treatment plant levee and road raise. - During the early stages of this study, consideration was given to the possibility of providing levee protection to the sewage treatment plant located on Isle La Plume. Additional studies have shown that even with the design flood the treatment plant would still be operable but the final clarification and chlorination stages would be temporarily lost. For this reason, studies to consider flood protection for the treatment plant have been discontinued. It is possible, however, that this area could be incorporated into postauthorization studies if at some future time it is deemed necessary to provide flood protection to the treatment plant.

In summary, the local levee plan would provide flood protection against a flood level about one foot higher than the record 1965 flood level. In accordance with State of Wisconsin floodplain regulations, all levees would be designed to include the standard project flood within the levee freeboard. Areas which would be provided such protection would include the municipal airport on French Island, residential areas on Lower French Island, North La Crosse, and by evacuation, the Pettibone Drive area of Barron Island. The sewage treatment plant on Isle La Plume could also be protected if in the future it is deemed necessary to provide such protection.

Structural features would include approximately 9-miles of flood barrier averaging about 7-feet high; road and rail closures; necessary road ramps and track grade raises; interior drainage facilities ; and could include the removal of structures and relocation of residents from the Pettibone Drive area of Barron Island.

Several alternative structural and nonstructural measures were considered for the flood-prone areas along the northwest side of French Island, Green Island, Norplex industrial area, and Hiawatha Island. All of these measures such as levees, floodwalls, flood proofing to include raising homes, surrounding property and access

roads, evacuation and relocation, were either economically infeasible or socially unacceptable. Therefore, in these areas, a program incorporating adequate flood warning, flood insurance, and appropriate floodplain management is considered a possible alternative to providing flood protection to these areas.

Beneficial social impacts of the proposed plan would include flood protection for about 1,700 families and 190 businesses, thereby reducing economic losses, community disruption, and potential threats to public health and safety incurred during actual floods. Adverse social impacts would include the relocation of about 40 homes from Barron Island, a total of one business, one home and three garages along the proposed alignments, and disruption of scenic river views by flood barriers in some instances. In addition, railroad and highway raises (such as Lang Drive) to meet the top elevation of the levee system to avoid closures during flood periods might cause social problems to adjacent property owners and would cause inconveniences during actual construction.

Possible community disruption and severe personal inconvenience to some French Island residents could be expected from the proposed road raises of Bainbridge Street and Lakeshore Drive. To minimize this, the proposed Bainbridge Street raise would be limited to provide protection against the 1965 flood level without freeboard allowance. These street raises would be designed to permit emergency raising if the need should arise. Additional funds would be added to the project costs to compensate those individuals for grade change damages resulting from the proposed road raises.

Of the total estimated project costs of $13 million, about $11.9 million represent Federal costs and $1.1 million represent local costs. The Federal costs will be paid for by those entities paying Federal income taxes, which include the American taxpaying public. Since this is a rather large number of people the direct economic costs to any one individual should not be great.

This same general principal applies to the local sponsor as well. The local share amounting to $1.1 million should not cause any undue economic, or indirect social, hardship on any taxpayers or their families inasmuch as the local sponsor has a relatively large tax base from which to draw.

In any event, those people directly benefiting from the project are paying the same economic costs as are those people receiving no direct benefits from the flood reduction project. This can be interpreted in two ways. The people directly benefiting which represent the minority of people paying for the project will probably view this as a favorable impact of the project. The remainder of the people which represent the majority of the people paying for the project and not receiving direct benefits from the flood reduction project itself may, or may not, view this as a favorable effect.

Environmental impacts of the proposed project are anticipated to be severe in some areas and of little consequence in others. Some of the more obvious effects, as they are anticipated would include the following:

a. Disruption of aquatic ecosystems if areas of the Black and Mississippi Rivers were dredged for sources of levee fill material. Possible shifts in abundance and species composition could be expected if these areas were dredged. More subtle but possibly equally disruptive effects to aquatic environments downstream from the dredging operation could be anticipated. Adverse effects to aquatic environments could be reduced, however, if dredging were confined to the existing 9-foot navigation channels of the two rivers.

b. Approximately 69 acres of undeveloped land would be converted to levees. A corresponding reduction of fish, bird, mammal and invertebrate populations associated in the construction areas could be expected. In some cases, mature trees would be removed and portions of a documented northern pike spawning ground would be filled. Portions of the La Crosse River floodplain consisting of wet meadow-marsh communities would be filled by the proposed levee as would a section along the Onalaska levee.

c. Extensive losses of biological systems in the La Crosse River floodplain could occur depending upon the selected levee alignment. If the proposed alignment, which generally follows the margin of the floodplain, were selected, an estimated 15.9 acres of marsh vegetation would be destroyed by covering it with the levee. With this alignment, an additional estimated 39 acres of undeveloped floodplain land would be provided flood protection. However, this 39 acres is physically isolated from remaining floodplain wetlands by industrial development and railroad facilities. Another 20 acres of floodplain land in this same general area has been filled at present. A 20-acre parcel of wet marsh adjacent to the 20-acre filled area and within the proposed levee alignment would be used as a ponding area.

An alternative levee alignment in this area is dependent upon the construction of a proposed interstate highway feeder embankment through the floodplain. Several environmental interest organizations have voiced strong opposition to the location of the proposed highway and its future is uncertain, but should it become a reality the alternate levee alignment could be considered a viable alternative. This section of levee would provide flood protection to about 410 acres of wet meadow-marsh communities in the upper La Crosse River floodplain. If such protection were provided, the marsh community which is dependent upon periodic flooding would be altered and subsequent urban development on the protected floodplain could be expected to follow closely behind.

d. Relocations or modifications of existing utilities would cause disturbances to natural communities at the relocation sites and at the existing sites. Sewer lines, power lines, fuel lines, water lines, communication lines and interior drainage facilities are all utilities which would be relocated or altered by construction of the project.

e. Temporary increased noise levels, airborne dust, and vehicle traffic could be expected during the actual construction phase of the project. These disturbances, if present during the reproductive season have the potential to disrupt nesting activities of waterfowl and songbirds adjacent to the construction sites. It could also be expected that increased noise and human intrusion may drive away or adversely affect behavioral patterns of some animal species which are not tolerant of human activities.

f. Portions of the Mississippi River floodplain could benefit from the proposed project. By appropriate floodplain development regulation and the planned evacuation of Barron Island, future urban development on biologically sensitive bottomlands would be curtailed and most of the existing natural bottomland communities would be preserved if not done so previously by local government entities.

Social and economic benefits would be realized by about 1,700 families and 190 businesses which would be provided flood protection by the proposed levee system. Total area flood damages would be reduced by an estimated 75 percent. Flood damages in areas protected by structural works or floodplain management regulation would be reduced by an estimated 83 percent.

The city of La Crosse would gain an additional estimated 40 acres of protected land for future development if the proposed levee alignment were selected. If the alternate levee alignment for the La Crosse River floodplain were selected, the city would gain about 410 additional acres of land which would be protected from flooding and available for possible future development.

In some instances, people who now have an unobstructed river view would find themselves viewing the backside of a flood barrier instead of the river after construction were completed.

The proposed road raises of Lakeshore Drive and Bainbridge Street could result in difficult access to some properties along these streets. Some of the affected residents are on record as being opposed to these raises. Although additional money would be added to the project costs to partially compensate for the grade change damages, the condition would remain.

MITIGATION

Various mitigative measures have been considered to offset environmental losses created directly or indirectly by the project. Both the Department of Interior and the Wisconsin Department of Natural Resources have requested that mitigative measures be incorporated into the project to offset some of the adverse effects of the project. However, mitigation measures in the form of land replacement are not considered

in view of the small amount of lands that would be directly affected by the proposed project as compared to the 1,200 plus acres of undisturbed woodland and wetland available in the immediate project area. Items such as scenic overlooks and interpretive trails through the Myrick Marsh are potential features of a mitigation plan.

4. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

If the proposed flood control measures are authorized, several unavoidable adverse environmental impacts could be anticipated.

About 69 acres of land would be covered by the levees. This in turn would result in the loss of the vegetation growing on these lands and a subsequent reduction of animal life associated with that vegetation. Because the proposed levee system passes through a wide variety of vegetation types, the disturbance by levee construction would be more severe in some areas than others. For example, the levees proposed in the La Crosse River floodplain would cover about 26.2 acres of marsh and wet meadow cover types. This cover type is of particular value to native bird populations, furbearing mammals, and local scientists who use the area for teaching and research activities. In addition to destroying portions of the marsh, the increased noise and vehicle traffic during actual construction of the project and the subsequent maintenance of the project would disrupt to some degree the behavioral patterns of faunal populations in areas adjacent to the construction sites. This effect is considered temporary but could be severely adverse to nesting birds near the area if construction or maintenance were done during the nesting season.

In addition, approximately 5,900 linear feet of levees would pass through the existing floodplain forest type. Trees established along these levee alignments would be sacrificed to construction operations. Nesting birds and other animals making use of these areas would possibly be reduced as the result of habitat destruction and secondary effects caused by levee construction.

Dredging fill material from the Black, La Crosse and Mississippi Rivers has the potential to severely affect aquatic life in the rivers. Direct destruction of bottom dwelling organisms could be expected in the areas selected for dredging. A subsequent reduction in fish and other animals dependent upon those life forms could be expected. Increased turbidity and sediments carried downstream from the dredging activity have the potential to alter aquatic life in the river for some distance below the dredging site. Selection of a dredging site in this area would require close scrutiny by aquatic ecologists familiar with the river to insure that dredging were done in the least sensitive areas of the river. Biologically productive backwater sloughs and marsh areas would be excluded from dredging.

Undeveloped lands located landward of the proposed levees could be expected to be developed if they were protected from flooding. As previously stated in this report, the city of La Crosse anticipates a future need for additional land for urban development. These areas protected from flooding would certainly be looked at favorably to meet part of that need. Although development of these portions of the floodplain would be economically beneficial to the city, it would result in the loss of additional acreages of natural floodplain communities. Animal populations associated with these natural communities would correspondingly be reduced as development proceeded. This impact becomes more impressive when consideration is given to the losses of the various types of floodplain communities that have

taken place over the years with the development of La Crosse and other communities in the Mississippi floodplain. Thus the losses described are part of the piece meal obliteration of natural floodplain habitats.

The effect of building levee systems and the filling of floodplain land, both as a direct result of the project and as an indirect result of the project, will be to cause some incremental increase in the height of flood stages at La Crosse. This is not expected to be significant at this time for this particular location.

It should also be noted that the river is continually depositing and removing materials from the floodplain. The navigation pools serve to trap some of the sediment load of the river, thereby tending to raise the bottom of the river or former floodplain. In short, the river and its floodplain are dynamic, not static, features of the environment and are continually changing.

This project will, in fact, remove and/or cause to be removed, certain portions of floodplain lands which, according to natural laws, belong to the river. The river will, in fact, compensate for this loss to satisfy both the physical and natural laws which were compromised by the levee project.

Hydraulic studies made by the St. Paul District indicate that no significant increases in flood stage will occur either upstream, downstream or across the river on the Minnesota side from the proposed project. This is due in part to the fact that the river at flood stage is quite broad in the La Crosse area and consequently there are few restrictions in the area which would cause an increase in flood heights.

Some utilities will necessarily be modified or relocated by construction of the proposed project. Sewer lines, power lines, fuel lines, water lines, storm drains, and communication lines would all be relocated in some instances. Disturbances to natural communities at the present location and at the relocation sites could be expected if the utilities were moved.

5. ALTERNATIVES TO THE PROPOSED ACTION

ALTERNATE FLOOD CONTROL MEASURES CONSIDERED

The following alternative measures were considered as possible flood control measures for the La Crosse area. It is recognized that none of these measures, alone, are capable of providing the desired flood protection at a price which is acceptable economically, socially or environmentally; however, the proposed plan for flood protection which is discussed in a previous section of this report is a combination of some of the following measures:

a. No action.

b. Nonstructural alternatives.

(1) Permanent floodplain evacuation. (Plan 2)

(2) Combined flood proofing and evacuation. (Plan 3)

(3) Flood insurance. (Plan 4)

(4) Floodplain regulation. (Plan 5)

(5) Flood warning and emergency protection. (Plan 1)

c. Structural alternatives.

(1) Upstream reservoir storage on Mississippi, La Crosse or Black Rivers. (Plan 6)

(2) Modified operation of Mississippi River Headwaters Reservoirs. (Plan 7)

(3) Channel works on Mississippi River. (Plan 8)

(4) Diversion of La Crosse River flood flows to Black River. (Plan 10)

(5) La Crosse River levee and channel works. (Plan 11)

(6) Diversion of Black River flood flows into the Mississippi River main channel. (Plan 9)

(7) The proposed plan - local flood barrier work. (Plan 12)

Based on the various available measures, the above 12 alternative plans of flood damage reduction (see table 10) were considered for La Crosse and vicinity. In addition, the alternative of taking no action in the case of La Crosse was considered. Each alternative plan is described in the following paragraphs, and the major effects on the social, environmental, and economic setting are discussed.

NONSTRUCTURAL ALTERNATIVES

a. Permanent floodplain evacuation. - The social, economic, and environmental impacts of this alternative would be widespread and highly variable.

The floodplain development problem at La Crosse would be greatly reduced in most cases. Near complete flood protection would be provided to structures now located in flood prone areas of the city and flood damages would be reduced by an estimated 98 percent (see table 10 on page 81). This alternative provides a higher degree of flood damage reduction than any one or combination of the other alternatives considered.

Long-term ecological benefits would be derived from this alternative. By evacuating and removing developments from the floodplain, the area could then begin returning to natural conditions. Many different stages of ecological succession and several decades could be expected to pass before the evacuated areas approached their potential vegetative communities and corresponding faunal associations. For this to ever occur, appropriate floodplain development regulation would be necessary to prevent any future urban development from occurring in these areas.

Large quantities of solid wastes would accumulate as structures on these areas were removed or demolished. Disposal of these materials could present a problem to consider with this alternative. A suitable disposal site and method could be difficult to find in this area.

The social impacts resulting from this alternative would be numerous and far-reaching. Short-term effects would include the loss of community structure and cohesion for about 1,850 families and 220 businesses now located within the floodplain. New neighborhoods would be established and a readjustment to those conditions would be necessary. School districts would be rearranged and the existing tax base would be changed. Voting precincts would be changed and business establishments would be moved.

Throughout this entire study, many of the local people have expressed strong opposition to evacuation. These people feel a strong attachment for their homes and property and express much concern over the prospect of losing them. Many people feel that whatever reimbursement they would receive would not be adequate to compensate for the loss of things which cannot be measured in economic terms -- such things as scenic values, sentimental attachment, and the time and effort that go into establishing a home.

Beneficial social impacts derived from this alternative would include near complete protection from periodic flooding which these people now experience. Temporary community disruption, possible health and safety hazards, and property damages would be greatly reduced. The evacuated areas could also be included into future recreational plans to meet anticipated needs in this area.

Economic impacts of evacuation would have both direct and indirect beneficial and adverse effects on the local economy. Some of the direct economic impacts resulting from evacuation include expenditures for moving many of the homes, construction of new homes, purchase and preparation of a suitable relocation site, household moving expenses, purchase of new home sites, and hydrocarbon fuels consumed in the moving process.

Indirect economic impacts related to evacuation are impossible to identify in many instances. Some of the more apparent indirect effects would include monies spent on real estate speculation, landscaping and beautification of new homesites, and new household items purchased. Some of the city tax base could also be lost if relocation sites were selected outside of the city limits.

Total first costs of this alternative would be in excess of $100 million, grossly exceeding local capabilities.

Even though economic feasibility and social acceptability are lacking for a plan of total evacuation at La Crosse, some areas could be feasibly evacuated in combination with other measures for flood damage reduction.

The Pettibone Drive area of Barron Island, the northwest corner of French Island, and all of Green Island are considered possible areas that could be evacuated. To do so would require the relocation of about 200 residences and a single business. The residents of

both Green Island and northwest French Island have registered strong opposition to any plan for evacuation of their areas. The residential area of Barron Island is owned by the city of La Crosse and occupation is controlled by a renewable permit system. The city plans to relocate all residences from this area and develop the site into a park. None of the property leases will be renewed after 1975.

If evacuation of some areas of the floodplain became part of a flood control project, special care would be exercised in selecting a relocation site. Emphasis would be placed on selecting a site with biological systems which are less sensitive than those areas presently occupied. In addition, all the abandoned structures would be disposed of in such a manner as to allow the floodplain to return to its natural condition as rapidly as possible. (Plan 2)

b. Combined flood proofing and evacuation. - This plan would provide for flood proofing of all suitable structures within the 100-year floodplain and evacuating all others. About 1,400 homes and 180 businesses would be evacuated; 400 homes and 20 businesses would remain on the floodplain. In general, any structure located more than 100 feet within the 100-year flood outline or having a first-floor elevation more than two feet below the 100-year flood level would be evacuated. (Plan 3)

Estimated first costs would exceed $77 million, excluding modifications of fixed transportation facilities. The benefit to cost ratio would not be favorable and remaining average annual damages would be about $150,000 (table 10).

The social and economic impacts of this alternative would be similar to those of total evacuation as previously discussed.

The environmental impacts of the combined flood proofing and evacuation would also approximate the situation expected with total evacuation. A smaller area of floodplain would be permitted to recover its natural characteristics of wildlife and vegetation and correspondingly, a smaller area of some other system would need to be disturbed to provide for relocations.

c. Flood insurance. - Federally subsidized flood insurance is currently available to all family structures, businesses, apartment buildings, agricultural, religious, and non-profit buildings or those owned by the State or local government on the floodplain in the La Crosse area. This plan does not prevent flood damages from occurring but offsets some of the economic losses incurred from a flood. Flood insurance then is much like fire insurance in that both offset economic damages incurred by the owner due to a flood or a fire. On a national basis, the flood insurance program compensates for flood damages by spreading the cost among U.S. taxpayers and those people carrying flood insurance policies. Since most homeowners generally carry fire insurance to protect themselves against disastrous economic losses which could be incurred from a house fire, it would seem reasonable that if people owning flood prone property were seriously concerned about flood damages that they would carry flood insurance on the flood-prone property. However, participation in the flood insurance program in the La Crosse area has been low. Average annual damages in the La Crosse area with this alternative are estimated to be over $1 million (table 10).

The social and environmental impacts of the combined, existing flood insurance and floodplain regulation would be somewhat similar to the existing situation in La Crosse. Community disruption during actual floods would continue as long as people live in flood-prone developments. Floodplain lands could remain subject to development under the floodplain regulations which would be developed. (Plan 4)

d. Floodplain regulation. - The enforcement of floodplain regulation would not necessarily preclude floodplain development, rather the law controls the extent and type of future development. In general, the regulation would require the ground floor elevation of structures to be 1 foot higher than the 100-year flood elevation.

Considering floodplain regulation alone, expected average annual damages remaining in the La Crosse area would exceed $0.8 million because of the dense existing urban developments and the likelihood that urban land use would not appreciably change in the foreseeable future. However, with appropriate floodplain regulation, damage to floodplain developments would be held at near current levels in the short-term, as further flood-prone floodplain development would not occur. In the long-term, enforced floodplain regulations would gradually eliminate damageable flood-prone property to an elevation about 1-foot higher than the 100-year flood elevation. This time constraint between the time floodplain regulations are placed in effect until significant reductions in annual flood damages accrue probably cause many people to look for other flood reduction measures which provide more immediate flood reduction benefits. Accordingly, if immediate reductions in annual flood damages are desired by local residents some other types of flood reduction measure would be needed.

The environmental and social impacts of a floodplain regulation plan include elimination of haphazard development of valuable bottomland areas, the preservation via zoning of some valuable ecological areas, the elimination of flood threats through restrictions in residential development in the floodplain, and the retention of open space greenbelt and recreation areas. In La Crosse, some building activity has taken place within the 100-year floodplain during 1972. Thus, development of bottomland biologically valuable

systems is accepted to some degree under the constraints of floodplain regulation. Extensive restoration or repair of existing structures in the floodplain is restricted by the floodplain regulations and could possibly lead to scattered areas of economic blight until the areas were rebuilt in accordance with existing floodplain regulations or removed from the floodplain entirely. (Plan 5)

e. Flood warning and emergency protection. - A flood forecasting and flood warning system is presently available for the Upper Mississippi River basin, through the National Weather Service and the St. Paul District, Corps of Engineers which provides La Crosse area officials and local news media with flood forecasts and warnings. Forecasting and warning systems alone would not provide the desired flood protection in the La Crosse area since numerous fixed developments including homes, businesses, utilities, and transportation facilities would remain subject to damage in view of their not readily protectable location in the floodplain. Estimated average annual residual damages over a 100-year period would still exceed $950,000 (table 10).

Flood forecasting and advance warning together with emergency measures such as construction of temporary flood barriers and temporary evacuation would provide a somewhat greater degree of protection. Considerable potential flood damages were eliminated by such programs during 1965 and 1969. However, the extensive remaining damages incurred by all types of floodplain development during these floods shows the serious limitation of such a plan as a long-term solution to floodplain development.

The social and environmental impacts of a flood warning and emergency measures plan would be similar to those with a no action alternative. Floodplain development in accordance with local floodplain regulations would continue, people would continue to experience flood conditions, potential health and safety hazards would remain, and local mobility affected by road and rail closures would continue to be restricted during periods of flooding at least during the short-term foreseeable future. (Plan 1)

STRUCTURAL ALTERNATIVES

a. Upstream reservoir storage. - This plan would provide for reservoir storage on Mississippi River upstream tributaries, the Black River, or the La Crosse River. Previous Corps studies show that there are no practicable Mississippi River main stem reservoir sites for construction. Reservoir storage for the upper St. Croix River is precluded by the recently established wild and scenic classification for that stream. Corps of Engineers studies of reservoir sites on the Minnesota River have been stopped because of a lack of State and local support. It is not expected that these studies will resume unless the "Comprehensive State Water Management Plan", currently being prepared, indicates that such storage is in accordance with State water resource policy.

Upstream storage reservoirs on the Black River would have little appreciable effect on flood stages at La Crosse. Upstream storage on the La Crosse River would not be effective due to Mississippi River floodwater backup over the lower four miles of the river. Upstream storage basins would, however, reduce potential flood damages to localized areas caused by infrequent summer floods of these tributary streams.

The maximum reduction in flood stages which could be expected at La Crosse by upstream storage reservoirs would be less than 10 percent. Economic feasibility for this alternative has not been demonstrated (table 10).

Environmental impacts of this alternative would involve conversion of existing terrestrial biological systems in the reservoir areas to aquatic system; alteration of riparian vegetation and wildlife populations; changes in downstream river flows; and many other less obvious effects.

Upstream reservoir storage is not considered a viable solution at this time due to lack of economic feasibility, potential adverse environmental effects, and the possible lack of conformance to the comprehensive State Water Management Plan which is presently in preparation by the State of Minnesota. (Plan 6)

b. Modified operation of Mississippi River headwaters reservoirs. - Modified operation of the Mississippi headwaters reservoirs would not produce a perceptible reduction in flood stages at La Crosse because these reservoirs control such a small proportion of the drainage area above La Crosse.

The social and environmental effects of this alternative would be most significant in shoreline areas of the headwaters reservoirs where existing problems with shoreline erosion, public recreation, and lake ecology, would be aggravated. In the La Crosse area, the social and environmental impacts would be virtually identical to those expected with no action.

Based on the lack of benefits to the La Crosse area and the severely adverse impacts which would be unavoidable in the headwaters area, this plan could not solve flood related problems at La Crosse. (Plan 7)

c. Mississippi River channel work. - Various persons have suggested that deepening the Mississippi River in the vicinity of La Crosse would reduce flood damages in the area. Such a channel could provide an approximately 10-percent reduction in the 1965 flood level damages, however first costs would exceed $15 million (table 10). (Plan 8)

Construction of large channels in the area would produce several adverse environmental and social impacts. Dredging bottom sediments from the river would directly destroy those organisms occupying the dredged material. This in turn would reduce the abundance of animal populations which utilize those organisms

for a food supply. Although some species of bottom dwelling organisms could be expected to reestablish themselves after dredging had ceased, a change in species composition, numbers, and variety could be anticipated in the changed environment.

Disposal of dredged material presents another problem of this alternative. Considerable amounts of vegetation would be lost to spoil disposal if it were placed along the river banks in this area. Terrestrial animals dependent upon that vegetation would be reduced as a result. Social opposition to spoil disposal in this area could be anticipated as the area is popular for such activities as fishing, hiking, and sightseeing.

In view of the limited possible reduction of flood damages and the massive environmental and social adverse effects which would occur, major channel works on the Mississippi River are not feasible or acceptable as a solution to flood and related problems at La Crosse.

d. Diversion of La Crosse River flood flows. - This alternative was suggested by local interests during the early stages of the study. The La Crosse River would be diverted from a point four miles upstream of the mouth the Black River to a location just below the Interstate 90 Highway bridge. Only flood flows would be passed through the diversion; normal flows of the La Crosse River would remain in the existing stream channel. A closure structure at the mouth of the La Crosse River would prevent the backup of Mississippi River floodwaters into the La Crosse floodplain. The diversion channel would pass through agricultural and residential areas. Total first costs of this plan would be about $17 million and average annual damages would be reduced by about 88 percent. About 12 residences and 175 acres of agricultural lands would be converted to flood bypass channels.

Since community disruption during actual flooding would remain with this alternative, the 12 family relocations, required land conversion, and loss of agricultural production would not be regarded as acceptable trade-offs. Officials of local government and private interests located along the Black River below the point where the discharge from the diversion channel would be located strongly object to the potential for increased flood flows and silt loads in that area.

The most significant environmental impacts of this alternative are related to the La Crosse or Myrick marsh. With the elimination of flood flows from the La Crosse River and backwater effects of the Mississippi River, the marshlands and wet meadows of the La Crosse River floodplain would certainly trend toward drier kinds of biological communities which are more characteristic of uplands in the area. Secondary effects would almost certainly include development of those lands (see sections of this report on land use and trends in land use and economic development). Other changes in biological systems along the Black River would also be expected because of the increased silt loading to that area from the La Crosse River. For example, northern pike reproduction which has been documented[1] along the Black River could be severely retarded by the increased silting.

This plan is not considered acceptable for flood and related problems at La Crosse because of severe secondary adverse environmental effects and lack of economic feasibility. (Plan 10)

e. La Crosse River channel works combined with levees in North La Crosse and French Island. - The construction of levees combined with channel enlargement and straightening along the lowermost 4 miles of the La Crosse River. This plan could possibly

(1) Finke, Alan H. June 1966. Northern Pike Tagging Study, Black River, La Crosse County, Wisconsin. Wisconsin Canservation Department, Fish Management Division, Madison, Wisconsin Management Report No. 7

be coordinated with another public works proposal for the area; a 2-mile section of interstate highway feeder which would be aligned approximately along the west bank of the La Crosse River (plate 2). The highway embankment could possibly be incorporated into the levee alignment, however, as pointed out earlier, the future of this highway feeder is uncertain for environmental reasons. Additional required structures to provide the desired protection for La Crosse would include approximately 5 linear miles of levees along the Black River shore and around the southern tip of French Island. Fill material for the levees along the La Crosse River would either be trucked into the area or be dredged from the La Crosse River floodplain in such a manner as to create several small recreational lakes. Fill material for the levees in North La Crosse and French Island would be taken either from the Mississippi and Black Rivers, or from several borrow areas which are presently operating within a few miles of La Crosse.

Total first costs of this plan would exceed $20 million and the benefit to cost ratio would be less than unity (table 10). Flood damages in La Crosse would be reduced by about 82 percent.

The social impacts of this plan include reduced flood threats for local persons during flood seasons, and reduction of community disruption during actual floods. The existing potential for public health problems and dilapidated urban structures brought about by failure to repair flood damaged property would be reduced to some degree. The relocation of about 12 families would be unavoidable with this plan.

This alternative would have numerous unavoidable adverse impacts on the La Crosse marsh and potentially adverse impacts upon the areas utilized as sources of fill and the sites of the actual levee construction. The elimination of flood flows from the marsh would tend to dry that area and shift the vegetation

toward systems which are more like those of the uplands. Future urban development of the marsh would be encouraged if flood protection were provided. Excavation of small lakes in the La Crosse floodplain to provide fill material for the levees would favor certain kinds of vegetation and wildlife at the expense of other existing species. As discussed earlier in this report, the La Crosse River is considered contaminated. If the proposed small recreational lakes were constructed as borrow areas and water levels were maintained with contaminated water, instantaneous water quality problems could be anticipated. Any plans for using these lakes for water contact recreation would thus be precluded.

Dredging materials from the Mississippi and Black Rivers could have severe adverse impacts upon aquatic life in the rivers. Direct elimination of those organisms living in the dredged substrate could be expected; followed by a reduction of fish and wildlife populations which depend upon them for a food supply. Some recovery of these organisms is possible, but the abundance and diversity of species would likely be inferior in the changed environment.

Channel enlargement and realignment of the La Crosse River have several social and environmental implications. Bottom dwelling organisms associated with the river substrate would be reduced for some time by dredging operations. A corresponding reduction of vertebrate life forms dependent upon the benthos could be anticipated. Vegetation and terrestial animals associated along the river would be reduced and destroyed in many instances. A heavily vegetated, meandering stream would be replaced by a straight, regimented channel. Although reseeding of the channel banks could restore some of their natural appearance, complete recovery of natural communities would probably not occur in the changed environment. Social objections to this change could be expected from park users, fishermen and local scientists who use the area for teaching and research activities. The selection of areas for dredging fill and the detailed examination of the expected environmental impacts would be incorporated into detailed postauthorization studies in the event that some plan which included river dredging were recommended for La Crosse and authorized by Congress. (Plan 11)

f. Diversion of Black River flood flows. - This plan provides for the raising of the Onalaska dike and spillway, construction of a closing dike and lock at or near the Clinton Street bridge, provision of additional spillway capacity of the lock and dam No. 7 dike, and excavation of compensating channel works in the Mississippi River below the lock and dam. Levees would be necessary around the southern tip of French Island, along the Black River shoreline of North La Crosse, and either along the La Crosse River shoreline of North La Crosse or along the edge of the Myrick marsh in north La Crosse. Flood flows which pass between French Island and North La Crosse would be diverted westward around the north tip of French Island and into the Mississippi River main channel. Estimated first costs would be about $18 million and the plan would reduce 1965 level flood damages by approximately 82 percent (table 10). However, the benefit to cost ratio would be less than unity.

The plan would provide flood protection to over 1,500 families and 200 businesses, thereby reducing the economic losses, community disruption, and potential threats to public health and safety incurred during floods.

Dredging portions of the Mississippi River would have considerable potential for altering existing aquatic communities. As discussed earlier, these effects could be severely adverse. Spoil disposal would create additional environmental and social problems in an area where spoil disposal sites from channel maintenance are already in short supply. The impacts of the actual diversion of the Black River would need detailed investigation by experts in several phases of aquatic ecology in the event that this plan were ever selected and authorized. The fishery now established below the Onalaska spillway, which includes heavy concentrations of northern pike during spring and summer as well as numerous other biological amenities would almost certainly be altered to some degree by a channel diversion.

Levee construction on French Island, the Black River shoreline, and in La Crosse marsh could result in numerous environmental impacts. The most notable changes would probably occur in La Crosse marsh. A levee alignment which passes along the outside edge of the marsh would be less damaging to marsh communities than one which parallels the La Crosse River shoreline. The outside levee alignment provides the desired degree of protection to existing developments while it still allows periodic flooding of the marsh to occur. Existing biological communities within the marsh have developed under conditions of periodic flooding and to allow it to continue would enhance the potential for preserving the marsh.

Some residents of French Island have publicly voiced strong opposition to levees which they feel would obstruct their view of the river. Local interests residing along Bainbridge Street and Lakeshore Drive have expressed opposition to a road raise in that area. They feel such a road raise will prevent easy access from the street into their driveways making the approach inconvenient and possibly hazardous. This would be especially apparent under snow packed winter driving conditions. (Plan 9)

Table 10 - Alternative plans considered for alleviating water and related land resource problems in the La Crosse, Wisconsin, area and related plan impacts

Impact parameter by objective	No action	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 6	Plan 7	Plan 8	Plan 9	Plan 10	Plan 11	Plan 12
	with FPM and flood insurance	Flood forecasting and warning and emergency levee works	Floodplain evacuation	Combined flood proofing and evacuation	Flood insurance	Floodplain regulation	Upstream reservoir storage	Modified operation procedures for Mississippi Headwaters Reservoirs	Mississippi River Channel works	Black River diversion	La Crosse River diversion	La Crosse River levee and channel works	Local flood barrier works
First cost ($million)	0	?	+100	+77.0	1.1	0.1	+260	?	15	18.0	17.1	20.5	12.2
Annual cost ($1,000)	0	?	5,826	4,340	1,105	71.0	+17,000	?	1,165	1,290	975	1,132	710
Federal annual cost ($1,000)	0	?	4,420	3,430	967	3.0	?	?	700	940	16.5	1,009	614
Non-Federal first cost ($million)	0	?	20	15	0.1	0.1	?	?	3.0	1.0	0.6	1.5	1.1
Non-Federal annual cost ($1,000)	0	?	1,206	910	138	58.0	?	?	465	355	63	123	96
Non-Federal OM&R cost ($1,000)	0	?	100	80	30.0	50.0	?	?	300	300	30	40	35
Remaining annual damages ($1,000)	1,062	952	25	150	1,062	855	?	?	956	227	177	177	175
Average annual benefits ($1,000)	207	317	1,037	912	207	207	?	?	313	835	895	895	890
Net average annual benefits ($1,000)	?	?	-4,589	-3,428	?	136	?	?	-852	-455	-80	-237	180
Benefit-cost ratio	-	-	0.2	0.2	?	2.9	-	-	0.3	0.6	0.9	0.8	1.2
Percent flood damage reduction	0	25	98	86	0	20	25	25	30	82	82	82	75

6. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The area where La Crosse is now located was at one time a diverse natural ecosystem made up of several distinct vegetative communities. The bottomlands were covered by various degrees of open water, marsh, wet meadow and interspersed by numerous islands vegetated by a dense stand of deciduous hardwood trees. The gentle sloping terraces away from the river appear to have been a prairie type with little woody vegetation present. Further from the river into the steep bluffs lining the valley remains another zone of trees consisting primarily of upland hardwoods but interspersed by an occasional conifer. Remnants of these cover types can still be observed in some undisturbed areas.

As the area was settled and the city grew, encroachment onto the floodplain proceeded as additional lands were needed. By clearing portions of the wooded islands and filling portions of the wetlands to permit urban development, parts of the city spread out onto the floodplain. As a result, portions of the floodplain have been converted from diverse natural bottomland communities to flood prone urban developments subject to periodic severe flood damage. A local levee system combined with partial floodplain evacuation and appropriate floodplain development regulation is proposed to reduce flood damages to flood prone developments. This plan would have several far-reaching effects on the environment which were carefully considered.

Vast amounts of fill material would be required to construct approximately 9 miles of flood barriers to a height averaging 7 feet. One proposed source of fill material has been considered from the dredging of portions of the Black and Mississippi Rivers. To do so would result in destruction of most bottom dwelling organisms

in the immediate area where dredging would occur and possibly more subtle changes to the aquatic environment for a considerable distance downstream from the operation. A subsequent reduction or species shift of fish and other animals dependent upon benthic life forms for food could be anticipated. Spawning success for fish downstream could also be reduced as considerable water turbidity and siltation are likely during the dredging operation. Downstream effects of dredging are considered to be of a temporary nature and recovery of those biological systems affected could probably occur after dredging operations were completed. The immediate area where dredging occurred, however, would be more severely disturbed. Biological systems in these areas would likely require many years to reestablish themselves and possibly in the changed environment would never completely recover.

Selection of dredging sites would be a very critical factor in this project. If dredging operations were confined to the present 9-foot navigation channels of the two rivers disturbances to the aquatic environment would be less severe than in other areas. Marshes, side channels and backwater sloughs located within the study area are considered much more biologically productive than the main river channels and would therefore be excluded from dredging operations.

Comprehensive biological investigations would be required of any proposed borrow area in the Black or Mississippi River to insure that the environmental effects created by dredging the fill material would be less than those created by using land based borrow areas. If such dredging sites could not be found, then land based borrow areas would be used as the source of the levee fill material.

Levee construction and road raises along the proposed alignments would cover approximately 69 acres of land. Two general vegetation types affected by the proposed levees are considered biologically sensitive. These are portions of the La Crosse marsh and two zones of floodplain forest located along French Slough and along the Black River. Total length of the levees proposed in these areas is about 5,900 feet. Levee construction in these areas would require removal of an undetermined number of trees, covering portions of the landscape with levee materials, and filling portions around the outer fringes of the La Crosse marsh with a levee. If the levees were left undisturbed after construction, some vegetation could be expected to establish itself on them. A shift in species composition and variety could be expected favoring those species which are adapted to the soil types and available water supply of the levee. Biological communities located landward of the levee system would also be indirectly affected. Most bottomland communities are the direct result of periodic flooding. To eliminate flooding from these areas would begin a trend toward vegetation types which are better adapted to drier conditions. Over a long time span and, if these areas were not further disturbed, one could expect a near complete change of biological systems in these areas. These successional changes however would probably be precluded by urban development behind the levees. As pointed out in the La Crosse General Plan, a need for additional land for development is anticipated and those areas protected from flooding would certainly be looked at favorably.

Appropriate floodplain management combined with evacuation of some existing flood prone structures appears to have considerable potential for reducing flood damages to some present and future developments in La Crosse. Such a plan if executed properly would provide complete protection to those residences evacuated from Barron Island and regulate future developments to exclude areas where flooding is probable. These areas could then be allowed to return or remain in natural, flood tolerant systems compatible

with periodic flooding. If development on the floodplain is not properly regulated, one can only expect further encroachment onto these areas followed by flood damages and requests for additional flood control measures.

In summary it can be said that over a period of thousands of years the Mississippi and La Crosse River floodplains developed into a system of many diverse communities. Periodic flooding has played an important role in the evolution and maintenance of these bottomland communities.

As man settled in the La Crosse area and the city grew, encroachment onto the floodplain occurred. As a result, portions of the floodplain were converted from natural biological systems that are favored by periodic flooding to a human-dominated system which is damaged by flooding. Where biologically productive communities capable of storing energy once flourished, there is now an urban development which depends upon an external energy support to exist. Natural life-supporting communities such as marshes, wet meadows and floodplain forests have been cleared, filled and replaced by industrial and residential developments. The long-term net effect of man's developments on the floodplain has been negative to the biological productivity of the area.

To maintain these artifical communities on the floodplain an expenditure of money, materials, human resources, and energy is required. If at some time in the future efforts to maintain and protect these floodplain developments were discontinued, the return of these areas to natural floodplain conditions could be expected and long-term biological productivity would be increased. The possibility of this occurring is considered remote in view of the capital investments and economic gains which these flood prone areas now generate.

7. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION

If the proposed project is authorized, an irretrievable and irreversible commitment of resources would be necessary.

Approximately 69 acres of vacant land would be covered by the proposed levee system. Of this 69 acres, approximately 30 acres are considered biologically productive floodplain forest and marsh communities. An additional estimated 39 acres of land would be provided flood protection and conversion of this land to urban development would be expected.

Vast amounts of fill material for levee construction would be needed. This material would be acquired either by dredging the Black, La Crosse and Mississippi Rivers or from borrow areas located near La Crosse. To do so would constitute a major land use change in areas directly affected and possibly cause irreversible changes to biological communities associated in the borrow areas.

Project construction could irreversibly force the leaving of some forms of wildlife presently occupying habitats of the project area. This could occur due to the fact that some forms of wildlife could not find suitable habitats for any number of reasons depending on the ecology and behavioral patterns of the particular species. Thus the normal production of the area would be less. This could be expected to continue as long as man dominates the project area with human developments.

Hydrocarbon fuels, human resources, and depreciation of equipment utilized for construction and maintenance of the proposed project are all resources which would be irretrievably committed if the project is constructed.

The utilization of electrical energy to operate the pumping stations during flood periods would also be irretrievably committed. This would have some secondary effect on other energy resources such as nuclear, coal or natural gas from which the electrical energy were derived.

8. COORDINATION

Coordination between Federal, State, and local interests has been an important part of this study. Close coordination was maintained with the city of La Crosse, the county of La Crosse, the township of Campbell (French Island), and the Wisconsin Department of Highways in an effort to reach a mutually agreeable solution to the water and related land resource problems in the La Crosse area. Valuable inputs were also received during various phases of the study from the Bureau of Sport Fisheries and Wildlife, Wisconsin State University at La Crosse, Wisconsin Department of Natural Resources, and local conservation interests regarding the extent and effects on fish and wildlife and ecological resources in the study area. Further, all interested Federal, State, and local agencies were informed of the initiation of this study and were consulted during the plan development phase to ascertain their views.

An initial public meeting was held at La Crosse, on 11 January 1966 and was attended by about 160 people. Inputs from various government agencies and private interests at this meeting identified the water and related land resource problems and needs of the area and provided the first of the many alternative solutions to be considered in this study. Numerous subsequent meetings were held with local and State governmental interests, business interests and individuals to

obtain their views. Five public planning workshop meetings were held at La Crosse on 6 March 1973 to appraise local interests of all the alternative solutions considered, the tentative final solution, and the economic, social, and environmental effects of the alternative plans considered and the tentative selected plan. Substantial valuable input to be used in developing the recommended plan was received from the approximately 80 people present. Attendance at this meeting appeared to represent a good cross section of local governmental, developmental, and conservation interests in the local area.

On 17 April 1973 a field meeting with various Federal, State, and local government agencies was held to consider the proposed plan and observe the tentative levee alignments. The meeting was attended by 22 people representing the Wisconsin Department of Natural Resources, U.S. Environmental Protection Agency, city of La Crosse, Department of Housing and Urban Development, Soil Conservation Service, Wisconsin Department of Transportation and Corps of Engineers personnel. Valuable input from these various agencies was received. A final public meeting was held at La Crosse on 19 June 1973. The proposed plan was presented to all interested parties to ascertain their views and to insure that the plan was acceptable to the majority of affected interests.

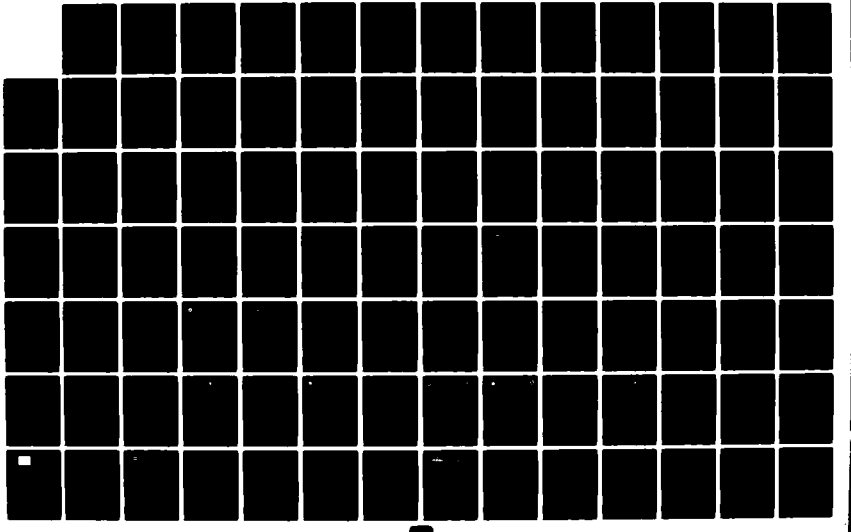
The draft statement was circulated for review and comments have been received from the following:

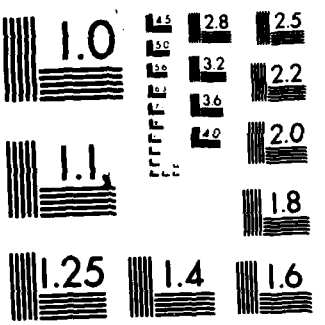
U.S. Department of Interior. -

Comment. - The statement provides a reasonably accurate analysis of project affects on fish and wildlife resources. There is concern as to where fill material will be obtained. The statement (pages 54-56) points out the environmental impact on the local fishery if

AD-A139 576 FLOOD CONTROL MISSISSIPPI RIVER LA CROSSE WISCONSIN(U) 2/3
CORPS OF ENGINEERS ST PAUL MN ST PAUL DISTRICT OCT 75

UNCLASSIFIED F/G 13/2 NL





fill materials were dredged from the Black and Mississippi Rivers. Yet, Section H (H-6) of the draft survey report states in fact that levee fill material will be dredged from the navigation channels of both the Black and Mississippi Rivers. The question of where levee fill materials will be obtained needs to be resolved. Its resolution also will require more specific analysis of potential damages to fish and wildlife resources from fill and borrow areas.

Response. - It has been proposed that fill material for the levee systems near the Black and Mississippi Rivers be obtained from the navigation channels of these rivers. Some 650,000 cubic yards of levee fill material have been proposed to be obtained in this matter. About 200,000 cubic yards have been proposed to be hauled to the levee locations from land based sources. The principal reason for proposing the use of dredged fill material is that it is much cheaper; about $1.00 per cubic yard as opposed to about $1.80 per cubic yard for the material hauled in by truck from on land borrow areas. Normal annual maintenance dredging by the Corps of Engineers to maintain the navigation of the Mississippi River in La Crosse is about 50,000 cubic yards. No maintenance dredging is required on the Black River to maintain the navigation channel. A considerable amount of private dredging has occurred in both rivers in the La Crosse area but this has been done adjacent to the navigation channels or in back water areas. A considerable amount of annual dredging occurs a few miles above Lock and Dam 7 near Dresbach and another annual dredging site exists a few miles below La Crosse. Dredge material from both of these areas is creating unfavorable environmental effects on the river. The costs of hauling it by barge to the levee sites is considerably greater than obtaining fill from on-land borrow sites. Thus, it is apparent that normal

maintenance dredging cannot economically supply the needed fill material. Using the navigation channels as borrow areas could create a variety of effects. The specific analysis of these effects cannot be accomplished until specific borrow locations have been identified. However, the general environmental effects for using various borrow areas have been discussed in the EIS.

Comment. - Also, the statement should discuss the possible relationship between the project proposal and the future construction of Interstate Highway 90. Such road construction would be potentially damaging through urban development of 410 acres of land now harboring a wetland complex of high wildlife value.

Response. - The relationship between the Interstate Highway feeder and the proposed project have been discussed in the draft EIS. Very briefly, a levee system to protect the La Crosse marsh is not economically justified by itself. However, if the highway feeder were built through the marsh, the highway embankment with the appropriate features, could serve as a levee and it would then be a simple matter to construct a levee from Red Cloud park to the highway feeder and the 410 acres of floodplain would be protected. It should be noted that this is a very controversial issue in the La Crosse area. The development oriented segments of La Crosse are in favor of this proposal. Many citizens are opposed to the proposed highway feeder as are most if not all conservation and environmental interests. As indicated in the comments attached to this report, all conservation and environmental interests commenting are opposed to providing protection to the La Crosse marsh.

Comment. - Adequate consideration has not been given to historic, archaeological and architectural resources. Appendix C of the draft statement lists a number of structures within the project area that are historically significant. Of particular concern to us would be the threat of direct or indirect impacts to the Hamlin Garland House, 357 West Garland Street, West Salem, which is listed on the National Register of Historic Places.

Response. - The Hamlin Garland House is located approximately 8 miles east of the project area and would not be affected by the proposed project.

Comment. - The precise location of the structural features cannot be determined from the maps accompanying this statement. These features should be identified on maps or aerial photographs of sufficient detail to depict adjacent structures and land features.

Response. - The proposed levee alignments are preliminary and are not intended to represent exact locations at this time. While detailed aerial photographs would facilitate the review and evaluation of the EIS, it was felt that the detailed narrative description of each levee subsystem was sufficient to provide the reviewer with ample information to evaluate the project in this stage of planning.

Comment. - Certainly, the recommended source(s) for fill material must be identified and described.

Response. - The exact locations of borrow areas for fill material have not been identified. It has been proposed to obtain about 650,000 cubic yards by dredging in the navigation channels of the Black and Mississippi Rivers and about 200,000 cubic yards from land based borrow area. If the project is authorized by Congress and funds provided for advanced studies, the exact sources of fill material and the environmental impacts associated with the use of each source would be fully explored.

Comment. - Three possible sources of fill material for construction of the flood control structures are identified as (1) dredging from the Black and Mississippi Rivers, (2) existing borrow pits in the La Crosse area, and (3) dredging from the La Crosse Marsh. Since the fill material is an important, integral part of the total proposal, the environmental impacts of the proposed action cannot be adequately evaluated until the source of materials is identified.

Response. - It is agreed that the source of fill material for the flood control levees is an important and integral part of the proposed project. It has been proposed that about 650,000 cubic yards of material be dredged from the Black and Mississippi Rivers and another 200,000 cubic yards be obtained from land based borrow areas. Inasmuch as no specific borrow sites have been located, due in part to this early stage of planning, it is impossible to adequately assess the effects due to the procurement of the levee materials. If the project is authorized and advanced studies initiated, close coordination would be required with interested conservation interests to find acceptable borrow areas.

Comment. - We do not find support for the generalization (page 59) that the proposed plan provides the desired degree of protection at a price which is acceptable socially and ecologically in most instances. Neither do we agree that determining the specific locations of the levees should be delayed until the postauthorization stage. We believe that the proposed action is of such magnitude that it is impossible to adequately assess the environmental impacts until the locations of all structures are accurately defined.

Response. - In those instances where it was known or anticipated that the social or environmental costs were unacceptable to groups or agencies, those variances were discussed in the report. The draft EIS has been modified to reflect the concerns of those interests commenting on the report. If and when the project becomes authorized and advanced studies initiated, the exact levee alignments could be determined. At that time further coordination with conservation interests would be required to obtain mutually agreeable levee alignments. In addition, a new revised EIS would be prepared and circulated for comments reflecting new or changing conditions in the project and the environment in the project area. We further agree that the details of the project cannot be completely evaluated at this time. However, it is not the intended purpose of a preauthorization study to provide exact details about any particular project. This can only be done as a result of detailed studies involving soil conditions, hydrology, economics, environmental and various other considerations which are normally funded after preauthorization studies.

Comment. - The East Side Levee goes through an area identified as Red Cloud Park on Plate 1. The effect of the levee on this park should be described in this section.

Response. - The levee system will have no effect on Red Cloud Park because the park is on high ground and out of the floodplain.

Comment. - Loss of scenic views and aesthetic quality due to levee construction should be discussed.

Response. - This has been done in the draft and revised EIS. This is one of the reasons why French Island residents will receive 170-year instead of 320-year flood protection. The other noteable area is the levee adjacent to U.S. Highway 53 along the Black River. Consideration will be given to a lower permanent levee with a removable flashboard to provide the 320-year flood protection only when needed.

Comment. - Floodplain regulation (page 89) is based on a 100-year flood elevation. The relationship of this degree of protection should be compared to the proposed project protection of a 320-year flood (page 2).

Response. - The basic difference between the 100-year flood and the 320-year flood is about a 2-foot difference in flood stage. Floodplain regulations have been devised to protect against the intermediate regional or 100-year flood. Economic optimization is greater in the case of the La Crosse project for the 320-year flood than the 100-year flood. In addition, State of Wisconsin regulations require that standard project flood protection be provided in the freeboard range of the levees in local protection projects.

Comment. - It would be helpful in assessing the environmental effects of the proposed action, Plan 12, if alternative locations for flood control structures were identified and evaluated.

Response. - The alternate levee alignments have been identified and discussed in the draft and revised EIS.

Comment. - As stated previously, the recommended source of fill material should be identified and evaluated in order to adequately assess the environmental impacts from dredging or the use of borrow areas.

Response. - The comment has been discussed previously.

Comment. - A comparison of the long term costs and benefits of additional floodplain evacuation and flood proofing to the proposed structural measures would be helpful in assessing the long term effects of the proposed action.

Response. - The discussion of the evacuation and flood proofing alternative presented in the EIS was considered adequate to provide the necessary information together with the discussion of the proposed action to allow the reviewer to adequately assess the long-term effects of the proposed action. The key element to remember when assessing the long-term (meaning several generations of men) effects of floodplain evacuation is that it is absolute permanent flood protection to the degree desired (100-year, 500-year or more infrequent flood) and no other flood reduction alternative can provide this.

Comment. - Further discussion of the impact resulting from the use of specific resources for fill material is needed to identify the irreversible and irretrievable commitment of resources.

Response. - Additional information has been added to this section. It is however, impossible at this time to adequately assess these effects until specific borrow sites are known.

U.S. Department of Housing and Urban Development. -

Comment. - We urge you to coordinate as fully as possible with the Mississippi River Regional Planning Commission and the La Crosse Area Planning Committee, especially with regard to land use and transportation plans for the area.

Response. - The comment is noted.

Comment. - Our Department is concerned about the displacement of families and individuals resulting from the proposed evacuation of 40 structures on Barron Island. The Island consists of essentially low-income residents who often have the greatest difficulty in finding adequate replacement housing. The relocation specialist on our staff is available to provide you with information and technical assistance with regard to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Response. - As reported in the EIS the city of La Crosse does not plan to renew the property leases on Barron Island after 1975. At that time the people would be required to relocate themselves. Since the normal time lapse between project planning and actual construction is 5 to 10 years, the residents of Barron Island would probably be relocated elsewhere and this project would have no effect on them. However, if the city of La Crosse does not require the people to evacuate Barron Island in 1975 or shortly thereafter, then the residents could be relocated as a part of the flood control project with 80 percent Federal cost sharing and 20 percent local sponsor costs. This would be coordinated with the local Housing and Urban development officials to insure compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Comment. - Some of your alternatives may require additional environmental assessment especially with regard to secondary impacts and growth inducing effects of proposed freeway construction which may be utilized as structural flood control barriers.

Response. - The alternative levee alignments discussed in the EIS are not part of the proposed project. The strong opposition expressed by conservation, environmental and other interest groups toward the alternate levee alignments leaves such proposals in severe jeopardy. It is therefore, considered unlikely that such proposals would be constructed in the foreseeable future. However, should the alternate levee plans become a part of the proposed plan at some future date, a full environmental assessment would be made of those proposals.

Comment. - This Department has public housing and urban renewal projects which may be impacted by the project. Our field staff is alerted to the proposed activity and will evaluate the project interrelationships as part of their normal monitoring duties.

Response. - The comment is noted.

U.S. Department of Transportation. -

Comment. - The U.S. Department of Transportation, U.S. Coast Guard and Federal Highways Administration, have no comment on the draft EIS.

Response. - The comment is noted.

U.S. Soil Conservation Service. -

Comment. - The proposed dike is planned to be constructed largely with materials dredged from the river which could present difficult problems in establishing vegetation on the dike. Soil testing and careful seed material selection will be required to assure the needed vegetative cover.

Response. - The location of fill material for the levee system has not been identified in this early stage of planning. Proper precautions and procedures will be taken, regardless of the source of the fill material, to establish a viable vegetative cover.

Comment. - Land use changes which will be a by-product of project installation appears to be adequately recognized.

Response. - The comment is noted.

Environmental Protection Agency. -

Comment. - As a matter of agency policy, we would be opposed to the variant of the selected plan of providing protection to an additional 410 acres of floodplain.

Response. - The comment is noted.

Comment. - This proposal includes 11 pumping stations for use in interior drainage. The energy requirements for operating these pumps should be discussed.

Response. - This has been included in the revised EIS.

Comment. - It was briefly mentioned that an interstate highway feeder route may possibly be built in the La Crosse marsh. Since this highway would have severe impacts on the marsh, we would be opposed to the routing of a highway through this area.

Response. - The comment is noted.

Comment. - The proposed protection of the La Crosse area will increase water levels in the main channels. Will this effect be transmitted across the Mississippi River towards La Crescent, Minnesota, or downstream toward Green Island? The environmental and economic impacts on these other areas should be addressed.

Response. - Hydraulic studies conducted by St. Paul District personnel indicate insignificant if any increases in water levels in any of the main channels.

Comment. - Since the majority of the flooding occurs during the spring and many of the birds that inhabit the Rookery on Green Island mate in the spring, the effects on bird habitat due to increased water levels should be discussed.

Response. - Our hydraulic studies do not support this contention. In any event the herons and egrets nest in trees and are not known to be adversely effected by Mississippi River floods.

Comment. - The disposal of solid wastes into any of the water-courses should be prohibited. All such practices should be required to be discontinued before this flood protection project is implemented.

Response. - The comment is noted.

Comment. - We recommend that the use of dredge material for construction purposes be confined to that material removed for maintenance dredging of the 9-foot navigation channels. The remaining

material should be obtained from onland sites, excluding marsh lands. The La Crosse River should not be dredged due to the destruction that will be caused to the wetland meadows and marshes. Before dredge material is used for construction, it should be analyzed to determine whether it is polluted. Polluted material should not be used as construction material for the proposed levees.

Response. - The comment is noted. Inasmuch as the source of fill material has not been identified, these comments will be helpful in selecting the source of fill material if the project is authorized and money appropriated for advanced studies.

Comment. - During demolition of the homes on Barron Island, care should be taken to ensure that debris and potentially harmful material is kept out of the waterways. Reseeding and the replanting of natural trees and shrubs should be undertaken as soon after demolition as possible.

Response. - The comment is noted. It should be noted that the evacuation of Barron Island may in fact be completed in 1975 by the city of La Crosse. If this is the case then our project would probably have no effect on this area.

Comment. - Special care should be taken to avoid any spillage of oils, fuels or other types of pollutants into the watercourse. Plans should be formulated in advance of the construction operations to contain such spills in the event of any contingency. The use of construction equipment should be minimized in watercourses and marshlands in order to protect the aquatic environment of these areas. Construction operations in sensitive areas should be phased around spawning and breeding seasons so as not to intere with fish and wildlife.

Response. - The comments are noted. Inasmuch as this EIS deals with the preauthorization stages of the project it is realistically impossible at this time to respond in detail to these specific items. Actual construction would be several years in the future at best if the project is promptly authorized and money appropriated for advance studies. At that time these items could be realistically dealt with.

Comment. - Construction along French Slough will undoubtedly change the natural environment of the area. The removal of trees will cause the water temperature to rise, thus changing the fish habitat in this area. Wildlife will be adversely affected by the location of the levee in French Slough. The possibility of locating this section of levee around French Slough in order to protect this area should be thoroughly investigated.

Response. - The levee alignments are preliminary and are not intended to represent exact locations and/or alignments. This area will receive further consideration in advance studies if the project is authorized.

Comment. - The EIS indicated that 40 acres of marshland will be isolated by the construction of a levee. At present 20 acres of this marsh is filled with sand and the remaining 20 acres will be used as a ponding area. What use is proposed for the 20 acres of land that is filled, and what effects will this have on the ponding area? The EIS should discuss whether or not there will be adequate nutrients supplied to the ponding area to maintain a marshland habitat, and what the water quality of this pond will be.

Response. - The 20 acres of filled land is nearby and in addition to the approximately 40 acres of marshland referred to in the comment. The city of La Crosse intends to use this 20-acre area for commercial development. The 20-acre wet marsh area proposed for use as a ponding area is adjacent to the 20-acre filled area and separated from the 40-acre area by railroad facilities. It is impossible to determine at this time if the 20-acre marsh area will receive adequate nutrients and what the water quality will be. In fact, the entire area may be filled and developed before this project is built, if and when it is authorized.

Comment. - Alternatives to the proposed action. The La Crosse marsh alternative will caused unwarrented environmental destruction. It is the policy of the Environmental Protection Agency to minimize alterations in the quantity or quality of the natural flow of water that nourishes and to protect wetlands from adverse dredging or filling. The loss of 410 acres of wetland would provide the city with a short-term benefit for urban development. However, in our opinion, long-term losses of fish and wildlife would more than offset the benefits reaped from filling and developing this area. Rather than support the destruction of 410 acres of wetland habitat, we would encourage the selection of some other alternate, such as floodplain management. The existing floodplain zoning ordinance in the area is based on a report submitted to the city of La Crosse by your District. This floodplain ordinance is inadequate, according to the State Department of Natural Resources, Bureau of Water and Shoreland Management on 19 June 1973. However, the plan for floodplain management outlined in the EIS would cause no destruction of wetlands and has a favorable benefit-cost ratio.

Response. - The comments are noted.

Comment. - If the plan recommended in the EIS is adopted, we encourage the taking of as little wetlands as possible. This would provide necessary flood protection but would leave much of the environment in a natural state.

Response. - The comment is noted.

Wisconsin Department of Natural Resources. -

Comment. - Reference is made to the water quality parameters of the La Crosse River derived from an unpublished report by the University of Wisconsin-La Crosse Biology Department. This reference is again used in appendix 1, section B, page 8. A more recent detailed reference to these water quality data could be found in the La Crosse River Pollution Investigation Survey dated October 1971, prepared and published by the Department of Natural Resources.

Response. - The comment has been noted. The referenced water quality study as well as subsequent work done by the University, the State of Minnesota (MPCA) and studies sponsored by the Corps of Engineers on the Mississippi should provide ample water quality data for more advanced studies if the project is authorized by Congress.

Comment. - It is stated that opposition to the proposed road raises on Bainbridge Street and Lakeshore Drive has been voiced by some residents in those areas. This raises the question of whether any riparian rights would be taken from any of the affected local residents. We also wonder what restrictions would be placed on structures or piers on the levees, and who would pay for access roads to the levees.

Response. - For the proposed project, no losses of riparian rights of affected property owners are foreseen at this time. Placement of structures or piers on the proposed levees would depend on the effects that such structures would have on the aesthetic appearance and structural integrity of the levees, and in some areas, the effects on proposed recreational trail and overlook facilities. Any such use of the levees would be a matter for the local project

sponsor to consider, recognizing the need for maintaining the levees in proper condition for their intended flood control purposes. The cost of ramps to permit access over the levees would be a Federal cost if constructed as part of the proposed project. The cost of any ramps constructed with the approval of the local sponsor after completion of the project would be a non-Federal or local cost.

Comment. - It is questionable whether the 410 acres of wetland communities in the La Crosse River floodplain require flood protection. Since there are no substantial existing developments in this area to protect, it would appear that the proposed protection of these 410 acres of presently undeveloped wetland for the anticipated purpose or urban development would result in a windfall gain to the owners of the land at the expense of the public. It would seem appropriate that this development could be guided elsewhere in the city, county or state where it would be completely free of floods without the protection of a flood control structure. It is agreed that should flood protection be provided, this wetland community would be altered due to the lack of flooding and subsequent urban and industrial development on the protected floodplain.

Response. - The 410 acres of wetland communities in the La Crosse River floodplain do not need flood protection if the marsh remains, or is to remain, in an undeveloped or natural state. If the 410 acres of marsh is protected by the alternate levee alignment through the Myrick marsh to the highway feeder route, then the owners of the protected land would presumably gain considerable monetary value via the fact that it could be used or sold as commercial property. The costs of this levee protection would be borne by taxpayers of La Crosse and by all U.S. taxpayers.

As far as development is concerned, the city of La Crosse is reported to be in short supply of land for industrial and commercial expansion needed for continued economic expansion of the city.

It is true that this same development could probably be guided elsewhere in the county or State, but this might not help the city of La Crosse in its efforts toward continued growth and expansion.

Comment. - It could be expected that increased noise and human intrusion may drive away or adversely affect behavioral patterns of some animal species which are not tolerant of human activities.

Response. - These comments have been incorporated into the revised EIS.

Comment. - Existing State laws under Chapter 30 of the Wisconsin Statutes and floodplain regulations could be applied in some manner with or without this project.

Response. - This information has been incorporated into the revised EIS.

Comment. - Should annual maintenance of the levees be required, noise and other disturbances to wildlife would not be restricted to the actual construction period. As a result, wildlife disruption could be extended throughout many portions of the year.

Response. - This information has been included in the revised EIS.

Comment. - On page 85 it is stated that there are 1,850 homes and 220 businesses located within the floodplain. However, on page 87, it is stated that there are 1,800 businesses and 260 homes within the floodplain.

Response. - The above errors were not evident in the draft statement on pages 85 and 87 or elsewhere in the draft EIS.

Comment. - An additional irreversible commitment of resources which should be considered would be the potential for irreversibly

forcing wildlife in the project area to leave. Since some animals could not be expected to find suitable replacement habitat or may find marginal habitat, these indivuals could be expected to expected to perish or suffer from decreased productivity. Construction of dikes could also lead to further floodplain development causing commitments of land and biotic communities.

Response. - This information has been included in the revised EIS.

Comment. - It is maintained in the statement that both positive and negative social and economic costs are dealt with. The negative social cost associated with evacuating people from the floodplain is considered at some length. However, an important negative social cost involved in the project has not been mentioned - that the cost of the project would be largely borne by all taxpayers not just by those who would benefit from the flood prevention involved. In the light of these social and economic costs, plan alternative two, three, four and especially five should be given careful consideration.

Response. - The draft EIS has been revised to include information indicating both Federal and non-Federal costs. Those sectors of the public which are being affected socially or economically have been identified. The remaining items in the comment have been noted.

Comment. - The social cost associated with protecting an additional 410 acres of sparsely developed land in the La Crosse River floodplain is particularly high. The question which must be asked is whether the taxpaying public should pay for a project which would result in windfall profits to the landowners involved?

Response. - This is an entirely appropriate question to raise. The Corps of Engineers has been directed by Congress to help communities solve flood and related problems. As noted in the draft and revised draft EIS, certain interests favor the alternative levee to protect the marsh and others are vehemently opposed to such a plan.

The Corps has not proposed to protect this marsh area but has tried to express both sides of the issues involved. Whether it is appropriate for the public to pay for a project which would result in windfall profits to a few individuals is really a question open to each individual member of our society. If it is not appropriate,

then there are means by which individuals or groups can halt or change such a project if proposed. In this instance, this is not a part of the proposed project, at the present time.

Comment. - The proposed destruction of some 50 acres of wetland area has not been placed in its proper historical perspective. It is important to realize that this project is just one of many projects which have altered or destroyed wetland habitat in the La Crosse vicinity. Wetlands which have been obliterated since 1930 have been colored blue on the inclosed map. Undoubtedly, much additional wetland acreage had been drained, filled or flooded prior to 1930. It is essential to point out that the proposed project does not merely destroy 50 acres of wetland area, but contributes to the relative scarcity of what was once a more abundant landform in the La Crosse region.

Response. - The crux of this information has been incorporated into the revised draft EIS.

Comment. - The draft Environmental Impact Statement summarizes this project very well on pages 103 to 107 in the section, "The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity." Cities bordered by rivers have had a history of converting natural floodplain areas into urban development. This practice carries with it certain costs in maintaining an artificial system in an environment adverse to it and in the loss of natural resource attributes found in undeveloped river borders subject to flooding. The statement estimates that, for La Crosse, the flood damage costs average about $800,000 annually. No attempt has been made to compare these figures with the environmental losses.

Response. - It is impossible now to equate environmental losses to monetary figures. When resource economics are developed which will allow this sort of a comparison, then this comparison would be made.

Comment. - Twelve alternatives to the existing situation have been considered including the anticipated environmental, social and economic impacts. Of the alternatives listed, only the permanent floodplain evacuation suggestion is an ecologically sound plan. All of the other plans would result in serious losses of important aquatic wildlife habitat including fresh meadow and marsh. In years of high, stable water, for instance the summer of 1973, the La Crosse River wetlands harbored a wide variety of wildlife.

Response. - The comment is noted. These are some of the reasons why environmental and conservation groups are opposed to flood protection in the Myrick Marsh and other sensitive biological areas in the La Crosse vicinity.

Comment. - Since all of the alternative diking plans would result in considerable aquatic wildlife habitat loss, mitigation for such losses would be necessary. Mitigation measures could include:

a. Replacement of wetlands lost to development acre-for-acre by creating new marsh with heavy equipment (although this may be impossible).

b. Purchase and designate replacement wetland as public land in perpetuity.

c. Develop scenic overlooks including adequate parking facilities and short marsh walking trails adjacent to the best public wetland areas.

Response. - The subject of mitigation for losses of wetland and floodplain communities has been reviewed since the circulation of the Draft Environmental Impact Statement. The position of the St. Paul District Corps of Engineers on this subject is discussed in section 3 of the Revised Draft Environmental Statement. While mitigation in the form of land replacements is not considered warranted for this project, some of the proposed project features such as bicycle trails and scenic overlooks on the levees could be considered mitigative measures.

Comment. - Certain locations in the area affected such as Highway 53 and the French Slough levee are known to receive important sport fishing use and the South Black River levee contains an important spawning marsh for northern pike. All of the area not already degraded by developments is important habitat for fish and wildlife under certain water levels. Disruptive influences of dike construction activities on fish and wildlife in these areas could be expected, and an undetermined number of trees providing bird and animal habitat would be lost. The source of fill material to build the diking system could be extremely damaging to fishery habitat if taken from river areas near the construction. Careful control of fill sources should be required to prevent such an occurrence from happening. A serious defect in the levee plan is its dependence on the interstate highway feeder through the La Crosse River marsh.

Response. - These comments are noted. It should be pointed out to the Wisconsin Department of Natural Resources that the last sentence of the comment is in error. The PROPOSED PROJECT is not in any way dependent upon an interstate highway feeder through the La Crosse River marsh. Several variances to the proposed plan have been discussed in the EIS but have not been included in the selected plan because of a combination of economic, social, engineering and environmental considerations.

Comment. - The project also has considerable negative, social and economic impacts on persons with developments located on the river side of the levees and for those who would experience access problems to their properties due to the proposed dike and road raises. Much of the scenic and aesthetic quality of the floodplain valued by its residents would be lost due to dike construction. Additional disruption could be expected where dike construction would necessitate relocation and modification of drainage systems and energy supply lines.

Response. - The comments are noted.

Comment. - In summary, the project is basically one of trading off portions of the natural environment to protect the status quo of urban floodplain development from flood damage losses. It is unfortunate that this study could not find an economically acceptable way to use the large sums of tax monies available to promote relocation of floodplain developments, thereby maintaining the dwindling amount of natural floodplain land in the interest of public use. Instead natural areas would be reduced and irreversibly lost to insure an economic profit for floodplain development.

Response. - The comments are noted. The St. Paul District wishes to thank the State of Wisconsin, Department of Natural Resources, Bureau of Environmental Impact for its excellent critical review of the draft environmental impact statement.

Wisconsin Department of Justice. -

Comment. - The maps provided in the impact statement (plate 1 and 2) are inadequate. For this reason the text is often difficult to follow. Street locations such as Copeland Avenue and Monitor Street and place names such as the Norplex Industrial Complex are referred to by the text yet not indicated on either plate.

Response. - It is agreed that the maps do not provide the desired degree of resolution and information at all times. The intention was to provide the gross dimensions of the project. Persons desiring a greater degree of information should conduct a field inspection of the area if possible.

Comment. - Levees should be identified by name or number-keyed on plate 2 for easy reference. Wetlands, spawning grounds, nesting area, and other areas of environmental concern should be outlined on one of the plates.

Response. - This is one of the short comings of the project maps. If the project is authorized and advanced studies initiated, consideration will be given to these areas of concern in the development of more informative project maps and plates.

Comment. - My major concern, however, is the failure of this impact statement to provide the information necessary to properly evaluate each levee on an individual basis. We are asked to accept or reject the project as a whole although it appears that we are actually dealing with seven or more separate levee systems that are not interconnected or interdependent.

Response. - Other than a physical separation between the French Island and city of La Crosse flood barrier systems it is not considered realistic to evaluate each flood barrier segment separately. That the levee segments must be evaluated as a total system rather than individually is based on the fact that damaging flood heights along the Black and La Crosse Rivers are directly influenced by flood heights along the Mississippi River.

Protection to flood prone areas along the Black River could probably be assured witout the proposed flood barrier on the northeast side of La Crosse. However, in view of the extensive previously recorded flood damages in this latter area, such an abbreviated plan would be unwise and totally unacceptable to local interests. The French Island and city of La Crosse flood barrier systems are also interrelated in that protection of either area without protection of the other would have an adverse effect on flood stages along the unprotected area.

Thus, from a hydraulic and directly related economic and social viewpoint, it would be impractical to evaluate each levee segment separately.

Department of Administration. -

Comment. - We would like to see a discussion of a geographically specific partial evacuation, particularily on Green and French Islands

Response. - Floodplain evacuation was considered and dismissed because of economic infeasibility and social unacceptability. These same factors prevail for the geographically specific evacuation plan you propose. Even if a partial evacuation plan was devised that was economically feasible, the social factors pertaining to moving some families while protecting others would create serious problems. It would be doubtful if such a proposal would be acceptable to the local sponsor when local politics are considered. Residents of French Island are vehemently opposed to the evacuation plan and some residents are only mildly receptive to the proposed flood control plans.

Comment. - The possibility of a compromise between the location of the East Side Levee and the State Highway Feeder in the Myrick Marsh should be explored.

Response. - The levee alignments proposed in the report are preliminary and are not intended to represent exact locations at this time. Exact levee alignments will be determined by more detailed studies if the project is authorized. Further coordination with the State Highway Department and other interested parties in regards to the location of the levee would be carried out in post-authorization studies.

Wisconsin Department of Agriculture. -

Comment. - The proposal provides for a worthwhile project.

Response. - The comment is noted.

Wisconsin Department of Transportation. -

Comment. - We would be pleased to cooperate in any studies to find a feasible method of obtaining material for the levees and the proposed highway project in the La Crosse River bottoms. We believe lakes which are properly constructed could have an aesthetic and recreational value to the community and an economic advantage in the construction of both projects.

Response. - While it is probably true that obtaining fill from the La Crosse Marsh area for the levee system would be the most efficient and economical, at least in the short run, the tremendous biological value of the area and the expressed concerns of Federal, State and local conservation interests and various environmental groups strongly suggests that this would be something less than a wise resource management decision. However, we would be pleased to cooperate with the Department of Transportation and any other interested groups in finding a mutually agreeable source of fill material.

Comment. - The proposed Lang Drive reconstruction project will be constructed at a higher elevation in cooperation with the Corps project. The increased height of fill will have an impact on the adjacent properties; this should be recognized in the environmental impact statement.

Response. - This information has been included in the revised draft EIS.

Comment. - The proposed dike along USH 53 extending southerly from I-90 will obstruct a very scenic view of the Black River. We suggest that the height of the permanent dike at this location be limited to a height which would not obstruct the view. Temporary diking could be constructed on top of the permanent dike if more severe floods occur.

Response. - For the proposed degree of protection, the required flood barriers along USH 53 would be about 3 to 4 feet higher than the road surface. Consideration will be given in postauthorization studies to the advisability of providing movable structures on the levees to provide the necessary freeboard and lessen the visual and aesthetic impacts of this levee. Related studies and selection of the final levee alignment in this area would be coordinated with the Wisconsin Department of Transportation.

Comment. - At the present time there are only three north-south routes across the La Crosse River (USH 53, Lang Drive and USH 16). Closing USH 53 (Copeland Avenue) as suggested in the flood project would leave only two existing north-south routes open during flooding. With the growth anticipated in the General Plan, which is in line with the traffic growth that is developing, these facilities would not be adequate to carry the north-south traffic. Therefore, we believe alternatives keeping USH 53 open during flooding should be explored. Should it not be feasible to keep USH 53 open, the proposed closure of USH 53 is more realistic if the combined highway levee concept or alternative is developed.

Response. - The proposed plan provides for a temporary sand bag closure across Copeland Avenue during major flood periods. This survey scope study indicated that raising of Copeland Avenue bridge and related raising of the Burlington Northern Inc. bridge immediately downstream to provide the required flood protection was not economically feasible. However, further consideration would be given in post-authorization studies to the feasibility of this alternative. This matter would likewise be coordinated with the Wisconsin Department of Transportation.

Minnesota Pollution Control Agency. -

Comment. - The project (320-year flood design) should be compared and/or justified against the 100-year flood design.

Response. - Economic optimization analyses indicate that provision of 320-year protection, or protection against a Mississippi flood 1-foot higher than the record April 1965 flood, would, by far, provide the maximum economic benefit to the area. It is generally considered unwise to provide a level of flood protection substantially less than flood levels which have previously occurred in the area.

Further, State of Wisconsin floodplain management regulations require that flood barriers include the intermediate regional (100-year) flood plus three feet of freeboard or the standard project flood, whichever provides the greater protection from floods. In all areas at La Crosse, the standard project flood profile is considerably higher than 100-year flood profile.

Comment. - The MPCA has had a Water Quality Monitoring Station at Lock and Dam No. 6 since 1962.

Response. - The comment has been noted. Water quality information from this station would be useful in postauthorization studies.

Comment. - Sources of fill material for the levees should be identified and impacts of their use discussed, particularily dredging fill material.

Response. - We basically concur with the comment. However, at this stage of planning it is impossible to identify the exact locations of sources of fill material. If the project becomes authorized, then advanced studies would designate sources of fill material and the impacts of their use would then be discussed.

Comment. - Further consideration should be given to flood proofing and/or relocation of the sewage treatment plant out of the floodplain.

Response. - Concur. This could be accomplished in postauthorization studies if the project is authorized and the local sponsor is receptive to the idea.

Comment. - Every reasonable effort must be made to insure and secure the integrity of the biological community in the project area.

Response. - Concur.

City of La Crosse. -

Comment. - The Board of Park Commissioners, and the Common Council, city of La Crosse, have approved a policy whereas the resident leases on Barron Island will not be renewed after 1 April 1975, and the removal of all structures will be at the expense of the property owner. This was adopted on 8 November 1971; and, in full agreement with the residents.

Response. - The comment is noted and the draft EIS revised accordingly.

Comment. - In regard to the extreme northern portion of the proposed levee, members of the commission have expressed concern regarding Black River beach and Copeland Park. Our concern is with the levee, as you proposed, will it affect the aesthetics and potential use of this area and/or, limit existing facilities, such as the Copeland baseball field.

Response. - Regarding your concern over the flood barrier alignments along the Black River beach and Copeland Park areas, the proposed alignments are preliminary and are not intended to represent exact locations at this time. The alignments could change depending on the results of more detailed postauthorization surveys. As presently planned, a proposed levee between the Black River and U.S. Highway No. 53 would terminate at its southermost point just north of the beach house and would not affect the public beach area. No levee would traverse Copeland Park except for a short segment from about St. James Street extended southwesterly through the outfield portion of the baseball field. We think that an approximate 3 to 4-foot raise along this levee segment could be contoured sufficiently to minimize the effect on use of the ball field. Since no levees are proposed along the riverbank through either the beach area or Copeland Park, little or no effect on the aesthetics or potential use of these areas is expected.

Use of the levees for mooring boats would depend on the effects that such use might have on the aesthetic appearance and structural integrity of the levees. Any such use would be a matter for the local project sponsor to consider, recognizing the need for maintaining the levees in proper condition for their intended flood control purposes.

Sierra Club. -

Comment. - Sierra Club supports plan number 12 for flood control. The Sierra Club feels this plan best preserves the valuable Myrick Marsh area.

Response. - Concur.

Comment. - Sierra Club is unalterably opposed to the Alternate Levee Alignment 1-90 in plan 12, which would destroy the Myrick Marsh.

Response. - The comment is noted in section 8 of the final EIS.

Comment. - Sierra Club supports the position of Wisconsin DNR as presented at the 19 June 1973 public hearing.

Response. - The comment is noted.

Burlington Northern. -

Comment. - The draft EIS is satisfactory.

Response. - The comment is noted.

Chicago, Milwaukee, St. Paul and Pacific Railroad Company. -

Comment. - We will want to continue considering the proposed project and its effects on railroad property in advanced studies.

Response. - Concur.

Pyroil Company. -

Comment. - Pyroil concurs that there should be adequate flood protection to preclude extensive flood damages.

Response. - The comment is noted.

Comment. - The proposed levee system should be shifted to give Pyroil room for economic expansion.

Response. - The levee and floodwall alignments proposed in our report are preliminary and are not intended to represent exact locations at this time. Exact flood barrier alignments and design features for the proposed project will be determined by more detailed studies if the project is authorized by Congress.

Causeway Merchants. -

Comment. - The Causeway Merchants propose that the levee for protecting the Causeway Area be constructed adjacent to the Chicago, Burlington and Quincy Railroad track immediately west of the track.

Response. - The levee alignments proposed in our report are preliminary and are not intended to represent exact locations at this time. Exact levee alignments will be determined by more detailed studies if the project is authorized by Congress. The alternate Copeland Avenue-Monitor Street levee is discussed in the revised EIS.

Sandra Fletcher. -

Comment. - p. iii and p. 49. It is the University of Wisconsin at La Crosse, not Wisconsin State University.

Response. - The above correction has been made to the revised EIS.

Comment. - p. vii-xvii and p. 111-122. Revisions of names included with these comments.

Response. - The above corrections have been made to the revised EIS.

Comment. - p. 2 and p. 58. Because it already is a matter of public policy that within 3 years, I believe it is, the residents of Barron Island will be relocated, the flood control plans prepared by the Corps will have no effect on these people. Evacuation of Barron Island will not be a negative impact, because there will be no people to evacuate.

Response. - The draft EIS has been revised to indicate the 1975 deadline for permits or leases on Barron Island. At the same time, the EIS indicates that if this evacuation is not completed before the flood control project begins, that these impacts are recognized.

Comment. - Your population figures and projections were those prepared prior to the 1970 census and are therefore out of date. This document gives a La Crosse County 1980 projection of 83,700, not the 93,100 you have cited here, and gives a 1990 projection of 87,800. These are very much different from your figures.

Response. - The La Crosse County population projection did employ final count 1970 census data. However, the projection trend line was also based upon Office of Business Economics projections for the La Crosse economic area which was prepared using 1967 series "C" Bureau of the Census projections of national population. "1972 OBERS Projections," volume 1 through 5 dated September 1972, has subsequently been prepared for the U.S. Water Resources Council by the Department of Commerce, Bureau of Economic Analysis. The La Crosse Survey Report draft projections are consistant with this most recent publication and will be updated in the future when OBERS projections are similarly revised.

While OBERS recent population projections have already become somewhat dated this should not obscure the likelihood that a very significant difference in population projections probably lies in projection methodology. In any event, it should be noted at this time that the State of Wisconsin agency projection for La Crosse County in 1980 must certainly be considered a minimum capability based upon the economic performance of La Crosse County in recent years. On the other hand, the La Crosse Survey Report projections for 1980 still appears to be economically viable for La Crosse County. Therefore, upon consideration of all of the above there does not appear to be sufficient justification or need to change the La Crosse County Survey Report population projection at this time.

Comment. - The 9-hole public golf course is located in south (with a small s) La Crosse. The proper spelling of the park is Houska.

Response. - The above corrections have been made to the revised EIS.

Comment. - Please specify in the title of this section and in the introductory text that it is PROCUREMENT OF BUILDING MATERIALS FOR THE FLOOD CONTROL DIKE. I was five pages farther on before I realized what this section was all about.

Response. The title of the section has been modified to incorporate the above comment.

Comment. - Consult with the Soil Conservation Service about erosion control measures that might be employed during construction phase.

Response. - If particular soil erosion problems become evident, the Soil Conservation Service or other appropriate agencies could be contacted. However, Corps of Engineers construction procedures are designed to minimize possible erosion problems, thereby greatly eliminating possible erosion problems.

Comment. - Opposition to this project can also be expected to come from the party which owns the boat dock and marina on the Black River.

Response. - The comment has been noted.

Comment. - It should be pointed out that opposition to the freeway is not just coming from environmentalists--in fact, they may be in the minority. Opposition is coming from people who do not want to see the city cut in two and 2000 people displaced.

Response. - The comment has been noted and the draft EIS revised accordingly.

Comment. - The effect of removing floodplain lands from the river by filling and/or levees should be discussed in the EIS.

Response. - The comment has been noted and the draft EIS revised accordingly.

G. N. Growt - retired District Engineer for Wisconsin Highway Department. -

Comment. - The draft EIS is complete.

Response. - The comment is noted.

The following comments were received as a result of circulation of the revised draft statement:

U.S. Department of the Interior. -

Comment. - In numerous places throughout the draft environmental statement, reference has been made to the fact that 39-40 acres of undeveloped flood plain would be protected from flooding by the proposed project (for example, pages i and 38), but nowhere have we found any reference to the number of acres of developed land that would be protected. Similarly, in discussing possible variations in the plan, the statement has repeatedly indicated that protection might be afforded to an additional 410 acres (for example, page 1, paragraph 1), but nowhere has this acreage been related to the acreage that would be protected by the basic proposed plan.

Response. - The proposed plan for flood control would protect approximately 1,000 acres of currently flood prone land. This acreage includes portions of all land use categories in the La Crosse area. Information to this effect has been added to page 2 of the final EIS.

Comment. - In order to evaluate the plan and its environmental impact it is essential to know not only the size but the present land uses, probable future land uses, and location of land to be protected from flooding, as well as the relationship of this protected land to the total extent of the river's flood plain. We have only found qualitative descriptions and one present land use table in either the draft environmental statement or the accompanying two-volume feasibility report. We suggest that land use maps or other pictorial methods be considered for displaying this information when preparing the final statement.

Response. - Appendix B of the feasibility report contains a description of present development, and existing and future land use in the La Crosse study area. Existing land use acreages are presented on page B-26 of the feasibility report and on page 34 of the final EIS. Plate B-2, appendix B of the feasibility report diagrams the projected land use in the area.

Comment. - Evaluation of the draft statement was also made difficult by insufficient mapping and descriptions of the complex role of the proposed levee system. The following three concerns might be removed in the final statement by the use of several larger scale maps.

1) The highly generalized character of all maps that have been provided show little or no topography except for the toe of the 400-500-foot bluff by means of hachure marks.

2) The discontinuity of the proposed levees, which comprise approximately 10 separate segments, makes it largely impossible to estimate the probable effectiveness of any one segment, or the project as a whole.

3) The complex relationship between areas subject to flooding and those above flood level (due to the fact that the project area is at the confluence of three rivers and the fact that flooding is controlled to some extent by Lock and Dam No. 7 and by the Onalaska Spillway) would be more easily evaluated by careful delineation on the project maps.

Response. - More detailed topographical maps and work maps for the project are available for inspection in this office. They were not included in the reports in order to assure that they remain readable documents.

Comment. - It has been proposed to obtain about 650,000 cubic yards of fill material for levee construction by dredging the Black River and Mississippi River. However, the draft environmental statement gives the impression that recommendations with regard to this proposed dredging have evolved in the course of its writing, with the result that related statements appear somewhat inconsistent. Early in the document it is stated that "if dredging was confined to the present nine-foot navigation channels of the rivers, damage to the aquatic environment would be less severe than dredging in the marshes and backwater slough areas" (p. 40, paragraph 4). At this point, no commitment appeared to have been made to avoid the dredging of marsh areas as a source of fill and, in fact, that action appeared to be under consideration as a feasible alternative. Later it is confirmed that "biologically productive backwater sloughs and marsh areas would be excluded from dredging" (p. 63, paragraph 2). We feel that a commitment to that effect needs to be expressed consistently throughout the environmental statement.

Response. - We intend to exclude marsh areas and backwater sloughs from dredging. Caution would be exercised in the selection of any dredging sites. Correction has been made in the final EIS.

Comment. - In addition, it would be advisable to provide more detail on the recommended plan of dredging to obtain fill, particularly with regard to specific areas and environmental impacts. We feel that a plan merely to confine dredging to the navigation channels of the rivers would not be adequate for the following reasons:

(1) The navigation channel in the Mississippi River is far removed from much of the project area; (2) a channel in the Black River has not been delineated and we are in doubt as to its location, depth, and probable impacts; and (3) any dredging from the navigation channels in excess of that required for maintenance of authorized depths would appear to require a careful analysis, including areas, volumes, sediment type, seasons of operation, method of dredging, and transport, and environmental impacts of the action.

Response. - Studies as detailed as those mentioned would be undertaken during postauthorization phases of project development. Study at the feasibility level is confined basically to a review of existing information and formulation of a general flood control plan. This phase of study is intended to establish the feasibility of the levee flood control concept; further and more detailed studies would be completed following authorization of the project to ensure that all planning objectives, including environmental considerations, are reasonably met. It is therefore assumed that following authorization, a detailed examination of the alternative methods of obtaining embankment material, such as the recommended dredging, would result in an environmentally sound plan.

Comment. - It has been proposed to obtain some 200,000 cubic yards of fill for levees from land borrow areas (page 40). It would be advisable to identify the recommended source of this material. In addition, the probable source and estimated volume of riprap required for bank protection at 10 bridges should be provided in the environmental statement.

Response. - The exact sites of borrow areas would be determined in the postauthorization phase of the project. At present, it appears that hauled fill may be obtained from borrow pits in the Onalaska area and impervious material would be obtained from upland areas east of the city. Material for riprap and bedding is available in the La Crosse area from several established limestone quarries located less than 10 miles from the project area. Caution would be exercised to insure that environmental disturbance of borrow areas is kept to a minimum. The estimated volume of riprap required would be determined during further study. This information has been included in the final EIS.

Comment. - No established or studied unit of the National Park System or any National Landmark would be adversely affected by this proposed action.

Response. - Comment noted.

Comment. - We have noted in Appendix I of the Feasibility Report (pages B-23 and 24) that archaeological investigations of the study area would be made during postauthorization studies to further document known sites within the study area and to determine if additional sites exist. We suggest that this commitment also be included in the text of the final environmental impact statement.

Response. - A statement to this effect has been added to page 38 of the final EIS.

Comment. - Page B-23, Appendix I of the Feasibility Report also refers to several structures of local historical significance which are located within the City of La Crosse. In Section 2 of the draft state-

ment (page 38) under the heading Historical and Archaeological Sites in the Study Area, there is a reference to correspondence with the State Historical Society of Wisconsin and a statement that, as per their request, close coordination would be maintained with them so that a specific survey of potentially important sites could be undertaken if warranted.

This request from the State Historical Society, whose Director has been designated as the State Historical Preservation Officer under the provisions of the National Historic Preservation Act of 1966, should also be included in the text of the final environmental impact statement.

Response. - The request of the State Historical Society is included in the final EIS. A "survey" would be undertaken after project authorization.

Comment. - Mineral resources are only minimally mentioned in the environmental statement in connection with the geology of the area. The mineral resources of La Crosse City and La Crosse County include clays, limestone, dolomite, and sand and gravel. Sand and gravel deposits are by far the most abundant. Several sand and gravel pits are located within the City of La Crosse.

Response. - This information is included in the EIS.

Comment. - The proposed flood control measures are mostly located adjacent to roadways, railroads, and within commercial/residential areas where mineral resources have previously been committed. The construction of the levees will irreversibly and irretrievably commit about 200,000 cubic yards of sand, gravel, and stone from land-based borrow pits. Since these resources are abundant in this region, no significant impact on them is expected.

Response. - Comment noted.

Comment. - Responses to the Department's previous comments are summarized on pages 88-95. The response, on page 91, to our comment regarding the precise location of the structural features is inadequate, especially in light of the adverse impacts on the Myrick Marsh which would result if the levee structure were extended to connect with a tentative alignment for a four-lane interstate highway. We re-emphasize the need for this information if the impact statement is to serve its proper role in the decision-making process.

Response. - With regards to the Myrick Marsh, the project report does not recommend protecting the 410-acre marsh area by utilizing a proposed interstate feeder. The alternative flood protection plan incorporating the proposed highway embankment was considered in response to the city's desires and presented in the EIS only to document all options available to the city. Protection of the additional 410-acre marsh area is not part of the recommended plan. This matter would be reviewed during postauthorization studies, and refinements in levee alignments would be made.

Comment. - Page 1 of the draft statement refers to recreational hiking and bicycling trails. The location and extent of these trails should be shown on plate 2. The relationsnip of the Levee Trail System with the Wisconsin Comprehensive Outdoor Recreation Plan's note of the inadequacy of bicycle trails in the region should be examined. The recreation potential of the "two new ponding" areas discussed on page 4 should be addressed.

Response. - The proposed trail system is detailed in the Feasibility Report for Flood Control and Related Purposes, which is available upon request in the St. Paul District Office. Plate E-5 of the feasibility report diagrams the proposed trail system.

The proposed recreation plan appears to be consistant with the 1972 Wisconsin Comprehensive Outdoor Recreation Plan as the proposed trail system is now primarily oriented toward bicycling. Although this region is considered desirable for establishment of a State hiking trail system, the 77 miles of existing trails exceed the demand through 1990. Conversely, bicycle trails are considered inadequate and use of roadways as presently designed is unsafe.

It is expected that the ponding areas could be operated to preserve their value as wildlife habitat. The areas may also have potential as multiple-purpose courts or playfields or as part of the trail system. These possibilities would be studied in conjunction with the postauthorization phases of the project.

Comment. - It is stated on pages 38 and 39 of the draft statement that 39 acres of undeveloped flood plain will be protected by the proposed levee alignment, which gives the impression that final use of the area is still to be decided. It also mentions that 20 acres of flood plain in the same general area has been filled by the City and 20 acres of wet marsh adjacent to this filled area will be utilized as "ponding area." This is again mentioned on page 53. However, on page 59, it is stated that the same 39 acres that will be protected have already been half filled by the City with the remainder to be used as a ponding area. Also, on page 86, it is stated that the same 39 acres would be expected to be converted to urban development. This would not be true if 20 acres were to be used as a holding pond. These discrepancies should be clarified.

Response. - The protection of this acreage was provided at the request of the city of La Crosse because of the shortage of developable lands for industrial and commercial expansion in the immediate area. The lands adjacent to this acreage contain industrial development, and future land use would probably be similar.

Page 59 of the final EIS has been corrected to indicate that the 39-acre area is separate from the 20-acre filled area and the 20-acre marsh which would be used as a ponding area.

Comment. - The revised statement is generally adequate in its analysis of project effects on fish and wildlife resources in the project area. The U.S. Fish and Wildlife Service comments, included in the August 31, 1973, Department of the Interior review of the May 1973 draft environmental impact statement were addressed satisfactorily in the revised draft.

Response. - Comment noted.

U.S. Department of Transportation: U.S. Coast Guard. -

Comment. - The Office of Pipeline Safety has no objection to the subject draft environmental impact statement. The statement mentions that modification or relocation of some petroleum lines and utility lines would be required. Such relocation, modification, and subsequent operation of any liquid petroleum pipelines that are subject to Federal safety jurisdiction must be carried out in compliance with the Federal pipeline safety regulations contained in 49 CFR Part 195. Similarly, any relocation or modification of existing gas pipelines in the affected area which are subject to the Natural Gas Pipeline Safety Act of 1968 must comply with the safety regulations contained in 49 CFR Parts 191 and 192. A statement that the operators of any pipelines affected by the proposed Flood Control Project will comply with the appropriate Federal pipeline safety regulations should be included in the final environmental impact statement.

Response. - This statement has been added to the final EIS on page 5.

U.S. Department of Agriculture. -

Comment. - We note the report recommends the adoption of flood plain regulations by all local governments involved. We assume that such regulations would include that area which is subject to flooding but not protected by the proposed levee system.

Response. - Ponding areas, as well as areas subject to 1 percent chance flooding but not protected by the proposed project, would be subject to floodplain regulations.

Comment. - The alternate east side levee alignment along the La Crosse River would protect and thus make available for urban development an additional 410 acres of undeveloped marsh land. Development of this scarce wildlife habitat area would be undesirable, inasmuch as the report notes that a considerable supply of higher developable ground, without flood threat, is available.

Response. - The alternative of protecting the marsh land was considered in response to the city's desires and presented in the report only to document all options available for flood control. Protection of the additional 410-acre marsh area is, however, not part of the recommended plan.

Comment. - The statement does not discuss the potential impacts of the selected system on nearby agricultural lands, which comprise nearly 56 percent of the total study area. If the levees will not cause any adverse effects to unprotected farmland in the vicinity of La Crosse, such conclusion should be noted in the statement.

Response. - Most of the agricultural lands in the study area are located outside of the floodplain and implementation of the proposed project would protect only a limited amount of pastureland acreage which is presently flood prone. No cropland or pastureland would be lost as a result of construction of the proposed project. This information has been added to the final EIS.

Comment. - The lack of specific locations for the levees makes it impossible to adequately assess the potential environmental impacts of the proposed system. In reviewing the "Conclusions," pages 122-123, the inference can be drawn that if sufficient flood plain development occurs between the pre-authorization and the post-authorization planning, the levee alignments could be changed to provide flood protection for the new development, as well as for further development. This could encourage additional development in flood prone areas.

Response. - The ultimate alignment would probably be different from that now proposed. The reasons for change could include engineering conditions along the alignments, presence of cultural sites, desires of local people, etc., as well as changes in land use in the floodplain. Potential environmental impacts would be evaluated in conjunction with any suggested alterations to the proposed plan in postauthorization studies.

U.S. Department of Health, Education, and Welfare. -

Comment. - We have reviewed the Draft Environmental Impact Statement for the subject project. To our knowledge, and based upon the information provided, this project will not impact to any significant degree on the health, education or welfare of the population.

Response. - Comment noted.

U.S. Environmental Protection Agency. -

Comment. - The responses to our comments appear on pages 97-102 of the revised draft. With considerable concern, we observe that a number of responses not only on our comments but others as well, are merely notations of our views regarding the environmental effects of the project. Such responses are not consistant with Section 1500.10 of the Council on Environmental Quality's August 1, 1973 Guidelines which state:

> "Agencies should make every effort to discover and discuss all major points of view on the environmental effects of the proposed action and its alternatives in the draft statement itself. However, where opposing professional views and responsible opinions have been overlooked in the draft statement and are brought to the agency's attention through the commenting process, the agency should review the environmental effects of the action in light of those views and should make a meaningful reference in the final statement to the existance of any responsible opposing view not adequately discussed in the draft statement, indicating the agency's response to the issues raised."

As should be clear, a noncommittal response does not satisfy this requirement and, further, implies that the sponsoring agency cannot render a decision in regard to the issues raised. In our experience this has been anything but the case for Corps of Engineer projects. We would be pleased to be informed as to the rationale for this practice on the La Crosse Flood Control Project.

Response. - The practice of responding to a comment by stating "Comment noted" as was done in the La Crosse impact statement is frequently used in environmental impact statements (EIS's) for comments that we feel do not pertain to a specific aspect of the proposed action but rather reflect the general policy or views of the commentor on a related policy issue. In this vein, we consider all comments and apply them either in the revision of the EIS and/or as factors to consider in our work on planning and design documents on which decisions are made.

In the La Crosse impact statement the "Comment noted" response was also used in those instances where you had paraphrased an issue that had already been presented in the draft statement. This is particularly true of comments relating to the alternative to the recommended plan that would adversly affect 410 acres of the Myrick Marsh along the La Crosse River. Since you were not taking issue with respect to our analysis of the environmental effects of the alternative, we felt that a "Comment noted" response to this issue was our recognition of your concerns for opposing selection of this plan and our willingness to consider your views in selecting the final plan. In this respect we feel that such a response is consistant with Section 1500.10 of the Council on Environmental Quality's Guidelines.

Comment. - In the revised draft and the previous statement of May 1973, it was stated that approximately 40 acres of wetlands will be lost to levee construction. Some of these wetlands are not as sensitive as others and it may not be necessary to maintain these wetlands in their present state. However, wetland areas such as Myrick Marsh, the spawn-

ing grounds near Lieder Lumber Company and the wetland west of the railroad roundhouse should not be disturbed. We recommend that levees be constructed in such a manner as to maintain the natural state of these areas.

Response. - The levee alignments discussed in the revised draft EIS and recommended in the feasibility report are not necessarily the final or exact alignments but represent the best alignments based on a survey-scope analysis of project impacts. The feasibility report refers to the extra measures and related increased costs incurred in aligning flood barriers to avoid sensitive areas. In any case, further consideration will be given in postauthorization studies to the optimum alignments of project flood barriers to reduce adverse environmental effects.

Comment. - It was proposed on page 40 of the revised draft EIS to secure approximately 650,000 cubic yards of fill for the levees from the Black and Mississippi Rivers. Significant environmental effects will result from the obtaining of the fill in this manner. The EIS should discuss whether the Black River is dredged for channel maintenance, if the material is polluted and if there is any opposition to the plan from the Wisconsin Department of Natural Resources. If the Black River is not dredged periodically for normal channel maintenance, we fail to understand the proposal of this action in light of the probable environmental effects upon the spawning areas and the natural ecology of the river. We request that an alternative method of obtaining fill material be found. The only alternative discussed in the revised draft EIS is to obtain the material from the Myrick Marsh. This alternative appears to be even more environmentally damaging and is contrary to EPA's Wetlands Policy.

Response. - The Black River channel has not required any periodic maintenance dredging to maintain authorized depths. However, considerable commercial dredging has been done in the past, and recently, near the mouth of the Black River in areas well removed from identified spawning areas and without apparent long-term adverse effects upon the river ecosystem. The Wisconsin Department of Natural Resources in its comments on the draft EIS state that river dredging could be extremely damaging to fishery habitat if done near the construction site. Caution would be exercised in the selection of any dredging sites. Further, in view of the need for dredge disposal areas for the continued maintenance of the 9-Foot Navigation Channel on the Mississippi River it is expected that some portion of that dredge material could be utilized in construction of the flood control project.

The revised impact statement concurs with your views that obtaining fill material from Myrick Marsh would have damaging environmental effects, and this alternative is not recommended for the proposed project. Alternative methods of obtaining fill material will be given consideration during pre-construction planning studies with a view towards minimizing adverse environmental effects.

Comment. - As stated in our previous letter of July 17, 1973, we are opposed to any use of the Myrick Marsh as possible location for a highway and levee corridor. The use of the marsh as a corridor would provide 400 acres of land for development by the City of La Crosse. However, we believe the damage to the environment would outweigh the benefits to be derived resulting in the loss of a significant natural resource.

Response. - The project report does not recommend protecting the 410-acre Myrick Marsh area by utilizing a proposed interstate feeder. The alternative flood protection plan incorporating the proposed highway embankment was considered in response to the city's desires and presented in the report only to document all available options. Protection of the additional acreage is not part of the recommended plan.

Comment. - On page 53 of the revised draft EIS, it is indicated the Corps of Engineers has determined the undeveloped area near St. James Street is a valuable natural area. Based on these conclusions, it is not clear why flood protection is planned for this area. Levees should provide protection to existing development, not encourage future development in flood plain areas that are now unprotected.

Response. - As discussed on page 53 of the revised draft EIS, the proposed project would protect about 39 acres of vacant floodplain that is presently a valuable natural area. It has also been determined that these 39 acres are comprised of two parcels completely surrounded by industrial development and transportation facilities. With increasing development in the surrounding area it is expected that the quality of this natural area will be degraded in the future. In an analysis of economic versus environmental trade-offs, it was felt that the cost of excluding this area from the project would be excessive in terms of the benefits gained. Exclusion of the area would require expensive closure structures across a mainline railroad and disruption of rail traffic during the larger floods.

Comment. - In light of our review and in accordance with EPA policy, we have classified our comments on this revised draft EIS as Category ER-2. Specifically, we have environmental reservations regarding the proposal to obtain fill material from the Black River. Furthermore, we do not believe the responses to our earlier letter provide sufficient information regarding the issues raised at that time. We appreciate the opportunity to review this revised draft EIS, and we will be happy to discuss our comments with you or the district staff at a time of mutual convenience.

Response. - We hope these responses to your concerns have been adequate. Coordination with your agency would continue during postauthorization studies.

Wisconsin Department of Natural Resources: Letter of 27 May 1975. -

Comment. - Revised draft environmental impact statement, page 2, fourth paragraph, last sentence - The City of La Crosse has not adopted a flood plain zoning ordinance which is consistent with state standards, and it is not working on regulations that would comply with state standards. Also, the City of La Crosse has indicated that they will not adopt such a flood plain zoning ordinance. Proper flood plain zoning regulations would protect the integrity of wise land use controls during the lengthy planning, funding and construction stages of the proposed project. Flood plain zoning regulations would also assure that there would be no more incompatible filling and development which would ultimately increase flood heights and decrease the flood protection provided by the proposed flood control project. Zoning regulations would also regulate filling and development in areas not protected by the proposed flood control project.

Until the City of La Crosse adopts an adequate floodplain zoning ordinance in accordance with Department standards, the Department of Natural Resources does not support the proposed La Crosse flood control project.

Response. - The recommendations contained in our feasibility report include as an item of local cooperation the following: "Implement and administer flood plain regulations in accordance with State law where at least intermediate regional flood protection is not provided." Thus, if construction of the flood control project is authorized by Congress, the local sponsor would be required to assure that the above item of local cooperation would be accomplished before the project could be constructed with Federal funds. Assurance of local cooperation for the proposed project provides for enactment and enforcement of floodplain regulations consistent with State and Federal standards. However, it is not considered appropriate for the Federal Government to require adoption of any project-related floodplain regulations prior to authorization by Congress. Adoption and enforcement of floodplain regulations prior to authorization of a Federal project are generally left to State and local government.

This office is available to assist non-Federal interests in developing acceptable floodplain regulations for the La Crosse area.

Comment. - When the proposed levees are constructed and in operation and a legal, annually funded maintenance program is established, the flood plain zoning ordinances could be amended to reflect protection from the dike and to include protection for basement flooding on lands in back of flood control levees.

Response. - Concur.

Comment. - Revised draft environmental impact statement, page 40, first paragraph - It is requested that serious consideration be given to the use of dredge spoil material obtained from the maintenance of

the 9-foot channel for dike and levee construction. The use of these dredge spoil materials for productive and useful purposes would be consistent with the recommendations of GREAT and would also be in consonance with recent Corps' notices which emphasized the beneficial use of dredge material resulting from maintenance dredging of the Mississippi River navigation channel.

Response. - Use of dredge material obtained from maintenance of the 9-Foot Navigation Channel for construction of sand levees appears to be feasible at this study phase and is included in the recommended project plan.

Wisconsin Department of Natural Resources: Letter of 26 August 1975. -

Comment. - As you are aware, the Department is charged with the conservation of fish and wildlife resources as well as the protection of the environment. The comments provided by the Department addressed both sets of concerns. The Department of Natural Resources, which is the agency in Wisconsin responsible for the conservation of fish and wildlife resources within the meaning of 16 U.S.C. 662, has reviewed the documents prepared by the Corps and has no additional comments to offer at this time other than those previously provided or included in this letter.

In response to your understanding of the Department's position relative to construction of the proposed flood control project, you are essentially correct that we are not opposed to the proposed flood control plan itself. However, the Department is opposed to the actual construction of any part of the proposed project until the City of La Crosse adopts an adequate flood plain zoning ordinance which is in accordance with Department standards. The Department, therefore, does not object to your report recommendation for a flood control project at La Crosse provided that the Corps of Engineers grants the Department the following assurances:

1. That no construction of any part of the proposed project will be undertaken until the City of La Crosse has adopted an adequate flood plain zoning ordinance which is consistent with Department standards.

2. That the Corps of Engineers will assist the Department in effecting an adequate City of La Crosse flood plain zoning ordinance consistent with Department standards during the interim period prior to Congressional authorization.

3. That the Corps of Engineers will continue to coordinate and consult with the Department on the various phases of the proposed project relating to the Department's jurisdiction and expertise.

Response. Coordination with the Department will continue as project planning advances to ensure that these guidelines are reasonably met. As stated, this office is available to assist in any floodplain zoning negotiations and planning.

CONCLUSIONS

It is evident from the comments received on the draft EIS that the proposed plan is apprently acceptable to the residents of the La Crosse area. There are however, several noteable concerns expressed by agencies, groups and individuals.

The foremost concern is the considered, but not recommended, alternate levee system which would protect an additional 410 acres of the La Crosse River floodplain. This alternative has been opposed as a matter of agency policy by the U.S. Environmental Protection Agency. The Sierra Club has also publicly stated its opposition to the alternate levee system. The U.S. Department of Interior and the Wisconsin Department of Natural Resources consider the alternate levee proposal to be highly environmentally damaging. Both have stated that compensatory measures would be required to offset environmental damages inflicted. On the other hand, the city of La Crosse and several business interests have expressed a desire to protect the 410 acres for future economic expansion. However, the alternate levee alignment is not economically feasible unless the proposed highway feeder is constructed through the La Crosse River floodplain. Since the future of this highway is in doubt and because of the opposition expressed about the alternate levee, it would not appear prudent to propose the alternate levee alignment as a part of the selected plan.

The source of construction materials to build the levee embankments is also of concern to several agencies and groups. Approximately 850,000 cubic yards of material will be required for the levee system. It has been proposed that 650,000 cubic yards be dredged from the Black and Mississippi Rivers and another 200,000 cubic yards be obtained from land-based borrow pits. In the best interests of resource management detailed studies would be made to locate a source of embankment material which, upon utilization, would produce the least environmental impact among the available choices. This would be done during postauthorization planning.

Concerns have been expressed over the possible loss of scenic views and/or a loss of aesthetic qualities if the proposed project were built. In some instances, certain losses would be unavoidable if the flood protection is to be provided. On the other hand, economic considerations have been such that, in some instances, a less desirable physical feature has been proposed to achieve a feasible project. These considerations would be carefully studied in postauthorization planning to achieve a desirable balance between engineering, economic, social, environmental and aesthetic considerations.

Concerns have been expressed over levee alignments. Several business establishments are concerned that the proposed levee alignments would unduly constrict floodplain lands that could be developed for commercial purposes. On the other hand, conservation and environmental interests are concerned with the piecemeal development of floodplain lands and the overall problem of floodplain development. Realizing that the La Crosse area will be a dynamic system between preauthorization and postauthorization planning and that certain developments may be constructed in the interim, assumming proper Federal and State permits are granted, it would appear superfluous to attempt to designate exact levee alignments at this time. Therefore, exact levee alignments would be determined during postauthorization planning.

LETTERS RECEIVED BY THE
DISTRICT ENGINEER ON THE
DRAFT ENVIRONMENTAL STATEMENT

United States Department of the Interior

OFFICE OF THE SECRETARY
NORTH CENTRAL REGION
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

ER-73/882

August 31, 1973

Col. Rodney E. Cox
District Engineer
U. S. Army Engineer District, St. Paul
1210 U. S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

The Department of the Interior has reviewed the Draft Interim Survey Report and the Draft Environmental Statement for the LaCrosse Flood Control Project, LaCrosse County, Wisconsin, as requested in the transmittal letter of June 29, 1973, to our Assistant Secretary -- Program Development and Budget. Our comments on the Draft Interim Survey Report are preliminary in nature, and intended as informal input to assist you in finalizing the Report. Our official comments will be made after the Report is finalized and released for comment under cover letter by the Office of the Chief of Engineers. Our comments on the Draft Environmental Statement are official and have been prepared in accordance with the National Environmental Policy Act of 1969 (P.L. 91-140).

Draft Interim Survey Report

The hydrologic aspects of the proposed action are adequately described. Possible environmental problems associated with geologic conditions of the project area are amenable to suitable engineering or design techniques. The project will have no adverse effect on sand and gravel and stone sand resources existing in the general area.

No Indian trust real property is included in the 1965 floodplain or affected project area as shown on project maps. Further, the proposal will not adversely affect any existing or proposed units of the National Park System.

Although a combination of the 13 alternative measures was selected for the plan of improvement, there is no evaluation of the locational alternatives for the structures, additional floodplain regulation or evacuation at selected areas, and the resulting

adverse and beneficial effects which may be expected. For example, recreational and social benefits or losses could vary significantly by minor shifts of the proposed levees to utilize existing roadways and railroads. Fish and wildlife resources and other environmental values could be similarly affected.

The report indicates that the specific location of structural features and the recreation trail system will be determined in the post-authorization studies. It is also stated on page 51 that fill material will either be trucked in from borrow areas or will be dredged from the LaCrosse River floodplain. The environmental effects of these alternatives are not adequately evaluated in terms of the extensive levee system proposed and the volume of fill material needed. Specific recommendations regarding the location of structures, the source of fill material, the aesthetic treatment plan, and the recreation trail system should be described to assist in the decision-making process. Likewise, there is no evaluation of environmental and recreational losses which may result from the proposed levee in the Red Cloud Park vicinity. A more thorough evaluation of potential environmental damages should be conducted in respect to the economic benefits resulting from the proposed action.

The proposed plan of improvement appears to be consistent with the 1972 Wisconsin Comprehensive Outdoor Recreation Plan if the proposed trail system is primarily oriented toward bicycling. Although this region is considered desirable for the establishment of a state hiking trail system, the 77 miles of existing trails exceed the demand through 1990. Conversely, bicycle trails are considered inadequate and the use of roadways is unsafe as presently designed. The state comprehensive outdoor recreation plan encourages all government agencies to protect and improve the quality of every body of water with recreation potential in Region 4 where this study area is located. It emphasizes the need for shoreline protection and water quality improvement.

In respect to fish and wildlife resources, specifically, the draft adequately describes the current situation. Since it is recognized that some loss of wetland and forest habitat of value to wildlife will take place, the report should address itself to the problem of effecting measures to offset these losses. The anticipated loss of fish spawning areas and possibly the loss of a small acreage of backwater sloughs of local fishery importance also must be recognized and measures incorporated to offset these adverse effects.

It is important that further coordination takes place between the Corps of Engineers, Bureau of Sport Fisheries and Wildlife, and Wisconsin Department of Natural Resources. Compensatory

action in the form of replacement on an acre-for-acre basis may be possible. Such purchases should be for public use and, if possible, developed. Opportunities to improve fish and wildlife resources also need to be more fully explored.

The Report (page 39) states, too, that archaeological values will be preserved. How will this be achieved? We suggest that a preliminary salvage program be initiated by Dr. Joan Freeman, Archaeologist, State Historical Society, 816 State Street, Madison, Wisconsin, 53706. A report of this operation should be submitted to the Regional Director, Northeast Region, National Park Service, 143 South Third Street, Philadelphia, Pennsylvania, 19106, to assess the need for additional archaeological investigation.

Draft Environmental Impact Statement

General:

The Statement provides a reasonably accurate analysis of project affects on fish and wildlife resources. There is concern as to where fill material will be obtained. The Statement (pages 54--56) points out the environmental impact on the local fishery if fill materials were dredged from the Black and Mississippi Rivers. Yet, Section H (H-6) of the draft survey report states in fact that levee fill material will be dredged from the navigation channels of both the Black and Mississippi Rivers. The question of where levee fill materials will be obtained needs to be resolved. Its resolution also will require more specific analysis of potential damages to fish and wildlife resources from fill and borrow areas.

Also, the statement should discuss the possible relationship between the project proposal and the future construction of Interstate Highway 90. Such road construction would be potentially damaging through urban development of 410 acres of land now harboring a wetland complex of high wildlife value.

Adequate consideration has not been given to historic, archaeological and architectural resources. Appendix C of the draft statement lists a number of structures within the project area that are historically significant. Of particular concern to us would be the threat of direct or indirect impacts to the Hamlin

Garland House, 357 West Garland Street, West Salem. This house is listed on the National Register of Historic Places; and is, therefore, protected by the policies set forth in Section 106 of the National Historic Preservation Act of 1966 (P. L. 89-665). Aside from a brief statement (page 39 - Interim Survey Report), there is no indication of steps which will be taken to protect this property or the other structures which have been determined to possess historical or architectural significance. We recommend that the project sponsor consult with the State Historic Preservation Officer to ascertain the impacts to these sites, and based on this investigation, the final statement should outline measures which will be taken to minimize any adverse impacts.

Specific:

1. Project Description - The precise location of the structural features cannot be determined from the maps accompanying this statement. These features should be identified on maps or aerial photographs of sufficient detail to depict adjacent structures and land features. Certainly, the recommended source(s) for fill material must be identified and described.

3. The Environmental Impact of the Proposed Action - Three possible sources of fill material for construction of the flood control structures are identified as (1) dredging from the Black and Mississippi Rivers, (2) existing borrow pits in the LaCrosse area, and (3) dredging from the LaCrosse Marsh. Since the fill material is an important, integral part of the total proposal, the environmental impact of the proposed action cannot be adequately evaluated until the source of materials is identified.

   We do not find support for the generalization (page 59) that the proposed plan provides the desired degree of protection at a price which is acceptable socially and ecologically in most instances. Neither do we agree that determining the specific locations of the levees should be delayed until the post-authorization stage. We believe that the proposed action is of such magnitude that it is impossible to adequately assess the environmental impacts until the locations of all structures are accurately defined.

The East Side Levee goes through an area identified as Red Cloud Park on Plate 1. The effect of the levee on this park should be described in this section.

4. Adverse Environmental Effects Which Cannot be Avoided
Loss of scenic views and aesthetic quality due to levee construction should be discussed.

5. Alternatives to the Proposed Action - Floodplain regulation (page 89) is based on a 100-year flood elevation. The relationship of this degree of protection should be compared to the proposed project protection of a 320 year flood (page 2).

It would be helpful in assessing the environmental effects of the proposed action, Plan 12, if alternative locations for flood control structures were identified and evaluated.

6. The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity - As stated previously, the recommended source of fill material should be identified and evaluated in order to adequately assess the environmental impacts from dredging or the use of borrow areas. A comparison of the long term costs and benefits of additional floodplain evacuation and flood proofing to the proposed structural measures would be helpful in assessing the long term effects of the proposed action.

7. Irreversible and Irretrievable Commitments of Resources Which Would be Involved in the Proposed Action - Further discussion of the impact resulting from the use of specific resources for fill material is needed to identify the irreversible and irretrievable commitment of resources.

Sincerely,

Madonna F. McGrath

Madonna F. McGrath
Staff Assistant to the Secretary

United States Department of the Interior

BUREAU OF OUTDOOR RECREATION

LAKE CENTRAL REGION
3853 RESEARCH PARK DRIVE
ANN ARBOR, MICHIGAN 48104

IN REPLY REFER TO:
D6427 Minnesota

July 3, 1973

District Engineer
U.S. Army Corps of Engineers,
St. Paul
1210 U.S. Post Office and
Custom House
St. Paul, Minnesota 55101

Dear Sir:

We have reviewed the "Draft Environmental Impact Statement, Flood Control Project at La Crosse County, Wisconsin," as requested in your letter of May 30, 1973. We believe that the subject statement would be improved from the standpoint of outdoor recreation and related environmental matters if it were revised to consider the following comments.

1. Project Description. The precise location of the structural features cannot be determined from the maps accompanying this statement. These features should be identified on maps or aerial photographs of sufficient detail to depict adjacent structures and land features.

The recommended source(s) for fill material should also be identified and described.

2. Environmental Setting Without the Project. No comment.

3. The Environmental Impact of the Proposed Action. Three possible sources of fill material for construction of the flood control structures are identified as (1) dredging from the Black and Mississippi Rivers, (2) existing borrow pits in the La Crosse area, and (3) dredging from the La Crosse Marsh. We suggest that the fill material is an important, integral part of the total proposal, and the environmental impact of the proposed action cannot be adequately evaluated until the source of materials is identified.

We do not find support for the generalization on page 59 that the proposed plan provides the desired degree of protection at a price which is acceptable socially and ecologically in most instances. Neither do we agree that determining the specific locations of the levees should be delayed until the postauthorization stage. We believe that the proposed action is of such magnitude that it is impossible to adequately assess the environmental impacts until the locations of all structures are accurately defined.

The East Side Levee goes through an area identified as Red Cloud Park on Plate 1. The effect of the levee on this park should be described in this section.

4. Adverse Environmental Effects Which Cannot Be Avoided. Any loss of scenic views and aesthetic quality resulting in reduced property values due to levee construction should be quantified in terms of appraised value and compared to the increased evaluation contributable to the additional flood protection which this plan will provide. The inconveniences and safety aspects resulting from the road raises and associated ramps should also be evaluated. Any recreational losses resulting from the proposed action should be identified; such as, reduced access to the rivers and any adverse effects of the proposed levee at Red Cloud Park.

5. Alternatives to the Proposed Action. Floodplain regulation, described on page 89, is based on a 100-year flood elevation. The relationship of this degree of protection should be compared to the proposed project protection of a 320-year flood, as stated on page 2.

It would be helpful in assessing the environmental effects of the proposed action, Plan 12, if alternative locations for flood control structures were identified and evaluated.

6. The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity. As stated previously, the recommended source of fill material should be identified and evaluated in order to adequately assess the environmental impacts from dredging or the use of borrow areas.

A comparison of the long-term costs and benefits of additional floodplain evacuation and flood proofing to the proposed structural measures would be helpful in assessing the long-term effects of the proposed action.

7. Irreversible and Irretrievable Commitments of Resources Which Would Be Involved in the Proposed Action. Further discussion of the impact resulting from the use of specific sources for fill material is needed to identify the irreversible and irretrievable commitment of resources. The social and environmental aspects should likewise be identified in terms of these commitments such as safety, inconvenience, loss of views, and the effect on property values resulting from the proposed structures.

Sincerely yours,

JOHN D. CHERRY
Regional Director

By: Robert H. Myers
Robert H. Myers
Acting

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
MILWAUKEE AREA OFFICE
744 NORTH 4TH. STREET
MILWAUKEE, WISCONSIN 53203

REGION V
300 South Wacker Drive
Chicago, Illinois 60606

September 6, 1973

IN REPLY REFER TO:
5.5PR

District Engineer
St. Paul District
Corps of Engineers
1210 U. S. Post Office and Custom House
St. Paul, Minnesota 55101

Gentlemen:

This is in response to your letter of May 30, 1973, transmitting for our review the "Draft Environmental Impact Statement, Flood Control Project at La Crosse County, Wisconsin. Even though the time period for our review has expired, we would like to offer the following comments for appropriate inclusion in your decision-making process as the project progresses.

1. We urge you to coordinate as fully as possible with the Mississippi River Regional Planning Commission and the La Crosse Area Planning Committee, especially with regard to land use and transportation plans for the area.

2. Our Department is concerned about the displacement of families and individuals resulting from the proposed evacuation of 40 structures on Barron Island. The Island consists of essentially low-income residents who often have the greatest difficulty in finding adequate replacement housing. The relocation specialist on our staff is available to provide you with information and technical assistance with regard to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

3. Some of your alternatives may require additional environmental assessment especially with regard to secondary impacts and growth inducing effects of proposed freeway construction which may be utilized as structural flood control barriers.

4. This Department has public housing and urban renewal projects which may be impacted by the project. Our field staff is alerted to the proposed activity and will evaluate the project interrelationships as part of their normal monitoring duties.

Thank you for the opportunity to provide comments on the draft statement. If we can be of any assistance or provide additional information, please feel free to contact this office.

Sincerely,

Richard A. Kaiser
Acting Area Director

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 5
P.O. Box 5428
Madison, Wisconsin 53705

IN REPLY REFER TO: 5-47.4A
June 13, 1973

District Engineer
St. Paul District
Corps of Engineers
1210 U.S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Sir:

Subject: Flood Control Project at LaCrosse, Wisconsin
Interim Survey Report and
Draft Environmental Statement

We have reviewed the draft Interim Survey Report and the Draft Environmental Statement for your flood control project at LaCrosse, Wisconsin.

We have no comment on the draft environmental statement or the survey report. However, our Regional Office may wish to comment on the Statement and study report independently of our review.

We appreciate the opportunity to review the study report and draft environmental statement.

Sincerely yours,

Robert H Paddock, P.E.
Division Engineer

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD (G-WS/83)
400 SEVENTH STREET SW.
WASHINGTON, D.C. 20590
PHONE: 202- 426-2262

26 JUN 1973

Colonel Rodney E. Cox
District Engineer
St. Paul District, Corps of Engineers
1210 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

This is in response to your letter of 30 May 1973 enclosing a draft environmental impact statement for the Flood Control Program at La Crosse County, Wisconsin.

The draft was reviewed at the local level by the Federal Highway Administration, Region 5, Homewood, Illinois. They comment as follows:

"The proposed action would not appear to adversely affect any existing or proposed highways. We, therefore, have no comments to offer on the matter."

There are no further comments to offer on the preliminary draft environmental impact statement. It should be noted that the above comments are field level comments. The Department of Transportation would be pleased to review the revised draft environmental impact statement when it is forwarded for formal Headquarters review.

Sincerely,

J. D. [illegible]
Captain, U. S. Coast Guard
Acting Chief, Office of Marine
Environment and Systems

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

ADDRESS REPLY TO
COMMANDER (oan)
SECOND COAST GUARD DISTRICT
FEDERAL BLDG.
1520 MARKET ST.
ST. LOUIS, MO 63103

5922.12

27 JUN 1973

From: Commander, Second Coast Guard District
To: District Engineer, U. S. Army Engineer District, St. Paul, 1217 U. S. Post Office and Customhouse, St. Paul, Minnesota 55101

Subj: Draft Environmental Impact Statement, Flood Control Project at LaCrosse County, Wisconsin

1. Reference is made to your letter NCSED-E dated 30 May 1973 forwarding a copy of the Environmental Impact Statement for the subject project.

2. LaCrosse River from its mouth to Mile 0.5 has been placed in the advance approval category. We have no objection to your proposal pertaining to bridge modifications in connection with this project. A Coast Guard Bridge Permit will not be required for the one bridge planned.

H. D. MUTH
Captain, U. S. Coast Guard
Chief, Operations Division
By direction of the District Commander

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Madison, Wisconsin 53711

June 26, 1973

Rodney E. Cox
Colonel, Corps of Engineers
District Engineer
1210 U. S. Post Office and
Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

Re: Draft Environmental Statement
Flood Control Project
LaCrosse, Wisconsin

We have reviewed the draft environmental statement for the Corps of Engineers proposed flood control project at LaCrosse, Wisconsin as requested in your letter of May 30, 1973. Comments on this statement are as follows:

1. The proposed dike is planned to be constructed largely with materials dredged from the River which could present difficult problems in establishing vegetation on the dike. Soil testing and careful seed material selection will be required to assure the needed vegetative cover.

2. Land use changes which will be a by-product of project installation appears to be adequately recognized.

Thank you for the opportunity to comment.

Sincerely,

Acting State Conservationist
Richard W. Akeley
State Conservationist

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

July 17, 1973

Colonel Rodney E. Cox
U. S. Army Engineer District, St. Paul
1210 U. S. Post Office and Customhouse
St. Paul, Minnesota 55101

Dear Colonel Cox:

We have completed our review of the Draft Environmental Impact Statement (EIS) for the La Crosse Flood Control Project, as requested in your letter of May 30, 1973. We have classified our comments as Category LO-2. Specifically, we have no objections to this proposal, but we believe that insufficient information was provided in the EIS. The classification and date of our comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on Federal actions impacting the environment in compliance with Section 309 of the Clean Air Act. This classification is based on minimum encroachment of floodplain lands. As a matter of agency policy, we would be opposed to the variant of the selected plan of providing protection to an additional 410 acres of floodplain.

We appreciate the opportunity to review this Draft EIS. Please send us 2 copies of the Final EIS when it is filed with the Council on Environmental Quality. If you have any questions regarding our attached comments, please feel free to contact me or Mr. Gary A. Williams at 312-353-1233.

Sincerely yours,

Donald A. Wallgren
Chief, Federal Activities Branch

Attachment

Description. This proposal includes 11 pumping stations for use in interior drainage. The energy requirements for operating these pumps should be discussed.

It was briefly mentioned that an interstate highway feeder route may possibly be built in the La Crosse marsh. Since this highway would have severe impacts on the marsh, we would be opposed to the routing of a highway through this area.

The Environmental Impact of the Proposed Action. The proposed protection of the La Crosse area will increase water levels in the main channels. Will this effect be transmitted across the Mississippi River towards La Crescent, Minnesota or downstream toward Green Island? The environmental and economic impacts on these other areas should be addressed.

Since the majority of the flooding occurs during the spring and many of the birds that inhabit the Rookery on Green Island mate in the spring, the effects on bird habitat due to increased water levels should be discussed.

The disposal of solid wastes into any of the watercourses should be prohibited. All such practices should be required to be discontinued before this flood protection project is implemented.

We recommend that the use of dredge material for construction purposes be confined to that material removed for maintenance dredging of the nine-foot navigation channels. The remaining material should be obtained from on-land sites, excluding marsh lands. The La Crosse River should not be dredged due to the destruction that will be caused to the wetland meadows and marshes. Before dredge material is used for construction, it should be analyzed to determine whether it is polluted. Polluted material should not be used as construction material for the proposed levees.

During demolition of the homes on Barron Island, care should be taken to ensure that debris and potentially harmful material is kept out of the waterways. Reseeding and the replanting of natural trees and shrubs should be undertaken as soon after demolition as possible.

Special care should be taken to avoid any spillage of oils, fuels or other types of pollutants into the watercourse. Plans should be formulated in advance of the construction operations to contain such spills in the event of any contingency. The use of construction equipment should be minimized in watercourses and marshlands in order to protect the aquatic environment of these areas. Construction operations in sensitive areas should be phased around spawning and breeding seasons so as not to interfere with fish and wildlife.

Construction along French Slough will undoubtedly change the natural environment of the area. The removal of trees will cause the water temperature to rise, thus changing the fish habitat in this area. Wildlife will be adversely affected by the location of the levee in French Slough. The possibility of locating this section of levee around French Slough in order to protect this area should be thoroughly investigated.

The EIS indicated that 40 acres of marshland will be isolated by the construction of a levee. At present 20 acres of this marsh is filled with sand and the remaining 20 acres will be used as a ponding area. What use is proposed for the 20 acres of land that is filled, and what effects will this have on the ponding area? The EIS should discuss whether or not there will be adequate nutrients supplied to the ponding area to maintain a marshland habitat, and what the water quality of this pond will be.

Alternatives to the Proposed Action. The La Crosse marsh alternative will cause unwarrented environmental destruction. It is the policy of the Environmental Protection Agency to minimize alterations in the quantity or quality of the natural flow of water that nourishes and to protect wetlands from adverse dredging or filling. The loss of 410 acres of wetland would provide the city with a short-term benefit for urban development. However, in our opinion, long-term losses of fish and wildlife would more than offset the benefits reaped from filling and developing this area. Rather than support the destruction of 410 acres of wetland habitat, we would encourage the selection of some other alternate, such as floodplain management. The existing floodplain zoning ordinance in the area is based on a report submitted to the City of La Crosse by your District. This floodplain ordinance is inadequate, according to the State Department of Natural Resources, Bureau of Water and Shoreland Management on June 19, 1973. However, the plan for floodplain management outlined in the EIS would cause no destruction of wetlands and has a favorable benefit-cost ratio.

If the plan recommended in the EIS is adopted, we encourage the taking of as little wetlands as possible. This would provide necessary flood protection but would leave much of the environment in a natural state.

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

L. P. Voigt
Secretary

BOX 450
MADISON, WISCONSIN 53701

July 31, 1973

IN REPLY REFER TO: 1600

Colonel Rodney E. Cox, District Engineer
Department of the Army
St. Paul District - Corps of Engineers
1210 U. S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

Re: NCSED-E

We have completed our review of the Draft Environmental Impact Statement for the Flood Control Project in La Crosse County, Wisconsin. Included with our review will be comments on the Draft Interim Survey Report for Flood Control on the Mississippi River at La Crosse, Wisconsin. In order to facilitate your consideration of our comments, we have divided our review into two parts - the Draft Environmental Impact Statement and the Draft Interim Survey Report. In each case, our review will include general comments and specific comments reference to page, paragraph and sentence as found in the specific report.

I. Draft Environmental Impact Statement

A. Specific Comments

Page 29, paragraph one - Reference is made to the water quality parameters of the La Crosse River derived from an unpublished report by the University of Wisconsin-La Crosse Biology Department. This reference is again used in Appendix 1, Section B, page 8. A more recent detailed reference to these water quality data could be found in the La Crosse River Pollution Investigation Survey dated October 1971, prepared and published by the Department of Natural Resources.

Page 57, paragraph one, sentence one - It is stated that opposition to the proposed road raises on Bainbridge Street and Lakeshore Drive has been voiced by some residents in those areas. This raises the question of whether any riparian rights would be taken from any of the affected local residents? We also wonder what restrictions would be placed on structures or piers on the levees, and who would pay for access roads to the levees? Due to the uncertainty of the

final alignment of the levee system, it would be difficult to determine the actual extent of adverse environmental impacts; however, given the entire range of possible impacts, it could be assumed that the worse may happen unless extreme caution is taken.

Page 77, paragraph two, sentence three - It is questionable whether the 410 acres of wetland communities in the La Crosse River floodplain require flood protection. Since there are no substantial existing developments in this area to protect, it would appear that the proposed protection of these 410 acres of presently undeveloped wetland for the anticipated purpose of urban development would result in a windfall gain to the owners of the land at the expense of the public. It would seem appropriate that this development could be guided elsewhere in the city, county or state where it would be completely free of floods without the protection of a flood control structure. It is agreed that should flood protection be provided, this wetland community would be altered due to the lack of flooding and subsequent urban and industrial development on the protected floodplain.

Page 78, Item E - It could be expected that increased noise and human intrusion may drive away or adversely affect behavioral patterns of some animal species which are not tolerant of human activities.

Page 78, Item F - Existing State laws under Chapter 30 of the Wisconsin Statutes and floodplain regulations could be applied in some manner with or without this project.

Page 80, second paragraph, sixth sentence - Should annual maintenance of the levees be required, noise and other disturbances to wildlife would not be restricted to the actual construction period. As a result, wildlife disruption could be extended throughout many portions of the year.

Pages 85 and 87 - On page 85 it is stated that there are 1,850 homes and 220 businesses located within the floodplain. However, on page 87, it is stated that there are 1,800 businesses and 260 homes within the floodplain.

Page 108, paragraph two - An additional irreversible commitment of resources which should be considered would be the potential for irreversibly forcing wildlife in the project area to leave. Since some animals could not be expected to find suitable replacement habitat or may find marginal habitat, these individuals could be expected to perish or suffer from decreased productivity. Construction of dikes could also lead to further floodplain development causing commitments of land and biotic communities.

B. General Comments

It is maintained in the statement that both positive and negative social and economic costs are dealt with. The negative social cost associated with evacuating people from the floodplain is considered at some length. However, an important negative social cost involved in the project has not been mentioned - that the cost of the project would be largely borne by all taxpayers not just by those who would benefit from the flood prevention involved. In the light of these social and economic costs, plan alternatives two, three, four and especially five should be given careful consideration.

The social cost associated with protecting an additional 410 acres of sparsely developed land in the La Crosse River floodplain is particularly high. The question which must be asked is whether the taxpaying public should pay for a project which would result in windfall profits to the landowners involved?

The proposed destruction of some 50 acres of wetland area has not been placed in its proper historical perspective. It is important to realize that this project is just one of many projects which have altered or destroyed wetland habitat in the La Crosse vicinity. Wetlands which have been obliterated since 1930 have been colored blue on the enclosed map. Undoubtedly, much additional wetland acreage had been drained, filled or flooded prior to 1930. It is essential to point out that the proposed project does not merely destroy 50 acres of wetland area, but contributes to the relative scarcity of what was once a more abundant landform in the La Crosse region.

The Draft Environmental Impact Statement summarizes this project very well on pages 103 to 107 in the section, "The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity." Cities bordered by rivers have had a history of converting natural floodplain areas into urban development. This practice carries with it certain costs in maintaining an artificial system in an environment adverse to it and in the loss of natural resource attributes found in undeveloped river borders subject to flooding. The statement estimates that, for La Crosse, the flood damage costs average about $800,000 annually. No attempt has been made to compare these figures with the environmental losses.

Twelve alternatives to the existing situation have been considered including the anticipated environmental, social and economic impacts. Of the alternatives listed, only the permanent floodplain evacuation suggestion is an ecologically sound plan. All of the other plans would result in serious losses of important aquatic wildlife habitat including fresh meadow and marsh. In years of high, stable water, for instance the summer of 1973, the La Crosse River wetlands harbored

a wide variety of wildlife. The following are some of the resident species found in the area during this period: American egret (75 counted at one time); great blue heron; American bittern; black-crowned night heron; herring gull; blue-winged teal (nesting); coot (nesting); mallard (nesting); and muskrat.

The floodplain development situation presently existing in La Crosse results in conflicts for two different reasons. The first is that people with developments subject to floods would like to reduce or eliminate the economic and social hardships endured when rising waters damage their homes and businesses. This would require the expenditure of public monies. The second is that those who recognize the value of floodplains in their undeveloped state for recreation, education, aesthetic and water storage functions would like to see this resource preserved and enhanced. A logical solution would appear to be the location of developments in areas not prone to flooding. This was one laternative discussed and in fact provided the most effective solution to both the flood damage and environmental problems mentioned. However, this study found relocation to be too expensive economically and socially for its application to a significant portion of the problem area. Instead, the Corps proposes a structural solution including a series of dikes to eliminate flooding problems by in effect converting the lowland area behind them to upland. The dikes themselves would cover about 69 acres of land including 30 acres of biologically productive wetland habitat. An additional 40 acres would probably be converted from undeveloped land to developed land due to flood protection. Since all of the alternative diking plans would result in considerable aquatic wildlife habitat loss, mitigation for such losses would be necessary. Mitigation measures could include:

1. Replacement of wetlands lost to development acre-for-acre by creating new marsh with heavy equipment (although this may be impossible).

2. Purchase and designate replacement wetland as public land in perpetuity.

3. Develop scenic overlooks including adequate parking facilities and short marsh walking trails adjacent to the best public wetland areas.

Certain locations in the area affected such as Highway 53 and the French Slough levee are known to receive important sport fishing use and the South Black River levee contains an important spawning marsh for northern pike. All of the area not already degraded by developments is important habitat for fish and wildlife under certain water levels. Disruptive influences of dike construction activities on fish and wildlife in these areas could be expected, and an undetermined number of trees providing bird and animal habitat would be lost. The source of fill material to build the diking system could be extremely damaging to fishery habitat if

taken from river areas near the construction. Careful control of fill sources should be required to prevent such an occurrence from happening. A serious defect in the levee plan is its dependence on the interstate highway feeder through the La Crosse River marsh.

The project also has considerable negative, social and economic impacts on persons with developments located on the river side of the levees and for those who would experience access problems to their properties due to the proposed dike and road raises. Much of the scenic and aesthetic quality of the floodplain valued by its residents would be loss due to dike construction. Additional disruption could be expected where dike construction would necessitate relocation and modification of drainage systems and energy supply lines.

In summary, the project is basically one of trading off portions of the natural environment to protect the status quo of urban floodplain development from flood damage losses. It is unfortunate that this study could not find an economically acceptable way to use the large sums of tax monies available to promote relocation of floodplain developments, thereby maintaining the dwindling amount of natural floodplain land in the interest of public use. Instead natural areas would be reduced and irreversibly lost to insure an economic profit for floodplain development.

II. Interim Survey Report for Flood Control on the Mississippi River at La Crosse, Wisconsin

A. Specific Comments

Page 27, paragraph one - Claims are made that $800,000 of annual flood damages occur. These flood damages seem high, and we could not find substantial proof documenting these claims.

Page 27, paragraph two - Future flood damages would not necessarily increase if floodplain zoning were made more effective.

Page 29, paragraph two - A bicycle view of urban and industrial developments is already available in many large cities at no additional expense to the taxpayers; however, most developed cities do not have the diverse biological communities such as presently exist in the La Crosse area. The proposed diking project would disrupt the comparative quiet developed by the large open spaces and would destroy portions of the natural resource attributes which would appeal to bicyclists.

Page 52, paragraph two, subsections a, b, c - Recreation is valued at $53,720 on page F 28, paragraph two. This figure may actually represent the negative effect of the project on recreation. All activities included in the project would be available in the area without benefit of flood control.

Page F 28, paragraph one - By assigning a value to recreation, it is inferred that these types of activities would increase due to the flood protection trail system. All of these activities presently take place in the area. The proposed project would on the other hand inhibit nature oriented recreation. It seems that recreation and development benefits have been added to the project when they should have been deducted since industrialization and recreation are seldom compatible.

Page B 6, first sentence - Approval for municipal water supplies is made by the Public Water Supply Section of the Department of Natural Resources. The static standard for iron is 0.3 ppm and manganese is 0.05 ppm.

Page H 11, sentence eight - It is stated that the drainage area above West Salem is 378 square miles. The correct amount should be 398 square miles.

Page H 13, Table H 3 - The heading for the second column cites a drainage area of 298 square miles instead of 398 square miles.

Page H 73, Table H 12 - The heading for the ninth column does not agree with footnote (3) for the rate of peak rainfall runoff.

B. General Comments

Flood control measures such as the proposed project for La Crosse are an integral part of floodplain management. Flood control through the construction of levees and permanent evacuation is considered necessary to solve portions of the existing flood problems in the La Crosse area. However, the project acting alone would not control new developments outside of the protected area without proper land use controls. To assure that new construction on the floodplain would not be done in such a way as to increase flood stages or cause additional development that could not be protected by the proposed project without an additional public expense, it is suggested that the flood control report include a requirement that floodplain regulations consistent with state and federal standards be adopted prior to the initiation of any project. These regulations should be required to remain in effect in the unprotected areas after the project has been completed.

The present Floodplain Zoning Ordinance adopted by the City of La Crosse in March of 1971, does not contain a floodway delineation that is consistent with state standards or with the flood control project. The effect of the adopted floodway map would be to encourage development riverward of the proposed levee and in areas where the Corps of Engineers proposes permanent evacuation. This would have two adverse affects:

1. It would cause development including fill in an area which would tend to increase flood heights and decrease the protection provided by the proposed flood control project, and;

2. Would increase the public expense for additional flood protection.

Therefore, appropriate amendments to the La Crosse Zoning Ordinance prior to the initiation of the flood control project would be consistent with the state law and in harmony with the flood control project.

Concerning that portion of the flood control project in the La Crosse River marsh involving levees, it is further suggested that the final report contain an evaluation of the effects of backwater attributed to the proposed levee system. If the backwater amounts exceed 0.5 feet as described in the State Floodplain Management Standards, the backwater amount should be reflected in the local floodplain management ordinances. The proposed dike system along the La Crosse River which utilizes a proposed future highway grade, would result in a considerable encroachment on the floodplain. The report does not appear to state how the protection elevations were determined. The standard project flood or the regional flood plus 3 feet of freeboard, whichever provides the greatest protection, should be used to calculate a new profile in accordance with Wisconsin Administrative Code NR 116.03 (4). Since there are no substantial existing developments in this area to protect, we would be opposed to the proposed protection of 410 acres of presently undeveloped marsh land for the purposes of urban development since it would result in a windfall gain to the owners of the land at the expense of the public.

The proposed road grade raises to protect residential areas in the vicinity of Bainbridge and Lakeshore Streets would be only to the 1965 flood level which is over 4 foot below the standard project flood. Additional protection would be provided on an emergency basis at the time of flooding.

III. Conclusion

We thank you for the opportunity to comment on the Draft Environmental Impact Statement and the Interim Survey Report for Flood Control, and we are looking forward to reviewing the Final Environmental Impact Statement. Although our reply is late, we trust that you will still appreciate and consider our comments since they do represent a sizable investment of staff time and thought.

Very truly yours,
Bureau of Environmental Impact

C D Besadny

C. D. Besadny
Director

Enc.

cc: A. A. Oehmcke - WCD - (2)
Tom Lee
Ed Brick
L. A. Posekany
D. F. Gebken

THEODORE L. PRIEBE
ASSISTANT ATTORNEY GENERAL
608 266-0432

The State of Wisconsin

Department of Justice
Madison
53702

ROBERT W. WARREN
ATTORNEY GENERAL

ARVID A. SATHER
DEPUTY ATTORNEY GENERAL

June 14, 1973

Col. Rodney E. Cox
Corps of Engineers
1210 U.S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Col. Cox:

Re: Draft Environmental Impact Statement for the Flood Control Project at LaCrosse, Wisconsin

In response to your invitation to comment, I would state that on the whole, the Draft Environmental Impact Statement appears to be adequate. There are a number of changes that might be made, however, either to clarify the text or provide the additional information necessary to assess the project's environmental impact.

The following minor changes should be made to help clarify the text:

1) The maps provided in the impact statement (plate 1 and 2) are inadequate. For this reason the text is often difficult to follow. Street locations such as Copeland Avenue and Monitor Street and place names such as the Norplex Industrial Complex are referred to by the text yet not indicated on either plate.

2) Levees should be identified by name or number-keyed on plate 2 for easy reference.

3) Wetlands, spawning grounds, nesting areas, and other areas of environmental concern should be outlined on one of the plates.

My major concern, however, is the failure of this impact statement to provide the information necessary to properly evaluate each levee on an individual basis. We are asked to accept or reject the project as a whole although it appears that we are actually dealing with seven or more separate levee systems that are not interconnected or interdependent. While certain adverse environmental impacts may be acceptable for a levee that protects hundreds of residences or businesses, they may not be in the case of a levee that protects only a few dozen. It may well prove that although the benefits derived from the project as a whole appear to overrid any adverse environmental impacts, one or more of proposed levees does not meet these criteria. The environmental data provided for each levee appears adequate to make this assessment. The following additional information should be provided:

1) The text should include information on how many dwelling units or businesses are protected by each levee or levee subsystem.

2) Flood plain areas should be delineated on a plate, particularly those areas behind each levee or levee subsystem.

3) The cost-benefit data provided in Table 10 should be calculated for each levee or levee subsystem.

I would hope these comments could be incorporated into your final statement.

Very truly yours,

Theodore L. Priebe
Assistant Attorney General

TLP/gb

State of Wisconsin \ DEPARTMENT OF ADMINISTRATION

STATE BUREAU OF PLANNING AND BUDGET
HARRY J. SCHMIDT, DIRECTOR
1 WEST WILSON STREET
MADISON, WISCONSIN 53702
(608) 266-1736

July 3, 1973

Colonel Rodney E. Cox, District Engineer
St. Paul District, Corps of Engineers
1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

Re: Flood Control Project at La Crosse, Wisconsin

Dear Colonel Cox:

Thank you for the opportunity to review the above draft Environmental Impact Statement. Analysis of this statement by our staff indicates that the Corps has done a generally complete, objective and appropriate evaluation of the possible impacts of the proposed project.

There are, however, several points we would like to see considered in the final statement. First, although the alternatives discussed include total evacuation of the floodplain (Plan 2) and partial evacuation (Plan 3), we would like to see a discussion of a geographically specific partial evacuation. Of particular interest would be the evacuation of all private development (at least all residential development) located on Green and French Islands. It would also be helpful to investigate potential cost sharing opportunities for evacuation costs in order to reduce the burden on the local governments. We agree with the judgment that road raising and levees are the logical means to protect existing development, but we also recognize the loss of aesthetic values to which the residents object. Further, we anticipate a similar loss of aesthetic values to the river users. This might indicate that a general policy of island evacuation would be warranted if the costs would be acceptable.

Second, regarding the proposed East Side Levee along the floodplain of the La Crosse River and the alternative related to the proposed interstate highway feeder, it appears that there is the possibility of a compromise between the two alternatives which should be explored. The project proposl would protect 40 acres for future development; the alternative would protect 410 acres for future development, but is predicated on a questionable highway proposal and will destroy most of the floodplain wetland. Realigning the proposed highway to the west, in the area of the present city limits, would maintain most of the floodplain environment while significantly increasing the amount of developable land.

In the development policy planning efforts in this office, La Crosse seems likely to emerge as a potential growth area. If this determination is made, significant amounts of new development will have to be accommodated. Because La Crosse has limited developable land, new growth will have to occur on new land or at greatly increased densities--in all likelihood some combination of both. A compromise alignment for the proposed East Side Levee could provide more developmental and environmental benefits than either of the alternatives presented.

We realize, of course, that much design and engineering work remains to be done on this project. But we are confident that if adequate concepts and policies are established for the project, the final proposal will emerge as an appropriate response to a multiplicity of interests. We would be happy to assist you further as your work on this project proceeds in the interests of finding the best possible solution in this situation.

Sincerely,

Garrett A. Nielsen

Garrett A. Nielsen
State A-95 Coordinator

GAN:sm-1/5158

State of Wisconsin \ DEPARTMENT OF AGRICULTURE

Donald E. Wilkinson
Secretary

FRED J. GRIFFITH
DEPUTY SECRETARY

ARTHUR R. KURTZ
ASSISTANT SECRETARY

801 WEST BADGER ROAD
MADISON WISCONSIN 53713
AREA CODE 608 266 1721

June 22, 1973

Mr. Rodney E. Cox
Colonel
Corp of Engineers
St. Paul District
1210 U.S. Post Office &
Custom House
St. Paul, MN 55101

Dear Mr. Cox:

Members of our staff have had an opportunity to review the draft of the environmental impact statement for the flood control project at LaCrosse County, Wisconsin.

It appears from our review of the statement that the proposal provides for a most worthwhile project.

Sincerely,

Arthur R. Kurtz

Arthur R. Kurtz
Assistant Secretary of Agriculture

ARK:jlk
108/13

State of Wisconsin \ DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS
4802 SHEBOYGAN AVENUE
MADISON, WISCONSIN 53702

June 29, 1973

Colonel Rodney E. Cox
District Engineer
Corps of Engineers
St. Paul District
1210 U.S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Colonel Cox:

Draft Environmental Impact Statement
Flood Control Project
City of La Crosse
La Crosse County, Wisconsin

We have completed our review of the Draft Environmental Impact Statement for this proposed project. We thank you for allowing us the opportunity to comment on the statement and present the following thoughts for your consideration.

1. The proposed dike along USH 53 extending southerly from I-90 will obstruct a very scenic view of the Black River. We suggest that the height of the permanent dike at this location be limited to a height which would not obstruct the view. Temporary diking could be constructed on top of the permanent dike if more severe floods occur.

2. At the present time there are only three north-south routes across the La Crosse River (USH 53, Lang Drive and USH 16). Closing USH 53 (Copeland Avenue) as suggested in the flood project would leave only two existing north-south routes open during flooding. With the growth anticipated in the General Plan, which is in line with the traffic growth that is developing, these facilities would not be adequate to carry the north-south traffic. Therefore, we believe alternatives keeping USH 53 open during flooding should be explored. Should it not be feasible to keep USH 53 open, the proposed closure of USH 53 is more realistic if the combined highway levee concept or alternative is developed.

3. We would be pleased to cooperate in any studies to find a feasible method of obtaining material for the levees and the proposed highway project in the La Crosse River bottoms. We believe lakes which are properly constructed could have an aesthetic and recreational value to the community and an economic advantage in the construction of both projects.

4. The proposed Lang Drive reconstruction project will be constructed at a higher elevation in cooperation with the Corps project. The increased height of fill will have an impact on the adjacent properties; this should be recognized in the environmental impact statement.

The Department of Transportation, Division of Highways, has a great interest in seeing this flood control project develop. We fully support the concept of flood control to protect existing development. We also support coordination of future development with the La Crosse Area General Plan as developed through coordination and cooperation between local agencies, the Corps of Engineers and the Wisconsin Department of Transportation. We note that much of the basic information used in the development of this flood control project is identical to that used in the General Plan.

The Division of Highways feels we must continue to develop the necessary balance of environment, open space, recreational areas, preservation of natural areas, and efficiency in the locally desired urban growth. We are concerned that the needed corridors of transportation not be prohibited if the coordination of Land Use Development and Transportation Systems is to be effective. We trust that our areas of concern can be incorporated into the development of the flood control project. We realize that many benefits will be obtained by the people, by existing development and by future developments of the area, which constitutes the major portion of the La Crosse environment, through realization of this project.

Sincerely,

I. C. Herried, P.E.
Chief of Facilities Development

By D. L. Strand
D. L. Strand, P.E.
Supervising Development Engineer

MINNESOTA POLLUTION CONTROL AGENCY
717 Delaware Street S.E., Minneapolis, Minnesota 55440

July 3, 1973

Mr. Rodney E. Cox
Colonel, Corps of Engineers
District Engineer
Department of the Army
1210 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

Re: Draft Environmental Impact Statement
Flood Control Project at La Crosse
County Wisconsin
MPCA #201

Dear Colonel Cox:

The staff of the Minnesota Pollution Control Agency has reviewed the draft environmental impact statement for the above referenced project and has the following comments:

1. This project is designed for protection against a 320-year flood. This design should be compared and/or justified against using the standard 100-year flood design.

2. The report states that water quality data are "lacking". The only data contained in this report are from a USGS station at Winona. The Minnesota Pollution Control Agency has had a water Quality Monitoring Station (UM-714.3) at Lock and Dam #6 near MaMoille, Minnesota since 1962.

3. The dredging from the Mississippi and Black Rivers for building materials was considered in this report. The far-reaching environmental impacts of dredging must be greater than the impacts resulting from the use of on-land borrow pits as a source of building materials. Probable specific sources of fill material should be discussed along with possible environmental impacts. The alternatives for dredging should be thoroughly investigated.

4. Further consideration must be given to the flood-proofing of the complete sewage treatment plant. Consideration should include the relocation of the treatment plant out of the flood plain.

5. The biological element of the area to be affected if the proposed flood control program is implemented is of concern. Initially 30 acres of marsh and flood-plain vegetation would be lost, part of a planned total of 69 acres to be covered by levees. While 69 acres may seem insignificant compared to the total project, it

should be kept in mind that such areas are an extremely sensitive biological entity. The total area affected, however, will far exceed the 69 acres. Natural drainage and replinishment of the marshland will be impeded and its floristic and faunal composition altered. It can also be expected that user preassure will be increased in the remaining unaltered areas which may be deleterious. Every reasonable effort must be made to insure and secure the integrity of this biological community in the area.

Yours very truly,

Lyle H. Smith
Chief Pollution Control Engineer

cc: Mr. Tom Herron, Clearinghouse, State Planning Agency

City of La Crosse, Wisconsin

Parks, Forestry, and Recreation Department

CITY HALL 784-0561 EUGENE B. FRY Director

June 29, 1973

District Engineers
St. Paul District - Corps of Engineers
1210 U.S.Post Office & Custom House
St. Paul, Minnesota 55101

Gentlemen:

In reviewing your draft on the environmental impact statement, flood control project at La Crosse, Wisconsin, and in regard to pages 2 and 58 concerning residential structures on Barron Island (Plate 1):

The Board of Park Commissioners, and the Common Council, City of La Crosse, have approved a policy whereas the resident leases on Barron Island will not be renewed after April 1, 1975, and the removal of all structures will be at the expense of the property owner. This was adopted on November 8, 1971; and, in full agreement with the residents.

The Board of Park Commissioners have proposed that the area be made available and improved for recreational use; such as, bicycle trails and picnic sites.

In regard to the extreme Northern portion of the proposed levee, members of the commission have expressed concern regarding Black River beach and Copeland Park.

The Board has approved a policy that will eventually eliminate all boat houses along Copeland Park, giving the Park access to the water front (black River).

This water front area would be improved to include such activities as family fishing areas, (from the park bank), along with other recreational uses.

This would complete our proposed project encompassing the park, the recently completed boat ramps and the Black River Beach.

Our concern is with the levee, as you propose, will it affect the asthetics and potential use of this area and/or, limit existing facilities, such as the copeland baseball field.

The question has been raised, could the levees be used or developed for the mooring of boats at various locations.

Thanking you in advance for your co-operation,

Very Sincerely,

BOARD OF PARK COMMISSIONERS

Eugene B. Fry, Director

EBF/k

by Ansel Adams in *This Is the American Earth*

SIERRA CLUB

Mills Tower, San Francisco 94104

July 16, 1973

Col. Rodney E. Cox
District Engineer
St. Paul District, Corps of Engineers
1210 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

in re: NCSED-E

Gentlemen:

The La Crosse groupof the John Muir Chapter of the Sierra Club wish to offer the following comments regarding the Flood Control Project for the La Crosse area. These will supplement those given verbally in behalf of the group by Stuart McIlraith at the June 19, 1973 public meeting at the La Crosse County Court House.

1. Sierra Club supports that method of proposed flood control known as Plan 12. It is felt that this plan best preserves the valuable Myrick Marsh area. The Sierra Club is interested in the complete preservation of that area of the marsh which is outlined by the red line on the enclosed map.

2. Sierra Club is unalterably opposed to Plan 12, Alternative Levee Alignment which involves the possibility of a freeway connection to the present I-90. This plan would destroy the marsh which must be preserved as an asset to La Crosse.

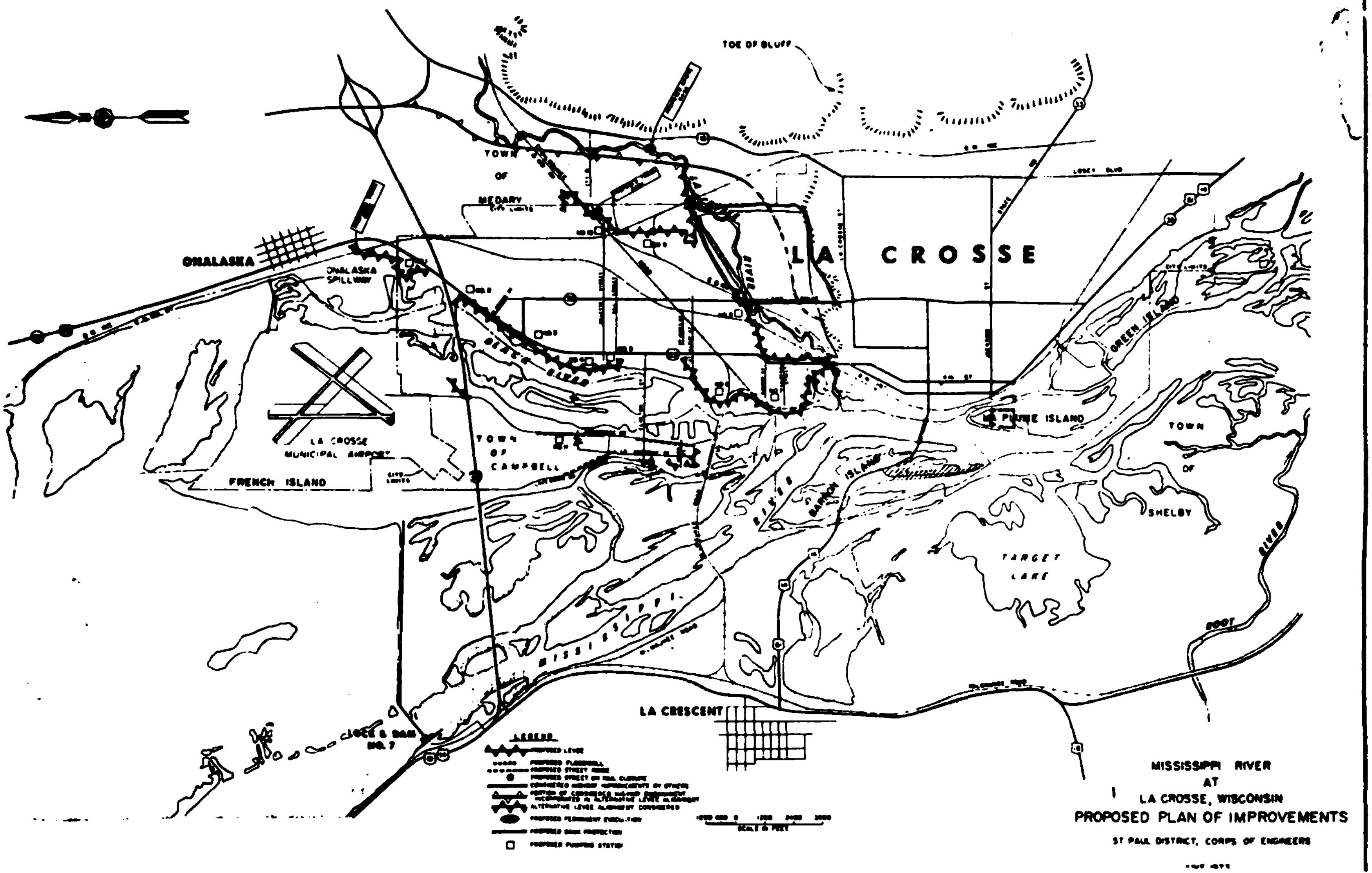
3. We support the position of the Department of Natural Resources as presented by Mr. Tom Lee at the June 19, 1973 public hearing advocating additional flood plain regulations and zoning to insure the effectiveness of Plan 12.

We are thankful for this additional opportunity to comment upon this important project.

Sincerely,

Stuart McIlraith

Stuart McIlraith and Barbara Conway,
Co-Chairpersons,
Environmental Coordination Committee
La Crosse Group, Sierra Club


TOE OF BLUFF
TOWN
OF
MEDARY
LA CROSSE
ONALASKA
ONALASKA SPILLWAY
LA CROSSE MUNICIPAL AIRPORT
FRENCH ISLAND
TOWN
OF
CAMPBELL
PETTIBONE ISLAND
GREEN ISLAND
BARRON ISLAND
TOWN
OF
SHELBY
TARGET LAKE
MISSISSIPPI
BLACK RIVER
LOCK & DAM NO. 7
LA CRESCENT
LEGEND
SCALE IN FEET
MISSISSIPPI RIVER
AT
LA CROSSE, WISCONSIN
PROPOSED PLAN OF IMPROVEMENTS
ST PAUL DISTRICT, CORPS OF ENGINEERS

BURLINGTON NORTHERN

ENGINEERING DIVISION

176 East Fifth Street
St. Paul, Minnesota 55101
Telephone (612) 227-0911

July 11, 1973

Mr. Rodney E. Cox
Colonel, Corps of Engineers
District Engineer
1210 U. S. Port Office and Custom House
St. Paul, Minnesota 55101

Dear Sir:

Reference is made to your letter of May 30, 1973, concerning your draft environmental impact statement in connection with flood control at LaCrosse, Wisconsin.

We have reviewed your draft and find it satisfactory and have no further comments.

Very truly yours,

B. G. Anderson
Assistant Vice President-Engineering

HRB/dac

Chicago, Milwaukee, St. Paul and Pacific Railroad Company

898 UNION STATION — CHICAGO, ILLINOIS 60606

N. E. SMITH
ASSISTANT CHIEF ENGINEER-STRUCTURES

July 6, 1973
M-71228

Mr. R. E. Cox
Colonel, Corps of Engineers
District Engineer
St. Paul District
1210 U.S. Post Office & Custom House
St. Paul, Minnesota 55101

Dear Mr. Cox:

Please refer to your letter of May 30, 1973, with which you forwarded to me draft of your Environmental Impact Statement for the Flood Control Project at LaCrosse, Wisconsin; your file: NCSED-E.

Our comments on the project are those contained in Division Engineer R. P. Peacock's letter of March 23 to your Mr. J. R. Calton.

Very truly yours,

N. E. Smith

Form 3109

Chicago, Milwaukee, St. Paul and Pacific Railroad Company

Office of Division Engineer
P. O. Box 727
La Crosse, Wisconsin 54601
March 23, 1973

Mr. J. R. Calton
Acting Chief
Engineering Division
Corps of Engineers
1210 U.S. Post Office &
Custom House
St. Paul, Minnesota 55101

Dear Mr. Calton:

Please refer to your letter of December 12, 1972, your File: NCSED-PB, and concerning flood control study for La Crosse, Wisconsin:

I must apologize for the delay in answering your letter; however, I have handled this matter with our Chief Engineer in Chicago and have the following comments that I can make concerning your questions:

Our general policy has not favored construction of permanent concrete abutment closure structures on and across the right of way and track, particularly across main tracks, of the type described by you, and there is no place on the railroad solely owned and operated where we have such type of closure structure. We do, however, have locations across the main track where there are earth levees and temporary sandbag closures.

We will want to continue this policy in considering the plan of improvement at La Crosse, particularly that part of the project involving the main track easterly of Grand Crossing.

At other locations on the railroad where similar types of flood protection projects have been offered to us for recommendation, we have in the first instance taken the position that the project should be planned on the basis and/or with the view that the tracks will be raised to place the rail elevation at the elevation of the top of levee where it crosses the track. To raise the track to such elevation at location of the levee crossing is, of course, not always possible and, where we have had this occur, we have compromised and agreed to a track raise to place base of rail elevation to elevation of design flood and then agreed on a plan for earth levee construction each side of track crossing with provision for a temporary sandbag closure during periods of high water. These types of levee crossings have included the installation and driving of steel sheet pile cut off walls below the tracks at the temporary sandbag closure, for protection against seepage.

At the location designated as No. 1 on your print, it appears there would be no great serious disadvantage to the Railroad to have a sandbag closure which would have the effect of taking our tracks out of service during flood periods. On this basis, it would appear that it would not be necessary to raise this portion of our Railroad to a sufficient height to make such a closure unnecessary.

At location No. 2, our position would be similar to location No. 1 on the assumption that, since this procedure has been followed in the past without any great disadvantage to the industry involved, no track raise would be necessary.

At that location designated as No. 3, our initial position is that we feel that the levee and sandbag closure should be located at a point approximately 700 to 800 ft. southwesterly of our La Crosse River bridge on the alignment shown in broken lines on the above-mentioned print which you furnished. We would assume that at this location, as at the location designated as No. 3, our property in the vicinity of what is known as Grand Crossing would have the same protection as if the levee were located nearer that point.

If I can be of any further service in this regard, please advise.

Very truly yours,

R. P. Peacock
Division Engineer

RPP:sm

PYROIL Company Inc.
TELEPHONE (608) 784-8453
LA CROSSE, WISCONSIN, 54601 U.S.A.
IN CANADA . . . PYROIL OF CANADA LTD., 87 COLVILLE ROAD, TORONTO 18, CANADA

June 29, 1973

Mr. Rodney E. Cox
Colonel, Corps of Engineers
District Engineer
Department of the Army
St. Paul District, Corps of Engineers
1210 U. S. Post Office & Custom House
St. Paul, MN 55101

Dear Colonel Cox:

In response to your letter of May 30, 1973, regarding the Environmental Impact Statement Flood Control Project at La Crosse County, Wisconsin, the following are Pyroil's comments to be incorporated in the final statement. Pyroil concurs that there should be adequate flood protection to preclude extensive flooding experienced during the 1965 spring flood.

Pyroil would like to make the following recommendations for the placement of flood protection devices:

1. The proposed flood wall between Copeland Avenue and Pyroil's rail spur should be placed as close as possible to the Burlington Northern rail line so as to facilitate Pyroil's proposed spur expansion. We intend in the future to add another rail spur just south of our present rail spur and parallel thereto. See Attachment I.

2. We strongly urge that the levee which has been proposed to follow the current emergency dike system be placed on the west side of the Burlington Northern rail line between the proposed rail closure at Pyroil and Monitor St. There will be no room for economic expansion in La Crosse and particularly at Pyroil if the levee is placed at the immediate back edge of commercial property on the east side of Copeland Avenue. See Attachment II. This triangular area would eventually be filled in at a very minimal ecological loss, and a great potential gain to the economically depressed area of La Crosse, thereby

improving the tax base and reducing the tax burden of city inhibitants. Further, the levee distance can be reduced from 5200 feet to approximately 3980 feet, a savings of 1220 feet.

Pyroil has appreciated the opportunity to comment on your Environmental Impact Statement for the Flood Control Project at La Crosse, Wisconsin.

Sincerely yours,

PYROIL COMPANY, INC.

Lynn L. Saterbak
Product Development Manager

LLS/js

Att.

STEELE, SMYTH, KLOS & FLYNN
ATTORNEYS AT LAW

FRED E. STEELE
ROBERT D. SMYTH
JEROME J. KLOS
JOHN E. FLYNN
FRANCIS D. PAPENFUSS
RICHARD W. SCHROEDER
JOHN H. DREW

800 LYNNE TOWER BUILDING
318 MAIN STREET
LA CROSSE, WISCONSIN 54601
784 8600
AREA CODE 608

June 27, 1973

Colonel Rodney E. Cox
District Engineer
U. S. Army Engineer District
St. Paul, Minnesota 55101

Dear Sir:

Re: Causeway Merchants

We are writing to you at this time to supplement our comments made at the public hearing on June 19, 1973 at the County Auditorium in the La Crosse County Building.

The Causeway Merchants have reviewed your draft of the environmental impact statement Flood Control Project at La Crosse in great detail, and this letter concerns the levee referred to as Copeland Avenue-Monitor Street Levee.

The Causeway Merchants propose that the levee for protecting the Causeway area be constructed adjacent to the Chicago, Burlington & Quincy Railroad track immediately west of the track. The arguments in support of this location are as follows:

1. The levee would be approximately one-fourth mile shorter than is the one proposed in your plan.
2. The levee would be much easier to police and control as it would be in a straight line.
3. The land proposed for the levee is not being used by anyone and easements could be readily obtained, it is believed.
4. By constructing the levee adjacent to the Railroad Track, it would allow the orderly filling of the area to the west to Copeland Avenue and such land could be used for industrial development.
5. The area has only flooded in 1965. There has been water in the area as a result of seepage but in very limited amounts.
6. By placing the dike or levee adjacent to the Railroad Track as proposed by the Causeway Merchants, there would be no detrimental effect as far as wild life, birds and amphibians are concerned as there are no fish in the area as they can not enter and there are few birds that nest in the area.
7. By constructing the dike as we propose, it would allow the land owners that are adjacent to Causeway Boulevard and Monitor Street to properly use their lands to the fullest extent and would allow for expansion space. It would allow additional tax base for the City of La Crosse and further industrial development in that area.

8. It would allow for the further extension of 7th Street on the South side of the City of La Crosse to the North Side so as to allow another traffic artery between North and South La Crosse.

The dike as proposed in your plan would prevent the land owners from any further expansion or use of their land. It would limit the tax base to the City of La Crosse to the present status. It would make the land presently located between the Railroad Track and the dike, as you proposed, completely useless.

The dike, as proposed by your plan, would sever three parcels so that the residue of the land, after the construction, would make the remainder of the land useless.

We are also enclosing herewith a Petition signed by land owners and tenants of the area that would be affected by the proposed levee you have described in your plan. They all would like to see the levee constructed adjacent to the West side of the Railroad Track.

We hope that this will be considered and that we will hear from you as to modification of your plan so that the levee can be constructed immediately adjacent to the West of the Railroad Track in this particular area.

Very truly yours,

STEELE, SMYTH, KLOS & FLYNN

John E. Flynn

JEF:LY
Enc.

PETITION

We, the undersigned, the property owners and tenants of businesses located in the area affected by the Copeland Avenue and Monitor Street levee, as proposed by the Corps of Engineers in their report of May 25, 1973, petition as follows:

1. That the dike proposed in the above described area - Copeland Avenue-Monitor Street, not be constructed.

2. That a levee to protect the area be constructed along the West side of the railroad track from Monitor Street South to Copeland Avenue.

Dated at La Crosse, Wisconsin, this 18th day of June 1973.

NAME	BUSINESS	ADDRESS
~~[illegible]~~	[illegible] Merchants Inc	P.O. Box 977
Paul [illegible]	[illegible] Buick Co.	41 Copeland Ave
Norm Schaefer	Schaefer Motors	54 Copeland ave
Richard Schultz	Dick's Sport Shop	110-108 Cop[illegible]
[illegible]	[illegible]	820 No 3rd.
J.A. Strand Jr.	7up Bottling Co	2041 Avon St
A.O. Strand	7up Bott Co	2041 Avon St.
Richard G. [illegible]	Home By Hoffman	80 Copeland
[illegible]	Clifton [illegible]	58 Copeland
[illegible]	Clifton [illegible]	62 Copeland Ave

215 South 26th Street
La Crosse, Wisc 54601
June 28, 1973

District Engineer
St. Paul District, Corps of Engineers
1210 U.S. Custom House & Post Office
St. Paul, Minnesota 55101

These pages are my comments in response to the Draft Environmental Impact Statement for the Flood Control Project at La Crosse, Wisconsin

p. iii and p. 49. It is the University of Wisconsin at La Crosse, not Wisconsin State University.

p. vii-xvii and p. 111-122. Revisions of names included with these comments.

p. 2 and p. 58. Because it already is a matter of public policy that within 3 years, I believe it is, the residents of Barron Island will be relocated, the flood control plans prepared by the Corps will have no effect on these people. Evacuation of Barron Island will not be a negative impact, because there will be no people to evacuate.

p. 34. Your population figures and projections were those prepared prior to the 1970 census and are therefore out of date. May I suggest: Wisconsin Population Projections
(Second Edition)
Document No. BSP-IS-72-3
State of Wisconsin
Department of Administration
Bureau of Planning and Budget
Information Systems Unit
Madison, Wisconsin
March 1972.
This document gives a La Crosse County 1980 projection of 83,700, not the 93,100 you have cited here, and gives a 1990 projection of 87,800. These are very much different from your figures.

p. 43. The nine-hole public golf course is located in south (with a small s) La Crosse.
The proper spelling of the park is Houska.

p. 54. Please specify in the title of this section and in the introductory text that it is PROCUREMENT OF BUILDING MATERIALS FOR THE FLOOD CONTROL DIKE. I was five pages farther on before I realized what this section was all about.

p. 59. Consult with the Soil Conservation Service about erosion control measures that might be employed during construction phase.

p. 65. Opposition to this project can also be expected to come from the party which owns the boat dock and marina on the Black.

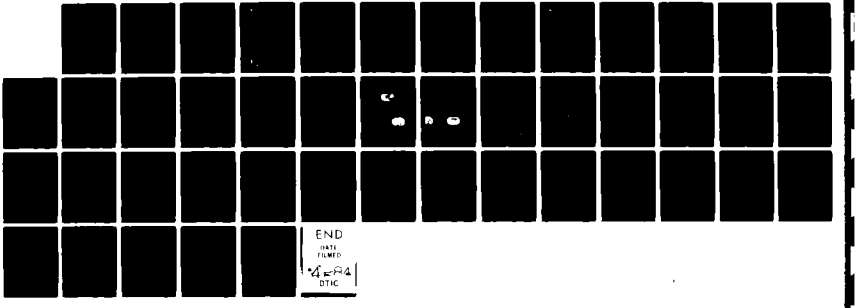
). 71. It should be pointed out that opposition to the freeway is not just coming from environmentalists--in fact, they may be in the minority. Opposition is coming from people who do not want to see the city cut in two and 2000 people displaced.

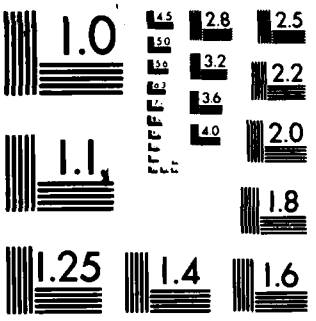
). 72 and 82. The effect of filling an additional 410 acres--and the effect of removing the initial 69 acres is going to have an effect on water levels downstream. It was stated during the public hearing that these acres of floodplain contained an almost negligible amount of waters during Mississippi flooding. But the fact remains that these 410 + 69 acres--together with <u>all</u> the individual acreages, no matter how small, up and down the river that are being and have been similarly filled--<u>do</u> have an impact on subsequent flood levels. The effects are difficult to ascertain because it is an aggregate effect of many small operations, but the effect is there nonetheless. This matter of the filling of the La Crosse floodplain as a part of a much larger operation--namely, filling up and down the Mississippi--<u>must</u> be addressed in the impact statement.

Sandra Fletcher

AD-A139 576 FLOOD CONTROL MISSISSIPPI RIVER LA CROSSE WISCONSIN(U) 3/3
CORPS OF ENGINEERS ST PAUL MN ST PAUL DISTRICT OCT 75

UNCLASSIFIED F/G 13/2 NL





La Crosse Wis.
6-28-73

St Paul District, Corp of Engineers
Col. Rodney Cox,
District Engineer;

Subject: NCSED-E
Flood Control Project at La Crosse County.

I appreciated receiving draft of subject report and I read it with interest and I thought it was very complete.

Since retiring as district engineer for the State Highway Department I have spent much time in Arizona and have not been active in engineering matters.

As a resident of La Crosse however I hope La Crosse County adopts your recommended flood control project. I hope the project can be financed and activated, the sooner the better. To postpone the matter further is like "sweeping the problem under the rug" - we should "get with it".

Very truly yours
J. H. Groat
1232 State St
La Crosse, Wis.

LETTERS RECEIVED AS A RESULT
OF COORDINATION OF THE REVISED
DRAFT ENVIRONMENTAL STATEMENT

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

PEP ER-74/928

12 December 1974

Dear General Gribble:

Thank you for your letter of July 12, 1974, requesting our views and comments on your proposed report and draft environmental statement for the Mississippi River at LaCrosse, Wisconsin. We have comments on both documents.

Proposed Report

We have reviewed your proposed report and concur with its contents including the provision for a recreation trail system. The recreation features of this proposed development conform to and are generally in accord with the Wisconsin Comprehensive Outdoor Recreation Plan. The estimates of recreation use and benefits appear reasonable.

Deletion of two of the District Engineer's recommended project features (flood-proofing and Barron Island evacuation) will not adversely affect fish and wildlife resources of the area.

Environmental Statement

In numerous places throughout the draft environmental statement, reference has been made to the fact that 39-40 acres of undeveloped flood plain would be protected from flooding by the proposed project (for example, pages i and 38), but nowhere have we found any reference to the number of acres of developed land that would be protected. Similarly, in discussing possible variations in the plan, the statement has repeatedly indicated that protection might be afforded to an additional 410 acres (for example, page 1, paragraph 1), but nowhere has this acreage been related to the acreage that would be protected by the basic proposed plan.

In order to evaluate the plan and its environmental impact it is essential to know not only the size but the present land uses, probable future land uses, and location of land to be protected from flooding, as well as the relationship of this protected land to the total extent of the river's flood plain. We have only found qualitative descriptions and one present land use table in either the draft environmental statement or the accompanying two-volume feasibility report. We suggest that land use maps or other pictorial methods be considered for displaying this information when preparing the final statement.

Evaluation of the draft statement was also made difficult by insufficient mapping and descriptions of the complex role of the proposed levee system. The following three concerns might be removed in the final statement by the use of several larger scale maps.

1) The highly generalized character of all maps that have been provided show little or no topography except for the toe of the 400-500-foot bluff by means of hachure marks.

2) The discontinuity of the proposed levees, which comprise approximately 10 separate segments, makes it largely impossible to estimate the probable effectiveness of any one segment, or the project as a whole.

3) The complex relationship between areas subject to flooding and those above flood level (due to the fact that the project area is at the confluence of three rivers and the fact that flooding is controlled to some extent by Lock and Dam No. 7 and by the Onalaska Spillway) would be more easily evaluated by careful delineation on the project maps.

It has been proposed to obtain about 650,000 cubic yards of fill material for levee construction by dredging the Black River and Mississippi River. However, the draft environmental statement gives the impression that recommendations with regard to this proposed dredging have evolved in the course of its writing, with the result that related statements appear somewhat inconsistent. Early in

the document it is stated that "if dredging was confined to the present nine-foot navigation channels of the rivers, damage to the aquatic environment would be less severe than dredging in the marshes and backwater slough areas" (p. 40, paragraph 4). At this point, no commitment appeared to have been made to avoid the dredging of marsh areas as a source of fill and, in fact, that action appeared to be under consideration as a feasible alternative. Later it is confirmed that "biologically productive backwater sloughs and marsh areas would be excluded from dredging" (p. 63, paragraph 2). We feel that a commitment to that effect needs to be expressed consistently throughout the environmental statement.

In addition, it would be advisable to provide more detail on the recommended plan of dredging to obtain fill, particularly with regard to specific areas and environmental impacts. We feel that a plan merely to confine dredging to the navigation channels of the rivers would not be adequate for the following reasons:

(1) The navigation channel in the Mississippi River is far removed from much of the project area; (2) a channel in the Black River has not been delineated and we are in doubt as to its location, depth, and probable impacts; and (3) any dredging from the navigation channels in excess of that required for maintenance of authorized depths would appear to require a careful analysis, including areas, volumes, sediment type, seasons of operation, method of dredging, and transport, and environmental impacts of the action.

It has been proposed to obtain some 200,000 cubic yards of fill for levees from land borrow areas (page 40). It would be advisable to identify the recommended source of this material. In addition, the probable source and estimated volume of riprap required for bank protection at 10 bridges should be provided in the environmental statement.

No established or studied unit of the National Park System or any National Landmark would be adversely affected by this proposed action.

We have noted in Appendix I of the Feasibility Report (pages B-23 and 24) that archeological investigations of the study area would be made during post-authorization studies to further document known sites within the study area and to determine if additional sites exist. We suggest that this commitment also be included in the text of the final environmental impact statement.

Page B-23 of Appendix I also refers to several structures of local historical significance which are located within the City of La Crosse. In Section 2 of the draft statement (page 38) under th e heading Historical and Archeological Sites in the Study Area, there is a reference to correspondence with the State Historical Society of Wisconsin and a statement that, as per their request, close coordination would be maintained with them so that a specific survey of potentially important sites could be undertaken if warranted.

This request from the State Historical Society, whose Director has been designated as the State Historical Preservation Officer under the provisions of the National Historic Preservation Act of 1966, should also be included in the text of the final environmental impact statement.

Mineral resources are only minimally mentioned in the environmental statement in connection with the geology of the area. The mineral resources of La Crosse City and La Crosse County include clays, limestone, dolomite, and sand and gravel. Sand and gravel deposits are by far the most abundant. Several sand and gravel pits are located within the City of La Crosse.

The proposed flood control measures are mostly located adjacent to roadways, railroads, and within commercial/ residential areas where mineral resources have previously been committed. The construction of the levees will irreversibly and irretrievably commit about 200,000 cubic yards of sand, gravel, and stone from land-based borrow pits. Since these resources are abundant in this region, no significant impact on them is expected.

Responses to the Department's previous comments are summarized on pages 88-95. The response, on page 91, to our comment regarding the precise location of the structural features is inadequate, especially in light of the adverse impacts on the Myrick Marsh which would result if tne levee structure were extended to connect with a tentative alignment for a four-lane interstate highway. We re-emphasize the need for this information if the impact statement is to serve its proper role in the decision-making process.

Page 1 of the draft statement refers to recreational hiking and bicycling trails. The location and extent of these trails should be shown on Plage 2. The relationship of the Levee Trail System with the Wisconsin Comprehensive Outdoor Recreation Plan's note of the inadequacy of bicycle trails in the region should be examined. The recreation potential of the "two new ponding" areas discussed on page 4 should be addressed.

It is stated on pages 38 and 39 of the draft statement that 39 acres of undeveloped flood plain will be protected by the proposed levee alignment, which gives the impression that final use of the area is still to be decided. It also mentions that 20 acres of flood plain in the same general area has been filled by the City and 20 acres of wet marsh adjacent to this filled area will be utilized as "ponding area." This is again mentioned on page 53. However, on page 59, it is stated that the same 39 acres that will be protected have already been half filled by the City with the remainder to be used as ponding area. Also, on page 86, it is stated that the same 39 acres would be expected to be converted to urban development. This would not be true if 20 acres were to be used as a holding pond. These discrepancies should be clarified.

The revised statement is generally adequate in its analysis of project effects on fish and wildlife resources in the project area. The U.S. Fish and Wildlife Service comments, included in the August 31, 1973, Department of the Interior review of the May 1973 draft environmental impact statement were addressed satisfactorily in the revised draft.

Sincerely yours,

Stanley D. Doremus

Deputy Assistant Secretary of the Interior

W. C. Gribble, Jr.
Lieutenant General, USA
Chief of Engineers
Corps of Engineers
Department of the Army
Washington, D. C. 20314

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
U.S COAST GUARD (G-WS/73)
400 SEVENTH STREET SW
WASHINGTON, D C 20590
PHONE (202) 426-2262

18 October 1974

Lieutenant General W. C. Gribble, Jr.
Chief of Engineers
Department of the Army
Washington, D. C. 20314

Dear General Gribble:

This is in response to your letter of 12 July 1974 addressed to Secretary Brinegar concerning a draft environmental impact statement concerning a flood control project on the Mississippi River at LaCrosse County, Wisconsin.

The concerned operating administrations and staff of the Department of Transportation have reviewed the material submitted. The Office of Pipeline Safety had the following comments to offer:

"The Office of Pipeline Safety has no objection to the subject draft environmental impact statement. The statement mentions that modification or relocation of some petroleum lines and utility lines would be required. Such relocation, modification, and subsequent operation of any liquid petroleum pipelines that are subject to Federal safety jurisdiction must be carried out in compliance with the Federal pipeline safety regulations contained in 49 CFR Part 195. Similarly, any relocation or modification of existing gas pipelines in the affected area which are subject to the Natural Gas Pipeline Safety Act of 1968 must comply with the safety regulations contained in 49 CFR Parts 191 and 192. A statement that the operators of any pipelines affected by the proposed Flood Control Project will comply with the appropriate Federal pipeline safety regulations should be included in the final environmental impact statement."

The Department of Transportation has no other comments to offer nor do we have any objection to this project. However, the concerns of the Office of Pipeline Safety should be addressed in the final environmental impact statement.

The opportunity to review this draft statement is appreciated.

Sincerely,

W. E. Caldwell

W. E. CALDWELL
Captain, U.S. Coast Guard
Deputy Chief, Office of Marine
Environment and Systems
By direction of the Commandant

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION V
300 SOUTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

OFFICE OF
THE REGIONAL DIRECTOR

October 21, 1974

Mr. W. C. Gribble, Jr.
Lieutenant General, USA
Chief of Engineers
Department of the Army
Washington, D.C. 20314

RE: Draft Environmental Impact Statement
Flood Control
Mississippi River
LaCrosse, Wisconsin

Dear Mr. Gribble:

We have reviewed the Draft Environmental Impact Statement for the above project. To our knowledge, and based upon the information provided, this project will not impact to any significant degree on the health, education or welfare of the population.

Sincerely yours,

Robert A. Ford

Robert A. Ford
Regional Environmental Officer

cc: Charles Custard, OEA
Warren Muir, CEQ

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

2 January 1975

Lt. General W. C. Gribble, Jr.
Chief of Engineers
Office of the Chief of Engineers
Department of the Army

Dear General Gribble:

This is in response to your letter of July 12, 1974, transmitting for our review and comment your proposed feasibility report, together with pertinent papers and the revised draft environmental statement, for a flood control project for the Mississippi River at La Crosse, Wisconsin.

The proposed plan would provide flood protection to the City of La Crosse, Onalaska City and four surrounding townships, from high stages on the Mississippi, Black and La Crosse Rivers, all of which converge at La Crosse.

We note the report recommends the adoption of flood plain regulations by all local governments involved. We assume that such regulations would include that area which is subject to flooding but not protected by the proposed levee system.

Comments on the revised draft environmental statement are enclosed. We appreciate the opportunity to review and comment on this report and statement.

Sincerely,

Paul A. Vander Myde

PAUL A. VANDER MYDE
Deputy Assistant Secretary

Enclosure

U. S. DEPARTMENT OF AGRICULTURE

Comments on Revised Draft Environmental Statement

Flood Control Project - Mississippi River at La Crosse, Wisconsin

1. The alternate east side levee alignment along the La Crosse River would protect and thus make available for urban development an additional 410 acres of undeveloped marsh land. Development of this scarce wildlife habitat area would be undesirable, inasmuch as the report notes that a considerable supply of higher developable ground, without flood threat, is available.

2. The statement does not discuss the potential impacts of the selected levee system on nearby agricultural lands, which comprise nearly 56 percent of the total study area. If the levees will not cause any adverse effects to unprotected farmland in the vicinity of La Crosse, such conclusion should be noted in the statement.

3. The lack of specific locations for the levees makes it impossible to adequately assess the potential environmental impacts of the proposed system. In reviewing the "Conclusions," pages 122-123, the inference can be drawn that if sufficient flood plain development occurs between the preauthorization and the postauthorization planning, the levee alignments could be changed to provide flood protection for the new development, as well as for further development. This could encourage additional development in flood prone areas.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN STREET
CHICAGO, ILLINOIS 60604

17 October 1974

Colonel John V. Parish, Jr.
Executive Director of Civil Works
Department of the Army
Office of the Chief of Engineers
Washington, D. C. 20314

Dear Colonel Parish:

We have completed our review of the revised draft environmental statement for Flood Control on the Mississippi River at La Crosse, Wisconsin as requested in your letter of July 12, 1974. Our comments on the draft statement dated July 17, 1973 are included in the revised draft. At that time we expressed no objections to the proposal based upon minimum encroachment of floodplain lands, but we requested that additional information be provided to fully assess the environmental effects of the action.

The responses to our comments appear on pages 97-102 of the revised draft. With considerable concern, we observe that a number of responses not only on our comments but others as well, are merely notations of our views regarding the environmental effects of the project. Such responses are not consistant with Section 1500.10 of the Council on Environmental Quality's August 1, 1973 GuideLines which state:

> "Agencies should make every effort to discover and discuss all major points of view on the environmental effects of the proposed action and its alternatives in the draft statement itself. However, where opposing professional views and responsible opinions have been overlooked in the draft statement and are brought to the agency's attention through the commenting process, the agency should review the environmental effects of the action in light of those views and should make a meaningful reference in the final statement to the existance of any responsible opposing view not adequately discussed in the draft statement, indicating the agency's response to the issues raised."

As should be clear, a noncommittal response does not satisfy this requirement and, further, implies that the sponsoring agency cannot render a decision in regard to the issues raised. In our experience this has been anything but the case for Corps of Engineer projects. We would be pleased to be informed as to the rationale for this practice on the La Crosse Flood Control Project.

In the revised draft and the previous statement of May 1973, it was stated that approximately 40 acres of wetlands will be lost to levee construction. Some of these wetlands are not as sensitive as others and it may not be necessary to maintain these wetlands in their present state. However, wetland areas such as Myrick Marsh, the spawning grounds near Lieder Lumber Company and the wetland west of the railroad roundhouse should not be disturbed. We recommend that levees be constructed in such a manner as to maintain the natural state of these areas.

It was proposed on page 40 of the revised draft EIS to secure approximately 650,00 cubic yards of fill for the levees from the Black and Mississippi Rivers. Significant environmental effects will result from the obtaining of the fill in this manner. The EIS should discuss whether the Black River is dredged for channel maintainence, if the material is polluted and if there is any opposition to the plan from the Wisconsin Department of Natural Resources. If the Black River is not dredged periodically for normal channel maintainence, we fail to understand the proposal of this action in light of the probable environmental effects upon the spawning areas and the natural ecology of the river. We request that an alternative method of obtaining fill material be found. The only alternative discussed in the revised draft EIS is to obtain the material from the Myrick Marsh. This alternative appears to be even more environmentally damaging and is contrary to EPA's Wetlands Policy.

As stated in our previous letter of July 17, 1973, we are opposed to any use of the Myrick Marsh as possible location for a highway and levee corridor. The use of the marsh as a corridor would provide 400 acres of land for development by the City of La Crosse. However, we believe the damage to the environment would outweigh the benefits to be derived, resulting in the loss of a significant natural resource.

On page 53 of the revised draft EIS, it is indicated the Corps of Engineers has determined the undeveloped area near St. James Street is valuable natural area. Based on these conclusions, it is not clear why flood protection is planned for this area. Levees should provide protection to existing development, not encourage future development in floodplain areas that are now unprotected.

In light of our review and in accordance with EPA policy, we have classified our comments on this revised draft EIS as Category ER-2. Specifically, we have environmental reservations regarding the proposal to obtain fill material from the Black River. Furthermore, we do not believe the responses to our earlier letter provide sufficient information

regarding the issues raised at that time. We appreciate the opportunity to review this revised draft EIS, and we will be happy to discuss our comments with you or the district staff at a time of mutual convenience.

Sincerely yours,

Robert W. Zeller, Ph.D.
Director, Surveillance and
Analysis Division

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

L. P. Voigt
Secretary

BOX 450
MADISON, WISCONSIN 53701

May 27, 1975

IN REPLY REFER TO: 1600

Lieutenant General W. C. Gribble
Chief of Engineers
Department of the Army
Office of the Chief of Engineers
Washington, D. C. 20314

Dear General Gribble:

Re: DAEN-CWP-A

We have completed our review of the revised draft environmental impact statement for the proposed Mississippi River Flood Control Project at La Crosse, Wisconsin. Although our reply is late, we would appreciate your consideration of our comments. Originally we did not anticipate commenting on the revised draft of the environmental impact statement because we had no significant additions to our previous comments. We were not entirely satisfied with the St. Paul District responses to our comments, however, we were willing to overlook these minor shortcomings with the thought that any potential problems could be worked out by developing an adequate flood plain zoning ordinance in cooperation with the City of La Crosse. This approach has proven to be extremely frustrating. Additionally, the Great River Environmental Action Team (GREAT) has recently placed a great deal of emphasis on productive uses of dredge spoil and flood plain and shoreland zoning. Thus, we then decided to reply to the revised draft environmental impact statement.

To briefly explain Wisconsin's flood plain and shoreland zoning program, it should be pointed out that both the City of La Crosse and La Crosse County must adopt flood plain zoning ordinances which are consistent with Department flood plain zoning standards contained in Wisconsin Administrative Code, NR 116 (copy enclosed). These local ordinances must be adopted prior to establishment of zoning ordinances for the entire flood plain defined by the regional flood. We consider the regional flood elevation to be the same as the elevation of the 1965 flood of record.

Revised draft environmental impact statement, page 2, fourth paragraph, last sentence - The City of La Crosse has not adopted a flood plain zoning ordinance which is consistent with state standards, and it is not working on regulations that would comply with state standards. Also, the City of La Crosse has indicated that they will not adopt such a flood plain zoning ordinance. Proper flood plain zoning regulations would protect the integrity of wise land use controls during the lengthy planning, funding and construction stages of the proposed project. Flood

plain zoning regulations would also assure that there would be no more incompatible filling and development which would ultimately increase flood heights and decrease the flood protection provided by the proposed flood control project. Zoning regulations would also regulate filling and development in areas not protected by the proposed flood control project.

When the proposed levees are constructed and in operation and a legal, annually funded maintenance program is established, the flood plain zoning ordinances could be amended to reflect protection from the dike and to include protection for basement flooding on lands in back of flood control levees.

Until the City of La Crosse adopts an adequate flood plain zoning ordinance in accordance with Department standards, the Department of Natural Resources does not support the proposed La Crosse flood control project.

Revised draft environmental impact statement, page 40, first paragraph - It is requested that serious consideration be given to the use of dredge spoil material obtained from the maintenance of the 9-foot channel for dike and levee construction. The use of these dredge spoil materials for productive and useful purposes would be consistent with the recommendations of GREAT and would also be in consonance with recent Corps' notices which emphasized the beneficial use of dredge materials resulting from maintenance dredging of the Mississippi River navigation channel.

We thank you for the opportunity to review and comment on this revised draft environmental impact statement.

Sincerely,
Bureau of Environmental Impact

C. D. Besadny
Director

Enc.
cc: Colonel Max Noah
General W. O. Bacchus
Honorable W. Peter Gilbertson, Mayor

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

L. P. Voigt
Secretary

BOX 450
MADISON, WISCONSIN 53701

August 26, 1975

IN REPLY REFER TO: 1600

Lieutenant General W. C. Gribble, USA
Chief of Engineers
Department of the Army
Office of the Chief of Engineers
Washington, D. C. 20314

Dear General Gribble:

Re: DAEN-CWP-C La Crosse Flood Control Project,
City of La Crosse, Wisconsin

This letter is in response to your request for clarification of the Department's position on the proposed La Crosse flood control project. Mr. C. D. Besadny responded to the revised draft environmental impact statement and your proposed report on May 27, 1975. Comments were also provided to Colonel Rodney Cox on July 31, 1973, on the draft environmental impact statement and the draft interim survey report. These comments are included in Section 8 of the revised draft environmental impact statement. Thus to answer your first question, Mr. Besadny's letters of July 31, 1973 and May 27, 1975, express the views of the Department on your proposed report and the draft and revised environmental impact statement.

As you are aware, the Department is charged with the conservation of fish and wildlife resources as well as the protection of the environment. The comments provided by the Department addressed both sets of concerns. The Department of Natural Resources, which is the agency in Wisconsin responsible for the conservation of fish and wildlife resources within the meaning of 16 U.S.C. 662, has reviewed the documents prepared by the Corps and has no additional comments to offer at this time other than those previously provided or included in this letter.

In response to your understanding of the Department's position relative to construction of the proposed flood control project, you are essentially correct that we are not opposed to the proposed flood control plan itself. However, the Department is opposed to the actual construction of any part of the proposed project until the City of La Crosse adopts an adequate flood plain zoning ordinance which is in accordance with Department standards. The Department, therefore, does not object to your report recommendation for a flood control project at La Crosse provided that the Corps of Engineers grants the Department the following assurances:

1. That no construction of any part of the proposed project will be undertaken until the City of La Crosse has adopted an adequate flood plain zoning ordinance which is consistent with Department standards.

2. That the Corps of Engineers will assist the Department in effecting an adequate City of La Crosse flood plain zoning ordinance consistent with Department standards during the interim period prior to Congressional authorization.

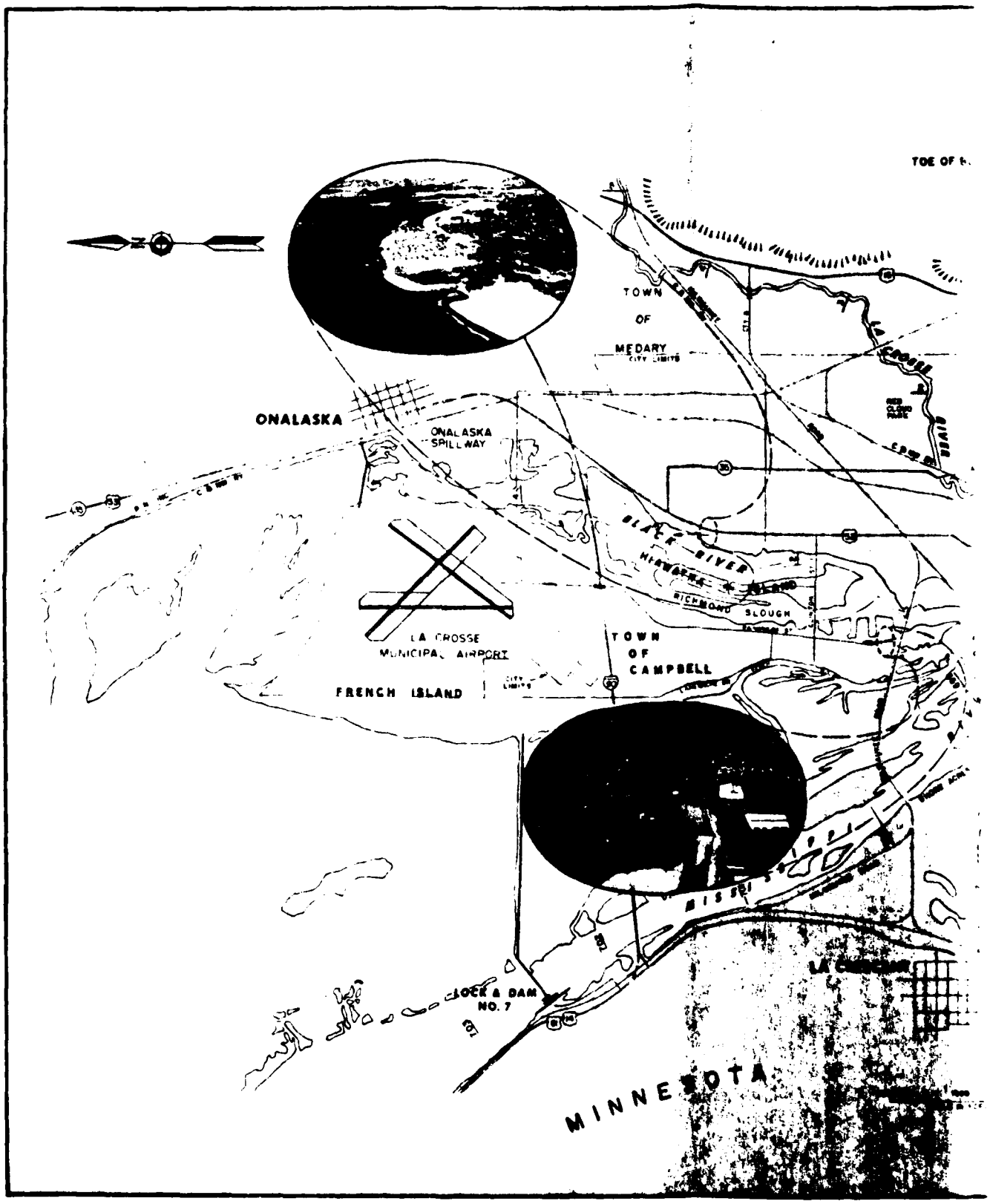
3. That the Corps of Engineers will continue to coordinate and consult with the Department on the various phases of the proposed project relating to the Department's jurisdiction and expertise.

I hope that the Department's position in this important matter has been sufficiently clarified. If you would require any further assistance, feel free to contact me.

Sincerely,

L. P. Voigt
Secretary

cc: Honorable Patrick J. Lucey - C A P I T O L
Honorable W. Peter Gilbertson, Mayor
Colonel Max Noah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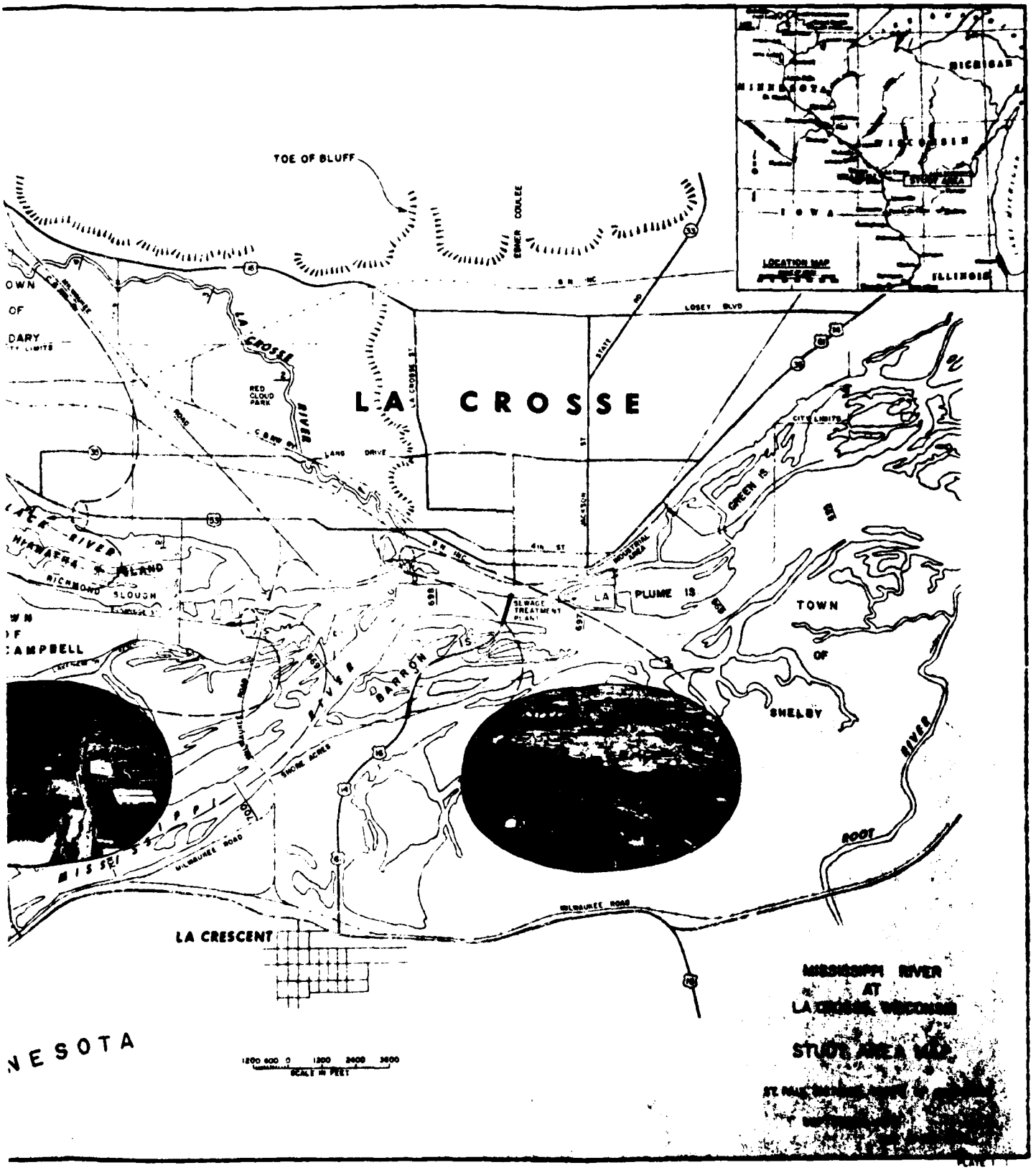
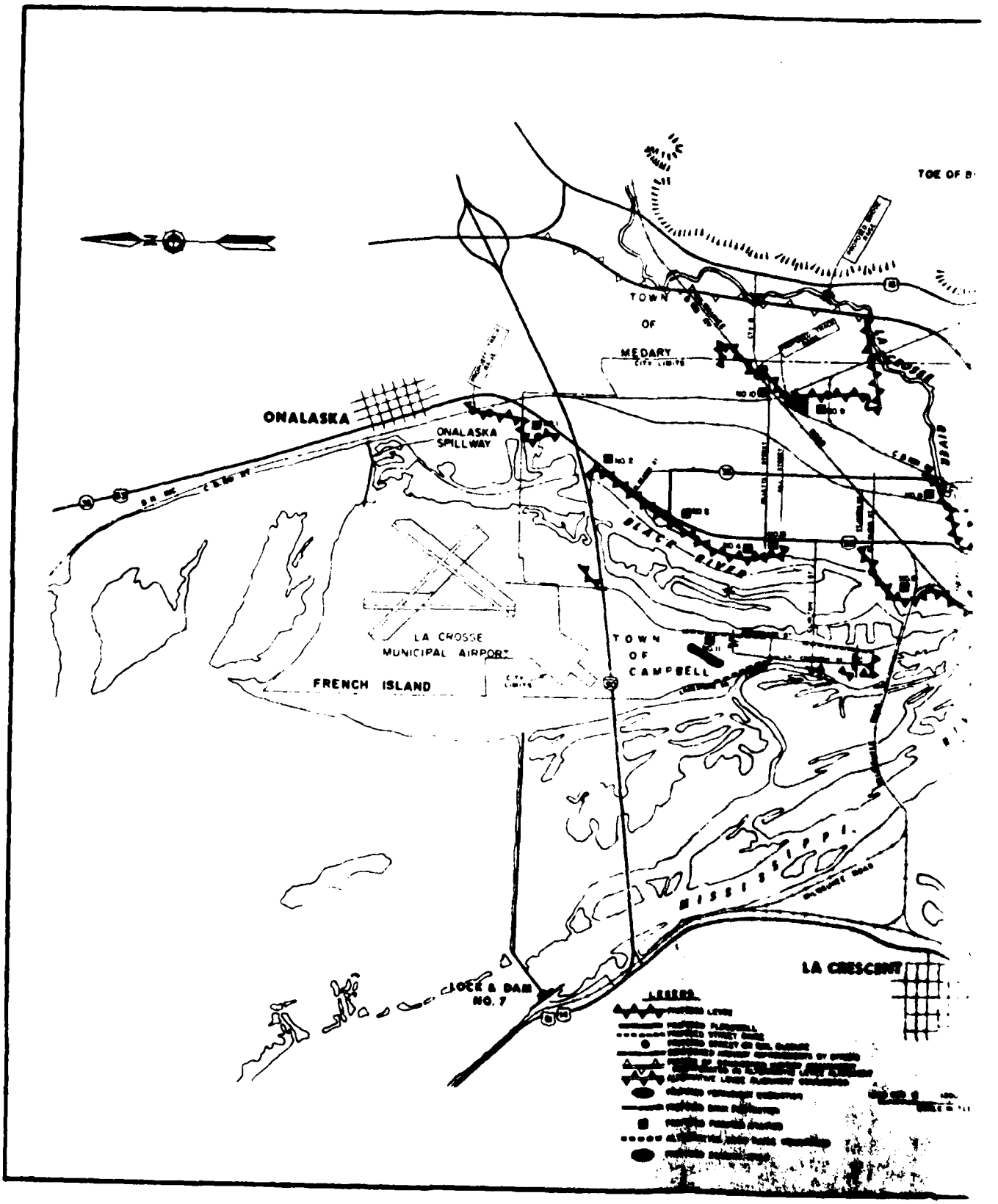
FRENCH ISLAND
LOCK & DAM
NO. 7
MINNESOTA



MISSISSIPPI RIVER
AT
LA CROSSE, WISCONSIN
STUDY AREA MAP

2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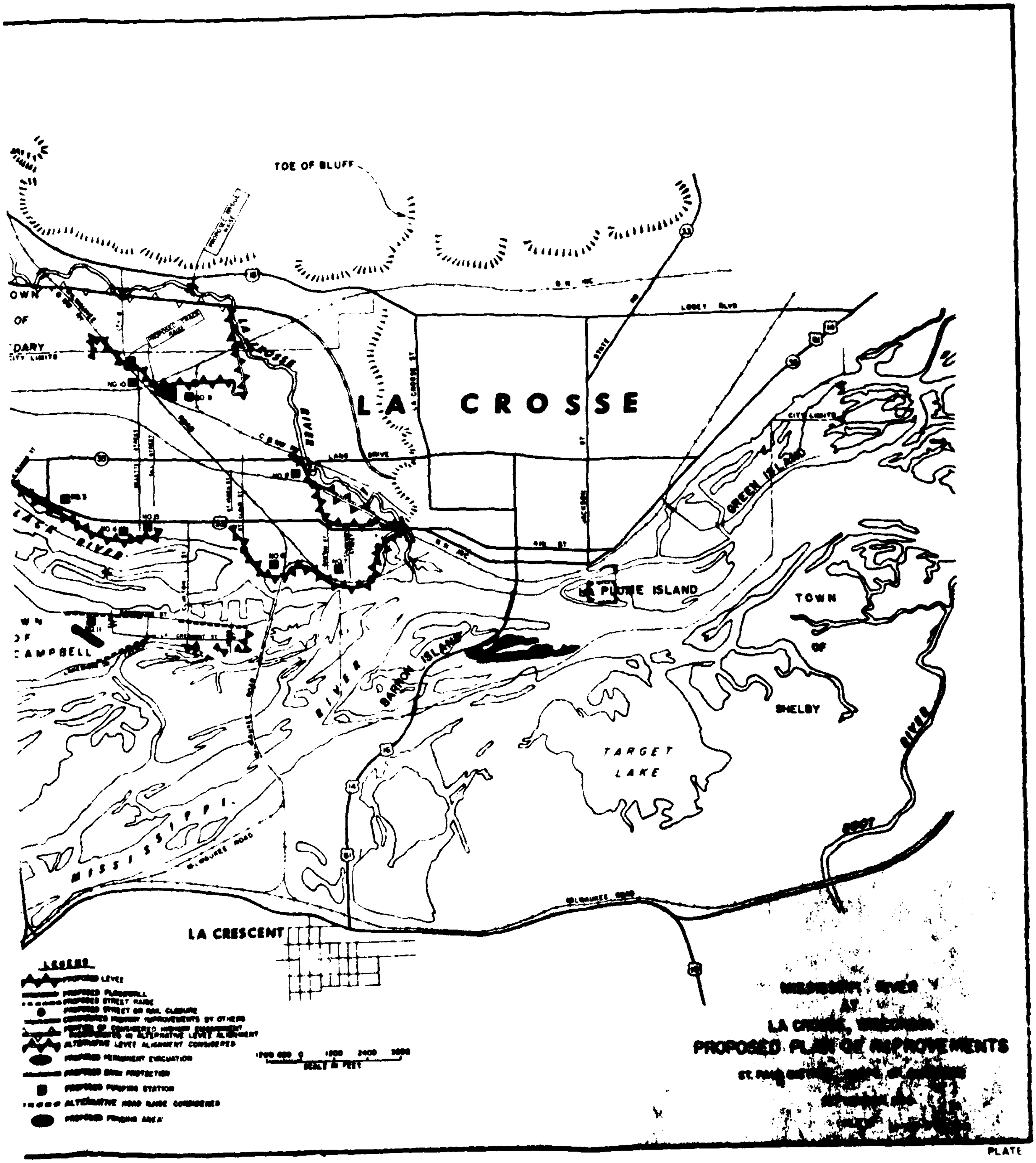
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PLUME ISLAND
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TARGET LAKE
BARRON ISLAND
RIVER
MISSISSIPPI
TOWN OF CAMPBELL
LA CRESCENT
LEGEND
PROPOSED LEVEE
SCALE IN FEET
PROPOSED PLAN OF IMPROVEMENTS

PLATE

2

APPENDIX A

DESCRIPTION OF PROPOSED LEVEE ALIGNMENTS

APPENDIX A

DESCRIPTION OF PROPOSED LEVEES

FRENCH ISLAND

a. Airport levee. - Levee commencing from County Road B embankment just north of the I-90 intersection and running approximately 1,000 feet in a northeasterly direction to high ground. Average levee height would be about 8 feet.

b. North Bainbridge Street Road Raise. - A street raise commencing at Washburn Street, thence intermittently for approximately 3,000 feet along North Bainbridge Street to Elm Street. Average road raise along North Bainbridge Street would be about 2.5 feet. Total length of road raised would be about 1,500 feet.

c. Lakeshore Drive Road Raise. - A 2,400-foot-long road raise along Lakeshore Drive from a point near Aiken Road south to Goddard Street thence eastward along Goddard Street approximately 1 block, thence south on La Crescent 200 feet to high ground. Average height about 6 feet.

d. French Slough Levees. - Levee commencing at William Street, thence south along left bank of French Slough 500 feet to Sperbeck Street. Average levee height about 4 feet.

A levee commencing at a point 200 feet south of Locust Street, thence south about 900 feet along French Slough, thence about 500 feet east to Bainbridge Street. Average levee height about 6 feet.

e. South Bainbridge Street Raise. - A road raise along South Bainbridge Street commencing at a point approximately 500 feet south of Usher Street, thence about 2,000 feet north to Washburn Street. Average road raise or levee height about 3 feet (100-year flood level with one-foot of freeboard). Ramp would permit access to Marina Drive and other streets. Washburn Street would be gradually sloped to the level of the Bainbridge road raise.

NORTH LA CROSSE:

a. Onalaska Levee. - Levee from high ground east of Chicago, Burlington and Quincy railroad tracks to a point on the west side of the tracks, thence southward about 1,600 feet along the west side of George Street to Lauderdale Place, thence west 700 feet along the north side of Lauderdale Place, thence about 450 feet south and 700 feet southeast to the I-90 west service drive. Average levee height about 8 feet. Closures would be included to maintain access on a mainline railroad and provide access to a lumber yard and private residence.

b. U.S. Highway 53 Levee. - Levee from the Interstate Highway 90 embankment southward along the east bank of the Black River to high ground 100 feet south of Sill Street. Average levee height about 8 feet over a distance of 8,300 feet. One closure structure would be provided across a railroad to maintain traffic during non-flood periods.

c. South Black River Levee. - Levee from Copeland Avenue at St. James Street about 800 feet southwest to the west end of St. Cloud Street, thence about 2,100 feet southward behind Murphy Oil Company property to Chicago, Milwaukee, St. Paul and Pacific railroad embankment, thence southward along and riverward of C.M. StP & P railroad tracks about 4,000 feet, thence easterly about 1,200 feet, thence south about 400 feet, thence east-southeast about 900 feet along cement company, etc., property to Copeland Drive. Average levee height would be about 7 feet. Three closure structures would be required to maintain traffic on a city street and two railroads.

d. Copeland Avenue-Monitor Street Levee. - A floodwall commencing at the Copeland Street north bridge approach, thence about 600 feet northeast between Pyroil and lumber company buildings, thence a levee north and riverward of buildings along Copeland Street to Monitor Street, thence easterly along south side of Monitor Street to Lang Drive, thence northeast along Chicago and North Western Railroad to high ground. Average flood barrier height about 6 feet over a length of 5,200 feet. Four closures would be required in the alignment to maintain access to the lumber company and pass traffic on one railroad.

e. East Side Levee. - Levee from high ground south of St. Cloud Street eastward some 400 feet, thence north about 350 feet, thence east about 350 feet, thence north again about 2,700 feet to Chicago, Burlington and Quincy Railroad, thence northeast 1,400 feet along south side of County Road "B", thence north about 500 feet, thence northeast about 300 feet along Elm Street, thence 900 feet northeast, thence about 200 feet north-northwest, thence about 800 feet west to high ground. Three railroad closures and one road closure would be required to maintain road and rail traffic in this area during nonflood periods. Average levee height would be about 7 feet.

APPENDIX B

PROVISIONAL LIST OF FISH, WILDLIFE, AMPHIBIANS AND REPTILES OF OF THE LA CROSSE AREA

APPENDIX B

PROVISIONAL LIST OF FISH, WILDLIFE,

AMPHIBIANS AND REPTILES

OF THE LA CROSSE AREA

BIRDS

The following list of 255 birds have been identified on the Upper Mississippi River Wildlife and Fish Refuge. Relative seasonal abundance and nesting status are shown. Many of these species are migrant residents and are not year-round residents of the refuge.

Key:	a - abundant	S - March-May
	c - common	S - June-August
	u - uncommon	F - September-November
	o - occasional	W - December-February
	r - rare	* - Nests on refuge

Example:

Common Name	Seasonal abundance and nesting status			
	S	S	F	W
Common loon	r		r	

BIRDS

Common name	Seasonal abundance and nesting status			
	S	S	F	W
Common loon	r		r	
Red-necked grebe	r		r	
Horned grebe	r		r	
Pied-billed grebe*	c	c	c	
White pelican	o		o	
Double-crested cormorant*	c	c	c	
Great blue heron*	c	c	c	r
Green heron*	c	c	c	
Little blue heron		r		
Common egret*	c	c	o	
Snowy egret	r	r		
Black-crowned night heron*	c	c	c	
Yellow-crowned night heron*	u	u	u	
Least bittern*	o	o	o	
American bittern*	c	c	c	
Whistling swan	c		c	
Canada goose*	c	o	c	o
White-fronted goose	r		r	
Snow goose	c		c	
Blue goose	c		c	
Mallard*	a	c	a	c
Black duck*	c	o	c	o
Gadwall	c		c	
Pintail	a	r	a	r
Green-winged teal*	c	r	c	r
Blue-winged teal*	a	u	a	
American widgeon	a		a	
Shoveler	c		c	
Wood duck*	c	c	c	
Redhead	c	o	c	r
Ring-necked duck	a		a	r
Canvasback	c		c	r
Great scaup	u		u	
Lesser scaup	a	r	a	r
Common goldeneye	c		c	o
Bufflehead	o		o	r
Oldsqaw	r		r	r
White-winged scoter	r		r	r
Common scoter			r	r
Ruddy duck	c	r	c	
Hooded merganser*	c	o	c	r
Common merganser	c		c	
Red-breasted merganser	r		r	r
Turkey vulture	o	o	o	r
Goshawk				o
Sharp-shinned hawk	u	u	u	o
Cooper's hawk*	u	u	u	o
Red-tailed hawk*	c	c	c	c

BIRDS (Cont)

Common name	Seasonal abundance and nesting status			
	S	S	F	W
Red-shouldered hawk	o	o	o	u
Broad-winged hawk	o	o		
Rough-legged hawk			o	o
Golden eagle	r		r	r
Bald eagle	o	o	o	c
Marsh hawk*	c	c	c	o
Osprey	o	o	o	o
Peregrine falcon*	r	r	r	
Pigeon hawk	r		r	
Sparrow hawk	o	o	o	r
Ruffed grouse*	c	c	c	c
Greater prairie chicken				r
Sharp-tail grouse				r
Bobwhite*	o	o	o	o
Ring-necked pheasant*	c	c	c	c
Gray partridge	o	o	o	o
King rail*	u	u		
Virginia rail*	u	u	o	
Sora*	a	a	c	
Common gallinule*	r	r		
American coot*	a	c	a	r
Semipalmated plover	c	o	c	
Killdeer*	c	c	c	r
American golden plover	o		u	
Black-bellied plover	o		o	
Ruddy turnstone	r			
American woodcock	r	r	r	
Common snipe	c	o	c	r
Long-billed curlew			r	
Upland plover	o	o		
Spotted sandpiper*	c	c	c	
Solitary sandpiper	c		c	
Willet	r		r	
Greater yellowlegs	u		u	
Lesser yellowlegs	a	o	a	
Pectoral sandpiper	o	o	o	
White-rumped sandpiper	o		o	
Baird's sandpiper	o	o	o	
Least sandpiper	c	o	c	
Dunlin	o	o	o	
Long-billed dowitcher	o		o	
Stilt sandpiper	o	o	o	
Semipalmated sandpiper	c	c	c	
Sanderling	o	o	o	
Wilson's phalarope	o	o	o	
Northern phalarope	o		o	
Herring gull	c	o	c	u
Ring-billed gull	c	o	c	u
Franklin's gull	o		o	
Bonaparte's gull	u		u	

BIRDS (Cont)

Common name	Seasonal abundance and nesting status S	S	F	W
Forster's tern	c	o	c	
Common tern	c	o	c	
Least tern	o	o	o	
Caspian tern	o		o	
Black tern*	c	c	o	
Mourning dove*	c	c	c	o
Yellow-billed cuckoo*	c	c		
Black-billed cuckoo	c	c		
Screech owl	c	c	c	c
Great horned owl	c	c	c	c
Snowy owl				o
Barred owl*	c	c	c	c
Long-eared owl	u	u	u	u
Short-eared owl	u	u	u	u
Saw-whet owl*	u	u	u	u
Whip-poor-will*	c	c		
Common nighthawk*	a	a	o	
Chimney swift*	a	a		
Ruby-throated hummingbird	c	c		
Belted kingfisher*	c	c	o	u
Yellow-shafted flicker*	c	c	c	u
Pileated woodpecker*	c	o	o	o
Red-bellied woodpecker*	c	c	c	c
Red-headed woodpecker*	c	c	c	r
Yellow-bellied sapsucker	c		c	
Hairy woodpecker*	c	c	c	c
Downy woodpecker*	c	c	c	c
Eastern kingbird*	a	a		
Western kingbird	u	u		
Great crested flycatcher*	c	c		
Eastern phoebe*	c	c	o	
Yellow-bellied flycatcher	u	u	u	
Acadian flycatcher	o	o		
Traill's flycatcher*	c	c	0	
Least flycatcher*	a	a	u	
Eastern wood pewee*	c	c	u	
Olive-sided flycatcher	o	o		
Horned lark*	c	c	c	o
Tree swallow*	a	a	u	
Bank swallow*	c	c	u	
Rough-winged swallow	o	o		
Barn swallow*	a	a	u	
Cliff swallow*	o	o	u	
Purple martin*	a	a	u	
Blue jay*	c	c	c	c
Common crow*	a	a	a	o
Black-capped chickadee*	c	c	c	c
Tufted titmouse*	c	c	c	c
White-breasted nuthatch*	c	c	c	c

BIRDS (Cont)

Common name	Seasonal abundance and nesting status			
	S	S	F	W
Red-breasted nuthatch				r
Brown creeper	c		c	c
House wren*	a	a	o	
Winter wren	o		o	
Bewick's wren	o		o	
Carolina wren	o	o	o	
Long-billed marsh wren*	c	c		
Short-billed marsh wren*	o	o		
Catbird*	c	c	o	
Brown thrasher*	c	c	o	
Robin*	c	c	c	r
Wood thrush*	c	c	c	
Hermit thrush	c		c	
Swainson's thrush	c		c	
Gray-cheeked thrush	c		c	
Veery	c		c	
Eastern bluebird*	c	c	c	r
Blue-gray gnatcatcher	u	u		
Golden-crowned kinglet	o		o	o
Ruby-crowned kinglet	c		c	
Bohemian waxwing				o
Cedar waxwing*	c	c	c	o
Northern Shrike			o	o
Loggerhead shrike	c	c	c	
Starling*	a	a	a	a
White-eyed vireo*	c	c		
Bell's vireo*	u	u		
Yellow-throated Vireo*	c	c	c	
Solitary vireo	o		o	
Red-eyed vireo*	c	c	o	
Warbling vireo*	a	a	o	
Black-and-white warbler	c		c	
Prothonotary warbler	c	c		
Blue-winged warbler*	o	o		
Golden-winged warbler	o	o		
Tennessee warbler	c		c	
Orange-crowned warbler	o		o	
Nashville warbler	o		o	
Parula warbler	r		r	
Yellow warbler*	a	a	o	
Magnolia warbler	c		c	
Cape may warbler	o		o	
Black-throated blue warbler	o		o	
Myrtle warbler	a		a	
Black-throated green warbler	c		c	
Cerulean warbler	r			
Blackburnian warbler	c		c	

BIRDS (Cont)

Common name	Seasonal abundance and nesting status S	S	F	W
Chestnut-sided warbler	o		o	
Bay-breasted warbler	o		o	
Blackpoll warbler	c		c	
Pine warbler	o		o	
Palm warbler	c		c	
Ovenbird	o	o	o	
Northern waterthrush	c		c	
Louisiana waterthrush	o	o	o	
Kentucky warbler	r	r		
Connecticut warbler	r		r	
Mourning warbler	o		o	
Yellowthroat*	a	a	o	
Yellow-breasted chat	r	r		
Hooded warbler	r	r		
Wilson's warbler	c		c	
Canada warbler	c		c	
American redstart*	a	a	o	
House sparrow	a	a	a	a
Bobolink*	o	o	o	
Eastern meadowlark*	c	c	c	o
Western meadowlark*	o	o	o	o
Yellow-headed blackbird*	o	o	o	
Red-winged blackbird*	a	a	a	o
Orchard oriole*	u	u		
Baltimore oriole*	c	c		
Rusty blackbird	c		c	o
Brewer's blackbird	u	o	u	r
Common grackle	a	a	a	u
Brown-headed cowbird*	a	a	a	
Scarlet tanager*	o	o	o	
Cardinal*	c	c	c	c
Rose-breasted grosbeak*	c	c		
Indigo bunting*	c	c	o	
Dickcissel*	c	c		
Evening grosbeak				0
Purple finch	o		o	o
Common redpoll				u
Pine siskin	o		o	o
American goldfinch*	a	a	a	c
Red crossbill				r
Rufous-sided towhee*	o	o	o	
Savannah sparrow	o	o	o	
Grasshopper sparrow	o	o	o	
Henslow's sparrow	r	r	u	
Le Conte's sparrow	u	u	u	
Vesper sparrow*	c	c	c	

BIRDS (Cont)

Common name	Seasonal abundance and nesting status			
	S	S	F	W
Lark sparrow	o	o		
Slate-colored junco	c		c	c
Tree sparrow	c		a	a
Chipping sparrow*	a	a	a	
Clay-colored sparrow	u	u	u	
Field sparrow*	c	c	c	r
Harris' sparrow	c		c	
White-crowned sparrow	o		o	r
White-throated sparrow	a		a	r
Fox sparrow	o		o	
Lincoln's sparrow	c		c	
Swamp sparrow*	c	c	o	
Song sparrow*	a	a	c	r
Lapland longspur	o		o	o
Snow bunting				u

SOURCE: U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife Refuge Leaflet 142-R4. 1970.

MAMMALS

Common name	Scientific name	Relative abundance
Virginia opossum	Didelphis marsupialis	Common
Masked shrew	Sorex cinereus	Common
Shorttail shrew	Blarina brevicauda	Common
Least shrew	Cryptotis parva	Occasional
Eastern mole	Scalopus aquaticus	Common
Starnose mole	Condylura cristata	Rare
Little brown myotis	Myotis lucifugus	Common
Keen myotis	Myotis keenii	Common
Eastern pipistrel	Pipistrellus subflavus	Uncommon
Big brown bat	Eptesicus fuscus	Common
Red bat	Lasiurus borealis	Occasional
Hoary bat	Lasiurus cinereus	Rare
Whitetail jackrabbit	Lepus townsendii	Rare
Eastern Cottontail	Sylvilagus floridanus	Common
Woodchuck	Marmota monax	Occasional to common
Thirteen-lined ground squirrel	Citellus tridecemlineatus	Common
Franklin ground squirrel	Citellus franklinii	Rare
Eastern chipmunk	Tamias striatus	Common
Eastern gray squirrel	Sciurus carolinensis	Common
Eastern Fox squirrel	Sciurus niger	Common
Red squirrel	Tamiasciurus hudsonicus	Occasional
Southern flying squirrel	Glaucomys volans	Occasional
Plains pooket gopher	Geomys bursarius	Occasional
Beaver	Castor canadensis	Common
Western harvest mouse	Reithrodontomys megalotis	Uncommon
Deer mouse	Peromyscus maniculatus	Common
White-footed mouse	Peromyscus leaucopus	Common
Southern bog lemming	Synaptomys cooperi	Uncommon
Meadow vole	Microtus pennsylvanicus	Abundant
Prairie vole	Pedomys ochrogaster	Uncommon
Pine vole	Pitymys pinetorum	Occasionally
Muskrat	Ondatra zibethicus	Abundant
Norway rat	Rattus norvegicus	Common
House mouse	Mus musculus	Common
Meadow jumping mouse	Zapus hudsonius	Occasional
Nutria	Myocaster coypus	Rare
Coyote	Canis latrans	Occasionally
Red fox	Vulpes fulva	Common
Gray fox	Urocyon cinereoargenteus	Common
Raccoon	Procyon lotor	Abundant
Least weasel	Mustela rixosa	Uncommon
Mink	Mustela vison	Occasional
Badger	Taxidea taxus	Uncommon
Spotted skunk	Spilogale putorius	Occasional
Striped skunk	Mephitis mephitis	Common

MAMMALS (Cont)

Common name	Scientific name	Relative abundance
River otter	Lutra canadensis	Occasional
Lynx	Lynx canadensis	Rare
Bobcat	Lynx rufus	Rare
Whitetail deer	Odocoileus virginianus	Common

SOURCE: U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Refuge Leaflet 326, May 1968.

FISH

Common name	Scientific name
White bass	Morone chrysops
Brook stickleback	Eucalia inconstans
Trout-perch	Percopsis omiscomaycus
Gizzard shad	Dorosoma cepedianum
Northern pike	Esox lucius
Johnny darter	Etheostoma nigrum
River darter	Percina shumardi
Logperch	Percina caprodes
Yellow perch	Perca flavescens
Sauger	Stizestedion canadense
Walleye	Stizostedion vitreum
Smallmouth bass	Micropterus dolomieui
Largemouth bass	Micropterus salmoides
Black crappie	Pomoxis nigromaculatus
Pumpkinseed	Lepomis gibboeus
Orangespotted sunfish	Lepomis humilus
Green sunfish	Lepomis cyanelllus
Bluegill	Lepomis macrochirus
Bluegill hybrids	Lepomis species
Bluntnose minnow	Pimephales notatus
Fathead minnow	Pimephales promelas
Carp	Cyprinus carpio
Golden shiner	Notemigonus crysoleucas
Sand shiner	Notropis stramineus
Emerald shiner	Notropis atherinoides**
Spottail shiner	Notropis hudsonius
Spotfin shiner	Notropis spilopterus
Common shiner	Notropis cornutus
Silver chub	Hybopsis storeriana
White sucker	Catostomus commersoni
Smallmouth buffalo	Ictiobus bubalus
Largemouth buffalo	Ictiobus cyprinellus
Silver redhorse	Moxostoma anisurum
Northern redhorse	Moxostoma macrolepidotum
Channel catfish	Ictalurus punctatus
Madtom	Schilbeodes gyrinus
Bullheads	Ictalurus melas and/or nebulosus
Ozark minnow	Dionda nubila*
Warmouth	Chaenobryttus gulosus
Rock bass	Ambloplites rupestris
Flathead catfish	Pylodictis olivaris
Spotted sucker**	Minytrema melanops
Freshwater drum	Aplodinotus grunniens
Bowfin	Amia calva
Longnose gar	Lepisosteus osseus
Shortnose gar	Lepisosteus platostomus

SOURCES: Data supplied by Kenneth E. F. Hokanson, a graduate student at the University of Minnesota studying the effects of synthetic detergents on the early life history of the bluegill. Electroshocking Survey, Wisconsin Department of Natural Resources, La Crosse, Wisconsin.

* Uncertain species ** Very abundant

AMPHIBIANS AND REPTILES

Common name	Scientific name	Relative abundance
	TURTLES	
Snapping turtle	Chelydra serpentina	Common
Wood turtle	Clemmys insculpta	Rare
Ornate box turtle	Terrapene ornata	Occasional
Map turtle	Graptemy geographica	Common
False map turtle	Graptemys pseudogeographica	Common
Painted turtle	Chrysemys picta	Very Common
Blanding's turtle	Emydoidea blandingi	Locally common
Smooth softshell	Trionyx muticus	Common
Spiny softshell	Trionyx spinifer	Common
	LIZARDS	
Six-lined racerunner	Cnemidophorus sexlineatus	Common
	SNAKES	
Northern water snake	Natrix sipedon sipedon	Common
Brow (DeKay's) snake	Storeria dekayi	Uncommon
Red-bellied snake	Storeria occipitomaculata	Uncommon
Eastern garter snake	Thamnophis sirtalis sirtalis	Abundant
Eastern hognose snake	Heterodon platyrhinos	Occasional
Ringneck snake	Diadophis punctatus	Occasional
Blue racer	Coluber constrictor foxi	Common
Fox snake	Elaphe vulpina	Occasionally
Black rat snake	Elaphe obsoleta obsoleta	Uncommon
Bullsnake	Pituophis melanoleucus sayi	Common
Eastern milk snake	Lampropeltis doliata triangulum	Occasionally
Massasauga	Sistrurus catenatus	Uncommon
Timber rattlesnake	Crotalus horridus horridus	Uncommon
	SALAMANDERS	
Mudpuppy	Necturus maculosus	Common
Eastern tiger salamander	Ambystoma tigrinumtigrinum	Common
	TOADS	
American toad	Bufo americanus	Common
	FROGS	
Blanchard's cricket frog	Acris crepitans blanchardi	Common
Spring peeper	Hyla crucifer	Abundant
Gray treefrog	Hyla versicolor	Common

AMPHIBIANS AND REPTILES (Cont)

Common name	Scientific name	Relative abundance
Western chorus frog	Pseudacris triseriata triseriata	Common
Bullfrog	Rana catesbeiana	Common
Green frog	Rana clamitans melanota	Common
Leopard frog	Rana pipiens	Common
Pickerel frog	Rana palustris	Rare
Wood frog	Rana sylvatica	Rare

SOURCE: U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Refuge Leaflet 420, 1970.

APPENDIX C

PRELIMINARY LIST OF SIGNIFICANT ARCHITECTURAL, ARCHAEOLOGICAL AND HISTORICAL SITES IN LA CROSSE

Buildings in La Crosse County

In La Crosse:

Anderson, Mons, House, 410 Cass St. Random ashlar stone house c. 1868 with 3-story tower. Italian Villa style with Gothic elements.

Anderson, Mons, Mercantile Bldg., 2nd and Main Sts. Three-story stone building with mqnsard roof built 1866-1870.

Bartl, Edward C., house, 238 S. 17th Street. Prairie School house designed by Percy Dwight Bentley and built in 1910. [Brooks, pp. 263-4]

Cargill, W.W., house, 235 West Ave. South. Home of W.W. Cargill, important local business personality and philanthropist. Built 1881.

Chase, Dr. H.H., house, 221 S. 11th St. Prairie School house designed by Percy Dwight Bentley and built in 1913. [Brooks, pp. 266-7]

Salzer, Henry, house, 1634 King St. at 17th St. Prairie School house designed by Bentley and built in 1912. [Brooks, pp. 265-6]

Wohlhuter, Henry G., house. Prairie School house designed by Bentley and built in 1913. [Brooks, p. 267] 223 S. 11th Street.

Mueller, Emil T., house. Prairie school house at 128 S. 14th St. designed by Bentley and built in 1914. [Brooks, p. 317]

In West Salem:

Garland, Hamlin, house. A National Historic Landmark which was the home of the famous author, Hamlin Garland, from 1893 to 1915. Described in his novel, A Son of the Middle Border.

Palmer House, 258 N. Leonard St. Two-story frame house with two-story veranda built in 1857 and moved to present site in 1866. [Perrin, '67, p. 42]

Samuel's Cave, County Trunk O off U.S. 16 near West Salem. Contains petroglyph carvings of birds and animals done over 500 years ago. [Kohler, p. 60]

Houses In La Crosse, Wis.

Zeisler House, S.E. corner 2nd and Ferry. Two story stone house c.1855 in excellent condition, one of the few surviving stone dwellings.

Martindale House, 237 S. 10th. Two story frame Italianate with cupola and porch around three sides. Rear portion of house log dwelling, entire house has strong southern influence.

Bishop's House, S.W. corner 11th and Ferry. Two story brick mansard style with some excellent stone and cast iron decoration, built 1877.

William Sill House, 929 State (behind new buildings). Two and a half story frame on a raised basement c. 1856.

Winthrop Russell house N.E. corner 9th and Main. Two and a half story brick in mansard style built 1870. Alterations from 1884 and greatly changed in the twentieth century.

Gaspard HOuse, Cass at 7th. Story and a half frame cottage in Gothic Revival c. 1859. Some alterations on facade.

W. W. Crosby, 221 S. 10th. Two and a half story frame shingle style built in 1886, excellent condition, good use of materials and glass windows.

Lucius Colman House, 207 S. 12th. Two and a half story frame shingle style built in 1883, porches have been enclosed to make rooms but otherwise in good condition.

Stephen Gantert house, 1304 Main. Three and a half stories, frame, shingle style completed c. 1892 by firm of Stulcy and Schick. Although it has been broken into apartments it remains one of the best examples of this style in town.

James Vincent house 1024 Cass. Brick two story Victorian with excellent stone and cast iron details and wooden decorations on the interior.

Nymphus Holway house, 1419 Cass. Three and a half story frame with stone sheathing, the largest late XIX century house in town, c.1892. Excellent interior woodwork has been preserved as the lumber baron owner left it. At the present time it is owned by the Catholic Diosesces of La Crosse and seems to be in no danger.

Many of the excellent commercial buildings in the downtown area have been destroyed as part of the urban renewal Harbor View Project.

APPENDIX D

METHODS USED FOR REPORT PREPARATION

APPENDIX D

METHODS USED FOR REPORT PREPARATION

To insure that a systematic, interdisciplinary approach was used in the preparation of this report, information was collected from, and supplied by, several separate sources.

Valuable information and assistance was received by reviewing available scientific literature, from opinions voiced at public meetings and workshops, and from personal communications with the following:

1. Professors, University of Wisconsin, LaCrosse.
2. Wisconsin Department of Natural Resources.
3. Mr. Charles Workman, economist, St. Paul District, U.S. Army Corps of Engineers.
4. Mr. Paul Keranen, Project Engineer, St. Paul District, U.S. Army Corps of Engineers.
5. Biologists, Environmental Branch, St. Paul District, U.S. Army Corps of Engineers.