1960

Dredging figures

Cal R. Fremling

Winona State University

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RIVERBEND PARK VEGETATION

FIGURE 20

VEGETATION MAP ILLUSTRATING AREA WHICH WILL BE AFFECTED BY THE STAGE TWO DIKE SYSTEM. THE PROPOSED PERMANENT DIKE WOULD FOLLOW THE OLD CHICAGO GREAT WESTERN RAILROAD BED.

0 250 500
IN FEET

NEW DREDGE SPILL

YOUNG FOREST (SLIVER MAPLE, BOX ELDER, WILLOW & COTTONWOOD)

MARSH (ARROWHEAD, CATTAILS)

NATURE FOREST CLEAR CUT IN SPRING 1973, BRUSH BURNED SUMMER 1974 (SLIVER MAPLE, AMERICAN ELM, COTTONWOOD, WILLOW)

GRASSES & SEDGES
HIGHWAY 61
BORROW PIT LAKE
BURNS VALLEY CREEK
PROPOSED PHASE 2 DIKE SYSTEM
SEWAGE TREATMENT PLANT
PROPOSED LOCATION OF PHASE 2 DIKE SYSTEM IN EAST WINONA
DATE - AUGUST 27, 1974

FIGURE 21
82
INTRODUCTION

The purpose of this statement is to assess the environmental impacts associated with all on-going or proposed projects on the Mississippi River floodplain in the vicinity of Winona, Minnesota (see figure 1, Location Map). The proposed Stage II Flood Control Project will be discussed in greatest detail because it is the largest and most complex of all of the proposed projects. Even though some of the other projects lie within Winona's present dike system, they may still pertain directly or indirectly to the flood problem at Winona. Several of the other projects would have obvious effects upon the river, the surrounding marshlands, and the city itself. Arbitrarily, the project list contains all projects which were being planned or worked on after 1 January 1972. The list of projects and their locations are shown on figure 2. Much of the information contained in this report has been drawn from an environmental assessment prepared by Winona State University, Winona, Minnesota, under contract with the Corps of Engineers. The principal investigator was Dr. Calvin R. Fremling (see also Bibliography). This report is on file at the St. Paul District Office.

1. PROJECT DESCRIPTION

PROJECT LOCATION

1.001 Winona, a city of 26,438, is located on the right bank of the Mississippi River, 725.5 miles above the mouth of the Ohio River, in the southeastern corner of Minnesota at 44° 03.2' N. latitude and 91° 38.5' W. longitude.

1.002 Because Winona developed as an early steamboat port and sawmill center, much of the city lies within the floodplain of the river. Flooding has been a constant threat to the city.

PROJECT AUTHORIZATION

1.003 The project for flood damage reduction on the Mississippi River at Winona, Minnesota, described in House Document No. 92-152, 92d Congress, 1st Session, was authorized under Section 201 of the Flood Control Act of 1965. Resolutions were adopted by the Public Works Committees of the House of Representatives on 29 July 1971 and of the Senate on 18 November 1971. The project provides for extension of and modifications to the project authorized by the 1958 Flood Control Act, to complete a flood barrier along the riverfront and around the downstream portion of Winona.

1.004 The proposed riverfront development projects involve the removal of dredge material from the Mississippi River and floodplain, and, in accordance with Section 10 of the River and Harbor Act of 1899, permits must be secured from the Corps of Engineers. The proposed 24-Barge Fleeting Area Cleaning Facility and the Mississippi Development Consortium would require permits under Section 404 of the Federal Water Pollution Control Act Amendments.
### COST ESTIMATE

**STORM SEWER DIVERSION**  
**EAST LAKE WINONA**  
**1990 PRICES**

<table>
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<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Cost</th>
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<td>54&quot; RCP - III</td>
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<td>LF</td>
<td>190</td>
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<td>Pavement Restoration</td>
<td>400</td>
<td>SY</td>
<td>15</td>
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<td>Including Bike Path</td>
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<td>15.</td>
<td>Watermain Relocation</td>
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<td>16.</td>
<td>Contingency</td>
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**Total Construction Cost**  
$3,006,000

**Engineering and Administration**  
$297,000

**Total**  
$3,303,000
PROPOSED LOCATION OF PHASE 2 DIKE SYSTEM IN EAST WINONA
DATE - AUGUST 27, 1974

FIGURE 21
HIGHWAY 61
BORROW PIT LAKE
BURNS VALLEY CREEK
PROPOSED PHASE 2 DIKE SYSTEM
SEWAGE TREATMENT PLANT
SHIVES ROAD
COUNTY DITCH NO. 4
C.M.S.T. P. & P. RR.
MISSISSIPPI RIVER

PROPOSED LOCATION OF PHASE 2 DIKE SYSTEM IN EAST WINONA
DATE - AUGUST 27, 1974

FIGURE 21
82
HIGHWAY 61
BORROW PIT LAKE
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COUNTY DITCH NO. 4
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PROPOSED LOCATION OF PHASE 2 DIKE SYSTEM IN EAST WINONA
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FIGURE 21
RIVERBEND PARK VEGETATION

VEGETATION MAP ILLUSTRATING AREA WHICH WILL BE AFFECTED BY THE STAGE TWO Dike SYSTEM. THE PROPOSED PERMANENT Dike WOULD FOLLOW THE OLD CHICAGO GREAT WESTERN RAILROAD BED.

MAP SHOWN: (ARROWHEAD, CATTLALS) GRASSES & SEDGES

FIGURE 20
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RIVERBEND PARK VEGETATION

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HOUSES, FOREST (SILVER MAPLE, BOX ELDER, WILLOW & COTTONWOOD)

NEW DEPOT SPOIL

NATURE FOREST CLEAR CUT IN SPRING 1973
SHADE PLANTED SUMMER 1974 (SILVER MAPLE, AMERICAN ELDER, COTTONWOOD, WILLOW)

MASH (ARROWHEAD, CATTAILS)

GRASSES & SEDGES

0  250  500  750
IN FEET

A WASH
RIVERBEND PARK VEGETATION

VEGETATION MAP ILLUSTRATING AREA WHICH WILL BE AFFECTED BY THE STAGE TWO DIKE SYSTEM. THE PROPOSED PERMANENT DIKE WOULD FOLLOW THE OLD CHICAGO GREAT WESTERN RAILROAD BED.

FIGURE 20
RIVERBEND INDUSTRIAL PARK
RIVERBEND INDUSTRIAL PARK
Rap-Rap Bank
To Stop Erosion

SII
Cleaning Area
Phase II Fill Area

FIGURE 9

RIVERBEND INDUSTRIAL PARK
Rap-Rip Bank
To Stop Erosion
Barge
NDUSTRIAL
Area
SUBDIVISION
Phase II Fill Area
FIGURE 9
RIVERBEND INDUSTRIAL PARK
FIGURE 4
DESIGN SCENARIO NO. 1
FLOOD CONTROL
MISSISSIPPI RIVER AT
WINONA, MINNESOTA
GENERAL PLAN OF IMPROVEMENTS
Scale as shown
DATED: 15 January 1974
DESIGN MEMORANDUM NO. 1
FLOOD CONTROL
MISSISSIPPI RIVER AT WINONA, MINNESOTA
GENERAL PLAN OF IMPROVEMENTS

Scale as shown
DATED: 15 January 1974

FIGURE 4
FIGURE 4
DESIGN MEMORANDUM NO. 1
FLOOD CONTROL
MISSISSIPPI RIVER AT
WINONA, MINNESOTA
GENERAL PLAN OF IMPROVEMENTS
Scale as shown
DATED: 15 January 1974
WINONA, MINNESOTA
PROJECT LOCATIONS

Fig. 2

KEY TO PROJECT MAP

1. Stage II Flood Control Project
2. Fronings Inc. Grain Storage Bins & Shipping Facility
3. Farmers Union Grain Terminal Association: Grain Elevators & Shipping Facility
4. Winona Fleeting Co.: 15-Barge Fleeting Area in Crooked Slough
5. City of Winona: Beltline Truck Route
6. City of Winona: Extension of City Dock in Crooked Slough
7. City of Winona: Storm Sewer Diversion at Pelzer Street
8. Winona Port Authority: 24-Barge Fleeting Area near River Bend
9. Winona Port Authority: River Bend Industrial Park - Phase II
10. Mississippi Development Consortium: Industrial Park
11. City of Winona, Winona County & State of Minnesota: Enclosing of County Ditch No. 3
WINONA, MINNESOTA
PROJECT LOCATIONS

Fig. 2

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PROJECT LOCATIONS

Fig. 2

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DOMINION OF CANADA

NORTH DAKOTA

SOUTH DAKOTA

MINNESOTA

WISCONSIN

IOWA

INFORMATION FROM U.S./ARMY, CORPS OF ENGINEERS, ST.PAUL DISTRICT

LEGEND

- - - DRRAINAGE AREA

FIGURE 1
FIGURE 1

INFORMATION FROM U.S. ARMY, CORPS OF ENGINEERS, ST. PAUL DISTRICT