TC
224
.I3
A53
1976

15143

w.p.

COASTAL ZONE
INFORMATION CENTER

ANALYSIS OF TRANSPORTATION NAVIGATION AND COMMERCIAL PORTS AND HARBOR NEEDS

BY

NORTHEASTERN ILLINOIS PLANNING COMMISSION

Submitted to

ILLINOIS COASTAL ZONE MANAGEMENT PROGRAM

State of Illinois, Department of Transportation

The preparation of this document was financed in part by the National Oceanic and Atmospheric Administration, United States Department of Commerce, under the Coastal Zone Management Act of 1972, and in part by the State of Illinois Department of Transportation, Division of Water Resources.

CZIC COLLECTION

June 1, 1976

Illinois. Dept. of Transportation. Division of Water Resources.
TC224.I3A53 1976

CONTENTS

PAGE

INTRODUCTION..... i

ABSTRACT OF COASTAL NEEDS..... iv

CHAPTERS.....

Background to Coastal Area Needs

Landward Transportation - Existing Pattern..... 1

Coastal Freeways..... 1
Major and Minor Roadways..... 3
Mass and Rapid Transit..... 4
Local Bus Service..... 8
Freight Service..... 9

Navigation..... 10

Commercial Ports and Harbors

Navy Pier..... 17
Calumet River Harbor..... 17
Lake Calumet Harbor..... 18
Waukegan Harbor..... 20

Transportation Navigation and Commercial Port and Harbor Needs and Objectives As Expressed in Public Policy

Local Plans..... 22
Regional Plans..... 23
Navigation..... 36
Future tommercial Port and Harbor Traffic..... 38
Local Plans for Commercial Ports and Harbors..... 45
Regional Plans for Commercial Ports and Harbors... 46

Economic Significance of Coastal Ports and Harbors.. 47
Port Administration and Management..... 51

Transportation, Navigation and Commercial Ports and Harbor Needs and Objectives As Expressions of Coastal Interest

Expressed Illinois Coastal Land Transportation Needs..... 53

Expressed Illinois Coastal Navigation Needs..... 54

Expressed Illinois Commercial Ports and Harbor Needs..... 57

Coastal Needs

Landward Transportation Needs..... 60
Coastal Navigation Needs..... 70
Commercial Ports and Harbor Needs..... 78

Appendix A

Commercial Ports and Harbor Improvements

Appendix B

Most Likely Forecasts of Commodity Movements

Appendix C

Cargo Forecasts

Appendix D

Coastal Land Transportation Accessibility

Sources

ILLUSTRATIONS

TABLES		PAGE
1	Comparative Traffic Statements	15
2	Chicago Coastal Ports/Bonus Harbor Foreign Trade	16
3	Summary of Potential GL/SLS Movements	40
4	Future Traffic Estimation for the Port of Chicago	43

MAP 1

Figure 1 14

INTRODUCTION

The development of a management program for the Lake Michigan shoreline of Illinois requires that the State possess an understanding of those established and perceived needs and objectives of shore users and communities on a shorewide and shore sector basis. (See Map 1.) This understanding will provide within the program necessary background information to aid in:

--Determining those uses that might have a direct and significant impact on the waters of Lake Michigan and whether such uses are suitable, appropriate and permissible.

--Establishing priorities of land and water uses.

--Developing guidelines for the determination and designation of areas of particular concern.

--Identification of those management objectives for areas with potentially major impacts on coastal waters.

--Noting needs that when satisfied will meet greater than local objectives, and uses which are of greater than local concern.

--Investigating methods or approaches to needs satisfaction that are coordinated and consistent.

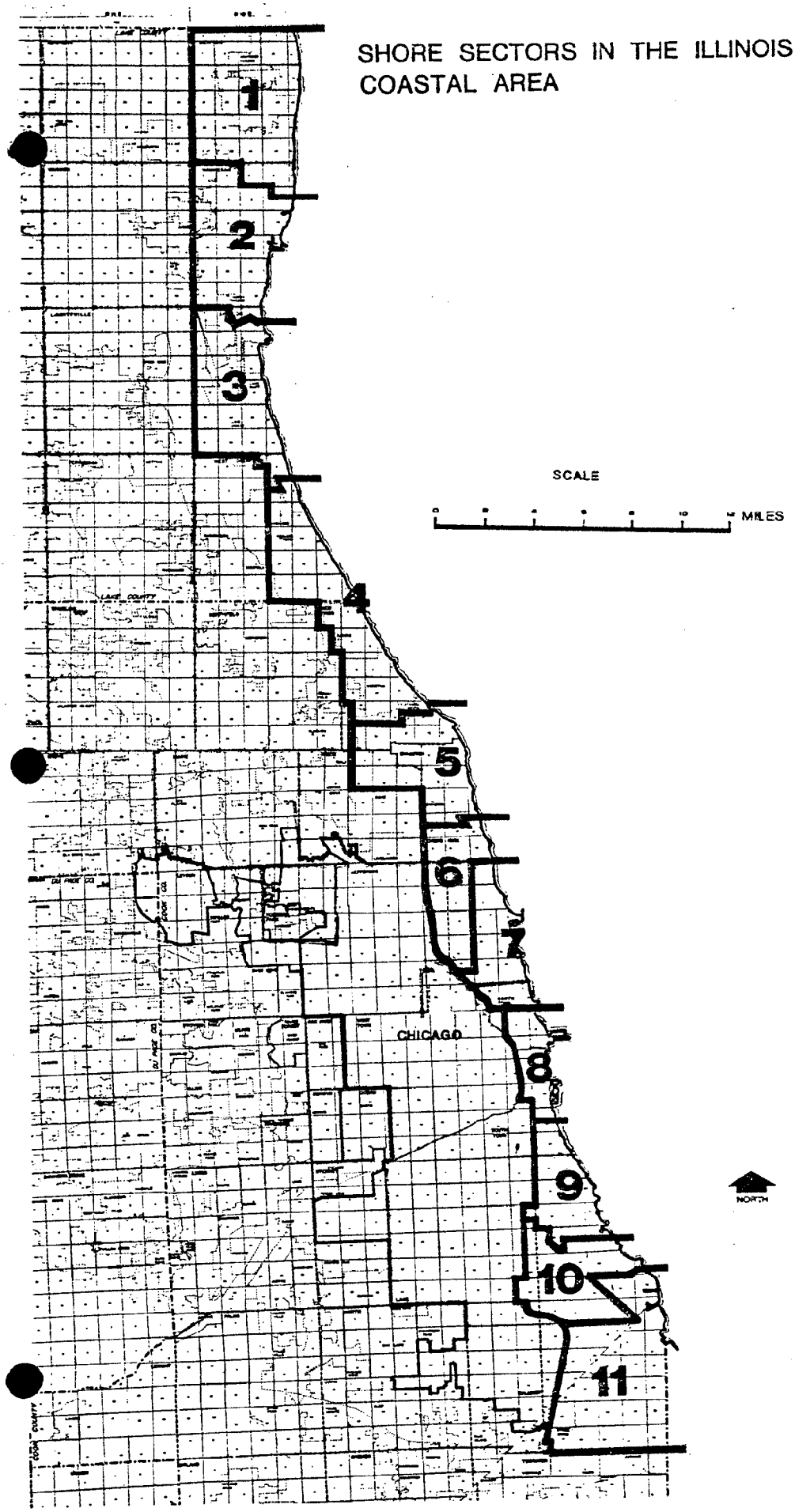
The Needs Identification Process

The process of needs identification involved a series of meetings and discussions with those parties (local, private and regional) whose activities affect Lake Michigan. Often these parties are charged with meeting the needs of a shore sector, community, the region or state and view the lake or a lake shore location as either fulfilling a need or critical for meeting the need for which they are responsible.

Needs, for the purpose of this paper, are defined as the difference between stated or perceived desires for coastal area development and the present level of developed coastal land and water uses. Measurement of needs within this definition calls for the determination of the present level of coastal land and water use development as compared to those land and water uses anticipated for the coastal area. Anticipated coastal development usually is promulgated by local governments responding to constituent desires, business and industry responding to the market place and state and regional agencies responding to both local and larger constituency desires. Therefore, when public/private concerns identify

a need, and when land of a suitable nature is available for use in meeting that need, then the need is determined to be of concern to the ICZM Program.

Needs often have the potential for conflicting with natural environmental constraints or require more service capability from developed or planned man-made systems than is available. It is not the intent of this memorandum to address these questions, but merely to provide needs information in parallel with other coastal studies on natural resources and man-made systems capabilities. Therefore, needs as determined in this memorandum will be considered only as preliminary until their capability of being satisfied in a harmonious manner with natural and man-made systems capability has been evaluated by the coastal zone management program.


SHORE SECTORS IN THE ILLINOIS
COASTAL AREA
1
2
3
4
5
6
7
8
9
10
11
SCALE
MILES
CHICAGO
NORTH

MAP 1

ABSTRACT OF COASTAL NEEDS

Coastal needs were developed and categorized into three levels of need. These levels were:

A - A land or water use need;

B - A need to study the potential or appropriateness of a land or water use; and

C - A possible or recommended means by which a land or water use need can be satisfied.

The following is a listing of those various needs identified by shore sector.

Landward Transportation Needs

The overall shorewide transportation need was determined to be:

The need to foster and encourage plans that increase access to the coastal area for the economic and recreational benefit of the region.

Level of Need: A, C.

Within this overall statement of need the following shore sector needs were identified:

Shore Sector	Need
1	9th Street - Evaluate the potential for providing local bus service to lakefront recreational areas from existing commuter stop at peak times. Level of Need - B, C. Wadsworth Road at C. & N.W. Ry. - Evaluate the potential for providing a commuter stop and local bus service from this intersection to lakefront recreational areas at peak use times. Level of Need - B, C.

Shore Sector	Need
2	Sunset/Golf/Greenwood - Evaluate the potential for providing local bus service via existing carriers from the existing commuter stop to the lakefront fishing pier at peak use times. Level of Need - B, C. Central Waukegan - Evaluate the potential for providing local bus service via existing carriers to the lakefront and harbor areas from existing commuter stop at peak use times. Level of Need - B, C.
3	Illinois Rt. 176 and Deerpath Road - Evaluate the potential for providing local bus access to the lakefront from existing cummuter stops at peak use times. Level of Need - B, C.
4	Shore access is in need of general improvement. Level of Need - A. Evaluate the potential for the designation of local lakefront service roads connecting existing freeways and transit stops with the lakefront, and the institution of local bus service by existing carrier from transit stops to the lakefront at peak use times. Level of Need - B, C.
5	East Lake Street/U.S. Rt. 41 - Evaluate the potential for providing local bus service via existing carriers to lakefront recreational areas at peak use times from nearby transit stops. Level of Need - B, C.
6	Shore access is in need of general improvement. Level of Need - A. Evaluate the potential for the designation of local roads to service the lakefront and connecting transit stops and recreational areas via local bus at peak use times. Level of Need - B, C.

Shore Sector	Need
7-8	No transportation needs were identified. Level of Need - A.
9	31st and 39th Streets - Existing freeway access and local bus service is present. Determine the potential for providing transit stops and connecting these transit stops to lakefront recreational areas at peak use times. Level of Need - B, C. Examine the potential for providing additional pedestrian overpasses of the I.C. Gulf Railroad (R.O.W. and South Lake Shore Drive between 26th and 43rd Streets to connect backshore residential areas to lakefront recreational areas. Level of Need - B, C.
10	No transportation needs were identified for this sector of the Coastal Zone. Level of Need - A.
11	95th Street - Improvements are needed to the traffic handling capability of 95th street between U.S. Rt. 41 and Stony Island Avenue to better serve commercial port, recreation and industrial activities in the area. Level of Need - A. 130th Street - Explore the possibility of providing a transit stop, and the continuation of this roadway to the Wolf Lake industrial area. Level of Need - B, C. Stoney Island - Extent south from 95th Street to 130th to provide access to potential port-related industrial development areas.

Constraint on Needs Satisfaction - It should be noted that even though thirty-six points of coastal access were identified, access by

itself means little if the coastal area being accessed is not suitable for development or is presently used to its maximum. Therefore, access must be correlated with other factors affecting shore use to meet coastal recreational, residential, industrial or commercial needs. An initial list of coastal factors that should be considered when matching access to coastal use potential might include:

--Expansion capability of the accessed coastal site

--Character of resource base. Does it foster or hinder the contemplated activities?

--Potential for creating negative impacts on backshore areas if coastal uses cannot be totally accommodated on site.

--Present level of activity now taking place, and its potential for meeting wider needs or expansion.

--Possibility of using backshore areas for aspects of coastal activities not necessarily requiring a shoreline location. Parking is a major example here.

Commercial Port and Harbor Needs

No overall shorewide commercial port and harbor needs were identified.

Within this statement of no overall need the following shore sector needs were identified.

Shore Sector	Needs
2	Facilitate the utilization of Waukegan Harbor as a recreational harbor, while maintaining proprietary shipping interests. Level of Need - A.
8	Continue operation of Navy Pier as a general cargo terminal until a comparable Calumet area facility is capable of functioning in its place. Level of Need - A.
11	Facilitate the acquisition and expansion of the existing general cargo facility at the mouth of the Calumet River due to its immediate accessibility to Lake Michigan as a replacement for those general cargo facilities now maintained at Navy Pier, and Lake Calumet. Level of Need - A. The need exists to continue Lake Calumet Harbor and Calumet River terminal facilities for proprietary and public bulk cargo terminal operations. Level of Need - B. Encourage the re-organization of the administrative structure of the port of Chicago to eliminate duplication of efforts and facilities between the City and Chicago Regional Port District. Level of Need - C.

Navigation Needs

Overall shorewide navigation needs were determined to be:

Provide additional or enlarged harbors of refuge.

Level of Need - A.

Increase the capability of the U.S. Coast Guard for conducting search, rescue and policing.

Level of Need - A.

Provide new and additional aids to navigation as the number of recreational boating facilities increase and where commercial and recreational craft share common waters.

Level of Need - A.

Develop within existing and future recreational boat harbors facilities for servicing commercial charter fishing boats.

Level of Need - A.

Promote the extention of the winter navigational season (as determined by the ICZMP staff after June, 1976).

Level of Need - C.

Within these overall statements of need the following specific shore needs were identified:

Shore Sector	Need
1	Annual dredging of the entrance channel to Trident Harbor and Spring Grove Forest Preserves small boat launching facility. Level of Need - A. Determine the need for and impacts of any harbor entrance structures that might be associated with any contemplated small boat harbor at the Illinois Beach State Park. Level of Need - B.

Shore Sector	Need
2	Complete the harbor dredging program at Waukegan Harbor and re-dredge the harbor entrance. Level of Need - A. Mitigate the potential hazards to recreation navigation posed by the U.S. Marine Corp firing range north of Foss Park. Level of Need - A. Rehabilitate the south Waukegan Harbor pier by replacing crib stone. Level of Need - A. Determine the needs for additional harbor structures and their impacts if Waukegan Harbor is expanded as a recreational harbor and harbor of refuge. Level of Need - B. Determine the need for additional navigation structures that might be needed to protect a contemplated small boat launching facility at Foss Park. Level of Need - B. Methods for mitigating adverse downdrift shoreline erosion problems associated with harbor structures needs to be evaluated. Level of Need - B.
3	Determine the need for mitigation hazards associated with submerged shore protection structures (As determined by the ICZMP staff after June, 1976). Level of Need - B. Methods for mitigating adverse downdrift shoreline erosion problems associated with harbor structures needs to be evaluated. Level of Need - B.

Shore Sector	Need
	Determine the needs for and impacts of navigational structures associated with the development of a small boat harbor at Highland Park. Level of Need - B. Determine the need for mitigating hazards associated with submerged shore protection structures (As determined by the ICZMP staff after June, 1976). Level of Need - B.
5	Annual dredging of Wilmette Harbor mouth. Level of Need - A. Determine the needs for and impacts of any additional harbor structures that might be associated with an expanded Wilmette Harbor, and the proposed marina at South Boulevard in Evanston. Level of Need - B.
6-7	Determine the needs for the impact of any navigational structures necessitated by the island/marina proposals of the City of Chicago's Lakefront Plan. Level of Need B.
8	Complete minor dredging in the outer harbor of the Chicago River. Level of Need - A. Remove or replace Pier # 1 (Dime), south of Navy Pier. Level of Need - A. Survey outer harbor rip-rap for maintenance needs. Level of Need - B. Determine the needs for and impacts of any navigational structures necessitated by the island/marina

Shore Sector	Need
	proposals of the City of Chicago's Lakefront and Riveredge Plans.
	Level of Need - B.
9-10	Determine the needs for an impacts of any navigational structures necessitated by the island/marina proposals of the City of Chicago's Lakefront Plan.
	Level of Need - B.
11	Complete the widening and straightening of the Calumet River
	Level of Need - A.
	Eliminate delays and hazards to navigation caused by those remaining bridges in the Calumet River.
	Level of Need - A.
	Close a 616 foot gap between the steel and crib breakwaters in the Calumet River outer harbor.
	Level of Need - A.
	Dredge small areas in the Calumet River outer harbor and locate a new dredge disposal site for this area.
	Level of Need - A.

BACKGROUND TO COASTAL AREA NEEDS

Landward Transportation - Existing Patterns

Coastal Freeways - The freeway system serving the coastal area is extensive and well-developed Interstate Highway 94 parallels the Illinois shoreline of Lake Michigan in Cook County. Major access points to the coastal area are at:

130th Street in South Chicago;

103rd Street in South Chicago;

95th Street in South Chicago;

87th Street in South Chicago;

83rd Street in South Chicago;

79th Street in South Chicago;

76th Street in South Chicago;

71st Street in South Chicago;

63rd Street in South Chicago;

59th Street in South Chicago;

55th Street in South Chicago;

51st Street in South Chicago;

43rd Street in South Chicago;

39th Street (Pershing) in South Chicago;

31st Street in South Chicago;

Interchange with Interstate Highway I-55 south of the Chicago loop;

All Chicago loop interchanges;

North Avenue in Chicago;

Division in Chicago;

Armitage in Chicago;

Fullerton in Chicago;

Diversey in Chicago;

Belmont in Chicago;

Addision in Chicago;

Irving Park in Chicago;

Montrose in Chicago;

Foster in Chicago;

Peterson/Ridge/Hollywood in Chicago;

Touhy in Chicago;

Dempster in Chicago;

Lake Street in Glenview/Wilmette;

U. S. Route 41, Winnetka;

Willow Road in Winnetka;

Tower Road in Winnetka; and

Dundee Road in Glencoe.

U. S. Highway 41, an improved at grade divided four-lane highway continues north through Lake County from its intersection with I-94 in north Cook County. This highway directly serves the shore area and communities in Lake County, Illinois. Major access points to the coastal area are at:

Lake/Cook Road in Highland Park;

Deerfield Road in Highland Park;

Illinois Rt. 22 in South Lake Forest to Highwood and Highland Park;

McKinley Road in Lake Forest;

Deerpath Avenue in Lake Forest;

Illinois Rt. 176 (Scranton Road) in Lake Bluff,

Lake Street in Glenview/Wilmette;
U.S. Route 41, Winnetka
Willow Road in Winnetka;

Tower Road in Winnetka;

Dundee Road in Glencoe;

Division in Chicago;

Armitage in Chicago;

Fullerton in Chicago;

Diversey in Chicago;

Belmont in Chicago;

Addison in Chicago;

Irving Park in Chicago;

Montrose in Chicago;

Foster in Chicago;

Peterson/Ridge/Hollywood in Chicago;

Touhy in Chicago; and

Dempster in Chicago.

U.S. Highway 41, an improved at grade divided four-lane highway continues north through Lake County from its intersection with I-94 in north Cook County. This highway directly serves the shore area and communities in Lake County, Illinois. Major access points to the coastal area are at:

Lake/Cook Road in Highland Park;

Deerfield Road in Highland Park;

Illinois Rt. 22 in South Lake Forest to Highwood and Highland Park;

McKinley Road in Lake Forest;

Deerpath Avenue in Lake Forest;

Illinois Rt. 176 (Scranton Road) in Lake Bluff;

Illinois Rt. 137 (Buckley Road) in North Chicago;

Illinois Rt. 120 (Belvidere Road) in Waukegan;

Washington Street in Waukegan;

Illinois Rt. 132 (Grand Avenue) in Waukegan;

Wadsworth Road in North Lake County to Zion; and

Illinois Rt. 173 in North Lake County to Winthrop Harbor and Zion.

Freeway access in South Chicago is also provided by the Chicago skyway (I-90) from the Illinois/Indiana State line to its juncture with I-94 at 64th Street. Major points of access are at:

Illinois/Indiana State line at Indianapolis Boulevard;

87th Street in Chicago; and

79th Street in Chicago.

Lake Shore Drive (U.S. Rt. 41) in the City of Chicago runs directly west of the lake shore and through Chicago's lakefront park system. This freeway provides numerous points of roadway access directly to the shoreline of Lake Michigan. However, it also has the potential and does, in some places, act as a barrier to lakefront access from those residential and commercial areas adjacent to the Chicago lakefront park system. To alleviate this problem pedestrian overpasses have been installed at many locations.

Major and Minor Roadways - Major roadways within the coastal area can be characterized as those two and four-lane at grade undivided roads either running parallel or perpendicular to the shoreline. They are usually those roads that have a potential for providing direct shoreline access.

Roads referenced as accessing the coastal area from freeways are those major roads connecting freeways to the shoreline of Lake Michigan. Two other roadways provide major access to the lake. Sheridan Road, Illinois Rt. 42, runs parallel, and at some points, is less than two blocks from the shore. Sheridan Road initiates at Ridge Avenue in Chicago and goes north to the Illinois-Wisconsin State line.

Direct shore access without going through residential neighborhoods is provided at:

South Boulevard in Evanston;

Wilmette Harbor in Wilmette;

Illinois Rts. 120 (Belvidere Road) and 132 (Grand Avenue) in Waukegan;

Greenwood Avenue in Waukegan; and

Wadsworth Road south of Zion.

South Shore Boulevard (U.S. Rt. 41) south of 47th Street in Chicago parallels the lake at a distance of 1 to 2 blocks. Direct shore access is at:

Jackson Park between 56th Street and 67th Street; and

Calumet Park between 95th and 103rd Streets.

The discussions of landward transportation needs as expressions of public policy identify those other major and minor roads that provide direct access to the coastline of Lake Michigan.

Mass and Rapid Transit Service - The coastal area is well served by mass and rapid transit facilities. Two lines, the Chicago and Northwestern Railway and Illinois Central/Gulf directly parallel the Illinois shoreline of Lake Michigan and are in many areas only a few blocks from the shore itself. Chicago and Northwestern Railway stops that provide the potential of direct access to the lake are:

9th Street in Winthrop Harbor;

Shiloh Boulevard in Zion;

Washington Street in Waukegan;

18th and Sheridan Road in North Chicago;

Buckley Road in North Chicago (Great Lakes);

Sheridan Road and Illinois Rt. 176 in Lake Bluff;

Deerpath Road in Lake Forest;

Green Bay and McKinney Roads (Fort Sheridan);

Highwood Avenue in Highwood;

Central Avenue in Highland Park;

County Line Road in Highland Park (Ravinia);

Maple Hill Road in Glencoe (Braeside);

Park Avenue in Glencoe;

Tower Road in Winnetka (Hubbard Woods);

Elm Road in Winnetka;

Winnetka Road in Winnetka (Indian Hill);

Kenilworth Avenue in Kenilworth;

Lake and Central Avenues in Wilmette;

Central Street in Evanston;

Davis Street in Evanston; and

Lunt Avenue in Chicago (Rogers Park).

I.C./Gulf stops that provide the potential of direct lake access are:

In Chicago-

Randolph Street;

Van Buren Street;

12th Street (Roosevelt Road);

18th Street;

22nd Street (Cermak Road);

27th Street;

47th Street;

51st Street (Hyde Park);

55th/57th Street;

59th/60th Street;

63rd Street;

67th Street;

71st Street and Stony Island Avenue;

71st Street and Jeffery Avenue;

72nd Street and Exchange Avenue;

75th Street;

79th Street;

83rd Street; and

87th Street.

Rapid transit service in the coastal area is provided by the Chicago Transit Authority. CTA elevated train service is generally operated at some distance from the lakefront. Presently CTA elevated train service in Chicago with stops that when/if connected with CTA local bus service have the potential for direct lakeshore access are:

EVANSTON EXPRESS

Linden Avenue in Wilmette;

Central Street in Evanston;

Noyes Street in Evanston;

Foster Street in Evanston

Davis Street in Evanston;

Main Street in Evanston;

South Boulevard in Evanston;

Howard Street (Chicago/Evanston);

Morse Avenue in Chicago; and

Loyola Avenue in Chicago.

HOWARD (NORTH-SOUTH) LINE - ELEVATED TRAIN IN CHICAGO

Jarvis Avenue;

Morse Avenue;

Loyola Avenue;

Granville Avenue;

Thorndale Avenue;

Bryn Mawr Avenue;

Berwyn Avenue;

Lawrence Avenue;

Wilson Avenue;

Sheridan Road;

Addison Street;

Belmont Avenue (connects to the Ravenswood Line);

Fullerton Avenue (connects to the Ravenswood Line);

North Avenue and Clybourn Avenue (subway);

Clark Street and Division Street (subway);

Chicago Avenue and State Street (subway); and

Grand Avenue (subway).

RAVENSWOOD LINE - ELEVATED TRAIN IN CHICAGO

Montrose

Irving Park

Addison

Belmont Avenue (connects to the Howard (North-South));

Wellington;

Diversy Parkway;

Armitage Avenue

North Avenue and Sedgwick Avenue; and

Chicago Avenue.

JACKSON PARK LINE - ELEVATED TRAIN IN CHICAGO

12th Street (Roosevelt Road);

22nd Street (Cermak Road);

35th Street;

Indiana ;

43rd Street;

47th Street

51st Street;

55th Street;

Garfield;

58th Street;

61st Street; and

Jackson Park.

South Chicago CTA bus service to the lake shore is difficult due to the significant barrier to lakefront access imposed by the I.C./Gulf right-of-way and South Lake Shore Drive Freeway. These rights-of-way in places interrupt potentially direct lakeshore bus service from rapid transit stops. To alleviate this problem in certain places, pedestrian overpasses have been erected. Overpasses are located at Michael Reese Hospital (33rd Place), 43rd Street, 51st Street (also on I.C./Gulf stop), and 55th Street at the Museum of Science and Industry. Potential areas for the continuation of this access between rapid transit, neighborhoods, buses and the lake-shore area exist at 47th Street, Pershing Road and 26th Street at the I.C./Gulf stop.

Local Bus Service - Bus service within the Illinois coastal area is presently provided by the Waukegan/North Chicago Transit Company, Highland Park Bus Company, Nortran, South Suburban Safeway, and the Chicago Transit Authority.

The most extensive service is provided by the CTA from Kenilworth Avenue in Kenilworth to the Calumet area of South Chicago. Direct lakeshore

service is provided along U.S. Rt. 41, Sheridan Road, Lake Shore Drive and South Shore Drive in Chicago and along Sheridan Road between the Linden Street CTA rapid transit stop and Kenilworth Avenue in Wilmette. These lakeshore routes interface with city routes at one-half mile intervals. Most city routes connect to backshore rapid and mass transit stops as noted previously.

South Suburban Safeway Lines service the Illinois shore and coastal area of Lake Michigan with service along Wentworth Avenue, Burnham and 130th Street to the Calumet Expressway which connects with CTA bus service at Avenue "O", 130th and 95th Street.

Nortran provides service along Green Bay Road between downtown Evanston and Fort Sheridan. This north-south service is approximately 1/2 to 3/4 miles from the shore area and constitutes the only bus service in this area with the exception of the newly initiated municipal service in Highland Park.

The Waukegan/North Chicago Transit Company mainly services these two cities with Sheridan Road service to Zion and Winthrop Harbor. Service within Waukegan and North Chicago focuses on downtown Waukegan, however, service is not provided to the industrial and recreational lake shore areas located immediately east of the downtown area.

Deficiencies within the present system of local bus service are noted in Lake Bluff and Lake Forest where the very low density of area development makes service economically difficult to provide. Another deficiency is either regular or peak-needs service of an east-west nature for the coast area north of Kenilworth Avenue to Waukegan/North Chicago and in the Zion/Winthrop Harbor area that could move people from either their residence or mass transit stops to the lake shore.

Freight Service - The Chicago SMSA is considered a freight transportation "Gateway." Gateway's are transportation complexes, of which Chicago is the largest inland one. Gateways are characterized as multi-carrier centers. Converging at the Chicago Gateway are the majority of the nation's air and freight rail services along with the major interstate highway routes of I-80, I-90, I-94 (east-west), I-55, I-57 and I-65 in Indiana (north-south). O'Hare Airport (the world's busiest) and Midway Airport (freight and some scheduled airlines) are located adjacent to the coastal area and Meigs Field Airport for commuter and private service is located in the Chicago loop at the lakefront. The other major airport serving the coastal area is the Waukegan Airport which is classified as a reliever to O'Hare and is used for general aviation operations.

All of the lakeshore from the Evanston/Wilmette area to South Chicago is within the Chicago Switching and Commercial Zones for rail and truck services. The principle of these zones is to allow for multi-carrier handling of freight at reduced ton-mile costs within complex industrial and carrier areas.

The coastal area itself is most heavily served by freight service in the South Chicago, Lake Calumet industrial complex. Direct lake shore access for rail service is provided by the Elgin, Joliet and Eastern Railway and Chicago short line. Other rail service to this area and serving the port facilities of Chicago directly are the Illinois Central Gulf Railroad Company, Norfolk and Western Railroad Company, Penn Central Transportation Company and Rock Island Lines. The Chicago and North Western Railway Company provides service to Navy Pier.

Truck freight service for Calumet Harbor is provided with direct access off the Calumet Expressway at 130th Street and 103rd Street to 95th Street and Stony Island. These roads service the South Chicago/ Lake Calumet port and industrial area. These connections also provide for freeway connection between the Lake Calumet area and Chicago Midway Airport.

Waukegan's/North Chicago's industrial-recreational lake shore is the other area of the coast most directly served by freight rail service. The Chicago and North Western Railway and Elgin, Joliet and Eastern Railroad directly link this area with the rest of the region and the South Chicago port and industrial area. This area, however, is not in the Chicago switching or commercial zones. Presently truck service to this area is over two- and four-lane local streets.

Navigation

Coastwise navigation is composed of three major components: lake and ocean steamers on Lake Michigan to the heads of lake navigation at the O'Brien Locks at 130th Street in South Chicago including Lake Calumet and the Calumet River areas, and the Main and North Branch of the Chicago River to North Avenue. Project navigation depths in these areas are 21- and 27-feet respectively. These lake navigation routes connect to the 9-foot barge channels of the Illinois waterway at West Lake Street in the Chicago loop and the O'Brien Lock on the Calumet River.

Project depths in the outer harbor areas at Navy Pier are 27-feet south of the Pier and 28-feet east of the pier to the break water. Outer harbor depths at the mouth of the Calumet River are 28- and 29-feet in twotwo anchorage areas protected by the south break water.

Navigation to Calumet Harbor in South Chicago is through the Calumet River. Five (5) bridges must be negotiated from the river mouth to slip number two at Lake Calumet. The most direct linkage to industry and inland barge traffic is offered at the Lake Calumet area.

The other center of commercial lake navigation along the Illinois shoreline of Lake Michigan is at Waukegan Harbor. Propriatary shipping of bulk cargo - gypsum and cement - utilize this harbor. Project depths at the harbor are 25-feet in the outer harbor and 23-feet in the inner

harbor to slip number 1. Outside of these activities the harbor is mainly used for recreational navigation as it does not connect directly to either inland barge or freeway truck traffic.

The remaining navigational aspects of the Illinois shoreline are recreational and military. Other recreational harbors along the shore are at Trident Harbor at the Illinois/Wisconsin stateline, Wilmette Harbor and Montrose, Belmont, Diversey, Chicago, Burnham, Jackson, and South Shore along the Chicago lakefront.

The other harbor on the Illinosi shoreline of Lake Michigan is at Great Lakes Naval Training Center and is presently used for military purposes only.

Commercial Ports and Harbors

The Illinois coastal area of Lake Michigan contains three commercial ports. Two of these ports are commonly referred to as the Port of Chicago. They are Navy Pier and the Calumet River/Lake Calumet Harbor area which is under the jurisdiction of the Chicago Regional Port District. The Navy Pier facility is under the direction of the City of Chicago, Department of Ports. The other Illinois commercial port is the Port of Waukegan which is under the management of the Waukegan Port District.

A great many reports and documents have been written concerning these ports. The following is a list of publications having a direct relationship to coastal zone management.

Barsness, Richard W., The Seaport of Chicago: Performance and Prospects. Selected Management Paper Number One, Management Programs Office, the Transportation Center: Northwestern University, Evanston, Illinois 1967.

Summary Description: 1995 Transportation System Plan. Chicago Area Transportation Study and Northwestern Indiana Regional Planning Commission (adopted by Northeastern Illinois Planning Commission), Chicago, Illinois, 1974.

"The Port of Chicago Begins a Comeback", Commerce Magazine. Chicago Association of Commerce and Industry, Chicago, Illinois, 1974.

Draine, Edwin and Donald G. Meyer, Port of Chicago: Unification Study. State of Illinois Commission for Economic Development, 1970.

Mayer, Harold M., The Port of Chicago and the St. Lawrence Seaway. University of Chicago Press: Chicago, Illinois, 1957.

Mayer, Harold M., Freight, Transportation and Metropolitan Land Use. Northeastern Illinois Planning Commission, Chicago, Illinois, 1975.

Mayer, Harold M., Wisconsin's Great Lakes Ports: Background and Future Alternatives. Wisconsin Department of Transportation (Wisconsin Coastal Zone Management Program), Division of Planning; Madison, Wisconsin, 1975.

Schenker, Dr. Eric. "Presentation to the American Association of Port Authorities on the Panel on Future Port Requirements of the United States", National Academy of Sciences. Hotel Bonaventure, Montreal, Canada, 1975.

Great Lakes Harbor Study. U. S. Army Engineer Division, North Central Corps of Engineers. Chicago, Illinois, 1966.

Commercial Navigation, Appendix C9. Great Lakes Basin Commission, Ann Arbor, Michigan, 1975.

Supplemental to these works are two reports now being prepared by the Illinois Department of Business and Economic Development and U. S. Army Corps of Engineers.

A. Booze, Allen and Hamilton is preparing for IBED a five-part study on the Port of Chicago. This study will:

1) Note the history and inventory and evaluate port facilities;

2) Conduct an economic analysis and determination of the port's hinterland;

3) Determine container facility feasibility;

4) Determine appropriate locations for Foreign Trade Zones;

5) Develop a plan and program to implement study recommendations.

B. U. S. Army Engineer Division, North Central Corps of Engineers, Chicago, Illinois, is having prepared a study entitled, Great Lakes - St. Lawrence Seaway Navigation Systems Study. The study will:

1) Determine Seaway and Great Lakes cargo market areas and hinterlands;

2) Determine existing and future potential traffic;

3) Determine rate differentials for extended seasons and comparisons for alternative modes;

4) Determine goods adaptable to water carrier freight handling;

5) Determine related physical aspects of the Great Lakes - St. Lawrence Seaway System and vessel fleet.

It is not the purpose of this memorandum to attempt to duplicate the above works, but to use them as background along with other material to gain a greater knowledge of the Illinois coastal ports and how their needs and problems relate to the Illinois Coastal Zone Management Program.

Port Use and Surrounding Land Uses - Port of Chicago

Physically the port of Chicago is composed of three distinct areas as regards Lake Michigan's Illinois coastal waters. These are:

Chicago Harbor at Navy Pier

Lake Calumet Harbor at Lake Calumet

Calumet River Harbor

Table 1 and Figure 1 compare traffic at these three facilities with Burns Harbor, Indiana, for the period 1964-1974. Burns Harbor is the other major bulk and general cargo port at the southwest end of Lake Michigan, e.g. the turnabout point for Great Lakes shipping. Table 1 notes that traffic at these ports has increased slightly over the period 1967-1974. Most increases are due to increasing traffic at Burns Harbor.

COMPARATIVE TRAFFIC STATEMENT
(in Short Tons)

FIGURE 1

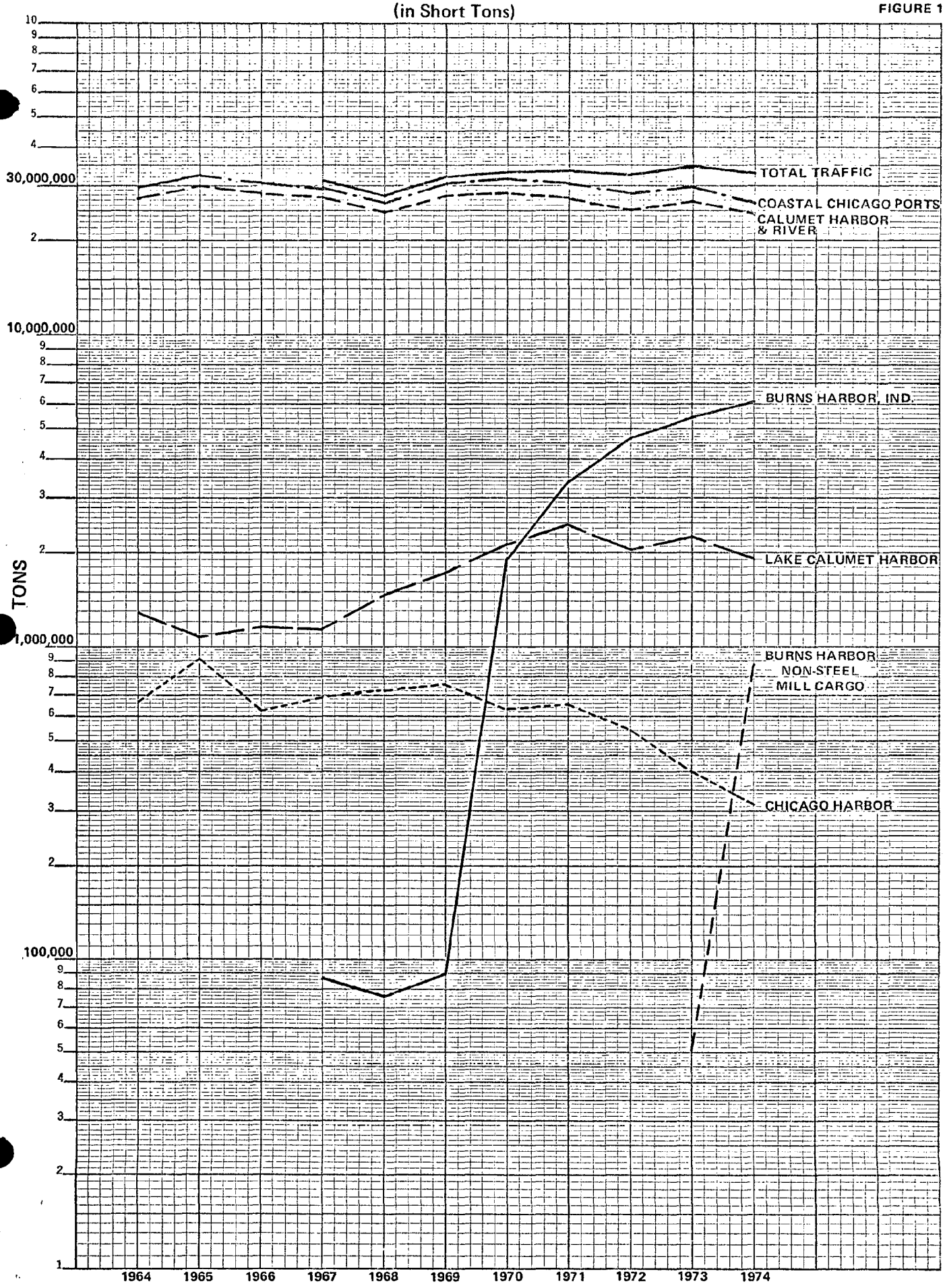


TABLE 1

COMPARATIVE TRAFFIC STATEMENTS
(In Short Tons)

Year	Facility: Chicago Harbor	Lake Calumet	Calumet Harbor and River	Total Coastal Chicago Ports	Burns Harbor	Total Chicago and Burns Harbor	% Distribution of Traffic: Chicago	Burns Harbor
1964	675,682	1,294,522	27,965,064	29,935,268	-	-	-	-
1965	902,111	1,097,477	30,067,064	32,066,652	-	-	-	-
1966	634,024	1,139,073	28,593,779	30,366,876	-	-	-	-
1967	687,676	1,130,333	27,824,319	29,642,328	874,589	30,516,917	97.13	2.87
1968	738,754	1,494,103	24,736,022	26,968,879	770,166	27,397,045	97.19	2.81
1969	754,428	1,742,605	27,937,939	30,434,972	880,305	31,315,277	97.19	2.81
1970	627,898	2,064,154	28,578,133	31,270,184	1,959,905	33,229,589	94.10	5.90
1971	656,455	2,443,236	27,113,970	30,213,661	3,413,117	33,626,778	88.70	11.30
1972	548,305	2,085,342	25,431,158	28,064,805	4,759,827	32,824,632	85.50	14.50
1973	403,305	2,281,365	26,677,118	29,361,787	5,520,080	34,881,867	84.17	15.83*
1974	317,398	1,912,763	24,589,865	26,820,026	6,053,763	32,873,789	81.58	18.42*

Source: U. S. Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, 1973 and Preliminary 1974.

*Burns Harbor in 1973 and 1974 accounted for 15.28% and 15.70% of the traffic for the production of iron and steel, therefore, leaving other cargoes, by weight, accounting for only .15% and 2.70% of all traffic.

TABLE 2

CHICAGO COASTAL PORTS/BURNS HARBOR FOREIGN TRADE

(In Short Tons)

Year	Total Exports	Canadian	Overseas	Total Import	Canadian	Overseas
Chicago Coastal						
1973	4,231,633	1,433,256	2,798,377	2,603,357	1,098,202	1,505,155
1974	2,626,297	1,553,582	1,075,715	2,610,834	1,375,876	1,234,958
Burns Harbor						
1973	2,819	-	2,819	3,257	-	3,257
1974	107,687	102,705	4,982	176,132	63,693	112,439
1974 Totals						
	2,736,984	1,656,287	1,080,697	2,786,966	1,439,569	1,347,397
% of 1974 Foreign Commerce to Chicago						
	96.07%	93.80%	99.54%	93.68%	95.58%	91.66%

Port of Chicago traffic has remained stable until recently. Declines have occurred since 1971. Lake Calumet Harbor has had steady decreases in traffic since a high was reached in 1965. This decline, overall, has been offset by traffic increases at Burns Harbor. It can assumed that much of Burns Harbor traffic would have flowed to the Port of Chicago if Burns Harbor had not been built. Burns Harbor traffic, not destined for adjacent steel mill use, increased from just over 50,000 short tons in 1973 to almost 900,000 short tons in 1974, thereby, offsetting a major over-all port decline for the period.

Comparison of Table 1 and Table 2 notes that the Port of Chicago and Burns Harbor are primarily bulk ports for down lake raw materials traffic. This has led many observers to conclude that the future of Illinois' Lake Michigan port is tied primarily to bulk commodity handling. However, a significant amount of general cargo still goes over the docks at Chicago. Booze, Allen and Hamilton and Corps of Engineers studies now underway should shed light on the future of this activity.

Specific facilities within the Port of Chicago and their characteristics are summarized below:

> Navy Pier - The pier is owned and operated by the City of Chicago. The terminal itself is restricted to the pier structure, which lies in the outer Chicago Harbor area immediately north of the Chicago River controlling works. Presently only the pier is used for port activities. Cargoes arriving and departing are primarily container and break bulk in nature.

Assets associated with Navy Pier as a maritime facility are its easy access to Lake Michigan and the inland waterways and minimal needs for tug assistance in landings and departures. Liabilities are its general location in a predominantly commercial/residential area, inadequate rail and road access, lack of facilities for bulk cargo handling and storage, and lack of room for expansion.

A total of 16 million dollars in bonds have been authorized for the maintenance of the pier as a general cargo maritime facility since 1957. Debt service for these bonds has come from the general fund of the City of Chicago, general obligation bonds of the City, wharfage fees, harbor permits and the leasing to operators of the terminal itself. All debt is expected to be retired by 1979.

> Calumet River Harbor - The Calumet River, major access route between Lake Michigan and Lake Calumet Harbor, consists primarily of private terminal operators, and industrial uses utilizing their own ships for incoming raw materials. At the river's mouth is the Transoceanic Terminal Corporation's facility, occupying a 200 acre site and specializing in general, break bulk, dry bulk and liquid bulk cargoes. Also, at the river's mouth, on its north

bank, is the U. S. Steel South Works, a proprietary shipper. Federal Marine terminal is located at turning basin number 1, approximately 1/2 mile and one raiseable bridge upstream, offering stevedor services for dry bulk and general cargo. Other proprietary and bulk cargo handlers along the river are International Harvester, Rail to Water Transfer and General Mills.

The major assets of the area are primarily its access to rail and freeway shipping, compatible land use mix and the Transoceanic Terminal site. This predominantly undeveloped 200-acre site constitutes one of the few large generally unimproved sites on the Illinois shore of Lake Michigan. The site presently is improved with +3,000 lineal feet of dockage, rail service and a transit shed. Access to the lake is direct. Site liabilities for many alternative uses are its proximity to extensive heavy industries, lack of soil due to previous occupation by a steel mill, at grade rail access and distance over collector type streets to the regional freeway network.

Financing of improvements to the area is accomplished from both public (City of Chicago) and private funds. Private funds are normally invested in facility improvements during peak operating periods. State, federal, and municipal funds are used for street, sewer, water and other community-infra-structure needs to support private activities. This duality of investment funding has resulted in a lack of over-all direction and identification of those funding priorities that would allow the Port area to capitalize on its assets while mitigating its liabilities.

Lake Calumet Harbor - The Calumet Harbor port facility is managed by the Chicago Regional Port District. The District, a state created corporation, is empowered to:

a. Study the existing harbor plans within the area of the Port District and to recommend to the appropriate governmental agency, including the General Assembly of Illinois, such changes and modifications as may from time to time be required by the continuing development therein and to meet changing business and commercial needs;

b. Make an investigation of conditions within the area of the Port District and to prepare and adopt a comprehensive plan for the development of the port facilities for the said Port District. In preparing and recommending changes and modifications in existing harbor plans, or a comprehensive plan for the development of said port facilities, as above provided, the District may if it deems desirable set aside and allocate an area, or areas

within the lands held by it, to be leased to private parties for industrial, manufacturing, commercial, or harbor purposes, where such area or areas are not, in the opinion of the District, required for its primary purposes in the development of harbor and port facilities for the use of public water and land transportation, or will not be immediately needed for such purposes, and where such leasing will in the opinion of the District aid and promote the development of terminal and port facilities;

c. Study and make recommendations to the proper authority for the improvement of terminal, lighterage, wharfage, warehousing, transfer and other facilities necessary for the promotion of commerce and the interchange of traffic within, to and from the Port District;

d. Study, prepare and recommend by specific proposals to the General Assembly of Illinois changes in the jurisdiction of the Port District;

e. Petition any federal, state, municipal or local authority, administrative, judicial and legislative, having jurisdiction in the premises, for the adoption and execution of any physical improvement, change in method, system of handling freight, warehousing, docking, lightering and transfer of freight, which in the opinion of the Port District may be designed to improve or better the handling of commerce in and through the Port District or improve terminal or transportation facilities therein. As amended by act approved June 13, 1957. L. 1957, p. 588.

Also, the District is empowered to operate terminal facilities for the handling, docking, storing and servicing of small boats and pleasure craft.

The District presently owns 2,250 acres at the juncture of Lake Calumet and the Calumet River north of 130th Street. Facilities at this location include a 200-acre deep draft ship and barge mooring basin, 8,200-lineal feet of steel dockage and 140 acres of back shore reclaimed marsh land. Improvements include 3-transit sheds of approximately 316,000-square feet, a 200,000-square foot warehouse and 2-grain elevators of 6-1/2 million bushels capacity each. These facilities are leased to various stevedor operations.

Other port district lands are leased to private parties for port related activities. These include:

a. EmEsCo Industries, Inc. who operate waterfront transfer, bulk storage, warehouse and packing, creating and processing services on a 60-acre site.

b. International Great Lakes Shipping Company who operates a 35-acre open storage facility for heavy machinery and bulk cargo.

c. Bulk Terminal Company leases a 177-acre site for the storage and blending of various chemicals and petrochemicals.

d. Transoceanic Terminal Corporation has recently leased acreage for the purpose of developing a barge terminal.

Assets of the terminal are its level of development, highly accessible location as regards regional rail and highway service with direct access to the Calumet Expressway, and position at the confluence of inland barge and lake shipping routes. Liabilities of the terminal are its lack of ready access to Lake Michigan; five bridges must be negotiated over 5 + miles of river causing significant cost/time delays and the need for tug assistance during river transit for lake slips.

Terminal development is financed from industrial revenue bonds that are retired from leases of transit sheds, fees, and land leases to private port related industries. This is in contrast to both Navy Pier and Burns Harbor, Indiana, who have general funds and general obligation bonds as sources of income. The inference here being that port development is an element in over-all regional economic development, therefore, it cannot be expected to be totally self-supporting. The industrial bond/fee basis of operation at Lake Calumet has resulted in improvements being made in peak periods of activities, but during down periods revenues are used solely to retire bonds, therefore, the improvements necessary to maintain or establish a more competitive position for this port have usually not been provided.

Waukegan Harbor - Waukegan Harbor is managed by the Waukegan Port District. The District, a state created corporation, is charged with port terminal and facility operational responsibilities similar to those of the Chicago Regional Port District. The District can:

-Issue construction permits within 110 feet of navigable waters;

-Prevent or remove obstructions to navigable waters;

-Locate and establish dock, shore and harbor lines;

-Regulate navigation;

-Acquire, own, construct, lease, operate and maintain terminal and port facilities;

-Locate, establish, manage, operate, lease and maintain a public airport.

To date, the District has made improvements to Waukegan harbor for recreational and commercial traffic. Improvements for commercial traffic have been for proprietary harbor shipping interests adjacent to the harbor and consisted of over 2,000 feet of improved dockage on the west side of the harb or at alip number 1. Other commercial improvements have been made by the Corps of Engineers and harbor industries. All commercial improvements besides maintenance of the main harbor sturctures have been in the northwest portions of the harbor.

However, recent District funding has been toward the improvement of the harbor as a recreational boating facility and the Waukegan Memorial Airport in the northwest sector of the city instead of commercial port improvements. This is in recognition of the fact that Waukegan is primarily a recreational port with some proprietary shipping interests for which improvements have already been made.

Outside of proprietary shipping at Waukegan Harbor other harbor area industries do not utilize the harbor for shipping. Johnson Outboard Motors uses it for the testing of its line of marine products and the other harbor activities are of a commercial nature. The recreational needs study will discuss the recreational characteristics of Waukegan Harbor in detail.

Assets of the harbor for commercial traffic are its ready access to Lake Michigan and available rail service. Liabilities, however, are its small size, lack of an anchorage, limited available surrounding land for terminal development, present poor access to the region's highway system and intensity of recreational use.

Financing of port activities are allowed via industrial revenue bonds, leases and fees. However, the District, can also use, after referendum, general revenue bonds, a right not conferred on the Chicago Regional Port District.

TRANSPORTATION NAVIGATION AND COMMERCIAL HARBOR PORT AND NEEDS

AND

OBJECTIVES AS EXPRESSED IN PUBLIC POLICY

Local, Regional and State bodies have developed various planning and development programs whose objectives are the meeting of coastal area transportation needs. These expressions of needs to be met are in the areas of local and regional roadway, mass transit and freeway plans. The following sections develop on a sector by shore sector basis those transportation phases in local, regional and state planning documents. These documents were initially researched in FY'74 for the Illinois Coastal Zone Management Program's, Land Use Policy Analysis report prepared by NIPC. This document is the basic source book for the following detail plan summaries.

Local Plans

Local community transportation plans are primarily for local street improvements. These plans frequently reference or take as given various freeway, major and local collector roads being proposed by other Illinois transportation planning bodies such as Chicago Area Transportation Study, Northeastern Illinois Planning Commission, Illinois Department of Transportation.

Major Roads - Major roads are usually those four lane roads serving an area. They are frequently channelized at intersections and traffic flow is regulated by light signage. The following is a listing, by shore sector, of those major roads either identified or porposed by communities within the Illinois coastal area of Lake Michigan.

Shore Sector I.

-9th Street west of the Chicago and North Western Railway (C&NW) in Winthrop Harbor.

-Illinois Rt. 173, realigned west of the proposed Lakefront Freeway and C&NW between Zion and Winthrop Harbor.

-Wadsworth Road, west of the proposed Lakefront Freeway and C&NW between Zion and Winthrop Harbor.

Shore Sector II.

-Illinois Rt. 132 (Grand Avenue) from Sand Street east of the C&NW and proposed Lakefront Freeway west in Waukegan.

-Washington Street west of Sheridan Road in Waukegan.

-Illinois Rt. 120 (Belvidere Road) from Sand Street east of the C&NW and proposed Lakefront Freeway west in Waukegan.

-Illinois Rt. 137, (Buckley Road) west of the proposed Lakefront Freeway to U. S. 41 and I-94.

Shore Sector's I and II.

-Sheridan Road running east and west of the C&NW, north and south from Lake Bluff in North Chicago, through Waukegan, Zion and Winthrop Harbor to the Illinois/Wisconsin stateline.

Shore Sector III.

-Illinois Rt. 176, west of Sheridan Road and the C&NW in Lake Bluff.

-Lake Forest and Highland Park are in the process of developing transportation plans. Highwood does designate any major roads in the transportation section of its plan.

Shore Sector IV.

-Green Bay/Glencoe Road, running north-south and west of the C&NW in Glencoe.

-Green Bay Road, running north-south and west of the C&NW in Winnetka.

-Sheridan Road just west of the lake shore running north-south and east of the C&NW in Wilmette and Winnetka.

-Tower Road, west of Sheridan Road, residential in character for 1 block east of Sheridan Road to Lake Michigan in Winnetka.

-Willow Road, west of Sheridan Road, in Winnetka, residential in Character east of Sheridan Road to Lake Michigan.

-Winnetka Road, west of Sheridan Road in Winnetka.

-The Village of Kennilworth has not developed a transportation plan.

Shore Sector V.

-Lake Avenue, west of Sheridan Road in Wilmette.

-Chicago Avenue, running north-south in Evanston.

-Oakton/South Boulevard west of the Lakefront in Evanston.

Shore Sector VI - Howard

-Touhy.

-Pratt.

Shore Sector VII - Devon.

-Peterson.

-Bryn Mawr.

-Foster.

-Lawrence.

-Montrose.

-Irving Park.

-Addison.

-Belmont.

-Diversey.

-Fullerton.

-Armitage.

Shore Sector VIII - North

-Division.

-Chicago.

-Ontario.

-Ohio.

-Illinois.

-Randolph.

-Monroe.

-Adams.

-Congress.

-Balboe.

-Roosevelt.

-10th.

-Cermak.

Shore Sector IX - I-55.

-26th.

-31st.

-35th.

-Pershing.

-43rd.

-47th.

-51st.

-Garfield.

Collector Roads - Collector roads are normally two lane in nature and provide secondary means of automobile movement within communities. The movement on these roads is normally controlled by non-lighted signage and channelization is not usually provided. The following is a listing, by shore sector, of those local collector roads either identified or proposed by communities within the Illinois coastal area of Lake Michigan.

Shore Sector I.

-Stateline Rd., west of the Lakefront in Winthrop Harbor.

-7th Street east of the proposed Lakefront Freeway and C&NW in Winthrop Harbor.

-Winthrop Harbor.

-Illinois Rt. 173, extended east of the proposed Lakefront

-Winthrop Harbor.

-Illinois Rt. 173, extended east of the proposed Lakefront Freeway and C&NW to the Lakefront between Zion and Wintrop Harbor.

-Shilo Blvd., west and east of the proposed Lakefront Freeway to the Lakefront in Zion.

Shore Sector II.

-Greenwood Avenue, west and east of the proposed Lakefront Freeway and C&NW to the Lake Michigan in Waukegan.

-Derringer Road, on the lake plain, improved and extended east from Sand Street to Lake Michigan in Waukegan.

-Seahouse Drive, on the lake plain, improved around Waukegan harbor to the Lakefront.

-Clayton St. on the lake plain in Waukegan east of Sand Street to Waukegan Harbor, connects to Seahouse Drive.

-Sand Street on the lake plain running north - south between Illinois Rt. 120 (Belvidere Road) and Greenwood Avenue.

-10th Street - proposed (4 lanes), west to Sheridan Road between Waukegan and North Chicago.

-Foss Park Avenue - proposed (4 lanes), east of Sheridan Road to the proposed Lakefront freeway, east of the freeway local in character to Foss Park on Lake Michigan.

-14th Street - proposed (4 lanes), west of Sheridan Road, to U. S. Rt. 41 in North Chicago.

-22nd Street - proposed (4 lanes), west of the proposed Lakefront Freeway to U. S. Rt. 41 in North Chicago.

Shore Sector III.

-Blodgett Road, extended east of Green Bay Road, to its improved portion east of Sheridan to the Lakefront. Lake Michigan in Lake Bluff.

-Center Avenue from Ill. Rt. 176 to the Lakefront in Lake Bluff.

-Lake Forest is presently in the process of developing a comprehensive plan.

-Walker Road, from Sheridan Road east to Oak Street at the Lakefront in Highwood.

-Highland Park is presently in the process of developing a comprehensive plan.

Shore Sector IV.

-Sheridan Road, running north-south in Glencoe.

-Maple Hill Road, between Green Bay/Glencoe Road and Sheridan Road, east of Sheridan residential in character to the Lakefront in Glencoe.

-Park Avenue, west of Sheridan to the C&NW, east of Sheridan to Lake Michigan in Glencoe residential in character.

-Hazel Avenue, west of Sheridan to the C&NW, east of Sheridan residential in character to Lake Michigan in Glencoe.

-South Avenue, west of Sheridan to Green Bay, east of Sheridan Road, residential in character to Lake Michigan in Glencoe.

-Harbor Street, west of Sheridan to Green Bay Road, east of Sheridan Road residential in character to Lake Michigan in Glencoe.

-Winnetka - no collector streets planned for.

-Kennilworth does not have a plan.

Shore Sector V.

-Central Avenue, west of Sheridan Road in Wilmette.

-Linden Avenue, west of Sheridan Road in Wilmette.

-Sheridan Road, south of its intersection with Chicago Avenue just west of the lakeshore to South Boulevard in Evanston.

-Main Street, east of Chicago to Sheridan, residential in character to Lake Michigan in Evanston.

Shore Sector VI - IX.

-No local collector streets indicated.

-59th.

-63rd.

Shore Sector X.

-67th.

-71st.

-75th.

Shore Sector XI.

-79th.

-83rd.

-87th.

-95th.

-103rd.

-106th.

-111th.

-127th - 130th.

Regional Plans

Regional Transportation planning activities that affect the Illinois coastal area of Lake Michigan are synopsized in the "1995 Transportation System Plan" for the northeastern Illinois-northeastern Indiana area as developed by the Chicago Area Transportation Study, (CATS), NIPC, Northwestern Indiana Regional Planning Commission, Illinois Department of Transportation and the City of Chicago. The system plan has been adopted by CATS and NIPC. It develops recommendations in four areas: Transit, Highways, Airports and Freight. The goals and objectives of the plan are referenced in the 1st year CZM work prepared by NIPC, concerning public policy affecting Lake Michigan. The detailed recommendations of this plan that affect the coastal area of Lake Michigan are summarized below:

Transit - The transit element of the plan has two distinct elements that affect the coast area. Commuter rail as provided by those present providers described earlier in this memorandum. Increased utilization of this system is expected to be accommodated by the present network.

Two new rapid transit service improvements constitute the second element. Two new subways are being porposed that will provide for increased rapid transit service in the northeast and southeast portions of Chicago. They are: from Jefferson Park to the Chicago CBD via Lawrence Avenue, east-west leg of the Ravenswood to Wilson, Sheridan Road and the Lake Shore Corridor; and the extension of Dan Ryan "A" service from 95th Street to 103rd Street via the Calumet Expressway.

The system plan does not propose any stops for these new services however, the test network for the plan hypothesized certain stops. For that portion of the Jefferson Park to Chicago CBD that lies east of present CTA Service, stops were proposed at:

Broadway

Montrose

Irving Park

Addison

Roscoe

Belmont

Diversey

Fullerton

Armitage

North

Division

Stops tested for the extension of Dan Ryan service to 103rd street were at:

95th Street

Michigan Avenue

King Drive

Stony Island Avenue

103rd Street

Regional Bus - The System Plan made recommendations for four regional bus lines that interface with the coastal area of Lake Michigan in four different coastal sectors. The regional bus system is to be express in nature and intended to connect suburban centers with each other and other components of the regional transit system. Routes that interface with the coastal area are in:

Shore Sector II.

-Between Waukegan initiating at the Chicago and Northwestern Railway station on the Lakefront and Calumet City via Illinois Route 120 (Belvidere Road) U.S. Route 45, 143rd Street and Illinois Route 83. This route would connect the communities of central Lake County to the coastal area.

Shore Sector IV.

-Between Highland Park initiating at the Chicago and Northwestern Railway Station and Lemont via Central Avenue; Illinois Routes 43, 68, and 53; Interstate -55 and Lemont Road. This route connects those communities of south Lake County and far north Cook County to the coastal area.

Shore Sector V.

-Between Evanston near the downtown Chicago and Northwestern Railway and CTA transits stations and Elgin via Illinois Route 58, this route connects north and northwest suburban Cook County communities to the coastal area.

Shore Sector XI.

-Between U.S. Route 40 and Interstate 80 via 75th Street and Torrence Avenue. This route serves the Calumet area and connects with the Waukegan Lemont Route at U.S. Route 45.

Local Bus Service - This memorandum in a later section, describes the extent of local bus service in the coastal area of Illinois. The system plan notes that local bus service is recommended for all areas where the person trip destination activities will exceed 5,000 per square mile by 1995. Based on forecasts of future population available at the date of plan development, local bus service is forecasted for the complete shoreline of Lake Michigan.

Transportation Centers - A major element of the System Plan is the provision or determination of regional transportation activity centers where commuter rail and local and regional bus service come together. The purpose of these centers is to maximize the coordination potential of various transit center modes at one point. The following regional transportation centers are proposed to be within the coastal area of Lake Michigan.

Shore Sector II.

-In Waukegan east of the central area of the city interfacing with the Chicago and Northwestern Railway, Lakefront Freeways, and regional and local bus service. This center is also served by the major local routes of Grand Avenue, Belvidere Road and Sheridan Roads in Waukegan. This proposed center is approximately 1½ blocks from Waukegan Harbor.

Shore Sector V.

-In downtown Eavnston interfacing the Chicago and Northwestern Railway, CTA, regional and local bus service. The center would be situated in the western portion of the area approximately 7 blocks from the lakefront. Elements of the communities' local, major and collector road system that could connect the Center to the lakefront area are:

Main Street;

Sheridan Road and South Boulevard;

Forrest and Sheridan Road; or

Chicago Avenue and South Boulevard.

Shore Sector VIII.

-The Plan assures the continuation of the Chicago Loop as the major transportation center of the region. CTA bus service and the South Shore and Illinois Central/Gulf Railroads interface on Michigan Avenue immediately west of Grant Park and Chicago Harbor.

Shore Sector XI.

-South of 95th Street and west of the Calumet Expressway interfacing with CTA rapid transit, and regional and local bus. This area is immediately north and west of Lake Calumet and is connected to Lake Calumet by the proposed extension to the Dan Ryan rapid transit line.

Highways - The highway element of the system plan is divided into two sections, freeways and arterials. The plan's recommended freeway system is composed of freeways, from the tested alternative networks, which constantly produced high simulated traffic volumes and whose construction was deemed practical. The 1995 Plan recommends only the Lakefront Freeway, between I-94 and the City of Zion, which would interface with the coastal area. This freeway is planned to parallel the lakefront with direct lakefront access at numerous points; however, present implementation plans call for completing the south leg from Grand Avenue in Waukegan to I-94 first. The section immediately north from Grand to Greenwood Avenue in Waukegan is completed.

Access from this leg would be from:

Greenwood Avenue in Waukegan, four-way (completed),

Grand Avenue in Waukegan, four-way (completed),

South Avenue in Waukegan, four-way (completed).

North Chicago Alternatives (planned):

Buckley Road Alternative

Foss Park Avenue, North On/off

Sheridan Road, South On/off

24th Street to Great Lakes

Buckley Road to Great Lakes

24th Street

Foss Park Avenue, North On/off

22nd Street, South On/off

Completion of the north section of the Lakefront Freeway, after discussions with the Illinois Department of Transportation, has to be considered tentative at this time. Tentative status is due primarily to a lack of determination as to where the south Wisconsin Freeway is to terminate. Present terminous now appears to be at U.S. Route 41. This termination at U.S. 41 reduces the need for the north leg between Greenwood Avenue in Waukegan and the Illinois State Line. Also, Sheridan Road north of Greenwood Avenue in Waukegan has been improved to a major four lane road.

If the north segment of the Lakefront Freeway was to be built, alignments north of Greenwood Avenue to the stateline would be:

-West of the C&NW R.O.W. to 31st Street in Zion.

From this point north:

Alternative I.

-West of C&NW. R.O.W. to the stateline.

Alternative II.

-Crossing to the east of the C&NW R.O.W. to the area between the old Zion industrial area and the Commonwealth Edison nuclear reactor.

-West of the C&NW R.O.W. from Ill. Rt. 173 to 17th St. to the stateline.

Access points would be:

-East-west at Main Street in Winthrop Harbor.

-East-west at Ill. Rt. 173.

-East-west at Shiloh Boulevard.

-East-west at Wadsworth Road.

-West only at Holdridge Road.

Arterials - The system plan designates approximately 4,000 road segments in northeastern Illinois to remain as, or be improved to arterial standards. Improvements, generally within existing right-of-ways, will increase system capacity by 26 percent. This increase will provide adequate levels of service without needlessly adding freeways. Designated arterials that serve the lakeshore are:

West to East Arterial Network:

Shore Sector I.

-Ninth Street in Winthrop Harbor, Illinois.

-Route 173.

-Wadsworth Road.

-Townline Road/Holdridge Road.

Shore Sector II.

-Sunset - Golf - Greenwood in Waukegan, Illinois.

-Route 132 (Grand Avenue) in Waukegan.

-Washington Street in Waukegan, Illinois.

-Route 120 (Belvidere) in Waukegan.

-22nd Street in North Chicago.

Shore Sector III.

-Illinois Route 137 (Buckely Road) in North Chicago.

-Illinois Route 176 (Scranton Road) in Lake Bluff.

-Illinois Route 60 - McKinley.

-Waukegan Road in Lake Forest.

Shore Sector IV.

-Everett Road - Illinois Route 22 (Half Day Road)

-Prairie Avenue in Highwood.

-Deerfield Road in Highland Park.

-Lake - Cook Road.

-Sundee Road in Glencoe.

-Tower Road in Winnetka.

-Willow Road in Winnetka.

-East Lake in Wilmette.

Shore Sector V.

-Glenview Road/105h Street in Wilmette.

-Central Street in Evanston.

-Simpson.

-Dempster Street in Evanston.

-Oakton in Evanston.

Shore Sector VI.

-Howard Street.

-Touhy - Rogers Avenues in Chicago.

-Devon Avenue in Chicago.

Shore Sector VII.

-Ridge - Hollywood Avenues in Chicago.

-Foster Avenue in Chicago.

-Lawrence Avenue in Chicago.

-Wilson Avenue in Chicago.

-Montrose Avenue in Chicago.

-West Irving Park in Chicago.

-Addison Street in Chicago.

-Belmont Avenue in Chicago.

-Diversey Parkway in Chicago.

-West Fullerton Parkway in Chicago.

Shore Sector VIII.

-Division Street in Chicago.

-Chicago Avenue in Chicago.

-Ohio Street in Chicago.

-Congress Street in Chicago.

-Roosevelt Road in Chicago.

-Cermak Road in Chicago.

Shore Sector IX.

-Pershing Road/Oakwood Boulevard in Chicago.

-47th Street in Chicago.

-51st Street in Chicago.

-63rd Street in Chicago.

-East Marquette Road in Chicago.

Shore Sector X.

-East 79th Street in Chicago.

-East 87th Street in Chicago.

-East 95th Street in Chicago.

-East 103rd Street in Chicago.

-East 111th Street to 108th Street (Proposed) in Chicago.

-East 130th Street and Brainard Avenue in Chicago.

North/South Arterial Network.

Shore Sector I - Shore Sector VI.

-Sheridan Road from the Illinois Wisconsin Stateline to Ridge - Hollywood Avenues in Chicago.

Shore Sector VII - Shore Sector IX.

-North and South Lakeshore Drive.

Shore Sector IX - Shore Sector XI.

-U.S. 41 from 55th Street in Chicago to the Illinois/Indiana Stateline.

Navigation

Navigational Improvements - The maintenance of navigational ways and structures is the responsibility of the U. S. Army Corps of Engineers, Chicago District, Operating Branch. These responsibilities normally

involve the maintenance of federal harbor structures and navigatable depths in coastal harbors and rivers by dredging, straightening and widening channels. The Corps' authority to undertake such activities is derived from the Federal River and Harbors Act. Projects undertaken under this Act are described by commercial navigation area and degree of project completion. Projects for which the Corps now has authority by coastal shore sector are:

Waukegan Harbor, Shore Sector II.

-Maintenance of three federal harbor structures and channel dredging. As of June 30, 1973 the structure maintenance portion of the project was completed. The dredging portion of the project was partially completed with outer harbor dredging in 1974. However, ships grounded in this area in 1975. Dredging of inner harbor polluted spoil has yet to be accomplished. Dredging of this area is tentatively scheduled for 1976. Spoils from this dredging are to be barged to the now completed Kenosha confined dredge disposal area.

Chicago Harbor, Shore Sector VIII.

-Maintenance of the shore area extension, exterior breakwater and extension, and inner breakwaters. These structures project Navy Pier and the Grant Park Yacht basin. Dredging for the area extends east from the controlling works at the Chicago River through the breakwaters and into the Lake, and include a 970 acre outer basin extending west from the controlling works in the Chicago River to Rush Street. Dredging of the ship area south of Navy Pier to a depth of 27 feet is the responsibility of the City of Chicago. The majority of this project, with the exception of minor harbor dredging, is completed.

Chicago River, Shore Sector III.

-Projects in this area, necessary for lake navigation, involve dredging and channel clearing for the main and north branch of the Chicago River from Rush Street to North Avenue. North of North Avenue to Golf Road is not proposed to be dredged to the 21 foot federal project depths necessary for lake navigation.

Calumet Harbor and River, Shore Sector XI.

-Maintenance of a steel and crib breakwater protecting a 3,000 foot wide by almost 2 mile long anchorage. Dredging of anchorage areas and the Calumet River to 27 feet from Lake Michigan to Lake Calumet, including turning basins in the river, channel

straightening and widening are proposed. Remaining work consists of miscellaneous widening and straightening of the Calumet River and the inactive activities consisting of closing a 616 foot gap between the steel and crib breakwaters and dredging 2 small and 2 large areas in the anchorage.

Details and maps on the above-referenced projects are contained in Appendix A.

In discussion with the Corps on these projects, the major coastal navigation need sited was the ability to continue dredging activities in the Port of Chicago, especially in the Lake Calumet River and Harbor area. Fulfilling this need is hampered in that the present land disposal site northeast of Lake Calumet is nearly filled due to completion of dredging the Calumet River to 23 feet. Dredging will have to be initiated to maintain project depths if Lake levels decrease. Also, the North Branch Chicago River has not been dredged since 1966. This problem of dredging and spoil disposal is hampered due to the inability of the Corps to determine a local project sponsor and a suitable disposal site. Any open water dredge disposal site in the Calumet River outer harbor presents an interstate problem with the State of Indiana; those parties benefiting from dredging in the Port of Chicago have been unable to reach agreement on either a land or lake site at another location.

Other needs sited by the Corps are at:

Waukegan, Shore Sector II.

-Replace crib stone in the south breakwaters.

Chicago Harbor, Shore Sector VIII.

-Removal by the City of Chicago of Pier #1, just south of Navy Pier due to deterioration.

The Corps presently does not have authority to develop a commercial harbor in Chicago. However, authority does exist to continue expansion of commercial activities in the Calumet Harbor and River area. The expansion project cannot be undertaken given the lack of a local sponsor. Thus, it is classified as inactive.

Future Commercial Port & Harbor Traffic

The Corps of Engineers, North Central Division, has developed, as referenced in this memorandum, and is continuing to develop future forecasts of commercial traffic for the Great Lakes/St. Lawrence Seaway by 10-year increments from 1980 to 2040 if this hinterland is captured.

To accomplish these forecasts, a potential Great Lakes hinterland, including 19 states and portions of other states immediately surrounding the Great Lakes was determined. Movements of freight traffic, both general and bulk, which originate and/or terminate within the hinterland were used as the forecast base.

Table 3 summarizes the 1972 versus 2040/bulk and general cargo potentials for this hinterland.

TABLE 3

Summary of Potential GL/SLS Movements
(Millions of Short Tons)

World Area (1)	Type of Cargo	1972 Tonnage	2040 Tonnage	Average Annual Growth Rate
North America	Bulk	246.6	866.4	1.9%
	General	4.0	78.5	4.5
	Total	250.6	944.9	2.0%
Overseas	Bulk	55.5	343.1	2.7%
	General	25.6	883.7	5.3
	Total	80.1	1,226.8	4.1%
Total	Bulk	302.1	1,209.5	2.1%
	General	29.6	962.2	5.2
	Total	331.7	2,171.7	2.8%

Notes: (1) North America includes U.S. Domestic, Canada Domestic and U.S./Canada Trade.

Based on these potentials, low and most likely freight forecasts were developed. A shipper preference survey and a route split computer model which are yet to be developed. Exhibit II - 6 and 7, contains in Great Lakes/St. Lawrence Seaway Traffic Forecast Study, Most Likely Forecast of Total Bulk Commodity and General Cargo Movements, summarize general and bulk cargo forecasts as determined by the Corps. See Appendix B. These forecasts will in the future, be allocated to various Great Lakes ports by the Corps. In the interim period, however, estimates were prepared using ratios of opportionment based on traffic at the Port of Chicago in 1969, 1971 and 1973. These years were selected as they allowed for the elimination of extreme peaks and throughs in traffic movements. See Figure 1. Appendix C contains base year data used to determine future traffic estimates of general and bulk cargo.

Thus, estimates of traffic at the Port of Chicago were determined via the following process:

+ Determination for base years 1969, 1971 and 1973 total foreign general cargo in the Great Lakes and at the Port of Chicago;

+ Determination of the Port of Chicago's share of Great Lakes foreign and domestic bulk cargo;

+ Determination of the Port of Chicago's share of Great Lakes foreign general cargo;

+ Determination of the Port of Chicago's share and potential range of Great Lakes foreign general cargo prime for containerization as established by the Corps of Engineers cargo mixes developed in the Seaway Forecast Study;

+ Determination of the Port of Chicago's share of Great Lakes Foreign general cargo prime and potentially prime for containers;

+ Factoring traffic forecasts for the Great Lakes hinterland for the forecast base year to determine that volume of general and bulk cargo generated in the Great Lakes hinterland and shipped via the Great Lakes/St. Lawrence Seaway. From this process three sets of traffic estimations for bulk and general cargo were made. First,

General Foreign Cargo to the Port of Chicago for the years 1980, 1990 and 2000 developed for:

- Total foreign general cargo at the Port of Chicago;
- Total foreign general cargo at the Port of Chicago prime for containers;
- Total foreign general cargo at the Port of Chicago prime and potentially prime for containers.

Secondly, bulk foreign and domestic cargo information was estimated and factors for that portion of general lakeward and coastwise general cargo traffic that went to the Port of Chicago for the base years were determined. This data allowed for the following estimates to be developed:

- Foreign and domestic bulk traffic at the Port of Chicago;
- Foreign and domestic general cargo at the Port of Chicago;
- Foreign and domestic general cargo at the Port of Chicago prime and potentially prime for containerization.

Since only minor tonnages of domestic general cargo prime for containerization moved through the Port of Chicago in the base years of 1969, 1971 and 1973, estimation of future tonnages of prime for containers was not possible. Table 4 summarizes the estimates of future traffic that can be expected to be shipped and received at the Port of Chicago for the period 1980, 1990 and 2000.

TABLE 4

Future Traffic Estimation for the Port of Chicago
For The Years 1980, 1990 and 2000
(Shorttons)

Estimation Year	Total Foreign General Cargo		Range: Prime for Containers	Prime and Potentially Prime For Containers	Total Foreign and Domestic Bulk Cargo	Total Foreign and Domestic Bulk Cargo	Total Foreign and Domestic General Cargo Prime and Potentially Prime for Containers
1980	5,136,000	Low	406,700		Low 26,312,000	5,655,000	5,553,000
		High	556,600	5,067,000	High 29,378,000		
1990	12,445,000	Low	985,500		Low 33,948,000	13,713,000	13,456,000
		High	1,348,800	12,277,000	High 37,903,000		
2000	18,532,000	Low	1,471,500	18,331,000	Low 42,368,000	20,459,000	20,091,000
		High	2,013,900		High 47,305,000		

Sources: Forecast Base for These Estimations. Department of the Army, Corps of Engineers North Central Division. Traffic Forecast Study, February, 1976, A. T. Kearny, Inc.

Estimations: NIPC

It is estimated, given base forecasts prepared by the Corps of Engineers, that significant tonnages will continue to be shipped to and from the Port of Chicago. The majority of this tonnage will be in bulk cargo going to both public and propriatory shipping facilities in the port. In 1980 it is estimated that 5.655 million tons of foreign and domestic general cargo will go through the port; of this amount 5.553 tons will be either prime or potentially prime for containers. This is expected to increase to 20.459 and 18.331 million tons respectively by the year 2000. These tonnages mark major potentials for the Port of Chicago, and even if not fullfilled, constitute significant increases over base years and 1974 when general cargo declined from 1971 levels of 3,422,856 tons to 1,502,423 tons. The overall positive directions of these estimates are, however, consistent with those long term trends expressed by Dr. Harold Meyer in Freight Transportation and Metropolitan Land Use which he authored for NIPC in 1973.

Dr. Meyer noted that, "In spite of the limitations of the St. Lawrence Seaway and the connecting channels of the Great Lakes, substantial volumes of bulk cargo can be expected to be handled between Great Lakes Ports and overseas in the foreseeable future. The economics of water transit are especially suited to handling bulk cargo, as the shippers' major concern is cost savings, not speed or loss or damage to cargo. In general, such cargoes are, and will continue to be, handled at the same specialized port terminals, where grain elevators and other mechanized bulk handling facilities, as those which handle internal Great Lakes cargoes of a similar nature".

Dr. Meyer further concluded that "General cargo traffic between the Great Lakes and overseas through the St. Lawrence Seaway has reached its peak and is declining with little prospect of renewal. In the early 1970's, there was a withdrawal of many of the shipping lines operating in the Great Lakes. Several years ago, most studies were in general agreement that Great Lakes overseas seaway traffic would be increasingly bulk, and that general cargo on that route would decline, relatively, if not absolutely. The prospects of decline are even more clearly evident if imports of steel into the lakes are exluded, for such movement constitutes a major part of the total general cargo movement, the inclusion of which dictates the statistics for general cargo".

In 1969, iron and steel products trafficed through the Port of Chicago, accounted for 1,556,218 tons in 1973. 1974 tonnage for iron and steel products was only 936,643 tons. These downward changes reflect the general magnitudes of tonnage growth and decline in the Port of Chicago for these selected years.

"The precipitous decline of Great Lakes - overseas direct general cargo in 1974 lends additional weight to the forecast of continued decrease and perhaps eventual disappearance of such traffic." Dr. Meyer,

further, concluded that "It is generally believed that as general cargo traffic declines, Chicago will handle more of what volume is available than any other port." Dr. Meyer's impression of the future situation differs in places, significantly, from the future as forecasted by the Corps. However, to offset his own statements the concept of "load centers" and increasing relative shares are advanced. Increased relative shares shares are a function of traffic from and to the hinterland that passes through a port. Load centers are the centralization of general cargo handling at a few highly efficient ports. The Port of Chicago, particularly if provided with efficient general cargo handling facilities, could act as a "load center", thereby offsetting the present decline in direct overseas general cargo moved through the port by attracting a relatively larger share of traffic moved. To act as a "load center", its present management, capital development and promotional problems must be resolved.

Also, to increase this share, those present freight rates for general cargo movement that favor the movement of general cargo via rail to the tidewater over direct overseas shipment, will have to be equalized and overseas traffic attracted back to the Port of Chicago. The latter is being tested ~~this year~~ by the reintroduction of foreign flag vessels to the Port of Chicago and the continued processing of major freight rate equalization proceeding before the Interstate Commerce Commission.

The questions raised of increased handling capability and promotion relate directly to the Port's ability to manage itself in a unified manner. The present Port of Chicago management and promotion is divided between three bodies. If unification increased promotion and rate equalization comes to fruition, the probability of increasing the Port of Chicago's traffic to those estimated levels is a possibility.

Local Plans for Commercial Ports and Harbors

To date, four recent planning documents that have either been adopted or accepted as planning guides have addressed the issues of providing commercial port facilities in the Illinois coastal area of Lake Michigan.

City of Waukegan - Plan implications and design principles were developed by the firm of Johnson, Johnson and Roy to guide the City's Lakefront planning activities. This publication was adopted as a planning guide by the city's plan commission and is being used as necessary background to the presently developing Waukegan City Plan and Zoning Ordinance.

"Plan Implications", December, 1974, notes that the north Waukegan harbor area is to remain as a bulk commercial port and industrial area. Port facilities for direct unloading are proposed to be relocated north of slip number 1. To buffer this commercial port area on the west side

of the harbor, it is proposed that an attempt to be made to integrate port, industrial and public use at the water's edge with pedestrial access ways. The implication of this schematic plan is that as long as commercial proprietary shipping to Waukegan exists, it should remain.

Regional Plans for Commercial Ports and Harbors

1995 Transportation Systems Plan - The freight system element of the eight county Illinois - Indiana System Plan, dated November, 1974, calls for "The consolidation of right-of-way and terminal facilities through both the concentration of freight activity in specific localized sites and the joint use of physical facilities. The System Plan recognized that "a viable freight system is essential to the economy of this region".

This element of the regional plan being a first attempt at a regional freight plan, even though adopted by NIPC, CATS and NIRPC, is referenced as only preliminary. The waterways section of the System Plan notes that "the consolidation of all general cargo traffic at a new port facility, Illinana Harbor, to be located at the mouth of the Calumet River. The plan implication of this is that the major regional (Illinois/Indiana) general cargo terminal is to be at the mouth of the Calumet River. All other coastal ports in Illinois and Indiana are characterized as bulk cargo harbors. Navy Pier is noted to be abandoned as a commercial port.

City of Chicago - two elements of Chicago's planning program relate to existing commercial port facilities. They are: The Riveredge Plan of Chicago and the Planning Framework: For Southeast Development Area. Neither of these documents has been adopted by the city. They were, however, developed by the cepartment of Development and Planning as framework plans within which both public and private improvement projects and programs can be designed and coordinated.

The Riveredge Plan, December, 1974, notes that, "Navy Pier should be redeveloped as a public activity center for recreation and culturual activities. Improvements there should be planned both for the Pier itself and for the public land to the west of it. On the Pier, improvements have commenced in conjunction with the 1976 U. S. Bicentennial Celebration. "Improvements are planned for the eastern terminal of the Pier. These improvements will include rebuilding the auditorium, thereby enabling the area to be used for cultural/recreation purposes. "Over the long run, a Pier-long transit system will be installed and the land east of the Shore Drive and land south of and adjacent to Lake Point Tower will be acquired for open space".

Dime Pier, south of Navy Pier, is recommended for rehabilitation and access provision via a pedestrian bridge. This rehabilitated facility

would then provide lake views, fishing opportunities and boat mooring space.

The implication of these proposals is that the Navy Pier facility is to be phased out as a commercial port facility at some future date.

Far South Area Development Plan, 1968 - This framework plan notes the existence of two areas, one along the Calumet River and the other at the mouth of the Calumet River that have industrial port re-use potentials. The Plan also notes that "the improvement to shipping channels should be accelerated, and further development of comprehensive port facilities encouraged".

The Plan is not specific as to the character of activities to take place at these locations. Therefore, it could be assumed that the provision of a general cargo facility at the river's mouth would be consistent with the Plan, while bulk and barge traffic could continue to call at Lake Calumet.

Great Lakes Basin Commission Framework Study, Commercial Navigation, Appendix c.g. - notes the Port of Chicago (Navy Pier, Calumet River and Harbor) as the major general overseas cargo port on the Great Lakes. It is also at the center of the 17 state midwest area which accounts for one-half of the nation's marketed agricultural product and 45% of U. S. manufacturing value.

> "The economy of Planning, (of which the Port of Chicago is a part) is dependent on efficient transportation. Bulk commodities that sustain the steel industries, export grain and general cargo, must be received and shipped. Waterborne transportation not only has the capacity to meet the transportation needs of the planning subarea, but it is the most economical mode in terms of money and energy. It also pollutes less than the other available forms of transportation."

The Study recommends "Strong port promotion and reduction or elimination of alleged discriminary rail rates could substantially increase the area's share of grain exports and general cargo. Priorities are the extension of the shipping season, accommodation of 1,000 foot vessels and consideration of a container port.

Economic Significance of Coastal Ports and Harbors

Economic data on commercial port and harbor activities along the Lake Michigan shoreline of Illinois has been quantified in two separate studies. They are:

Port of Chicago, Unification Study by Draine and Meyer for the State of Illinois Commission for Economic Development, 1970.

Economic Analysis of the Port of Chicago (Unpublished) by Booze, Allen and Hamilton in the Illinois Department of Business and Economic Development, 1975.

Draine and Meyer concluded in their study that if a volume of foreign trade is generated in a region, it will benefit the region's economy to process and handle as much of this trade movement as possible within the region. They also note that the presence of a port will also permit some marginal commodities to move in foreign trade, which, in the absence of a port facility, might not be competitive. The implications of these statements are that a port existence within a region is a component of regional development. Regional development is accomplished by increasing the flow of capital within the region as a result of goods moving through the port, and that other goods that normally would not be able to participate in foreign commerce given other more costly modes of transit, reducing their margins, will be able to be traded, thereby bringing additional income to the region.

A detailed quantification of these economic benefits to a region constitutes a major undertaking beyond the capabilities of this memorandum. However, a review of the conclusion of these two referenced reports leads to the conclusion that:

-A port is an element along with good rail, road and air transit; skilled labor, available water and waste water treatment facilities that will facilitate the development of a region's economy.

These facilities, when functioning adequately, either maintain or increase the competitive efficiency of a region vis-a-vis other regions. This is accomplished by providing on a ton/mile cost basis for long distance shipments, a more economical mode of shipping than is available by either rail, truck or air forwarding.

Draine and Meyer, using a regional economic contribution method developed with the aid of Dr. Eric Schenker, University of Wisconsin-Milwaukee, estimated that the direct regional dollar contribution per ton of cargo handled at the Port of Chicago in 1966 to be:

$24.00/Ton for General Cargo

5.25/Ton for Grains

2.67/Ton for Liquid Bulk

$ 2.21/Ton for Salt

1.60/Ton for Ores

5.00/Ton for Scrap

2.21/Ton for Coal

These dollar contribution figures can be moved forward to 1973, a year for which comparable shipping data is available by applying the implicit price deflator for gross national product as determined from the Statistical Abstracts of the United States for 1970 and 1974. A thirty-five percent change in the implicit price deflator took place for the period 1966 to 1973. If applied to 1966 dollars, direct benefits in the following equivalent dollar contributions are determined:

$32.40/Ton for General Cargo

7.09/Ton for Grains

3.60/Ton for Liquid Bulk

2.98/Ton for Salt

2.16/Ton for Ores

6.75/Ton for Scrap

2.98/Ton for Coal

Applying the equivalent dollar estimate for general cargo to available foreign general cargo, prime for containers, moved through the Port of Chicago in 173, indicates that this traffic of 203,689 short tons potentially contributed $6.6 million to the regional economy. Similar other contribution calculations for other cargos are possible using the above dollars and applying them to traffic data contained in Appendix C.

The Port of Waukegan trafficked in 1973, 590,270 short tons of gypsum and building cement. Using a comparable factor of $2.98/short ton, it can be estimated that this port activity inputted $1,759,000 to the regional economy.

The Booze, Allen and Hamilton study of the economic significance of the Port of Chicago to the city and state economy determined that by type of cargo, the following direct dollar contributions were made:

$39.21/Ton for General Cargo

24.52/Ton for Containers

$ 9.26/Ton for Iron and Steel Products

1.65/Ton for Bulk Products

5.26/Ton for Grain

Using these figures, Booze, Allen and Hamilton estimated that the 184,000 short tons of general cargo trafficed at the Port of Chicago in 1973 contributed $7.2 million to the regional economy. They further estimated the following other contributions from:

Containerized Cargo	$ 1 Million
Iron and Steel Products	$ 9 Million
Liquid Bulk	$2.8 Million
Dry Bulk	$ 7 Million
Grain	$ 16 Million
Private Steel	$4.5 Million

The total for these movements was then factored by a multiplier (secondary benefit) of $3.64, yielding a quantifiable benefit to the state and regional economy in excess of $122 million.

Therefore, it can be concluded that the Port of Chicago is a major contributor to the region's economy.

Port Administration and Management

Presently public commercial port and harbor facilities along the Illinois shreline of Lake Michigan and the Lake Calumet area of Chicago are managed by the City of Chicago, Chicago Regional Port District and Waukegan Port District. Each of these entities was discussed in section of this report. However, it is also of importance to note that these agencies must relate directly with the following organizations in the performance of their legislated functions:

U. S. Army Corps of Engineers Operating and Planning Branches

U. S. Coast Guard

U. S. Environmental Protection Agency

Illinois Environmental Protective Agency

Illinois Department of Business on Economic Development

and now the potential Illinois Coastal Zone Management Program, along with others too numerous to mention.

The ability to accomplish this requires a singularity of responsibility. This situation only exists for the Waukegan Port District. The port of Chicago functions under a duality of administrations. The legislative history of this situation begins in the early 1900's and is as follows:

1909: Report of the Chicago Harbor Commissioners published.

1911: The Chicago City Council created, as proposed in the Commissioner's report, five harbor districts. One harbor district included the Navy Pier area, while the harbor district number 5 included the Lake Calumet area. These districts are still part of the municipal code of Chicago.

1911: Commission's report adopted by the Illinois State Legislature. Three of its recommendations were:

-Reserve that portion of the Chicago lakefront between the mouth of the Chicago River and Chicago Avenue for a future harbor, and construct piers in this area for the accommodation of vessels and their traffic.

-Within the Calumet River, replace obstructive bridges and reserve Calumet River frontage for the construction of public docks.

-Create an inland harbor on Lake Calumet.

1913: The City of Chicago was enabled by the State of Illinois to acquire, own and develop appropriate harbor structures.

1921: Van Vlissingen Plan for Lake Calumet developed.

1921: Lake Calumet Harbor Act authorized the City of Chicago to develop a deep water harbor at Lake Calumet. Also, all rights, titles and interests to the bed of Lake Calumet were transferred to the city from the state.

1929: By resolution, the State of Illinois obligated the City of Chicago to construct a harbor at Lake Calumet.

1951: The State of Illinois created the Chicago Regional Port District. The Act provided for those sections of the "Revised Cities and Villages Act" appropriate to the City of Chicago and its involvement at Lake Calumet and other port development interest therein not being effective within the District.

1958: The municipal code of the City of Chicago was amended to establish and define the Chicago Harbor: "the Harbor as herein defined (including Lake Calumet and River) shall be subject to the control of the port director - a commissioner of the City of Chicago".

1975: Illinois House Bill 2328 - an Act to repeal the "Chicago Regional Port District" was introduced in the state legislature for the purpose of transferring all assets and liabilities of the District to the City of Chicago. The Act failed.

The Draine and Meyer study on port unification noted that "Bluntly stated, the historical record indicates that the City of Chicago is responsible for the dual port operation through its failure to act in accordance with the mandates of the Lake Calumet Harbor Act of 1921."

The Port of Chicago is the only major port in operation in the United States existing under dual management. It can be stated that this system results in dualities of purpose and, therefore, spreading between two bodies scarce resources necessary to operate the port on a competitive basis. Many of those needs for commercial port development that will be stated later in this report relate directly to this duality of function.

TRANSPORTATION, NAVIGATION AND COMMERCIAL AND HARBOR PORTS NEEDS AND OBJECTIVES AS EXPRESSIONS OF COASTAL INTEREST

Expressed Illinois Coastal Land Transportation Needs

Each of the fourteen shore communities along the Illinois coast of Lake Michigan were contacted to determine their various needs as they relate to Illinois' coastal resources. Communities contacted were:

Zion	Lake Forest	Kenilworth
Winthrop Harbor	Highwood	Wilmette
Waukegan	Highland Park	Evanston
North Chicago	Glencoe	Chicago
Lake Bluff	Winnetka	

Mayors, village presidents, planners and managers were visited in each village and city, and asked to discuss their needs. A concensus from these meetings, as far as transportation was concerned, is that access to the Illinois shore of Lake Michigan needed to be improved. Emphasis was usually given to increasing access to a particular shoreline recreation facility that benefited either the community or an area larger than the community. Constraints to satisfying this need usually presented were:

1) Inadequate facility size and capacity to accommodate use if provided access.

2) Inability to provide an increased level of access due to the potential for disruption of already developed residential areas.

3) Unavailability of land at the facility to accommodate increased parking requirements if access were increased.

Where communities had plans to increase access to the lakeshore these plans were usually considered adequate to satisfy needs. Examples of where access was noted and present plans were thought to be adequate to satisfy the need, if implemented, were:

Waukegan and North Chicago - Access to the lakeshore should be improved. The development of the Lakefront Freeway will accomplish this.

Lake Forest - North/south traffic movements have to be facilitated especially along U.S. 41, but lakefront access also needs improvement through no four-lane road improvements are contemplated. Deerfield Road east of the C&NW railway is in need of improvement to the lake.

Highland Park - Though the Highland Park Lakefront Commission did not focus on the issue and needs for increased lakefront access, it recognized the need to increase access to and parking adjacent to lakefront beaches.

Glencoe - Though lakefront access problems are occasional, the use of street ends for walking access to the lake and the acquisition of land for bikeways is felt to be needed.

Winnetka - The need to increase east-west access to the lakefront from the community in general and public transit is desirable. Also, some elements of the village citizenry would like to see mini-bus service implemented to transport the elderly, youths and commuters from the western portions of the village to the lake.

Evanston - If lakefront recreational opportunities were increased, this would create the need to increase lakefront recreational opportunities.

Chicago - The plans and programs developed by the City of Chicago and expressed elsewhere in this memorandum are the official policies used in the development of coastal transportation needs.

Expressed Illinois Coastal Navigation Needs

Navigation needs or those elements of the Illinois shore area of Lake Michigan that relate to the protection, safety and traffic management of commercial and recreational water craft have been solicited from a broad spectrum of interested coastal parties. A few Illinois coastal communities have developed plans for new recreational harbors and many parties have unofficially called for consolidation of the Port of Chicago commercial shipping terminals. Due to the range, diversity of source and implications of stated needs, they are grouped and summarized in this section.

Needs expressed by shore communities and interested coastal parties that relate to the above implication were:

> Illinois Department of Conservation - Trident Harbor, a private harbor, located at the north terminus of the Illinois Beach State Park suffers from shoaling. A new marina at the Beach Park is needed, though not a high priority for the state to undertake. New harbor entrance structures would be necessary. Sediments would have to be by-passed around these structures to avoid down drift erosion and to maintain entrance channel depths. Maintenance cost for such a facility would be significant.

City of Zion - In response to the present demand for recreational boating facilities at Waukegan, a new 1,300 boat marina is proposed for leased land in the Illinois Beach State Park. 600 to 1,200 acres in a sand pit lake area would be utilized. Kellogg Creek would be widened to 200 feet to provide an access channel and a 200-foot groin would be constructed to protect the channel entrance.

City of Waukegan - To meet a determined demand for increased moorage and boat launching facilities, the area south of the south breakwater is reviewed as an expansion area to the present harbor. Interim facilities are now being sought for outer harbor area. Also, the harbor is in need of expansion as a harbor of refuge for recreational boating.

Waukegan Charter Boat Association - Expand the present Waukegan Harbor south in a series of cells to the Great Lakes Harbor. The first cell would encompass the area south of the present pier to the rubble groin at Dexter-Midland Industries.

Also, the present south Waukegan pier is in need of repair.

North Chicago - A small marina utilizing breakwaters and located at Foss Park to serve the locality is desired. The present Marine Corps' firing range north of Foss Park constitutes a potential hazard to navigation from this prepared facility.

Lake Bluff - The 1971 Village Comprehensive Plan recommends a small boat launching facility be developed on the North Shore Sanitary District's property adjacent to Ravine Park.

Wilmette - Possible expansion of Wilmette Harbor easterly into Lake Michigan. Though not presently a high priority project, detailed engineering studies have been developed in the past and the potential exists.

Evanston - The Evanston Comprehensive Plan recommends a marina complex be located at South Boulevard area east of Calvary Cemetery.

Evanston also recognizes that a major new small boat harbor should be sited on the Illinois shoreline of Lake Michigan. A possible location for this facility might be at the Illinois Beach State Park.

Chicago - The Lakefront Plan for Chicago, as adopted, recommends an extensive series of islands along the Chicago shoreline of Lake Michigan. These islands are proposed to contain significant new recreational activities and many new marinas.

Commercial Port and Harbor Interests - In a series of discussions with these persons, a set of needs that relate directly to the problems

of commercial navigation were expressed. They were:

- Eliminate hindrances to commercial shipping in the Calumet River due to bridges.

- Determine a location and local sponsor for a confined dredge disposal area for the Port of Chicago harbor dredging. Dredge projects yet to be completed are: North Branch Chicago River, shoal areas in the outer harbor at the Calumet River, completion of channel improvements for the Calumet River and possible re-dredging to project depths as Lake levels decline.

- Maintain channel depths in Waukegan Harbor for proprietary shipping interests in the north portion of the harbor by dredging shoals at the harbor mouth and undertake dredging of the inner harbor. Dredging of polluted spoil from the inner harbor is to be disposed of at the Kenosha, Wisconsin, confined dredge disposal area.

Salmon Unlimited - SU represents a large number of the active sports and commercial fishermen along the Illinois shoreline of Lake Michigan. Their representative felt that their navigational/shore protection recreational needs could be met by:

- Structurally protecting the Illinois shoreline from Chicago to Waukegan and reserving any new land by state ownership for recreational purposes.

- Provide new and expanded recreational boat launching and car and trailer parking facilities between Wilson Avenue in Chicago and Waukegan.

- Develop within new and existing harbors special charter boat piers where charter fishing boats can be moored, passengers embarked and disembarked and wastes adequately managed.

- Provide a new regional marina at Zion, Illinois.

The implications of meeting all these needs as stated would imply massive undertakings. However, since needs were stated individually, it can be assumed that an inherent element of double counting exists. If this level of double counting were eliminated or factored, a more rarified/applicable statement of needs would be developed.

Expressed Illinois Commercial Ports and Harbor Needs

Meetings were held with parties interested in commercial shipping and ports in the Illinois coastal area. Also, in December of 1975, a one-day seminar on the problems and needs of Illinois' coastal ports was hosted by NIPC and the ICZMP in the Chicago offices of the Illinois Department of Business and Economic Development. Those persons in attendance were:

Dr. Edwin Draine, University of Illinois, Chicago Circle

Dr. Harold Mayer, University of Wisconsin at Milwaukee

Mr. Ted Silverman, Illinois Department of Business and Economic Development

Mr. Michael Moron, Illinois Department of Business and Economic Development

Mr. John Behrens, Freight Planner, Chicago Area Transportation Study

Ms. Elisabeth Hollander, Illinois-Indiana Bi-State Commission

Mr. Robert Teska, Robert Teska and Associates

This meeting, along with discussions with port-related industries, the Port of Chicago, Chicago Regional Port District, the Waukegan Port District and Chicago Board of Trade, provides a clear perspective on the goals and needs of commercial shipping along the Illinois shoreline of Lake Michigan.

The following is a summary of those needs referenced. Each need represents a concensus of expert opinion on a particular direction that has to be pursued. It is obvious from this list that not all of these needs can be met by the Illinois Coastal Zone Management Program. Where such needs, however, relate to the program a perspective on their relationship is provided.

Needs:

-Eliminate Port of Chicago jurisdictional overlaps by consolidating port development, traffic management and promotion into one of the following entities:

A functionally expanded Chicago Regional Port District

The City of Chicago

Create a Chicago Port Authority

Create a State of Illinois Port Commission

Comment:

Though this question involves administrative and local governmental questions, the ICZMP is not directly required to address. The resolution of this issue will greatly expedite ICZM response to other commercial port needs whose satisfaction interacts with the coastal waters and their abutting lands.

-Any administrative solution to eliminate Port of Chicago jurisdictional overlaps should involve a public/private partnership between public port interest and private terminal operators and proprietary shippers.

-Removal of the unequal freight rate structure favoring rail transit of general and bulk cargo to tidewater ports over shipment via the Great Lakes.

-Encourage the use of direct overseas container cargo from the Port of Chicago or shuttle service via small container ships between the Port of Chicago and the tidewater ports of Montreal and Halifax.

-Phase out general cargo terminal activities now taking place at Navy Pier in favor of a more appropriate location in the Calumet area.

Comment:

Given the Federal Coastal Zone Acts requirement of determining priorities of uses, the reuse of this facility as it relates to coastal needs is of critical concern to the ICZMP. Close interaction between the City of Chicago and the ICZMP is necessary to determine if reuse satisfies priority coastal needs.

-Develop a public general cargo and container terminal with necessary cranes, aprons, space for container storing and stacking, and enclosed space for container stripping and stuffing in the Calumet area.

Comment:

The determination of this facility location and its effect on coastal waters qualifies this process to be within the purview

of the ICZMP. The effectuation of the process will, however, necessitate that there be a sponsoring party with whom the ICZMP can relate.

-Condemn and/or purchase the 200-acre Transoceanic Terminal facility for a public general cargo and container port.

Comment:

Though the actual act of condemnation versus fee simple purchase seems to be beyond the purview of the ICZM program, the establishment of this site as a priority location for a port terminal, determining its needs relative to other competing coastal needs and working with appropriate local governmental bodies to see that these needs are satisfied, is within the scope of the ICZMP.

-Maintain Lake Calumet as a bulk terminal to service ships and barges.

-Maintain present channels and harbors for general and proprietary shipping in the Port of Chicago.

Comment:

Given present legislative enactments, this is within the scope of the ICZMP as a program of the Illinois Department of Transportation, Division of Water Resources.

-Establish a lobby position in Washington, D. C. to lobby against proposed 3rd Flag Legislation, the U. S. Import/Export Act and for an extension to 12 months for the Great Lakes shipping season.

-Develop a deep water port facility at the Port of Waukegan.

Comment:

The determination of the priority of a deep water port at Waukegan versus its stated recreation problems and needs is a coastal issue requiring close cooperation between the City of Waukegan and the ICZMP, but its use for deep water, general cargo port is very limited at the present due to both its inability to compete for regional general cargos, limited proprietary shipping and lack of backshore service facilities.

Landward Transportation

Coastal area access, the incidence of coastal access, and the need to improve or increase this access has been expressed by local and regional bodies throughout this memorandum. It is therefore considered a major need of the Coastal Zone Management Program to foster and encourage plans that increase access to the Illinois coastal area for the economic and recreational benefit of the region. Access for the purpose of maintaining major economic activity centers such as the recreational/industrial complex at Waukegan Harbor. The industrial/commercial port area of South Chicago at 95th Street and along the Calumet River and 130th Streets in the Lake Calumet Har
However, to state a need for increasing coastal access as being of major importance to the Coastal Zone Management Program without determining where access presently exists or the potential for increased coastal utilization made possible by providing increased access, would be insufficient.

To examine the presence or potential for increasing coastal access, eight factors associated with landward access were identified. They were:

- The presence of a locally determined collector street serving the lakeshore area directly.

- Major routes providing east-west access to the coastal area from the region's freeway system.

- The presence of locally determined major roads that access the coastal area from within shore communities.

- The presence of mass or rapid transit service and future plans for such service that intersects with present major east-west access routes.

- The presence of a local bus service and plans to increase the geographic extent of this service.

- Planned development of a regional transportation center where present transit, freeway, local and regional bus service interchanges are planned for the coastal area.

- Proposal for regional bus service to the coastal area.

Determination of Potential Improvements to Access - Examination and evaluation of the existing highway system serving the coastal area, regional arterial transportation plans and local transportation plans noted sixty-six east-west access to the Illinois coastal area. Appendix D relates these sixty-six routes to the eight identified access factors. If it is assumed that the highest level of present or future access is where all eight factors are present, then only four areas qualify as providing the highest possible present and future access. They are:

-Present Access

Shore Sector II - Waukegan Lakefront Area

Shore Sector V - Evanston CBD to the Lakefront

-Present Access

Shore Sector VI - Chicago Loop

-Future Access

Shore Sector XI - 95th Street in South Chicago

If the requirements of a regional transportation center and future service by regional bus are eliminated as necessary access factors, then fifteen additional present and future coastal access areas can be identified. They are:

-Present Access

Shore Sector VII

-Peterson/Ridge/Bryn Mawr

-Montrose Avenue

-Irving Park Avenue

-Belmont Avenue

-Fullerton Avenue

-Present Access

Shore Sector VIII

-North Avenue

Shore Sector IX

-47th Street

-59th Street

-63rd Street

Shore Sector X

-79th Street

-Future Access

Shore Sector III

-Illinois Route 176

-Deerpath Road

Shore Sector V

-East Lake/U. S. 41

Shore Sector VII

-Diversey Parkway

Substitution of existing freeway access and/or the availability of mass or rapid transit, thereby reducing the number of necessary factors to five, results in eleven other present or future coastal access areas being identified. They are:

-Present Access

Shore Sector VII

-Lawrence Avenue

-Wilson Avenue

Shore Sector VIII

-Ohio Street

-Congress Street

-I-55 at McCormack Place

Shore Sector IX

-31st Street

-39th Street (Pershing)

-67th Street (Marquette)

-71st Street

-Future Access

Shore Sector I

-7th Street

-Wadsworth Road

Shore Sector II

-Sunset/Gulf/Greenwood.

The requirement of only lakefront access by a major route, existing freeway access and/or the availability of mass or rapid transit, designation as a major local street and local bus service being present, results in the addition of an other access area. It is:

-Present Access

Shore Sector V

-Oakton/South Boulevard

The distribution of the present and future coastal access areas along the Illinois shoreline of Lake Michigan usually reflects the present level of coastal development. Examples are:

-Sunset/Gulf/Greenwood in Waukegan - Industry

-95th Street in Chicago - Industry and commercials ports

-Wadsworth Road at the entrance to the Illinois Beach State Park.

Exceptions to this pattern are found in Shore Sector V at Oakton/South Boulevard and in Shore Sector IX at 31st Street where parks are present, but other major coastal recreation facilities or activities are not present.

Future access areas along the lakeshore usually lack extensive development. Therefore, not warranting improvements in access as their backshore uses are not sufficiently developed to necessitate such facilities being provided or community character discourages the introduction of freeways. Examples here are:

-Illinois Route 176 in Lake Bluff

-Deerpath Road in Lake Forest

-Lake Street/U. S. 41 in Wilmette, and

-9th Street in Winthrop Harbor.

Distribution of Access - The total distribution of coastal access along the lakeshore is one of concentrated access in certain areas as compared to little or no access along extensive stretches of coastal area. Present and/or future potential for coastal access is at a low level of development between Lake Forest and Wilmette, South Boulevard and Peterson/Ridge/Bryn Mawr and I-55 and 47th Street in Chicago. It has already been noted in this memorandum that poor pedestrian access to the lakeshore also exists in this latter area even though the backshore area is densely populated.

Opportunities for Increased Access - These differences in accessibility provide significant opportunities for regional and local transportation planning to recognize coastal resource potentials. Regional and local recreation and coastal use area could be enhanced by increasing their access ability by improving access at those points noted as future access areas. A prime example of this is at the Wadsworth Road entrance to the Illinois Beach State Park. A special stop on the Chicago and Northwestern commuter railroad could be located there and direct park access provided by shuttle buses to the park's facilities. Service of this nature could be weekend, summer and/or holiday oriented with an initial north and south stop in the AM and PM respectively. Precedent exists for this type of service in the northeastern Illinois area. The C&NW provides daily race track service to Arlington Park ract track during race season and to Ravina Park in Highland Park for summer concerts. The possibility of this type of service is also being examined at the Indiana Dunes National Park. As plans for providing local bus service throughout the coastal area of Illinois are accomplished, shuttle bus service between the many small lakeshore recreational areas and mass and rapid transit stops could also be provided.

Coastal access, however, is not only recreation oriented. Coastal transportation routes serve other coastal or backshore uses. Major coastal centers such as the:

Waukegan Central Area

Evanston Central Area

Chicago Loop

Lake Calumet, and

95th Street in South Chicago

serve such diverse functions as commerce, shipping, education and industries. Thus, competition for limited amounts of access exists in these areas and this competition must be taken into consideration in coastal resource management and planning. Off-hour access use as well as priorities for access during times of peak use have to be explored and determined to be appropriate for access management.

Landward Transportation Needs - Based on the above discussion and other statements of local and regional needs and objectives, the following overall and sector transportative needs were identified. These needs can be described as needs of either:

A) A land or water use need.

B) A need to study the potential or appropriateness of a land or water use.

C) A possible or recommended means by which a land or water use need can be satisfied.

Overall Need - Foster and encourage plans that increase access to the coastal area for the economic and recreational benefit of the region.

Level of Need - A, C.

Shore Sector Needs

Shore Sector	Need
1	7th Street - Evaluate the potential for providing local bus service to lakefront recreational areas from existing commuter stop at peak times.

Level of Need - B, C.

Shore Sector (Continued)	Need
1	Wadsworth Road at C&NW Railroad - Evaluate the potential for providing a commuter stop and local bus service from this intersection to lakefront recreational areas at peak use times. Level of Need - B, C.
2	Sunset/Golf/Greenwood - Evaluate the potential for providing local bus service via existing carriers from the existing commuter stop to the Lakefront fishing pier at peak use times. Level of Need - B, C.
2	Central Waukegan - Evaluate the potential for providing local bus service via existing carriers to the lakefront and harbor area from existing commuter stop at peak use times. Level of Need - B, C.
3	Illinois Route 176 and Deerpath Road - Evaluate the potential for providing local bus access to the lakefront from existing commuter stops at peak use times. Level of Need - B, C.
4	Shore access is in need of general improvement. Level of Need - A. Evaluate the potential for the designation of local lakefront service roads connecting existing freeways and transit stops with the lakefront and the institution of local bus service by existing carrier from transit stops to the lakefront at peak use times.

Shore Sector (Continued)	Need
5	East Lake St./U. S. Rt. 41 - Evaluate the potential for providing local bus service via existing carriers to lakefront recreational areas at peak use times from nearby transit stops. Level of Need - B, C.
6	Shore access is in need of general improvement. Level of Need - A. Evaluate the potential for the designation of local roads to service the lakefront and connecting transit stops and recreational areas via local bus at peak use times. Level of Need - B, C.
7 - 8	No transportation needs were identified. Level of Need - A.
9	31st and 39th Streets - Existing freeway access and local bus service is present. Determine the potential for providing transit stops and connecting these transit stops to lakefront recreational areas at peak use times. Level of Need - B, C. Examine the potential for providing additional pedestrian overpass of the IC Gulf Railroad - TOW and south Lakeshore Drive between 26th and 43rd Streets to connect backshore residential areas to lakefront recreational areas. Level of Need - B, C.

Shore Sector (Continued)	Need
10	No transportation needs were identified for this sector of the coastal zone. Level of Need - A.
11	75th St. - Improvements are needed to the traffic handling capability of 95th St. between U. S. Rt. 41 and Stony Island Avenue to better serve commercial port, recreation and industrial activities in the area. Level of Need - A. 130th St. - Explore the possibility of providing a transit stop, and the continuation of this roadway to the Wolf Lake industrial area. Level of Need - B, C. Stony Island - Extend south from 95th St. to 130th to provide access to potential port-related industrial development areas.

It should be noted that even though thirty-six points of coastal access were identified, access by itself means little if the coastal area being accessed is not suitable for development or is presently used to its maximum. Therefore, access must be correlated with other factors affecting shore use to meet coastal recreational, residential, industrial or commercial needs. An initial list of coastal factors that should be considered when matching access to coastal use potential might include:

-Expansion capability of the accessed coastal site.

-Character of resource base; does it foster or hinder the contemplated activities?

-Potential for creating negative impacts on backshore areas if coastal uses cannot be totally accommodated on site.

-Present level of activity now taking place, and its potential for meeting wider needs or expansion.

-Possibility of using backshore areas for aspects of coastal activities not necessarily requiring a shoreline location. Parking is a major example here.

Coastal Navigation Needs

Needs associated with navigation in the Illinois coast area of Lake Michigan have been stated by numerous parties. Stated needs vary from those associated with the maintenance and improvement of present navigational structures to additional navigational requirements that will result as Lake Michigan is increasingly utilized as a recreational boating resource.

The later navigational need is associated with the overall coastal trend toward increased recreational boating opportunities along the Lake Michigan shoreline as the demand for recreational boating increases. The former needs represent those necessary activities associated with maintaining present navigational structures now in place and continued dredging of channels serving commercial shipping activities. Both of these need areas do not represent needs unto themselves, but are needs that are part of satisfying other needs. Therefore, it is not possible to relate these needs directly to forecasts of coastal development, but only to note that as long as commercial and recreational navigation exist in the coastal area the satisfaction of these needs are part and parcel of those activities. For example, the present and forecasted character of industrial activities at Waukegan and Calumet Harbor and River in Chicago require that channels in these areas be periodically dredged to maintain adequate shipping depths.

The U. S. Army Corps of Engineers recognizes this associated need as the major navigation need of the Illinois coastal area. They highlight this need as it relates to the Calumet River and Harbor area. This need and the need to dredge the inner and outer harbor area at Waukegan Harbor could become critical when lake levels begin to decline. Major problems associated with meeting these needs are at the Port of Chicago, not at Waukegan Harbor where dredge spoils will be disposed of at Kenosha, Wisconsin. Hindrances to meeting the Port of Chicago's dredging needs are threefold:

1) The present disposal area adjacent to Lake Calumet is nearing capacity, and a new confined disposal area has to be located.

2) Location of a new confined disposal area for polluted dredging is hampered by the inability of local concerned parties to decide on a local sponsor for such a facility, and determine a location for a new disposal site.

3) If such a site was to be located in the outer harbor area of the Calumet River the interstate implications of such a location would have to be considered.

Navigational needs associated with expanding recreational boating activities also have the potential for being of major coastal concern. Representatives of Salmon Unlimited, a recreational fishing association, state the major general coastal need is to fill the lakeshore area between Wilson Avenue in Chicago and Waukegan Harbor and develop this area as lakeshore parks and marinas under State of Illinois ownership. This proposal, they maintain, would have the added benefit of providing shore protection from erosion. If such an intense utilization of the Illinois Shore for recreational boating is justified, or even if only a portion of the planned facilities aimed at increasing recreational boating opportunities in the near shore area are developed, the increased need for added aids to navigation would become major.

Aids to navigation that might be added to the coastal area are electronic navigation facilities, increase harbor approach buoying and possibly water use designation for differing forms of water use such as fishing, cruising lanes, sail boat racing areas and general water use areas. Also, as the intensity of recreational boating activities increase, the need for additional harbors of refuge will have to be met. Harbor expansion might be necessary to allow for peak use during storm episodes. Presently, most coastal harbors are congested on normal spring and summer weekends. Also, a harbor of refuge does not exist between Great Lakes and north of Wilmette harbor, a distance of approximatley 18 open lake miles. This problem is compounded by lack of mooring areas in present harbors if a storm episode was to occur. Other needs associated with a more intense use of coastal waters are the increased needs for policing, fire, search and rescue operations. Police and fire craft are maintained by the cities of Chicago and Waukegan. Winnetka and Glencoe have a cooperative policing agreement. However, the primary instrument involved in enforcing coastal navigational laws and carrying out search and rescue in the coastal waters of the United States rests with the U. S. Coast Guard as aided by U. S. Coast Guard Auxiliary. Presently, Coast Guard stations are located at the Illinois coastal ore, serving the Michigan City, Indiana, Jackson Harbor in Chicago, Wilmette Harbor and Kenosha Harbor in Wisconsin. The coastal distance between Wilmette and Kenosha is approximately 52 miles, and 21 miles between Calumet Harbor and Wilmette. Presently, limited patrol activities take place in this area aided by helicopters from Glenview Naval Air Station and local auxillary units. Assistance times are 10 minutes by air in extreme emergencies and 45 minutes from Kenosha to Waukegan and one and one-half hours from Wilmette to Waukegan by boat.

Given present activities by Illinois coastal communities aimed at increasing recreational boating opportunities and the assistance being

given these communities by the Illinois Department of Conservation's major coastal need is to increase the coverage of search, rescue and policing activities of the Coast Guard in these areas as plans come to fruition. It should be possible to increase coverage levels by either re-activating the Waukegan and Chicago Harbor facilities in conjunction with either an expanded Waukegan Harbor and revitalized Navy Pier, or establish new facilities at another coastal location where new harbor and/or marina areas are being planned. As an alternative to the Waukegan location, if present and potential harbor congestion interferes with the operation of such a facility, a new facility could be located at the Great Lakes Naval Training Center Harbor. Also, increased helicopter service could be considered along with increasing the number of cutters on duty and the frequency of routine patrols.

A key ingredient to this problem is also boater education. Presently, boater education is provided by the Coast Guard Auxiliary and U. S. Power Squadron. A method utilizing the capabilities of these organizations to educate for good boating practices and therefore insuring operators of craft have had this training, is also a way to insure boating laws are heeded and accidents prevented.

The U. S. Coast Guard notes that if incidence of service (rescue) were to increase by factors of 1.5 to 2.5, an action on their part would be required. Their reaction would be not to provide a new station, but to increase area search and rescue operations by:

1) Providing a boat and crew at critical locations on a weekend or summertime basis.

2) Increase the number of boats and crews at presently existing stations.

3) Add additional helicopter service.

Presently, along the shore of Lake Michigan, the Coast Guard has abandoned stations at Chicago Harbor and Waukegan. These facilities could be used to implement alternative No. 1.

A final area of navigational needs relates to those aids to navigation (buoys, lights, fog horns, etc.) that will be needed as recreational and commercial craft more intensively utilizing Lake Michigan. As provisions for boat launching and mooring increase in the coastal waters of Lake Michigan and associated harbor structures are provided, these structures and harbors will require identification. Also, special concern should be exercised in noting and marking those channels where increased recreational boating activities intersect with major commercial shipping. Present areas of concern are at Waukegan Harbor in Shore Sector II, Navy Pier/Chicago River and Harbor in Shore Sector VIII and Calumet River and Harbor in Shore Sector XI.

Coastal Navigation Needs - Based on the above discussion and other discussion and other statements of local and regional needs and objectives, the following overall and sector navigation needs were identified. These needs can be described as needs of either:

A) A land or water use need.

B) A need to study the potential or appropriateness of a land or water use.

C) A possible or recommended means by which a land or water use need can be satisfied.

Overall Needs -

Navigation Needs

Overall shorewide navigation needs were determined to be:

Provide additional or enlarged harbors of refuge.

Level of Need - A.

Increase the capability of the U.S. Coast Guard for conducting search, rescue and policing.

Level of Need - A.

Provide new and additional aids to navigation as the number of recreational boating facilities increase and where commercial and recreational craft share common waters.

Level of Need - A.

Develop within existing and future recreational boat harbors facilities for servicing commercial charter fishing boats.

Level of Need - A.

Promote the extention of the winter navigational season (as determined by the ICZMP staff after June, 1976).

Level of Need - C.

Within these overall statements of need the following specific shore needs were identified:

Shore Sector	Need
1	Annual dredging of the entrance channel to Trident Harbor and Spring Grove Forest Preserves small boat launching facility. Level of Need - A. Determine the need for and impacts of any harbor entrance structures that might be associated with any contemplated small boat harbor at the Illinois Beach State Park. Level of Need - B.

Shore Sector	Need
2	Complete the harbor dredging program at Waukegan Harbor and re-dredge the harbor entrance. Level of Need - A. Mitigate the potential hazards to recreation navigation posed by the U.S. Marine Corp firing range north of Foss Park. Level of Need - A. Rehabilitate the south Waukegan Harbor pier by replacing crib stone. Level of Need - A. Determine the needs for additional harbor structures and their impacts if Waukegan Harbor is expanded as a recreational harbor and harbor of refuge. Level of Need - B. Determine the need for additional navigation structures that might be needed to protect a contemplated small boat launching facility at Foss Park.

Level of Need - B.

Methods for mitigating adverse downdrift shoreline erosion problems associated with harbor structures needs to be evaluated.

Level of Need - B.

3 Determine the need for mitigation hazards associated with submerged shore protection structures (As determined by the ICZMP staff after June, 1976).

Level of Need - B.

Methods for mitigating adverse downdrift shoreline erosion problems associated with harbor structures needs to be evaluated.

Level of Need - B.

Shore Sector	Need
	Determine the needs for and impacts of navigational structures associated with the development of a small boat harbor at Highland Park. Level of Need - B. Determine the need for mitigating hazards associated with submerged shore protection structures (As determined by the ICZMP staff after June, 1976). Level of Need - B.
5	Annual dredging of Wilmette Harbor mouth. Level of Need - A. Determine the needs for and impacts of any additional harbor structures that might be associated with an expanded Wilmette Harbor, and the proposed marina at South Boulevard in Evanston. Level of Need - B.

6-7 Determine the needs for the impact of any navigational structures necessitated by the island/marina proposals of the City of Chicago's Lakefront Plan.

Level of Need B.

8 Complete minor dredging in the outer harbor of the Chicago River.

Level of Need - A.

Remove or replace Pier # 1 (Dime), south of Navy Pier.

Level of Need - A.

Survey outer harbor rip-rap for maintenance needs.

Level of Need - B.

Determine the needs for and impacts of any navigational structures necessitated by the island/marina proposals of the City of Chicago's Lakefront and Riveredge Plans.

Level of Need - B.

9-10 Determine the needs for an impacts of any navigational structures necessitated by the island/marina proposals of the City of Chicago's Lakefront Plan.

Level of Need - B.

11 Complete the widening and straightening of the Calumet River

Level of Need - A.

Eliminate delays and hazards to navigation caused by those remaining bridges in the Calumet River.

Level of Need - A.

Close a 616 foot gap between the steel and crib breakwaters in the Calumet River outer harbor.

Level of Need - A.

Dredge small areas in the Calumet River outer harbor and locate a new dredge disposal site for this area.

Level of Need - A.

Commercial Ports and Harbor Needs

Commercial navigation throughout the Port of Chicago has played an integral role in the development of the Chicago, Illinois and midwestern United States economy since the region was settled. First, the lumber and fur trades utilized the Lake as a convenient artery for moving goods. General cargo and raw material flowed across the Great Lakes serving Chicago and other ports as the midwestern economy flourished. The Port of Chicago, the turn around point on the Great Lakes, now acts as an export point for midwest grain and until 1972 carried on a brisk foreign general cargo trade. Passenger traffic from the port of Chicago is no longer significant, with only seasonal cruise ships occasionally calling.

Proprietary shippers, private terminal operators, the City of Chicago and the Chicago Regional Port District all maintain or lease facilities in the Port. Major facilities are at Navy Pier and Lake Calumet and are operated by the City of Chicago and the Chicago Regional Port District, respectively. Private and proprietary shippers dot the Calumet River area and are serviced by both lake and ocean ships and inland barge traffic. Detail characteristics of these terminal facilities and other areas are summarized in this memorandum.

Waukegan Harbor, north 35 miles from Navy Pier, functions as a bulk port for the importation to the region of cement and gypsum rock. Port operations are managed by the Waukegan Port District. However, the major use of this facility is for recreational boating.

Today, with the continued redistribution of the region's industry away from its older centers, the development of the Interstate Freeway system and the changes in the character of Great Lakes shipping, i.e., the opening of the St. Lawrence Seaway with its subsequent increases in vessel length and depth, the older pattern of port facilities located in close proximity to industry, no longer hold generally true. Though adjacent industrial land is necessary for processing high weight/low value cargoes. Access to regional rail and freeway systems is necessary for the modern port along with quick access to open water, thereby avoiding lost ship time and increased costs. These factors have served to change both the physical and operational organization necessary for a port to be competitive.

The Port of Chicago has areas and sites within it meeting these criteria. Such sites become more important even though the Port of Chicago is the Great Lakes turnaround point for ocean shipping and interfaces directly with inland barge routes. Its hinterland is easily eroded by changing freight rates and commerce moves to the port in a seasonal manner associated with the shipping seasons.

Within this frame of reference, many commercial port and associated navigational needs were expressed. The previous section of this chapter

sets out those coastal navigation needs as they relate to commercial and recreational navigation. The majority of these needs are needs associated with serving other coastal and non-coastal industrial activities. However, a converse relationship also exists here. Port development can increase the economic development potential of a region.

Assuming expanding industrial and commercial activities within the sixteen state hinterland of the Great Lakes/St. Lawrence Seaway service area, the U. S. Army Corps of Engineers has forecasted future traffic on this system. These forecasts have been allocated by a ratio-of-apportion method to the Port of Chicago for the years 1980, 1990 and 2000. Estimates of future traffic to and from the Port of Chicago provide a perspective on a potentially significant growth force in the regional economy associated with the Port of Chicago. Cargo prime for and potentially containerizable general cargo is expected to increase by plus 300 percent over the period. While total tonnage of bulk cargoes will continue to dominate port movements with almost a 100 percent increase, magnitudes of total foreign and domestic general cargo prime for and potentially containerizable could account for as much as 20 million plus tons by the year 2000. This marks a major change in direction from the decline begin in 1972 in this type of traffic. A portent of this change are those general cargo and container vessels scheduled to call at the port in 1976 as a result of the State of Illinois Department of Business and Economic Development port preparation activity. Total foreign and domestic bulk cargo movements could, by the year 2000, account for 47 million - plus tons.

This cargo mixture, if achieved, will constitute a major shift in port facility utilization from the present dominant bulk-handling activities. Where a present significant difference betw-en tons of general cargo handled versus tons of bulk cargo handled now exists a change to a more visible general cargo character could happen in the next 25 years. In the future, general cargo, the majority of which is now potentially containerizable, could account for almost 1/3 of all cargo shipped through the Port of Chicago.

The Panel on Future Port Requirements of the United States Maritime Transportation Research Board - Commission on Sociotechnical Systems, notes, in its publication Port Development in the United States, 1976, those implications associated with an increasing emphasis on container port activities in the natives' ports:

> "Intense competition among ports for available and prospective cargoes has forced the ports to provide, if they expect to be successful, highly efficient services, frequent and regular seaward and landward schedules, and fast turnaround for vessels and cargoes. The tremendous increase in capacity and speed of containerships represents a significant increase in prospective cargo flow through the port. The

need for increased capacity has resulted in a demand for more land adjacent to the port terminals, for mechanization of the terminals themselves, for better landward connections by rail and highway, for deeper, wider and straighter approach channels, and for marginal wharves to replace centrally located, but obsolete, finger piers in some ports. Furthermore, to justify large investments in channels, land, sophistocated and expensive cargo-handling equipment, and the ships themselves, it became necessary to concentrate traffic in relatively few, but highly efficient ports. As a result, load centers (ports of great capacity) are now developing. Because of their efficiency, these load centers can attract traffic from ever-widening hinterlands and from less competitive ports on the same and other coasts."

A load center is an integral part of a transportation gateway, and can contribute to the maintenance of gateway. Dr. Harold Meyer, in Freight Transportation and Metropolitan Land Use - Northeastern Illinois, determined the Chicago region to be such a gateway. Gateways usually partake in the economic multiplier effects associated with goods passing through or being processed in the gateway. If port traffic increases as estimated over the next 25 years, the port's contribution to the regional economy will be very noticeable. The "Panel", in its report, notes that "ports, especially diversified ports, create a multiplier effect; they set in motion a chain of economic activities that, in turn, creates a demand for employment and additional land areas for port-dependent commercial and industrial establishments". Areas nearby, and even within the terminal, become transhipment points within the gateway. Therefore, tons handled in the Port area generally generate direct inputs to the local or regional economy in terms of salaries, wages and fees for other necessary port services. Booze, Allen and Hamilton, in a study for the Illinois Department of Business and Economic Development, determined that port and port-related activities in the Port of Chicago contributed $46.5 million dollars to the local economy in 1974 by handling over 10 million tons of general and bulk cargo. This resulted in a total economic input of $122 million. This equates to $4.65 per ton of cargo handled inputted to the economy. Using 1974 dollars on income, slightly in excess of $766 million could be expected to flow from the port in the year 2000 to the economy. This would be a plus four fold increase or slightly more than a 17.8% increase in constant dollar input yearly.

Commercial Port and Harbor Needs - Based on the above discussion and other statements of local and regional needs and objectives, the following overall and sector needs were identified. These needs were described as needs of either:

A) A land or water use need.

B) A need to study the potential or appropriateness of a land or water use.

C) A possible or recommended means by which a land or water use need can be satisfied.

Overall Need.

-No overall shorewide commercial port and harbor needs were identified.

Sector Needs.

Shore Sector	Need
2	Facilitate the utilization of Waukegan Harbor as a recreational harbor, while maintaining proprietary shipping interests. Level of Need - A. Waukegan harbor, due to its highly accessible location from both regional mass transit and future freeways, and its level of development, both existing and planned, makes this a highly suitable recreational harbor. Continued utilization of the harbor by proprietary shipping interests centers on the continued maintenance of channel depths.
8	Continue operation of Navy Pier as a general cargo terminal until a comparable Calumet area facility is capable of functioning in its place. Level of Need - A. Though limited in the extent to which it can adequately function as a general cargo terminal, and having plans developed for a commercial-recreational reuse, nonetheless, no present public port facility offers the lake access now being provided at Navy Pier.
11	Facilitate the acquisition and expansion of the existing general cargo facility at the mouth of the Calumet River due to its immediate accessibility to Lake Michigan as a replacement for those general cargo facilities now maintained at Navy Pier and Lake Calumet.

Shore Sector	Need
	the Calumet River due to its immediate accessibility to Lake Michigan as a replacement for those general cargo facilities now maintained at Navy Pier.
	Level of Need - A.
	The 2000 acre Transoceanic Terminal facility offers all the necessary locational attributes needed for a viable terminal operation. Direct access is porvided to the region's interstate highway system via 95th Street, though it is in need of improvement. Rail access is present, though access to it from more than one line would be of benefit, labor nearby and the site is physically stable.
	Lake access is negotiable with little or no tug and pilot assistance and a large anchorage is present. The site presently is partially improved, but major improvements would be necessary. A container/general cargo facility should have, as a minimum, 30 acres of service area per each berth. Presently, almost 3,000 feet of improved wharf exists at the site. Therefore, 180 acres of the site could be maximally utilized for cargo and container storage, marshally and stripping and stuffing of containers. Other necessary improvements would be in apron areas, the acquisition of a heavy lift crane and a container crane. The site also offers the opportunity for Ro-Ro shipping and lash, if properly designed.
	A significant question concerning the use of the site for a port terminal is its relationship with Calumet Park to the south. A major opportunity exists here for integration of these two uses. Since only 60/40 development matching funds are available for the site development from the Economic Development Administration, other public funds would be necessary to meet the 40 percent local match. The park could serve as a viewing area and point of controlled open space penetration to the terminal for the general public. Therefore, offering them an opportunity for public recognition of

how public funds are being used to increase the economic base of the region.

The need exists to continue Lake Calumet Harbor and Calumet River terminal facilities for proprietary and public bulk cargo terminal operations.

Level of Need - B.

The level of investment in these facilities is not duplicable either in dollar or terminal area. Also, this terminal offers those necessary facilities needed to service proprietary shipping and other dry and liquid bulk cargoes at the Port of Chicago. Extensive acreages are now being utilized for these purposes and are not duplicable at the Transoceanic site.

All ports in the nation can be generally subdivided into two governmental types - local and state. (Some private, usually specialized facilities that may be large enough to qualify as a port, are exceptions). A major variable is the amount of territory within the port's jurisdiction. The typical state port authority includes an entire state, oftern under a Department of Transportation, and is responsible for locating port sites and developing port facilities within the state. Local ports may be controlled by a municipality, county, or special district. They provide facilities in response to localized developments that arise within the shipping industry. In many cases, however, a locally controlled port effectively serves statewide or even broad regional interests. The U. S. Midwest, for example, is served by ports on all four coasts - Great Lakes, Atlantic, Gulf and Pacific.

Local port organizations may encompass several counties, or they may be departments within a city government, although often governed by a separate harbor commission. The Port Authority of New York and New Jersey is an example whereby two states have made a reciprocal legislative compact to create a separate, bi-state authority with jurisdiction over one physical port embracing parts of two states. The Port of Seattle is an example of

of an independent municipality whose port boundary coincides with that of a large county (King County), Washington. The city of Portland, Oregon is similar, except that its port boundary includes three counties. Most California port organizations are separate harbor commissions under city government. East Coast ports generally are under state jurisdictions.

Governing bodies of ports also vary. Some consist of appointed commissioners from a municipality whereas others are composed of elected commissioners. The detree of autonomy is clearly greater when a port is a special purpose district, which may have independent taxing power, instead of a departmental unit within a city or county. State organizations also vary in the extent of local control they exercise. In some states, several physically-distinct ports have consolidated into a larger port body, as in Virginia and South Carolina. In other cases, ports are under a State Department of Transportation, which has authority for all transportation within a state, as in Maine, Maryland and Hawaii.

It can be concluded that the accomplishment of those commercial port needs associated with the Port of Chicago, given their magnitudes, hinges on solving the present port administrative situation. The Chicago Regional Port District offers a legislative basis from which this problem can be solved. However, given its location within the City of Chicago, yet serving not only the city, but the region and Illinois, an intergovernmental beginning to meeting this need seems justified. However, the final solution to this problem must rest authority in an accountable body - one accountable to both the port and shipping interests who use the port.

APPENDIX A

Tom Vuk

RECEIVED
N. P. C. ... TO
DEC 3 1976
AM PM
7,8,9,10,11,12,1,2,3,4,5,6

WAUKEGAN HARBOR, ILLINOIS

Condition of Improvement, 30 June 1973

Project:

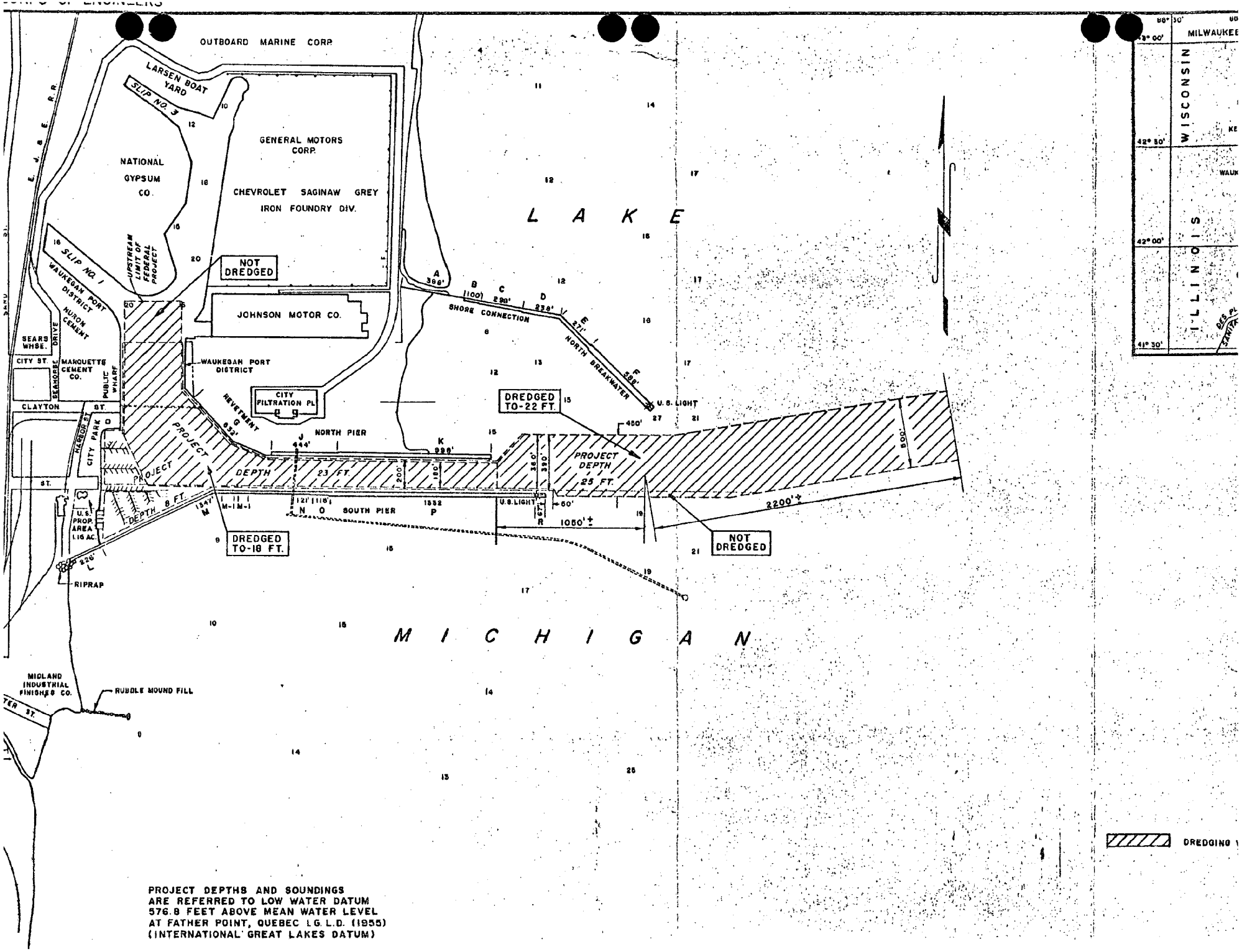
The project includes a northerly exterior timber crib breakwater 600 feet long and a concrete and steel sheet pile extension to shore about 1300 feet long; two parallel timber crib and pile piers about 240 feet apart, 1610 and 3211 feet long for north and south piers respectively, the inshore end of the south pier diverging southward opposite inner basin; an entrance channel 380 to 500 feet wide and 25 feet deep from that depth in the lake to the east end of the north pier, reducing to a channel 180 feet wide between piers and 23 feet deep; an inner basin 23 feet deep; a revetment 882 feet long on the east side of the inner basin; and an anchorage area 8 feet deep at the southwest corner of the inner basin.

Progress:

The project is complete except for the inactive portion which consists of dredging the entrance channel to 25 feet deep and dredging the inner channel and inner basin to 23 feet deep.

Cost of Construction:

$823,026.



PROJECT DEPTHS AND SOUNDINGS ARE REFERRED TO LOW WATER DATUM 576.8 FEET ABOVE MEAN WATER LEVEL AT FATHER POINT, QUEBEC I.G.L.D. (1955) (INTERNATIONAL GREAT LAKES DATUM)

CHICAGO RIVER, ILLINOIS

Condition of Improvement, 30 June 1975

Project:

The project includes dredging to a depth of 21 feet between Rush Street and North Avenue, including the North Branch Canal and the North Branch Turning Basin, all to within 20 feet of existing docks; a channel 9 feet deep between North Avenue and Addison Street, the channel between North and Belmont Avenues extends to within 30 feet of existing bulkheads and river banks and thence to Addison Street to a bottom width of 50 feet. Project depths are referred to normal pool elevation 57o.2 feet above International Great Lakes Datum (0.6 feet below Low Water Datum for Lake Michigan).

Progress:

Project is complete except for the inactive portion which consists of dredging the channel between Belmont Avenue and Addison Street and maintenance of the channel between North Avenue and Belmont Avenue.

Cost of Construction:

$1,692,499.

CHICAGO HARBOR, ILLINOIS

Condition of Improvement, 30 June 1973

Project:

The project includes an inner timber crib breakwater 4036 feet long with 300-foot shore return on the north end and a detached southerly extension 2550 feet long separated by a 754-foot gap, enclosing an inner basin of about 224 acres; an exterior timber crib breakwater 5413 feet long with a detached shore arm extension 2250 feet long separated by a 400-foot gap, and a rubble mound and concrete caisson southerly extension 5000 feet long exclusive of a 500-foot entrance gap enclosing an outer basin of about 970 acres; also maintenance of 900 feet of north pier east of entrance to Ogden Slip; a lake approach channel 800 feet wide and 29 feet deep from the breakwater lakeward for a distance of about 6600 feet and a channel and maneuver area inside the harbor entrance with a maximum width of 1300 feet and a depth of 28 feet; maintenance dredging to a depth of 21 feet of that part of inner basin north of the north boundary of Grant Park, and the entrance to the Chicago River from the lock to Rush Street. The project depth lakeward of the Sanitary District Lock is referred to Low Water Datum elevation 576.8 feet International Great Lakes Datum. The project depth landward of the Sanitary District Lock is referred to normal pool elevation 576.2 feet International Great Lakes Datum.

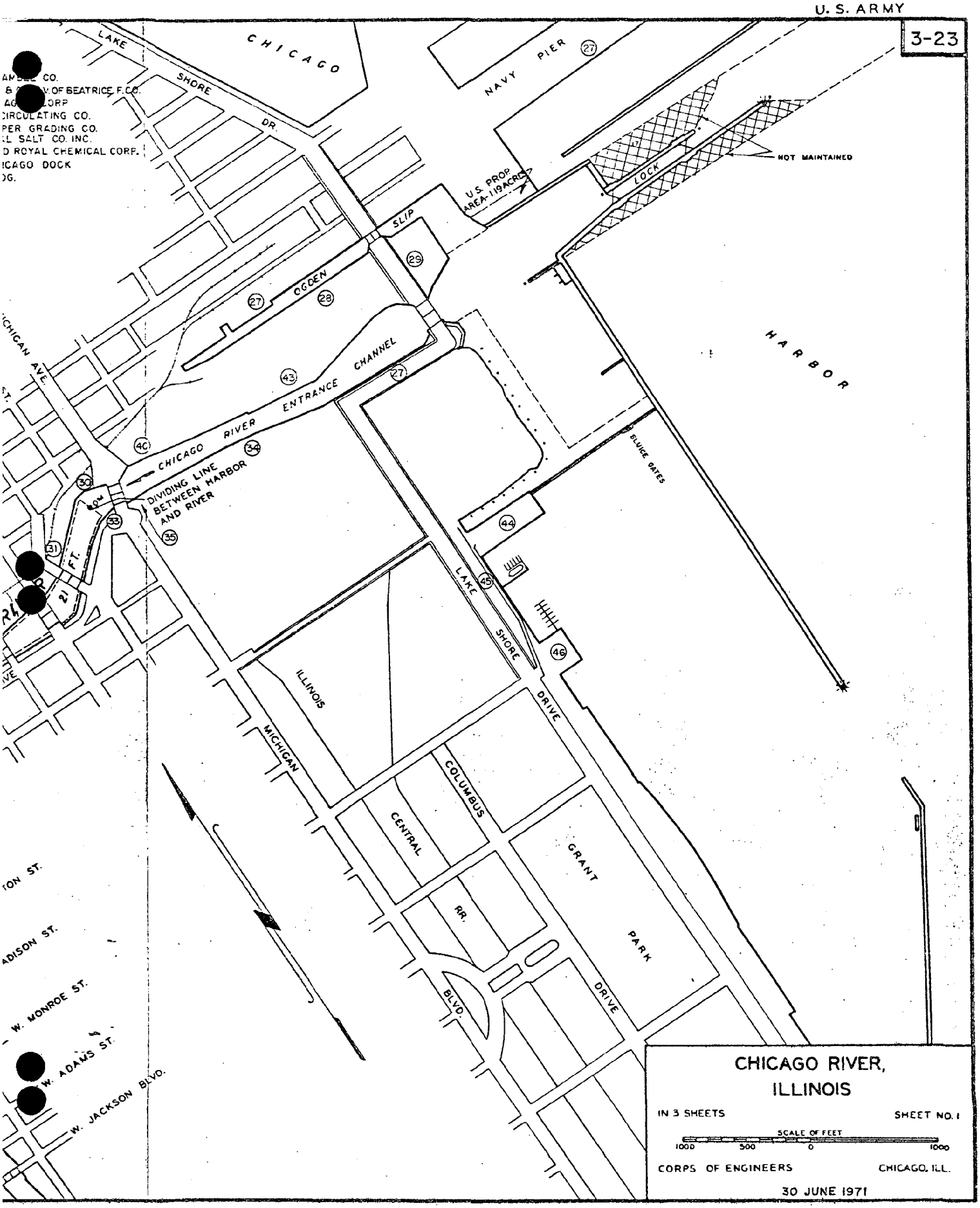
Progress:

Existing project completed in 1966.

Cost of Construction:

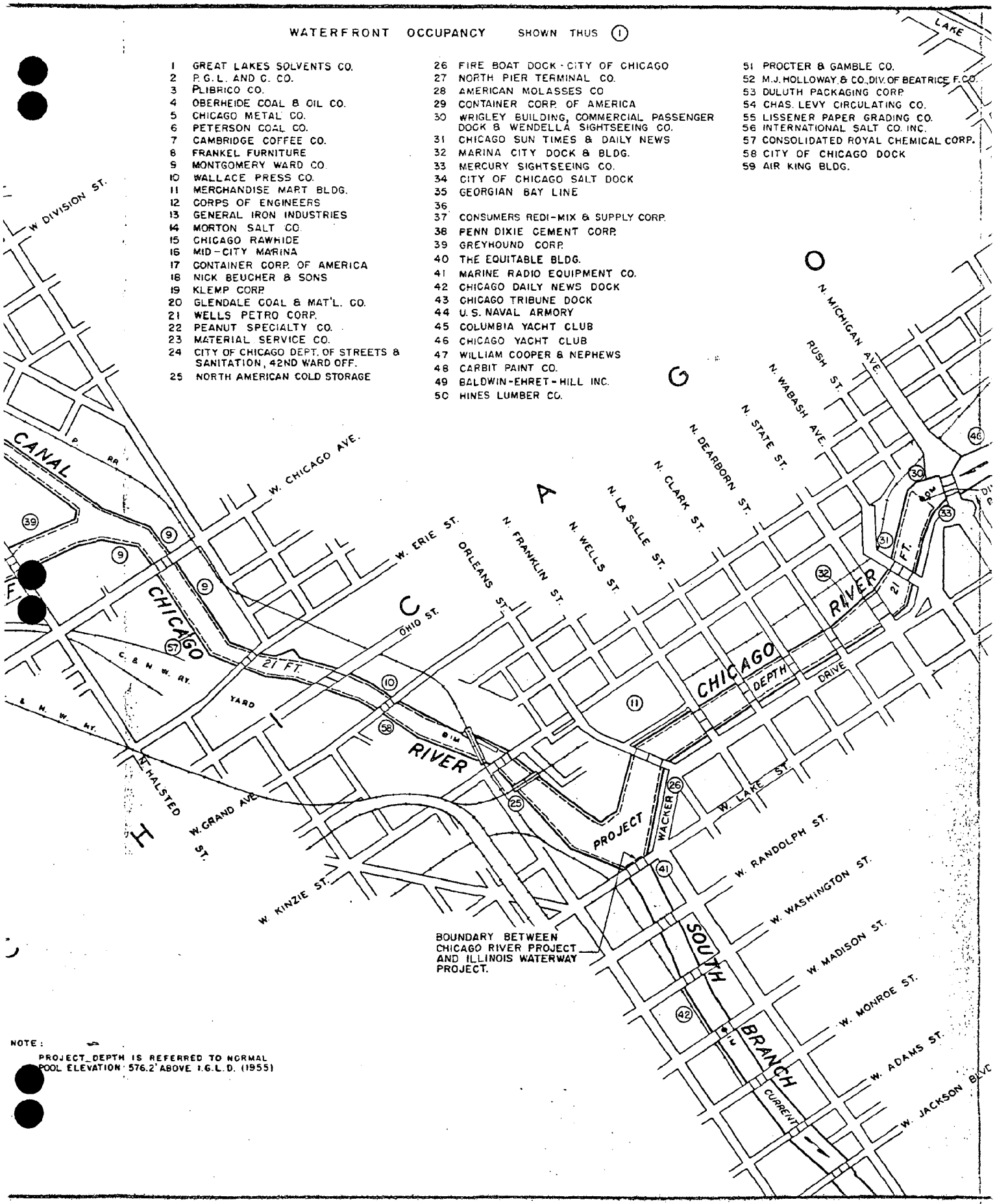
$4,788,827.

U. S. ARMY


3-23
CHICAGO
LAKE SHORE DR.
NAVY PIER
27
NOT MAINTAINED
LOCK
U.S. PROP. AREA-1.19 ACRE
SLIP
OGDEN
29
28
27
43
CHICAGO RIVER ENTRANCE CHANNEL
27
HARBOR
40
34
DIVIDING LINE BETWEEN HARBOR AND RIVER
30
33
35
31
21 FT.
SLUICE GATES
44
45
46
LAKE SHORE DRIVE
ILLINOIS
MICHIGAN
COLUMBUS
CENTRAL
RR.
GRANT PARK
DRIVE
BLVD.
W. MONROE ST.
W. ADAMS ST.
W. JACKSON BLVD.
CHICAGO RIVER, ILLINOIS
IN 3 SHEETS
SHEET NO. 1
SCALE OF FEET
1000 500 0 1000
CORPS OF ENGINEERS
CHICAGO, ILL.
30 JUNE 1971

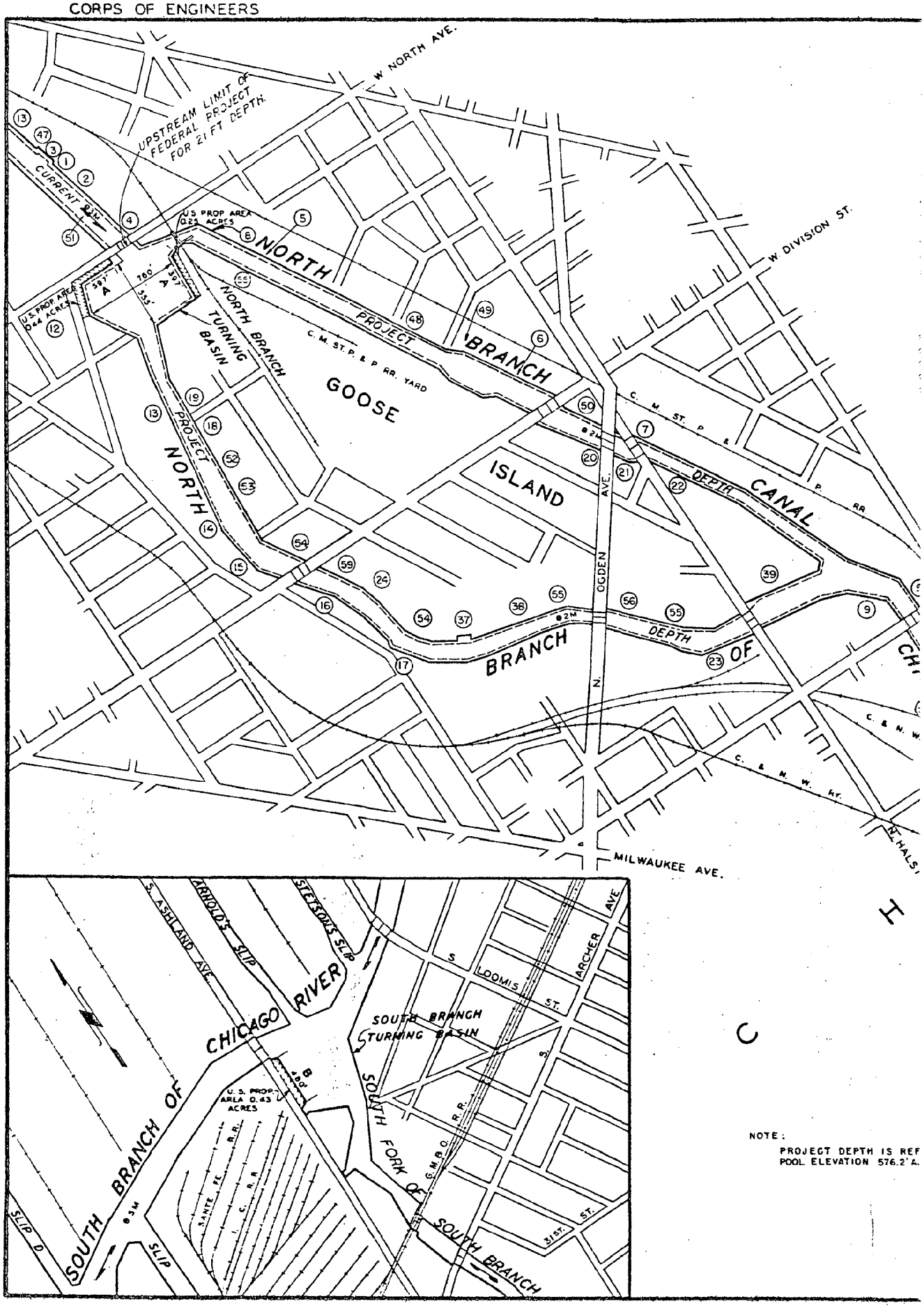
WATERFRONT OCCUPANCY SHOWN THUS (1)

1 GREAT LAKES SOLVENTS CO.
2 P.G.L. AND C. CO.
3 PLIBRICO CO.
4 OBERHEIDE COAL & OIL CO.
5 CHICAGO METAL CO.
6 PETERSON COAL CO.
7 CAMBRIDGE COFFEE CO.
8 FRANKEL FURNITURE
9 MONTGOMERY WARD CO.
10 WALLACE PRESS CO.
11 MERCHANDISE MART BLDG.
12 CORPS OF ENGINEERS
13 GENERAL IRON INDUSTRIES
14 MORTON SALT CO.
15 CHICAGO RAWHIDE
16 MID-CITY MARINA
17 CONTAINER CORP. OF AMERICA
18 NICK BEUCHER & SONS
19 KLEMP CORP.
20 GLENDALE COAL & MAT'L. CO.
21 WELLS PETRO CORP.
22 PEANUT SPECIALTY CO.
23 MATERIAL SERVICE CO.
24 CITY OF CHICAGO DEPT. OF STREETS & SANITATION, 42ND WARD OFF.
25 NORTH AMERICAN COLD STORAGE
26 FIRE BOAT DOCK - CITY OF CHICAGO
27 NORTH PIER TERMINAL CO.
28 AMERICAN MOLASSES CO
29 CONTAINER CORP. OF AMERICA
30 WRIGLEY BUILDING, COMMERCIAL PASSENGER DOCK & WENDELLA SIGHTSEEING CO.
31 CHICAGO SUN TIMES & DAILY NEWS
32 MARINA CITY DOCK & BLDG.
33 MERCURY SIGHTSEEING CO.
34 CITY OF CHICAGO SALT DOCK
35 GEORGIAN BAY LINE
36
37 CONSUMERS REDI-MIX & SUPPLY CORP.
38 PENN DIXIE CEMENT CORP.
39 GREYHOUND CORP.
40 THE EQUITABLE BLDG.
41 MARINE RADIO EQUIPMENT CO.
42 CHICAGO DAILY NEWS DOCK
43 CHICAGO TRIBUNE DOCK
44 U.S. NAVAL ARMORY
45 COLUMBIA YACHT CLUB
46 CHICAGO YACHT CLUB
47 WILLIAM COOPER & NEPHEWS
48 CARBIT PAINT CO.
49 BALDWIN-EHRET-HILL INC.
50 HINES LUMBER CO.
51 PROCTER & GAMBLE CO.
52 M.J. HOLLOWAY & CO., DIV. OF BEATRICE F. CO.
53 DULUTH PACKAGING CORP.
54 CHAS. LEVY CIRCULATING CO.
55 LISSENER PAPER GRADING CO.
56 INTERNATIONAL SALT CO. INC.
57 CONSOLIDATED ROYAL CHEMICAL CORP.
58 CITY OF CHICAGO DOCK
59 AIR KING BLDG.



NOTE:
PROJECT DEPTH IS REFERRED TO NORMAL POOL ELEVATION 576.2' ABOVE I.G.L.D. (1955)

CORPS OF ENGINEERS

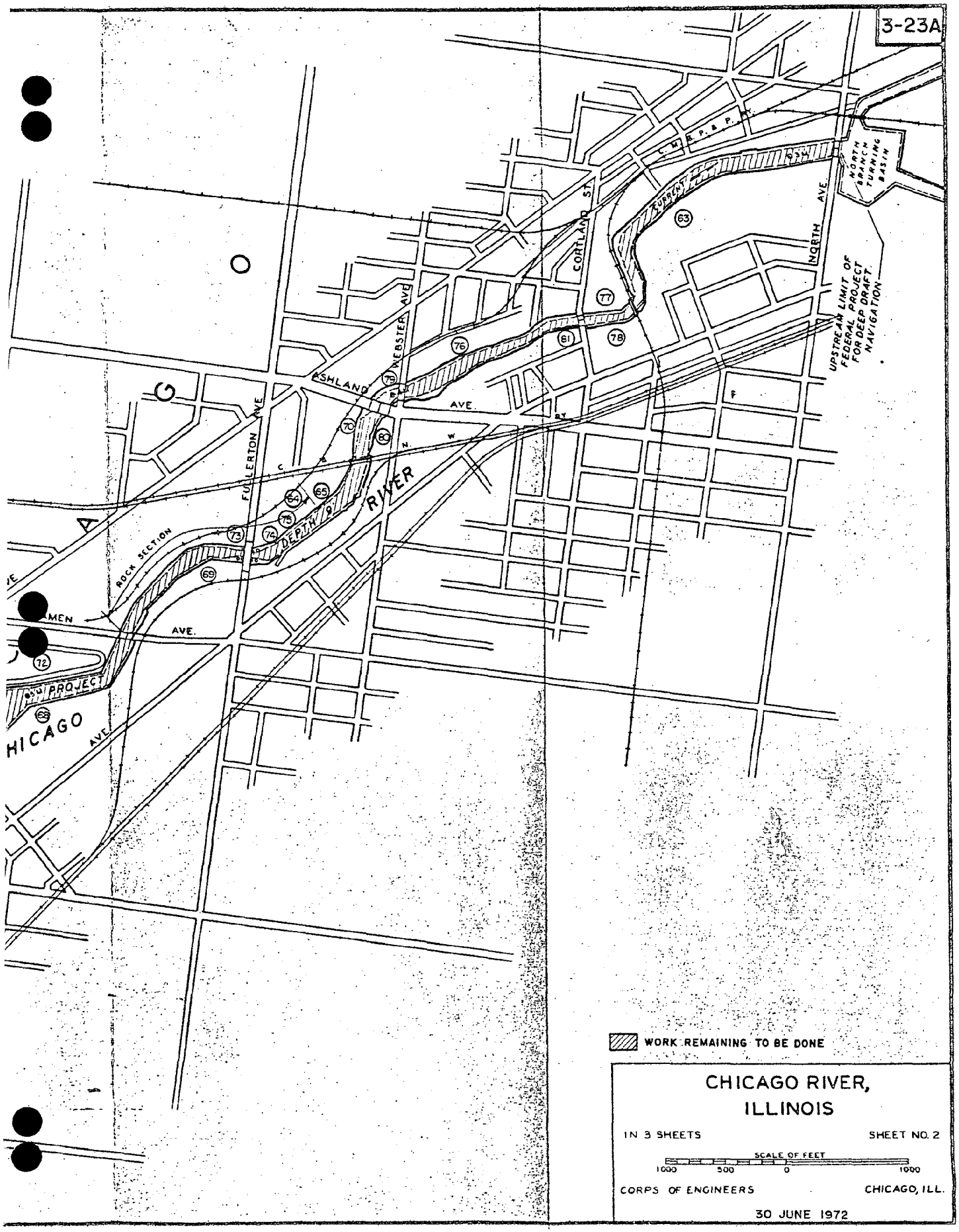


NOTE:

PROJECT DEPTH IS REF
POOL ELEVATION 576.2' A.

U. S. ARMY

3-23A



CHICAGO RIVER,
ILLINOIS

IN 3 SHEETS

SHEET NO. 2

SCALE OF FEET
1000 500 0 1000

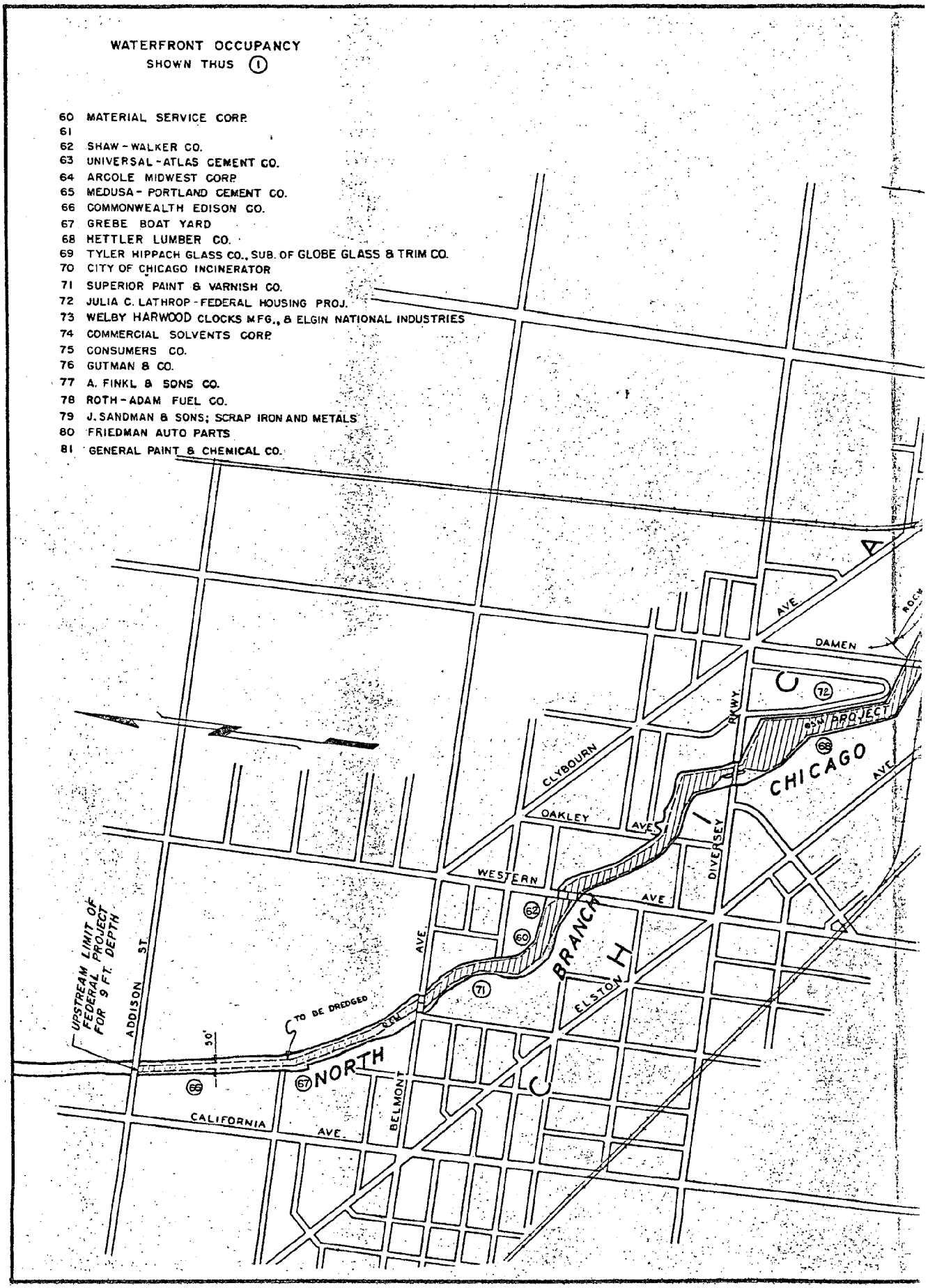
CORPS OF ENGINEERS

CHICAGO, ILL.

30 JUNE 1972

WATERFRONT OCCUPANCY
SHOWN THUS (1)

60 MATERIAL SERVICE CORP.
61
62 SHAW-WALKER CO.
63 UNIVERSAL-ATLAS CEMENT CO.
64 ARCOLE MIDWEST CORP.
65 MEDUSA-PORTLAND CEMENT CO.
66 COMMONWEALTH EDISON CO.
67 GREBE BOAT YARD
68 HETTLER LUMBER CO.
69 TYLER HIPPACH GLASS CO., SUB. OF GLOBE GLASS & TRIM CO.
70 CITY OF CHICAGO INCINERATOR
71 SUPERIOR PAINT & VARNISH CO.
72 JULIA C. LATHROP-FEDERAL HOUSING PROJ.
73 WELBY HARWOOD CLOCKS MFG., & ELGIN NATIONAL INDUSTRIES
74 COMMERCIAL SOLVENTS CORP.
75 CONSUMERS CO.
76 GUTMAN & CO.
77 A. FINKL & SONS CO.
78 ROTH-ADAM FUEL CO.
79 J. SANDMAN & SONS; SCRAP IRON AND METALS
80 FRIEDMAN AUTO PARTS
81 GENERAL PAINT & CHEMICAL CO.



CALUMET HARBOR AND RIVER, ILLINOIS AND INDIANA

Condition of Improvement, 30 June 1975

Project:

The project includes an outer harbor with timber crib breakwater extending 4,400 feet east from shore, thence 2,500 feet southeasterly; a detached sheet steel pile breakwater extending 5,000 feet southeasterly and closing the 600-foot gap between breakwaters; an approach channel 20 feet deep and 3,200 feet wide; an outer harbor anchorage area 28 feet deep and 3,000 feet wide; an entrance channel to the Calumet River 27 feet deep and 290 feet wide; a channel in the Calumet River from its mouth at the E. J. & E. Railway Bridge (Mile 0.0) to the north side of 130th Street (Mile 5.75) at a minimum width of 200 feet and depth of 27 feet; three turning basins designated as Nos. 1, 3 and 5 located along the Calumet River to a depth of 27 feet; and a channel from turning basin No. 5 extending 6,300 feet into Lake Calumet at widths from 375 to 1,000 feet and depth of 27 feet. All depths are referred to Low Water Datum, 576.8 feet above International Great Lakes Datum.

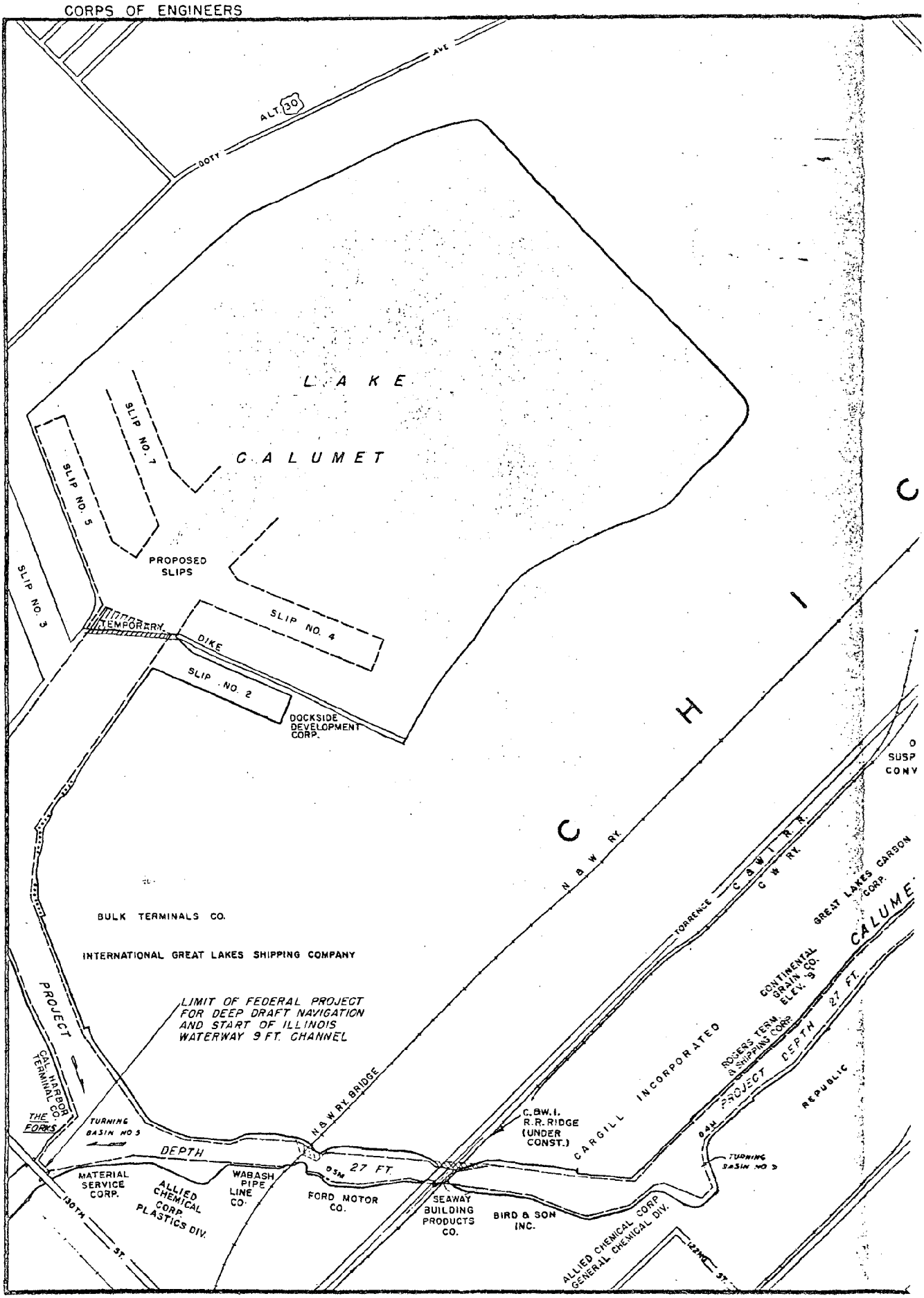
Progress:

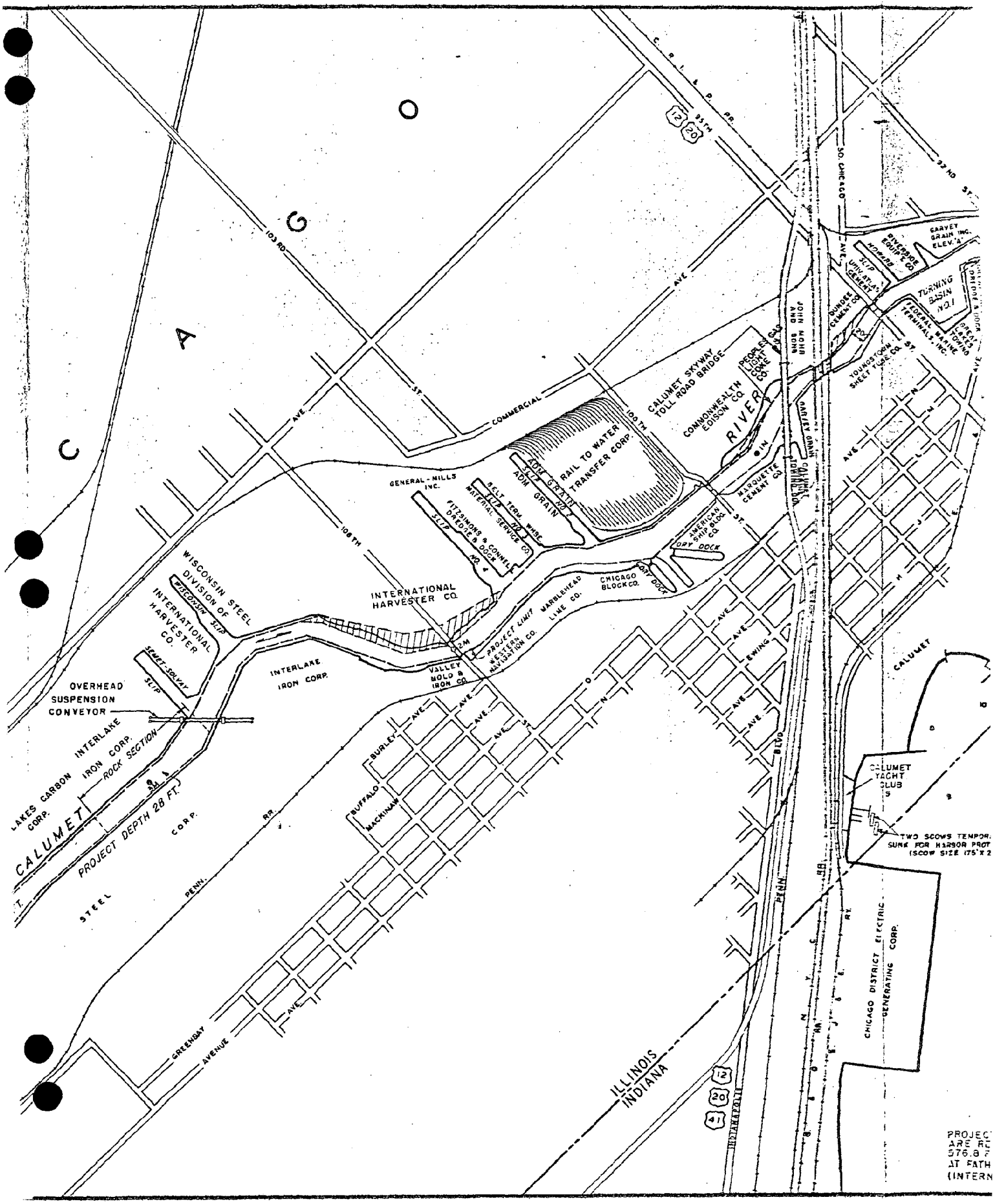
Project is 79% complete. Work remaining to be done consists of miscellaneous widening and straightening in the Calumet River and the inactive portion which consists of closing the gap between the breakwaters and dredging minor shoals in the outer harbor.

Cost of Construction:

$22,464,259. to 30 June 1975.

CORPS OF ENGINEERS

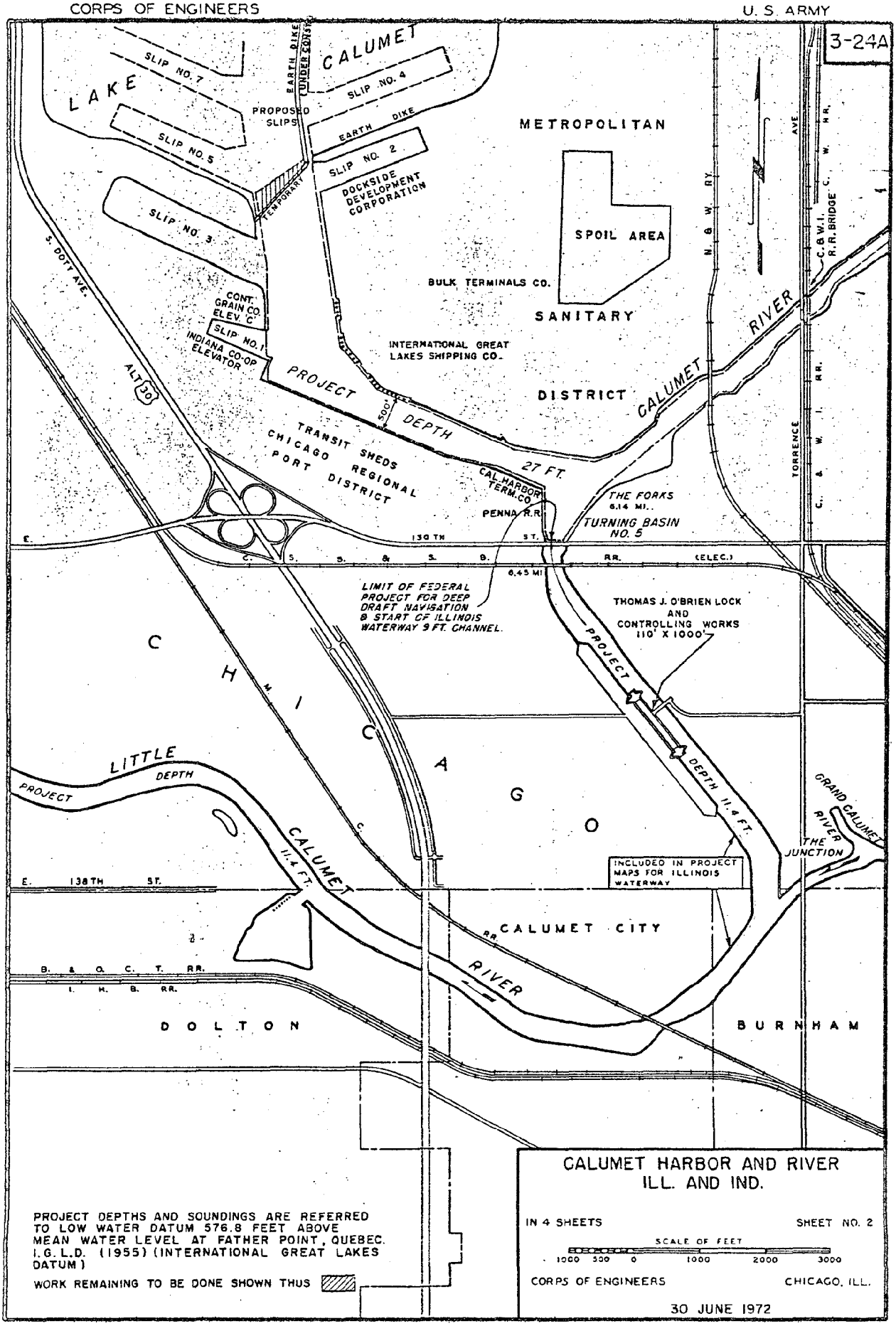




C A G O
103 RD
95TH
92 ND ST.
C. R. I. & P. RR.
SO. CHICAGO AVE.
GARVEY GRAIN INC. ELEV. 'A'
RIVERSIDE EQUIP. CO.
HOWARD
SLIP
UNIV. ATLAS CEMENT
TURNING BASIN NO. 1
FEDERAL MARINE TERMINALS, INC.
BREAK LAKES TOWING
DREDGE & DOCK
DUNDEE CEMENT CO.
JOHN MOHR AND SONS
YOUNGSTOWN SHEET TUBE CO.
PEOPLES GAS LIGHT COKE CO.
CALUMET SKYWAY TOLL ROAD BRIDGE
COMMONWEALTH EDISON CO.
RIVER
GARVEY GRAIN
CALUMET TOWING CO.
MARQUETTE CEMENT CO.
AMERICAN SHIP BLDG. CO.
DRY DOCK
CHICAGO BLOCK CO.
MARBLEHEAD LIME CO.
PROJECT LIMIT
WESTERN NAVIGATION CO.
VALLEY MOLD & IRON CO.
RAIL TO WATER TRANSFER CORP.
ADM GRAIN
ADM GRAIN
SLIP NO. 2
BELT TERM. WHSE.
SLIP NO. 3
MATERIAL SERVICE CO.
FITZSIMONS & CONNELL DREDGE & DOCK
SLIP NO. 4
GENERAL-MILLS INC.
COMMERCIAL
AVE.
ST.
100TH
108TH
INTERNATIONAL HARVESTER CO.
WISCONSIN STEEL DIVISION OF INTERNATIONAL HARVESTER CO.
WISCONSIN SLIP
SEMET-SOLVAY
SLIP
OVERHEAD SUSPENSION CONVEYOR
INTERLAKE IRON CORP.
ROCK SECTION
LAKES CARBON CORP.
CALUMET
PROJECT DEPTH 28 FT.
STEEL CORP.
INTERLAKE IRON CORP.
PENN. RR.
BURLEY AVE.
BUFFALO
MACKINAW
GREENBAY AVENUE
EWING
CALUMET
CALUMET YACHT CLUB
TWO SCOWS TEMPOR. SUNK FOR HARBOR PROT (SCOW SIZE 175' X 2
CHICAGO DISTRICT ELECTRIC GENERATING CORP.
ILLINOIS
INDIANA
INDIANAPOLIS
PENN. RR.
PROJEC
ARE RE
576.8 F
AT FATH
(INTERN

CORPS OF ENGINEERS U. S. ARMY

3-24A



PROJECT DEPTHS AND SOUNDINGS ARE REFERRED TO LOW WATER DATUM 576.8 FEET ABOVE MEAN WATER LEVEL AT FATHER POINT, QUEBEC. I.G.L.D. (1955) (INTERNATIONAL GREAT LAKES DATUM)

WORK REMAINING TO BE DONE SHOWN THUS

CALUMET HARBOR AND RIVER ILL. AND IND.

IN 4 SHEETS SHEET NO. 2

SCALE OF FEET

1000 500 0 1000 2000 3000

CORPS OF ENGINEERS CHICAGO, ILL.

30 JUNE 1972

APPENDIX B

U.S. ARMY CORPS OF ENGINEERS

GREAT LAKES/ST. LAWRENCE SEAWAY TRAFFIC FORECAST STUDY

MOST LIKELY FORECASTS OF TOTAL BULK COMMODITY MOVEMENTS
(Millions of Short Tons)

Type of Movement	1972 Base Year Potential Tonnage	1972 Base Year Percent GL/SLS	Forecasted Potential Movements 1980	1990	2000	2010	2020	2030	2040	Average Annual Growth Rate 1972-2040
U.S.A. to U.S.A.	175.3	81%	206.1	260.8	318.0	386.5	458.1	531.6	625.5	1.9%
U.S.A. to Canada	24.4	(2)	38.0	44.4	49.5	55.7	61.9	68.3	75.6	1.7
U.S.A. to Overseas	45.9	18	64.3	90.4	138.3	191.6	261.6	311.3	327.9	2.9
Canada to U.S.A.	18.5	(2)	23.9	26.3	31.1	34.6	41.9	49.5	58.6	1.7
Canada to Canada	28.4	(2)	41.8	53.8	67.0	77.0	86.3	96.0	106.7	2.0
Canada to Overseas	1.5	(2)	1.8	2.1	2.5	2.6	2.9	3.1	3.4	1.2
Overseas to U.S.A.	7.1	9	7.1	4.3	4.0	4.5	5.1	5.8	7.2	-
Overseas to Canada	1.0	(2)	1.5	2.1	2.8	3.3	3.7	4.2	4.6	2.3
Total(1)	302.1	75%	384.5	484.2	613.2	755.8	921.5	1,069.8	1,209.5	2.1

Notes: (1) Totals may vary slightly from computer printouts due to rounding.
(2) Due to the unavailability of competitive mode data for this trade route, the forecast file contains movement data only for the GL/SLS. Therefore, estimated 1972 base year GL/SLS market share for this trade route is shown in the file as 100%, although in fact this is not the case. In addition, estimates of potential tonnage are understated since flows via non-GL/SLS routings are not included. Also note that the total GL/SLS estimated 1972 base year market share is overstated and the total potential tonnage flows understated for the same reasons cited above.

Source: A. T. Kearney, Inc.

EXHIBIT II-6

Kearney: Management Consultants

APPENDIX C

TOTAL FOREIGN GENERAL CARGO TRAFFIC

AT THE PORT OF CHICAGO[1]

(SHORT TONS)

Prime Cargo for Containerization

Food and Kindred Products

Category Number	Cargo Type	Years 1969	1971	1973
0141	Fresh and Frozen Vegetables	341	825	508
0911	Fresh Fish, Except Shell	110	208	83
2011	Meat, Fresh Chilled, Frozen	6,250	4,822	1,427
2012	Meat and Products, NEC	2,213	2,843	227
2015	Animal By-Products, NEC	72,521	69,764	21,616
2021	Dairy Products	1,149	2,042	594
2022	Dried Milk and Cream	577	41	791
2031	Fish and Shellfish, Prepared	2,455	3,093	1,219
2034	Vegetables, Prepared, NEC	15,093	9,616	5,693
2039	Fruit and Vegetable Juice, Prepared, NEC	5,297	4,052	1,458
2081	Alcoholic Beverages	38,037	41,968	33,536
2099	Miscellaneous Food Products	19,514	14,041	12,251
	Subtotal	165,563	153,320	79,403
	Chemicals			
2821	Plastic Materials	3,385	4,750	2,961
2822	Synthetic Rubber	1,259	1,651	459
2823	Synthetic (m/m) Fibers	327	398	4
2831	Drugs	1,200	1,364	828
2841	Soap	1,863	2,192	817
2851	Paints	288	303	168
2861	Gum and Wood Chemicals	6	70	97
	Subtotal	8,328	10,728	5,334
3411	Fabricated Metals	77,688	80,348	96,309
	Subtotal	77,688	80,348	96,309

[1] U. S. Army Corps of Engineers, Commercial Commerce: Part III. 1969, 1971, 1973.

Prime Cargo for Containerization (Cont'd.)

All Others

Category Number	Cargo Type	Years 1969	1971	1973
2111	Tobacco Manufactured	68	128	4
2211	Basic Textile Products	6,471	5,076	3,271
2212	Textile Fibers, NEC	1,324	1,236	1,215
2311	Apparel	339	214	183
2511	Furniture and Fixtures	2,058	2,253	2,116
2711	Printed Matter	2,142	916	1,148
3011	Rubber and Miscellaneous Plastic Products	7,026	4,384	2,375
3111	Leather and Leather Products	306	703	320
3211	Glass and Glass Products	19,187	11,942	6,993
3811	Instruments; Time, Photo and Optic Goods	1,277	1,554	1,787
3911	Miscellaneous Manufacturing	3,750	3,963	3,231
	Subtotal	43,948	32,374	22,643
	Total - Prime	293,527	276,770	203,689

Potential Cargo for Containerization

Food and Kindred Products

2041	Wheat Flour and Semolina	13,138	14,826	173
2042	Prepared Animal Feeds	11,744	23,487	42,110
2049	Grain Mill Products, NEC	557,260	773,845	801,072
2062	Molasses	2,638	-	-
2091	Vegetable Oils, Margarine and Shortening	18,072	8,907	7,158
2092	Animal Oils and Fats	90	35	131
2094	Groceries	-	-	-
2095	Ice	-	-	-
	Subtotal	602,942	821,100	850,471

Chemicals

2810	Sodium Hydroxide	-	-	-
2812	Dyes, Pigments, Tanning Material	1,184	1,742	720
2813	Alcohols	-	-	-
2816	Radio-Active Materials and Wastes	-	99	-
2817	Benzene and Toluene	-	-	-
2818	Sulphuric Acid	-	-	-
2819	Basic Chemicals and Products, NEC	33,156	43,961	21,393
2879	Fertilizers and Materials, NEC	204	11	-
2891	Miscellaneous Chemical Products	6,969	5,187	5,165
2876	Insecticides and Disinfectants	-	23	254
	Subtotal	41,513	50,924	27,532

Potential Cargo for Containerization (Cont'd.)

Iron and Steel Products

Category Number	Cargo Type	Years 1969	1971	1973
3314	Iron and Steel Primary Forms	138,915	113,258	75,263
3315	Iron and Steel Shapes, Except Sheets	296,314	319,785	203,958
3316	Iron and Steel Plates, Sheets	1,023,908	1,476,704	939,887
3317	Iron and Steel Piped Tubes	38,364	41,548	23,086
3319	Iron and Steel Products, NEC	58,717	95,955	49,209
	Subtotal	1,556,218	2,047,250	1,291,903
3318	Ferro Alloys	8,533	17,789	15,412
	Subtotal	8,533	17,789	15,412
3511	Machinery, Except Electrical	58,450	62,333	42,341
3611	Electrical Machinery and Equipment	7,355	11,703	6,297
	Subtotal	65,805	74,036	48,630
3711	Motor Vehicles, Parts and Equipment	36,710	42,724	28,884
	Subtotal	36,710	42,724	28,884

All Others

1911	Ordinance and Accessory	81	-	-
2421	Lumber	1,772	2,614	1,971
2431	Veneer, Plywood and Worked Wood	14,263	18,383	3,287
2491	Wood Manufactured, NEC	1,125	690	615
2631	Paper and Paperboard	18,824	5,042	8,407
2716	Lubricating Oils and Grease	33,156	6,623	243
3251	Structural Clay Products	12,208	7,666	8,220
3291	Misc. Non-Metal Mineral Products	2,720	1,811	1,362
3322	Copper Alloys, Unworked	2,357	4,573	2,938
3323	Lead and Zinc, Unworked	15,120	10,352	17,748
3324	Aluminum Alloy, Unworked	4,047	5,695	12,185
3721	Aircraft and Aircraft Parts	30	98	73
3791	Miscellaneous Transportation Equip.	7,968	3,400	7,996
	Subtotal	113,671	63,887	65,045
	Total - Potential	2,425,392	3,117,710	2,327,877
	Total - Prime and Potential	2,718,919	3,394,481	2,531,566

Not Susceptible Cargo for Containerization

Chemicals

Category Number	Cargo Type	Years 1969	1971	1973
2871	Nitrogen Chemical Fertilizer	-	233	-
2872	Potassic Chemical Fertilizer	-	-	-
2873	Phosphatic Chemical Fertilizer	-	116	-
	Subtotal	-	346	-
3311	Pig Iron	49,904	27,919	37,723
	Subtotal	49,904	27,919	37,723
All Others				
3731	Ships and Boats	202	120	519
	Subtotal	202	120	519
	Total - Not Susceptible	50,106	28,385	38,292

Summary - Port of Chicago

	Years		
	1969	1971	1973
Foreign General Cargo			
Prime and Potential for Containerization	2,718,919	3,394,480	1,531,566
Not Susceptible for Containerization	50,106	28,385	38,242
Total - Foreign General Cargo	2,769,025	3,422,865	2,569,808
Domestic General Cargo			
Prime for Containerization	-	-	90
Potential for Containerization	263,242	334,684	313,531
Total - Prime and Potential	263,242	334,684	313,621
Not Susceptible for Containerization	3,738	63,286	10,616
Total - Domestic General Cargo	266,980	397,970	324,237
Total Foreign Cargo @ Port of Chicago	6,907,612	7,903,911	6,840,289
Total Domestic Cargo @ Port of Chicago	19,836,518	17,653,809	18,048,159
Total - Foreign and Domestic Cargo @PofC	26,744,130	25,557,720	24,888,448
Total Foreign Bulk Cargo	4,138,587	4,481,046	4,270,481
Total Domestic Bulk Cargo	19,569,538	17,255,839	17,734,628
Total - Foreign and Domestic Bulk Cargo	23,708,125	21,736,885	22,005,109

TOTAL FOREIGN GENERAL CARGO TRAFFIC

ON THE GREAT LAKES[1]

(SHORT TONS)

Prime Cargo for Containerization

Food and Kindred Products

Category Number	Cargo Type	Years 1969	1971	1973
0141	Fresh and Frozen Vegetables	966	1,824	8,303
0911	Fresh Fish, Except Shell	771	711	279
2011	Meat, Fresh Chilled, Frozen	46,939	72,729	35,541
2012	Meat and products, NEC	2,999	4,906	3,056
2015	Animal By-Products, NEC	178,332	146,542	46,386
2021	Dairy Products	7,394	23,468	1,159
2022	Dried Milk and Cream	71,688	79,242	3,384
2031	Fish and Shellfish, Prepared	5,720	5,370	4,134
2034	Vegetables, Prepared, NEC	98,961	87,867	33,591
2039	Fruit and Vegetable Juice, Prepared, NEC	18,254	11,515	11,767
2081	Alcoholic Beverages	76,571	83,993	76,755
2099	Miscellaneous Food Products	92,304	30,975	22,285
	Subtotal	600,899	549,142	239,140
	Chemicals			
2821	Plastic Materials	23,015	41,881	31,789
2822	Synthetic Rubber	5,246	9,659	2,850
2823	Synthetic (m/m) Fibers	523	791	18
2831	Drugs	1,531	1,673	1,042
2841	Soap	3,337	4,986	3,352
2851	Paints	841	940	515
2861	Gum and Wood Chemicals	1,015	1,337	597
	Subtotal	35,508	61,267	40,163
3411	Fabricated Metals	145,106	152,320	166,170
	Subtotal	145,106	152,320	166,170

[1]U. S. Army Corps of Engineers, Commercial Commerce: 1969 - Part V,
1971 - Part III
1973 - Part III

Prime Cargo for Containerization (Cont'd.)

All Others

Category Number	Cargo Type	Years 1969	1971	1973
2111	Tobacco Manufactured	132	477	11
2211	Basic Textile Products	43,872	53,938	34,656
2212	Textile Fibers, NEC	2,624	1,525	1,387
2311	Apparel	2,359	2,428	2,356
2511	Furniture and Fixtures	4,707	3,952	3,788
2711	Printed Matter	2,880	1,516	1,538
3011	Rubber and Miscellaneous Plastic Products	12,916	12,955	5,186
3111	Leather and Leather Products	1,513	3,322	1,128
3211	Glass and Glass Products	59,516	49,265	17,958
3811	Instruments, Time, Photo, and Optic Goods	1,879	2,390	2,373
3911	Miscellaneous Manufacturing	6,394	8,382	5,552
	Subtotal	138,792	140,150	75,933
	Total - Prime	920,305	902,879	521,406

Potential Cargo for Containerization

Food and Kindred Products

2041	Wheat Flour and Semolina	148,028	155,420	53,314
2042	Prepared Animal Feeds	148,612	119,373	117,106
2049	Grain Mill Products	747,081	1,150,068	1,057,734
2062	Molasses	14,622	-	11,298
2091	Vegetable Oils, Margarine and Shortening	24,010	23,265	8,533
2092	Animal Oils and Fats	4,947	5,103	160
2094	Groceries	-	-	-
2095	Ice	-	-	-
	Subtotal	1,087,300	1,453,229	1,248,145

Chemicals

2810	Sodium Hydroxide	-	-	-
2812	Dyes, Pigments, Tanning Materials	2,452	3,274	1,137
2813	Alcohols	-	-	-
2816	Radio-Active Materials and Wastes	1	547	20
2817	Benzene and Toluene	-	-	-
2818	Sulphuric Acid	-	-	-
2819	Basic Chemicals and Products, NEC	197,810	241,723	315,565
2876	Insecticides and Disinfectants	1,091	2,659	2,234
2879	Fertilizers and Material, NEC	97,021	105,673	112,742
2891	Miscellaneous Chemical Products	17,492	21,791	21,065
	Subtotal	315,866	375,667	452,763

Potential Cargo for Containerization (Cont'd.)

Iron and Steel Products

Category Number	Cargo Type	Years 1969	1971	1973
3314	Iron and Steel Primary Forms	431,407	258,126	238,577
3315	Iron and Steel Shapes, Except Sheets	1,002,473	1,140,429	912,391
3316	Iron and Steel Plates, Sheets	2,460,934	4,084,629	2,611,020
3317	Iron and Steel Pipes and Tubes	88,143	90,722	102,700
3319	Iron and Steel Products, NEC	141,131	158,039	95,612
	Subtotal	4,124,088	5,731,945	3,960,300
3318	Ferro Alloys	54,805	58,644	90,018
	Subtotal	54,805	58,644	90,018
3511	Machinery, Except Electrical	144,230	181,884	131,731
3611	Electrical Machinery and Equipment	16,284	35,224	20,251
	Subtotal	160,514	217,108	151,982
3711	Motor Vehicles, Parts and Equipment	163,663	183,964	99,134
	Subtotal	163,663	183,964	99,134

All Others

1911	Ordinance and Accessory	766	106	294
2421	Lumber	10,568	11,339	8,136
2431	Veneer, Plywood and Worked Wood	55,251	80,280	23,275
2491	Wood Manufacture, NEC	1,661	1,783	1,589
2631	Paper and Paperboard	32,375	19,920	23,398
2916	Lubricating Oils and Grease	65,296	79,216	30,079
3251	Structural Clay Products	22,761	20,083	13,043
3291	Miscellaneous Non-Metal Products	8,129	5,149	3,712
3322	Cooper Alloys, Unworked	4,364	8,101	7,755
3323	Lead and Zinc, Unworked	30,953	53,809	87,243
3324	Aluminum Alloy, Unworked	24,789	27,369	33,812
	Subtotal	256,913	312,155	232,339
	Total - Potential	6,163,149	8,332,712	6,234,681
	Total - Prime and Potential	7,083,454	9,235,591	6,756,087

Not Susceptible Cargo for Containerization

Chemicals

Category Number	Cargo Type	Years 1969	1971	1973
2871	Nitrogen Chemical Fertilizers	-	233	2,552
2872	Potassic Chemical Fertilizers	-	-	10,056
2873	Phosphatic Chemical Fertilizers	-	116	-
	Subtotal	-	349	12,608
3311	Pig Iron	232,119	151,651	223,574
All Others				
3731	Ships and Boats	883	817	1,218
	Subtotal	233,002	152,468	224,792
	Total - Not Susceptible	233,002	152,817	237,400

Summary - Great Lakes

	Years		
	1969	1971	1973
Foreign General Cargo			
Prime and Potential for Containerization	7,083,454	9,235,591	6,756,087
Not Susceptible for Containerization	233,002	152,817	237,400
Total - Foreign General Cargo	7,316,456	9,388,408	6,993,487
Domestic General Cargo			
Prime for Containerization	820,627	501,132	348,692
Potential for Containerization	3,233,559	2,789,485	2,261,722
Total - Prime and Potential	4,054,186	3,290,617	2,610,414
Not Susceptible for Containerization	388,097	432,220	258,947
Total - Domestic General Cargo	4,442,283	3,722,837	2,869,361
Total Foreign Cargo on the Great Lakes	56,720,117	59,450,064	66,758,291
Total Domestic Cargo on the Great Lakes	160,893,835	141,024,822	159,739,250
Total - Foreign and Domestic on the GL	217,613,952	200,474,886	226,497,541
Total Foreign Bulk Cargo	49,403,661	50,061,656	59,764,804
Total Domestic Bulk Cargo	156,401,552	139,301,985	153,869,889
Total - Foreign and Domestic Bulk Cargo	205,805,213	189,363,641	213,634,693

PORT OF CHICAGO

Share of Foreign and Domestic Bulk Cargo Traffic
on the Great Lakes in 1969, 1971 and 1973

$$\text{Share} = \frac{\text{Total Foreign and Domestic Bulk Cargo Traffic at the Port of Chicago}}{\text{Total Foreign and Domestic Bulk Cargo Traffic on the Great Lakes}}$$

$$\text{Share in 1969} = \frac{23,708,125}{205,805,213} = \underline{11.5\%}$$

$$\text{Share in 1971} = \frac{21,736,885}{189,363,641} = \underline{11.5\%} \quad \text{High}$$

$$\text{Share in 1973} = \frac{22,005,109}{213,634,693} = \underline{10.3\%} \quad \text{Low}$$

PORT OF CHICAGO

Share of Foreign General Cargo Traffic
on the Great Lakes in 1969, 1971 and 1973

(Short Tons)

$$\text{Share} = \frac{\text{Total Foreign General Cargo Traffic at the Port of Chicago}}{\text{Total Foreign General Cargo Traffic on the Great Lakes}}$$

$$\text{Share in 1969} = \frac{2,769,025}{7,316,456} = \underline{37.8\%}$$

$$\text{Share in 1971} = \frac{3,422,865}{9,388,408} = \underline{36.5\%}$$

$$\text{Share in 1973} = \frac{2,569,808}{6,993,487} = \underline{36.8\%}$$

Average for 3 selected periods = 37%

PORT OF CHICAGO

Share of Foreign General Cargo Traffic
- Prime Cargo for Containerization -
on the Great Lakes in 1969, 1971 and 1973

$$\text{Share} = \frac{\text{Total Foreign Cargo - Prime for Containerization - at P. of C.}}{\text{Total Foreign General Cargo Traffic on the Great Lakes}}$$

$$\text{Share in 1969} = \frac{293,527}{7,316,456} = \underline{4.01\%} \qquad \text{High}$$

$$\text{Share in 1971} = \frac{276,770}{9,388,408} = \underline{2.95\%} \qquad \text{Medium}$$

$$\text{Share in 1973} = \frac{203,689}{6,993,487} = \underline{2.91\%} \qquad \text{Low}$$

PORT OF CHICAGO

Share of Foreign General Cargo Traffic
- Prime and Potential Cargo for Containerization -
on the Great Lakes in 1969, 1971 and 1973

$$\text{Share} = \frac{\text{Total Foreign Cargo - Prime and Potential for Containerization - at P. of C.}}{\text{Total Foreign General Cargo Traffic on the Great Lakes}}$$

$$\text{Share in 1969} = \frac{2,718,919}{7,316,456} = \underline{37.2\%} \qquad \text{High}$$

$$\text{Share in 1971} = \frac{3,394,481}{9,388,408} = 36.2\% \qquad \text{Low}$$

$$\text{Share in 1973} = \frac{2,531,566}{6,993,487} = 36.2\% \qquad \text{Low}$$

Average for 3 selected periods = 36.5%

FACTORED FORECAST[1]

"Most Likely Forecast of General Cargo Movements"

Type of Movement	1972 Base Year Potential Tonnage	1972 Base Year Percent GL/SLS	Forecast 1980	Forecast 1990	Forecast 2000
U.S.A. to U.S.A.	0.0	-			
U.S.A. to Canada	.7	82%	820,000	1,394,000	2,050,000
U.S.A. to Overseas	9.2	17	3,145,000	6,103,000	9,197,000
Canada to U.S.A.	1.4	35	595,000	1,295,000	1,925,000
Overseas to U.S.A.	15.0	39	9,321,000	24,843,000	37,050,000
Total			13,881,000	33,635,000	50,222,000

[1]U.S. Army Corps of Engineers, Traffic Forecast Study, Feb. '76: Exhibit II-7, Movements U.S.A. to Canada, U.S.A. to Overseas, Canada to U.S.A. and Overseas to U.S.A. as factored.

TRAFFIC ESTIMATION

Method: Ratio of Apportionment

Total Foreign General Cargo Traffic to the Port of Chicago as a function of Total General Cargo Traffic on the Great Lakes for the years 1980, 1990 and 2000 in Short Tons.

Forecast Year	Great Lakes Forecast[1]	Port of Chicago Average Share	Foreign General Cargo Traffic
1980	13,881,000	37%	5,136,000
1990	33,635,000	37%	12,445,000
2000	50,222,000	37%	18,582,000

[1]Ibid.

TRAFFIC ESTIMATION

Method: Ratio of Apportionment with a low to high range estimated. The range is 26% of the high estimate.

Total Foreign General Cargo Traffic - Prime for Containerization - to the Port of Chicago as a function of Total General Cargo Traffic on the Great Lakes for the years 1980, 1990 and 2000 in Short Tons.

Forecast Year	Great Lakes Forecast[1]	Port of Chicago Low to High Range		Low to High Traffic Estimates
1980	13,881,000	L.	2.93%	406,700
		H.	4.01%	556,600
1990	33,635,000	L.	2.93%	985,500
		H.	4.01%	1,348,800
2000	50,222,000	L.	2.93%	1,471,500
		H.	4.01%	2,013,900

[1]Ibid.

TRAFFIC ESTIMATION

Method: Ratio of Apportionment

Total Foreign General Cargo Traffic - Prime and Potential for Containerization - to the Port of Chicago as a function of Total General Cargo Traffic on the Great Lakes for the years 1980, 1990 and 2000 in Short Tons.

Forecast Year	Great Lakes Forecast[1]	Port of Chicago Average Share	Prime and Potential Container Cargo
1980	13,881,000	36.5%	5,067,000
1990	33,635,000	36.5%	12,277,000
2000	50,222,000	36.5%	18,331,000

TOTAL GENERAL CARGO FACTOR
FOR
DOMESTIC GENERAL CARGO

Total F.G.C. + T.D.G.C. = T.G.C.

T.D.G.C. = F for +'ing T.F.G.C. = T.G.C. at P. of C.

Year					
1969	2,769,025				
	266,980	=	266,980	=	8.8%
	3,036,005		3,036,005		
1971	3,422,865				
	397,970	=	397,970	=	10.4%
	3,820,835		3,820,835		
1973	2,569,808				
	324,237	=	324,237	=	11.2%
	2,894,045		2,894,045		

Factor to be applied is..... 10.1%

TOTAL GENERAL CARGO FACTOR
FOR
PRIME AND POTENTIAL FOR CONTAINERIZATION CARGO

T.F.G.C.P.&P.C. + T.D.G.C.P.&P.C. = T.G.C.P.&P.C.

$$\frac{\text{T.D.G.C.P.\&P.C.}}{\text{T.G.C.P.\&P.C.}} = \text{F} \quad \text{for} \quad \text{+'ing T.F.G.C.P.\&P.C.}$$

Year					
1969	2,718,919				
	263,242	=	263,242	=	8.8%
	2,982,161		2,982,161		
1971	3,394,480				
	334,684	=	334,684	=	9.0%
	3,729,164		3,729,164		
1973	2,531,566				
	313,621		313,621	=	11.0%
	2,845,187		2,845,187		

Factor to be applied is..... 9.6%

TRAFFIC ESTIMATION

Method: Ratio of Apportionment

Total Foreign and Domestic Bulk Cargo Traffic to the Port of Chicago as a function of Total Bulk Cargo Traffic on the Great Lakes for the years 1980, 1990 and 2000 in Short Tons.

Forecast Year	Great Lakes Forecast[1]	Port of Chicago Average Share		Foreign and Domestic Bulk Traffic
1980	255,459,000	L.	10.3%	26,312,000
		H.	11.5%	29,378,000
1990	329,588,000	L.	10.3%	33,948,000
		H.	11.5%	37,903,000
2000	411,344,000	L.	10.3%	42,368,800
		H.	11.5%	47,305,000

[1]U.S. Army Corps of Engineers, Traffic Forecast Study, Feb. '76: Exhibit II-8, Movements U.S.A. to U.S.A., U.S.A. to Canada, U.S.A. to Overseas, Canada to U.S.A., Overseas to U.S.A. as factored.

TRAFFIC ESTIMATION

Total Foreign and Domestic General Cargo Traffic in Short Tons at the Port of Chicago.

Forecast Year	Foreign General Cargo Forecast	Plus Factor	Total General Cargo
1980	5,136,000	10.1%	5,655,000
1990	12,455,000	10.1%	13,713,000
2000	18,582,000	10.1%	20,459,000

TRAFFIC ESTIMATION

Total Foreign and Domestic General Cargo Traffic - Prime and Potential for Containerization - at the Port of Chicago in Short Tons.

Forecast Year	Foreign and Domestic General Cargo - Prime and Potential for Containerization - Forecast	Plus Factor	Total Foreign and Domestic General Cargo - Prime and Potential for Containerization -
1980	5,067,000	9.6%	5,553,000
1990	12,277,000	9.6%	13,456,000
2000	18,331,000	9.6%	20,091,000

APPENDIX D

Shore Sector	East/West Facility	Existing Access Facility	Mass/Rapid Transit Avail.	Mass/Rapid Transit Planned	Local Bus Avail.	Local Bus Planned	Local Major Route	Connec. No./So. Cstl. Art.	Reg. Transp. Ctr.	Regional Bus Serv. Planned	Local Lk.Frnt. St.Systm.	Foot Notes
VI	Touhy	X			X	X	X					
VII	Devon				X	X	X					(6)
	Peterson/Ridge/-Bryn Mawr	X	X		X		X	X			X	
	Foster				X		X	X			X	(6)
	Lawrence		X		X		X	X			X	
	Wilson		X		X		X	X			X	
	Montrose	X	X		X		X	X			X	(6)
	Irving Park	X	X		X		X	X			X	
	Addison	X	X		X		X					
	Belmont	X	X		X		X	X			X	
	Diversey Prkway	X		X	X		X				X	(7)
	Fullerton	X	X		X		X	X			X	
VIII	North Avenue	X	X		X		X	X				
	Division		X		X		X	X				
	Chicago	X	X		X		X					
	Ohio	X			X		X	X			X	
	Chicago Loop	X	X		X		X	X	X	X	X	(10)
	Congress	X			X	X	X	X				
	Roosevelt	X	X		X		X					
	Cermak Road	X	X		X		X	X				
	I-55	X			X		X	X			X	
IX	31st Street	X			X		X	X			X	
	39th (Pershing)	X			X		X	X			X	(6)
	43rd Street	X			X		X					(11)
	47th Street	X	X		X		X	X			X	
	51st Street		X		X		Z				X	
	55th Street	X	X		X		X	X			X	(11)
	59th Street	X	X		X		X	X			X	(11)
	63rd Street	X	X		X		X	X			X	

Shore Sector	East/West Facility	Existing Access Facility	Mass/Rapid Transit Avail.	Mass/Rapid Transit Planned	Local Bus Avail.	Local Bus Planned	Local Major Route	Connec. No./So. Cstl. Art.	Reg. Transp. Ctr.	Regional Bus Serv. Planned	Local Lk. Frnt. St. Systm.	Foot Notes
I	7th St.		X			X	X	X			X	
	Ill. Rt. 173	X				X	X	X				
	Wadsworth Road	X				X	X	X			X	
	Townline Road-Holdridge Road					X		X				
II	Sunset/Golf/-Greenwood				X		X	X			X	(1)
	Ill. Rt. 132	X	X		X		X	X	X	X	X	(2)
	Washington St.	X	X		X		X	X	X	X	X	(2)
	Ill. Rt. 120	X	X		X		X	X	X	X	X	(2)
	22nd Street		X		X			X				(3)
	Ill. Rt. 137	X	X			X	X	X				(4)
III	Ill. Rt. 176	X	X			X	X	X				
	Deerpath Road	X	X			X	X	X			X	(12)
	McKinley Road	X				X		X				
	Ill. Rt. 60											
IV	Everett Road				X							
	Ill. Rt. 22/-Prairie Avenue	X	X				X	X				
	Deerfield	X	X		X			X	X	X		(5) (9)
	Lake/Cook Rds.	X	X			X		X				
	Dundee Road	X				X		X				
	Tower Road		X			X	X	X				
	Willow Road	X				X	X	X				
V	E.Lake/U.S.Rt.41	X	X			X	X	X			X	(15)
	Glenview Road							X				
	Central Street		X		X							(6)
	Simpson				X			X				
	Dempster	X	X		X	X	X	X	X	X	X	(6) (10)
	Oakton/South Boulevard				X		X	X			X	(6)

South Sector	East/West Facility	Existing Access Facility	Mass/Rapid Transit Avail.	Mass/Rapid Transit Planned	Local Bus Avail.	Local Bus Planned	Local Major Route	Connec. No./So. Cstl. Art.	Reg. Transp. Ctr.	Regional Bus Serv. Planned	Local Lk.Frnt. St.Systm.	Foot Notes
X	67th (East Marquette)		X		X	X	X				X	
	71st Street	X	X		X		X				X	(11) (12
	76th Street	X	X		X		X				X	(11) (12
XI	79th Street	X	X		X		X	X			X	
	83rd Street	X	X		X		X	X				(11)
	87th Street	X	X		X		X	X				(13)
	95th Street	X		X	X		X	X	X	X	X	(7)
	103rd Street	X(To 95th)			X		X					(7) (14
	111 - 108th Street (Proposed)				X		X					(6) (14
	130th Street	X			C		X					(14)

FOOTNOTES

(1) Interfaces with Lakefront Freeway/north terminous of proposed of proposed roadway improvements.

(2) Illinois Routes 132 and 120 and Washington Street at their convergences within a four-block area constitute a regional transportation center and a point at high lake accessibility.

See discussion of locally designated collector streets in this area.

(3) Mass transit is within one block of this point; however, access presently ends at Great Lakes. The porposed lakefront freeway would not increase access as Alt. II interchange at 22nd Street is only south on/off.

(4) Direct access to the lake is blocked as the route ends at Great Lakes Naval Training Center. However, this is proposed as the south leg of the Lakefront Freeway and would provide for lake access via Alt. II exit at 22nd Street and local roads to Foss Park in North Chicago.

(5) C&NW Transit Stop is within 1½ blocks of Central Street in Highland Park.

(6) These access routes have only one factor available, but have local bus service. Therefore, they are classified as Secondary II.

(7) When a Secondary I has a future mass transit stop, it is classified as a Major II.

(8) Transit stop located between Davis and Lake Street, two blocks north of Dempster.

(9) Deerfield Road, exits U. S. 41 east to Central Avenue in Highland Park.

(10) Chicago Loop contains all factors present at any of the other Lakeshore access points.

(11) Major access route not on the 1995 System Plan, referenced local major and collector states in meeting with City.

(12) No Chicago Stay way Access - Access from the Ryan.

(13) Access to the lake blocked by U. S. Steel.

(14) Access to the Lake Calumet area.

(15) No service provided on Sunday.

SOURCES

MEMORANDUM REPORT PREPARED BY:

Thomas E. Vick, Associate Planner

Others who aided in the preparation of this document were:

Linda Corwin, Associate Planner
Mary Ryan, Planning Technician
Robert Krzanowcz, Planning Technician

Richard D. Mariner, NIPC, Land Resources Officer

NOAA COASTAL SERVICES CENTER LIBRARY
3 6668 14103 9141