

Historic Reconstruction of Property Ownership and Land Uses along the Lower St. Louis River

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Note: The printed version of Appendix E is not included in all copies of this report, but is available upon request from the St. Louis River Citizens Action Committee.

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NOTES ABOUT THE DATABASE, MAPS AND REPORT

Database: The database includes more than 500 property records for the primary project area (the lower St. Louis River from the Duluth and Superior "entries" to Lake Superior upstream to the Fond du Lac dam) from 1870 through 1970.

We anticipated "geo-referencing" each property in the database. This would have tied each one to a specific location on the Earth's surface, so it could have been precisely mapped using Geographic Information System (**GIS**) software. It was not possible to geo-reference the database, however, because of time constraints. Instead, we developed thematic time-series maps showing historical land ownership and land uses, as those uses are described in the body of this report.

Maps: The three time-series maps developed for this study were based on current shoreline and land/water configurations. This allows users to easily locate historic properties today.

Within the primary study area (extending upstream from each entry and approximately one-quarter mile inland from the river's edge), the primary land use was characterized on a one-half (.65) acre grid for 1890, 1950 and 1970.

The maps were printed in two sizes. In addition to the 11 inch by 17 inch maps that are bound in this report, a set of large time-series maps (1:1750 in scale and roughly three feet by four feet in size), showing more detail, was provided to the Minnesota Pollution Control Agency. The St. Louis River Citizens Action Committee (**CAC**) also has a set of the large maps. In

addition to being printed, electronic versions of the time-series land use maps are included with complete copies of this report.

Report: There are two versions of this report:

- The complete version includes the printed database and a compact disk containing the searchable database and the electronic GIS files.
- The shorter version includes a computer diskette with the searchable database, but no printed database and no GIS files. (GIS files are available upon request).

The complete version of this report includes, on the compact disk, a blown-up image of Canal Park, showing the 1888 Sanborn Insurance map overlaid on the 1991 Digital Ortho Quad (aerial photograph). This image demonstrates the potential that GIS technology offers in providing a precise picture of historic land use and land ownership. Getting such detail for the entire project area was beyond the scope of this study. However, due to economies of scale, all of the historic Sanborn Insurance maps have been scanned, and could become the basis for some valuable follow-up work.

PREFACE

This project was conducted to identify potential pollution problems associated with historic property ownership and related land uses along the lower St. Louis River. It supplements and updates the historic land use information that was published in the St. Louis River System Remedial Action Plan (**RAP**), Stage One, in April 1992 (especially Table III.2, pp. III-12 through III-16). This report does not attempt to repeat, supplement or update the entire Stage One document.

Anyone interested in a more complete summary of the wide variety of activities that have impacted the St. Louis River should consult the Stage One document, which was published by the MPCA and the Wisconsin Department of Natural Resources in 1992. Copies are available from the MPCA office in Duluth or from the St. Louis River CAC.

INTRODUCTION

The history and development of the lower St. Louis River over the past one hundred years is most easily understood by charting the evolution of the businesses and industries that were established on its shores. During the later decades of the nineteenth century and the early decades of the twentieth century, the people of Duluth, Minnesota, and Superior, Wisconsin, played a significant role in the development of the river. The population growth of these two port cities coincided with the emerging transshipment

industry that was developing along the mouth of the St. Louis River and Lake Superior. As a result of this development, inevitable and significant changes occurred along the shores of the river. Physical alterations have presented a condition of lasting effect that in many cases have adversely affected the environmental integrity of the land and water.

Successful cleanup of the St. Louis River requires an understanding of the region's human use. Past waste disposal practices that may continue to leach pollutants into groundwater could render sediment remediation or other environmental cleanup efforts ineffective. Additionally, construction activities could disturb unknown buried wastes and release toxic pollutants. Historic research can help to identify potential problem areas and the parties that may have contributed to environmental contamination, and may assist in future site remediation.

BACKGROUND

Project Mission

The purpose of this project was to conduct research on historic land ownership and land uses to provide a basis for assessing potentially related environmental impacts along the lower St. Louis River. By reconstructing the historical land uses along the river, a better understanding of areas where past practices may have had, or may have, environmental impacts can be ascertained. This research is intended to supplement the St. Louis River System Stage One RAP document (1992).

The St. Louis River CAC coordinated this project. The CAC is a nonprofit organization that is working to develop and implement the St. Louis River System RAP, and to restore, protect and enhance the St. Louis River. The MPCA provided funding for this project with support from the U. S. Environmental Protection Agency (Region V).

Time Frame

Research to reconstruct the history of land use and land ownership along the lower St. Louis River began in September 1998. The project was completed in September 1999.

Project Products and Results

The final products and results of this historic land use study include:

- A. A comprehensive survey of the land use patterns along the St. Louis River, extending from the Duluth and Superior entries

along the lower St. Louis River to the Fond du Lac Dam, from 1870 through 1970.

- B. A database with more than 500 records characterizing sites, ownership, the years of occupation, address, river location, industrial code classification and the sources used for site identification.
- C. A final report covering all aspects of the study, including a detailed summary of types of development found on the river, as well as areas where development typically occurred, with appendices.
- D. GIS files and maps showing the development and use of the lower St. Louis River during three time periods: 1890 (early industrial period), 1950 (industrial peak) and 1970 (industrial decline).
- E. Electronic copies of B-D, above.

In addition, all historic Sanborn Insurance maps available for Duluth, Superior and Cloquet were purchased on microfiche and were subsequently scanned onto a compact disk. These items were given to MPCA at the conclusion of the project.

HISTORICAL OVERVIEW

Early Development

In 1861, H.W. Hearing conducted a survey of the St. Louis River at the request of Capt. George Meade. At the time of this survey, development along the river was sparse and was limited to a few residential structures and encampments near Rice's Point and Grassy Point. The charted area depicts a sawmill located in the approximate area of 50th Ave. West in the area then known as Oneota. During the following decade, the river was transformed from its natural state to a developed working waterfront serving the entire Great Lakes region as well as the Midwestern prairie.

In 1868, Jay Cooke, a Philadelphia-based financier, arrived in Duluth with the intention of building a railroad linking Duluth and St. Paul. As the development of the railroad neared Duluth, Cooke realized that facilities at the terminus of this rail line would need to be developed. His pioneering efforts served as the catalyst for the development of Rice's Point and provoked other eastern developers and financiers to take advantage of the vast railroad market emerging between the East Coast and the Midwest.

With the introduction of the railroad, the Twin Ports of Duluth and Superior underwent their most spectacular period of growth as is evidenced by the drastic increase in population that occurred in the late 1800's. In only 22 years, from 1870 and 1892, Duluth's population rose from 4,000 to over 50,000 people. By 1910, the population of the Twin Ports was near 120,000. Many of those arriving in Duluth saw opportunity and potential in the shipping and lumber industries and in the later-developing grain, iron ore, petroleum and coal industries, which were the driving forces for the development and alteration of the St. Louis River.

Increased rail and shipping traffic, construction of docks, wharves, piers and elevators, as well as the opening of the St. Lawrence Seaway, were contributing factors to the fast and furious development of the St. Louis River shoreline in the Duluth/Superior harbor. The dramatic changes in the shape of the harbor and its channels were a result of the growing population and the industrial development of the waterfront.

The development of the river and reconfiguration of the harbor was a result of natural geologic forces accompanied by an ambitious undertaking that began with the incorporation of the Minnesota Harbor Improvement Company in 1870. Their chief project was to construct the ship canal at the Duluth end of Minnesota Point in 1871. In 1873, the River and Harbor Act was enacted and included the first appropriations to dredge harbor channels to a depth of 13 feet. In 1881, the River and Harbor act allowed the channels to be dredged to

16 feet. In 1896, a Congressional act joined the Duluth/Superior harbors under one administration and authorized \$3,000,000 to enlarge the harbor and rebuild the Duluth Ship Canal. The harbor now possessed 17 miles of channels excavated to a standard depth of twenty feet. In 1902, further appropriations allowed for the channels to be dredged to 20 feet.

Dredging of the river had drastic effects on the composition and arrangement of the shoreline and riverbed, and changed the habitat forever; 21,500,000 cubic yards of clay and mud mixed with sand were dredged from the riverbed and used as fill to create docks and strengthen Minnesota Point, or were dumped into the deep water of Lake Superior as a holding foundation for anchors on commercial vessels. By 1920, all major channel construction and enlargement had been completed. By 1960, all major channels had been dredged to 27 feet.

During the late part of the nineteenth century, the ports of Duluth and Superior were established as a major component of the country's rapidly expanding transshipment industry. The vigorous efforts to develop this area, along with the natural benefit of ideal land and water features, have allowed Duluth and Superior to retain a strong presence in the transshipment industry.

Appendix A provides a timeline summarizing the history of activity within the project area. This summary updates and supplements the historic timeline ("History of Actions Influencing the Natural and Industrial Environment in the St. Louis River/Nemadji River Watersheds"), which was published in Section III of the St. Louis River System Remedial Action Plan, Stage One (April 1992).

INDUSTRY TYPE

Bridges

The railroad industry developed the first bridges that linked Duluth and Superior. In 1885, the Northern Pacific Railroad erected a bridge located approximately one-half mile above the opening between Rice's Point and Connors Point. This bridge was designed to allow for train passage across the harbor to each city and also had a swing span that would allow the shipping trade to continue upstream on the St. Louis River. In 1887, a second railroad bridge of this type was built further upstream, spanning the area between Grassy Point and Superior.

In 1897, the Interstate Bridge, linking Rice's Point and Connors Point, was built. It was the first pedestrian bridge. Like the original bridge at that location, it incorporated a swing span to allow shipping activities to continue. The High Bridge was built at this site in 1961 and was renamed the John Blatnik Bridge in 1971. The Arrowhead Bridge, erected in 1927 between Lesure St. in Duluth and Superior, was the first bridge to accommodate vehicular traffic. Further upstream, another railroad bridge known as the Oliver Bridge was built connecting Gary/New Duluth and Oliver, Wisconsin.

The residential community on Minnesota Point was literally cut off from Duluth after the canal was built in 1870. Ferry lines initially served Minnesota Point after the canal was dug. In 1879, a wooden footbridge spanned the entry, but it was short lived. In 1902, the Aerial Bridge was erected. It was re-outfitted in 1930 to incorporate a lift span.

Lumber

Lumber was one of the first industries to develop in the area, which at one time was considered to be one of the world's largest lumber producing regions. As the white pine forests were clear-cut, logs were brought to saw mills on the lower river; large numbers of logs were stored in the river, surrounded by floating booms, while waiting to be cut into lumber. For more than a quarter century, the area was the most important center of lumber production in the Northwest, but because it was a depletable resource that was harvested in a way that maximized revenues and was not sustainable, it was relatively short-lived.

The arrival of the railroad in 1870 spurred a revival of the lumbering industry on the harbor. As early as 1880, eleven sawmills came into existence on the harbor and were predominantly located from the base to the tip of Rice's Point along St. Louis Bay. By 1894, Duluth's lumber industry included 15

mills. Mitchell, McClure & Company; Merrill & Ring, and the Alger-Smith Company operated the largest mills in the region. During this time of rapid production, one-third of all lumber milled was shipped to eastern markets, and the remaining two-thirds was used locally to build the developing industry associated with the booming transshipment industry.

By 1890, logging operations on Lake Superior's south shore were nearly over and Minnesota ranked third in the nation in lumber production. By 1925, only one mill remained in operation in Duluth. The standing white pine forests, estimated in 1895 to hold a virtually inexhaustible forty billion feet of lumber, had disappeared and the heyday of the lumber industry on the Duluth-Superior harbor was over. The local lumber industry underwent a severe decline by the 1930's, when Canada began shipping wood products.

Grain/Flour

Grain shipment from Duluth and Superior experienced rapid growth in the late 1870's. During the late 1880's, developing Midwestern agriculture set the stage for remarkable growth on the harbor as a shipping point for Midwestern grains. The development of the Sault Canal at Lake Superior's outlet in 1884 allowed larger ships to enter Duluth and bypass Chicago, its major competing port. Because of the easy access to the terminals, ships could enter the harbor, load and unload cargoes in a fraction of the turnaround time experienced in Chicago.

By 1886, Duluth-Superior was the largest wheat shipping port on the Great Lakes. This growth continued past the turn of the century. Between 1919 and 1935, Duluth-Superior handled nearly 20 percent of all grain transshipped on the Great Lakes. This development was instrumental in making Duluth-Superior a major hub in the grain shipping industry. As early as 1885, there were eleven elevators on Rice's Point in the area that was to become known as "elevator row." By 1918, there were 25 grain elevators standing on the harbor.

During the 1880's, Superior received its first railroad line. By 1886, J.J. Hill's Great Northern Railroad had built the first grain elevator on the Wisconsin side of the harbor. Superior's reputation for the largest elevators in the port was established by the development in 1941 of the Farmers Union Grain Elevator, constructed at the entrance to Howard's Bay (Howard's Pocket), and was enhanced by the construction of the Continental Grain Elevator on Connors Point (Superior Bay) in 1965.

Iron

The iron ore shipping industry experienced a boom in the 1880's due to development of commercial iron ore deposits on the Iron Range. As with all other major industries on the St. Louis River, the railroad played an integral role in the development of the iron ore industry. In 1892, the first shipment of iron ore from Mountain Iron, Minnesota, arrived at Superior's Allouez Bay at the Duluth & Winnipeg Railroad's newly constructed Ore Dock No 1. The Duluth Missabe & Northern (DM&N) was the railroad to bring the first shipment of iron ore to Duluth. Originating on the Iron Range and terminating at the ore docks at 35th Ave. West, the DM&N docks initially consisted of four timber structures that were constructed between 1896 and 1906. Around 1918, the four timber docks were replaced with two steel structures that were the first steel docks constructed in Duluth. They remain the largest of their kind on the Great Lakes. In 1965, the DM&IR (formerly the DM&N) completed construction of its Lakehead Taconite Storage Facility for taconite pellets next to its Ore Dock No. 6 in Duluth.

The United States Steel Corporation was organized in 1901, and a subsidiary thereafter known as Oliver Mining Company was also formed. In 1907, United States Steel Corporation (through its subsidiary the Minnesota Steel Company) purchased 1,500 acres of land on the St. Louis River in West Duluth, where previous smelting operations had been attempted on a small scale dating back to 1890. The plant was completed in 1915, creating rapid growth in the populations of Gary and New Duluth. This plant produced coke for use in steelmaking. Coking byproducts include gas and heavy oils; at this site the gas was not captured, but the heavy oils were sold (Tim Musick, MPCA, pers. Comm.). Universal Portland Cement company built a plant alongside the steel operation to use the slag from the furnace in the process of cement making.

Harbor shipments of iron ore grew significantly during the World War I period as the need for steel munitions and armaments increased. Shipments of iron ore steadily increased, with a record of nearly 50,000 tons shipped in 1929. However, three years later, during the Great Depression, a mere 5 percent of that record was shipped.

Another boom was experienced in 1936 when iron ore production nearly matched the 1929 record. It steadily increased during World War II. In the banner year of 1942, over 90,000 tons of iron ore were shipped out of the Duluth-Superior harbor, constituting approximately two-thirds of all iron ore shipped on the Great Lakes. Strong and steady iron ore production and shipment continued through 1960.

The downfall of the iron ore industry can be attributed to two major factors. The Reserve Mining Company built its Iron Range complex and was producing taconite (pellets made from low-grade iron ore) by 1955. Taconite became so economical to steel producers that high-grade iron ore mines

were abandoned, not because they were depleted, but because they were no longer economical. In 1959, the opening of the St. Lawrence Seaway allowed freighters to haul competitive foreign ores to lower ports on the Great Lakes that were previously served solely by Minnesota's Iron Range. By 1973, U.S. Steel closed its facility in Morgan Park completely. Today, this is the "USX" Superfund site, and is being cleaned up.

Coal

The first coal dock built in Duluth was the Sargent Coal Company, located at Fourth Ave. West and the waterfront. The first coal wharf in Superior was the Lake Superior Coal & Iron Co. which was built in 1881 on the end of Connors Point. By 1885, five major coal docks had sprung up on the harbor. The prominent Northwestern Fuel Company had two docks by 1888. By 1890, four more coal docks had been constructed on the harbor. Nine new docks were created in the first decade of the new century. The largest of these was Northwestern Fuel Co.'s Dock No. 1, which was completed on Superior Bay in Superior.

The West Duluth Blast Furnace erected a plant soon after the opening of the Mesabi Range, but it shut down within a few years. In 1902, it reopened as the Zenith Furnace Company. It was a "three-unit" plant, which included a wholesale coal trade, the production of pig iron, and the coking of bituminous coal. This site later became Interlake Iron. Coking operation at this site included the capture and sale of coking byproducts: heavy oils were sold to Duluth Tar and Chemical, and manufactured coal gas ("town gas") was sold to the City of Duluth. This gas was piped to a city pumping station on Garfield Ave., from which it was piped to residences where it was burned to produce heat and light (Tim Musick, MPCA, pers. comm.). Today, this is the St. Louis River/Interlake/Duluth Tar Superfund site, and is being cleaned up.

In 1907, DM&IR railroad built its coal dock next to its ore dock facilities in Duluth. (The DM&IR was formed in 1901, when the Duluth and Iron Range [D&IR] railroad and the Duluth Missabe and Northern [DM&N] railroad were united). The second decade of the new century saw the construction of four remaining new coal dock facilities on the Duluth harbor, bringing the total number of wharves to 24 in 1913. Coal receipts continued their steady increase at a rate that paralleled the iron ore industry; as ore was shipped out of Duluth-Superior, coal was brought in from the east. Over 2,000,000 tons of coal were received in the Duluth-Superior harbor in 1913. Coal receipts remained constant until the Great Depression of the 1930's. Between the years 1871 and 1939, coal ranked second in total tonnage hauled and accounted for approximately two-thirds of the total harbor commerce.

The 1950's saw the beginning of a steady decline in coal shipments, as it began to be replaced with other fuels in home and in industry. By 1959, the number of coal wharves dropped to fourteen; by 1970, three wharves remained. Coal is still an important commodity; low-sulfur western coal is brought by rail to Midwest Energy Resources in Superior, where it is loaded onto ships bound for Detroit Edison power plants in Michigan.

Petroleum

Standard Oil Co. built the first dock for the receipt of petroleum products on the Superior side of St. Louis Bay in 1891. Although petroleum receipts have been less important to the Duluth-Superior economy than the iron and coal industries, an abrupt increase in shipments was seen in 1910. At this time, gasoline receipts surpassed kerosene, likely due to the established presence of the automobile in the Twin Ports. Like the coal and iron ore industries, petroleum increased with the advent of World War I and II. However, in contrast to the coal and iron ore industries, petroleum receipts remained constant throughout the Depression. The years between 1932 and 1946 were the banner years for this industry. After World War II, petroleum receipts abruptly declined and continued to decline into the 1960's.

Lakehead Pipeline Company constructed the largest and most modern petroleum shipping terminal in the harbor in 1951, replacing the old Northern Pacific Coal Dock on the Superior Bay channel. Its shipment of petroleum products to Canada was impressive, but short-lived. By the end of the decade, a Canadian pipeline was completed and all shipments ceased.

In the late 1950's, Murphy Oil constructed an oil and gasoline dock near the Carnegie Coal Dock No. 1, on the Superior side of St. Louis Bay, for shipping products from their Superior refinery. Although this dock was disassembled in 1974, Murphy Oil still operates its refinery in Superior. It is the only oil refinery in Wisconsin.

Shipbuilding

Shipbuilding in Duluth-Superior underwent a boom as barges replaced sailing vessels and the transition from small wooden ships to large steel freighters took place. The N. Grignon Shipyard, the largest builder of wooden vessels on the harbor, was in operation between 1880 and 1895. In 1889, Captain Alexander McDougall founded the American Steel Barge Company and built the first steel vessels on the Duluth-Superior harbor. These vessels were constructed from his own design. McDougall later sold his interests to an eastern investment group who continued the yard as the American Shipbuilding Company.

The two World Wars had a profound effect on the shipbuilding industry in Duluth-Superior. During World War I, McDougall moved his second shipyard, McDougall Duluth Shipbuilding Co., to the Riverside section of Duluth. The yard was closed in 1922. During this brief period, 25 coastal freighters were constructed for the government. The Whitney Brothers Shipbuilding wharf built ten steel tugs in 1919 for the U.S. Shipping Board, and Globe Shipyard constructed 19 ocean freighters (each 260 feet long) on a government contract.

During World II, Globe Shipbuilding Company, Marine Iron Shipbuilding Company, Barnes Duluth Shipbuilding Company (later Walter Butler Shipbuilders, Inc.) were reactivated and expanded to fulfill government shipbuilding contracts. These facilities closed after the war. By 1970, Fraser Shipyards, Inc., remained the only major ship repair and conversion yard on the Duluth-Superior harbor.

Commerce and Industry

Commerce and industry have played a key role in the development of the St. Louis River. The jobbing (wholesale) district on the Duluth Harbor Basin was located in the area of Fifth Ave. West and the waterfront, while most of the commercial district was located in Canal Point (now known as Canal Park) along the harbor waterfront. Warehouses on the harbor basin were used for the general distribution of materials brought in for storage and then shipped out. Marshall Wells bought out Chapin-Wells in 1893, and became the area's largest manufacturer and shipper of hardware.

Other types of commerce and industry in the area included: commercial fishing, special trade contractors, manufacturing, passenger transportation services, utility services, wholesale trade of durable and non-durable goods, eating and drinking establishments, and amusement and recreation services.

CONCLUSIONS

The history of Duluth-Superior harbor is divided naturally into two halves: its function and use in an undeveloped state, and its development as a result of extensive physical alteration and use by people. A significant amount of the development on the St. Louis River was concentrated in a few areas. Rice's Point in Minnesota, and Connors Point and Howard's Bay in Wisconsin, were and continue to be the prominent locations of most river development in the survey area. This is likely due to their close proximity to the Superior and Duluth entries to Lake Superior, and to the fact that this land is naturally protected from the harsh and destructive forces of Lake Superior.

Prior to 1860, little development had taken place on the river. By the 1880's, dredging of the harbor had been undertaken in a systematic fashion. The next quarter of a century saw both harbor entries entirely reconstructed, and the basins and channels in both Superior Bay and St. Louis Bay dredged into the basic contours they possess today. Most of the development of the river took place within a relatively short period of time. All major dredging and shoreline reconstruction took place between 1870 and 1920.

The decline of heavy industry has slowed shoreline and channel development. The most recent changes in the shoreline have been due to the filling in of slips, most notably in the Duluth Harbor Basin near Slips 1-7.

STUDY METHODOLOGY

Historical research was conducted to document historical land uses and ownership on the lower St. Louis River. The historic research provided a basis for understanding previous land use activities and developments in the defined survey area. Records and accounts of land development, transportation patterns, and commercial and industrial development were examined. Sources investigated to reconstruct the historic land use of the St. Louis River included a wide range of maps dating from 1861 to 1970, City Directories dating from 1920 to 1970, newspapers, published and non-published surveys, as well as a reconnaissance survey of the entire area. A complete inventory of resources investigated is included in the bibliography.

Information was gathered to identify all developed sites and individual properties in the study area and provided a basis for creating an inventory to reconstruct the history of the study area. Each identifiable property was accounted for on an individual inventory form, which was then entered into a database. The database contains the following fields and type of information:

Property Name:	Identifies the property/business in operation corresponding to Beginning and Ending Date of Development (below). “Undetermined” means property name has not been established.
Date of Development:	References the first date the property was found to have been developed for business purposes.
Beginning Date of Development:	Earliest known date of development corresponding to the Property Name (above).
Ending Date of Development:	Last date Property Name (above) was known to be in operation.
Address:	Numerical address corresponds to Property Name (above). If numerical address is not available, a brief description is used.
City:	City in which property is located.
County:	County in which property is located.
State:	State in which property is located.

Locational Area:	The Study Area is subdivided into standard identifiable areas. See Appendix B.
Original Use:	First known developed use of land. Corresponds to Beginning Date of Development (above).
SIC Code:	Property types are classified according to U.S. Government Standard Industrial Classification (SIC) Codes. See Appendix C. "Undetermined" means property type has not been ascertained.
Sources of Information:	Codes indicate information sources researched. See Appendix D.

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United States Geological Survey, West Duluth, Minnesota, Duluth Heights,
Minnesota, Superior, Wisconsin. Map.

Maps and **Appendices**

MAPS

Time-series Maps Showing Land Use in:

- 1890 (Early Industrial
- 1950 (Industrial Peak)
- 1970 (Industrial Decline)

Period)

Note: For details about the time-series land use maps, see page one of this report and the reverse side of this sheet.

Map Notes

Mapping Parameters:

Project area: The lower St. Louis River from the Duluth and Superior “entries” to Lake Superior upstream to the Fond du Lac dam. (Note the primary project area did not include Minnesota Point, which was considered primarily residential, or the lake side of Wisconsin Point). The project area was defined as extending approximately one-quarter mile inland from the river’s edge.

Time frame: For database, 1870 through 1970; for maps, 1890, 1950 and 1970.

Base map: The three time-series maps developed for this study are based on current shoreline and land/water configurations. This allows users to easily locate historic properties today.

Grid size for characterizing historic land use: Approximately one-half (.65) acre.

Miscellaneous Mapping Notes:

Sizes of printed maps: 11 inch by 17 inch maps (bound in reports), plus two sets of large maps (1:1750 in scale and roughly three feet by four feet in size), showing more detail.

Electronic versions of maps: Included on a compact disk as part of each complete copy of this report, and available from the St. Louis River CAC upon request.

Residences: The 1890 map shows residential areas within the project area, while the later maps do not have a residential category. This shows a change in land use: the more recent periods included more residences in Duluth/Superior overall, but residences were no longer the primary land use anywhere within the project area.

Lumber milling and lumber shipping: The 1890 map shows “lumber” at the base and the tip of Rice’s Point. At this time, lumber related activities were also beginning at Grassy Point; additional related activity continued at Grassy Point over the next two decades.

APPENDIX A

History of Activity within the Project Area

Note: This appendix supplements and updates the historic land use information that was published in the St. Louis River System Remedial Action Plan, Stage One, in April 1992 (especially Table III.2, pp. III-12 through III-

Appendix A. History of Activity within the Project Area

YEAR	EVENT	SUBJECT
1855	Oneota mill - first mill developed on the river	lumber
1865	Duluth/Superior population 600	population
1868-1875	Superior entry constructed with wooden piers	D/S entry
1870	First railroad arrived in Duluth	
1870	Minnesota Harbor Improvement Co. incorporated	Channels
1871-1896	Dike built between Rice's Point and Minnesota Point	Channels
1871	Duluth/Superior population 4,000	population
1871	First load of coal arrived in Duluth Harbor	coal
1872	Blast furnace and dock facility constructed facing harbor basin on Rice's Point	iron
1873	River & Harbor Act Enacted	Channels
1878	Wheat from Midwestern prairie arrived at Duluth for shipment to East Coast	
1879	Wooden footbridge spanned Duluth Ship Canal	bridges/RR
1880's	Entire port underwent its most spectacular period of growth	D/S entry
1880-1883	Eleven sawmills in existence on Rice's Point	lumber
1880-1895	N. Grignon Shipyards is operational in Duluth Harbor Basin	shipbuilding
1880	St. Paul Railroad dock built	bridge/RR
1881	River & Harbor Act allowed 16 foot channels to be dredged	Channels
1881	First coal wharf built in Superior on Connors Point	coal
1884	Majority of development of St. Louis River was lumbering and sawmills	lumber
1884	Commercial iron deposits were developed on the Iron Range	iron
1885	Northern Pacific completed first bridge linking Duluth and Superior	bridge/RR
1885	Five major coal docks are operational on the harbor	coal
1886	J.J. Hill's Great Northern Railroad built first grain elevator on Wisconsin side of harbor	
1886	Creation of "Elevator Row" - 11 elevators in Duluth harbor	grain/flour
1887	Second railroad bridge built to span the area between Grassy Point and Superior	bridge/RR

YEAR	EVENT	SUBJECT
1888	Standard Iron Works established in Superior	iron
1888	West Superior Iron & Steel Co. established in Superior	iron
1888	Northwestern Fuel Co. operating two coal wharves in Superior	coal
1888	Lehigh Coal & Iron Co. ships coke to western U.S.	coal
1889	Great Northern Railroad operating in Superior	coal
1889	Alexander McDougall opened American Barge Company in Duluth Harbor Basin	shipbuilding
1890	Duluth Iron & Steel Co. (later West Duluth Blast Furnace, Zenith Furnace Co., Interlake Iron) established in Duluth	iron
1890	Nine coal docks are operational on harbor	coal
1891	Standard Oil Co. - first dock for receipt of petroleum products in Superior	petroleum
1892	Duluth population 50,000	population
1892	Ten elevators situated in Superior, Wisconsin	grain/flour
1894	A. Booth & Sons built its major fish merchandise wharf inside the Duluth Harbor Basin	Fishing
1894	Seventeen lumber mills located on the Duluth/Superior harbor	lumber
1896-1906	Erection of four timber-constructed docks at 35th Ave. West and waterfront in Duluth	iron
1896	Rebuilding of the Duluth Ship Canal (Duluth Entry)	D/S entry
1897	Interstate Bridge built, linking Rice's Point in Duluth with Connors Point in Superior	bridge/RR
1899	Clyde Iron Works became operational	iron
1900	Duluth population 84,000	population
1900	Superior population 27,000	population
1900	Peavey Elevator constructed	grain/flour
1901	U.S. Steel Corp. organized	iron
1902	Further appropriations made to dredge channels to 20 feet	Channels
1902	Zenith Furnace Co. becomes operational at former site of West Duluth Blast Furnace	coal
1903	Reconstruction of the Superior Entry with concrete piers; channel widened to 500 feet with aggregate length of over 3,600 feet	D/S entry
1905	Aerial Bridge completed (spanning Duluth Entry)	bridge/RR
1906	Outer breakwater constructed (Duluth)	D/S entry

YEAR	EVENT	SUBJECT
1907	Duluth Ship Canal deepened to 24 feet with its entrance sloping to 30 feet	D/S entry
1907	DM&IR built its coal dock adjacent to its ore facilities in Duluth	coal
1908	Alger-Smith Lumber Mill occupied two mills on the harbor	lumber
1910	Duluth/Superior population 120,000	Population
1913	Construction of Morgan Park by U.S. Steel to house its employees	population
1913	Twenty-four coal wharves are located in Duluth/Superior harbor	coal
1917	Construction of Riverside in Duluth for employees of Barnes & McDougall shipyards	Population
1918	Twenty-five elevators stood in the Duluth/Superior harbor	grain/flour
1918	Fires ravaged Cloquet and northeastern Minnesota	
1918	DM&IR replaced its four timber docks with two steel structures - first steel docks erected in Duluth	iron
1920	All major channel enlargements and constructions completed	Channels
1924	Occident Elevator, first modern steel elevator, erected on Rice's Point	grain/flour
1925	Scott-Graff Lumber Co. is only remaining lumber mill on St. Louis River	lumber
1927	Arrowhead Bridge opened for vehicular traffic	bridge/RR
1928	Howard's Bay (Howard's Pocket) in Superior deepened to 20 feet	D/S entry
1928	Great Northern Docks (1 & 2) in Superior expanded and rebuilt on concrete foundations	iron
1929-1930	Aerial Bridge outfitted with lift span	bridge/RR
1933	Channel depths increased to a controlling 22-25 foot level, with a 32 foot depth outside each harbor entry. This had a major impact in harbor ecosystem. Many islands present today resulted from this.	D/S entry
1941	Farmer's Union Grain Elevator (largest elevator on the harbor) constructed on Howard's Bay in Superior	grain/flour
1950's	Murphy Oil Corp. oil and gasoline dock established in Superior	petroleum
1950	Decline of coal shipments due to increased use of other fuels for home and industry	coal

YEAR	EVENT	SUBJECT
1951	Lakehead Pipeline Co. established; largest shipping terminal on harbor	petroleum
1955	Superior Front Channel deepened to 25 feet	D/S entry
1960	All major channels dredged to 27 feet	D/S entry
1961	High Bridge erected (later re-named John Blatnik Bridge)	bridge/RR
1965	Continental Grain Elevator constructed on Connors Point (enhancing Superior's reputation for the largest elevators in the port)	grain/flour
1965	DM&IR completed construction of Lakehead Taconite Storage Facility	iron
1976	Three coal docks remain on the harbor.	coal

Note The information in Appendix A supplements and updates Table III.2 (pp. III-12 through III-16) in the St. Louis River Remedial Action Plan, Stage One (1992). Appendix A focuses on historic land use and ownership; Table III.2 in the Stage One document had a broader focus.

16). The table in this appendix focuses on historic land use and land ownership; the original table had a broader focus.

APPENDIX B

Locational Areas

Appendix B. Locational Areas

LOCATIONAL AREAS	STATE	NUMBER OF SITES
Allouez Bay	Wisconsin	8
Billings Park	Wisconsin	1
Chambers Grove	Minnesota	2
Clough Island	Wisconsin	1
Commerce Slip	Minnesota	5
Connors Point	Wisconsin	10
Duluth Harbor Basin	Minnesota	101
Duluth Ship Canal	Minnesota	7
Fond du Lac	Minnesota	1
Gary	Minnesota	5
Grassy Point	Minnesota	21
Howard's Bay	Wisconsin	58
Industrial Slip	Minnesota	2
Minnesota Channel	Minnesota and Wisconsin	19
Minnesota Slip	Minnesota	29
Morgan Park	Minnesota	3
North Channel	Minnesota	49
Oliver	Wisconsin	2
Rice's Point	Minnesota	85
Riverside	Minnesota	8
South Channel	Wisconsin	25
Superior Entry	Wisconsin	2
Superior Front Channel	Wisconsin	28
Superior Harbor Basin	Wisconsin	16
Upper Channel	Minnesota	11
Upper Channel	Wisconsin	8
West Gate Basin	Minnesota and Wisconsin	1

APPENDIX C

Standard Industrial Classification Codes

Appendix C. Standard Industrial Classification Codes

SIC CODE DESCRIPTION

	AGRICULTURE, FORESTRY, AND FISHING
2	AGRICULTURAL PRODUCTION - LIVESTOCK
291	General Farms
9	FISHING, HUNTING, AND TRAPPING
912	Commercial Fishing
	CONSTRUCTION
16	CONSTRUCTION OTHER THAN BUILDING CONSTRUCTION - GENERAL CONTRACTORS
1611	Highway and Street Construction
1623	Heavy Construction: Water, Sewer, Pipe Line etc.
1629	Heavy Construction: Not Elsewhere Classified
17	CONSTRUCTION - SPECIAL TRADE CONTRACTORS
1711	Plumbing, Heating, and Air Conditioning
	MANUFACTURING
20	FOOD AND KINDRED PRODUCTS
2032	Canned and Preserved Fruits and Vegetables: Canned Specialties
2041	Grain Mill Products: Flour and Other Grain Mill Products
2092	Fresh or Frozen Packaged Fish
22	TEXTILE MILL PRODUCTS
2211	Broad Woven Fabric Mills, Cotton
2221	Broad Woven Fabric Mills
2283	Yarn Mills, Wool
2298	Cordage and Twine
24	LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE
2421	Sawmills and Planing Mills, General
2431	Millwork, Veneer, Plywood
2449	Wood Containers, Not Elsewhere Classified
26	PAPER AND ALLIED PRODUCTS
2611	Pulp Mills

SIC CODE DESCRIPTION

2621	Paper Mills, Except Building Paper Mills
28	CHEMICALS AND ALLIED PRODUCTS
2813	Industrial Inorganic Chemicals: Industrial Gases
2819	Industrial Inorganic Chemicals, Not Elsewhere Classified
2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
29	PETROLEUM REFINING AND RELATED INDUSTRIES
2911	Petroleum Refining
2951	Paving and Roofing Materials
2992	Lubricating Oils and Greases
32	STONE, CLAY, GLASS, AND CONCRETE PRODUCTS
3241	Cement, Hydraulic
3275	Concrete, Gypsum, and Plaster Products
33	PRIMARY METAL INDUSTRIES
3312	Blast Furnaces (Including Coke Ovens), Steel Works, and Rolling Mills
3321	Gray Iron Foundries
3325	Steel Foundries, Not Elsewhere Classified
3362	Brass, Bronze, Copper, Copper Base Alloy Foundries
34	FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND TRANSPORTATION EQUIPMENT
3433	Heating Equipment
3443	Fabricated Plate Work
3462	Iron and Steel Forgings
35	MACHINERY, EXCEPT ELECTRICAL
3531	Construction Machinery and Equipment
3585	Air Conditioning and Warm Air Heating Equipment
36	ELECTRICAL AND ELECTRONIC MACHINERY, EQUIPMENT AND SERVICES
3612	Power, Distribution, and Specialty Transformers
37	TRANSPORTATION EQUIPMENT
3731	Shipbuilding and Repairing

SIC CODE DESCRIPTION

39	MISCELLANEOUS MANUFACTURING INDUSTRIES
3999	Manufacturing Industries, Not Elsewhere Classified
	TRANSPORTATION, COMMUNICATIONS, ELECTRIC, GAS AND SANITARY SERVICES
40	Railroad Transportation
4011	Railroads, Line-haul Operating
4013	Switching & Terminal Establishments
41	LOCAL AND SUBURBAN TRANSIT/ INTERURBAN HIGHWAY PASSENGER TRANSPORTATION
4142	Passenger Transportation Charter Service, Except Local
42	MOTOR FREIGHT TRANSPORTATION AND WAREHOUSING
4212	Local Trucking Without Storage
4221	Farm Product Warehousing and Storage
4222	Refrigerated Warehousing
4225	General Warehousing and Storage
44	WATER TRANSPORTATION
4431	Great Lakes-St. Lawrence Seaway Transportation
4459	Local Water Transportation, Not Elsewhere Classified
4463	Marine Cargo Handling
4469	Water Transportation Services, Not Elsewhere Classified
47	TRANSPORTATION SERVICES
4723	Arrangement of Transportation of Freight and Cargo
4789	Services Incidental to Transportation, Not Elsewhere Classified
49	ELECTRIC, GAS AND SANITARY SERVICES
4911	Electric Services
4952	Sewerage Systems
4953	Refuse Systems
4959	Sanitary Systems, Not Elsewhere Classified
4961	Steam Supply
	WHOLESALE TRADE
50	WHOLESALE TRADE - DURABLE GOODS
5031	Lumber, Plywood and Millwork
5039	Construction Materials, Not Elsewhere Classified

SIC CODE DESCRIPTION

5052	Coal and Other Minerals and Ores
5072	Hardware
5084	Industrial Machinery and Equipment
5093	Scrap and Waste Materials
5099	Durable Goods, Not Elsewhere Classified
51	WHOLESALE TRADE - NONDURABLE GOODS
5137	Women's, Children's and Infant's Clothing and Accessories
5141	Groceries, General Line
5143	Diary Products
5146	Fish and Seafoods
5147	Meats and Meat Products
5149	Groceries and Related Products, Not Elsewhere Classified
5172	Petroleum and Petroleum Products, Wholesalers
5191	Farm Supplies
5199	Nondurable Goods, Not Elsewhere Classified
	RETAIL TRADE
52	BUILDING MATERIALS, HARDWARE, GARDEN SUPPLY AND MOBILE HOME DEALERS
5211	Lumber and Other Building Materials Dealers
55	AUTOMOTIVE DEALERS AND GASOLINE SERVICE STATIONS
5541	Gasoline Service Stations
58	EATING AND DRINKING PLACES
5812	Eating Places
59	MISCELLANEOUS RETAIL
5947	Gift, Novelty and Souvenir Shops
5982	Fuel and Ice Dealers, Except Fuel Oil Dealers and Bottled Gas Dealers
5983	Fuel Oil Dealers
5984	Liquefied Petroleum Gas (Bottled Gas Dealers)
	SERVICES
72	PERSONAL SERVICES
7218	Industrial Launderers
75	AUTOMOTIVE REPAIR, SERVICES, AND GARAGES

SIC CODE DESCRIPTION

7549	Automotive Services, Except Repair and Car Washes
79	AMUSEMENT/RECREATION SERVICES, EXCEPT MOTION PICTURES
7997	Membership Sports and Recreation Clubs
7999	Amusement and Recreation Services, Not Elsewhere Classified
82	EDUCATIONAL SERVICES
8211	Elementary and Secondary Schools
	PUBLIC ADMINISTRATION
96	ADMINISTRATION OF ECONOMIC PROGRAMS
9621	Regulation and Administration of Transportation Programs
9641	Regulation of Agricultural Marketing and Commodities
99	NON CLASSIFIABLE ESTABLISHMENTS
9999	Nonclassifiable Establishments

APPENDIX D

Sources of Information

Appendix D. Sources of Information

CODE	SOURCE NAME	YEAR
1884	Sanborn Fire Insurance Map 1884	1884
Merritts	Merritts New Large Scale Sectional Map of the Head of Lake Superior and Vicinity	1889
COS	Atlas of the City of Superior	1891
AOS	Atlas of Superior, Wisconsin	1892
Frank	C.B. Frank's Atlas of the City of Duluth	1902
DAC	Atlas of Duluth, Duluth Atlas Co.	1909
D&S	Duluth and Superior Map, the Duluth Street Railway Company	1909
BOR	Board of Realtors Atlas of the City of Duluth	1924
DSMW	Duluth Superior, Minnesota Wisconsin Map	1927
SAC	Superior Association of Commerce	1934
CD	Duluth City Directory	as specified
DD	Detail of Duluth, Western Section Map	1935
DSH	Duluth-Superior Harbor, Survey of the Northern and Northeastern Lakes	1943
DRC	Duluth-Superior Harbor Cultural Resources Study	1976
CP	The Historic Zenith Industrial District, The Development of Canal Point Park	1989
GPDM	Investigations at Grassy Point, Duluth, Minnesota	1995

APPENDIX E

Historic Land Use/Land Ownership Database

Note: The printed version of this database, included here, has been sorted by **Locational Area**. Please see the reverse side of this sheet for additional details.

Beginning and ending dates (Date of Development, Beginning Date of Operation and Ending Date of Operation) are subject to the beginning and ending dates of the study period. An ending date of 1970 (or, better, 1970+) does **not** mean that the property ceased operation in 1970; it means that the property was still in use at the end of the study period. Thus, Ending Date of

Operation shows the ending date, if it occurred prior to the end of the study period; otherwise, that field contains the study's ending date (1970).

Appendix E Notes

This database can be sorted electronically by any field. This printed version has been sorted to help readers find various sites. This printed version is sorted primarily by **Locational Area** (see below). Highlighting has been added to the following pages to help readers identify the transitions from one Locational Area to the next. Within each locational area, records were subsequently sorted by **Property Name**. Within each Property Name, they were subsequently sorted by **Address**, as well.

Notes:

- All Locational Area names are printed on the maps.
- In addition to the maps bound in this report, larger maps (1:1750) are available at the offices of the St. Louis River Citizens Action Committee and the Minnesota Pollution Control Agency, both in Duluth.

LOCATIONAL AREAS	STATE
Allouez Bay	Wisconsin
Billings Park	Wisconsin
Chambers Grove	Minnesota
Clough Island	Wisconsin
Commerce Slip	Minnesota
Connors Point	Wisconsin
Duluth Harbor Basin	Minnesota
Duluth Ship Canal	Minnesota
Fond du Lac	Minnesota
Gary	Minnesota
Grassy Point	Minnesota
Howard's Bay	Wisconsin
Industrial Slip	Minnesota
Minnesota Channel	Minnesota and Wisconsin
Minnesota Slip	Minnesota
Morgan Park	Minnesota
North Channel	Minnesota
Oliver	Wisconsin
Rice's Point	Minnesota
Riverside	Minnesota
South Channel	Wisconsin
Superior Entry	Wisconsin
Superior Front Channel	Wisconsin
Superior Harbor Basin	Wisconsin

Upper Channel
Upper Channel
West Gate Basin

Minnesota
Wisconsin
Minnesota and Wisconsin