# DRAFT Erie Pier Management Plan

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&

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**DRAFT**

# Erie Pier Management Plan

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Prepared by the Duluth-Superior Metropolitan Interstate Council
*A division of the Arrowhead Regional Development Commission*

*Duluth and Superior urban area communities cooperating in planning and development through a joint venture of the*
Arrowhead Regional Development Commission
*and the* Northwest Regional Planning Commission

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# MIC BOARD, TAC, MIC STAFF, HTAC, EPMP COMMITTEE

The names of members of each of these groups will be listed.

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**MAP DISCLAIMER**

The information in the map(s) included in this document is based on a compilation of data derived from various federal, state, county, regional, and municipal sources. Geographic information has limitations due to the scale, resolution, date, and interpretation of the original source materials. Maps and data are to be used for reference purposes only and the Arrowhead Regional Development Commission (ARDC) and the Duluth-Superior Metropolitan Interstate Council (MIC) are not responsible for any inaccuracies herein contained. No responsibility if assumed for damages or other liabilities due to the accuracy, availability, use, or misuse of the information herein provided.

# SECTION 1: PURPOSE

The primary purpose of the Erie Pier Management Plan (EPMP) is to prolong the life of Erie Pier through processing and beneficial reuse of all dredged material placed in the facility. This effort has been carried out since 2007 when a focused beneficial reuse strategy changed the function of the Erie Pier Confined Disposal Facility (CDF) to a Processing and Reuse Facility (PRF). The Erie Pier CDF was constructed and is operated by the United States Army Corps of Engineers (USACE) under federal authorization for CDF's. As such, federal documents will refer to the facility as a CDF. From a state and local perspective, the facility has functionally transitioned to a PRF. The term "Processing and Reuse Facility" or the acronym "PRF" is used throughout this plan unless there is a specific reference to a federal authority or document that requires the term "Confined Disposal Facility" for accuracy.

The USACE constructed and operates the PRF in accordance with the authorizing language, local partnership agreement, and applicable regulations in coordination with the local sponsors (Duluth Seaway Port Authority and City of Duluth). The EPMP guides the local sponsors and other non-federal partners in their work to ensure the PRF is a cost-effective, environmentally sound, and socially acceptable dredged material "disposal" option in the Duluth-Superior Harbor. This plan is integral to the process of determining the priorities and intent of non-federal entities. The EPMP only provides advisory information to the USACE and does not dictate USACE's operations in any way. This EPMP replaces the 2007 plan in its' entirety.

The EPMP promotes alternatives defined in the USACE's 1998 Dredge Material Management Plan (DMMP). The DMMP is the most recent plan used to identify a base plan for future dredged material placement. Some of the alternatives considered in that plan outlined material reuse from Erie Pier and became part of the basis for the change in function to a PRF.

The National Dredging Policy states that "dredged material management planning must be conducted on a port or regional scale by a partnership that includes the federal government, the port authorities, state and local governments, natural resource agencies, public interest groups, the maritime industry, and private citizens." This plan was developed by the Duluth Seaway Port Authority (DSPA) and Duluth-Superior Metropolitan Interstate Council (MIC) staff working collaboratively with members of the Dredging Subcommittee of the Harbor Technical Advisory Committee (HTAC). The HTAC is a diverse group of port stakeholders representing federal, state, regional and local agencies as well as maritime industry and citizen groups. The Dredging Subcommittee of the HTAC is comprised of members with expertise and experience in harbor maintenance and dredging issues. Members of the EPMP Committee and HTAC Dredging Subcommittee are listed earlier in this document on page ii.

# SECTION 2: BACKGROUND

**General History**

Dredging within the Duluth-Superior Harbor dates back to the 19th century when Congress first authorized construction of piers and breakwaters at both harbor entries and the dredging and maintenance of the connecting channels. Historically, material dredged from the channels was used in the construction of waterfront property and docks as well as some of the islands within the harbor. The Duluth Seaway Port Authority (DSPA) Terminal, as well as Barkers and Hearding Islands are examples. However, ever since the passage of Public Law 91-611 most maintenance dredging materials have either been placed at the Erie Pier site in West Duluth or been directly beneficially used in remediation and habitat improvement projects.

Public Law 91-611, otherwise known as Section 123 of the 1970 River and Harbor Act, authorizes the US Army Corps of Engineers (USACE) to construct, operate, and maintain confined placement areas for dredged material in the Great Lakes region. This law provided for the construction of confined disposal facilities (CDFs) specific to the region and required a local sponsor for the CDF, typically a city, county or state governmental agency. The local sponsor was required to provide all lands, easements, and rights of way to the USACE for the CDF site. The local sponsor was also required to provide 25% of the construction funds. This local cost share could, however, be waived if the U.S. EPA certified that the area was in compliance with an approved water quality program. The local sponsor would receive title to the CDF after it was filled and capped and be responsible for long-term maintenance.

An agreement between the United States of America (specifically USACE), the City of Duluth, MN, and the Seaway Port Authority of Duluth (aka DSPA) dated April 25, 1978 (see Appendix A), under the authority of Section 123 of the 1970 River and Harbor Act set in motion and laid the basic requirements for establishing a CDF site in the Duluth-Superior Harbor. That site would become known as Erie Pier. The 89-acre Erie Pier CDF for placement of dredged materials was constructed in 1978-79 to serve both the Wisconsin and Minnesota portions of the Harbor. Interestingly 175,400 cubic yards of dredge material was placed in 1978 to help develop the site. The site was completed in 1979 with an estimated capacity of 1.1 million cubic yards and a 10-year life expectancy. The Erie Pier property is owned by the city of Duluth and DSPA while the operation of the site and its dredged materials are managed by the USACE.

**Commented [JS1]:** SPAD is still the legal name.

Every port that needs long-term navigational dredging, such as the one in Duluth-Superior, is required to have a USACE Dredged Material Management Plan (DMMP). A DMMP identifies the dredging needs and method(s) for management of the dredged materials for a period of 20 years and should adhere to the federal standard (33 CFR 335.7) established by the USACE. These regulations state that the USACE must select those alternatives that are the least costly,

utilize sound engineering principles, and meet the environmental standards outlined in Section 404(b)(1) of the Clean Water Act.

The DMMP for the Duluth-Superior harbor was last updated in 1998 and considered 22 alternatives as well as a "no action" option. Utilizing Erie Pier is an alternative in the DMMP. During the 1998 DMMP process the USACE and the states of Minnesota and Wisconsin committed to pursuing beneficial re-use alternatives, including the processing of materials at Erie Pier for re-use in construction projects and other beneficial purposes to extend the life of the CDF. The 1998 DMMP remains the latest plan and sets the current strategy for managing material from annual navigational maintenance dredging.

The 2007 EPMP estimated the initial cost of operating Erie Pier as a processing and reuse facility (PRF) as approximately $250,000 or more per year. Examples of expenditures considered in that estimate include dock repairs, developing and maintaining the perimeter road, shoreline rip-rap, bringing electrical service to the site, lighting, and material staging.

The USACE has calculated the actual average annual cost (based on costs between 2007-2019, the time it has operated as a PRF) to operate and maintain Erie Pier as approximately $334,000. The actual cost is higher than what was estimated primarily due to pond reconfiguration, the construction of the MSE wall, and the construction of the new barge offload platform. It is anticipated the annual maintenance cost would become lower in the future if no additional significant changes are made to the site or operation.

The life of Erie Pier has been extended by raising the dikes, achieving better-than-expected settling and compaction rates, re-use of dredged material from Erie Pier through hydraulic sorting operations, and via direct placement of material for beneficial use (such as beach nourishment and habitat restoration) eliminating the need to place it at Erie Pier. There are two primary reasons for the focus on extending the life of Erie Pier through beneficial use of dredge materials. One is beneficial use of the material is a sustainable option into the future, rather than treating it as a waste to store and cap. Two is that finding and siting a viable location for a new CDF or PRF and the costs associated with purchasing and developing such a site have generally been deemed prohibitive to date.

**Map 1: Erie Pier Location**

**Duluth-Superior Federal Shipping Channel Dredging Volumes, Placement Locations, & Costs**

Since 1979, the USACE has dredged over 5.1 million cubic yards of material from the Duluth-Superior harbor at a cost of over $52 million (see Table 1). On average the USACE has dredged 125,147 cubic yards per year at an average annual cost of $1,305,800. Figures 1 and 2 depict the volume and cost of Federal Shipping Channel dredging in the Duluth-Superior harbor between 1979 and 2019. Note that the volumes and costs presented between 1979 - 2012, and 2018 - 2019 were entirely from USACE Operation and Maintenance (O&M) program dredging. Volumes and costs presented between 2013 - 2017 were a sum from both USACE O&M and Great Lakes Restoration Initiative (GLRI) program dredging. Approximately 65% of these dredged materials have been placed at Erie Pier with the remainder utilized for habitat restoration (24%), beach nourishment (10%), or utilized as construction fill (1%) (see Figure 3). Over 3.3 million cubic yards of dredged materials have been placed in Erie Pier. This total is more than 3 times the original design capacity of the facility. Figure 4 depicts the cost of dredging per placement location between 1979 and 2019 as a percentage.

It is clear from Table 1 and Figures 3 and 4 that the majority of the dredge material and cost associated with dredging since Erie Pier opened in 1979 has been associated with placement at Erie Pier.

**Table 1. Annual Duluth-Superior Harbor Dredged Material Volume, Placement, & Cost**

| FY | Volume* | Location Placed | Cost | FY | Volume* | Location Placed | Cost |
|---|---|---|---|---|---|---|---|
| 1979 | 55,000 | Erie Pier | $579,736 | 1999 | 0 | | $0 |
| 1980 | 3,375 | Erie Pier | $94,052 | 2000 | 68,203 | Erie Pier | $705,986 |
| 1980 | 191,000 | Erie Pier | $1,205,030 | 2001 | 15,000 | Erie Pier | $118,276 |
| 1981 | 128,308 | Erie Pier | $821,509 | 2001 | 59,674 | Erie Pier | $546,536 |
| 1982 | 91,068 | Erie Pier | $634,927 | 2002 | 116,684 | Beach Nourishment | $813,550 |
| 1983 | 44,044 | Beach Nourishment | $325,935 | 2003 | 0 | | $0 |
| 1983 | 109,085 | Erie Pier | $789,852 | 2004 | 43,000 | Erie Pier | $580,100 |
| 1984 | 181,770 | Erie Pier | $1,294,242 | 2005 | 99,740 | Erie Pier | $1,096,821 |
| 1985 | 193,503 | Erie Pier | $1,239,834 | 2006 | 0 | | $0 |
| 1986 | 159,695 | Erie Pier | $1,005,792 | 2007 | 145,223 | Erie Pier | $2,445,076 |
| 1987 | 201,477 | Erie Pier | $1,519,583 | 2008 | 135,721 | Beach Nourishment | $1,099,937 |
| 1987 | 37,913 | Construction Fill | | 2009 | 100,445 | Erie Pier | $1,692,736 |
| 1988 | 190,070 | Erie Pier | $1,430,490 | 2010 | 0 | | $0 |
| 1989 | 175,407 | Erie Pier | $1,513,337 | 2011 | 134,701 | Erie Pier | $3,348,520 |
| 1990 | 107,929 | Erie Pier | $789,904 | 2012 | 180,276 | Erie Pier | $4,719,242 |
| 1990 | 45,303 | Beach Nourishment | $501,179 | 2013 | 112,921 | Habitat Restoration | $1,620,399 |
| 1991 | 136,375 | Erie Pier | $1,118,680 | 2014 | 159,029 | Habitat Restoration | $2,151,834 |
| 1992 | 53,868 | Erie Pier | $472,449 | 2015 | 186,085 | Habitat Restoration | $2,413,561 |
| 1993 | 59,058 | Erie Pier | $402,381 | 2016 | 186,473 | Habitat Restoration | $2,414,318 |
| 1994 | 125,381 | Erie Pier | $715,254 | 2016 | 114,052 | Habitat Restoration | $1,422,246 |
| 1994 | 95,290 | Erie Pier | $543,595 | 2017 | 174,752 | Habitat Restoration | $1,325,500 |
| 1995 | 86,249 | Erie Pier | $639,314 | 2017 | 148,362 | Habitat Restoration | $1,719,575 |
| 1996 | 50,362 | Beach Nourishment | $270,294 | 2018 | 164,414 | Habitat Restoration | $2,212,355 |
| 1997 | 121,330 | Erie Pier | $876, 734 | 2019 | 30,451 | Beach Nourishment | $1,361,640 |
| 1998 | 112,975 | Beach Nourishment | $516,425 | | | | |
| **TOTAL** | | | | | **5,131,041** | | **$52,232,002** |
| Total Placed in Erie Pier | | | | | 3,311,500 | | $32,063,254 |
| Total Placed in Beach Nourishment | | | | | 535,540 | | $4,888,960 |
| Total Placed in Habitat Restoration | | | | | 1,246,088 | | $15,279,788 |
| Total Placed in Construction | | | | | 37,913 | | $0 |

* = volume in cubic yards

Source: US Army Corps of Engineers

*NOTE: The volumes and costs presented between 1979 – 2012, and 2018 - 2019 were entirely from USACE Operation and Maintenance (O&M) program dredging. Volumes and costs presented between 2013 - 2017 were a sum from both USACE O&M and Great Lakes Restoration Initiative (GLRI) program dredging. All volumes and costs are associated with dredging of the Federal Shipping Channel in the Duluth-Superior harbor.*

**Figure 1.**

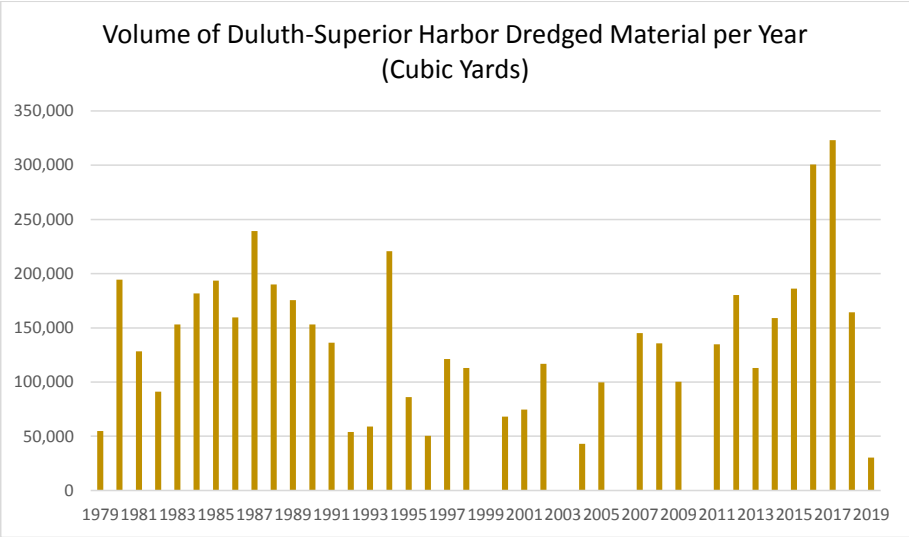



**Figure 2.**

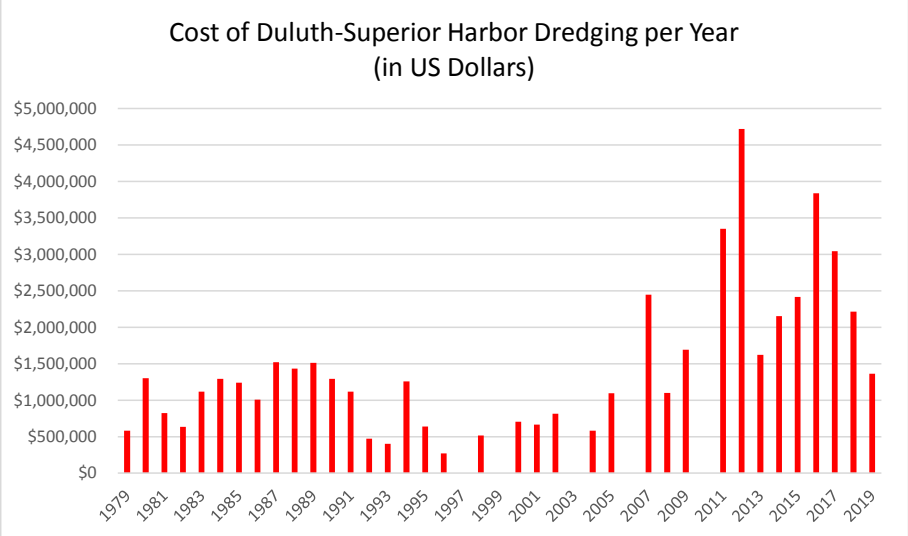


**Figure 3.**

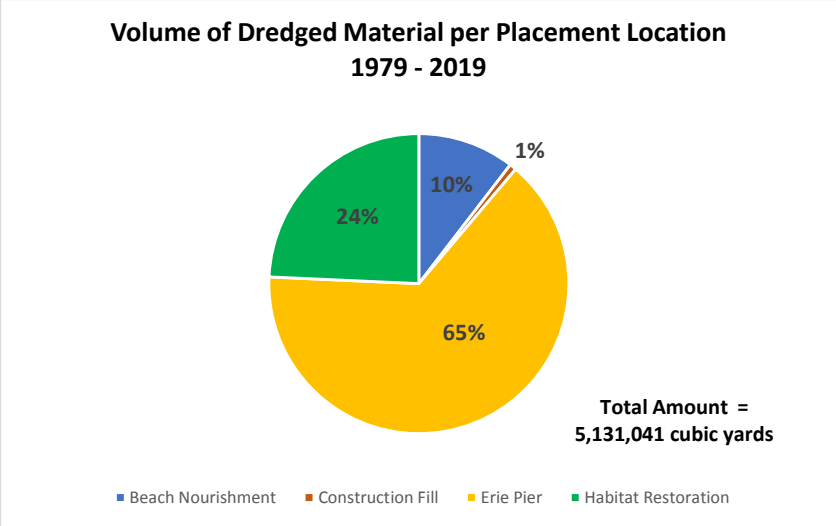
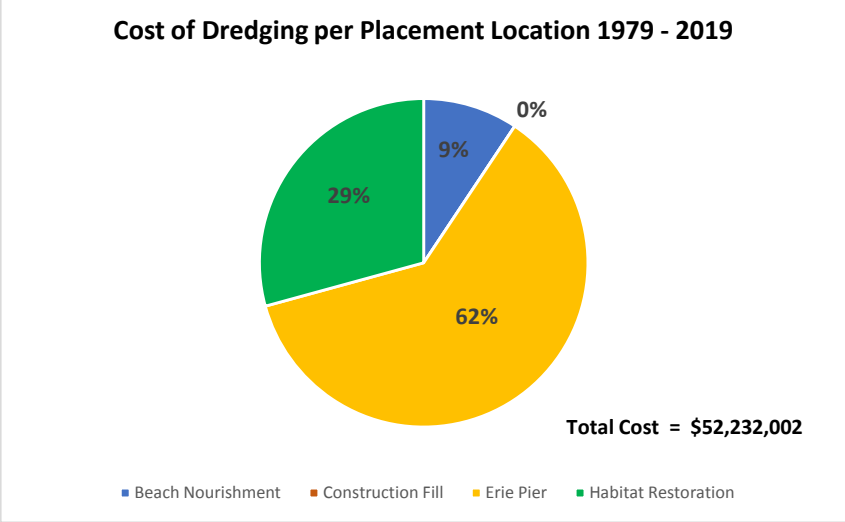



**Figure 4.**



One way to look at the data is to compare and contrast the time up to the previous EPMP against the time following that plan and determine if there are any trends worth noting. While the plan was completed in June 2007, the data in the plan includes up to 2005 since there was no channel dredging on record for 2006, and the plan would not incorporate any dredging conducted in 2007. This makes a sensible distinction also in that a primary purpose of the 2007 EPMP was to transition the CDF into a PRF and had a primary goal to expand the beneficial reuse of dredged materials.

Comparing the average annual volumes dredged versus costs between 1979-2005 and 2006-2019 (Table 2) it is interesting to note that while the volume dredged increased 20.5%, the cost of that dredging increased by 150%. Clearly dredging has gotten more expensive over time. But is that a simple fact, or is it compounded by habitat restoration or other beneficial use projects costing more than placing material at Erie Pier?

**Table 2: Average Annual Dredge Volume and Cost (1979-2005 vs 2006-2019)**

| | Avg Annual Volume | Avg Annual Cost |
|---|---|---|
| **1979-2005** | 116,968 | $857,118 |
| **2006-2019** | 140,922 | $2,139,067 |

Volume is in cubic yards. Cost is in US Dollars.

Comparing the dredge volumes and costs by placement location between 1979-2005 and 2006-2019 (Table 3) provides additional data to determine if the goal of expanding the beneficial reuse of dredged materials is being achieved, as well as if the beneficial use projects cost more than disposing at Erie Pier. The following highlight the data in Table 3 and address these questions:

- The percent volume being placed at Erie Pier decreased from 87.1% (1979-2005) to 28.4% (2006-2019) – a drop of 58.7%. Over the same time the percent total cost for placement at Erie Pier decreased from 89.1% to 40.8%.
- The percent volume being placed in habitat restoration projects increased from 0% (1979-2005) to 63.2% (2006-2019). Over the same time the percent total cost for placement in habitat restoration projects increased from 0% to 51%.
- Clearly the goal of expanding the beneficial reuse of dredged materials is being achieved as a dramatic shift is seen from placement at Erie Pier to placement in habitat restoration projects.

- For 2006-2019 the difference in percent volume placed in habitat restoration projects (63.2%) vs placement at Erie Pier (28.4) is 34.8%. Over the same time the difference in % cost of placement in habitat restoration projects (51%) vs placement at Erie Pier (40.8%) is 10.2%. This indicates the habitat restoration beneficial use projects do not cost more than placing material at Erie Pier.
- While the volume placed for beach nourishment decreased by 55% (1979-2005 vs 2006-2019), the cost of that placement remained nearly the same ($2.43 million vs $2.46 million). This indicates the already stated reality that the cost of dredging has increased over time.

**Table 3: Dredge Volume and Cost by Placement Location (1979-2005 vs 2006-2019)**

| **1979 – 2005 (26 years)** | | | | | | |
|---|---|---|---|---|---|---|
| **Placement** | **Volume** | **Total Volume** | **%** | **Cost** | **Total Cost** | **%** |
| Beach Nourishment | 369,368 | 3,158,136 | 11.7 | $2,427,383 | $22,285,063 | 10.9 |
| Construction Fill | 37,913 | 3,158,136 | 1.2 | 0 | $22,285,063 | 0 |
| Erie Pier | 2,750,855 | 3,158,136 | 87.1 | $19,857,680 | $22,285,063 | 89.1 |
| Habitat Restoration | 0 | 3,158,136 | 0 | 0 | $22,285,063 | 0 |

| **2006 – 2019 (14 years)** | | | | | | |
|---|---|---|---|---|---|---|
| **Placement** | **Volume** | **Total Volume** | **%** | **Cost** | **Total Cost** | **%** |
| Beach Nourishment | 166,172 | 1,972,905 | 8.4 | $2,461,577 | $29,946,939 | 8.2 |
| Construction Fill | 0 | 1,972,905 | 0 | $0 | $29,946,939 | 0 |
| Erie Pier | 560,645 | 1,972,905 | 28.4 | $12,205,574 | $29,946,939 | 40.8 |
| Habitat Restoration | 1,246,088 | 1,972,905 | 63.2 | $15,279,788 | $29,946,939 | 51.0 |

Volume is in cubic yards. Cost is in US Dollars.

It is also good to summarize how well the proposed plans from the past (the 1998 DMMP) became reality. The 1998 DMMP identified three alternatives for managing dredged materials from the Duluth-Superior harbor for the twenty years between 1998 and 2018: 1) Continued use of Erie Pier until full (2-5 years), 2) Beach nourishment (5 years), and 3) Habitat creation at 21st Avenue West channel (10 years). Regarding 1) dredge material was placed at Erie Pier 8 years and Erie Pier is not "full" or closed, so far beyond the estimated 2–5-year life expectancy. Regarding 2) dredge material was placed as beach nourishment 3 years, which is reasonably consistent with the plan. Regarding 3) dredge material was used for habitat creation or

restoration 6 years at three different sites (21st Avenue West was only 4 of those years), which is shorter in expected number of years, but the use of a higher-than-average annual amount of dredge material for these years and use at 3 different sites indicates the positive expanded application of dredge material in the Duluth-Superior harbor for this type of beneficial use since 1998.

# SECTION 3: MATERIAL ACCEPTANCE

Dredged material must be physically and chemically characterized in accordance with the Great Lakes Dredged Material Testing and Evaluation Manual, and the state permit acquired by the DSPA, prior to arriving at Erie Pier. The USACE, the facility operator, places material in accordance with applicable federal regulations and the authorities under which Erie Pier is operated. The USACE works closely with the DSPA, the local sponsor representative and permittee, on material acceptance issues.

The Erie Pier NPDES/SDS permit specifies three categories of material that may be accepted at the facility. Level 1 (acceptable for use in residential areas), and Level 2 (acceptable for use in industrial areas) can be processed for reuse or permanently disposed at the facility. The analytes used to define Level 1 and Level 2 are based on MPCA's Soil Reference Values (SRVs) as discussed in Chapter 4 Beneficial Reuse. Level 3 material is defined as having a contaminant exceeding any of the Level 2 reference values. Level 3 material may be accepted at Erie Pier but cannot be permanently disposed at the facility. Level 3 material is typically handled in a confined area where it can be loaded into trucks and transported to an appropriate landfill or other disposal facility. The state's Level 3 criteria may not perfectly mirror the federal acceptance requirements. It is noted that state dredged material acceptance requirements more stringent than federal regulations could result in additional state/local costs to facilitate disposal. The USACE prefers not to accept dredged material at Erie Pier if the material is suitable for direct beneficial reuse.

Dredged material arrives by a dredging contractor bringing material to Erie Pier in barges. Material is transferred to an elevated off-load platform. All dredged material accepted at the site is managed to minimize the amount of material returned to the bay by spillage, erosion, or other discharge during re-handling, off-loading and/or transport activities.
The material acceptance requirements function to extend the life of the facility by assuring material is suitable for beneficial reuse, and/or suitable for a future industrial waterfront land use.

***Recommendation***

3-1) The state dredged material acceptance requirements incorporated in the Erie Pier NPDES/SDS permit should be harmonized with federal regulations to avoid additional state/local operating costs for the facility. Harmonization should occur in concurrence with reissuance of NPDES/SDS Permit MN0052612 that expires January 31, 2023.

# SECTION 4: BENEFICIAL REUSE EVALUATION & STRATEGY UPDATE

**Overview**

Beneficial use of dredged material has been tremendously successful since the 2007 EPMP update. From 2007 to 2019, nearly 1.7 million yards of material was dredged from the Duluth-Superior harbor for navigational and environmental restoration purposes. Approximately 560,000 cubic yards of material was placed in Erie Pier between 2007 and 2012. Much of the material was hydraulically separated and hauled away for upland beneficial use. In 2008, and every year between 2013 and 2019, 100% of dredged material was direct hauled to habitat restoration and beach nourishment projects. Overall, we estimate a beneficial use rate over 90% since 2007.

We expect dredge material demand for habitat restoration projects to decline as several years of AOC work in the estuary ends. However, we also expect the demand for other uses to grow significantly. High water and large storm events have caused significant erosion along both sides of Minnesota Point and Wisconsin Point. Property owners and resource managers are calling for more dredge material to be used for beach nourishment. Additionally, there are large construction projects underway, and more construction expected under projects funded by various state and federal stimulus spending in response to the COVID-19 pandemic, that are creating demand for construction material. The coarse material (sand) from Erie Pier is often used for construction fill in a variety of road, utility and building projects. The fine material from Erie Pier, while in less demand, has proven to be an excellent topsoil and plant rooting medium. Potential exists for its increased use in landfill covers and mine land reclamation.

**Beneficial Use Strategy**

The goal of this plan is to sell approved dredged materials to recover costs involved in processing and to extend the operational life of Erie Pier. The success of Erie Pier as a processing and re-use facility depends on the ability to make quality coarse and fine materials available at competitive rates.

Large-scale projects are preferable in reusing dredged materials to realize economy of scale benefits. Historical consideration of large-scale projects included:

*Mineland Reclamation Projects*
In 1997, the USACE, in cooperation with the Minnesota Department of Natural Resources (MDNR), National Steel Mining, and the Duluth Seaway Port Authority (DSPA), initiated a pilot project to use dredged materials from the Erie Pier CDF as a substrate to create wetlands on lands disturbed by mining. Two demonstration areas were established and produced excellent results showing dredged materials work well to create wetlands on former minelands. Based on the success of National Steel pilot project, a cooperative project was initiated among the U.S.

EPA, the USACE, the MDNR, Eveleth Taconite (EVTAC) and the DSPA. The goal was to create a five-acre wetland within a closed taconite tailings basin. In the year 2000, 3,000 cubic yards of dredged material was moved from Erie Pier to the EVTAC site using the Duluth, Missabe & Iron Range Railway. The results showed dredged materials significantly improved vegetation with no adverse impact on water quality. It is estimated that there could be as many as 1,000 acres of the tailings basin that would be suitable for future reclamation and wetland creation.

Another mineland reclamation project that has been proposed is looking at value added reclamation projects, specifically using dredged materials to grow hybrid poplar for harvest. The project will involve assessment of growth rates on soils amended with dredged material from Erie Pier. Information on growth rates of current commercially-available hybrids, fertilization responses and performance of new hybrid material will be outputs of this project. The project would build upon a well-developed infrastructure of hybrid poplar field experiments and breeding undertaken by the NRRI since the late 1970s. Having access to this large pool of hybrid poplar genetic resource is a unique aspect of this project. The proposed Erie Pier transfer site will provide rail transportation opportunities of dredged material to the mined land. Trains hauling iron ore from the mines to the Duluth-Superior port may backhaul dredged material at very low cost for these potential projects.

*Construction Sites*

Some dredged materials can be used as construction material. In some parts of the world, dredging to obtain construction material is a common practice. Dredging to obtain construction materials has occurred in the Duluth-Superior Harbor, as evidenced by several submerged borrow pits that remain. Because of the growing demand for construction materials and dwindling inland resources, this may be an important beneficial use. Depending on the sediment type and processing requirements, dredged material may be used as: concrete aggregates (sand and gravel); backfill material or in the production of bituminous mixtures and mortar (sand); raw material for brick manufacturing (clay with less than 30 per cent sand); ceramics, such as tile (clay); pellets for insulation or lightweight backfill or aggregate (clay); and raw material for the production of riprap or blocks for the protection of dikes and slopes against erosion (rock, mixture).

*Road Construction*

Limited local sources of fill material for road projects makes material from Erie Pier more desirable. Sharing information on physical characteristics of dredged materials is critical to the utilization of the materials. Local road authorities should be encouraged to use materials from Erie Pier whenever it meets the physical requirement necessary for their road projects.

*Daily Landfill Cover and Capping*

Landfills are required to provide a daily cover. The cover is normally sandy soil but other types of material may be used as well. This cover allows improved access by trucks, reduces blowing trash, reduces odors and lessens the risk of fire. Dredged materials from Erie Pier may be a good source for daily landfill cover.

*Top Soil Creation Enhancement*
Maintenance dredging in harbors, access channels, and rivers produces mixtures of sand, silt, clay and organic matter that can be excellent ingredients for topsoil. Some dredged materials may be excellent topsoil, as is. Other dredged material may require blending with other residual materials such as organic matter (yard waste, wastepaper, storm debris, etc.) and biosolids (sewage sludge or animal manure) to
manufacture enhanced fertile topsoil.

*Habitat Restoration*
Dredged material can be used beneficially to protect, enhance, restore, or create wildlife habitats. For example, nesting meadows and habitat for large and small mammals and songbirds have been developed on upland or floodplain (seasonally flooded) dredged material placement sites. Numerous examples are available where dredged material has been used to create nesting habitat for waterbirds and waterfowl.

In some parts of the country, dredged material has been extensively used to restore and establish wetlands. Where proper sites can be located, and government and private agency cooperation can be coordinated, wetlands restoration is a relatively common and technically feasible use of dredged material.

*Habitat Creation*
Dredged materials can be used to create habitat such as wetlands and shallow water habitat. Habitat that formally existed in the Duluth-Superior harbor includes deep and shallow marshes containing submergent as well as emergent vegetation. Restoration of these types of habitat would be beneficial to waterfowl, migratory waterfowl and fish.

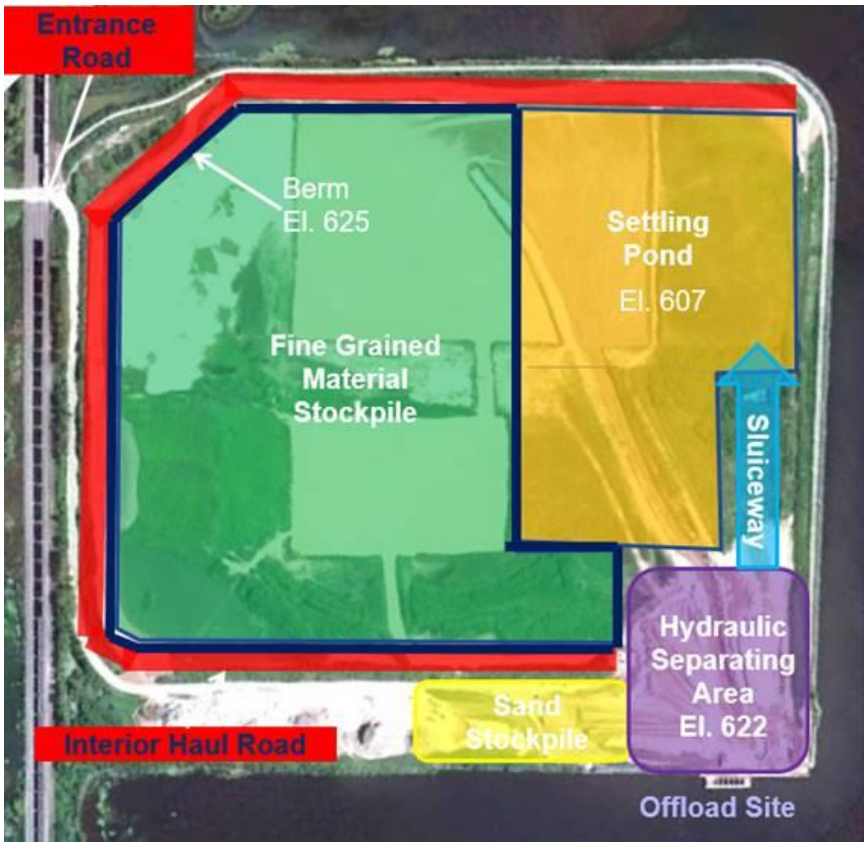
**Operational Summary – Processing and Preparing Material for Reuse**

Preparing dredged material for beneficial reuse entails several steps including offloading, hydraulic sorting, trans-shipment of material and managing water at Erie Pier. The primary purpose of the hydraulic sorting operation is to reduce disposal volume and extend the operating life of Erie Pier. The operation at Erie Pier is a relatively low technology process, but it is effective. The sorting operation allows separation of the coarse and finer materials, and timely removal of the coarse material (sand) which has commercial value. Finer materials are challenged by lack of market value.

The off-loading operations at Erie Pier generally consists of the dredging contractor bringing dredged materials to the site in barges and transferring the materials onto the elevated off load platform. In preparing the site, the contractor constructs a hydraulic sorting basin where water is introduced allowing the fine materials to move down the sluiceway, while retaining the granular material that will be staged for reuse through a contract with the Port Authority. The material not recovered through the hydraulic sorting operation is conveyed to the material placement site. Water is conveyed to the pond area using a weir system, which exits through a

channel to the sorting site for continuous use; the water recycling process is repeated. This process is depicted in Figure 5.

**Figure 5: Erie Pier Operational Site Diagram**




After the material is moved to the material placement site, it remains there until the moisture content is reduced, which takes about six months. The material is then moved to a material staging cell where it is staged for removal. Two sites have been identified as material staging areas, one on the easterly side and one on the northwesterly corner of Erie Pier. Once the material is in the staging cells, it is in a condition typically seen in any quarry that allows easy removal. The condition of the material is important to the marketing of the material. Unless it is

in a condition where it can be loaded efficiently onto truck or rail, the material cannot be successfully marketed.

**Material Loading and Transport**

Material staging and transfer sites facilitate effective dredged material movement out of Erie Pier. Coarse material is staged and loaded near the south corner of Erie Pier. The coarse material transfer site is outside the CDF berm with good haul road access. The fine material transfer site is near the north corner of the CDF and within the berm. Haul road access to this area is marginal and in need if improvement. The finer material in this portion of the CDF tend to re-saturate and soften when trucks drive over it or heavy equipment is used in the area. Road improvements that provide better access to fine material would facilitate beneficial use marketing as the current condition creates costly transport issues for potential users.

Erie Pier also receives sand, aggregate and other construction materials from outside entities to be utilized in USACE construction and maintenance projects. Materials are off-loaded and staged at Erie Pier for further site construction requirements such as building of the transfer site, upgrading of the perimeter road, and construction of the cover stone and core stone staging site. Cover and core stone are used by the USACE for breakwater repairs in Duluth-Superior as well as other harbors on Lake Superior.

**Regulatory Requirements for Reuse**

Minnesota and Wisconsin regulatory agencies have established guidelines to categorize how soils and sediments can be beneficially reused in upland areas. Specific regulatory requirements correspond to the level of contamination in the soils and sediments. Dredged materials will be analyzed and will be evaluated against Minnesota and Wisconsin guidelines to classify how the material at Erie Pier can be beneficially reused. Each state's standards will determine how dredged materials can be re-used. Generally, Minnesota and Wisconsin regulate re-use of dredged materials as follows:

*Minnesota*

Detailed regulatory requirements are available at the MPCA Dredged Materials Management web page at https://www.pca.state.mn.us/water/dredged-materials-management.The April 2014 MPCA document *Managing Dredged Materials in the State of Minnesota* provides a regulatory framework for managing dredged materials, identify best management practices, and identify environmentally appropriate land-based placement options for dredged materials. The major subject matter covered in the document includes regulatory determination, environmental risk assessment, sampling and analysis requirements, management standards, and permitting and other forms.

The following information is a brief summary of the major subject matter or chapters of the document.

The chapter describing regulatory determination contains a flowchart that outlines the steps necessary throughout the permitting process. A dredging project is defined as "a discrete one-time excavation of material, or a series of dredging activities, such as with maintenance dredging, which involves multiple projects and multiple stages of a single project that are connected or are phased actions." Permits are issued for upland management of dredged materials under State Disposal System (SDS) authority. The regulatory strategy is to conduct environmental risk assessments to evaluate the reasonable likelihood that a given pollutant is present in the dredged material. This is done through combination of empirical and technical evaluation of the sediment to be dredged, which may include sampling and analysis. Methods of analysis include grain size analysis, examining past industrial activities/sources of pollutants, and sampling of pollutants likely to be present. In examining past industrial activities, a matrix of contaminants and source industries is provided."

The sampling and analysis section states that "characterization of sediment from the proposed dredge site must be completed prior to the initiation of dredging activity. Results of sediment characterization must be compiled and submitted for MPCA review and approval with permit application". Baseline sediment analysis is described with a table of compounds to be analyzed provided. Additional sediment analysis may be required based on historical land use and reasonable likelihood. Through an agency policy decision, three management tiers based on Soil Reference Values (SRVs) were developed to categorize potential uses for dredge materials. Tier 1 material is suitable for use or reuse on appropriate residential or agricultural properties. Tier 2 is suitable for industrial or recreational uses. Tier 3 material must be placed in a confined disposal facility. It is important to note that the MPCA's use of SRV's is a policy decision that could change – it is not specifically required in statute or rule.

Beneficial re-use of dredged materials is supported by Minnesota state agencies.

*Wisconsin*

The major difference between Minnesota and Wisconsin in regulating reuse of dredged materials is that Wisconsin considers dredged materials to be a solid waste. However, most dredged material disposal and re-use can be exempted from solid waste rules. Dredged material is defined as "any solid waste removed from the bed of any surface water" and regulated under Chapter NR 500.03(71) of Wisconsin Administrative Code and can be determined to be exempt or not exempt from solid waste regulation. The transportation and disposal of dredged material as solid waste is subject to strict landfill requirements and contaminant control regulations. The WDNR evaluates each project on a case-by-case basis to decide if it can be beneficially used. Wisconsin has not published a formal guide on dredged materials and reuse, but it has introduced a new approach to permitting for beneficial reuse. Wisconsin has a policy to encourage beneficial use according to NR 347.01 (2). The WDNR uses sections of the Wisconsin Administrative Code pertaining to other forms of solid waste to evaluate if dredged material is safe for beneficial use. These sections include NR 347, sediment sampling and monitoring protocols for dredging projects; NR 538, industrial byproducts; NR

528, sediment evaluation; and NR 720, solid waste cleanup standards. The administrative code contains sections NR 500.03 (19) and NR 538 regarding beneficial use of industrial byproducts that sets standards for specific constituents to determine levels of contamination and suitability for beneficial use. The USACE projects within federally authorized project areas require a water quality certificate under Section 401 and NR 299 of Wisconsin Administrative Code.

Beneficial use can vary from upland placement to in-water placement for varying purposes (i.e., cap landfills to marsh creation or beach nourishment). In upland placement projects, the dredged material is evaluated as a waste and regulated through WDNR's Division of Air and Waste Bureau of Waste Management for approvals. Under NR 500.08(5) (a), an exemption from solid waste regulations is obtained to use 3,000 CY or less of "nonhazardous" dredged material and if greater than 3,000 CY, upland disposal can be approved under section 289.43(8) as a one-time upland disposal/placement. The WDNR has a contaminated sediment program with a contaminated sediments advisory committee and a PCB soil criteria group that reviews proposed beneficial use projects.

The WDNR has adopted a policy of encouraging the beneficial reuse of dredged materials and may grant exemptions from normal solid waste regulatory requirements for the purpose of allowing or encouraging the recycling of solid wastes.

*Noxious Weed Management*

Erie Pier is like much of the St. Louis River Estuary in that purple loosestrife can be found growing on or near the site. Because of this, Erie Pier is subject to Minnesota's Noxious Weed Law and Rules as described in Minnesota Statutes Chapter 18, Sections 18.75 to 18.88. Each county must appoint an agricultural inspector whose duty it is to see that the rules described in the statutes are carried out.

Minn. Stat. § 18.82 Subd. 1. requires a permit to transport along a public highway any materials containing propagating parts of noxious plants. Before moving material from Erie Pier, permits will be acquired from the St. Louis County Ag Inspector (218-726-2606). Management practices will be developed on a case-by-case basis to safely move material from Erie Pier so as not to spread purple loosestrife or any other noxious weed.

**Barriers to Reuse**

While regulatory controls can make beneficial re-use complicated and challenging, they do not appear to be a major barrier to re-use efforts at this time. In October 2008, the Great Lakes Maritime Research Institute issued the final report *Erie Pier Process Re-use Facility Cost Analysis*. http://www.glmri.org/downloads/2008Reports/brannon.pdf The principal investigators, Rodger Brannan and James Skurla, Labovitz School of Business and Economics, University of Minnesota Duluth, completed a comprehensive cost accounting and capital budget evaluation for Erie Pier material re-use. The study considered potential uses including compost, topsoil, construction, ground cover, soil enrichment, landfill cover, and mineland reclamation. Assuming 48,000 yards of coarse material and 50,000 yards of fine material are

available from Erie Pier annually, the investigators evaluated costs associated with access, handling and transportation associated with the most viable markets. Ultimately, the study concludes that transportation costs are a significant barrier and proposed further study of this issue with UMD's Swenson College of Science and Engineering.

The subsequent February 2010 final report *Erie Pier Re-Use Facility Phase II: An Optimized Cost-Effective Strategy for Increased Transport and Handling of Dredged Materials* evaluates combinations of truck and rail transport with a heavy focus on the American Surface Lines LLC's RailMate system. http://www.glmri.org/downloads/2009Reports/chen.pdf . The study also identifies substantial handling equipment costs depending on various factors affecting loading at Erie Pier. All options considered were determined to be less cost than building a new CDF to replace Erie Pier once it is full.

***Recommendations***

4-1) Re-evaluate potential markets for fine material to confirm earlier findings and select 2-3 viable projects for detail transportation analysis.

4-2) Complete a transportation cost analysis for 2 or 3 specific projects. Include trucking and railroad representatives to provide local logistical considerations and cost estimates.

4-3) Evaluate Erie Pier access and handling improvements needed to remove 50,000 cu yards of fine material annually.

4-4) Continue road construction projects that improve access to fine material, particularly the road through the fine material stockpile area from east to west.

4-5) Develop and implement a plan to characterize PRF material for in-water habitat improvement projects.

**Supplemental Resources**

https://greatlakesdredging.net/

July 2016 Guide to Policies and Projects… (73 pages) https://cdn2.cloud1.cemah.net/wp-content/uploads/sites/38/2016/12/GLDT-Guide-Policies-Projects-Beneficial-Use-of-Dredged-Material.pdf

May 2016 Building more Sustainability… (8 pages) https://cdn2.cloud1.cemah.net/wp-content/uploads/sites/38/2016/12/GLDT-CFIRE-20160503-FINAL-web.pdf

March 2013 Beneficial Use of Dredged Material (10 pages) https://cdn2.cloud1.cemah.net/wp-content/uploads/sites/38/2016/12/2013BeneficialUse-online-FINAL.pdf

October 2001 Beneficial Uses of GL Dredged Materials (63 pages) https://www.glc.org/wp-content/uploads/2016/10/2001-Beneficial-Use-Task-Force-Final-Report.pdf

# SECTION 5: WATER LEVEL MANAGEMENT

The Erie Pier Confined Disposal Facility basin has substantial water holding capacity with the controlling engineering design factor being the maintenance of a 2-foot minimum freeboard along the exterior perimeter berms. Water sources are limited to dredge material dewatering and precipitation directly on the basin. However, since precipitation exceeds evaporation on a regional average, and precipitation events can vary significantly year to year, it is prudent to monitor water level and plan for the eventual need to release excess water.

The USACE conducts routine visual inspections of the basin. Since final construction of the current facility berm system in 2012, water levels have not been a significant concern. However, water levels can affect the ability to process and dewater dredged materials for beneficial reuse. In recent years, a transfer pipe was installed from the settling pond to the fines stockpile area at an elevation that assures the settling pond water level cannot encroach on the 2-foot minimum freeboard level.

***Recommendation***

5-1) A long-term strategy for removing excess water from the PRF basin is needed. The DSPA and USACE need to determine if a discharge authorization for the PRF will be necessary. If so, the DSPA and USACE should discuss the process for obtaining a 401 water quality certification for construction and operation of a discharge structure.

*See Section 6 for a discussion on water discharge authorization.*

# SECTION 6: PERMITTING / REGULATORY CONTROLS

The USACE constructed and operates the Erie Pier Confined Disposal Facility (CDF) under Section 123 of the Rivers and Harbors Act of 1970, and 33 CFR Parts 335 to 337, and therefore federal supremacy creates a unique regulatory context for the facility. The Duluth Seaway Port Authority (DSPA) and City of Duluth (City) are local government sponsors as described in the April 25, 1978 Memorandum of Understanding (Appendix A – Erie Pier Local Cooperative Agreement) between the three parties. The DSPA and City have obtained state and local permits for the facility. Regulatory controls for Erie Pier are the result of various federal court decisions as well as careful negotiations between federal and state agencies to address environmental and natural resources concerns while maintaining federal supremacy.

The Supremacy Clause of the U.S. Constitution provides that federal agencies are subject to state laws and regulations only if Congress explicitly waives federal sovereign immunity. On occasion, the USACE will agree to state regulatory controls out of comity, but other approaches are typically used to meet the interests of state regulators. In the case of Erie Pier, the DSPA currently acts as the primary sponsor and facility "owner" to facilitate administrative duties such as obtaining state permits, regulatory approvals, and completing associated reporting requirements. This approach has been used to obtain Work in Public Waters, State Disposal System, and water quality permits from state agencies for the initial construction and current operation of the Erie Pier facility. The currently active state regulatory controls for Erie Pier are under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit issued by the Minnesota Pollution Control Agency (MPCA) to DSPA as owner. The Minnesota Department of Natural Resources has classified the facility as a "low-risk" dam and routinely inspects the facility accordingly.

The Clean Water Act section 313 requires federal actions to comply with state water quality standards but does not require the USACE to obtain state permits. The USACE typically obtains a CWA Section 401 Water Quality Certification from a state if conditions at a facility require one. To date, conditions at Erie Pier have not required a 401 Water Quality Certification, but that could change when a discharge of excess water from the facility is proposed as part of the operation.

Regulatory controls address three general areas or aspects of Erie Pier:

*Erie Pier Dock* – the original structure purchased by the DSPA and city of Duluth to facilitate construction of the adjacent confined disposal facility. Normal dock operations include dredge material off-loading and handling, project materials staging and handling, and snow disposal.

*Erie Pier CDF/PRF* – constructed adjacent to the dock, this is the bermed, confined disposal area that is operated exclusively by the USACE. In addition to disposal, dredged material processing for grain size separation occurs within this area to facilitate beneficial reuse.

*Off-site Beneficial Use of Dredged Material* – the activity of using clean dredged material is conducted after physical and chemical analyses and approval of conditions and/or location of use.

As the DSPA pursues permits for various activities related to Erie Pier, care must be taken to assure controls do not inadvertently violate the USACE's federal sovereign immunity. In Minnesota, NPDES/SDS Permit MN0052612 issued by the MPCA primarily functions to control stormwater runoff from the dock area, and to establish conditions for off-site beneficial use of dredged material. The current permit expires January 31, 2023. In Wisconsin, dredged material is regulated as solid waste and requires authorization by the Wisconsin Department of Natural Resources (WDNR) under Wisconsin Statutes Chapter 289. Historically, when material from Erie Pier was beneficially used at a project site in Wisconsin, the WDNR issues a 5-year Conditional Grant of Low Hazard Exemption as allowed by s. 289.43, Wis. Stats. This regulatory control covers pollutant parameters of concern as well as invasive species.

In Minnesota, it is illegal to transport materials or equipment containing the propagating parts of noxious weeds, except by permit (Minnesota Statutes, sections 18.82 and 18.86). Erie Pier material is known to contain purple loosestrife, a terrestrial invasive species. A permit for transport and use of material must be obtained from the appropriate county Soil and Water Conservation District.

***Recommendation***

6-1) If deemed appropriate and necessary by the USACE and DSPA to remove excess water from the PRF, a 401 Water Quality Certification to discharge of excess water from the facility should be requested from the MPCA. This authorization should occur in concurrence with reissuance of NPDES/SDS Permit MN0052612 that expires January 31, 2023.

# SECTION 7: DATA MANAGEMENT

**Material Quantity**

The USACE tracks quantity and quality data for all dredged material coming into the Erie Pier facility. The USACE also completes surveys to determine the volume of material in place (see Figure 6) and the remaining disposal capacity (see Figure 7). As of January 2021, approximately 546,000 CY of capacity is available – which is about 5 years (or cycles) of routine navigation channel maintenance. This capacity is based on filling to the 2-foot freeboard level on the lowest current berm. The estimated useful life of the facility ranges from 5 years in a worst-case scenario of no beneficial use projects to several decades under the recent condition where numerous beneficial use projects has nearly eliminated disposal in the facility. Approximately 228,000 CY of material in the facility has been tested and is available for beneficial use offsite. All survey and volume data are maintained at the USACE's Duluth Office.

**Material Quality - Environmental Data**

In addition to material quantity data, there are four categories of environmental quality data related to Erie Pier: pre-dredge assessments, evaluations of material in the Erie Pier disposal area, evaluations of water in the Erie Pier disposal area, and other evaluations. Following is a brief discussion of each environmental data category:

*Pre-Dredge Assessments* – The USACE routinely conducts sediment quality assessments of shoaling material and other regularly maintained areas within the Federal Navigation Channels that are most likely to be dredged in upcoming seasons. The USACE develops a Sediment Sampling and Analysis Plan for each assessment. Typical assessments include numerous individual sediment boring samples that are analyzed for physical attributes, nutrients, organic indicators, metals, PAH's, PCB's, organochlorine pesticides, and dioxins. The resulting data is used to determine how the dredged material can be used or disposed, including possible disposal at Erie Pier. This data is maintained at the USACE's Detroit District Office.

*Disposal Area Material* – Material within the disposal area has been processed and mixed with other material so additional evaluation is needed before it is moved off-site for beneficial reuse. The frequency of these evaluations and the type of material characterizations is project-based and largely dictated by potential end uses. This data is maintained at the USACE's Duluth Office. Because each data set is customized based on specific project needs, a discussion with USACE staff to understand data sets is advised before using the data for other purposes.

*Disposal Area Water* – As discussed in Chapter 5 Water Level, water volume management is anticipated to become an issue in the future. It is useful to have current water quality data available as discharge options are evaluated. The last data set is from October 2011 so

additional sampling and analyses should be planned in the near future. Water quality data is maintained at the USACE's Duluth Office.

*Other Evaluations* – Other environmental data is collected as needed. One example is soil sampling associated with the City of Duluth's snow disposal activities on the Erie Pier dock outside of the disposal area. The City has collected baseline data and post-disposal data following each season of use. Depending on the situation, other project data is maintained at the Duluth Seaway Port Authority Office or the USACE's Duluth Office.

**Site Inspections**

The USACE inspects the Erie Pier facility at least monthly (and as weather allows in the winter) to assure the integrity of the berm system. Erosion problems are addressed in a timely manner. Monthly reports are maintained and included in the DSPA's annual report to the MPCA.

**Maintaining Records**

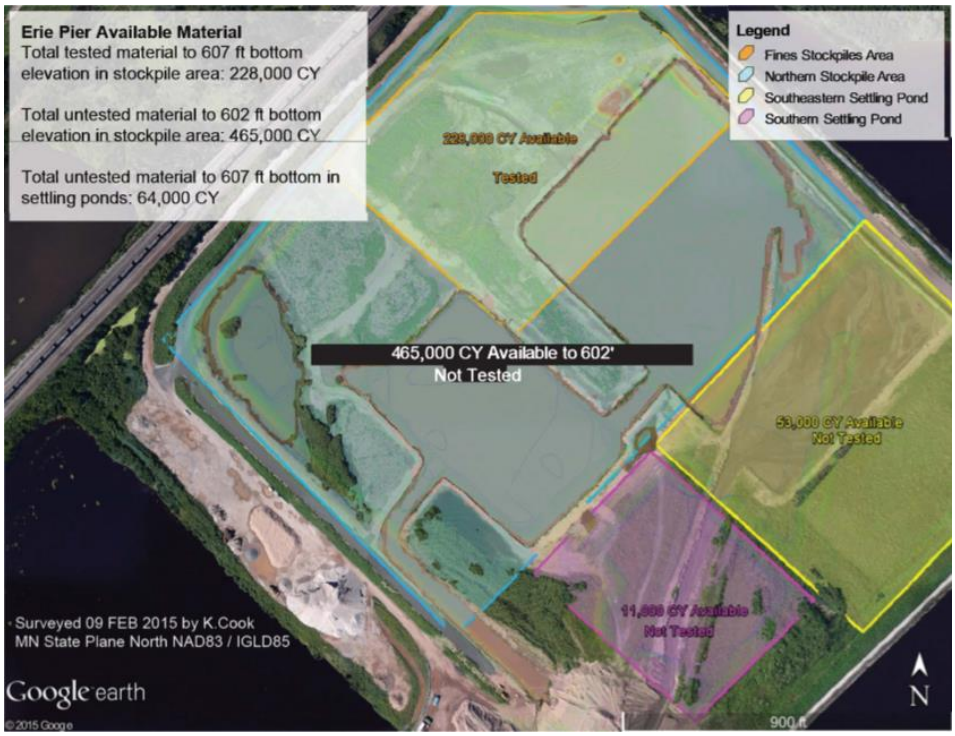
While regulatory controls require records be maintained for three years, the general practice is to preserve all data to the extent practical.

***Recommendation***

7-1) The USACE is encouraged to (if determined to be in accordance with authorities and regulations) develop a database for the Erie Pier dredged material and water data that is maintained at the USACE's Duluth Office. The database should include metadata such as procedures for collecting samples and the purpose of collecting data. A work group may be needed to guide database design and maintenance so it is user friendly and easily updated.

**Figure 6: Erie Pier Capacity**

**Figure 7: Erie Pier Remaining Available Material**



# SECTION 8: CLOSURE AND POST-CLOSURE CARE & OPERATIONS

The purpose of this plan is to prolong the life of the Erie Pier PRF through processing and beneficial reuse of all dredged material. Recognizing the high cost and challenging regulatory environment for constructing a new dredged materials management facility (as noted in Section 9), every effort will be made to continue productive operations and avoid facility closure. While facility closure is unlikely in the foreseeable future, it is worth noting certain requirements for closure and post-closure care. The April 25, 1978 "Agreement Between the United States of America and the City of Duluth and The Seaway Port Authority of Duluth For Local Cooperation at Duluth Harbor, Minnesota" requires the City and DSPA to "Maintain the facility after completion of its use for disposal purposes in a manner satisfactory to the Secretary of the Army." The agreement further states that facility ownership may be transferred to another party after closure.

The State of Minnesota water quality permit lists possible closure requirements including notification of pending closure, development of a closure plan, and establishing a financial assurance mechanism that will ensure any closure obligations, post-closure care and remedial action at the facility occurs. The State would likely evaluate the need for closure requirements following notification of pending closure.

# SECTION 9: ERIE PIER PRF REPLACEMENT COST

The purpose of this section is to show costs associated with developing new PRFs. The information in this section is intended for comparative purposes when considering the value of maintaining capacity in the existing Erie Pier facility and avoiding facility replacement. The information in this section is not meant to imply that the potential for a future PRF exists or that a particular location for a future PRF site is under consideration.

In the development of the USACE 1998 Dredged Material Management Plan (DMMP) for the Duluth- Superior Harbor (April 1999), one of the alternative sites identified for a potential new CDF was the Itasca site. The proposed site was owned by Douglas County at that time and is located along the southern shore of Allouez Bay in the City of Superior. The Itasca site is approximately 32-40 acres in size. The site capacity was estimated at 1,000,000 - 1,300,000 cubic yards, which equates to a 10-13-year life at 100,000 cubic yards per year if no recycling took place. Ideal site capacity should, according to the DMMP, be a 20-year life, with a capacity of 3,000,000 cubic yards, based on 150,000 cubic yards per year. The Itasca site would not provide the ideal capacity, but it was the only alternative site identified in the DMMP.

According to the 1998 DMMP, the estimated cost to develop a CDF the Itasca site was $6 to $8 million. This included the cost of cleaning up an old landfill and assumes minimal land acquisition costs. The total cost did not include social and environmental costs associated with a project of this type. The 1998 DMMP also stated that CDFs built in other areas of the Great Lakes with similar capacities to Erie Pier had construction costs ranging from $6 to $16 million.

Basic adjustments for inflation and volume to achieve a 20-year life capacity gives an **estimated PRF replacement cost of $15 million to $21 million in 2021 dollars.** This estimate is based on a total capacity of 3 million cubic yards, which is consistent with annual maintenance dredging at 110,000 cubic yards annually and with the assumption of backlog reductions over time. The 2021 USACE Operations and Maintenance (O & M) dredging backlog is approximately 3 million cubic yards in the Duluth- Superior Harbor. This estimate does not include external costs such as new environmental and historical considerations and social/cultural issues which could significantly increase costs.

A 2008 study* lead by the University of Minnesota-Duluth, compared the value of maintaining capacity in the existing Erie Pier PRF versus building a new facility. The study concludes (under a very basic analysis) it is slightly less expensive to remove the materials than to build a new facility. However, the analysis further states, "If one considers externality costs, **it is clear that the low-cost alternative is to remove the materials from the site and not wait to build a new facility**."

* Erie Pier Process Re-use Facility Cost Analysis, October 30, 2008, University of Minnesota-Duluth – Labovitz School of Business and Economics

**Recommendations**

9-1) Obtain an engineer's replacement cost estimate for the Erie Pier PRF.

9-2) Obtain funding and conduct a request for proposals to update the October 2008 Erie Pier Process Re-use Facility Cost Analysis with a focus on 2 or 3 viable projects for a detailed transportation analysis.

9-3) Conduct a request for proposals from contractors to operate the PRF and move fine material to beneficial reuse projects.

# SECTION 10: PLAN IMPLEMENTATION, METRICS AND TRACKING

Following the federal policy outlined in the National Dredging Policy, this plan was developed utilizing a cooperative effort of port stakeholders and encourages environmentally sound beneficial reuse of dredged materials. The plan provides specific recommendations (listed below) for Erie Pier PRF operations to facilitate the most cost-effective and operationally sustainable methods of managing dredged materials in the Duluth-Superior harbor.

The overarching recommendation is to pursue funding, regulatory controls and public policies that promote environmentally sound beneficial reuse of dredged material from the Erie Pier PRF with the goal of extending the useful life of the facility indefinitely.

**Section Recommendations**

3-1) The state dredged material acceptance requirements incorporated in the Erie Pier NPDES/SDS permit should be harmonized with federal regulations to avoid additional state/local operating costs for the facility. Harmonization should occur in concurrence with reissuance of NPDES/SDS Permit MN0052612 that expires January 31, 2023.

4-1) Re-evaluate potential markets for fine material to confirm earlier findings and select 2 or 3 viable projects for detail transportation analysis.

4-2) Complete a transportation cost analysis for 2-3 specific projects. Include trucking and railroad representatives to provide local logistical considerations and cost estimates.

4-3) Evaluate Erie Pier access and handling improvements needed to remove 50,000 cu yards of fine material annually.

4-4) Continue road construction projects that improve access to fine material, particularly the road through the fine material stockpile area from east to west.

4-5) Develop and implement a plan to characterize PRF material for in-water habitat improvement projects.

5-1) A long-term strategy for removing excess water from the PRF basin is needed. The DSPA and USACE need to determine if a discharge authorization for the PRF will be necessary. If so, the DSPA and USACE should discuss the process for obtaining a 401 water quality certification for construction and operation of a discharge structure.

6-1) If deemed appropriate and necessary by the USACE and DSPA to remove excess water from the PRF, a 401 Water Quality Certification to discharge of excess water from the facility should be requested from the MPCA. This authorization should occur in

concurrence with reissuance of NPDES/SDS Permit MN0052612 that expires January 31, 2023.

7-1) The USACE is encouraged to (if determined to be in accordance with authorities and regulations) develop a database for the Erie Pier dredged material and water data that is maintained at the USACE's Duluth Office. The database should include metadata such as procedures for collecting samples and the purpose of collecting data. A work group may be needed to guide database design and maintenance so it is user friendly and easily updated.

9-1) Obtain and engineer's replacement cost estimate for the Erie Pier PRF.

9-2) Obtain funding and conduct a request for proposals to update the October 2008 Erie Pier Process Re-use Facility Cost Analysis with a focus on 2 or 3 viable projects for a detailed transportation analysis.

9-3) Conduct a request for proposals from contractors to operate the PRF and move fine material to beneficial reuse projects.

**Next Steps**

Following adoption by the HTAC and concurrence of the MIC Policy Board, the DSPA should lead implementation of the plan beginning with a proposed implementation strategy and schedule of actions for completion with the support of key stakeholders. Suggested actions to implement as top priority recommendations include:

A) Prepare a summary comparison of the dredged material acceptance requirements in the Erie Pier NPDES/SDS permit versus federal regulations and develop a proposal to harmonize the requirements (supporting Recommendation 3-1);

B) Identify funding options to initiate a request for proposals to update the 2008 Erie Pier Process Re-use Facility Cost Analysis with a focus on two or three viable projects for a detailed transportation analysis (supporting Recommendations 4-1, 4-2, and 9-2);

C) DSPA and USACE decide whether it is necessary to develop a discharge option for excess water in the PRF and, if so, develop the specific approach to acquire a Clean Water Act section 401 water quality certification for the discharge (supporting Recommendations 5-1 and 6-1); and

D) Request that the USACE develop a database for the Erie Pier dredged material and water data that is maintained at the USACE's Duluth Office (supporting Recommendation 7-1).

This plan further recommends regular EPMP Implementation Updates at quarterly HTAC meetings, including:

A) Progress on each priority action item;

B) Revised schedule with updated action items; and

C) Specific requests or assignments for HTAC members as appropriate.

# APPENDIX A: ERIE PIER LOCAL COOPERATION AGREEMENT

This Appendix contains a copy of the original "Agreement between the United States of America and the City of Duluth, Minnesota and the Seaway Port Authority of Duluth for Local Cooperation at Duluth Harbor, Minnesota" that was signed April 25, 1978.

To be added