

Master Plan for the Illinois International Port District

Freight and Other Uses Market Assessment

prepared for

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1.0 Introduction

1.1 Study Overview

For 60 years, the Illinois International Port District (IIPD, or the "Port) has provided the connection between manufacturers and industry in the Chicago region and markets throughout the world via the Great Lakes and inland waterway systems of the United States. In addition to being an industrial and freight hub, its approximately 1,800 acres also include a public golf course and numerous undeveloped or underdeveloped parcels that could serve a variety of uses, including industrial, commercial, recreational, or preserved land. The size, geographic location, and ability to support various types of land use of the IIPD means that it holds unique potential to serve as a hub for multiple types of economic development in a historically productive area that has experienced sustained industrial decline over the last half century. In recent years, IIPD has shown that it also views its own success and economic development as part of a broader pattern and opportunity for community development through partnerships with local groups such as the Calumet Collaborative, and engagement efforts such as the annual "State of the Port" address and the unveiling of the E.R.I.C. framework¹.

The Port is at a critical juncture in its existence as a result of a number of factors and regional and national trends that are and will continue to impact the IIPD. Urban population growth, increasing demand for consumer goods, an evolving local manufacturing sector, and peaking congestion throughout the region's primary highway corridors are all factors that influence industrial land use patterns, business location decisions, and freight mode selection, all of which affect the IIPD's future outlook.

1.1.1 IIPD Master Planning Process

In October 2017, the IIPD applied to the Chicago Metropolitan Agency for Planning's (CMAP) Local Technical Assistance (LTA) program for assistance in undertaking an IIPD Master Plan. CMAP's LTA program advances the goals of the ON TO 2050 regional comprehensive plan, which is structured around three principles: inclusive growth, resilience and prioritized investment². As part of this program, CMAP is providing support in the development of the IIPD Master Plan.

This Plan is designed to support the goals of the Port (the E.R.I.C. Initiative)³, ON TO 2050, and the Illinois Department of Transportation's (IDOT) Long Range Transportation Plan. The Plan has four broad aims:

• Look Forward. The IIPD should look beyond legacy users and uses, considering best practices from other ports and multimodal facilities. This plan will facilitate the IIPD in leveraging its strengths and overcoming its obstacles to drive economic growth.

¹ Calumet Collaborative. "The Illinois International Port District's First State of the Port Address." http://www.calumetcollaborative.org/latest-news/the-illinois-international-port-districts-first-state-of-the-port-address

² CMAP (2018) ON TO 2050 Principles, <u>https://www.cmap.illinois.gov/2050/principles</u>

³ Calumet Collaborative. "The Illinois International Port District's First State of the Port Address." http://www.calumetcollaborative.org/latest-news/the-illinois-international-port-districts-first-state-of-the-port-address

- **Be a Catalyst.** The IIPD should work towards systemic and sustainable improvements that align with ongoing activities and needs within the area surrounding the Port. This plan will support the IIPD in becoming a catalyst for economic development and quality of life enhancements in the area.
- Articulate Purpose. The IIPD needs to be visible to its partners and stakeholders. This plan will help educate all about the purpose and opportunity of the Port as a regional resource.
- **Build an Actionable Plan.** The IIPD needs a clear roadmap to a reimagined Port for the 21st Century. This plan will develop a set of implementable actions for the IIPD and its partners.

There are six core elements to the IIPD Master Plan, as shown in Figure 1.1. This Market Assessment report serves as the second element, providing an evaluation of current and future freight flows, a summary of potential freight and industrial opportunities, and a similar summary of potential non-industrial opportunities for the IIPD. This assessment serves as one of several baseline deliverables that will serve as a foundation for developing the full Master Plan.



Figure 1.1 IIPD Master Plan Core Elements

Source: CMAP

The remainder of this report is structured as follows:

• The balance of **Section 1.0** provides an overview of key findings, including potential industrial market capture and potential non-industrial uses at the IIPD;

- Section 2.0 provides an overview of current and future freight flows at the IIPD and surrounding area;
- Section 3.0 discusses opportunities for industrial uses at the IIPD; and
- Section 4.0 discusses opportunities for non-industrial uses at the IIPD.

1.2 Summary of Findings

1.2.1 Key Conclusions

Overall, this assessment found that the IIPD is positioned for growth along multiple potential freight and nonfreight paths based on the following key factors:

The IIPD's strongest freight-related asset is multimodal connectivity. The IIPD's location provides shippers with access to Class I railroads and short lines, interstate highways and expressways (including I94, I80, I57, I90 and I55), as well as the Chicago Area Waterway System (CAWS), which in turn provides navigable connection to the Mississippi River System (MRS) and the Great Lakes System. Although the IIPD is in competition with other industrial properties along the Illinois River, such as in Lemont and Joliet, its location and multimodal connectivity provides a strong competitive advantage.

According to regional freight projections, regional volumes across all modes are expected to grow by an average of 1.7 percent per year. By 2050, freight volumes transported throughout Cook County are expected to total 1.3 billion tons. The IIPD's multimodal connections makes it well positioned to capture growth in rail and water traffic, as well as development of a truck staging or parking facility and/or container storage to support regional freight activities.

- The IIPD has held onto or grown freight volumes during a volatile decade. While overall Illinois waterway volumes have decreased since their peaks in the mid 1990s and a smaller peak following the Great Recession, the IIPD has been somewhat shielded from recent losses of traffic due to its location and commodity mix. The IIPD did experience a 63 percent drop in waterborne tonnage in 2012, but some of this loss was recovered through increases in truck and rail traffic. Since then, waterborne tonnage has continued to increase. As shown in Figure 1.2, the IIPD has been able to retain and even grow traffic levels while regional waterway traffic has decreased. Moreover, the Illinois Department of Transportation (IDOT) projects the highest growth in waterway tonnage in the state to be centered in Cook County, where the IIPD is located. At the same time, the IIPD continues to hold onto its rail and truck related traffic, meaning that traffic levels in 2017 have mostly regained their 2011 values, as shown in Figure 1.3.
- The IIPD handles commodities that are expected to grow in the Chicago region. Trends in growing demand for construction materials, grain shipments, and other commodities are aligned with commodities currently handled at the IIPD. The IIPD is well-positioned to take advantage of these growing markets as it currently handles a substantial amount of construction products such as lumber, steel, and aggregates, and has historically handled grain and other agricultural commodities. Chemicals and allied products (e.g. industrial pigments, synthetic materials, fertilizers, adhesives, dyes, etc.), another regional growth area, is also an opportunity at the IIPD; in addition to petroleum and energy products currently handled at the Port, the IIPD could take on additional chemical products manufacturing due to existing industrial infrastructure, multimodal connectivity, and existing land use and zoning.

- The IIPD has a future beyond freight. Strong regional support for non-industrial uses provides additional opportunities at the IIPD; its size and position in the Calumet Area in Chicago provide opportunities for a variety of commercial, recreational, environmental, and other non-industrial uses. As it stands today, there are a variety of tourism and environment-related developments that could occur in the IIPD area, but much potential development faces significant challenges in the form of needed investment, site remediation, financial feasibility of proposed projects, and needs of the surrounding communities. Smaller projects such as this are a critical part of regional efforts, and can begin the work for creating a more attractive space as the larger projects.
- Environmental remediation and conservation must be part of the IIPD's future. The importance of the Calumet area as a unique environmental habitat has been acknowledged by its inclusion in the Millennium Reserve Program, and several recent awards of grant funding from the Coastal Management Grant Program⁴ and other agencies for conservation work in the area. Environmental groups in the Calumet Area have long campaigned for reclamation of Lake Calumet as a natural environment and habitat for wildlife, similar to other native and re-developed marshes in the region. The *Our Great Rivers* project in 2016 specifically called for the need for stewardship of the IIPD's environmental resources.⁵ One recent activity undertaken by the IIPD in line with these goals is exploring the potential for Square Marsh on the northeast side of Lake Calumet and across from the recently redeveloped Big Marsh Park as a recreation or conservation area.⁶



Figure 1.2 Change in Total Waterways Freight Volumes, 2014-2017

Sources: IIPD; IDOT; USACE Waterborne Commerce Statistics, 2017.

⁴ NWI Times, Calumet Area projects, places set to benefit from Illinois Coastal Management. December 8, 2019. <u>https://www.nwitimes.com/news/local/govt-and-politics/calumet-region-projects-places-set-to-benefit-from-illinois-coastal/article_d7d4bc40-3e3d-5588-9223-c30a94c98c1b.html</u>

⁵ http://greatriverschicago.com/goals/district.html

⁶ https://www.openlands.org/2016/12/05/raising-parks-and-wetlands-from-industrial-sites-along-lake-calumet/



Figure 1.3 IIPD Freight Tonnage by Mode

Source: IIPD, 2019.

1.2.2 Discussion of Findings

In 2017, approximately 760 million tons of goods valued at \$1.6 trillion were transported to, from, through, and within Cook County, with truck and rail freight comprising 93 percent of total tonnage and value. The Chicago Area Waterway System (CAWS), which accounted for seven percent of total traffic by weight, had a disproportionate share of inbound traffic due to its role in bringing in raw materials such as steel, lumber, and aggregates to the region. About six million tons worth \$9 billion dollars moved on the waterway system through Lake Calumet and Calumet Harbor combined, where the IIPD is located. Figure 1.4 shows the location of barge facilities within the Calumet Industrial Corridor, which includes all properties along the Calumet River between IIPD facilities at the mouth of Lake Calumet and Iroquois Landing. There are over 50 private operators providing a variety of freight and maritime services, including shipments of bulk products (e.g., food products, grain), aggregates (e.g., limestone, cement), metals, general warehousing and storage, and mooring/fleeting services.



Figure 1.4 Calumet Industrial Corridor Barge Facilities

Source: U.S. Army Corps of Engineers, 2013, Map by Goodman Williams Group, 2015.

At the IIPD in recent years, traffic volumes have fluctuated between 3.5 to 5 million tons. At a facility the size of the IIPD, variations can occur due to the loss or gain of a few barge or vessel movements, as a typical vessel that can navigate the St. Lawrence Seaway and the Great Lakes can handle up to 30,000 tons per voyage. The commodities handled at the IIPD have become less diverse over time, although metals, petroleum products, and aggregates have remained consistent top commodities. Grain, which was handled in significant volumes in 2011, had all but disappeared until 2015, when it reemerged as a growing market through containerization of grain and ethanol storage. In recent years, the IIPD has also began utilizing its industrial space and rail tracks for storage of containers and railcars.

Despite this positive market outlook, this study found that growth at the IIPD is limited by several key factors, including significant and costly infrastructure investment needs, structural issues (such as long-term lease agreements with terms that are not reflective of current market conditions), regional competition, and strengthening partnerships with regional stakeholders. Price competition between local markets also influences the IIPD's competitiveness. For example, steel imported at Iroquois Landing must compete with shipments that arrive from abroad via New Orleans and shipped upstream via barge into river terminals on the Mississippi or Illinois Rivers.⁷ As the Chicago region has transitioned from an industrial/production hub to a primarily consumption-based economy, the IIPD's legacy industries have continued to operate due to strong localized markets (i.e., "captive" cargo markets) amidst strong competition for discretionary cargo markets from neighboring ports such as Burns Harbor, Indiana, and Milwaukee, Wisconsin, as well as the strong barge and fleeting operations on the Mississippi and Illinois Rivers in locations such as Lemont. These challenges, as well as the opportunities leading to growth potential, are summarized in Table 1.1. The IIPD faces strong competition from other ports, which makes it difficult for the Port to attract businesses that are already being serviced by facilities that have established markets (known as "first mover" advantage).

Critical to the IIPD's future success will be to continue to attract appropriate "champions" for initiatives and investments as they move forward. These champions would serve as partners, identify or provide funding opportunities, and help the IIPD become a first-rate facility and push for higher value businesses. The CREATE Partnership serves as one local example of a program that has been successful in part due to numerous regional champions. Chicago Alderwoman Susan Garza of the 10th Ward, which includes the IIPD, has been a long time champion of increased use of the port for activities that benefit the community and economy, and has provided support and input for this plan as well as other activities. The IIPD should also attract champions within the community that can help the Port better serve the surrounding communities by providing jobs, recreational and community offerings, and minimizing environmental and quality of life impacts. The IIPD's list of champions could include state and local elected officials and agencies and institutions such as the Chicago Department of Transportation and Department of Transportation and Highways, and Illinois Department of Transportation, among others.

This assessment also determined several opportunities for investing in new types of uses at the port. The transport of agricultural commodities throughout Cook County and the broader region are projected to increase through 2050. This provides an opportunity for IIPD tenants to invest in cold storage or "reefer" sheds, which feature additional insulation for better temperature control for fresh and frozen food products. These sheds could compliment a future food manufacturing tenant at the Port or provide a place for staging food products prior to being trucked to grocery stores and restaurants throughout the region. There is also opportunity for the Port to take advantage of the 2016 Illinois state law mandate for renewable energy comprising 25 percent of all electric power by 2025. The cost competitiveness, efficiency, and lower carbon

⁷ "Master Plan Phase I—Marine Cargo Analysis." Illinois International Port District. September 2018.

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footprint of solar and wind-based power production suggests the greatest potential for meeting the state's mandate. The IIPD could both take advantage of this demand for renewables and align with the economy and environmental focus of the Port's E.R.I.C. initiative by hosting rooftop solar, as is being considered at the Port of Rotterdam⁸, or a wind energy terminal, which is being considered at the Port of New York and New Jersey⁹.

Table 1.1Current and Future Freight and Industrial Opportunities and Challenges
at the IIPD

	Current	Future
Opportunities	 Ongoing Calumet Area boom in manufacturing and industrial development Multimodal access that provides for competitive pricing and supply chain resiliency Available land for multiple uses and users Foundational activities to build public and partner support, i.e., E.R.I.C. initiative, State of the Port addresses 	 Projected growth in commodities at the IIPD and those most likely to be in the region (non-metallic minerals, aggregates, chemicals, food and food products) Opportunities for adaptive reuse of existing infrastructure for creative or community-focused purposes Ability to learn from other ports' and facilities' development trajectories Continue to build public support through partnerships and transparency Ability to align opportunities at the IIPD with regional initiatives and funding sources Can play a role in the ongoing 'industrial rebirth' and ongoing environmental and community initiatives of the Calumet Area.
Challenges	 Lack of sustainable funding sources and historically low levels of investment from the public sector, including state, regional and city agencies. Significant infrastructure needs (i.e. dock wall repair) Institutional/structural issues (long-term tenant lease renegotiation, etc.) Lack of existing avenues for partnership with regional agencies Community concerns and historical lack of transparency Ongoing environmental issues and remediation needs 	 Inadequate existing infrastructure to handle potential future growth Need to secure funding for future projects Regional competition from other ports and facilities who have "first mover" advantage over the IIPD Lack of inclusion in City and State economic development and planning initiatives

Strong regional support for non-industrial uses provides additional opportunities at the IIPD. The IIPD has the advantage of not being tied to an exclusively freight future; its size and position in the Calumet Area in Chicago provide opportunities for non-industrial uses. One non-industrial use opportunity for the IIPD is to increase Iroquois Landing's attractiveness as a cruise ship terminal. Investing in the infrastructure necessary to support additional cruise ships has the potential to support and leverage other current and future

⁸ "Solar Power in the Port." Port of Rotterdam. 07/10/2019. <u>https://www.portofrotterdam.com/en/news-and-press-releases/solar-power-in-the-port</u>

⁹ "Port of NY-NJ looks to develop wind energy terminal." JOC.com. 07/15/2019. <u>https://www.joc.com/port-news/us-ports/port-new-york-and-new-jersey/port-ny-nj-looks-develop-wind-energy-terminal_20190715.html</u>

attractions in Southside Chicago, including Harborside International Golf Center, Barack Obama Presidential Center (construction pending), the Pullman Historic District, and hotels, entertainment venues, and other potential future attractions. A complete list of the non-industrial uses examined as part of this study is summarized in Table 1.2.

Expanding use of existing facilities such as the Harborside Golf Course, moving forward with priority projects such as the remediation of Square Marsh and the development of rooftop solar, and other projects that create a stronger recreational and environmentally sustainable use of the IIPD and surrounding regions would be beneficial for the health and wellbeing of Chicago and its residents. As these developments and improvements occur, it would likewise allow for the IIPD to better compete for cruise traffic and other waterborne activities which would diversify the Port's revenue streams and create a more resilient operational structure.

Table 1.2 Summary of Non-Industrial Uses Examined for the IIPD

Non-Industrial Use	Opportunities	Challenges
Harborside International Golf Center	 Increased community programs Caddy academy, junior golf camps or similar offering, particularly focused at at-risk and disadvantaged youth Partnership with the Pullman Athletic Center 	
Great Lakes cruise industry	 Improved IIPD facilities and increased development and marketing of regional attractions to increase market value as port of call 	 Limited existing regional attractions Infrastructure in need of extensive rehabilitation and/or upgrades Need for a "champion"
Conservation and wetlands / ecological restoration	 Ongoing proposals for restoration of Square Marsh as a hemi-marsh 	 Significant environmental contamination and remediation needs Competing development opportunities
Lake Calumet Finger Piers	 Lake Calumet could be used as a new "fill" site for appropriate dredged materials, relieving pressure on current site Would create additional land for future uses 	 Significant environmental and engineering challenges Option was examined and previously discarded by USACE
Bike path and/or multi- use path	 Increased connectivity across Lake Calumet Championed by Active Transportation Alliance and regional agencies, with study in progress 	 Developing an alignment to cross the Bishop Ford and rail tracks to the west Harmonize path with golf course uses Security and safety – separating users from the industrial area
Boathouse/ non- powered watercraft	 Development of boathouse for recreational and club activities Most likely to succeed through partnership with the Parks District, schools and/or rowing clubs 	 Competition with existing boathouses in the Chicago region Water quality
Hotel	 Limited lodging options in the area surrounding the IIPD 	 Would likely be in direct competition with a proposed hotel development in Pullman

Non-Industrial Use	Opportunities	Challenges
	 Could potentially complement other recreational offerings at the IIPD and in the area 	 Strong competition from downtown and suburban Chicago areas, with more local attractions Detailed market assessment and feasibility plan needed
Waterpark or similar entertainment venue	 Development of a family-friendly, community and tourist venue, particularly one that is open year-round 	 Limited parcels available Competing opportunities Detailed market assessment and feasibility plan needed
Industrial tourism	 Opportunity to showcase industrial port infrastructure in line with opportunities at nearby Pullman Historic District and former steel mill sites. Port-related tourism is an increasing draw in the U.S. 	 Safety and security issues Environmental remediation challenges Detailed market assessment and feasibility plan needed
Minimal impact recreational uses	 Festival, concert, or other temporary use in line with community goals Can be undertaken without significant investment 	 No public transit available to site Potential challenge with parking, site access and security for large numbers of people
RV parks	 Minimally-invasive use requiring minimal infrastructure Lack of existing RV parks in the Chicago metropolitan area 	
Repurposing grain elevators	 Adapt abandoned grain elevators into recreational or commercial uses (i.e., climbing, art space, museum, hotel, brewery, etc.) Revenue opportunity for IIPD 	Limited potential for reuseExpensive to convertSafety/security

2.0 Current and Future Freight Activity

This section discusses current and future freight activity in and around the IIPD. The IIPD is located within the City of Chicago, Cook County, Illinois. Chicago is part of the Chicago Metropolitan Agency for Planning (CMAP) region, which comprises seven Illinois counties—Cook, DuPage, Kane, Kendall, McHenry, and Will. The following subsections briefly describe the freight infrastructure throughout the CMAP region and at the IIPD, regional current and projected freight volumes in Cook County, characteristics of domestic vs. international traffic, and freight activity at the IIPD. Data on freight activity is typically available at the County level, though the level of detail does vary based on data source and type.

2.1 Freight Transportation Facilities and Networks

The CMAP region features a robust network of highways, railroads, intermodal and transload facilities, navigable waterways, and cargo-handling airports.¹⁰ As reported by CMAP, this infrastructure handles about a quarter of all freight in the nation, as Chicago is a key hub for multimodal freight, as well as the third largest economy in the nation., While freight facilities are located throughout the region and in neighboring Porter County and Lake County, Indiana, about half of the region's freight facilities are housed within the City of Chicago. This clustering allows for numerous connections between modes, especially truck-rail transfers at intermodal centers. In part thanks to these connections, the freight network helps support one of the largest industrial activity centers in the U.S., with approximately 1.1 billion square feet of industrial development related to freight and manufacturing activity.¹¹

2.1.1 Highways

The CMAP region's 30,000 miles of highways include interstate highways, National Highway System (NHS) intermodal connectors, and other NHS roadways. More than half of all freight moved in the CMAP region travels by truck on the region's highways and arterial streets.¹² As reported by IDOT, the region's expansive interstate highway system carries the highest traffic volumes, with many sections carrying more than 150,000 vehicles per day. The IIPD is directly linked on the west side to I-94, which in turn connects to I-80 and I-57 to the South, I-90 and I-55 to the north, and numerous other expressways within the Chicago region.

2.1.2 Waterways

In terms of waterway assets, the CMAP region is home to over 100 miles of navigable waterways and has the sole navigable connection between the Mississippi River System (MRS) and the Great Lakes System in the United States via the Calumet River and T.J. O'Brien lock¹³. These waterways provide connections to domestic and international markets via the Gulf of Mexico and Saint Lawrence Seaway. There are 54 non-

¹⁰ A full description of the IIPD's assets, facilities, and uses, as well as IIPD connections to regional freight transportation infrastructure, is discussed in the Chicago Metropolitan Agency for Planning, "Master Plan for the Illinois Port District: Existing Conditions" Report (2020).

¹¹ Chicago Metropolitan Agency for Planning, *The Freight System: Leading the Way*, May 2017, <u>https://www.cmap.illinois.gov/documents/10180/517119/FY17-0095+Freight+Snapshot/3ae1174d-d8f4-4005-8a9f-e02eb87eeac2</u>.

¹² https://www.connectingcookcounty.org/implementation/CC_FreightPlan_DEC4_FINALv5lr.pdf

¹³ This is true for commercial freight traffic. Commercial passenger traffic as well as recreational craft can use the Chicago Lock located at the mouth of the Chicago River in downtown Chicago, which does not allow barges or vessels.

IIPD barge facilities along the Calumet Industrial Corridor.¹⁴ In recent years, the primary waterway flows have been inbound into the region from origin markets along the MRS, Great Lakes, Canadian and overseas markets.

Despite the IIPD's strong connection to regional waterways, one of its biggest challenges in attracting and retaining port users and tenants is the state of the Port's infrastructure. This includes docks, seawalls, roads, warehouses, and other aging facilities throughout Iroquois Landing and Lake Calumet, which affect capacity and freight volume potential. However, waterway infrastructure also needs to be improved along all of the MRS and Great Lakes inland waterways to ensure reliable freight transportation. Lock infrastructure faces significant challenges as over one-third of vessel movements experience delay due to the length and width of the lock chambers in the broader Chicago region, and vessels experience significant delays due to periodic unscheduled and schedules lock closures. Dredging is a continual challenge, as it is needed to create sufficient water depth in the Calumet River and Harbor. Although the U.S. Army Corps of Engineers is aware of major rehabilitation needs, funding is limited and inland waterways locks typically are not repaired until failure of critical systems. Overhead structures are another infrastructure concern as low clearance bridges sometimes cause inefficient vessel rerouting to ensure safe passing. Recently, record high and record low water levels in the inland waterway system further exacerbated infrastructure clearance issues. All of these factors affect reliability, which is a critical issue to shippers and may keep some companies from considering waterways as a modal option for handling their traffic.

2.1.3 Rail

There are approximately 3,900 miles of rail lines in the CMAP region, radiating outward from the dense core in the City of Chicago. Chicago is North America's primary rail interchange point, with approximately onequarter of all freight trains and one-half of all intermodal trains passing through the region.¹⁵ The IIPD is connected, via Chicago's railway infrastructure, to six of the seven Class I long-haul rail carriers serving North America. Specifically, the IIPD is served by Norfolk Southern (NS) Railway, which has direct service into the eastern side of the Lake Calumet properties, Canadian National (CN) Railroad at Iroquois Landing, and a short line railroad, the Chicago South Shore and South Bend (CSS) in the west and south side of the Lake Calumet properties.

The rail network in the CMAP region is nationally significant and bottlenecks here disrupt both regional and national commerce, impacting freight movements across the U.S. Due to the density of the network and convergence of multiple rail operators and types of service, there are numerous places where chokepoints or congestion negatively affect both freight and passenger rail service throughout the greater Chicago rail network. One particularly problematic area of congestion in the Calumet Area is Pullman Junction, which is within the Belt Railway of Chicago's Commercial Avenue Yard, where trains traveling both eastbound and westbound to/from the NS Chicago Subdivision often must wait for cross traffic to clear, creating significant mainline congestion. This bottleneck, along with many others located throughout the Chicago region, are in

¹⁴ Chicago Department of Planning and Development, 2015. Industrial Usage of the Chicago Area Waterway System.

¹⁵ https://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/update-on-freight-rail-activity

the process of being addressed as part of the CREATE Program¹⁶, which recently received federal grant funding to improve the infrastructure at the Junction.¹⁷

Freight rail congestion is further complicated by the presence of passenger train service operated by Metra and Amtrak. In the Chicago area, freight rail operators must yield right-of-way to passenger trains during morning and afternoon peak periods. Although this is an operational measure to limit the public impacts of freight traffic, it subsequently increases operational challenges for freight operators as it limits the hours and routes on which they may operate. As both passenger services have increased in volume over the years, the capacity for the rail network to accommodate anticipated additional traffic has decreased. Some passenger lines operate at very high volumes, with as many as 50 to 60 passenger trains each day, reducing the availability of the tracks for freight traffic.

¹⁶ The CREATE Program is a partnership between the U.S. Department of Transportation, State of Illinois, Cook County, City of Chicago, Metra, Amtrak, and Class I Railroads to identify and invest billions of dollars into critically needed improvements. These projects are intended to increase the efficiency of the region's passenger and freight trail infrastructure and enhance the quality of life for Chicago-area residents. More information on the program is available at: http://createprogram.org/.

¹⁷ <u>http://createprogram.org/grants.htm</u>





Source: CMAP, 2018

2.1.4 Multimodal Terminals and Facilities

Intermodal terminals are facilities where containers and trailers are transferred between trucks and rail. Intermodal containers have typically not been used on the inland waterway system, though some containeron-barge (COB) operations do move small numbers of containers from barge to truck or rail. Overall, intermodal volumes (measured in "lifts") in the CMAP region increased substantially from 2000 to 2017, as shown in Figure 2.2. The CMAP counties with intermodal facilities include Cook and Will. Ogle County is also included in the data as host to UP's Rochelle Intermodal terminal, which was closed in 2019. During this period, the volume of intermodal lifts in the region increased from roughly 5.7 million lifts to nearly 8.0 million lifts annually. These 7.8 million lifts translate to an estimated 17.5 million twenty-foot equivalent units (TEUs). Interestingly, while Iroquois Landing was originally a container terminal, moving about 10,000 containers a year in 1979, the site no longer handles container traffic.¹⁸





Source: Analysis by CMAP using data provided by Railroad Companies and the Surface Transportation Board(STB)

The CMAP region hosts numerous additional facilities for transloading goods between rail, highway and water, including those that operate at the IIPD. Transloading entails the transfer of goods, primarily bulk or break-bulk products, from one mode to another using equipment such as conveyors, pumps, vacuums, blowers, and forklifts to transfer materials between highway and rail vehicles.

Information on transload facilities is notoriously hard to capture and maintain, as they require little infrastructure and equipment can often be repurposed or moved. Hence, a transload facility can spring up virtually overnight to meet demand only to disappear when it fails to meet market need. Per a December 2018 Bulk Transporter¹⁹ directory, the CMAP region hosts twelve public transloading facilities, of which Cook

¹⁸ https://www.nytimes.com/1979/04/23/archives/chicago-port-investing-to-regain-cargo-trade-chicago-port-investing.html

¹⁹ "Illinois Bulk Transload Facilities Directory." Bulk Transporter. December 31, 2019. Available from: https://www.bulktransporter.com/resources/transload-directory/article/21655888/illinois-bulk-transload-facilitiesdirectory

County leads with eight, and Will and DuPage with two each. Of the eight facilities located in Cook County, four are located within or near the Calumet Area, including the Calumet Container Corporation at the IIPD.

2.2 Regional Freight Volumes

This section discusses the current and projected future freight volumes in Cook County, using a 2017 base year and 2050 forecast year. The focus of the freight portion of this market assessment is on freight moving by truck, rail, intermodal containers, inland waterway barges and ocean going vessels. This market assessment leverages several key studies and data sources to describe current and future freight flows throughout Cook County and the IIPD area. Those data sources include:

- The **2018 Cook County Freight Plan**²⁰ takes an in-depth look at the current performance of the freight system in Cook County, including a complete assessment of freight tonnage and value by mode throughout the County using IHS Markit Transearch freight flow data. This report uses these published findings as a base for the truck and air cargo assessments, as well as for developing the 2050 forecasts for all modes.
- The **Surface Transportation Board (STB) Public Use Waybill Sample (PUWS)** is a non-proprietary version of the confidential STB Carload Waybill Sample. The STB collects the data under the requirements that all U.S. railroads that terminate more than 4,500 revenue carloads must submit a yearly sample of terminated waybills. The PUWS includes origin-destination rail flows, commodities, volumes, service type, and was used to evaluate rail flows throughout Cook County in 2017. The STB reports origins and destinations as business economic areas (BEA)²¹; and both this study and the Cook County Freight Plan use the BEA as the basis for rail analysis, acknowledging that the significant majority of the activity occurs in Cook and immediately surrounding counties.
- The **U.S. Army Corps of Engineers (USACE) Waterborne Commerce Statistics Center** data, provided by the Illinois Department of Transportation (IDOT), provides state-to-state commodity movements data for 2017. This dataset provides waterways tonnage estimates by origin/destination, commodity group, and additional detail about whether the freight interacted with coastal ports, inland waterways ports, or Great Lakes ports.

2.2.1 Current Regional Freight Volumes

In 2017, approximately 760 million tons of goods were transported to, from, through, and within Cook County. Together, these goods had a combined value of approximately \$1.6 trillion. Figure 2.3 shows the tonnage of goods transported in the region by mode in all directions, and Figure 2.4 shows the breakdown of value by mode. Trucks moved over half of all goods in terms of tonnage and value, and rail accounted for 40 percent of all goods by tonnage and 39 percent by value. Transportation by air accounted for the movement of nearly four percent of all goods by value but just 0.1 percent by weight, reflecting its suitability for low-weight, high-value commodities. Waterway traffic on the CAWS accounted for the movement of seven percent of all goods by weight and three percent by value. About six million tons worth \$9 billion dollars moved on the waterway system through Lake Calumet and Calumet Harbor combined, which is where the IIPD is located.

²⁰ <u>https://www.connectingcookcounty.org/implementation/freight.php</u>

²¹ Counties included in the Chicago BEA region include: Boone, Bureau, Carroll, Cook, De Kalb, De Witt, Du Page, Grundy, Iroquois, Jasper (IN), Kane, Kankakee, Kendall, Kenosha (WI), La Porte (IN), La Salle, Lake, Lake (IN), Lee, Livingston, McHenry, McLean, Newton (IN), Ogle, Porter (IN), Putnam, Rock (WI), Stephenson, Will, and Winnebago.



Figure 2.3 Cook County Freight Tonnage by Mode, in Thousands of Tons, 2017

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).





Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).

When examining freight flows by direction, the Chicago region's importance as a national hub for freight traffic becomes apparent: 54 percent of all traffic by weight and 47 percent by value consisted of traffic that passed through Cook County without stopping (this is known as "through" traffic). For goods moving to/from the Chicago region, there was a slightly higher share of inbound traffic compared to outbound traffic (20 percent versus 13 percent for weight and 23 percent versus 19 percent for value), indicating Chicago's increasing shift towards a population-driven and consumption-based economy. Figure 2.5 shows the tonnage of commodities by mode and direction, and Figure 2.6 shows the same breakdown for value.

The data show that truck and rail freight accounted for a large portion of overall freight traffic; together they comprised 93 percent of all tonnage and value in Cook County. The CAWS, which accounted for only seven percent of total traffic by weight, has a slightly higher share of inbound traffic due to its role in bringing in raw materials such as steel, lumber, and aggregates to the region. Smaller amounts of outbound and intraregional traffic move via the CAWS; however there is very little through traffic on the waterway.

Figure 2.5 Cook County Freight Tonnage by Mode and Direction, in Thousands of Tons, 2017



Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).



Figure 2.6 Cook County Freight Value by Mode and Direction, in Millions of Dollars, 2017

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).

The top commodities shipped in Cook County by tonnage are shown in Figure 2.7, and the top commodities by value are shown in Figure 2.8. By both weight and value, secondary traffic was the top commodity in 2017. Secondary traffic reflects the movement of shipments between warehouses and stores, rather than direct from a manufacturer, and is almost exclusively moved by trucks given the logistical nature of the product. Other top commodities move via a combination of truck, rail, and a smaller amount via water and air. These include: nonmetallic minerals, which includes materials such as sand and aggregates; food or kindred products; and chemicals or allied products.

Secondary traffic is also the top regional commodity by value, followed by chemicals or allied products, transportation equipment, and food or kindred products. High value commodities are more likely to move via truck or air, with the exception of chemicals and nonmetallic minerals which are primarily moved via rail, with a small portion moving via truck and water.

Historically, coal was a key commodity traveling via both water and rail, destined for the CMAP region's electric power generating facilities and steel producers. However, today only two integrated steel mills remain, both located in Indiana, and coal fired power generating stations continue to cease operations nationwide, with none remaining in operation in the CMAP region. The reduction in coal traffic has led to an overall reduction in waterway and rail traffic, though much of the difference has been made up by intermodal container traffic on the rail side, and increased shipments of chemicals, food, aggregates and mineral products by both rail and water.

Figure 2.7 Cook County Top Commodities of Freight by Tonnage, in Thousands of Tons, 2017



■Truck ■Rail ■Water ■Air

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).

Figure 2.8 Cook County Top Commodities of Freight by Value, in Millions of Dollars, 2017



■Truck ■Rail ■Water ■Air

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).

2.2.2 Future Regional Freight Volumes

Cook County freight volumes are expected increase at a rate of 1.7 percent per year, from 760 million tons in 2017 to 1.3 billion tons in 2050, as shown in Figure 2.9. Trucks are expected to be the continued preferred mode of transport. However, air cargo is anticipated to see the highest growth rates at 3.7 percent by tonnage, resulting more than doubling by 2050, reflecting significant expected growth in the manufacturing and transport of high-value commodities. Truck and rail freight are expected to grow more moderately by about 1.7 percent per year, whereas waterborne freight is projected to grow by 1.5 percent annually. Overall, by 2050 Cook County is expected to move 740 million tons of freight by truck, 572 million tons by rail, 28 million by water, and 1.5 million tons by air.

The value of freight moved in Cook County is also expected to increase, from \$1.6 trillion in 2017 to \$3.5 trillion in 2050, as shown in Figure 2.10. This represents an overall growth of 116 percent and an annual growth rate of 2.4 percent. The value of truck freight is expected to more than double, from \$893 billion to nearly \$2.1 trillion in 2050, which reflects an annual growth rate of 2.6 percent. Both rail and water freight are also expected to grow significantly—1.6 percent annually and 1.8 percent annually, respectively. The growth in the value of truck commodities is being driven by foreign imports and exports; although they comprise a relatively small share of truck freight moving in Cook County, the annual growth rate for some commodities—notably furniture, machinery, and chemicals—is projected to be as high as 6.7 percent. For waterways commodities, the growth in value is being driven by domestic inbound shipments, particularly food or kindred products, nonmetallic mineral products, and lumber or wood products.



Figure 2.9 Cook County Total Freight Tonnage by Mode, in Thousands of Tons, 2017-2050

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).



Figure 2.10 Cook County Total Freight Value by Mode, in Millions of Dollars, 2017-2050

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).

The types of commodities transported into, out of, and within Chicago are expected to largely remain the same in 2050 as they were in 2017, with growth in all commodities except coal, which is projected to decline in overall tonnage. The fastest-growing commodities in Cook County are expected to include chemicals or allied products, mixed miscellaneous shipments (i.e., intermodal containerized freight), aggregates (e.g., clay, concrete, glass, stone), and transportation equipment. Table 2.1 presents the current and projected volumes for Cook County's top freight commodities by tonnage, and Table 2.2 presents the current and projected values of the region's top freight commodities by value.

Truck traffic is expected to grow at a rate of 2.6 percent by value annually, Increases in truck traffic are expected to be primarily driven by secondary traffic, which represents most goods delivered to retail stores and consumers. Other fast-growing truck commodities include transportation equipment (2.9 percent annual growth) and clay, concrete, glass, or stone (2.5 percent annual growth), all of which are largely associated with projected increases in population..

Commodities shipped by rail tend to be less time sensitive than truck movements, and grow at a more moderate rate overall. However, some commodities are expected to grow as quickly as those moved by truck; by 2050, the top commodities moved by rail are anticipated to be mixed miscellaneous shipments (154 million tons) and chemicals or allied products (145 million tons), which are projected to grow at annual rates of 2.5 percent and 2.6 percent, respectively. Strong growth is also expected for clay, concrete, glass, or stone (2.5 percent annual growth) and transportation equipment (2.3 percent annual growth).

Waterway shipments, which represent the heaviest and least time sensitive goods, are expected to grow at an overall rate of 1.8 percent by value annually. The top commodity by weight is expected to be nonmetallic

minerals, comprising nearly 7.9 million tons, followed by clay, concrete, glass, or stone at nearly five million tons. Other fast-growing by comparatively smaller commodities include food or kindred products (4.6 percent annual growth), lumber or wood products (3.7 percent annual growth), and machinery (3.3 percent annual growth). It should be noted that growth projections represent a substantial shift from the observed trend of waterborne commerce in the Chicago region, which have seen a general decline since 1990.

Air cargo freight is expected to continue supporting the movement of low-weight, high value commodities into 2050. The top commodity by weight is chemicals or allied products (104,000 tons), which includes pharmaceuticals and other biological and drug products. The most valuable product expected to be moved by air is electrical equipment (\$127.4 billion), which includes highly valuable computer parts, cell phones, and other electrical equipment shipped at relatively low weights.

Table 2.1Cook County Current and Future Top Freight Commodities by Mode, in Thousands of Tons, 2017-
2050

		Truck			Rail			Water			Air			Total	
Commodity	2017 Tons	2050 Tons	CAGR	2017 Tons	2050 Tons	CAGR	2017 Tons	2050 Tons	CAGR	2017 Tons	2050 Tons	CAGR	2017 Tons	2050 Tons	CAGR
Secondary Traffic	100,793	198,413	2.1%	3,406	5,735	1.6%	_	_	0.0%	34	_	-100%	104,232	204,245	2.1%
Chemicals or Allied Products	17,781	35,657	2.1%	61,570	145,211	2.6%	2,625	4,253	1.5%	24	104	4.5%	81,999	185,225	2.5%
Nonmetallic Minerals	51,876	69,874	0.9%	24,746	32,048	0.8%	4,562	7,859	1.7%	—	_	0.0%	81,184	109,781	0.9%
Food or Kindred Products	46,863	81,920	1.7%	30,132	57,434	2.0%	52	231	4.6%	7	26	3.9%	77,054	139,610	1.8%
Misc. Mixed Shipments	—	—	0.0%	67,222	154,146	2.5%	11	11	0.0%	—	_	0.0%	67,233	154,157	2.5%
Farm Products	41,762	75,056	1.8%	16,156	25,864	1.4%	332	287	-0.4%	6	15	2.9%	58,256	101,222	1.7%
Coal	—	—	0.0%	48,419	24,995	-2.0%	431	86	-4.8%	—	—	0.0%	48,850	25,082	-2.0%
Petroleum or Coal Products	33,780	34,041	0.0%	7,545	8,183	0.2%	3,328	4,324	0.8%	—	_	0.0%	44,653	46,548	0.1%
Waste or Scrap Materials	35,234	59,500	1.6%	2,976	3,601	0.6%	851	1,670	2.1%	—	_	0.0%	39,061	64,771	1.5%
Clay, Concrete, Glass or Stone	23,569	53,817	2.5%	3,190	7,294	2.5%	2,218	4,981	2.5%	—	_	0.0%	28,977	66,092	2.5%
Transportation Equipment	7,665	19,748	2.9%	16,405	34,717	2.3%	6	10	1.5%	25	86	3.8%	24,101	54,561	2.5%
Primary Metal Products	9,112	14,021	1.3%	11,574	16,783	1.1%	2,195	3,093	1.0%	5	15	3.3%	22,885	33,911	1.2%
Pulp, Paper or Allied Products	8,634	13,559	1.4%	6,688	9,857	1.2%	0	0	0.0%	—	_	0.0%	15,323	23,417	1.3%
Lumber or Wood Products	8,424	10,998	0.8%	7,813	16,620	2.3%	119	395	3.7%	—		0.0%	16,356	28,013	1.6%
Rubber or Misc. Plastics	8,179	16,865	2.2%	1,528	2,573	1.6%	18	29	1.5%	14	54	4.3%	9,738	19,521	2.1%

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).

	Truck		Rail			Water				Air		Total			
Commodity	2017 Value	2050 Value	CAGR	2017 Value	2050 Value	CAGR	2017 Value	2050 Value	CAGR	2017 Value	2050 Value	CAGR	2017 Value	2050 Value	CAGR
Secondary Traffic	\$370,601	\$743,225	2.1%	—	_		_	_	0.0%	—	_	0.0%	\$370,601	\$743,225	2.1%
Chemicals or Allied Products	\$55,753	\$147,213	3.0%	\$243,058	\$409,281	1.6%	\$4,551	\$7,443	1.5%	\$5,898	\$29,972	5.0%	\$309,261	\$593,909	2.0%
Transportation Equipment	\$70,825	\$201,517	3.2%	\$140,067	\$235,856	1.6%	\$66	\$107	1.5%	\$7,136	\$24,934	3.9%	\$218,093	\$462,414	2.3%
Food or Kindred Products	\$76,863	\$150,602	2.1%	\$23,202	\$47,567	2.2%	\$67	\$296	4.6%	—	_	0.0%	\$100,132	\$198,465	2.1%
Electrical Equipment	\$46,727	\$194,115	4.4%	\$5,128	\$8,635	1.6%	—	_	0.0%	\$21,750	\$127,410	5.5%	\$73,605	\$330,160	4.7%
Machinery	\$61,528	\$219,794	3.9%	\$3,447	\$5,805	1.6%	\$33	\$95	3.3%	\$4,229	\$20,537	4.9%	\$69,237	\$246,230	3.9%
Rubber or Misc. Plastics	\$34,845	\$76,496	2.4%	\$9,352	\$15,747	1.6%	\$74	\$121	1.5%	\$470	\$1,795	4.1%	\$44,740	\$94,158	2.3%
Primary Metal Products	\$24,815	\$42,995	1.7%	\$11,809	\$19,884	1.6%	\$3,623	\$6,467	1.8%	\$513	\$1,312	2.9%	\$40,759	\$70,658	1.7%
Fabricated Metal Products	\$25,290	\$53,996	2.3%	\$1,452	\$2,445	1.6%	\$1,042	\$2,676	2.9%	\$480	\$1,589	3.7%	\$28,264	\$60,706	2.3%
Farm Products	\$22,223	\$61,201	3.1%	\$7,089	\$13,670	2.0%	\$131	\$116	-0.4%			0.0%	\$29,443	\$74,987	2.9%
Pulp, Paper or Allied Products	\$13,385	\$21,896	1.5%	\$9,844	\$16,576	1.6%	-	-	1.5%		_	0.0%	\$23,229	\$38,472	1.5%
Petroleum or Coal Products	\$14,746	\$14,741	0.0%	\$16,309	\$27,462	1.6%	\$905	\$1,147	0.7%		_	0.0%	\$31,961	\$43,350	0.9%
Apparel or Related Products	_	_	0.0%	\$17,094	\$11,377	-1.2%	_	_	0.0%		_	0.0%	\$17,094	\$11,377	-1.2%
Misc. Manufacturing Products	_	_	0.0%	\$3,788	\$6,378	1.6%	\$393	\$642	1.5%	\$11,700	\$52,712	4.7%	\$15,881	\$59,733	4.1%

Table 2.2 Cook County Current and Future Top Freight Commodities by Mode, in Millions of Dollars, 2017-2050

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2017 (water).

2.3 IIPD Freight Volumes and Analysis

The IIPD is one of the largest ports in Illinois both by tonnage and size, with a 27-foot channel depth at Iroquois Landing and Lake Calumet. Historically, the IIPD functioned primarily as an inland waterway port; however recent years have seen significant increases in rail and truck traffic, increasing the diversity and true multimodal nature of the facility. With its location in the Great Lakes and connection to the Inland Waterway System, the Port is in a unique position to service as a hub for international vessels, MRS barges, Class I and short line railroads, and trucks. This provides businesses located at the IIPD unparalleled opportunities both for transloading as well as multimodal supply chains. While the IIPD handles a mix of truck, rail, and waterways traffic, it has the most potential to increase volumes by rail and water given the current commodity mix, growing demand for intermodal and containerized shipments (discussed in Section 3.1.7), and high levels of current and projected roadway congestion, among other factors. This section provides additional context to support the market capture assessment for the IIPD.

This subsection summarizes recent freight volumes at the IIPD, as reported by the facility. It also provides context and analysis of markets and trading partners, domestic and international traffic, and broader trends on the Chicago Area Waterway System (CAWS), MRS, and Great Lakes. Often these data are available at varying scales and timeframes; each subsection details the scope of the data used and relationship to the IIPD.

2.3.1 IIPD Freight Volumes

The IIPD consists of two major locations: Iroquois Landing and Lake Calumet. Iroquois Landing is located at the mouth of the Calumet River, providing the IIPD with access to vessel services via the Great Lakes and St. Lawrence Seaway. About half of all tonnage at Iroquois Landing is moved by rail, 29 percent by Great Lakes and ocean vessels, and 16 percent via inland waterways barges, with the remaining four percent of tonnage moved by truck. This is because Iroquois Landing's location makes it attractive to foreign and domestic imports, which comprise the majority of inbound/outbound tonnage. By contrast, Lake Calumet area facilities are situated further away from the Great Lakes and face logistical cost disadvantages for waterways movements compared to Iroquois Landing. For example, the relatively lower drafts within Lake Calumet and the Calumet River compared to the Great Lakes means that cargo must be moved from a deep draft ocean vessel to a barge prior to final discharge at an inland waterway facility, particularly at times of low water levels. Due to its position, Lake Calumet facilities serve a mix of domestic barge, rail, and truck traffic.

Freight traffic at the Port has fluctuated over the past several years, ranging from approximately 3.5 million tons to five million tons, as shown in Figure 2.11. An initial drop of traffic between 2011 and 2012 was primarily due to a loss of waterway traffic over that time period. At a facility the size of the IIPD, significant variations will be evident with just the loss or gain of a few barge or vessel movements; a typical Great Lakes vessel handling 30,000 tons would represent roughly .6% to .8% of total volume handled in recent years. Notably, between 2011 and 2014 the volume of truck/rail traffic has increased and held relatively steady since. Between 2011 and 2017, waterways-only traffic at the IIPD has declined by nearly 40 percent, with some of that volume shifting to truck and rail for an overall decrease of two percent during this period.



Figure 2.11 IIPD Freight Tonnage by Mode

The commodities handled at the IIPD has evolved over time. Figure 2.12 presents the commodity mix of traffic across all modes at the IIPD for all tenants from 2011 to 2017. Most notably, the diversity of products has decreased during this period, although metals, petroleum products, and aggregates have remained consistent top commodities. Grain tonnage was significant in 2011, but had all but disappeared until its reappearance in 2015, and by 2017 it appeared to be a growing market. While summary data is not available for more recent years, interviews with IIPD tenants noted that grain is a promising market with long-term potential, particularly through its containerization for export. Ethanol is another big driver of the recent growth in activity at the Port. Ethanol is brought in by barge, rail, and truck and then stored before being distributed to markets in the Midwest and Canada by the same modes. Metals activity was also at its highest levels in 2017 at 2.2 million tons.

Figure 2.13 presents the marine-only tonnage moved at the IIPD during the same time period. There is an even greater lack of diversity in commodities after 2011, when marine tonnage was at its highest. Metals and aggregates continued to be shipped by water, with nonmetallic minerals, grains, and lumber emerging as potential growth markets.

The top overall commodity at the IIPD by tonnage is metals—which includes steel, aluminum, copper, pig iron, and other manufactured metal parts and shapes—which was not included in the CMAP region's top 10 commodities. However, the IIPD moves a considerable volume of non-metallic minerals and other aggregates such as cement and concrete, which are significant commodities in the CMAP region, primarily moved by truck. As the Chicago region has transitioned from an industrial/production hub to a primarily consumption-based economy, the IIPD's legacy industries have continued to operate due to strong localized markets amidst strong competition from neighboring ports such as Burns Harbor, Milwaukee, and Lemont.

Compared to the CMAP region overall, the IIPD commodity flows include more bulk products and raw materials arriving inbound for processing, whereas the regional traffic flows have a higher proportion of intermediate and consumer goods. Secondary traffic (primarily goods moving between warehouses and retail

Source: IIPD, 2019.

stores) is the top commodity in the CMAP region, which is not present at the IIPD at all because there is no warehousing currently on-site that serves retail markets. Another of the CMAP region's top commodities is miscellaneous mixed shipments, of which roughly half consists of containerized imported goods, which are not handled or processed at the IIPD, either via rail or container-on-barge.


Figure 2.12 IIPD Total Tonnage by Commodity

Source: IIPD, 2019. Note: "Misc." category includes coal products, railroad cars, aqueous waste, and other unclassified products.



Figure 2.13 IIPD Waterway-Only Tonnage by Commodity

Source: IIPD, 2019. Note: "Misc." category includes coal products, railroad cars, aqueous waste, and other unclassified products.

2.3.2 Freight Trends by Trading Partners

Waterway Accessible Markets

The IIPD's position on the Calumet River and Lake Calumet provide access to a number of key domestic and international markets via the waterway systems. Figure 2.14 shows the tonnage moving to and from facilities on the Calumet River and Lake Calumet (inclusive of the IIPD) via the Great Lakes and Inland Waterways. About 80 percent of the goods moving to and from these facilities are domestic; the remaining 20 percent consists of Canadian and European imports, with a very small amount of exports. The region primarily received goods from origin markets along the inland waterways system, Great Lakes, and overseas and Canadian markets. The largest volume of freight flows arrived inbound via the MRS, approximately 2.6 million tons or 32 percent of the total volume. These flows primarily comprised various base and manufactured metals and aggregates such as sand and gravel flowing northbound from southern ports. The region also received approximately 1.8 million tons from trading partners on the Great Lakes, primarily producers of asphalt, cement, concrete, limestone, and petroleum coke.

The Calumet River and Lake Calumet waterways also received a significant proportion of freight from overseas and Canadian markets, approximately 617,000 tons and 908,000 tons, respectively. These flows primarily comprised vessel movements from Canada and Eastern Europe. Goods from Canadian producers include non-metallic minerals and fabricated metal products, while goods from overseas were almost entirely primary metals in the form of bars and other shapes.



Figure 2.14 Calumet River and Lake Calumet Facilities Tonnage by Trading Partner Region, 2017

Outbound Inbound

Source: USACE, 2017; Illinois Department of Transportation (IDOT).

Outbound shipments from the Calumet River and Lake Calumet comprised about one-quarter of all waterborne flows in this region. Shipments to destinations on the MRS comprised about 1.1 million tons of

scrap metal, slag, and agricultural products such as wheat and soybeans. Outbound shipments to Great Lakes customers included aggregates and iron. There was a small amount of chemical products shipped to coastal ports as well as agricultural products shipped to overseas markets.

Rail Accessible Markets

The dense rail network throughout the Chicago Metropolitan region facilitates trade with most important rail markets across North America, which connect the Port to critical domestic and international trade hubs. The region's top rail trading partner by tonnage and value in 2017 was the Los Angeles-Riverside-Orange County region, which is a business economic area (BEA) as defined by the Surface Transportation Board (STB), as shown in Table 2.3. Traffic coming to Chicago by rail from this region primarily consists of containerized cargo from the Ports of Los Angeles and Long Beach. There is also a significant amount of rail freight moving from the New York metropolitan region, which includes the Port of New York and New Jersey, the largest port on the east coast. Notably, the majority of top markets in terms of both tonnage and value are domestic, although British Columbia, with its major Pacific ports at Vancouver and Prince Rupert, is the region's sixth-most important rail market in terms of tonnage. Other Canadian markets, including Alberta and Ontario, appear outside the Chicago region's top 10 trading partners.

Table 2.3	Top 10 Rail	Markets by [•]	Tonnage and	Value, 2017
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Rank	Trading Partner	Tons ('000)	% of Total	Trading Partner	Value (\$M)	% of Total
1	Los Angeles-Riverside-Orange County, CA	24,258	16%	Los Angeles-Riverside-Orange County, CA	\$16,021	11%
2	New York-No. New Jersey-Long Island, NY-NJ	6,276	4%	San Antonio, TX	\$9,932	7%
3	Casper, WY	5,083	3%	Odessa-Midland, TX	\$7,821	5%
4	San Francisco-Oakland-San Jose, CA	4,525	3%	Hobbs, NM	\$5,912	4%
5	Seattle-Tacoma-Bremerton, WA	4,522	3%	Casper, WY	\$5,319	4%
6	British Columbia, CAN	3,431	2%	Oklahoma City, OK	\$5,251	4%
7	San Antonio, TX	3,064	2%	New York-No. New Jersey-Long Island, NY-NJ	\$5,112	3%
8	Dallas-Fort Worth, TX	2,924	2%	Minot, ND	\$5,019	3%
9	Atlanta, GA	2,677	2%	Pittsburgh, PA	\$4,866	3%
10	Houston-Galveston-Brazoria, TX	2,197	1%	Houston-Galveston-Brazoria, TX	\$4,791	3%

Source: Cook County Freight Plan, 2015; Public STB Waybill for BEA 064, 2017 (rail).

2.3.3 Freight Trends by Waterway

Illinois Waterway Freight Trends

The Illinois river system, inclusive of the IIPD facilities, is part of the MRS. Overall, waterway volumes in Illinois have declined since peaking in the mid-1990s. As reported by IDOT, tonnage on all Illinois inland waterways decreased by 16 percent between 2014 and 2017 to about 91 million tons.²² This is greater than the nine percent decrease experienced by the IIPD in waterway tonnage over the same period. Statewide there was over three times as much outbound traffic (62 million tons) as inbound traffic (20 million tons) on the waterways in 2017, with food and food products comprising more than half of outbound flows and has been trending upwards since 2014. Inbound waterborne flows across the State are much more diverse and include primary metal products, fertilizers, aggregates (e.g., sand, gravel, shells, clay, salt, and slag), petroleum products, and chemical products. Chemical products are overall gradually increasing in volume, primarily for nitrogenous fertilizers, plastics, and medicines. The decline of coal shipments into the state's powerplants is a significant contributor to declining volumes, though some coal traffic does continue to move through the state.

Projections by IDOT (2020) and USACE (2015) both indicate flat to modest growth in Illinois waterway tonnage. By 2045, IDOT projects that statewide waterways freight volumes will increase by almost five percent to 95 million tons. Despite this modest growth, outbound volumes (which are twice as large as inbound volumes) are expected to decline by 10 percent, while inbound volumes are projected to grow by 42 percent. This reflects the statewide trend of declining waterways tonnage of energy products (including coal and petroleum products), growth in inbound primary nonmetal products, fertilizers, and chemicals, as well as growth in outbound food and food products.

The majority of Illinois counties are expected to see minimal changes in waterway tonnage by 2045. Cook County, which encompasses the IIPD as well as other terminals, is expected to see the highest overall growth of any county, as shown in Figure 2.15. According to IDOT forecasts, Cook County is projected to experience moderate increases in outbound food and food products and increases in inbound nonmetallic mineral products, which is consistent with the regional forecasts presented in Table 2.1.

²² Illinois Marine Transportation System Steering Committee Meeting presentation delivered November 13, 2019. Illinois Department of Transportation. Available from: http://idot.illinois.gov/Assets/uploads/files/Transportation-System/Reports/OP&P/Marine/IMTSP_Steering_Committee_Meeting_AmericaCentral_Final_11-13-19_FINAL.PDF





Source: Illinois Marine Transportation System Steering Committee Meeting Presentation. 11/13/2019. IDOT.

Great Lakes Freight Trends

The Great Lakes System—Lakes Superior, Michigan, Huron, Erie, and Ontario, and its linkage to the Atlantic through the St. Lawrence Seaway — has also seen declining volumes from over 289 million tons in 2014 to 274 million tons in 2018.²³ However, the trends by commodity differ from those on the MRS. By far the most shipped commodity group is crude materials (inedible except fuels), which dipped overall during 2015-2016 but has since surpassed 2014 volumes. Iron ore comprised about 73 percent of this category in 2018, the highest share of any year during this period. Other significant commodities included in this category include limestone, sand and gravel, salt, and slag, while emerging high-growth commodities across the Great Lakes include gypsum, aluminum ore, soil and fill dirt, and clay. Aside from crude materials, most other commodities moved across the Great Lakes have remained steady in terms of tonnage, with the exception of coal, lignite, and coal coke, which declined for both inbound and outbound shipments. Inbound shipments of primary manufactured goods have also declined over this period, while petroleum and petroleum products and food and farm products have slightly increased.

Compared to overall freight flows on the Great Lakes, the IIPD reflects a slightly different pattern of certain types of bulk and raw materials. As shown in Figure 2.16, the highest volume commodity group transported on Lake Michigan are crude materials. The most prominent commodity in that category is iron ore, which comprises about 60 percent. The IIPD does handle some iron and pig iron, but its metals volumes are primarily comprised of steel, aluminum, and copper. In addition, there is a significant amount of petroleum and petroleum products on Lake Michigan, but it is weighted heavily toward asphalt, tar, and pitch products. IIPD's handling of petroleum products consists largely of chemicals/additives and refined products stored at the Kinder Morgan facility.

Total volumes transported on Lake Michigan have fluctuated between 2013-2017, but have declined approximately two percent overall, similar to the IIPD's overall traffic flow during this period. In addition, Lake Michigan has not experienced as sharp of a decline in overall waterways traffic as Illinois, which declined by 16 percent between 2014 and 2017; during this same period, Lake Michigan lost 11 percent of overall waterways tonnage, and similar to Illinois a major contributor to this decline was a loss of over 2.3 million tons of coal tonnage. Compared to waterways freight flows across Illinois and Lake Michigan, it appears that the IIPD's volumes in recent years have been relatively insulated from broader market changes, as shown in Figure 2.17. However, it is important to note that the IIPD lost a significant portion of waterways-only tonnage since 2011, but has since increased by nearly 65 percent since that initial drop.

²³ U.S. Army Corps of Engineers, Ports and Waterways Webtool, Lake Erie, Lake Huron, Lake Michigan, Lake Ontario, and Lake Superior, 2014-2018. Available from: http://cwbi-ndc-nav.s3-website-us-east-1.amazonaws.com/files/wcsc/webpub/#/



Figure 2.16 Freight Commodity Trends, Lake Michigan, 2013-2017

Source:USACE Waterborne Commerce Statistics, 2017.Note:This chart excludes unknown or not elsewhere classified products.

Figure 2.17 Change in Total Waterways Freight Volumes, 2014-2017



Sources: IIPD; IDOT; USACE Waterborne Commerce Statistics, 2017.

3.0 Future Opportunities for Freight and Industry at the IIPD

The IIPD is and will continue to function as a multimodal port in the heart of Chicago. The IIPD is one of the largest ports in the State by tonnage and the State's only deep water port capable of handling vessels traveling across the Atlantic Ocean and through the Great Lakes. Its primary focus has been to move raw materials and industrial products to and from the region's industries. Over time, the industrial mix and use of the Calumet Area has changed, while at the same time freight trends have reduced the overall use of inland waterways and shifted commodities between water, rail, and highway modes. These multimodal connections are the IIPD's greatest asset for freight and industrial users. Future users of the IIPD may include a range of industries, such as chemicals and energy products, construction materials, or manufacturing. This chapter discusses the potential future freight and industrial related opportunities at the IIPD. The first subsection examines the opportunities in key markets, such as distribution, chemicals, and construction. The second subsection discusses additional context of these opportunities from a multimodal transportation perspective. Note that this study does not include a full market analysis or economic assessment of a specific opportunity, but rather seeks to provide a broad overview of the most applicable opportunities in order to inform future study and actions.

3.1 Potential Freight and Industrial Uses

3.1.1 Distribution and E-commerce

Since the 1970's, distribution centers were built on the fringes of urban areas where land is typically less expensive, including Bolingbrook, IL and Kenosha, WI. However, recent trends have driven the development of relatively smaller distribution centers distributed throughout population centers to better meet the demand of online shoppers, who have come to expect same-day and next-day delivery options as standard. Retailers and logistics providers are choosing to locate close to or even within large metropolitan areas in order to deliver orders within the expected timeframe.

Amazon, among other online retailers, is investing in the Chicago region. Since 2013, Amazon has invested in more than 10 million square feet of warehouse space in the Chicago market, according to CoStar. In addition to existing facilities, in early 2020, Amazon confirmed plans for warehouses in Skokie, Melrose Park, Channahon, Bolingbrook, Downers Grove, Palatine, and explored options for siting a facility within the City of Chicago in the Pullman District, near the IIPD.^{24 25}

The IIPD's proximity to the Chicago consumer population, available land and highway/rail connections are attractive to distributors and online retailers. However, the IIPD would be competing against a number of similar sites in the region, such as Avenue O and Pullman Crossings, which are being developed for distribution uses. The IIPD faces the additional challenges of needing infrastructure investment and security

²⁴ https://www.chicagobusiness.com/commercial-real-estate/amazon-plans-big-distribution-centers-downers-grovepalatine

²⁵ Note that these activities occurred in Q1 2020, prior to the Covid-19 pandemic. Due to the outbreak, retailers have shifted delivery strategies, including reducing or eliminating quick-turn around delivery, as well as focusing on high demand products, rather than being able to serve all demand quickly. At the time of writing it is unclear what the long term impacts of Covid-19 will be on the economy, but it has potential to be a significant disruptor, particularly in the e-commerce sector.

requirements that can be barriers to this industry, which relies of quick, safe and efficient movement of goods. Furthermore, the IIPD has historically handled primarily bulk products and raw materials, which is in line with typical uses for a stevedoring port. The IIPD does not currently handle secondary traffic , which is primarily finished goods moving between warehousing and distribution centers and retail stores, or to and from other businesses and consumers.

However, if these challenges can be overcome, one potential use for IIPD property is as a warehousing or distribution facility, such as an Amazon Fulfillment Center. Amazon fulfillment centers range in size from 400,000 to 1,000,000 square feet²⁶ and can employ several hundred or thousand workers, with variation by size and type of facility. The IIPD site has an advantage with easy highway connections that do not require trucks to travel through neighborhoods to reach an interstate highway. Locating a site at the IIPD, which is closer to Chicago's population center than many existing fulfillment centers, could potentially reduce truck vehicle miles traveled (VMT) in the region.

According to CMAP, warehouse development is the CMAP region's predominant industrial building stock (43 percent) by square footage, which houses wholesale, storage, or smaller logistics users as well as some light manufacturing. As is the case in many urban regions, the need for warehousing to serve local demand is evolving as Chicago increases its presence as a consumer market. This shift is also playing out on a national scale; in 2017, around one-quarter of all leasing in the U.S. was tied to e-commerce, resulting in steadily rising rental rates and vacancy rates at their lowest in 30 years. ²⁷ The continued rapid growth of e-commerce, which grew 15 percent in 2019²⁸ and has doubled worldwide since 2014, coupled with the decline of traditional brick-and-mortar retail, has changed the retail, warehousing, and distribution landscape across the country, including in Chicago. More companies are using mega-distribution centers to service the direct-to-consumer market, particularly driven by online shopping and the increasing volumes of container shipments.

While e-commerce has brought a new age of convenience and reduced the need for consumers to travel to a brick and mortar store, the increasingly distributed networks that are a result of e-commerce create challenges for urban areas and transportation agencies. Millions of packages delivered daily in Chicago mean that delivery trucks double-park on streets, block bike and bus lanes, and increase congestion on roadways. At the other end of the trip, numerous trucks moving in and out of distribution centers can have significant impacts on surrounding neighborhoods. The most pressing local example is Elwood, IL, which transformed over the last decade from a rural town of 2,000 people to one of the largest inland container ports in the U.S. In recent years, the town sees over 8,000 daily semi-trucks which can lead to significant delays, as shown in Figure 3.1, which has led to numerous lawsuits, transportation safety measures, road closures, and other actions to minimize impacts of the trucks to local residents.²⁹ This has also had

 ²⁶ Amazon Fulfillment. Accessed 04/13/20. https://www.aboutamazon.com/amazon-fulfillment
²⁷ "The Great Pennsylvania Warehouse Boom." Transport Topics. July 5, 2017. Available from: https://www.ttnews.com/articles/great-pennsylvania-warehouse-boom

²⁸ "U.S. e-commerce sales grow 14.9% in 2019." Digital Commerce 360. 02/19/20. Accessed 4/13/20. https://www.digitalcommerce360.com/article/us-e-commerce-sales/

²⁹ "Small town fights big-time traffic." The Chicago Tribune. 07/09/14. Accessed 04/13/20. https://www.chicagotribune.com/news/ct-elwood-fights-trucks-met-20140709-story.html

significant impacts on roadway infrastructure condition³⁰, and has led to a public private partnership to build a toll bridge that will reduce truck traffic on local and state owned roadways.³¹

An additional opportunity in the distribution space is due to the projected long-term growth in demand for perishable goods, food, and other agricultural commodities throughout Cook County. This provides an opportunity for IIPD tenants to invest in cold storage or "reefer" warehouses, which feature additional insulation for better temperature control for fresh and frozen food products. These facilities could compliment a future food manufacturing tenant at the Port, or provide a place for staging food products prior to being trucked to grocery stores and restaurants throughout the region.

3.1.2 Chemicals and Petroleum Products

Figure 3.1 Trucks Traveling to Centerpoint Intermodal Facility near Elwood, IL



Source: Chicago Tribune.

The Calumet and adjacent northwest Indiana region

has served as the Midwestern hub of energy-related industry since the late 19th Century. For many decades, coal was railed and shipped across the Great Lakes to fire Wisconsin Steel's blast furnaces, and, more recently, Koch Industries stored petroleum coke at several sites along the Calumet River. In the present era, energy-related activity is centered around several Chicago-area refineries, led by BP's Whiting, Indiana refinery, the largest located in the Midwest with a daily capacity of 430,000 barrels.³² The primary products produced by this facility are liquid fuels, lubricants, and asphalt, which are created from oil piped in from the U.S. Southwest, North Dakota, and Canada. In addition to petroleum refining, there is also large-scale production of chemicals including raw plastics in the Chicago area; however, the major facilities are not located near Calumet and the IIPD.

Petroleum-based fuels and chemicals have long been an important part of the industrial base in the Chicago region. Refinery capacity in Illinois and Indiana, most of which is located in the Chicago metropolitan area, underwent substantial expansion in the early 2010s as new pipeline capacity for crude oil from Alberta, Canada and North Dakota came online. By 2019, refining capacity reached 1.48 million barrels per day.³³ Future gains are likely to be limited, as refinery capacity is increased in other locations, and crude oil production growth plateaus. Refinery capacity is primarily present to meet demand in the Upper Midwest,

³⁰ https://www.chicagotribune.com/suburbs/daily-southtown/opinion/ct-sta-slowik-warehouse-moratorium-st-1130-20171129-story.html

³¹ "Looks Like it will be Joliet's bridge." The Herald-News. 11/02/19. Accessed 04/13/20. https://www.theherald-news.com/2019/11/01/looks-like-it-will-be-joliets-bridge/aqq67gf/

³² In addition to BP's Whiting facility, three major refineries operate in the Chicago area: the Citgo refinery in Lemont with a daily capacity of 167,000, ExxonMobil's Joliet refinery with 238,000 barrels, and Marathon Petroleum Company's Robinson refinery with a daily capacity of 206,000. (See https://aoghs.org/products/standard-oil-whiting-refinery/).

³³ <u>https://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_SIN_a.htm</u>. Note that the production capacity for Illinois include ConocoPhillips Wood River refinery located near St. Louis, with a daily processing capacity of 300,000 barrels.

although there is a significant export market for petroleum products which reached \$7.4 billion in 2014, making it the fourth largest export industry in the region.³⁴

Most product is piped out, although some is also shipped by rail, barge, and truck, with the latter particularly to serve local markets. Barge is a highly cost-effective transportation mode for many refinery products, including aviation fuel, petroleum coke, and asphalt to locations that are within the geographic scope of the MRS. The Calumet Area currently handles some of this traffic, but volumes tend to be volatile, dependent on differences in prices across producing markets, reflecting regional demand and available capacity.

The production and handling of some chemical and petroleum-related commodities is less than desirable from a community and environmental perspective due to their hazardous nature and poor containment practices. The Calumet area has long been used to store various products at outdoor sites, some of which can cause negative environmental impacts from air emissions and run-off into groundwater and area waterways. These uses, which have continued to the present day, include a particularly problematic situation that occurred with the outdoor storage of petroleum coke in the early 2010's following expansion of BP's Whiting refinery. Although such storage had occurred previously, this instance was particularly egregious due to the sheer volume and poor containment of the material, which was prone to creating toxic dust clouds during certain weather conditions. After a lengthy period of community activism, the pile was removed in 2016.³⁵

3.1.3 Alternative Energy

In addition to a robust petroleum-based industry, the regional economy associated with alternative energy production has emerged to become an important source of growth in the 21st century. "Alternative energy" runs the gamut from hydrocarbon-based fuels using renewable sources, such as ethanol from corn and methane gas from municipal solid waste, to geothermal, wind and solar energy. Continued growth in the renewables sector is expected to be substantial, as a 2016 Illinois state law mandates that 25 percent of electric power come from these sources by 2025, a six-fold increase from a four percent share in 2017.³⁶

Solar and wind-based power production are generally viewed as having the greatest potential for meeting the mandate, due to their cost competitiveness with conventional hydrocarbon and nuclear-based sources, and continuing improvements in efficiency, capacity, and cost. Furthermore, they are closer to minimizing carbon footprints compared to other renewable energy sources. Key considerations as they relate to northeast Illinois and the Calumet area in particular are as follows:

• Wind. In the Midwest, the development of large-scale wind farms has resulted in an ongoing demand for locations to stage wind turbine components from foreign and domestic manufacturers for transport and installation at wind farms across the state and the region. Illinois and Indiana both saw significant increases in wind power in 2019, according to the American Wind Energy Association. Iowa and Kansas are also key states for wind power.³⁷ Wind turbine construction is complex and includes multiple large components that travel via various modes. The IIPD's access to multiple modes, including the Great

³⁴ https://www.cmap.illinois.gov/updates/all/-/asset_publisher/UIMfSLnFfMB6/content/export-growth-in-ourregion%E2%80%99s-manufacturing-industries

³⁵ https://placesjournal.org/article/terry-evans-petcoke-chicago/?

³⁶ https://www.chicagotribune.com/news/breaking/ct-solar-power-boom-in-illinois-20190906hzn4psuv7jd2dond35zkrtxx6y-story.html

³⁷ https://energynews.us/2020/05/11/midwest/wind-energy-increasing-in-illinois-and-indiana-despite-challenges/

Lakes and overseas locations where much of the production of windmill components occurs, along with the MRS, rail, and roadway networks offers strong support for siting a staging area in the Calumet Area. Site requirements include availability of truck and rail routes that can handle excess dimension ladings, along with sufficient land for laying down the large and bulky components. There is also some potential for wind electricity generation at the IIPD; the nearby Method manufacturing facility³⁸ generates about 50 percent of its onsite power using a wind turbine. Installation of wind turbines should be considered in context, such as open space for bird migration or other potential uses, for potential misalignments.

Solar. The components that make up the systems that convert the sun's energy to electricity are the photovoltaic panels, along with the power inverters and installation hardware. Even prior to the implementation of tariffs with China in 2018, the market for these components has been rather volatile, with U.S.-based manufacturing in a continuous state of flux.³⁹ Since 2018, the ongoing uncertainty about the future of U.S. trade relations has largely frozen investment in domestic manufacturing capacity. With physical characteristics that allow for transportation in standard containers and

Figure 3.2 Wind Turbine Staging Site in Arcola, IL





Source: Cambridge Systematics, 2020

trailers, solar system components do not have a need for transloading or multimodal options that are available at Calumet. However, the IIPD does have sufficient available land to support installation of solar farms, which can be a viable use for land where more intensive development may require extensive remediation, such as landfills or contaminated sites. Various agencies in the Calumet Area, including the IIPD, are currently exploring the potential for on-site rooftop solar. The IIPD is also participating in a program sponsored by the Metropolitan Mayors Caucus to utilize energy sourced through the Community Solar Clearinghouse Solution Programs, part of the Future Energy Jobs Act.⁴⁰

³⁸ https://methodhome.com/beyond-the-bottle/soap-factory/

³⁹ https://www.greentechmedia.com/articles/read/solar-tariffs-put-wins-on-the-board-for-u.s-produced-modules-butindustry-remains-split-on-their-future

⁴⁰ https://mayorscaucus.org/initiatives/environment/community-solar-clearinghouse-solution-program-cs2program/

• **Bio-fuels**. Ethanol is far and away the dominant biofuel produced in the Midwest, which is used as an additive to gasoline to reduce vehicle emissions. Typically distilled from corn at refineries located near areas of production, the product is shipped by rail from the refineries across the U.S. to consumption markets, where it is blended with gasoline. Naturally, this includes Chicago, including some blending operations in the Calumet Area. Biodiesel, typically produced from waste food-grade as well as other plant-based oils, is manufactured and consumed in the Chicago region. The Calumet area is certainly suitable for manufacturing and distribution of biodiesel, although future prospects appear murky.

Central to the solar and wind sources is the gear that is required to reliably distribute and manage the electrical power that is being produced. The Chicago region is host to a large manufacturing sector specializing in electrical equipment, which in part finds use in solar and wind installations. The site-making decision process for these firms is similar to many other manufacturing industries with a global supply chain, with a focus on available workforce, development and ongoing costs, and multimodal transportation access, and thus are not likely to benefit from the Calumet Area's unique competitive attributes.

3.1.4 Construction Materials

Materials used in the construction of structures and civil works include a range of bulk commodities such as sand and aggregates, intermediate value products such as construction lumber and steel, and high-value manufactured components such as assembled windows, mechanical systems, and hardware. As summarized in Table 3.1, these commodities are expected to grow in the Chicago region to support new and ongoing investments and buildings. Clay, concrete glass and stone is expected to grow faster than the average 1.7 percent growth rate, and while overall nonmetallic minerals is expected to grow more slowly, waterway traffic of this commodity is expected to grow at or above the regional average rate, as shown in Table 2.1.

Table 3.1Current and Future Construction-related Commodity Volumes, in
Thousands of Tons, 2017-2050

	Total		
Commodity	2017 Tons	2050 Tons	CAGR
Nonmetallic Minerals	81,184	109,781	0.9%
Clay, Concrete, Glass or Stone	28,977	66,092	2.5%
Primary Metal Products	22,885	33,911	1.2%
Lumber or Wood Products	16,356	28,013	1.6%

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2019 (water)

IIPD's location and multimodal access offers advantages to commodities that entail significant volumes and are delivered through a flexible supply chain that is very price sensitive. As in most major metropolitan areas, construction materials are brought into the region using a range of modes, with low-value bulks traveling short distances, and higher-value goods brought in from locations across North America and overseas. Each of the major commodity categories required for construction have substantially different supply chains requiring unique logistics solutions. Categories of commodities that are most relevant to IIPD and the Calumet Area are discussed below.

- Non-metallic minerals, including sand, aggregates, fly ash, etc. Somewhat higher on the value scale is Portland cement, a manufactured bulk product which has similar logistics requirements. Illinois hosts a dynamic sand and aggregate industry, with 2017 sales of \$709 million, placing it in 8th place among the 50 states.⁴¹ As is typical in most states, the industry largely supplies local and regional markets using truck and rail, along with some barge on the Illinois River. Portland cement is sourced from plants located on the MRS, typically shipped into the Chicago region by barge and rail. The Calumet Area has long hosted storage facilities for non-metallic minerals, which, depending on the commodity characteristics require either indoor storage (Portland cement and some types of sand, for example), or ground-based outdoor storage for product that is not affected by weather. The primary competition to the Calumet Area for handling these products are locations in Lemont and other nearby communities along the Illinois River.
- Construction lumber and wood products. Construction lumber is delivered to the Chicago region over land by rail and truck from a broad range of domestic and Canadian origins, and by water from overseas. Product characteristics discourage use of conventional containers and trailers, with most shipments taking place in side-curtain or flatbed trucks, as well as bulkhead and centerbeam railcars for North American shipments. This traffic is handled at Iroquois Landing, where in 2019 imported lumber from Russia and Europe was arriving via ocean-going vessel, and then transloaded to rail and truck for delivery to markets across the central U.S. As with most construction materials, the market for lumber is quite volatile, with the product often not being sold until it has already been shipped from origin. Although lumber is stored outside for short periods, indoor storage is preferable for longer-term periods; thus the availability of indoor warehousing space would be beneficial to attract and retain this business at IIPD facilities.
- **Construction steel**. Steel for construction as well as manufacturing is sourced from domestic mills as well as Eastern Europe and Russia via various coastal deep-water ports and moved overland to the Midwest by rail, or via ship across the Great Lakes to ports that include Burns Harbor and the Calumet area. The regional steel market has shown significant volatility, particularly during economic downturns, making it an unpredictable commodity for wholesalers and distributors located at the IIPD. Steel imports are influenced by domestic and international competition, as well as tariffs and duties imposed on the product.

Third-party logistics providers (3PLs) have the potential to support and grow steel-related business at the IIPD and elsewhere to achieve economies of scale in transportation and import costs, particularly those manufacturers that do not require full containers, railcars, or barge loads for a single delivery. However a more sustainable option for IIPD tenants handling significant volumes of steel products would be to attract steel via barge from domestic mills, both locally in Illinois (e.g., Granite City) or other domestic locations such as Ohio, Mississippi, and Missouri. Nearby Lemont is a significant competitor for steel imported via the Lower Mississippi River ports, which is then trucked to fabricators.⁴²

• Other heavy and bulky construction materials. In addition to steel for construction, there are a broad range of heavy and bulky construction materials for which the IIPD is well situated as a location to warehouse and transload product for distribution in the region. These include asphalt shingles and other roofing materials, building insulation, wallboard, and fabricated building components. All of these

⁴¹ **The Economic Impact of the Natural Aggregates Industry: A National, State, and County Analysis**, Phoenix Center for Advanced Legal and Economic Policy Studies, March 2017, pp. 16.

⁴² "Master Plan Phase I—Marine Cargo Analysis." Illinois International Port District. September 2018.

materials are commonly shipped by truck and rail, less frequently ocean-going vessel and barge. Generally, these commodities will require indoor storage, and some, such as building components, may require lay-down space and specialized handling equipment.

3.1.5 Manufacturing

The City of Chicago has long been one of America's largest manufacturing centers, in part due to its central location, and modal connectivity throughout North America that is second to none. The Calumet Area reflects these strengths, and from those standpoints make it a highly competitive location for manufacturing as well as distribution and logistics. To this day, the manufacturing sector is the leading creator of jobs in the IIPD and Calumet area region. However, this sector has evolved greatly over the past fifty years and now has a much smaller economic and physical footprint than it once did. The area around the southern tip of Lake Michigan has historically been the center of Midwestern steel production, employing hundreds of thousands of workers during the industry's peak. By the 1970s, a series of trends that included increasing foreign competition, high costs, and lack of investment led Chicago's steel mills to become increasingly uncompetitive. The outcome was a massive contraction in the sector, leading to an extensive loss of jobs and leaving vast acreage of vacant brownfields, warehouses, and other industrial properties.

Since the dawn of the 21st century there has been renewed interest in industrial and manufacturing uses on the South side as large plots of land available for industrial development have become increasingly scarce, expensive, and co-located with incompatible uses. This is evidenced by the low vacancy rate for industrial property throughout the region, as noted previously. Although much of this demand is driven by e-commerce and associated warehousing needs, traditional manufacturing has also seen renewed growth in the Calumet Area. Most notably, this includes the extensive renewal of Ford's Chicago Assembly Plant and nearby Chicago Heights Stamping Plant, and the development of the adjacent Ford Supplier Park, which has attracted approximately one dozen Ford suppliers⁴³, and the Method plant in Pullman.

The principal sectors for which the Calumet Area is particularly attractive for manufacturers thus include the following:

- **Steel supply chain**. With approximately 25 percent of domestic steel production clustered around the Chicago region⁴⁴, the location remains attractive to firms that are engaged in the steel supply chain. This include specialist suppliers to the industry, as well as downstream users of steel industry outputs such as fabricators and finishers, etc. Flexibility in sourcing between domestic and international producers, along with proximity to major end markets such as automobile manufacturing, all linked through a strong multimodal network, makes the region competitive for these types of manufacturers. However, future prospects for this sector continue to be rather flat and thus do not represent a strong growth opportunity for the region, as shown in Table 3.2.
- Food production and manufacturing. The Chicago region has long been a center for food processing, being ranked #1 nationally in food manufacturing and production, employing a workforce of 57,000 in 2018⁴⁵, and being the second largest manufacturing sector in terms of gross regional product. In the Calumet Area, manufacturing facilities include a sizeable Kellogg plant on 110th Street and Cargill

⁴³ <u>https://www.chicagotribune.com/suburbs/ct-0924-made-south-ford-stamping-20170923-story.html</u>.

⁴⁴ https://www.insideindianabusiness.com/story/41716142/indiana-leads-Nation-in-steel-production.

⁴⁵ https://www.worldbusinesschicago.com/spotlight-on-lake-calumet-industrial-corridor/

Technical Oils on South Torrance Avenue. New technologies in growing crops, proximity to one of North America largest population centers, and the desire for short food supply chains by consumers have generated interest in developing production facilities in the region. For example, Backyard Fresh Farms has prototyped vertical farming of leafy greens for restaurants, with the intention to scale up.⁴⁶ Food products as a commodity are expected to grow slightly faster than the regional average.

• **Components for machinery and transportation equipment**. The future of manufacturing for transportation equipment applications is heavily dependent on the continued vitality of Ford's Chicago Assembly Plant. However, as long as the assembly plant is present, the attraction to suppliers to locate nearby will remain strong. Furthermore, the region also hosts suppliers to manufacturers of other types of transportation equipment, including railroad and trucking, with the central location and multimodal access boost the region's competitiveness. Transportation equipment is expected to grow faster than the regional average across all modes.

Food and transportation equipment related commodities are expected to be growth areas for the Chicago region, whereas primary metal products are expected to grow slightly slower than average, as shown in Table 3.2. Overall, the opportunities for attracting manufacturing activity to the region continue to be solid; however some challenges must be recognized as well. Most importantly, these include the availability of suitable sites of sufficient size for development of new facilities, along with the higher cost of brownfield versus greenfield development.

Table 3.2Current and Future Manufacturing-related Commodity Volumes, in
Thousands of Tons, 2017-2050

	Total		
Commodity	2017 Tons	2050 Tons	CAGR
Food or Kindred Products	77,054	139,610	1.8%
Transportation Equipment	24,101	54,561	2.5%
Primary Metal Products	22,885	33,911	1.2%

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2019 (water).

3.1.6 Agriculture

Agricultural products are shipped from the Midwest throughout the world, primarily traveling via truck, rail and waterway. Corn and soybeans are two major Illinois and Midwest crops and Illinois ranks in the top two for export of these products, according to the USDA. In 2018 Illinois exported just over \$2 billion in corn, over \$2.5 billion in soybeans, over \$1.2 billion in feeds, and just under \$500 million in grain products.⁴⁷ US agricultural markets are subject to ongoing international trade agreements, and while recent volumes are

⁴⁶ <u>https://www.chicagotribune.com/business/ct-biz-backyard-fresh-farms-vertical-indoor-farm-20190807-j7bzv2axi5cfrfuvspqyht7xku-story.html</u>

⁴⁷ https://www.ers.usda.gov/data-products/state-export-data/

increasing, they have not yet recovered to the peak of the 2011-2014 timeframe, in part due to the trade wars in 2019 which led to significant decreases in exported goods to China.⁴⁸

While agricultural products are a growth area for the Midwest as a whole, the IIPD faces strong competition from other ports in Illinois and the region which primarily serve agricultural markets. However, the IIPD's accessibility to the most markets with its MRS and Great Lakes waterway connections, as well as rail connections, can be an advantage leveraged to grow the port's trade in agricultural goods. As discussed in the previous chapter, agricultural products moving through the CMAP region are expected to continue to grow at about an average rate through 2050, as shown in Table 3.3.

Table 3.3Current and Future Agriculture-related Commodity Volumes, in
Thousands of Tons, 2017-2050

	Total		
Commodity	2017 Tons	2050 Tons	CAGR
Food or Kindred Products	77,054	139,610	1.8%
Farm Products	58,256	101,222	1.7%

Sources: Cook County Freight Plan, 2015 (truck and air); Public STB Waybill for BEA 064, 2017 (rail); USACE Waterborne Commerce Statistics, 2019

Containerized agricultural shipments are a growing market both for private sector and governmental clients. Humanitarian food shipments are currently being containerized and shipped at the IIPD through the USAID program, which works with partners to provide life-saving food assistance to the most vulnerable around the world and reduce hunger and malnutrition so that all people at all times have adequate, safe and nutritious food for healthy and productive lives.⁴⁹ In 2019, Food Aid sent \$4 billion in food aid (2.5 million metric tons), to 55 countries, such as Somalia, Ethiopia, South Sudan, Syria, and Yemen. While recent numbers are not yet available, interviewees noted that this program is a potential growth area for additional shipments to move through the IIPD.

Finally, the projected regional growth in agricultural products, specifically food and kindred products, provides an opportunity for IIPD tenants to invest in supporting facilities for products requiring refrigeration, as discussed in a previous section. Cold storage or "reefer" sheds feature additional insulation for better temperature control for fresh and frozen food products. These sheds could compliment a future food manufacturing tenant at the Port, or provide a place for staging food products prior to being trucked to grocery stores and restaurants throughout the region.

3.1.7 Truck Staging and Parking / Container Storage

Inadequate truck parking in urban areas and near freight generators such as ports lead to issues in safety, congestion, and roadway maintenance. Across the US, staging is a consistent truck parking need within urban areas, and near ports, warehousing districts, and other concentrated areas of freight movement. In Chicago, truck drivers waiting to make a delivery or who reached the end of their legal driving hours often park outside of the city and/or in unauthorized locations along the highway or other roadways. This leads to

⁴⁸ https://farmdocdaily.illinois.edu/2019/04/corn-and-soybean-export-update.html

⁴⁹ https://www.usaid.gov/food-assistance

increased truck travel during peak hours, safety concerned from illegally parked trucks, lack of facilities for drivers, and other issues. The IIPD's location and available space could potentially be utilized to meet the need for truck (or other transportation equipment, including chassis or container) staging and storage for the region.

Provision of truck parking to address these needs is sometimes viewed as a private-sector issue: carriers bear the costs associated with finding parking (which are then passed to shippers and consumers), and private companies operate major truck stops throughout the country. Public-sector intervention can also be effective or even necessary to prevent increased safety risks and higher maintenance costs where the private sector cannot or will not provide parking. Truck parking facilities can provide regional benefits for minimal costs, especially staging lots that allow trucks to wait for non-congested times to travel into the peak period. However, such a facility can also generate negative local impacts, including noise and light pollution, emissions, and truck traffic. Overnight parking lots require at least minimal amenities, such as bathrooms (portable or permanent) and trash receptacles which are essential to maintaining a clean and safe environment. Security is a key issue, and the IIPD's existing and proposed security measures, such as fencing, lighting, and cameras are well aligned with the needs of a truck parking facility.

Public truck parking facilities can be funded through modest user fees collected at the gate, pooled funds from port tenants, offset maintenance costs, or other funding programs. As examples, the Port of Vancouver has jointly funded a truck staging area with the national and provincial governments (to be open in late 2020). The facility will have the capacity to accommodate up to 140 trucks, including early arrivals. The project also includes a secure vehicle access gate requiring a valid Port Pass, a Commercial Vehicle Safety and Enforcement (CVSE) area for truck safety inspections, and a new highway exit ramp and roadway access. ⁵⁰ Similarly, the Port of Brownsville (TX)⁵¹ is developing a staging lot that will be funded through a small increase in the port's entry fee.

⁵⁰ https://www.portvancouver.com/projects/road-and-rail/deltaport-truck-staging-facility/

⁵¹ https://www.portofbrownsville.com/





Source: Port of Vancouver

With Chicago serving as the load center for containerized traffic in the Midwest, there is a substantial demand to manage the flow of boxes between regional receivers, shippers, and more broadly with North American and off-shore trading partners. While import-dominated regions accumulate large amounts of empty containers, export-dominated locations need them as transport resources, requiring a repositioning transportation of empty containers on both land and sea. Once purely used to handle sea-borne international traffic, since the late 1990's the trend has increasing shifted towards using containers for domestic intermodal hauls primarily by truck and rail, and sometimes in sizes that are not conformant with international standards, as well.

The process of managing the inbound and outbound flows of containers requires locations to temporarily store empty containers. Ideally, this is done in close proximity to intermodal terminals (and ports) and interstate highways, so as to minimize the time and expense associated with storing and retrieving boxes. IIPD's location near NS and CN intermodal yards combined with substantial nearby manufacturing and distribution center activity, makes it a potentially attractive site for storing intermodal containers. Container storage yards (CY) can range in size from a few thousand square feet to dozens of acres, with a central goal of maximizing efficiency by concentrating activity and minimizing handling. The IIPD is currently storing containers on the southwest side of Lake Calumet; expanded container storage activities could utilize several acres up to as many as 20-30 acres, given the potential demand.

CYs are commonly located on inexpensive property, often brownfield or other sites for which other highervalue uses have been precluded for one reason or another. Although they serve a critical regional function in the freight transportation system, they generate few direct jobs and minimal economic activity. The sheer visual impact of large piles of containers is generally viewed as an eyesore, making them unattractive neighbors. Furthermore, during periods of trade slowdowns, CYs can take on a rather permanent character, with boxes staying in the same location for years.

3.2 Alignment with Multimodal Freight Infrastructure

The previous section discusses opportunities for freight and industrial businesses at the IIPD, while this section provides a complementary look at how the transportation related infrastructure itself can either add to or limit the opportunities at the IIPD. Rail and waterway infrastructure are each discussed in the sections below. While the IIPD does have great access to the highway and interstate system, the advantages and opportunities of truck access are well known and are less critical to the port's competitive advantage.

Figure 3.4 Intermodal Container Storage and Rail Lines at Lake Calumet



Source: IIPD

3.2.1 Rail

Freight rail has had a long-standing role in supporting manufacturing in the Chicago region and nationally. In recent years, rail freight traffic volumes across the U.S. have fluctuated, with the decline in primary markets such as coal and the increase in intermodal freight and other higher value commodities driving the trend from the demand side. On the supply side, volatility plus uneven financial results have brought to bear renewed pressures from investors to streamline operations and markets, resulting in reductions in capacity on the rail system and focus on the most profitable commodities and markets.

According to an analysis conducted by the CREATE Program, freight rail volumes in the Chicago region declined about 5 percent in terms of tonnage between 2010—2017. Volumes of coal, paper and pulp products, and lumber products decreased, while chemicals, non-metallic minerals, electrical and non-electrical machinery, and miscellaneous manufacturing products increased. Intermodal shipments moved in containers and trailers have increased by almost 25 percent over the same timeframe as well. Freight rail traffic in Chicago has been particularly impacted by the rapid growth in domestic energy production following the 2008-2009 recession, with peak volumes for crude-by-rail in 2014 and large increases in shipments of non-metallic minerals such as sand, drilling pipe, and chemicals to support hydraulic fracturing (fracking) activities.⁵² Subsequent to 2014, volumes of these commodities have fluctuated considerably, causing disproportionate impacts on rail system performance in the region.

Use of rail is increasing at the IIPD—over 50 percent growth by volume between 2010 and 2017. The waterway to rail connection is particularly important at Iroquois Landing, where only four percent of traffic is carried by trucks. Lake Calumet also has significant rail infrastructure with room for growth. Both of these facilities have the ability to support rail-served bulk and break-bulk operations, such as lumber, steel, pig

⁵² Chicago DOT analysis of STB Rail Waybill Data for the CREATE Program

iron, grain and food products, and other commodities. The current rail yard at Lake Calumet, used and maintained by Chicago South Shore & South Bend Railroad has 10 tracks and the capacity to hold 300 rail cars. However, it may be possible to double the capacity of this yard to include 20 yard tracks and a capacity of 600 rail cars. The IIPD is currently pursuing funding opportunities to undertake a feasibility study of increasing rail operations at this port, with the goal of attracting additional rail-served tenants, as well as increasing storage and staging of railcars.

Intermodal rail—both trailers and domestic/international containers—is also a potential opportunity at the IIPD. Traditional bulk products, such as corn and other grains and break-bulk cargo shipped in barrels, drums, or bags, are increasingly using intermodal containers, particularly for international shipping. This allows them to leverage the available modal flexibility and helps to ensure product integrity in a manner that is difficult to accomplish with conventional bulk shipping. The IIPD has increased the volume of containerized goods handled at the port, particularly Midwest grain products which are shipped overseas. Additional intermodal capabilities such as gantry cranes (either fixed or movable), forklifts, storage facilities and other infrastructure at the port may be needed to handle larger amounts of containerized traffic. The IIPD is also well located to store containers and equipment used by rail yards in the region.

3.2.2 Waterways

The IIPD is located at the sole navigable connection between the Mississippi River System and the Great Lakes System, and thus is geographically well positioned to grow shipments by water. While projected growth in the region is modest, the available land and multimodal connections at the IIPD are very attractive to businesses utilizing water transportation. Yet one of the IIPD's biggest challenges in attracting and retaining industrial tenants is the state of the Port's infrastructure. This includes docks, seawalls, roads, warehouses, and other aging facilities throughout Iroquois Landing and Lake Calumet, all of which affect capacity and freight volume potential.

The state of waterway infrastructure in the U.S. as a whole also impacts the competitiveness of the IIPD, as well as other inland waterway ports. Antiquated lock infrastructure imposes delays on over one-third of vessels due to the length and width of lock chambers in the broader Chicago region. Furthermore, lock and dam reliability throughout the MRS is an issue for shippers. Dredging is a continual challenge, as it is needed to create sufficient water depth in the Calumet River and Harbor. Although the U.S. Army Corps of Engineers is aware of major rehabilitation needs, funding is limited and inland waterways locks typically are not repaired until failure of critical systems. Overhead structures are another concern as low clearance bridges sometimes cause inefficient vessel routing to ensure safe passage. In recent years, record high and record low water levels in the inland waterway system further exacerbated infrastructure clearance issues. Finally, both the MRS and the Great Lakes/St Laurence Seaway experience seasonal closures due to winter weather and freezing. All of these factors affect reliability, limits the utility to current and potential shippers using the IIPD.

Beyond traditional markets in bulk commodities which is the staple of current operations at the IIPD, moving containers on the inland waterway system has long been a goal of many inland waterway advocates. In fact, Iroquois Landing was originally developed as a container port, and purchased by the IIPD to serve as a connection for container traffic between European markets and the Midwest.⁵³ Goods traveled on 150 TEU container ships (modern container ships can carry 12,000 TEUs or more) on the St. Lawrence Seaway, but

⁵³ https://www.nytimes.com/1979/04/23/archives/chicago-port-investing-to-regain-cargo-trade-chicago-port-investing.html

as ships grew in size they began to rely on rail connections from coastal ports. Currently, the St. Lawrence Seaway carries very minimal container traffic.⁵⁴ Container-on-barge operations using the St. Lawrence Seaway and MRS are challenging as they require a level of operational performance that is difficult to achieve, along with suitable infrastructure for handling at both ends of the journey. Past container-on-barge (COB) services in the inland waterway and on the coastal waters have generally proven uneconomical; in 2014 the Port of Stockton ended container-on-barge service to Oakland due to low volumes. In 2011, the Illinois Soybean Association authored a operating plan that examined both intra- and interstate options for COB service; however this service was not implemented. Prior to the 2008-2009 recession, construction materials traveled via containers between Memphis and New Orleans, however this market dropped off due to declines in construction activity. Recently, there have been renewed efforts in developing container-onbarge service, with a focus on low-value commodities moving in volume. In 2019, the U.S. Maritime Administration (MARAD) awarded \$3.15 million to a project supporting the transit of resins for export between Memphis and the ports of New Orleans and Baton Rouge⁵⁵, and \$700 million to operate a container on barge demonstration project between Channahon and Granite City, IL.⁵⁶ Moving containers on barge is estimated to be 33 percent more efficient than rail transportation and over twice as efficient as trucks, but at a cost of substantially slower and more erratic travel times.

A COB operation at the IIPD has significant advantages, particularly due to its connection to rail facilities and existing container storage operations, where containers could potentially be transferred from barge to either rail or truck, with some moderate investments in cranes and other infrastructures, as noted in the previous section. Barge traffic, and particularly containers traveling southbound, are heavily weighted towards exports, which would help balance the current import-heavy activity at the IIPD. However, seasonal winter weather and the narrow waterway dimensions in the Chicago region limit the efficiency of barge movements, versus more southern ports where large tows can move year-round.

Imported goods moving via Great Lakes from Canada and Europe via international vessel may represent a potential growth area for the IIPD. These ships move faster than barges and provide a reasonable connection for many types of goods between these markets and the Midwest; however the market is limited by the relatively small size and number of vessels that can traverse the St. Lawrence Seaway. In addition to the bulk and break bulk products that are currently handled by the IIPD, niche markets such as containerized identity preserved products, project cargo and heavy equipment, and other types of specialty cargo offer opportunities for growth and diversification of both imports and potentially exports.

⁵⁴ https://www.maritime-executive.com/editorials/improved-prospects-for-container-ships-on-the-st-lawrence-seaway

⁵⁵ https://www.joc.com/maritime-news/short-sea-shipping/container-barge-services-get-Federal-fundingboost_20190423.html

⁵⁶ https://trends.nauticexpo.com/project-321438.html

4.0 Future Opportunities for Non-Industrial Activities at the IIPD

While most ideas for opportunities at a port center around industrial and freight-related activities, the land at the IIPD has significant opportunities for commercial, recreational, and/or environmental facilities to be developed along with freight relate uses. Predominately seasonal in nature, these other uses can help to support and diversify the IIPD's revenue streams and align the port's development with the surrounding community and the tenets of the E.R.I.C. initiative. The remainder of this section discusses both ongoing and potential future non-industrial opportunities.

4.1 Harborside International Golf Center

The Harborside International Golf Center is a 36 hole championship-style links facility consisting of two 18 hole courses: Port & Starboard, a 58 acre practice facility, and a golf academy. The golf course is currently managed by Kemper Sports, and was previously managed directly by the IIPD.

The golf course was developed in the 1990s as an innovative use for a capped landfill, which is limited in its use without significant remediation. The portion of the course on the north end of the property is a 35 foot capped landfill which primarily consists of inert waste from sewage treatment. 200,000 cubic yards of clay dredged from Lake Calumet was also used to create the site. The southern-most nine holes of the facility are constructed on a firmer base of fill which could potentially be used for other purposes. The



Figure 4.1 Harborside International Golf

Source: https://www.harborsidegolf.com/gallery/

development of Harborside won top honors from the American Academy of Environmental Engineering in 1996.

Harborside has a 20,000 square foot prairie-style clubhouse overlooking the golf course. A full-service restaurant and special event venue, "The Pier" is located in the clubhouse. Both the clubhouse and the golf course provide opportunities for community focused activities or events. The resources at the clubhouse could expand its use for community focused events, such as public meetings or gatherings. Caddy programs for neighborhood high school students can provide enrichment and increase visibility within the community. Similar programs in the Chicago region are the Western Golf Association's "Caddie Academy"⁵⁷ and Cantigny Golf's Caddie Program.⁵⁸

In addition to caddy programs, there are other youth-focused health and recreational programs that could also be developed. Harborside currently hosts youth golf programs during the summer months through the

⁵⁷ Western Golf Association Caddie Academy. Accessed 04/13/20. https://wgacaddieacademy.org/info/

⁵⁸ Cantigny Golf Caddie Program. Accessed 04/13/20. https://www.cantignygolf.com/caddie-program

First Tee Greater Chicago network, which offers programs geared toward children from seven to 18 years of age. First Tee offers scholarships and financial aid, and its mission is to "impact the lives of young people by providing educational programs that build character, instill life-enhancing values and promote healthy choices through the game of golf."⁵⁹

There are other opportunities to expand recreational programs for youth, and specifically at-risk and disadvantaged youth. The Professional Golfer's Association of America (PGA) partners with golf courses across the U.S. to host PGA Junior Golf Camps. In Illinois, there are eight golf courses that host PGA Junior Golf Camps, including four within the CMAP region – Highland Park Golf Learning Center, Cog Hill Golf and Country Club (Lemont), and Sportsman's Country Club (Northbrook), and George W. Dunne National Golf Course (Oak Forest).⁶⁰ Morton Golf Management, an operator of a number of facilities in the Sacramento, CA area, offers a model for a variety of programs geared towards youth and underserved populations that may also be appropriate for Harborside. These programs include a Pee Wee Play League, Girls Play League and Free Girls Golf Clinics, Latino Junior Golf Program, At-Risk Youth Program, and Centers for Fathers and Families/Inner City Underserved Youth Program, among other notable programs.⁶¹

4.2 Cruise Industry

An emerging trend in the Great Lakes region is an increase in cruise passenger traffic, with total volume amounting to approximately 100,000 passengers in 2018. Growth in this sector has been encouraged by partners along the Great Lakes with the "Cruise the Great Lakes" initiative launched by the Great Lakes Seaway Partnership and the Council of Governors and Premiers in 2018.⁶²

While smaller than the 6,000-plus passenger ocean liners operated by companies such as Carnival Cruise Lines and Royal Caribbean International, the cruise ships operating on the Great Lakes offer a niche vacation option to visit U.S. and Canadian attractions along some of the world's largest freshwater lakes. At present, there are just a small handful of ships operating in this region. The largest ship, the *MS Columbus*, carries up to 400 passengers whereas the smallest, the *M/V Canadian Empress*, carries just 66. The





Source: Wikipedia

size of these ships affords the flexibility to visit places that larger cruise lines cannot, such as the base of Niagara Falls.

The success and revenue of the cruise industry can support other port functions as is evident by other U.S. cruise ports. While serving a different market than the IIPD, Port Everglades is similar in size with a jurisdictional area of 2,190 acres. Serving 1.1 million TEU, 16.7 million tons of petroleum, and other various

⁵⁹ The First Tee Greater Chicago. https://www.firstteegreaterchicago.org/about/the-first-tee-network/

⁶⁰ "Camp Locations by State". PGA Junior Golf Camps. https://pgajuniorgolfcamps.com/camp-locations/

⁶¹ Morton Golf Management Junior Golf Programs. https://www.mortongolfmanagement.com/programs/junior-golfprograms/

⁶² "Cruising the Great Lakes." The Great Lakes Seaway Partnership. 09/27/18. Accessed 04/13/20. Available from: http://greatlakesseaway.org/cruising-the-great-lakes/

cargoes annually, Port Everglades is also consistently among the top three cruise ports in the world with 3.9 million revenue passengers in 2018. These passengers produced \$59.6 million in operating revenue, or 42 percent of the port's total, as shown in Figure 4.3.⁶³ Beyond revenue to the port, cruise passengers also support the local economy through excursion, restaurant, and

travel spending while in port.

A challenge for the IIPD to benefit from this market is primarily due to the limitations of the Great Lakes Cruise market and immense competition for ports of call. Given the small size of vessels deployed in the Great Lakes, the port options are nearly limitless for itinerary deployment which drives competition between these ports. For example, one itinerary for Victory Cruise Lines' 2020 season includes Niagara Falls (Port Colborne), Cleveland, Detroit, Mackinac Island, Green Bay, Muskegon, and Chicago. A different itinerary includes Montreal, Brockville, Port Colborne, Cleveland, Detroit, Little Current, Sault Ste. Marie, Mackinac Island, Muskegon, and Chicago. Investing in the infrastructure necessary to support additional cruise ships at Iroquois Landing has the potential to support other current and future attractions in Southside Chicago, including Harborside



Figure 4.3 Port Everglades Operating Revenue

International Golf Center, Barack Obama Presidential Center (construction pending), and hotels, entertainment venues, and other potential future attractions.

In addition to supporting outdoor activities, parks also play an important role in preserving Chicago's native environment. Lake Calumet in particular is home to three portions of the Chicago region birding trail with the Indian Ridge Marsh, Big Marsh, and Deadstick Pond.⁶⁴

4.3 Conservation and Wetlands Restoration

Conservation and restoration of the natural environment is a priority for many in the Chicago region. Perhaps the most comprehensive and collaborative effort on this subject to date, the Metropolitan Planning Council's 2016 *Our Great Rivers* work included visioning for the Chicago, Des Plaines, and Calumet Rivers and surrounding environments. Both through this effort and other programs, agencies such as the Cook and DuPage County Forest Preserve Districts, the Chicago Park District, and numerous environmental groups have been heavily active in the redevelopment and reclamation of wetland areas including Big Marsh Park, the Powderhorn Lake Forest Preserve, Tinley Creek Wetlands and others. Reclamation projects at Lake Calumet could benefit the community and natural environment through habitat restoration, drainage and stormwater management, and increased wildlife presence. According to Openlands, a metropolitan conservation organization for the Chicago region, previous wetland restoration projects in Chicago have yielded a return on investment of \$8 in benefits for each \$1 spent.⁶⁵

⁶³ Port Everglades Waterborne Commerce Chart FY2018—2009. <u>https://www.porteverglades.net/about-us/statistics/</u>

⁶⁴ The Chicago Region Birding Trail Guide. <u>https://www.chicago.gov/content/dam/city/depts/doe/general/NaturalResourcesAndWaterConservation_PDFs/Birds/bir</u> <u>ding_guide_finalsingle.pdf</u>

⁶⁵ https://www.openlands.org/livability/water-conservation/wetlands-restoration/

A prime example of wetlands restoration in the Calumet region is the 280-acre eco-tourism destination within the Calumet Area Reserve called Big Marsh Park. Managed by the Chicago Park District, the Big Marsh Park project combined ecological restoration with developing public recreation facilities, such as the Ford Calumet Environmental Center, biking and walking trails, BMX bike courses, and bird watching opportunities. Also nearby is Hegewisch Marsh, which is a 129 acre site of native hemimarsh⁶⁶, wetland, and wet prairie. On the Illinois/Indiana border, Powderhorn Lake Forest Preserve recently received a grant to establish a 100-acre marsh habitat.

Environmental groups in the Calumet Area have long campaigned for reclamation of Lake Calumet as a natural environment and habitat for wildlife, similar to other native and re-developed marshes in the region. Square Marsh (Figure 4.4), on the northeast side of Lake Calumet and across from the recently redeveloped Big Marsh Park, provides the most enticing target for habitat development

Figure 4.4 Arial Views of Lake Calumet Sites





at the IIPD.⁶⁷ The composition of Square Marsh (which includes several connected marshes) is partially lowquality fill material, and possibly partially original wetland. Some remediation efforts would need to occur (in coordination with USACE, who has jurisdiction over wetlands restoration) to deal with contaminants and soil erosion issues. A 2014 study found the presence of metals and polycyclic aromatic hydrocarbons (PAHs). The Southeast Chicago Area-Wide Plan noted that additional assessment and evaluation will be needed at

this site to support any redevelopment efforts. ⁶⁸ An ongoing study by the IIPD is focusing on the potential redevelopment of Square Marsh.

Beyond Lake Calumet, other proposed environmental related uses of the river system and surrounding lands include the development of the river system into a "blue/green corridor". A blue/green corridor is a sustainable design solution that uses a river and adjacent lands to establish an interconnected passageway between natural habitats. This provides people with a place to play while allowing for the natural movement of wildlife and open space for rainwater to be absorbed and filtered. A study prepared for the Friends of the Chicago River suggests that investing in this type of corridor

Figure 4.5 Example of a Hemi-Marsh



Source: Wetlands Initiative (www.wetlandsinitiative.com)

⁶⁶ A hemi-marsh is a particularly beneficial form of marsh, which has a mix of vegetation in and out of the water for use by aquatic birds, amphibians, and other animals. An example of a hemi-marsh is shown in **Error! Reference source not found.**

⁶⁷ https://www.openlands.org/2016/12/05/raising-parks-and-wetlands-from-industrial-sites-along-lake-calumet/

⁶⁸ Chicago Park District, 2019. Southeast Chicago Area-Wide Plan, Pre-final Draft Report.

would create over \$192 million in annual economic benefits over a 15-year timespan while simultaneously creating 1,614 jobs and increasing nearby residential and commercial property values. This is in addition to the added environment benefits such as decreased pollution and the urban heat island effect, which refers to higher air and structure temperatures in urban settings due to fewer trees and a higher concentration of people.⁶⁹ In support of this, the Friends of Chicago River also developed an interactive mapping tool to assess the lands surrounding the Chicago River system. An example view along the Calumet River is shown in Figure 4.6. As this tool illustrates, much of the land surrounding the river system in this portion of the city has been devoted to industrial uses which would likely need significant remediation in order to be suitable for greenspace use.



Figure 4.6 Chicago River System Public Lands Assessment Tool

Source: Friends of the Chicago River

4.4 Ecological Restoration Plan

As noted in the existing conditions report developed for this Master Plan, there are significant needs for environmental remediation on both the soil and water of the IIPD. This is particularly significant for any Lake Calumet parcels that may be developed for non-industrial use, but even with industrial use, site remediation or other environmental cleanup or improvement actions are critical to development that aligns with the E.R.I.C. Initiative and community goals.

Full assessment and remediation of environmental issues at the IIPD will be a long-term, multi-agency process. A key recommendation in the Southeast Chicago Area-Wide Plan was development of an ecological restoration plan for Lake Calumet.⁷⁰ The land where the IIPD is located consists of numerous different types of substructure, including construction fill material on the west side, and landfill under the golf

⁶⁹ University of Wisconsin Whitewater. The Blue/Green Corridor: Intersection between Economic Growth and Environmental Design, March 2019. <u>https://s3.amazonaws.com/chicago-</u> river/var/www/focr/releases/20190206195514/public/ckeditor_assets/attachments/139/Blue_Green_Corridor_ROI.pdf

⁷⁰ Chicago Park District, 2019. Southeast Chicago Area-Wide Plan, Pre-final Draft Report.

course. Some of the land is potentially original wetland, but this could not be confirmed by the authors. In most cases, the land at the IIPD has been found to be contaminated by various organic and inorganic material, and is in need of remediation. The water quality at Lake Calumet must be remediated prior to allowing any swimming or body-immersion activities, as noted by the Illinois EPA, and supporting habitat development in the Lake or surrounding marshlands.⁷¹ One of the most critical ongoing water quality issues is the Dan Ryan/Bishop Ford Highway main drain, which discharges directly into Lake Calumet. The Illinois Coastal Management Program (ICMP) notes that the roadway salt concentrations discharged during and following winter conditions is one of the most significant current environmental factors associated with Lake Calumet.⁷²

In the immediate future, discrete actions can be undertaken to improve specific areas or aspects of the Lake, and build momentum for a comprehensive effort. For example, the IIPD is currently taking steps towards remediation of the western undeveloped parcel by applying biosolids to the top soil to begin removing soil contamination, in preparation for future development at that site. The regional *Our Great Rivers* framework identified several actions for the IIPD, including establishment of an environmentally focused advisory committee, and options for stewardship of ecologically-sensitive land and water assets, including engaging a private or public entity to serve as manager for these assets.⁷³ Other goals within the framework also align with the priorities of the IIPD and the E.R.I.C. initiative, such as expanded preserves and parks, ecologically sensitive shoreline development, local tourism and jobs, and revitalized infrastructure. In the 2020 update to *Our Great Rivers*, MPC notes that the USACE is also currently undertaking a Chicago Rivers Restoration Framework Plan, which is tasked with inventorying existing conditions, determining restoration potential and environmental impacts, and identifying project connection opportunities.

4.5 Lake Calumet Finger Piers

Another potential action that has been discussed by regional stakeholders is to use dredged material from Calumet Harbor to reshape the land around Lake Calumet for more intensive uses. The most discussed option to date has been to fill in the slips at the finger piers at Lake Calumet to create a more extensive land parcel suitable for reuse, and/or using dredged material to separate industrial and non-industrial uses. The piers are no longer viable for modern cargo operations, and the narrow dimensions of the land limit potential opportunities for development. Filling in the unused slips would allow for creation of a larger parcel, as well as help solve an upcoming challenge due to the current Chicago Area Confined Disposal Facility (CDF) reaching capacity.

Lake Calumet was previously used as a placement for dredged material in the 1970s; however, changes in rules by the U.S. EPA in the 1980s disallowed this practice as it involved discharge of untreated water into the Calumet River. A study in 1981 recommended development of CDF, which currently receives and stores dredged materials from the region. The CDF will reach capacity in 2022, after which it will no longer be suitable to receive additional material. After this time there will be the need for additional storage capacity for

⁷¹ http://www.epa.state.il.us/environmental-progress/v30/n4/chicago-waterways.html

⁷² Illinois Department of Natural Resources Coastal Management Program, 2011. Issue Paper: Lake Calumet and Calumet River Area

⁷³ http://greatriverschicago.com/goals/district.html

dredged material. As of 2019, the USACE intends to vertically expand the CDF to add 500,000 cubic yards of capacity for a cost of approximately \$32 million.⁷⁴

Over the next 20 years, regular dredging of Calumet Harbor is expected to generate 500,000 cubic yards of beneficial use material, which could be suitable for use as fill in Lake Calumet (note that only material from the Harbor can be used; dredged material from the Calumet River is too contaminated for this type of use).⁷⁵ However, there are significant cost, logistical and inter-agency coordination challenges that would need to be overcome before dredged material could be used at Lake Calumet.

The USACE recently undertook a planning process to find a solution for storage of dredged material once the CDF reaches capacity. A preliminary analysis in the study looked at the potential for locating dredged material in 60 sites in the region, including in and around Lake Calumet. The Lake Calumet site was discarded from future consideration due to not meeting the USACE criteria for the least-cost or least environmentally damaging practicable alternative. Specifically, a site on the southwest side of Lake Calumet was discarded specifically due to a lack of dock wall infrastructure, and required dredging to allow for barge access required to handle dredged material. While the finger piers were not specifically considered, these sites also lack dock wall infrastructure and likely will have similar dredging requirements.⁷⁶

Filling in the finger piers with dredged material, or potentially through other means, would require significant coordination between the IIPD, USACE, Illinois EPA, IDNR and other agencies. Moreover, the action could

require multi-level regulatory approvals or changes to the state of the practice to allow for the feasibility for dredged material to be used for this application. It should also be noted that according to the Illinois International Port District Act (70 ILCS 1810), the size of the harbor in Lake Calumet cannot be reduced to less than 350 acres.⁷⁷ However, despite these challenges, pursuing opportunities to fill in the finger piers might be a beneficial long-term strategy to support the overall environmental remediation efforts at Lake Calumet and increase the viable land at the IIPD . For example, the north-most finger pier, located south of Square Marsh and east of Big Marsh Park, is at the site of a potential bike/multi-use path over Lake Calumet (see next section). This land could potentially be used as a connector and the site of increased recreational or conservationfocused activities. The middle and southern most piers currently house small industrial sites, which could be expanded or repurposed, or potentially ecologically sequestered from Lake Calumet. Note the visibly poor water quality in the Finger Piers shown in Figure 4.7.

Figure 4.7 Aerial View of Finger Piers



Source: Google Maps

⁷⁴ USACE, Chicago Area Waterway System Dredged Material Management Plan and Integrated Environmental Impact Statement, 2019.

⁷⁵ Note that USACE is currently practicing reduced dimension and minimized dredging in the region, and a change in this policy could lead to additional dredge material being available for use

⁷⁶ Ibid.

⁷⁷ https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=940&ChapterID=15

4.6 Bike/Multi-Use Path

The IIPD region includes several bicycle facilities in the area, including Big Marsh Bike Park, the Burnham Greenway, and other numerous trails and bike lanes in neighborhoods surrounding the IIPD. However, there is a lack of connectivity between neighborhoods and recreational facilities, with Lake Calumet posing a significant barrier between the Pullman neighborhood to the west and Big Marsh Park and the South Deering neighborhood to the east. The Bishop Ford Expressway and active rail lines create additional obstacles for people seeking to travel between these destinations on bike or on foot.

Currently, the Active Transportation Alliance is studying the potential for a multi-use path across Lake Calumet to connect Pullman area with Big Mark Park, with one conceptualization shown in Figure 4.8. The connection across Lake Calumet would help create a safe walking and biking route over the Bishop Ford Expressway that links to a new trail across the north end of Lake Calumet to Stony Island Avenue and eventually to Big Marsh and points beyond.



Figure 4.8 Proposed Lake Calumet Multi-Use Path Connection

Source: Active Transportation Alliance.

4.7 Boathouse

Lake Calumet has been identified as a possible opportunity for operating a boathouse in the Calumet Area. Boathouses provide access to the water for kayaking, canoeing, and rowing activities. There are approximately 10 active regional rowing clubs and boathouses in the Chicago metropolitan area, such as the Chicago Park District's Clark Park boathouse shown in the picture below. Built in 2013, Clark Park is a LEED Silver facility that serves youth and adult rowing clubs in Chicago, shown in Figure 4.9.

A study by Chicago Booth⁷⁸ determined that Chicago has a lower density of boathouses compared to several smaller cities, including

Figure 4.9 Boathouse at Clark Park, Chicago, IL



Source: https://studiogang.com/project/wmsboathouse-at-clark-park

Boston, Cleveland, San Francisco, Milwaukee, and Jacksonville. A boathouse could also leverage the Harborside International Golf Center by offering programs for youth and adult rowing, and would further expand recreational activities at IIPD with a limited environmental impact. However, the study also found that boathouses attract a niche population, and that securing a rowing team partnership with a nearby college or university, high school or club such as the Chicago Rowing Foundation would be critical for regular usage.

4.8 Hotel

The IIPD parcel on the northwest side of Lake Calumet has been identified as an opportunity to build a hotel. There is currently a lack of hotels and restaurants in the area surrounding the IIPD. Such a hotel could potentially complement the existing Harborside International Golf Center and nearby Pullman Historic District, and could include a restaurant, bar, and office/meeting space, which could also host community activities. As noted in the existing conditions report, there is a lack of hotels in the Calumet Area, including a gap along the I-94 corridor between Indiana and downtown Chicago. A dedicated hotel study and feasibility assessment is recommended before a recommendation for or against a hotel on this parcel would be warranted.

Previous assessments have determined that developing a hotel at the IIPD could have limited success. A study by Chicago Booth⁷⁹ found that revenue potential for IIPD would be limited due to high fees from professional management firms and major hotel chains. There is also a large number of hotels, event spaces, and conference options in Chicago in less industrial locations and with greater access to principal Chicago attractions. The less central position and strong regional competition may decrease the viability of a hotel and conference center at IIPD. However, there are few other hotel offerings in the surrounding area that support tourism at the golf course, Lake Calumet parks and open space, or cruise passengers traveling to/from Downtown Chicago.

⁷⁸ "Illinois International Port District Growth Plan: Booth Social Impact Consulting 1Q2019 Project." PowerPoint Presentation delivered to the Illinois International Port District. Chicago Booth. 2019.

⁷⁹ Ibid.

The Chicago Neighborhoods Initiative (CNI) has conducted a hotel study for a nearby parcel in the Pullman area, north of 111th street and west of South Doty Avenue, in part to complement ongoing development in the Pullman Region. CNI believes that there is currently demand for lodging that is not being captured by current supply, including both tourist/recreation-oriented weekend stays as well as business travel associated with the region's growing economy.

4.9 Waterpark or Entertainment Venue

Another potential use for the northwest parcel of the IIPD is a destination entertainment venue. such as a waterpark or a destination entertainment venue such as TopGolf, which offers indoor/outdoor golf games, virtual sports simulators, and a full restaurant. Destination entertainment venues of this type are most often found in the suburbs, so an attraction located at the IIPD and potentially transit accessible could be attractive to city residents. The nearest dedicated indoor water park in Illinois is Great Wolf Lodge in Gurnee, which is about 50 minutes from Chicago by car. Wisconsin Dells, one of the largest indoor waterparks in the Midwest, is approximately 3.5 hours from Chicago by car. There are two additional outdoor parks located near to downtown Chicago, including Hurricane Harbor in Rockford, IL (about 1.25 hours by car from Chicago) and Deep Water Waterpark in Crown Point, IN (about 50 minutes by car from Chicago). Topgolf facilities are located in Schaumburg and Naperville, both more than 30 minutes away from Chicago by car.

A study by Chicago Booth⁸⁰ found that although the water park industry has grown in recent years, establishing a facility at IIPD would face strong competition. The facility would need to be run by a professional management firm, and would need to be a substantial size in order to be profitable. However, the study found that the close proximity to Chicago and limited availability of indoor waterparks in the metropolitan area provide a potential opportunity for one at IIPD.

Figure 4.10 Wisconsin Dells Indoor Waterpark



Source: https://www.wisdells.com/wisconsindells-area/attractions/Wilderness-Resort-Waterpark.htm

Figure 4.11 Top Golf Entertainment Venue



Source: <u>https://www.exploreminnesota.com/profile/top-golf/6005</u>

⁸⁰ "Illinois International Port District Growth Plan: Booth Social Impact Consulting 1Q2019 Project." PowerPoint Presentation delivered to the Illinois International Port District. Chicago Booth. 2019.

Another destination venue proposed for the IIPD is a casino. Senate Bill 690⁸¹ expanded the ability for the Illinois Gaming Board to issue new casino licenses in select cities, including the city of Chicago. Proposed initial sites for this included U.S. Steel's former location as well the IIPD site near the Harborside International Golf Center. A *Casino Financial Feasibility Analysis* was conducted in order to determine the financial feasibility of the five proposed sites. This analysis found that these sites scored more poorly than other Chicago options in the downtown region or near O'Hare airport, as the total income within a short drive of a casino is the single largest driver of adjusted gross receipts.⁸²

4.10 Industrial Tourism

Industrial tourism draws visitors interested in visiting active or defunct industrial facilities. This can include tours to vineyards and distilleries, as well as manufacturing plants, ports and railyards. It can also include visits to shuttered businesses, such as an abandoned factory or steel mill. Industrial tourism provides

benefits to the community by strengthening the region's image and linking buildings and infrastructure to history; the Calumet Area's robust history and the existence of complimentary museums in Pullman are positives for this type of development.

While not a staple of Chicago's tourism scene today, industrial tourism is popular in regions throughout the world and is gaining popularity in the U.S. Information sharing and interactivity are often factors for success. One of the first examples of industrial tourism was Jack Daniel brewing in Lynchburg, Tennessee., which has allowed visitors into its plant since inception.⁸³ In Detroit, MI, a company called Pure Detroit offers tours of the city's vacant Packard auto plant (shown in Figure 4.12, which allows visitors to tour the 1903-era structures and observe aged machinery and technology. Another example includes the U.S. Military Academy Foundry

Figure 4.12 Example of Industrial Tourism Location: Packard Plant in Detroit, MI



Source: https://detroit.curbed.com/2017/8/3/16089692/ packard-plant-walking-tours-pure-detroit

Preserve in Cold Spring, NY, which was active during the American industrial revolution and is now on the

⁸¹ Illinois General Assembly Bill Status of SB0690. Last Action 06/28/19. Accessed 04/13/20. Available from: <u>http://ilga.gov/legislation/BillStatus.asp?DocNum=0690&GAID=15&DocTypeID=SB&LegID=116627&SessionID=108&SpecSess=&Session=&GA=101</u>

⁸² City of Chicago Casino Financial Feasibility Analysis. August 2019. <u>https://www.igb.illinois.gov/FilesPressReleases/Union%20Gaming%20Feasibility%20Study.pdf</u>

⁸³

National Register of Historic Places as a public site for hiking and exploration.⁸⁴ Ports are increasingly offering industrial tourism opportunities; for example, the Port of Long Beach offers free 90-minute tours.⁸⁵

The IIPD is situated in a part of Chicago with a strong industrial legacy and features a number of industrial tenants and both vacant and occupied infrastructure that may be appealing to tourists interested in urban planning and industrial history. Spaces such as the Seamans Chapel and the Grain Elevators on the south side of Lake Calumet, as well as the Ford Assembly Plant may be of particular interest to tourists.

4.11 Minimal Impact Recreational Uses

There are several opportunities for minimal impact recreation at the IIPD, including pop-up markets featuring retail vendors and food trucks/stalls, as well as outdoor music concerts and festivals. These seasonal draws are popular

Figure 4.13 Chicago's Christkindlmarket



Source: https://www.timeout.com/chicago/things-todo/christkindlmarket-chicago

in many U.S. cities, including Smorgasburg in Brooklyn, NY and Los Angeles, CA⁸⁶ as well as Christkindlmarket in Chicago (shown in Figure 4.13). These pop-up markets can include local food trucks and vendors, artists, bakeries, and other small businesses looking to sell directly to customers. These same sites are also suitable for hosting concerts and music festivals, similar to the Chicago Park District's Concerts in the Park series. These temporary markets and concerts could draw visitors from throughout Chicagoland for an afternoon or evening, and would not require extensive infrastructure to accommodate other than utilities, Wi-Fi, restrooms, and trash/recycling facilities.

4.12 RV Parks

Many Americans enjoy exploring the country and taking family vacations in recreational vehicles (RVs), which allow travelers to drive on their own schedule without having to pay for hotel rooms, rental cars, or airline tickets. People traveling in RVs often want to be able to park their vehicles near to popular tourist attractions, such as national parks or commercial tourist attractions. There are no RV parks or campgrounds close to the IIPD or downtown Chicago, with the closest ones including Camp Bullfrog Lake in Willow Springs, IL and Camp Sullivan in Oak Forest, IL.⁸⁷ An RV park (see Figure 4.14) at the IIPD would provide a

⁸⁴ Rebecca Powers. "Meet the latest tourist attractions: Abandoned factories." The Washington Post. 03/09/18. Accessed 4/13/20. <u>https://www.washingtonpost.com/lifestyle/travel/industrial-deevolution/2018/03/08/50d57022-1cdc-11e8-9de1-147dd2df3829_story.html</u>

⁸⁵ https://www.polb.com/community/harbor-tours/

⁸⁶ Smorgasburg. Accessed 4/3/2020. Available from: https://www.smorgasburg.com/

⁸⁷ Accessed 2/28/2020. Available from: https://www.campendium.com/illinois/Chicago
place for visitors to park that want to visit downtown Chicago, explore Big Marsh Park, or golf at Harborside International Golf Center. The proximity to Lake Calumet makes the IIPD a scenic and ideal spot for such a park.

RV parks generally aim to hold about 10 campsites per acre. Other amenities to increase the viability of an RV park could include play areas for children, pavilions to host events or small gatherings, Wi-Fi connectivity and utilities, fire pits, as well as a septic system and sanitation plan for trash collection and recycling. The cost to build an RV park ranges from \$15,000 to \$50,000 per site, making it a low-cost investment to draw additional visitors to the IIPD area.⁸⁸

4.13 Alternative Uses for Grain Elevators

Figure 4.14 RV Camping Site at Great Lakes Naval Training Center



Source: https://www.militarycampgrounds.us/illinois/greatlakes-naval-training-center

Once grain elevators are emptied out and no longer used for storing grain, they can be difficult to redevelop. Unlike old buildings and factories, a typical grain elevator is tall, windowless, and contains just one floor at ground-level. Depending on the site, converting grain elevators to non-industrial uses can be challenging due to issues related to contamination, high maintenance costs, and other hidden dangers for the general public. Further, the unique design of grain elevators limits the potential for reuse. However, the cost of demolishing concrete elevators can be extremely expensive, while steel elevators can be slightly more cost effective due to the value of scrap. A 2003 study by Farr Associates found that demolition of the silos as Lake Calumet would be as expensive (about \$5 million dollars at the time) as an adaptive reuse project, such as installing 12 floors per silo to create hotel rooms, a brewery, adventure sports, a museum, or other uses.

There are several examples of non-industrial uses that have been suggested for grain elevators in other American cities. In Minneapolis, a neighborhood improvement association opposed demolition of several local abandoned grain elevators in favor of converting the complex into a site dedicated to housing computer servers. Other examples of successful non-industrial reuses include an elevator in Buffalo that was converted to store grain for a local craft brewing business.⁸⁹ In Akron, Ohio, a hotel company attempted to turn a silo complex into a hotel by adding windows. Ultimately, the venture was not commercially successful, and the University of Akron purchased the site to convert it into a college dorm.⁹⁰

In Bloomington, Illinois, an abandoned grain silo was redeveloped into a rock climbing gym known as Upper Limits, shown in Figure 4.15 which opened in 1995. The company also operates three similar locations in

⁸⁸ Steven Melendez. "How to Build RV Parks." Houston Chronicle. December 10, 2018. Available from: <u>https://smallbusiness.chron.com/build-rv-parks-12532.html</u>

⁸⁹ Peter Callighan. "How do you solve a problem like (old, unused) grain elevators?" MinnPost. 09/18/15. Accessed 4/13/20. <u>https://www.minnpost.com/politics-policy/2015/09/how-do-you-solve-problem-old-unused-grain-elevators/</u>

⁹⁰ Lynn Freehill-Maye. "The Trouble with Owning a Grain Elevator." The New Yorker. 07/31/16. Accessed 4/13/20. https://www.newyorker.com/business/currency/the-trouble-with-owning-a-grain-elevator

Missouri. The Bloomington silos required three months of cleaning tons of rotten soybeans and scrap steel, followed by another three months of wall construction and drilling thousands of holes into the concrete. Today, the facility includes 65' indoor climbs and a 110' outdoor climbing surface.⁹¹

In Minneapolis, a former flour mill constructed in the 1870s was converted into the Mill City Museum, which features exhibits about the history of Minneapolis and the flour milling industry. Visitors can ride an original freight elevator and visit different floors of the building to view different aspects of a working flour mill. Located in downtown Minneapolis, the museum has been highly successful.⁹²

Figure 4.15 Upper Limits Rock Climbing Gym



Source: https://www.visitbn.org/visit/2401/upperlimits-rock-climbing-gym/

Murals and other public art installations are also a common reuse for grain elevators. The size and relatively blank exterior of these facilities means that art can be seen from numerous vantage points. The grain elevators at Lake Calumet are particularly visible from I-94, creating a canvas that is visible for both community residents and travelers in the region. This could be an opportunity to feature artwork by local Southside Chicago residents and/or a topical installation spotlighting the history and culture of the neighborhood. Examples of similar installations include a wrap-around mural on a grain elevator in Fort Dodge, which cost \$132,000 and was paid for through grants and donations as part of a regional revitalization plan in 2018.⁹³ The largest mural on the side of a grain elevator is in Wichita, Kansas, funded in part through a \$100,000 grant from the Knight Cities Challenge and \$15,000 of crowdsourced funds.⁹⁴

⁹¹ Upper Limits Bloomington. Accessed 4/13/20. <u>https://www.upperlimits.com/bloomington/visit/facility/history/</u>

⁹² Mill City Museum. Accessed 4/13/20. <u>http://www.mnhs.org/millcity</u>

⁹³ https://www.desmoinesregister.com/story/news/2018/12/13/fort-dodge-mural-silo-artist-guido-van-helten-iowa-paintingmidwest-grain-elevator/2263838002/

⁹⁴ https://www.kansas.com/entertainment/ent-columns-blogs/keeper-of-the-plans/article222365075.html