Village of Winnetka Plan Commission Members,

At a recent meeting, members of the Plan Commission raised several questions regarding the proposed plans for Elder Lane Park and Centennial Park. These inquiries addressed key elements of the park improvements, the decision-making processes, and the potential impacts of the proposed designs. Below is a comprehensive summary of the questions raised and the responses provided. But first, there are some general observations the Park District wishes to address.

Public Uses in Residential Districts

The Park District wants to address the inherent tension which exists by reason of Village zoning regulations characterizing all public uses as special uses within otherwise residential districts. It is inherent that there will be some degree of conflict between the homes and a public park which is meant as a community gathering place used for active and passive recreation.

The Park District recognizes this and to respect its neighbors the Park District has designed Centennial Park and Beach to minimize the conflicts with the surrounding community. As an example, the public feedback collected by the Park District expressed a priority for preserving the ability to view Lake Michigan and the shoreline to the north and south. In response, the Park District has presented a plan with a lower rubble mound breakwater and improvements much lower than the previous design plans. While the reduced height directly diminishes its effectiveness, the plan balances utility with the aesthetics desired by the community in a way that achieves the standard described in the Lakefront Protection Ordinance to include only what is minimally necessary.

Another area where the conflict between residential and public uses arises is the Steep Slope Ordinance and the exceptions the Park District has requested. The uses and building scale incorporated into the Steep Slope Ordinance are designed primarily for residential properties. Where a path is used for a single-family dwelling five feet may be large enough. However, in a public park where there is greater two-way foot traffic, a need for access for first responders and the need for more regular maintenance, five feet is simply insufficient. Nonetheless, the Park District has once again attempted to minimize the impacts on the steep slope zone. Moreover, the Park District will apply construction methods that strictly comply with or exceed the standards in the Steep Slope Ordinance to ensure the bluff is protected and preserved for generations to come.

Evidence vs. Public Comment

The Park District has assembled a team with extensive qualifications to work on the proposed park improvements, including years of experience in park planning, the park and recreation industry, and working along the Lake Michigan coastline. The development of this plan is grounded in scientific analysis and years of experience, not in speculation or conjecture. While public comments have raised questions, particularly regarding the qualifications of the

professionals involved, it is important to clarify that the Park District has engaged through a public and competitive bid process, licensed engineers with specialized expertise in coastal systems. The Park District's application is supported by these experts, including Dr. Charles Shabica and Mr. Matthew Wright, whose credentials and experience far surpass the unqualified opinions presented by some members of the public. The following details aim to provide a clear distinction between evidence-based planning and public comment, emphasizing the expertise and regulatory compliance behind the Park District's proposal.

There have been questions about whether the Park District hired "coastal engineers" to help design the project. **To clarify—this is a distraction.** Opponents of the plan continue to raise this issue but disregard the facts. In Illinois, there isn't a specific license for "coastal engineer." Instead, coastal engineers would typically be licensed as professional engineers (PE). The Illinois Department of Financial and Professional Regulation (IDFPR) oversees the licensure of professional engineers in the state.

To become a licensed professional engineer in Illinois, one must:

1. Obtain a degree from an ABET-accredited engineering program.
2. Pass the Fundamentals of Engineering (FE) exam.
3. Gain at least four years of supervised practical experience.
4. Pass the Principles and Practice of Engineering (PE) exam.

Once licensed as a professional engineer, individuals may specialize in coastal engineering through their work experience and additional training. All of the engineers engaged by the Park District meet or exceed these qualifications. To emphasize this, we have presented the following summaries:

<u>Charles Shabica, Shabica & Associates:</u>
Over 40 years of experience as a coastal scientist and authority on the impacts of structures on coastal systems. Graduated from Brown University with a B.A. in Geology and from the University of Chicago with a Ph.D. Since 1971, was a professor in the Department of Earth Science at Northeastern Illinois University, where he specialized in coastal geology and coastal engineering. Throughout his career, he has been active in coastal research and has published more than 50 articles and reports. In 1984, he founded Shabica & Associates, which serves as a consultant firm for coastal geology and coastal engineering. Charles Shabica was recognized by the United States Court of Federal Claims as an expert in the matter of Banks v. United States, regarding the improvements constructed by the U.S. Army Corps of Engineers at the St. Joseph Inlet, St. Joseph, MI and the resulting interruption of natural littoral drift of sand to down drift properties resulting in accelerated erosion.

<u>Matthew Wright, PE RED BARN Design & Engineering:</u>
Education BS-Civil Engineering University of Wisconsin-Madison, 1981
Registrations Prof. Engineer WI, IL, MI, PA, IA, MN, IN, GA, KY

Mr. Wright, for over 43 years, the last 22 as founder/owner of RED BARN Design & Engineering, has served as project manager and Senior Civil Design Engineer on numerous civil and environmental engineering, coastal engineering and waterfront development projects. Mr. Wright's project involvement typically includes design and preparation of plans and specifications for bidding and construction, bid phase involvement, construction documentation, construction administration, permitting and client liaison. Mr. Wright is experienced in the areas of civil engineering design, marina, harbor infrastructure, breakwater and shore protection design and construction, as well as site infrastructure design, feasibility studies, data acquisition and analysis, and construction materials investigations.

With this collective amount of relevant and local experience, the Plan Commission should have no doubt the Park District's plan has been prepared and vetted by qualified "coastal engineers."

In contrast, the engineering-related public comments from opponents of the plan appear to be based on unverified internet research and layperson assumptions rather than qualified expertise. While the Plan Commission is not bound by traditional rules of evidence in this proceeding, it is both reasonable and appropriate to place significantly greater weight on the analysis and findings of credentialed experts.

The same arguments apply to the public's assertions related to the Americans with Disabilities Act (ADA). The Park District, as with all public places, commercial buildings, employers, and government entities, has been subject to the ADA since its inception in 1990. Our staff and consultants collectively have decades of experience designing facilities which comply with ADA standards, not to mention day to day experiences and interactions with persons that have disabilities within our community. While some members of the public have challenged whether the path from the parking lot to the beach is accessible, they have not presented any specifics to describe where it allegedly falls short. There is also a contingent that seem to opine that a "lift" is better for access than a pathway. While a legal option to consider, a wheelchair lift is a less effective option for beach access due to its limitations in capacity, reliability, and overall user experience. Lifts require ongoing maintenance, are prone to mechanical failures, and can be rendered inoperable by sand, weather conditions, or vandalism. They also accommodate only one user at a time, creating potential delays and restricting access for families, caregivers, or groups. In contrast, an accessible pathway provides a smooth, continuous route that allows multiple users to travel safely and comfortably, including those using wheelchairs, strollers, or mobility aids. It promotes independence, ease of use, and a more inclusive experience while minimizing the need for ongoing technical maintenance.

Next, the Park District wants to share our experience with the most frequent and vocal critics of the plan. We have been engaged in the planning process for over 10 years. Throughout the planning process the District has held many open houses and accepted good faith comments designed to **improve** the plan. However, it is clear to us that the most frequent and vocal critics are not aiming to improve the plan, but instead hope to delay and defeat the plan. The Park District has made changes in response to their suggestions, only for them to complain about the

solutions offered to the original complaints. There is no plan that will satisfy these critics because they want there to be no plan at all. Time and again, concerns—such as handrail heights or lake views—have been addressed, only for opponents to abandon those arguments and shift to new objections, whether claiming a lift is better than a path or that all structures are inherently dangerous. Many of these concerns even contradict each other, creating a Catch-22 where no solution would ever be acceptable. An example of this is, arguing that improvements will attract too many people while also demanding more parking, or opposing an accessible pathway because it reduces open space while also pushing for more parking, which would do the same. It remains unclear what, if anything, would ever meet the demands of this vocal minority. Our focus remains on serving the broader community, whose input has consistently shown that beach improvements are both important and a priority. Below we summarize why the Park District has decided that doing nothing at Centennial is not an acceptable option.

- The Park District's beaches are not intended to be private or assigned solely to one neighborhood. There is not a "northern beach" and "southern beach." All Park District beaches belong to the community as a whole and are designed as a collective lakeside recreation system. Beach passes are not assigned to a particular beach but apply universally.
- The Waterfront 2030 Plan establishes the Park District's goal to improve all five public beaches in the community and still represents the official policy of the Park District.
- The evidence we have presented makes clear that doing nothing at the beach will allow more harm to occur:
    - Failure to reinvest in bluff protection may allow a repeat of the bluff collapse which occurred in the 1980s that resulted in the need to reconstruct the bluff;
    - Failure to replace the existing steel groins with a rubble mound breakwater will permit more rip currents and make it more dangerous to swim;
    - Failure to replace the existing steel groins with a rubble mound breakwater will allow sand to be lost and the permanent diminution of the beach area.
- The Park District has an ethical and legal duty to make our facilities accessible to users of all generations and abilities. Doing so in a way that also facilitates enhanced public safety and lowers the cost of maintenance is cost-effective and the most efficient use of public resources.

The bottom line is lakeshore property owners like the Park District need to reinvest in their property to protect and preserve the land. Otherwise, the lake will continue to erode the beach and cause permanent loss of land. Allowing the Park District to reinvest in and improve the beach is in the long-term best interest of the whole community.

Donation Agreement

The fact that our neighbor has chosen to pledge financial support for the proposed plan does not mean the plan was any less independently prepared and approved. Following the timeline of events, the Park Board approved schematic design plans in May 2023. The initial discussion of

the donation agreement was not raised until August 2023. The donation agreement is not a tool intended to steer the direction of the plan, but to express support for the design choices made by the Park District. Once again, this plan is the Park District's plan despite the rumors and speculation. In addition, there is nothing in the Donation Agreement which prohibits the Park District from making changes to the plan. If the plan changes to such a degree that the donor no longer supports the plan the donation can be cancelled. The donor does not have authority to compel the Park District to choose one plan or another.

The Park District does find it ironic that our neighbor's support for the plan, as represented by the donation agreement, is possibly perceived negatively. For nearly every zoning application presented to the Village, the advisory bodies hear testimony from neighboring property owners regarding their support for or opposition to the project. Why should our neighbor's support for the plan be weighed any differently?

There has been some public comment about the Park District ceding control of the beach by accepting a donation with a restrictive covenant. This is untrue. First and foremost, there are no restrictions on the Park District's ability to invite the public to use the beach and park for the intended uses. The donor does not control the park hours, how many dogs can use the dog beach, how many patrons can use the swimming beach or how the Park District programs the park. Second, the facts are that the infrastructure improvements proposed by the Park District have a normal useful life of 50-75 years. Even if the donation did not exist, the Park District's plan represents a generational investment in the lakefront that is designed to remain in place for the foreseeable future with only routine maintenance. Promising to maintain the improvements for their normal useful life does not represent a loss of control.

Last, objectors have asserted the plan represents the donor's preference rather than what is in the community's best interest. There is just no logic to this proposition. Critics have expressed the dog beach is located closer to 205 Sheridan based on the donor's preference. But the donation does not support only the dog beach. Instead it is intended to support (a) the path across the steep slope, (b) the rubble mound breakwater and boardwalk, and (c) the dog beach. Collectively, these improvements will enhance the beach and shift how the property is used. The Park District does not claim to know—or need to know—the donor's motivations. However, if the intent were solely to preserve privacy, it is unclear why the donation would support changes that make the space more functional and welcoming to the public. If privacy were the goal, the donor would likely align with those opposing any improvements at Centennial.

Critics of the donation agreement appear to be redirecting their frustrations with the donor and the project at 205 Sheridan onto the Park District, despite the fact that 205 Sheridan and the aforementioned donation agreement is unrelated to this application. It is beyond the purview of the Plan Commission to entertain complaints about a private property and a donation agreement that has no bearing on the Park District's proposal. Yet, opponents continue to rely on images of 205 Sheridan as a distraction from the actual merits of the project under review.

Zoning Review or Design Consultant

The Park District's application represents the culmination of years of community input, study and engineering design. The Park District's popularly elected leaders have had time to carefully balance competing interests and prepare a plan with interrelated and interconnected components that serve multiple purposes. Our plan is not perfect. But perfection cannot become the enemy of the good. It is important to make progress and allow for the reinvestment in our community's public assets. When the Park District and Village work together, we can accomplish great things – the storm water project at Winnetka Golf Course is an excellent example.

The Park District is happy to receive constructive feedback designed to improve the plan. However, we respectfully remind the Plan Commission your role is not be a design consultant to the Park District. Simply imposing personal preference ignores the legislative judgment of the Park District's elected officials, is inappropriate and beyond the scope of a Plan Commissioner's role. Rather, the Park District understands the task is to evaluate our plan by reference to the criteria for issuing a special use permit. If you find it necessary, we invite conditions of approval designed to help the plan meet the zoning standards.

In response to the questions and comments raised by the Plan Commission during the January 22, 2025 meeting, we have compiled a comprehensive breakdown of the issues addressed. Included in the attached appendix are detailed answers to your questions, along with the accompanying presentation. We hope that our thorough efforts will provide clarity and resolve any concerns you may have. We trust that our responses will enable you to evaluate the project on its merits and ultimately provide a positive recommendation to the Village Council.

PLAN COMMISSION MEMBERS' QUESTIONS AT MEETING

1. Why is the Park District waiting to present the Elder Lane Park & Beach plan?
    a. The Elder and Centennial Plans were prepared at the same time. Plans for Centennial were submitted in April 2024, while plans for Elder were submitted in September 2024. The Village advised the Winnetka Park District (WPD) to delay submittal of the Elder plans until such time as the Village determined whether the size and location of the storm sewer relocation was acceptable.

2. Why not present both Centennial & Elder improvements together? It's difficult to access the Centennial Plan without knowing what is proposed at Elder.
    a. The WPD prepared multiple alternative plans including various plans depicting the combined Elder and Centennial. See **"Exhibit 1 – Plan Evolution"** depicting plan evolution and alternatives between Jan 2023 and Jan 2025.

3. Explain dog beach placement. Why is it proposed where it is?
    a. The WPD voted unanimously to keep the dog beach in its present location on October 27, 2022. The WPD previously considered moving the dog beach to Tower Road Beach but determined that it best to keep it in its current location after a reporting of a Dog Beach Committee comprised of fellow residents. See **"Exhibit 2 - Dog Beach History"** for more information.

4. Would like to hear more about why the separately presenting Centennial and Elder?
    a. Elder and Centennial are separate parks, and based on the information received through the initial review process, it was suggested to submit the plans as they were ready. The WPD has plans for combining the beaches. See "**Exhibit 1 - Plan Evolution"** for more details.

5. Would like to hear more about the decision process regarding the placement of the dog beach? How and when?
    a. The Park District voted unanimously on October 27, 2022 to keep the dog beach in its current location at Centennial Park. See "**Exhibit 2 – Dog Beach History"** for more information.

6. Why were this breakwater design chosen to move forward versus previous designs presented in the presentation? When and why was the headland system abandoned for the break wall system that has been presented? Why was not an island system considered versus what was proposed?
    a. The Village of Winnetka adopted a series of ordinances addressing lakefront improvements in March 2023, July 2023 and February 2024. The newly adopted ordinances prioritize unencumbered views of the lake over beach preservation, thus the Park District revised its plan to comply. See attached "**Exhibit 1 – Plan Evolution"** for a more complete explanation.

7. How will Sheridan Road neighbors on the lakefront be impacted by the breakwater? May it be creating harm to property owners to the south.
    a. The design of the breakwater will have minimal if any impact on the properties to the south. The existing steel groins at Elder extend more than 200 feet offshore. The proposed pier at Centennial is a similar length. Moreover, the IDNR requires 120% of the anticipated sand profile to be placed in the system so that the downstream neighbors will not be negatively impacted as excess sand will be introduced into the littoral system. The District will also monitor the sand in the beach system for five years to ensure that the proposed design is working as designed.

8. What is the cost to dredge or remove sand?
    a. Dredging and/or sand removal in the current design is not anticipated. Generically, the cost of dredging depends upon a variety of factors, including the method (marine based

or land based) the quantity to be dredged and where and how the dredged material is disposed.

9. Were any private residents involved in the proposed plan design? What opportunity was provided to them to provide input?
    a. The WPD developed the various designs and alternatives utilizing its consultants and taking input during many public input sessions including but not limited to open houses held in January 2023, February 2023 and April 2023. A complete history of the preparation and public input process is detailed in "**Exhibit 3 – Resolution 05-25-23**." The plans were subsequently revised between July and October of 2023 to comport with the recently enacted Village ordinances. Refer to Village Lakefront Ordinances.

10. The Red Barn Design & Engineering letter submitted to the ZBA at its December 9 meeting appears to contradict the response by the same firm at the November 16, 2023, Park District Board meeting with respect to the need or justification for the pier. Explain this discrepancy.

    a. Matt Wright, P.E., of Red Barn Design & Engineering, responds as follows:

    Elder: The main project design goal was to stabilize the shoreline through the implementation of an "engineered" structural solution to provide the primary shore protection for the design conditions. Accordingly, using input from the community, the project team developed a plan for stabilization of the shoreline. providing public and ADA access to the beach, and shore protection for the width of the property. A geotechnical soils sampling and analysis was performed for determination of design parameters for use in design of the shore protection elements. Using the input from the Geotech analysis, review of the elevations and details of the existing Centennial Park shoreline improvements implemented in 1987, and past project experience and designs of similar shore protection elements for projects along the west Lake Michigan shoreline, the sheet pile bulkhead (boardwalk) was designed. The crest elevation of the boardwalk and backing wave wall are consistent with the existing Centennial Park shoreline, and that of numerous projects designed and implemented by the design team throughout the region.

    The design was sealed by both an Illinois Licensed Structural engineer as well as the project engineer of record.

    The north and south breakwaters, and sand fill beach, were designed using USACE Shore Protection Manual methods and procedures, and sand fill and overfill layout was prepared in accordance with USACE standards. No "coastal engineering" analysis was performed to design the structures as the structures are intended to provide the framework of a sand beach only. The presence of the breakwaters will provide a measure of shore protection for the project reach, but any benefit gained by their presence is secondary to the primary shore protection provided by the steel sheet pile bulkhead and wave wall. Additionally, the WPD acknowledges that the sand fill placed may need renourishment on an annual or other

frequency. The sand fill will be monitored and supplemented in accordance with the monitoring plan prepared as a part of the USACE permit.

Centennial: A key feature of the proposed design is the new pier structure, which features a steel sheet pile core bordered by a rubble mound revetment structure. This structure serves as an improvement over the existing steel groin as it relates to reduction of any existing rip currents currently experienced along the steel groin, while performing additional sand retention and seasonal accretion at the beach areas. These improvements provide enhanced public space at the park beachfront. The pier's length and width were carefully selected to ensure it provides the right scale for the site while achieving vital environmental goals.

The crest elevations of both the pier core and rubble mound revetment were selected to follow the Village's Lakefront Ordinance, while adhering to the principle of minimal intervention necessary to fulfill these objectives. The chosen length of the pier aligns with the dimensions of other piers along the Winnetka shoreline, ensuring consistency with the area's existing shoreline improvements. This thoughtful consideration allows the design to blend harmoniously with the surrounding environment while enhancing the functionality of the beach.

No "coastal engineering" was performed in preparation of the design of the project elements as the primary shore protection will continue to be provided by the existing steel sheet pile bulkhead and gabion blanket. And again, similar to the Elder Lane Beach site, all structures were designed using parameters gained thru a geotechnical engineering investigation.

The design was sealed by both an Illinois Licensed Structural engineer as well as the project engineer of record.

b. It is important to distinguish the difference between bluff protection and beach preservation. At Centennial, bluff protection is provided by the existing steel sheet pile bulkhead (the majority of which was installed in 1987). Beach preservation is accomplished by virtue of the proposed pier. While the pier will retain a sand beach, it is a public amenity, affording access to people of all abilities to enjoy panoramic views of the lake while also properly separating the dog beach from the swimming beach. Additional information on headland beach systems, piers and jetties is provided in "**Exhibit 4 – Definition of Terms"**

11. What is minimally necessary for the pier? The Illinois State Beach Park design is not only safer, but the sight lines are less impaired; did WPD consider that sort of design?
    a. Without an improvement perpendicular to the shoreline such as a pier, a headland beach system or an extensive offshore rubble mound breakwater system, there will be little if any usable beach. The solution implemented at Illinois State Beach is vastly different scale (3000-4000 feet of shoreline versus 1000 feet of shoreline at Elder-Centennial). The solution implemented at Illinois Beach State Park has not been proven to be safer than alternatives, as evidenced by two drownings at IL Beach State Park in July of 2024,

including one where the deceased unsuccessfully attempted to swim to an offshore breakwater. See attached **"Exhibit 5 – Illinois Beach State Park."**

12. Is the proposed location of the dog beach the only possible location for a dog beach?
    a. The only other viable dog beach location considered by the WPD was the south end of Tower Road Beach. The usable public beach frontage at Tower Road is approximately 520 feet, of which the southernmost 320 feet is owned by the Village of Winnetka. The Village of Winnetka previously offered to relocate the dog beach to Tower Road. The WPD decided to keep the dog beach at the south end of Centennial beach on October 27, 2022. The primary reasons cited for keeping the dog beach at Centennial are as follows:
        i. Due to the exposure to the northeast wind and waves, a robust separation between the swimming beach and dog beach such as a steel jetty, stone breakwater or pier would be necessary to separate the two uses.
        ii. The riptides at the south end of Tower against the existing pier present a hazard to people and dogs.
        iii. Tower Road Beach is comprised of Village owned shoreline (320 feet) and Park District owned shoreline (200 feet). Allocating more than 220 feet of beach to a dog beach would result in less than 300 feet of useable shoreline for swimmers. See **"Exhibit 2 – Dog Beach History"** for additional information

13. The Park District provided the Plan Commission with additional information on Tuesday of this week; provide a summary of that material and the relevant points as they relate to the standards that the Commission is to examine in consideration of this item.
    a. The five recently enacted Village of Winnetka Ordinances addressing construction in and near Lake Michigan compelled the WPD to amend its plans as approved in May of 2023.
    b. The October 13, 2021 (abridged) presentation of existing conditions and lakefront images was intended to inform the Plan Commissioners and public of the nature the existing conditions along the lakefront, including:
        i. unsafe conditions: fall risk, physical hazards, dangerous pathways
        ii. existing public improvements with fences blocking public passage along the lake Michigan Shoreline (including a chain link fence at the north end of the Centennial dog beach that was destroyed by rising water levels and wave action.)
        iii. deteriorated condition of the Elder Pier
        iv. deteriorated condition of northernmost section of Centennial steel bulkhead.

PLAN COMMISSION MEMBERS' QUESTIONS SUBMITTED AFTER MEETING TO STAFF FOR APPLICANT

General

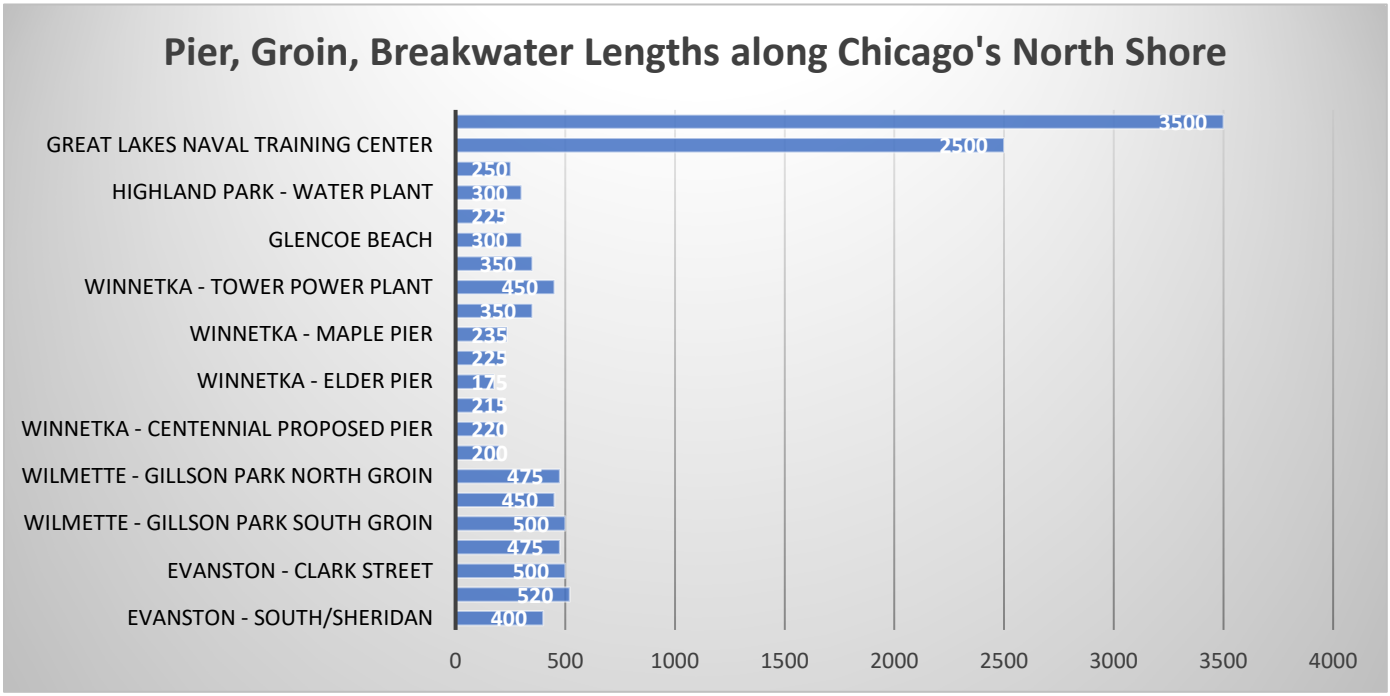
1. Why is it not possible to get a commitment from Mr. Ishbia for an easement or license to allow the public to cross over his property to get to the stairs in order to continue to go south along the Lake? This issue was raised at the very beginning of the ZBA process and it is still not resolved.
    a. The property owner's representatives have not yet responded to the request.

2. Concerned about the agreement with 205 and the 50-year restrictive covenant. The Park District states in its presentation package that "times change/environment changes" so with a restricted covenant how do you give away Park Districts rights over unforeseen environmental changes to the beach and park (and ability to fix them) to one landowner?
    a. The Park District is not giving away rights of the park.

3. What influence did neighbors have (any and all along the lakefront) over the plan presented on January 22, 2025?

    a. The WPD developed the various designs and alternatives utilizing its consultants and taking input during many public input sessions including but not limited to open houses held in January 2023, February 2023 and April 2023. A complete history of the preparation and public input process is detailed in **"Exhibit 3 – Resolution 05-25-23."** The plans were subsequently revised between July and October of 2023 to comport with the recently enacted Village ordinances. Refer to Village Lakefront Ordinances.

4. Recognizing that the Park District has the right to separate Centennial and Elder and present each individually, with such vast changes to the open land and shoreline with an enormous Pier at Centennial, why is the Park District proceeding with Centennial separate from Elder?
    a. Responding to this question will likely be subjective as the question itself is subjective. The WPD does not see the proposed changes to open land and the shoreline as "vast." The WPD does not see the proposed pier as "enormous." The WPD developed the minimum necessary access route to Centennial to provide maintenance, emergency and ADA access to its beachfront at Centennial. The proposed pier (200+/= feet) is modest when compared to similar structures in Winnetka (Tower Pier 450 feet, Lloyd Pier 350 feet, Maple Pier, 235 feet). See the table below for a depiction of the relative sizes of beachfront improvement along the North Shore.



The WPD was prepared to submit both Elder and Centennial at the same time. The Village of Winnetka did not provide the necessary storm sewer information in time to keep the two permits on the same track.

5. How would the proposed plans change if the Park District was able to acquire or otherwise utilize the 261 property and thus combine Elder and Centennial?
    a. The unification plan will most likely incorporate a low-crested off-shore breakwater, see "**Exhibit 1 – Plan Evolution"**.
6. The Centennial Plan is difficult to understand and evaluate without understanding the planned uses/intentions for Elder and 261 Sheridan.
    a. Has the WPD devised any plans for these other two properties? If so, why were they not submitted with Centennial?
    b. How would WPD ownership of 261 change these plans?
    c. Is there a plan to subdivide any of the property any place within the three sections?
    Answers:

        a. Many plans have been developed for the unification of the parks: see **"Exhibit 1 – Plan Evolution"**
        b. See **"Exhibit 1 – Plan Evolution"**
        c. There are no plans to further subdivide any of the property at Elder, Centennial and 261 Sheridan.

7. The Kimley-Horn document and comments from District representatives suggest that there will not be an increase in users of Centennial Beach as a result of the project. If that is the case, what is the need for the project, particularly its size and scale?

a. This question presents a false premise. Kimley-Horn's testimony suggests that the parking provided at Elder and Centennial exceeds that of similar beaches along the North Shore. WPD is not proposing to increase parking at this time because the expert testimony concludes it is not necessary. Moreover, Centennial has an abundance of open space that could be used for additional parking if and when the demonstrated need arises. The WPD observed that New Trier Students park at Elder during the school year and walk to school. Similarly, the available public parking at New Trier can serve beach goers if needed during the peak summer days. The lakefront master plan includes concepts for unifying the park and revising the parking areas, however, any such changes would be required to go through a separate permitting process.

8. When did Mr. Ishbia and/or his representatives have the very first conversation with the WPD and/or their representatives about a possible donation? When did he/they make an official offer of funding to the WPD?
    a. This question is irrelevant to the scope of the Plan Commission. The neighboring property owner offered to pay for a share of the southerly breakwater from the beginning of negotiations of the Exchange Agreement. They consistently reiterated his offer to help pay for the beachfront improvements throughout the ongoing negotiations. The WPD specifically asked for a donation of $3 million in August of 2023 to help defray the cost of the proposed improvements and they agreed to make the donation. Negotiations regarding the donation agreement ensued resulting in the Donation Agreement approved by the WPD.

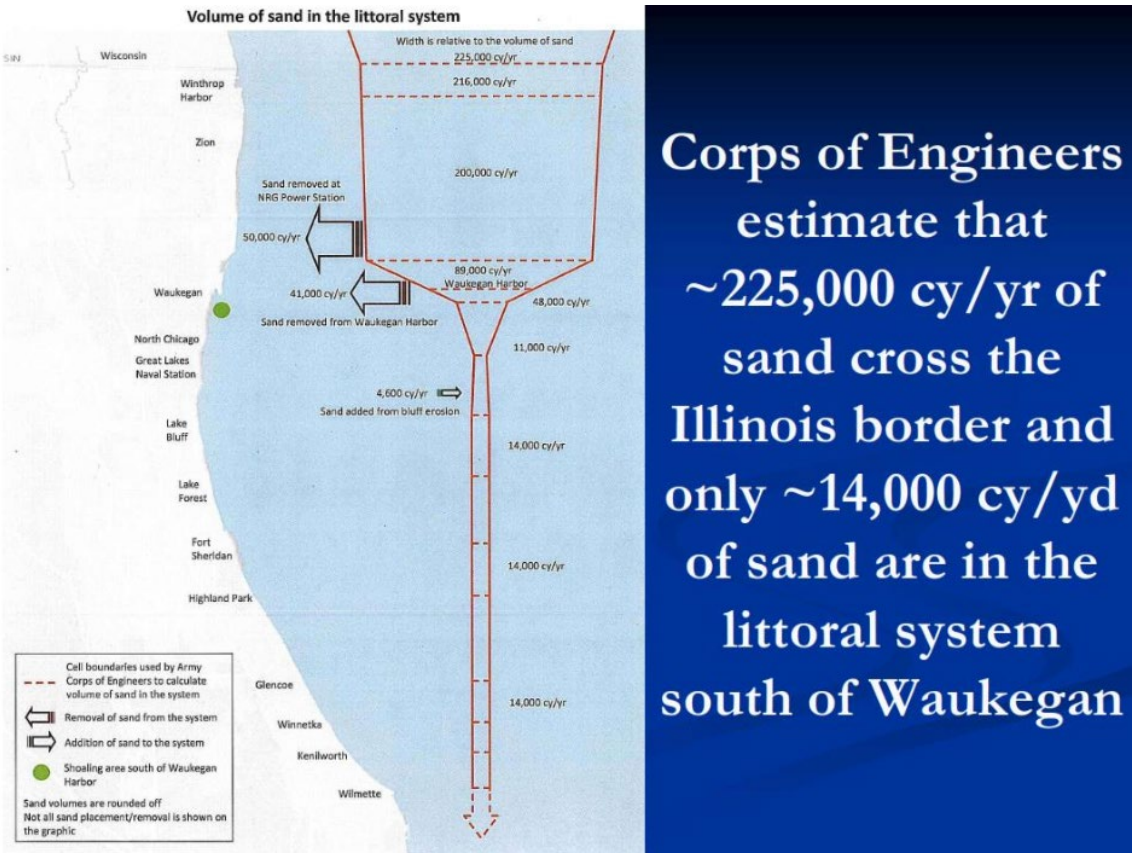
9. Did Mr. Ishbia or any of his representatives provide any input to the Park District with regard to any elements of the proposed Centennial Park and Beach plans?
    a. No. The property owner or representatives did not provide input on the plans submitted for Centennial Park and Beach. However all residents had the opportunity to provide input to the Park District through the public input process as previously iterated.

10. What exact steps/permissions need to be performed/acquired to open Elder Beach and Centennial Beach for the 2025 season?
    a. Centennial beach is not closed; it is restricted to on leash dogs in keeping with Village and Cook County ordinances. Elder Lane Beach is not included in this Special Use Permit application. The WPD is awaiting word from the Village on steps to remove the hazards and reopen Elder Lane to swimming as soon as possible.

11. Please provide all technical data compiled, including hydrologic studies and modeling, specifically conducted for the WPD, to support the Centennial coastal plan.
    a. Technical data as required for the permit submittal to the U.S. Army Corps of Engineers and Illinois Department of Natural Resources is contained within the Permit Plans submitted to the Village of Winnetka. With respect to "hydrologic studies and modeling"

the IDNR Permit requirements read as follows*: "The submittal should include an analysis of the proposed structure on the wave climate and impact to the movement of sand (littoral drift). The analysis should include a review of the proposed structure individually and cumulatively with adjacent structures. Professionals with experience in this area should be utilize for this work."* Charles Shabica, Shabica Associates, and Matt Wright, Red Barn Design and Engineering are recognized experts, and has provided the necessary analysis **"Exhibit 13 – Professional Qualifications".** Hydrologic studies and modeling are not justified for a project of this small scale.

12. Has the Park District conducted an analysis of the recent IL Beach State Park project spearheaded by the State of Illinois in conjunction with several major universities, the IDNR, NOAA and the ACOE to compare cost effectiveness, viability and environmental impact vs the WPD Centennial plan? If so, please provide the report.
    a. The Park District is aware of and has reviewed the scope, scale and experimental nature of the improvements recently completed at Illinois Beach State Park. The nature and extent of the Illinois Beach State Park improvements is vastly larger scale than Centennial Beach and they lie within a substantially different region of the Lake Michigan Shoreline. Notably, Illinois Beach State Park is north of Waukegan Harbor and receives far more naturally occurring littoral deposition of sand (estimated by the ACOE at 225,000 cubic yard per year), whereas the shoreline south of Waukegan Harbor and Great Lakes Training Center receives only 14,000 cubic yards of sand on an annual basis



Excerpt from Shabica Presentation to Winnetka Park District – March 24, 2022

13. It appears that the 3 largest and most restrictive/potentially dangerous parts of the WPD Centennial plan, the large pier, the 10+ foot ramp and dog beach walls/fences, are also a central part of the WPD's 50-year restrictive covenant agreement with 205 Sheridan Road. If those elements are not included in the Centennial plan, will the funding go away? Will the restricted covenant be null and void if these elements are not approved?
    a. The question contains false and unsupported conclusions of fact. There are thousands of piers along the great lakes. The proposed pier at Centennial is modest in scale and employs best in class design, surrounding the pier element with stone to dissipate wave energy, arrest potential riptides and create an open and obvious prohibition of jumping or diving. With respect to the access ramp, it is only as wide as necessary to accommodate small scale maintenance vehicles (skid steer/small tractor) and the slope is consistent with ADA standards. Contrasted to the existing driveways at Tower, Lloyd, Maple and Elder, the proposed access path at Centennial is far more modest. The fences proposed at the dog beach are required by code. The retaining walls along the access path are only as necessary to transit the grade and are far more modest than the existing walls at Tower, Lloyd and Maple. Whether or not the funding will be withdrawn if these elements are not approved cannot be answered at this time and is not within the scope of the Plan Commissioner purview.

14. Please provide the technical data that supports the testimony of the WPD that the Centennial Plan design was created in a holistic manner directly in relation to the rest of the Winnetka shoreline.
    a. Resolution-As-Amended-May-25-2023 approved by the WPD **"Exhibit 3 – Resolution 05-25-23"** provides the most comprehensive findings of fact approved by the WPD on May 25, 2023, including comprehensive plans for Elder and Centennial Parks. The objectives of the plan were outlined as follows:
        i. Provide access control to continue fee-based use of the Centennial and Elder Lane recreational beaches and the Centennial Dog Beach;
        ii. Provide critical public safety and welfare improvements;
        iii. Eliminate numerous dangers to patrons arising from interaction with damaged or dilapidated improvements, Elder Lane Pier segments, failing gabion mattresses and baskets with exposed rusted metal in the water, corrugated metal Village-owned pipe, and deteriorating concrete, submerged dog beach fence posts, wooden pilings from a pier dating to prior owner before 1969, other pier remnants, and other detritus;
        iv. Return to public use a more appropriate allocation of beach frontage for use as an off-leash dog beach;
        v. Meet the Cook County and Village requirements associated with operation of an off-leash dog beach;
        vi. Provide long-term protection against beach loss and beach and bluff destruction and severe erosion;

vii. Provide improved emergency and maintenance vehicle access route to the beach.
viii. Enhance overall aesthetics of Elder Lane and Centennial Beaches;
ix. Provide accessibility for disabled users in accordance with the Americans with Disabilities Act ("ADA"), including access to Centennial Beach boardwalk and viewing platform;
x. Eliminate the current gated, locked access that presently precludes the general public access to Centennial Beach; and
xi. Update, improve and relocate the Village's existing storm sewer outfall pipe and related storm sewer system improvements.

The program elements included in the Resolution approved on May 25, 2023, include:

i. Include rubble-mound breakwaters to create additional recreation area;
ii. Protect the shoreline and bluff from long term effects of erosion due to variable water levels while providing a foundation for future phases of upland improvements;
iii. Provide an accessible pathway conforming to ADA standards from the existing Centennial parking lot the Centennial Boardwalk and viewing platform, and provide for future ADA accessible route to the beach;
iv. Provide public access to, from and across Park District beach property allowing the public to traverse the lakefront including steps up and over any improvement perpendicular to the shoreline;
v. Relocate the existing gated and locked entrance to the existing dog beach to the new boardwalk level to allow public pedestrian access to the remainder of Centennial Beach from Centennial Park and adjacent beaches;
vi. Provide vehicular access path from Elder Lane parking lot to Elder Lane Beach for construction, maintenance and emergency purposes, and improved pedestrian access for beach patrons; and
vii. Re-locate, replace, and improve the Village's Elder Lane storm sewer discharge within the outer edge of the rubble mound breakwater at the north end of Elder Lane Beach.

Note: The plans for Centennial and Elder were subsequently revised to comply with multiple Village Ordinances passed in 2023 and 2024.

15. Please provide a copy of the bluff landscape plan/design that was mentioned in your presentation that you were putting in native species and taking out invasive plants. Where has it been implemented on other bluffs in Winnetka?
    a. Bluff landscape improvements and removal of invasive species have been completed at Tower Bluff, Lloyd Bluff and Maple Bluff. This was included in the original plan submittal Plan Documents.

16. While the landscape sectional views were appealing, a review of the civil drawings suggest a significant exposure of sheet piling and 2ft deep concrete downturn edge beams? What are the mitigation measures in mind to escape the brutal aesthetic of this?
    a. This is a subjective determination that falls within the scope of the Design & Review Board and is more appropriately addressed in that forum.

17. How will Winnetka residents and park visitors be able to fully utilize the intention of the Public Trust Doctrine? Will they have to go through the dog park and then walk along a genuinely risky water's edge to be able to truly cross 205 Sheridan in the NS direction? Based on the plan sketch shown this would be almost impossible. Further with wave action and sand movement along that edge, no one would venture to go out. Would this assumption be erroneous? Can actual transverse sections be provided by the engineers?
    a. This question appears to misinterpret the Public Trust Doctrine and pertains more accurately to riparian rights in Illinois. The definitive memorandum (for Winnetka) was prepared by Village Counsel, Peter Friedman, a copy of which is attached as "**Exhibit 6 – Friedman Legal Opinion"**. Per the question, beach goers will be able to traverse Winnetka Park District Property in a manner that is inline with the riparian rights in Illinois. We can only manage this on our property. Property south of our beach is managed by that home owner. The permits that have been issued and the improvements that have been built are inline with the permitting requirements for local, state and federal governing bodies. Our sketch shows an access path for beach walkers through the entire Centennial Beach site, with safe passage both north and south of our property lines. As a result, people who wish to traverse north to south along the lake have a safe path along the boardwalk and around the dog beach to continue their journey to the south. This satisfies the public's right under the Public Trust Doctrine.

<u>Dog Beach</u>

1. The 2030 master plan provides "there is no clear consensus on whether or not Centennial should be converted from a dog beach to a swimming beach at this time, but there is general support for monitoring community needs and considering a change of use at beaches based on the changing needs to the community." How did the Park District determine that Centennial was the best beach to use as the dog beach instead of any of the other beaches in the Village?
    a. The only other viable dog beach location considered by the WPD was the south end of Tower Road Beach. The usable public beach frontage at Tower Road is approximately 520 feet, of which the southernmost 320 feet is owned by the Village of Winnetka. The Village of Winnetka previously offered to relocate the dog beach to Tower Road. The WPD decided to keep the dog beach at the south end of Centennial beach on October 27, 2022. The primary reasons cited for keeping the dog beach at Centennial are as follows:

i. Due to the exposure to the northeast wind and waves, a robust separation between the swimming beach and dog beach such as a steel jetty, stone breakwater or pier would be necessary to separate the two uses.
ii. The riptides at the south end of Tower against the existing pier present a hazard to people and dogs.
iii. Tower Road Beach is comprised of Village owned shoreline (320 feet) and Park District owned shoreline (200 feet). Allocating more than 220 feet of beach to a dog beach would result in less than 300 feet of useable shoreline for swimmers.

2. Please provide any reports, surveys, plans, cost estimates or other related information that was conducted by the Park District in the evaluation ending in the determination that Centennial Beach was the only location for a dog beach.
    a. See "**Exhibit 2 - Dog Beach History**"
3. How was the size of the proposed dog beach decided?
    a. Based on an equitable allocation of shoreline for this specific user group and after comparing to similarly situated dog beaches (i.e. Wilmette Dog Beach, 225 feet). The WPD decided to keep the dog beach at the south end of Centennial beach on October 27, 2022.
4. Did Mr. Ishbia or any of his representatives ever request or discuss the location of the dog beach with the Park District or its representatives?
    a. The neighboring property owner and representatives have remained neutral with respect to the dog beach. The only request has been to ensure that off-leash dogs cannot stray onto his property.
5. According to the presentation presented on January 22, 2025, the Park District amended the plan to include a dog beach on October 19, 2023. When was it decided the dog beach should be at Centennial?
    a. The dog beach was established at Centennial Park in 1995. The Lakefront Master Plan, approved in 2016, envisioned unification of Elder and Centennial and relocation or removal of the dog beach from Centennial. The plans for the unified parks and beach were withdrawn by a vote of 3-2 on June 9, 2022. The Park District unanimously approved a motion on October 27, 2022, to maintain a dog beach at the south end of Centennial Park (its current location) of not more than 170 feet and not less than 270 feet.

6. I understand that there may be multiple reasons the Park District is choosing to place the dog beach where it is proposed. But are any of those reasons related at all to Mr. Ishbia, his property, or the proposed land swap or donation agreement?
    a. No.
7. Is it physically possible to locate the dog beach at any other Park District beach in the Village?
    a. The only other suitable location that was considered was the south end of Tower Road Beach. The Park District determined for several reasons outlined in **"Exhibit 2 – Dog**

Beach History" that Tower Beach was not the optimal location. This was completed as part of a dog beach committee that was formed with the purpose of investigating the possibilities for other dog beach locations.

8. If the Park District located the dog beach at another beach in the Village, how would the proposed plans for Centennial change?
    a. See original plans submitted for permit in April, 2022.
9. Has the District conducted an analysis of placing the dog beach at Elder Beach, any other beach, or at another location within Centennial Park? If so, has the Park District shared that analysis with the Village?
    a. Yes. The WPD concluded the most appropriate location for the dog beach is its current location at Centennial Park. See **"Exhibit 2 – Dog Beach History"**
10. How was the location of the fence around the dog beach determined?
    a. To comply with IDNR guidelines, which read as follows: "Where possible, notably in areas where existing access along the lakeshore is available, the project should provide some type of reasonable access over or around it on the landward side." The proposed plan allows beachgoers to by-pass the dog beach along the landward side.
    b. And to comply with Cook County Guidelines for off leash dog parks which require fenced enclosures.
11. Do you have to traverse over private property to get to the dog beach?
    a. No.
12. Is it possible to create a separate pathway or entrance to the dog beach?
    a. Yes, however, it would result in additional expense and further impact on the bluff that has been adamantly advocated against.
13. Please provide the opinion from Cook County that says the Park District must fence in the dog beach and evidence that a dog beach fence would be allowed by the IDNR and ACOE if it were approved by the Village.
    a. See "**Exhibit 7 - Cook County Animal Control Ordinance"**, which reads in part, "No person including a municipal corporation, forest preserve district or park district shall designate within the County an outdoor area, even if fenced, as an area where dogs may run off leash unless such person, municipal corporation, forest preserve district or park district complies with such regulation as may be issued by the Administrator for the operation of outdoor off leash areas. (Ord. No. 04-O-44 par. 6, 11-3-2004.)
    b. Fences exist up and down the beaches of the North Shore. See **"Exhibit 8 - *Elder and Centennial Park and Beach",*** which includes images of many fences on beaches up and down the North Shore, including nearby Glencoe, Kenilworth and Wilmette beaches.

<u>Pier</u>

1. You mention in your narrative for your application, on pg 56 of 1151, that the main purpose of the pier is to "substantially delineate the two distinctive swimming beach and dog beach uses." Beyond that, you mention that it will also provide some additional shore protection (diffusing

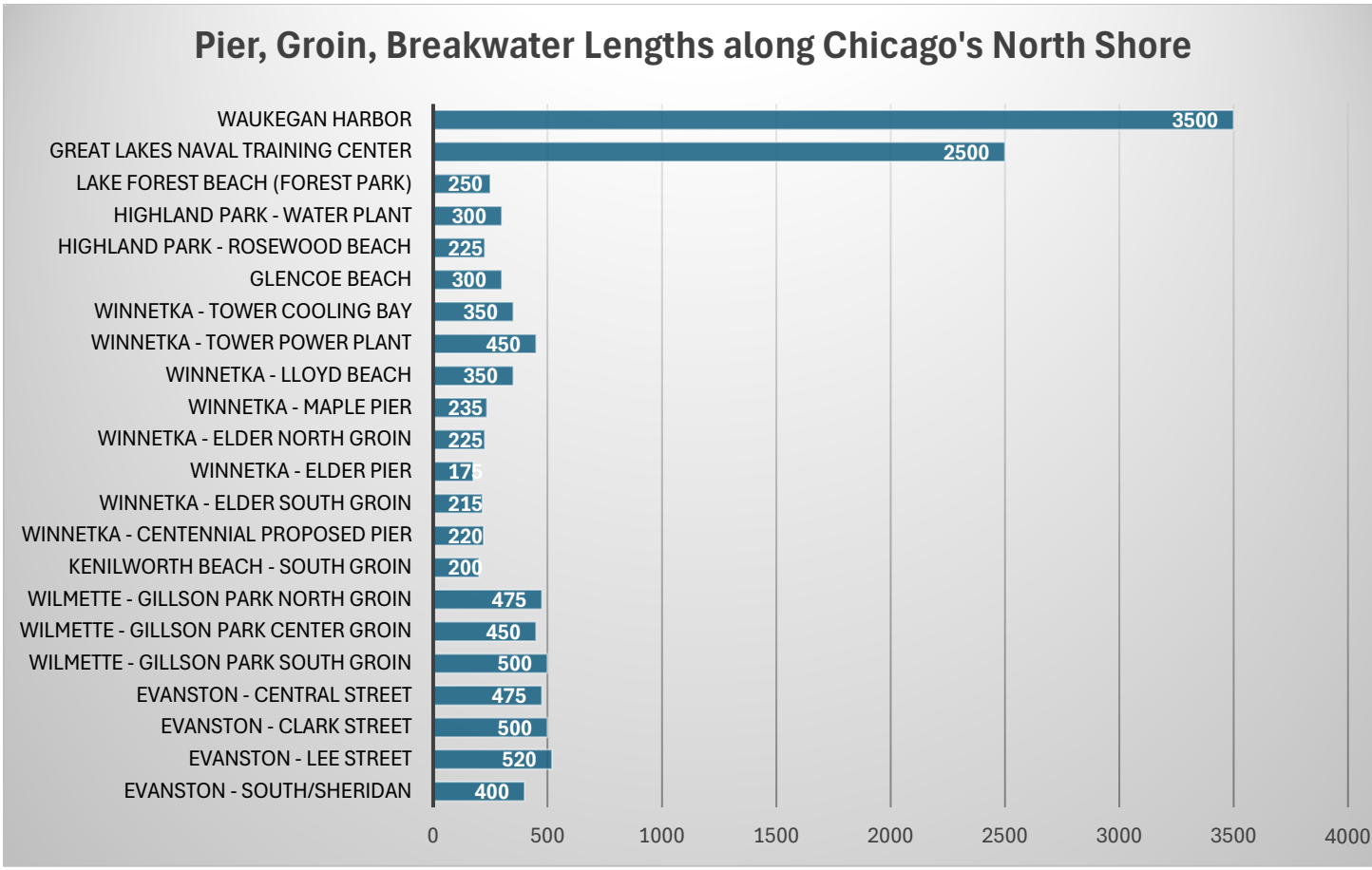
wave energy and holding sand). If you moved the dog beach from Centennial, would you still need some sort of structure in this location for shore protection?

   a. Without a headland beach system, breakwater, jetty or pier, there will be little if any usable beach at Centennial. See "**Exhibit 9 - Lake Michigan Shoreline – Kenilworth Beach to Centennial Beach 2002-2024".** The pier and/or breakwater perpendicular to the shore will provide a modicum of "shore protection" but it will hold sand in most conditions. See **"Exhibit 4 – Definition of Terms"** - Definitions, for further explanation and differentiation between beach preservation and bluff protection.

2. Can the park district further address the questions of safety for the swimming area and the close rock pier- it seems like a danger to the public (swimmers) and the lifeguards who are to protect them?
   a. No beach is perfectly safe, all beaches involve certain risks. The pier with rip-rap (armor stone, rock) is best practice to dissipate wave energy, reduce the likelihood of rip-tide and create an open and obvious prohibition of jumping or diving from the pier. Piers with vertical edges result in wave reflection and overtopping. Waves that overtop piers have the potential to wash unsecured people or objects off of the structure. Piers without rip-rap or armor stone are subject to additional damage due to wave and ice impact (i.e. Elder Lane Pier, Tower Road Pier)
   b. As mentioned in presentation, there are many things that WPD does to mitigate risk as best as possible. This includes public education of water safety, and highly trained and qualified lifeguards.

3. Does the pier provide enough of an environmental impact to justify its existence if the dog beach isn't there?
   a. The proposed pier is an amenity for public use and enjoyment of the lakefront. The existence of the pier will result in a larger useable beach area than what would result without a pier. Refer to "**Exhibit 10 -North Shore Beaches"**, compare and contrast the useable beaches at Kenilworth and Glencoe. The Kenilworth steel jetty is 200 feet while the Glencoe Pier is 300 feet in overall length.

4. How was the size of the pier decided beyond what's mentioned in the Red Barn statement of Dec 6th that it provides some kind of "consistency" with other area shoreline improvements? Have you done any engineering modeling around the environmental impacts?
   a. The length of the pier is no further than the existing steel jetties at Elder and is modest by comparison to similarly situated improvements. See table below. With respect to modeling, the small scale of the pier does not justify hydrodynamic modeling.



5. Is it physically possible for the pier to be smaller? If so, what would the impact be if the pier was five percent smaller? How about 10 percent?
    a. Yes, it is possible; the result will be less usable beach.

6. Other than to separate the dog beach from the swimming beach, what are the reasons, if any, for the location of the pier?
    a. Separation of uses, delineating size of the separate uses, beach preservation, amenity to enjoy panoramic views of the lake.

7. What is the reason for the height of the pier? Is there any reason why the pier cannot be shorter (improve sightlines)?
    a. At elevation 585 MSL at the end, the pier height is approximately the same height as the existing Elder pier. By contrast, Lloyd is lower and Tower is higher. Lloyd pier is frequently overtopped by waves during high wind and water conditions. See "**Exhibit 11 - Winnetka Beach Videos"**
8. You've indicated the pier is necessary for erosion control. If the pier was slightly smaller, what would the impact on erosion be?

a. One of the purposes of the pier is to retain a useable beach. If the pier were smaller, the amount of useable beach would be commensurately smaller.

9. You have also indicated that under and around the pier will be armor stone to prevent erosion. Could you have a smaller pier structure above the water, but have the larger armor rock below the water?
    a. The slope of the armor stone (1.5:1) is best practice to ensure armor stone is not dislodged by wave action. Lake Michigan water levels vary by more than 6 feet, thus the exposure of the stone will depend upon the water level. While it is possible to reduce the height of the armor stone adjacent to the pier, the wave dissipation and protection will be reduced.

10. Is there a standard size for improvements used by IDNR or Army Corps, and other regulatory agencies related to bluff erosion and shoreline protection similar to the pier?
    a. Armor stone size is predicated on maximum wave height. The mass of the armor stone must be sufficient to prevent it from being dislodged by waves or ice. The height of protection against severe wind and wave conditions is generally recognized at 592 MSL (IGLD85) along Lake Michigan. Elevation 592 is seven feet *above* the proposed height of the Centennial Pier. IDNR and Army Corps are also regulatory agencies in project construction. WPD would not be able to construct anything without their approval and would be subject to their comments and required adjustments..

11. Are there other alternative improvements or infrastructure that could be used for bluff erosion other than the pier?
    a. Bluff protection from erosion is not the primary purpose of pier. Bluff preservation is provided by the steel sheet pile bulkhead at the base of the bluff. The pier provides f beach preservation and some additional bluff protection near the base of the pier.

12. Will the location of the pier have any impact on potential accretion? Has the Park District's engineers and consultants studied this issue? If so, have you provided the Village any reports or analysis from your consultants?
    a. The proposed pier will provide for accretion of sand, especially along the north side of the pier, creating usable beach. The permit drawings include an accredited professional opinion of the anticipated beach conditions after construction. IDNR permit guidelines require "pre-filling" the beach with 120% of the anticipated sand. The excess sand during the initial construction is expected to be washed away due to littoral drift, thereby mitigating any impact on down drift neighboring properties.

13. Is it possible that neighbors along the lake would lose beachfront property due to the project's design and improvements impacted by the littoral sand being captured? Would this change if the pier did not include rocks? What if the size of the pier decreased?
    a. It is possible that downstream neighbors would be impacted, however as noted above, the IDNR permit guidelines require pre-filling the beach with 120% of the anticipated final

beach elevation and long-term monitoring with additional filling as needed to ensure no negative impacts to downstream neighbors.

14. Why was there such a significant design migration/digression from the original breakwaters' visuals to the 3-revetment approach? Each iteration seems to have gotten larger and more pronounced?
    a. The Plans as approved on May 25, 2023, included a headland beach system, this was the WPD's preferred approach as established in the Lakefront Master Plan and Resolution 23-5-25. The WPD was compelled to modify the proposed plans by the recently enacted Village ordinances that prioritize views over beach preservation. As noted earlier, bluff protection is accomplished by virtue of the existing steel sheet pile bulkhead, thus the headland beach system is not technically necessary to afford bluff protection. Beach preservation can be accomplished by both a headland beach system and (less effectively) by the proposed pier. Village Ordinance MC-05-2023, Section 15.78.080 G. reads as follows: *Existing Sight Lines: The Covered Construction and any related structures will alter existing sight line along the Lake Michigan shoreline no more than is minimally necessary to achieve the intended and proper purpose of the project and to be consistent with the purposes set for in Section 15.78.010 of this Chapter.*
15. In the drawings presented, why was the middle revetment almost appearing half round/half complete? It almost preempts a form completion once the property in the middle is amalgamated? Is that WPD's intention?
    a. This structure is not related to the current application for Centennial Park & Beach. However, it was designed as an interim measure to avoid encroaching into the riparian zone of 261 Sheridan while providing additional beach preservation and protection against rip-tides. The armor stone place along the north side of the existing steel jetty can be repurposed in a low-crested off-shore breakwater if and when the beaches at Elder Lane and Centennial are combined.

16. There was one slide of Lloyd beach showing the before image? When was that image taken? It almost seemed from a different era given the color format of the photo? Similarly, for the slide of Kenilworth- the timeline shown, did it not match the ebb and flow of the Lake Michigan HWM graph provided?
    a. The images were taken from Google Earth and the times noted are based on the image date as identified on Google Earth; they are as accurate as the dates on the Google Earth imagery.

17. How does the WPD respond to the notion that the pier would truly block visual vistas to the south side and truly divide the beach unless one was up on the NS boardwalk?
    a. The pier will have a visual impact similar to the existing pier at Elder Lane Beach.

<u>"ADA" Ramp</u>

1. You've indicated one stated objective for the project is ADA accessibility. Can you explain the other ADA accessibility options you considered and why they were not chosen?
    a. See **"Exhibit 12 – ADA Access"**; the WPD embraces the principle of Universal design, constructing improvements that serve as many people as possible without differentiation.
2. Specifically, did the Park District consider other alternatives that would not require such a significant impervious surface walkway along the table land?
    a. The path as proposed embraces the principle of universal access and serves three purposes: Maintenance, Emergency and accessibility.
3. Is the primary justification for the width and location of the walkway the desire for access for heavy equipment?
    a. The question as phrased is misleading. The path as proposed does not accommodate heavy equipment; it accommodates a lighter weight skid steer and/or small tractor. The Tower, Lloyd, Maple and Elder all have roadways providing vehicular access to the beach. However, the justifications for the width and location are accessibility, traffic flow, emergency access, and maintenance.
4. Does the ADA require the proposed 10-foot width?
    a. No. Maintenance, emergency services, and traffic flow led to the 10-foot width.
5. What were the reasons for not including ADA restrooms?
    a. Both the Village and WPD long range plans anticipate unifying Elder and Centennial. The WPD plans include a boardwalk linking Elder and Centennial, providing accessibility to the existing bathroom at the Elder Beach house which already includes accessible restroom facilities. Interim temporary facilities have been proposed for Centennial.
6. Does the project provide ADA access to water level?
    a. Yes, a beach mat similar to what exists at current WPD beaches would be deployed from the end of the concrete ramp towards the water.
7. Please explain in detail how the slope of the proposed accessible pathway complies with accessibility requirements (e.g., slope, length, etc.)? My understanding is the maximum slope for an accessible pathway cannot be greater than 5%.
    a. ADA guidelines specify a maximum continuous slope not greater than 5%, with a maximum allowable slope of 8.33%, provided that rest areas are provided at least every 50 feet. **See "Exhibit 12 – ADA Access"**
8. Would a lift be ADA compliant?

    While compliant to ADA law, a wheelchair lift is not fully accessible. A wheelchair lift is a less effective option for beach access compared to an accessible pathway due to its limitations in capacity, reliability, and overall user experience. Lifts require ongoing maintenance, are prone to mechanical failures, and can be rendered inoperable by sand, weather conditions, or vandalism. They also accommodate only one user at a time, creating potential delays and restricting access for families, caregivers, or groups. In contrast, an accessible pathway provides a smooth, continuous route that allows multiple users to travel safely and comfortably, including those using wheelchairs, strollers, or mobility aids. It promotes independence, ease of use, and a more inclusive experience while minimizing the need for ongoing technical maintenance.

9. What provision in the ADA, its regulations, or the Illinois Accessibility Code provide that ramps like the proposed one be 10 feet in width? What provisions in those laws discuss the size, length, and width of ramps?
    a. The WPD has never claimed "the ADA, its regulations, or the Illinois Accessibility Code provide that ramps like the proposed one be 10 feet in width".
10. The Park District has indicated the ramp needs to be 10 feet in width due to the volume of people using the Park, and the ability for those with disabilities, those who are able bodied, and first responders all able to easily get to the beach. Isn't it possible for that also to occur if the Park District made the ramp smaller, but added stairs to allow some of the able bodied to also use them?
    a. The question as posed presents a false narrative. The width of the path is designed is for multiple purposes including maintenance access. The plan already has a set of stairs for those who prefer to use stairs. A pathway of a smaller width would not allow for maintenance access and could cause for congestion in emergency situations causing for delayed response times.
11. Has the WPD received an ADA review/report from a professional organization specializing in ADA to substantiate elements in the plan labeled/associated with ADA access or compliance?
    a. The WPD has worked with an accessibility consultant, the Northern Suburban Special Recreation Association and professional engineers to ensure the improvements as designed comply with the ADA and further address accessibility needs for all users.
12. What is the Park District's estimate of how many people with disabilities will utilize Centennial and the 10-foot walkway? Does the Park District have any historical data on this?
    a. The question implies the 10 foot width is for ADA compliance; that is an incorrect assumption. As for the number of persons with disabilities that will utilize the walkway, that number is impossible to predict. As a reminder, Centennial Park Beach has been exclusively used as a dog beach for the past 30 years. The average number of resident dog beach passes issued over a ten year period was 305, with an additional 75 non-resident pass holders. The Park District would also argue that the number of individuals with a disability served by the Park District is irrelevant to whether or not structures should be built to be accessible or not.

<u>Parking and Traffic</u>

1. How long has the Park District been considering and formulating the proposed plan?
    a. The Lakefront Master Planning Committee first convened in the Fall of 2014, more than 10 years ago.
2. We saw the parking study in the packet, but the Village Engineer said that the study is incomplete and he's unable to make a determination about the impact on parking and traffic flow. Why didn't the Park District have the study done in the summer? Why not in the spring or fall?

a. WPD has not received any official report from the Village Engineer on this topic. The only comments were made live at the January 22, 2025 Plan Commission meeting. The Village Engineer's statement seems based on the false premise that traffic counts on the existing conditions would provide actionable information. As frequently noted, Centennial Beach has been fenced, gated and locked, for the exclusive use of dog beach pass holders, thus conducting traffic counts at Centennial will not produce relevant information based on the existing versus proposed uses. The traffic engineer explained that he would typically refer to the manual that includes approved trip generation estimates for various uses. Lacking that type of data for a swimming beach, the expert testimony provided parking availability at various north shore beaches, concluding that Elder and Centennial has sufficient parking. Moreover, Elder and Centennial parking lots have more total parking spaces than Tower and Maple combined. Tower and Maple are the two primary swimming beaches in Winnetka and there's no evidence to suggest a parking deficiency.

   Plan was developed in a way that maintained the current parking lots, but acknowledged that additional parking could be constructed if needed. However, additional parking would displace current park space and result in the loss of some trees.

   Parking and access concerns were first raised in November 2024. In response to the concerns raised at that time, the Park District retained Kimley-Horn. However, collecting traffic and parking counts at the Village's lakefront parks and swimming beaches in November would not be relevant. The traffic and parking evaluation does review the plan from an access and parking perspective, looks at beach pass data from the past 3 years, and looks at provisions for other similar beaches along the coast. The review indicates that traffic and parking data could be collected in Summer 2025 to validate conclusions based on beach use and related access and parking characteristics at the existing beaches during the busy season.

3. To obtain a steep slope exception under our Code, congestion on public streets should not increase. How do we know that traffic will not increase as a result? Did the Park District ever conduct a traffic study?
   a. While park and beach improvements are expected to draw visitors, they are not expected to draw more than what is experienced at Tower or Maple Street, the Park District's two existing swimming beaches. Those parks and beaches have not exhibited congestion in the area. Tower and Maple Street Parks have generally not been parking constrained and the plan for Centennial and Elder Parks includes more parking spaces than what is collectively provided at Tower and Maple Street Parks. If Centennial/Elder generate similar levels of additive traffic as Tower and Maple Street Parks, it is reasonable to expect that congestion will not become an issue at Centennial and Elder Lane Parks.
   b. Elder Lane Park has uses a traffic signal at Sheridan Road and access has not historically been an issue. Similarly, access to/from Centennial Park and its 11 parking spaces has not experienced congestion issues.
   c. Traffic volumes along Sheridan Road are 6,800 per day and the lane configurations along Sheridan Road and at the traffic signal with Elder Lane are more than adequate to

accommodate this level of traffic. Use of two parking lots at Centennial and Elder Lane Parks, with a collective 78 spaces, would not be problematic from a traffic congestion perspective.

d. Further, Centennial and Elder Lane Parks are community-oriented and accessible to residents, particularly those in nearby neighborhoods who can easily also walk or bike to the lakefront. The traffic signal at Sheridan/Elder provides a controlled crossing location for pedestrians and cyclists. And from an operational standpoint, consistent with current conditions at the Village's other swimming beaches, parking access on weekends is limited to season pass holders. This policy limits attendance on the busiest days and has avoided congestion issues while generally keeping associated parking lots from experiencing overflow.

e. The WPD prepared and presented expert testimony and a report prepared by Kimley-Horn to address traffic and parking; the conclusion of the expert is that the existing conditions do not warrant additional parking at this time. The signalized intersection at Elder Lane and Sheridan Road provides safe ingress and egress and the combined total parking between Elder and Centennial is sufficient. This question as phrased suggests that the Steep Slope Ordinance (specifically prepared for R-2 residential zoning) should be applied to public property. The WPD maintains that the Steep Slope Ordinance is inappropriate for publicly owned property. The fact that the Village of Winnetka recently enacted a special overlay district (7-6-23), differentiating publicly owned versus privately owned lakefront property without exempting the publicly owned property from the steep slope ordinance is further evidence of a process difficult for the different Boards and Committees to adequately assess. Tower, Lloyd, Maple and Elder beaches along with the Village power plant and water treatment facility all have vehicular access paths and structures that are far outside of compliance with the steep slope ordinance.

4. Independent of this proposal, has the Park District ever conducted a parking study in the summer for Centennial Park and beach?
    a. As previously noted, a parking study conducted with the existing conditions would not produce relevant information as the existing and proposed conditions differ.

5. NT East is mentioned as a possible alternative parking location for beach goers. Given that NT runs a variety of summer programs (summer school, community swimming classes, various arts and sports camps) has there been any discussion directly with them that indicates they have open parking available in the summer? What are the dates that NT makes parking available to their students in the Elder parking lot?
    a. Until such time as the existing parking at Elder and Centennial (70+ spaces) is deemed insufficient the further discussion not warranted. Parking at Elder is available to pass holders during the school year.

b. New Trier High School provides more than 280 off-street parking spaces. In general, summer school and other programs at New Trier occur on weekdays and not on weekends and holidays, when beach attendance is highest. If overflow parking would ever be needed, the demand for additional spaces would be minimal based on the level of parking experienced at the Village's other beaches, and there is more than enough capacity at New Trier to accommodate such demand, if it materializes at all.
c. Within the Elder Lane Park parking lot, 61 spaces are available for New Trier permit parking (seniors) on weekdays from 7 AM to 4 PM during the school year.

6. Does the District believe that there is a sufficient number of accessible parking spaces? Are there any studies or data that would support this based on the peak demand in the summer and the specific type of features the Park District plans to add to the Park?
    a. The WPD has already produced a plan that depicts additional potential parking spaces on the south side of the existing parking lot. The WPD can designate additional accessible spaces or construct additional parking if and when actual conditions warrant.
    b. Yes. Centennial Park provides one accessible space and Elder Lane Park provides three accessible spaces (one additional accessible space is available at the beach house when it is open). The number of accessible parking spaces adheres to ADA requirements and their adequacy is consistent with the Park District's experience at Tower and Maple Street Parks.
7. Please explain why the traffic circle drop-off is so constricted? It looks like it could become a big bottle neck.
    a. The turnaround (66-foot diameter with 15-foot travel lane) at the east end of the Centennial Park parking lot provide ample room for a vehicle to maneuver around the central island and proceed west to Sheridan Road. As a comparison, this turnaround is larger than a similar turnaround at Maple Street Park (58-foot diameter and 12-14-foot travel lane), which has not experienced constriction issues. As such, the Centennial Park turnaround is expected to function well.

<u>Restroom Facilities</u>

1. You've indicated that you anticipate that the restroom facilities at Elder Beach will be sufficient to accommodate Centennial Beach goers, but we don't have a proposal for Elder in front of us. Where is the nearest restroom? How many feet?
    a. The Elder bathroom facility is within the existing Elder Beach House. The Plans for Elder were submitted to the Village in September of 2024. The distance between the bottom of the existing stairs at Centennial and the Elder Beach house is 425 feet.
2. What is the terrain that must be traversed to get to those restrooms?
    a. Under the existing conditions, traversing the beach from Centennial is the shortest route. As envisioned in the future, a beach patron would be able walk along the boardwalk to the beach house.

3. Where is the nearest accessible restroom? Has the Park District conducted any ADA analysis of the accessibility of restrooms for those who use Centennial Beach?
    a. The nearest accessible bathroom is within the Elder Beach house. There are no bathrooms at Centennial. The underground improvements are in place for bathroom adjacent to the circular drive at Centennial, and in fact a bathroom facility was planned and ready for construction back in the early 2000's. However, when the neighborhood opposed the plans for the bathroom, the WPD Board at the time to reversed course and cancelled the plans for the bathroom. Until such time as the unification plans are finally determined, the WPD Board suggested that a temporary restroom be utilized to meet the seasonal demand.
4. Is it possible for the Park District to place a restroom facility at the beach, other than a porta potty?
    a. The Park District has a bathroom facility within the Elder Beach house, it is within walking distance of Centennial. The temporary issue is an ADA accessible bathroom facility. The fact remains that Centennial has been without a bathroom facility since its inception in 1969. The WPD suggested use of a temporary accessible restroom until such time as the unification plans are determined.
5. With the addition of the ADA ramp, dog beach, and other proposed improvements to Centennial Beach, isn't it possible that Centennial may attract far more people who may be differently abled? Why wouldn't the Park District provide bathroom facilities for them at Centennial Park?
    a. The WPD suggests resolving the unification plans before committing to a permanent structure at Centennial. A boardwalk connection between Elder and Centennial provides bathroom access to all.

<u>Exceptions</u>

1. We understand that the residential zoning of the area can make it more challenging to design something like this without exceptions, and that's why we have this process. But by the nature of the process, the proposed design is dependent on the Village granting the Park District exceptions. Isn't it possible to create a design that does not require exceptions or small exceptions?
    a. No. The application of residential design standards to public property is incompatible. Publicly accessible property are also subject to commercial building codes and laws that are not necessarily required by residential structures and property.
2. Why are the stone steps larger than 5ft?
    a. This is public property, not residential, and the design standards for a public park differ from that of a single-family home.

<u>List of Exhibits</u>

1. Plan Evolution
2. Dog Beach History
3. Resolution 05-25-23
4. Definition of Terms
5. Illinois Beach State Park

6. Friedman Legal Opinion
7. Cook County Animal Control Ordinance
8. WPD – Elder and Centennial Park and Beach
9. Lake Michigan Shoreline
10. North Shore Beaches 2013-2023
11. Collection of Videos of Winnetka Beaches
12. Centennial Beach – ADA Access
13. Professional Qualifications
14. Shabica Presentation to WPD – March 24, 2022

Exhibit 1

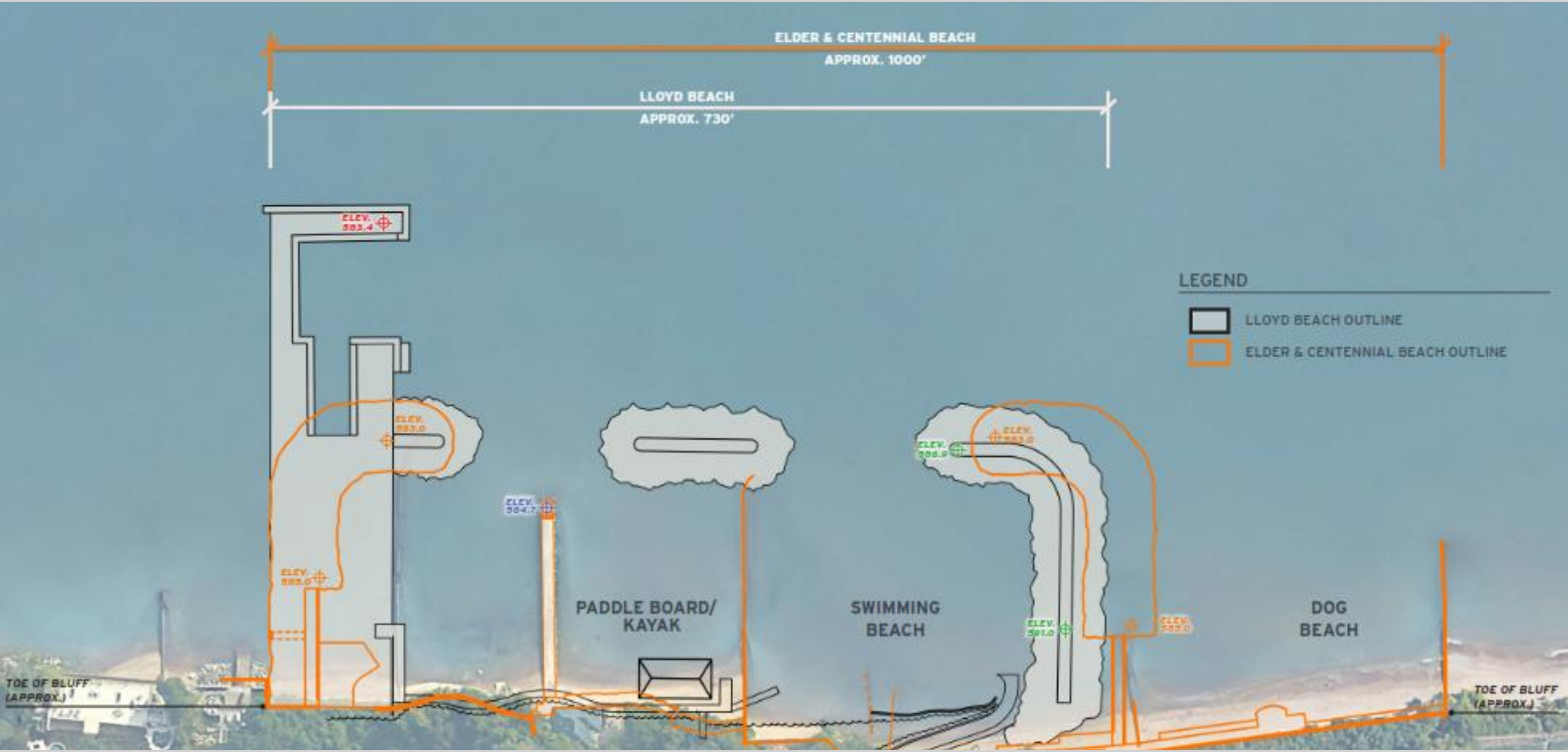
ELDER AND CENTENNIAL PARKS AND BEACHES PLAN EVOLUTION - JANUARY 2023 to JANUARY 2025

An aerial picture of Lloyd Beach is superimposed on the Elder/Centennial Lakefront to illustrate the scale of Elder/Centennial at 1000 feet versus Lloyd at 730 feet.

This image was prepared for the January 2023 open house to demonstrate the ability to incorporate a headland beach system with more shoreline that Lloyd with room at the south end for the dog beach.

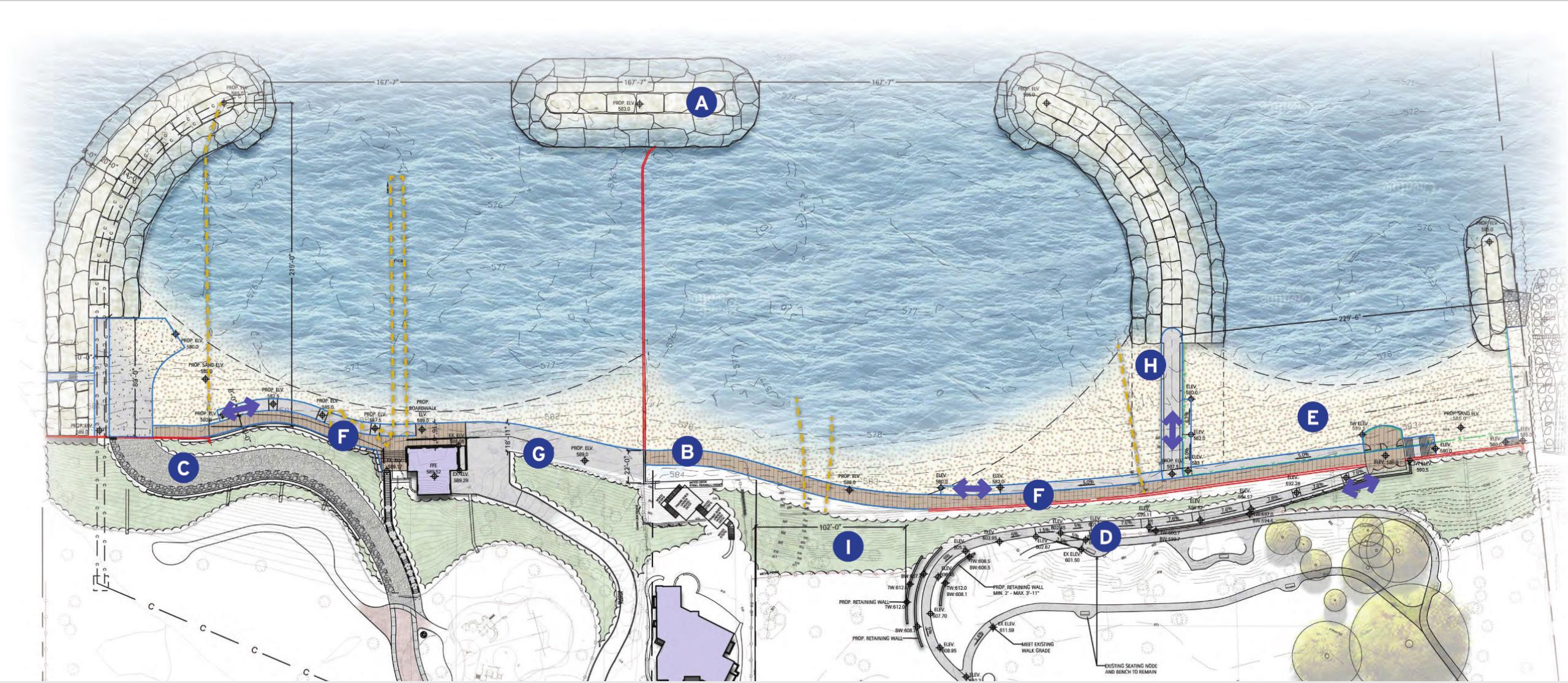
Plan View of Elder – Centennial overlayed Lloyd Beach as completed

Exhibit 2



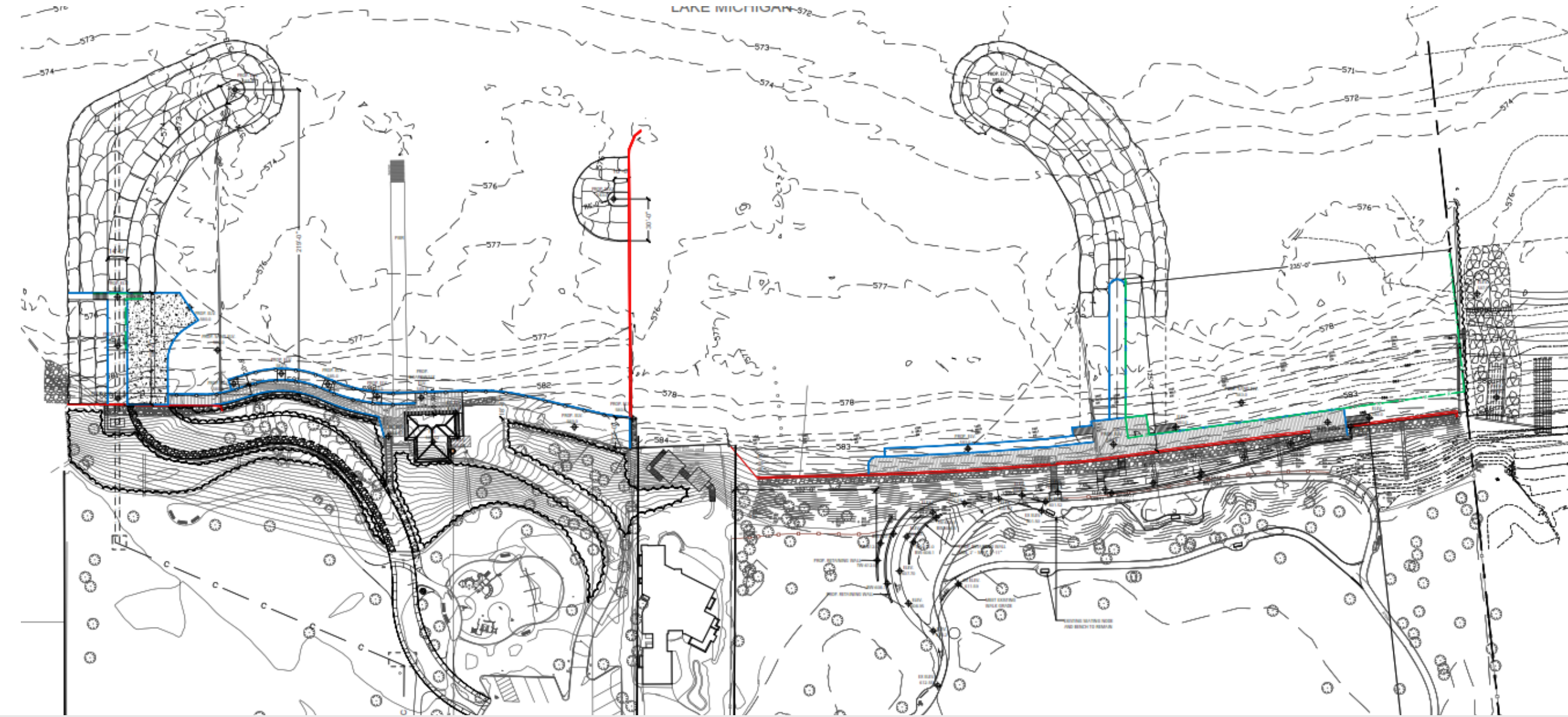
Lloyd is depicted in gray while Elder-Centennial as proposed is outlined in orange; both plans are at the same scale. Note that the Elder-Centennial breakwaters are the same distance off-shore at Lloyd, not including the boat ramp.

ELDER - CENTENNIAL COMPREHENSIVE DESIGN AS OF MARCH 18, 2023



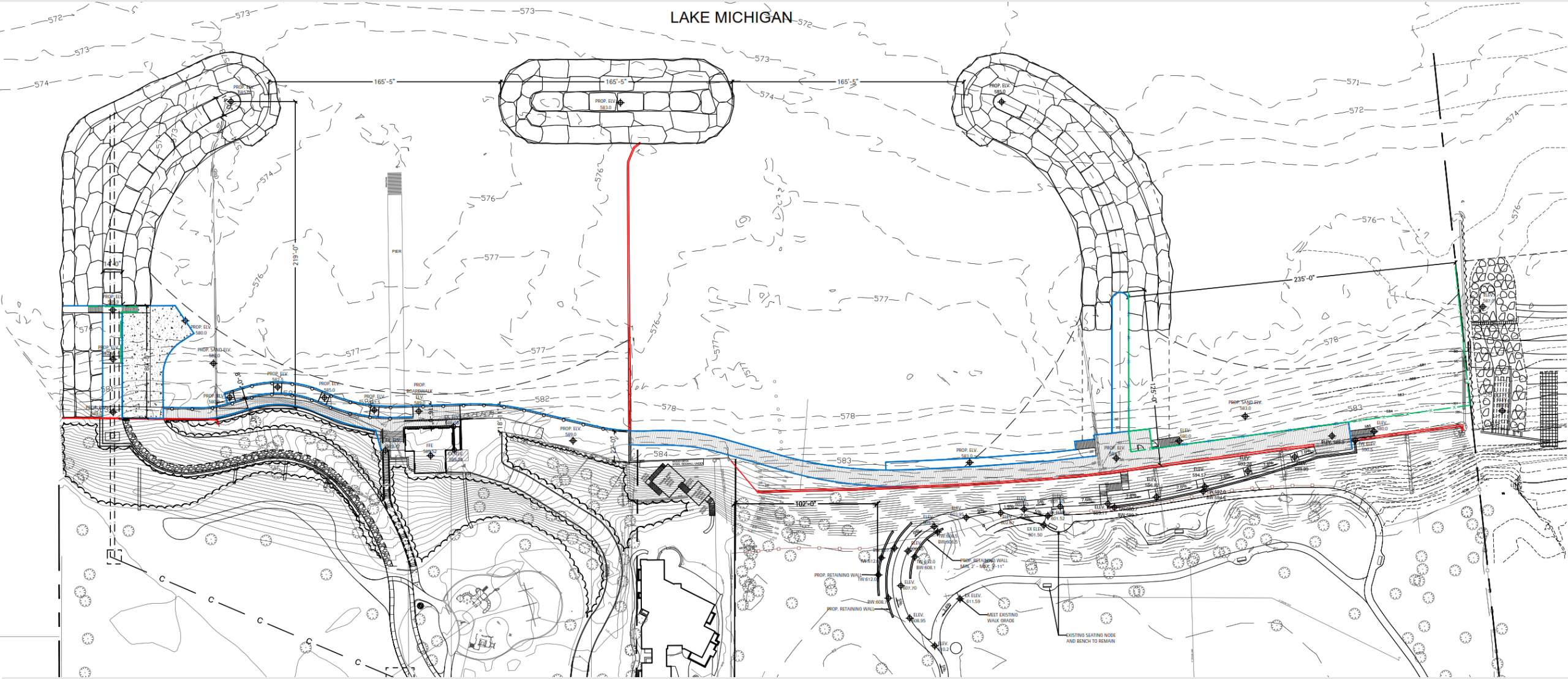
This alternative was prepared for the third open house held in 2023. This version includes a headland beach system with off-shore low crested breakwater between the north and south breakwaters on Elder and Centennial. A dog beach is included at the south end of Centennial in keeping with the 10/27/22, unanimously approved motion to maintain a dog beach at the south end of Centennial Park.

ELDER – CENTENNIAL - SCHEMATIC DESIGN – WITHOUT 261 SHERIDAN - MARCH 2023



This schematic design plan shows an interim solution, assuming that the home and lot at 261 Sheridan is not included in the comprehensive solution for Elder and Centennial. This schematic plan includes the north and south breakwaters, the proposed dog beach and it depicts the breakwater at 205 Sheridan, just south of Centennial Beach.

ELDER – CENTENNIAL - SCHEMATIC DESIGN – INCLUDING 261 SHERIDAN - MARCH 2023



This plan alternative was prepared for the third open house held in spring of 2023. This version includes a headland beach system with off-shore low-crested breakwater between the north and south breakwaters on Elder and Centennial respectively. A dog beach is included at the south end of Centennial in keeping with the 10/27/22, unanimously approved motion to amend the lakefront master plan to include a dog beach at the south end of Centennial Park.

VILLAGE OF WINNETKA – ORDINANCE MC-05-2023 – ADOPTED MARCH 21, 2023

Section 15.78.010 Purpose.

The purpose of this Chapter is to create permitting requirements for construction along, adjacent to and within Lake Michigan. Lake Michigan, its coastline and beaches provide a unique natural resource to the Village and to its residents that must be preserved and protected. Some development and construction activity in and around Lake Michigan may be hazardous to people and property and may ~~accelerate~~impact the erosion process and alter natural drainage patterns. This Chapter is intended to attempt to preserve those portions of Lake Michigan, its coastline and vegetation within the Village's boundaries, while protecting the value of properties along the Lake through the establishment of narrow, reasonable permitting regulations. The regulations in this Chapter are further intended to provide that construction in and adjacent to Lake Michigan and its shoreline will not cause environmental or ecological damage to the Lake or surrounding areas of the Village or otherwise adversely impact the health, safety, and welfare of the Village or its residents.

On March 21, 2023, the Village of Winnetka adopted Ordinance MC-05-2023, creating new regulations governing lakefront construction in Winnetka. The Park District was in the final stages of preparing its plans for a headland beach system and dog beach in keeping with the several motions passed on October 27, 2022, and further refinements based on public input over the course of 10 months.

VILLAGE OF WINNETKA – ORDINANCE MC-05-2023 – ADOPTED MARCH 21, 2023

Section 15.78.080 Criteria for Permit Approval.

The Village Engineer (and, if applicable on appeal, the Village Council) will issue a permit (with or without conditions) only if the following requirements are satisfied:

A. Permitting Agency Permits. The applicant has received and provided to the Village all required permits for the Covered Construction from the Permitting Agencies.

B. Height. The height of the Covered Construction and any related structures will be no greater than what is minimally necessary to achieve the intended and proper purpose of the project and to be consistent with the purposes set forth in Section 15.78.010 of this Chapter.

C. Conformity with Code. The Covered Construction and any related structures comply with all other applicable provisions of the Village Code, including, without limitation, the construction permitting requirements of Chapter 15.32 of this Title.

D. Project Scope. The Covered Construction and any related structures include only what is minimally necessary to achieve the intended and proper purpose of the project and to be consistent with the purposes set forth in Section 15.78.010 of this Chapter.

E. No Public Safety Hazard. The Covered Construction and any related structures will not create any public safety hazards, including, without limitation, by unreasonably obstructing or otherwise interfering with ingress or egress to adjacent public beaches or private property.

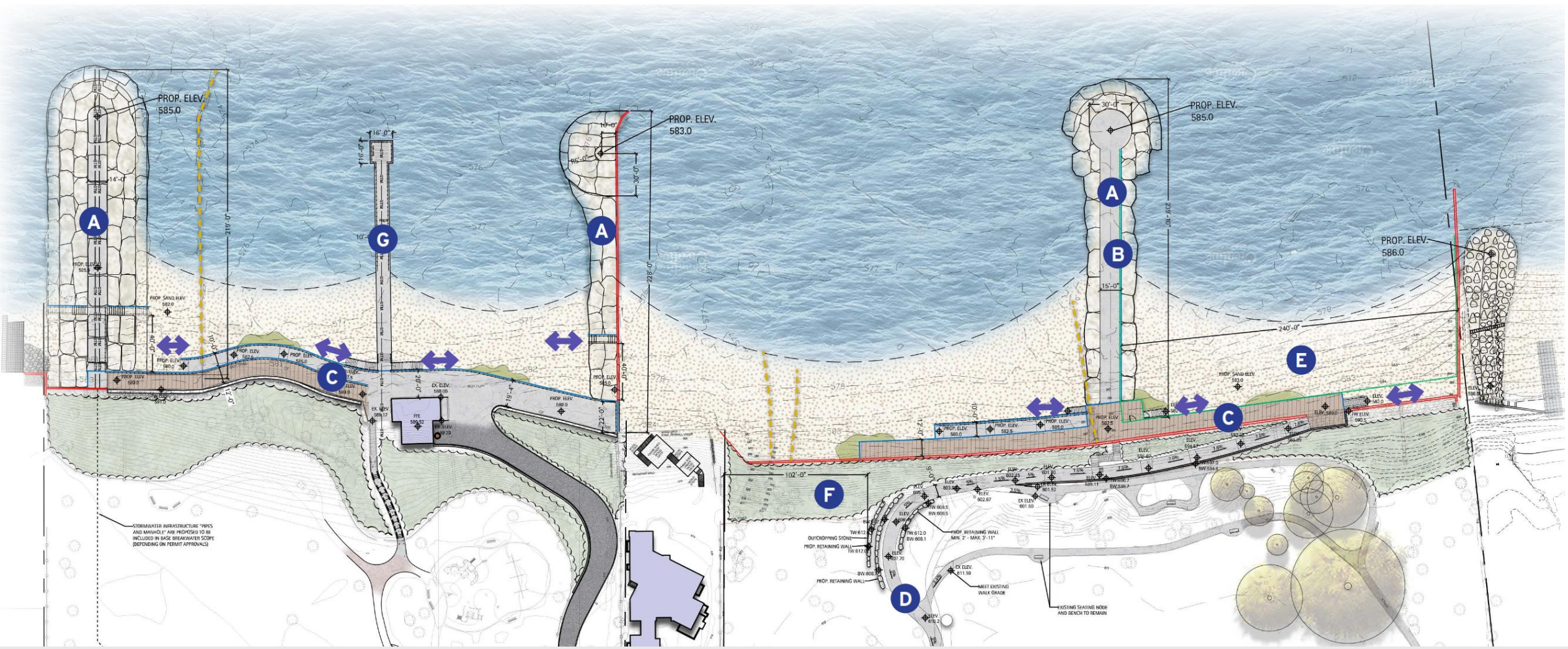
F. Interference with Public Safety Operations. The Covered Construction and any related structures will not block or otherwise unreasonably interfere with the ability of public safety personnel to conduct search and rescue or other public safety operations.

G. Existing ~~Site~~Sight Lines: The Covered Construction and any related structures will alter existing ~~site~~sight lines along the Lake Michigan shoreline no more than is minimally necessary to achieve the intended and proper purpose of the project and to be consistent with the purposes set forth in Section 15.78.010 of this Chapter.

The WPD was compelled to further revise the plans that were approved on May 25, 2023, in order to comply with the specific provisions of the Ordinance MC-05-2023 and additional ordinances adopted on July 6, 2023. Specifically, the WPD revised the plans to meet the conditions imposed by Section 15.78.080 G. prioritizing preservation of "sight lines."

ELDER - CENTENNIAL DESIGN WITHOUT 261 SHERIDAN - AS OF OCTOBER 2023

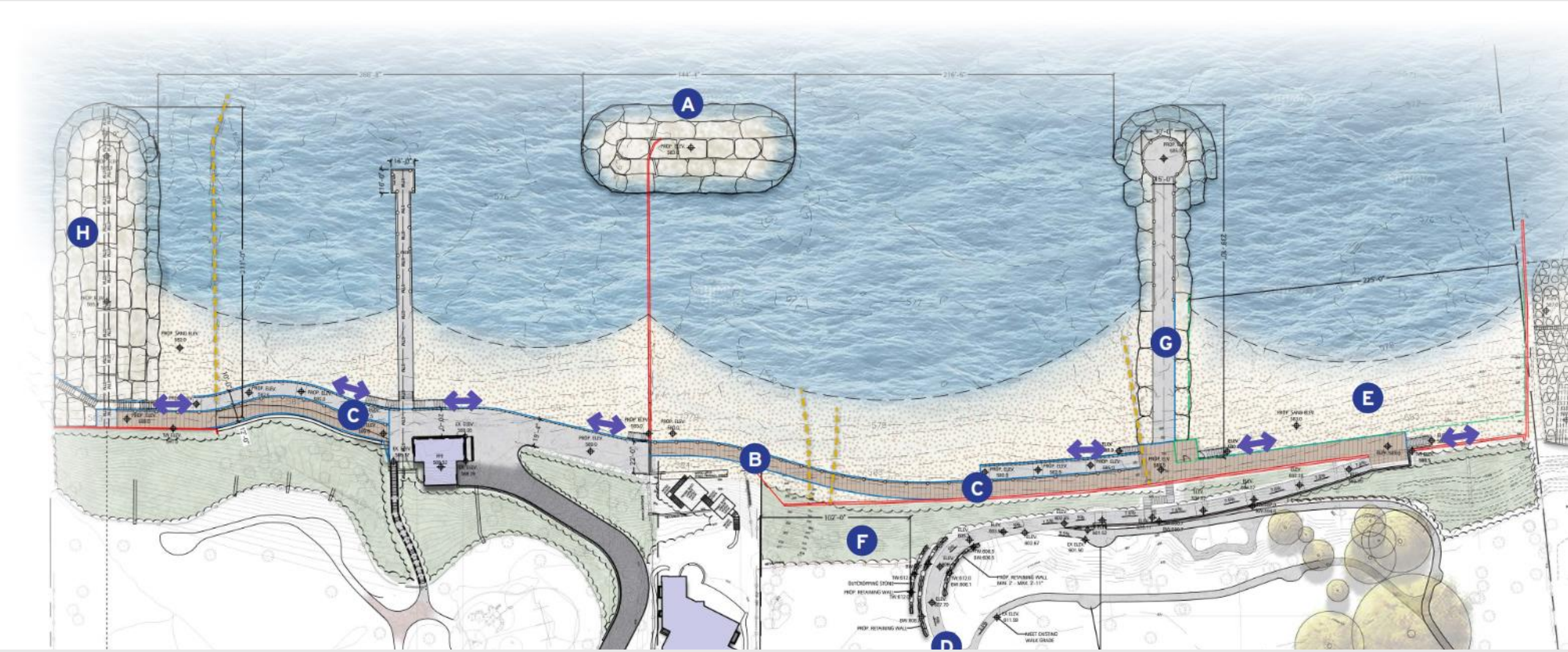
REVISED TO COMPLY WITH NEW ORDINANCE AND VILLAGE DIRECTIVE TO RETAIN PIER AND STORM OUTFALL AT ELDER LANE BEACH



During the summer and fall of 2023, the WPD was compelled to further revise the plans previously approved in May-2023, in order to comply with the specific provisions of the ordinances passed by the Village and further instruction by the Village to maintain the pier and existing stormwater discharge located within the pier. The WPD kept the north groin and outfall pipe in its plan to accommodate a future relocation of the stormwater discharge in keeping with the Lakefront Master Plan.

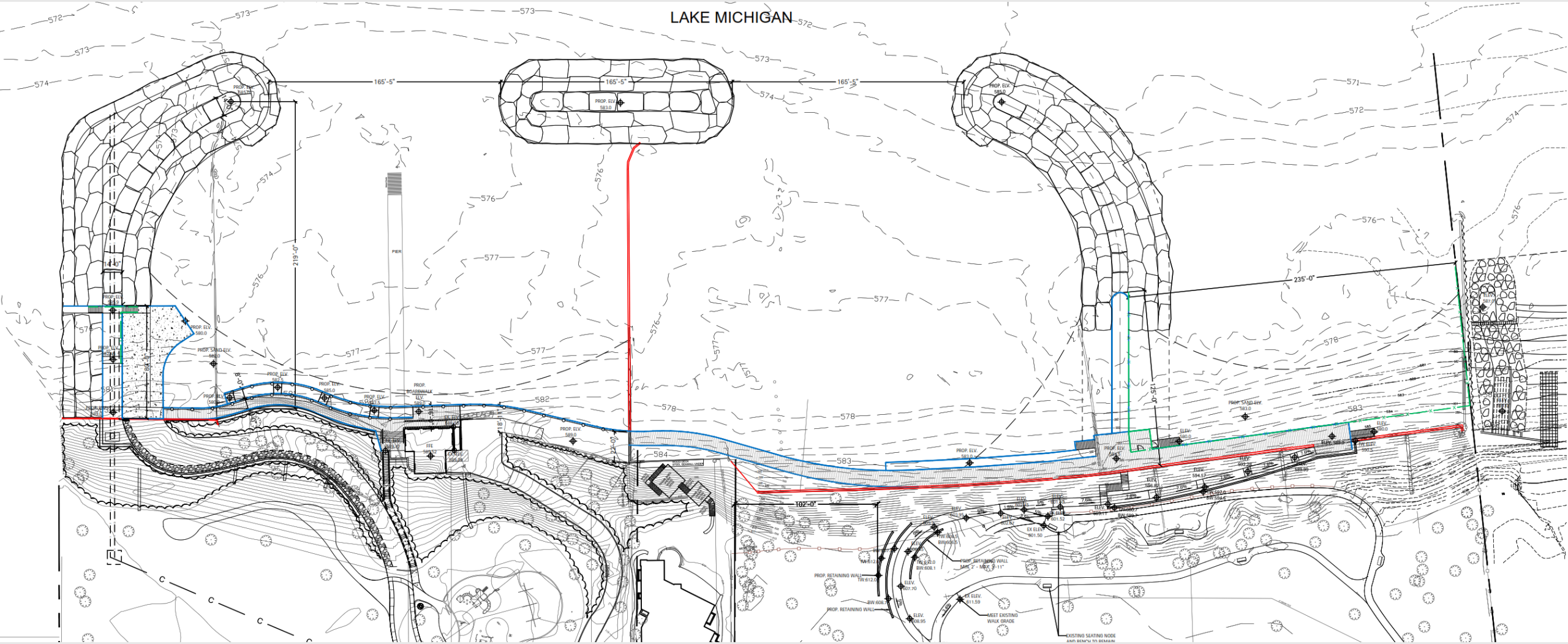
ELDER - CENTENNIAL COMPREHENSIVE DESIGN AS OF OCTOBER 2023

REVISED TO COMPLY WITH NEW ORDINANCE AND VILLAGE DIRECTIVE TO RETAIN PIER AND STORM OUTFALL AT ELDER LANE BEACH



Similar to the preceding plan, this plan keeps the existing storm sewer outfall and pier while introducing a low-crested off-shore breakwater to help dissipate wave energy and hold more beach. The north breakwater was retained for future relocation of the storm sewer discharge and beach preservation. The south breakwater incorporates the pier as shown on the current plans.

ELDER – CENTENNIAL - SCHEMATIC DESIGN – INCLUDING 261 SHERIDAN - MARCH 2023



This alternative including the headland beach system, with the dog beach at the south end of Centennial Park is most faithful to the original vision of the Lakefront Master Plan with a dog beach. The plan relocates the storm sewer discharge to the north breakwater as originally envisioned (Village consented to the removal of the pier and relocation of the storm sewer discharge in the Fall of 2024). Further refinements to this plan would include elimination of the new access drive at the north end of Elder and refinements to the ADA access path at Centennial.

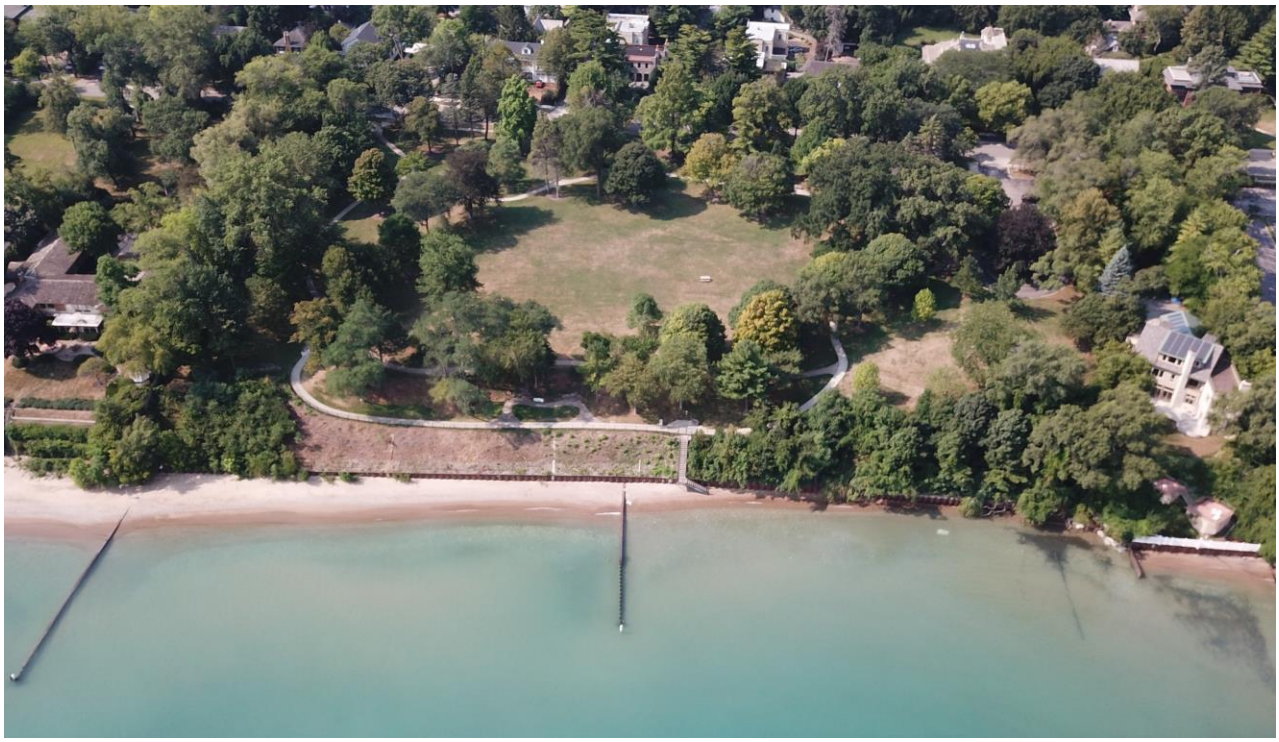
Exhibit 2

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

Centennial Park was established in 1969 with the acquisition of the former North Shore Health Resort Property. Park features are largely the same today as when it was first developed, with the notable exceptions of the bluff and shoreline repairs in 1987 and the formation of the Centennial Park off-leash "Dog Beach" in 1995.

Above: Drone image dated 2020-09-29

Below: Drone image dated 2020-08-26



Prepared by Park District Commissioner, Warren James, last updated February 2025

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

Publicly owned shoreline in Winnetka is detailed below:

Publicly Owned Lakefront Property – Village of Winnetka & Winnetka Park District

Description	Shore frontage (feet)	Shore frontage (% of total)	Beach Access Allowed (feet)	Beach Access Allowed (% of total)	WPD Managed Beach (feet)	WPD Managed with Beach Access Allowed (%)
Sheridan Rd – Ravines	100	3.3%	100	3.9%	0	0.0%
Tower Rd Beach (WPD)	200	6.6%	200	7.9%	200	8.3%
Tower Rd Beach (VofW)	320	10.6%	320	12.6%	320	13.3%
Tower Rd Power Plant	215	7.1%	0	28.3%	0	0.0%
Lloyd Beach	720	23.8%	720	9.2%	720	29.9%
Maple Beach	235	7.8%	235	0.0%	235	9.8%
Spruce Street ROW	66	2.2%	0	0.0%	0	0.0%
Elm Street ROW	66	2.2%	0	0.0%	0	0.0%
Oak Street ROW	66	2.2%	0	0.0%	0	0.0%
Cherry Street ROW	40	1.3%	40	1.6%	0	0.0%
Willow Road ROW	66	2.2%	0	0.0%	0	0.0%
Elder Lane Beach	410	13.6%	410	16.1%	410	17.0%
Centennial Beach	520	17.2%	520	20.4%	520	**21.6%**
TOTALS:	3024	100.0%	2545	100.0%	2405	100.0%

Note: Centennial Beach represents 21.6% of the total usable beachfront managed by the WPD.

Winnetka Park District – Dog Beach Pass Holders – Summary Report: 2010-2022

Year	Resident	Non-Resident
2010	351	75
2011	311	73
2012	320	89
2013	275	71
2014	285	65
2015	267	63
2016	315	70
2017	333	80
2018	371	94
2019	356	105
2020	245	56
2021	300	86
2022	232	54
AVERAGE:	**305**	**75**

Approx. 4500 Households within the WPD (includes parts of Northfield, Glencoe, Kenilworth)

The 13 year average of 305 resident dog beach passes represents only 6.8% of WPD households.

Prepared by Park District Commissioner, Warren James, last updated February 2025

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

DOG BEACH TIMELINE

- 1995 – Dog Beach Created at Centennial Park by Winnetka Park District
- 2007 – Village of Winnetka adopts leash ordinance
- 2015 – Lakefront Advisory Committee recommends relocating dog park in the event Elder and Centennial are unified, recognizing that Elder and Centennial combined with 261 Sheridan would result in a 1000-foot public beach.
- April 2016 - Lakefront Master Plan Adopted
- May 2016 – Community needs assessment survey identified dog park as top 5 priority
- Dec 2018 – Residents approach WPD Board to advocate for an off-leash (land based) dog park
- Jan 2019 – Board directs staff to prioritize dry land dog park assessment
- Mar 2019 – Staff evaluated 33 sites and identifies 4 as meeting minimum requirements
- Jun 2019 – WPD host meeting to present findings from community engagement
- Aug 2019 – WPD Board reviews information regarding dog park locations
    - During the board meeting, the need to find a suitable alternative location for a dog park was highlighted, noting that the Lakefront Master Plan called for relocating the dog park away from Centennial Beach in the event the parks were unified.
    - WPD identifies West Elm Park and Crow Island Woods best suited locations for off-leash dog park.
    - West Elm area residents mobilize to oppose dog park at portion of West Elm Park
    - Euclid Avenue residents mobilize to oppose dog park at portion of Crow Island Woods
    - WPD Board drops proposal for dog beach at West Elm or Crow Island due to community opposition and focuses on off leash park on portion of the Village municipal yard south of Willow Road.
- March 2020 – Covid Outbreak
    - WPD meetings to go to zoom only
    - Caucus participation plummets to low 20's total participation
    - Randy Whitchurch and Bill Murphy – both residents of Fuller Lane volunteer to serve on Winnetka Caucus Council Park District commissioner selection committee
- August 19, 2020 – Caucus zoom interviews of candidates for WPD Commissioner; conducted by Randy Whitchurch and Bill Murphy; seven candidates for one open seat; Eric Lussen and Warren James, both incumbents interviewed for second term.
- October 10, 2020 – Winnetka Park District enters into Exchange Agreement to acquire 261 Sheridan.
- November 11, 2020, Caucus Town Hall, presentation of Candidates via zoom:
    - Candidate Colleen Root was recommended by the Winnetka Caucus Council as nominee for park board commissioner.
    - Candidate Root introduces herself as an attorney from Houston, TX, who moved to Winnetka in 2018, is familiar with the Army Corps of Engineers by virtue of the fact her home was flooded and destroyed by a hurricane, stated one of the reasons she moved to Winnetka was for its dog beach.
- March 10, 2021, Caucus Spring Town Hall – question regarding dog beach/parks directed to candidate Colleen Root in lieu of board President Mickey Archambault.

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

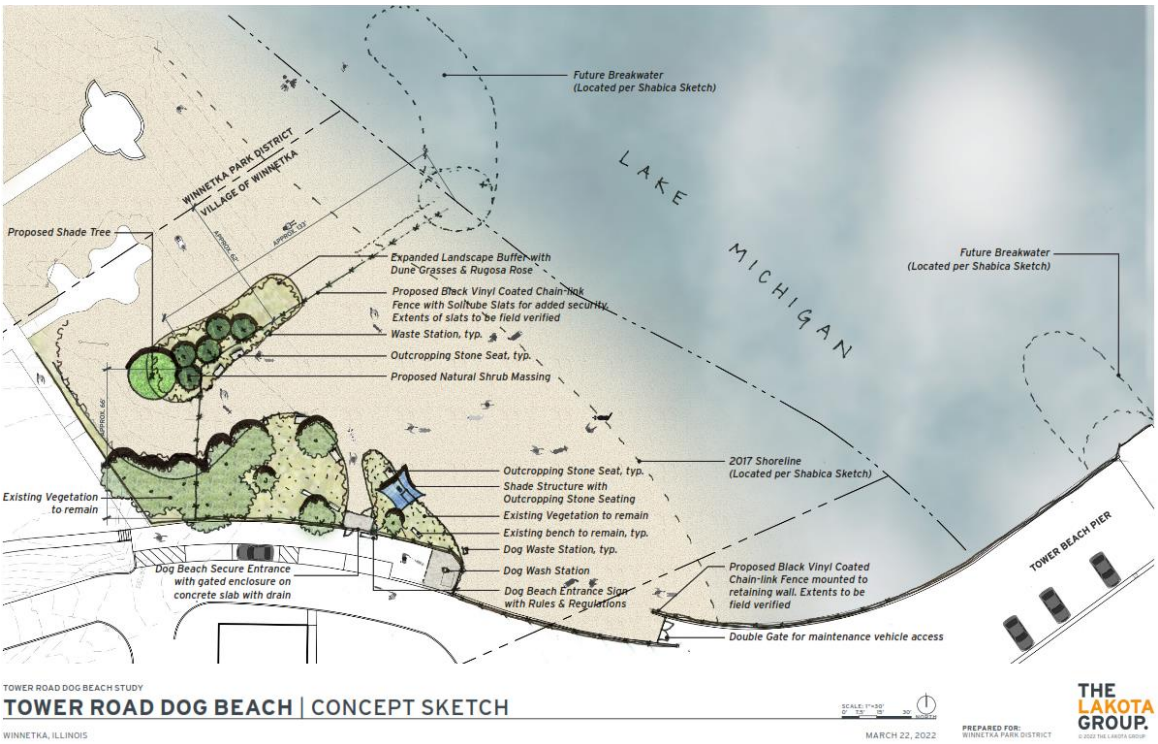
- May 27, 2021, Commissioner Root sworn in as newly elected Commissioner
- Jun 24, 2021, first Regular Board meeting with new board members, including Commissioner Root (in attendance.)
- Aug 26, 2021, WPD Board meeting: 50+ attendees demanding reinstatement of dog beach in lakefront master plan – led by Commissioner Colleen Root & Randy Whitchurch
- WPD Board responded to community input and established Dog Beach Committee which included volunteer time/board liaison from Village President Chris Rintz.
- Village of Winnetka reiterated its offer to allocate land for off leash dog park at Village Municipal Yard, for which specific plans were prepared by WPD. However, the Village noted that off leash park on municipal yard would not be able to be constructed until after the completion of the stormwater project in SW Winnetka.
- Village of Winnetka offered to establish dog beach on a portion of Tower Road Beach owned by the Village of Winnetka immediately adjacent and north of Tower Road pier.
- As detailed above, the total usable publicly owned shoreline at Tower Road Beach is approximately 520 feet. Comprised of 320 feet owned by the Village of Winnetka, leased to the WPD and the 200-foot-wide lot owned by the WPD.

Cook County Viewer – GIS Image – Village of Winnetka Owned Property

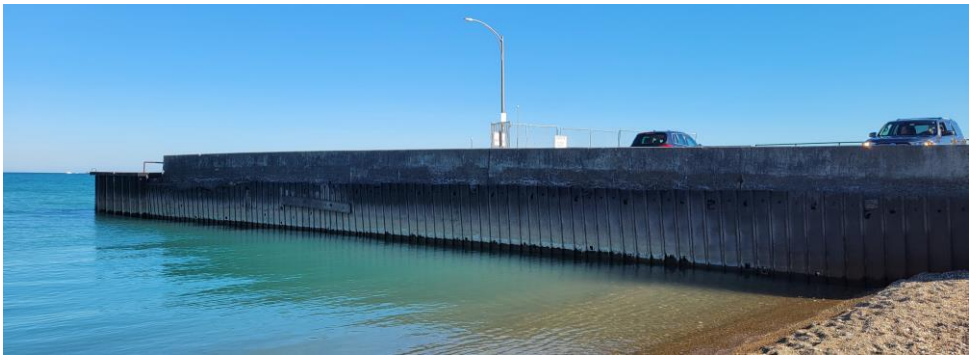
Cook County Viewer – GIS Image – Winnetka Park District owned property

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

- Spring 2022 - Dog Beach Committee developed specific plans for dog beach at Tower Road.
- Spring 2022 - Dog Beach Committee worked with staff and consultants to prepare plans for dog beach on the southern portion of Tower Road Beach, including a fence surrounding the dog beach extending to the waterline.



- WPD Board of Directors reviewed proposed plan for Tower prepared by Dog Beach Committee. The WPD Board made the following observations:
    - With 520' total available shoreline, proposed dog park at 258' wide as depicted on the proposed plan would result in swimming beach of only 262 feet.
    - The exposure to waves from the North-northeast would require more substantial barrier than a temporary chain link fence to properly separate dog beach users from swimmers – likely sheet pile groin and stone breakwater that would add significant expense to the project.
    - Wave action and riptide adjacent to Tower Road pier presents hazard to dogs.



Prepared by Park District Commissioner, Warren James, last updated February 2025

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

- Randy Whitchurch public comment to WPD Board during Tower Road location consideration: Mr. Whitchurch objected to relocation of dog beach to Tower Road citing steep slope of access drive and parking limitations.
    - Note: given that most dog beach users arrive on foot, moving the dog beach to Tower would result in potential conflicts between dogs, automobiles, pedestrians and cyclists on the steeply sloping access drive at Tower Road Beach, 15'-6" wide.

- June 9, 2022, WPD Board votes 3-2 with (Commissioners Codo and Lussen absent) to withdraw permit applications for Elder and Centennial beaches from the IDNR & ACOE.
- July 8, 2022, Orchard 2020 (Ishbia) acquires 195 Sheridan Road and informs WPD of their intent to move house plans south of Centennial Park, excluding Exchange parcel.
- October 24, 2022; Winnetka homeowner Robert Schriesheim files lawsuit against Winnetka Park District, challenging the Property Exchange Agreement
    - Note: Shriesheim v. Winnetka Park District was settled on January 16, 2025. The Settlement Agreement contains the following provisions: "*the Parties have agreed to the terms herein for the sole purpose of settlement, and nothing herein may be taken as or construed to be an admission or concession of any violation of law, rule, or regulation, or of any other matter of fact or law, or of any liability or wrongdoing or lack thereof*" AND "*The WPD agrees not to transfer title to the beach property at Centennial Park which lies east (or lakeward) of the current steel sheet piling at the toe of the bluff to any non-governmental entity.*"
    - The Settlement Agreement assures that the southern end of Centennial Beach will remain part of the WPD owned shoreline and the proposed dog beach will not be altered.
- October 27, 2022, WPD Board <u>UNANIMOUSLY</u> approves a motion to maintain dog beach at south end of Centennial Park (present location) with several conditions as detailed below.

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

- **Excerpts from Board Meeting Minutes of October 27, 2022, read as follows:**

Commissioner Lussen made a motion to amend the Waterfront 2030 Lakefront Master Plan to Include a Dog Beach at the south end of Centennial Beach subject to the following conditions:

Exhi

a. *Shore frontage allocated to dog beach use shall not be less than 170 feet and not be greater than 270 feet;*
b. *The dog beach area must include a secure boundary to prevent dogs from straying beyond the borders of the dog beach while off leash;*
c. *The electric gate system be relocated to the beach or boardwalk level to afford public access to the remainder of Centennial Beach; and*
d. *Dog beach boundaries shall accommodate public passage along the lakefront in keeping with the IDNR guidelines.*

Commissioner Archambault seconded the motion.

Commissioner Lussen acknowledged a Cook County law which requires a fenced in dog beach. Commissioner Root commented it appears the Park District is tying design to the desires of Orchard 2020. Commissioner Lussen commented the dog beach provides an important element to our community. Commission Codo stated keeping the dog beach at the south end is a neutral location. The IDNR phrasing in the motion allows the Park District to control what happens on its property and the IDNR to control what happens on adjacent property. Following discussion, item "d" of the motion was amended as follows: "Dog beach boundaries shall accommodate public passage along the lakefront".

- *A roll call vote was taken.*
- *Ayes: Archambault, Codo, James, Lussen, Rapp, Root, Seaman*
- *Nays: None*
- *Motion carried as amended*

ADDITIONAL BACKGROUND INFORMATION:

The Illinois Department of Natural Resources, Office of Water Resources, published Guidelines for the submittal of applications for Illinois Department of Natural Resources, Office of Water Resources Permits for Shore Protection Projects in Lake Michigan in November 2015.

The Guidelines contain the following provisions:

"Where possible, notably in areas where existing access along the lakeshore is available, the project should provide some type of reasonable access over or around it on the landward side."

The WPD proposed plans for the Centennial dog beach comply with the IDNR guidelines by providing a bypass around the dog beach on the landward side of the proposed dog beach.

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

The Foreword to the Cook County Animal Control Act reads in part as follows:

The Cook County Animal and Rabies Control Ordinance was developed and passed to establish guidelines in the development of harmonious relationships between animals and man. This Ordinance is the law in all municipalities within Cook County. Any municipality regardless of its population may pass an ordinance effective within its jurisdiction more strict than the County Ordinance.

No person including a municipal corporation, forest preserve district or park district shall designate within the County an outdoor area, even if fenced, as an area where dogs may run off leash unless such person, municipal corporation forest preserve district or park district complies with such regulation as may be issued by the Administrator of the operation of outdoor off leash areas.

Computer Generated scaled image of proposed Dog Beach with perimeter fence and bypass along landward side as required by Cook County and IDNR.

The shoreline frontage dedicated to the proposed dog beach is approximately 240 feet, slightly less than 10% of the WPD managed shoreline in Winnetka, which is a more appropriate allocation of shoreline than the entire Centennial beach which is 520 feet of shoreline, representing 21.6% of the total usable shoreline managed by the WPD.

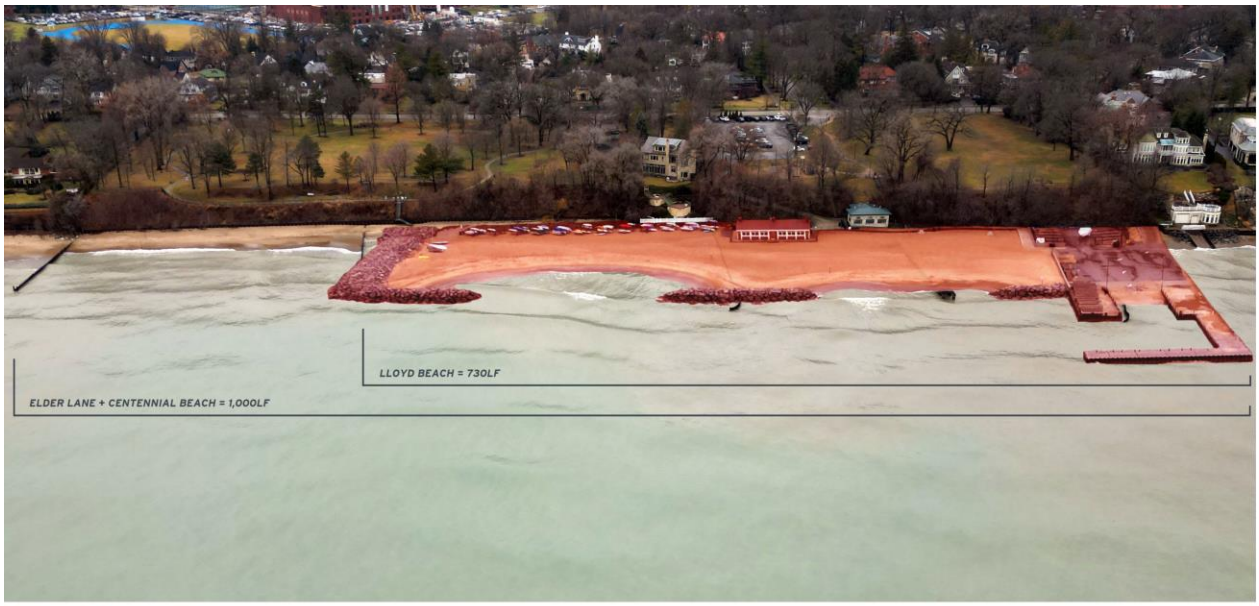
The proposed pier provides robust protection from waves coming from the northeast and proper separation between the dog beach and the swimming beach to the north.

Prepared by Park District Commissioner, Warren James, last updated February 2025

E

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

In January 2023, at the Elder-Centennial Open House, the WPD presented the following images to demonstrate the relative size of the combined Elder-Centennial to the existing Lloyd Beach.

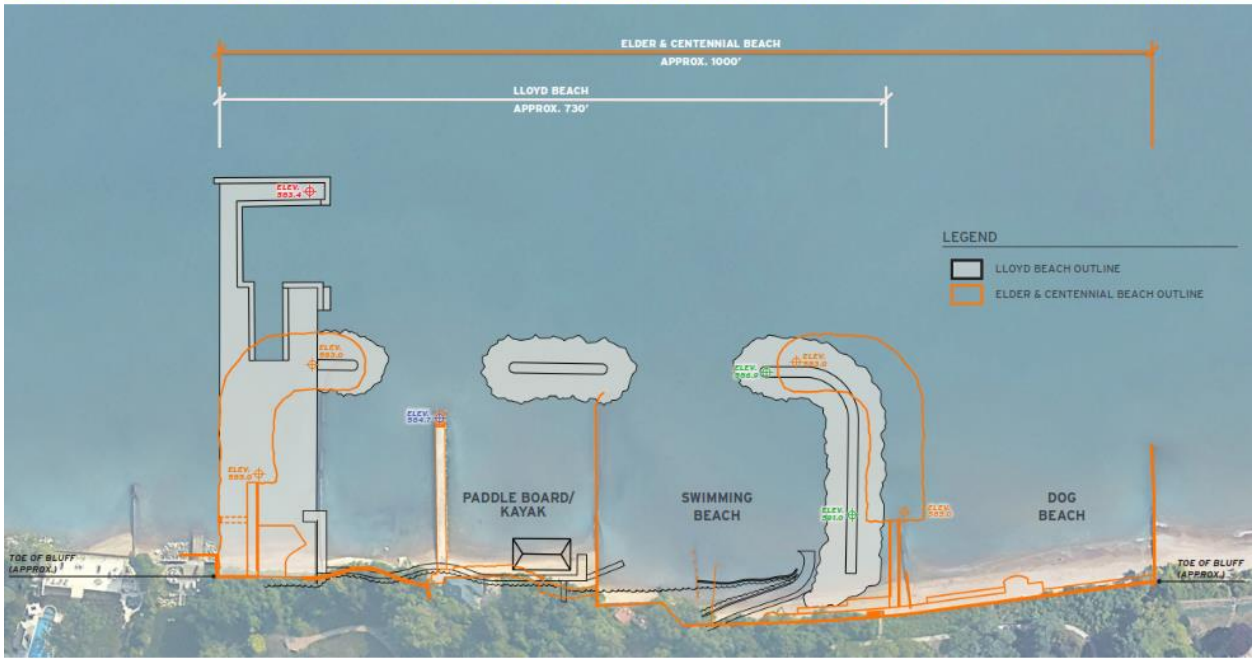


ELDER LANE + CENTENNIAL BEACH
JANUARY 2023

LLOYD BEACH
JANUARY 2023

The picture above demonstrates that the entire 730 feet of Lloyd Beach and Stepan Boat launch easily fits within the 1000-foot combined Elder-Centennial Beach with 270 feet remaining at the south end.

Boat Ramp & Breakwater Systems | Lloyd Beach vs. Elder & Centennial



This image above, also from January 2023, depicts the plan view of Lloyd (in gray) with the contemplated headland beach system and adjacent dog beach planned for Centennial and Elder (in orange). Note that the Lloyd breakwaters project the same distance into the lake as the proposed improvements at Centennial and Elder, while the Stepan boat launch extends further into the lake.

Prepared by Park District Commissioner, Warren James, last updated February 2025

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives

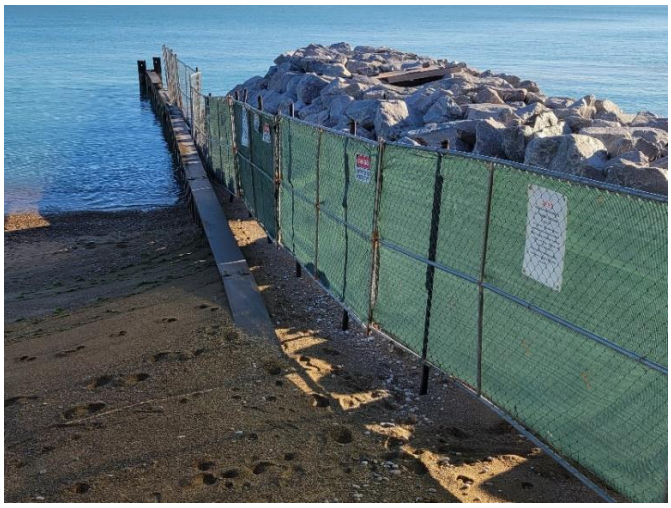
For comparison purposes, the WPD notes the following attributes of the Gillson Park Dog Beach in Wilmette.

- The shoreline dedicated to the dog beach is approximately 225 feet.
- The dog beach is oriented in an easterly direction and it is protected by a 475-foot long stone breakwater to the north.
- A chain link fence as seen near the middle of the beach area which defines the northerly edge of the dog beach is protected from waves from the northeast by the stone breakwater.

The following page provides and update on the proposed bypass of the dog beach and access to the steps up and over the stone breakwater at 205 Sheridan.

Prepared by Park District Commissioner, Warren James, last updated February 2025

Winnetka Park District – Centennial Park Dog Beach
History and Consideration of Off Leash Dog Park & Dog Beach Alternatives



Sand level at Centennial South Groin, Oct-17-2024

Sand level at Centennial South Groin, Feb-9- 2025

The steel groin (jetty) is located near the south property line of Centennial Dog Beach. The temporary construction fence is located along the northerly property line of 205 Sheridan. The convergence of the fence and steel jetty is the approximate location of where the extended property line of 205 Sheridan intersects the pre-existing steel groin. As of Oct-24, the sand on both sides of the steel extended afforded easy passage over the steel groin. As of Feb-25, the vertical drop on the north side has increased due to the loss of sand. Accumulated sand between the steel groin and the newly constructed stone groin provides dry passage to the steps leading over the stone groin at 205 Sheridan. Proposed dog beach fence to be secured to existing steel groin.

Note: Sand trapped between stone & steel provides 6-foot wide pathway to the steps over the stone groin

Accreted sand between steel & stone groin, Feb-9-2025

Steps over stone groin at 205 Sheridan, Feb-9-2025

There are three options to ensure safe, legal passage for pedestrians desiring to transit the shoreline:

1) Secure legal determination that accumulated sand between steel and stone groin is public land.
2) Secure easement agreement to ensure legal passage to reach steps up and over stone groin.
3) Relocate steel sheet pile to provide pedestrian pathway on the north side of the extended property line between Centennial Dog Beach and 205 Sheridan.

Prepared by Park District Commissioner, Warren James, last updated February 2025

Exhibit 3

RESOLUTION NO. 23-5-25

WINNETKA PARK DISTRICT

A RESOLUTION
ADOPTING FINDINGS OF FACT CONCERNING PROPOSED LAKEFRONT IMPROVEMENTS FOR ELDER LANE AND CENTENNIAL PARK BEACHES AND GRANTING,
AUTHORIZING AND DIRECTING PREPARATION OF PERMIT PLANS AND SPECIFICATIONS FOR ELDER/CENTENNIAL LAKEFRONT IMPROVEMENTS AND PERMIT APPLICATIONS TO PERMITTING AUTHORITIES

BE IT RESOLVED by the Board of Commissioners of the Winnetka Park District, Cook County, Illinois, as follows:

A. Legislative Findings about Project Background and History of Beaches. The Board of Commissioners hereby make the following legislative findings:

1. The Winnetka Park District ("Park District") is a body politic established in 1903 and operating in Cook County, Illinois pursuant to the Illinois Park District Code, 70 ILCS 1205/1-1 et seq. (the Park Code") and the laws of the State of Illinois.

2. The Village of Winnetka and Winnetka Park District own a total of twelve properties adjacent to Lake Michigan, seven of which are owned by the Village of Winnetka and five of which are owned by the Winnetka Park District. A portion of Tower Road property owned by the Village of Winnetka is operated by the Winnetka Park District as Tower Road Beach.

3. The combined total beach frontage owned and/or controlled by the Winnetka Park District is approximately 2,410 lineal feet, including the portion of Tower Road Beach owned by the Village, used as Tower Road Beach in accordance with the terms of an agreement between the Village of Winnetka and the Winnetka Park District.

4. The Park District acquired Elder Lane Park in parcels from various families and the Village of Winnetka between 1920-1946, and Centennial Park in 1969 through condemnation, to protect the land from residential development.

5. Since 1969, the Park District has owned and operated Elder Lane Park and Centennial Park, both of which are on the shore of Lake Michigan, depicted in **Exhibit A** (collectively, the "Parks").

6. Elder and Centennial Park span approximately 1,000 feet of Lake Michigan Shoreline, separated by one single family home and lot commonly known as 261 Sheridan Road.

7. Elder Lane Beach includes approximately 410 lineal feet of beach; Centennial Beach approximately 520 lineal feet of beach (collectively, the "Beaches") and the single family lot (261 Sheridan) includes approximately 70 lineal feet of beach.

8. Since acquisition by the Park District, the Beaches have been open to the public on an intermittent basis for a wide range of recreational purposes including swimming, non-motorized boating, an off-leash dog park, and other forms of structured and unstructured recreational use.

9. Since 1995, Centennial Beach, which comprises more than 21% of the total Park District accessible beach frontage, has been fenced, gated and locked for the near-exclusive use of "dog beach" pass holders;, which represent less than seven percent (7%) of the total households in the Winnetka Park District. **Exhibit B, "**Winnetka Park District Dog Beach Pass Holder Data" dated 05/23/23**.**

10. The Park District's Board of Park Commissioners ("Park Board") approved a long range master plan for the protection and enhancement of its five beaches, including Elder Lane and Centennial Beaches, titled the "Winnetka Waterfront 2030 Plan" (the "Lakefront Master Plan," or "Plan") March 16, 2016; the Lakefront Master Plan calls for design and construction of various improvements at each of the Park District's properties adjacent to Lake Michigan, including improvements at the Beaches deemed necessary to protect against the substantial threat of erosion, and to expand the community's safe and healthy recreational use of the Beaches.

11. Since adoption of the Lakefront Master Plan, the Board of Park Commissioners has consistently acted to advance the Plan's objectives, creating a legacy of support for the Plan and action thereon.

12. Since adoption of the Lakefront Master Plan, the Park District has constructed improvements consistent with the Plan's "Implementation" Section, at Tower Beach, Lloyd Beach, and Maple Beach, including the multi-million-dollar construction of a rubble mound breakwater and sand beach at Lloyd Beach.

13. The Park District is now prepared to proceed with certain lakefront improvements described herein at Elder Lane Beach and Centennial Beach, in accordance with the Lakefront Master Plan. Additional detailed legislative findings supporting the Park Board's decision to proceed with lakefront improvements at the Beaches , are set forth in **Appendix A** of this Resolution, pertaining to Lake Michigan conditions, bluff, beach, groin and pier conditions at the Beaches, the Lakefront Master Plan, and the nature and scope of the extensive public engagement that preceded development of the Concept Plan attached hereto as **Exhibit H**.

B. <u>Purpose of this Resolution is to:</u>

1. Make formal legislative findings of fact in support of the lakefront improvements described herein at Elder Lane Park and Beach and Centennial Park and Beach;

2. Approve and ratify various actions by the Park Board and the Park District pertaining to the design process for the lakefront improvements for Elder and Centennial Beach; and

3. Authorize and direct staff to prepare the plans and specifications consistent with the Concept Plan set forth in **Exhibit H,** and to prepare permit applications and related permit documentation for submittal to the Illinois Department of Natural Resources ("IDNR") and United States Army Corps of Engineers ("USAOC"), Metropolitan Water Reclamation District of Greater Chicago ("MWRD"), Illinois Environmental Protection Agency ("IEPA"), Village of Winnetka and other agencies with jurisdiction ("Permitting Authorities") for the lakefront improvements to be constructed at Elder Lane and Centennial Park Beaches.

Section One- Incorporation.

The Legislative Findings and Appendices set forth herein and attached hereto, and all of the facts, findings, and determinations contained therein are hereby incorporated into and made a part of this Resolution as if set forth in their entirety in this Section One. All Exhibits referenced in this Resolution are hereby incorporated into this Resolution and made a part hereof.

Section Two-Park Board General Findings.

The Winnetka Park District Board of Park Commissioners does hereby find and determine as follows:

A. Construction of improvements in Lake Michigan and upon property owned by the Park District is a proper public purpose.

B. The Park District has express authority pursuant to Sections 8-10 and 11-2 of the Illinois Park District Code to construct the breakwaters and related improvements for park purposes at Elder Lane Beach and Centennial Beach. 70 ILCS 1205/8-10, 11-2.

C. Without construction of the steel sheet pile bulkheads, rubble mound breakwaters and related public improvements at Elder Lane Beach and Centennial Beach, the Beaches are likely to experience further damaging erosion, loss of beach, and damage to the bluff and existing infrastructure; Elder Lane Beach will remain closed and Centennial Beach will remain underutilized by the public.

D. Any further delay in re-investing in the Beaches' infrastructure will further jeopardize the public's recreational use and enjoyment of the Beaches, would be contrary to the Park District's mission of maintaining safe, high-quality recreation facilities programs, and services, and is not in the best interests of the Park District and its residents.

E. Constructing the steel sheet pile bulkheads, rubble mound breakwaters, and related public improvements at Elder Lane and Centennial Park and Beach in accordance with the Plans attached hereto as **Exhibit H** is an essential step in achieving and maintaining specific, safe recreational and accessibility objectives for the Beaches identified in the Lakefront Master Plan and further acknowledged in subsequent actions and enactments of the Board of Park Commissioners.

F. Constructing the steel sheet pile bulkheads, rubble mound breakwaters and related public improvements at Elder Lane and Centennial Park and Beach in accordance with the Concept Plan attached hereto as **Exhibit H** is consistent with the program elements and design features previously approved by the Park Board, and with plans and objectives for the Beaches as articulated in the Lakefront Master Plan as approved and amended by the Board of Park Commissioners.

G. Construction of the steel sheet pile bulkheads and rubble mound breakwaters and related public improvements at the Beaches is necessary for the continued delivery of safe lakefront recreational services, programs, and opportunities to the residents of the Winnetka Park District and the general public, consistent with the Park District's statutory purposes.

H. The public improvements will materially improve, expand and enhance public safety and access to Centennial Beach, which since 1995 has been fenced, gated and locked for the exclusive use of 300 +/- dog beach pass holders.

I. Constructing the steel sheet pile bulkheads, rubble mound breakwaters and related public improvements at Elder Lane Beach and Centennial Beach in accordance with the Plans attached hereto as **Exhibit H** is necessary to maintain the Park District's long-standing commitment of making its beaches available and accessible to the public for swimming, off leash dog beach use, beach-walking, and enjoying beautiful vistas.

J. The Concept Plan for the public improvements at Elder Lane Beach and Centennial Beach attached hereto as **Exhibit H**:

1. Has been prepared by licensed and qualified professional engineers, coastal consultants, landscape architects, and related design professionals;
2. Is consistent with the spirit and intent of the Lakefront Master Plan;
3. Was prepared after consideration and inclusion of many principles and concepts received during substantial public engagement regarding the Beaches between 2014 and 2023;
4. Is consistent with and in accordance with parameters established by the Park Board in motions adopted October 27, 2022, March 23, 2023, and April 27, 2023; and
5. Has been prepared in order to comply with the current laws and regulations of:
    i. The United States pertaining to navigable waters including the Clean Water Act (33 U.S.C. 1344 et seq.), as administered by the USACE;
    ii. The State of Illinois, including the Illinois Rivers, Lakes and Streams Act, 615 ILCS 5/4.9 et seq. as administered by the IDNR, and
    iii. Village of Winnetka Ordinance MC-05-2023, Chapter 15.78, "Lakefront Construction."
    iv. MWRD
    v. IEPA
6. Is consistent with and supports the goals, mission and state funding priorities of the Illinois Department of Natural Resource Sustainable Shoreline Program, a part of the Coastal Management Program funded by the National Oceanic Atmospheric Administration ("NOAA").

K. The Concept Plan for the public improvements at Elder Lane Beach and Centennial Beach attached hereto as **Exhibit H**, will:

1. Provide access control to continue fee-based use of the Centennial and Elder Lane recreational beaches and the Centennial Dog Beach;
2. Provide critical public safety and welfare improvements;
3. Eliminate numerous dangers to patrons arising from interaction with damaged or dilapidated improvements, Elder Lane Pier segments, failing gabion mattresses and baskets with exposed rusted metal in the water, corrugated metal Village-owned pipe, and deteriorating concrete, submerged dog beach fence posts, wooden pilings from a pier dating to prior owner before 1969, other pier remnants, and other detritus;
4. Return to public use a more appropriate allocation of beach frontage for use as an off- leash dog beach;
5. Meet the Cook County and Village requirements associated with operation of an off-leash dog beach;
6. Provide long-term protection against beach loss and beach and bluff destruction and severe erosion;
7. Provide improved emergency and maintenance vehicle access route to the beach.

8. Enhance overall aesthetics of Elder Lane and Centennial Beaches;
9. Provide accessibility for disabled users in accordance with the Americans with Disabilities Act ("ADA"), including access to Centennial Beach boardwalk and viewing platform;
10. Eliminate the current gated, locked access that presently precludes the general public access to Centennial Beach; and
11. Update, improve and relocate the Village's existing storm sewer outfall pipe and related storm sewer system improvements.

Section Three-Park Board Findings Relating to Design and Construction

The Winnetka Park District Board of Park Commissioners does hereby find and determine as follows:

A. Design and construction of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** will serve to preserve and protect that portion of the Lake Michigan shoreline at Elder Lane Beach and Centennial Beach, owned by the Park District, by eliminating numerous current hazards, reducing erosion, preserving coastline, and protecting the value of properties along the Lake and the entire Winnetka community.

B. Design and construction of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** will stabilize and help to preserve Lake Michigan coastline and vegetation and will help to preserve and protect the Park District's beaches as a unique natural resource.

C. Design and construction of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** will not cause environmental or ecological damage to the Lake or surrounding areas of the Village, or otherwise adversely impact the health, safety, and welfare of the Village of Winnetka or its residents.

D. The heights of the breakwaters to be constructed at Elder and Centennial Beach pursuant to the Concept Plan attached hereto as **Exhibit H** are 585 feet (IGLD 1985) at the lakeward end (average based on stone) and 585 feet (IGLD 1985) respectively, both of which are approximately two feet lower than the height of Lloyd Beach breakwater previously approved by the USACE and the IDNR; these heights were adjusted partially in response to concern expressed by the public in scores of meetings, workshops, and chats with commissioners over the height of the various breakwaters and the impact on vistas.

E. The existing Elder Lane Pier elevation is 584.67 feet (IGLD 1985) at lakeward end,

F. The heights of the breakwaters to be constructed at Elder and Centennial Beach pursuant to the Concept Plan attached hereto as **Exhibit H** are no greater than what is minimally necessary to achieve the intended and proper purpose of the project and said heights strike an appropriate balance between the competing interests of beach preservation and preservation of aesthetic views from the beach. The height of the proposed breakwaters are consistent with the height of existing Elder Lane Pier.

G. Breakwater heights lower than those set forth in the Concept Plan set forth in **Exhibit H** (which are already lower than the Lloyd Beach breakwater heights) would result in a degree of erosion protection and beach enhancement not consistent with the Project program.

H. It is the intent of the Park District to design and construct of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** which complies with all other applicable provisions of the Village Code including construction permitting requirements set forth in Section 15.32 of the Municipal Code of the Village of Winnetka.

I. The design and construction of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** includes only what is minimally necessary to achieve the intended and proper purpose of the project and is consistent with the purposes of section 15.78.010 of the Village Lakefront Construction Ordinance, MC 05-2023.

J. Design and construction of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** is consistent with sound engineering practices, is not expected to create any public safety hazards and will not unreasonably obstruct or interfere with ingress or egress to adjacent public beaches or private property; to the contrary, the improvements will remove various existing safety hazards and enhance ingress and egress to adjacent public beaches.

K. Design and construction of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** will not block or otherwise unreasonably interfere with the ability of public safety personnel to conduct search and rescue and other public safety operations, and in fact enhances access to the beaches by public safety vehicles, equipment and personnel. Presently there exists limited vehicle access from Elder Beach and no vehicle access to Centennial Beach. Access to Centennial Beach presently is by stairs, by water or by traversing a portion of beach encumbered by two to three steel jetties, which periodically block access depending upon water and sand elevations. The Elder-Centennial Improvements will expand access to Centennial via an ADA Accessible path and will improve vehicle access to Elder.

L. Design and construction of the Elder-Centennial Improvements in accordance with the Concept Plan attached hereto as **Exhibit H** will not alter existing sight lines along the Lake Michigan shoreline more than is minimally necessary to achieve the intended and proper purpose of the project, and is consistent with the purposes set forth in Section 15.78.010 of the Village Lakefront Construction Ordinance, MC 05-2023; in fact, the Elder-Centennial Improvements will result in: (i) less alteration to sight lines than the comparable improvements constructed at Lloyd Beach in 2020; and (ii) less alteration to sight lines than the existing pier at Elder Lane Park.

M. Breakwater heights lower than those set forth in the Concept Plan set forth in **Exhibit H** (which are already lower than the Lloyd Beach breakwater heights) would result in a degree of erosion protection and beach enhancement not in the best interests of the public.

N. The Plans for the public improvements at Elder Lane Beach and Centennial Beach attached hereto as **Exhibit H**, will:

1. Include rubble-mound breakwaters to create additional recreation area;
2. Protect the shoreline and bluff from long term effects of erosion due to variable water levels while providing a foundation for future phases of upland improvements;
3. Provide an accessible pathway conforming to ADA standards from the existing Centennial parking lot the Centennial Boardwalk and viewing platform, and provide for future ADA accessible route to the beach;
4. Provide public access to, from and across Park District beach property allowing the public to traverse the lakefront including steps up and over any improvement perpendicular to the shoreline;

5. Relocate the existing gated and locked entrance to the existing dog beach to the new boardwalk level to allow public pedestrian access to the remainder of Centennial Beach from Centennial Park and adjacent beaches;
6. Provide vehicular access path from Elder Lane parking lot to Elder Lane Beach for construction, maintenance and emergency purposes, and improved pedestrian access for beach patrons; and
7. Re-locate, replace, and improve the Village's Elder Lane storm sewer discharge within the outer edge of the rubble mound breakwater at the north end of Elder Lane Beach.

O. With this Resolution the Board desires to make clear that it approves the concept plans and parameters for the public improvements at Elder Lane Beach and Centennial Beach as proposed and attached hereto as **Exhibit H**, and further, that it approves preparation of the permit plans in substantial conformance with **Exhibit H**, for submittal to all permitting agencies with jurisdiction including the IDNR, U.S. Army Corps of Engineers, Illinois Environmental Protection Agency, MWRD, the Village of Winnetka for permit approval. .

Section Four- Approval and Ratification.

A. The Park Board hereby approves and adopts the facts, findings, and determinations set forth in this Resolution, including but not by limitation, the Recitals, Appendix I, and Sections One through Three hereof.

B. The Park Board hereby approves the Concept plan and parameters for the public improvements at Elder Lane Beach and Centennial Beach described in this Resolution and attached hereto as **Exhibit H**.

C. The Park Board hereby ratifies and re-affirms the Park Board's 2016 adoption of the Lakefront Master Plan and all subsequent amendments previously approved, and the Plan's vision for development of Elder/Centennial for the public good.

D. The Park Board hereby authorizes and directs Park District staff to prepare applications for permit for the breakwaters and lakefront improvements at Elder Lane Beach and Centennial Beach with plans and specifications in substantial conformance with the Concept Plan attached hereto as **Exhibit H**, for final board approval. The Park Board's review of the applications for permit (including the permit plans and specifications incorporated into said permit applications) for the breakwaters and lakefront improvements at Elder Lane Beach and Centennial Beach shall be solely for the limited purpose of ensuring consistency with the Concept Plan, the primary program elements and design features and the other parameters established by motions approved by this Park Board October 27, 2022, March 23, 2023, and April 27, 2023 (as set forth in detail in Appendix 1, Sections 63–73 of this Resolution).

Section Five- Repealer and Severability.

A. All other resolutions, motions, and parts of the same, in conflict or inconsistent with any of the provisions of this Resolution are hereby repealed to the extent they are inconsistent with this Resolution.

B. If any section, subsection, paragraph, sentence, clause or phrase of this Resolution or any part thereof is for any reason held to be unconstitutional, invalid, or ineffective by any court of competent jurisdiction, such holding shall not affect the validity or effectiveness of the intent or the remaining portions of this Resolution, or any part thereof.

Section Six—Effective Date.

This Resolution shall take effect immediately upon its passage and approval according to law.

PASSED AND APPROVED BY THE BOARD OF PARK COMMISSIONERS OF THE WINNETKA PARK DISTRICT, THIS 25th DAY OF May, 2023 BY ROLL CALL VOTE AS FOLLOWS:

AYES: Archambault, Lussen, Seaman, Codo, James
NAYS: Rapp, Root
ABSENT: None
ABSTAIN: None

EXECUTED THIS 25th DAY OF May, 2023.

ATTEST:

/s/Warren A. James
_____
Warren A. James President,
Board of Park Commissioners Winnetka
Park District

/s/ John Peterson
_____
John Peterson Secretary,
Board of Park Commissioners
Winnetka Park District

SECRETARY'S CERTIFICATE

I, John Peterson, do hereby certify that I am Secretary of the Board of Park Commissioners of Winnetka Park District, Cook County, Illinois, and as such official, I am keeper of the records, ordinances, resolutions, files, and seal of said Park District; and,

I hereby further certify that the foregoing instrument is a true and correct copy of:

RESOLUTION 23-5-25

WINNETKA PARK DISTRICT

FINDINGS OF FACT CONCERNING PROPOSED LAKEFRONT IMPROVEMENTS FOR ELDER LANE AND CENTENNIAL PARK BEACHES AND AUTHORIZATION AND DIRECTION TO STAFF FOR SUBMITTAL OF BREAKWATER AND BEACHFRONT PERMIT APPLICATIONS TO THE UNITED STATES ARMY CORPS OF ENGINEERS AND THE ILLINOIS DEPARTMENT OF NATURAL RESOURCES

adopted at a duly called Regular Meeting of the Board of Park Commissioners of Winnetka Park District, held in Winnetka, Illinois, in said District at 6:00 p.m. on the 25th day of May, 2023.

I do further certify that the deliberations of the Board on the adoption of said resolution were conducted openly, that the vote on the adoption of said resolution was taken openly, that said meeting was held at a specified time and place convenient to the public, that notice of said meeting was duly given to all of the news media requesting such notice, that an agenda for said meeting was posted at the location where said meeting was held and at the principal office of the Board at least 48 hours in advance of the holding of said meeting, that said meeting was called and held in strict compliance with the provisions of the Open Meetings Act of the State of Illinois, as amended, and with the provisions of the Park District Code of the State of Illinois, as amended, and that the Board has complied with all of the provisions of said Act and said Code and with all of the procedural rules of the Board, in the passage of the resolution.

IN WITNESS WHEREOF, I hereunto affix my official signature and the seal of said Park District at Winnetka, Illinois this 25th day of May, 2023.

/s/ John Peterson

_____
John Peterson, Secretary
Board of Park Commissioners
Winnetka Park District

[SEAL]

EXHIBIT SUMMARY

Exhibit

A. Depiction of Elder Lane and Centennial Parks.

B. Winnetka Park District Dog Beach Pass Holder Data" dated 05/23/23.

C. Shabica & Associates, Inc. presentation titled "Lake Michigan Shoreline" originally presented to the Winnetka Park District March 24, 2022. The presentation details dynamic and fluctuating Lake Michigan water levels, effects of lakebed downcutting, sand movement/longshore transport challenges and history and coastal structures.
https://www.winpark.org/wp-content/uploads/2022.3.24-Shabica-Presentation-PDF-1.pdf

D. Each of the exhibits prepared for and presented during the January 21, 2023, Open House/Workshop held at the Winnetka Community House and subsequently posted on the Park District website.
https://www.winpark.org/wp-content/uploads/WPD_2023_BoardExhibits_Reduced_Reduced-2-compressed-1.pdf

E. Each of the exhibits prepared for and presented during the March 18, 2023, Open House held at Skokie School Cafeteria and subsequently posted on the Park District website.
https://www.winpark.org/wp-content/uploads/March-18_23_Final-Boards-Open-House-compressed-2.pdf

F. Each of the exhibits prepared for and presented during the April 15, 2023, Open House held at the Winnetka Community House and subsequently posted on the Park District website.
https://www.winpark.org/wp-content/uploads/Final-Draft-4_17_23-1057-hours-CK-for-the-website-reduced-reduced-compressed.pdf

G. Each of the slides prepared and presented during the May 25, 2023, Regular Park District Board meeting as included in the Board meeting packet and posted on the Park District website in advance of the board meeting being held May 25, 2023.
https://winpark.diligent.community/home/document/05e711fd-c2fa-42f5-9eb9-e45a1a15dcb9

H. Concept Plan showing the proposed improvements which are the basis of the permit plans to be prepared and submitted to the reviewing agencies.

I. Village Engineer, James Bernahl, memo to Village Manager, Rob Bahan regarding Elder Park Stormwater Outfall, dated October 26, 2022.

J. Winnetka Waterfront 2030 | Lakefront Master Plan

https://www.calameo.com/winnetkaparks/read/002854155cf4afa1680fd

K. Village of Winnetka Futures 2040 Comprehensive Plan

https://www.villageofwinnetka.org/DocumentCenter/View/2064/Winnetka-Futures-2040-Plan-PDF

L. Professional Opinion Letter Regarding Resolution 23-5-25

APPENDIX 1
ADDITIONAL LEGISLATIVE FACTUAL FINDINGS

Lake Michigan Conditions

1. Lake Michigan water levels vary both seasonally and over a period of years. In January 2013, the Lake Michigan water level dropped to its lowest level in more than 100 years, declining to 576.02 (IGLD1985). By 2020, Lake Michigan water level rebounded to exceed the 100-year record monthly high-water level from January through August, reaching a peak of 582.22 (IGLD1985) in July 2020. The increase in water level of more than six feet in just seven years was unprecedented within the 1918–2023-time frame..

2. Lake Michigan storm events, even when occurring during low water periods, have damaged the Park District's existing lakefront infrastructure. **Exhibit C,** Shabica Presentation March 24, 2022, slide 50 of 62, picture of Lloyd Beach inundation from Halloween storm 2014**.**

3. More recent high-water conditions in Lake Michigan destroyed lakefront infrastructure and improvements at Elder Lane Beach, which were installed during a prior low water period (paddle board and kayak racks) and at Centennial Beach (dog beach fence). **Exhibit F**, April 15, 2023 Open House, slides 11 and 13.

4. Elder Lane Beach has been closed since 2020 due to damaged infrastructure (gabion blankets, pier end, storm sewer corrugate metal pipe failing) **Exhibit F,** April 15, 2023 Open House, slide 11 (photos, damage reports).

5. Less robust infrastructure, including but not limited to gabion baskets, gabion mattresses have experienced a shorter useful life and upon failure create hazardous conditions to beach users while exposing bluff land and upland improvements vulnerable to damage.

6. Shoreline protection including headland beach systems help to sustain usable beaches in varying lake levels while also providing additional shoreline protection and prevent lakebed downcutting which otherwise may irreversibly damage the lakeshore. **Exhibit C,** Shabica Presentation March 24, 2022. Shabica Presentation March 24, 2022.

7. The erection of a multitude of man-made improvements north of the Beaches—including major improvements at Waukegan Harbor and Great Lakes Naval Training Center that extend more than 2,000 feet into Lake Michigan have interrupted natural littoral drift, caused sand that would normally and naturally drift south towards Elder Lane and Centennial Beaches to drift outward into the lake, dramatically reducing the volume of sand reaching the beaches along the North Shore of Chicago. **Exhibit C,** Shabica Presentation, March 24, 2022, slide 32 of 62).

Beach, Groin, and Pier Conditions at Elder Lane and Centennial Beaches

8. Steel sheet pile groins or "jetties" perpendicular to the shoreline are presently in place, installed in an effort to arrest littoral drift and sustain the Beaches. These improvements are damaged and fragmented, and create potentially dangerous conditions to beach users.

9. Remnants of wooden piles protrude from the lakebed at Centennial Beach.

10. A chain link fence installed to establish the northerly boundary of Centennial Dog Beach was destroyed by waves and ice during the recent high-water period.

11. The Park District has regularly sought to cooperate with the Village of Winnetka on repair and enhancement of stormwater improvements, and the Park District remains prepared to work collaboratively with the Village to incorporate the much-needed modernization of the stormwater improvements at Elder Lane Park.

Elder Lane Beach

12. The Elder Lane Pier was designed and constructed in the late 1940's. The outer section of Elder Lane Beach pier is failing and the pier, in its current condition, constitutes a serious risk to the public's health and safety.

13. The Elder Lane Beach pier incorporates a 54" diameter corrugated metal storm sewer outfall which serves a large portion of southeast Winnetka. This critical infrastructure, owned and operated by the Village of Winnetka, has rusted through to an extreme state of disrepair, as evidenced by a section of pipe that washed ashore in 2022. **Exhibit D,** January 21, 2023, Open House, slide 19

14. The Winnetka Park District and the Village of Winnetka continue to cooperate to improve the Village owned and operated storm sewer system, parts of which are installed on Park District property, including the Elder Lane storm sewer discharge. The Elder storm sewer serves the largest watershed area in east Winnetka and is the only east side watershed that also includes areas west of the railroad tracks. Village Engineer, James Bernahl, issued a Memorandum October 26, 2022, which details the proposed improvements and provided a history of the storm sewer, the area which it serves and the aspects of permitting a replacement as proposed by the Winnetka Park District. **Exhibit I,** James Bernahl, Village Engineer, memorandum to Robert Bahan, Village Manager, dated October 26, 2022, regarding Elder Lane Park Village-owned stormwater Outfall.

15. While Elder Lane Beach has some limited ADA accessibility, it contains only one handicapped accessible parking space at Beach level.

16. In 1987, the Park District installed a variety of improvements at Elder Lane Beach to address erosion, including new steel sheet pile bulkheads (North end), gabion baskets and gabion mattresses (adjacent to the Elder Beach house) and other related improvements as detailed in Harza Engineering Plans titled, Elder Lane Park Plan and Section, dated April 1987 issued for construction, and December 1987, issued for record.

17. The gabion baskets and mattresses installed in 1987 at Elder Lane Beach are beyond their useful lives and sustained damage during the recent period of high water. The gabion mattresses at the beach level south of the Elder Beach house are broken apart and the interior steel wires are exposed below the surface within six (6) feet of the end of the concrete ramp. see **Exhibit F,** pictures provided during April 15,, 2023 open house, slide 11.).

18. Also at Elder Lane Beach, there are failed concrete foundations, remnants of paddle board/kayak racks destroyed by rising water levels which peaked in 2020, which constitute an ongoing safety hazard and require removal.

Centennial Beach

19. The existing steel groins were installed at Centennial beach after IDNR approval, August 1953 by a predecessor owner (prior to Park District ownership of Centennial Beach).

20. Centennial Beach also includes remnants of wooden piles from a pier that was installed at Centennial Beach in approximately 1946; these pier remnants remain in place, constitute an ongoing safety hazard, and require removal.

21. The existing pedestrian path from the Centennial Park parking lot to the mid-bluff path and dog beach access gate has an existing slope in excess of 8.33% and therefore is not compliant with ADA accessibility standards and should be re-designed and remediated.

22. The existing dog beach at Centennial Beach does not conform to Cook County or Village of Winnetka regulations regarding off-leash dogs because it lacks the required fencing to prevent unleashed dogs from straying onto adjacent properties.

23. Centennial Beach currently has no ADA-compliant access from the bluff to the Beach; access consists of stairs only.

24. A chain link fence installed at Centennial Beach to establish the northerly boundary of the Centennial Beach off-leash dog park, was destroyed by waves during the rising water levels, which peaked in 2020.

25. In 1987, the Park District installed steel sheet pile bulkheads and gabion mattresses designed by Harza Engineering to address bluff erosion along Centennial Beach. (Centennial Park Plan & Details, Harza Engineering, April 1987, issued for construction, December 1987, issued for record.) The top of the sheet pile elevation is designed at 588.5 (IGLD1985) with additional erosion protection provided by the gabion mattresses extending behind the steel sheet pile wall and up the slope approximately 9 feet laterally to an elevation of approximately 591.5 (IGLD1985).

26. Other public beaches in the community have handicapped accessible parking, and limited or no handicapped accessible access points, including Maple Street Beach (one handicap accessible parking space at beach level), Lloyd Beach (two handicap accessible parking spaces at beach level), Tower Beach (four handicap accessible parking spaces at beach level).

27. Centennial Beach is the only Winnetka Park District Beach that presently does not afford ADA compliant access.

28. Centennial Beach, by virtue of its length and the comparatively low bluff elevation, is the only Winnetka Park District beach that affords the opportunity to provide an ADA accessible path from Sheridan Road to the boardwalk level without extensive switchbacks.

2030 Waterfront Master Plan

29. In 2014, the Park District's Board of Park Commissioners initiated the development of a comprehensive waterfront plan designed to assess its recreational beach system and develop a plan for addressing continuing beach erosion, expanding recreational uses and enhancing handicapped accessibility for the community and users of its public beach system.

30. The "Winnetka Park District 2030 Waterfront Master Plan" ("Lakefront Master Plan") was a community-driven plan, focused on learning the public's opinions about the beaches and using

experts to develop a plan to arrest erosion, expand recreational offerings on the Winnetka lakefront, and enhance accessibility for all.

31. The Park District was awarded grant funds from the State of Illinois, Department of Natural Resources Sustainable Shoreline Program Grant(s) for the Lakefront Master Plan. The IDNR monitored, reviewed and approved the Park District's Master Plan before releasing its part of the Plan's funding.

32. The Park District was awarded additional grant funds from a second State of Illinois, Department of Natural Resources Sustainable Shoreline Program Grant for bluff restoration plantings at all five Park District-owned beaches.

33. The purpose of the Lakefront Master Plan was "to create a strategic and unified community vision for the future of Winnetka's shoreline."

34. The Lakefront Master Plan's Mission Statement was to "provide a long-term, sustainable strategy for the preservation, protection, restoration and enhancement of Winnetka's lakefront for both Winnetka residents and a broad range of Lake Michigan user groups."

35. Prior to drafting and adopting the Lakefront Master Plan, the Park District:

    A. Formed a citizen's advisory committee, consisting of ten citizens, known as the Lakefront Advisory Committee ("LAC"), a comprehensive team of lakefront experts from varied disciplines, including coastal engineering;

    B. Conducted extensive stakeholder interviews with residents and focus groups including interviews of over 180 residents and stakeholders;

    C. Conducted multiple web-based surveys; and

    D. Held public open house meetings to determine the public's opinion.

36. The LAC held fourteen open meetings, interviewed over 85 stakeholders representing a variety of groups with interest in the future use and enjoyment of the publicly owned lakefront, and interviewed members of the Village's Board of Trustees, the Environmental and Forestry Commission, engineering and planning staff, board members of the Winnetka Parks Foundation, park district staff from neighboring communities, local institutions, and community organizations.

37. Ten public open house meetings were hosted as part of the overall engagement strategy, at which members of the public were free to comment on existing conditions, design concept alternatives, draft concept reviews, and implementation priorities; the various opinions and insight gained from these meetings are recorded in the completed study found online at https://www.winpark.org/park-district-info/plans-projects/waterfront-2030/.

38. The Park District caused three web-based surveys to be conducted to collect public opinion relative to the lakefront planning process, one administered by the Project Team, one by the Park District, and one by the Winnetka Caucus Council.

39. Over 180 residents, stakeholders, public officials, professionals with various types of expertise, property owners, boat beach users, dog beach users, and other beach users interacted with the

LAC at some point during the public engagement process that preceded preparation of Lakefront Master Plan's final report.

40. The findings and recommendations of the Lakefront Master Plan reflect the extensive public engagement summarized above.

41. The Lakefront Master Plan reported on the community's support for and commitment to unification of the Beaches through the possible future acquisition of 261 Sheridan Road, listing the acquisition of the property between Elder and Centennial (261 Sheridan Road) as its top "Land Management" priority, and as a top priority for Centennial Park and Beach.

42. The Lakefront Master Plan highlighted the public's overwhelming support for Park District acquisition of 261 Sheridan Road, finding that the acquisition of 261 Sheridan Road would enable the Park District to (1) establish nearly 1,000 lineal feet of continuous public beach, (2) construct a three-element breakwater system to preserve said beach, (3) resolve the chronic erosion problem plaguing the Beaches, and (4) provide a variety of other recreational amenities for the community as identified during the public engagement process, including continuation of a dog park.

43. The Lakefront Master Plan included alternative designs for lakefront improvements, one with and one without the inclusion of 261 Sheridan Road, both intended to take advantage of Elder/Centennial's full recreational potential; both design alternatives called for the construction of "rubble mound breakwaters," in future lakefront improvements at Elder/Centennial was reaffirmed by the Park Board October 27, 2022.

44. Since its adoption, the Lakefront Master Plan has been endorsed supported and followed by four successive Boards of Park Commissioners and endorsed by the Winnetka Caucus.

45. On or about April of 2016, the Board of Park Commissioners amended the Lakefront Master Plan at the request of Commissioner John Thomas to specifically incorporate ADA accessibility as a primary objective.

Village of Winnetka Futures 2040 Comprehensive Plan

46. On April 18, 2023 the Village of Winnetka adopted the Winnetka Futures 2040 plan as the Comprehensive Plan for the Village of Winnetka ("Village Comprehensive Plan").

47. The Village Comprehensive Plan recognized the important role that the Park District plays in creating a sense of place that is different from surrounding communities.

48. The Village acknowledged the wealth of opportunities it has working in partnership with the Park District to improve resident access to its abundant open spaces and natural areas. **Exhibit K,** Village Comprehensive Plan, p. 35.

49. The Village Comprehensive Plan states that the Lakefront Master Plan "provides a sustainable strategy for the preservation, protection, restoration and enhancement of Winnetka's lakefront for both Winnetka residents and a broad range of Lake Michigan user groups. The plan is meant to serve as a conceptual guide for future projects designed to preserve and enhance Winnetka's lakefront beaches and parks, strengthen resiliency measures, and guard against bluff and shoreline erosion." **Exhibit K,** Village Comprehensive Plan, p. 157.

50. The Village Comprehensive Plan further acknowledges that due to current fluctuating record-high water levels, high wave action, and other environmental factors, shorelines along Lake Michigan are experiencing erosion and significant destruction at unprecedented rates, and that some shorelines are eroding at a rate of 17 feet per year; the Village Comprehensive Plan also points out that Winnetka's lakefront, both publicly and privately owned, has been negatively impacted by shoreline erosion." **Exhibit K,** Village Comprehensive Plan.

51. The Winnetka Comprehensive Plan further acknowledges the Park District's recent efforts to monitor and restore its parkland.

52. Goal 6.1 of the Winnetka Comprehensive Plan commits the Village to "continue to promote and encourage partnerships with other units of government and agencies to conserve, restore, and enhance natural features and ecosystems, to ensure accessibility to natural areas, parks and other open or public spaces, and to support recreational facilities and programs that support the health of residents of all ages and abilities." **Exhibit K,** Village Comprehensive Plan.

Breakwater Design

53. Consistent with the Lakefront Master Plan, on or about November 18, 2020, the Park District began the process of preparing and considering various design options for a breakwater system entirely consistent with the Phase 2 design set forth in the Lakefront Master Plan; the design options consisted of three separate breakwater structures, with one each situated on the north and south ends of the combined Elder/Centennial Park, and one in the middle at 261 Sheridan Road, which would be owned by the Park District upon completion of the exchange closing.

54. On February 23, 2022, the Park District submitted a Breakwater Design to the USACE and IDNR and the other Permitting Authorities, for the south groin to be built on Park District property just north of the Centennial Beach south property line as that line would exist after Orchard and the Park District exchanged parcels.

55. While the permit application was pending before IDNR and the other agencies charged with public review of same, public opposition to the Centennial breakwater design began to spread on social media and throughout the community. Extensive public opposition to the design was communicated to the Park Board at a variety of meetings in May and June of 2022.

56. On June 9, 2022, the Park Board voted to withdraw the pending application for approval of the Centennial breakwater on a vote of three in favor, two opposed, and two absent.

57. In addition to the public engagement provided during the creation of the Lakefront Master Plan, the Park District has regularly sought and received extensive public engagement concerning the Elder Lane and Centennial Beach and Park projects, including but not limited to:

    A. Ten regular board meetings between June 9, 2022, and March 31, 2023 (includes combined Park Board and Committee of the Whole meetings) totaling more than 78 hours of meetings;
    B. Seven Committee of the Whole meetings;
    C. Two special board meetings;
    D. Seven "Chats with Commissioners;" and
    E. Five Open house/workshop meetings referenced in paragraph 70 below.

58. At these meetings, the public supplied hours of detailed comments, studies, and opinions concerning all aspects of the improvements at Elder Lane Park and Beach and Centennial Park and Beach under consideration by the Park Board.

59. In addition to these Board meetings, the Park District held many open house/workshop meetings, including the following:

    A. July 18, 2022: The Winnetka Park District held an Open House/Workshop and Workshop affording the public the opportunity to view proposed Centennial Beach design elements at Centennial Beach, view the existing breakwater at Lloyd Beach to provide context, and share ideas during a community workshop meeting at the Hubbard Woods Elementary School auditorium during which the public could engage with Park District Commissioners, Staff and Consultants.
    B. August 25, 2022: The Winnetka Park District held an Open House/Workshop affording the public the opportunity to view proposed Centennial Beach design elements at the Hubbard Woods Elementary School auditorium during which the public could engage with Park District Commissioners, Staff and Consultants.
    C. January 21, 2023: The Winnetka Park District held an Open House/Workshop at the Winnetka Community House affording the public the opportunity to review the history and plans for Elder and Centennial Park improvements and engage with Park District Commissioners, Staff and Consultants. **Exhibit D.**
    D. March 18, 2023: The Winnetka Park District held an Open House at the Skokie School cafeteria in Winnetka to afford the public the opportunity to review revised and updated plans for Elder and Centennial Park improvements and engage with Park District Commissioners, Staff and Consultants. **Exhibit E.**
    E. April 15, 2023: The Winnetka Park District held an Open House at the Winnetka Community House to afford the public the opportunity to review the further revised and refined plans for Elder and Centennial Park improvements and engage with Park District Commissioners, Staff and Consultants. **Exhibit F.**

60. The public also submitted written documents to the Park District expressing opinions on various aspects of the designs being considered for the improvements at Elder Lane and Centennial Beaches.

61. At its regular Board meeting October 27, 2022, the Park Board continued its process of revising the design of breakwaters for Elder Lane and Centennial Beaches, adopting nine motions which established specific parameters for the new designs, including the following:

    A. Amended the Lakefront Master Plan to include a dog beach at the south end of Centennial Beach subject to the following conditions:

        i. Shore frontage allocated to dog beach use shall not be less than 170 feet and not greater than 270 feet.
        ii. Dog beach area must include secure boundary to prevent dogs from straying beyond the borders of the dog beach while off leash.
        iii. Electric gate system relocated to the beach or boardwalk level to afford public access to the remainder of Centennial Beach.
        iv. Dog beach boundaries to accommodate public passage along the lakefront in keeping with the IDNR guidelines.

B. Reaffirmed use of a headland beach systems at Elder Lane and Centennial Beaches including rubble mound breakwater structures to create additional recreational area and to minimize loss of sand due to littoral transport.

C. Authorized resubmittal for all permits necessary to complete renovation of Elder Lane Park and Beach in keeping with the Elder 2.A. Plan and to proceed with the plan as considered October 13, 2022, subject to the following provisions:

i. Plan to include vehicular access path as previously designed and depicted on prior plans, allowing construction and maintenance access to Elder Lane Beach from existing parking lot.
ii. Plan to include replacement and re-routing of storm sewer from Sheridan Road to the new proposed discharge point within the outer edge of the rubble mound breakwater as previously designed and depicted on prior plans, subject to finalization of plans as guided by permit review comments from the several regulatory authorities and peer review from licensed coastal engineer.
iii. Adjust height of proposed new rubble mound breakwater at north end of Elder to maximize panoramic views of the lake while ensuring adequate shoreline protection, subject to peer review by licensed coastal engineer.
iv. Remove proposed viewing area on top of rubble mound groin at Elder to minimize height of rubble mound breakwater and propose inclusion of pedestrian viewing area to the top of future rubble mound breakwater separating the dog beach from the public swimming beach at Centennial in a manner that extends the ADA accessible path to the top of the future rubble mound breakwater.
v. Amend Elder 2.A. Plan to remove proposed rubble mound breakwater improvements abutting the existing steel groin adjacent to 261 Sheridan until final disposition of Exchange Agreement is determined.

D. Incorporated pedestrian access path that is compliant with ADA standards to Centennial beachfront as previously designed with continuously accessible path from existing parking lot to the boardwalk at elevation 590 or below.

E. Authorized the Director of Parks and Maintenance to secure design proposals for Elder + Centennial from the Lakota Group, Shabica & Associates and a third party coastal engineer for consideration and vote December 1, 2022.

F. Authorized the Executive Director to proceed with a Request for Proposal to engage the services of an Illinois licensed coastal engineering firm not associated with the Joint Applications filed by the Park District with the IDNR and the Army Corps to collaborate with WPD Staff, its Board, and consultants in the creation of beachfront design alternatives for Elder Lane and Centennial Beaches and to promptly engage the services of such firm.

G. Directed the inclusion of pedestrian access to and from park district property to traverse the beachfront beyond WPD property along the highwater mark in accordance with the Illinois Public Trust Doctrine, in the design parameters for the restoration and improvement of Centennial and Elder Lane Beaches.

H. Directed that the designs for the Centennial and Elder Lane Beach improvements limit barriers or impediments to open Lakefront vistas and views of the Lake from all Park District beachfront vantage points.

62. Following the adoption of these motions October 27, 2022, the Park District engaged the services of a registered professional engineer not previously associated with the original breakwater design and permit application, to review the work of the prior consultants, engineers, designers and landscape architects, and to assist in the development of new plans for breakwater structures at Elder Lane Beach and Centennial Beach consistent with new information obtained a variety of sources after withdrawal of the original permit application.

63. The Design Team continued the process of developing new designs for the Elder and Centennial breakwaters in accordance with (a) the October 27, 2022 motions, (b) further Park Board input, (c) reusable elements of the work performed by the Park District's original group of coastal scientists, consultants, engineers, landscape architects, and others with vast experience in the design and construction of breakwaters and related improvements in Lake Michigan, (d) various aspects of public input provided to the Park Board during the many hours of public testimony over the numerous meetings held after withdrawal of the original permit application for the south breakwater, and (d) the perspective provided by the newly engaged coastal engineer.

64. Park District also engaged an attorney/accessibility consultant to assist with the design and development of accessible features and amenities for the beach improvements (John McGovern, W/T Consulting) and enjoys the expertise and review services of Northern Suburban Special Recreation Association ("NSSRA").

65. On January 21, 2023 the Park District conducted a workshop/open house, open to the public at which it obtained additional public opinion concerning the then most recent designs for the breakwater improvements at the Beaches.

66. On March 18, 2023 the Park District conducted another open house, open to the public at which it obtained additional public opinion concerning the then most recent designs for the Breakwater improvements at the Beaches.

67. On March 23, 2023, the Park Board voted to authorize staff and consultants to continue with the preparation of permit plans and applications for permits to the several agencies (now including the Village of Winnetka, which on March 21, 2023, adopted an ordinance establishing a Village permit requirement for persons engaged in construction activities on the Lake Michigan shoreline ("March 23, 2023 Motion").

68. The March 23, 2023, Motion acknowledged plans dated March 18, 2023, and directed staff and consultants to continue work on the plans consistent with the October 27, 2022, motions.

69. The March 23, 2023, Motion included the following conditions:

A. Further refinements to the plan will be incorporated as recommended by staff, consultants and various reviewing agencies and permitting authorities.

B. Upon incorporating the refinements and preliminary review comments, the consultants shall prepare an engineers' estimate of probable construction costs for the improvements included in Elder Phase I and shall submit the estimate for Board consideration.

C. The proposed rubble mound breakwater improvement abutting the existing steel groin adjacent to 261 Sheridan Road is re-incorporated into the plan as recommended by the consulting engineer to address safety concerns and prevent erosion.

D. Recognizing the storm sewer system is owned and operated by the Village of Winnetka, the Park District shall enter into an intergovernmental agreement with the Village of Winnetka to address the rights and responsibilities of each party with respect to the removal, relocation, and improvements to the storm sewer system.

70. On April 27, 2023, the Park Board voted to approve primary program elements and design features for Elder and Centennial Beaches consisting of:

A. Primary Program Elements

i. Swimming at Elder Lane Beach.

ii. Swimming at the north side of Centennial Beach.

iii. Off-leash dog park at the south side of Centennial Beach.

B. Design Features, as depicted in Drawings prepared by The Lakota Group, Design + Concept Plans Elder/Centennial Beach Feasibility Study, Draft Plan April 15, 2023 (Elder + Centennial Phase 1, Phase 2, and Phase 3):

i. Headland Beach System comprised of rubble-mound breakwaters to create additional recreational areas and minimize the loss of sand from littoral transport;

ii. Retaining wall(s) along the bluff and generally parallel to the shoreline, to mitigate long term effects of erosion due to variable water levels to protect the bluff from erosion and provide a foundation for future phases of upland improvements;

iii. ADA accessible pathway from Centennial parking lot to the boardwalk;

iv. Pedestrian access to, from and across Park District beach property allowing the public to traverse the lakefront including steps up and over any improvements perpendicular to the shoreline;

v. Relocated entrance to the dog beach such that the electric key-card operated entry gate is located at the boardwalk allowing Public pedestrian access to remainder of Centennial Beach from Centennial Park;

vi. Vehicular access path from Elder Lane parking lot to Elder Lane Beach for construction, maintenance and emergency purposes and pedestrian access for beach patrons; and

vii. Re-located and improved Elder Lane storm sewer with discharge point within the outer edge of the rubble mound breakwater.

71. The Board further authorized a negotiating team, appointed by the Board, including at a minimum, two Commissioners, the Executive Director and Corporate Counsel, to negotiate an Intergovernmental Agreement with Village of Winnetka for design, construction, operation and maintenance of upgraded Village-owned stormwater improvements/system at Elder Lane Park and Beach.

72. On April 27, 2023, the Board also authorized and directed staff to:

A. Prepare an updated preliminary project schedule and cost estimate with alternates, including phased implementation of the overall Elder-Centennial project for Board review and action;

B. Refine the long-range capital plan budget and develop a detailed project financing plan for Board review and action; and

C. Prepare a resolution summarizing the Board's proceedings and documenting its findings related to the Elder Centennial project for Board consideration and action May 25, 2023.

73. Lastly, April 27, 2023, the Board authorized and directed staff and consultants to:

A. Prepare permit drawings and plans for the Elder Lane Park and Beach and Centennial Park and Beach improvements, based on the program elements and design features approved by the Board earlier April 27, 2023; and

B. Prepare all required permit applications including but not by limitation, applications to the United States Army Corps of Engineers, the Illinois Department of Natural Resources, the Metropolitan Chicago Water Reclamation District, the Illinois Environmental Protection Agency, and the Village of Winnetka, for improvements to Elder Lane Park and Beach and Centennial Park and Beach, for further direction on filing of same with the reviewing agencies from the Park Board at a subsequent meeting.

EXHIBITS

Exhibit A:

Depiction of Elder Lane and Centennial Parks.

Exhibit A

Depiction of Elder Lane Park and Beach
Existing Site Plans

ELDER LANE PARK

299 Sheridan Rd., Winnetka, IL 60093
WINNETKA PARK DISTRICT

GRAPHIC SCALE
0' 25' 50' 100'

Exhibit A

Depiction of Centennial Park and Beach
Existing Site Plans

CENTENNIAL PARK

225 Sheridan Rd., Winnetka, IL 60093
WINNETKA PARK DISTRICT

GRAPHIC SCALE
0' 25' 50' 100'

Exhibit B:

Winnetka Park District Dog Beach Pass Holder Data" dated 05/23/23.

Winnetka Park District
BOARD SUMMARY

Date: May 17, 2023

To: Board of Commissioners

From: Kyle Berg, Superintendent of Recreation + Facilities Manager

Through: John Peterson, Executive Director

Subject: Dog Beach Pass Holder Data

Date: 5-23-2023

Summary:
Winnetka Park District routinely tracks dog beach pass data to inform programming decisions. Dog beach passes may be used only at the Centennial Park Dog Beach. Centennial Dog Beach has been fenced, gated, and access restricted to only dog beach pass holders for 28 years. The table below is an overview of total households in possession of a dog beach pass. The information is further delineated according to Winnetka Park District resident vs. non-resident status.

Year	Total Households with Dog Beach Passes	Resident Dog Beach Passes	Non-Resident Dog Beach Passes
2022	286	232	54
2021	386	300	86
2020	301	245	56
2019	461	356	105
2018	465	371	94
2017	413	333	80
2016	385	315	70
2015	330	267	63
2014	350	285	65
2013	346	275	71
2012	409	320	89
2011	384	311	73
2010	426	351	75
Average	380	305	75

The Winnetka Park District includes all residents of Winnetka, as well as a portion from Northfield, Glencoe, and unincorporated areas. According to 2017-2021 U.S. Census data,

Winnetka was comprised of 4,353 unique households. The average total number of households within the Winnetka Park District in possession of a dog beach pass from 2010-2022 was 305. Based on an estimation of 4,500 total unique households within the Winnetka Park District, 6.8% of households possess a dog beach pass in a given year.

Centennial Dog Beach measures 520 lineal feet of shore frontage and represents more than 21% of Winnetka Park District controlled beachfront.

END

Exhibit C:

Shabica & Associates, Inc. presentation titled “Lake Michigan Shoreline” originally presented to the Winnetka Park District March 24, 2022. The presentation details dynamic and fluctuating Lake Michigan water levels, effects of lakebed downcutting, sand movement/longshore transport challenges and history and coastal structures.

https://www.winpark.org/wp-content/uploads/2022.3.24-Shabica-Presentation-PDF-1.pdf

Exhibit D:

Each of the exhibits prepared for and presented during the January 21, 2023, Open House/Workshop held at the Winnetka Community House and subsequently posted on the Park District website.

https://www.winpark.org/wp-content/uploads/WPD_2023_BoardExhibits_Reduced_Reduced-2-compressed-1.pdf

Exhibit E:

Each of the exhibits prepared for and presented during the March 18, 2023, Open House held at Skokie School Cafeteria and subsequently posted on the Park District website.

https://www.winpark.org/wp-content/uploads/March-18_23_Final-Boards-Open-House-compressed-2.pdf

Exhibit F:

Each of the exhibits prepared for and presented during the April 15, 2023, Open House held at the Winnetka Community House and subsequently posted on the Park District website.

https://www.winpark.org/wp-content/uploads/Final-Draft-4_17_23-1057-hours-CK-for-the-website-reduced-reduced-compressed.pdf

Exhibit G:

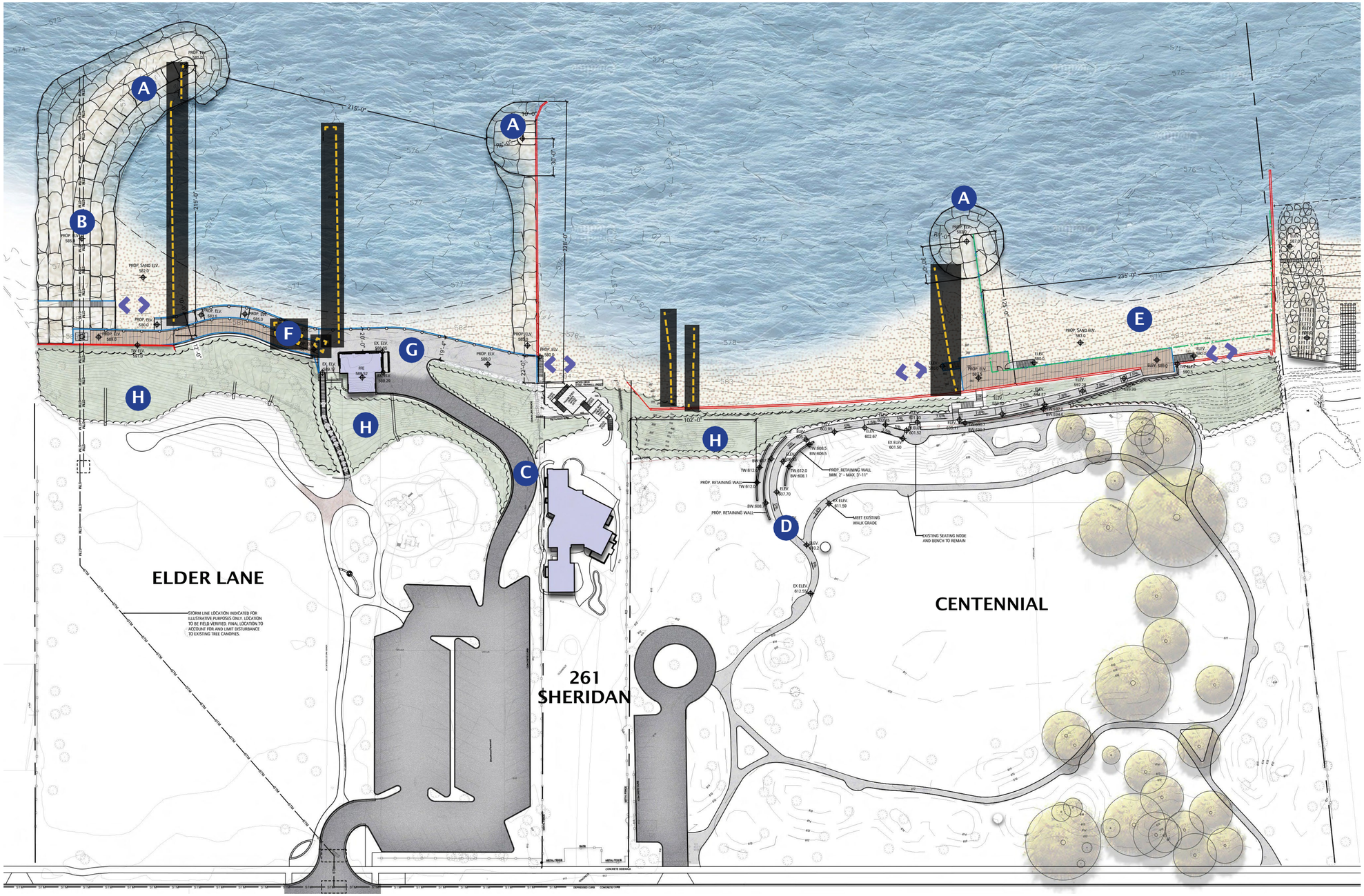
Each of the slides prepared and presented during the May 25, 2023, Regular Park District Board meeting as included in the Board meeting packet and posted on the Park District website in advance of the board meeting being held May 25, 2023.

Exhibit H:

Concept Plan showing the proposed improvements which are the basis of the permit plans to be prepared and submitted to the reviewing agencies.

Elder + Centennial | Design and Concept Plan

ELDER | CENTENNIAL
BEACH FEASIBILITY STUDY



LEGEND

- PROPOSED BLUFF RESTORATION
- ACCESS TO BEACH
- SHEET PILE (PROPOSED)
- SHEET PILE (EXISTING)
- ELEMENT TO BE REMOVED

- **A** RUBBLE MOUND BREAKWATER SHORELINE PROTECTION
- **B** PROPOSED STORMWATER REROUTE
- **C** EXPANDED / RECONFIGURED EXISTING SERVICE DRIVE CONSTRUCTION ACCESS ROUTE
- **D** ACCESSIBLE PEDESTRIAN PATH TO BEACH
- **E** PROPOSED CENTENNIAL DOG BEACH
- **F** BOARDWALK AND BEACH ACCESS
- **G** EXPANDED CONCRETE PAD FOR ACCESS AND SERVICE
- **H** BLUFF RESTORATION ZONE

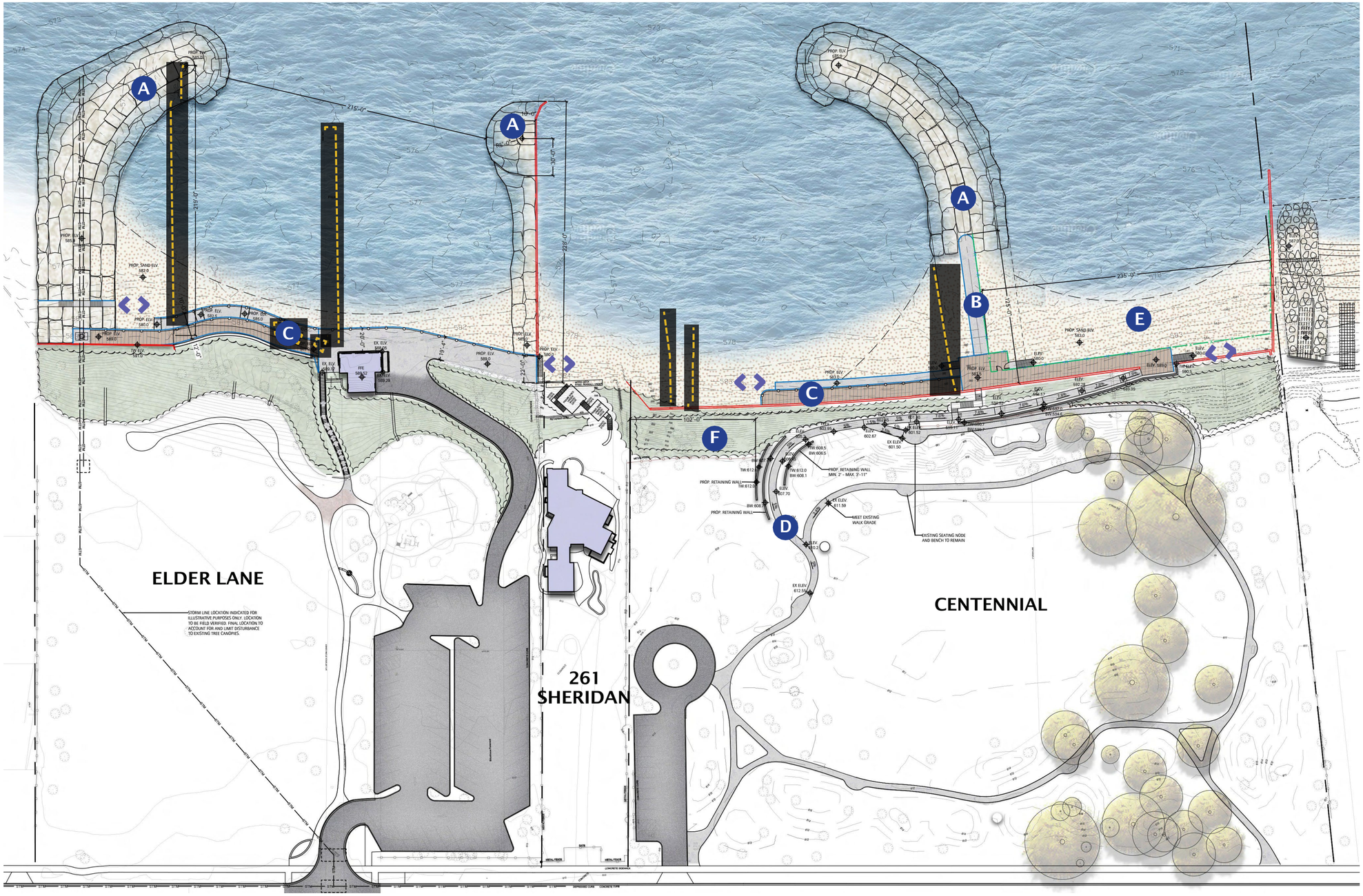
Elder + Centennial | **Phase One**

SCALE: 1"=40'
0 20' 40' 80'
NORTH

5/25/2023

Elder + Centennial | Design and Concept Plan

ELDER | CENTENNIAL
BEACH FEASIBILITY STUDY



LEGEND

- PROPOSED BLUFF RESTORATION
- ACCESS TO BEACH
- SHEET PILE (PROPOSED)
- SHEET PILE (EXISTING)
- ELEMENT TO BE REMOVED

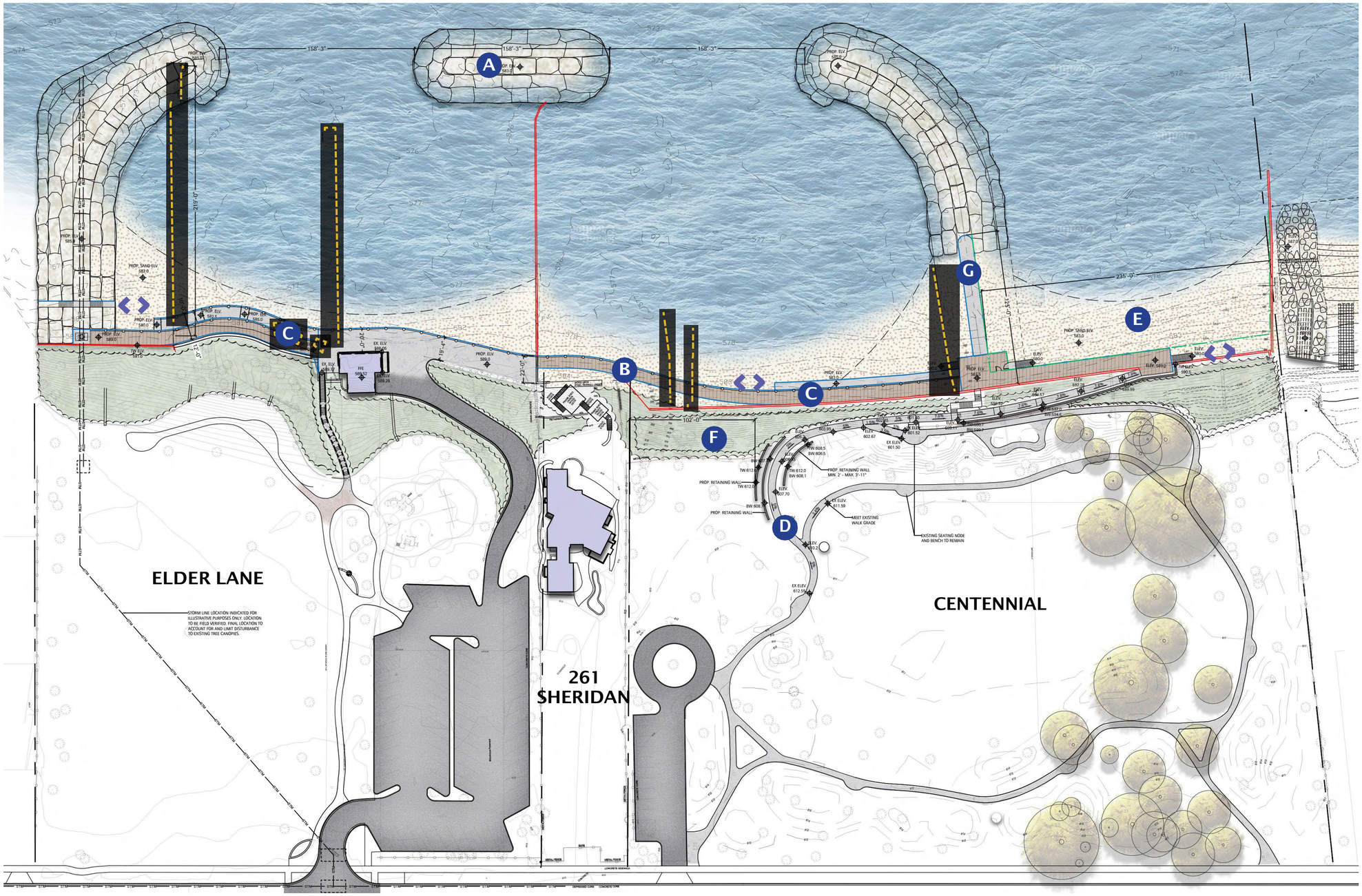
- A — RUBBLE MOUND BREAKWATER SHORELINE PROTECTION
- B — ACCESSIBLE VIEWING PIER WITH BENCH SEATING
- C — BOARDWALK AND BEACH ACCESS
- D — ACCESSIBLE PEDESTRIAN PATH TO BEACH
- E — PROPOSED CENTENNIAL DOG BEACH
- F — BLUFF RESTORATION ZONE

Elder + Centennial | **Phase Two**

SCALE: 1"=40'
0 20' 40' 80'
NORTH

5/25/2023

Elder + Centennial | Design and Concept Plan



LEGEND

- PROPOSED BLUFF RESTORATION
- ACCESS TO BEACH
- SHEET PILE (PROPOSED)
- SHEET PILE (EXISTING)
- ELEMENT TO BE REMOVED

- **A** RUBBLE MOUND BREAKWATER ISLAND SHORELINE PROTECTION
- **B** BOARDWALK CONNECTION
- **C** BOARDWALK AND BEACH ACCESS
- **D** ACCESSIBLE PEDESTRIAN PATH TO BEACH
- **E** PROPOSED CENTENNIAL DOG BEACH
- **F** BLUFF RESTORATION ZONE
- **G** ACCESSIBLE VIEWING PIER WITH BENCH SEATING

Elder + Centennial | **Phase Three**

SCALE: 1"=40'
0 20' 40' 80'
NORTH

5/25/2023

Exhibit I:

Village Engineer, James Bernahl, memo to Village Manager, Rob Bahan regarding Elder Park Stormwater Outfall, dated October 26, 2022.

VILLAGE OF WINNETKA

MEMORANDUM

TO: ROBERT BAHAN, VILLAGE MANAGER

FROM: JAMES BERNAHL, DIRECTOR OF ENGINEERING/VILLAGE ENGINEER

DATE: OCTOBER 26, 2022

SUBJECT: ELDER PARK STORMWATER OUTFALL

This memo serves to summarize the comments and information provided thus far regarding the Elder Park stormwater outfall.

EXISTING SYSTEM

The Elder Park stormwater outfall is the southernmost stormwater outfall in Winnetka that discharges to Lake Michigan. It's watershed area consists of two basins, one on the east side of the underpass at Winnetka Avenue, and one on the west side. Below, please find an exhibit of the watershed area.

The watershed area is the largest Lake Michigan watershed in east Winnetka, and the only east side watershed that also includes areas west of the railroad tracks as the system crosses under the UP-N tracks to the Elder outfall. There are two existing outlet pipes at the Elder outfall, a 24-inch and 27-inch pipe. This stormwater conveyance system has been in place since the 1940's when the railroad tracks were lowered.

The Elder Park stormwater outfall was last studied by the Village in 2011 as part of the Flood Risk Reduction Assessment prepared by Christopher B. Burke Engineering, Ltd (CBBEL), which conceptually reviewed east and west Winnetka flood reduction options. The Village also conducted a sanitary system evaluation in 2013, for this area and others, which was an inflow and infiltration (I&I) study to identify improvements to alleviate sanitary sewer flooding resulting from heavy rain events. It is important to note that Winnetka's stormwater system is a separate system and apart from the sanitary system. Some communities near Winnetka, such as Kenilworth and Wilmette have "combined" systems, where the sanitary and storm sewers are integrated, and the combined flows are conveyed directly to the MWRD sewers for treatment downstream.

The 2013, Baxter and Woodman I&I study, identified "High, Medium and Low" priorities for the study area. The east side that is within the Elder outfall watershed area was identified as a "High" priority to reduce and/or eliminate stormwater inflow and infiltration into the Village's separate sanitary system (Please see Appendix 2 – a Summary of the Sanitary System Evaluations and Improvements).

An action item from the I&I study required investigations into the sanitary systems including the Elder watershed area. As a result, the Village has performed many recent investigations and has taken corrective actions with the sanitary sewer system in this watershed area. The Elder watershed area was identified as a high priority area within the village, and the study and subsequent investigations identified likely sources of inflow and infiltration into the sanitary sewer system, which included illegal cross connections, deficiencies with private sanitary pipe connections to the village's sanitary system, and identified maintenance improvements including lining of sanitary sewers and manholes that would significantly reduce stormwater from entering the sanitary sewer system.

With respect to remediating illegal sanitary cross connections to the stormwater system noted in the 2013 I/I study, the Village undertook dye and smoke testing activities during 2014 & 2015, which required the evaluation of private properties that were either illegally discharging sanitary flow into the stormwater system, or illegally connecting downspouts into the sanitary system that caused the sanitary system to surcharge during heavy rain events resulting in sanitary backups in residences. The dye and smoke testing that identified illicit connections was performed by the Village with contractual assistance, and staff worked with property owners to disconnect these illegal connections. Approximately 67 illegal sanitary cross connections were remedied from entering the stormwater system, and 86 downspout and other connections were remedied from entering the sanitary system within the watershed area.

As noted, the Village performed various maintenance improvements to line the sanitary manholes and sewers and eliminate illegal cross connections and inflow into the sanitary system as identified in the study. As of 2019, all high- and medium- priority repairs have been substantially completed in this watershed.

STORMWATER PERMITTING REQUIREMENTS & BEST PRACTICES

For separate stormwater systems, a significant portion of pollutants enter water bodies during the "first flush" of a storm event.

The first flush is the initial surface runoff of a rainstorm, typically defined as the first one half to one inch of rainfall. During this phase, pollutants are more concentrated compared to the remainder of the storm. For this reason, many stormwater design practices focus on capturing this first flush to combat stormwater pollutants from entering waterways. During prolonged periods of dry weather, the "first flush" can be more problematic than during wetter periods due to the buildup of sediment and material within a stormwater system.

The Village is required to submit to the Illinois Environmental Protection Agency (IEPA), an "Annual Facility Inspection report" as part of the annual National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges for Municipal Separate Storm Sewer Systems. The (NPDES) stormwater permit is issued by the Illinois Environmental Protection Agency (IEPA) annually. This permitting process regulates stormwater discharges into the water bodies of the State such as the Skokie River or Lake Michigan.

Current requirements of the NPDES Stormwater Permit requires the village to perform many maintenance activities called "Best Management Practices" (BMP's) to limit the amount of pollutants that is discharged from the storm sewer system. These best management practices include resident and business education and outreach material, illicit discharge detection and elimination activities, construction site runoff control, and regular maintenance activities such as street sweeping, catch basin structure cleaning, and chloride reduction methods. The Village has been committed to these BMPs as part of its stormwater pollution control program. Currently, stormwater is not required to be tested for an NPDES IEPA permit. However, IEPA does perform water body testing activities and it is anticipated that potential future regulations may require local testing in addition to the IEPA's programs.

ELDER PARK IMPROVEMENTS

The Park District's request for storm sewer relocation is based on proposed improvements to the Elder Park beach frontage. These improvements are being considered as part of the Park District's lake-front improvement projects.

The Winnetka Park District submitted plans to the Village, as prepared by CBBEL for the potential relocation of the Elder outfall related to the consolidation of Elder and Centennial Beach areas (Please see Appendix 1 – Elder Outfall Plan and Permit Review Timetable). Engineering staff reviewed the plans to ensure that the function of the Elder outfall would not be impaired or reduced. As professional engineers, we reviewed the plans to ensure that they comply with our engineering standards, as well as State and Federal permitting requirements.

The Park District proposed to modify the layout of the existing parallel storm sewers resulting in a single equivalent conveyance pipe with intermittent junction chambers at critical bends at the top and bottom of the bluff. The proposed modification also includes placement of two parallel/stacked 36-inch storm sewers at the bottom of the bluff to be placed through a new break wall discharging out into the lake.

The existing system and proposed design have been modeled by the Park District's consulting civil engineer, Christopher B Burke Engineering, Ltd (CBBEL). CBBEL's modeling indicated that the new proposed storm sewer layout shows no increase in flooding due to the changes in the stormwater outfall. These results have been reviewed by Village staff, and by the Village's consulting engineer Strand Associates, Inc. The Engineering Department believes that the dual pipe outfall as proposed will not cause adverse effects upstream of the proposed modified outfall location.

The proposed design has also been reviewed to make sure any changes are an improvement over the existing conditions and to ensure the proposed design can be easily maintained by our Public Works staff. For example, upstream vortex separators will be a required improvement that captures most first flush sediment at the upstream edge of the outfall and will also provide additional energy dissipation of stormwater into the lake. Also, the drop manhole at the top of the bluff will allow the Village to access the system for necessary cleaning, maintenance, and scheduled inspections.

Given the Park District used CBBEL for professional stormwater modeling, our Engineering staff sought the expertise of our contractual engineering design firm, Strand Associates, to independently verify the modeling submitted by CBBEL was accurate and would not adversely impact our existing system. Strand Associates concludes that the modeling provided to the Village by CBBEL includes the most up to date rainfall data, and the proposed Park District improvements will not exacerbate flooding within the watershed.

We have reviewed the proposed storm sewer modifications and our professional opinion is that the design proposed by the Park District's Civil Engineer will meet current permitting requirements. It should be noted that the Village, even as an authorized municipality under Metropolitan Water Reclamation District (MWRD) district ordinance, cannot approve our own system modifications under MWRD regulations. Therefore, after local engineering has signed off, final permitting authority rests with the MWRD, IEPA/IDNR, and USACE staff who will

review and ensure that any design comments or requests for modification received by State and Federal agencies will be included in the approved final design.

For the proposed Elder Park outfall improvements, the Park District's Engineer used best practices to combat stormwater pollution and energy dissipation techniques for the stormwater entering the Lake. First, the stormwater discharge pipe is being relocated to the outside of the steel sheet pile break walls, so stormwater is discharged away from the beach and outside the proposed swimming area. The Village has also required that the proposed storm sewer meet submersible marine requirements and be embedded in appropriate backfill material within the sheet walls to protect the pipe's integrity. Secondly, the Village under our review authority, has required that vortex separators be installed at the entrance of the park to remove sediment and suspended solids from the water to improve water quality and capture debris before entering the Lake. The vortex separators will also help with system maintenance. The designs that are being proposed will improve water quality at the beach and will be an improvement over the current design.

Final approval for a design is still forthcoming from the Park District and will continue to be reviewed by the Village with a high level of scrutiny. It should be noted that while engineering review and final permitting authority rests with other agencies, it would be anticipated that the Village would require an intergovernmental agreement (IGA) to record a new easement for the re-routed storm system, transference of ownership to the Village, maintenance agreements, and other common recitals. IGA's are a standard practice to memorialize capital assets, easements, ownership, maintenance, and funding considerations.

Potential Extended Outfall into Lake Michigan

It has been proposed that an extended outfall into the lake should be considered for this location. For maintenance purposes, an outfall that extends along the lakebed would be problematic. The Village does not have the resources to reach an outfall that is submerged hundreds of feet out into the lakebed. Depending on the depth and extent of a submerged outfall pipe it may be necessary to use a mechanized pumping station to overcome the hydrostatic pressure of the lake. The existing and proposed stormwater system at this location is a gravity-based system only, which is preferable.

Generally, stormwater permitting requires that stormwater outfalls must be designed to avoid and minimize adverse effects, and that the rate of stormwater flow into the receiving waters cannot be increased. Permitting an outfall that extends out from the shore would most likely not be permitted by the Army Corps, as it could possibly affect the navigability of the waterway and would be putting Village-owned utilities outside of the bounds of the Village's jurisdictional area, as may be extended to include the proposed extension. To permit any of these outfall improvements, the project will require a joint permit application with the IEPA/DNR/Army Corps, and an MWRD permit. The Village must sign off on the MWRD permit application as part of the permit review process because the Village owns and maintains the storm sewer outfall.

The Village is consistently seeking to improve its stormwater and sanitary sewer system. When reviewing design options, the Village keeps in mind maintenance concerns, flood prevention, and performance concerns for all stormwater improvements within the Village, while also always maintaining best practices and striving for water quality improvements within the system as the opportunity and funding sources arise.

APPENDIX 1

Elder Outfall Plan and Permit Review Timetable

Date of Activity	Activity Detail
November/December 2020	Preliminary discussions with Park District on future improvements at Elder Park.
January 8, 2021	Park District prepared "Proposal for Professional Engineering Services for the Stormwater Outlet at Elder Park in Winnetka."
January 15, 2021	Pak District informs Engineering Dept. that it has authorized CBBEL to move forward with Engineering Study of the Elder stormwater outlet.
February 24, 2021	Park District shared February 17th Draft report from CBBEL with Engineering Dept.
February 25, 2021	Engineering Dept. shares preliminary comments with Park District on Draft CBBEL report.
March 2, 2021	Park District shares Lakota Exhibit of Park area with Engineering Dept.
March 18, 2021	CBBEL submits requested stormwater modeling exhibits to Engineering Dept.
March 24, 2021	Park District submits updated February 17, 2021 report and modeling exhibits to Engineering Dept. for review.
March 26, 2021	Engineering Dept. informs Park District there is missing technical information in report and requests re-submittal.
March 29, 2021	Updated CBBEL Elder Stormwater Report shared with Engineering Dept. and Strand Associates.
May 14, 2021	Strand shares preliminary review comments on updated CBBEL report. Engineering conducts internal review of the proposed modifications to outfall pipes at Elder Park.

October 12, 2021	Park District shares modified exhibit of proposed outfall with Engineering Dept. Meeting held to discuss questions and changes needed for further review.
October 19, 2021	Engineering Department and Strand provides formal review comments no. 1 with Park District.
October 22, 2021	CBBEL provides response to Engineering Review Comments No. 1 with Engineering Dept.
October 28, 2021	Engineering Dept and Strand prepare recommendations for the proposed drop structure.
December 19, 2021	CBBEL provides response to Engineering comments and includes draft MWRD permit application documents for review.
January 19, 2022	Engineering Department provides review comments No. 2 to Park District and CBBEL.
January 31, 2022	Park District consultant, Spaceco, Inc., provides requested detailed information on proposed pipe materials to be used in proposed break wall.
February 22, 2022	Engineering Dept. meeting with CBBEL to discuss final design of drop structure with trash rack attachment.
April 19, 2022	Engineering Department signs off on Park District MWRD permit application based on revisions received from Park District and CBBEL. MWRD is final permitting authority.
April 29, 2022	Village receives copy of approved Illinois Department of Natural Resources (IDNR) permit.
June 16, 2022	Engineering Dept. receives notification of Park District withdrawal of MWRD permit application.

APPENDIX: 2

Sanitary Sewer System Evaluation and Improvements:

Date of Action	**Review/Approvals**	**Activity**
February 21, 2012	Village Council awards contract to Strand Associates to perform "Flow Monitoring Analysis" of sanitary system.	Flow monitoring analysis performed between 4/19/12 to 6/8/12.
August 21, 2012	Flow Monitoring results presented to Village Council.	Council directed staff to perform detailed study of high priority sanitary system flooding areas.
March 14, 2013	Follow-up investigation contract awarded to Baxter & Woodman consisting of detailed identification of I/I (inflow and infiltration) sources in eight areas of the Village.	Baxter & Woodman performed detailed I/I investigation of eight high priority areas. (Dye & Smoke testing)
October 15, 2014	Results of 2013 I/I study presented to Village Council.	Council approved additional budget allocation to address high & medium sources in eight areas.
January 2015 thru December 2019	Council approved annual funding to address high & medium sources in eight areas.	High & Medium repairs performed focusing on sanitary sewer relining, dye and smoke testing, and sanitary manhole relining.
June 6, 2017	Staff requests approval from Village Council for new I/I study to investigate 11 sanitary sewer basins.	Council approves contract with RJN Group to perform detailed investigation.
September 4, 2018	Results of 2017/2018 I/I study presented to Village Council.	Council approved budget allocation to address high & medium sources in the 11 sanitary sewer basins.

January 2019 thru December 2022	Council approved annual fudning to address high & medium sources in 11 areas.	High & Medium repairs performed focusing on sanitary sewer relining and sanitary manhole relining.

Exhibit J:

Winnetka Waterfront 2030 | Lakefront Master Plan

https://www.calameo.com/winnetkaparks/read/002854155cf4afa1680fd

Exhibit K:

Village of Winnetka Futures 2040 Comprehensive Plan

https://www.villageofwinnetka.org/DocumentCenter/View/2064/Winnetka-Futures-2040-Plan-PDF

Exhibit L:

Professional Opinion Letter Regarding Resolution 23-5-25

RED BARN
Design & Engineering, S.C.

6750 Woodland Dr.
Waunakee, WI 53597

p. 608.849.2042
c. 608.843.1870

redbarnde@tds.net

Professional Opinion Regarding Findings from the Resolution Pertaining to the Village Lakefront Construction Ordinance

Date: 23 May 2023

Based on our work performed to date regarding preparation of the Elder Lane Beach and Centennial Beach Concept Site Improvements plans, our design team offers the following comments. Please note, all work performed to date is Concept Level of study only and relies upon our current understanding of the existing beachfront and bluffland conditions. The documents, plans and exhibits included herein are prepared at a conceptual level to communicate desired design intent and goals for improvements and enhancements to the Lakefront and bluffland portions of Elder and Centennial Beach and Parks. Additionally, these documents, plans, and exhibits are consistent with universally accepted best management practices, design industry standards and previously implemented design and engineering goals as established in the approved *Winnetka Waterfront Lakefront Master Plan 2030 as formally adopted in 2016.* As currently studied at our conceptual level, we recognize that these documents, plans and exhibits may not be in full compliance with all Village of Winnetka Codes and Ordinances, or any other state or federal regulations and permitting requirements. The Final permitting, bid and construction documents and related specification, when completed, will be prepared in compliance with the current requirements of all of the respective regulating agency requirements, and available for review and comment, in their respective phases of the project.

Accordingly, design and construction of the Elder-Centennial Beachfront and Bluffland Improvements in accordance with the Concept Plan attached hereto as Exhibit P will:

- Stabilize, and with proper maintenance, act to protect that portion of the Lake Michigan shoreline and bluff at Elder Lane Beach and Centennial Beach, owned by the Winnetka Park District. The proposed site Improvements are intended to remove the currently known nearshore and lakebed hazards present on the site and minimize future shoreline, and upland erosion.

- Stabilize and help to preserve Lake Michigan coastline and bluffland vegetation communities, in support of the preservation and stabilization of the Winnetka Park District's beaches.

- Not cause environmental or ecological damage to the Lake, bluffland, parklands, or surrounding areas of the Village, or otherwise adversely impact the health, safety, and welfare of the Village of Winnetka or its residents, beyond that currently experienced at all other non- Park District shoreline sites and public facilities, constructed and maintained in a similar design and program.

- The conceptual designed heights of the breakwaters proposed in the Elder and Centennial Beach Concept Plan, attached hereto as Exhibit P, are shown at elevation 585 feet (IGLD 1985) at the lakeward end (average based on stone), and 585 feet (IGLD 1985) respectively), and:

  - Are approximately two feet lower than the height of Lloyd Beach breakwater previously approved by the USACE and the IDNR;
  - Were revised partially in response to concern expressed by the public in numerous open public meetings, public workshops, and discussions with Park District staff and commissioners over the height of the various breakwaters and the impact on site lines and vistas;
  - Are no greater than what is minimally necessary to achieve the intended and proper goals and purpose of this phase of implementation of the Winnetka Lakefront Master Plan 2030 project;
  - Concept plan designed heights (elevation) strike an appropriate balance between the competing interests of beach preservation and preservation of aesthetic views from the beach;
  - Are consistent with the height (elevation) of the existing Elder Lane Pier.

- The concept plan design breakwater height (elevation) is consistent with the existing Elder Lane Pier elevation which is at elevation 584.67 feet (IGLD 1985) at the lakeward end.

- Breakwater heights (elevations), lower than those set forth in the Concept Plan (which are already lower than the Lloyd Beach breakwater heights) would result in lessening the degree of beach sand retention which, would not be in alignment with the District' s proposed site programming as a swimming beach, nor in the best interests of the publics use, enjoyment and safety

- As noted above, compliance of the Concept Plan with the applicable provisions of the new Village of Winnetka Lakefront Construction Ordinance including those construction permitting requirements set forth in Section 15.32 of the Municipal Code of the Village of Winnetka will be accomplished in later final design, documentation, and permitting phases of the project.

- The Concept Plan (and the anticipated permit, bid and construction plans and specifications) will include only what is minimally necessary to achieve the intended and proper purpose of the project and will be consistent with the purposes of section 15.78.010 of the Village Lakefront Construction Ordinance, MC 05-2023.

- The Concept Plan:

  - Has been prepared with concepts consistent with current industry standards and best management practices for the nature of the work proposed;
  - Is not expected to create any public safety hazards beyond those currently present at the other public shoreline sites throughout the community;
  - Will not unreasonably obstruct or interfere with ingress or egress to adjacent public beaches or private property. The improvements will strive to remove existing safety hazards and enhance ingress and egress to adjacent beaches;
  - Final permitting, design and construction of the Elder-Centennial Improvements will be largely in accordance with the Concept Plan;

- Will not block or otherwise unreasonably interfere with the ability of public safety personnel to conduct search and rescue and other public safety operations beyond those currently present at the other public shoreline sites throughout the community;
- Will enhance vehicular and pedestrian access to the Elder Lane Beach by public safety vehicles, equipment and personnel (presently there exists limited vehicle access to the Elder Lane Beach) through the efficient use of an improved existing Elder Beach access drive and supporting new boardwalk.
- Will enhance pedestrian access to the Centennial Beach by public safety hand-carried equipment and personnel (presently there exists no vehicle access to the beach and access through the use of stairs only. The Concept plan includes a fully accessible ADA-complaint walk providing direct beach access from Centennial Park and Sheridan Road sidewalks.
- Improve the stormwater quality and runoff into Lake Michigan through the use of treatment structures. All upstream areas, which includes the southeast Winnetka area, will pass through the new water quality treatment structures while not impacting the upstream areas. Future improvements can be made by the Village of Winnetka to address stormwater concerns and utilize the new outlets that will provide infrastructure improvements that will convey the runoff into Lake Michigan through new storm sewers.
- Enhance, restore and stabilize upper portions of the bluffland areas at Elder and Centennial Parks through natural vegetative means such as, but not limited to, new native groundlayer, midstory and tree plantings.
- Enhance, restore and stabilize upper portions of the bluffland areas to provide for designed open views and site lines to Lake Michigan for the quiet and passive enjoyment of community residents.
- Enhance, restore and stabilize upper portions of the bluffland areas through vegetative means which support enhanced wildlife habitat.

Professional Opinion
Elder + Centennial Site Improvements – Concept Level
Village of Winnetka, Illinois
23 May 2023

The aforementioned statements are a summary of our professional teams' opinion of the Elder and Centennial Beach Concept Plans with respect to the requirements of the Village of Winnetka's Lakefront Construction Ordinance. If any of the project site design elements included in the Concept Plans are not in conformance with the Village of Winnetka Lakefront Construction Ordinance, the compliance will be reviewed in future phases of the project development and design.

Respectively,

Matthew D. Wright, PE
RED BARN Design & Engineering SC
6750 Woodland Dr
Waunakee, WI 53597
p. 608.849.2042
redbarnde@tds.net

Charles Shabica, PhD. PG
Shabica & Associates
550 Frontage Road, Suite 3735
Northfield, IL 60093
p. 847.446.1436
charles@shabica.com

Thomas Burke, Jr. PhD, PE
Christopher B. Burke Engineering, Ltd
9575 W. Higgins Road Suite 600
Rosemont, IL 60018
p.847.823.0500
tburke@cbbel.com

Scott Freres, PLA, ASLA
The Lakota Group, Inc.
1 East Wacker Dr. Suite 2700
Chicago, IL. 60602
p. 312.
sfreres@thelakotagroup.com

EXHIBIT 4 – DEFINITION of TERMS

Erosion, Bluff Protection, Beach Preservation, Littoral Drift, Lakebed Downcutting, Fetch, Waves, Headland Beach System, Jetties, Piers, Hydrodynamic Analysis

What is erosion?

Erosion is the process by which natural forces like wind, water, and ice wear away soil, rock, and other materials from the Earth's surface. Over time, these forces transport eroded materials to new locations, reshaping landscapes and creating various geological features. Erosion can occur gradually over long periods or more rapidly during events like heavy rainfall, storms, or glacial movements. There are several types of erosion:

- **Water Erosion**: Caused by the movement of water, such as overland flow, rivers, rain, and nearshore and offshore waves.
- **Wind Erosion**: Occurs when strong winds blow loose soil and sand particles.
- **Glacial Erosion**: Happens when glaciers move, scraping and grinding the Earth's surface.
- **Coastal Erosion**: Involves the wearing away of onshore, nearshore, and offshore coastal lands and sediments by wave action, tides, and currents.

Erosion plays a significant role in shaping the Earth's surface, but it can also lead to problems like loss of fertile soil, damage to infrastructure, and increased sedimentation in water bodies. Understanding and managing erosion is crucial for environmental conservation and sustainable land use.

What's the Difference Between Bluff Protection and Beach Preservation?

Bluff protection and beach preservation are both essential for maintaining coastal areas, but they focus on different aspects of coastal management:

1. **Bluff Protection**:
    - **Purpose**: Bluffs, which are shallow to steep banks present along the coastal shoreline are typically subject to erosion from a number of erosive factors. Bluff protection aims to prevent erosion and loss of material along the bluff face and stabilize the bluff toe.
    - **Methods**: Techniques include constructing bulkheads, rubble mound revetments, headland beach systems and/or offshore rubble mound breakwaters. These structures help protect the bluffs from wave action, storm surges, and other erosive forces.
    - **Focus**: The primary focus is on safeguarding the land and structures located on top of the bluffs from erosion and collapse.
2. **Beach Preservation**:
    - **Purpose**: Beach preservation focuses on stabilizing, maintaining and restoring the natural state and profile of beaches, ensuring they remain healthy and functional.
    - **Methods**: Techniques include beach nourishment (adding sand to eroded beaches), dune restoration, and removing artificial structures that disrupt natural processes. Efforts are made to enhance sediment supply and protect natural habitats.
    - **Focus**: The primary focus is on preserving the beach's ecological functions, recreational value, and natural beauty.

In summary, bluff protection is about stabilizing and protecting coastal bluffs from erosion, while beach preservation is about maintaining and restoring the natural state and ecological functions of beaches. Both are crucial for sustainable coastal management.

EXHIBIT 4 – DEFINITION of TERMS

Erosion, Bluff Protection, Beach Preservation, Littoral Drift, Lakebed Downcutting, Fetch, Waves, Headland Beach System, Jetties, Piers, Hydrodynamic Analysis

What is lakebed downcutting?

Lakebed downcutting refers to the process where the bottom of a lake erodes and becomes deeper over time. This phenomenon occurs due to various factors, including changes in water levels, wave action, and sediment transport. For instance, during stable lake levels, erosion can occur both as bank recession and nearshore lakebed downcutting. When water levels rise, bank recession continues, but lakebed downcutting slows down except at the new transgressed shoreline. Conversely, when water levels fall, bank recession nearly stops, and lakebed downcutting resumes.

In the context of the Great Lakes, lakebed downcutting is common along cohesive shoreline banks and bluffs composed of glacial till and clay. This process can significantly impact the stability of coastal slopes and the overall geomorphology of the lakebed.

See "**Exhibit 15 - Shabica Presentation, March 24, 2022"**

What is littoral drift?

Littoral drift, also known as longshore drift, is the process by which sediment (such as sand, gravel, and other materials) is transported along the coast by the action of waves and currents. This movement occurs in the littoral zone, which is the area between the high-water mark and low water marks. Here's how it works:

1. **Wave Action**: Waves approach the shore at an angle, carrying sediment with them.
2. **Swash and Backwash**: When waves break, the swash (the forward movement of water up the beach profile) carries sediment up the shore at an angle. The backwash (the backward return movement of water down the beach profile) then pulls the sediment back down the slope of the beach.
3. **Net Movement**: This zigzag pattern of sediment movement results in a net transport of material along the coast in the direction of the prevailing waves and currents.

Littoral drift plays a significant role in shaping coastal landscapes, forming features such as beaches, spits, barrier islands, and offshore sandbars. It also affects coastal erosion and deposition patterns, which can impact coastal management and engineering projects.

What is Fetch?

In the context of waves, "fetch" refers to the distance over which wind blows across the surface of the water, generating waves. It plays a crucial role in determining the size and energy of the waves. Here's a bit more detail:

Fetch Distance: The longer the fetch distance, the more time the wind has to transfer energy to the water, resulting in larger and more powerful waves.

Wind Strength and Duration: Along with the fetch distance, the strength and duration of the wind are also important factors in wave formation.

EXHIBIT 4 – DEFINITION of TERMS

Erosion, Bluff Protection, Beach Preservation, Littoral Drift, Lakebed Downcutting, Fetch, Waves, Headland Beach System, Jetties, Piers, Hydrodynamic Analysis

Wave Development: Waves start as small ripples and grow as they travel across the fetch area, accumulating energy and forming larger waves.

The fetch of Lake Michigan in Winnetka is approximately 275 miles when the wind is out of the north-northeast, 60 miles from the east and 45 miles from the southeast.

What is the largest wave measured on Lake Michigan in the Chicago Area?

The largest recorded wave in the Chicago area on Lake Michigan reached up to 20 feet. This occurred during a powerful storm in October 2023, when high winds whipped up massive waves along the lakefront, particularly near 63rd Street Beach in Jackson Park. The NOAA mid-lake buoy east of Kenosha recorded at wave height of 21.7 feet at 11AM on 10/31/2014. (Shabica Report)

What is a Headland Beach System?

A headland and beach system is a coastal formation resulting from the interaction between the land and sea. Here's a brief overview of its components:

1. Headland: A headland is a coastal landform that juts out into the sea, usually composed of resistant rock. It stands against the erosive forces of waves and wind.
2. Bay: Adjacent to headlands, bays are recessed coastal areas where the land curves inward, often forming sandy beaches. They are typically more sheltered from the full force of waves, leading to gentler slopes and sediment accumulation.
3. Beach: Beaches are areas of loose sediments, such as sand, pebbles, along the shoreline. They form and change shape due to wave action, tides, and currents. Beaches in bays can be quite dynamic, constantly being eroded and rebuilt by the sea.

In essence, the headland and beach system is a balance between erosion and deposition, where headlands protect parts of the coast and beaches provide areas for sediment to accumulate.

See Appendix to these definitions Effects of structurally-engineered beaches on coastal processes and shore of the Great Lakes – Charles W. Shabica, Ph.D., P.G."

How do gaps between breakwaters influence wave energy and beach retention?

The length of the gap between breakwaters plays a crucial role in determining the amount of wave action that reaches the shore. Here's how:

1. Wave Energy Diffusion: When the gap between breakwaters is narrow, the structures effectively block and diffuse a significant portion of the wave energy. This results in calmer waters on the shoreward side of the breakwaters, leading to reduced wave action and less coastal erosion.
2. Channeling of Wave Energy: Conversely, if the gap between breakwaters is wide, more wave energy can pass through the opening and reach the shore. This means that wave action at the shoreline can be stronger, potentially leading to increased erosion and sediment movement.
3. Wave Refraction and Diffraction: The gap size also affects how waves bend (refract) and spread out (diffract) as they pass through. Narrow gaps cause more pronounced diffraction, leading to

wave energy spreading out and dispersing over a broader area. This can result in a more even distribution of wave energy along the shore. Wide gaps allow waves to pass through more directly, concentrating wave energy on specific areas of the shoreline.

4. Sediment Dynamics: The design and spacing of breakwaters can influence sediment deposition and erosion patterns. Narrow gaps may promote sediment accumulation and beach stabilization behind the breakwaters. Wider gaps might not provide the same level of protection, resulting in more dynamic sediment movement and potentially less stable beach environments.

In summary, the length of the gap between breakwaters directly influences the extent of wave action reaching the shore and the resulting coastal processes. Narrower gaps generally lead to reduced wave energy and calmer conditions, while wider gaps allow more wave energy to reach the shore, leading to stronger wave action.

How do Jetties and Piers impact littoral drift?

Jetties and piers significantly impact littoral drift by altering the natural flow of sediment along the coastline. Here's how:

1. Interruption of Sediment Transport: Jetties and piers extend into the water and act as barriers to the natural movement of sediment. They block the longshore current, causing sediment to accumulate on one side (usually the updrift side) while leading to erosion on the other side (downdrift side).
2. Changes in Erosion and Deposition Patterns: On the updrift side of a jetty or pier, sediment buildup can lead to the formation of wider beaches and, in some cases, new landforms such as sandbars and spits. Conversely, on the downdrift side, the lack of sediment supply results in increased erosion, narrowing beaches, and sometimes exposing underlying structures or bedrock.
3. Impact on Coastal Ecosystems: The alteration of sediment transport can affect coastal habitats, impacting plant and animal species that rely on stable beach environments. It can also change the underwater topography, affecting marine life and potentially disrupting ecosystems.
4. Human Intervention and Maintenance: Coastal managers often need to undertake measures such as beach nourishment or construction of additional structures to mitigate the negative effects of jetties and piers. Regular maintenance of these structures is essential to ensure their effectiveness and to manage the ongoing impacts on littoral drift. Jetties and piers are essential for navigation and coastal protection but require careful planning and management to balance their benefits with the environmental changes they bring about.

What is a hydrodynamic analysis?

In coastal engineering, hydrodynamic analysis involves studying the behavior of water bodies and their interactions with coastal structures and environments. This analysis is crucial for designing, constructing, and maintaining marine and coastal infrastructure. Here are some key aspects:

1. Wave Dynamics: Understanding how waves move, break, and interact with the coastline. This includes studying wave height, period, and direction.

EXHIBIT 4 – DEFINITION of TERMS

Erosion, Bluff Protection, Beach Preservation, Littoral Drift, Lakebed Downcutting, Fetch, Waves, Headland Beach System, Jetties, Piers, Hydrodynamic Analysis

2. Currents and Tides: Analyzing the movement of water due to tidal forces and ocean currents, which can impact coastal erosion and sediment transport.

3. Storm Surges: Predicting the rise in water level during storms, which can lead to flooding and significant coastal damage.

4. Numerical Modeling: Using computer simulations to predict water movement and behavior under various conditions. This helps in designing structures that can withstand extreme events.

5. Sediment Transport: Studying how sediments are moved by water, which affects beach profiles and coastal stability.

Hydrodynamic analysis helps engineers design structures like seawalls, breakwaters, and jetties to protect coastlines and ensure the safety and sustainability of coastal developments.

Is a hydrodynamic analysis required by the IDNR for a permit to construct the proposed improvements at Elder and Centennial?

No. The IDNR permit requirements read as follows: *The submittal should include an analysis of the proposed structure on the wave climate and impact to the movement of sand (littoral drift). The analysis should include a review of the proposed structure individual and cumulatively with adjacent structures. Professionals with experience in this area should be utilized for this work.*

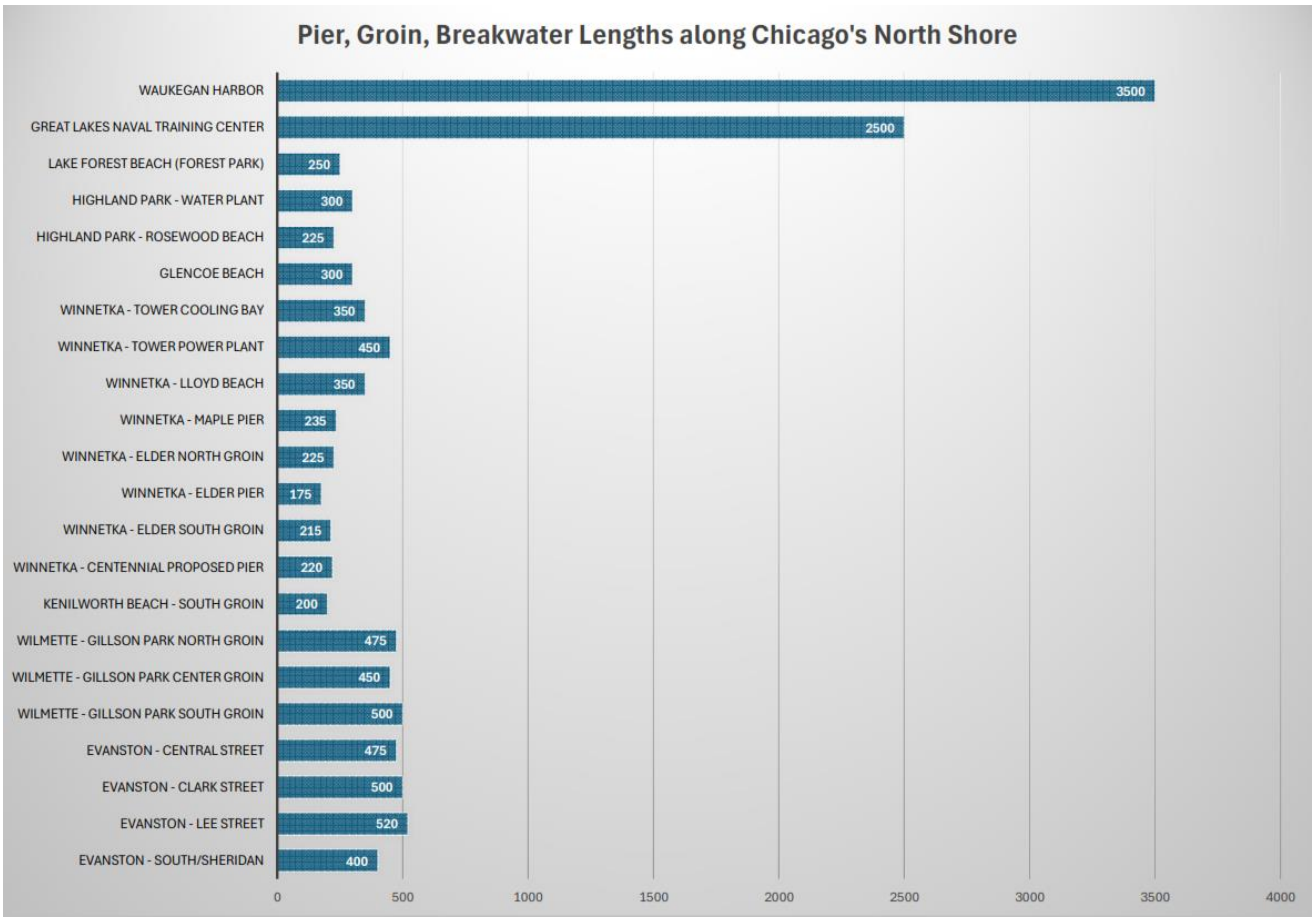
Charles Shabica, Ph.D., P.G. is widely regarded as one of the foremost experts with respect to the Lake Michigan shoreline along the North Shore. He has been recognized as an expert by the United States Court of Federal Claims in the case Banks v. United States, decided December 22, 2011. An abstract of Banks v. United States follows. Charlie Shabica is also a life-long Winnetka resident. With a BS in Geology from Brown, a MS in geology from Yale and a Ph.D. in geology from the University of Chicago, he is more than qualified as a "professional with experience in this area." He has published dozens of articles, including the following: "Effects of structurally-engineered beaches on coastal processes and shores of the Great Lakes."

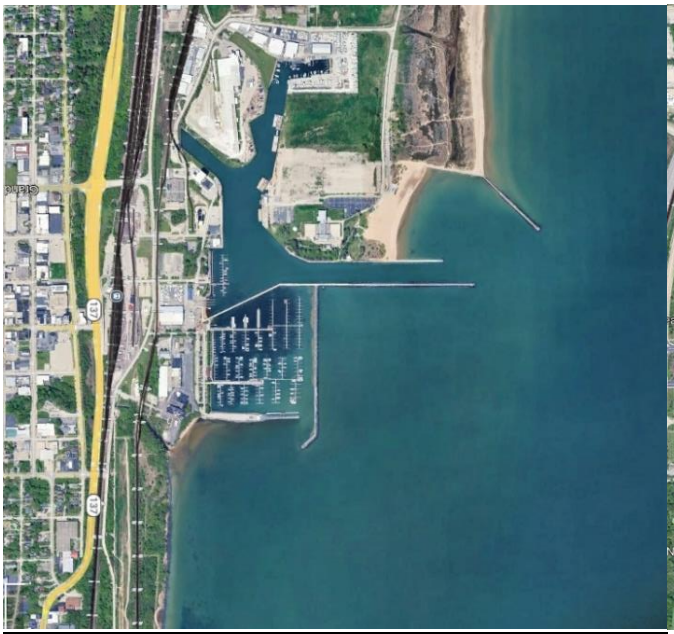
The following table, images and abstract of the case Banks v. United States are included to show the relatively small scale of the existing and proposed improvements at Elder and Centennial Parks. Waukegan Harbor and Great Lakes Training Center are major improvements which result in a sand starved environment south of their location. A similar interruption of littoral drift occurs on the other side of the lake at the St. Joseph Inlet. In the seminal case, Banks v. United States, Charles Shabica, Ph.D., P.G., was admitted as an expert, testifying to the effects of the improvements on the littoral system. The court initially found that 30% of the erosion south of the St. Joseph inlet was attributed to the jetties protecting the inlet. The case proceeded to the damages phase but ultimately the claims were time barred as the improvements were completed decades prior to the claim. Two conclusions should be noted:

1) Waukegan Harbor & Great Lakes Training Center improvements create a "sand starved" environment along the North Shore
2) Charles Shabica, PhD, is an expert in the arena of coastal erosion

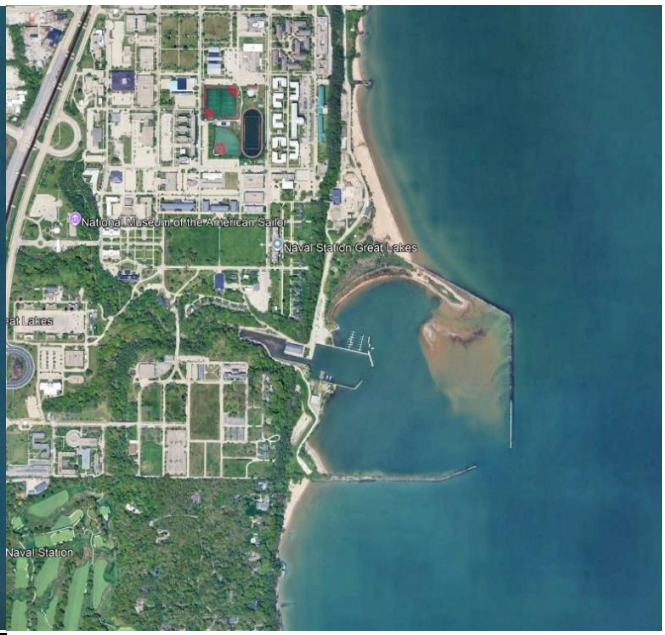
EXHIBIT 4 – DEFINITION of TERMS

Erosion, Bluff Protection, Beach Preservation, Littoral Drift, Lakebed Downcutting, Fetch, Waves, Headland Beach System, Jetties, Piers, Hydrodynamic Analysis





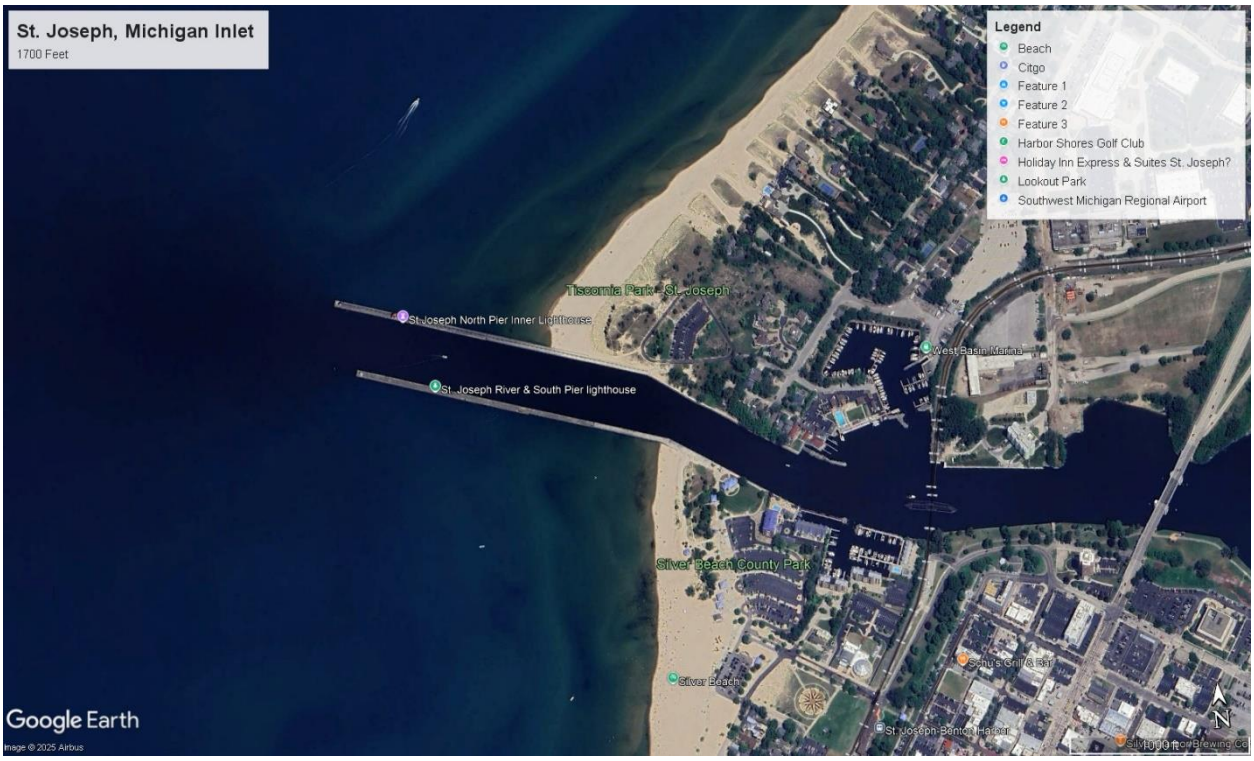
Waukegan Harbor



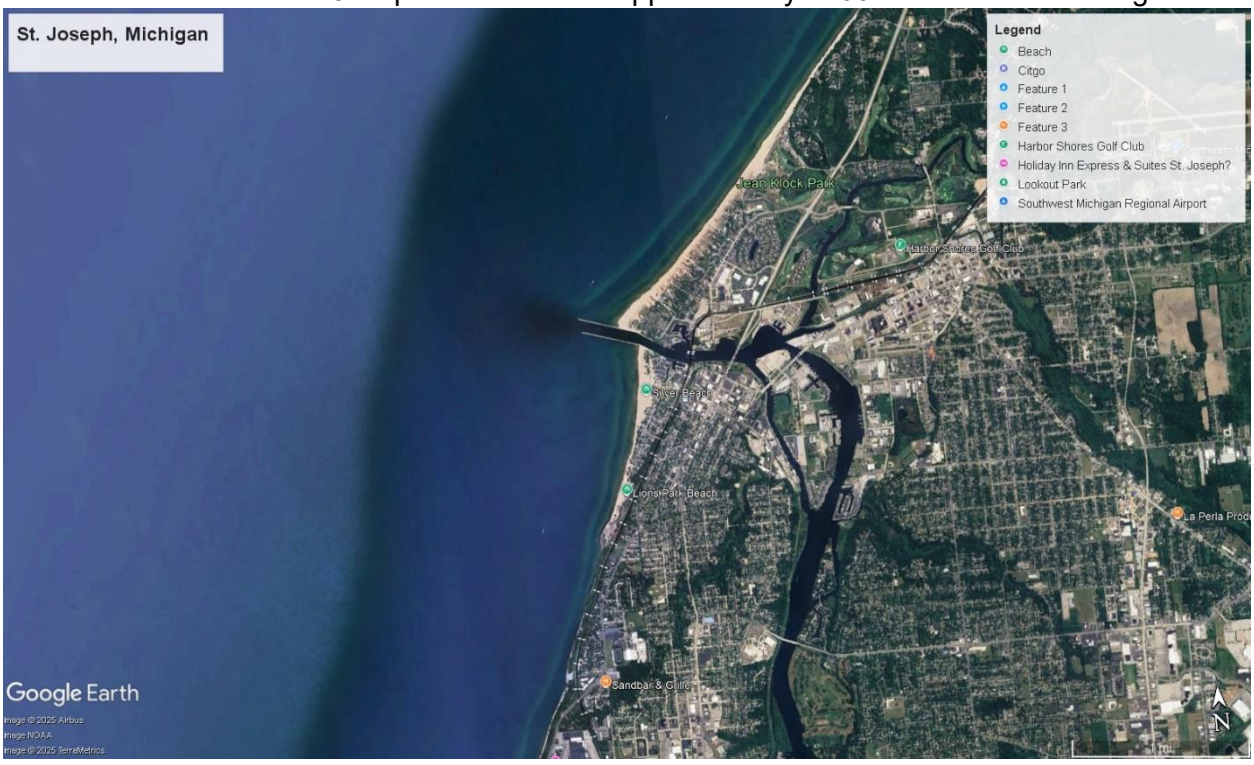
Great Lakes Training Center

EXHIBIT 4 – DEFINITION of TERMS

Erosion, Bluff Protection, Beach Preservation, Littoral Drift, Lakebed Downcutting, Fetch, Waves, Headland Beach System, Jetties, Piers, Hydrodynamic Analysis



The Piers at the St. Joseph's Inlet extend approximately 1700 feet into Lake Michigan



The beaches south of St. Joseph Michigan sustained excess erosion due to the interruption of the littoral drift.

EXHIBIT 4 – DEFINITION of TERMS

Erosion, Bluff Protection, Beach Preservation, Littoral Drift, Lakebed Downcutting, Fetch, Waves, Headland Beach System, Jetties, Piers, Hydrodynamic Analysis

RELEVANT EXCERPT FROM COURT FINDINGS: BANKS V. UNITED STATES

Charles Shabica, PhD, admitted as expert witness

Corps Liable for Shoreline Erosion on Lake Michigan

Banks v. United States, 78 Fed. Cl. 603 (Ct. Cl. 2007).

Terra Bowling, J.D.

In a takings case arising from coastal erosion on Lake Michigan caused by an Army Corps of Engineers project, the U.S. Court of Federal Claims has ruled that the government is responsible for 30 percent of each plaintiff's property loss above the mean high-water mark.

Background
Between 1950 and 1989, the Corps performed construction and maintenance on harbor jetties around the mouth of St. Joseph River to accommodate commercial shipping. After the lake shore south of the jetties began to erode, the Corps began a beach renourishment program in the 1970s; however, the project proved ineffective.

In 1999, property owners affected by the erosion filed suit against the United States, alleging that the Corps' activities caused erosion of their shoreline property and resulted in a taking under the Fifth Amendment. After the trial on liability in June 2007, the U.S. Court of Federal Claims had to consider whether the government's renourishment efforts compensated for the effects of the jetties enough to show that the erosion was not attributable to the government.

Liability
The court first looked at whether the jetties affected plaintiffs' properties. The court found that the plaintiffs' properties were affected by the jetties, citing a 1958 study as well as Corps reports attributing 30 percent of the total erosion to the jetties.

To determine whether the renourishment project was effective, the court looked at the adequacy of nourishment material used by the Corps, the sediment transport rate, and the effective placement of nourishment material. The court first found that the plaintiffs failed to prove that their properties were located on a cohesive lake bottom, meaning that the property damage would not be analyzed as permanent and irreversible. Next, the court found that the sediment used by the Corps in the renourishment process was the inappropriate size and was ineffective. Therefore, that portion of the renourishment program was not credited as mitigation to the Corps. The court next looked at the sediment transport rate, including the net littoral drift and the various factors affecting the net southerly littoral drift, to determine how much sediment was affected by the jetties. Finally, in looking at the effective placement of the nourishment material, the court found "by a preponderance of credible evidence" most of the nourishment was placed in a way that would replenish the plaintiffs' property.

The court considered additional arguments regarding the Corps' liability. The plaintiffs argued that revetments constructed by the Michigan Department of Transportation and Chesapeake and Ohio Railway Company to stop erosion resulted in further erosion to their property and was attributable to the Corps' restoration project. The court found that the plaintiffs failed to prove that the Corps caused direct injury to the plaintiffs through the building of the revetments. Although the plaintiffs also argued that the impermeable nature of the jetties contributed to erosion, the court found that the property owners failed to prove that the jetties were impermeable. Finally, the plaintiffs argued that although Lake Michigan is lowering, the plaintiffs

would still suffer erosion because the lakebed was lowering due to sand deprivation. The court noted that owners failed to prove that the lowering of the water level was due to human intervention.

Holdings

Through exhaustive testimony and reports, the court found that the Corps did not mitigate erosion that it caused by dumping dredged sand into deep water before 1970. The court concluded that the Corps was responsible for 30 percent of the unmitigated erosion above the high-water mark occurring after each owner's acquisition of the property from 1950 to 1970. The court then turned to liability for erosion caused after 1970.

While the court found that the court had mitigated erosion since 1970, it also found that the coarse material it used was not effective for mitigation. Therefore, the court was liable for damages of for any portion of 30 percent of each plaintiff's total erosion above the high-water mark since 1970 and after each owner's acquisition of the property. Additionally, the Corps is liable for 30 percent of all reasonably foreseeable future loss. Finally, the court held that the Corps was liable to plaintiffs with property at the northernmost end of the plaintiffs' zone. Because the property in this area was found to be permanent and irreversible, the Corps was liable for 30 percent of total erosion above the ordinary high-water mark that occurred after plaintiff's acquisition of the property after 1950, as well as any reasonably foreseeable future loss.

Conclusion

The case will next move to the damages phase, in which the government will determine the appropriate payments for each plaintiff.

Phone (662) 915-7775 • Fax (662) 915-5267 • 256 Kinard Hall, Wing E, University, MS 38677-1848

Decided December 22, 2011

Banks v. United States, No. 99-4451 L:

From the web: The case involves thirty-six property owners along a four and one-half mile stretch of the eastern shoreline of Lake Michigan south of St. Joseph's Harbor. The plaintiffs allege that the United States Army Corps of Engineers, through its construction and maintenance of certain jetties at St. Joseph Harbor, interfered with the natural littoral flow of sand and river sediment, causing damage to the lakebed and resulting in a gradual and continued taking of their shoreline property. The activities of the Corps affecting St. Joseph Harbor and shoreline began in the 1830s, with the construction of the jetties completed in 1903. The Corps' actions have significantly increased the annual rate of shoreline erosion, which naturally occurs at a rate of approximately one foot per year.

The case was brought before the United States Court of Federal Claims, where the plaintiffs' motion for summary judgment on liability was denied. The Federal Circuit had previously determined that the plaintiffs' physical takings claims were not time-barred and remanded the claims for further proceedings.

Effects of structurally-engineered beaches on coastal processes and shores of the Great Lakes

By

Charles W. Shabica, Ph.D., P.G.
Emeritus Professor, Department of Earth Science, Northeastern Illinois University, Chicago, IL 60625
President, Shabica & Associates, Inc., 550 Frontage Road, Suite 3735, Northfield, IL 60093, (847) 446-1436
Email: charles@shabica.com

Michael C. Mohr, CELRB-TD-DC
U.S. Army Corps of Engineers, Buffalo District, 1776 Niagara Street, Buffalo, NY 14207-3199, (716) 879-4168
Email: Michael.c.mohr@usace.army.mil

Stefanie Nagelbach, CPESC
Managing Director, Shabica & Associates, Inc., 550 Frontage Road, Suite 3735, Northfield, IL 60093,
(847) 446-1436, Email: stefanie@shabica.com

ABSTRACT

Impacts of coastal structures on America's shores and beaches represent a scientific, economic and engineering challenge to assure that our beaches are protected and sustained. Coastal professionals go to great lengths to properly design, build, monitor, and maintain engineered beaches. However, the beach has a powerful and visceral connection to human nature that makes us all personally and emotionally sensitive to possible threats, proposed changes, and, ultimately, loss of this important component of human well-being. Inadvertent sand starvation and loss of beaches downdrift of 19th- and 20th-century harbor structures has left many people with a natural aversion to "engineered structures." Despite that, a common solution to eroding beaches downdrift of harbors was construction of groins and groin fields that functioned like smaller versions of the harbor breakwaters trapping sand on their updrift sides. Sand bypassing and nourishment of downdrift beaches, introduced in most cases more than 50 years after harbor construction, was generally "too little and too late" to keep groin fields filled with sand.

Toward the end of the 20th century, coastal scientists and engineers, recognizing the reduced effectiveness of groins on sediment-starved coasts, began designing and constructing nearshore stone breakwaters and headlands that are better able to hold sand. These projects were typically filled (premitigated) with sand to minimize downdrift problems. Breakwater projects designed to protect beaches in the Great Lakes, including the first designed by the U.S. Army Corps of Engineers are reviewed, and several are examined in detail. These include public and private beaches on the south shore of Lake Erie, the north shore of Lake Ontario near Toronto, and the west shore of Lake Michigan north of Chicago. The largest is a 55-breakwater system designed to protect the state park at Presque Isle in Lake Erie (58 were originally designed and approved).

Monitoring and examination of historic air photos has shown that attached and detached breakwaters and armored headlands, if built well within the surf zone, have minimal impacts on downdrift beaches and shores. Exceptions are temporary interruption of the littoral drift when structures are built without being adequately filled (nourished) with sand, or interruptions to planned nourishment due to lack of funding. In Illinois, state regulators adopted a requirement that any structure that may trap sand be pre-mitigated with the anticipated sand fill quantity plus a 20% overfill of new sand to assure no negative impact.

Importantly, access to Google Earth on the Internet has allowed citizens and scientists to view and monitor the coast in a historical context, unbiased by a lack or misunderstanding of scale or perceived bias of coastal "experts."

The shores of the Great Lakes are fertile grounds for innovation in coastal design and engineering. The variety of shorelines left by the glaciers is grist for the creative mill of coastal planners, scientists and engineers. The Great Lakes, in addition to being the largest body of freshwater in North America, has more than 9,400 miles of shoreline. The shores include rocky headlands and natural pocket beaches primarily in the upper Great Lakes (notably Lake Superior and the northern ends of Lake Michigan and Lake Huron), and eroding glacial deposits of cohesive or sandy material with narrow sand beaches in the lower Great Lakes (Pope *et al.* 1999). Although most of the Great Lakes coasts are still rural, intense urbanization has developed along the shores adjacent to river mouths and natural harbors.

ADDITIONAL KEYWORDS:
Breakwaters, headlands, pocket beach, beach erosion, coastal surveys, groins, sand, littoral drift.

Manuscript submitted 14 May, 2010, revised and accepted 9 September 2010.

The earliest and most disruptive human-made structures affecting Great Lakes beaches are harbor entrance breakwaters and jetties. When many of these were built in the mid- to late-19th century in the Great Lakes, sand was often considered a nuisance, as harbors and channels filled with sand and had to be removed, typically by dredging. Up until the late 20th century, dredged sand

Figure 1. A 31 May 2007 Google photo of Lakeview Park Beach in Lorain, Ohio (Note 100-ft scale bar).

was removed from the harbor and was either dumped in deep water, used in lake fills, or mined for the construction industry. The lake fills, sometimes extending over a mile into the lake, are complete barriers to littoral drift sand transport if they extend beyond the surf zone. The result is often a sediment-starved system downdrift of the littoral barriers, where natural beaches are ephemeral and most wide beaches (exceeding 100 ft) are trapped updrift of the lake fills and harbors. Sediment-starved coasts in the Great Lakes include the east and west shores of southern Lake Michigan, the south shore of Lake Erie and the north shore of Lake Ontario.

The sources of beach sand in the Great Lakes include sediment from rivers and streams, as well as storm wave erosion of the lakeshores and nearshore lakebed. While fine silts and clays are typically carried offshore by waves and currents, coarser material is left close to shore as sand bars and beaches. This coarse material is in a dynamic equilibrium, moving alongshore and on and off the beach, driven by wind, storm waves, and alongshore currents. The larger the waves and more frequent the storm, the greater the rate of sand transport within a coastal "littoral cell." Littoral cells are bounded by structures that extend beyond the surf zone, such as rocky headlands or harbor entrance channel jetties, and engineered fills, like the Chicago or Toronto lake fill, where dynamic equilibrium becomes "forced equilibrium."

STRUCTURES THAT PROTECT BEACHES

On urban Great Lakes coasts, impermeable piers, groins and groin fields were constructed as early as the mid- to late-19th century to protect eroding beaches and shores. Like the harbor entrance breakwaters, wide beaches developed on updrift sides of the structures. As a rule-of-thumb, the longer the structure, the wider the trapped beach and the greater the impact on littoral drift sand. Depending on availability of construction material, groins evolved from wood piles and rock-filled cribs to concrete and steel sheetpile in the early 20th century after World War I. In general, the groins worked well until high lake levels of the 1970s, combined with accelerated nearshore lakebed erosion, left groin-held beaches narrow to non-existent in many areas including Lake Michigan (Shabica *et al.* 2004) and Lake Erie (Pope and Rowen 1983).

A structural solution applied to beach preservation in other countries and at Winthrop Beach, Massachusetts (1935) is the segmented, shore parallel, breakwater. The first in the Great Lakes was built in Lake Erie at Lorain, Ohio, in 1977, followed by others in urban areas of the lower Great Lakes. Constructed of quarrystone, these systems, on both public and private beaches, include detached shore-parallel breakwaters, attached breakwaters and armored headlands. They were typically nourished (pre-mitigated) with sand brought in from other locations (inland sources or dredge sites).

LAKEVIEW PARK BEACH, LORAIN, OHIO

Lake Erie breakwater-held beaches, in addition to Presque Isle, Pennsylvania, include three in Lorain, Ohio; one in Euclid, Ohio; one in the Village of Geneva-on-the-Lake, Ohio; and one in North Madison, Ohio. Lakeview Park Beach in Lorain is notable in that it was the first use of segmented nearshore breakwaters constructed by the Corps of Engineers to control beach erosion (Pope and Rowen 1983). Built in 1977, the system was designed using wave diffraction analysis and corresponding littoral drift patterns, to be stable under a variety of wave and lake level conditions. It includes two end-groins and three 250-ft-long breakwaters separated by 160-ft gaps, 450-500 ft offshore in depths of 10-13 ft. Littoral drift sands are intended to pass landward of the structures. The system replaced failing seawalls, a revetment and six groins that,

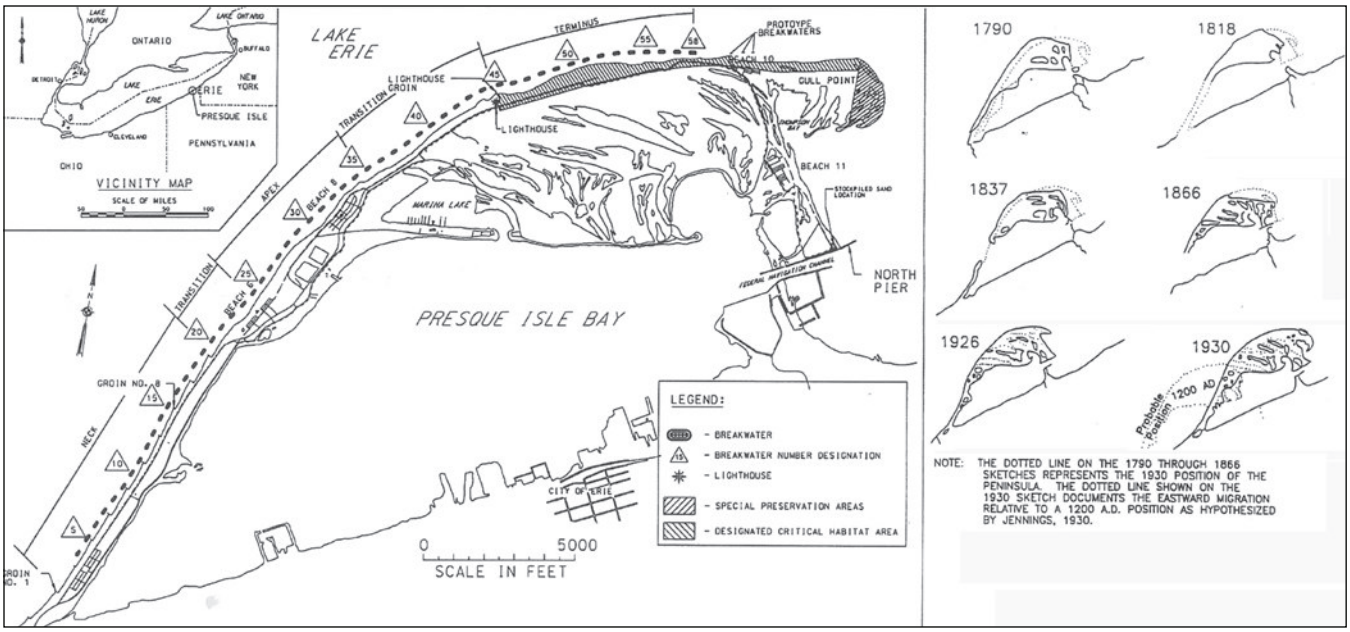


Figure 2. Vicinity and location map of Presque Isle, Erie, Pennsylvania (left). Growth and migration of Presque Isle 1790-1930 (right).

with dwindling littoral drift quantities, were no longer effective at holding sand. Potential littoral drift was estimated to be 20,000 cu yds per year to the east but only 5,000 to 8,000 cu yds per year passed the site and overtopped the landward extension of Lorain Harbor's west breakwater, immediately to the east. Approximately 110,000 cu yds of medium (0.5mm) sand was placed landward of the breakwaters, resulting in a beach averaging 200 ft wide and 1,320 ft long. Annual maintenance of 5,000 cu yds of sand was predicted by the designers. The beach was nourished only twice during the monitoring period with a total of 9,000 cu yds of medium-fine sand placed between 1980 and 1981 at the western end of the beach. Five years of monitoring from 1977 to 1983 showed a net gain in the system of 3,000 cu yds (for more details see Pope and Rowen 1983). A 200-ft-wide band of fine sand accumulated lakeward of the breakwaters over a previously gravel and cobble lakebed between 1977 and 1981. According to a U.S. Army Corps of Engineers report (1996), Lakeview beach received a total of 16,000 cu yds of maintenance sand prior to the project being turned over to the local sponsor. Since then, the city of Lorain has relocated a small amount of sand and placed 4,000 cu yds new sand on the beach (James Reagan, Acting Administrator, city of Lorain Engineering Dept., pers. comm. 2010). Comparison of the 1977 shoreline with a 2007 Google air photo shows a net beach recession of approximately 150 ft. The system was designed for average beach widths of 150 ft behind the east and central breakwaters, 100 ft behind the west breakwater and 20 ft next to the west groin, based on a lake level of +1.7 ft LWD (Low Water Datum, IGLD 1955). Examination of the 2007 Google air photo (Figure 1) shows that these standards have been maintained.

PRESQUE ISLE STATE PARK, PENNSYLVANIA

Presque Isle State Park, established in 1921, surrounds Presque Isle Bay at the eastern end of Lake Erie and includes recreational beaches, hiking trails, and a marina that hosts more than 4 million visitors per year. Presque Isle (French for "almost an island") is a compound recurved sand spit that projects from the Pennsylvania mainland into Lake Erie and protects the federal commercial harbor at Erie, Pennsylvania (Figure 2). Formed during the Wisconsinan glaciation of glacial clays, sands and gravel, the spit is an anomalous sandy feature on a generally sand-starved coast. Historic maps (Jennings 1930, Gorecki and Pope 1993) suggest that the entire peninsula moved in a northeasterly direction along the shore at an estimated rate of one-half mile per century (Figure 2).

After the conclusion of the War of 1812, the attention of the United States government was directed to Erie Harbor because of the role it had played in Commodore Perry's memorable battle at the west end of Lake Erie. The first beach erosion study of the peninsula by the U.S. Army Corps of Engineers was done in 1819. The River and Harbor Act of 26 May 1824 authorized improvement of Erie Harbor and protection of the shore at the neck of the peninsula, which by its position forms the federal commercial harbor of Erie. With the construction of harbors and shore protection to the west (updrift) over the last two centuries, sediment supply to the peninsula has been diminished. Numerous (more than six dozen) shore protection works along the peninsula were also constructed during that time. Storm waves readily overtopped the neck that has a low crest elevation of approximately +10 ft LWD. Over the last 200 years, the neck (generally less than 800 ft in width) breached four times (winter 1828-29, winter 1832-33, November 1874, and October 1917). It should be noted that several of these occurred after creation/enlargement of federal harbors to the west, most notably Conneaut Harbor, Ohio (initial jetties built 1827-1832, lengthened 1868-1871, 1894; original breakwaters built 1897-1905, modified and enlarged 1912-1917), approximately 20 mi to the west. The earliest shore protection structures consisted of timber seawalls or vegetative plantings. In the last century, a number of stone revetments and steel sheetpile seawalls were constructed. While these were more durable, they were built in response to immediate threats at specific locations. In 1955, 11 steel sheetpile groins nourished with sand fill were constructed along the neck to stabilize

Figure 3. A 1992 aerial view of Presque Isle.

this vulnerable area. This began the shift to beach augmentation using sand, such that by 1960 periodic nourishment was the main source of shore protection.

The large quantities and cost of beach nourishment needed (160,000 to 172,000 cu yds annually), prompted the Commonwealth of Pennsylvania to request an evaluation of this practice in 1968. Numerous alternatives were considered including no action, nourishment alone, nourishment and sand recycling from the east end of the peninsula, and a variety of structural configurations with nourishment. Section 501(a) of the Water Resources Development Act of 1986 (Public Law 99-662), authorized and funded the construction of 58 offshore segmented rubble-mound breakwaters (55 were built) with initial placement of 373,000 cu yds of sand fill. The design included beach berms with average widths of 75 ft and crest elevations of 10 ft above LWD. Existing shore protection structures were removed prior to construction. The plan also provided for annual nourishment of approximately 38,000 cu yds of sand fill. The breakwaters are 150 ft long with crest elevations of 7.8 ft above LWD and are separated by 350-ft gaps. Construction began in October 1989 and was completed in November 1992 (Figure 3). A more complete description of the project may be found in Mohr (1994).

The project design was the result of extensive technical investigations that included two- and three-dimensional physical model studies, as well as construction of three 125-ft prototype breakwaters in the vicinity of Beach 10 near the east end of the peninsula. Numerous studies were also conducted to assure that the project was socially, environmentally, and economically viable. These studies were key to the success of the project as they improved public awareness and acceptance of segmented breakwaters for shoreline protection, particularly for a project of this magnitude.

During construction, the need for the breakwaters at the root (western end) of the peninsula was questioned. Aerial photographs from 1955 to 1990 suggested that the area between Groins 1 and 2 has been stable. Nourishment has not been needed in this area since groin construction in 1955. In order to confirm the need for breakwater construction at this location, GENESIS (GENEralized model for SImulating Shoreline change, Hanson and Kraus 1989) modeling was conducted (Mohr 1992). This led to the decision to defer construction of Breakwaters 1, 2 and 3.

From 1975 until completion of the shoreline erosion control project in 1992, sand was added to the new system on the order of about 160,000-172,000 cu yds per year using a medium coarse sand with a median size of about 1.8 mm. The scheduled annual nourishment of 38,000 cu yds is based upon a sediment budget analysis of the peninsula developed for the General Design Memorandum (GDM) that determined that the breakwaters would reduce sediment transport rates along the shore by 75 percent (USACE 1986). Naturally occurring sediment inputs to the system are relatively small in quantity, estimated at 40,000 cu yds annually, primarily from bluff recession to the west of the peninsula.

Littoral material travels along the Presque Isle peninsula in a predominantly eastward direction. As it reaches the depositional east end, some sediment accumulates at Gull Point, some travels beyond Gull Point to build up offshore bars and a platform off Thompson Bay, and the remainder is transported into the Erie Harbor entrance channel. The natural pre-project subaerial growth rate of Gull Point was estimated at 0.4 acres per year. If it is found that this growth rate is not being maintained, a portion of the scheduled project nourishment is directed to this area.

Since the annual nourishment program began in 1975, the monitoring program has consisted of obtaining complete aerial photo coverage of the peninsula three times per year and biannual visual inspections by walking the beaches. After completion of the breakwaters in 1992, the program was augmented by annual topographic/bathymetric surveys. Funding constraints have precluded obtaining the photos and surveys the last several years. The objectives of the nourishment and monitoring program are as follows:

1) Confirm the decision to defer construction of the first three authorized breakwaters using GENESIS (Hanson and Kraus 1989) modeling. Measured shoreline position using aerial photography is compared with GENESIS results.

2) Evaluate breakwater settlement. Subsurface conditions below the western breakwaters (7-11) suggested potential settlement. Crest elevation change is examined.

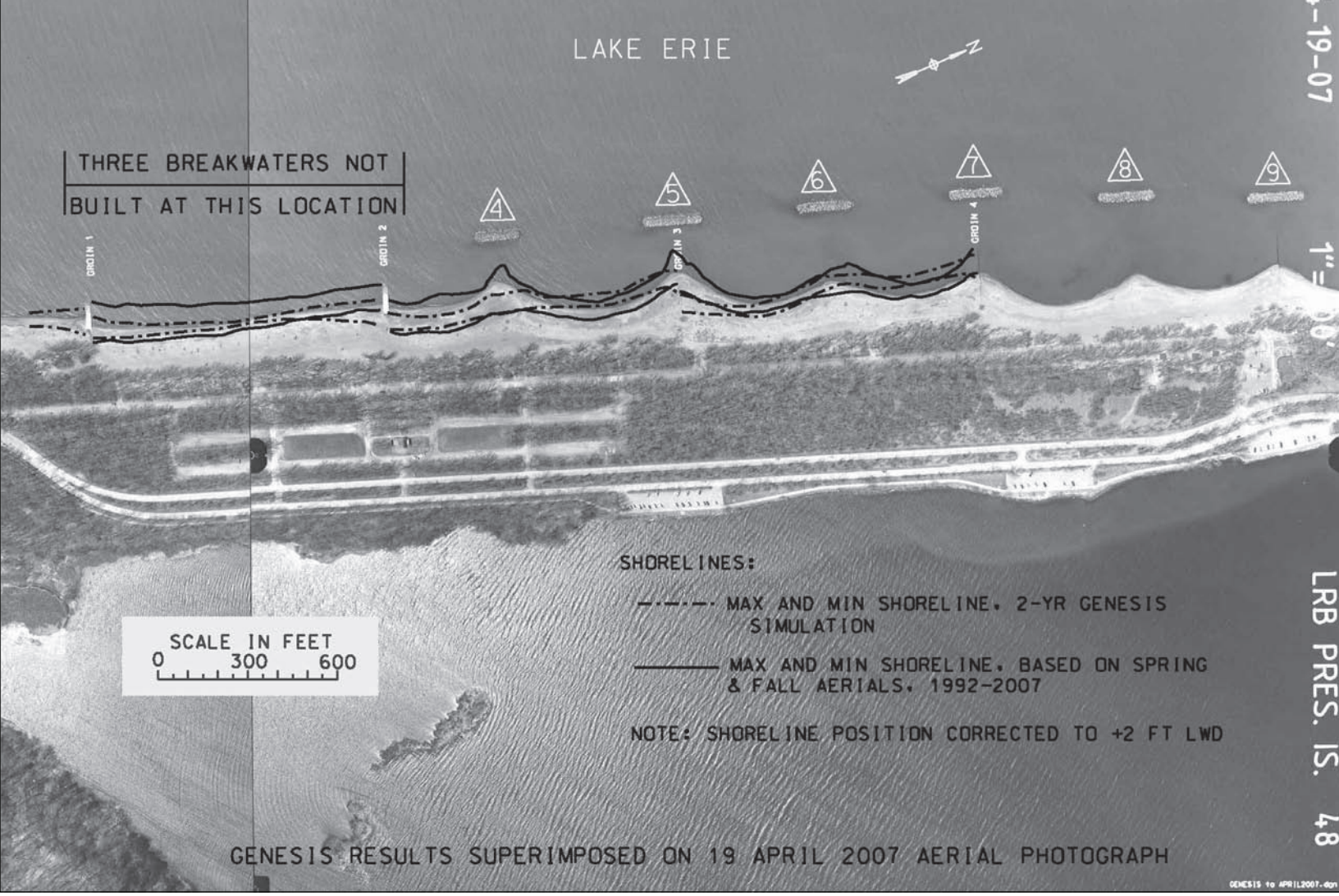


Figure 4. Surveys confirm GENESIS-based decision to defer construction of three breakwaters.

3) Document annual nourishment quantities and locations.

4) Measure shoreline position with respect to the breakwaters. The maximum lakeward extent of the salients formed behind the breakwaters should average approximately 250 ft from the breakwater centerlines.

5) Maintain Gull Point growth.

Time has proven the decision to defer construction of the first three breakwaters to be wise. A comparison of the GENESIS prediction, based upon the two-year simulation run, with measured shorelines taken from the spring and fall aerial photographs for the time period ranging from 1993 to spring 2007 (dated of latest photographs) is shown on Figure 4. The dashed lines represent the maximum and minimum shoreline resulting from the two-year GENESIS simulation. The locus of maximum and minimum shoreline locations (corrected to the +2 ft LWD elevation using a beach slope of 1V:9H) from the spring and fall 1992 to 2007 aerial photographs is also presented. The actual minimum shoreline (most landward retreat) response between Groins 1 and 2 has been similar to that predicted by the GENESIS model. However, the actual maximum shoreline has advanced further lakeward than that predicted by GENESIS. The recommendation to defer construction of the three breakwaters at this location remains valid. This recommendation saved approximately $1 million in construction costs.

The geotechnical analysis performed during the design of the breakwaters indicated that there was a potential for long-term settlement of about 1.5 ft to 4.5 ft for Breakwaters 7 through 11 with the maximum occurring at Breakwater 8. For this reason, these breakwaters were constructed near the beginning of the contract and additional stone was placed as needed later in the contract to ensure the design crest elevation of +8 ft LWD. In order to determine the extent of any additional settlement, periodic surveys have been taken along the crests of Breakwaters 6 through 13. The first surveys consisted of taking physical measurements. However, this was changed to SHOALS (Scanning Hydrographic Operational Airborne Lidar Survey) surveys in 1997. A 2004 survey revealed some settlement in these breakwaters with Breakwater 7 showing the most. Settlement below +6 ft LWD (a loss of more than 1.8 ft in elevation below design level) has occurred in 33 percent of Breakwater 7's crest. The rest had crest elevations predominantly above +7 ft LWD. Since no adverse beach response has been observed behind the breakwaters, no further action besides continuing monitoring is recommended at this time.

Since the completion of the breakwaters, an average annual nourishment quantity of 32,200 cu yds has been placed (1993 to 2009). Only lake-dredged sand is allowed that has a median particle size of 0.7 mm. While the initial placement was done by hydraulic dredge due to the large quantities, subsequent annual nourishment placement has been by land-based equipment. From 1993 to 2003, the

Figure 5. Built on reclaimed land in Lake Ontario east of Toronto, Bluffer's Park first opened in 1975 and was expanded to its current size in the early 1980s. The park is home to four sailing clubs. Note 100-ft scale bar and armored headland on left (Google air photo 2009).

sand was trucked through the city of Erie into the park and placed on the beaches. The Erie North Pier was strengthened allowing for the overloading of sand from self-unloading vessels into a designated stockpile area. Since that time, all new sand is distributed to the beaches from the replenished stockpile.

The sediment budget calculated for the project (USACE 1986) predicted that with the breakwaters installed, the required annual nourishment amounts would be approximately 25% of pre-project quantities. Comparison of pre- and post-project nourishment quantities reveal that annual nourishment with the project is about 19% of pre-project amounts and is about 86 percent of the GDM estimate with the project. The GDM estimate has not been met due to funding limitations and represents about 99,300 cu yds of sand that has not been added to the system since 1993. The federal government shares equally in funding the nourishment with the Commonwealth of Pennsylvania. It should be noted that in 2005 and 2006, federal funding was substantially reduced, and in 2007 no federal funding for nourishment was available. The shortfall was significantly augmented by funds from the Commonwealth of Pennsylvania to ensure its success. However, as will be noted in the Gull Point growth discussion, it has been observed that Gull Point has not been expanding at the minimum desired rate. This may be partially attributed to the reduced nourishment program.

Since construction, the sand behind Breakwaters 1 to 19 has been stable with little or no nourishment or excavation needs. At higher number breakwaters, an alternating "hot-spot" erosion and "cold-spot" accretion pattern has developed where new sand is placed annually due to shoreline recession. Sand is excavated from an average of five breakwaters per year where excessive sediment accumulation behind the breakwater causes tombolo development. This results in the shoreline extending out to the breakwater, and erosion immediately downdrift. The hydraulic model study (Seabergh 1983) indicated that with the formation of a tombolo, the sediment movement was diverted lakeward of the breakwaters, moved downcoast parallel to the breakwater and then shoreward around the downcoast tip of the breakwater. Actual experience has shown that downdrift erosion extends several breakwaters until a rhythmic shoreline is restored. This situation is not desired and thus material is excavated from the zones of unwanted accretion and recycled into areas of erosion.

A goal of the project and the designed breakwater configuration was to develop a stable, sinuous shoreline with the breakwaters averaging approximately 250 ft off the shoreline. In order to determine the shoreline distance from the centerline of the breakwaters, the shorelines were measured using uncorrected-scaled aerial photographs obtained spring 1993 to 2007. Based upon the average water level for the day of the photo and assuming an average slope of 1V:9H for the beach near the waterline, the shoreline position was corrected to represent the shore at an average water level of +2 ft LWD. Since construction, the shoreline annually returns to a planform that varies from project sector to sector. The average distance during the spring between the salients and the breakwaters from 1993 to 2007 was 225 ft, with a standard deviation per breakwater of 62 ft. The occurrence of significant salients and tombolos is primarily limited to east of the lighthouse (Figure 2).

Throughout the neck (Breakwaters 4 through 19), the shoreline has been very

Figure 6. Armored headland and attached breakwaters constructed in 2005-2006 to protect public beaches in Port Union, Ontario. A second system was constructed about a half mile to the north in 2009. Note 100-ft scale bar (Google air photo 2009).

stable with no required renourishment and salients averaging 240 ft (+/- a standard deviation of 30 ft from the breakwater line). Although there are slight oscillating patterns of varying salient widths, they are temporally stable, and the shoreline position is naturally maintained within design tolerances. Through the apex of the peninsula (zone of greatest curvature, Breakwaters 20 through 34), there is more temporal and spatial fluctuation in the shore position with a range of 110 to 340 ft. The shoreline in Sector 2 (transition from the neck to the apex) averages 250 ft from the breakwaters. The average distance of the shoreline from the breakwater line throughout the Apex (Breakwaters 23-34) is 225 ft with a standard deviation of 39 ft. The transition from the apex and into the project terminus displays significant spatial and temporal fluctuation in shoreline position, increasing in amplitude toward Breakwater 58. Although the average position was 220 ft, there is a significant range (425 ft) in the distances from the breakwater to the shore for individual breakwaters and for a single breakwater from year to year. A wave-like pattern of alternating zones of erosion (no salient, shoreline cut back) and accretion (tombolo or near tombolo) passes through the Terminus (Breakwaters 45-58) as sediment waves move along the shore. These waves have a longshore periodicity of approximately 4 or 5 breakwater lengths.

Shoreline change east of the project area at Gull Point has been computed annually until 2006 (last available fall aerial photograph) to determine if sufficient growth continues to occur. The GDM (USACE 1986) stated that the condition of growth must be maintained if the integrity of Gull Point is to be preserved. The GDM also states that adverse impacts to Gull Point exist if:

(1) The average annual growth rate of Gull Point falls below the prenourishment rate of 18,400 cu yds per year or 0.4 acres of surface area growth per year, or

(2) The Gull Point area is in danger of being severed from the main body of the peninsula due to severe erosion immediately downdrift of the breakwater system. Physical contact between Gull Point and the peninsula must be maintained if migrating sediment is to reach Gull Point.

Each year the change in the size of Gull Point is computed using the recent fall aerial photograph and the May 1991 shoreline. The shorelines were corrected to +2 ft LWD. The May 1991 shoreline is used as the basis of comparison since it was used for the Gull Point environmental study. If it is determined that Gull Point is not growing at the minimum desired rate, a portion of the nourishment material is placed east of Beach 10, updrift of Gull Point. Until recently the goal was met. However, the average annual planform change of Gull Point from 1991 to 2005 was -0.01 acres per year, and from 1991 to 2006 was -0.30 acres per year, which is less than the minimum desired value of 0.4 acres per year. As previously noted, actual annual nourishment has been about 86 percent of the GDM estimate with the project. The GDM estimate has not been met due to funding limitations and represents about 99,300 cu yds (2.6 years of nourishment material) of sand not added to the system since 1993.

In summary, 55 of the authorized 58 breakwaters were completed in 1992. Since then the shoreline response at the location of the three deferred (not built) breakwaters has shown that the decision to not construct those has been appropriate. The project goal to establish a sinuous shoreline behind the breakwaters has been achieved, with areas requiring sand or with excessive sand (tombolo

Figure 7. View of the largest headland-protected beach in Lake Michigan at Forest Park Beach in Lake Forest, Illinois (above). The system lies within the surf zone, extending about 400 ft from the bluff toe into the lake. In comparison, 3.5 miles updrift (north) is Great Lakes Naval Training Center Harbor (below) that was, for nearly a half century, a total littoral barrier. The breakwaters, built in 1923, protrude 2,400 ft into Lake Michigan. Between 1923 and 1976, approximately 2.5 million cu yds of sand was impounded in the harbor and on its updrift side (Chrzastowski and Trask 1995). 2007 Google photos both to same scale.

formation) addressed during the annual nourishment program. However, the predicted annual nourishment requirement of 38,000 cu yds has not been met due to funding limitations, resulting in an actual average annual amount of 32,200 cy yds placed and represents a deficit of 2.6 years of nourishment material over the past 17 years. This is beginning to affect Gull Point downdrift of the breakwaters and is being partially addressed by placing a portion of the nourishment sand downdrift of the project area.

TORONTO REGION, LAKE ONTARIO

Western Lake Ontario has a long history of engineered coastal structures. The Toronto metropolitan area waterfront is characterized by lake fills (Figure 5) and headland-protected beaches. According to the Ontario Ministry of the Environment (Persaud 2003):

Most of the large lake fills for the purpose of land creation have been centered in the western basin of Lake Ontario, especially the area adjacent to the Toronto waterfront. The Toronto Harbour Commission, under Federal charter, has been using this technique to develop the Toronto waterfront since 1911. Since the 1950s, the Commission has been involved in the construction of the Eastern Headland (also known as the Leslie Street Spit) which is the largest lake fill structure in Lake Ontario. During the late 1960s and 1970s, the conservation authorities bordering western Lake Ontario and other government agencies (e.g. municipalities, Government of Ontario) proposed shoreline plans which included varying degrees of land creation through lake filling.

Creation of new land resources through filling in the littoral (shallow, near-shore) zone can be an appealing concept for several reasons. With lakefront property commanding a premium price, the creation of new land by lake filling is attractive, particularly in the heavily populated western basin of Lake Ontario. In many cases, lake fills provide recreational opportunities that would otherwise not exist and could not be provided through the purchase of existing shoreline properties.

Study of the coastal system dynamics has played an important role in the development of the Toronto lakeshore. For example, modeling of the littoral drift system in the Toronto region, a key component to proper design and sustainability, was developed in the latter part of the 20th century (Greenwood and McGillivray 1978).

Armored headlands and breakwaters are a prominent form of beach protection in Toronto and include two systems constructed in 2005 and 2009 in Port Union, Ontario (Figure 6). Planned and constructed by the Toronto Region Conservation Authority, the beach systems are being monitored for impacts to the littoral system and fisheries (Ontario Ministry of the Environment 2000). As the shorelines are nearly fully engineered and the structures well-designed, impacts are likely to be minimal. More importantly, the government is committed to monitoring and remediation if necessary.

FOREST PARK BEACH, LAKE FOREST AND SUNRISE PARK BEACH, LAKE BLUFF, ILLINOIS

Attached breakwaters at Forest Park Beach in Lake Forest, and Sunrise Park Beach in Lake Bluff, both of which are on the Lake Michigan shore in Illinois, were built in 1987 and 1991 respectively to protect municipal beaches. The beaches are located on Illinois' shoreline north of Chicago, a 24-mile stretch of urban coast that (with the exception of Illinois Beach State Park) is fully engineered. The nearshore is considered sediment starved, with eroding cohesive clay lakebed exposed in many locations or covered with a thin veneer of sand in others (Shabica and Pranschke 1994). Sand mining and construction of total littoral barriers like Great Lakes Naval Training Center Harbor and Waukegan Harbor breakwaters in the early 20th century have exacerbated the loss of littoral sand.

The coastal geology of Illinois' North Shore is primarily eroding glacial clay-till bluffs and lakebed that are composed of about 10 percent sand. Photographs of the North Shore from the 1880s through the 1930s show extensive development of rock-filled wood crib piers that performed like groins, trapping sand on their northern sides. In unprotected areas, bluff retreat rates averaged 8 to 10 inches per year (approximately 0.4 cu yds of sand and gravel lost per linear foot of lakeshore per year) (Jibson *et al.* 1994). After World War I, most of the piers were progressively replaced with steel sheetpile groins. Over the next 50 years the groins would steadily lose effective-

ness. Forest Park Beach and Sunrise Park Beach groins were no exception, with beaches narrowed and bluff toes scoured by storm waves in the 1970s.

In the mid 1980s, the city of Lake Forest hired W.F. Baird and Associates to design and engineer a sustainable beach to replace the failing groins at Forest Park Beach. In addition to numerical analysis, a physical hydraulic model of the system was conducted in order to maximize the probability for success of the project. Designers assumed littoral drift in this coastal cell would be negligible (Anglin *et al.* 1987). This is not surprising as Great Lakes Naval Training Center Harbor, 3.5 miles updrift, was considered a total littoral barrier (Figure 7). Based on results of the model, five attached breakwaters were built in depths of up to -11 ft LWD, 180 ft lakeward of the preconstruction shoreline (Figure 7). The four north beach cells were filled with 200,000 cu yds of 2.8 mm fine gravel "birdseye sand" that the engineers anticipated would be more stable than the native medium sand (Anglin *et al.* 1987). State regulators required as-built and post-construction surveys to assure no negative impacts. Monitoring consultants recommended an additional 20,000 cu yds of sand be added immediately downdrift of the site prior to project construction as insurance that the littoral stream would not be disrupted by the work (Dean and Seymour 1986). Although this was not done, it is noteworthy that the Illinois DNR now recommends a 20% sand overfill for projects, both public and private, that may trap sand.

The Forest Park site, including the shore 800 ft updrift and 1,200 ft downdrift, was surveyed from 1987 to 1989 and included 43 profiles ranging from 100 ft to 620 ft apart. Results of the monitoring showed stable profiles in the beach cells but sand accretion on the updrift side of the project of approximately 10,000 cu yds of sand. To compensate for the accretion, the city of Lake Forest placed 10,000 cu yds of sand downdrift of the site over a three-year period between 1991 and 1993. Because of the unanticipated sand accretion, another five years of monitoring was recommended from 1991 to 1995 with the Illinois State Geological Survey providing independent oversight. This survey included 71 profiles at 50-ft intervals extending up to 800 ft lakeward and 27 profiles at 200-ft intervals extending up to 2,950 ft offshore to depths of 23 ft (beyond the approximate depth of closure of 20 ft). Sand accretion was reported around the structure during rising lake levels between 1992 and 1994 followed by net erosion during falling lake levels between 1994 and 1995.

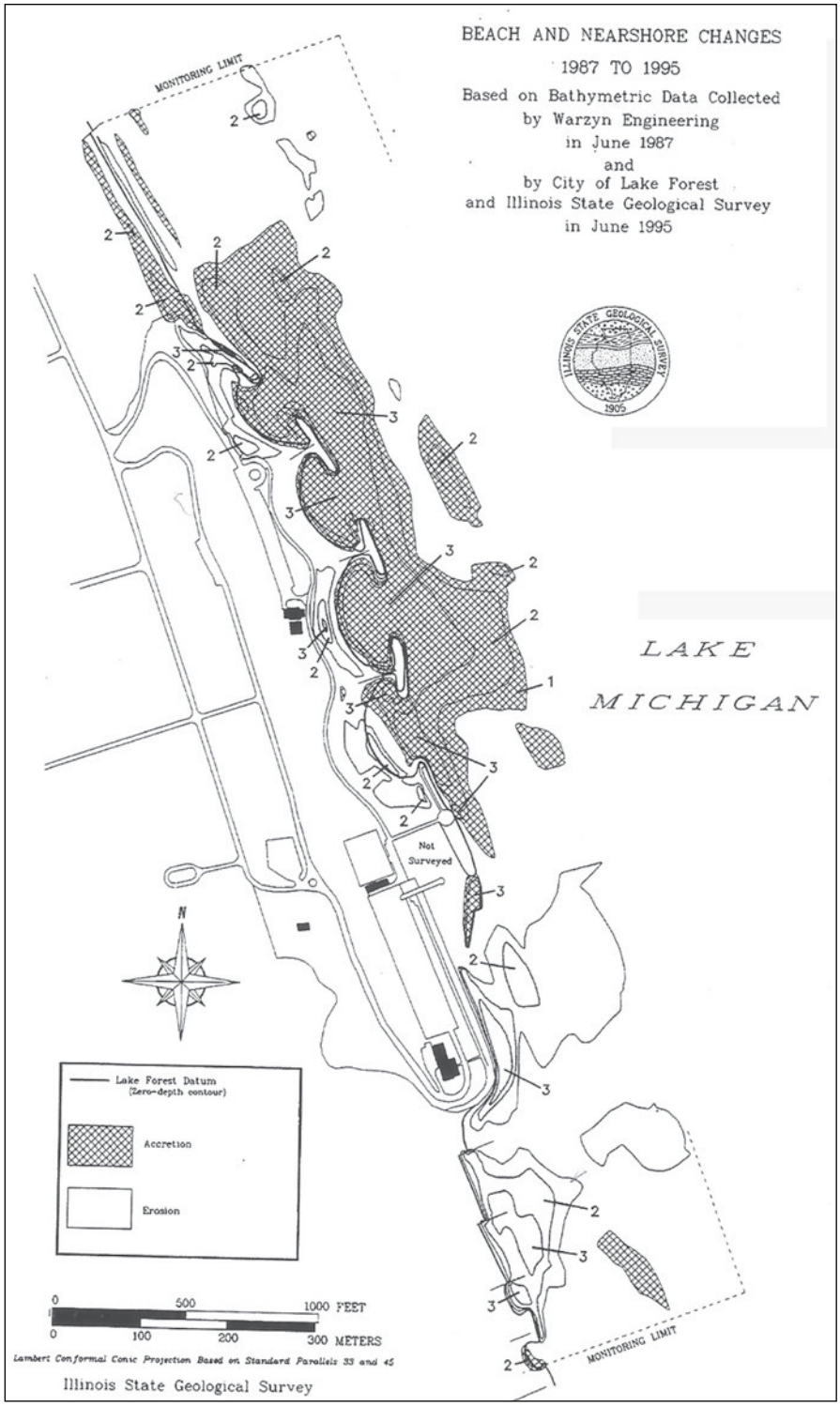


Figure 8. Isopach map showing sand accretion and erosion at Forest Park Beach, Lake Forest. The map is based on a comparison of survey data from 1987 and 1995 (first eight years after construction) and shows sand loss off the dry beach and an accretionary wedge of sand around the structure. Only changes greater than 1 ft are shown (from Chrzastowski and Trask 1996).

Results show some sand loss to the dry beach areas and a 3-ft thick accretionary wedge extending from the shore within the beach cells to 300 to 400 ft beyond the breakwaters (Figure 8). The net volume of material removed from the littoral system from 1987 to 1995 was

Beach (Chrzastowski and Trask 1996). Future surveys might show whether the accretionary wedge is a permanent feature or simply the result of varying levels of littoral drift sand related to irregular bypassing of sand dredged from Waukegan Harbor (7 miles updrift) and storm activity.

From 1989 to 1995, the boat launch basin at the south end of the project trapped 22,440 cu yds of fine sand that was dredged and then placed in the nearshore (depth less than 10 ft) downdrift (south) of the property (Chrzastowski and Shabica 1996). More recently, between 2,500 and 6,000 cu yds per year of fine sand has been dredged from the basin (Chrzastowski 2005 and Mary Van Arsdale, director, Lake Forest Park District, pers. comm. 2010). This is evidence that native sand is bypassing the facility. A 2010 inspection of the surface sand in beach cells 2 and 4 show a mixture of native sand and birdseye sand in proportions of about 50/50.

North of Forest Park Beach is Sunrise Park Beach in Lake Bluff, a single-cell breakwater system designed and engineered by Shabica and Associates. The objective was to create a sustainable public beach and protect an actively eroding bluff. With a limited budget and the newly constructed Forest Park Beach as a functioning "prototype," it was determined that a physical hydraulic model would not be necessary. The site is approximately 2 mi south of Great Lakes Naval Training Center Harbor and is fronted by a lakebed that was "stripped of nearshore sand" due to sand impoundment at the harbor (Chrzastowski and Shabica 1996). A stone headland and a spur breakwater were constructed in 1990-91 to protect a single-cell beach at the south end of Sunrise Park that was to be used for sailboat access and recreation. The beach was filled with 2,300 cu yds of granular material as a base and 6,600 cu yds of new medium to coarse sand

Figure 9. Sunrise Park Beach, Lake Bluff, Illinois, Lake Michigan. South Beach (project beach) opposite 100-ft scale bar, with spur breakwater on the north side of the beach cell and armored headland on south side of cell. North Beach (control beach) with new headland breakwaters at top of photo. Google air photo, 11 October 2007.

(Figure 9). State regulators required a five-year monitoring survey program that was voluntarily extended by two years. Sunrise Park Beach (South Beach) and a groin-protected control site (North Beach) located updrift from the site were surveyed from 1992 to 1999. During two periods of rising lake levels, the project beach gained 0-1 cu yd of sand while the control beach lost approximately 0-2.6 cu yds of sand per linear foot of lakeshore per year. During two periods of falling lake levels, the project beach lost 1-4 cu yds of sand while the control beach lost 0-0.5 cu yds sand per linear foot of lakeshore per year. Both beaches showed a net loss of sand over the study period.

The North Beach, already narrow at the beginning of the study was in poor condition at the end of the study and was considered unsuitable for public recreation. In 2003, the decision was made to protect it with headland breakwaters that were installed in 2004 with 2,300 cu yds of new sand fill (Figure 9). At the South Beach, approximately 250 cu yds of new sand are added to the beach every few years to compensate for a net loss of sand from the beach cell. This amounts to about 1.5 percent of the original fill quantity in annual maintenance. No maintenance fill is added to the North Beach. No adverse impacts on downdrift beaches or shore protection structures has been observed. The five property owners immediately south of Sunrise Park Beach either are or were clients of the senior author. These properties have been inspected on an annual basis through 2010. From north to south, the properties are respectively protected by a steel sheetpile seawall and revetment, two beaches held by stone headland breakwaters, and steel groins with quarrystone revetments.

In terms of sustainability and environmental impacts, survey data from Forest Park Beach and Sunrise Park Beach show that attached breakwater systems are able to hold sandfill within the beach cells with minimal maintenance. Sand accretion on the nearshore sediment-starved lakebed off Forest Park Beach, while unanticipated by the designers, may help minimize lakebed erosion but more importantly, should improve the quality of the shallow water benthic ecosystem (Meadows *et al.* 2005).

Today, more than 18 engineered beach systems have been permitted and constructed in Illinois. All but one are attached breakwater-held pocket beaches. Illinois regulators now require a 20% sand overfill for new beach construction. This assures that there is continuity of sand bars around the new structures and no net loss of sand from the littoral drift system.

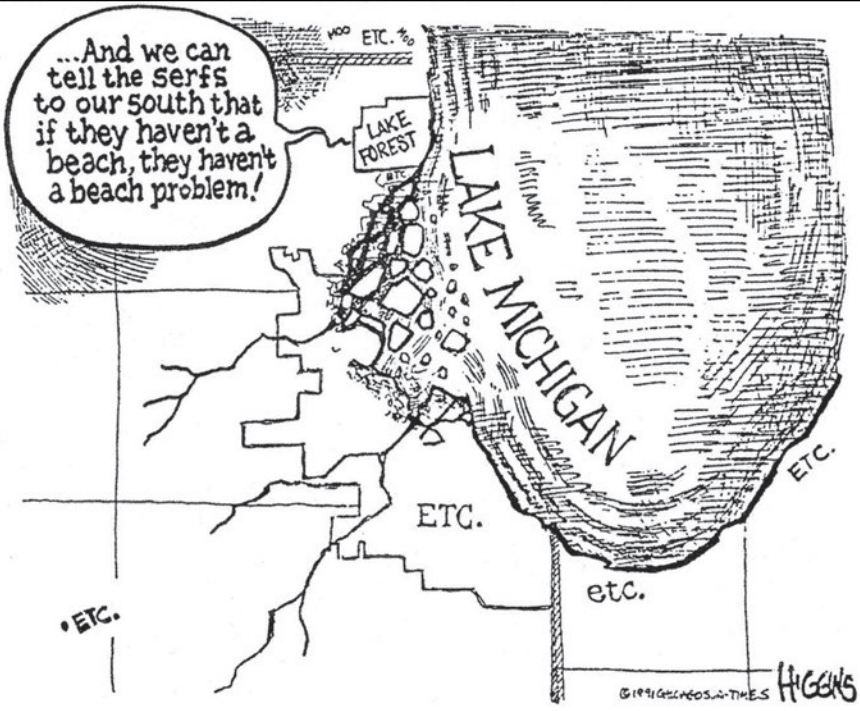


Figure 10. Cartoon that accompanied an editorial in the Chicago Sun-Times, 22 May 1991, commenting on the Forest Park Beach Project. Despite the doomsayers, the project has had no measurable impacts on downdrift beaches.

SUMMARY

Monitoring surveys at Lakeview Park Beach, Sunrise Park Beach, Forest Park Beach, as well as comparison of historic air photos at other Great Lakes sites has shown that beach protection structures including segmented (detached) breakwater systems and attached breakwaters (pocket beaches) and armored headlands, if built well within the surf zone, pre-mitigated with sand fill, and maintained following design standards, have minimal impact on downdrift beaches and shores and require minimal quantities of maintenance sand. In contrast, sand monitoring is crucial to assure sustainability at the more than 4-mile-long detached breakwater system at Presque Isle. Here additional sand is required to assure growth of the downdrift sand spit at Gull Point.

The detached breakwater system at Lakeview Park, by design requires 5,000 cu yds per year sand maintenance. However, after five years of monitoring and 9,000 cu yds of new sand placed, the system showed a net gain of 3,000 cu yds of sand by 1983, or an average of 1,200 cu yd per year of sand nourishment during the study period. The city of Lorain later placed an additional 4,000 cu yds of sand and none has been needed since then. The Presque Isle detached breakwater system by design requires annual surveys with nourishment of 38,000 cu yds of sand per year including removal of tombolos behind breakwaters to assure sand bypassing of the system and growth of Gull Point downdrift. If the breakwaters had not been built, the Presque Isle site would have required beach nourishment quantities of 160,000-172,000 cu yds annually. The beaches at Bluffer's Park and Port Union, Ontario need minimal sand maintenance. The attached breakwater system (pocket beaches) at Forest Park by design requires little or no sand nourishment after the initial 10,000-cu-yd sand gain was compensated for. At Sunrise Park south sailing beach, annual sand nourishment is about 125 cu yds per year to compensate for the wide gap between breakwaters.

LESSONS LEARNED

Structural solutions to protect beaches should be a last resort for unengineered stretches of coast where beach nourish-

Compensation for structural impacts: The sand bank

Many of America's urban beaches today are threatened due to sand loss caused by human activities including harbor dredging and shore armoring. Attempts to mitigate these problems are often too little-too late. Cumulative impacts of activities that reduce the supply of sand to coastal beaches is sometimes difficult to assess but should be considered in any shore management plan. A detailed "sediment budget" that identifies sinks and sources for sand can provide a useful starting point. Sediment budgets are approximations of the yearly balance of sand entering a self-contained coastal system (coastal cell) through rivers and shore erosion, and exiting the system through loss to deep water, entrapment in an embayment and upland loss.

For coastal beaches to be sustainable, sand removed from the system, or prevented from getting into the cell by a human-made structure, should either be replaced or compensated for. A vehicle proposed for assuring fair-play in sand management is a "sand bank" administered by a local or state agency, where a section of coast deprived of sand could benefit from sand paid-for out of a special taxing district fund generated by offending structures or activities.

Structural impacts on a coastal include:

• Impoundment of sand by a new structure

• Diversion of sand out of the littoral system either offshore beyond the surf zone (lake fills and harbor breakwaters) or to upland areas (sand mining)

• Prevention of sand entering the system through rivers and streams (dams, harbor dredging) or prevention of shore erosion (seawalls, revetments, groins, breakwaters)

Mitigation for these impacts can take the form of sand bypassing, nourishment with new sand brought in from outside the system, sand overfills with construction of new structures and/or financial compensation.

While the greatest impacts are from fills and harbors, there is a growing concern that eroding shores that are armored should also contribute to the system. For example, on a fully engineered coast using an estimate of the annual average shore recession rates, eroding sediments retained by structures that might have otherwise nourished the beach can be calculated. According to Jibson and Staude (1994) under natural conditions, annual sand and gravel loss from Illinois' North Shore bluff recession averaged 0.4 cu yds per linear foot of lakeshore. This is based on an average recession rate of 8 to 10 inches per year and bluff soils containing 20% sand and gravel. Thus, a coastal property with a bluff protected by a 100-ft-wide revetment, under the "sand bank" would be taxed for 40 cu yds per year. At a delivered cost of $36 per yard of new sand, this represents an assessment of $1,440 per year. In many states (including Illinois), coastal properties are taxed substantially higher than adjacent properties inland, yet rarely is that money is used for coastal sand management. A well-managed sand bank would assure the health and longevity of the beach, one of our most important natural resources.

ment cannot be justified based on cost/benefit analyses. Sediment-starved coasts, such as Presque Isle or Illinois' North Shore, are good candidates for structures when nourishment is no longer an economical solution.

In regions where there are no existing structures to study for effectiveness and impact on the littoral system and adjacent shorelines, it will be prudent to build a prototype like the three-breakwater system at Presque Isle or conduct a physical hydraulic model. This will not guarantee a "perfect solution" as seen at Forest Park but can fine-tune the performance of the structures assuring an economical and effective solution to sustainable beaches.

Great care should be exercised when applying structural solutions to locations where most downdrift beaches are in a natural state. For example, at Presque Isle, the Corps of Engineers has quantified the sand necessary to successfully sustain the Gull Point sand spit downdrift of the breakwaters. The only impediment to Gull Point's health might be insufficient funding for beach nourishment. A "sand bank" would make that problem moot.

A big hurdle in proposing a new type of beach protection system is political or sociological. By nature, humans are resistant to change. Even legitimate engineering or scientific arguments pale in the face of fear-of-change. Planners of the Presque Isle and Lorain Beaches in Lake Erie showed good insight in preparing the public for the realities of a new method of shore protection. On the other hand, the Forest Park Beach project is a good example of the difficulties in dealing with outspoken adversaries that oppose the project regardless of the benefits and costs both economic and environmental. A lack of understanding of "scale" is often at the root of opposition. For example, well-meaning citizens may see no difference between impacts of complete barriers to littoral drift, like Illinois' Great Lakes Naval Training Center Harbor, and a substantially smaller structure like Forest Park Beach that lies well within the surf zone. A 1991 cartoon published in the Chicago Sun-Times is an example of an outspoken adversary stirring up opposition (Figure 10). Despite the doomsayers and an intense campaign to derail the project, the Forest Park Beach was completed, and to date, no measurable negative impacts have been reported. Three years after the

completion of Forest Park Beach, Sunrise Park Beach also met with some public resistance. Fortunately, the fact that breakwaters at Forest Park Beach did not fulfill cataclysmic predictions of downdrift destruction of property helped.

The breakwaters reviewed in this paper fall into two main types: detached with a continuous beach and attached with separate beach cells (pocket beaches) between breakwaters or headlands. Regular transport of littoral drift sand landward of the breakwaters is a key component of detached breakwater systems. Natural irregularities in wave regime and bathymetry can result in formation of tombolos behind some breakwaters and excessive erosion behind others, disrupting sand transport and requiring sand relocation maintenance. In contrast, littoral drift transport at attached breakwater systems, placed closer to shore, occurs primarily lakeward of the structures. Tombolo formation is not an issue and sand transported between adjacent cells is quantitatively less, resulting in lower maintenance costs.

In conclusion, the most successful sustainable beaches on sediment-starved coasts are nearshore attached-breakwater beaches that are pre-mitigated with sand fill. This must include fill to capacity within the structures, and as we have learned in this study, sand fill should also be placed around the structure to assure an uninterrupted littoral system. The systems should be streamlined at both ends to promote continuity of sand transport around the structure.

It is also important that an annual monitoring plan be developed. However, as we have seen with Forest Park Beach, irregularities in the quantities of sand entering the system, including periodic dredged sands from Waukegan Harbor, can result in misleading survey data. This phenomenon was also observed at Presque Isle where sand moved intermittently alongshore in "slugs." Survey profiles should extend updrift and downdrift at least twice the length of the new system, and to the offshore depth of closure. Repeatability of survey points is important and the minimum number of profiles should be undertaken to economically show areas of sand gain and loss. Depending on survey results, the builder should be prepared to add approximately 20% new sand to the system (Illinois regulators already require a 20% sand overfill). If a "sand bank" system is instituted, a well-funded regional cell-by-cell sediment budget will assure the sustainability of this valuable coastal resource, the beach.

ACKNOWLEDGMENTS

We wish to thank Susan Shabica, Dr. Michael Chrzastowski (Illinois State Geological Survey), Dr. Scudder Mackey (S.D. Mackey & Associates), Joan Pope (U.S. Army Corps of Engineers), Gord MacPherson (Toronto and Region Conservation Authority), James Reagan (city of Lorain Engineering Department) and Melissa Bach (Shabica & Associates) for manuscript review and recommendations.

REFERENCES

Anglin, C.D., A.M. Macintosh, W.F. Baird, and D.J. Werren 1987. "Artificial beach design, Lake Forest, Illinois, "in Magoon, O.T. *et. al* (eds), Coastal Zone '87, *Proc. Fifth Symposium of Coastal and Ocean Management*, Seattle, WA, May 26-29, 1987, ASCE, New York, 1, 1121-1129.

Chrzastowski, M.J., and C.B. Trask 1995. "Nearshore Geology and Geologic Processes along the Illinois Shore of Lake Michigan from Waukegan Harbor to Wilmette Harbor." Illinois State Geological Survey, Open File Series 1995-10.

Chrzastowski, M.J., and C.B. Trask 1996. "Review of the City of Lake Forest Final Report for the 1995 Beach and Nearshore Monitoring Program, Forest Park Beach, Lake Forest, Illinois." Illinois State Geological Survey, Open File Series 1995-10.

Chrzastowski, M.J., and C.W. Shabica 1996. "The Illinois coast of Lake Michigan: North Point Marina to Evanston's Dawes Park." ASBPA National Conference, Chicago, 13-16 October 1996.

Chrzastowski, M.J., 2005. "Chicagoland Geology and the Making of a Metropolis, Illinois State Geological Survey." Open File Series OFS 2005-9.

Dean, R.G., and R.J. Seymour 1986. "Investigation of Downcoast Impacts of Proposed Forest Park Project, Lake Forest, Illinois." Unpublished report submitted to Isham, Lincoln and Beale, Attorneys at Law.

Gorecki, R.J., and J. Pope 1993. "Coastal Geologic and Engineering History of Presque Isle Peninsula, Pennsylvania." Miscellaneous Paper CERC-93-8, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

Greenwood, B., and D.G. McGillivray 1978. "Theoretical model of the littoral drift system in the Toronto waterfront area, Lake Ontario." *J. Great Lakes Res.*, 4(1), 84-102.

Hanson, H., and N.C. Kraus 1989. "GENESIS: Generalized Model for Simulating Shoreline Change." Technical Report CERC-89-19, Report 1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Jennings, O.E., 1930. "Peregrinating Presque Isle." *Carnegie Magazine* 4, 171-175.

Jibson, R.J., J.K. Odum. and J. Staude 1994. "Rates and processes of bluff recession along the Lake Michigan shoreline in Illinois." *J. Great Lakes Res.*, 20(1) 135-152.

Meadows, G.A., S.D. Mackey, R.R. Goforth, D.M. Michelson, T.B. Edil, J. Fuller, D.E. Guy Jr., L.A. Meadows, E.B. Brown, S.M. Carman, and D.L. Libenthal 2005. "Cumulative habitat impacts of nearshore engineering." *J. Great Lakes Res.*, 31(Supp. 1) 90-112.

Mohr, M., 1992. "Presque Isle Shoreline Erosion Control Project, Application of GENESIS Model." U.S. Army Corps of Engineers, Buffalo, NY (unpublished internal draft document).

Mohr, M.C., 1994. "Presque Isle shoreline erosion control project." *Shore & Beach*, 62(2), 23-28.

Ontario Ministry of the Environment 2000. *CEAA Five Year Review, Provincial and Territorial Input*, Appendix 1 Case Studies, Ontario, April 2000.

Persaud, D., *et al.* 2003. "Fill Quality Guidelines for Lakefilling in Ontario." Ontario Ministry of the Environment.

Pope, Joan, C.J. Stewart, R. Dolan, J. Peatross. and C. Thompson 1999. "The Great Lakes Shoreline Type, Erosion, and Accretion. Map." U.S. Department of the Interior.

Pope, J., and D.D. Rowen 1983. "Breakwaters for beach protection at Lorain, OH." *Coastal Structures '83*, U.S. Army Coastal Engineering Research Center, Reprint 83-12.

Seabergh, W.C., 1983. "Design for Prevention of Beach Erosion at Presque Isle Beaches, Erie, Pennsylvania." Hydraulic Model Investigation, Technical Report HL-83-15, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Shabica, C.W., 1991. Unpublished report to city of Highland regarding impacts of Forest Park Beach on downdrift properties, July 18, 1991.

Shabica, C.W., and F. Pranschke 1994. "Survey of littoral drift sand deposits along the Illinois and Indiana shores of Lake Michigan." U.S. Geological Survey Symposium Vol., *J. Great Lakes Res.*, 20, 61-72

Shabica, C.W., J. Meshberg, R. Keefe, and R. Georges 2004. "Evolution and performance of groins on a sediment starved coast: The Illinois shore of Lake Michigan north of Chicago, 1880-2000." *J. Coastal Res.* 33, 39-56.

U.S. Army Corps of Engineers (USACE) 1986. "Presque Isle Peninsula General Design Memorandum, Phase II." Detailed Project Design, U.S. Army Corps of Engineers, Buffalo, New York.

U.S. Army Corps of Engineers (USACE) 1996. "Shoreline Protection and Beach Erosion Control Study Final Report: An Analysis of the U.S. Army Corps of Engineers Shore Protection Program." Water Resources Support Center Institute for Water Resources.

Exhibit 5
Overview of Illinois Beach State Park Shoreline Stabilization Project

with comparison to Lloyd, Elder & Centennial projects in Winnetka

Illinois Beach State Park (IBSP) Shoreline Stabilization Project Team Members:

Illinois Capital Development Board

Illinois Department of Natural Resources

SMITHGROUP

Moffatt & Nichol

MICHELS

IBSP Project Overview:

- Stabilize and protect 2.2 miles of shoreline at Illinois Beach State Park, the last remaining undeveloped lakefront in Illinois
- $73 million funding from Governor J.B. Pritzker's Rebuild Illinois capital plan.
- Construction of 22 stone breakwaters offshore to reduce wave energy and prevent further erosion while helping to maintain the sandy beachfront and protect critical habitats.
- Replenish beach with 35,000 truckloads (750,000 tons) of sand.
- Earned the Waterfront Edge Design Guidelines (WEDG) Verification, marking it as the first freshwater project in the Midwest to achieve this recognition.
- Major step towards preserving the natural beauty and ecological significance of Illinois Beach State Park for future generations.

IBSP compared Lloyd Beach, Elder/Centennial Beaches

Project	IBSP	Lloyd Beach	Elder/Centennial
Length:	2.2 Miles	720 feet	1000 feet
Stone:	320,000 tons	20,000 tons	TBD
Sand:	750,000 tons	8,000 tons	TBD
Cost:	$73 million	$5 million	TBD
Max. Offshore:	850 feet	225 feet	225 feet

Presentation and Press Releases: IL Beach State Park Shoreline Stabilization Project

Illinois Beach State Park – Illinois Capital Development Board Presentation -

Illinois Beach State Park Shoreline Stabiliazation Project Earns Waterfront Edge Design Guidelines Verification

WEDG's First Freshwater Project: Illinois Beach State Park Shoreline Stabilization Project

SMITHGROUP: Illinois Beach State Park Shoreline Protection

WTTW: State Spends $73M to Protect Illinois' Only Undeveloped Lake Michigan Shoreline

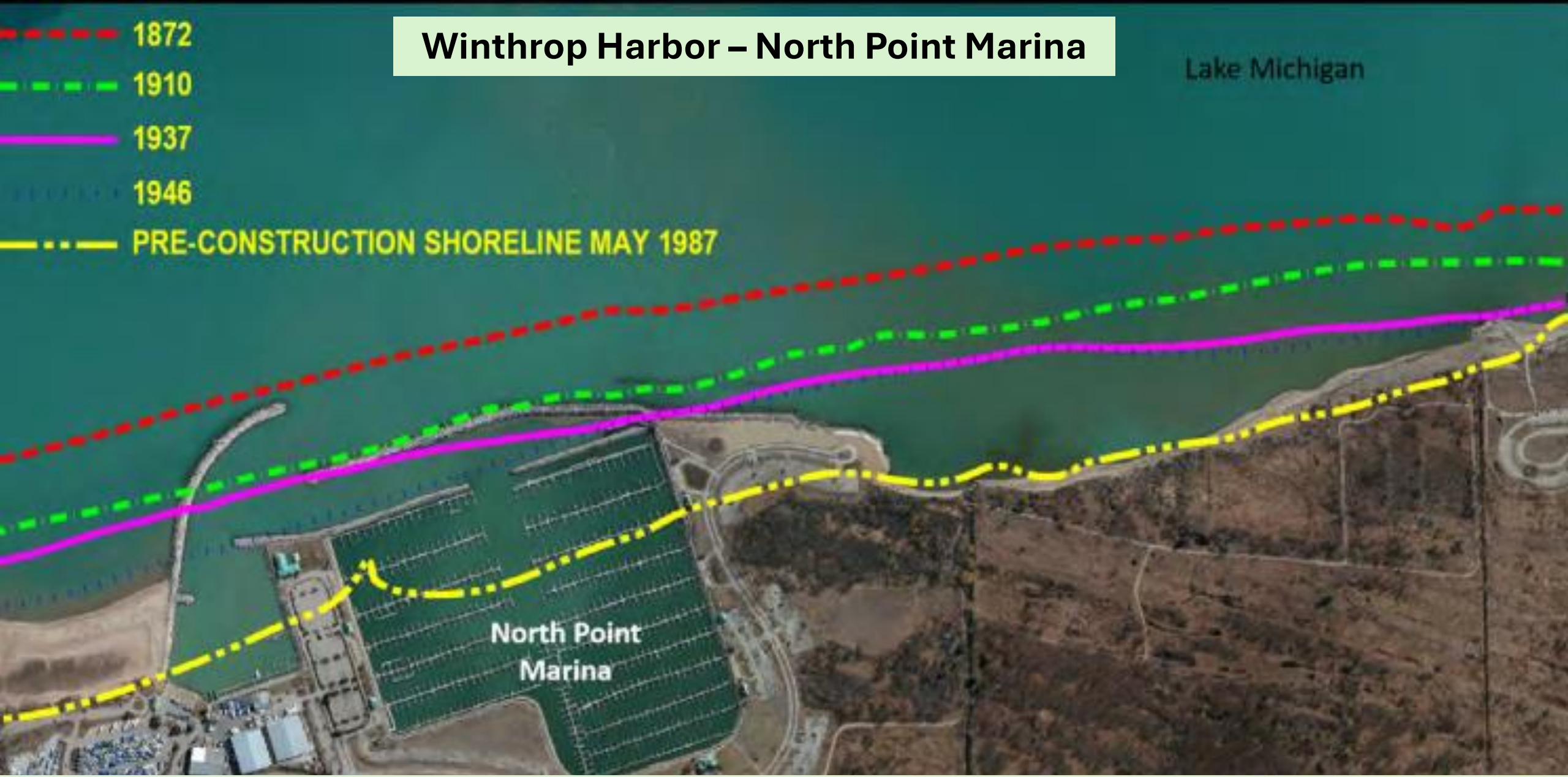
Chicago YIMBY: Major Restoration Efforts Completed at Illinois Beach State Park in Lake County

Hydrodynamic Modeling

The hydrodynamic modeling for the Illinois Beach State Park Shoreline Stabilization Project was completed by Moffatt & Nichol, an engineering firm specializing in coastal and marine projects and the Smith Group. The modeling was performed using advanced simulation software to analyze wave propagation, sediment transport, and the impact of proposed structures on the shoreline as well as 2-dimensional and 3-dimensional modeling tests at the at the HR Wallingford laboratory in Wallingford, UK. These tests aimed to find a cost-effective beach control structure configuration to stabilize the shoreline. The physical models helped optimize the design of the beach control structures and ensure their effectiveness under various wave and water level conditions. Hydrodynamic modeling for the Illinois Beach State Park Shoreline Stabilization Project involved several key steps:

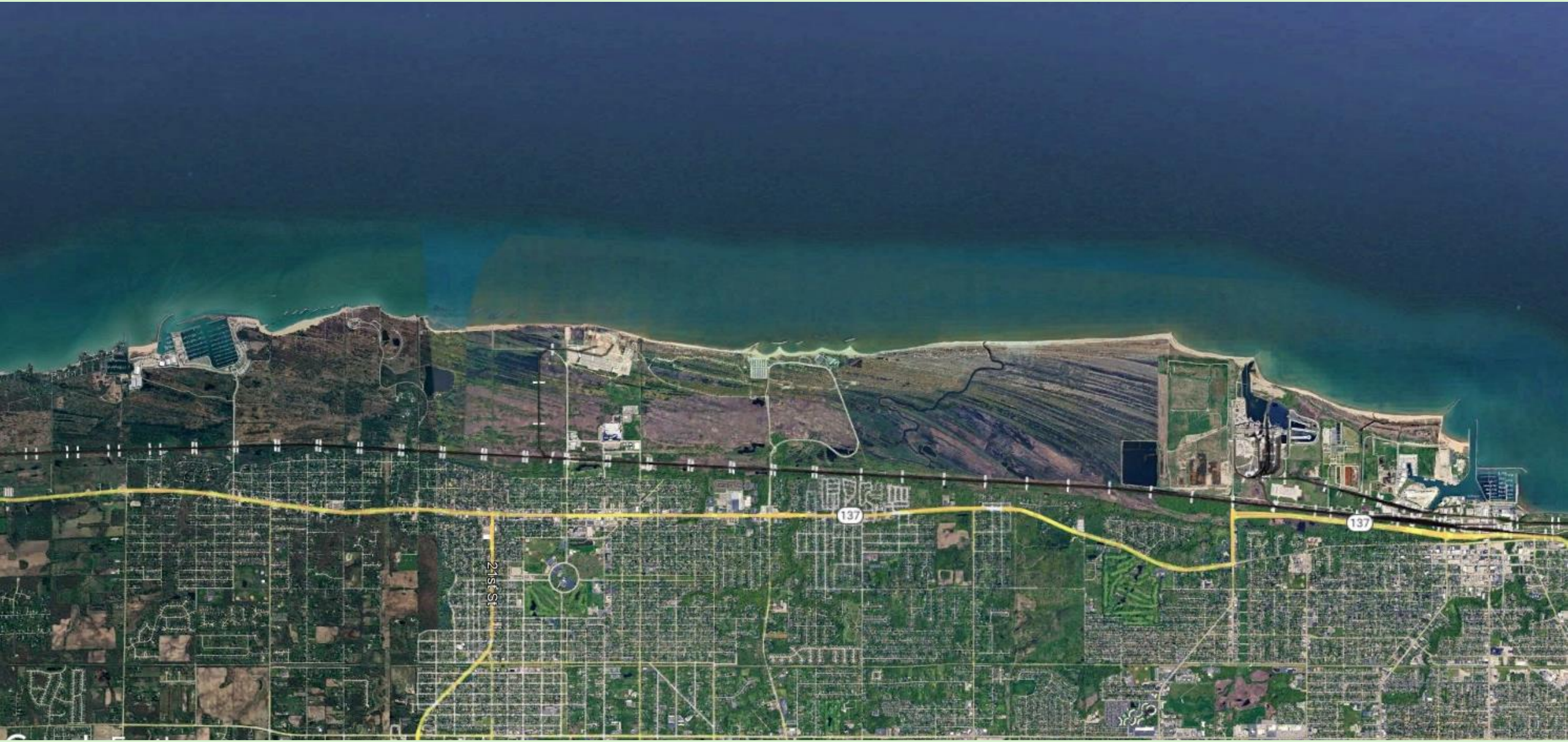
- Bathymetric Survey: An overall bathymetric survey of the park was conducted, using data from a variety of sources
- Wave Data Collection: Offshore wave data was collected from a data point maintained by the U.S. Army Corps of Engineers (USACE).
- Wave Propagation Modeling: A wave model was used to simulate the propagation of offshore waves as they approached the nearshore area.
- Littoral Drift Calculation: The longshore sediment transport, or littoral drift, along the coastline was calculated using the nearshore bathymetry and annual average wave climate.
- Model Calibration and Verification: The model's results were calibrated and verified to ensure accuracy.
- Transport Rates Computation: The transport rates along the park's shoreline were computed, both before and after the implementation of coastal structures.

Winthrop Harbor – North Point Marina



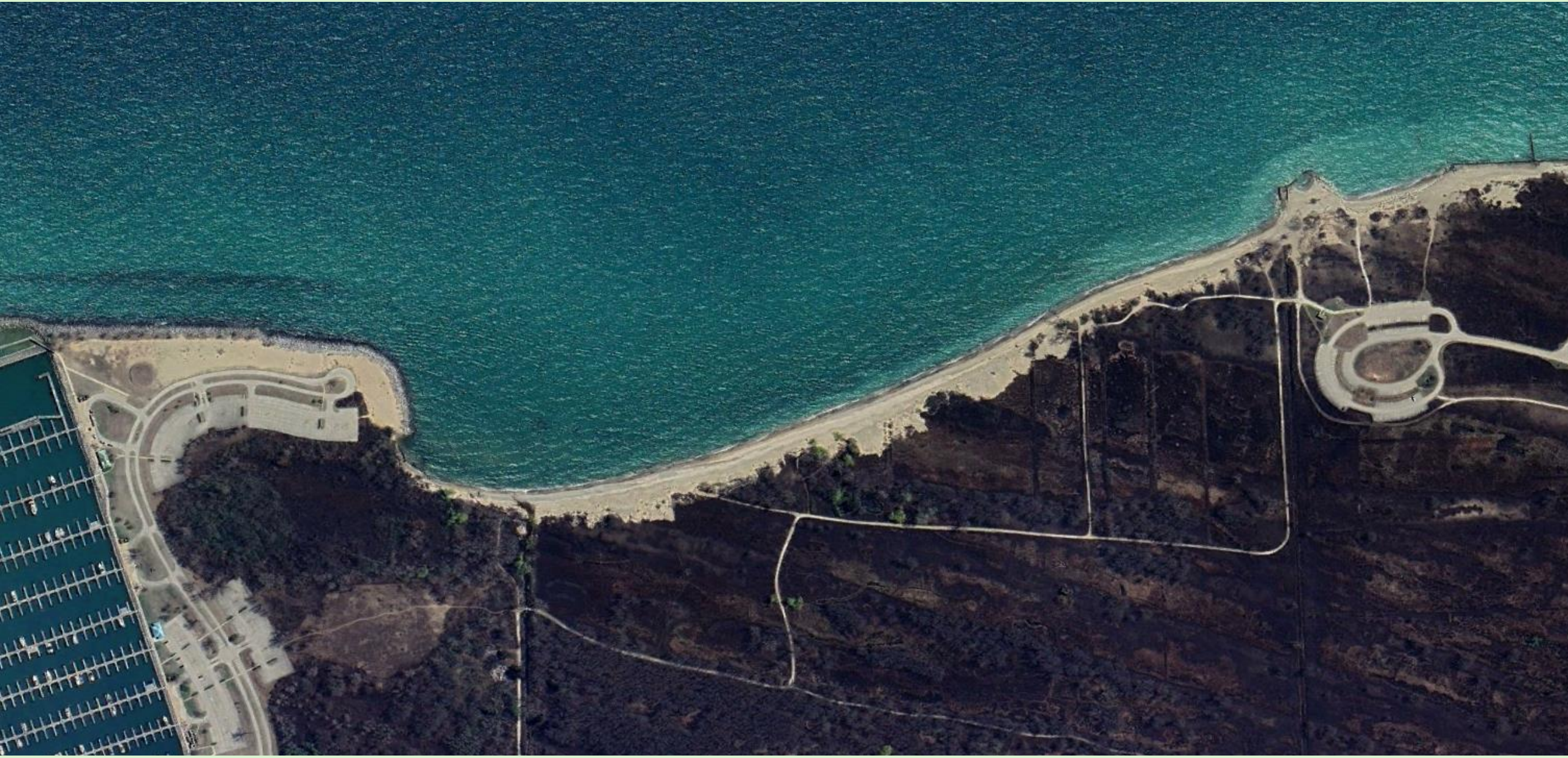
This slide, excerpted from the IDNR presentation regarding IL Beach State Park, shows the history of the natural erosion of the Lake Michigan Shoreline from 1872 – 1987. The erosion is a response to natural factors rather than a result of human influences in this instance. In addition to the quarter mile of erosion, one can also glean from this slide the scale of the North Point Marina improvement completed after 1987. The northerly breakwater is 1650 feet long, protecting the entrance to the 1500 slip marina. This is an example of the scale of a project that requires coastal engineering and hydrodynamic analysis.

WINTHROP HARBOR – NORTH DUNES – HOSAH PARK - ILLiNOIS BEACH STATE PARK - WAUKEGAN HARBOR

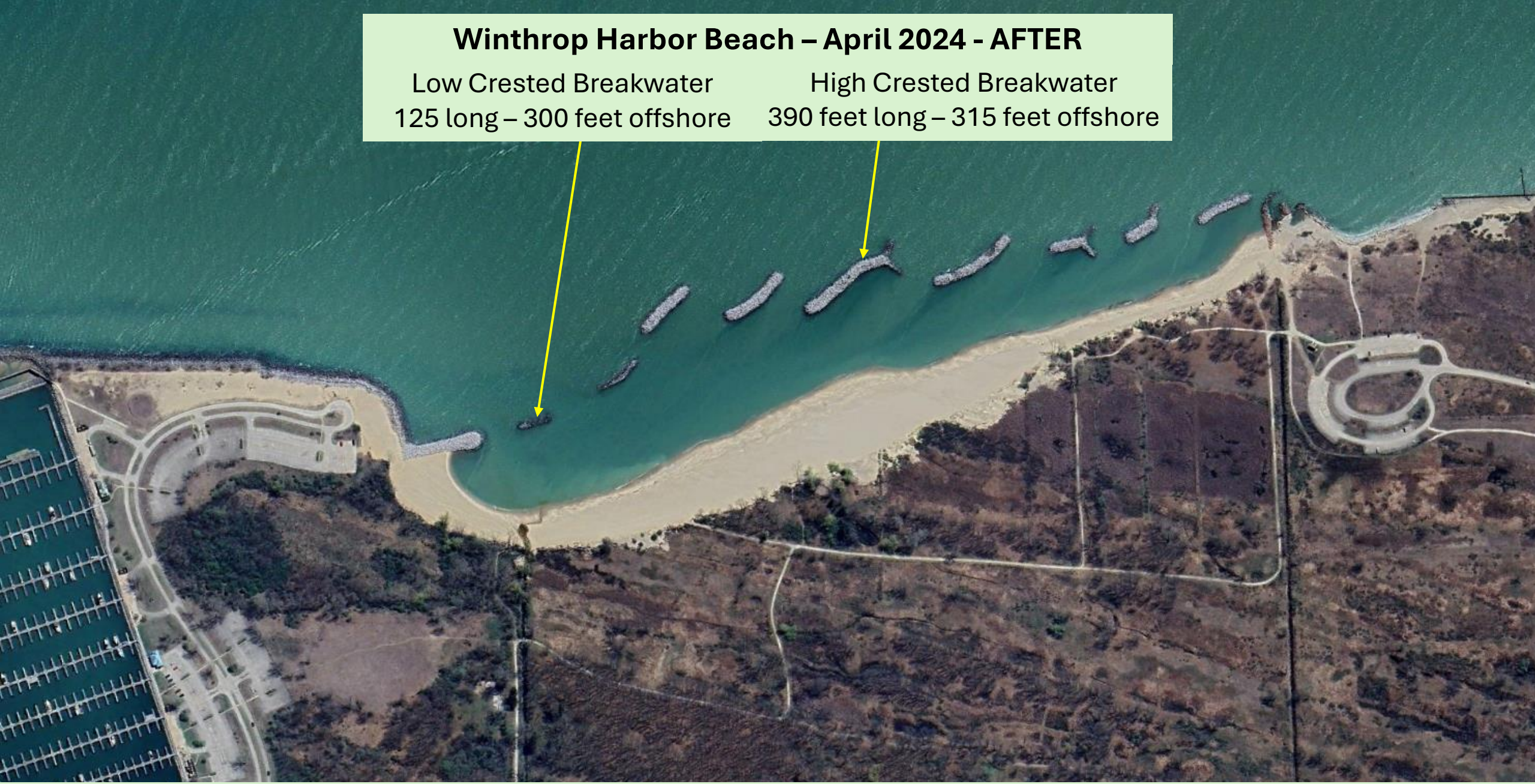


This Google Earth image shows the Lake Michigan Shoreline, including the 8.5 mile stretch of shoreline between Winthrop Harbor to the North and Waukegan Harbor to the South. In between is the Illinois Beach State Park and adjacent parks that were recently improved with a series of off-shore breakwaters in a large scale project completed by the IDNR.

Winthrop Harbor Beach – April 2023 - BEFORE



Winthrop Harbor Beach, just south of Wintrop Harbor is the north end of the Illinois Beach State Park project. This stretch of beach is approximately 3100 feet. This image is from Google Earth, dated April 2023, before work began on the project.

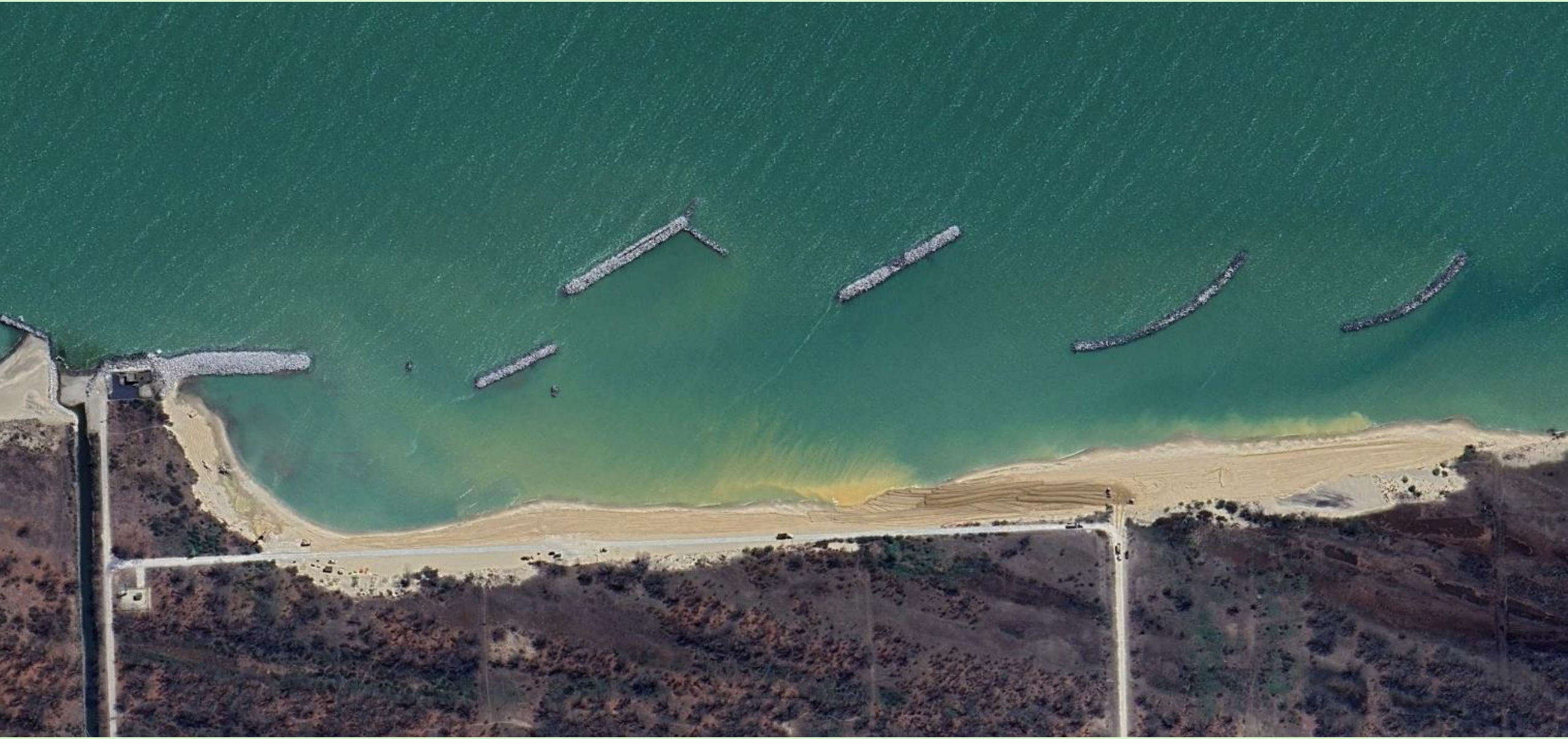


This image is AFTER completion of construction of the off-shore low-crested and high-crested breakwaters. The scale of the improvements is significant, including breakwaters as long as 390 feet and as more than 300 feet off-shore.

North Dunes Nature Preserve – Camp Logan Beach - North of Hosah Park - BEFORE

This stretch of beach is nearly 3500 feet long, it is subject to natural erosion.

North Dunes Nature Preserve – Camp Logan Beach - North of Hosah Park - AFTER



The recently installed off-shore breakwaters range from 240 feet to 530 feet long and were constructed between 290 and 800 feet from the original shoreline prior to sand replenishment. This is the middle of the three stretches of beach that were part of the overall project. This image was captured during construction as you can see the equipment on the beach.

Adeline Jay Geo Karis Illinois Beach State Park – BEFORE

This is the southernmost beach that is part of the project – covering approximately 4000 feet of shoreline.

Adeline Jay Geo Karis Illinois Beach State Park – AFTER

The southernmost phase of the project spans nearly 4000 feet
The off-shore breakwaters are between 325 and 580 feet long and are approximately 130 to 400 feet off-shore.

WAUKEGAN HARBOR AND ADJACENT SHORELINE – SOUTH OF ILLINOIS BEACH STATE PARK

WAUKEGAN HARBOR AND ADJACENT SHORELINE

3500 feet from tip of breakwater to base of harbor

The construction of Waukegan Harbor in the early 1900's had a substantial impact on the littoral system south of the improvements. The tip of the northerly breakwater is 3500 feet lakeward of the base of the marina, causing the naturally occurring sand in the system to be trapped north of the harbor, collected in the harbor or pushed into deeper water.

Waukegan Harbor Entrance

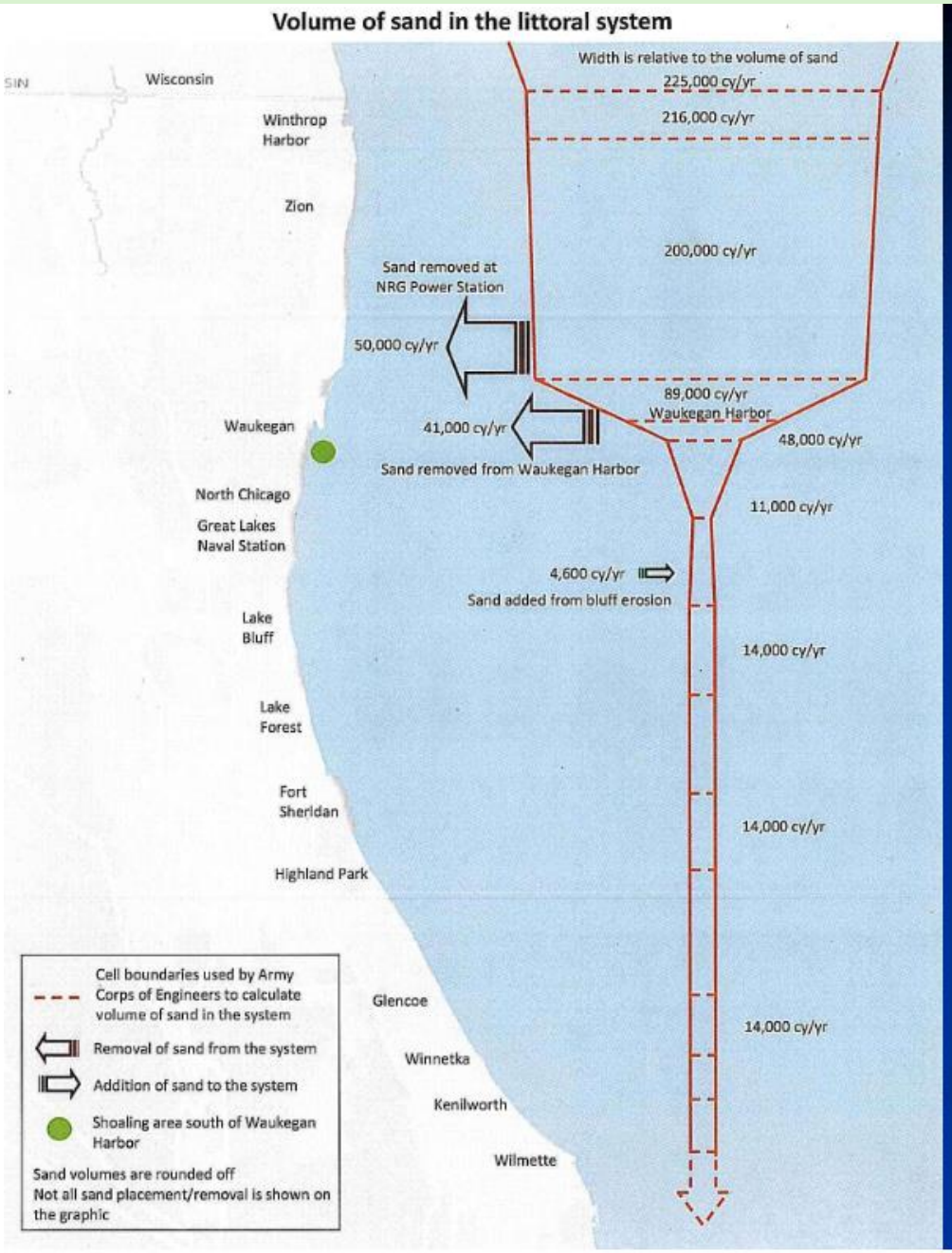
This picture is from the Shabica Presentation to the Winnetka Park District – March 24, 2022

GREAT LAKES TRAINING CENTER – LAKE BLUFF

The northerly breakwater at Great Lakes extends approximately 2500 feet into the Lake, resulting in further reduction of sand in the littoral system southward.

This slide identifies a 94% reduction in sand volume in the littoral system due to Waukegan Harbor and Great Lakes

Source: Shabica Presentation to Winnetka Park District March 24, 2022



Corps of Engineers estimate that ~225,000 cy/yr of sand cross the Illinois border and only ~14,000 cy/yd of sand are in the littoral system south of Waukegan

Summary - Conclusions

- Illinois Beach State Park (IBSP) was the last unprotected stretch of Lake Michigan shoreline in Illinois
- IBSP Improvements are vastly larger than what is contemplated at Elder and Centennial Parks
- The scale and offshore distance of IBSP improvements warrant hydrodynamic modeling
- The IDNR General Permit requirements for projects such as Elder-Centennial do not require hydrodynamic modeling
- The IBSP benefits from much more sand in the littoral system than the beaches south of Waukegan Harbor and Great Lakes Training Center
- Cost drivers include trucking distance from quarries to job site, marine versus land-based operation and steel sheet piling versus stone and sand. Note: IBSP is much closer to quarries than Winnetka.
- Off-shore breakwaters are not inherently safer than a headland beach system (note: two drownings at IBSP in July 2024)

Slides, Summary and Conclusions prepared by Warren James, Commissioner, Winnetka Park District

Exhibit 6

Elrod Friedman LLP

325 North LaSalle Street
Suite 450
Chicago, Illinois 60654
312-528-5200
www.elrodfriedman.com

Peter M. Friedman
312.528.5192
peter.friedman@elrodfriedman.com

Memorandum

Date: January 5, 2022 (sic) 2023

To: President Rintz and Village Trustees
Robert Bahan, Village Manager

From: Village Attorney

Re: Lake Michigan Jurisdiction

The public debate relating to the property exchange negotiations between the Winnetka Park District and the owner of the lakefront properties at 195, 203, 205, and 209 Sheridan Road raised numerous questions about the nature and extent of public and private property rights along the portions of the Lake Michigan shoreline within the Village. These issues were raised again in conjunction with the Village's public consideration of the property owner's request to consolidate its lakefront properties into one contiguous lot of record.

In advance of the January 10 Study Session, we have prepared this memorandum to summarize the nature and extent of the public trust doctrine and the Village of Winnetka's jurisdiction over Lake Michigan and adjoining properties, specifically with regard to structures, such as breakwaters, that are built by private property owners into Lake Michigan and residential principal and accessory structures and construction activity in and around the bluffs overlooking the Lake. The memorandum also explains how property boundaries are determined for land abutting Lake Michigan.

State statutes and the Illinois Constitution grant the Village certain powers and jurisdiction with regard to Lake Michigan and adjoining property. With regard to activities in and immediately adjacent to the Lake, these powers are, however, subject to state and federal authority and to the traditional limits on the Village's exercise of its municipal powers. That said, the Village has fairly broad powers as a home rule municipality to regulate the land areas fronting along Lake Michigan and any structures that extend into Lake Michigan.

I. Regulation of Private Construction Within Lake Michigan.

A. Federal Jurisdiction.

The ultimate authority over Lake Michigan waters and the entire bed of the Lake lies with the federal government. The use of navigable waterways, such as Lake Michigan, are subject to the federal navigational servitude.

The dominant power of the federal government, as has been repeatedly held, extends to the entire bed of a navigable stream or lake, which includes the lands below (or lakeward of) the *ordinary high-water mark*. The ordinary high-water mark is the place where lake waves have

noticeably left an impression on the shoreline but where the water as receded back to another area. The Code of Federal Regulations defines ordinary high-water mark as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." 33 CFR 328.3(c)(7).

The exercise of the power within these limits is not an invasion of any private property right in these lands for which the United States must make compensation. The damage sustained results not from a taking of the riparian owner's property in the stream or lake bed, but from the lawful exercise of a power to which that property has always been subject. *United States v. Chicago, M., St. P. & P.R.R.*, 312 U.S. 592 (1941).

Federal power over Lake Michigan and other navigable waters is rooted in the United States Constitution. U.S. Const. art IV, Section 3, Clause 2 ("Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States"). Federal jurisdiction extends to all of the land and water below the *ordinary high-water mark*. 33 C.F.R. § 329.11. Any structure or work located in or affecting navigable waters of the United States is within the limits of federal jurisdiction. 33 C.F.R. § 322.3(a).

The regulatory framework for federal jurisdiction is set forth in the Rivers and Harbors Appropriations Act of 1899 (33 U.S.C. § 401 *et seq*.) ("***Federal Act***"). Under Section 10 of the Federal Act (33 U.S.C. § 403), no "wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States" may be constructed without a permit issued by the Army Corps of Engineers. Since neither Section 10 nor its regulations place a restriction on the Army Corps of Engineers' discretion to issue permits, the Corps is fully entitled to consider pertinent factors other than navigability, such as environmental impact, when deciding whether to issue a particular permit. *United States v. Members of the Estate of Boothby*, 16 F.3d 19 (1st Cir. 1994). Thus, lakefront property owners in the Village must apply for and obtain an Army Corps permit before constructing any breakwater or similar structure within Lake Michigan.

B. State Jurisdiction.

Federal jurisdiction is preeminent, but it is not exclusive. While federal jurisdiction is very broad over Lake Michigan and all navigable waters (including land up to the ordinary high water mark), Section 10 of the Federal Act and the Army Corps permitting powers were not intended to paralyze all state power concerning structures in navigable waters within state borders or to destroy automatically all vested rights. *Gring v. Ives*, 222 U.S. 365 (1912).

Notwithstanding federal *jurisdiction*, States *own* the land under the navigable waters within their boundaries and possess broad power to regulate those waters for the general welfare, even though that power is ultimately subordinate to federal navigational power. *Bowes v. City of Chicago*, 3 Ill. 2d 175, 186-87 (1954), *citing* 43 U.S.C. § 1311; *see also* 15 C.F.R. § 923 (authorizing state coastal zone management programs); 15 C.F.R. §§ 923.30-923.32 (establishing coastal zone boundaries of Great Lakes states). Section 10 of the Federal Act makes no reference to state action or state law. Accordingly, the authority of the State of Illinois to regulate the construction of structures within its navigable waters (such as Lake Michigan) is not superseded by Section 10 of the Federal Act. *Cummings v. Chicago*, 188 U.S. 410 (1903).

While a construction project not affirmatively approved under the Federal Act is prohibited (regardless of whether the state would allow it or not), a state is not required to approve all structures approved by the Army Corps under the Federal Act. *North Shore Boom & Driving Co. v. Nicomen Boom Co.*, 212 U.S. 406 (1909). If state law requires a permit prior to construction within Lake Michigan, it does not matter that the Army Corps has issued a permit for that construction – construction requiring both state and federal permits cannot be undertaken without both, so that if the federal government grants a permit but the State of Illinois denies its permit, the project cannot proceed.

Under a 1911 enactment ("An Act in relation to the regulation of the rivers, lakes and streams of the State of Illinois," now known as the "Rivers, Lakes, and Streams Act"), the Illinois General Assembly long ago prohibited Lake Michigan construction projects without a state permit. Section 18 of that Act provides as follows:

> It is unlawful to make any fill or deposit of rock, earth, sand, or other material, or any refuse matter of any kind or description or build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, causeway, harbor, or mooring facilities for watercraft, or build or commence the building of any other structure, or do any work of any kind whatsoever in any of the public bodies of water within the State of Illinois, without first submitting the plans, profiles, and specifications therefor, and such other data and information as may be required, to the Department of Natural Resources of the State and receiving a permit therefor signed by the Director of the Department and authenticated by the seal thereof.

615 ILCS 5/18. Under this and related state statutes, lakefront property owners in the Village must apply for and obtain an Illinois Department of Natural Resources ("***IDNR***") permit before constructing any breakwater or similar structure within Lake Michigan. Further, as with federal jurisdiction, state jurisdiction extends to the ordinary high-water mark.

C. Municipal Jurisdiction.

Just as federal jurisdiction does not eliminate state jurisdiction, so too federal and state jurisdictions do not prohibit or eliminate municipal jurisdiction over construction in and around Lake Michigan. *Chicago Park District v. City of Chicago*, 111 Ill. 2d 7 (1986) (existence of statutes regulating harbors does not show legislative intent to establish exclusive statewide dominion over harbors); *Bowes*, 3 Ill. 2d at 204-05 (statute authorizing municipalities to construct water filtration plants on submerged lands permitted that construction without necessity of state permit).

It is important to note that in some circumstances a municipality may have powers (or "jurisdiction") outside its corporate boundaries. For example, municipalities generally have subdivision authority over unincorporated territory within a mile and a half of the corporate boundaries. *See* 65 ILCS 5/11-12-5. This distinction between (i) extraterritorial jurisdiction and (ii) authority over land within a municipality's corporate boundaries comes into play with regard to Lake Michigan, as explained below.

Unlike some of its municipal Lake Michigan neighbors whose corporate boundaries extend only to the water's edge, the Village's corporate boundary extends one-half mile into the water of

Lake Michigan contiguous to the Village (*see* Village of Winnetka Charter § 1.1[1]). Within the area of the Village's corporate boundaries that extend one-half mile into the portions of Lake Michigan contiguous to the Village, the Village enjoys its municipal authorities, including zoning, building, and general home rule powers, all of which are subject to the same standards and limitations as apply to the application of these powers on land. Beyond the one-half mile area (outside its boundaries), the Village can only act pursuant to a specific legislative grant of authority. *Harris Bank of Roselle v. Village of Mettawa*, 243 Ill. App. 3d 103, 114-15 (2d Dist. 1993).

1. Specific Legislative Jurisdiction in Lake Michigan.

The General Assembly has, in fact, specifically granted the Village and other municipalities certain powers (or "jurisdiction") over construction and other activities within the Lake up to three miles out from their respective corporate boundaries.

Specifically, Section 7-4-4 of the Illinois Municipal Code grants all municipalities jurisdiction, but not necessarily zoning power, over waters bordering the municipality:

> The corporate authorities in all municipalities have jurisdiction over all waters within or bordering upon the municipality, *to the extent of 3 miles beyond the corporate limits, but not beyond the limits of the State*. Nothing in this Section shall be construed to authorize a municipality to exercise zoning power or otherwise restrict the use of private property outside of the corporate limits of the municipality.

65 ILCS 5/7-4-4 (*emphasis added*). These three-mile jurisdictional powers could be used to regulate such things as boat registration and safety laws as well as some criminal statutes.

Under Section 7-4-4, the Village has statutory jurisdiction from the water's edge extending out three miles beyond the Village's corporate boundaries, which for Winnetka means that technically the Village's jurisdiction extends out 3.5 miles into the Lake. It also means that within the Village's corporate limits (one half mile into the Lake) the Village enjoys not only its general home rule powers but also a specific statutory grant of jurisdiction. That said, to the extent it ever matters (and we are unable to envision a circumstance where it would), the Village's zoning jurisdiction only extends one-half mile into the Lake because the Village does not have authority to exercise zoning authority outside its corporate limits and its corporate limits extend only one-half mile into the Lake.

In addition to Section 7-4-4, the General Assembly has provided municipalities with various other relevant statutory authorities as described below.

2. Authority to Approve Construction of Certain Structures on Submerged Lands.

Division 123 of the Illinois Municipal Code, 65 ILCS 5/11-123-1 *et seq.*, authorizes all cities and villages to acquire, own, construct, maintain, and operate "utilities" on public waters bordering their corporate limits and to control construction of utilities by other persons or entities. The term "utilities" is defined to include, among other things, harbors, wharves, docks, quay walls,

---

[1] Village of Winnetka Charter § 1.1 provides, in relevant part, that the Village's corporate boundaries include "the bed and water of Lake Michigan to the width of one-half mile adjoining and contiguous to the territory aforesaid," and that all that territory "shall form, and constitute, and they are hereby constituted a body corporate and politic for municipal purposes under the name and style of "the Village of Winnetka."

breakwaters, and other harbor structures and facilities, which would also include water treatment and intake systems. 65 ILCS 5/11-123-1. Section 11-123-5 specifically authorizes municipalities to approve the construction of any utilities by private parties within public waters bordering the municipality:

> Except as otherwise provided in this Code or in any other law of this state, no person or corporation, private, public, or municipal, other than a city or village, shall hereafter construct a utility over and upon such submerged lands within the limits or jurisdiction of any such city or village, or over or upon any public waters bordering thereon, without first securing the consent of the corporate authorities of such city or village.

65 ILCS 5/11-123-5. Although there are no cases interpreting Section 11-123-5, the plain language of the statute indicates that the Village may enact standards and procedures for reviewing and approving or denying proposed construction of "utilities," including breakwaters, within the portion of Lake Michigan that borders the Village. As explained in Section 5.b of this memo, these statutory authorities are not self-executing and the Village has not to date adopted the necessary specific code provisions and procedures to regulate lakeshore structures.

3. Authority to Establish a Lakefront Protection District on the Land Fronting Lake Michigan.

Section 11-48.2-2 of the Illinois Municipal Code provides another source of statutory authority for the Village to regulate breakwater and similar lakefront construction. This section empowers municipalities to adopt ordinances designating specific areas as "having a special historical, community, or aesthetic interest or value" and to exercise various regulatory controls over such areas, including the following:

> [I]n connection with such areas, . . . so designated by ordinance, whether owned or controlled privately or by any public body, to provide special conditions, to impose regulations governing construction, alteration, demolition and use, and to adopt other additional measures appropriate for their preservation, protection, enhancement, rehabilitation, reconstruction, perpetuation, or use. . . .

65 ILCS 5/11-48.2-2. The City of Chicago has created a "Lakefront Protection District" under its "Lake Michigan and Chicago Lakefront Protection Ordinance" pursuant to Section 11-48.8-2. Within that district, which includes the shoreline and open waters of Lake Michigan, the ordinance grants the Chicago Plan Commission authority to approve or veto any proposed construction project. Chicago Municipal Code, Sections 16-4-010 through 16-4-180; *see also Clement v. O'Malley*, 95 Ill.App.3d 824 (1st Dist. 1981) (applying the Chicago Lake Michigan and Lakefront Protection Ordinance).

Similarly, other lakefront municipalities such as the City of Highland Park and the Village of Glencoe have created Steep Slope Zone or Steep Slope regulations which create specific construction, aesthetic, maintenance, and other requirements for the ravines, bluffs, and costal steep slopes in those municipalities. For example, the City of Highland Park's Steep Slope Zone regulations are meant to ensure that all land use and development in those areas:

1) Protects people and property from the potentially hazardous geological and hydrological conditions characteristic of ravine and bluff areas;

2) Recognizes and furthers maintenance of stable ecological relationships and minimizes environmental degradation of the land and Lake Michigan;
3) Recognizes that construction should not contribute to erosion or slope destabilization; and
4) Utilizes building techniques that adhere to the criteria stipulated in this Article.

Highland Park's Steep Slope Zone regulations provide for the reasonable use of steep slope areas and related lands while attempting to protect the public health, safety, and welfare by:

1) Requiring analysis to determine whether certain types of soil conditions exist (such as loose or easily eroded or rocky soils) and ensuring the utilization of appropriate engineering technology to result in stable slopes during and subsequent to development;
2) Reducing storm water runoff, soil erosion, and mud slides by minimizing grading, encouraging the preservation of Trees and other vegetation and, where necessary, requiring revegetation;
3) Permitting intensity of development compatible with the natural characteristics of steep slope terrain, such as degree of sloping, soil suitability and existing natural and man-made drainage patterns;
4) Preserving the scenic quality of the ravine and bluff environment through the retention of dominant steep slopes and ridges in their natural state;
5) Reducing the physical impact of top of slope and bluff development by encouraging innovative site and architectural design, minimizing grading and requiring restoration of graded areas; and
6) Discouraging development in steeply sloped terrain.

See City of Highland Park Municipal Code Sections 150.1901-150.1915. These and other regulations are further explained and analyzed in the materials prepared for the January 10 Study Session by the Community Development Department.

The Village has authority to create a similar steep slope zone encompassing land fronting Lake Michigan and adopt regulations on construction and related activities within those areas. The Village also likely could apply those regulations to the waters or submerged lands of Lake Michigan that are within the Village's corporate boundaries (within .5 miles of the normal water line). *See* Village Charter § 1.1. The grant of authority in Section 11-48.2-2 has been characterized as "auxiliary to the general zoning power" granted by the Municipal Code. *Rebman v. City of Springfield*, 111 Ill. App. 2d 430, 440 (4th Dist. 1969). But the Village could regulate structures and construction-related activities, such as traffic and transportation and storage of construction materials and equipment, on the land lying along the lakeshore for the purpose of preserving the community and aesthetic value of the lakefront, beaches, and shoreline, subject, of course, to other variables such as whether proposed construction is designed properly to prevent erosion and degradation of the shoreline and adjacent bluffs and complies with federal and state Lake Michigan regulations.

4. Other Statutory Authorities.

The General Assembly has also granted the following additional general statutory authorities that could be relied upon in adopting and enforcing lakefront regulations:

- Regulate construction and alteration of buildings and structures to prevent or lessen impacts of flooding, 65 ILCS 5/11-30-2;

- Regulate the strength and manner of constructing buildings and structures, 65 ILCS 5/11-30-4;
- Regulate grading, draining, retaining walls, and drainage channels, 65 ILCS 5/11-30-8; and
- Regulate boats, harbors, watercraft, and related facilities and structures and regulate, license and prohibit use of watercraft, 65 ILCS 5/11-44-1 *et seq.*[2];
- Designate restricted water areas for fishing, bathing, swimming, or similar uses in which boat use is prohibited, 625 ILCS 45/5-7[3]; and
- Provide for changes to or relocation of natural or artificial water courses in order to properly lay out, establish, open, alter, widen, extend, grade, pave, or otherwise improve any streets, sidewalks, or other public ways, 65 ILCS 5/11-87-1 *et seq.*

Given that the Village's Charter has established the Village's territorial boundaries .5 miles into Lake Michigan, the Village has the ability to utilize these authorized powers at least within this half-mile zone.

5. Restrictions on Lake Michigan Authority and Jurisdiction.

Notwithstanding the seemingly broad authority the Village enjoys to regulate various aspects of lakefront construction and activities, there are several principal and practical limitations on the Village's current authority and jurisdiction.

a. Preemption

Although the Village has powers to regulate activities in Lake Michigan, as discussed above, municipal authority can be preempted by the State. *See Pesticide Public Policy Foundation v. Village of Wauconda*, 117 Ill. 2d 107, 109, 114 (1987). For example, it could be argued that that the Village's authority over breakwater construction is preempted because Sections 18 and 26 of the Rivers, Lakes, and Streams Act ("***RLSA***") give IDNR jurisdiction over public bodies of water and authority to issue permits for construction of certain structures, including breakwaters. *See* 615 ILCS 5/18, 5/26. It is our opinion, however, that state law does ***not*** preempt the Village's jurisdiction over construction of breakwaters and other structures in the Lake.

The General Assembly has granted IDNR "full and complete jurisdiction over every public body of water in the State of Illinois," 615 ILCS 5/26, and at the same time has granted all municipalities "jurisdiction over all waters within or bordering upon the municipality, to the extent of 3 miles beyond the corporate limits, but not beyond the limits of the State," 65 ILCS 5/7-4-4. Additionally, the General Assembly has specifically authorized both IDNR and municipalities to issue permits or approvals for various structures in public waters, including breakwaters and harbor structures. 65 ILCS 5/11-123-5 (it is unlawful to construct a breakwater in public waters without the consent of the bordering municipality); 615 ILCS 5/18 (it is unlawful to construct a breakwater in public waters without an IDNR permit). Since the legislature has expressly granted municipalities jurisdiction over public waters within or bordering their corporate limits and

---

[2] The Boat Registration and Safety Act, 625 ILCS 45/1-1 *et seq.*, regulates the operation and use of watercraft but specifically preserves the authority of municipalities to adopt "any ordinance or local law…relating to operation and equipment of vessels the provisions of which are not inconsistent with the provisions of this Act." 625 ILCS 45/8-1.

[3] For example, the Village of Wilmette has established a restricted area extending 600 feet into Lake Michigan "from the south limits of the Village of Wilmette to the south breakwater of the Wilmette Harbor; and from the 500-foot pier north of the harbor to the north Village limits." *See* Wilmette Code of Ordinances, Chapter 8.

authorized municipalities to approve or deny construction of breakwaters and similar structures in those public waters, "it cannot seriously be argued that the General Assembly specifically has declared that the State has the exclusive power to regulate" in these areas. *See T&S Signs, Inc. v. Village of Wadsworth*, 261 Ill. App. 3d 1080, 1086 (2d Dist. 1994), *quoting Scadron v. City of Des Plaines*, 153 Ill. 2d 164, 186 (1992) (discussing regulation of outdoor advertising signs; internal quotations omitted).

This interpretation is also consistent with well-established rules of statutory construction. Courts will construe legislative enactments in an attempt to give meaning to all of the words in statutes. *In re Detention of Lieberman*, 201 Ill. 2d 300, 308 (2002). Additionally, courts will not interpret statutes to give rise to an absurd result. *See Lily Lake Road Defenders v. County of McHenry*, 156 Ill. 2d 1, 15-16 (1993). If Sections 18 and 26 of the RLSA were interpreted to preempt the authority granted to municipalities by the Municipal Code, then Sections 7-4-4 and 11-123-5 would be meaningless. This would be an absurd result. To give meaning to the language of both the RLSA and the Municipal Code, the statutes must be read as concurrent grants of regulatory jurisdiction and permitting authority. *See T&S Signs*, 261 Ill. App. 3d at 1086, 1090-91.

While we are confident that there is no broad preemption of Village lakefront authority, it is also true that in exercising its home rule authority and any other authority granted by the Municipal Code or the Illinois Constitution, the Village may not act in a manner that is inconsistent with or less restrictive than the applicable federal and state regulations. For example, if the Army Corps or IDNR denies a permit for construction of a particular structure, the Village has no authority to grant a permit and allow the project to proceed. At the same time, just because the Army Corps and IDNR grant permits for a construction project, that does not mean that the Village cannot prohibit the structure under properly adopted and enforced Village regulations. *See T&S Signs*, 261 Ill. App. 3d at 1090-91.

b. Implementing Legislation.

Neither the Village's home rule powers nor the various statutory authorities described in this memorandum, including the provisions of Section 7-4-4 or Section 11-48.2-2, are self-executing, and we are not aware of any current provision in the Village Code that specifically regulates Lake Michigan structures. Accordingly, without the adoption of implementing legislation, and thus policy direction, the Village has no real power at this time to regulate or prohibit construction of breakwaters, revetments or other structures that extend into the Lake and receive the otherwise required permits from the Army Corps and IDNR. Likewise, other than generally applicable setback and bulk regulations, the Village has not adopted specific zoning and building rules for construction on lakefront properties, including in and around the bluffs and steep slope areas of these properties. Further, the general public health and safety purposes set forth in various provisions of the Winnetka Municipal Code do not provide the necessary standards and procedures for implementing a regulatory regime to cover lakefront building issues, at least without subjecting the Village to a significant risk of challenge from private property owners.

c. Substantive Limitation.

Finally, as with all municipal regulations, any set of Village Lake Michigan regulations must be reasonable and based on a proper public purpose. The Village must also enforce its regulations in a manner that is not unreasonable, arbitrary, or capricious.

6. Village Zoning Authority Over Park District Property.

The Winnetka Park District owns significant land within the Village and along the shores of Lake Michigan – for example, the properties constituting the Tower Road, Maple Street, Lloyd, Elder Lane, and the Centennial Beaches. We have been asked whether these Park District properties are subject to Village building and zoning regulations, including any bluff and shoreline regulations that the Village may implement in the future. Our opinion is that the Park District is *not* exempt from compliance with Village land use regulations.

Generally, Illinois courts have held that park districts and other governmental agencies must comply with the host municipality's regulations absent a specific legislative grant of immunity. Absent a specific legislative grant of immunity, courts will uphold a municipal regulation against a park district unless the municipal regulation would frustrate the statutory purpose of the unit of local government.

For example, in *Wilmette Park District v. Village of Wilmette*, the Park District sued the Village when Wilmette refused to allow the Park District to install lights along one of its recreational fields. 112 Ill.2d 6, 12 (1986). The Park District argued that it was not subject to the Village's zoning regulations. *Id.* at 14.

The Illinois Supreme Court disagreed and found that the Illinois General Assembly did not grant park districts immunity from a host municipality's zoning regulations. *Id.* In fact, the court stated that "[a]bsent an explicit statutory grant of immunity, the mere fact that the park district, a local unit of government, has a statutory duty to operate its parks cannot be extended to support the inference that it can exercise its authority without regard to the zoning ordinances of its host municipality." *Id.* at 14-15. Since there was no explicit grant of power involved, the Court held that the park district must comply with the host municipality's zoning regulation. *Id.* at 18.

Although the Court recognized that park districts are independent bodies charged with the responsibility of managing parks, the "village's interest in this case does not originate from a desire to 'manage' park land or projects, but rather from its legitimate interest and authority in planning and regulating the use of land within the entire community to minimize the abrasive activities and promote uses consistent with the community character and expectations of the residents." 112 Ill.2d at 18. In this case, the "abrasive activities" were the "potential impact that nighttime open-air sports programming may have on its surrounding neighborhood." *Id.* at 17.

Past practice also supports the applicability of Village building and zoning regulations to Park District construction projects. The Park District sought and obtained special use permit approval related to the improvements to Dwyer Park and most recently the Park District agreed that its Skokie Playfield improvements were subject to compliance with the Village zoning regulations. *See* Village – Park District Stormwater Intergovernmental Agreement, Section III.F.

Further, since there is no explicit statute preempting Village zoning and building regulations, the only other argument that could be made is that applying Village regulations to Park District lakefront properties would somehow frustrate the statutory purpose of the Park District. This argument could only be made if, after going through the Village's zoning process, a Park District project was denied required zoning relief and thus could not proceed as proposed. Even then, if the Village denial was reasonable it would be very difficult for the Park District to successfully argue that they were exempt from the Village zoning regulations.

Accordingly, Park District lakefront properties and projects are subject to Village building and zoning regulations.

7. Conclusion.

It is our opinion that the Village has authority, but not the obligation, to: (i) exercise its home rule municipal powers, including zoning powers, within its corporate boundaries, which pursuant to its Charter extend one-half mile into Lake Michigan; (ii) exercise extraterritorial jurisdiction (excluding zoning powers) over that portion of Lake Michigan that lies beyond the Village's corporate boundaries for an additional three miles; (iii) enact zoning and building regulations applicable to properties bordering Lake Michigan, such as bluff and steep slope regulations and related building and permit requirements; (iv) establish a lakefront protection district or overlay zone to specifically identify the properties and the regulations that will apply to lakefront construction; and (iv) require Village permits for the construction of breakwaters and similar structures within the portion of Lake Michigan bordering the Village. All of these authorities are subject to the requirements that municipal regulations be reasonable and not arbitrary and capricious, and that any permit requirements procedures are fair. Should the Village decide to adopt code amendments and new requirements above and beyond the existing permit requirements and regulations of the Army Corps of Engineers and the IDNR, the Village must ensure that that the Village requirements are rationally based and supported by proper study and fact finding.

II. Ownership of, and Access to, Lake Michigan Shoreline Property – The Public Trust Doctrine.

A. Ownership.

In the seminal case of *Illinois Central Railroad Co. v. State of Illinois*, 146 U.S. 387 (1892), the United States Supreme Court held that the lands under the navigable waters of Lake Michigan are held by the state in trust for the people of the state. *See* 146 U.S. at 452. This doctrine has since been codified by Illinois statute through the Submerged Lands Act. *See* 5 ILCS 605/1. Because the land under the Lake is held in public trust, the state cannot sell the land to a private party, but may permit the improvement of submerged lands with structures such as wharves, docks, and piers that improve the use of the Lake for public purposes such as navigation and commerce and do not impair the public's interest. *See Illinois Central Railroad*, 146 U.S. at 452, 460; *People ex rel. Scott v. Chicago Park Dist.*, 66 Ill. 2d 65, 74-75 (1976) (quoting *Illinois Central*).

Illinois courts have held that the boundary between private land and land owned by the state in public trust is "the line where the water usually [stands] when unaffected by storms or other disturbing causes." *Brundage v. Knox*, 279 Ill. 450, 471 (1917); *see also Smith v. City of Greenville*, 115 Ill. App. 3d 39, 42-43 (5th Dist. 1983) ("In a conveyance calling for a lake as a boundary line, the boundary line is that line at which the water usually stands when free from disturbing causes."); and *Hammond v. Shepard*, 186 Ill. 235, 241 (1900) ("The law of this State, as repeatedly announced, is, that shore owners on meandered lakes, whether navigable or non-navigable, take title only to the water's edge, the bed of the lake being in the State."). This line is variously referred to as the "water's edge," "still water shoreline," "calm waterline," "unaffected waterline," or the "normal waterline."

Illinois courts have explicitly rejected using the "high-water mark" or the "ordinary high-water mark" as the boundary line. *See Brundage*, 279 Ill. at 471-72; *Smith*, 115 Ill. App. 3d at 43.

This differs from some neighboring states, such as Indiana and Michigan, where public land extends up to the ordinary high-water mark. *See Gunderson v. State,* 90 N.E.3d 1171 (2018) (the Indiana Supreme Court held that the boundary separating public land from privately owned land along Lake Michigan is the common-law ordinary high water mark and that, absent an authorized legislative conveyance, the State retains exclusive title up to that boundary); and *Glass v. Goeckel*, 473 Mich. 667, 687 (2005) ("Michigan's courts have adopted the ordinary high water mark as the landward boundary of the public trust.").

Accordingly, in Illinois the boundary between private land and public land is the point at which the water normally stands (the "***Normal Waterline***"). It is well established in Illinois that the Normal Waterline boundary, and the principles that apply to changes in the Normal Waterline as discussed below, determine the separation between private and state property on the shores of Lake Michigan. *See, e.g., Revell v. People*, 177 Ill. 486, 478-79 (1898); *Brundage*, 279 Ill. at 462-63. A rule of thumb that generally applies in Illinois and other jurisdictions that rely on the Normal Waterline for the public-private property demarcation is that if your feet are wet, you are on public property, and if your feet are dry then you are on private property.

Based on these principles, the demarcation line in Illinois between public and private land is the same demarcation line that identifies where land held in trust begins and ends – both lines are the Normal Waterline. This is not the case in all states. For example, in Michigan, the line between public and private property is the Normal Waterline, but the property held in trust for the public extends landward to the ordinary high-water mark. *Glen v. Goeckel*, 473 Mich. 667 694 (2005). This means that the dry land (the beach) between the Normal Waterline and the ordinary high-water mark is protected by the public trust doctrine (and thus available for public use) even though it is privately owned by the littoral property owner. This is not the case in Ohio or Illinois, where the public trust doctrine extends only to the Normal Waterline.

The Illinois Supreme Court has held that the public trust doctrine for Lake Michigan extends "to recreational uses, including bathing, swimming and other shore activities." *People ex rel. Scott v. Chicago Park District*, 66 Ill. 2d 65, 78 (1976). This holding, however, appears to apply only to protected uses that are lakeward of the water's edge when free from disturbing causes (that is, the Normal Waterline). *Schulte v. Warren*, 218 Ill. 108, 124 (1905). As such, Illinois Courts have acknowledged that the ability of the public to freely use Lake Michigan for recreationally uses also ends at the Normal Waterline.

The Normal Waterline may change over time as a result of various processes, including accretion, reliction, and erosion. Accretion is the increase or reclamation of land along the shoreline due to the deposit, by water, of solid material such as mud, sand, or sediment, *Brundage*, 279 Ill. at 462. Reliction is the creation of dry land due to the recession of water. *Hammond*, 186 Ill. at 242. Similarly, dry land may become submerged by the erosion or removal of solid materials from the shoreline. *County of St. Clair v. Lovingston*, 90 U.S. 46, 69 (1874).

Gradual changes to the Normal Waterline over time resulting in either increases or decreases in the amount of dry land are an "inherent and essential attribute of the original property," and the property line changes with the Normal Waterline. *Id.* at 68-69 ("The owner takes the chances of injury and benefit arising from the situation of the property. If there be a gradual loss, he must bear it; if, a gradual gain, it is his."). However, if the addition or loss of property is sudden (*i.e.,* caused by a violent storm), then the property line does not change. *Comm'rs of Lincoln Park v. Fahrney*, 250 Ill. 256, 265-67 (1911); *Hammond*, 186 Ill. at 242-43. In the case of a sudden loss of land (called an avulsion), the owner may assert control over and reclaim the submerged land. *Comm'rs of Lincoln Park*, 20 Ill. at 266. The test of what change is gradual, as

opposed to sudden, is "that though the witnesses may see from time to time that progress has been made, they could not perceive it while the process was going on." *County of St. Clair*, 90 U.S. at 68.

Changes to the Normal Waterline (and, consequently, the property line of waterfront parcels) may be caused by both natural and artificial means, provided that the change is gradual. *Id.*; *Brundage*, 279 Ill. at 468. However, if an increase in dry land is caused by artificial means, it must have resulted from actions or improvements of third parties, and not of the owner whose land was increased:

> The authorities are generally agreed that a riparian owner will not be permitted to increase his estate by himself creating an artificial condition for the purpose of effecting such an increase, and that the doctrine of accretion does not apply to land reclaimed by man through filling in land once under water and making it dry. The title to the land thus filled in remains where it was before...But if the accretion is indirectly induced by artificial conditions created by third parties, it would seem that the right of the riparian owner to such accretion would not be affected[.]

Brundage, 279 Ill. at 465.

Thus, although a riparian owner may protect his property from erosion, he has no right to affect an increase of his own land, the result of which is a corresponding loss of land owned by the state in trust for the public. *Revell*, 177 Ill. at 483. But to be barred from claiming title to newly formed land, the owner must have taken some affirmative action to further the accretion and been "more than a mere passive looker-on as to building a pier at the boundary line of his property or the building of other purpresture by public authorities at a location which may aid in causing accretions." *Id.* at 469 (lakefront owner could claim title to accretions even though he was an alderman when a public pier was extended that caused a benefit to his property, and he did not oppose the project).

Under these principles, the owner of real estate fronting on Lake Michigan owns the property to the Normal Waterline, and the land east of the Normal Waterline is owned by the state in trust for the public. The Normal Waterline may change with respect to a lakefront parcel over time and, so long as those changes occurred gradually and imperceptibly, the property line has moved with them and lies at the current Normal Waterline. *County of St. Clair*, 90 U.S. at 68. If, however, a property owner could prove that there had been a sudden or violent loss of his land, then the property owner could assert ownership to the Normal Waterline as it occurred before those sudden events and reclaim the resulting submerged land. *Comm'rs of Lincoln Park*, 20 Ill. at 266.

Moreover, the owner of a lakefront property may construct a breakwater or other structure on the state-owned submerged land offshore (with all required permits and approvals) to prevent further erosion or loss of his property, but that owner will not gain ownership of any new land created by accretion that results from that owner's construction of the breakwater or other structure. *See Revell*, 177 Ill. at 483. Rather, any such land will remain the property of the State of Illinois. *See Brundage*, 279 Ill. at 465.

Although it is clear that a current owner cannot benefit from artificial accretion that they themselves cause, it is less clear whether a property owner may claim title to artificially created accretion caused by a prior owner of the property, assuming that the current owner was not

involved in causing the artificial accretion. We are not aware of an Illinois case that definitively addresses this issue.

The only discussion we have found that addresses whether a current property owner may take title to accreted land caused by a predecessor owner is in a legal treatise, *Brown's Boundary Control and Legal Principles*, Fourth Edition by Curtis M. Brown, Walter G. Robillard and Donald A. Wilson, which states as follows:

> In general, most courts have held that shoreline changes resulting from manmade actions, such as those associated with dredging or groins, do not change title if the upland owner ***or a predecessor in title*** caused the changes, but may change title if the shoreline changes were caused by action beyond the control of the upland owner. An illustration of this is case law in the state of Florida, which generally holds that artificial accretion caused by the upland owner remains the property of the sovereign. However, case law in that state holds that artificial accretion caused by third parties will accrue to the upland owner. This principle does not hold true in all jurisdictions.

(*Emphasis added*) The authors of the treatise do not identify the legal authority for their analysis on accretion caused by a predecessor in title, and the Florida case they reference, *Board of Trustees v. Sand Key Associates*, 512 So. 2d 934, 940 (Fla. 1987), does not concern accretion caused by a predecessor in title. Thus, this issue awaits future ligation that will provide Illinois courts an opportunity to decide the issue.

B. Access.

The other major common law riparian right of landowners with frontage along Lake Michigan is a right of access to and use of the body of water. *See Revell*, 177 Ill. at 483-84; *Hasselbring v. Lizzio*, 332 Ill. App. 3d 700, 705 (3d Dist. 2002). In the event that additional dry land is created by accretion on the land of a property owner resulting from construction by that property owner, and that new property is owned by the State as discussed in Part II.A above, the owner will continue to have a riparian right of access to and use of Lake Michigan.

We have not located any regulations by the IDNR relating to whether it is exercising any control over State-owned accretions of land that is not submerged. We did locate a Draft Coastal Management Program Document that addresses this topic on the IDNR's website. In Chapter 5, entitled "Shore Access and Recreation," the authors provide the following discussion regarding the distinction between public and private beaches:

> According to Illinois Supreme Court (Brundage v. Knox, 1917), coastal sections with riparian ownership, the boundary between public and private ownership is the still-water shoreline. Above (i.e., landward of) the still-water shoreline is private; below (i.e., lakeward of) the still-water shoreline is public. As the lake level fluctuates and the still-water shoreline shifts landward or lakeward, the boundary line shifts accordingly. The submerged part of the beach, the sandy lake bottom lakeward from the still-water shoreline, always remains in public ownership.
>
> Beach accretion of sand or gravel by natural or artificial means for which the riparian owner is not responsible, that accreted above-water beach area belongs to the riparian owner. Case law does not grant private ownership of any beach area resulting from the entrapment or retention of sand caused by construction of

> any type of shore structure. Because of a long history of constructing numerous private groins along the North Shore (Keefe 2002; Shabica et al. 2004), there are many such areas of accreted beach. However, any beach area that is artificially accreted beach is legally public.

ICMP, Chapter 5, page 58. This excerpt shows IDNR's concurrence with the caselaw discussed in Part II.A. above. The owner of a lakefront property will not gain ownership of any new land created by accretion that results from the owner's construction of the breakwater or other structure and any such land will remain the property of the State of Illinois.

It is not always possible to determine where the correct boundary line is between private and public ownership. Therefore, it may be difficult for the IDNR to control any public land that is created because of the difficulty of determining the precise public-private property line at each property and due to the gradual nature of any changes to the land and lake levels along the shore. The Village may want to consider whether there is a need to adopt laws or ordinances governing this area beyond those already in place, and whether for zoning purposes the Village in determining setbacks and related conditions may want to use a line that may not fluctuate as much as the Normal Waterline, such as the ordinary high-water mark, the toe of bluff, or the Army Corps' long-term average annual mean lake level.

III. Applicability of New Regulations on Lakefront Construction.

If the Village Council desires to consider whether to adopt regulations governing construction of structures along or in the Lake, the Village does have authority to adopt a temporary moratorium on certain types of new construction while it studies potential regulations.

Certain procedural steps must be followed to adopt a temporary moratorium. A legally enforceable moratorium is considered to be, and must be treated as, a Zoning Ordinance. *See People ex rel. J.C. Penney Properties, Inc. v. Oak Lawn*, 38 Ill. App. 3d 1016, 1018 (1st Dist. 1976). This means that a moratorium must go through the typical public notice and hearing process in the same manner as a text amendment to the Zoning Ordinance. *Id.* at 1019. A municipality cannot impose an "unofficial" moratorium or adopt a moratorium by a motion or resolution. *Gary-Wheaton Bank v. Lombard*, 84 Ill. App. 3d 125, 128 (2d Dist. 1980). Further, the moratorium must be "temporary" and extend only for a reasonable time and only for so long as is necessary to study, consider, and adopt new regulations, if at all.

There are primarily two limitations on imposing zoning moratoria. The first is that the imposition of the moratorium may not violate the doctrine of vested rights. "The general rule is that a property owner has no vested right in the continuation of a zoning classification." *1350 Lake Shore Assocs. v. Randall*, 401 Ill. App. 3d 96, 102 (1st Dist. 2010). Thus, a property owner is not guaranteed to be able to use their property for uses that are currently allowed under a zoning ordinance simply because they spent money to acquire the property.

However, "[u]nder the vested-right doctrine, a property owner may acquire a vested right in a prior zoning classification where the owner sustained a significant change of position, by either making substantial expenditures or incurring substantial obligations, in good-faith reliance upon the probability of the issuance of a building permit." *Id.* If an owner can establish a vested right, the Village may be required to issue the owner a building permit despite adopting a moratorium or changing the zoning regulations.

The determination as to when the issuance of a building permit becomes "probable" or when an owner has made a substantial enough expenditure based on that probability is a fact-intensive and case-specific inquiry. However, one case found that there is low probability of a permit, and, therefore, expenditures became unreasonable, once a municipality or a local official informs a property owner that the Village is going to consider adopting a moratorium. *See 1350 Lake Shore Associates v. Mazur-Berg*, 339 Ill. App. 3d 618 (1st Dist. 2003). Accordingly, if the Village Council desires to consider adopting a moratorium on lakefront construction, it should inform property owners that it plans to consider a moratorium as soon as possible to prevent a property owner from claiming that they have a vested right in a building permit and the moratorium cannot be applied to them.

The second limitation is that the moratorium must be a valid exercise of the municipality's zoning authority. To make this determination, the courts would apply the *LaSalle* Factors, named after the seminal Illinois zoning case *LaSalle National Bank v. County of Cook*, 12 Ill. 2d 40 (1957). The eight *LaSalle* Factors – six of which originated from the *LaSalle* case along with two from a later case (*Sinclair Pipe Co. v. Village of Richton Park*, 19 Ill. 2d 370 (1960)) – are used to determine whether a moratorium is: (i) reasonable; (ii) bears a relation to public health, safety, morals or general welfare; and (iii) not arbitrary and capricious. *La Grange State Bank v. County of Cook*, 75 Ill. 2d 301, 307 (1979). The *LaSalle* Factors provide a framework to determine if a zoning decision is fair to the owner of the property in question, the owners of the surrounding properties, and all of the residents of that municipality. *Harvard State Bank v. County of McHenry*, 251 Ill. App. 3d 84 (1993). The eight *LaSalle* Factors are as follows:

(1) The existing uses and zoning of nearby property;

(2) The extent to which property values are diminished by the moratorium;

(3) The extent to which the destruction of the plaintiff's property values promotes the health, safety, morals or welfare of the public;

(4) The relative gain to the public as compared to the hardship imposed on the plaintiff;

(5) The suitability of the plaintiff's property for the zoned purposes that are allowed during the moratorium;

(6) The length of time the plaintiff's property has been vacant as zoned considered in the contest of the land development in the vicinity;

(7) The care that the community has taken to plan land use development; and

(8) The community need for the moratorium.

See *LaSalle*, 12 Ill. 2d at 46-47; *Sinclair Pipe*, 19 Ill. 2d at 378.

The shorter the moratorium is, the less likely it is for a property owner to be able to successfully claim that the moratorium violates the *LaSalle Factors*. Further, the narrower the moratorium is, the less likely a property owner is to prevail on a claim that the moratorium is invalid. For example, it is more likely for a moratorium to withstand a challenge if it only prohibits the construction of certain types of structures (e.g. groins and breakwaters) than if it prohibited all types of construction on any property that borders the Lake.

IV. Specific Questions from Trustees.

At President Rintz's suggestion, the Trustees were invited to provide specific questions for our office and Village staff to address.

1) What is VC jurisdiction and authority over the lakefront and shoreline, including projects on land and projects that extend over the beach and into the water. If any, does our authority extend to both private land and public land (including WPD initiatives). There has been talk of municipalities having jurisdiction on area 3 miles into the lake, but Winnetka's code apparently says .5 mile (so I've been told). True, not true, please explain, and what are the implications of that extension into the water?

   Answer: *See* Section 1.C of this memo. The Village Charter established that the Village's territorial boundaries extend one half mile from the shoreline of Lake Michigan. This means that the Village may exercise its full home rule municipal powers, including zoning powers, up to one-half mile into Lake Michigan. Further, the Illinois Municipal Code provides municipalities with jurisdiction three miles into the lake. This is an extension, not a limitation, of the Village's existing authority over Lake Michigan waters. Pursuant to this authority, the Village may exercise extraterritorial jurisdiction (excluding zoning powers) over that portion of Lake Michigan that lies beyond the Village's corporate boundaries for an additional three miles. Further, the Village zoning and building regulations apply to Park District property and projects.

2) Please define the 'public trust doctrine' that is so often cited. If there is an actual 'doctrine' that should be included?

   Answer: *See* Section II.A of this memo. The United States Supreme Court held that the lands under the navigable waters of Lake Michigan are held by the state in trust for the people of the state. Because the land under the Lake is held in public trust, the state cannot sell the land to a private party, but may permit the improvement of submerged lands with structures such as wharves, docks, and piers that improve the use of the Lake for public purposes such as navigation and commerce and do not impair the public's interest. The Illinois Supreme Court has also said that Lake Michigan public trust land may also be used for recreational uses such as swimming, bathing, and boating, but subject to the Normal Waterline limit.

3) How specifically are neighboring communities overseeing the lakefront and shoreline, including zoning and any other related ordinances/regulations?

   Answer: *See* comparative chart and descriptions of municipal regulations prepared by the Community Development and Engineering Departments.

4) Has VC had this authority all along and not exercised oversight?

   Answer: *See* Section 1.C of this memo. At this time, the Village has not adopted any specific regulations on lakefront construction. The Village may adopt certain zoning or building regulations with respect to lakefront property, subject to the limitations set forth in this memorandum.

5) What if a private landowner has structures along the lakefront that were built but not properly permitted? What recourse is there?

Answer: If a Village permit was required, the Village could require that a permit be obtained and take action, such as the issuance of citations, if any Village Code provisions were violated. The Village could also seek a court order that the structure built without a permit be removed. If a structure was built without the required State or Federal permit, the IDNR or Army Corps of Engineers would be responsible for any enforcement action.

6) How to define the east property line for zoning purposes? How do other communities define it? Is there flexibility through case law on how that line is defined?

Answer: *See* comparative chart and descriptions of municipal regulations prepared by the Community Development Department. *See also* Section II.A of this memo. In Illinois the boundary between private land and public land is the Normal Waterline – the point at which the water normally stands. The Village has flexibility in setting a line that will be used for zoning purposes. It does not have to be the Normal Waterline. For example, it could be the ordinary high-water mark, the line that represents the toe of the bluff, or the Army Corps' mean lake level determination.

7) Given the work that needs to be done, and its importance, can we put a moratorium on lakefront projects until decisions are made? The 195-205 Sheridan project should fall under any changes made and not be 'grandfathered' because they have a permit submitted. How is that accomplished? That homeowner also has a lakefront permit submitted to IDNR. That should be part of our review process if we have jurisdiction.

Answer: *See* Section III of this memo.

8) To the extent Peter identifies issues that have nuances or if his judgement could be argued otherwise, he should say so. There seems to be differences of opinion on certain issues, and that is fine, but we should know where the gray areas are and how to navigate.

Answer: We hope this memo clarifies the issues. The one specific matter that is unresolved under Illinois law is how the eastern demarcation between public and private property is determined when artificial accretion may have been caused by a previous owner of the property in question.

9) Does 'home rule' provide us with any additional flexibility to exercise jurisdiction over lakefront/shoreline projects?

Answer: Yes. The Village maintains its traditional home rule powers with respect to lakefront construction. The Village can also exercise its home rule municipal powers, including zoning powers, within its corporate boundaries, which pursuant to its Charter extend one-half mile into Lake Michigan. The Village has authority to consider and enact the types of zoning and building regulations that are included in the Community Development Department's survey of lakefront regulations of other nearby municipalities.

10) Over the last 15 to 20 years, the number of unprecedented projects that have been built on the lake and into our bluffs has been remarkable. If you look at Winnetka vs. many other north suburban communities with lake property and responsibility, we appear to have a lack of oversight ordinances and understanding of the complexities involved in lakefront management. In looking at the language in our existing statutes/ordinances regarding protection of the public health and welfare, can we apply them to projects on Winnetka's

most important asset, our lake? Our town logo is a picture of the lake. Can we use these existing codes/ ordinances, to immediately have better oversight of the lake and bluff?

Answer: See Section 1.C of this memo. The Village may adopt zoning and building regulations with respect to lakefront property, subject to the limitations set forth in this memorandum. At this time, the Village has not adopted any specific regulations on lakefront construction.

11) In looking at the stormwater detention requirements for the Village, have we done any recent study to show the effect on lake? Do lakefront residents have to go through the Village for stormwater review? How do we know what affects it has on the bluff? What are best practices in other north shore communities for lakefront properties and stormwater run-off? Why would we allow any homeowner to drain their property directly into the lake?

Answer: See Engineering Department report and further information regarding stormwater detention requirements.

12) What are we doing to understand and address the cumulative effect of all these projects on the lake and bluff? And the effects of these large-scale projects, especially side by side such as Elder Centennial and 250 Sheridan on the surrounding neighborhoods?

Answer: See Engineering Department report and further information regarding these issues.

13) We have zoning, plan, DRB – what can we do to add a lakefront review commission to the application process for projects on the lake?

Answer: The Village may adopt zoning or building regulations with respect to lakefront property, subject to the limitations set forth in this memorandum.

14) Since none of us are experts on water, can we invite an expert to better inform us on such an important topic during our study session? If having a costal engineer on staff is too expensive, perhaps we could share costs with our coastal neighbors?

Answer: Representatives of IDNR and the Army Corps will be at the January 10 Study Session to discuss federal and state jurisdiction and oversight of lakefront construction activities.

15) I have heard of several very recent troubling encounters with the IDNR. I have heard from both WPD and WVC leads that the IDNR will give oversight and protect our lakefront. After getting firsthand accounts of how understaffed and undermotivated the IDNR is in its current state, it is now clear that we will have to step up protection of our own lakefront, for they will not. In fact, they told us that we need to look in the mirror as we have the authority to handle our own business, similar to what Evanston, Wilmette, Kenilworth, Highland Park, Glencoe and Lake Forest are already doing. They do not have the staff and appear not able or willing to represent our interests, at present.

Answer: Representatives of IDNR and the Army Corps will be at the January 10 Study Session to discuss federal and state jurisdiction and oversight of lakefront construction activities. If the Village determines that reliance on federal and state agencies is

insufficient, the Village may adopt certain zoning or building regulations with respect to lakefront property, subject to the limitations set forth in this memorandum. *See* Section 1.C of this memo. Specifically, the Village has authority to consider and enact the types of zoning and building regulations that are included in the Community Development Department's survey of lakefront regulations of other nearby municipalities.

16) I have heard of several examples of case law precedent used with totally different interpretations by those on opposite sides of the issue. The Supreme Court decision in *Illinois Central Railroad v. Illinois*, 146 U.S. 387 (1892), reaffirmed that each state in its sovereign capacity holds title to all submerged lands within its borders and holds these lands in public trust. This is a foundational case for the public trust doctrine.

Answer: We are well aware of the *Brundage* and *Illinois Central* cases. *See* Section II.A of this memo. In the seminal case of *Illinois Central Railroad Co. v. State of Illinois*, 146 U.S. 387 (1892), the United States Supreme Court held that the lands under the navigable waters of Lake Michigan are held by the state in trust for the people of the state. *See* 146 U.S. at 452. This doctrine has since been codified by Illinois statute through the Submerged Lands Act. *See* 5 ILCS 605/1.

17) I'm generally interested in understanding whether and to what extent we can impose zoning restrictions on lakefront properties to protect light, air, views, water quality, and shoreline and bluff integrity. My concern would primarily be focused on any new structures, including fences, piers, etc., that would block views of the lake from neighboring properties or access to the lake by the public while traveling along any land in the public trust. I would want to implement any new restrictions prospectively. For the construction of new residences, I would not want to impose any new restrictions beyond what is already provided in our zoning code, except perhaps to change the eastern lot line for purposes of measuring setbacks to a more stable and definite point - not the waterline - perhaps we could define that line as the land beginning at a specific elevation that is well above the 100 year high water mark (which I think is about 582, so setting the lot line at 587). Finally, I anticipate others may be very concerned about lakefront aesthetics - perhaps there are some design standards that our DRB could use to review applications for any structures along the shoreline or projecting into the lake. I'm wondering if it would not be possible to borrow liberally from whatever Glencoe has in this area.

Answer: *See* Section 1.C of this memo. The Village may adopt certain zoning or building regulations with respect to lakefront property, subject to the limitations set forth in this memorandum. The Village can look at the regulations that other municipalities have adopted, including Glencoe, and use them as a model in adopting its own regulations. Staff has prepared a chart of the different types of regulations that have been adopted by other lakefront municipalities in Illinois. While the 100-year high water mark might not be practical (see additional information provided by the Engineering Department), the Village has the authority to use a line other than the Normal Waterline for setback and zoning purposes. This line could be the ordinary high-water mark, or the line representing the toe of the bluff, or some other reasonable demarcation.

18) [Section 1.04.020] says our code applies to persons and property located within the Village corporate limits. Not just home owners on the lake, but wouldn't this indicate that the Park District has to comply with the overarching objectives of Comp Plan and Zoning--and therefore, don't we have more jurisdiction over what they are a doing than just the issue of the stormwater pipe at Elder/Centennial or specific zoning variations they may request.

Specifically, jurisdiction related to the objectives of the code re: overall land use, character, etc.

Answer: *See* Section I.C.6 of this memo. Illinois courts have held that park districts and certain other governmental agencies must comply with the host municipality's regulations absent a specific legislative grant of immunity. Absent a specific legislative grant of immunity, courts will then look at whether application of a municipal ordinance would frustrate the statutory purpose of the unit of local government. There is no blanket statutory exemption for the Park District with regard to the Village's regulations, and it would be difficult to demonstrate that compliance with reasonable Village zoning or building codes would frustrate the Park District's statutory purposes. Accordingly, we have concluded that the Park District must comply with Village zoning and building regulations, which they have already agreed to do, for example, with regard to Dwyer Park and Skokie playfield stormwater improvements. As we have noted, other than general setback and use requirements, the Village currently does not have in its Code specific zoning or other regulations directly related to construction of structures into the Lake. Even so, with regard to the Park District's Elder/Centennial project, the Park District will need to seek permits from the Village to reroute the stormwater utilities impacted by the project on the Village's behalf. We would anticipate that the Park District and the Village will enter into an intergovernmental agreement to comprehensively set out the various levels of cooperation and regulatory oversight that will be necessary as part of that project. Additionally, depending on the final plans, the Park District may require zoning relief, such a special use permit, related to the construction and location of various amenities that may be part of the project.

19) Specifically, what does [Article 1 Section 1 of the Village Charter] mean? It sounds like we actually DO have jurisdiction over the beach and water of Lake Michigan out to ½ mile. Other communities (and the IDNR) say we have jurisdiction 3 miles out. I realize there are other agencies who also have some (a lot!) of say in certain aspects of lakefront development, but we need to understand exactly what everyone's roles are and what aspects our Village Council has jurisdiction over.

Answer: *See* Section 1.C of this memo. The Village Charter has established the Village's territorial boundaries extend one half mile from the shoreline into Lake Michigan. This means that the Village may exercise its traditional municipal powers, including zoning powers, within these corporate boundaries. The Illinois Municipal Code also provides municipalities with "jurisdiction" three miles into the lake from the applicable municipal boundary (so for Winnetka, this mean a total of 3.5 miles from the Normal Waterline). This is an extension, not a limitation, on the Village's existing authority over Lake Michigan waters. Pursuant to this authority, the Village may exercise extraterritorial jurisdiction (excluding zoning powers) over that portion of Lake Michigan that lies beyond the Village's corporate boundaries for an additional three miles.

20) With respect to Section 15.26.100 of the Village Code:

a. Where are our Public Works and Engineering Guidelines?

Answer: See additional information provided by the Engineering Department.

b. Re: land grading. This is an OR statement. I read this as projects cannot "significantly alter existing drainage patterns" at all--not that they can do so as long

as they mitigate any stormwater runoff to abutting properties. There have been (and I suspect will be) private and public projects in town that had to have altered existing drainage patterns. How are we reviewing/determining/enforcing this?

Answer: See additional information provided by the Engineering Department.

c. These are "Shall" statements and indicate a specific calculation. The code doesn't say "at a minimum" provide storm water detention based on this calculation--it says "shall provide." How are we enforcing this? As we are learning, more than the required stormwater management is not necessarily better.

Answer: See additional information provided by the Engineering Department.

21) I believe in another section in the code, the lakefront is defined as a public street. (Zoning Definitions section R) Have we been treating it as such?

Answer: Section 17.04.030(R)(10) of the Village Code defines Public Street as "the area lying within the described limits of a right-of-way or thoroughfare dedicated for vehicular traffic (excluding an alley), whether or not so used. For purposes of this Zoning Ordinance, Lake Michigan shall be considered a 'public street.'" See additional information provided by the Community Development Department related to how this definition has been enforced or utilized for zoning purposes

22) This term [Direct Discharge] is not used anywhere in this chapter. Why is it here? What would it relate to? Shouldn't we have some control of Direct Discharge? (Isn't this what is being proposed--we introduce the concept, but appear to not have any code related to this.)

Answer: See additional information provided by the Engineering Department

23) Do all the homes along the lake have their own stormwater system and apply for this credit?

Answer: See additional information provided by the Engineering Department.

24) Won't the discharge from a 60" of stormwater pipes impact the pattern and direction of the Village stormwater system.

Answer: See additional information provided by the Engineering Department.

25) Is this right that the only consequence of an owner sending "bad" water into the lake is that they don't receive a credit on their utility bill?!!! How/who would address the bigger issue of impact on the lake? Not living up to our standard of protecting the health and safety of residents in the zoning code. Where in our code is this information?

Answer: See additional information provided by the Engineering Department. If necessary, the Village has the authority to adopt additional regulations relating to stormwater discharge. *See* comparative chart of municipal regulations prepared by the Engineering Development Department. Additionally, there are State and Federal regulations in place with respect to polluting Lake Michigan.

26) Per previous note, the lakefront is defined as a street. Many lakefront properties have accreted sand which is becomes public property/public place. Proposed "planters" will contain trees or shrubs that will be located and grow in a manner to extend over public place and will obstruct/impede or interfere with persons walking on lakefront. Have we enforced this and how can we enforce this?

Answer: The Village has authority to enact and enforce zoning and building regulations regarding structures that are built into the Lake (within the part of the Lake that is within the Village's corporate boundaries -- .5 miles out). *See* additional information provided by Engineering Development Department.

Exhibit 7 Cook County
Animal /control Ordinance

FOREWORD

In most every community known to man there exists a relationship with animals. This relationship has been documented in many ways since the caveman first drew pictures on the walls of his cave. Problems occur in the urban community when lovers of animals forget that this kind of love is not necessarily shared by their neighbors. The animals that create most of the problems are cats and dogs. The Cook County Animal and Rabies Control Ordinance was developed and passed to establish guidelines in the development of harmonious relationships between animals and man. This Ordinance is the law in all municipalities within Cook County. Any municipality regardless of its population may pass an ordinance effective within its jurisdiction more strict than the County Ordinance. Rabies, while well controlled, still exists mainly in bats and skunks within Cook County. Prevention of rabies is the basic reason for the Animal Bite Report form. The guidelines offered in this booklet provide information for those most frequently involved with bites by animals.

Finally, Cook County is almost totally urbanized. Each municipality is responsible for the animals in the area under its jurisdiction. Part IV of this booklet outlines one way in which a municipality can establish an Animal Control program.

DEPARTMENT OF ANIMAL CONTROL

ARTICLE I. IN GENERAL

Sec. 10-1. Purpose.

The purpose of this chapter is to provide harmonious relationships in the interaction between man and animal by:

(1) Protecting the citizens of the County from rabies by specifying such preventive and control measures as may be necessary;

(2) Protecting animals from improper use, abuse, neglect, inhumane treatment and health hazards, particularly rabies;

(3) Providing security to residents from annoyance, intimidation, and injury from cats, dogs and other animals;

(4) Encouraging responsible pet ownership;

(5) Providing for the assessment of penalties for violators and for the enforcement and administration of this chapter.

(Code 1980, § 20-1; Res. of 1-3-1977; Ord. No. 99-O-25, § 20-1, 10-5-1999.)

Sec. 10-2. Definitions.

The following words, terms and phrases, when used in this chapter shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Administrator means the licensed veterinarian appointed by the County Board, pursuant to the Illinois Animal Control Act (510 ILCS 5/1 et seq.) or authorized representative.

Animal means any live vertebrate creature except man.

Animal capable of transmitting rabies means all animals classified as mammals.

Animal control warden means an employee of the County appointed by the Administrator to powers in the enforcement of this chapter.

Bird means any flying vertebrate that is covered with feathers.

Bite means seizure of a person with the jaws or teeth of any cat, dog or other animal capable of transmitting rabies so that the person so seized has been wounded or pierced and further includes contact of the saliva of cat, dog or other animal with any break or abrasion of the skin.

Cat means all members of the classification, *Felis catus* .

Confined means the restriction of the cat, dog or other animal at all times by the owner in a manner that will isolate the cat, dog or other animal from the public and other cats, dogs or other animals.

Control means any owned animal that is either secured by a leash or lead, or within the premises of its owner, or confined within a crate or cage, or confined within a vehicle, or within the premises of another person with the consent of that person.

Dangerous or *vicious animal* means any animal which has known vicious propensities or which has been known to attack or injure any person who was peacefully conducting themselves in any place where they may lawfully be.

Dog means all members of the classification, *Canis familiaris* .

Domestic animal means any animal which has been domesticated by man so as to live and breed in a tame condition.

Guard dog means a dog used in a commercial business or by a municipal or police department for the purposes of patrol and protection.

Inoculation against rabies means the injection of a rabies vaccine approved by the Illinois Department of Agriculture and administered by a licensed veterinarian in accordance with the company's recommendations for the vaccine used.
Owner means any person having the right of property in an animal, who keeps or harbors an animal, who has it in their care, acts as its custodian or who knowingly permits an animal to remain on or about any premises occupied by them unless possession is prohibited by Federal or State laws. Native wildlife remaining on or about any premises shall not be included in this definition.
Pound means any facility licensed by the Illinois Department of Agriculture and approved by the Administration for the purpose of enforcing this chapter and used as a shelter for seized, stray, homeless, abandoned or unwanted animals.
Service animal means any guide dog, signal dog, or other animal individually trained to do work or perform tasks for the benefit of an individual with a disability, including, but not limited to, guiding individuals with impaired vision, alerting individuals with impaired hearing to intruders or sounds, providing minimal protection or rescue work, pulling a wheelchair, or fetching dropped items.
Stray animal means any owned animal that is not controlled.
Tethering means to restrain a dog by tying the dog to any object or structure, including without limitation a house, tree, fence, post, garage, shed, [or] clothes line by any means, including without limitation a chain, rope, cord, leash or running line.
Tow chain or *log chain* means any chain that is more than one-quarter of an inch in width.
(Code 1980, § 20-2; Res. of 1-3-1977; Ord. No. 99-O-25, § 20-2, 10-5-1999; Ord. No. 04-O-44, § 1, 11-3-2004; Ord. No. 10-O-09, 1-26-2010.)

Sec. 10-3. Violations.
(a) Any person violating any provision of this chapter or counterfeiting or forging any certificate, permit or tag, or resisting, obstructing or impeding any authorized officer in enforcing this chapter is guilty of a misdemeanor punishable by a fine not exceeding $500.00 or by imprisonment for a period not exceeding six months or both such fine and imprisonment. Each person shall be guilty of a separate offense for every day in which any violation of any of the provisions of this chapter is committed or permitted to continue and shall be punished as provided in this chapter.
(b) The Administrator or State's Attorney or any citizen of the County may maintain a complaint in the Circuit Court of Cook County to enjoin all persons in the control of a dangerous animal from allowing or permitting such animal to leave their premises when not under the control of a leash and muzzle or other recognized methods of physical restraint.
(c) If any owned animal injures another animal which is under control, the owner of the attacking animal is liable for the full amount of the injuries sustained.
(d) If any owned animal, without provocation, attacks or injures any person who is peacefully conducting himself in any place where he may lawfully be, the owner of such animal is liable for damages to such person for the amount of the injury sustained.
(Code 1980, § 20-11; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-11, 10-5-1999.)

Sec. 10-4. Administrator authority, dog parks or areas.
No person including a municipal corporation, forest preserve district or park district or park district shall designate within the County any outdoor area, even if fenced, as an area where dogs

may run off leash unless such person, municipal corporation, forest preserve district or park district complies with such regulations as may be issued by the Administrator for the operation of outdoor off leash areas.
(Ord. No. 04-O-44, § 6, 11-3-2004.)

Sec. 10-5. Supervision by Department; rules and regulations.
The Administrator may issue regulations, consistent with the provisions of this chapter, for their administration and enforcement, and may prescribe forms which shall be used in connection therewith.
(Code 1980, § 20-15; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-15, 10-5-1999.)

Sec. 10-6. Duties of Administrator; police power; cooperation of Sheriff and police.
(a) It shall be the duty of the Administrator, through public education, rabies inoculation, stray control, impoundment, quarantine and other means deemed necessary to control and prevent the spread of rabies in the County.
(b) The Administrator and Animal Control Wardens are for the purpose of enforcing this chapter and the Animal Control Act (510 ILCS 5/1 et seq.), clothed with full police power.
(c) The Sheriff and Sheriff's Deputies and municipal police officers shall cooperate with the Administrator in carrying out the provisions of the Animal Control Act (510 ILCS 5/1 et seq.).
(d) The Administrator shall be authorized to develop new programs to implement the animal control goals of this chapter and the Animal Control Act (510 ILCS 5/1 et seq.). Such programs may include but are not limited to; programs to aide in the elimination of uncontrolled and/or stray animals in the community, programs to educate the public on issues pertaining to animal control and rabies, programs to impound stray animals, and programs to fund surgical treatment to render animals unable to reproduce. The Administrator is further authorized, subject to annual budget approval by the Board of Commissioners to use Animal Control Funds collected from the issuance of annual animal tags as authorized in Section 10-41(b) of this chapter, to fund such programs.
(Code 1980, § 20-12; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-12, 10-5-1999.)

Sec. 10-7. Powers of municipalities and other political subdivisions to regulate animals.
Nothing in this chapter shall be held to limit, the power of any municipality or other political subdivision to prohibit animals from running at large, nor shall anything in this chapter be construed to limit the power of any municipality or other political subdivision to further control and regulate animals in such municipality or other political subdivision by enacting stricter requirements, including a requirement of inoculation with rabies vaccine.
(Code 1980, § 20-13; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-13, 10-5-1999.)

Sec. 10-8. Animal care.
(a) No owner shall fail to provide his or her animals with sufficient wholesome food and water, proper shelter and protection from the weather, veterinary care when needed to prevent suffering, and with humane care and treatment.
(b) No person shall beat, torment, overload, overwork or otherwise abuse an animal.
(c) No person shall own, keep, harbor, or otherwise maintain within the County, any breeds of fowl that are or will be used in the pursuit of and staging of cockfighting on any premises.
(d) No person shall use a tow or log chain as a collar, leash or tether.

(e) Restrictions on a dog that is tethered:
(1) A tethered dog must have access at all times to water, adequate shelter, and dry ground.
(2) If there are multiple dogs, each dog must be tethered separately and each dog must have separate food, water, and shelter.
(3) A dog must be tethered in such a manner as to prevent injury or strangulation and the tether must be at least ten feet long.
(4) The tether must be attached to the dog by a properly fitting collar or harness with a rotating toggle attachment. Pinch, prong, or choke collars shall not be used. The tether shall not wrap directly around the dog's neck.
(5) No dog may be tethered in the case of extreme weather conditions, including when a heat advisory, a wind chill warning or tornado warning has been issued by local, state, or national authority.
(6) No dog shall be tethered within 200 yards of a school.
(7) No person shall permit at any time a tethered dog to bark, whine, howl or make excess noises so as to cause a nuisance.
(f) No person shall promote, stage, hold, manage, conduct, or carry on any animal fight or any other type of contest, game or fight of a similar nature, nor any simulated version of same that involves baiting or inciting an animal toward intent to fight.
(g) No person shall hold a greased pig contest.
(h) No person shall be permitted to keep animals in violation of the Humane Care for Animal Act (510 ILCS 70/1 et seq.) or the Animal Welfare Act (225 ILCS 605/1 et seq.).
(i) No owner may abandon any animal where it may become a public charge or may suffer injury, hunger or exposure.
(j) No person shall keep any animal within a building or upon any premises without food, water, or proper care and attention for a period of time sufficient to cause undue discomfort or suffering. If the owner cannot be located after reasonable search, or if the owner shall be known to be absent due to injury, illness, incarceration or other involuntary circumstances, it shall be the duty of the Administrator or a Humane Investigator to act upon the complaint as directed by the Humane Care for Animals Act (510 ILCS 70/1 et seq.).
(k) No person shall give away or use any live animal as a prize for or as an inducement to enter any contest, game, or other competition or as an inducement to enter a place of amusement or offer such animal as an incentive to enter any business agreement whereby the offer was for the purpose of attracting trade.
(l) No person shall bring or cause to have brought into the County, sell, offer for sale, barter or display living baby chicks, ducklings or other fowl or rabbits which have been dyed, colored or otherwise treated so as to impart to them an artificial color, or give away as pets or sell, offer for sale, barter or give away at no cost or as novelties or prizes. Nothing in this section shall be construed to prohibit legitimate commerce in poultry for agricultural or food purposes.
(m) No person may knowingly poison or cause to be poisoned any domesticated animal. The only exception will be written permit from the Illinois Department of Agriculture for the purpose of controlling diseases transmissible to humans or other animals and only when all other methods and means have been exhausted. Such a permit shall name a person or persons conducting the poisoning, specify the products to be used, give the boundaries of the area involved and specify the precautionary measures to be employed to insure the safety of humans and other animals. Any drugs used for euthanasia shall be by or under the direction of a licensed veterinarian.

(n) No person shall kill or wound, attempt to kill or wound, or take the nest or eggs or young of any bird that is protected by Federal or State law. Birds that are regulated by the Illinois Department of Conservation are excluded from this restriction during the period of regulation.
(o) No person shall keep or permit to be kept or display for exhibition purposes any wild animal contrary to Federal, State and local laws or regulations.
(p) No person shall permit at any time their animal to:
(1) Run uncontrolled;
(2) Molest persons or vehicles by chasing, barking or biting;
(3) Attack other animals;
(4) Damage property other than the owner's.
(q) No person shall allow animal feces to accumulate in any yard, pen or premises in or upon which an animal shall be confined or kept so that it becomes offensive to those residing in the vicinity or a health hazard to the residing animal.
(r) No person shall fail to remove feces deposited by the person's cat or dog, except service animals, upon the public ways or within the public places of the County or upon the premises of any person other than the owner without that person's consent.
(s) No person shall leave any animal unattended in a motor vehicle or enclosed trailer when the outside temperature shall exceed 30 degrees Celsius (86 degrees Fahrenheit) or contain any animal in such manner that the animal does not have proper air circulation while confined in a motor vehicle, trailer, kennel, dog house, or any type of container or structure in which an animal may be confined.
(t) No person shall own any animal which is known to be infected with any disease transmissible to other animals or man, including severe parasitism, unless such animal shall be confined in such a manner as not to expose other animals or man.
(u) Any animal which is on any public way or public place and which appears to be injured or severely diseased and for which care is not being provided on the scene by the owner or any injured or severely diseased animal that has strayed onto private premises shall be removed, if possible, to the care of the Cook County Department of Animal and Rabies Control, to the nearest humane society, to the nearest municipal pound, or to the nearest veterinarian or veterinary hospital willing to accept same without guarantee of payment. If immediate removal shall not appear practical or possible or if the removed animal is in critical condition such animal may be deprived of life by the most humane method available on the scene unless the owner shall come forward beforehand and assume responsibility for immediate removal and care.
(v) Any person who, as the operator of a motor vehicle, strikes an animal shall stop at once and render such assistance as may be possible; or shall immediately report such injury to the animal owner, if known; or the appropriate law enforcement agency; or to the local humane society.
(w) Any person having a dead animal within their possession or control or upon any premises owned or occupied by such person without the proper permit shall dispose of the dead animal in compliance with the Illinois Dead Animal Disposal Act (225 ILCS 610/1 et seq.).
(x) Every person in possession or control of any stable or place open for public use where any animals are kept, shall maintain the stable or place at all times in a clean, sanitary condition and conform to State fire prevention regulations.
(Code 1980, § 20-3; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-3, 10-5-1999; Ord. No. 04-O-44, § 2, 11-3-2004; Ord. No. 10-O-09, 1-26-2010.)

Sec. 10-9. Stray animals.

(a) Whenever an Animal Control Warden observes or is informed that an animal is a stray or is running-at-large and not under the control of the owner, the animal shall be immediately apprehended and impounded. Any person may apprehend a stray animal and inform the local police or the Administrator so that the stray animal can be impounded. Stray animals impounded by the Department of Animal and Rabies Control shall be kept at a location closest to the point at which the stray animal is apprehended. A minimum of two impoundment locations shall be used by the Department, one optimally convenient to that portion of the County outside the City of Chicago lying north of the Eisenhower Expressway and one optimally convenient to that portion of the County outside the City of Chicago lying south of the Eisenhower Expressway.

(b) All stray animals impounded shall have a record. The record shall include the owner's name, address and telephone number, if known; species or breed, color, sex, and physical condition of the animal; license or tag number, if known; and the time and date impounded.

(c) When owners of stray animals impounded are known, notice shall be given by mail to the last known address. Stray animals shall not be held less than seven days, if the owner is known. All unclaimed apprehended animals shall be placed for adoption, humanely euthanized or otherwise disposed of in accordance with the Illinois State Law.

(d) The stray animal owner is responsible for all costs relating to the apprehension and impoundment of the animal found not under control.

(Code 1980, § 20-7; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-7, 10-5-1999; Ord. No. 04-O-44, § 4, 11-3-2004.)

Sec. 10-10. Restrictions on controlled animals.

(a) Animals shall not be permitted to enter any place where food is processed for human consumption. Service animals and guard dogs used in food establishments are exempt from this restriction.

(b) Animals, except service animals, shall not be present at or upon any school premises, public playground or public swimming pool unless official written permission has been granted by the public agency or its agent owning the property. At no time shall animals be permitted in any sand box or sand piles in which children play.

(Code 1980, § 20-8; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-8, 10-5-1999; Ord. No. 04-O-44, § 5, 11-3-2004.)

Sec. 10-11. Female animals in heat.

The owner of any female animal in heat (estrus) shall confine such animal in a building or secure enclosure and shall attend the animal in such a manner that such female animal cannot come into contact with a male of the same species except for planned breeding.

(Code 1980, § 20-9; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-9, 10-5-1999.)

Sec. 10-12. Dangerous or vicious animals.

Dangerous or vicious animals shall be confined by the owner within a building or secure enclosure and shall be muzzled or caged whenever off the premises of its owner.

(Code 1980, § 20-10; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-10, 10-5-1999.)

Secs. 10-13--10-40. Reserved.

ARTICLE II. RABIES CONTROL

Sec. 10-41. Rabies vaccination.

(a) Every owner, except animal shelters, animal impounding facilities, and laboratory animal facilities, of a dog, cat or ferret four months or more of age shall cause such animal to be inoculated with a rabies vaccine by a licensed veterinarian at such intervals as approved by the State Department of Agriculture. The rabies vaccine shall be licensed by the United States Department of Agriculture and approved by the State Department of Agriculture.

(b) Evidence of such rabies inoculation shall be entered on a certificate approved by the County Board of Commissioners. Veterinarians who inoculate an animal shall procure from the County Department of Animal and Rabies Control serially numbered tags, one to be issued with each inoculation certificate. Only one animal shall be included on each certificate. Upon change of ownership application shall be made for a new inoculation certificate. Such tags shall be attached to the collar or harness worn by the animal for which the tag was issued when the animal is off the property of the owner. The cost of the tags shall be as set out in Section 32-1 for a one-year tag and for a three-year tag. The tag fees shall be paid to the Department and transferred to the County Treasurer on the last day of each month.

(Code 1980, § 20-4; Ord. of 1-3-1977; Ord. No. 83-O-09, 2-28-1983; Ord. No. 99-O-25, § 20-4, 10-5-1999; Ord. No. 02-O-31, § 20-4, 9-19-2002; Ord. No. 04-O-44, § 3, 11-3-2004; Ord. No. 08-O-55, 11-19-2008.)

Sec. 10-42. Biting animal capable of transmitting rabies.

(a) It shall be unlawful for any person knowing that an individual has been bitten by an animal to refuse to notify, within 24 hours, the police or other officer with the delegated authority who are responsible for the area in which the bite occurred.

(b) Except as otherwise provided by State law with respect to police dogs, when the Administrator receives information that any person has been bitten by an animal the Administrator shall have the owner confine the biting animal under observation of a licensed veterinarian for a period of ten days beginning within 24 hours of the biting incident. The biting animal may be confined in the house of its owner in a manner which will prohibit it from biting any person or animal if the animal is currently vaccinated with an approved rabies vaccine. Caged animals such as rats, guinea pigs, rabbits, etc., can be placed under home confinement.

(1) When the biting animal is currently inoculated with rabies vaccine the animal's health shall be reported by the veterinarian to the Cook County Department of Animal and Rabies Control on the first and tenth days of the observation period for rabies.

(2) When the biting animal is not currently inoculated with rabies vaccine the animal shall be confined for ten days in a veterinary hospital or animal control or humane shelter provided there is a veterinarian daily on the premises.

(c) Confirmation of the health of the biting animal shall be sent by the veterinarian to the Cook County Department of Animal and Rabies Control within 24 hours of the first and final examinations. Official forms shall be provided by the Department.

(d) When an animal confined for biting shows signs of rabies or acts in a manner which would lead a person to believe that an animal may have rabies, the owner or veterinarian shall notify the Administrator immediately by telephone or in person of these signs. The Administrator shall immediately notify the physician attending the bitten person or responsible health agency as soon as the Administrator receives notice of such signs and shall securely confine the animal.

(e) If the animal confined is determined not to be infected with rabies at the end of the period of confinement, it shall be released from quarantine. The animal owner shall show proof of rabies inoculation for the animal and shall pay any fee, charge or penalty including any fee for

veterinary services attributed to the bite. A confined animal, when not redeemed by the owner may be disposed of in accordance with State law.
(f) It shall be unlawful for the owner of a biting animal to euthanize, sell, give away or otherwise dispose of, or have inoculated against rabies the animal known to have bitten a person until it has been released from confinement for observation for rabies by the Administrator. It shall be unlawful for the owner of such animal to refuse or fail to comply with the written or printed instructions made by the Administrator. If such instructions cannot be delivered in person they shall be mailed to the owner of such animal by regular mail, postage prepaid, return receipt requested. The affidavit of testimony of the Administrator delivering or mailing such instructions is prima facie evidence that the owner of such animal was notified of their responsibilities.
(Code 1980, § 20-5; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-5, 10-5-1999.)

Sec. 10-43. Rabies case procedure.

(a) It shall be unlawful for the owner of an animal which shows signs of rabies or which acts in a manner which would lead a person to believe that such animal may have rabies to fail to notify the local police or the Administrator immediately by telephone or in person.
(b) The Administrator shall investigate each report of an animal which shows signs of rabies or acts in a manner which would lead a person to believe that the animal may have rabies. Upon determination by the Administrator or a licensed veterinarian that an animal may be infected with rabies, the owner of such animal shall be required by the Administrator to surrender the animal to the Administrator or a licensed veterinarian for confinement for a period of time as determined by the State Department of Agriculture.
(c) When the animal confined is determined to be infected with rabies by the examining veterinarian the Administrator shall order the animal humanely destroyed. A copy of this order shall be given to the owner of the animal or mailed to the last known address of the owner. Any animal capable of transmitting rabies in direct contact with the rabid animal whether or not the exposed animal has been inoculated with rabies shall be confined as recommended by the Administrator. The Administrator may order the exposed animal euthanized.
(d) If the animal confined is determined not to be infected with rabies at the end of the period of confinement it shall be released to the owner of such animal upon presenting proof of a current rabies inoculation certificate for the animal and payment of any fee, charge or penalty including any fee for veterinary services. If the animal is not redeemed by the owner, the animal may be disposed of in accordance with State law.
(e) Whenever a case of rabies has occurred in a locality, or whenever the proper officials of a government unit are apprehensive of the spread of rabies, the Administrator shall act as directed by the rules and regulations of the State Department of Agriculture.
(Code 1980, § 20-6; Ord. of 1-3-1977; Ord. No. 99-O-25, § 20-6, 10-5-1999.)
Secs. 10-44--10-75. Reserved.

ARTICLE III. VICIOUS AND DANGEROUS DOGS

Sec. 10-76. Confinement.

Dangerous or vicious animals shall be confined by the owner within a building or secure enclosure and shall be muzzled or caged whenever off the premises of its owner.
(Ord. No. 04-O-09, § 20-10, 1-22-2004.)

Sec. 10-77. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Bodily organ includes but is not limited to skin, which is considered the largest of the human organs.

Cat means all members of the family *Felidae* .

Dangerous dog means any individual dog when unmuzzled, unleashed, or unattended by its owner or custodian that behaves in a manner that a reasonable person would believe poses a serious and unjustified imminent threat of serious physical injury or death to a person or a companion animal in a public place.

Dog means all members of the classification, *Canis Familiaris* .

Enclosure means a fence or structure of at least six feet in height, forming or causing an enclosure suitable to prevent the entry of young children, and suitable to confine a vicious dog in conjunction with other measures that may be taken by the owner or keeper, such as tethering of the vicious dog, within the enclosure. The enclosure shall be securely enclosed and locked and designed with secure sides, top, and bottom and shall be designed to prevent the animal from escaping from the enclosure. If the enclosure is a room within a residence, the door must be locked. A vicious dog may be allowed to move about freely within the entire residence if it is muzzled at all times.

Ferret means all members of the classification, *Mustela putorius furo* .

Impounded means taken into the custody of the public animal control facility in the city, town, or county where animal is found.

Muzzle means a fastening or covering for the mouth of an animal used to prevent biting and eating.

Owner means any person having a right of property in an animal or who keeps or harbors an animal, or acts as its custodian, or who has it in his care.

Physical injury means the impairment of physical condition.

Police animal means an animal owned or used by a law enforcement department or agency in the course of the department's or agency's work.

Serious physical injury means a physical injury that creates a substantial risk of death or that causes death, serious disfigurement, serious impairment of health, impairment of the function of any bodily organ, or injury requiring plastic surgery, or injury or injuries that when viewed by a reasonable person are considered significant and substantial.

Vicious dog means a dog that, without justification, attacks a person and causes serious physical injury or death or any individual dog that has been found to be a "dangerous dog" upon three separate occasions.

(Ord. No. 04-O-09, § 20-10(A), 1-22-2004.)

Sec. 10-78. Declaration of a "vicious" dog.

(a) A dog may be declared vicious if the Court determines that without justification, the dog attacks a person causing serious physical injury or death, or any individual dog that has been found to be a "dangerous dog" upon three separate occasions.

(b) In order to have a dog deemed "vicious," the County Animal Control Administrator must give notice of the infraction that is the basis of the investigation to the owner, conduct a thorough investigation, interview any witnesses, including the owner, gather any existing medical records, veterinary medical records or behavioral evidence, and make a detailed report recommending a finding that the dog is a vicious dog and give the report to the State's Attorney's office and the owner.

(c) A complaint may be filed in the Circuit Court of the County after a complete investigation by the County Animal Control Administrator, or designee. The County Department of Animal Control shall accept requests for investigation by any party. Such investigation shall follow these requirements:

(1) The investigation must be thorough and include interviews with witnesses to the conduct in question;

(2) Medical records concerning the injuries inflicted on the person of the alleged vicious conduct and veterinary records of the dog regarding behavioral evidence must be gathered and reviewed;
(3) A detailed report must be provided to the Office of the State's Attorney and the owner of the dog recommending a finding that the dog is or is not vicious;
(4) The Animal Control Administrator shall determine whether the dog shall be confined, and if so where, during the pendency of the case.
(d) In order to have a dog deemed "vicious" a complaint must be filed by the County Department of Animal Control, the Office of the State's Attorney, any citizen of the County, or any victim of a dog attack if such attack occurred within the County, in the Circuit Court of the County to deem a dog a "vicious" dog.
(e) Testimony of a certified applied behaviorist, a board certified veterinary behaviorist, or another recognized expert, may be relevant to the court's determination as to whether the dog's behavior was vicious or justified.
(f) The petitioner must establish by clear and convincing evidence that the dog is vicious. If the burden of proof is met, the court shall deem the dog to be a vicious dog.
(g) A dog shall not be declared vicious if the court determines the conduct of the dog was justified because:
(1) The threat, injury, or death was sustained by a person who at the time was committing a crime or offense upon the owner or custodian of the dog; or upon the property of the owner or custodian of the dog;
(2) The injured, threatened, or killed person was tormenting, abusing, assaulting, or physically threatening the dog or its offspring, or has in the past tormented, abused, assaulted, or physically threatened the dog or its offspring; or
(3) The dog was responding to pain or injury, or was protecting itself, its owner, custodian or member of its household, kennel, or offspring;
(4) No dog shall be deemed vicious if it is a professionally trained dog for law enforcement or guard duties;
(5) Vicious dogs shall not be classified in a manner that is specific as to breed.
(h) Guide dogs for the blind or hearing impaired, support dogs for the physically handicapped, and sentry, guard, or police-owned dogs are exempt from this section; provided, an attack or injury to a person occurs while the dog is performing duties as expected. To qualify for exemption under this section, each such dog shall be currently inoculated against rabies in accordance with this article. It shall be the duty of the owner of such exempted dog to notify the Administrator of changes of address. In the case of such exempted dogs, the owner shall register the animal with the Administrator and keep the Administrator advised of the location where such dog will be stationed. The Administrator shall provide police and fire departments with a categorized list of such exempted dogs, and shall promptly notify such departments of any address changes reported to him.
(Ord. No. 04-O-09, § 20-10(B), 1-22-2004.)

Sec. 10-79. Finding of a vicious dog.

If a dog is found to be a vicious dog, the dog shall be spayed or neutered and microchipped within days of the finding at the expense of its owner. The dog shall be subject to enclosure. A dog found to be a vicious dog shall not be released to the owner until the Administrator approves the enclosure. No owner or keeper of a vicious dog shall sell or give away the dog without court approval. Whenever an owner of a vicious dog relocates, he or she shall notify both the Administrator of the County Animal Control where he or she has relocated and the Administrator of the County Department of Animal Control.
(Ord. No. 04-O-09, § 20-10(C), 1-22-2004.)

Sec. 10-80. Confinement of a vicious dog.

(a) It shall be unlawful for any person to keep or maintain any dog which has been found to be a vicious dog unless the dog is kept in an enclosure. The only times that a vicious dog may be allowed out of the enclosure are:

(1) If it is necessary for the dog owner or keeper of the dog to obtain veterinary care for the dog;

(2) In the case of an emergency or natural disaster where the dog's life is threatened; or

(3) To comply with the order of a court of competent jurisdiction;

provided that the dog is securely muzzled and restrained with a leash not exceeding six feet in length, and shall be under the direct control and supervision of the owner or keeper of the dog or muzzled in its residence.

(b) Any dog which has been found to be a vicious dog and which is not confined to an enclosure shall be impounded by the Administrator or the law enforcement authority having jurisdiction in such area.

(c) If the owner of the dog has not appealed the impoundment order to the Circuit Court of the County within 15 working days, the dog may be euthanized.

(d) Upon filing a notice of appeal, the order of euthanasia shall be automatically stayed pending the outcome of the appeal. The owner shall bear the burden of timely notification to the County Department of Animal Control, in writing.

(Ord. No. 04-O-09, § 20-10(D), 1-22-2004.)

Sec. 10-81. Dangerous dog determination.

(a) After a thorough investigation including: sending within three days of the Administrator becoming aware of the alleged infraction, notifications to the owner of the alleged infractions, the fact of the initiation of an investigation, and affording the owner an opportunity to meet with the Administrator prior to the making of a determination; gathering of any medical or veterinary evidence; interviewing witnesses; and making a detailed written report, an animal control warden, deputy administrator, or law enforcement agent may ask the Administrator, or designee, to deem a dog to be "dangerous." No dog shall be deemed a "dangerous dog" without clear and convincing evidence. The owner shall be sent immediate notification of the determination by registered or certified mail that includes a complete description of the appeal process.

(b) A dog shall not be declared dangerous if the Administrator, or designee determines the conduct of the dog was justified because:

(1) The threat was sustained by a person who at the time was committing a crime or offense upon the owner or custodian of the dog; or upon the property of the owner or custodian of the dog;

(2) The threatened person was tormenting, abusing, assaulting, or physically threatening the dog or its offspring;

(3) The injured, threatened, or killed companion animal was attacking or threatening to attack the dog or its offspring; or

(4) The dog was responding to pain or injury or was protecting itself, its owner, custodian, or a member of its household, kennel, or offspring.

(c) Testimony of a certified applied behaviorist, a board certified veterinary behaviorist, or another recognized expert may be relevant to the determination of whether the dog's behavior was justified pursuant to the provisions of this section.

(d) Guide dogs for the blind or hearing impaired, support dogs for the physically handicapped, and sentry, guard, or police-owned dogs are exempt from this section; provided, an attack or injury to a person occurs while the dog is performing duties as expected. To qualify for

exemption under this section, each such dog shall be currently inoculated against rabies in accordance with this article. It shall be the duty of the owner of such exempted dog to notify the Administrator of changes of address. In the case of such exempted dogs, the owner shall keep the Administrator advised of the location where such dog will be stationed. The Administrator shall provide police and fire departments with a categorized list of such exempted dogs, and shall promptly notify such departments of any address changes reported to him.
(Ord. No. 04-O-09, § 20-10(E), 1-22-2004.)

Sec. 10-82. Finding of a dangerous dog.

(a) If deemed dangerous, the Administrator, or designee, shall order the dog be spayed or neutered within ten days at the owner's expense and microchipped, if not already, and one or more of the following as deemed appropriate under the circumstances and necessary for the protection of the public:
(1) Evaluation of the dog by a certified applied behaviorist, a board certified veterinary behaviorist, or another recognized expert in the field and completion of training or other treatment as deemed appropriate by the expert. The owner of the dog shall be responsible for all costs associated with evaluations and training ordered under this subsection; or
(2) Direct supervision by an adult 18 years of age or older whenever the animal is on public premises.
(b) The Administrator may order a dangerous dog to be muzzled whenever the animal is on public premises in a manner that will prevent it from biting any person or animal, but that shall not injure the dog or interfere with its vision or respiration.
(Ord. No. 04-O-09, § 20-10(F), 1-22-2004.)

Sec. 10-83. Control of a dangerous dog; leash.

It is unlawful for any person to knowingly or recklessly permit any dangerous dog to leave the premises of its owner when not under control by leash or other recognized control methods.
(Ord. No. 04-O-09, § 20-10(G), 1-22-2004.)

Sec. 10-84. Appeal of dangerous dog determination.

(a) The owner of a dog found to be a dangerous dog pursuant to this ordinance by Administrator may file a complaint against the Administrator in the County Circuit Court within 35 days of receipt of notification of the determination, for a de novo hearing on the determination. The proceeding shall be conducted as a civil hearing pursuant to the Illinois Rules of Evidence and the Code of Civil Procedure, including the discovery provisions. After hearing both parties' evidence, the court may make a determination of dangerous dog if the Administrator meets his or her burden of proof of clear and convincing evidence. The final order of the Circuit Court may be appealed pursuant to the civil appeals provisions of the Illinois Supreme Court Rules.
(b) The owner of a dog found to be a dangerous dog pursuant to this ordinance by the Director, may, within 14 days of receipt of notification of the determination, request an administrative hearing to appeal the determination. The administrative hearing shall be conducted pursuant to the Department of Agriculture's rules of application to formal administrative proceedings, 8 Ill. Admin. Code Part 1, Subparts A and B. An owner desiring a hearing shall make his or her request for a hearing to the Illinois Department of Agriculture. The final administrative decision of the Department may be reviewed judicially by the Circuit Court of the County. If the plaintiff in a review proceeding is not a resident of Illinois, the venue shall be in Sangamon County. The Administrative Review Law and all amendments and modifications

thereof, and the rules adopted thereto, apply to and govern all proceedings for the judicial review of final administrative decisions of the Department hereunder.
(c) Until the order has been reviewed and at all times during the appeal process, the owner shall comply with the requirements set forth by the Administrator, the court, or the Director.
(d) At any time after the final order has been entered, the owner may petition the circuit court to reverse the designation of dangerous dog.
(Ord. No. 04-O-09, § 20-10(H), 1-22-2004.)

Sec. 10-85. Expenses of microchipping.

A clinic for microchipping companion animals of County residents should be conducted at least once a year under the direction of the Administrator at the animal control facility, animal shelter, or other central location within the County. The maximum amount that can be charged for microchipping an animal at this clinic shall be as set out in Section 32-1. Funds generated from this clinic shall be deposited in the County Animal Control Fund.
(Ord. No. 04-O-09, § 20-10(I), 1-22-2004.)

Sec. 10-86. Violations.

(a) Any person violating or aiding in or abetting the violation of any provision of this ordinance, or counterfeiting or forging any certificate, permit, or tag, or making any misrepresentation in regard to any matter prescribed by this ordinance, or resisting, obstructing, or impeding the Administrator or any authorized officer in enforcing this ordinance, or refusing to produce for inoculation any dog in his possession or who removes a tag from a dog for purposes of destroying or concealing its identity, or who removes a tag, microchip, or tattoo, is guilty of a Class B misdemeanor. A second offense will constitute a Class A misdemeanor.
(b) Each day a person fails to comply constitutes a separate offense. Each State's Attorney to whom the Administrator reports any violation of this article shall cause appropriate proceedings to be instituted in the proper manner provided by law.
(Ord. No. 04-O-09, § 20-10(J), 1-22-2004.)

Sec. 10-87. Penalties; vicious dog.

If the owner of a vicious dog subject to enclosure:
(1) Fails to maintain or keep the dog in an enclosure or fails to spay or neuter the dog;
(2) The dog inflicts serious physical injury upon any other person or causes the death of another person; and
(3) The attack is unprovoked in a place where such person is peaceably conducting himself or herself and where such person may lawfully be;
the owner shall be guilty of a Class 4 felony unless the owner knowingly allowed the dog to run at large or failed to take steps to keep the dog in an enclosure then the owner shall be guilty of a Class 3 felony. The penalty provided in this section shall be in addition to any other criminal or civil sanction provided by law.
(Ord. No. 04-O-09, § 20-10(K), 1-22-2004.)

Sec. 10-88. Penalties; dangerous dog.

If the owner of a dangerous dog knowingly fails to comply with any order of the court or the Administrator regarding the dog and the dog inflicts serious physical injury on a person or a companion animal, the owner shall be guilty of a Class A misdemeanor. If the owner of a dangerous dog knowingly fails to comply with any order regarding the dog and the dog kills a person the owner shall be guilty of a Class 4 felony.
(Ord. No. 04-O-09, § 20-10(L), 1-22-2004.)
Secs. 10-89--10-94. Reserved.

ARTICLE IV. MANAGED CARE OF FERAL CATS

Sec. 10-95. Definitions.

For the purpose of this Ordinance, the following terms shall have the meaning set forth in this section. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular, words in the singular number include the plural, and words in the male gender include the female gender.

Abandoned Cat means a domesticated cat that an owner has forsaken entirely or neglected or refused to provide care and support.

Animal Control Officer or *ACO* means any person employed or appointed by the County or a municipality who is authorized to investigate violations of laws and regulations concerning animals, and to issue citations in accordance with Illinois law and this Code.

Department means the Cook County Department of Animal and Rabies Control.

Domesticated cat means a cat that is socialized to humans and is appropriate as a companion for humans.

EAID means an electronic animal identification device.

Eartipping means straight-line cutting of the tip of the left ear of a cat while the cat is anesthetized.

Feral Cat means a cat that:

(1) Is born in the wild or is the offspring of an owned or feral cat and is not socialized;
(2) Is a formerly owned cat that has been abandoned and is no longer socialized; or
(3) Lives on a farm.

Feral Cat Caretaker means any person other than an owner who provides food, water or shelter to, or otherwise cares for, a feral cat.

Feral Cat Colony means a group of cats that congregate, more or less, together as a unit. Although not every cat in a Colony may be feral, any nonferal cats that congregate with a colony shall be deemed to be a part of it.

Feral Cat Colony Caretaker means any Feral Cat Caretaker who is approved by a Sponsor to care for a Feral Cat Colony.

Microchip means, for the purpose of this Ordinance, to implant an EAID (electronic animal identification device) in an animal.

Nuisance means, for purposes of this Ordinance, conduct by stray or feral cats that disturb the peace. Stray or feral cats may create a nuisance by:

(1) Habitually or continually howling, crying or screaming; or
(2) Habitually and significantly destroying, desecrating or soiling property against the wishes of the owner of the property.

Owner means any person having a right of property in an animal or who keeps or harbors an animal, or who has it in his care, or acts as its custodian, or who knowingly permits an animal to remain on any premises occupied by him or her. "Owner" does not include a Feral Cat Colony Caretaker.

Sponsor is any animal Humane Society that agrees to comply with the requirements of this Ordinance for Sponsors and provides written notice to the Department that it will serve as a Sponsor.

Stray Cat means a cat that is regularly off the property of the owner, is not under the physical control and restraint of the owner, and is not regularly provided with food by its owner.

TNR means Trap, Neuter and Return.

TNR Program means a program pursuant to which feral and stray cats are trapped, neutered or spayed, microchipped, vaccinated against rabies, and returned to the location where they congregate, in accordance with this ordinance.

(Ord. No. 07-O-72, 10-16-2007.)

Sec. 10-96. Responsibilities of owners of domesticated cats.

(a) Owners of domesticated cats shall provide appropriate and adequate food, water and shelter for their cats.
(b) The owner of a domesticated cat shall exercise reasonable care to guard against the cat creating a Nuisance.
(c) Owners of domesticated cats shall not permit their cats to roam unsupervised off their property.
(d) An owner shall not abandon a domesticated cat.
(Ord. No. 07-O-72, 10-16-2007.)

Sec. 10-97. Feral cat colonies.

(a) *[Permitted.]* Feral Cat Colonies shall be permitted and Feral Cat Colony Caretakers shall be entitled to maintain and care for Feral Cats by providing food, water, shelter and other forms of sustenance, provided that the Feral Cat Colonies are registered with a Department-approved Sponsor, as defined in Subsection 10-97(b), and that the Feral Cat Colony Caretaker takes all appropriate and available steps to meet the terms and conditions of this Ordinance.
(b) *Sponsorship of Colony TNR Programs.* Any animal Humane Society that agrees to comply with the requirements of this Ordinance for Sponsors shall be eligible to act as a Sponsor. Any Humane Society intending to undertake the responsibilities of Sponsor shall so advise the Department in writing and provide its address and telephone number, and electronic mail address if applicable.
(c) *Sponsor Requirements.* It shall be the duty of the Sponsor to:
(1) Review, and in its discretion, approve of Feral Cat Colony Caretakers.
(2) Help to resolve any complaints over the conduct of a Feral Cat Colony Caretaker or of cats within a colony.
(3) Maintain records provided by Feral Cat Colony Caretakers on the size and location of the colonies as well as the vaccination, microchipping, and spay and neuter records of cats in the Sponsor's colonies.
(4) Provide, at a minimum, written educational training for all Caretakers addressing uniform standards and procedures for colony maintenance.
(5) Report annually to the Department on the following:
a. Number and location by zip code of colonies for which it acts as a Sponsor in the County;
b. Total number of cats in each of its colonies;
c. Number of cats from its colonies microchipped, vaccinated, spayed and neutered pursuant to the TNR program and number of cats and kittens from its colonies placed in permanent homes.
(6) Use due consideration to prevent Feral Cat Colonies from being maintained on lands managed for wildlife or other natural resources, such as but not limited to Nature Preserves, where the presence of a Feral Cat Colony is a proven threat, and to avoid the taking of rare, threatened or endangered species under the Illinois Endangered Species Protection Act;
(7) Provide any forms or other documentation necessary to allow Feral Cat Colony Caretakers to receive any public or private subsidies, medical care or other forms of assistance for their Feral Cat Colonies which may be available to them;
(8) Provide to the Department the location, by address, of Feral Cat Colonies where Feral Cat Colony Caretakers have regularly failed to comply with this Ordinance or where the Sponsor has been unable to resolve a nuisance behavior situation.
(d) *Feral Cat Colony Caretaker Responsibilities.* In order to be an approved managed Feral Cat Colony Caretaker, said Caretakers shall be responsible for the following:
(1) Registering the colony with the Sponsor;

(2) Taking all appropriate and available steps to vaccinate the colony population for rabies, preferably with a three-year vaccine, and to update the vaccinations as warranted and mandated by law;
(3) Taking all appropriate and available steps to have the colony population spayed or neutered by a licensed veterinarian;
(4) Eartipping the left ear of a colony cat that has been vaccinated and spayed or neutered, so that colony cats can be readily identified;
(5) Having an EAID inserted into each colony cat by a veterinarian in accordance with professional medical standards. The Sponsor and the Feral Cat Colony Caretaker shall be the named contacts for purposes of the EAID;
(6) Providing the Sponsor with descriptions of each cat in the colony and copies of documents demonstrating that the cats have been vaccinated, microchipped, and spayed or neutered;
(7) Providing food, water, and if feasible, shelter for colony cats;
(8) Obtaining proper medical attention for any colony cat that appears to require it;
(9) Observing the colony cats at least twice per week and keeping a record of any illness or unusual behavior noticed in any colony cat;
(10) Obtaining the written approval of the owner of any property, or any authorized representative of the owner, to which the Caretaker requires access to provide colony care;
(11) Taking all reasonable steps to:
a. Remove kittens from the colony after they have been weaned;
b. Place the kittens in homes or foster homes for the purpose of subsequent permanent placement; and
c. Capture and spay the mother cat.
(12) Reporting semiannually in writing to the Sponsor on:
a. The location of the colony;
b. The number and gender of all cats in the colony;
c. The number of cats that died or otherwise ceased being a part of the colony;
d. The number of kittens born to colony cats and their disposition;
e. The number of cats placed in animal shelters or in permanent homes as companion cats;
f. The number of cats vaccinated;
g. The number of cats microchipped; and
h. The number of cats spayed or neutered.
(e) *Withdrawal of Feral Cat Colony Caretaker or Sponsor.* In the event that a Feral Cat Colony Caretaker is unable or unwilling to continue in that role, he or she shall notify his or her Sponsor. In the event a Sponsor is unable or unwilling to continue to perform its role, it shall so advise the Department. The Sponsor shall work with the Department to obtain a replacement Sponsor. If no new Sponsor is found within 30 days, the Sponsor shall notify the Department.
(f) *Disposition of Feral Cat Colony cats.*
(1) An Animal Control Officer who has trapped a cat whose left ear has been tipped or which bears some other distinguishing mark, such as but not limited to a tattoo, indicating that it belongs to a Feral Cat Colony, shall scan the cat for an EAID. If an EAID is found, the Officer shall attempt to contact the Sponsor or Feral Cat Colony Caretaker. If an EAID is not found, the Officer shall take reasonable steps to notify a Sponsor of the description and sex of the cat, and if available, the address or location where the cat was trapped. The Sponsor shall then take all appropriate and available steps to identify the Feral Cat Colony Caretaker of this cat or a Feral Cat Colony Caretaker who will take responsibility for managing this cat.
(2) If the Feral Cat Colony Caretaker is not able to immediately take custody of the cat, the Officer shall transport the cat to the Sponsoring Humane Society's Animal Shelter or nearest Animal Shelter. The Feral Cat Colony Caretaker shall be responsible for retrieving the cat from the Shelter within three business days or advising the Shelter if he or she does not intend to retrieve the cat.

(3) The Department, its designee, or a licensed veterinarian, in accordance with Section 10-98, Ordinance Enforcement, shall be the only persons permitted to destroy a Feral Cat. No person may knowingly poison or cause to be poisoned, or cause the destruction by any other means, of a Feral Cat. In accordance with Subsection 10-8(k), Animal Care, the only exception will be by written permit from the Illinois Department of Agriculture for the purpose of controlling diseases transmissible to humans or other animals and only when all other methods and means have been exhausted. Such a permit shall name a person or persons conducting the poisoning, specify the products to be used, give the boundaries of the area involved and specify the precautionary measures to be employed to ensure the safety of humans and other animals. Any drugs used for the euthanasia shall be by or under the direction of a licensed veterinarian.
(Ord. No. 07-O-72, 10-16-2007.)

Sec. 10-98. Ordinance enforcement.

(a) The Department or its designee, in order to encourage the stabilization of the Feral Cat population in Cook County, shall have the following rights:
(1) The right to trap in a humane manner and remove any cats that:
a. Have not been vaccinated against rabies or which are demonstrating signs of the disease;
b. Are not spayed or neutered;
c. Are not identifiable through an EAID as belonging to a Feral Cat Colony that has a Sponsor and a Feral Cat Colony Caretaker; or
d. For public health or public safety concerns.
1. If no issue of public health or safety exists, or if any issues of public health and safety can be addressed by the removal and relocation of the cat to another area, a Sponsor can arrange to have the cat spayed or neutered, eartipped, and vaccinated against rabies by a licensed veterinarian, and have an EAID inserted. The Sponsor may then arrange for the cat to be adopted or placed in a Feral Cat Colony.
2. If a Feral Cat is demonstrating signs of having rabies, or has an illness or injury that presents an imminent danger to the public health or safety, or to its own person, that cat shall be humanely destroyed.
(2) The right to direct that a Sponsor remove a Feral Cat that is creating a nuisance if the Sponsor has failed to adequately resolve the nuisance within 30 days after being given written notice thereof. In the event that the Department directs the Sponsor to remove the cat, the Sponsor shall have 30 days to do so. Failure of the Sponsor to remove the cat within said time period (or such longer time as the Department may specify) shall constitute grounds for the Department to remove the cat.
(b) Animal Control Officers ("ACO") or police officers shall investigate any nuisance complaint allegedly caused by a Feral Cat.
(1) In the event that an ACO or police officer finds that a Feral Cat or Feral Cat Colony has created a nuisance, the ACO or police officer shall advise the Department and Sponsor in writing of the nuisance.
(2) The Sponsor shall have the right to review the matter with the Administrator of the Department. If the Sponsor is not able to satisfy the Administrator that a nuisance is not occurring, the Sponsor shall have 30 days to comply with the Administrator's direction with respect to correcting the nuisance. If the Sponsor fails to correct the nuisance, the Department shall have the right to remove the cat.
(c) If a Sponsor fails to perform its responsibilities as defined in Subsection 10-97(c) of this article, the Department may notify the Sponsor that it must comply with the requirements of this article within 30 days. If the Sponsor fails to do so, the Department may remove this Sponsor from the list of Department-approved Sponsors, and may reassign the Feral Cat Colonies from this Sponsor to another Sponsor.

(d) If a Feral Cat Colony Caretaker regularly fails to comply with this article, the Sponsor may notify the Feral Cat Colony Caretaker that he or she has 30 days to make all reasonable efforts to fulfill the responsibilities defined in Subsection 10-97(d) of this article. If the Feral Cat Colony Caretaker fails to comply within that time period, the Sponsor may identify and obtain replacement Feral Cat Colony Caretakers for the Feral Cat Colonies of the non-compliant Feral Cat Colony Caretaker. If no other Feral Cat Colony Caretaker can be found within 30 days, the Sponsor shall notify the Department, and the Department may humanely remove all, or parts of, the Feral Cat Colonies and dispose of them in accordance with Section 10-98 of this article.
(e) Feral Cats who were spayed or neutered and vaccinated for rabies prior to the date on which this article became effective, but did not have an EAID inserted or were marked as Feral by some indication other than a left eartip, such as but not limited to a tattoo, shall be deemed to be in compliance with this article, if all other requirements in Subsection 10-97(d) are being met by their Feral Cat Colony Caretaker. Feral Cat Colony Caretakers shall take all appropriate and available steps to bring these cats into compliance with the provisions of this article within three years of its enactment, or upon revaccination of the cats for rabies, whichever comes first.
(Ord. No. 07-O-72, 10-16-2007.)

Sec. 10-99. Effective date.

This Ordinance shall become effective 30 days after adoption.
(Ord. No. 07-O-72, 10-16-2007.)

Part II.

ADMINISTRATIVE REGULATIONS TO THE COOK COUNTY ANIMAL AND RABIES CONTROL ORDINANCE

Regulation I-Animal Bite Report Procedures

A. Animal Bite Report Form – The Cook County Department of Animal and Rabies Control shall be the official form used within the county for the recording of information when an animal capable of transmitting rabies bites a person.

B. Animal Bite Investigation Responsibilities – Municipal police or other municipal officers with the delegated authority or the Sheriff's Police in unincorporated Cook County shall investigate and complete each animal bite report. They shall notify the owner of the biting animal that the animal must be taken to a Veterinarian within twenty-four hours after the bite. All police departments and the Sheriff's Police shall accept bite reports from medical authorities, bite victims and their families, animal owners and any other person having knowledge of a bite.

C. Department Notification of Animal Bite – Time Limit – The animal bite report form shall be mailed and transmitted via facsimile to the Cook County Department of Animal and Rabies Control within 24 hours after the receipt of a report. The animal bite report shall be mailed to health departments recognized by the State of Illinois within Cook County also within 24 hours of the examination, when directed by the Administrator.

Regulation II – Biting Animal Examination Form – Procedures for Veterinarians

A. First Veterinary Examination – Exam Ten or More Days After Bite. Veterinarians performing the first examination of an animal that has bitten a person shall complete the county rabies observation confinement notice form. However, if the veterinarian has proof (police animal bite report) that the first examination is taking place ten or more days after the bite, and the animal is currently vaccinated against rabies, the veterinarian shall at that time also complete the county rabies observation confinement release form. All forms shall be mailed, preferably faxed to the Cook County Department of Animal and Rabies Control within 24 hours of the examination. If not currently vaccinated the animal must be confined for 10 days regardless of the date of the first examination.

B. Final Veterinary Examination – Failure to Return. Ten days after the bite, if known, or ten days after the first examination the veterinarian shall complete the county rabies observation confinement release form. If an owner of a biting animal fails to return on the final day of the rabies observation period the veterinarian shall return the signed form with the notation "Failure to Return" placed thereon. This form shall be mailed, but facsimile preferred to the County Department of Animal and Rabies Control within 24 hours of the release date.

All animals not currently vaccinated must be vaccinated prior to release from confinement.

Regulation III – Special Procedures for Groups of Unusual Biting Animals

A. Owned Animal to Owned Animal Bite. Any owned animal that bites a person or other owned animal which may contract rabies must be presented to a licensed veterinarian within 24 hours of the bite and if not currently vaccinated for rabies impounded for 10 days.

B. Caged Animals. Owners of caged rabbits, guinea pigs, gerbils, rats and mice that have been owned over thirty days shall not be required to obtain a veterinary examination when their caged animal has bitten a person, but shall report the health of the biting animal by telephone or in person to the County Department of Animal and Rabies Control on the first and tenth day following the bite.

C. Guard Dogs. Owners of guard dogs that have bitten a person in performance of guard duty and have been officially registered shall not be required to obtain a veterinary examination of the dog but shall report the health of the biting animal by telephone or in person to the County Department of Animal and Rabies Control on the first and tenth days following the bite. Guard dogs that are not officially registered shall be confined under observation of a licensed veterinarian for a period of 10 days within 24 hours of the biting incident. If the guard dog is currently vaccinated it may be confined on the premises of the owner in a manner which will prohibit it from biting any person or animal and the guard dog's health shall be reported by the veterinarian to the Cook County Department of Animal and Rabies Control on the first and tenth days of the observation period. When the guard dog is not registered and not currently inoculated with rabies vaccine, the guard dog shall be confined for 10 days in a veterinary hospital or animal control or humane shelter provided there is a veterinarian daily on the premises.

D. Large Animals. Cattle, sheep swine and horses that have bitten a person shall be confined to the owner's property and examined by a veterinarian on the first and tenth days after a bite.

E. Stray Animals. Stray animals that have bitten a person shall be apprehended and held for ten days or less. When the biting stray animal is not held for ten days, it shall be humanely euthanized, unless otherwise directed by the Administrator and the head submitted for rabies examination.

F. Death Before Confinement Period Expires. Any animal, including caged animals, that has bitten a person and dies, is accidentally killed or is humanely euthanized, before the tenth day following the bite shall have the head removed and sent to the local public health laboratory for rabies virus analysis. (FRA Test).

Regulation IV – Guard Dog Registration Certificates

A. Eligibility – Application Form. Owners of dogs used in commercial business for the purpose of patrol and protection shall send a request to the County Department of Animal and Rabies Control for an application form for a Guard Dog Registration Certificate. To be eligible, guard dogs must be inoculated with rabies vaccine that is effective through 1 December of the year which the application is made, and must be subcutaneously injected with a microchip for identification purposes. All guard dogs shall be registered with the County Department of Animal Rabies and Control each and every year.

B. Registration Fee-Exceptions. Guard Dog Registration Certificates will be mailed upon the receipt of a properly completed form and a $10 registration fee. The fee will be waived for police and municipal departments.

C. Expiration Date. Registration certificates shall expire on 31 December of each year.

Regulation V. Rabies Vaccination Certificates

A. Filing of Certificates-Date Due. Veterinarians shall send to the County Department of Animal and Rabies Control Certificates of animals inoculated with rabies vaccine by the 15^{th} and 30^{th} of each month following information. Hospitals using the ACE program must back up certificate information daily.

B. Vaccination Certificate File in the Animal Hospital. Veterinarians shall maintain their own rabies vaccination file for three years past the date of inoculation.

Regulation VI. Submission of Specimens for Rabies Virus Analysis

A. Specimen to be Submitted. Only the head of animals that are capable of transmitting rabies and that have bitten a person, shall be submitted for rabies virus analysis except those in which the suspect animal weighs approximately five hundred grams or one pound (bats, mice, gerbils, hamsters, etc.) In the latter case the entire animal shall be submitted.

B. Time Limit for Submission: Specimens shall be submitted with 24 hours of the bite whenever possible or within 24 hours of the receipt of the specimen.

C. Refrigeration. All specimens shall be refrigerated (not frozen) until received by the public health laboratory.

D. Packaging. Specimens shall be shipped or sent by messenger only in leak proof (double wrapped in plastic) containers accompanied by an information card indicating the species and number of specimens submitted, name, address and telephone number of the bite

victim and the name, address and telephone number of the person submitting the specimen.

E. Location for Submission. Residents of the county shall submit specimens to the Illinois Public Health Laboratory at 2121 West Taylor in Chicago, during the hours of 8:30 a.m. and 4:40 p.m. on Monday through Friday. On weekends and holidays the specimens should be refrigerated and submitted to the Illinois Public Health Laboratory on the next working day. Emergency service on weekends and holidays is provided by calling the County Department of Animal and Rabies Control. A fee of $30 will be charged for this service, as set forth in subsection F.

F. Fee for Transporting Specimens. The County Department of Animal and Rabies Control will transport specimens to the Public Health Laboratory from facilities such as veterinary hospitals and humane societies and from individual residents of Cook County, for a fee of $30.

Regulation VII. Redemption of Apprehended Animals

A. Place of Impoundment. Animals apprehended by the County Department of Animal and Rabies Control shall be impounded in facilities designated by the department.

B. Duration of Impoundment. The impoundment period shall be four days at which time animals impounded become the property of the department.

C. Redemption of Impounded Animals-Conditions. Owners of apprehended animals prior to release of the animal shall present proof of current rabies inoculation for animals and pay the following redemption fee:

1. $25 to cover the pick-up service and the requirement under the Illinois Animal Control Act.

2. Boarding fees as determined by the holding facility for each day or part of day that the animal is held.

3. Rabies inoculation fee for animals as determined by the holding facility if no current rabies inoculation is present.

Regulation VIII. Dog Parks and Areas

A. Definitions

Terms not defined in this Regulation VIII shall be defined in Section II of the Cook County Animal and Rabies Control Ordinance.

Dog Park means an enclosed area of land where dogs are permitted to be off leash.

Leash means a cord, rope, strap, or chain which shall be securely fastened to the collar or harness of a dog or other animal and shall be of sufficient strength to keep such dog or other animal under control.

Operator means any Person who owns, operates or provides for use by patrons a Dog Park.

B. Requirements

1. No person shall be an Operator of a Dog Park unless such Dog Park is in compliance with this Regulation VIII.

2. A Dog Park must be completely enclosed by a contiguous fence with each entrance designed in such a manner as to secure against accidental opening.

3. There must be prominently displayed at each entrance to a Dog Park a sign that sets forth the Operator's rules for use of the Dog Park by patrons which rules shall not be inconsistent with these regulations.

4. Dogs must be on a Leash when entering into and leaving a Dog Park. They may be taken off a leash while within the Dog Park except as necessary for the safety of the dog or patrons.

5. The Operator must institute a plan (e.g. licensing/permitting and/or use of a key or keycard system) satisfactory to the Administrator for each Dog Park that reasonably ensures that access to the dog park is limited to dogs:

   a. for whom there is written proof of an examination within the past year for any communicable diseases including an examination of a stool specimen for internal parasites, and current vaccinations for Distemper, Hepatitis, Leptospirosis, Para-influenza, Parvovirus and Bordetella (kennel cough) unless an exemption to this requirement has been granted by the Administrator upon the written recommendation from the Owner's veterinarian; and

   b. who are in compliance with rabies vaccination requirements of the Illinois Animal Control Act (510 ILCS 5); and

c. who are currently licensed by the local government where the Dog's Owner lives.

6. The plan required by B (5) above shall be filed in writing with and must be approved by the Administrator prior to the Operator permitting patrons to use a Dog Park after the effective date of these regulations. Once approved by the Administrator, any proposed change in the plan must be approved by the Administrator prior to such change becoming effective.

7. The Operator must institute a system of periodic surveillance to monitor compliance by Dog Park Patrons with the Operator's Dog Park plan and rules. The Operator shall have a policy for those instances in which a patron does not observe the Operator's rules. The Operator shall permit the Administrator to monitor and enforce compliance by Dog Park Patrons with the Operator's Dog Park plan and rules.

8. The Dog Park must have covered leak-proof containers available for storage of waste materials for disposal to control vermin and insects, which containers shall be periodically emptied and maintained in a sanitary condition.

9. Patrons shall comply with the Operator's rules and regulations.

A. Violations

A Violation of these regulations by an Operator or Patrol shall be punishable as set forth in Section XI of the Cook County Rabies and Animal Control Ordinance.

Effective Date:

These regulations shall become effective on January 1, 2010

Part III.

WHEN AN ANIMAL BITES

1. These guidelines are based on requirements and recommendations of the Illinois Department of Agriculture and Public Health, the Illinois Animal Control Act and the Cook County Department of Animal and Rabies Control for:

    a. Biting Animal Owners
    b. Bite Victims
    c. Physicians and other Medical Personnel
    d. Police Officers
    e. Veterinarians

2. Animal bites can cause rabies and other serious infections and scarring. These truths should be known about rabies:

    a. Rabies is a fatal disease that affects all mammals including man.

    b. Rabies vaccination is safe for all animals. To be effective, rabies vaccine must be given at least four weeks before an animal is exposed to rabies.

    c. Rabies is decreasing as a human disease because there has been an increasing number of cats and dogs inoculated with the rabies vaccine and there are improved Public Health Programs stressing the need for stray control and rabies vaccination for cats and dogs.

    d. In spite of vaccination programs, rabies is still very prevalent in wildlife. It will continue to be a serious public health problem for many years to come.

Section I. Guidelines for Owners of Biting Animals

A. LAW ENFORCEMENT-LEGAL REQUIREMENTS

The Cook County Department of Animal and Rabies Control is the organization that is given the authority to enforce the laws relating to biting animals (510 ILCS 5/1 et seq.). The basis for these laws is protection of the health of the bite victim through the control of rabies. The health of the biting animal is determined by an examination and through the observation of the biting animal by a veterinarian for ten days following the bite.

The need to impound a biting animal is dependent upon the laws of the County in which the biting animal owner lives.

A more direct and effective method of determining rabies in the biting animal is through the examination of the brain of the killed animal. This method is less than pleasing to most animal owners.

B. REPORT EACH BITE

Owners of biting animals, regardless of the reason for the bite, must recognize that all bites must be reported to protect the bite victim's health. All confirmed cases of rabies in man have been fatal. All bite report forms are forwarded to the Cook County Department of Animal and Rabies Control. When the Department receives an Animal Bite Report form without the additional veterinary health evaluation of the biting animal, the biting animal owner is contacted by telephone or by mail and informed of this requirement.

C. LOCAL POLICE ACCEPT ALL BITE REPORTS-CORRECTED REPORTS

Police personnel are trained to complete the Animal Bite Report form. Information for this report form is supplied to the local police department in which the owner of the biting animal lives by: medical personnel, bite victims, animal owners and other persons who have knowledge of a bite. Whenever there is controversy about the Animal Bite Report, the local police district shall be called so that a corrected report can be filed. Disputes not resolved in the local police district will require the bite victim to request a court appearance by the owner of the biting animal.

D. EXCEPTION

Owners of biting caged rabbits, hamsters, guinea pigs, gerbils, rats and mice (if ownership can be established over thirty days duration) and biting registered guard dogs are only required to call the Cook County Department of Animal and Rabies Control on the first and tenth day after the bite and report the health of the biting animal.

E. DEATH OF BITING ANIMAL

Whenever a biting animal dies within ten days of the bite, the head of the animal must be submitted to the local public health laboratory for rabies virus analysis. If the death of a biting animal other than a dog or a cat occurs for any unspecified reason within thirty days of a bite, it is advisable for the animal owner to submit the animal head for laboratory evaluation.

F. COURT APPEARANCES

Owners of biting animals shall be required to appear in court for violation of the law whenever any of the following occur:

1. If the biting animal is not currently vaccinated against rabies.

2. If the biting animal is allowed to bite a person when under the ten day home confinement.

3. If the biting animal is given away or sold, is allowed to roam, escapes or is otherwise disposed of during confinement period.

4. If the biting animal is not submitted for the required veterinary examination after the bite.

Section II. Guidelines for Bite Victims

A. HOME CARE FOR BITE WOUNDS-MEDICAL ADVICE

Awareness of the importance of the care of animal bite wounds will help prevent infection and rabies and relieve much of the anxiety about animal bites. It is essential that all bite wounds receive immediate attention. An immediate thorough flushing of the wound with water while allowing the wound to bleed freely, followed by a scrubbing with soap or a good disinfectant agent will minimize serious side effects of a bite. Following the first aid treatment of the animal caused wound, medical advice should then be sought to determine the most effective final treatment.

B. REPORT ALL BITES TO LOCAL POLICE-CAPTURE OF THE BITING ANIMAL-SCRATCHES

All bites (breaks in the skin) shall be reported to the local police, but those bites caused by at large (stray) and high risk kinds (species) or wild animals, such as the skunk and bat, shall be immediately reported to the police while it is possible to capture the biting animal. Because of the risk involved, the at large (stray) or wild animal should be continually observed until it is captured by the local police or authorized officer.

C. REDUCE THREAT OF RABIES

The threat of rabies to the life of the bite victim also will be minimized if the biting animal is captured and placed under observation of a veterinarian. The bite victim must recognize that the medical decision to administer anti-rabies injections (shots) is based mainly on these facts:

1. Capture and clinical evaluation of the health status of the biting animal by a veterinarian.

2. Kind (species) of biting animal.

3. Circumstances surrounding the biting incident.

    a. Was the bite provoked?

    b. Was the wound caused by the animal's nails or claws?

In addition the bite victim must understand that any break in the skin caused by an animal should not be regarded lightly. Death is the result of clinical rabies in animals or humans.

Section III. Guidelines for Medical Doctors and Associated Medical Personnel

A. REQUIREMENT TO REPORT ANIMAL BITES-CONTENTS OF ANIMAL BITE REPORT FORM

All medical personnel are required under the Cook County Animal and Rabies Control Ordinance to report all animal bites. Within Cook County the animal bite incident is reported to the police or other authorized personnel in the area in which the biting animal owner lives. If the biting animal was a stray or wild animal, the bite report should be given to the police or other authorized personnel in the area in which the bite occurred. The Animal Bite Report form requires this information:

1. Name, address and telephone number of the animal owner;

2. Name, address and telephone number of the bite victim;

3. Address where the bite happened;

4. Type, breed, sex and color of the biting animal;

5. Rabies Vaccination status of the biting animals (Cook County Rabies Vaccination tag number is necessary);

6. Community animal license number (not a Cook County requirement);

7. The name of the veterinarian who examined or will examine the biting animal;

8. Date the bite occurred;

9. Notation if a ticket was issued for any violation.

B. RATIONALE OF TREATMENT FOR BITTEN PERSONS (As adapted from the U.S. Public Health Service) Every exposure to possible rabies infection must be individually evaluated. Over eight thousand (8,000) animal bites are reported each year in Cook County. The following factors should be considered before anti-rabies treatment is initiated:

1. Species of biting animal

Carnivorous animals (within Cook County, skunks, raccoons, coyotes, stray dogs, stray cats, ferrets) and bats are more likely than other animals to be infected with rabies. However, any warm blooded animal can be infected with the rabies virus.

2. Circumstances of the biting incident

An UNPROVOKED ATTACK is more likely to mean the animal is rabid. Bites inflicted on a person attempting to feed or handle an apparently healthy animal should generally be regarded as PROVOKED.

3. Types of exposure

Rabies is commonly transmitted by the inoculation of infectious saliva through the skin. The possibility infection will result from exposure to a rabid animal varies with the nature and extent of exposure. Two categories of exposures should be considered:

a. Bite, any penetration of the skin;

b. Non-bite, scratches, abrasions, open wounds or mucous membranes contaminated with saliva.

4. Vaccination status of the biting animal

A properly immunized animal has only a small chance of developing rabies and transmitting the virus.

5. Presence of rabies in the area

Cook County is endemic for skunk and bat rabies.

C. MANAGEMENT OF THE BITING ANIMAL

The Cook County Department of Animal and Rabies Control is the department that administers the Cook County Animal and Rabies Control Ordinance. Each animal, except as noted below, that bites a person must be examined within twenty-four hours of the bite and placed under observation of a veterinarian for ten days. Owners of laboratory type animal pets (rabbits, guinea pigs, hamster, gerbils, rates and mice) owned over thirty days and registered guard dogs are required to call the Cook County Department of Animal and Rabies Control on the first and tenth day following a bite. Strays or unwanted animals may be killed immediately and their heads submitted for rabies examination by fluorescent microscopy. Signs of rabies in wild animals cannot be interpreted reliably; therefore, any wild animal that bites or scratches a person shall be killed at once (without necessary damage to the head) and the brain examined for evidence of rabies.

D. RABIES CASE PROCEDURE

Whenever a biting animal develops signs suggestive of rabies, the animal will be euthanized and the head removed and taken to the Illinois Public Health Laboratory. In all cases positive for rabies the medical personnel or health facility reporting the bite will immediately be notified through a telephone call from the Administrator.

E. POST EXPOSURE PROPHYLAXIS

The latest recommendation for post exposure prophylaxis are published by the United States Public Health Service Advisory Committee on Immunization Practices found in the Morbidity and Mortality Weekly Report of the U.S. Department of Health Education and Welfare. The report is dated 31 December 1976 – Volume 25 – Number 51. If questions persist after reviewing these recommendations, consultation can be sought at the full time local Public Health Department or the Cook County Department of Public Health.

F. LOCAL TREATMENT OF WOUNDS

Immediate and thorough local treatment of all bite wounds and scratches is perhaps the most effective rabies preventive. The wound shall be thoroughly cleansed with soap and water. When the wound treatment is under the direction of a physician, tetanus prophylaxis and control of bacterial infection should be given as indicated. Experimentally, the incidence of rabies in animals can be markedly reduced with local therapy alone.

Section IV. Guidelines for Police Personnel

A. METHOD OF ENFORCEMENT

All police officers are sworn to uphold all Federal, State and Local Laws. Within Cook County, the local police are usually designated to investigate each animal bite. In some communities, special police officers are assigned to this duty.

B. PURPOSE OF ANIMAL BITE REPORTS

The purpose of the animal bite investigation is to determine if a bitten person has been exposed to rabies. The question of rabies exposure can best and most quickly be determined by killing the biting animal, removing the head and submitting it to an approved public health laboratory for rabies virus analysis. Killing of all biting animals, particularly domestic pets, is not generally acceptable. Therefore, the biting animal that is not killed and checked at the laboratory must be examined by a veterinarian within twenty-four hours of the bite.

C. ANIMAL BITE PROCEDURE

1. Assist the bite victim to a medical facility or advise the victim to seek medical advice.

2. Inform the owners of the biting animals that the animal must be examined by a veterinarian within twenty-four hours of the bite.

3. Capture or keep under continuous surveillance all wild animals and other biting animals that are at large (stray).

4. Complete and mail within twenty-four hours an Animal Bite Report form to the Cook County Department of Animal and Rabies Control. In Chicago the police officer must complete form CPD-34.226 and call 311 to report bite and make bite report available to the Cook County Department of Animal and Rabies Control.

D. CONTENTS OF AN ANIMAL BITE REPORT FORM

Information required to complete the Animal Bite Report form is as follows:

1. Name, address and telephone number of the animal owner

2. Name, address and telephone number of the bite victim

3. Address where the bite happened

4. Type, breed, sex and color of the biting animal.

5. Rabies Vaccination status of the biting animal (Cook County Rabies Vaccination Tag Number is necessary)

6. Community animal license number (not a Cook County requirement)

7. The name of the veterinarian who examined or will examine the biting animal

8. Date the bite occurred

9. Notation if a ticket was issued – for any violation.

E. LEGAL GUIDELINES FOR IMPOUNDMENT

The County Ordinance applies throughout Cook County including within a home rule municipality. Any municipality, regardless of its population may pass an Ordinance effective within jurisdiction more strict than the County ordinance.

F. FACTS ABOUT ANIMAL BITES AND RABIES

All animal bites involving a person must be reported, but the break-down into high risk and low risk bites is intended to aid the police officer in determining the need for animal capture and the urgency for rabies treatment of a bitten person.

1. High risk bites (victims commonly receive shots)

   a. Stray (at large) animals where ownership is not known.

   b. Wild animals. Within Cook County the bat and the skunk are the species most often involved.

   c. Sick animals not under the care of a veterinarian.

   d. Any pet animal that attacks a person for no known reason (UNPROVOKED BITE).

2. Low risk bites (victims rarely receive shots).

   a. Pet animals that bite as a result of an action of a person (PROVOKED BITE).

   b. Bites inflicted by rabbits, squirrels, guinea pigs, hamsters, gerbils, chipmunks, rats, mice and other rodents. Within the United States human rabies has never resulted from a bite from these animals.

   c. Bites that in fact are wounds caused by the animal's claws or nails (scratches) without contamination by the animal's saliva.

Section V. Guidelines for Veterinarians

A. VET EXAM REQUIRED – EXCEPTIONS

All biting animals except those listed below must receive a veterinary examination within twenty-four hours of a bite. Guard dogs registered with the Cook County Department of Animal and Rabies Control, and laboratory pet type animals (rabbits, hamsters, guinea pigs, gerbils, rats and mice) owned over thirty days are exempt from veterinary examination, but their owners must contact the Department within twenty-four hours after the bite.

B. PROCEDURE FOR RABIES OBSERVATION HOME CONFINEMENT AGREEMENT – SPECIAL PROCEDURES

1. Instruct the animal owner to read the Rabies Observation Home Confinement Agreement.

2. Complete the forms.

3. Have owners sign the Rabies Observation Confinement Notice.

4. Mail the Rabies Observation Confinement Notice within twenty-four hours after the time of the examination.

5. Mail the Rabies Observation Release Notice within twenty-four hours of the date listed as the tenth day on the Rabies Observation Confinement Agreement (Section 4B).

6. Details regarding special procedures are incorporated in Regulation 2 and Regulation 3 of the Cook County Animal and Rabies Control Ordinance.

C. RABIES IN ANIMALS

Rabies in animals is sporadic and found mainly in wild animals. Whenever wild animals lose their natural fear of people in the wild state and are involved in an animal or person bite, rabies should be considered a possibility. Specific symptoms of rabies in wild animals are varied so that there is not one reliable symptom to assist in the diagnosis. All biting wild animals should be killed, and the head should be removed and sent to the public health laboratory for rabies virus analysis.

Symptoms of rabies in domesticated animals are more reliable and include the following: un-coordination, lethargy, dilated pupils, futile attempts to eat and drink, excessive salivation with frothy accumulation about the mouth, change in voice, change in disposition, restlessness, progressive aggression, paralysis and death. While rabies transmission is possible because of a bite, in most cases, the animal is showing symptoms one or two days after the bite and is dead by the fifth day.

D. LEGAL GUIDELINES FOR IMPOUNDMENT

The County Ordinance applies throughout Cook County including within home rule municipalities. Any municipality regardless of its population may pass an ordinance effective within its jurisdiction more strict than the County ordinance.

Part IV.

ANIMAL CONTROL THROUGH THE FORMATION OF A COMMUNITY DEPARTMENT OF ANIMAL CONTROL

1. Introduction
2. Community Governmental Participation
3. Animal Control Advisory Committee
4. Department of Animal Control
5. Improvement of Local Animal Control Ordinance
6. Training of Police and/or Animal Control Personnel
7. Public Education in Animal Control
8. Summary

1. Introduction

Animal control is a term often misunderstood in most urban communities. It is frequently thought to be not more than a change from the expression of dog catcher-dog pound. In reality an Animal Control program of today is a multifaceted concept involving local government, public health, media cooperation, public education and citizen participation in cooperation with specialists in animal health, care and control. Communities within Cook County have many types of animal control programs varying from a sophisticated program to little or no program at all. The purpose of these guidelines is to present a workable formula which can be used by any community as pattern for establishing a sound functional Animal Control program. Innovations and variations of this formula, of course, would have to be adapted to each community's individual problems and peculiarities.

2. Community Governmental Participation

The first and most important step in the establishment of a good Animal Control program is to secure the interest and cooperation of the local governing body. A knowledgeable person should meet with the members of the local government and present to them a concise, explicit and comprehensive description of Animal Control and the animal control problems within their community. It is important that the governing body of a community be aware of the problems, purposes and goals of Animal Control. Since there are often many difficulties and differences of opinion concerning Animal Control, a carefully outlined program will help insure cooperation of local governmental officials.

3. Animal Control Advisory Committee

A community Animal Control program is a very new concept. Not all communities have people available who have enough real expertise to set up and direct a sound workable program. When this expertise or experience is not available, the community should appoint a small group of experts to act as an advisory committee. The Cook County Department of Animal and Rabies Control is willing and anxious to assist the local community in its search for individuals to fill these positions. This committee can assist in developing and organizing a complete Animal Control program. Impounding methods, licensing procedures, record keeping, training procedures for personnel, development of a humane educational program and the organization of a community Animal Control committee should be included in this program. The committee should be limited in number but should include such people as:

PURPOSE

a. A person knowledgeable in humane society work.

b. A person with expertise in animal care facility (dog pound) operations.

c. An interested veterinarian.

d. A public citizen interested in animal control work.

e. A community official responsible for the local program.

4. Department of Animal Control

Every community that is interested in a good Animal Control program must establish a Department of Animal Control. In most cases it is not necessary to have a separate department but the department can be placed under the administration of another governmental agency, such as the Health Department or Police Department. It is important, however, for the department to have its own title and identity for it to be effective in dealing with the public and other governmental agencies. At least one person should be given the responsibility and authority to carry out the duties of the Department.

5. Improvement of Local Animal Control Ordinances

In order to achieve a good Animal Control program in any community proper Animal Control Ordinances must be legislated. Local ordinances usually need to be updated, revised, or completely re-written to include changes in State and Federal Laws as they apply to the community. The Cook County Department of Animal and Rabies Control has available as a guideline its recently passed Cook County Animal and Rabies Control Ordinance that can be used with a few revisions in most areas of Cook County. No local Animal Control program should be without a sound basic Animal Control Ordinance from which to establish goals and guidelines.

6. Training of Police and/or Animal Control Personnel

All police officers are sworn to uphold all Federal, State and Local laws. The trend over the last several years is to separate the Animal Control Department from the local Police Department. However, within Cook County the local police officer is, most frequently, the person who investigates and completes the Cook County Animal Bite Report form.

Each officer, whether a police officer or an Animal Control officer, assigned the responsibility for Animal Control should be kept informed about the existing laws concerning animals. The Cook County Department of Animal and Rabies Control has the capability to provide training for the local police officer involved in Animal Control. Good cooperation between the police personnel and the Animal Control personnel is essential for the effective program.

7. Public Education in Animal Control

The real key to a successful Animal Control program involves the community resident. In actuality Animal Control in its simplest interpretation means keeping owned pets and unwanted stray pets from roaming in a community. At one time or other most all free roaming pets have had or have an owner. Consequently, an informed public is the answer to a successful program. Good public participation in Animal Control must be accomplished through education and pet identification. Most communities can produce a good educational program through these areas:

a. SCHOOLS

Children love pets and are very attentive and sensitive to pet problems. Children can be very effective in their approach at home relative to what they have learned in school about their pets needs and cares. The American Humane Society and the Chicago Anti-Cruelty Society have education programs as part of their services. There are many movies, posters and literature geared to grade school level that are effective in teaching Animal Control to your children. The Illinois Dog Clubs and Breeder's Association has formulated an excellent core curriculum which can be incorporated into the grade school (Grade K through 6) with great ease and success.

b. SERVICE CLUBS

Most local service clubs develop their meetings around a speaker oriented program. Through these programs responsible community leaders can be informed of responsible Animal Control. If this program is developed by many communities, the Cook County Department of Animal and Rabies Control will assist through the formation of a speaker's bureau.

c. MEDIA

There is no human story easier to sell to local newspapers than dog and cat stories. A good Animal Control program should include press releases and messages to the public relative to animal control problems.

d. PET IDENTIFICATION

Every community should have a pet identification program through effective licensing. If every pet that was picked up had a license tag on it for identification, the pet could be immediately returned to its owner. The pet owner should be charged a fee for this service. This kind of service would be well accepted in the community. The fee would reduce impounding cost, return most lost pets, and increase community revenues to help defray animal control expenses. Each community should establish as part of the Animal Control Officer's job

description a door to door enforcement of the laws concerning inoculation of pet animals with rabies vaccine and the purchase of the community animal license.

8. Summary

Responsible ownership should become a goal of each community government. Involvement of the community residents in the creation of an Animal Control Department is the method suggested. Training of personnel involved in Animal Control and the development of a local educational program are necessary to help teach and assist the community's residents in effective Animal Control.

Approved As Amended
By The Board Of The Cook County Commissioners January 1, 2010

Exhibit 8

Winnetka Park District

Elder and Centennial Park and Beach Project Presentation

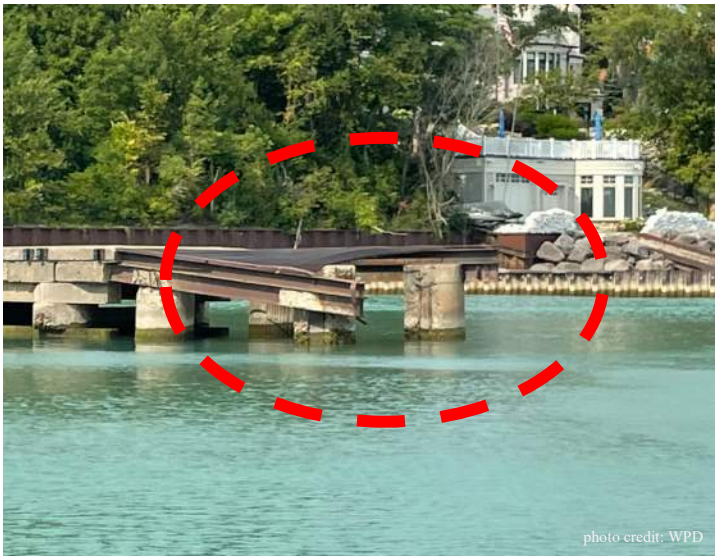
October 13, 2021

ABRIDGED VERSION - JANUARY 30, 2023

Existing Conditions - Lakefront Images

EXISTING CONDITIONS

Elder Park and Beach and its 400 feet of shoreline have experienced water quality issues, erosion and soil breakaway, bluff management challenges, and sea wall damage through the years. The existing steel groins intended to help hold the beach are deteriorating and tipping. The public beach house is regularly flooded by lake water and runoff. The Village's pier and stormwater outfall pipe have suffered significant damage. <u>This beach is currently closed because the existing lakefront structures are unsafe to use.</u>



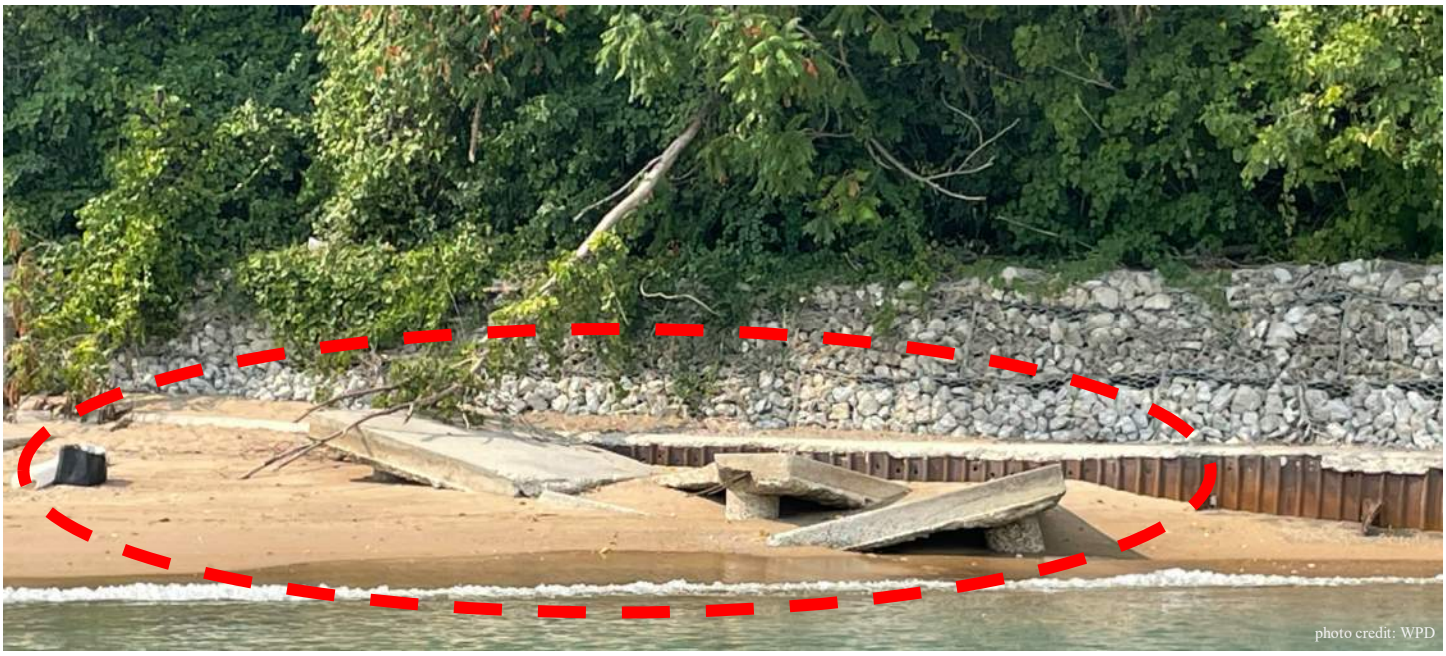
Damaged pier

Damaged pier

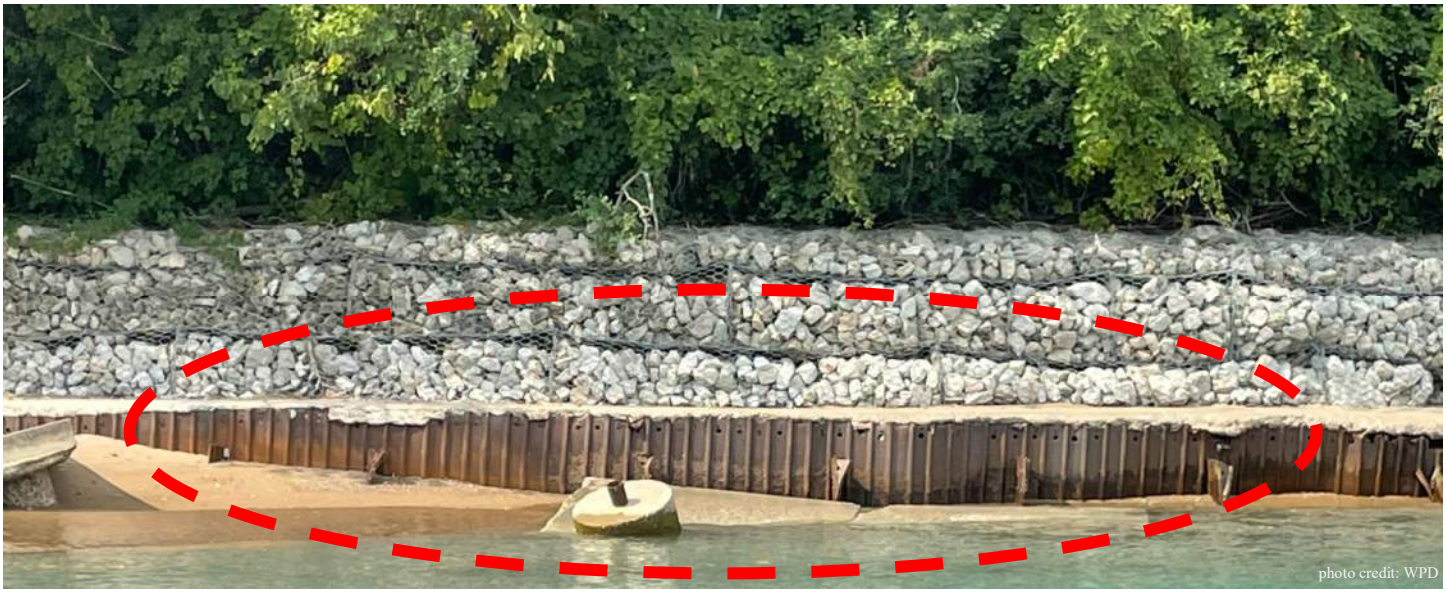
Damaged pier

Damaged gabion baskets

Elder Park and Beach (continued)



Damaged kayak storage rack foundations

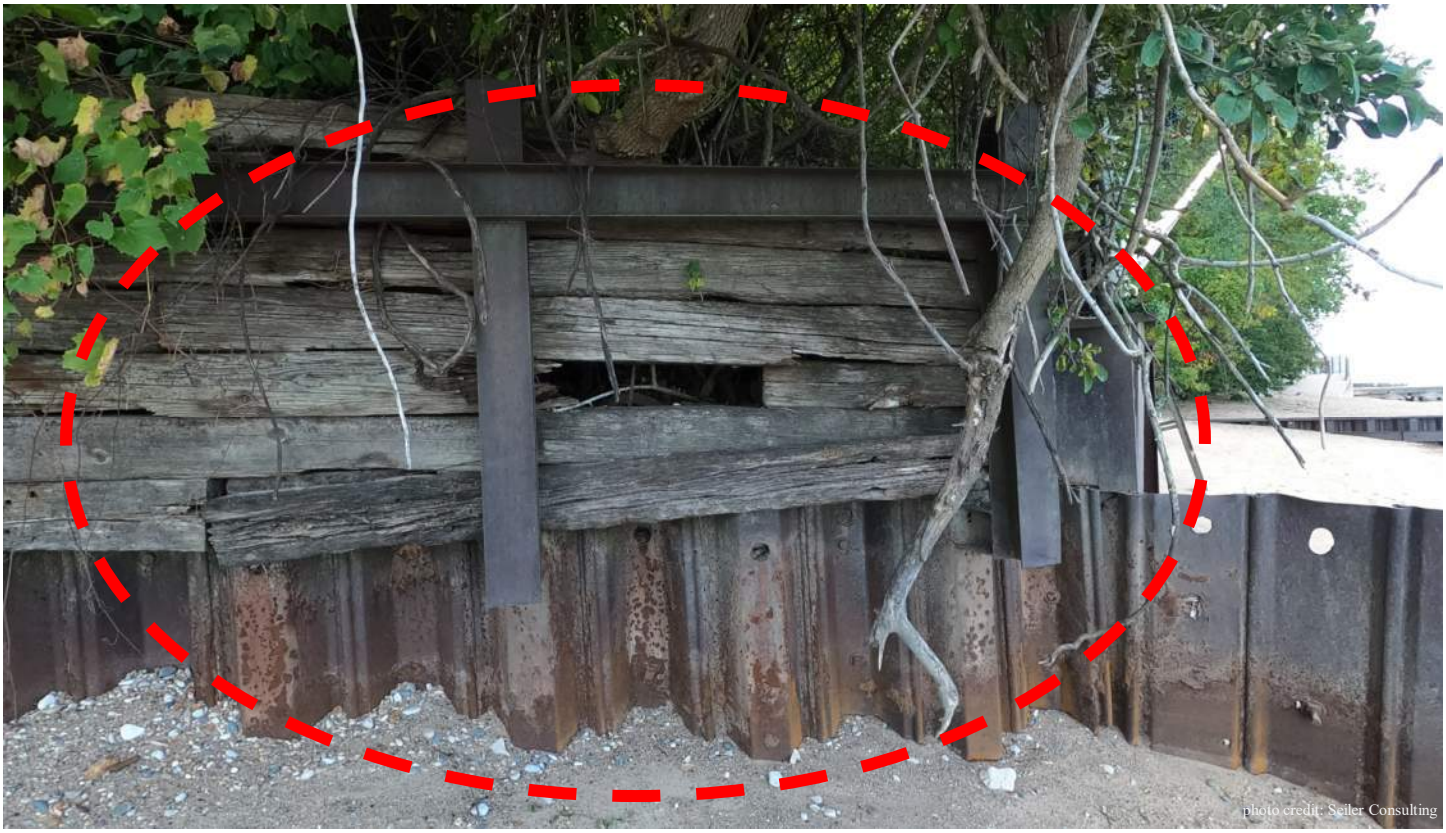


Damaged steel sea wall

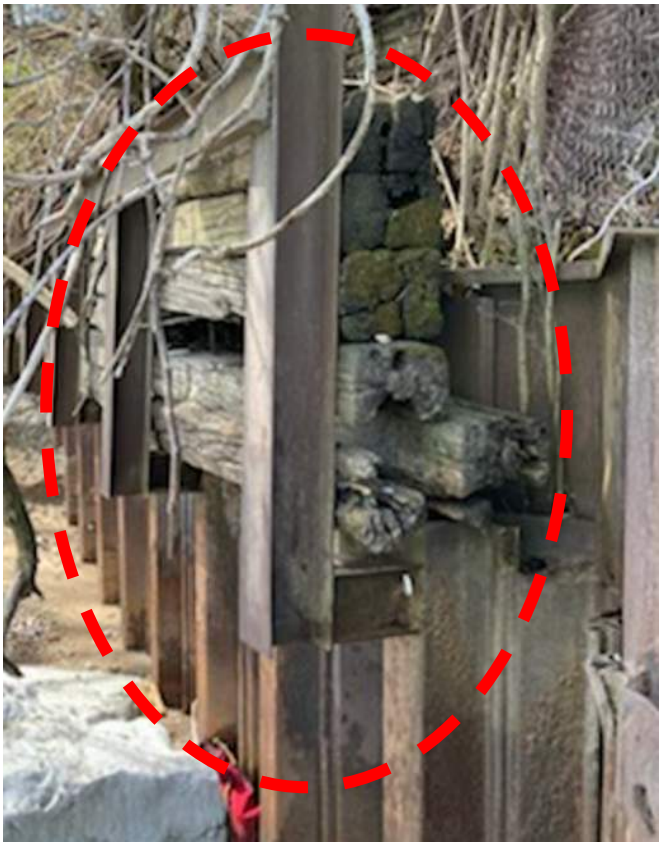
Damaged gabion basket

Spalling concrete sea wall

261 Sheridan Road is a 0.64-acre lakefront property with an existing 5,400 square foot home situated on the eastern portion of the lot. Its steel and timber groins are damaged and failing. The existing steel sheet pile structures on this property prohibit access from Elder to Centennial.



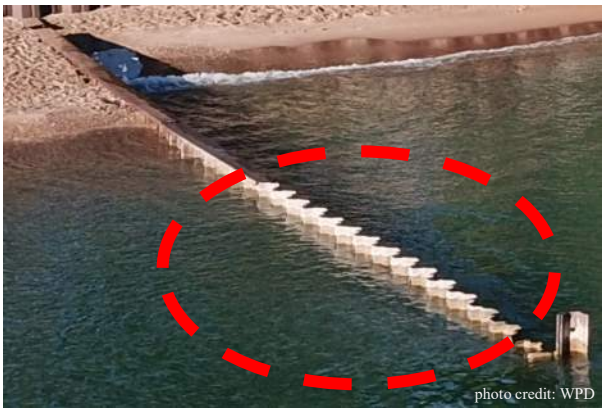
Damaged sea wall



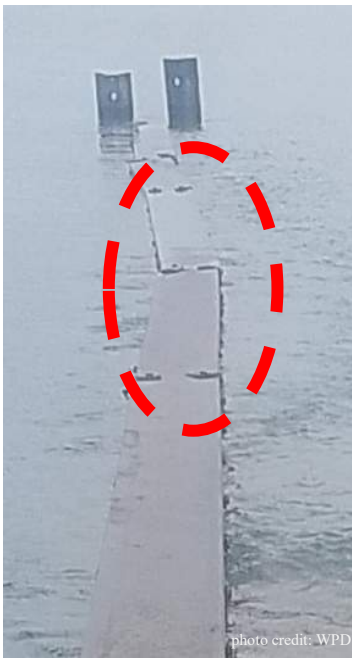
Damaged sea wall

Centennial Park and its 550 feet of shoreline represent the largest and highest quality beach in Winnetka, with a shallow lakebed profile and easy access. The existing steel groins that help hold the beach have deteriorated, are damaged, missing parts and need to be replaced. The beach needs protection against storm surges and high water to prevent future sand washout.

High water and extreme weather conditions have damaged existing infrastructure, causing beach and bluff erosion



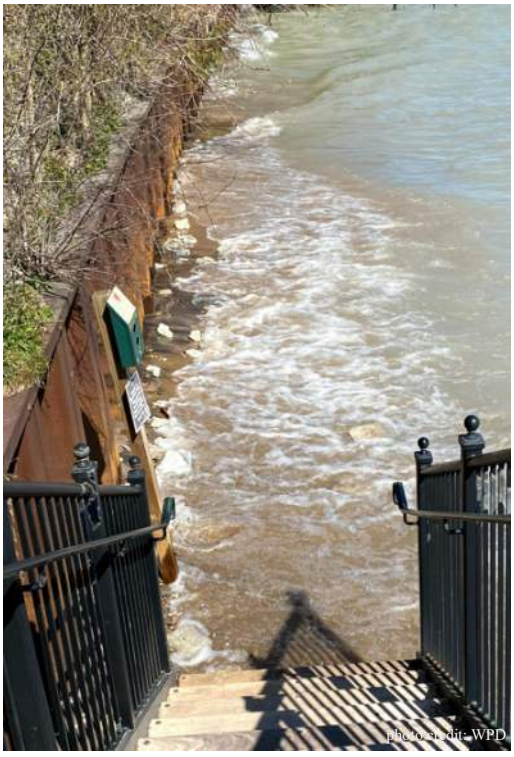
Damaged groin



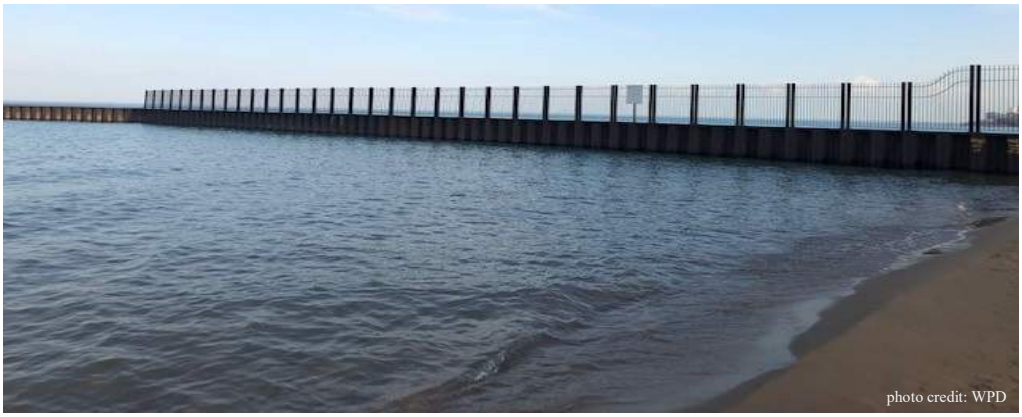
Damaged groin

Centennial Park (continued)

Beach erosion in 2020 meant stairs ended 24” above the beach level

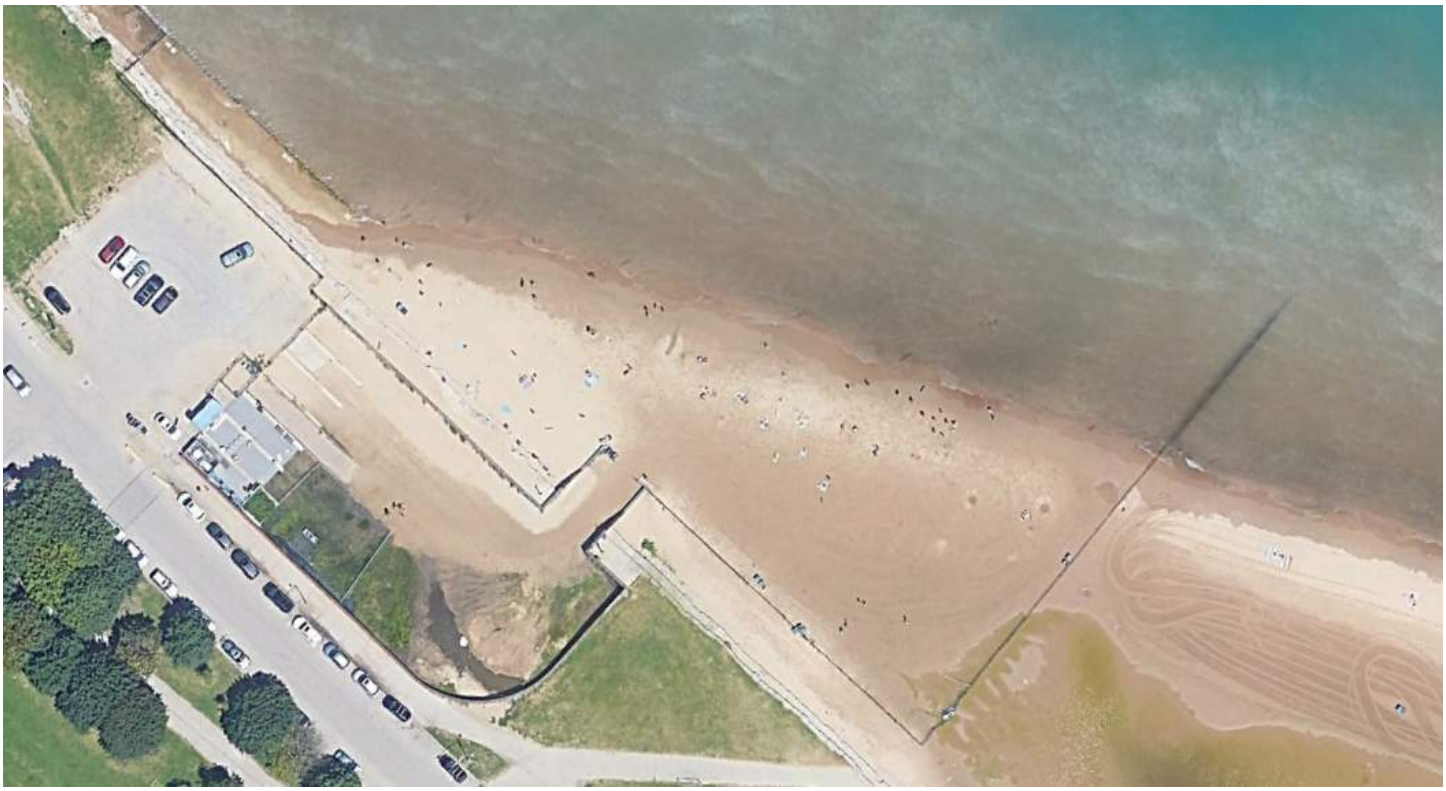


Response to #4 (aesthetics - continued):
Other municipalities have not been as thoughtful or considerate in their solutions to protect beach patrons - and the beach experience is negatively impacted as a result.



Safety measures by other municipalities that are not aesthetically considerate

Response to #9 (access – continued):



Montrose Dog Beach, Chicago

EXISTING PUBLIC PROJECTS with SAFETY STRUCTURES

Glencoe, Beach and Pier

This public beach has a 320’ long pier with a 4-foot-tall white metal safety guardrail along the lakeward sides. This public pier is a shore perpendicular structure that does not have pedestrian access over, across, around, or through it.

Glencoe Beach and Pier (continued)

Kenilworth, Kenilworth Beach

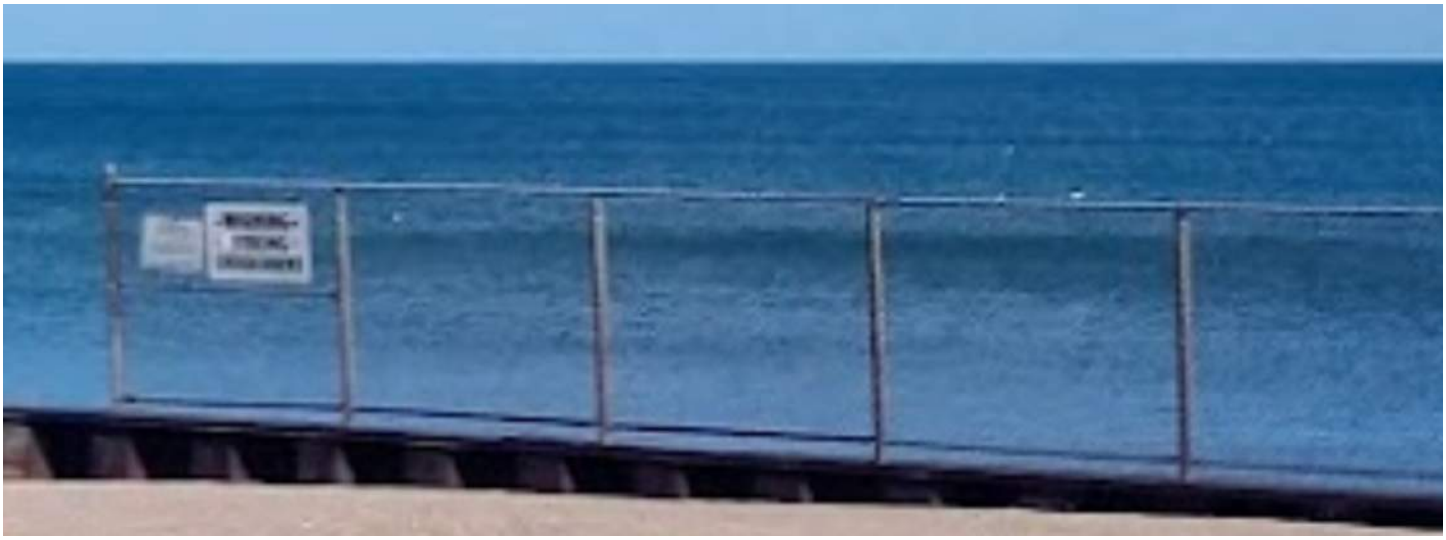
This public beach has a 75-foot-long steel groin with a 4-foot-tall metal chain link fence on top of it that functions as a guardrail. This guardrail protects beach patrons from the fall risk and vertical drop created by the inherent but uneven natural accumulation of sand on the northern and southern faces of a groin – the same safety issue the Park District will face at the New Park and Beach.

This public groin and fence are shore perpendicular structures that do not have pedestrian access over and across them.

Evanston, South Boulevard Beach

This public beach has a 420-foot-long steel groin with a 4-foot tall chain link fence on top of it that functions as a guardrail. This guardrail protects beach patrons from the fall risk and vertical drop created by the inherent but uneven natural accumulation of sand on the northern and southern faces of the groin – the same safety issue the Park District will face at the New Park and Beach.

This public groin and fence are shore perpendicular structures that do not have pedestrian access over and across them.



Evanston, Lee Street Beach

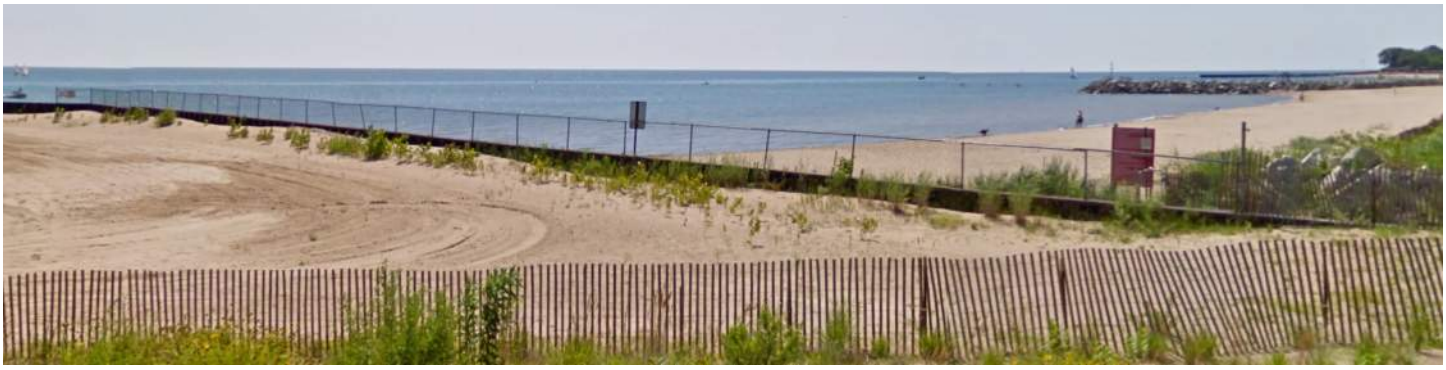
This public beach has a 260-foot-long steel groin with a combination of 6-foot and 8-foot tall metal fence on top of it that functions as a guardrail. This guardrail protects beach patrons from the fall risk and vertical drop created by the inherent but uneven natural accumulation of sand on the northern and southern faces of the groin – the same safety issue the Park District will face at the New Park and Beach.

This public groin and fence are shore perpendicular structures that do not have pedestrian access over and across them.

Evanston, Clark Street Beach

This public beach has a 585-foot-long steel groin with a 4-foot tall chain link fence on top of it that functions as a guardrail. This guardrail protects beach patrons from the fall risk and vertical drop created by the inherent but uneven natural accumulation of sand on the northern and southern faces of the groin – the same safety issue the Park District will face at the New Park and Beach.

This public groin and fence are shore perpendicular structures that do not have pedestrian access over and across them.



Lake Bluff, Sunrise Beach

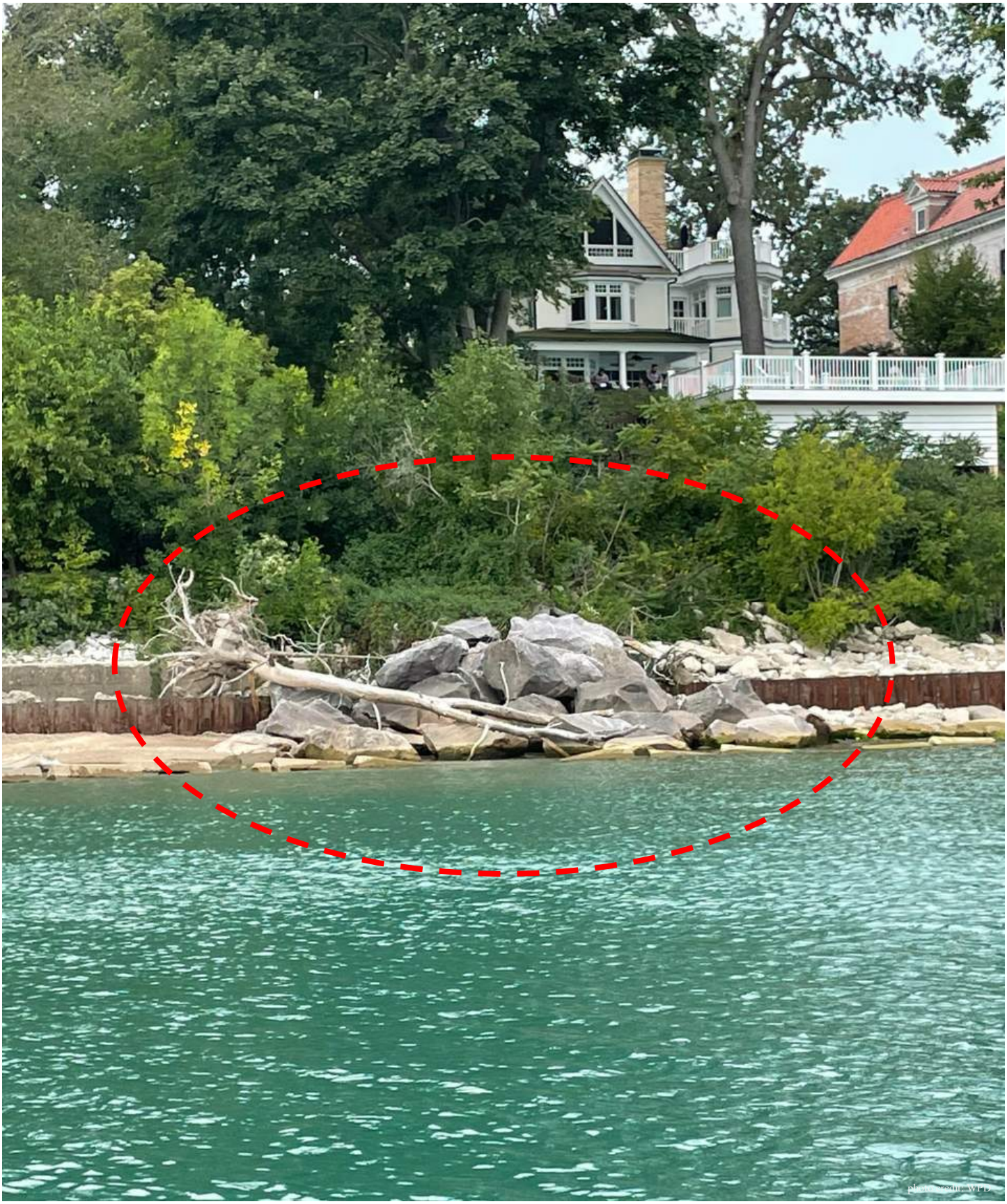
This public beach has a 50-foot-long steel groin with a 4-foot-tall metal chain link fence on top of it that functions as a guardrail. This guardrail protects beach patrons from the fall risk and vertical drop created by the inherent but uneven natural accumulation of sand on the northern and southern faces of a groin – the same safety issue the Park District will face at the New Park and Beach.

This groin and fence are shore perpendicular structures that do not have pedestrian access over and across them.

EXISTING IMPASSABLE LAKFRONT STRUCTURES

This Village of Winnetka stormwater outfall breakwater completely blocks pedestrian movement along the shoreline.

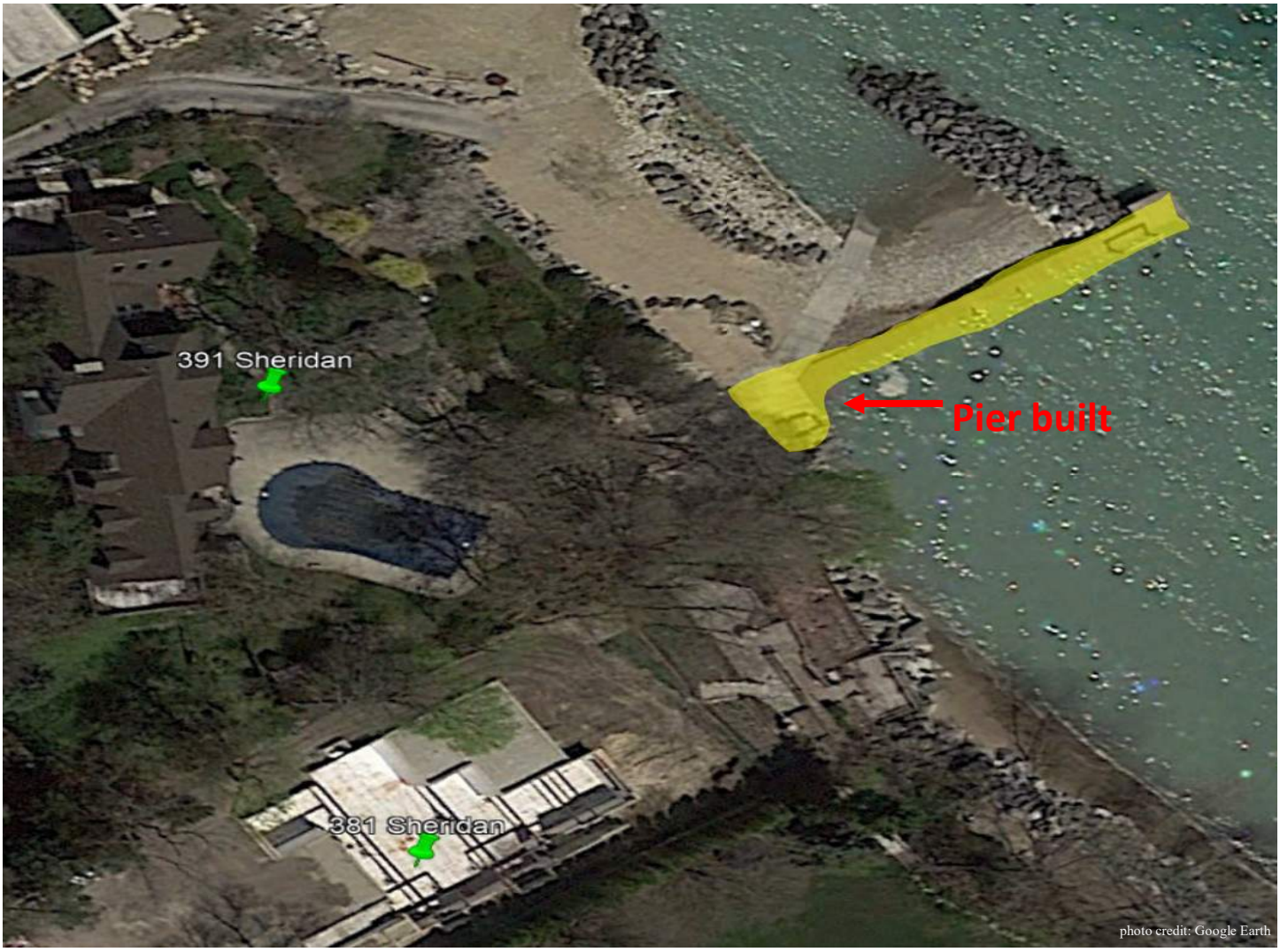
This Village of Winnetka stormwater outfall breakwater completely blocks pedestrian movement along the shoreline.



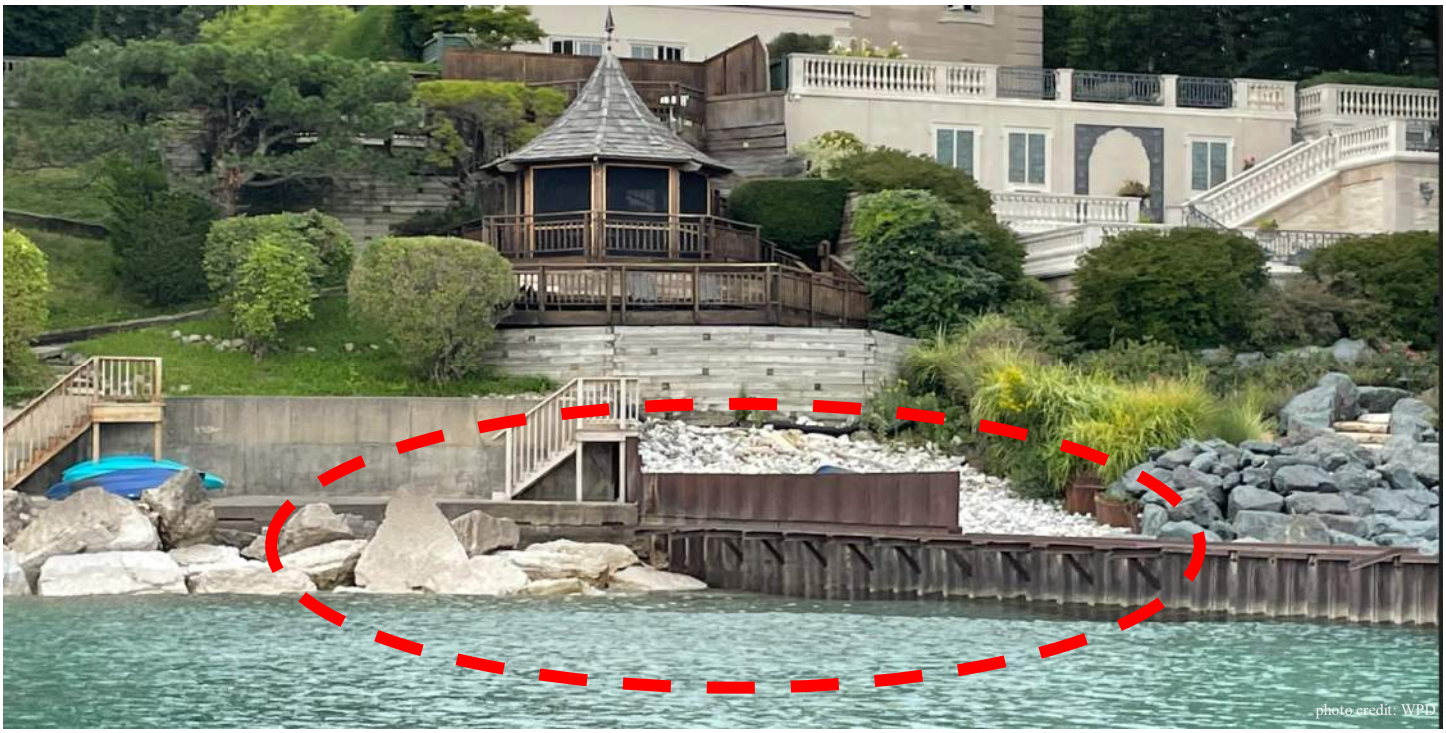
This Village of Winnetka stormwater outfall breakwater and planting pocket completely block pedestrian movement along the shoreline.

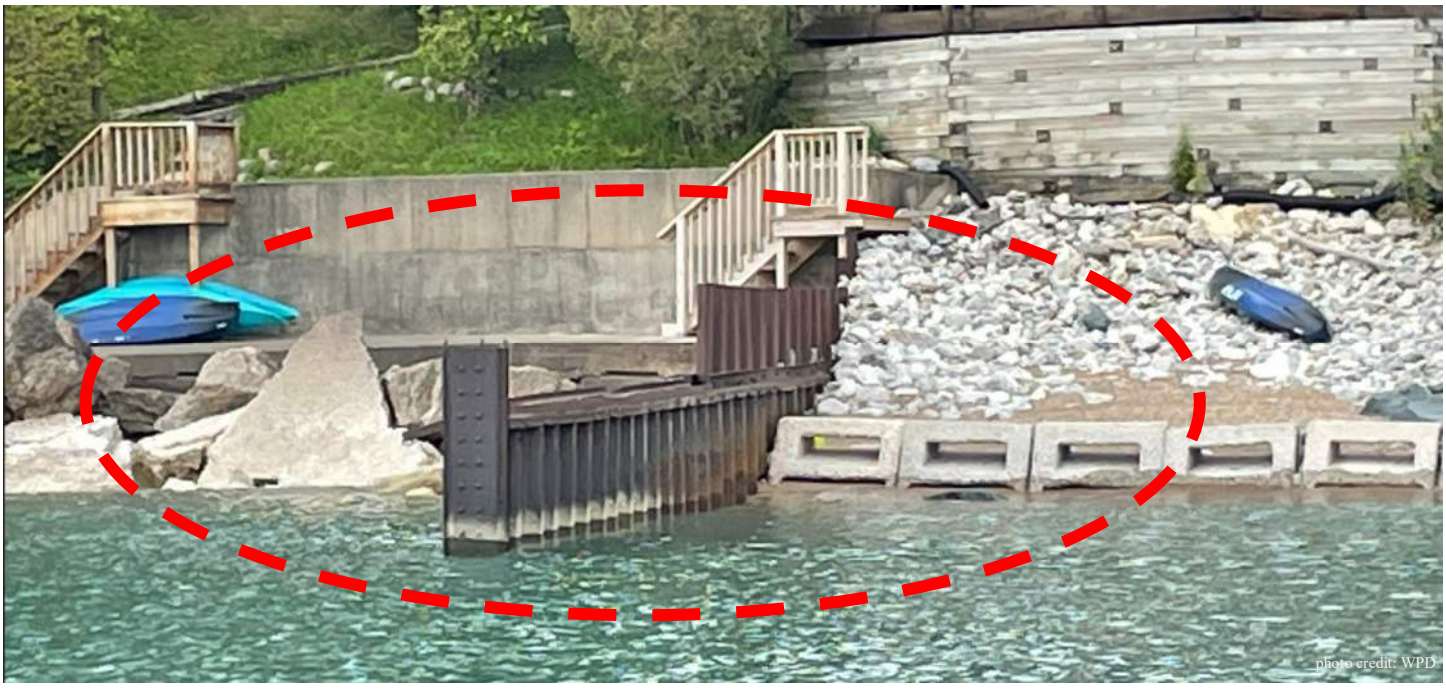
This section of shoreline has multiple structures that completely block pedestrian movement along the shoreline.

The private pier is approximately 54” above the current water line and completely blocks pedestrian movement along the shoreline.



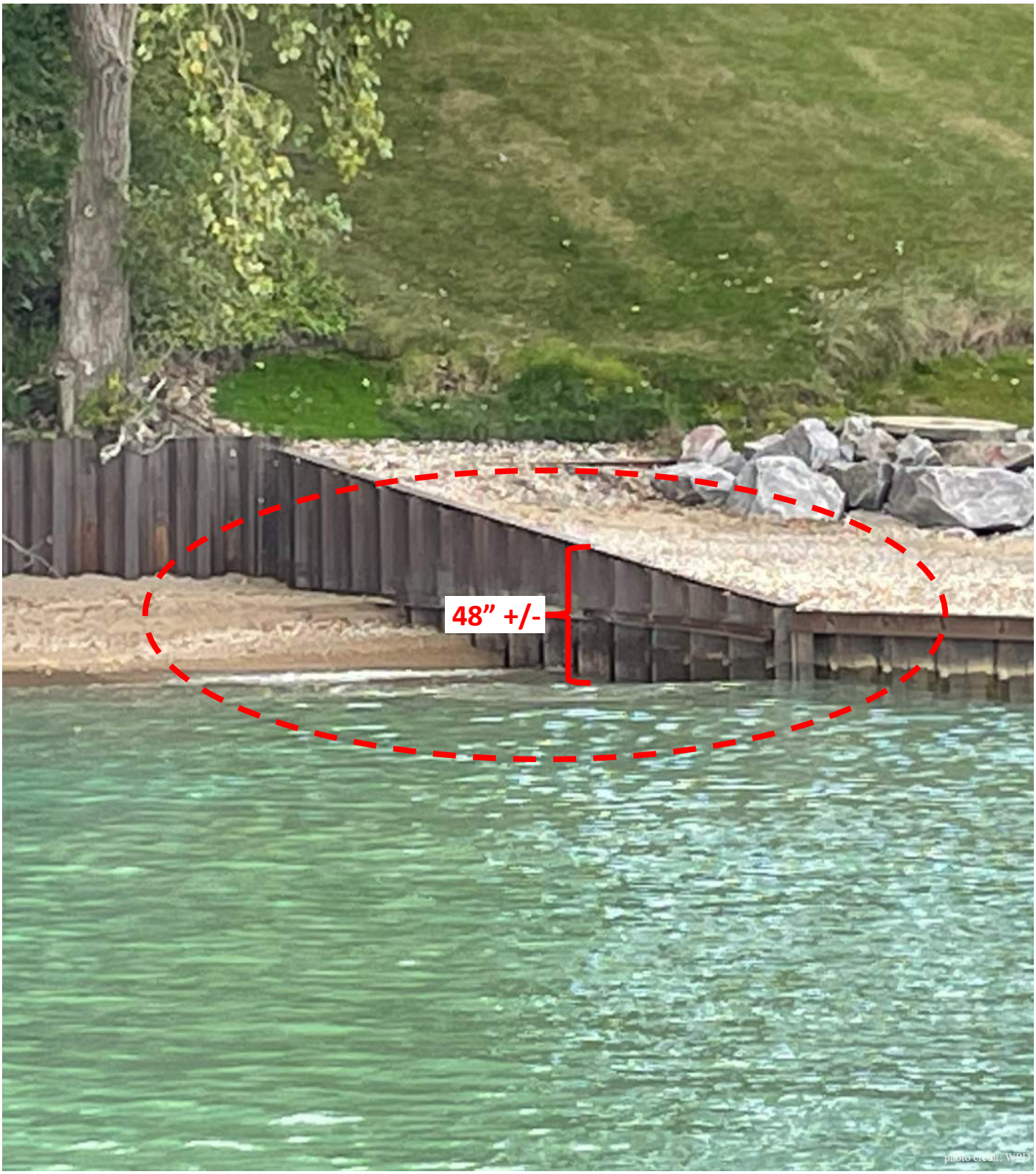
This section of shoreline has multiple structures that completely blocks pedestrian movement along the shoreline.






2013 water line
480 Sheridan
473 Sheridan
photo credit: Google Earth

The top of the groin is approximately 48” above the water line on the south face. This structure blocks pedestrian movement along the shoreline. Furthermore, this structure presents a fall risk for any pedestrian who should attempt to move along the shoreline from north to south.


48” +/-
photo credit: WPD

This breakwater and groin completely block pedestrian movement along the shoreline.

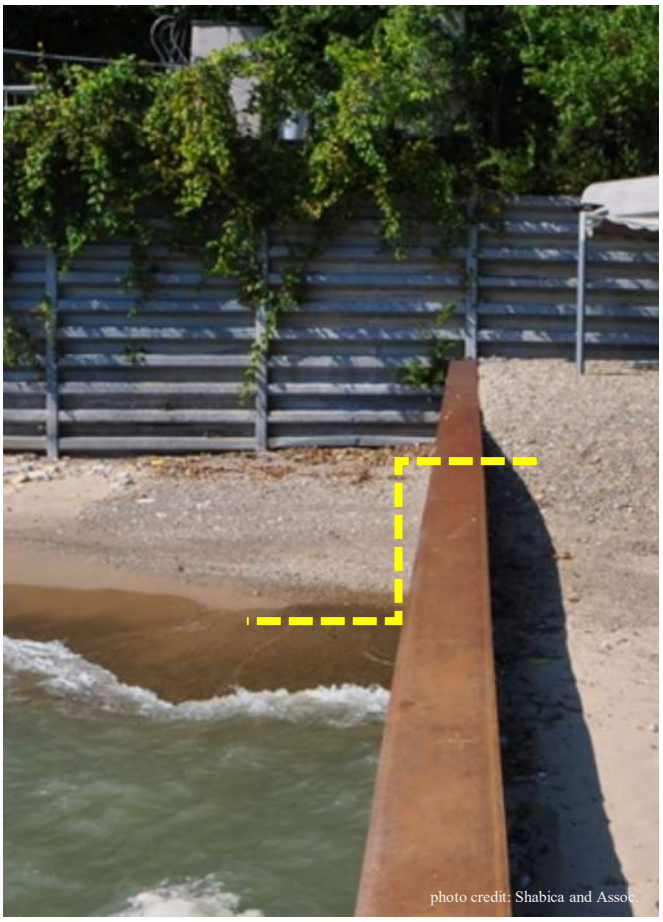
photo credit: WPD

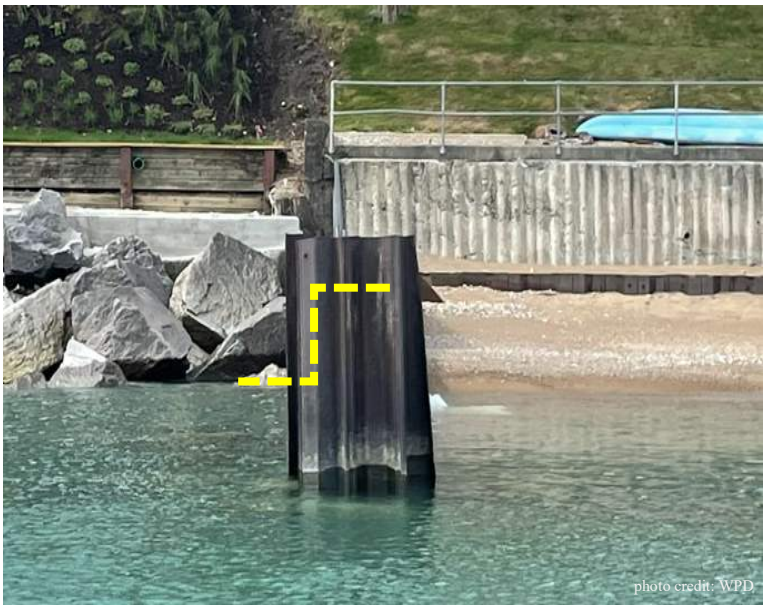
SAFETY CONCERNS OUTSIDE the PROJECT

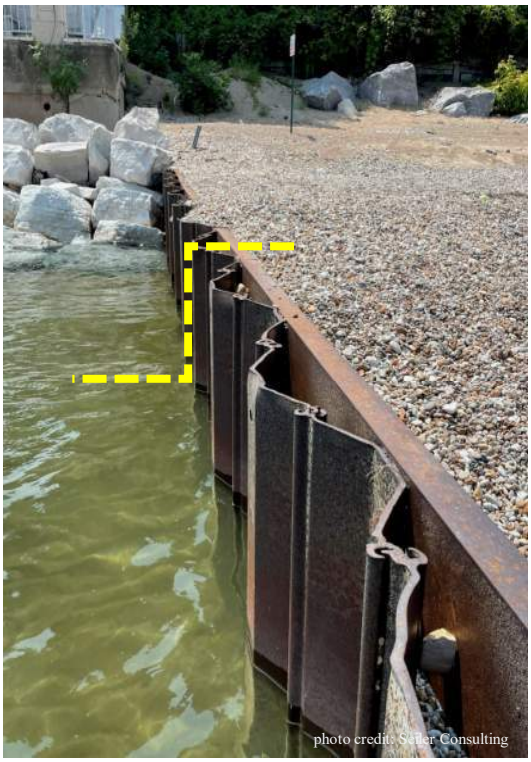
Safety for all patrons is paramount of importance in the project. The Park District wants all users to embrace the New Park and Beach and comfortably enjoy the improved facilities. Paramount to this effort is assuring all users they are safe and secure while on site, and clearly indicating the edges of the park. There are many safety concerns outside park boundaries - over which the Park District has no control.

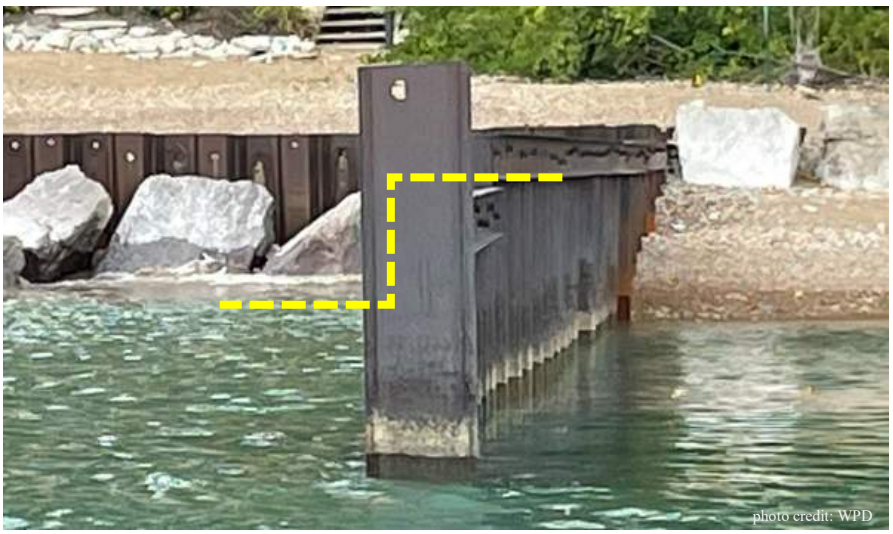
Concern #1 – Fall Risk

The Park District understands through time and because of storm events, large amounts of sand will move and create unsafe conditions (including substantial grade change) on opposite sides of groins which create fall hazards. The proposed groin extension guardrail will function as a safety railing, protecting users from falling over this edge.







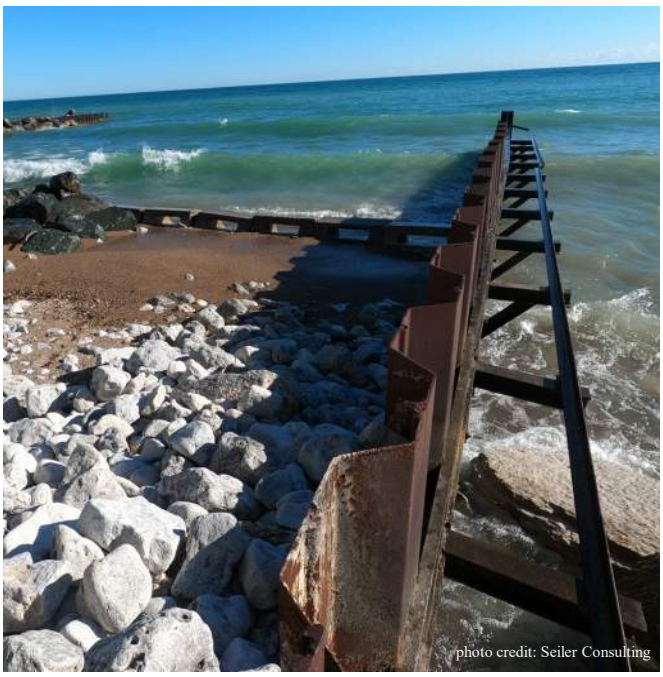


Concern #1 – Fall Risk (continued)

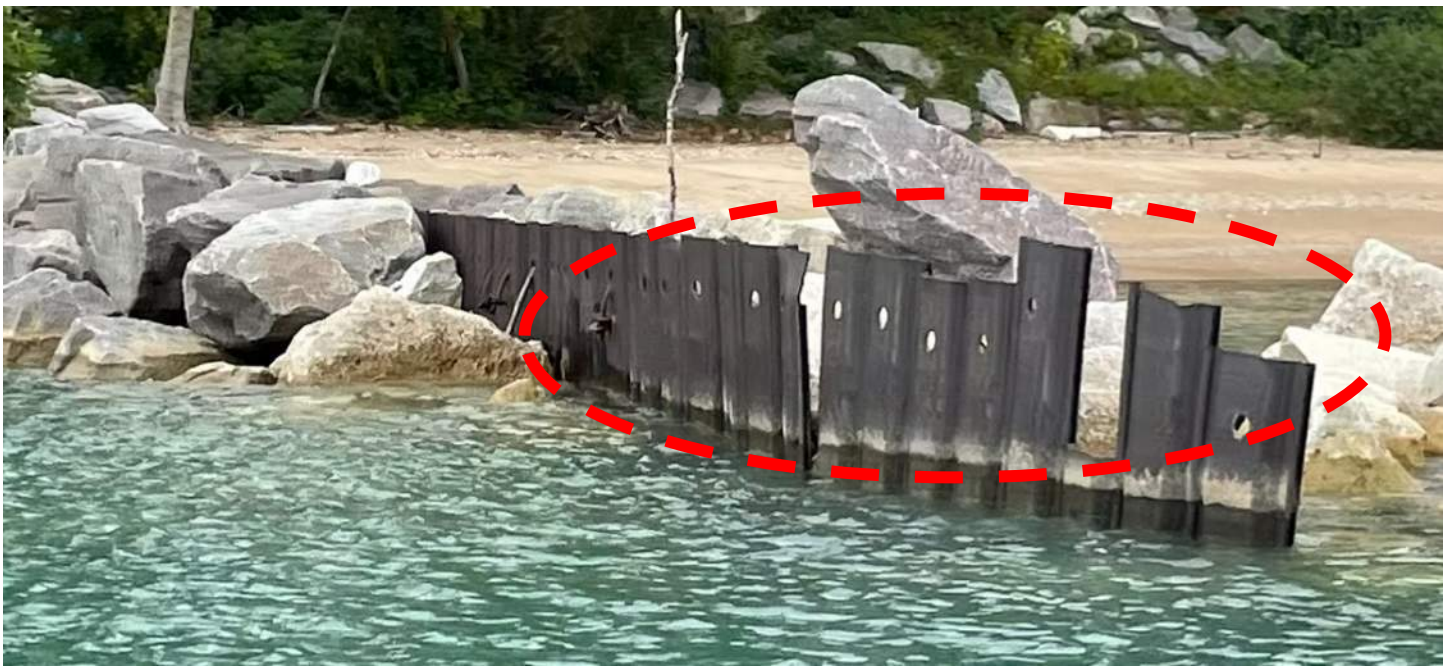
Concern #1 – Fall Risk (continued)

Concern #2 – Physical Hazards

The shoreline to the north and south has hazardous conditions from which the Park District must protect its patrons. Unsafe rock formations, damaged sharp steel groin sections and unmaintained major debris are present in both directions. The Park District seeks to avoid needing to defend themselves should a beach patron, wandering from the beach and encountering one of these items, get injured.



Concern #2 – Physical Hazards (continued)



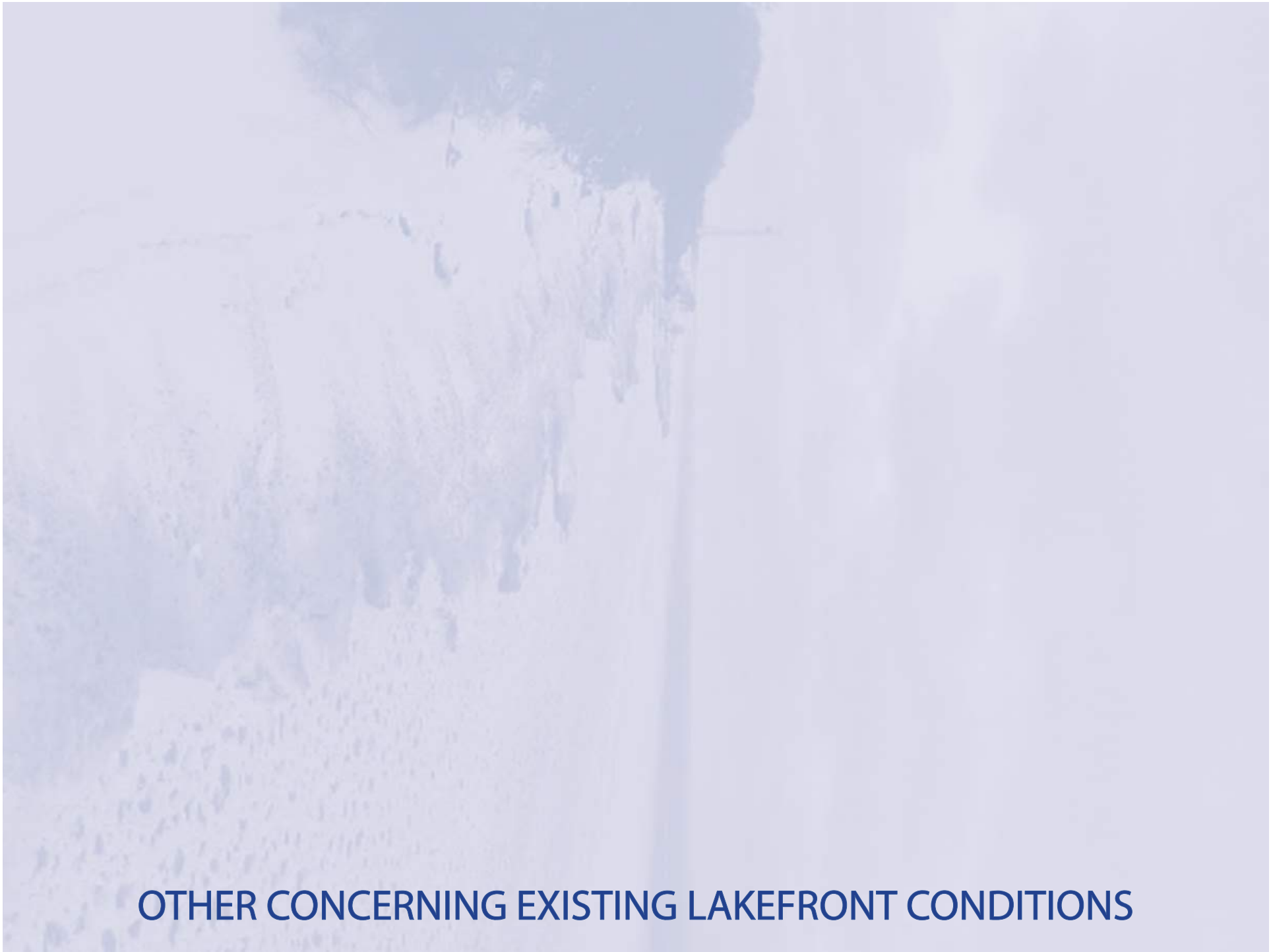
Concern #3 – Dangerous pathways

In multiple locations up and down the shorelines, lakefront users are subject to significant obstacles and structures which significantly inhibit safe movement. Again, the Park District seeks to keep park patrons safe and free from injury. The planting pockets and groin extensions will encourage patrons to safely enjoy the beach and amenities the New Park and Beach offers.


photo credit: Seiler Consulting

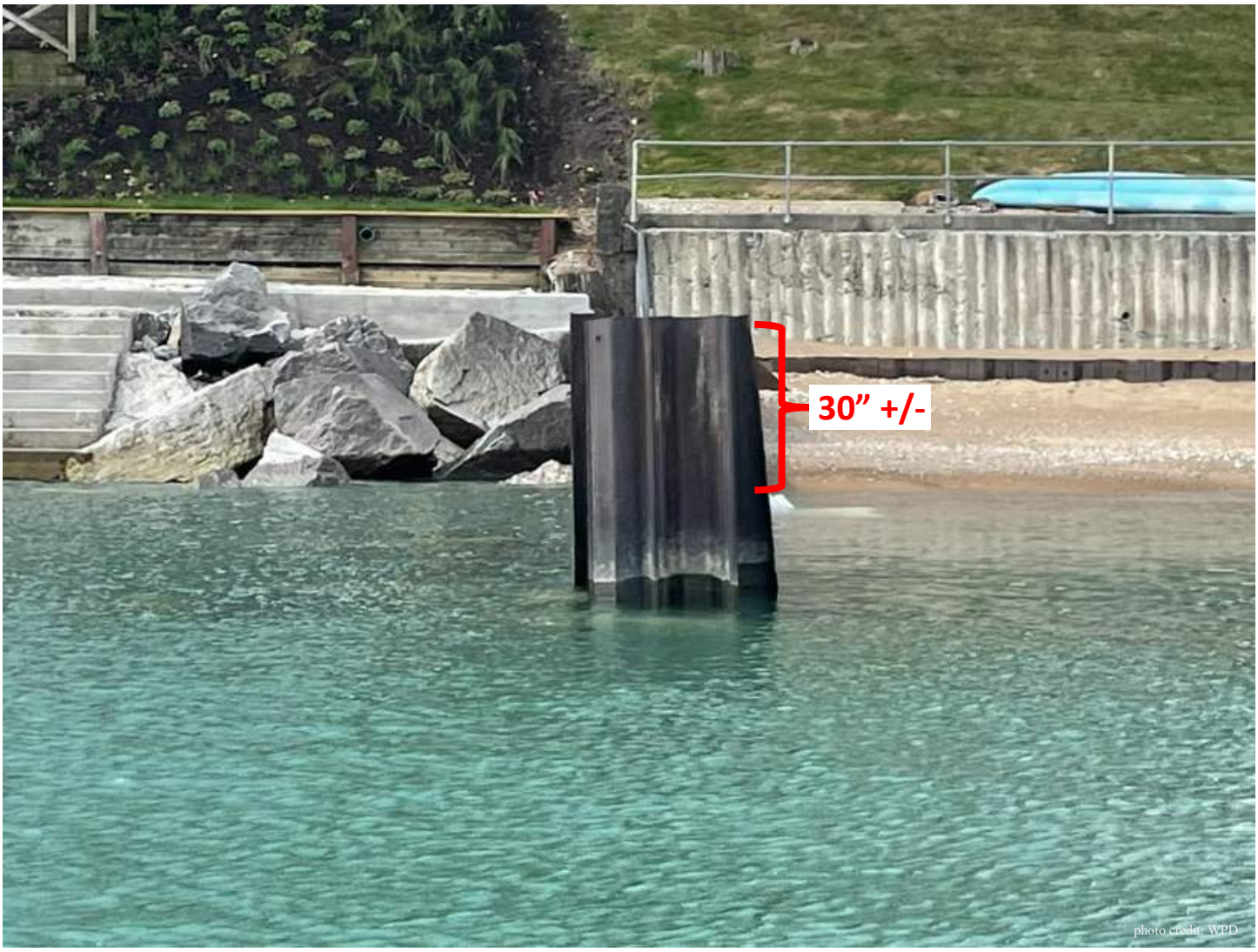

photo credit: Seiler Consulting


photo credit: Shabica and Assoc.



OTHER CONCERNING EXISTING LAKEFRONT CONDITIONS

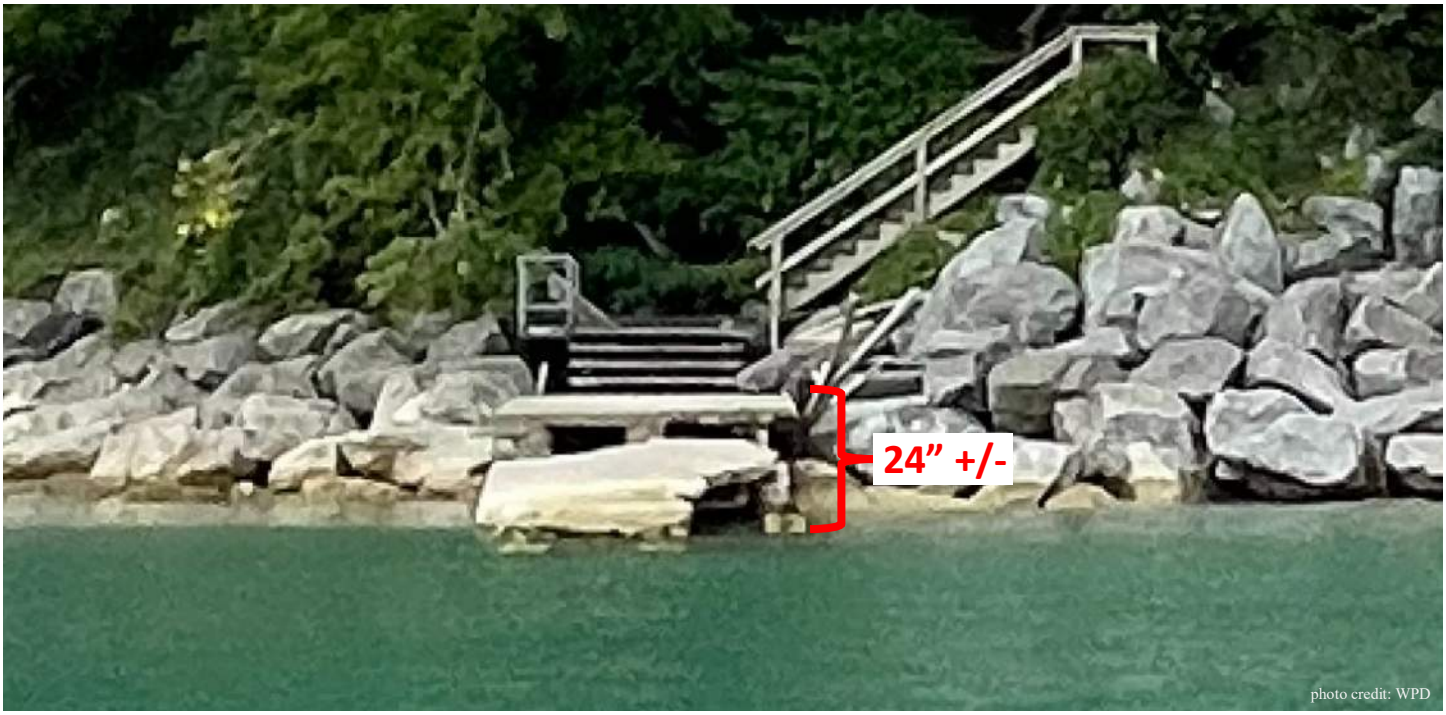
The top of the groin is approximately 30” above the water line on the north face. This structure blocks pedestrian movement along the shoreline. A pedestrian would need to scale this unsafe structure in order to safely walk the beach below the OHWM.

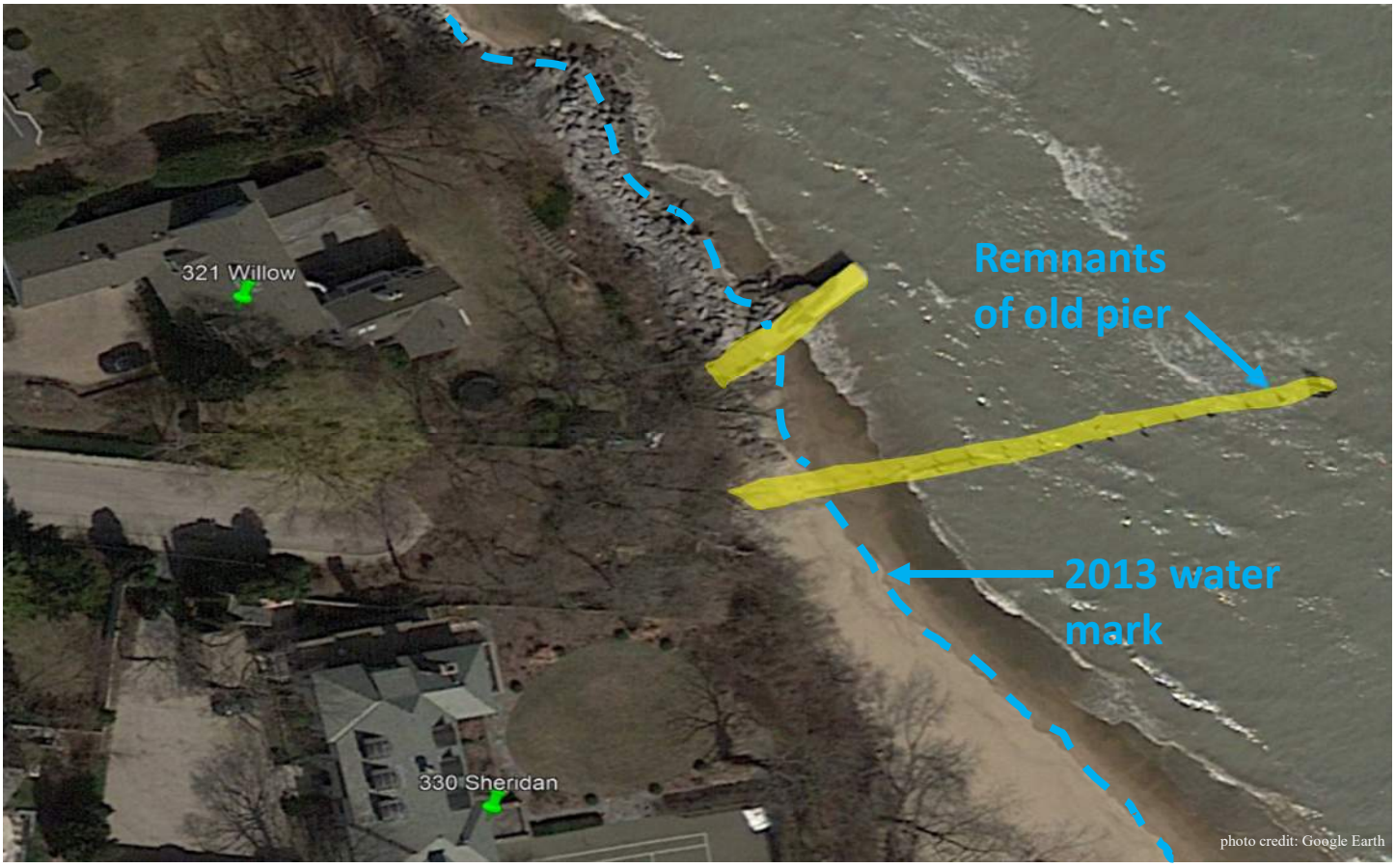


The top of the private pier is approximately 30” above the beach grade at the water line. This structure blocks pedestrian movement along the shoreline. A pedestrian would need to scale this structure in order to safely walk the beach below the OHWM. Furthermore, this structure presents a fall risk for any pedestrian who should attempt to scale it. Even when the lake level was low in 2013, the pier blocked pedestrian movement along the shoreline.

The top of the groin is approximately 30” above the water line on the south face. This structure blocks pedestrian movement along the shoreline. A pedestrian would need to scale this unsafe structure in order to safely walk the beach below the OHWM.

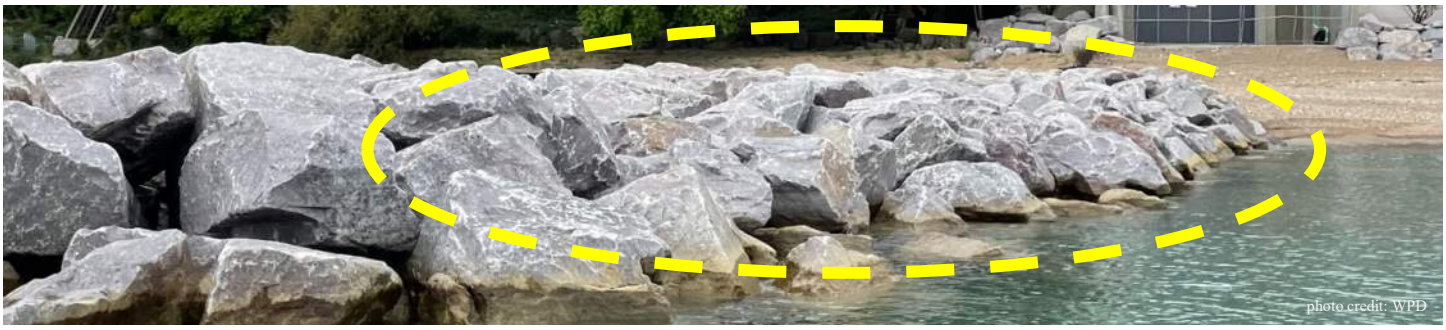
The top of this damaged private pier is approximately 24” above the beach grade at the water line. This structure blocks pedestrian movement along the shoreline. A pedestrian would need to scale this structure in order to safely walk the beach below the OHWM. Even when the lake level was low in 2013, the pier blocked pedestrian movement along the shoreline. In addition, there are scattered remnants of an old pier which are only visible during low lake levels – these are dangerous under foot.

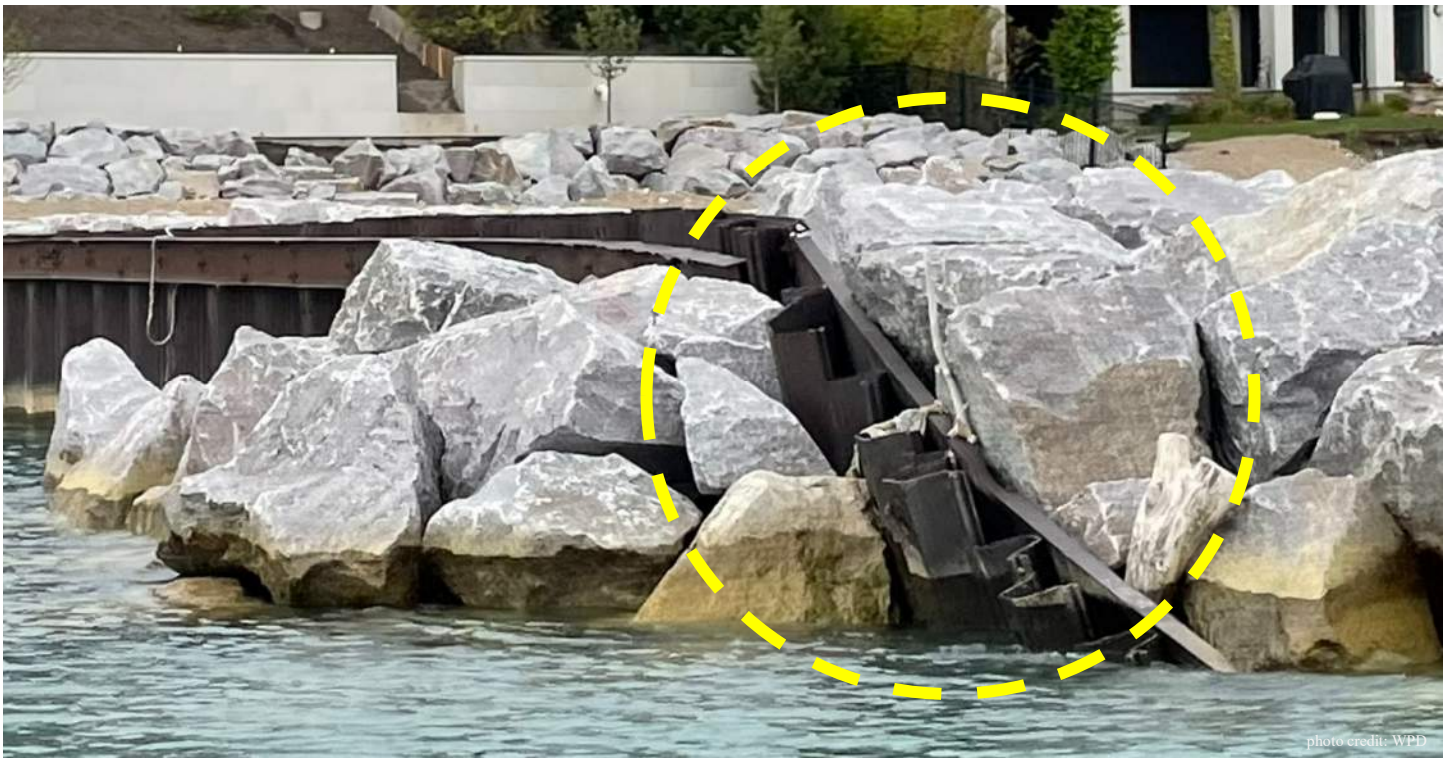




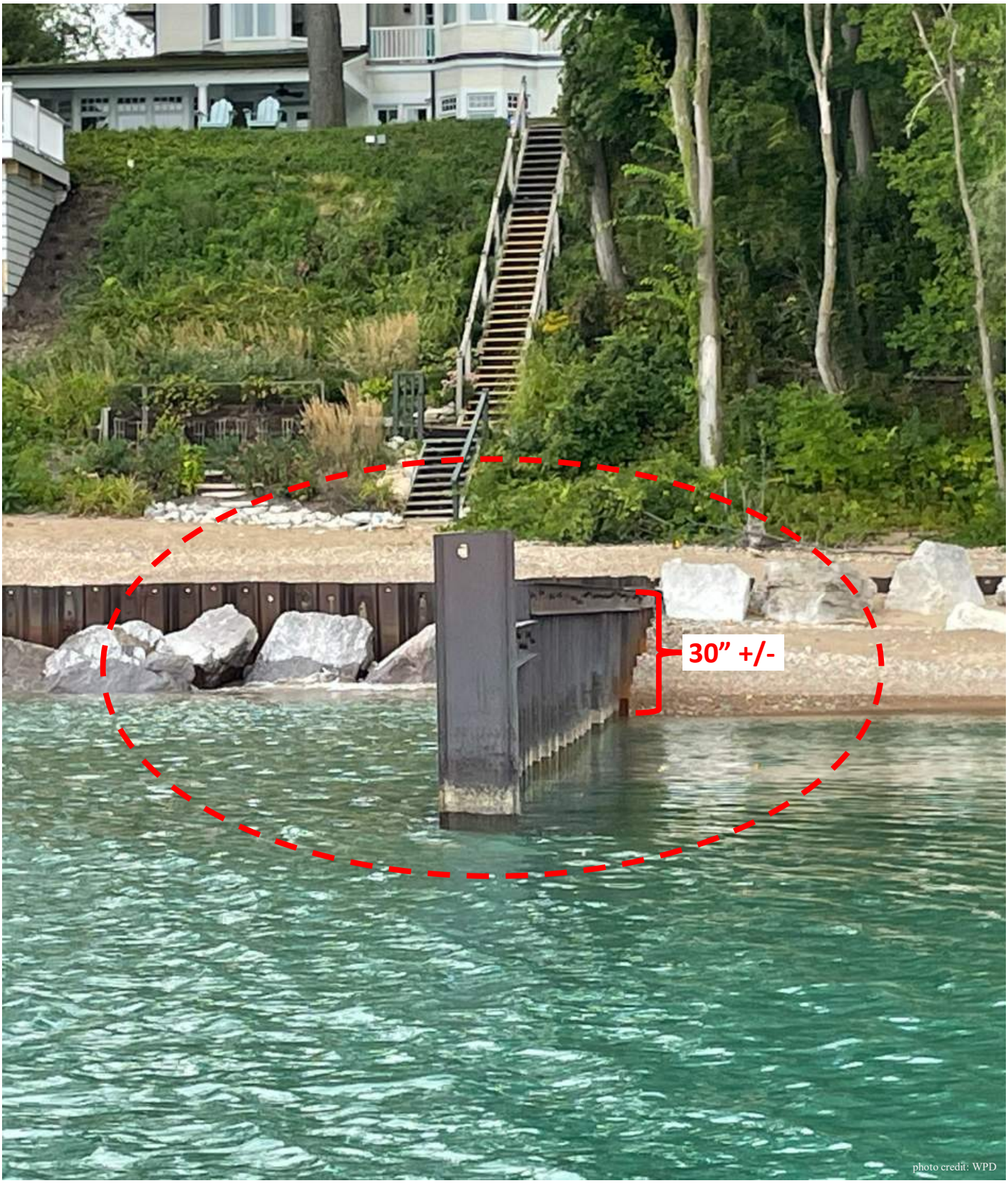
The top of the groin is approximately 24” above the water line on the south face. This structure blocks pedestrian movement along the shoreline. A pedestrian would need to scale this unsafe structure in order to safely walk the beach below the OHWM.

The top of the groin is approximately 36” above the waterline on the south face. This structure blocks pedestrian movement along the shoreline. A pedestrian would need to scale this unsafe structure in order to safely walk the beach below the OHWM. Additionally, there are stones on the north side of the groin, making climbing up and over even more treacherous. The steel groin is damaged and has been displaced by the stone revetment.





The top of the groin is approximately 30” above the water line on the north face. This structure blocks pedestrian movement along the shoreline. A pedestrian would need to scale this unsafe structure in order to safely walk the beach below the OHWM.



667 Sheridan

The top of this pier is approximately 30” above the water line on the north face. This structure, in addition to the fence, blocks pedestrian movement along the shoreline. Furthermore, this structure presents a fall risk for any pedestrian who should attempt to move along the shoreline from north to south.

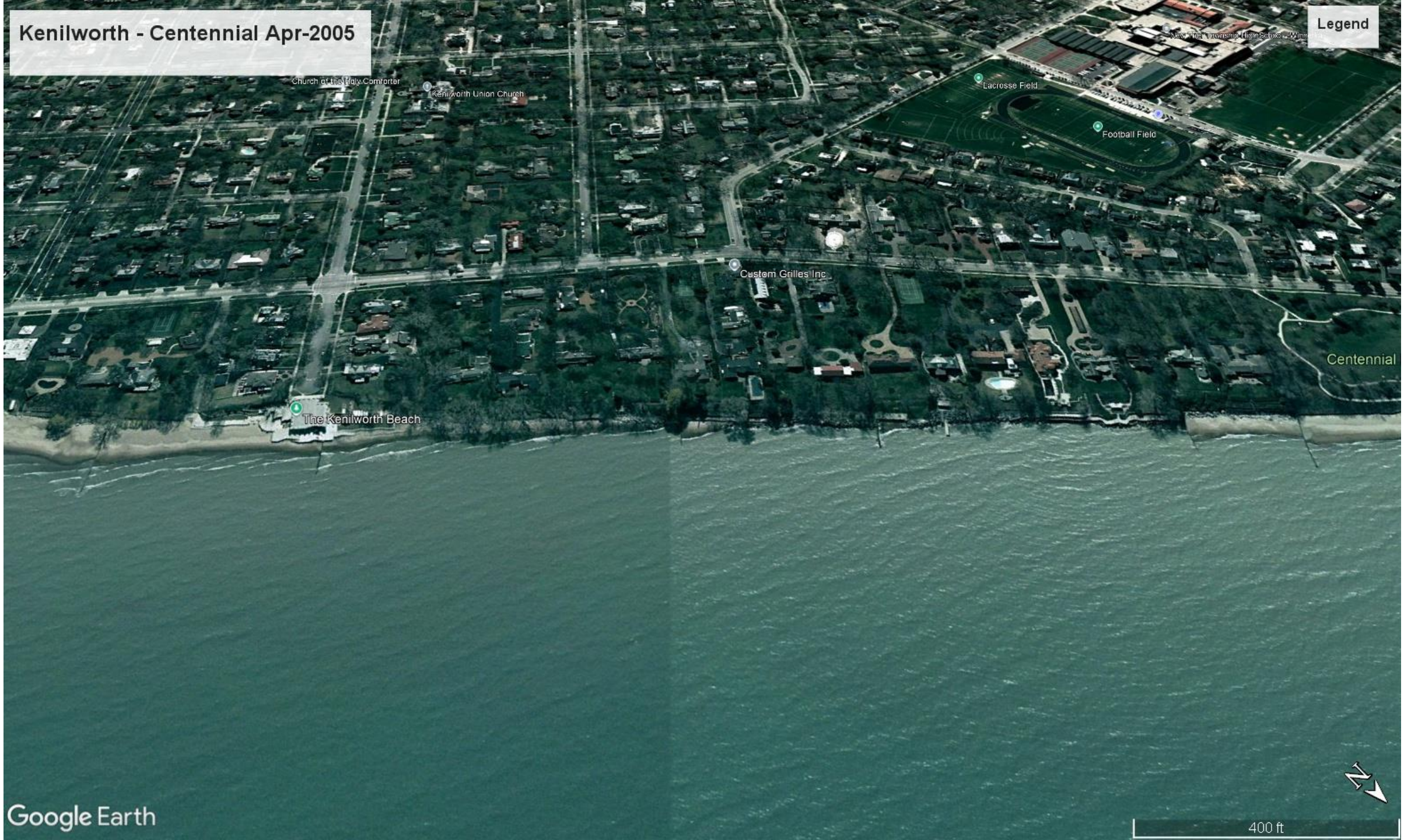
Exhibit 9

Lake Michigan Shoreline

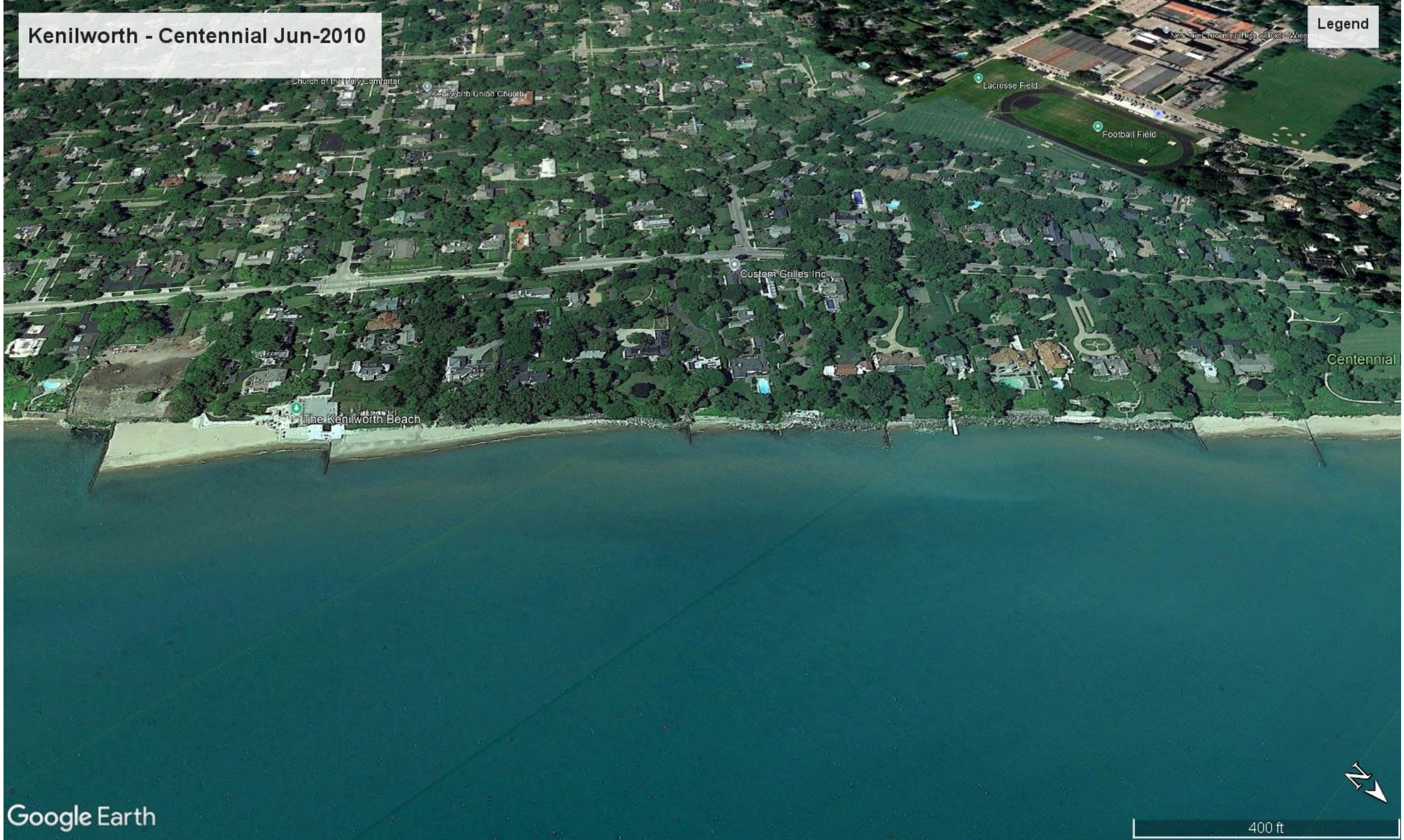
Kenilworth Beach to Centennial Beach

2002-2024

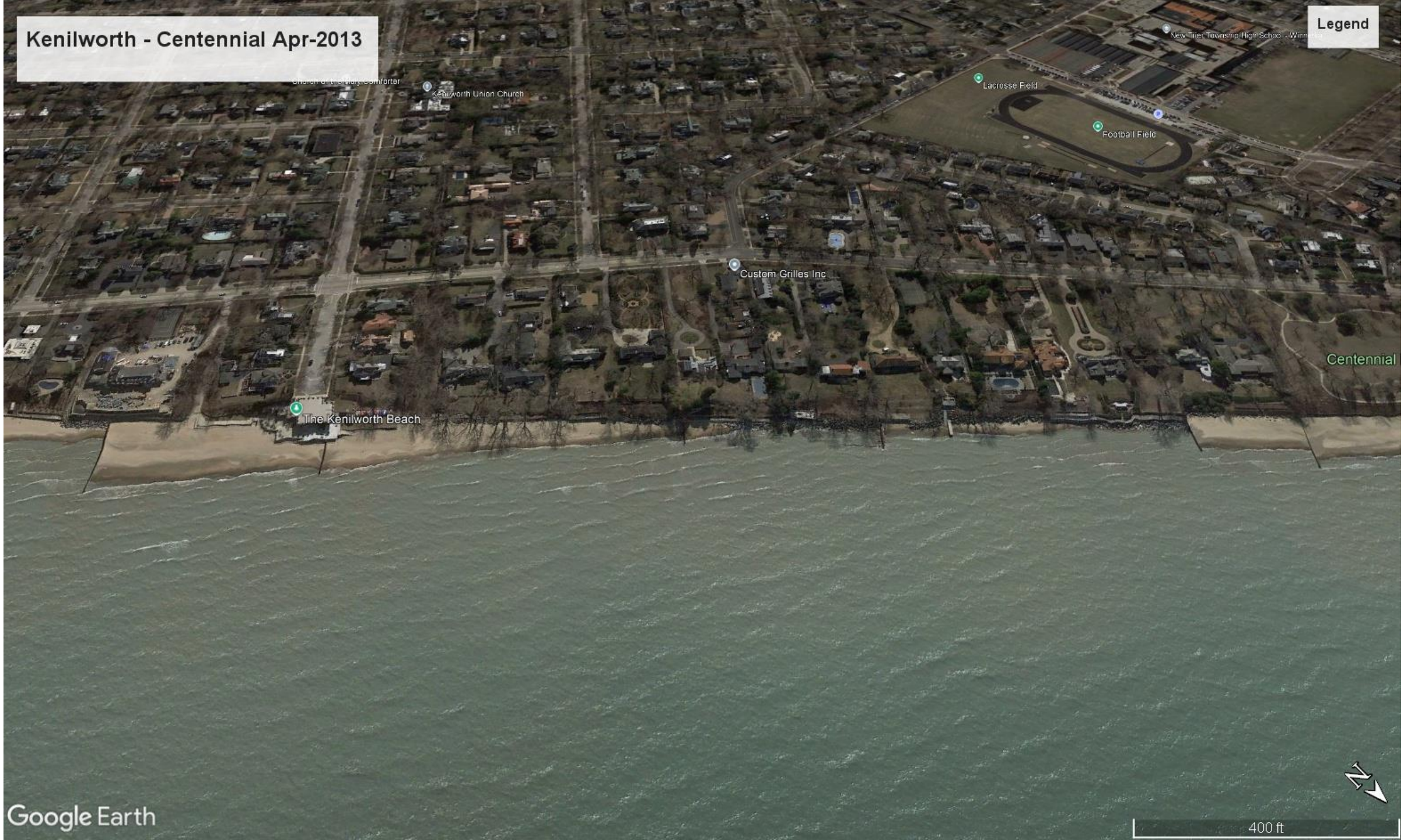

Kenilworth - Centennial Mar-2002
Legend
Church of the Holy Comforter
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial
The Kenilworth Beach
Google Earth
Image U.S. Geological Survey
400 ft


Kenilworth - Centennial Apr-2005
Legend
Church of the Holy Comforter
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial
The Kenilworth Beach
Google Earth
400 ft


Kenilworth - Centennial Oct-2007
Legend
Church of the Holy Comforter
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial
The Kenilworth Beach
Google Earth
400 ft


Kenilworth - Centennial Jun-2010
Legend
Church of the Holy Comforter
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial
The Kenilworth Beach
Google Earth
400 ft


Kenilworth - Centennial Mar-2012
Legend
Church of the Holy Comforter
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial
The Kenilworth Beach
Google Earth
400 ft


Kenilworth - Centennial Apr-2013
Legend
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial
The Kenilworth Beach
Google Earth
400 ft

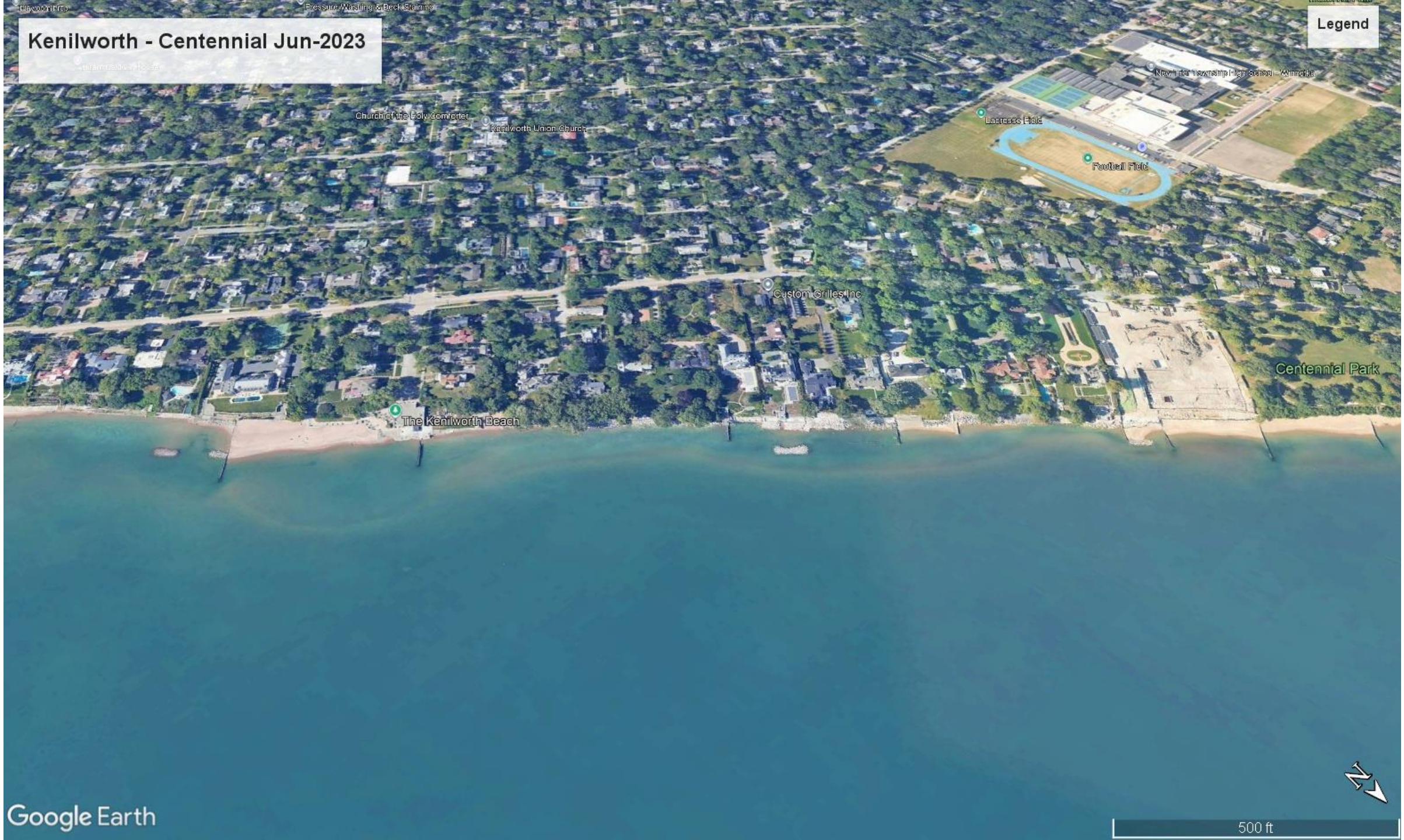

Kenilworth - Centennial Apr-2015
Legend
Pressure Washing & Deck Staining
New Trier Township High School - Winnetka
Church of the Holy Comforter
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial Park
The Kenilworth Beach
Google Earth
500 ft

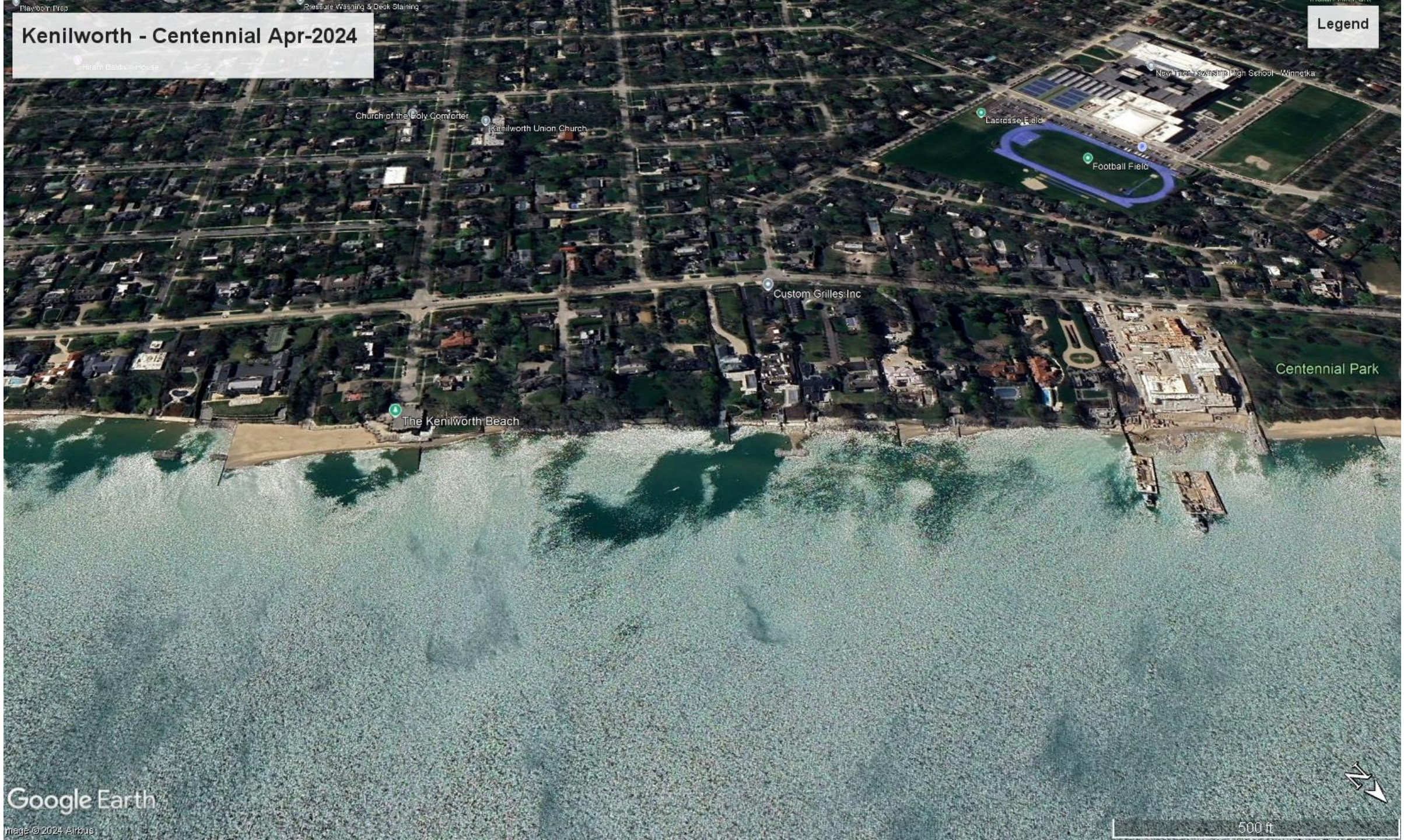

Kenilworth - Centennial Apr-2017
Legend
Church of the Holy Comforter
Kenilworth Union Church
New Trier Township High School - Winnetka
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial Park
The Kenilworth Beach
Google Earth
500 ft


Kenilworth - Centennial Oct-2019
Legend
Playroom Prep
Pressure Washing & Deck Staining
Hiram Baldwin House
Church of the Holy Comforter
Kenilworth Union Church
New Trier Township High School - Winnetka
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial Park
The Kenilworth Beach
Google Earth
500 ft


Kenilworth - Centennial Oct-2020
Legend
Playroom Prep
Pressure Washing & Deck Staining
Hiram Baldwin House
Church of the Holy Comforter
Kenilworth Union Church
New Trier Township High School - Winnetka
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial Park
The Kenilworth Beach
Google Earth
500 ft


Kenilworth - Centennial May-2021
Legend
Hiram Baldwin House
Church of the Holy Comforter
Kenilworth Union Church
New Trier Township High School - Winnetka
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial Park
The Kenilworth Beach
Google Earth
500 ft


Kenilworth - Centennial Jun-2023
Legend
Church of the Holy Comforter
Kenilworth Union Church
Lacrosse Field
Football Field
Custom Grilles Inc
The Kenilworth Beach
Centennial Park
Google Earth
500 ft


Kenilworth - Centennial Apr-2024
Legend
Playroom Prep
Pressure Washing & Deck Staining
Hiram Baldwin House
Church of the Holy Comforter
Kenilworth Union Church
New Trier Township High School - Winnetka
Lacrosse Field
Football Field
Custom Grilles Inc
Centennial Park
The Kenilworth Beach
Google Earth
Image © 2024 Airbus
500 ft
N


Kenilworth Beach - Apr-2013
Write a description for your map.
Legend
The Kenilworth Beach
The Kenilworth Beach
Google Earth
100 ft

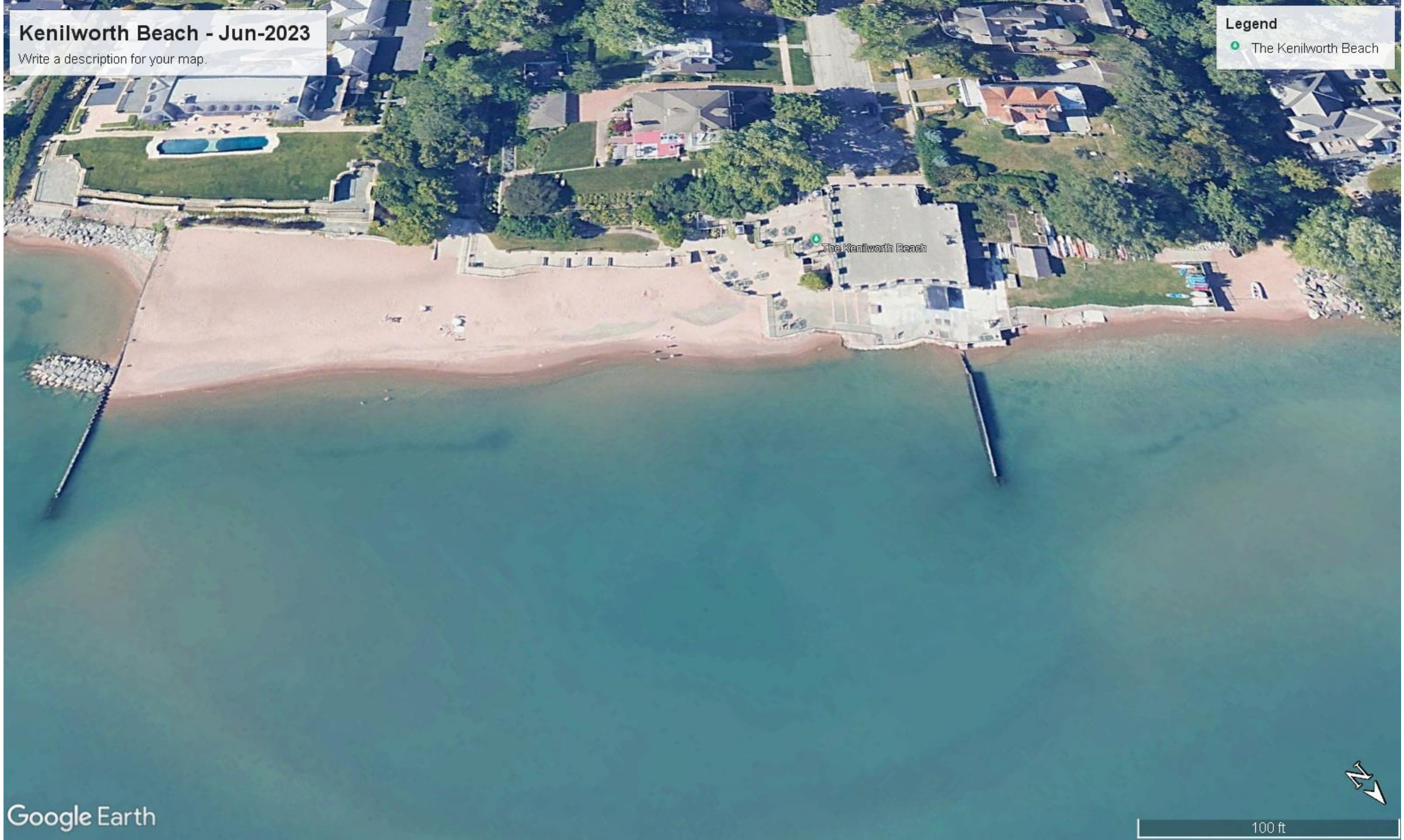

Kenilworth Beach - Apr-2015
Write a description for your map.
Legend
The Kenilworth Beach
The Kenilworth Beach
Google Earth
100 ft


Kenilworth Beach - Apr-2017
Write a description for your map.
Legend
The Kenilworth Beach
The Kenilworth Beach
Google Earth
100 ft


Kenilworth Beach - Oct-2018
Write a description for your map.
Legend
The Kenilworth Beach
The Kenilworth Beach
Google Earth
100 ft

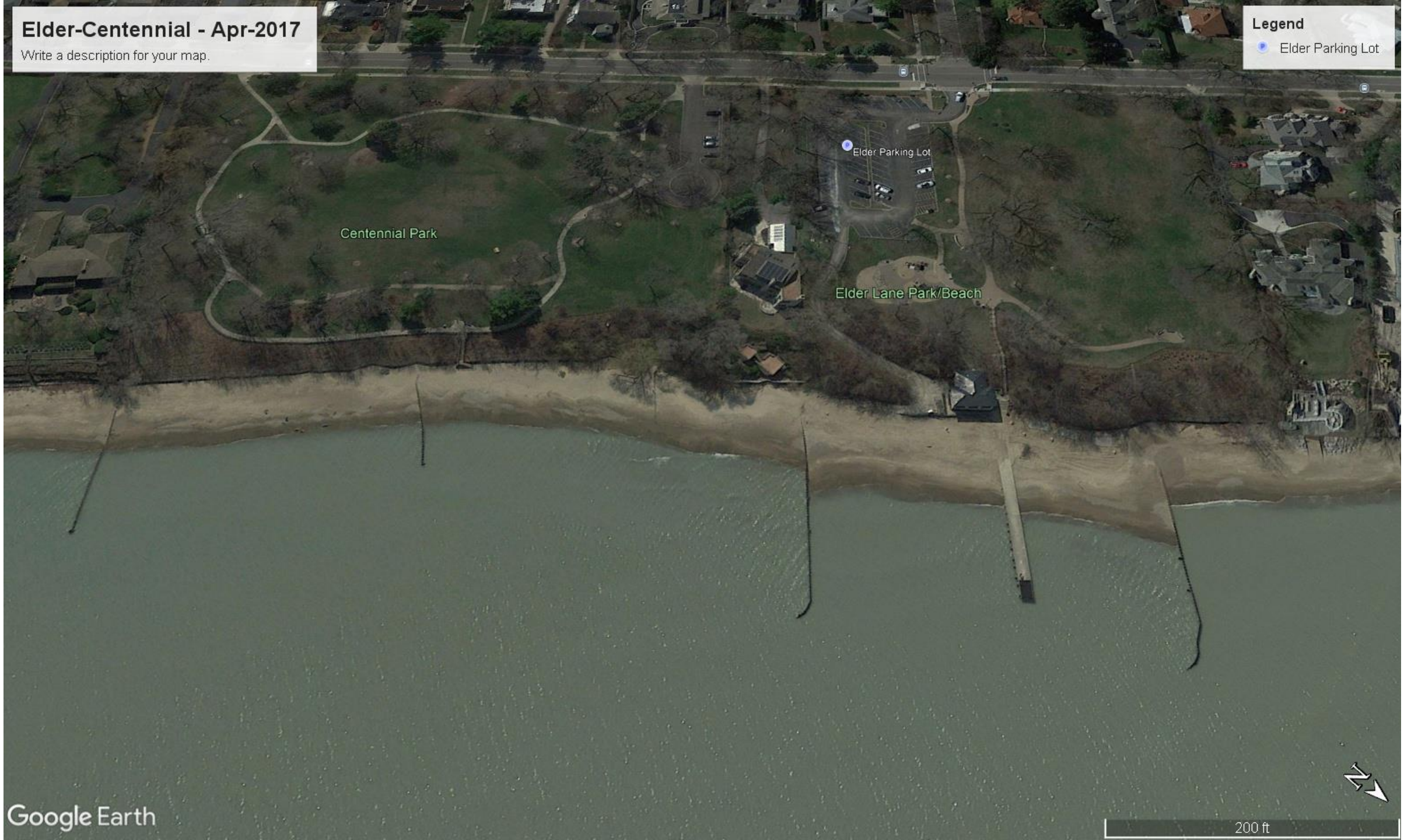

Kenilworth Beach - Oct-2020
Write a description for your map.
Legend
The Kenilworth Beach
The Kenilworth Beach
Google Earth
100 ft

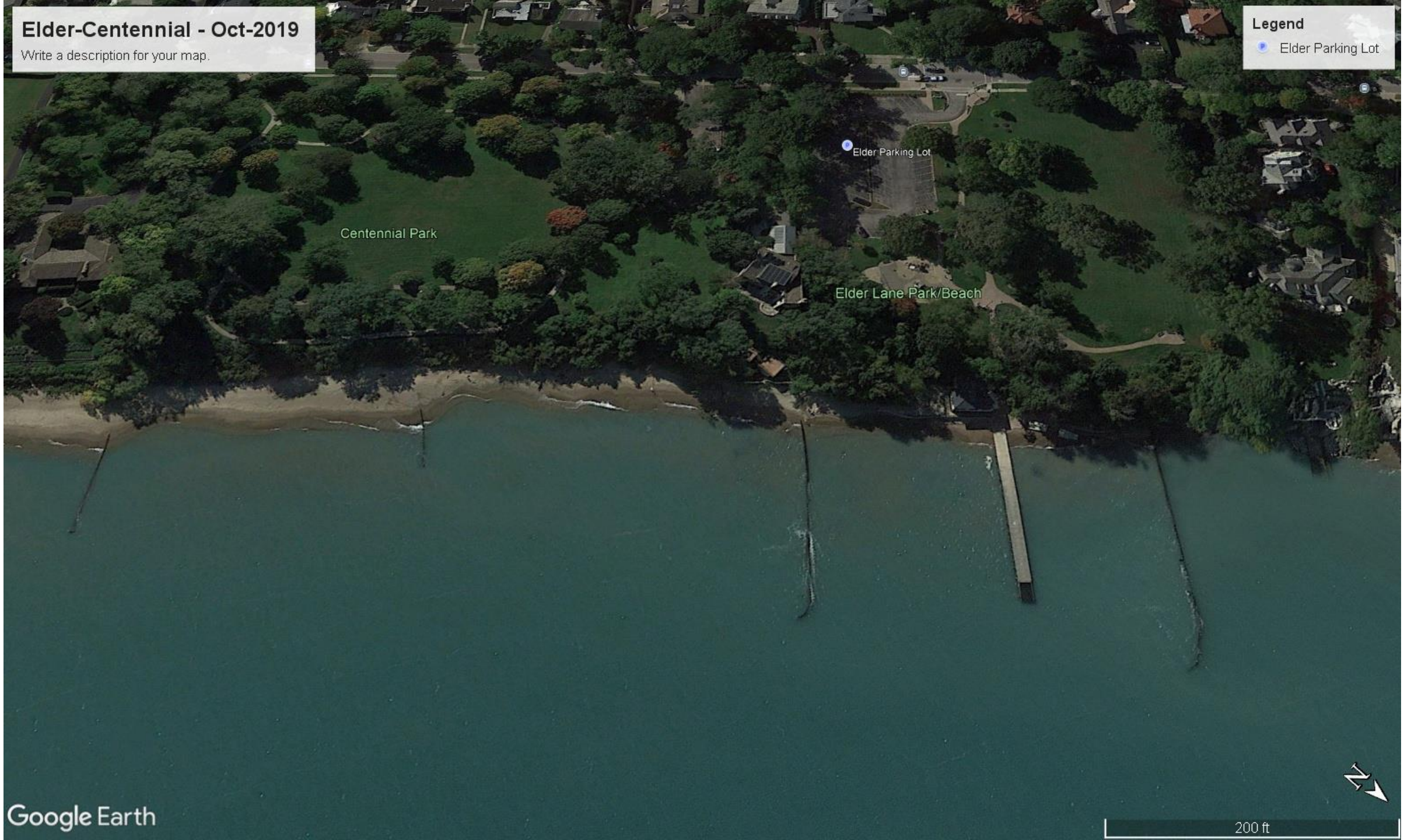

Kenilworth Beach - May-2021
Write a description for your map.
Legend
The Kenilworth Beach
The Kenilworth Beach
Google Earth
100 ft


Kenilworth Beach - Jun-2023
Write a description for your map.
Legend
The Kenilworth Beach
The Kenilworth Beach
Google Earth
100 ft

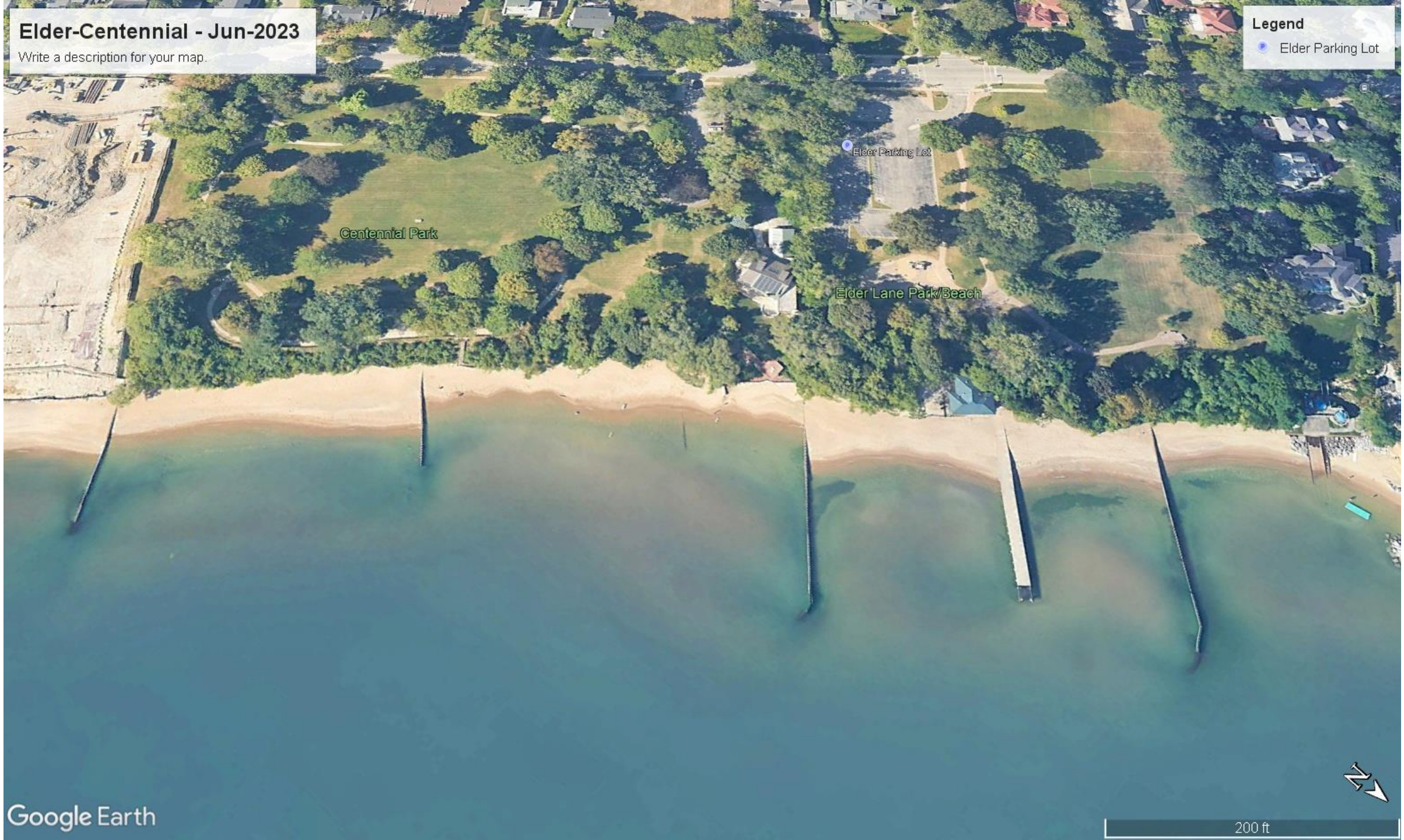

Elder-Centennial - Apr-2013
Write a description for your map.
Legend
Elder Parking Lot
Elder Parking Lot
Centennial Park
Elder Lane Park/Beach
Google Earth
200 ft

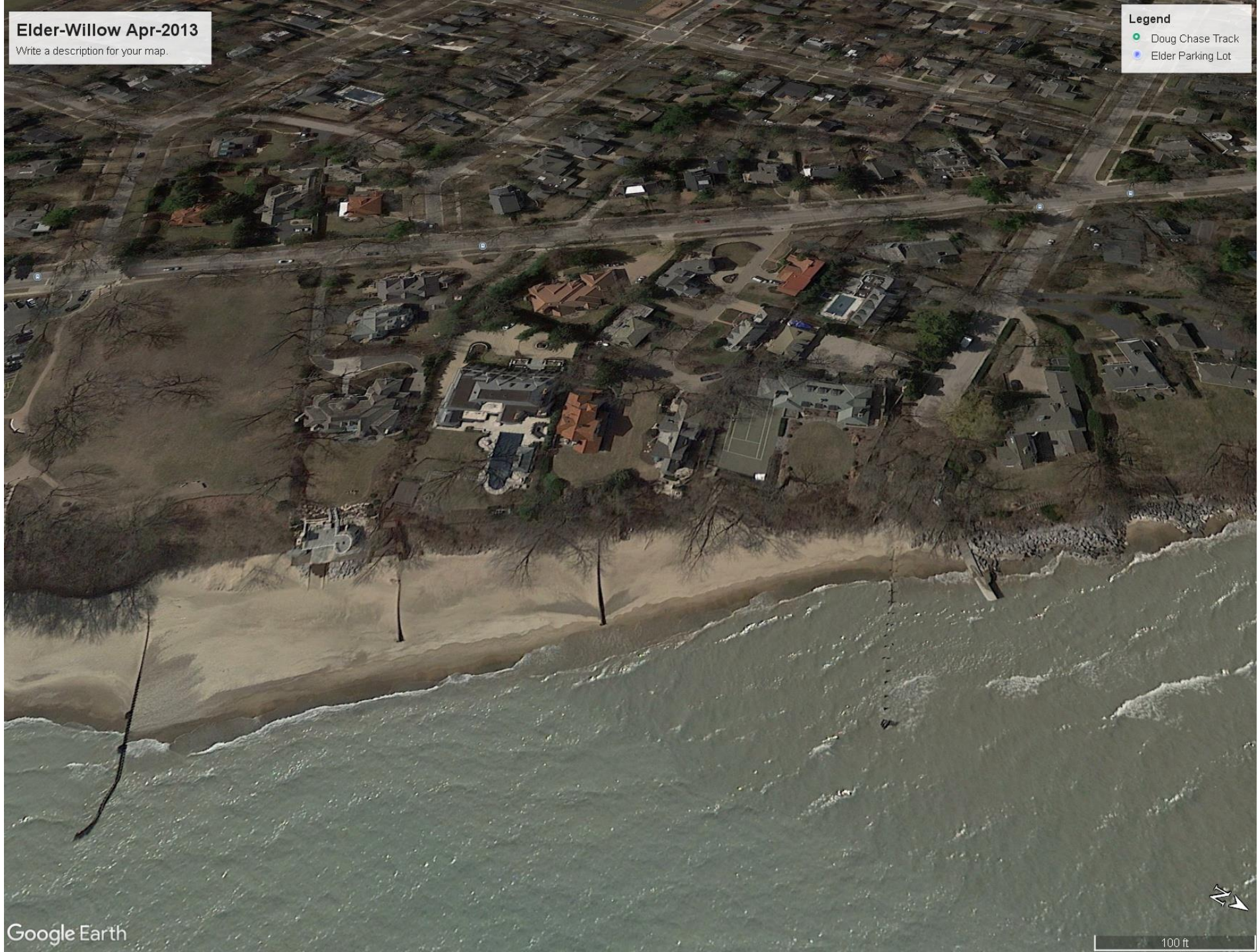

Elder-Centennial - Apr-2015
Write a description for your map.
Legend
Elder Parking Lot
Elder Parking Lot
Centennial Park
Elder Lane Park/Beach
Google Earth
200 ft

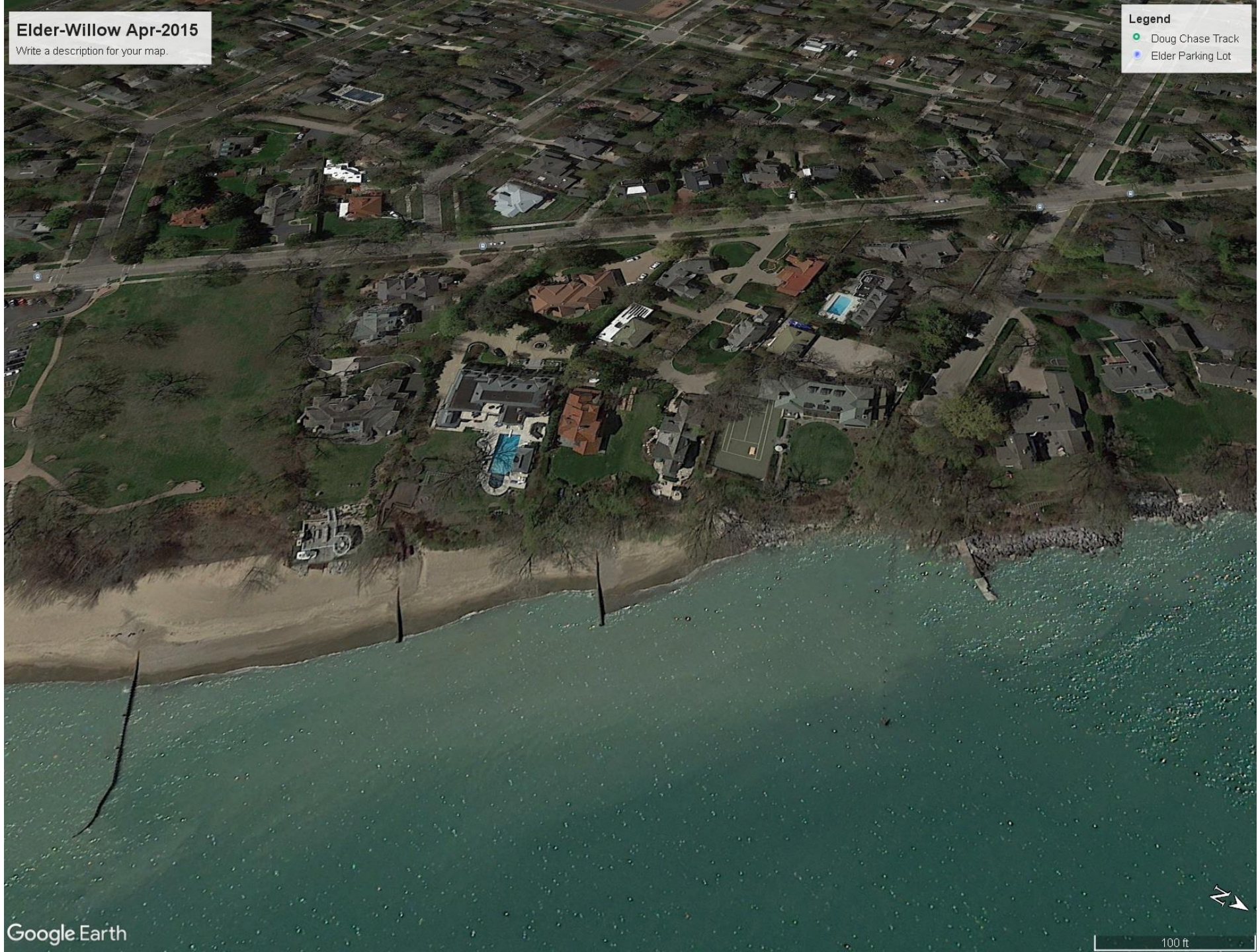

Elder-Centennial - Apr-2017
Write a description for your map.
Legend
Elder Parking Lot
Elder Parking Lot
Centennial Park
Elder Lane Park/Beach
Google Earth
200 ft


Elder-Centennial - Oct-2019
Write a description for your map.
Legend
Elder Parking Lot
Elder Parking Lot
Centennial Park
Elder Lane Park/Beach
Google Earth
200 ft


Elder-Centennial - May-2021
Write a description for your map.
Legend
Elder Parking Lot
Elder Parking Lot
Centennial Park
Elder Lane Park/Beach
Google Earth
200 ft


Elder-Centennial - Jun-2023
Write a description for your map.
Legend
Elder Parking Lot
Elder Parking Lot
Centennial Park
Elder Lane Park/Beach
Google Earth
200 ft


Elder-Willow Apr-2013
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Google Earth
100 ft


Elder-Willow Apr-2015
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Google Earth
100 ft


Elder-Willow May-2016
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Google Earth
100 ft


Elder-Willow Apr-2018
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Google Earth
100 ft


Elder-Willow Oct-2019
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Google Earth
100 ft


Elder-Willow - May-2021
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Google Earth
100 ft


Elder-Willow - Jun-2023
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Google Earth
100 ft


Lloyd Beach - Apr-2013
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Christ Church Winnetka
Parking Lot
Village of Winnetka Power Station
Lloyd Park and Stepan Family Boat Launch at ...
Google Earth
100 ft


Lloyd Beach - Jun-2015
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Christ Church Winnetka
Parking Lot
Village of Winnetka Power Station
Lloyd Park and Stepan Family Boat Launch at...
Google Earth
100 ft


Lloyd Beach - Apr-2017
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Christ Church Winnetka
Parking Lot
Village of Winnetka Power Station
Lloyd Park and Stepan Family Boat Launch at ...
Google Earth
100 ft

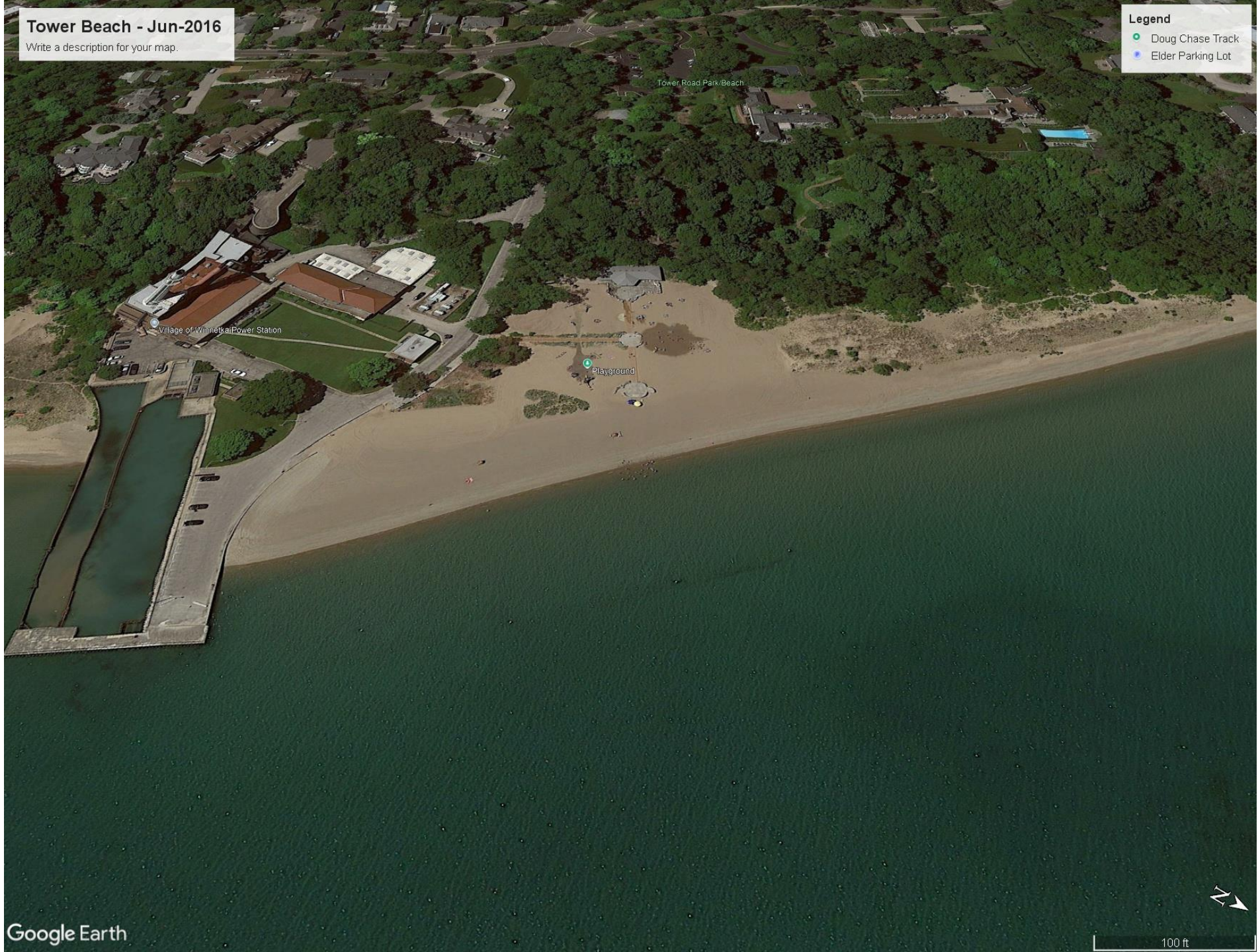

Lloyd Beach - Oct-2019
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Christ Church Winnetka
Parking Lot
Village of Winnetka Power Station
Lloyd Park and Stepan Family Boat Launch at ...
Google Earth
100 ft


Lloyd Beach - Oct-2020
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Christ Church Winnetka
Parking Lot
Village of Winnetka Power Station
Lloyd Park and Stepan Family Boat Launch at ...
Google Earth
100 ft


Lloyd Beach - Jun-2023
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Village of Winnetka Power Station
Lloyd Park and Stepan Family Boat Launch at...
Google Earth
100 ft


Tower Beach - Apr-2013
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Tower Road Park/Beach
Village of Winnetka Power Station
Playground
Google Earth
100 ft

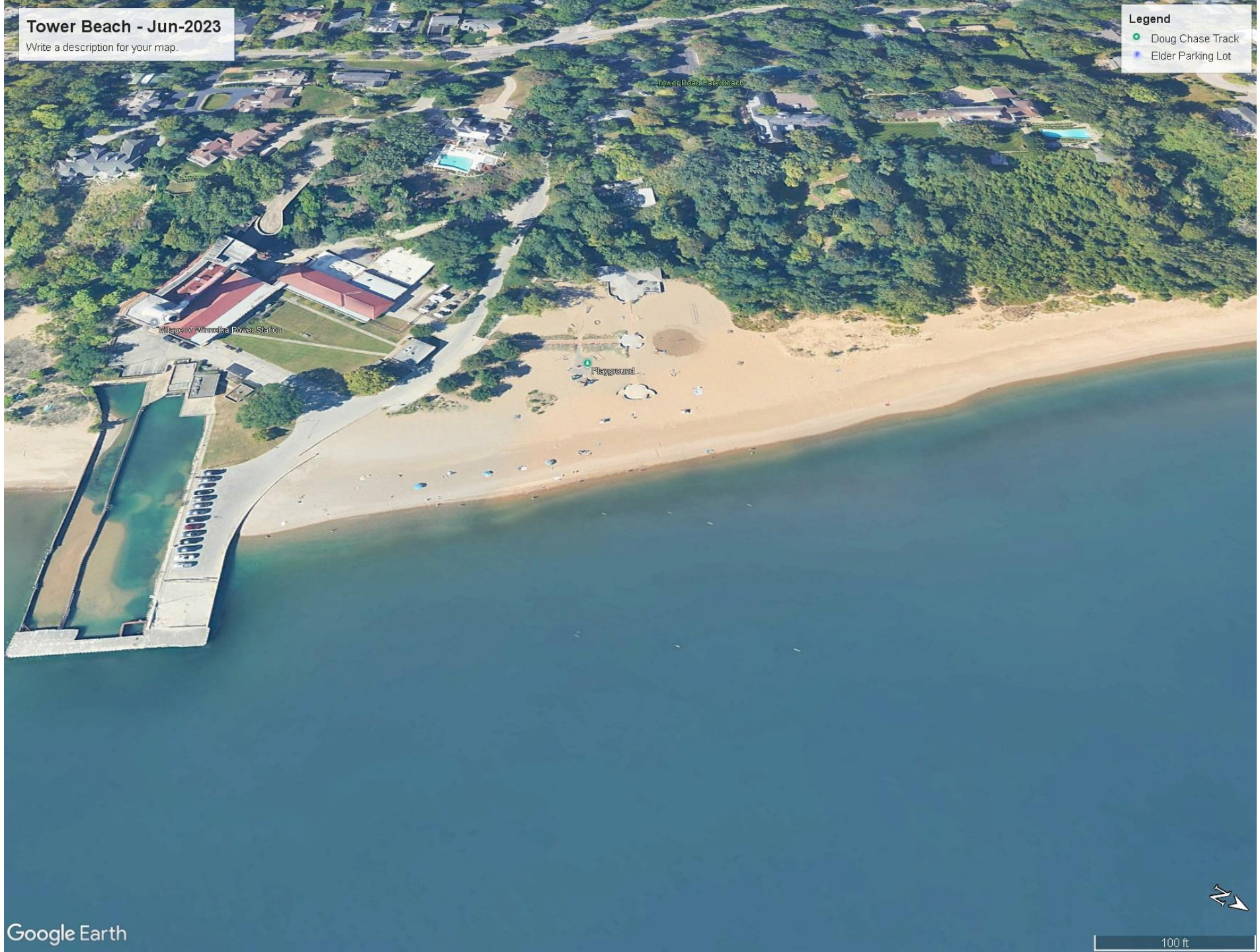

Tower Beach - Apr-2015
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Tower Road Park/Beach
Village of Winnetka Power Station
Playground
Google Earth
100 ft


Tower Beach - Jun-2016
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Tower Road Park/Beach
Village of Winnetka Power Station
Playground
Google Earth
100 ft


Tower Beach - Jul-2018
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Tower Road Park/Beach
Village of Winnetka Power Station
Playground
Google Earth
100 ft

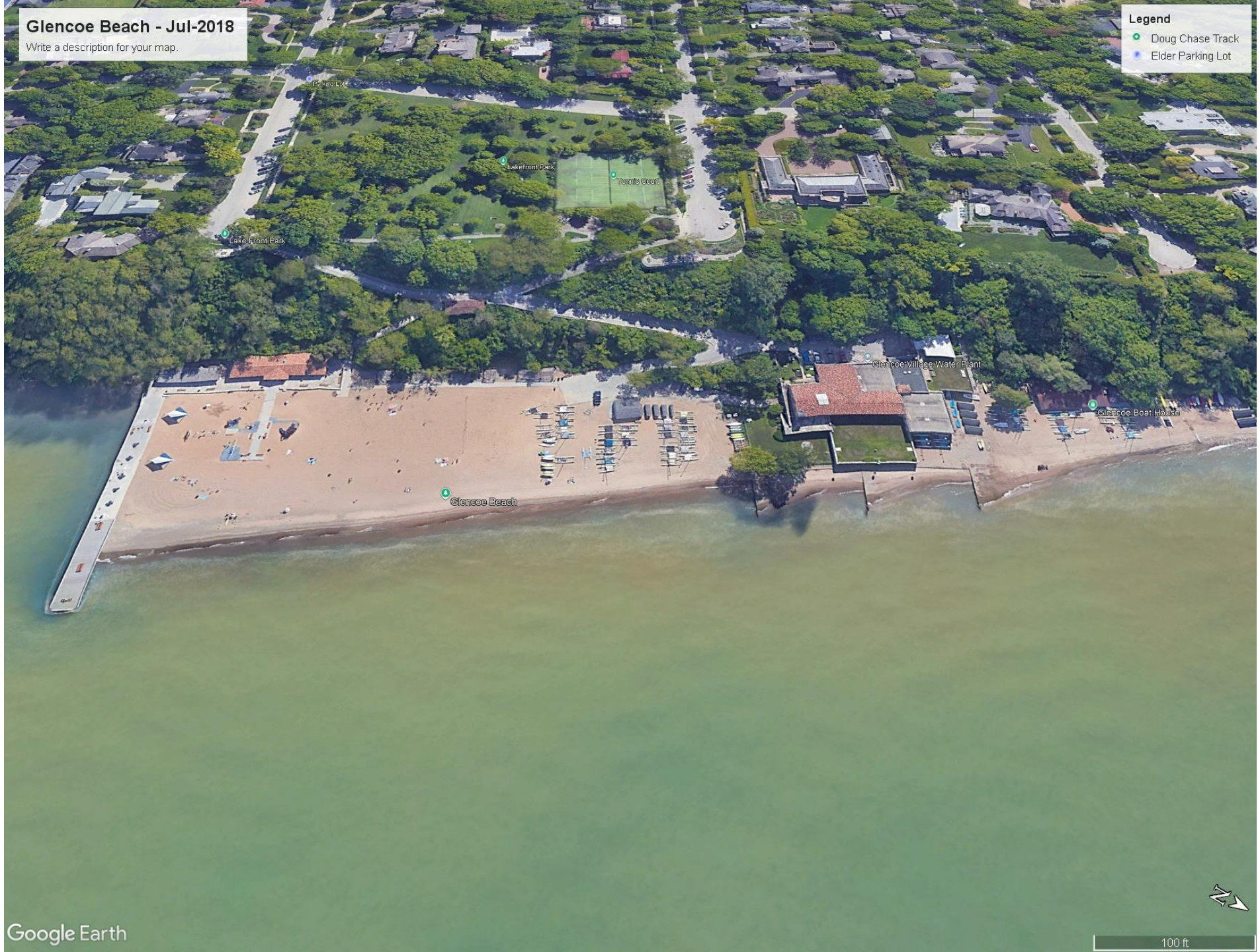

Tower Beach - Oct-2019
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Tower Road Park/Beach
Village of Winnetka Power Station
Playground
Google Earth
100 ft

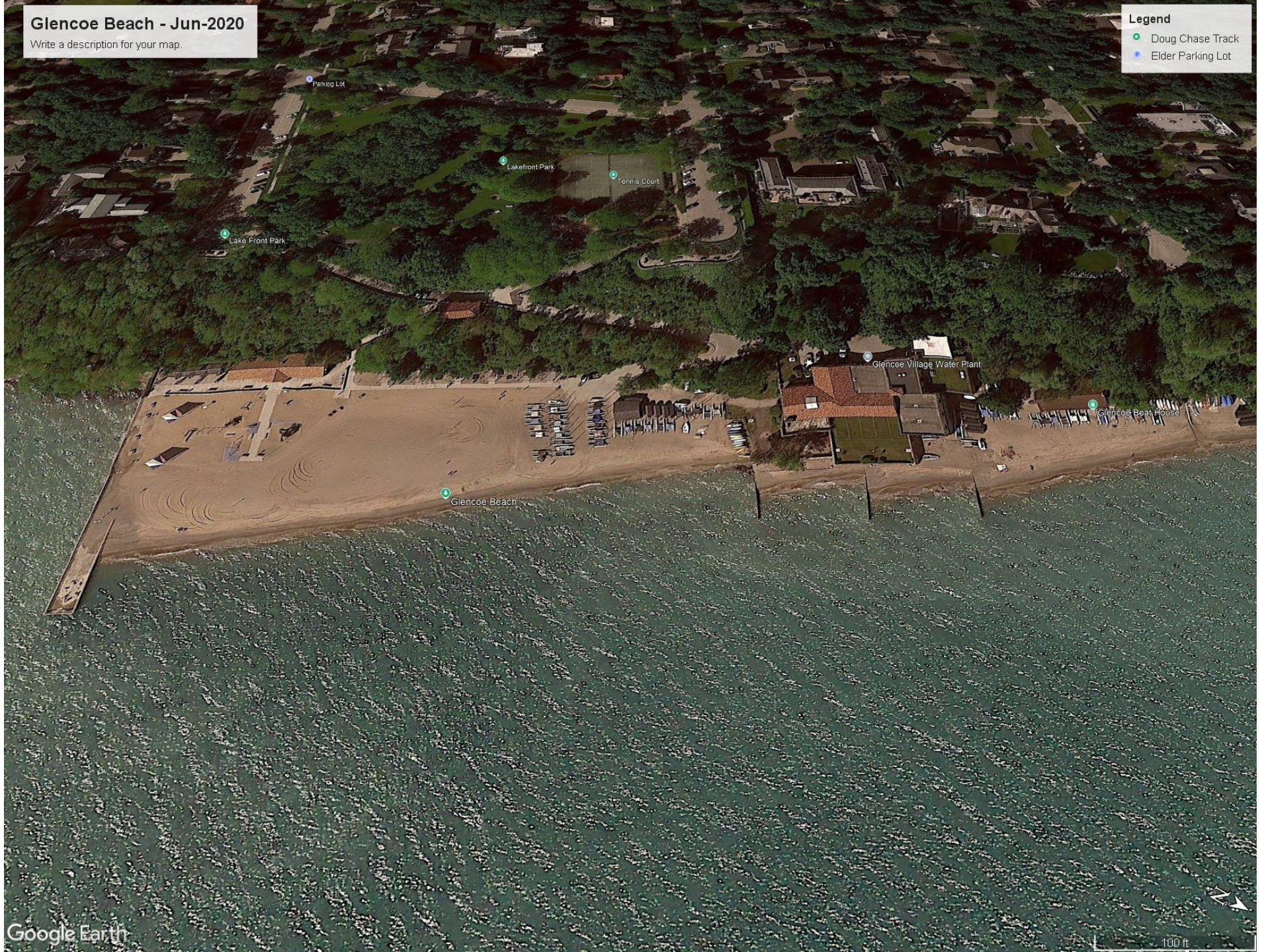

Tower Beach - Jun-2020
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Tower Road Park Beach
Village of Winnetka Power Station
Playground
Google Earth
100 ft

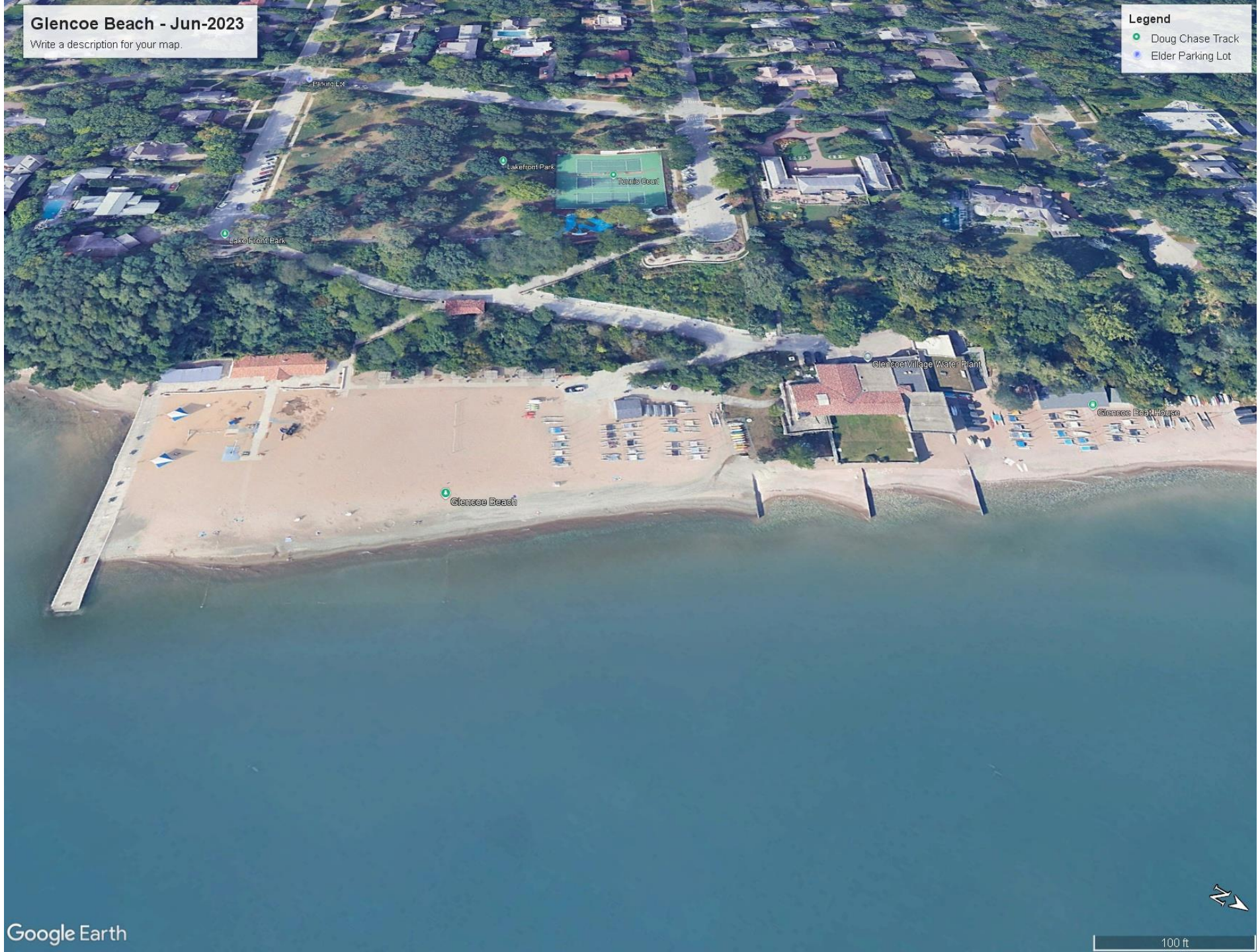

Tower Beach - Jun-2023
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Tower Road Park Beach
Village of Winnetka Power Station
Playground
Google Earth
100 ft

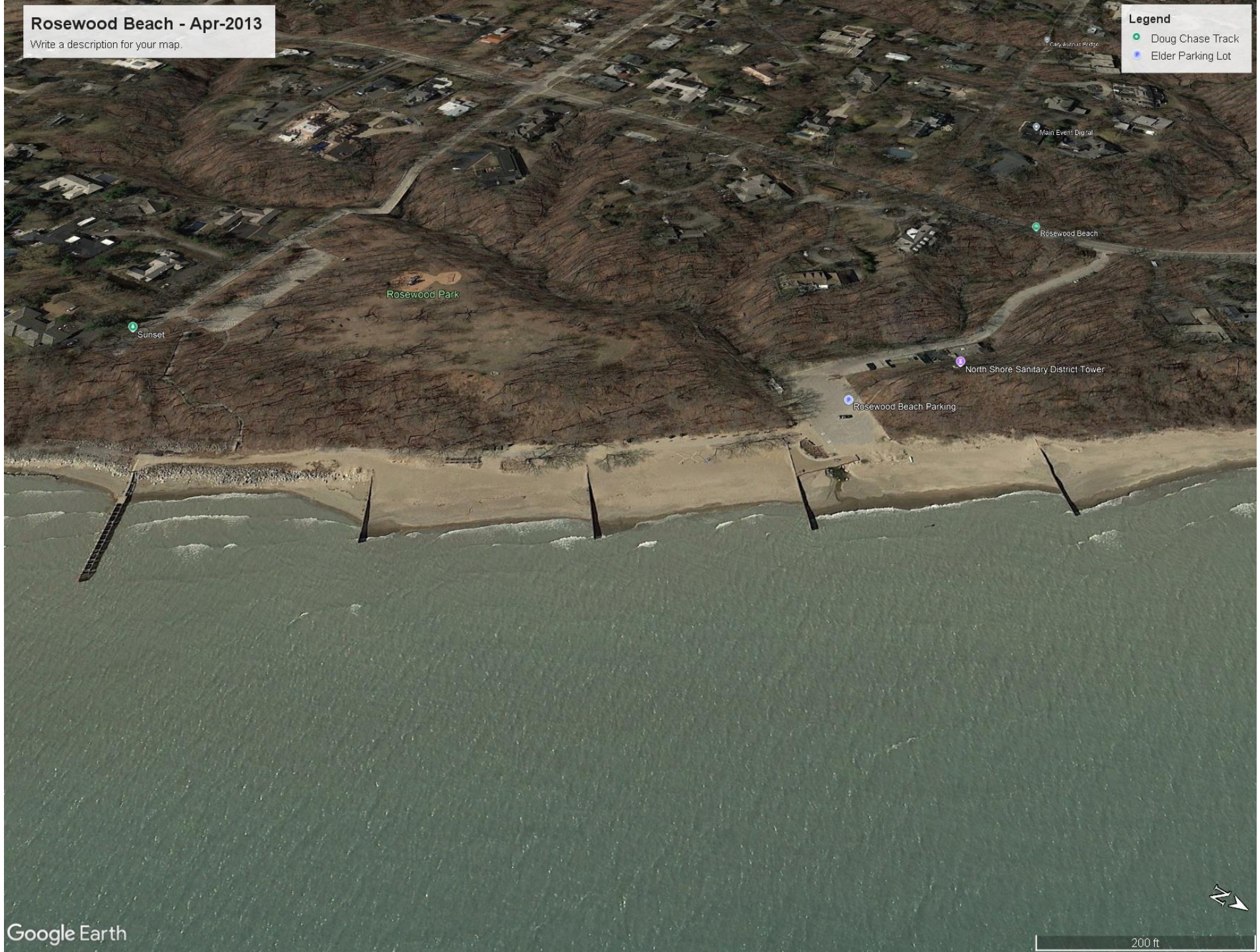

Glencoe Beach - Apr-2013
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Parking Lot
Lakefront Park
Tennis Court
Lake Front Park
Glencoe Village Water Plant
Glencoe Boat House
Glencoe Beach
Google Earth
100 ft

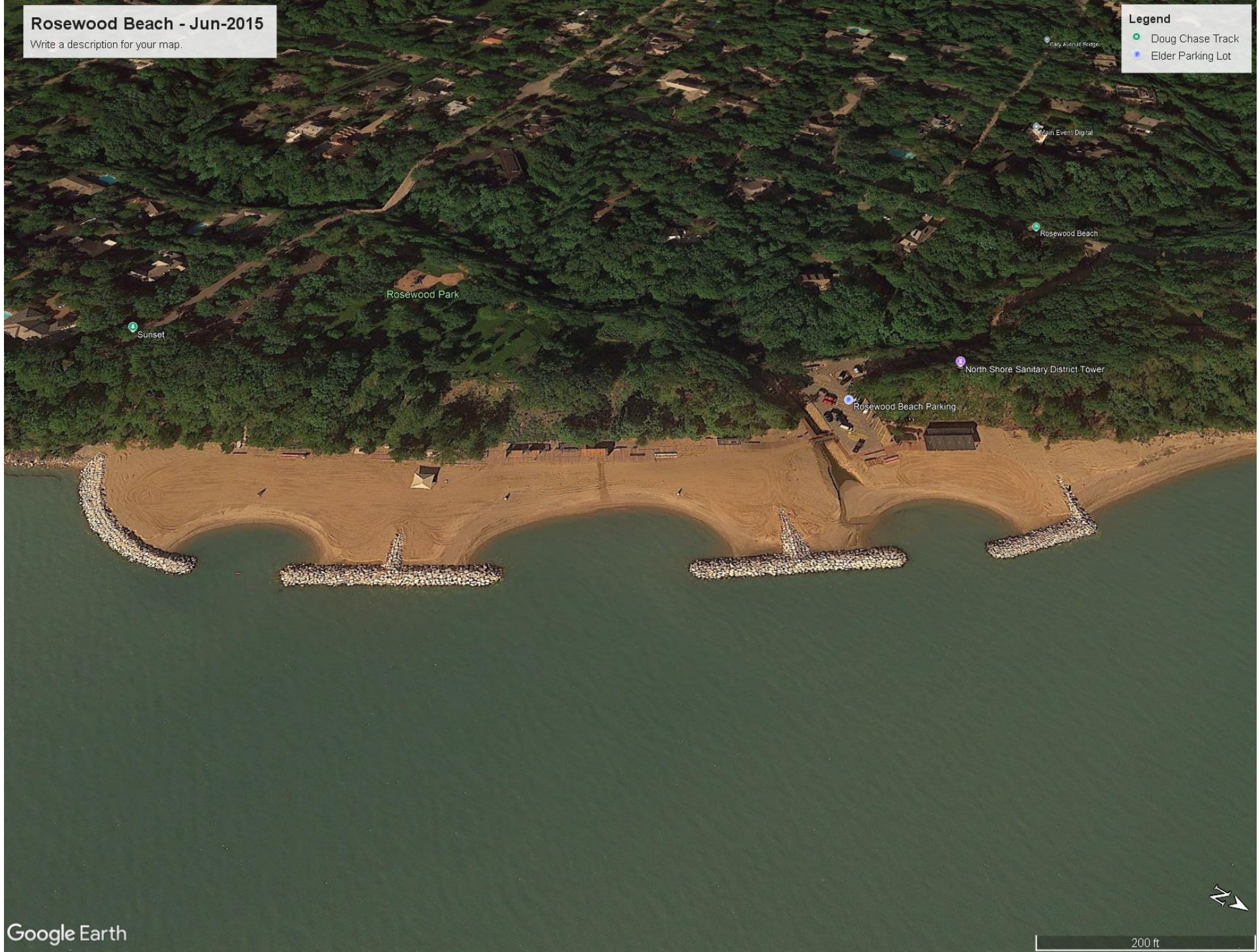

Glencoe Beach - Jun-2015
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Parking Lot
Lakefront Park
Tennis Court
Lake Front Park
Glencoe Village Water Plant
Glencoe Boat House
Glencoe Beach
Google Earth
100 ft

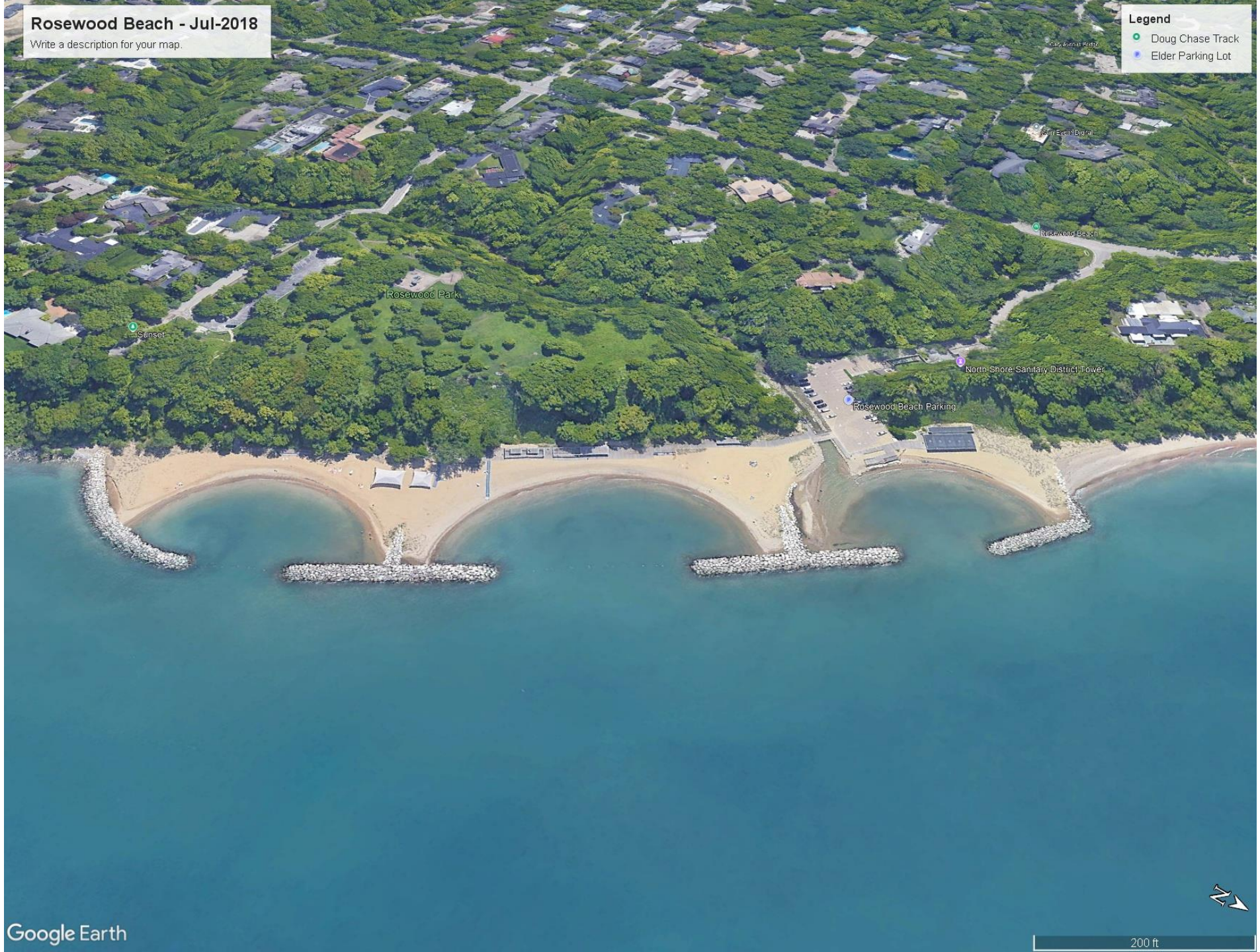

Glencoe Beach - Jul-2018
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Parking Lot
Lakefront Park
Tennis Court
Lake Front Park
Glencoe Village Water Plant
Glencoe Boat House
Glencoe Beach
Google Earth
100 ft

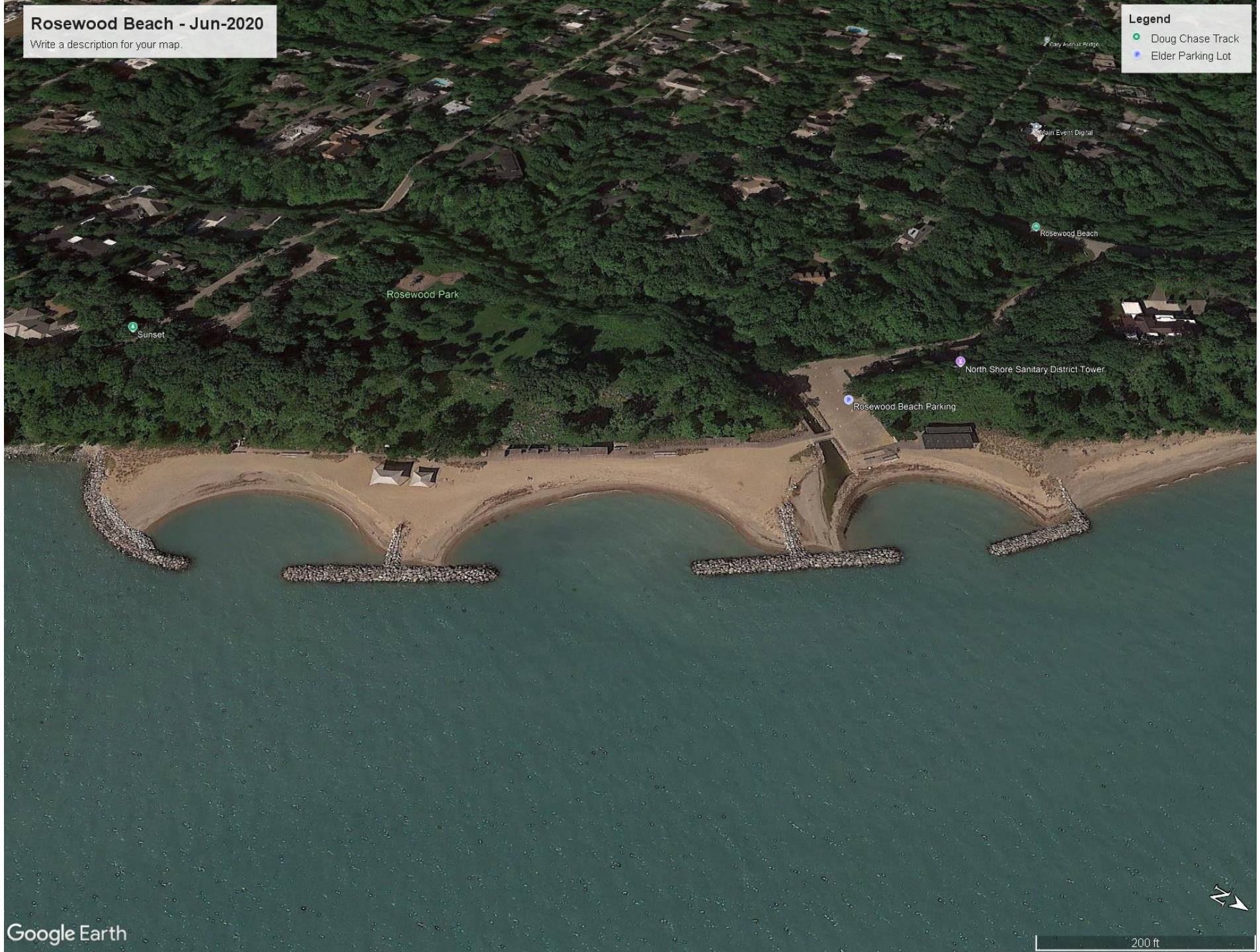

Glencoe Beach - Jun-2020
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Parking Lot
Lakefront Park
Tennis Court
Lake Front Park
Glencoe Village Water Plant
Glencoe Beach House
Glencoe Beach
Google Earth
100 ft

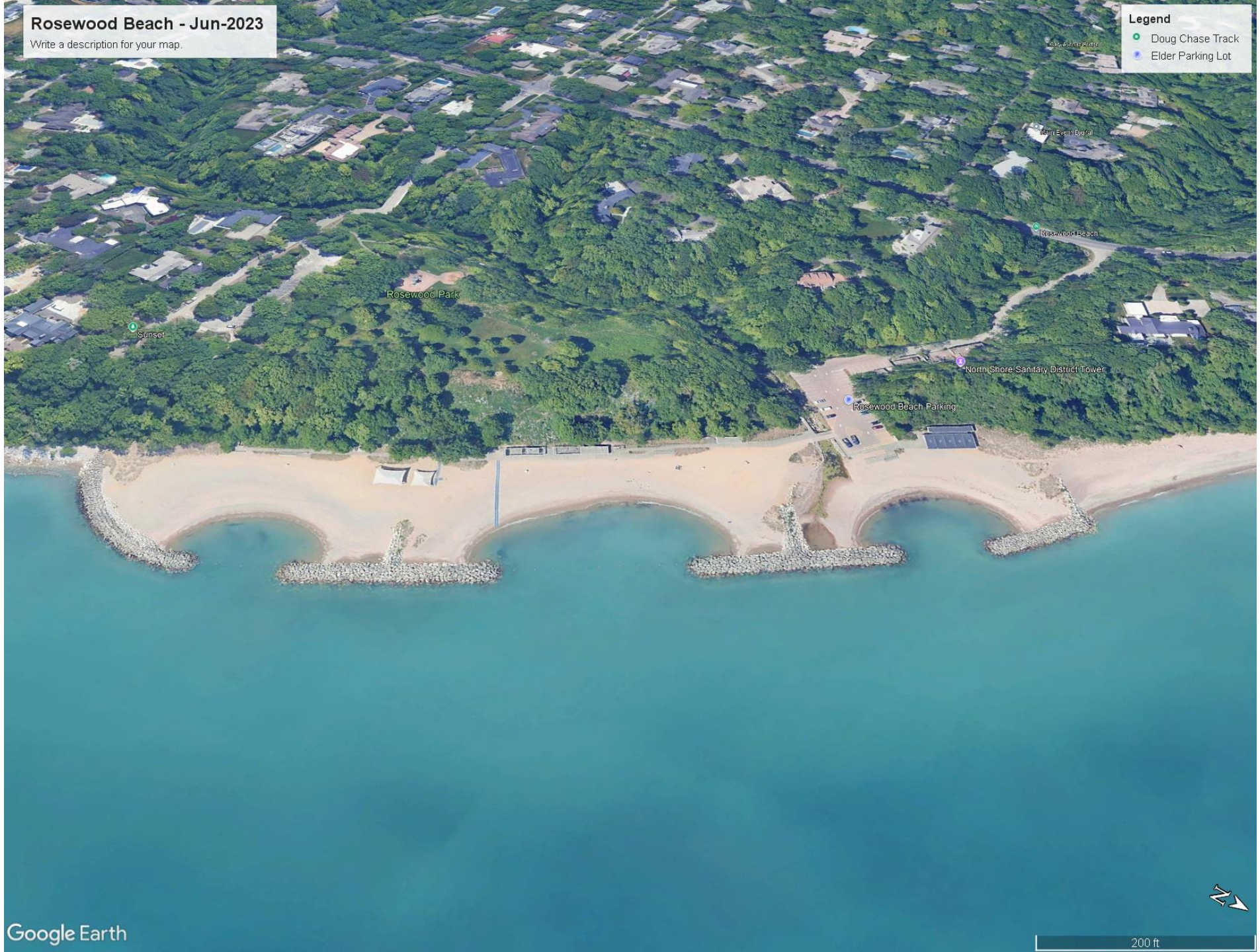

Glencoe Beach - Jun-2023
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Parking Lot
Lakefront Park
Tennis Court
Lake Front Park
Glencoe Village Water Plant
Glencoe Boat House
Glencoe Beach
Google Earth
100 ft

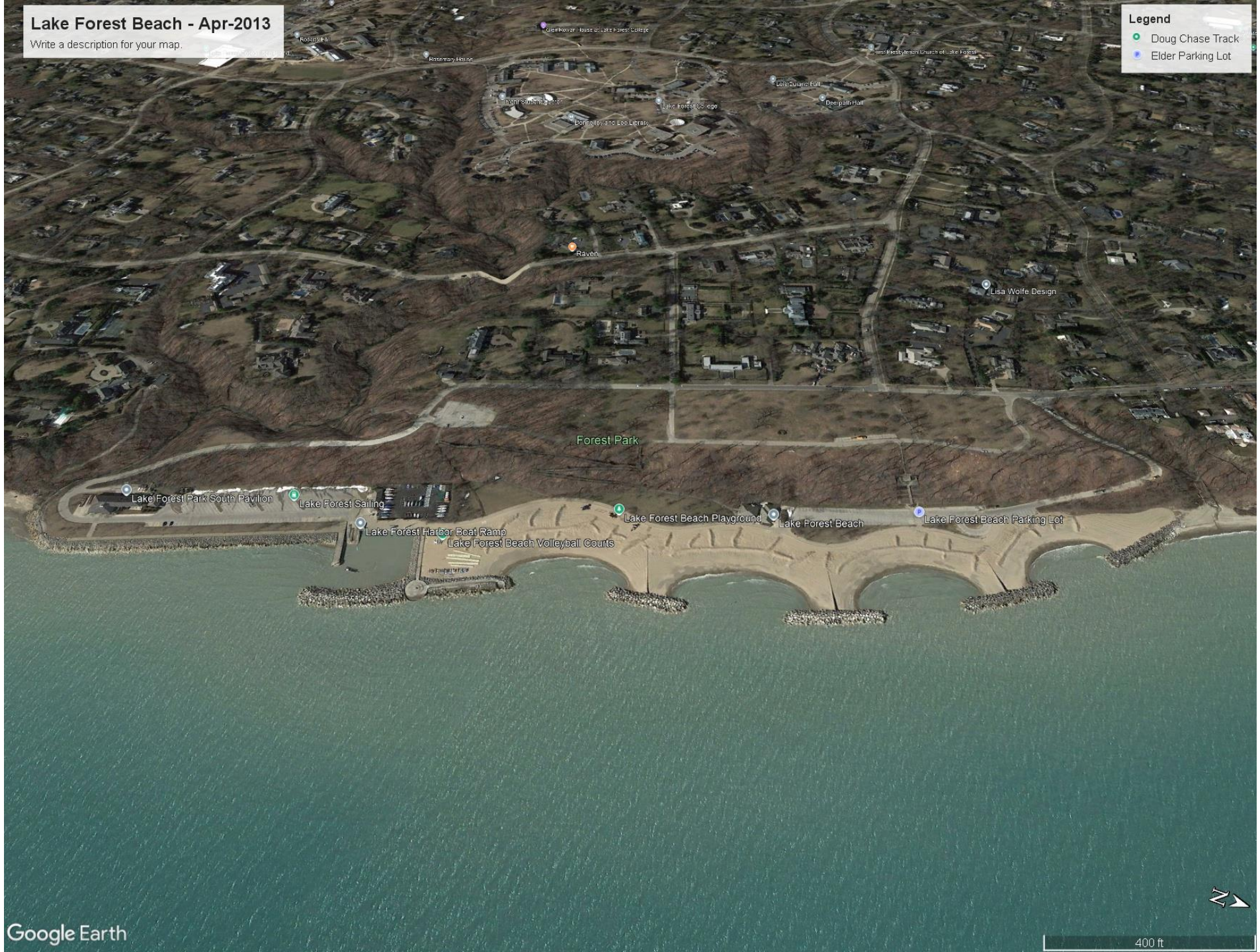

Rosewood Beach - Apr-2013
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Main Event Digital
Rosewood Beach
Rosewood Park
Sunset
North Shore Sanitary District Tower
Rosewood Beach Parking
Google Earth
200 ft


Rosewood Beach - Jun-2015
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Rosewood Park
Sunset
Rosewood Beach
North Shore Sanitary District Tower
Rosewood Beach Parking
Google Earth
200 ft


Rosewood Beach - Jul-2018
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Rosewood Beach
Rosewood Park
Sunset
North Shore Sanitary District Tower
Rosewood Beach Parking
Google Earth
200 ft


Rosewood Beach - Jun-2020
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Gary Avenue Bridge
Main Event Digital
Rosewood Beach
Rosewood Park
Sunset
North Shore Sanitary District Tower
Rosewood Beach Parking
Google Earth
200 ft

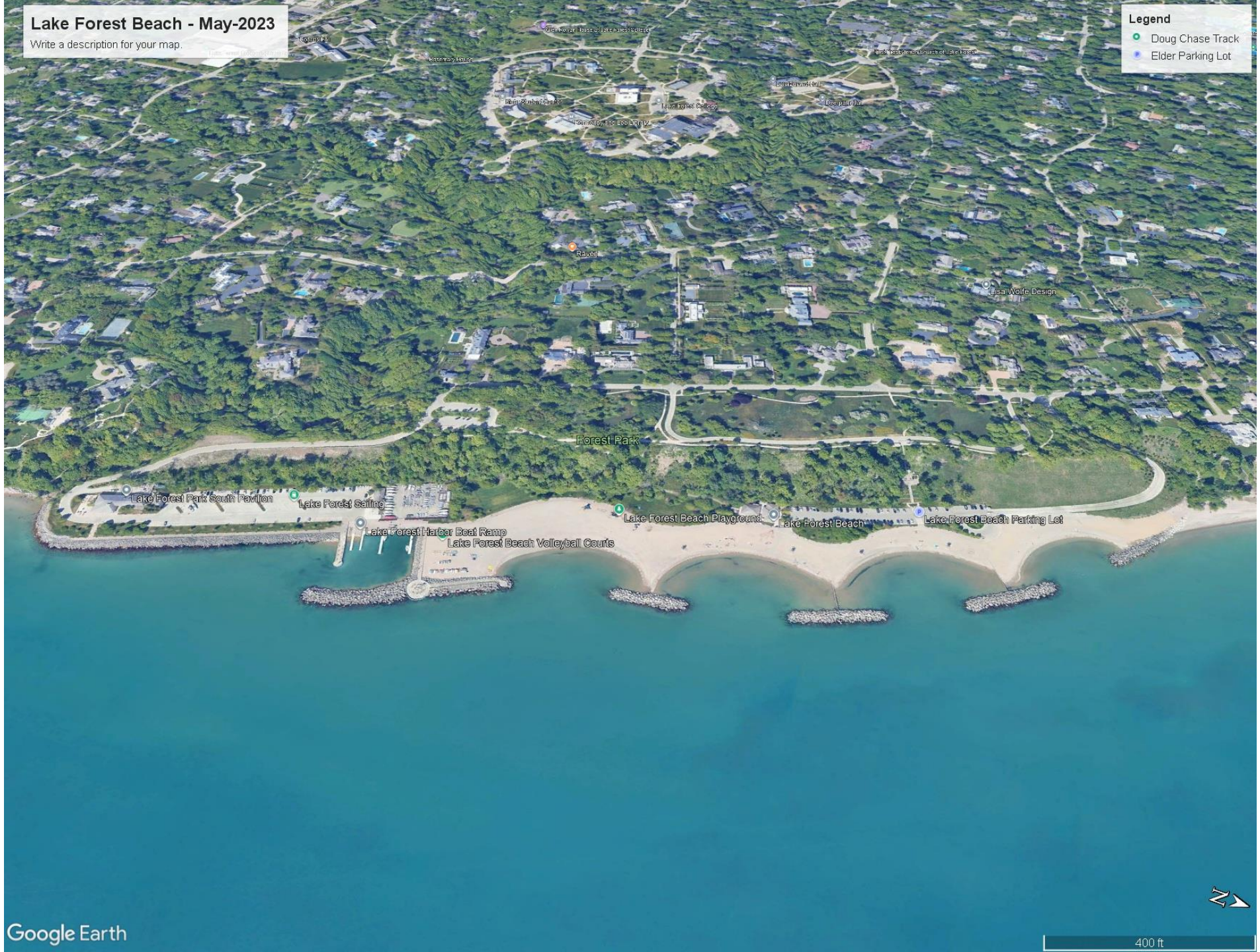

Rosewood Beach - Jun-2023
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Rosewood Park
Sunset
Rosewood Beach
North Shore Sanitary District Tower
Rosewood Beach Parking
Google Earth
200 ft


Lake Forest Beach - Apr-2013
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Raven
Lisa Wolfe Design
Forest Park
Lake Forest Park South Pavilion
Lake Forest Sailing
Lake Forest Harbor Boat Ramp
Lake Forest Beach Volleyball Courts
Lake Forest Beach Playground
Lake Forest Beach
Lake Forest Beach Parking Lot
Google Earth
400 ft


Lake Forest Beach - Jun-2015
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Raven
Lisa Wolfe Design
Forest Park
Lake Forest Park South Pavilion
Lake Forest Sailing
Lake Forest Harbor Boat Ramp
Lake Forest Beach Volleyball Courts
Lake Forest Beach Playground
Lake Forest Beach
Lake Forest Beach Parking Lot
Google Earth
400 ft


Lake Forest Beach - Jul-2018
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Raven
Lisa Wolfe Design
Forest Park
Lake Forest Park South Pavilion
Lake Forest Sailing
Lake Forest Harbor Boat Ramp
Lake Forest Beach Volleyball Courts
Lake Forest Beach Playground
Lake Forest Beach
Lake Forest Beach Parking Lot
Google Earth
400 ft


Lake Forest Beach - Jun-2020
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Raven
Lisa Wolfe Design
Forest Park
Lake Forest Park South Pavilion
Lake Forest Sailing
Lake Forest Harbor Boat Ramp
Lake Forest Beach Volleyball Courts
Lake Forest Beach Playground
Lake Forest Beach
Lake Forest Beach Parking Lot
Google Earth
400 ft


Lake Forest Beach - May-2023
Write a description for your map.
Legend
Doug Chase Track
Elder Parking Lot
Raven
Lisa Wolfe Design
Forest Park
Lake Forest Park South Pavilion
Lake Forest Sailing
Lake Forest Harbor Boat Ramp
Lake Forest Beach Volleyball Courts
Lake Forest Beach Playground
Lake Forest Beach
Lake Forest Beach Parking Lot
Google Earth
400 ft


LIZ ANN

Exhibit 11

A Collection of Videos of Winnetka Beaches

Tower, Lloyd, Maple, Elder & Centennial 2018 through 2024

during periods of high wind and large waves.

The intent of this collection is to demonstrate the effectiveness of the headland beach system at Lloyd Beach as compared to unprotected beaches at Tower, Maple, Elder and Centennial

Tower Road Beach – October 14, 2023

Lloyd Beach & Stepan Boat Launch October 14, 2023

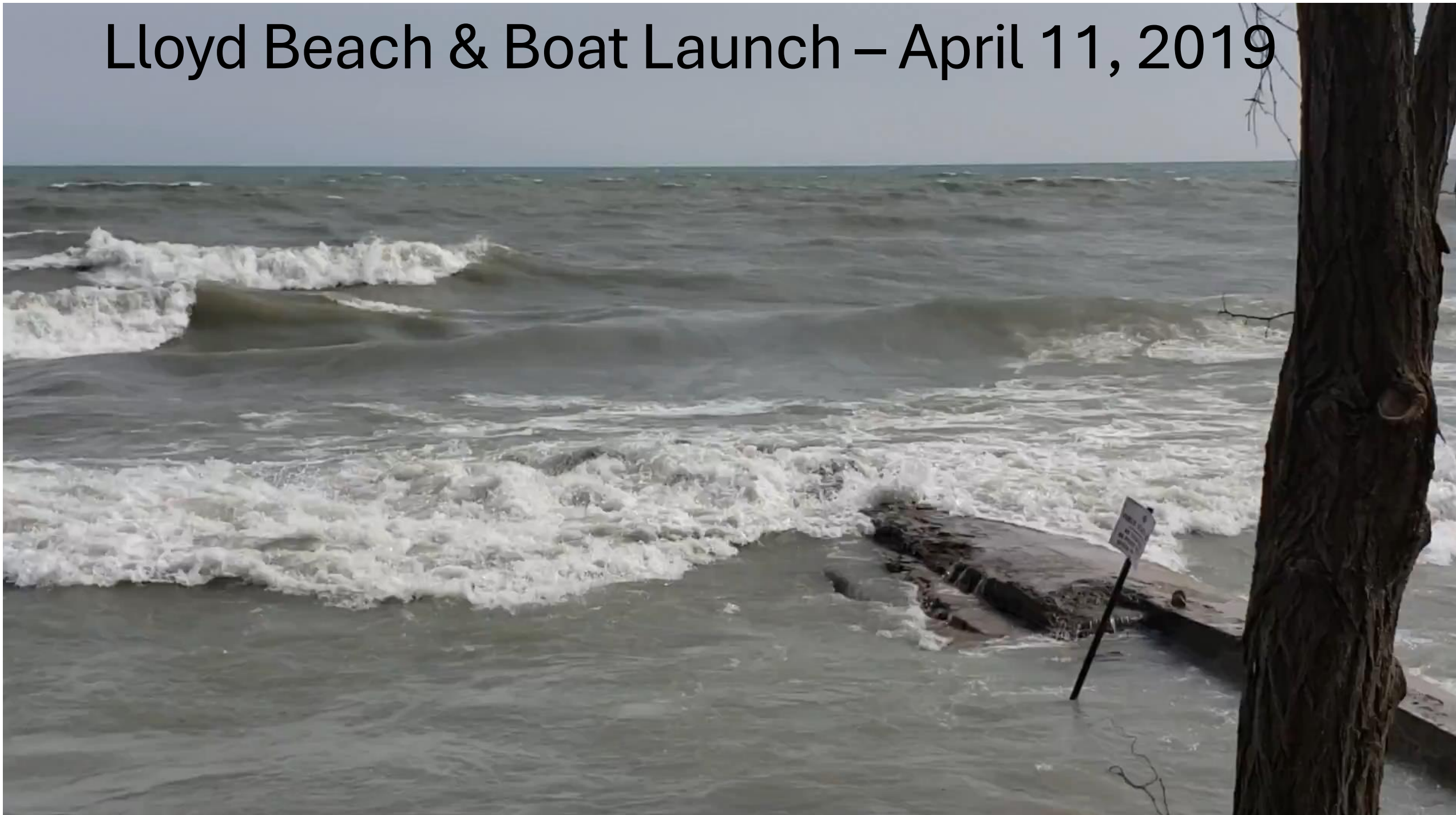
Maple Beach & Pier – October 14, 2023

Elder & Centennial Beaches – October 14, 2023

Tower Road Beach – April 14, 2018


Lloyd Beach & Boat Launch April 11, 2019

Lloyd Beach & Boat Launch – April 11, 2019

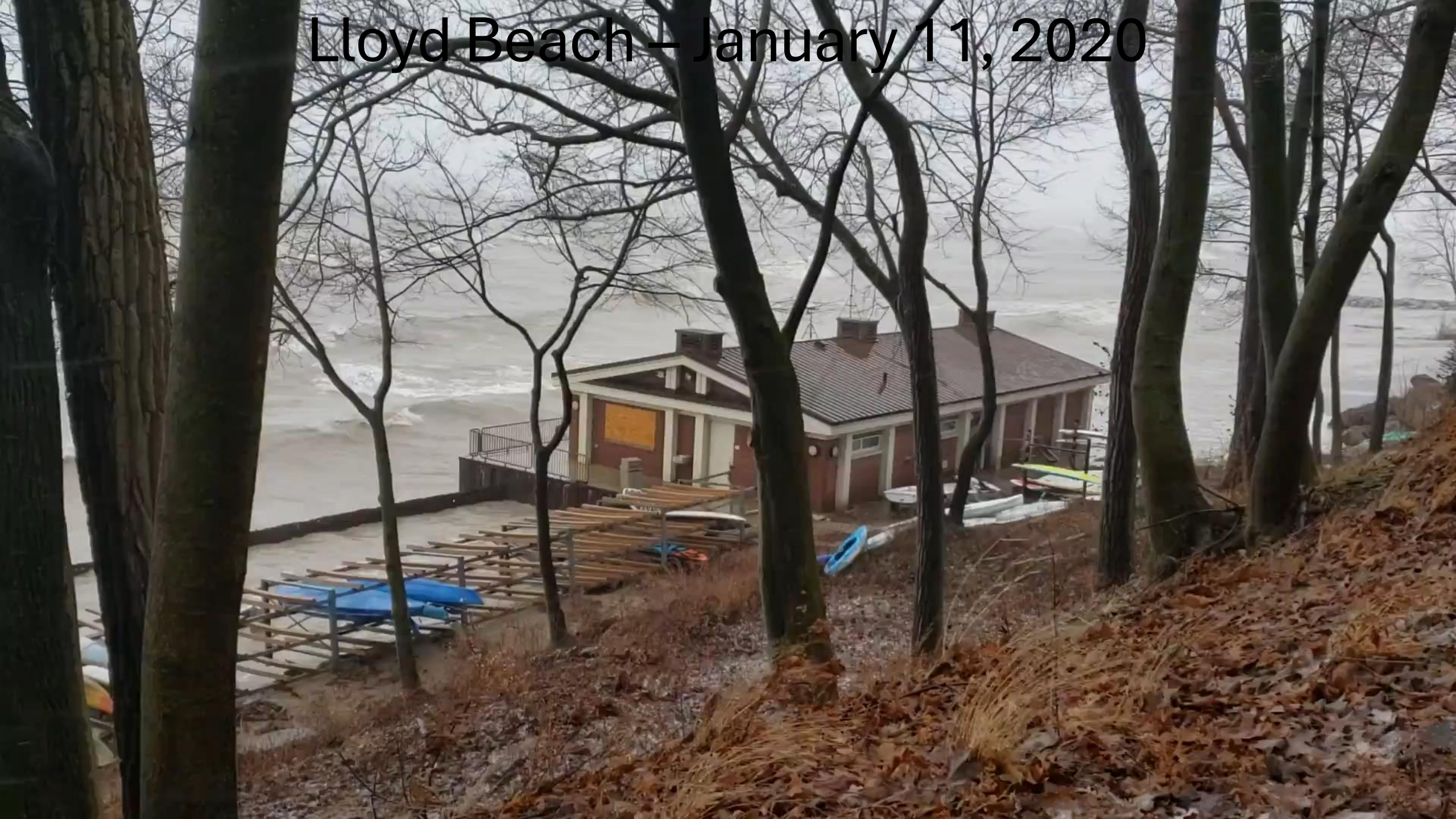


Lloyd Beach & Boat Launch April 11, 2019


Lloyd Beach – April 11, 2019

Tower Road Pier – October 31, 2019


Lloyd Beach – October 31, 2019


Lloyd Beach – January 11, 2020

Elder and Centennial Beaches – September 22, 2021

Centennial Beach – September 22, 2021

Lloyd Beach & Stepan Boat Launch October 6, 2021

Lloyd Beach and Stepan Boat Launch – January 12, 2024

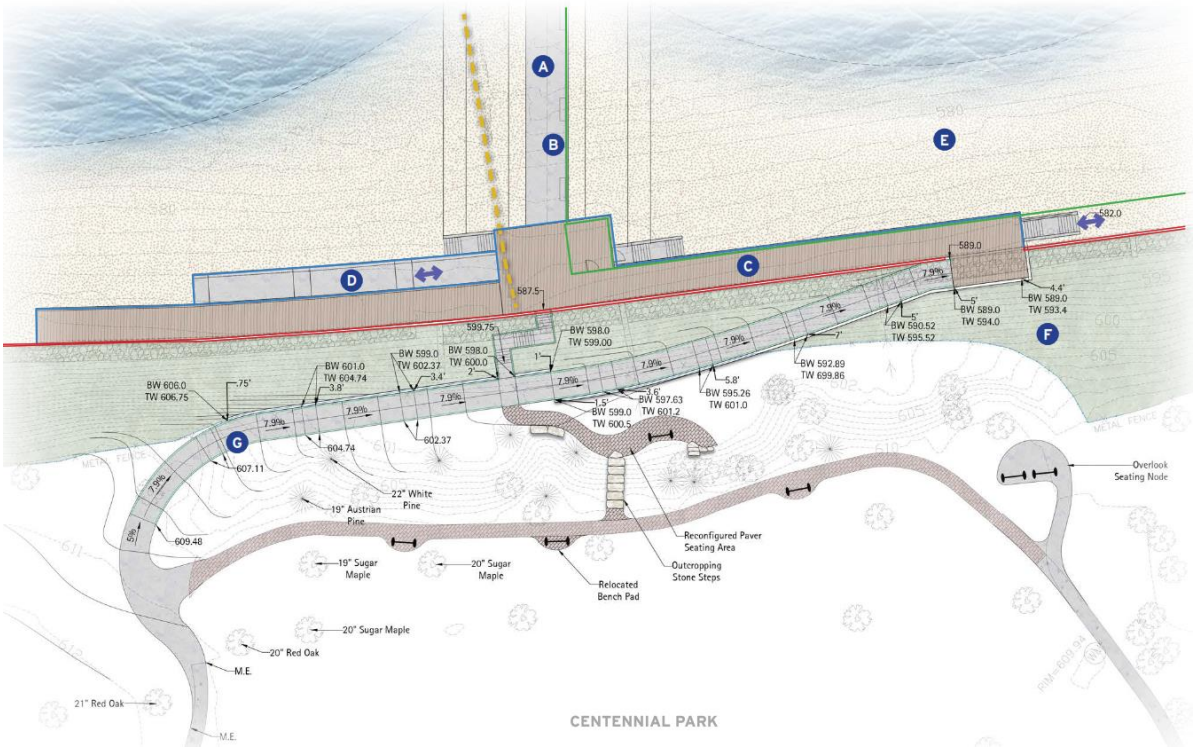
Exhibit 12

Centennial Beach - ADA Access

Centennial Beach is presently the only Winnetka Park District Beach that does not provide ADA access to the beach level. All other beaches (Tower, Lloyd, Maple, Elder) address ADA access by way of parking spaces at the beach level. The approved plan for Centennial creates an ADA accessible path from Sheridan Road to the beach, independent of parking at the beach level. Centennial Park is unique among the five lakefront parks given its beach frontage and relatively low bluff which make it the only beach where it is practical to accomplish pedestrian friendly ADA access to the beach.

Elder Lane Beach has a single handicap parking space at the base of a steep driveway. The driveway is far outside of compliance with ADA standards. Utilizing the ADA parking space at Elder requires a beach patron to call ahead are request the park district to unlock the gate. With a single parking space at the base of the driveway, Elder meets minimum accessibility standards. Moreover, Elder Lane Beach does not embrace the principle of universal design.

Universal design is the design of buildings, products or environments to make them accessible to people, regardless of age, disability or other factors. It is a design process that increases the potential for developing a better quality of life for a wide range of individuals. It addresses common barriers to participation by creating things that can be used by the maximum number of people possible.



The Park District's plans for Centennial incorporate universal design principles, providing a continuous accessible pathway from Sheridan Road to the end of the new pier and viewing area on the lake. The plan includes multiple opportunities to enjoy panoramic views of the lake, whether from the mid-bluff landing (currently not "accessible"), on the boardwalk level or all the way onto the lake on the new breakwater. In addition, the design includes an accessible ramp to the beach, where a beach mat may allow patrons with differing abilities to enter the lake directly.

Winnetka Park District – February 2025

Centennial Beach - ADA Access

The Park District's long-term vision for Elder includes the removal of the old pier and relocation of the storm sewer outfall pipe, thus the importance and efficacy of constructing the breakwater at Centennial. The Centennial breakwater with integrated pier serves multiple purposes:

1. Provides access onto the lake for people of all abilities.
2. Creates proper separation between the dog beach and the swimming beach with a non-permeable barrier.
3. Arrests the littoral drift of sand along the lakeshore, creating a usable swimming beach.

There can be no misunderstanding, the Park District's approved plan for Centennial Park and Beach embraces the principle of universal design and affords much greater opportunities to far more people than what is presently available at Elder Lane Beach.

ADA Design Standards

ADA design standards require a maximum continuous slope of 5% or maximum overall slope of 8.33%, provided there are rest areas spaced not more than 50 feet apart. The proposed design incorporates sections of the path that are 5% and less than 8.33% with the required rest areas. The elevation of the table land is approximately 612 msl, the mid-bluff area is around 600 msl, the boardwalk varies between 587 and 589 msl and the end of the ramp to the beach is designed at 580 to ensure the bottom of the ramp will be covered by sand at all times. Minimum ramp lengths are calculated as follows:

Table Land: elevation 612
12' drop @ 5% = 240 feet; or 12' @ 8.33% = 144' + 10' (2 rest stops) = 154' minimum ramp length
Mid Bluff: elevation 600
11' drop @ 5% = 220 feet; or 11' @ 8.33% = 132' + 10' (2 rest stops) = 142' minimum ramp length
Boardwalk: elevation 589
9' drop @ 5% = 180 feet; or 9' @ 8.33% = 108 + 10' (2 rest stops) = 118' minimum ramp length
Beach: elevation 580

Any alternative design that introduces additional switchbacks would result in an increase in the overall ramp length and area and reduce the usability of the path for maintenance and emergency vehicles.

Exhibit 13

RED BARN
Design & Engineering, S.C.

6750 Woodland Dr.
Waunakee, WI 53597

p. 608.849-2042
c. 608.843.1870

redbarnde@tds.net

Matthew D. Wright, P.E
Principal Engineer/Owner
RED BARN Design & Engineering, S.C.

Education
BS-Civil Engineering
University of Wisconsin-Madison, 1981

Registrations
Prof. Engineer
WI, IL, MI, PA, IA, MN, IN, GA, KY

Mr. Wright, for over 43 years, the last 22 as founder/owner of RED BARN Design & Engineering, has served as project manager and Senior Civil Design Engineer on numerous civil and environmental engineering, coastal engineering and waterfront development projects. Mr. Wright's project involvement typically includes design and preparation of plans and specifications for bidding and construction, bid phase involvement, construction documentation, construction administration, permitting and client liaison. Mr. Wright is experienced in the areas of civil engineering design, marina, harbor infrastructure, breakwater and shore protection design and construction, as well as site infrastructure design, feasibility studies, data acquisition and analysis, and construction materials investigations.

Relevant Experience

1st Avenue Revetment Repair, Kenosha, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for repair and installation of rubble mound revetment of 1,300' of City of Kenosha shoreline on Lake Michigan. Additional responsibilities include USACE, WDNR, USEPA and local permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was performed from a water-based plant. The project was designed and constructed in 2023. The total construction cost for the project was $4.3 million.

Restoring Ecological Health and Aquatic Biodiversity in Southeastern Wisconsin (REHAB), Pleasant Prairie, Wisconsin

Project engineer responsible for design and preparation of Concept plans for design and installation of rubble mound revetments, pocket beaches, and onshore breakwaters to stabilize and improve site habitat of 1,900' of WDNR property at the Chiwaukee Prairie in Pleasant Prairie, Wisconsin on Lake Michigan. Working collaboratively with WDNR staff with input from the Natural Resources Foundation of Wisconsin, Wisconsin Coastal Management Program, Fund for Lake Michigan, and NFWF, the concept plan to stabilize and provide

site habitat improvements was developed over the past four years. Final design, permitting, and construction are planned to be completed in 2022/2023. Project estimated construction cost is approximately $10,000,000.

Shoreline Stabilization 9040 E. Bayside Dr, Bayside, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for design and installation of rubble mound revetment of 860' of private shoreline on Lake Michigan. Project was performed as a water-based operation. All site preparation, material disposals, revetment material delivery and construction were performed from water-based plants. Additional responsibilities include USACE, WDNR, USEPA, and local permitting. cost estimating, bid phase involvement, and performance of construction administration. Project was designed and constructed in 2021. Project construction cost $4,200,000.

Shoreline Stabilization Airing Ravine LLC, Bayside, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for design and installation of rubble mound revetment and pocket beach of 640' of private shoreline on Lake Michigan. Project was performed as a water-based operation. All site preparation, material disposals, revetment material delivery and construction were performed from water-based plants. Additional responsibilities include USACE, WDNR, USEPA, and local permitting. cost estimating, bid phase involvement, and performance of construction administration. Project was designed and constructed in 2021. Project construction cost was $4,000,000.

Southport Park Shoreline Repair Phases 1, 2, and 3, Kenosha, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for repair and installation of rubble mound revetment of 3,100' of City of Kenosha shoreline on Lake Michigan. Additional work elements included localized storm sewer design and installation through the new revetment, site staging and marshalling area design and restoration. Additional responsibilities include USACE, WDNR, USEPA, and local permitting, cost estimating, bid phase involvement, and performance of construction administration. The projects were designed and constructed in 2015, 2018, and 2020. The total construction costs for the three projects were over $10 million.

Kennedy Drive Revetment Repair, Kenosha, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for repair and installation of rubble mound revetment of 3,500' of City of Kenosha shoreline on Lake Michigan. Additional responsibilities include USACE, WDNR, USEPA, and local permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2019 and constructed in 2019. The total construction cost for the project was over $7.3 million.

Harbor Mooring Improvements, Kenosha, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for installation of heavy marine mooring bollards in the Kenosha harbor. The bollard installation was performed to provide mooring and safe harbor for commercial vessels namely the Tall Ships festival. Additional responsibilities include USACE, WDNR, USEPA, and local permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2019 and constructed in 2019. The total construction cost for the project was over $1.2 million.

Limnology Dock & Sidewalk Repair, Madison, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for removal and repair of the Limnology Building seawall and lakeshore revetment on the shore of Lake Mendota. Additional responsibilities include USACE, WDNR, USEPA, and local permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2017 and constructed in 2020. The total construction cost for the project was over $500,000.

Harbor Wall Improvements, Kenosha, Wisconsin

Project engineer responsible for design and preparation of plans and specifications and analysis to determine bulkhead failures and repairs needed to return the harbor to commercial operations. Additional responsibilities include USACE, WDNR, USEPA, and local permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2018 and constructed in 2018 and 2019. The total construction cost for the project was $1,1 million.

Christophe Harbor Marina Fuel System and Condition Assessment, St. Kitts, West Indies

Project engineer responsible for design and preparation of plans and specifications for the high capacity diesel and gasoline fuel system at the Christophe Harbour Marina. Project elements included design of state-of-the-art fuel dispensing, controls, piping, valving for landbased fuel hydrants, marina based fuel hydrants, and floating fuel pier dispenser. Controls included three touch screen PLS control stations with manual switch backup devices. Additional utilities included water service to the floating fuel pier. Additionally, RED BARN performed a visual Condition Assessment and prepared a Condition Assessment Report for the Christophe Harbor marina fuel system and sanitary and water utility systems on the island of St. Kitts for the purpose of observing and documenting the existing condition of the installed fuel system and utilities at the fixed pier marina. The Condition Assessment Report was prepared to document and discuss the quality of the installed work in response to inadequate and improper installation methods performed by the construction contractor. Additionally our recommendations for remedial action and repair were included in the report. The Condition Assessment project was performed in the spring of 2015. The fuel system was designed in 2015. Construction estimate for the fuel system is $950,000. The fuel system is currently under construction with a scheduled late 2015 start-up.

Edgewater Pier at the Edgewater Hotel, Madison, Wisconsin

Project engineer responsible for design and preparation of plans and specifications for fixed and floating pier improvements for the Edgewater Hotel on Lake Mendota in Madison, Wisconsin. Project element included pile supported fixed main pier with 40- slips of floating dockage and floating fuel pier. Project utilities included electric, sanitary and water utilities to serve the floating fuel pier. Additional responsibilities include USACE, WDNR, USEPA, and local permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2014 and was constructed in 2015. Project construction cost is estimated at $1,450,000.

Wilmette Dockage and Anchorage, Wilmette, Illinois

Project engineer responsible for design and preparation of plans and specifications for 440’ of fixed pile anchored floating dockage, 15 slips of spud pile with sea-flex anchored swing moorings, and 390’ pile supported adjustable waler wall for mooring of small craft in the Wilmette Harbor. Additional responsibilities include cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2015 and will be constructed in 2016. Estimated construction cost is $650,000.

Washburn Marina, Travel Lift Well and Fuel System Improvements, Washburn Wisconsin

Project engineer responsible for design and preparation of plans and specifications for removal and replacement of the travel lift well, fuel and sanitary pumpout systems, at the Washburn Marina. Project elements included removal and replacement of the existing binwall pier system, and removal, replacement and upgrade of the existing diesel and gasoline fuel system. The design was prepared in 2013 and was constructed in 2014. Project construction cost estimate is $420,000.

Schultz Park Improvements, Paducah, Kentucky

Project engineer responsible for design and preparation of plans and specifications for landform fill to create a new landmass in the Ohio River for development of transient dockage and future marina improvements along the Paducah shoreline. Additional project elements included floating breakwater, floating administration building platform and fuel pier, and floating fuel system including floating fuel barge for storage and dispensing of diesel and gasoline fuels, and sanitary pumpout system. Additional project responsibilities included coordination of all Client project subconsultants to integrate and produce a single bid package for all site civil and coastal engineering, electrical improvements, and building architecture for floating Marina Administration building. The project is currently out for bid. Project construction cost estimate is $11,000,000.

AYA NAPA Marina, Cypress

Project engineer responsible for design and preparation of preliminary plans and specifications for harbor improvements including fixed pier and headwalks, rubblemound breakwaters and revetments, and slit-faced cayways, fixed and floating dockage layout and detail design of sanitary, water, dry fire, and domestic water supply systems, and floating fuel pier and fuel system for 250-acre waterfront development and 600 slip marina. Design and specifications were prepared for bidding both concrete, and aluminum floating dockage. The preliminary design was performed in 2013. Project construction estimate is $250,000,000.

Waukegan Marina Fuel Pier Reconstruction, Waukegan, IL

Project manager/engineer/designer responsible for design and preparation of plans and specifications for removal and replacement of the 980’ long fuel pier at Waukegan Port District. Project elements included removal of the existing pile supported fixed fuel pier and all sanitary, water, fuel and electrical utilities, and replacement with a floating fuel pier of the same configuration with upgraded utilities. Upgraded utilities included new diesel and gasoline fuel delivery, dispensing and monitoring systems, new constant-vacuum sanitary pumpout and discharge system, new pier electrical system, and new fire and domestic water system. Additional project elements included design and construction of a 850 sf fuel attendant building and restroom located mid-length on the floating fuel pier. Additional responsibilities include permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2008 and constructed in 2009/2010. Project construction cost was $1,050,000.

Boat Launch Ramp Reconstruction, Waukegan, IL

Project manager/engineer/designer responsible for design and preparation of plans and specifications for removal and replacement of the 8-lane boat launch ramp at the Waukegan Port District. Project elements included removal of the floating access dockage and storage for reinstallation, demolition of the fixed access piers and cast-in-place and precast concrete plank boat launch ramp, and dredging of the ramp basin. The new 8-lane launch ramp was designed as a cast-in-place ramp using a cofferdam for dewatering and construction of the new ramp. The existing floating access ramps were reused, with two new floating access

ramps included in the final design. Project was designed in 2010 and constructed in 2011. Project construction cost was $347,000.

Pearl City Station Bulkhead Repair and Plaza Reconstruction, Muscatine, IA

Project manager/engineer/designer responsible for design and preparation of plans and specifications for repair of 263' of Mississippi River bulkhead, and removal and replacement of a 60,000 sf public plaza. Bulkhead repair elements included construction of a cast-in-place concrete bulkhead riverward of the failing bulkhead to stabilize failed portion of the existing bulkhead and provide stability and erosion protection for the existing bulkhead. Additionally, a rip rap revetment was constructed to provide toe protection for the bulkhead improvements. The public plaza elements included hardscape elements framing the open space surrounding the historic Pearl City Station building to provide a public gathering space for reception, festivals and general use. Plaza element included cast-in-place concrete deck framed by a low brick wall capped with cut limestone caps and integral decorative cast iron railing. The plaza corners were defined with brick pilasters, access stairways, and decorative lighting. Storm drainage improvements and landscaping were integral details of the design. Additional responsibilities include permitting, cost estimating, bid phase involvement, and performance of construction administration. The project was designed in 2009 and constructed in 2009/2010. Project construction cost was $910,000.

Boat Launch Ramp and Sanitary Sewer, Muscatine Riverside Park, Muscatine, IA

Project Manager/Engineer responsible for design and preparation of plans and specs for 4-lane boat launch ramp and supporting entrance roadway and parkway, and improvements to existing park infrastructure. Improvements to existing Park infrastructure included upgrade of all site electrical facilities and addition of new site lighting, site irrigation, storm sewer facilities, water main and service laterals, and replacement of 2.500 lf of gravity sanitary interceptor with HDPE forcemain to existing sanitary lift station, and addition of two sanitary lift stations to service existing park facilities. Additional responsibilities include permitting, cost estimating, bid phase involvement, and performance of construction administration and construction management. The project was designed in 2005 and constructed in 2006. Project construction cost was $2,875,000.

Port-O-Call Shoreline, Castle Rock Lake, WI

Project Manager/Engineer responsible for design and preparation of plans and specs for 3,000 lf of new shoreline improvements. Design elements included removal and replacement of pile supported shore parallel walkway, rip rap revetment and site grading. Additional responsibilities included permitting, cost estimating, bid phase involvement, and performance of construction observation. The project was designed in 2005 and constructed in 2006. Project construction cost was $1,200,000.

Evanston Boat Launch Ramp Condition Assessment, Evanston, Illinois

Performed a visual Condition Assessment and prepared a Condition Assessment Report for the City of Evanston public boat launch ramp in Evanston, Illinois for the purpose of observing and documenting the existing condition of the launch ramp and waterfront infrastructure. Facility elements and amenities included in the Condition Assessment Report included floating dockage, fixed dockage, breakwater, revetments and launch ramp basin interior shore protection. Additional project elements included preparation of cost estimates for repair and/or replacement of the existing facilities. Project was performed in March 2014.

Lewis & Clark Marina Condition Assessment, Yankton, South Dakota

Performed a visual Condition Assessment and prepared a Condition Assessment Report for the Lewis & Clark Marina in Yankton, South Dakota for the purpose of observing and documenting the existing condition of the marina and waterfront infrastructure. Facility elements and amenities included in the Condition Assessment Report included floating dockage, fixed travel lift boat launch facility, boat launch ramp, site and

marina electrical facilities, and land and water based fuel system. Additional project elements included preparation of cost estimates for repair and/or replacement of the existing facilities. Project was performed in April 2013.

Cleveland Edgewater Marina Condition Assessment, Cleveland, Ohio
In response to damage resulting from Hurricane Sandy, performed a visual Condition Assessment and prepared a Condition Assessment Report for the Edgewater Marina in Cleveland, Ohio for the purpose of observing and documenting the existing condition of the marina and waterfront infrastructure. Facility elements and amenities included in the Condition Assessment Report included exterior breakwaters and revetments, floating dockage, fixed travel lift boat launch facility, boat launch ramp, interior shoreline improvements including revetments and sheet pile walls, site and marina electrical facilities, and land-based fuel system. Additional project elements included preparation of cost estimates for repair and/or replacement of the existing facilities. Project was performed in December 2012.

Bay Port Marina Condition Assessment, Bay Port, Minnesota
Performed a visual Condition Assessment and prepared a Condition Assessment Report for the Bay Port Marina in Bay Port, Minnesota for the purpose of observing and documenting the existing condition of the marina and waterfront infrastructure. Facility elements and amenities included in the Condition Assessment Report included floating dockage, fixed travel lift boat launch facility, boat launch ramp, shoreline improvements, site and marina electrical facilities, and land and water-based fuel system. Additional project elements included preparation of cost estimates for repair and/or replacement of the existing facilities. Project was performed in October 2012.

Chicago Botanical Gardens, Northbrook, IL
Project Engineer responsible for design and oversight of the stabilization of 4 miles of the Botanical Gardens shoreline. Stabilization improvements include development of submerged shelves for aquatic planting beds through steel sheet pile walls, earthwork and geomembrane stabilization materials.

Lakeshore State Park, Milwaukee, WI
Project Engineer responsible for design and preparation of plans and specifications for harbor improvements including walkway, breakwater, steel sheetpile bulkhead, dredging, all land and water-based utilities, including domestic and fire water supply, sanitary forcemain and site storm sewer, earthwork, grading, and all site development layout and design, and cost estimating. Additional responsibilities include contract administration and construction observation.

Duncan L. Clinch Marina, Traverse City, MI
Project Engineer responsible for design and preparation of plans and specifications for $10M harbor improvements including walkway, breakwater, steel sheetpile bulkhead, dredging, all land and water-based utilities, including domestic and fire water supply, sanitary forcemain and site storm sewer, 256-boat marina, fuel system design, earthwork, grading, and all site development layout and design, and cost estimating. Additional responsibilities include contract administration and construction observation.

War Memorial and Art Museum Expansion/ Shoreline Protection and Seawall Replacement, Milwaukee, WI
Project Manager responsible for design and preparation of plans and specifications for 2800 foot shoreline protection. Shoreline protection features included pile supported concrete walkway and revetment, and low profile off-shore breakwater. Additional responsibilities included permitting, cost estimating, contract administration, and construction observation.

Silver Bay Marina, Silver Bay, MN
Project Engineer responsible for design of a 250-boat marina, fuel system and utilities to serve the marina, site improvements including roadway, parking, boat launch ramp and earthwork. Site nestled carefully into a natural park setting located on Lake Superior's North Shore.

LaCrosse Downtown Mississippi Riverfront, LaCrosse, WI
Project Engineer responsible for design and preparation of plans and specifications for all site improvements for a small harbor for visiting boaters and a riverfront park with 2,000 ft of frontage including a riverboat landing area.

Navy Pier Dockwall Improvements, Chicago, IL
Design of dockwall improvements for stabilization and upgrade of existing dockwall, pile preservation containment and pumping system, and preparation of plans and specifications for construction and permitting.

Racine Harbor/Marina Development, Racine, WI
Project Engineer responsible for design and preparation of plans and specifications for $21M harbor improvements including 921-boat marina, walkway, breakwater, steel sheetpile bulkhead, dredging, all land and water-based utilities, including domestic and fire water supply, sanitary forcemain and site storm sewer, fuel system design, earthwork, grading, and all site development layout and design. Additional responsibilities include cost estimating, contract administration and construction observation.

U.S. Army Corps of Engineers, Chicago, IL
Project Engineer providing coastal engineering design, calculations, project plan and specification development for twelve shoreline protection projects within the Chicago Lake Michigan shoreline under Corps of Engineers open-end contract.

Professional Affiliations
- OSHA 40-hour Health and Safety Training
- OSHA 8-hour Site Supervisor Training
- Troxler Nuclear Density Gauge Certification

Charles W. Shabica, Ph.D., P.G., AM ASCE

EDUCATION
Brown University, B.A. Geology, 1965
Yale University, Geology, 1966
University of Chicago, Ph.D., 1971, Thesis: Depositional Environments, M. Pennsylvanian Francis Creek Shale

REGISTRATION
Professional Geologist, Illinois

UNIVERSITY POSITIONS

- 1971-present: Professor Emeritus, Department of Earth Science, Northeastern Illinois University, Chicago, IL. Specialization: coastal geology and coastal engineering
    - Instrumental in the establishment of the Weather Climate Service at Northeastern Illinois University, a cooperative program co-sponsored by the National Weather Service.
    - Developed coastal studies program. New courses included: Coastal Marine Research, Environmental Stability in Lake Michigan, and Coastal Engineering.
    - Updated 1944 Chicago Park *District Lake Shore Protection Work Map of Shoreline Bulkhead Types* with Luke Cosme CPD in 1986.
    - Acquired research vessels and sampling equipment through grants and donations.
    - Supervised four research fellows working on coastal research projects sponsored by Great Lakes Commission, National Park Service, NOAA, National Geographic Society, Illinois/Indiana Sea Grant, U.S. Geological Survey.
- 1999-2001: Adjunct Professor, Department of Environmental Science, Northwestern University, Evanston, IL. Specialization: research in coastal geology, coastal engineering, wetland management.
- 1980-1981: Adjunct Professor, College of the Virgin Islands. Developed marine science program including new faculty position, marine science center and research vessels. Awarded $248,000 National Science Foundation Grant, "Improved Marine Science Curricula – Access to the Sea."

PROFESSIONAL POSITIONS

- 1984 – present: President, Shabica & Associates, Inc., 550 Frontage Road, Suite 3735, Northfield, IL 60093, charles@shabica.com, 847-446-1436. Consultants in coastal geology and coastal engineering.
- 2005-2006: Principal Investigator, Great Lakes Commission, Monitoring Ravines for Water Quality
- 2004-2005: Principal Investigator, NOAA: Foss Park Beach Restoration
- 2003-2005: Principal Investigator, Great Lakes Commission: Ravine Settling Ponds
- 1993-1995: Principal Investigator, Great Lakes Commission: Ravine Erosion Control Project
- 1993-1994: Principal Investigator, Earthwatch Expedition: Cumberland Island Georgia
- 1992-1993: Principal Investigator, National Geographic Society: Relict Forest in Lake Michigan
- 1989-1996: Research Collaborator, National Park Service: Hydrogeology of Cumberland Island, Georgia
- 1989-1993: Research Collaborator, National Park Service: National Parks Inlet Dynamics, E. & Gulf Coasts

- 1987-1988: Commissioner, Structural Measures Work Group, Chicago Shoreline Protection Commission. Identified technical solutions for the reconstruction of the Chicago lakefront.
- 1986: Chair, Task Force on Lake Michigan: Convened by the City Club of Chicago and sponsored by Northeastern Illinois University. Brought lake experts and policy makers together to study Chicago lakefront. Included graduate course on Lake Michigan and conference.
- 1979-1980: Kellogg Fellow, Northeastern Illinois University
- 1978-1982: Research Collaborator, National Park Service: Shore management and dynamics of sand transport and barrier island migration, Gulf Islands National Seashore
- 1976: Member, Task Force on Illinois Coastal Zone Management
- 1966-1967: Research Assistant, Woods Hole Oceanographic Institution, Department of Biology: Several voyages to: North Atlantic R.V. Chain and R.V. Atlantic II, Chief Scientist R.V. Panulirus

AWARDS

2012 Designer, ASBPA Top Restored Beach, Sunrise Park, Lake Bluff, Illinois; 1986 Faculty of the Year, Northeastern Illinois University; 1990 Northeastern Illinois University Nominee – Board of Directors Distinguished Professor; 1993 Case Professor of the Year; 1995 Finalist, Chicago Tribune Academic All-Stars; 1993, 1995, 1996 Faculty Excellence Award, Northeastern Illinois University

PROJECT HIGHLIGHTS

1987-2022 shore management and restoration projects include design and engineering for beaches and beach nourishment, marinas, breakwaters, revetments, groins, spurs, piers, boat ramps, and bluff and ravine stabilization. Lake Michigan work includes more than 150 projects in the following Illinois communities: Chicago, Evanston, Highland Park, Glencoe, Kenilworth, Lake Bluff, Lake Forest, North Chicago, Waukegan, Wilmette and Winnetka. Work in other states includes: Florida, Massachusetts, Michigan, Ohio and Wisconsin. International projects: Mexico and Belize. Project highlights include:

- Village of Winnetka: Design and Engineering, Lloyd Beach, Elder/Centennial Beach 2020-2022
- Park District, Highland Park, IL: Design and Engineering - Ravine Stabilization for Fish Habitat, 2011
- ASBPA National Conference Co-Chair, Chicago, 2009
- Ara Macao Resort, Placencia, Belize: Marina Design, Coastal Engineering, Environmental Impact Assessment, 2005-2011
- San Felipe, Mexico: Waterways Design and Coastal Engineering, 2006
- North Park University, Chicago River: Design and Coastal Engineering for Revetment and Pier, 2003-2005
- City of Whiting, Indiana: Lakefront Redevelopment, Design and Coastal Engineering, 2004-2005
- Foss Park, North Chicago, Illinois: Design and Coastal Engineering of municipal lakefront, 2000-present
- Wilmette Harbor, Illinois: Permitting for dredging and redesign of marina, 1996-present
- City of Whiting, Indiana: Design and Coastal Engineering of new revetment and harbor, 1998-1999
- Fort Sheridan, Illinois: Design and Engineering: Landfills 6 & 7 Stabilization and Shore Protection, 1998
- ASBPA National Conference: Co-Chair, Chicago, 1996
- City of Highland Park, Illinois, Department of Public Works: Coastal Engineering Consultant, 1993-1995
- Lake Bluff Park District, Illinois: Design and Engineering: Sunrise Park Bluff and Beach Restoration, 1990
- Shedd Aquarium, Chicago, Illinois: Design Consultant, Cold Water Mammal Facility, 1988-1991
- Fort Sheridan Commission: Member, Environmental Panel, 1989-1990
- City of Lake Forest, Illinois: Member, Shore Monitoring Team, 1989-1990
- Loyola University, Chicago, Illinois: Technical Consultant, 18.3-Acre Lakefill Project, 1988-1989
- Waukegan Harbor, Illinois: Harbor Redesign Consultant, PCB Cleanup, 1988
- Village of Kenilworth, Illinois: Review Shoreline Expansion Plans, 1988. Public Boat access, 2019

- Laurel Avenue Project, Highland Park, Illinois: Design and Engineering: shore protection stone berms, breakwaters, beaches and revetments to the City of Highland Park and 3 riparian property owners, 1988
- *Shedd Aquarium Cold Water Mammal Expansion*: Environmental Impact Report, 1987
- *Water Treatment Plant Expansion Alternative*: Report to City of Highland Park, 1986
- *Short & Long Term Shore Management Alternatives*: Report to City of Highland Park, 1986

OTHER INTERESTS

Board Member Winnetka Historical Society; Curator, Mazon Creek Project, 1997-2007; Chair, American Environmental Science & Technology Corporation, 1990-1996; Director, Great Lakes Naval & Maritime Museum, 1983-1986; Asst. Cannoneer, Ravinia Festival, Tchaikovsky's *1812 Overture*, 1983-2013; Section Chair, Winnetka Congregational Church Rummage, 1993-2010; Experienced SCUBA diver, Red Cross Water Safety Instructor, Cert. 1966; Organized and Director Hurricane Hugo Relief Fund for University of The Virgin Islands, Northeastern Illinois University, 1988-1989; Asst. Scoutmaster, Troop 18, Boy Scouts of America, Northeast Illinois Council, 1984-1986; Packmaster, Cub Pack 18, BSA, Northeast Illinois Council,1986-1988; Boy Scout Commissioner, 1988-1991; Illinois Shore Girl Scout Council, Long Term Planning Committee, Properties Manager, 1976-1980.

PUBLICATIONS & REPORTS

2019 Shabica, C.W., ***T**he Winnetka Lakeshore 2100. Mimicking Nature to Cope with Climate Change: Maintaining Adaptive Living Shorelines*. Winnetka Historical Society Gazette

2018 Shabica, C.W., *Admiral Dewey's Cannon*, Invited article, Winnetka Hist. Soc. Gazette

2016 Shabica, C.W., A. Bartolai, J, Arrigoni, *Ravines – Natural History and Now*. Invited paper Ravine Symposium, November 15, Park District, Highland Park, Illinois

2012 Shabica, C.W. and G.C. Baird, *A Window into a Catastrophic Coal Age Flood Event: The Mazonian Fossil Bonanza*, Invited Paper, Mid America Paleontological Society

2012 Shabica, J., J. Ehret and C. Shabica, *State of the Great Lakes*, Shore and Beach, v80, # 3.

2011 Shabica, C.W., M.C. Mohr and S. Nagelbach, *Effects of Structurally-Engineered Beaches on Coastal Processes & Shores of the Great Lakes.* Abst. Coastal Zone 2011, Chicago, IL.

2011 Shabica, C.W., and S. Nagelbach, *Coastal Disaster Management Planning in the Caribbean*, ASCE Solutions to Coastal Disasters Conference, Anchorage, Alaska

2011 Grill, R, and C. Shabica, *Using Volunteers to Monitor Results of Restoring Native Aquatic Diversity to a Lake Michigan Ravine Ecosystem*, Coastal Zone 2011 Conference, Chicago, Illinois

2010 Shabica, C.W., M.C. Mohr and S. Nagelbach, *Effects of Structurally-Engineered Beaches on Coastal Processes and Shores of the Great Lakes*, Shore & Beach, v78/4/, v79/1, pp. 1-13

2010 Shabica, C.W., J. Jennings, M. Riley, J. Boeckler, *Stabilization of Ravines, Adjacent Beaches and Bluffs on Lake Michigan*, Shore & Beach, Vol. 78, No. 1, pp. 1-24

2008 Shabica, C., *Sustainable Great Lakes Beaches: The Illinois Experiment*, Shore & Beach, Vol 26, #3

2007 Campbell, T., R. Boudreay, S. Douglass, L. Ewing, J.R. Houston, T. Jarrett, J. Pope, A.P. Pratt, C.W. Shabica, M. Walther, *ASBPA Position Statement: Innovative Erosion Control Devices*, Shore & Beach, Vol. 75, No. 3, pp. 58-59

2005 Shabica, C.W., *Urban Beaches Series*, Shore & Beach, Vol. 73, No. 1, p. 23

2004 Shabica, C.W., *Mimicking Mother Nature – Learning from the Landscape to Control Ravine Erosion and Polluted Runoff*, Restoring the Connections, Stories of Ecosystem Restoration in the Great Lakes, edited by Chris Grubb and Wil Cwikiel, Tip of the Mitt Watershed Council

2004 Shabica, C.W., *Shoreline Erosion and Coastal Management*, Sea Technology, Soapbox, Dec. 2004

2004 Shabica, C.W., J. Meshberg, R. Keefe, R. Georges, *Evolution and Performance of Groins on a Sediment Starved Coast: The Illinois Shore of Lake Michigan North of Chicago, 1880-2000*, Journal of Coastal Research, Special Issue No. 33, pp. 39-56

2002 Magoon, O.T., C.W. Shabica, B.L. Edge, L.C. Ewing and D.D. Treadwell, *Importance of Urban Shore and Beaches*, 28th International Conf. on Coastal Eng. Cardiff, Wales, July 7-12, 2002

2002 Shabica, C.W., *Ravine, Bluff and Lakeshore Restoration*, invited paper, Illinois Landscape Association, Winter Seminar, Oakbrook, IL

2001 Shabica, C.W., *Urban Lakes as a Recreational Resource*, invited paper, Symposium on Urban Shorelines, NE Shore and Beach Preservation Assoc, 4th Annual Conf., Hoboken, NJ

2001 Shabica, C.W., Convener, Great Lakes Coastal Issues Roundtable, Coastal Zone Conference, Cleveland, OH, July 15, 2001

2000 Shabica, C.W., L. Dick, T. Donovan, J.D. Jones, J. Lynch, *Performance of Engineered Beaches on Urban Coasts: The Illinois Shore of Lake Michigan North of Chicago*, American Shore & Beach Preservation Association, Abstract, Kaanapali, HI

1999 Schramm (Nagelbach), S., and C.W. Shabica, *Evolution of an Engineered Lakeshore: The Illinois Northshore*, North Central Section Geological Society of America, Abstract, Urbana, IL

1999 Shabica, C.W., and R. Keefe, *Ravine Erosion Control – Sediment/Nutrient Transport Reduction*, North Central Geological Society of America, Abstract, Urbana, IL

1998 Shabica, C.W., Ravine Erosion Control, Soil Erosion and Sediment Control Conference, Toledo, OH, Great Lakes Commission and USEPA, invited presentation, September 16-18, 1998

1997 Shabica, C.W. and A.H. Hay, (eds.), *Richardson's Guide to the Fossil Fauna of Mazon Creek*, Northeastern Illinois University Press

1996 Shabica, C.W. and J.R. Jennings, *Shoreline Monitoring, Lake Bluff, Illinois*, American Shore & Beach Preservation Association National Conference, Chicago, IL, October 13-16, 1996

1996 Chrzastowski, M.J. and C.W. Shabica, *The Illinois Coast of Lake Michigan: North Point*

Marina to Evanston's Dawes Park, Field Guide, American Shore & Beach Preservation Association National Conference, Chicago, IL, October 13-16, 1996

1994 Shabica, C.W. and F. Pranschke, *Survey of Littoral Drift Sand Deposits Along the Illinois and Indiana Shores of Lake Michigan*, U.S. Geological Survey Symposium, Vol. 20, pp. 61-72

1993 Shabica, C.W., S.V. Cofer-Shabica, D. Anderson, S. Boom, *Inlets of SE Region National Park Units: Effects of Inlet Maintenance and Recommended Action,* Report, National Park Service, 59 pp.

1993 Shabica, C.W., G.E. Hultman, C. Miller, *The Lake Bluff Billow: Recreation of Illinois' Pre-Settlement High Bluff Shoreline with Native Vegetation and Soft-Shore Coastal Engineering,* Proceedings, 13th International Conference, The Coastal Society, pp. 779-785

1992 Shabica, C.W., F. Pranschke, M.J. Chrzastowski, *Effects of Engineered Structures on Illinois Lake Michigan Sand Deposits*, Geological Society of America, Abst., Cincinnati, OH

1991 Shabica, C.W. and F. Pranschke, *Survey of Littoral Drift Sand Deposits Along the Illinois Shore of Lake Michigan from Fort Sheridan to Evanston,* Illinois/Indiana Sea Grant, Report IL-IN-SG-91-3, 15 pp.

1991 Hultman, G.E., C.W. Shabica, *The Lake Bluff Billow: Re-creation of an Extinct Shoreline Feature with Native Vegetation and Soft-Shore Coastal Engineering*, Poster Session, Natural Areas Management Association Conference

1991 Chrzastowski, M.J., F. Pranschke, C.W. Shabica, *Discovery and Preliminary Investigations of the Remains of an Early Holocene Forest on the Floor of Lake Michigan*, Journal of Great Lakes Research, Vol. 17, No. 4, pp. 543-552

1990 Shabica, C.W. and F. Pranschke, *Survey of Littoral Drift Sand Deposits Along the Illinois Shore of Lake Michigan from Fort Sheridan to Evanston,* Programs and Abstracts, International Association of Great Lakes Research, 83rd Conference, May 13-17, Windsor, Ontario

1990 Chrzastowski, M.J., D.W. Folger, C.F. Polloni, F. Pranschke, C. Shabica, *Geologic Setting of the Olson Tree Site, Southern Lake Michigan*, Geological Society of America, Ann. Meeting, Dallas, TX

1990 Chrzastowski, M.J., F. Pranschke, C. Shabica, *Discovery and Radiocarbon Dating of Tree Stumps in Growth Position on the Floor of Lake Michigan*, USGS 2nd Annual Southern Lake Michigan Coastal Erosion Study Workshop, St. Petersburg, FL, Report 90-272

1990 Pranschke, F., C.W. Shabica, M.J. Chrzastowski, *Early Holocene Forest Remains Discovered on the Floor of Southern Lake Michigan*, Transactions of The Illinois State Academy of Science, Abstract, Supplement to Vol. 83, p. 58

1990 Pranschke, F., C.W. Shabica, M. Chrzastowski, J. Booth, *Discovery of Mid-Holocene Submerged Forest Remains on the Floor of Lake Michigan*, N Cent. Sect., Geological Society of America, Abst

1989 Shabica, C.W. and F. Pranschke, *Survey of Littoral Drift Sand Deposits Along the Illinois Shore of Lake Michigan from Fort Sheridan to Evanston*, Illinois/Indiana Sea Grant, Report

1989 Shabica, C.W. and W.F. Baird, *Beach With No Sand – Evolution of the Illinois Lakeshore*, in Magoon, O.T., H. Converse, D. Miner, L.T. Tobin, D. Clarks (eds), Coastal Zone 89, Proc. Sixth Symposium on Coastal and Ocean Mgmt., July 11-14, 1989, Charleston, SC, V 2, pp. 1738-1739

1988 Shabica, C.W., D. Becker, S. Hesser, T. Koach, J. Martin, P. Vojack, C. Cornelius, A. Broulard, *Shore Management Recommendations for Martha's Vineyard, MA – South Beach, East Chop and Sengekontacket Pond*, Report to the Martha's Vineyard Commission, 15 pp.

1988 Chicago Shoreline Protection Commission, Recommendations for Shoreline Protection & Recreational Enhancement, Final Report, City of Chicago, Mayor's Office, 52 pp., plus 7 app.

1987 Shabica, C.W., *The Chicago Lakefront Plan*, 1986 in Magoon, O.T., H. Converse, D. Miner, L.T. Tobin, D. Clark and G. Domurat (eds), Coastal Zone 87, Proceedings of the Fifth Symposium on Coastal and Ocean Management, May 26-29, 1987, Seattle, WA, Vol. 4, pp. 4585-4586

1987 Shabica, C.W. *Coastal Development Criteria.* Edgewater's Lakefront: The Next Mile, Proceedings of a Design Charette. Edgewater Community Council , Association of Sheridan Condo-Coop Owners, Illinois-Indians Sea Grant

1985 Shabica, C.W., *Sediment Accretion Associated with Surgebreaker Offshore Reef, A Low Cost Shore Protection Device: An Update on the Corps of Engineers Section 54 Program*, Proceedings, Oceans 85 Conference

1985 Ledvina, C.T. and C.W. Shabica, *Mining Geology of Secondary Paleo-channels affecting the Herrin (No. 6) and Harrisburg (No. 5) Coals of Illinois*, Second conference on ground control problems in Illinois coal basin, Abstract

1985 Shabica, C.W. and D. Gawlik, *Sand deposits off the Highland Park Lakeshore,* unpublished report to the City of Highland Park, 25 pp.

1984 Baird, G., C.W. Shabica, G. Kuecher, *Depositional Events Recorded in Francis Creek Shale: Taphonomy of the Pennsylvanian Mazon Creek Locality in Illinois*, GSA Abstract

1980 Shabica, S.V. and C.W. Shabica, *Management Strategies for Human Related Shoreline Changes on Petit Bois Island, Gulf Islands Nat. Seashore*, 2nd Conf: Scientific Rsch. in The National Parks

1980 Baird, G. and C.W. Shabica, *The Francis Creek Shale, Depositional Environments,* Illinois Geological Survey Field Guidebook Series

1980 Shabica, C.W. and S.V. Shabica, *Sediment transport processes, Horn and Petit Bois Islands National Seashore*, Research in the National Parks

1979 Shabica, S.V. and C.W. Shabica, *Management Strategies Applicable to Off-Road Vehicle Use of Perdido Key, Florida*, Proc. 4th Annual Conf., Coping with the Coast, the Coastal Society, pp. 67-87

1978 Shabica, C.W., *Pennsylvanian Sedimentation in Northern Illinois, Evidence for a Deltaic,* Eustatic Model,

Geological Society of America, North Central Section, Abstract

1978 Shabica, C.W., *Sedimentary Structures from the Carbondale Formation (Middle Pennsylvanian) of Northern Illinois*, Field Museum, Fieldiana Geology, Vol. 33, No. 29, pp. 541-568

1977 Shabica, C.W., J. Amft, J. Kussmann, J. Tylus, *Tidal Currents in Sengekontacket, Menemsha and Nashaquitsa Ponds*, Report to Martha's Vineyard Commission, Section 208

1976 Shabica, C.W., *Coastal Zone Management Alternatives – Pros and Cons*, Report to Illinois Coastal Zone Management Project and Illinois Department of Transportation

FILMS

2003 *Up the Mississippi*, Movie and workbook, Northeastern Illinois University and Central School, Wilmette, Co-director and Producer with James Tingey
2002 *On the Beach with Dr. Shabica*, Science Advisor, James Tingey, Director
1988 *The Great Barrier Reef*, Museum of Science & Industry, Omnimax Theater, Science Advisor
1986 *Beach with no Sand*, Northeastern Illinois University, Renay Kerkman, Director
1984 *Lake Michigan, its Geologic History*, Scriptwriter, Shedd Aquarium
1977 *Understanding our Earth: How its Surface Changes*, Science Advisor, Coronet Instructional Media
1977 *Glaciers*, Science Advisor, Coronet Instructional Media
1976 *Soil*, Science Advisor, Coronet Instructional Media

Exhibit 14

Lake Michigan Shoreline

Shabica & Associates, Inc.

Need to establish some facts…

- Erosion is a dynamic process influenced by waves, lake levels and shoreline profile
- Shoreline hardening has been going on for over 100+ years
- People become passive during times of low lake levels and ***PANICKED*** at highs!
- This process has gone on as long as people have lived along the shoreline

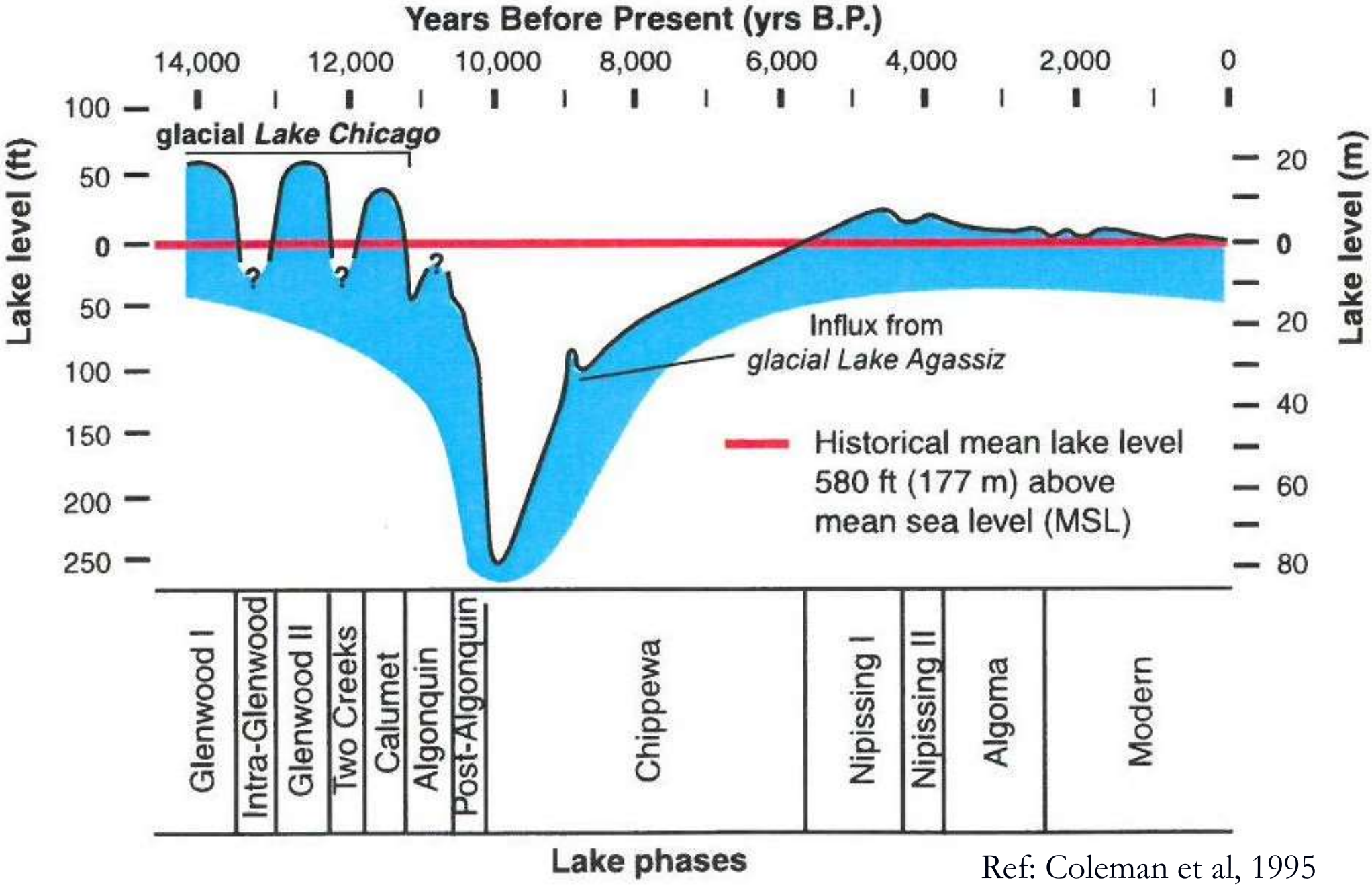
Review 4 Key Factors:

- Dynamic and fluctuating Lake Michigan water levels
- Effects of lakebed downcutting
- Sand movement/longshore transport challenges
- History and coastal structures

Fluctuating Water Levels

- Lake Michigan recently has fluctuated ~6.5' between low and high lake levels
- Evaporation is typically balanced by precipitation, making the level of the lakes fairly consistent
- Number of factors that impact lake levels make forecasting basically impossible
- Seasonally we anticipate a 1' fluctuation

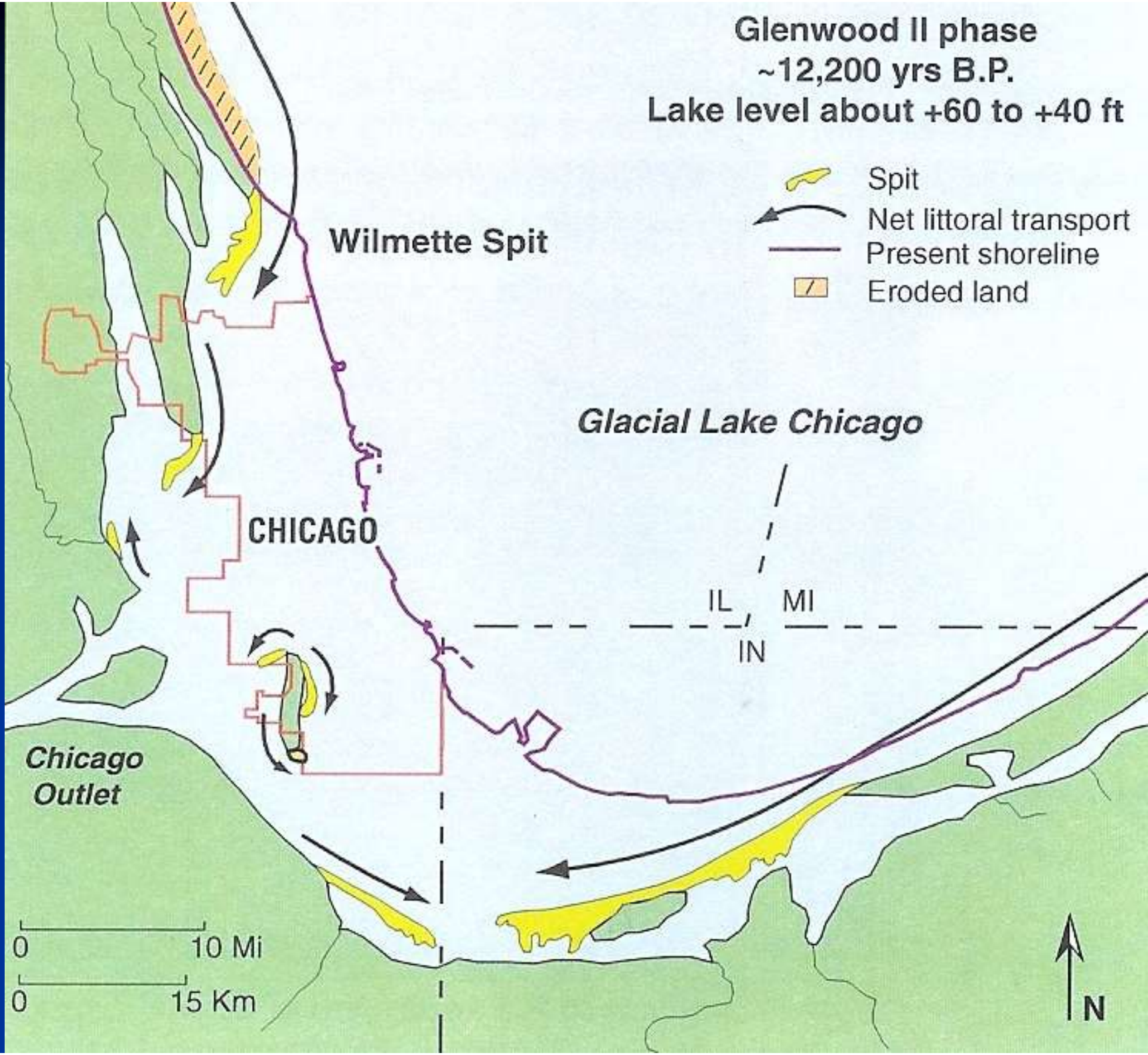
14,000 years of Lake Michigan water levels

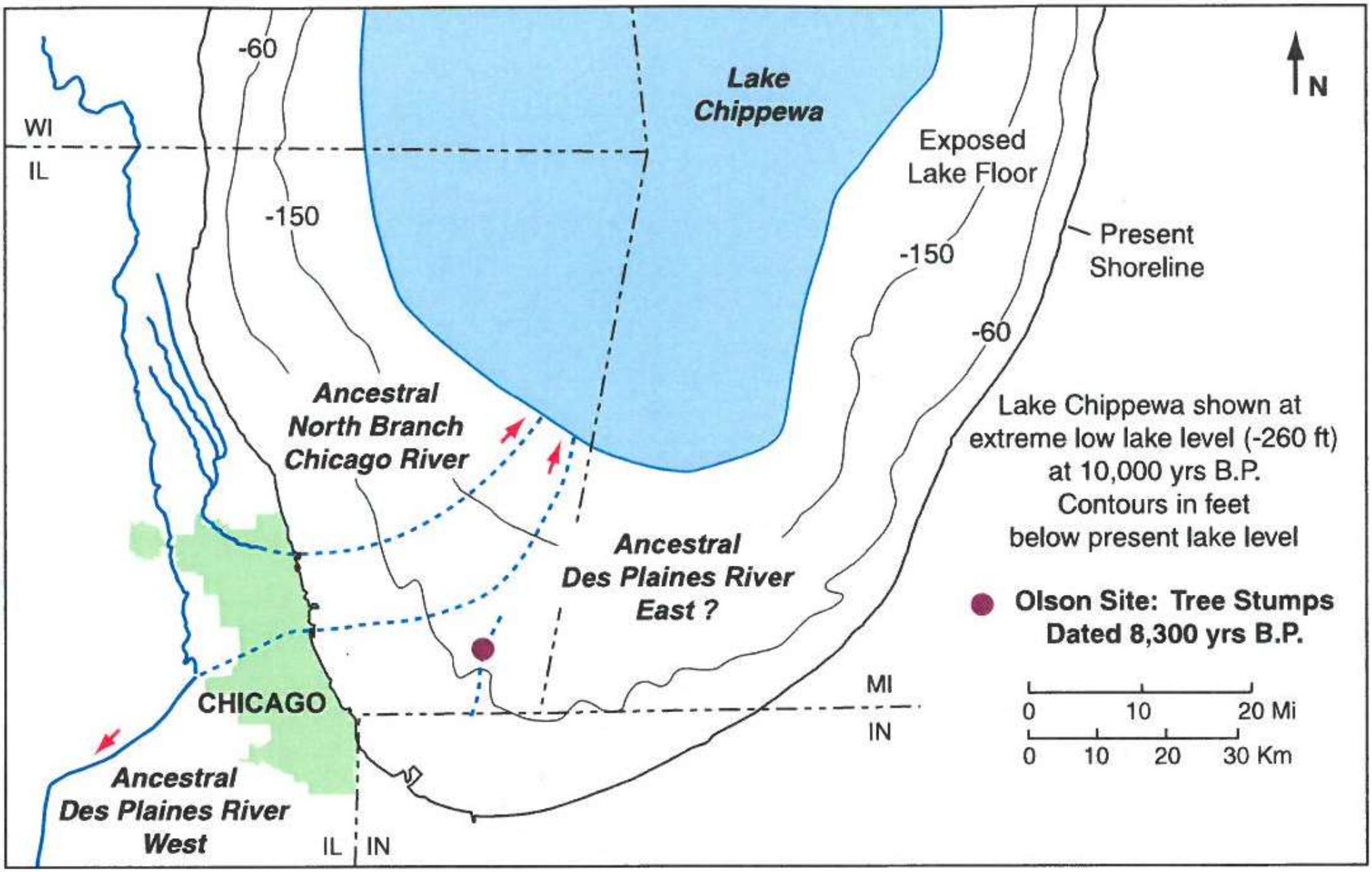


Ref: Coleman et al, 1995

12,000 YBP Glacial Lake Chicago.

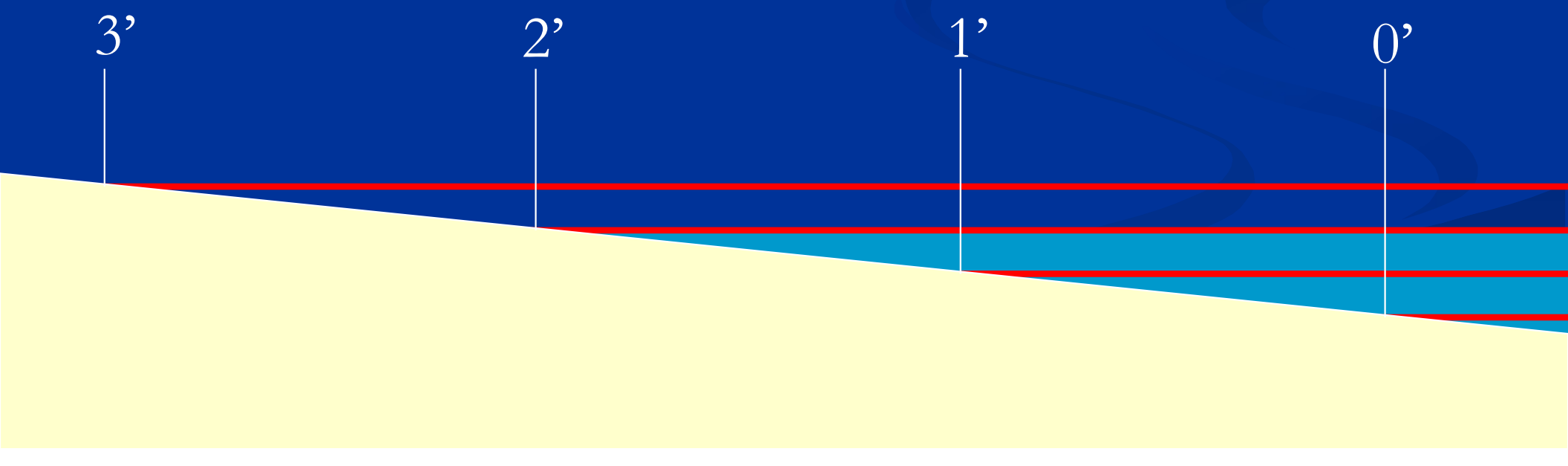
Ridge Road in Wilmette is an old beach ridge - evidence for a lake elevation about 50 feet higher than today.




-60
Lake Chippewa
N
WI
IL
Exposed Lake Floor
-150
Present Shoreline
-150
-60
Ancestral North Branch Chicago River
Lake Chippewa shown at extreme low lake level (-260 ft) at 10,000 yrs B.P.
Contours in feet below present lake level
Ancestral Des Plaines River East ?
Olson Site: Tree Stumps Dated 8,300 yrs B.P.
MI
CHICAGO
IN
0 10 20 Mi
0 10 20 30 Km
Ancestral Des Plaines River West
IL
IN

How does the lake level affect the size of the sandy beach?

- Beaches typically vary from a 1’ vertical:12’ horizontal slope to a 1’:65’
- For example, with ~4’ of lake level rise you can expect to submerge roughly 48’ of beach




2013
Native bluff at low lake water levels…

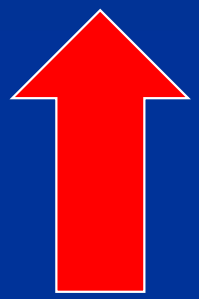

2014

2016

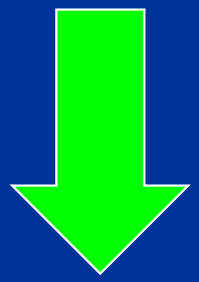
Average lake water levels


2021

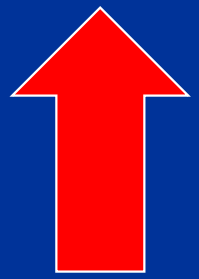
Does Lake Michigan's record low mark beginning of a new era for the Great Lakes – Chicago Tribune



Rising Lake Michigan waters threaten shoreline homes– Chicago Tribune



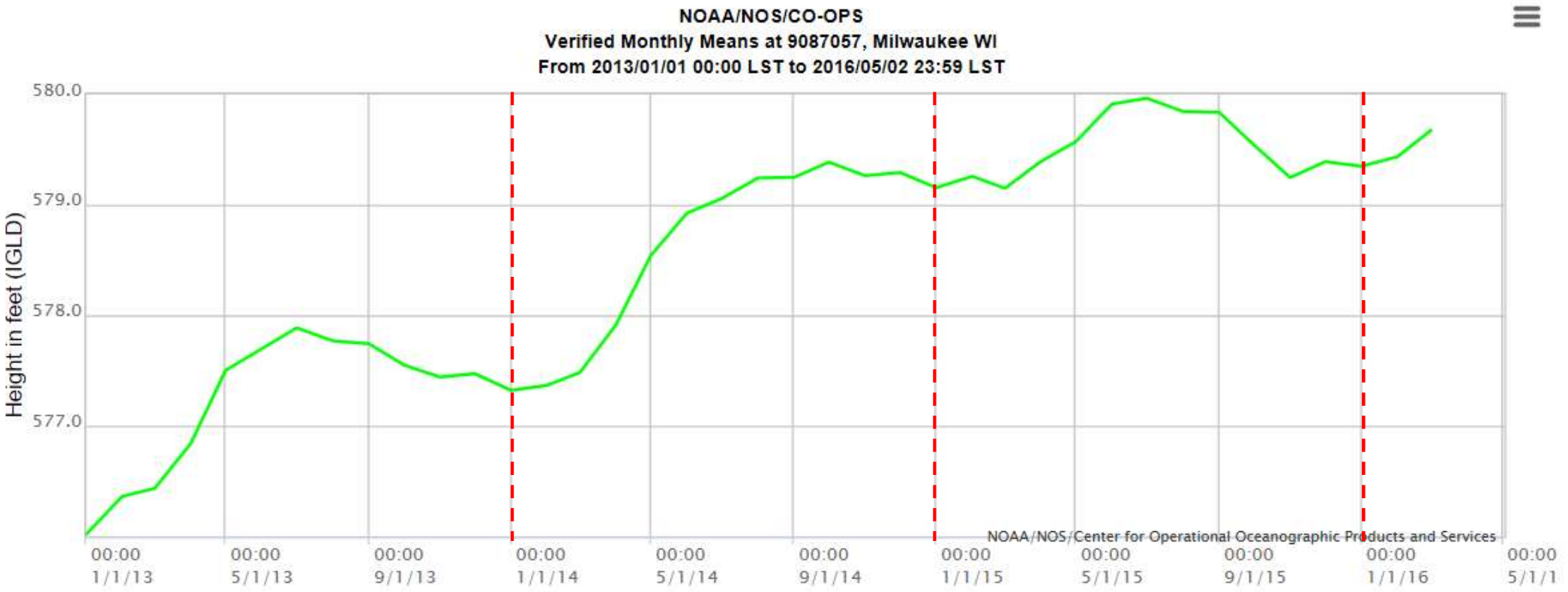
Lake Michigan below- average water levels for 14 years – Milwaukee Sentinel

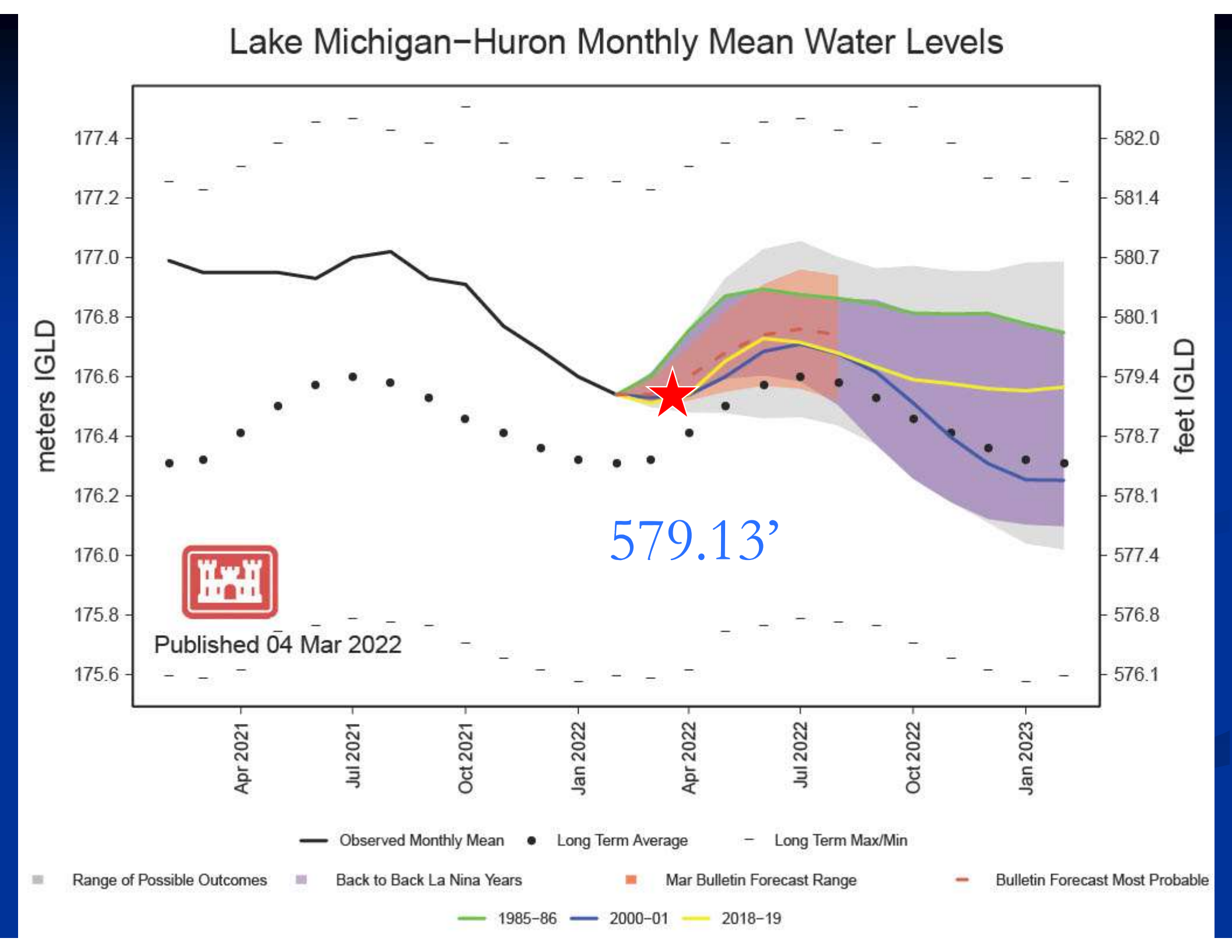


Lake Michigan levels, erosion is a "very big" concern - Milwaukee Sentinel


2013


2014


NOAA/NOS/CO-OPS
Verified Monthly Means at 9087057, Milwaukee WI
From 2013/01/01 00:00 LST to 2016/05/02 23:59 LST
Height in feet (IGLD)
580.0
579.0
578.0
577.0
00:00 1/1/13
00:00 5/1/13
00:00 9/1/13
00:00 1/1/14
00:00 5/1/14
00:00 9/1/14
00:00 1/1/15
00:00 5/1/15
00:00 9/1/15
00:00 1/1/16
00:00 5/1/1
NOAA/NOS/Center for Operational Oceanographic Products and Services


Lake Michigan–Huron Monthly Mean Water Levels
meters IGLD
feet IGLD
177.4
177.2
177.0
176.8
176.6
176.4
176.2
176.0
175.8
175.6
582.0
581.4
580.7
580.1
579.4
578.7
578.1
577.4
576.8
576.1
Apr 2021
Jul 2021
Oct 2021
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023
579.13’
Published 04 Mar 2022
Observed Monthly Mean
Long Term Average
Long Term Max/Min
Range of Possible Outcomes
Back to Back La Nina Years
Mar Bulletin Forecast Range
Bulletin Forecast Most Probable
1985–86
2000–01
2018–19

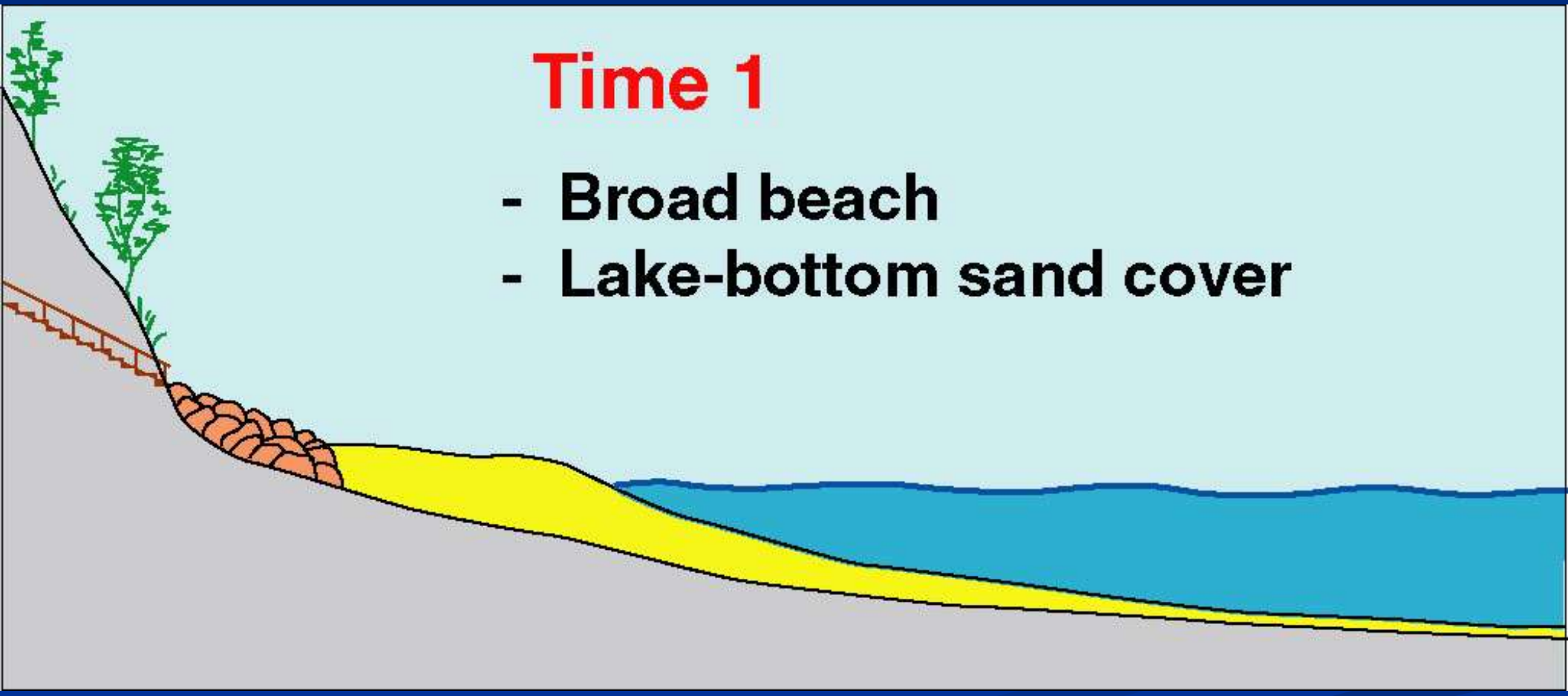
Water levels will always fluctuate

- Lake Michigan came near the all-time high water level record of 582' in January, 2020
  - ~6.5' Higher than January, 2013
- Seeing the affects of climate change:
  - Record monthly rainfall – May 2020
  - September 2021 drought almost set a record
- Established a shorter duration metric between low and high water levels

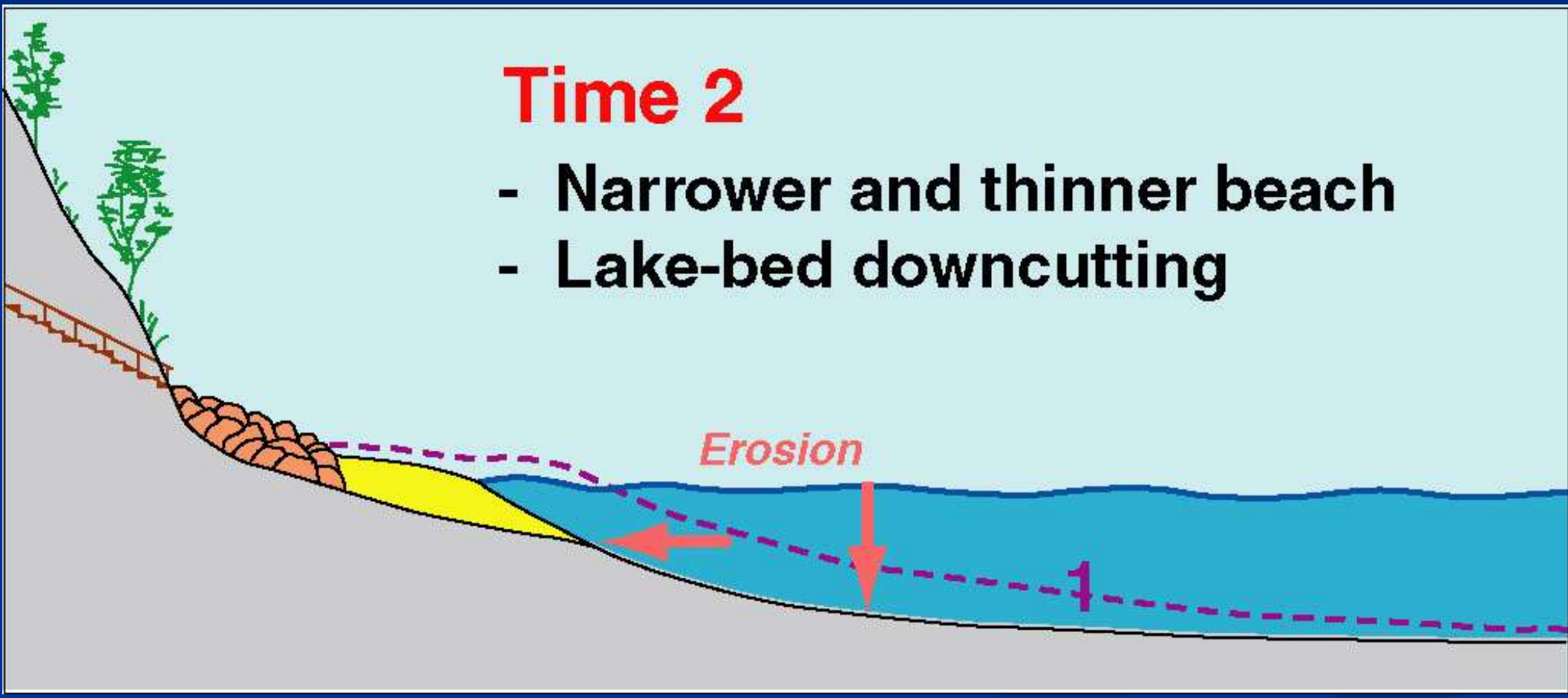
Lakebed Downcutting

- Lakebed downcutting is a geological process by hydraulic action (waves) that deepens a lake by removing cohesive material from the lakebed (lakebed clay)
- The speed of downcutting depends on the lake's base water level, the lowest point to which the lake can erode

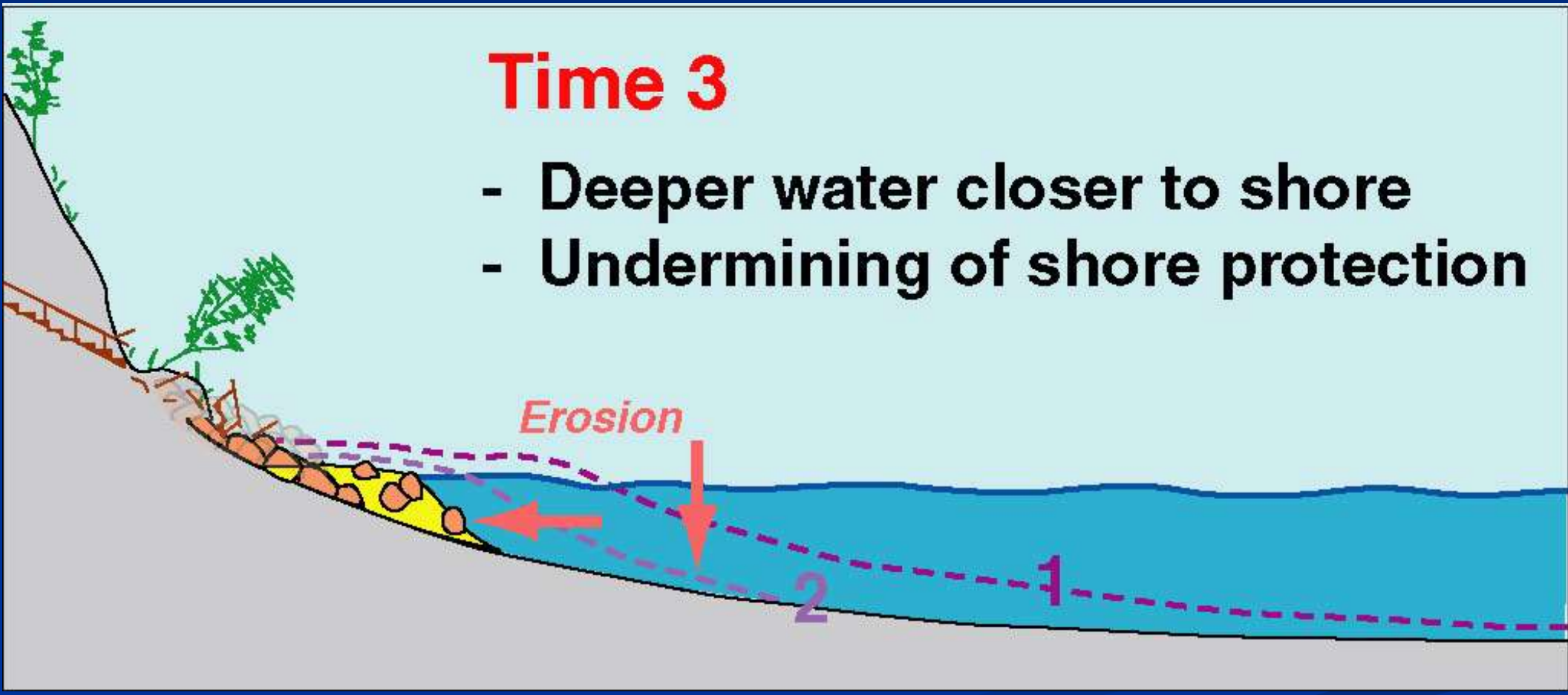
Low Lake Levels



Eroding Lakebed Clay



Bigger waves at average conditions



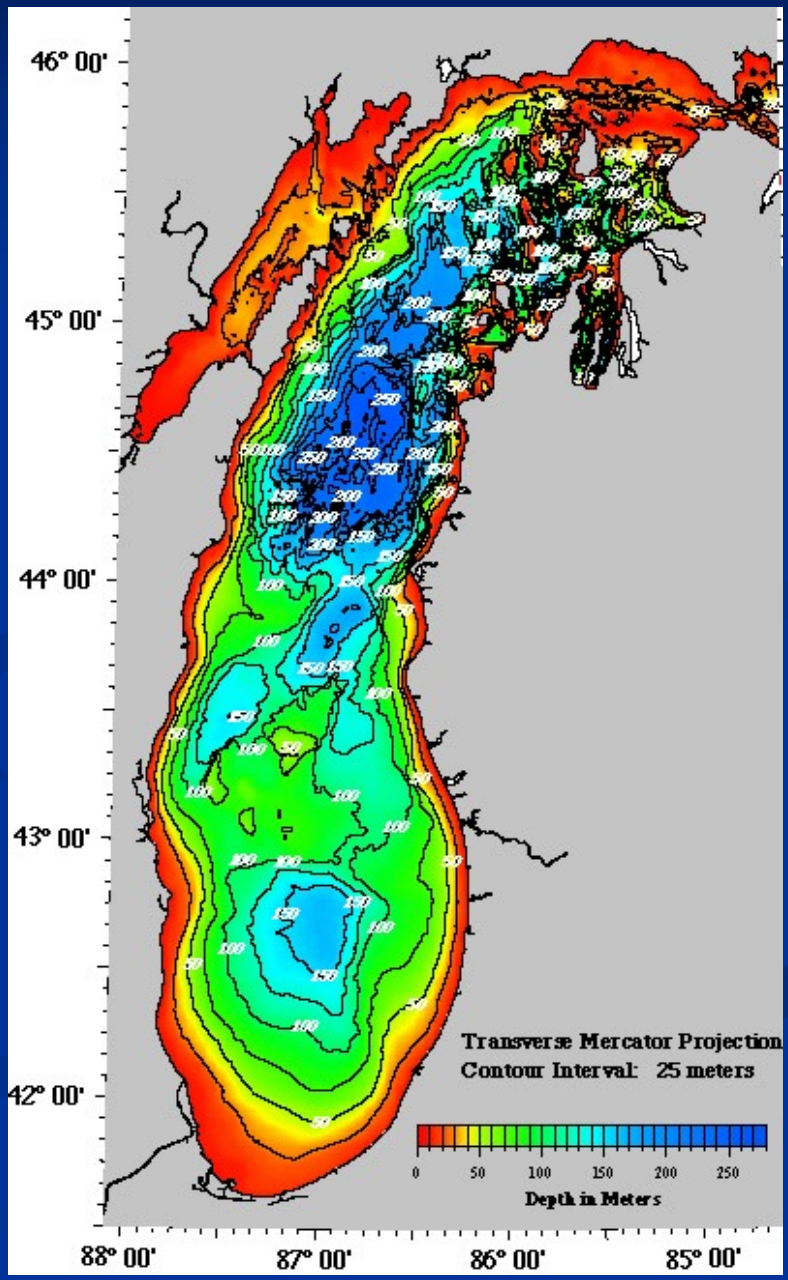
It is estimated that in areas where sand deposits are thin, the nearshore lakebed may erode at a rate up to 8 inches per year (Nairn, 1997)

Wilmette

2020

How does sand move?

- In many places there is a net movement of sand in one direction
- This is controlled by wave climate, bathymetry, shoreline orientation and natural or artificial headlands that deflect waves and currents
- Called littoral drift



Door County

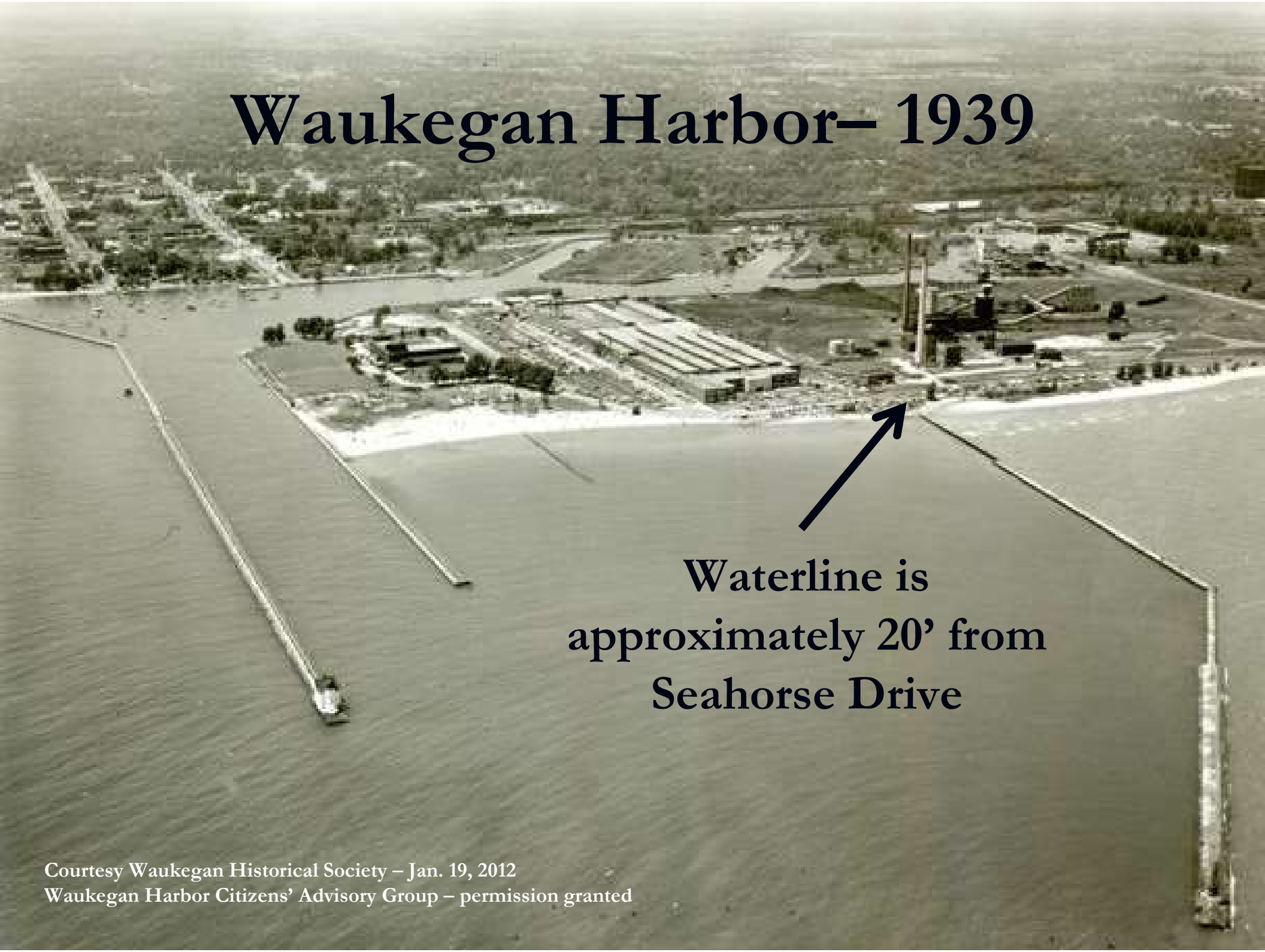

Chicago
South Lagoon
Simmons Island
41
South Pond


Indiana Dunes

Littoral Barriers

- An obstacle to littoral drift or migration of material along the shore
- Littoral barriers may be natural, for example, rocky headlands or man made such as jetties, breakwaters or dredged channels. These hinder the normal drift of material along the shore

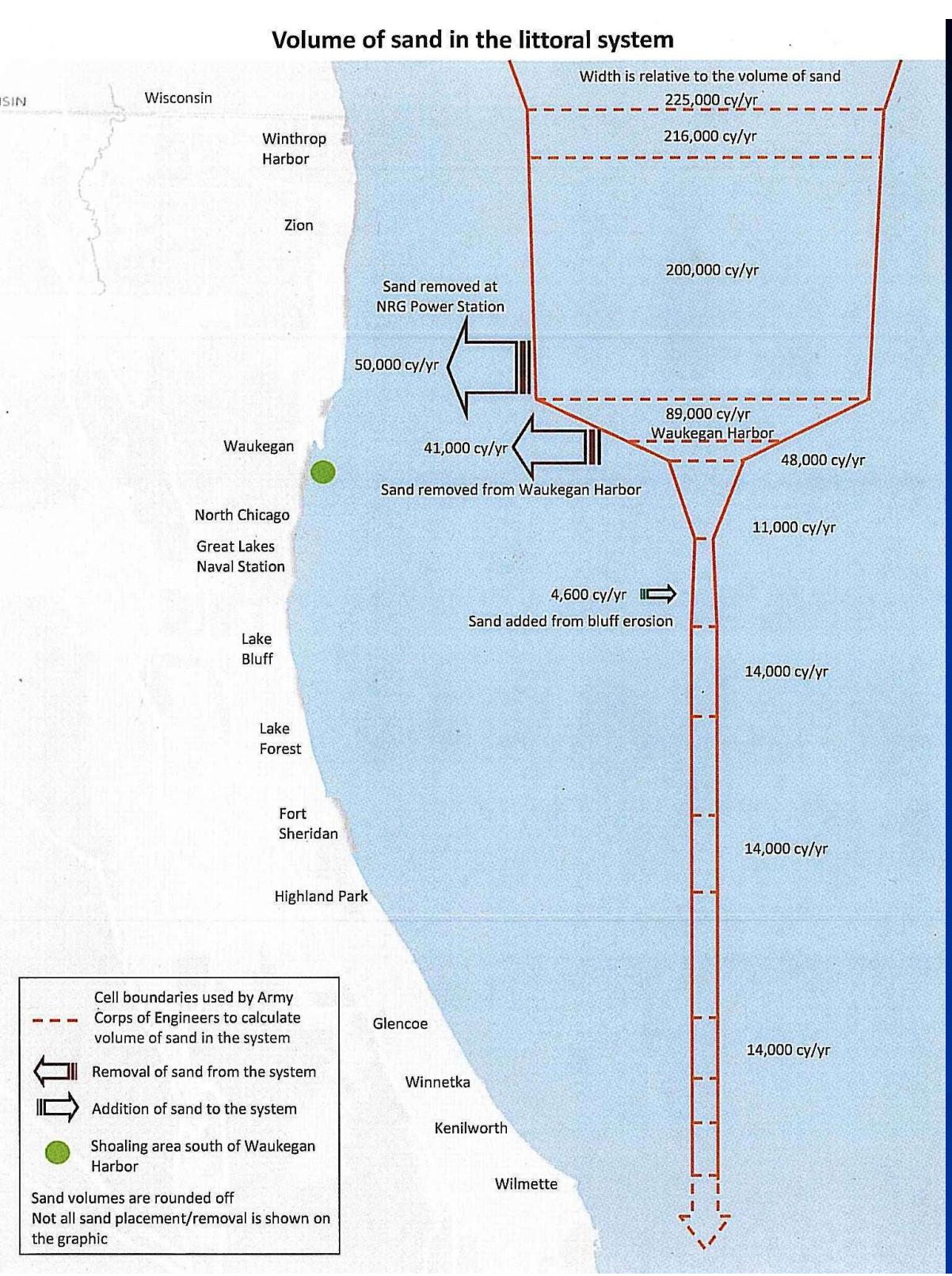
Waukegan Harbor– 1939



Courtesy Waukegan Historical Society – Jan. 19, 2012
Waukegan Harbor Citizens’ Advisory Group – permission granted

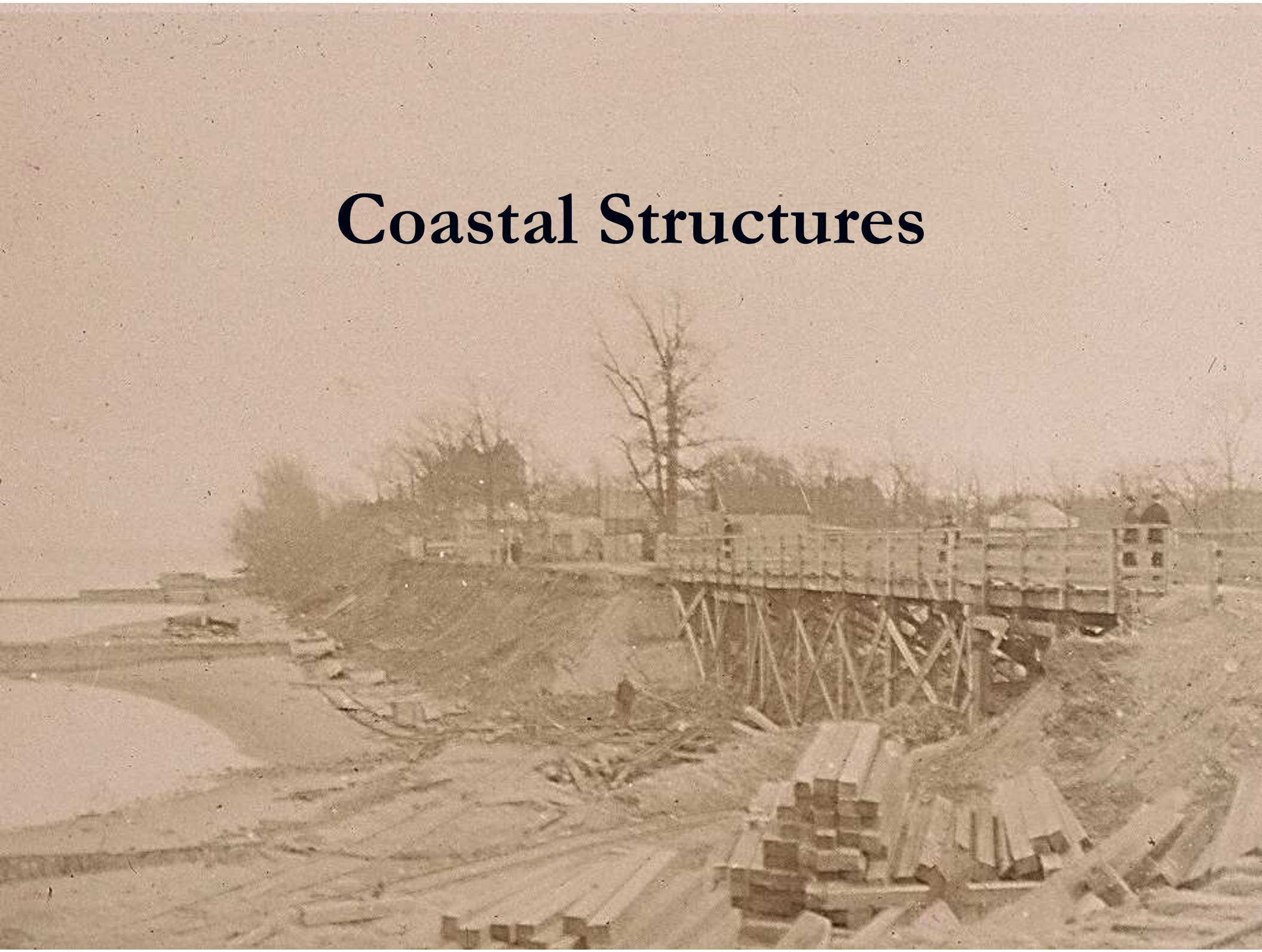

Waterline is
approximately 1,150’ from
Seahorse Drive today


4/2013

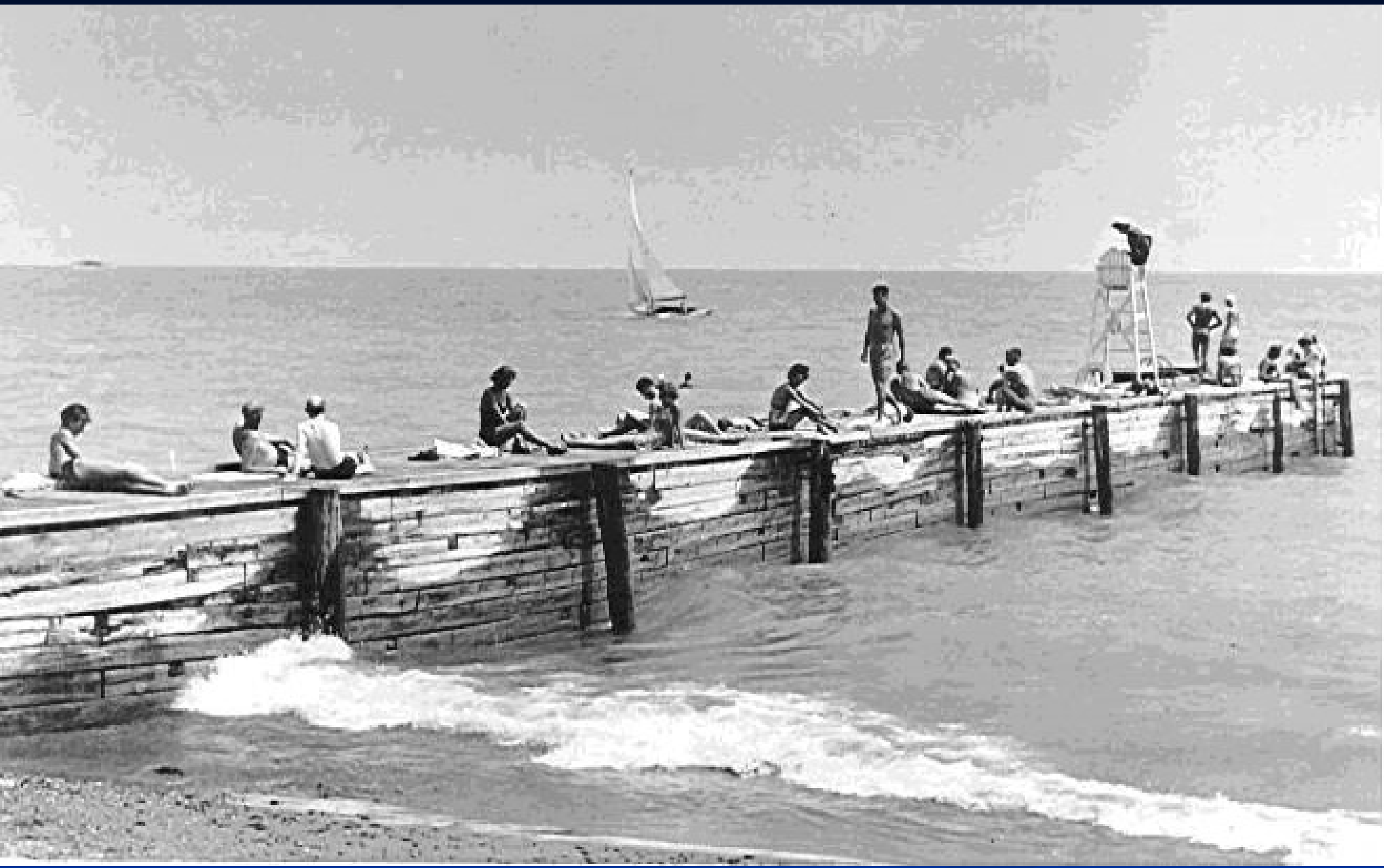


Corps of Engineers estimate that ~225,000 cy/yr of sand cross the Illinois border and only ~14,000 cy/yd of sand are in the littoral system south of Waukegan

Coastal Structures




1897 Winnetka

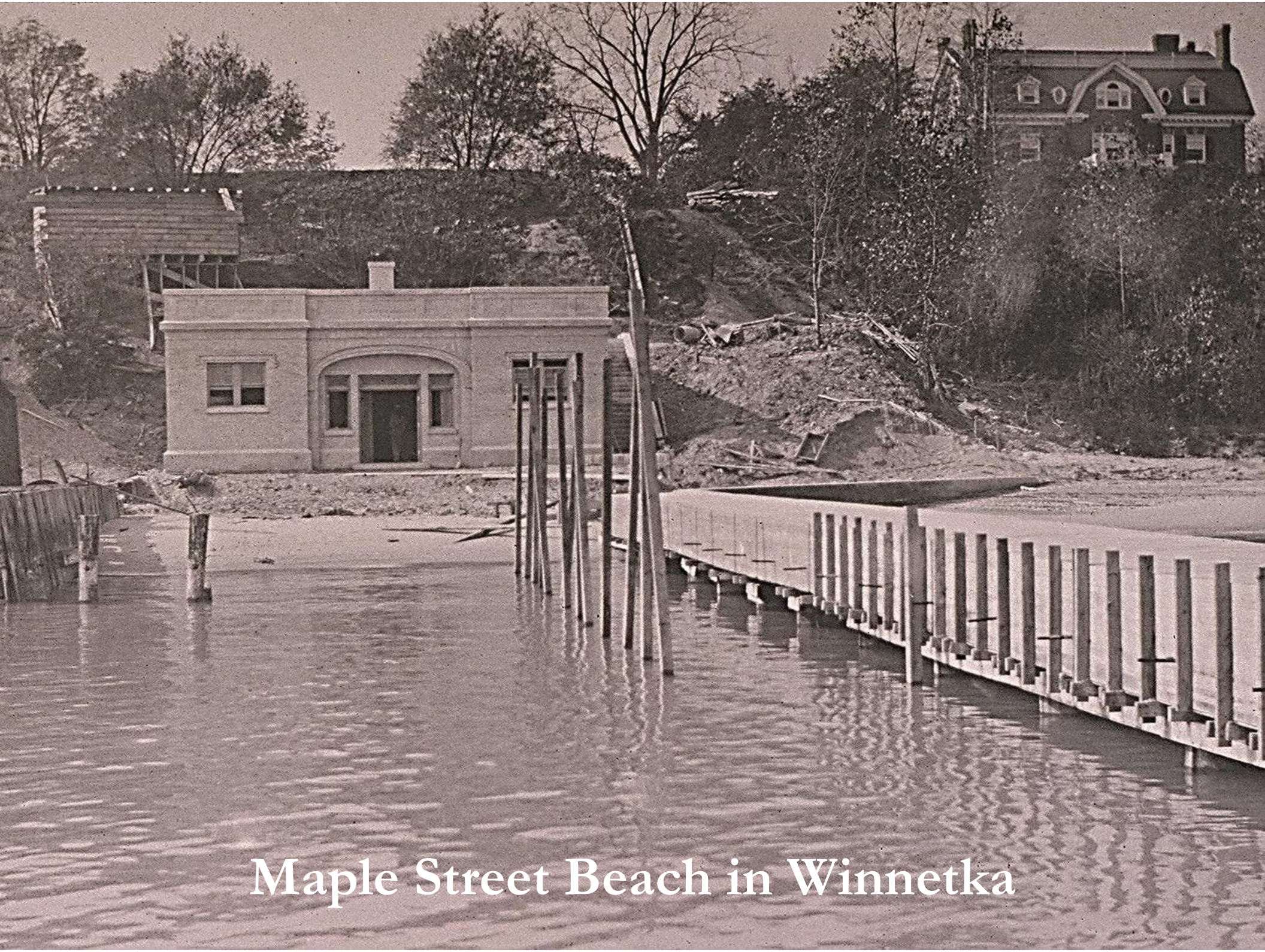


1907 Northwestern University

Edgewater Beach Hotel - 1916

Burnham Plan for Chicago:

First large scale environmental management plan in USA



Maple Street Beach in Winnetka

1977

1985 Elder Beach

1985 Maple Street

1987


2020


2021


2021

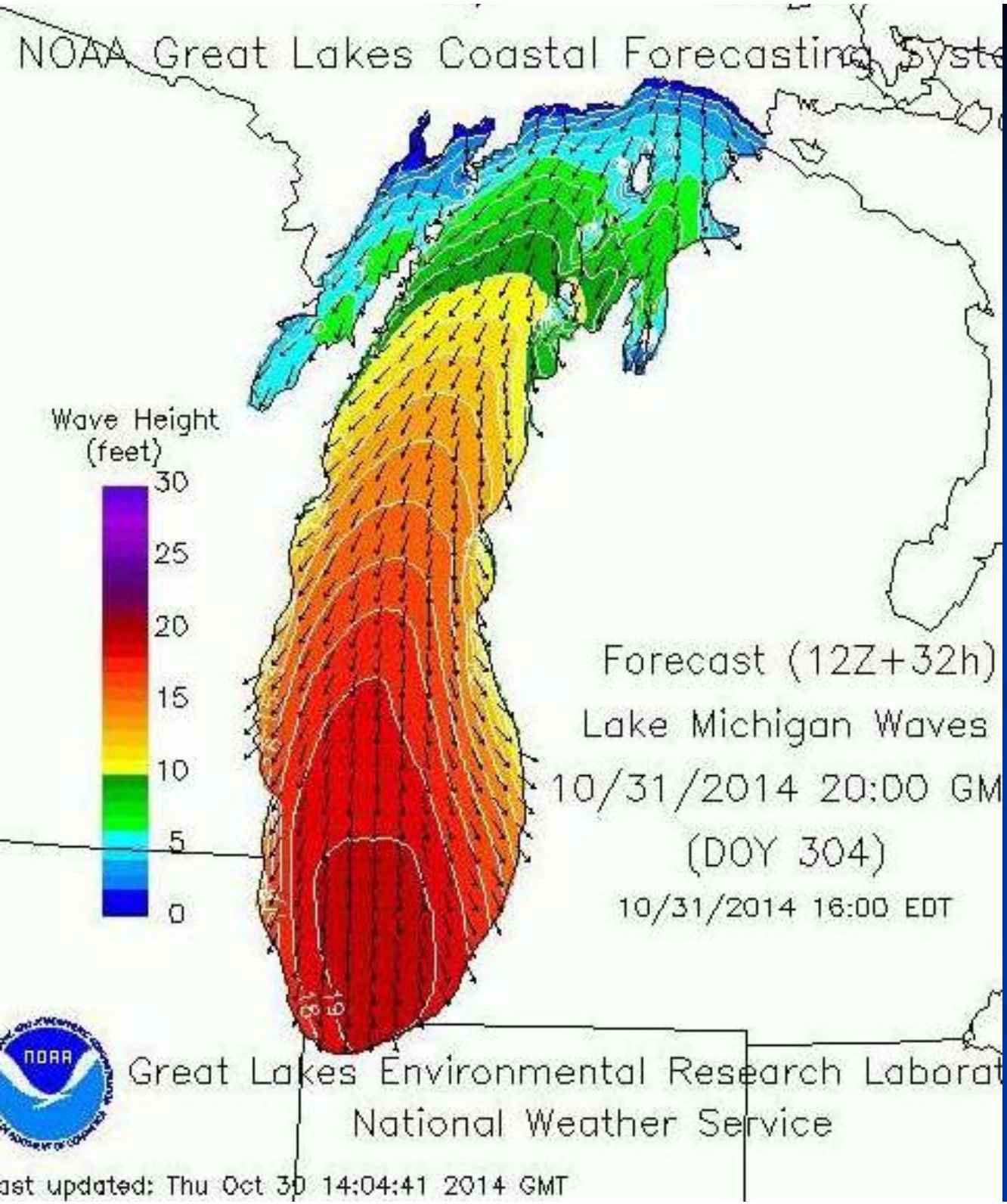
Engineered Shorelines Today

- Have new metrics as it relates to coastal design due to the recent high water levels
- Still balancing the cost benefit of constructing larger structures in response to the recent high lake levels
- Access to the beach and along the shoreline is not clearly defined by the Army Corps of Engineers and Illinois DNR

- Army Corps of Engineers outlines in the Lake Michigan Regional General Permit (LMRGP) application the following:
  - "Structures must provide reasonable accommodations, as determined by this office, to maintain public access to the shoreline."
- The Illinois DNR in the 2008 permitting guidelines for coastal structures state:
  - "Where possible, notably in areas where existing access along the lakeshore is available, the project should provide some type of reasonable access over or around it on the landward side."

Lloyd Boat Launch


2014



Tom Skilling, WGN9 Weather Center, reported 72mph peak winds at the Harrison-Dever Crib, 3 miles off Chicago.

"So strong were Friday's winds that waves reached heights of 21.7 ft. at the NOAA mid-lake buoy east of Kenosha around 11am."


Spring 2020

Winnetka Park District
Lakefront Master Plan

October, 2020


2021

Presque Isle, Pennsylvania - Lake Erie

Largest restored beach
in the Great Lakes

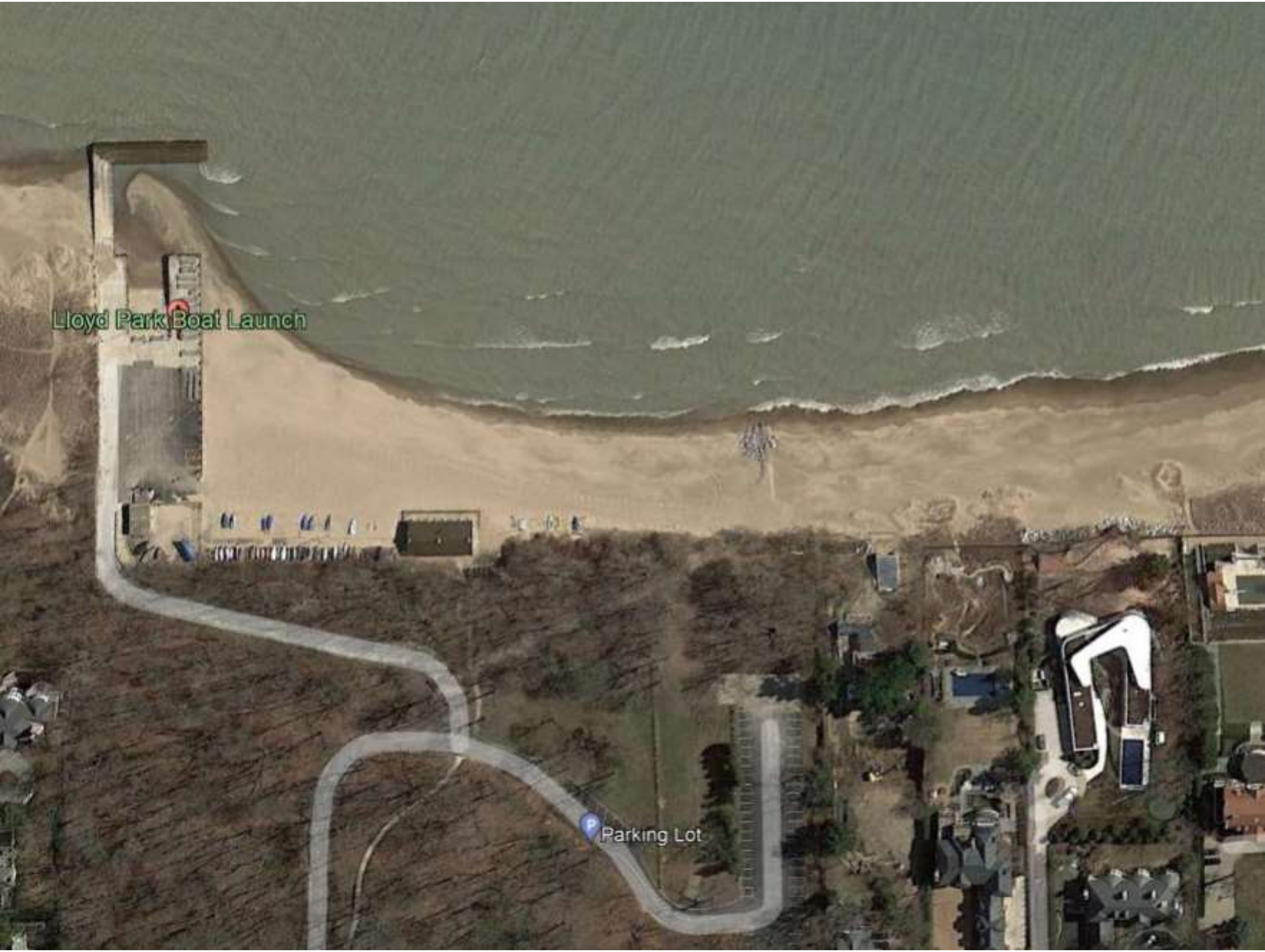
Municipal Option? 1986 Highland Park

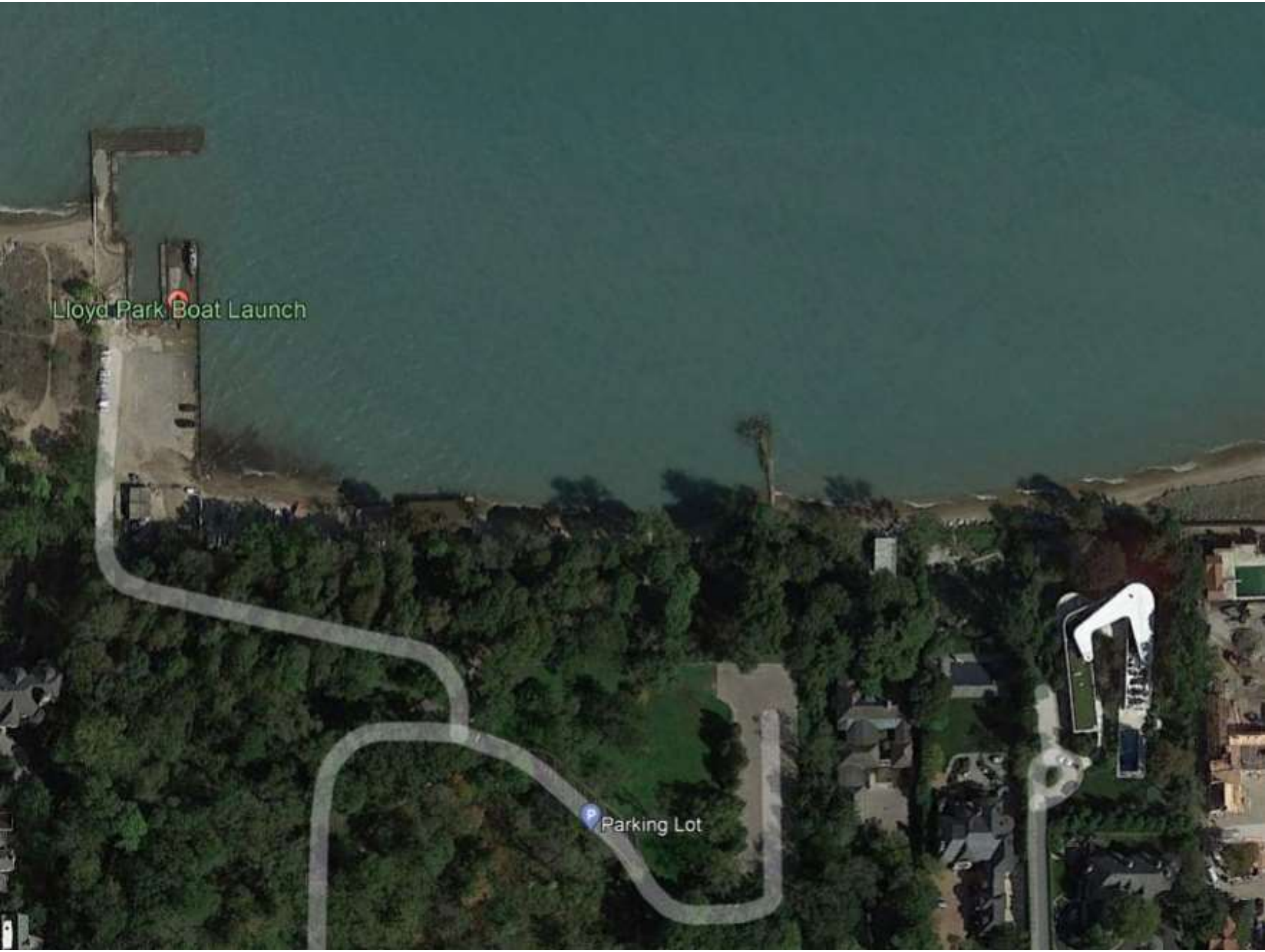
Recognize times are changing!

- Acknowledge that we are dealing with a dynamic and changing environment
  - Climate change models are unpredictable
  - Extreme storm events are becoming common
  - Seeing changes in habitats, impacts of invasive species, varying water quality
  - Science and engineering are changing regularly as we continue to exceed historic conditions

Questions?

Shabica & Associates, Inc.


Lloyd Park Boat Launch
Parking Lot


Lloyd Park Boat Launch
Parking Lot


Lloyd Park Boat Launch
Parking Lot