

# MORGAN SHOAL COMMUNITY UPDATE



[Link to PBC Project Page](#)

**PROJECT 22703: CHICAGO SHORELINE PROTECTION PROJECT  
45TH STREET TO 51ST STREET (MORGAN SHOAL)  
REVTMENT RECONSTRUCTION**

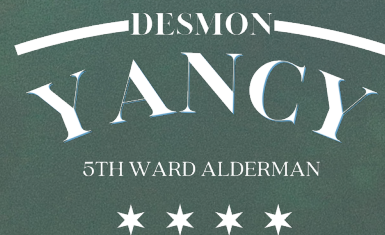
**April 25, 2024**

**5:00 - 7:00 PM**

**Presentation & Q+A**



**LAMONT J. ROBINSON  
4TH WARD ALDERMAN**



**US Army Corps  
of Engineers**





# WELCOME

## PRESENTATION AGENDA

### 1. Introduction

Alderman Lamont J Robinson, 4th Ward

Alderman Desmon Yancy, 5th Ward

Ray Giderof, PBC

### 2. Why Are We Doing This?

Dan Burke, CDOT

Heather Gleason, CPD

### 3. Current Project Status

Kerl LaJeune, PBC

### 4. What We Heard

Ray Giderof, PBC

Mark Wagstaff, SmithGroup

Mauricio Wesson, SmithGroup

Heather Gleason, CPD

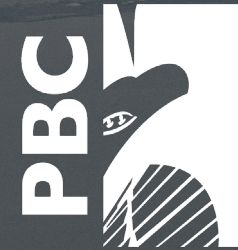
### 5. Next Steps

Ray Giderof, PBC

## Questions and Comments

## Adjourn

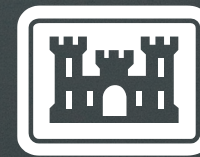
## AGENCY STAKEHOLDERS



Public Building Commission of Chicago



Chicago Park District



US Army Corps  
of Engineers

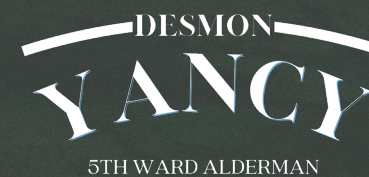
US Army Corps of Engineers



Chicago Department of Transportation



4th Ward



5th Ward



Link to PBC





An aerial photograph of a city coastline. On the left, a multi-lane highway runs parallel to a green park area. The park features a baseball field and various trees. To the right of the park is a rocky shoreline meeting a large body of water. In the far distance, a city skyline with numerous skyscrapers is visible under a hazy sky.

# WHY ARE WE DOING THIS?

DAN BURKE, CDOT + HEATHER GLEASON, CPD



# CHICAGO SHORELINE PROTECTION PROJECT

- » Primary objective is to protect the Chicago shoreline for all users from flooding and erosion
- » Since 1997, the City and the USACE has reconstructed 9.2 miles of shoreline from Montrose Avenue to 57th Street and the South Water Purification Plant Breakwater
- » Remaining Segments:
  - » **45th to 51st St (Morgan Shoal)**
  - » Promontory Point (not part of this scope)





# 2019-2021 RECORD HIGH LAKE LEVELS AND STORM DAMAGE



Dislodged revetment stones and parkland erosion due to wave action.



Destroyed lakefront path due to wave action.



Collapsed concrete slabs and washout areas after winter storm.

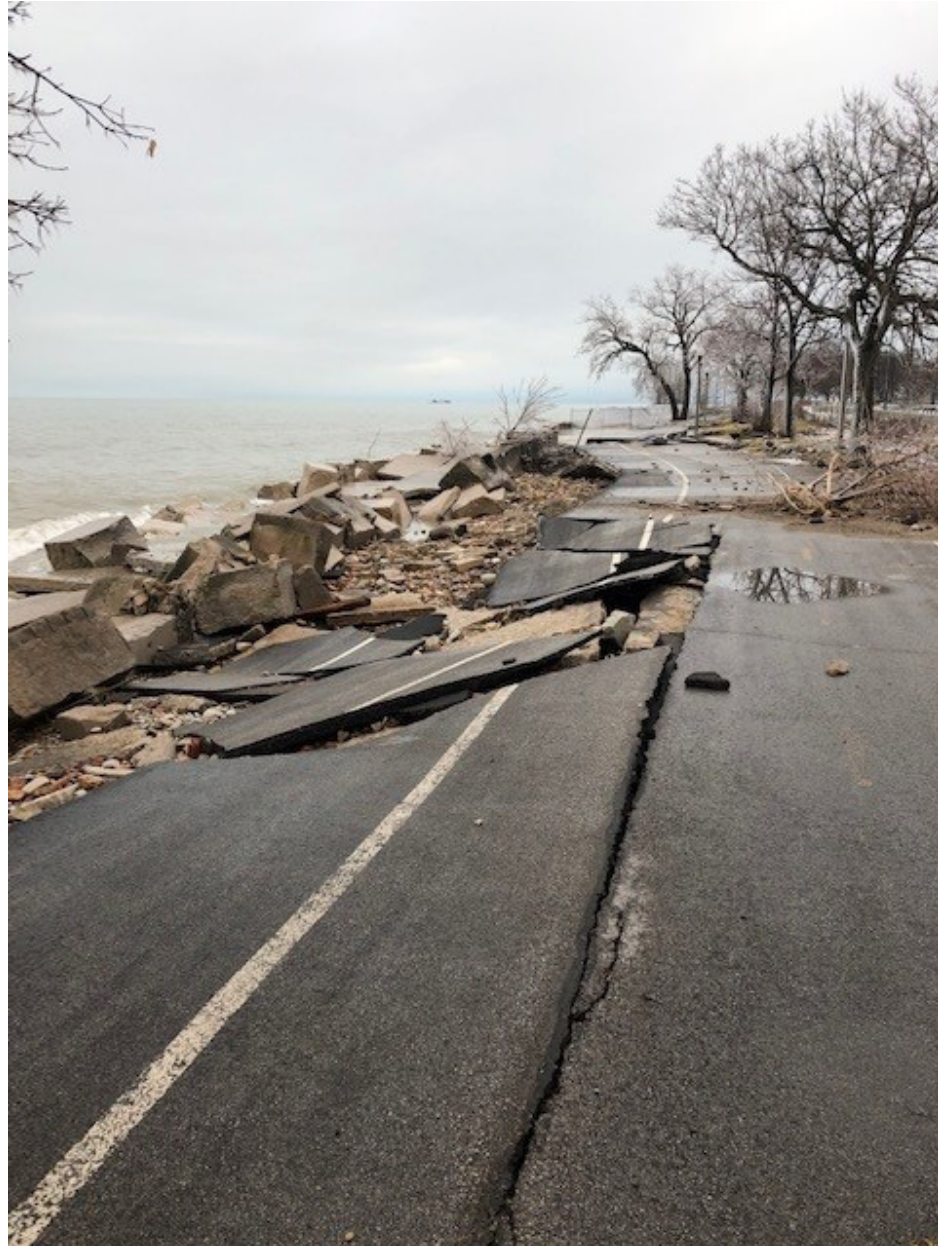


# OTHER DETERIORATED AND DAMAGED CONDITIONS





# OTHER DETERIORATED AND DAMAGED CONDITIONS





An aerial photograph of a city coastline. On the left, a multi-lane highway runs parallel to a green park area. The park features a baseball field and various trees. To the right of the park is a rocky shoreline meeting a large body of water. In the background, a dense city skyline is visible under a hazy sky.

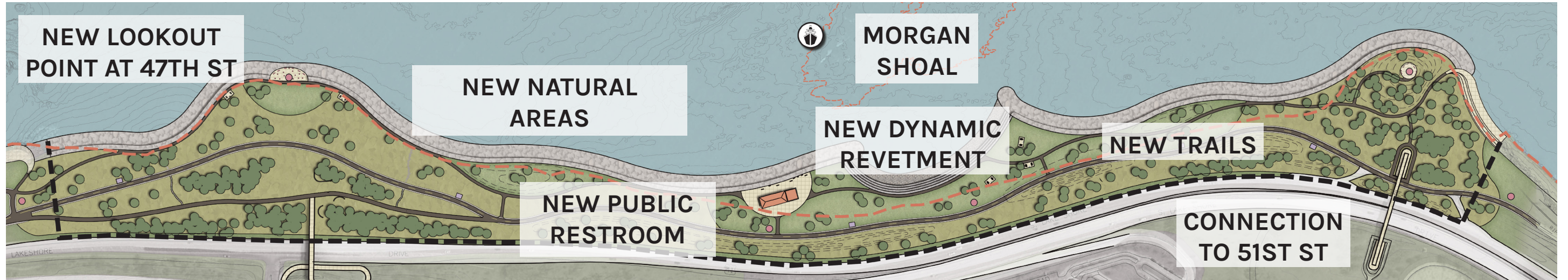
# CURRENT PROJECT STATUS

KERL LAJEUNE, PBC



# CURRENT PROJECT STATUS

## 2015 FRAMEWORK PLAN

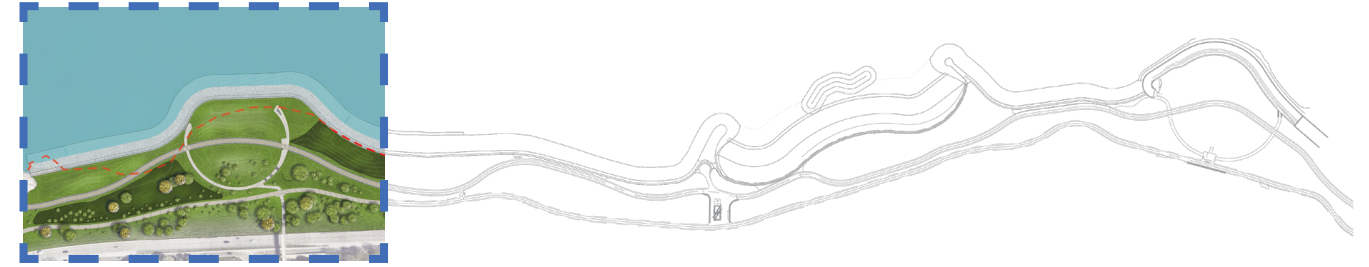


## PRELIMINARY DESIGN



# CURRENT PROJECT STATUS

## 47th STREET



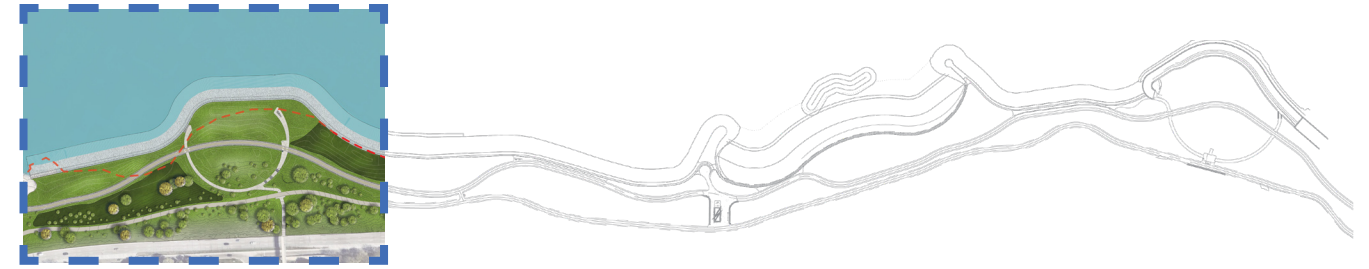
2015 FRAMEWORK PLAN



2024 CURRENT DESIGN



# 47th STREET EXISTING CONDITIONS



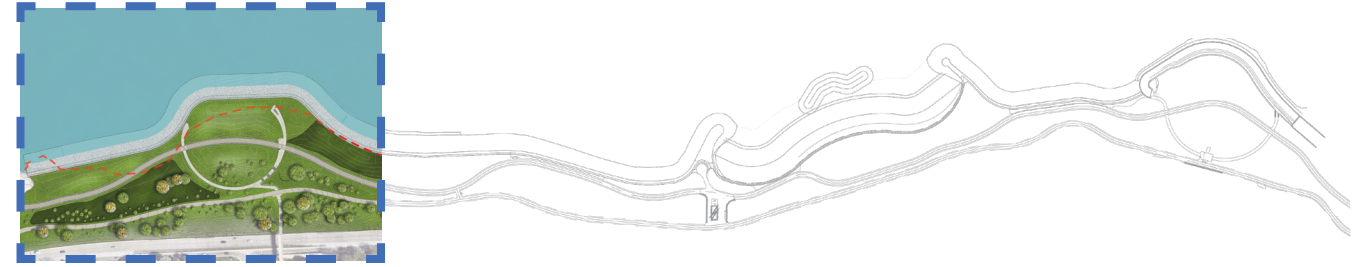
Active erosion and trail undermining prior to 2020 temporary measures.



Deteriorating shoreline separated from pedestrian trail with temporary measures of rip rap and TrapBags.



# 47th STREET (LOOKING SOUTH) PROPOSED DESIGN

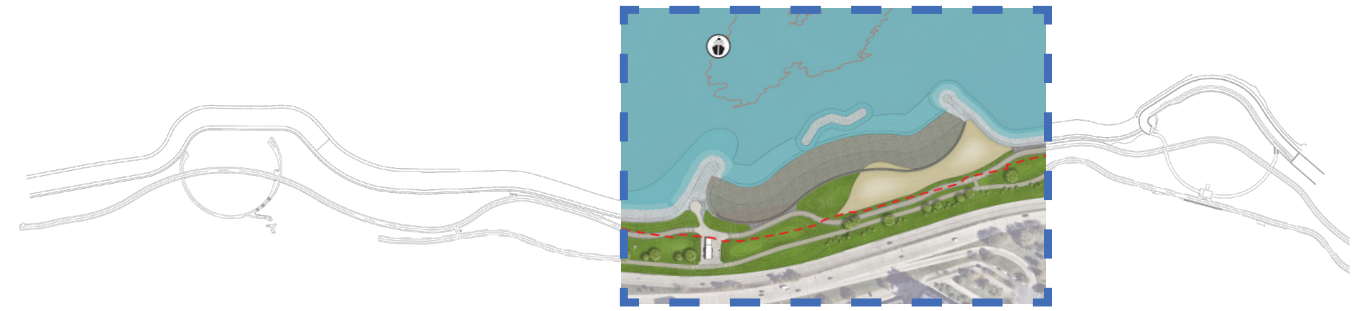


New parkland at the landing of the existing 47th Street pedestrian bridge separates cyclists from pedestrians, expands natural areas and lawn areas along the path, and protects existing trees.

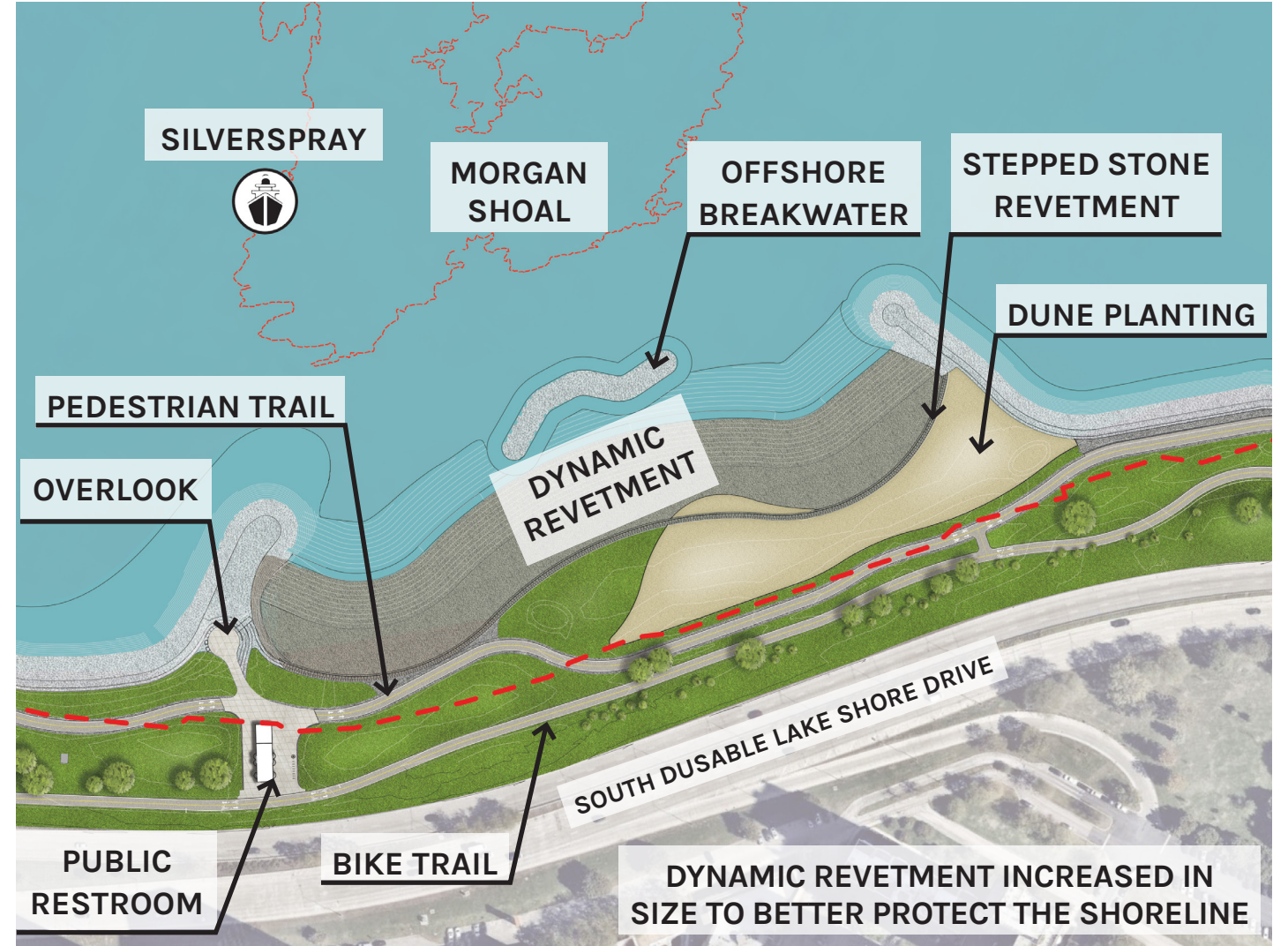


# CURRENT PROJECT STATUS

## 49th STREET



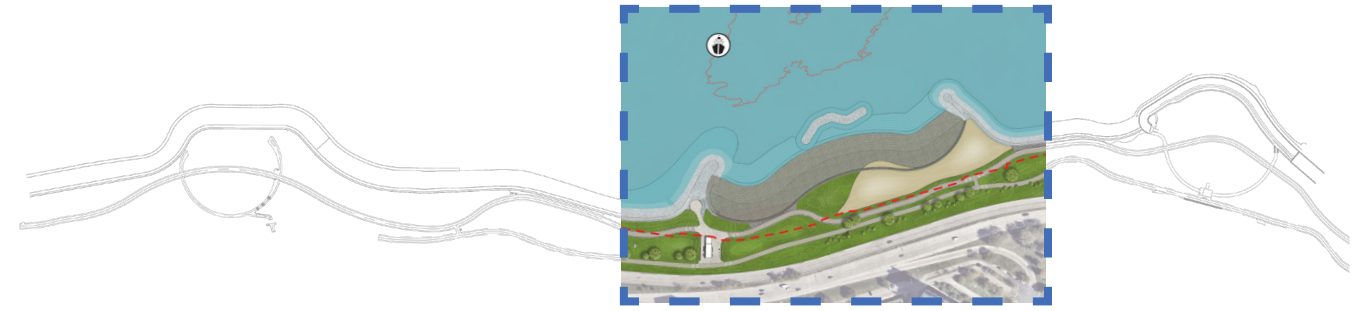
2015 FRAMEWORK PLAN



2024 CURRENT DESIGN



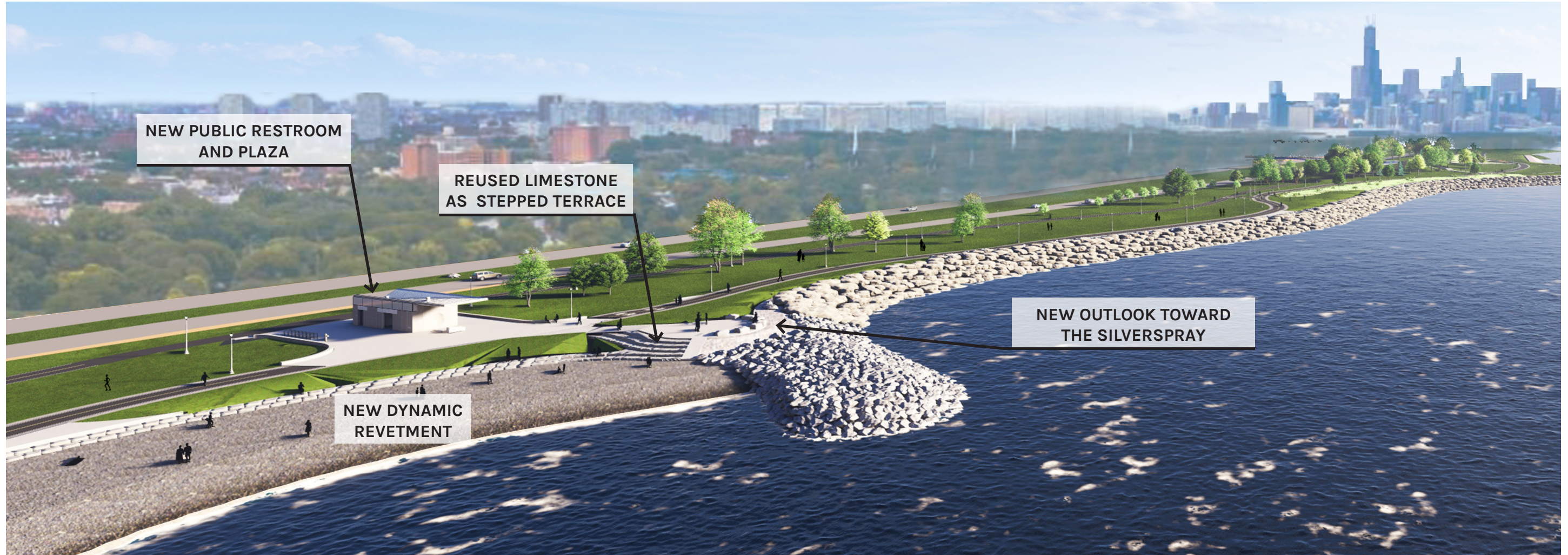
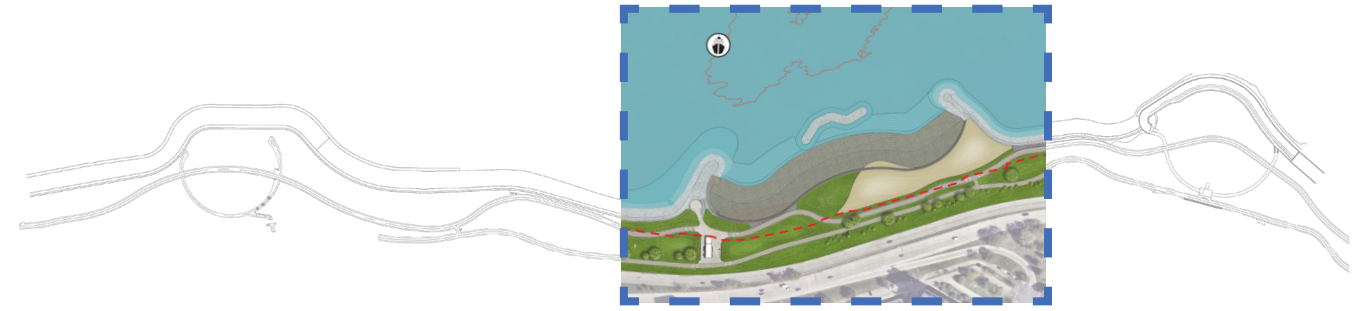
# 49th STREET EXISTING CONDITIONS



Existing edge of lakefront trail crumbling into the water limits areas where park visitors may safely interact with the lake.



# 49th STREET (LOOKING NORTH) PROPOSED DESIGN



NEW PUBLIC RESTROOM  
AND PLAZA

REUSED LIMESTONE  
AS STEPPED TERRACE

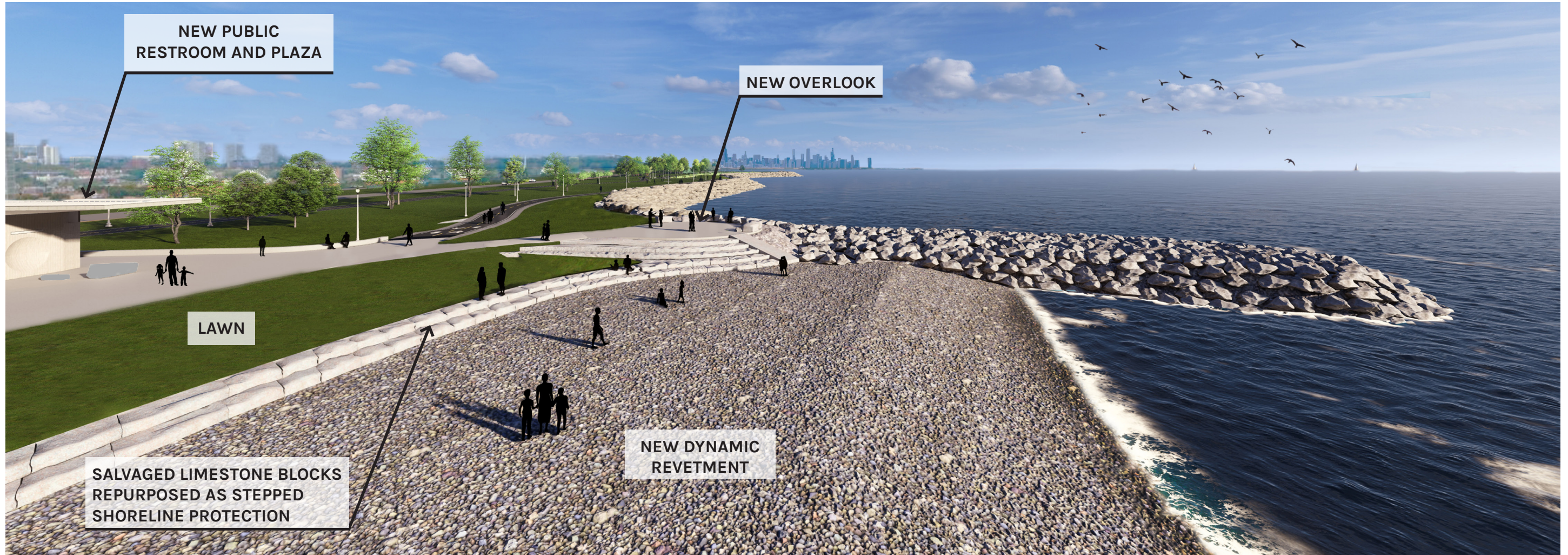
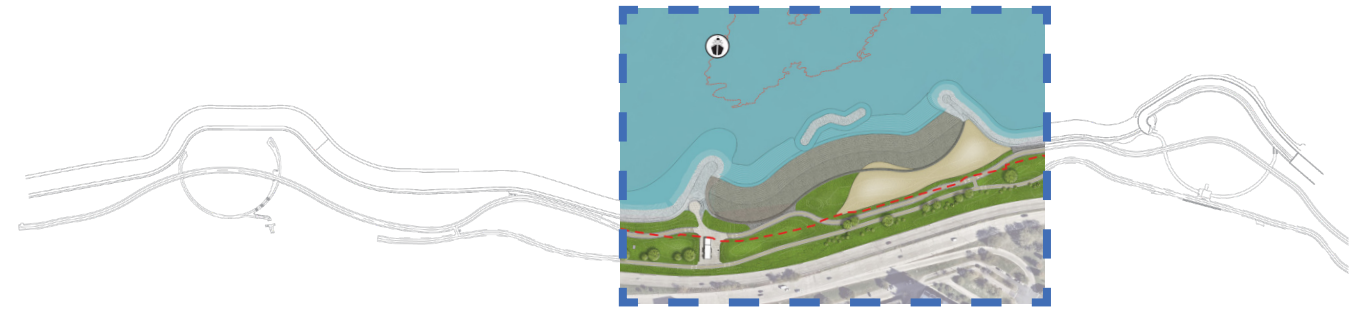
NEW OUTLOOK TOWARD  
THE SILVERSPRAY

NEW DYNAMIC  
REVEMENT

New parkland lifts the public restroom up out of the FEMA floodplain and creates an elevated outlook for views out to the water. The outlook terraces down to the new dynamic revetment, a protected and designed moment that brings park visitors close to the water.



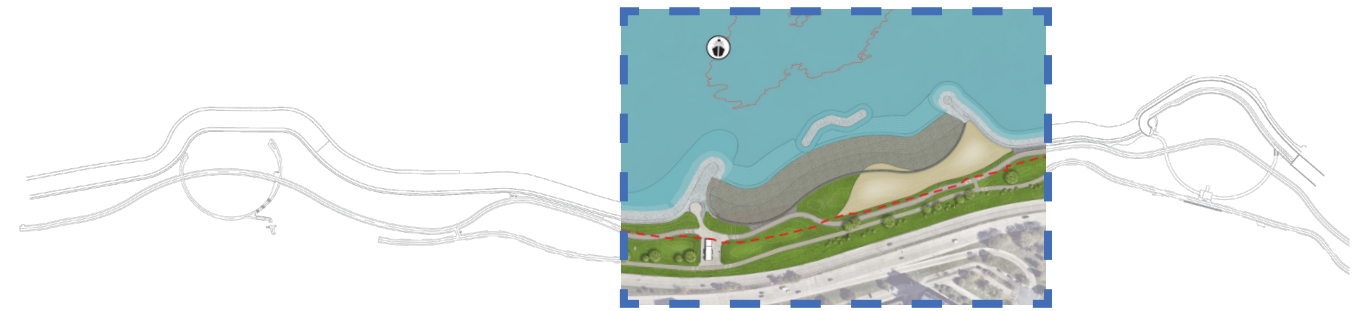
# 49th STREET (LOOKING NORTH) PROPOSED DESIGN



The new dynamic revetment protects the new parkland at its most vulnerable point and brings park visitors safely to the water's edge



# 49th STREET PUBLIC RESTROOM



SALVAGED CARVED STONE  
REPURPOSED AS SEATING



SALVAGED CARVED STONE  
REPURPOSED AS SEATING

The roof overhang shades a protected area for the original carved stone, repurposed into seating

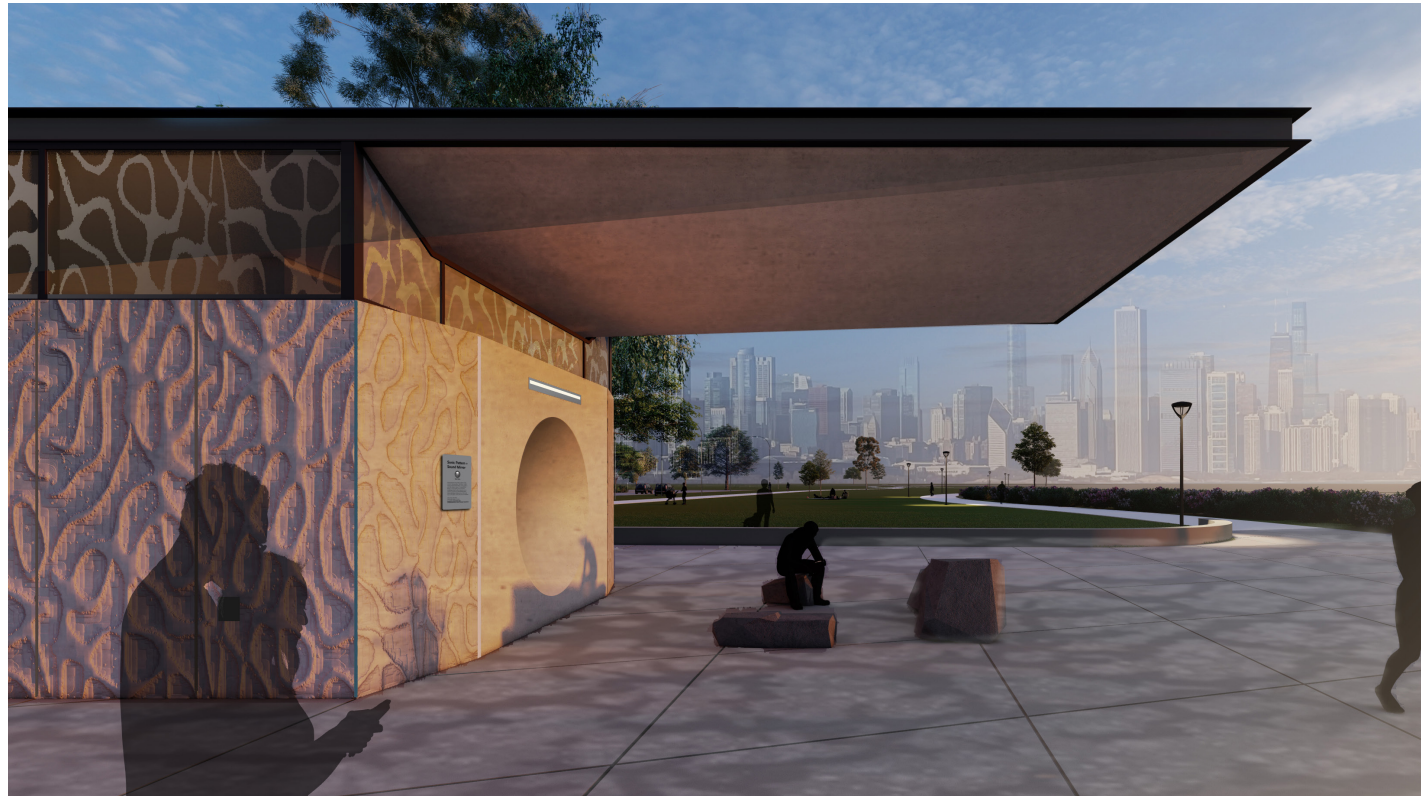


The interior high-privacy toilet partitions are inspired by the sonic patterns reflected in the concrete walls.

The Public Restroom is a new, iconic civic landmark along the lakefront at Morgan Shoal, inspired by Chicago's historic bridge houses. It will be the Chicago Park District's first lakefront gender neutral restroom. Its walls reflect Lake Michigan, translating sounds to patterns.

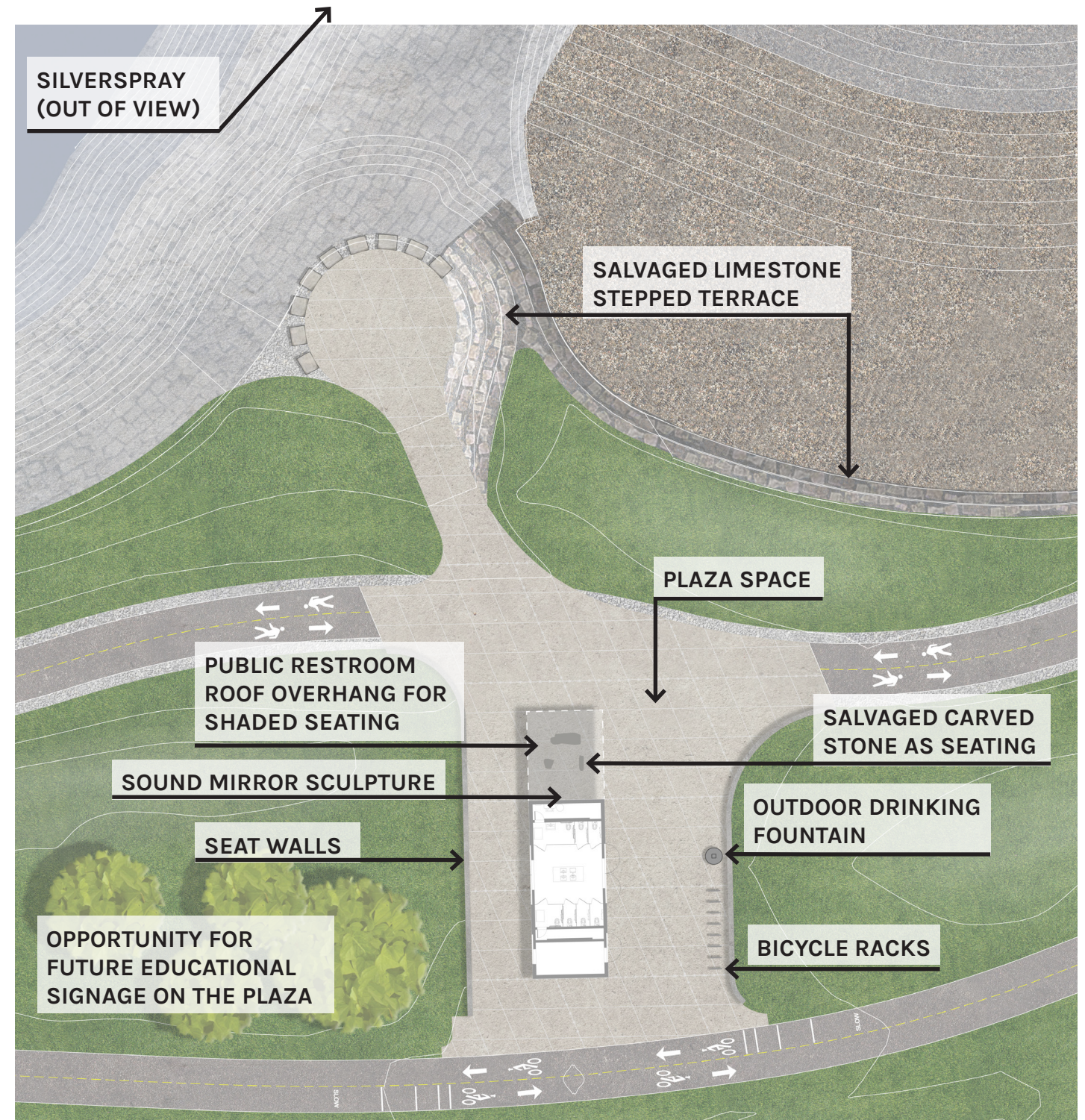


# PLAZA LAYOUT OVERLOOK TOWARD MORGAN SHOAL AND SILVERSPRAY WRECK



## ENGAGING THE SENSES

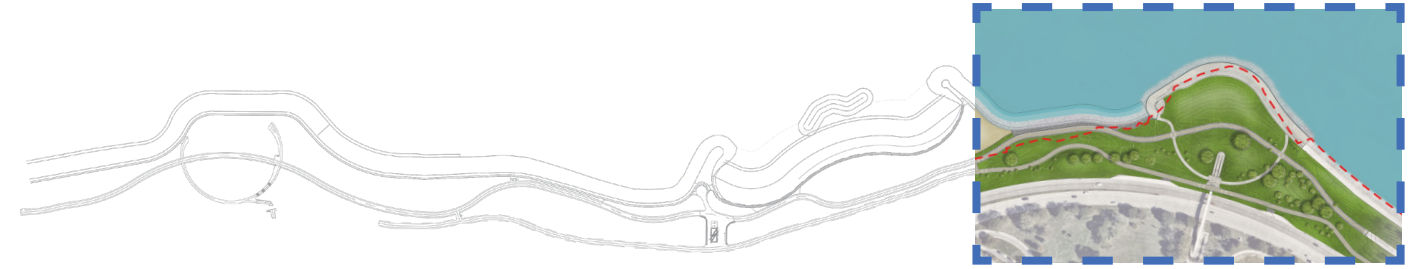
Taking inspiration from the 2015 Framework Plan, local Chicago sound artist, Mark Holt, recorded the sounds of Lake Michigan at the site of the original public restroom. He translated those sounds into a visual pattern that will be cast into the concrete walls of the new public restroom so that visitors can "see" the sound of Lake Michigan, touch the grooved pattern, and listen to amplified sounds of the Lake through the sound mirror sculpture.





# CURRENT PROJECT STATUS

## 51st STREET



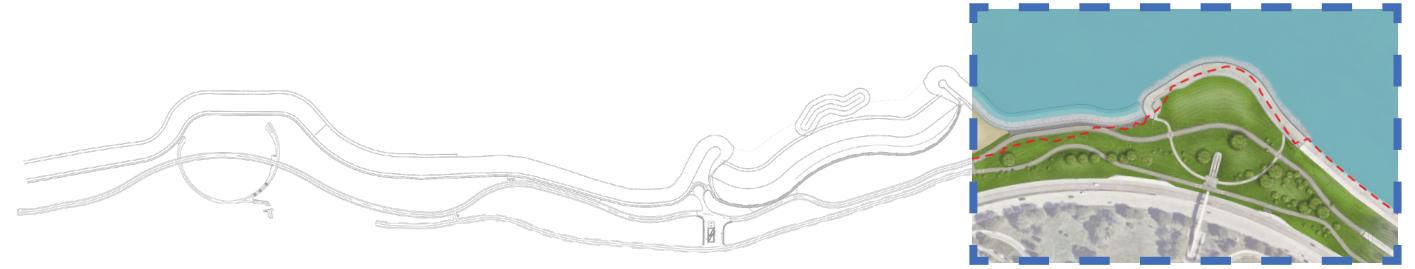
2015 FRAMEWORK PLAN



2024 CURRENT DESIGN



# 51st STREET EXISTING CONDITIONS



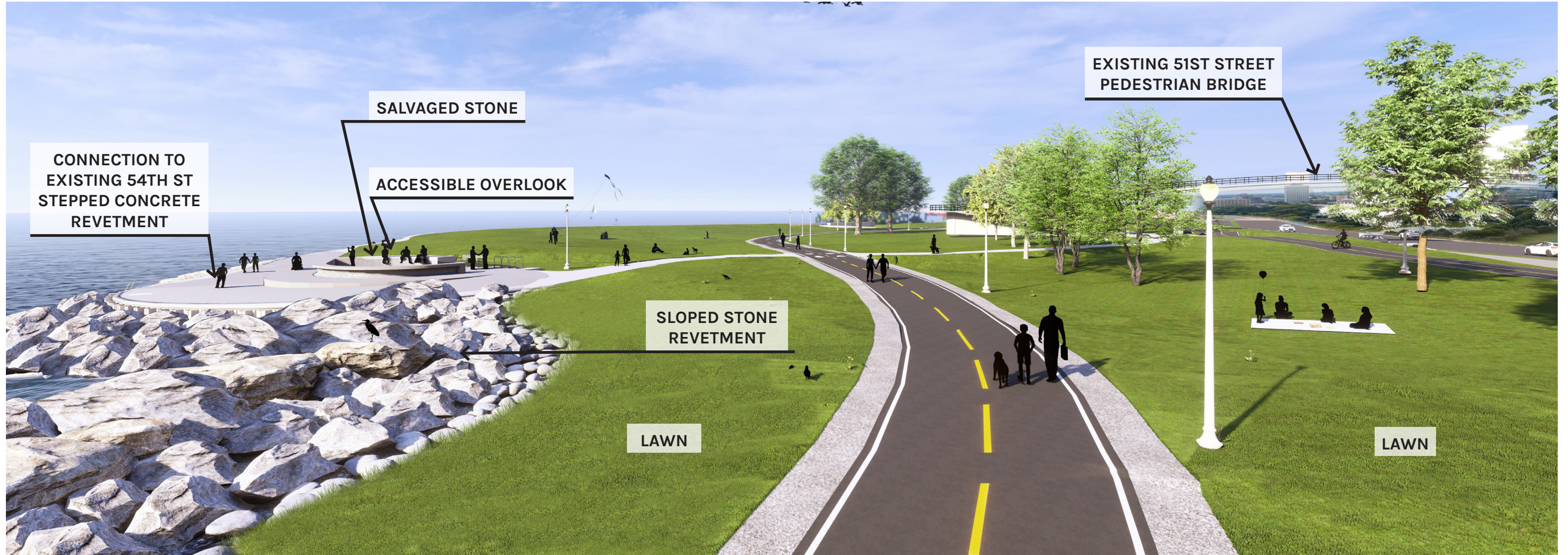
WEEDY VEGETATION IN  
FORMER STORAGE AREA

RIP RAP PLACED IN 2021 BY  
USACE TO PREVENT RAPID  
PARKLAND EROSION

Deteriorated landscape at the landing of the existing 51st Street pedestrian bridge and rip rap for temporary erosion protection.



# 51st STREET (LOOKING SOUTH) PROPOSED DESIGN - VIEW 4



The accessible overlook to the water connects to the existing concrete revetment south of the project area





# WHAT WE HEARD

RAY GIDEROF, PBC



# Public Information Meeting 2/22/2024





# Last Public Information Meeting 3/21/2024

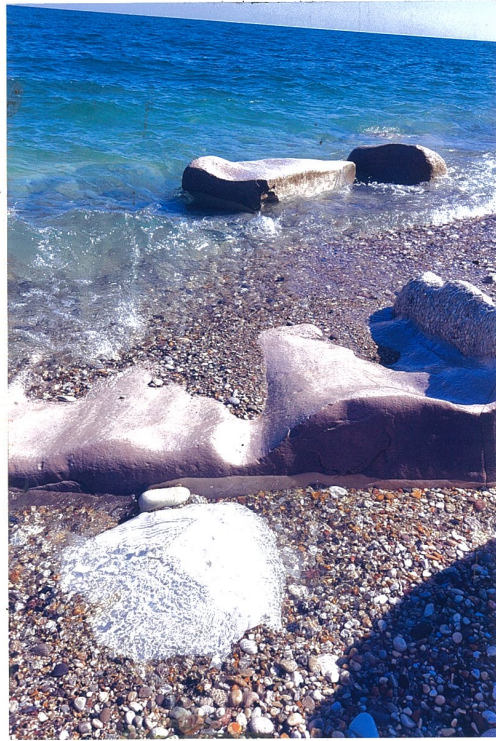








# ADDITIONAL FEEDBACK



Dear Mr Wagstaff,  
 Thank you for attending the  
 community meeting for Morgan  
 Shoal. We look forward to the  
 next one on Mar 21 and  
 hearing how community desires  
 and needs have been incorporated.  
 There are so many of us who  
 feel strongly about this place  
 and have a lot to say about  
 preserving it as a natural haven  
 in our beautiful city. There are  
 also many of us who do not  
 have a voice, and I ask that you also consider  
 them - the caterpillars and rabbits and butterflies of  
 this incredible place!  
 amanda engert xipamanene@hotmail.com  
 @morganshoalrock #morganshoalrock #savethepebblebeach

MARK WAGSTAFF  
 SMITH GROUP  
 35 E WACKER DR  
 SUITE 900  
 CHICAGO IL 60601



MARK -  
 THANK YOU FOR YOUR ANSWERS  
 TO ALL THE QUESTIONS POSED TO YOU  
 AT THE TWO MORGAN SHOAL  
 COMMUNITY MEETINGS - AS YOU  
 KNOW, WE ARE DEEPLY CONCERNED  
 ABOUT THE WATERFRONT PLANS -  
 ESPECIALLY THE AMOUNT OF CONCRETE  
 THAT IS BEING PROPOSED - THE  
 CHARACTER OF OUR BELOVED PEBBLE  
 BEACH, WE FEAR, IS GOING TO BE  
 RUINED AS A RESULT.

Mark Wagstaff Principal, Senior  
 Waterfront Engineer, Smith Group,  
 35 E. Wacker Drive Suite 900  
 Chicago, IL 60601

IT WOULD BE VERY HELPFUL TO US CONCERNED ADVOCATES  
 IF YOU PRESENTED ON WHAT OTHER NATURE-BASED SOLUTIONS  
 YOU HAVE CONSIDERED AND WHY YOU FEEL THEY WILL NOT WORK.  
 AND, ~~IF YOU~~ ~~WANT~~ ~~TO~~ ~~SEE~~ ~~THE~~ ~~APPROVAL~~ ~~OF~~ ~~THE~~  
 EXISTING PEBBLES - I FEAR THEY WILL BE LOST IN THE ~~STONE~~ ~~OF~~ ~~THE~~  
 REVENUE - THANK YOU - TOM

SPIRITUAL  
 SECURED  
 SPECIAL  
 MAGICAL  
 UNIQUE  
 DESTINATION  
 ARTISTIC  
 CREATIVE  
 ORGANIC

Mark Wagstaff Principal, Senior  
 Waterfront Engineer, Smith Group,  
 35 E. Wacker Drive Suite 900  
 Chicago, IL 60601

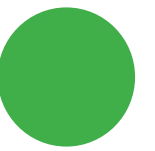
212025  
<https://morganshoalpebblebeach.weebly.com>





**COASTAL PROTECTION**  
**MARK WAGSTAFF + MAURICIO WESSON, SMITHGROUP**





1

# LET'S TALK ABOUT COASTAL PROTECTION

## Revetment Materials



Bender Park, Oak Creek WI

"How can nature and natural materials be incorporated when building the revetment?"

- » The revetment's primary function is storm damage prevention. All materials must be durable and suitable for the exposed coastline conditions.
- » The armor stone revetment and the dynamic revetment are made of natural stone and provide new habitat for aquatic species.
- » Upland habitat is proposed for areas where it will thrive away from direct wave action.





1

# LET'S TALK ABOUT COASTAL PROTECTION

## Pebble Beach Dynamic Revetment



Keweenaw Peninsula, Lake Superior

"How will you learn about the natural wave action with the shoal which creates pebble beach?"

"Please keep thinking about the Pebble Beach area."

- » The design team has been studying the area using site visits, historical aerial images, computer simulations of wave and current patterns, and a physical model in a wave tank.
- » Further refinements are under consideration.



# DYNAMIC REVETMENT CHARACTERISTICS

- » A Dynamic Revetment re-shapes itself in response to the water level and wave conditions.
- » Waves breaking on the slope cause the stones to take on an "S" shape profile.
- » A crest is formed by the waves pushing the stones up the slope.

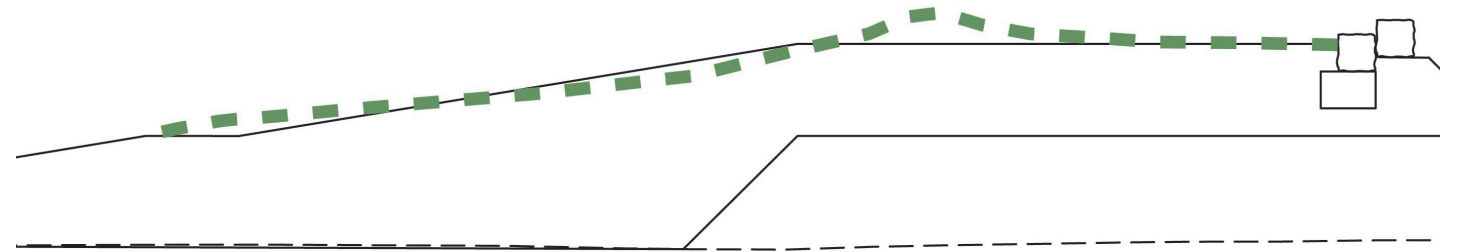




# DYNAMIC REVETMENT RESPONSE AND FAILURE DEFINITION

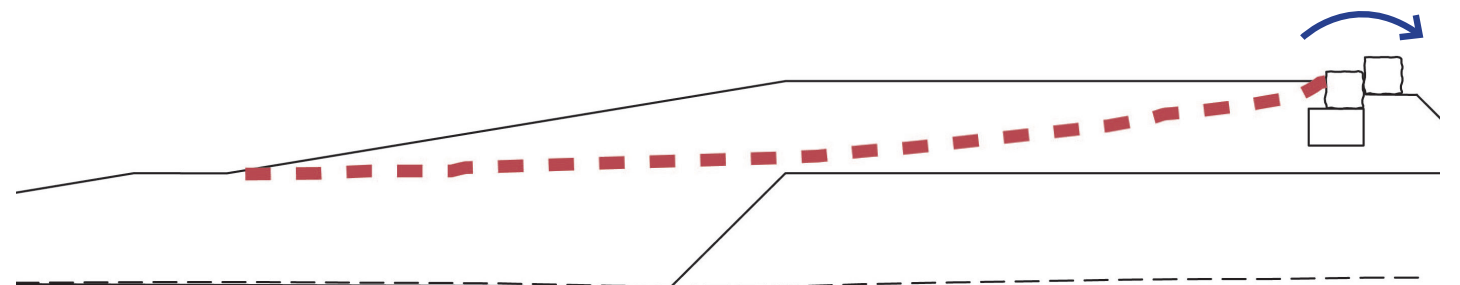
## DYNAMIC REVETMENT SAFE PROFILE

- » The Dynamic Revetment reshapes to the different design storm conditions per its typical S shape profile protecting the backshore from overtopping and wave runup. No damage to inland structures is experienced.



## DYNAMIC REVETMENT FAILURE

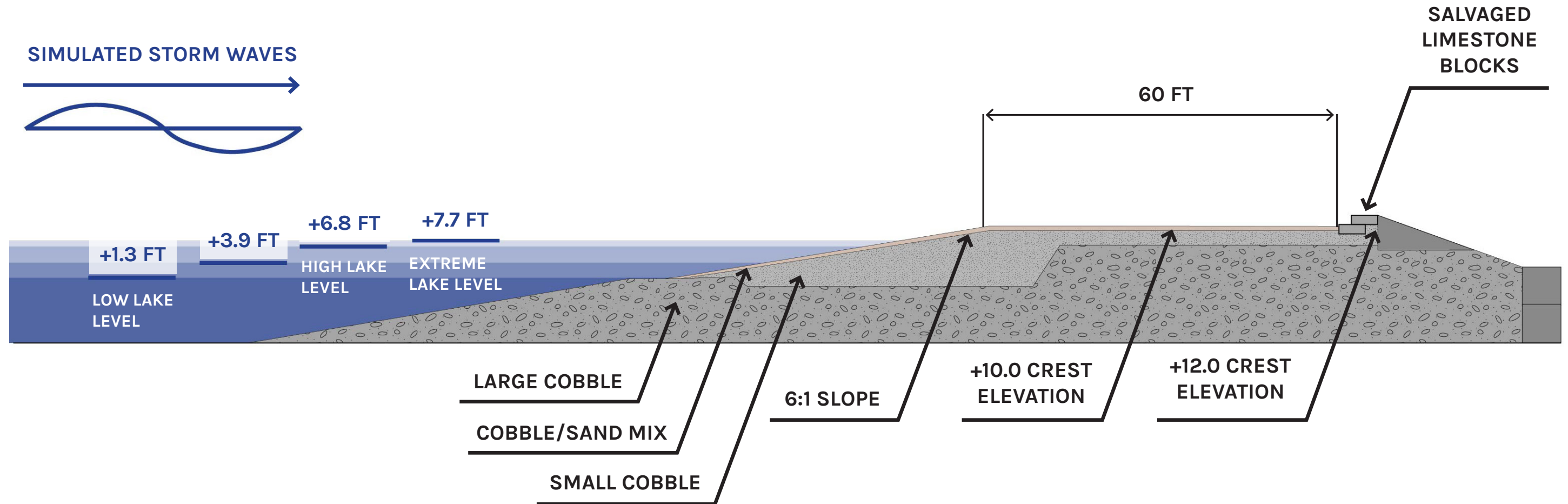
- » There is not enough material, or the material is not large enough in the profile causing the protected backshore to be exposed to large waves.
- » Excessive overtopping and damage to inland protected structures.





# DYNAMIC REVETMENT 1:10 SCALE PHYSICAL MODEL

## TYPICAL TEST ARRANGEMENT





# 1:10 SCALE PHYSICAL MODEL TEST SET-UP

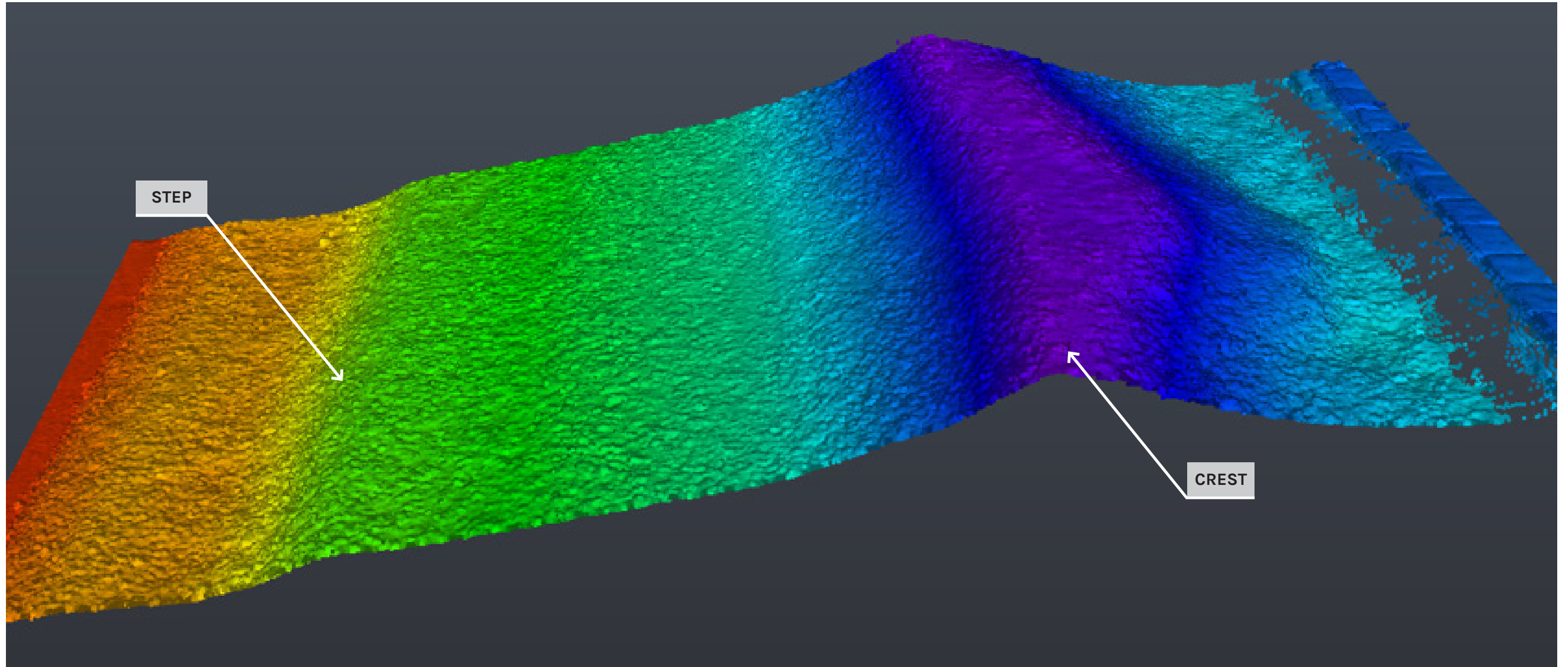


Offshore breakwater in foreground; dynamic revetment and stepped salvaged stone at rear.



# 1:10 SCALE PHYSICAL MODEL TEST

## TYPICAL RESPONSE



3D image of dynamic revetment laboratory test section after a simulated storm.



# DYNAMIC REVETMENT PHYSICAL MODEL

## HIGH WATER LEVEL CONDITION; 10-YEAR STORM EVENT (SIMILAR TO JANUARY 2020)



Model setup before testing. Large cobble painted orange for monitoring.



After testing. Waves have moved and mixed cobble.



# DYNAMIC REVETMENT PHYSICAL MODEL

## CRITICAL CROSS SECTIONS

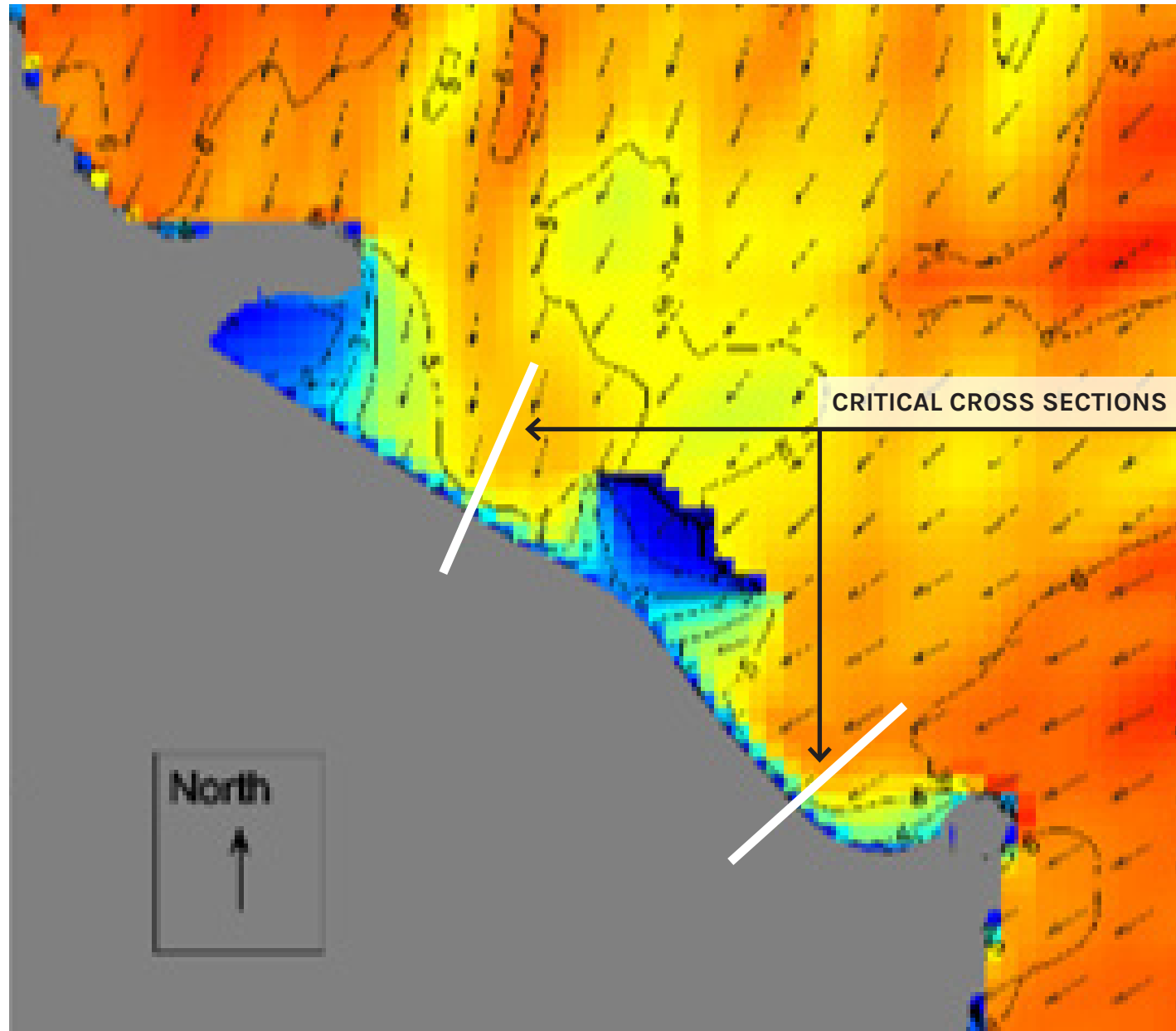


- » Tests were carried out at critical cross sections, where the waves are the largest.
- » The image shows the locations of the critical sections.
- » Other locations will have smaller waves and will have less dynamic revetment reshaping.



# DYNAMIC REVETMENT PHYSICAL MODEL

## CRITICAL CROSS SECTIONS



- » This image is a map of the modeled wave heights close to the dynamic revetment.
- » Dark red and orange areas indicate the locations of the biggest offshore waves.
- » Yellow areas have smaller waves due to Morgan Shoal.
- » The blue areas are the most sheltered portions of the dynamic revetment.



# DYNAMIC REVETMENT PHYSICAL MODEL PREDICTING ACTUAL BEHAVIOR FROM MODEL TESTS



Variations in water levels and waves have naturally sorted this cobble beach in Lake Superior. Similar dynamic behavior is expected at Morgan Shoal, and the dynamic revetment will evolve organically.





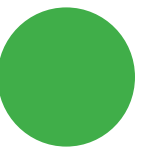
**VISITOR EXPERIENCE**  
HEATHER GLEASON, CPD



# 2

# LET'S TALK ABOUT VISITOR EXPERIENCE

## Public Restroom



Proposed restroom design, presented 2/22/24

"The community is seeking something special versus a cinderblock structure."

"Could you focus a few more weeks (or months) looking into different building materials and designs for the public restroom?"

- » The new public restroom does not use cinderblock. The walls and roof structure are proposed to be cast-in-place concrete.
- » A variety of building materials were explored in the design of the new public restroom. Importantly, the capacity of the Park District maintenance staff was considered so the building would be durable.
- » The benefit of this small amount of concrete is a longer lasting public restroom that will serve lakefront users for decades.
- » Using finished structural materials voids the need for additive sealants and coatings that eventually flake off, need recoating, and bleed into the surrounding environment.



# 2

## LET'S TALK ABOUT VISITOR EXPERIENCE Plaza

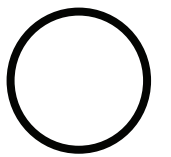


Proposed restroom design

"Please consider minimizing concrete at public restroom by reducing "plaza" area. Keep it quiet, "healing" area and as natural as possible."

- » The plaza area has been designed to provide an area of respite, with adequate space for gathering as well as adequate maintenance access.
- » The roof of the public restroom overhangs to create a shaded seating area over reused limestone blocks on the plaza and a small reprieve from DLSD, using the building itself to visually and audibly shield the seating area from the street.





2

# LET'S TALK ABOUT VISITOR EXPERIENCE

## Contemplative Spaces



12th Street Beach

" Adjectives: Spiritual, Secluded, Magical, Unique, Destination, Artistic, Creative, Organic."

"Go to 12th Street beach (hidden behind the planetarium)! It possesses the secluded/sunken/private/intimate feel which I hear the community vocalizing they seek."

- » 12th Street Beach also has a dune-inspired natural area at the south end similar to what is being proposed for Morgan Shoal.
- » The design team is investigating ways to enhance the dynamic revetment area with more "intimate" qualities, while preserving the primary coastal protection function.



# 2

## LET'S TALK ABOUT VISITOR EXPERIENCE

# Education



Aerial of Lake Michigan

"The lakefront plan included a children's area at the wreck site with available periscopes and lenses allowing children to see fish, turtles, lake life."

- » Design team will investigate telescopes and other education fixtures (if sufficiently durable for the exposed location).
- » Educational signage with a focus on native coastal and near-shore habitat is being considered. Educational signage is a Park District staple, often installed after a capital project is completed.
- » There is also the possibility for a nature play installation, either part of this project or at a later date.



# 2

# LET'S TALK ABOUT VISITOR EXPERIENCE

## Pedestrian Access



Closeup of proposed overlook to Dynamic Revetment, presented 2/22/24

"How will you make the whole shoreline accessible, with at least some parts accessible for wheelchairs?"

"How will you provide access to walk, sit, fish, etc. beside the water?"

"Will we lose access to the shoreline? I cannot get across sloped stone revetment - it is inaccessible."

- » The existing shoreline is not "accessible". It is undermined, unstable, and actively deteriorating. The shoreline will still be accessible, with enhanced opportunities along both the dynamic revetment and overlook areas.
- » The entirety of the proposed path system is ADA accessible. The Park District's Disability Office is investigating additional access, for example at the Dynamic Revetment.
- » The project provides new and enhanced ways to engage with the lakefront. Increased parkland will provide opportunities for passive and active recreation adjacent to the water. The Dynamic Revetment will allow park goers to sit or walk along the waters edge, while areas like the stepped revetment will be suited for fishing. Improved pathways will facilitate equitable movement for all users.





**NATURAL RESOURCES**  
HEATHER GLEASON, CPD



# 3

# LET'S TALK ABOUT NATURAL RESOURCES

## Tree Preservation

No trees to be cut during bat summer roosting season



### Trees to remain and be protected (315)



Of the (52) trees to be removed:

3 are in good condition

7 are in fair condition

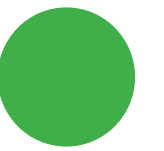
18 are in poor

24 are small, immature



Approximately **149 new trees** with 3" diameter trunks will be planted to replace the trunk diameter of trees removed (sum of 447 inches)

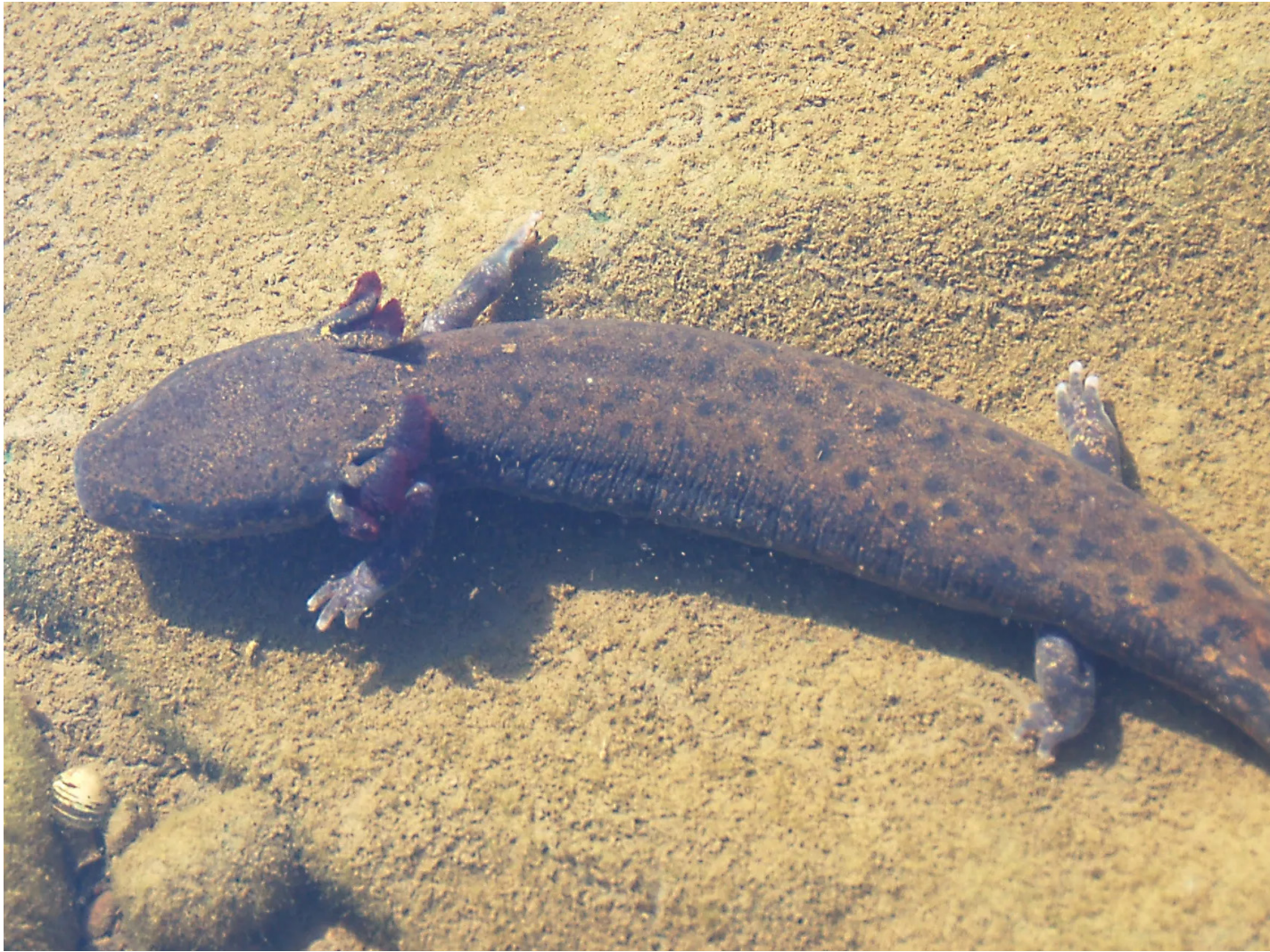




3

# LET'S TALK ABOUT NATURAL RESOURCES

## Habitat Protection



A mudpuppy, whose habitat is along the lakefront of Lake Michigan

"How will you learn about and be creative about the existing wildlife on land + lake and on the lake?"

"What is being done to mitigate impact to bird/wildlife habitats?"

"How will you minimize the impact on the existing flora + fauna?"

"As you add lighting, please consider migratory birds + lawn and pollinators don't do well."



# 3

## LET'S TALK ABOUT NATURAL RESOURCES

# Habitat Protection



A mudpuppy, whose habitat is along the lakefront of Lake Michigan

- » The construction limits avoid Morgan Shoal itself, so there will be no impacts to that unique aquatic habitat
- » Temporary construction impacts to existing wildlife are being reduced by seasonal nearshore and tree-cutting restrictions.
- » Each of the three designated natural areas will be specifically focused on different flora/fauna.
- » Dark Sky guidelines and bird safety best practices were incorporated into the design of the public restroom.



# 3

## LET'S TALK ABOUT NATURAL RESOURCES

# Natural Areas



Burnham Wildlife Corridor

"The stretch from 45th - 48th has a lot of parkland. Why not make this part of the Burnham wildlife corridor?"

- » Habitat connectivity to the Burnham Wildlife Corridor was carefully considered when planning for natural areas at Morgan Shoal. The proposed areas of layered native plantings will extend habitat potential and provide additional ecosystem services to the area.
- » Native trees such as oaks are proposed for the new natural areas as they can support more species of butterflies and pollinators compared to the weedier tree species planned for removal.



An aerial photograph of a city coastline. On the left, a multi-lane highway runs parallel to a green park area. The park features a baseball field and various trees. To the right of the park is a rocky shoreline meeting a large body of water. In the background, a dense city skyline is visible under a hazy sky.

# SUSTAINABILITY & REUSE

MARK WAGSTAFF, SMITHGROUP



# 4

## LET'S TALK ABOUT SUSTAINABILITY & REUSE

# Pebble Reuse



Storm damage resulting from inadequate shoreline protection, January 2020.

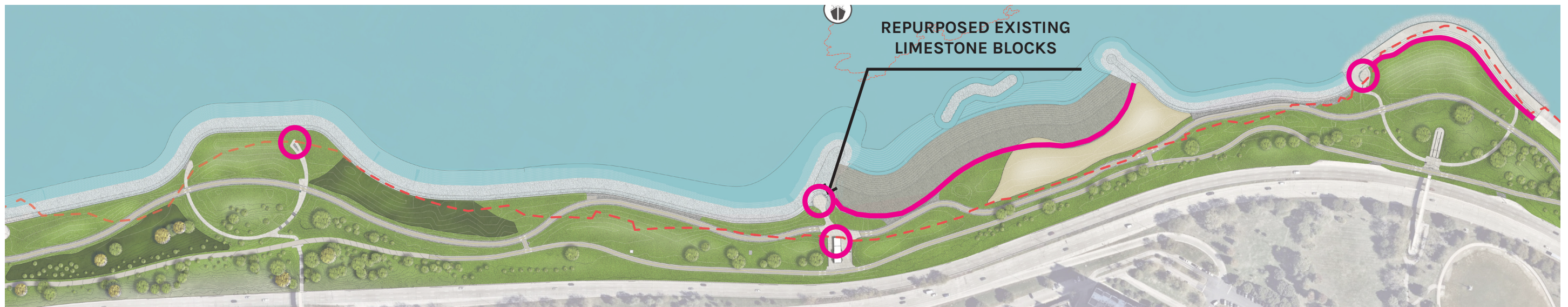
"Why not keep/re-use/be creative with the pebbles/rocks from 49th - 50th instead of importing a dynamic revetment?"

» The existing conditions offer inadequate protection from storm conditions. The project will salvage and re-use the existing pebbles incorporated into the new, expanded dynamic revetment.



# 4

## LET'S TALK ABOUT SUSTAINABILITY & REUSE Repurposed Existing Carved Limestone Blocks



Generations of park visitors have left their mark on many of the existing limestone blocks. As part of this project, hundreds of existing blocks will be carefully salvaged and reused as seating or as part of the terrace at the dynamic revetment. The design team is investigating additional reuse opportunities.



4

# LET'S TALK ABOUT SUSTAINABILITY & REUSE STONE VS. CONCRETE REVETMENT

## COMPARISON BY LENGTH



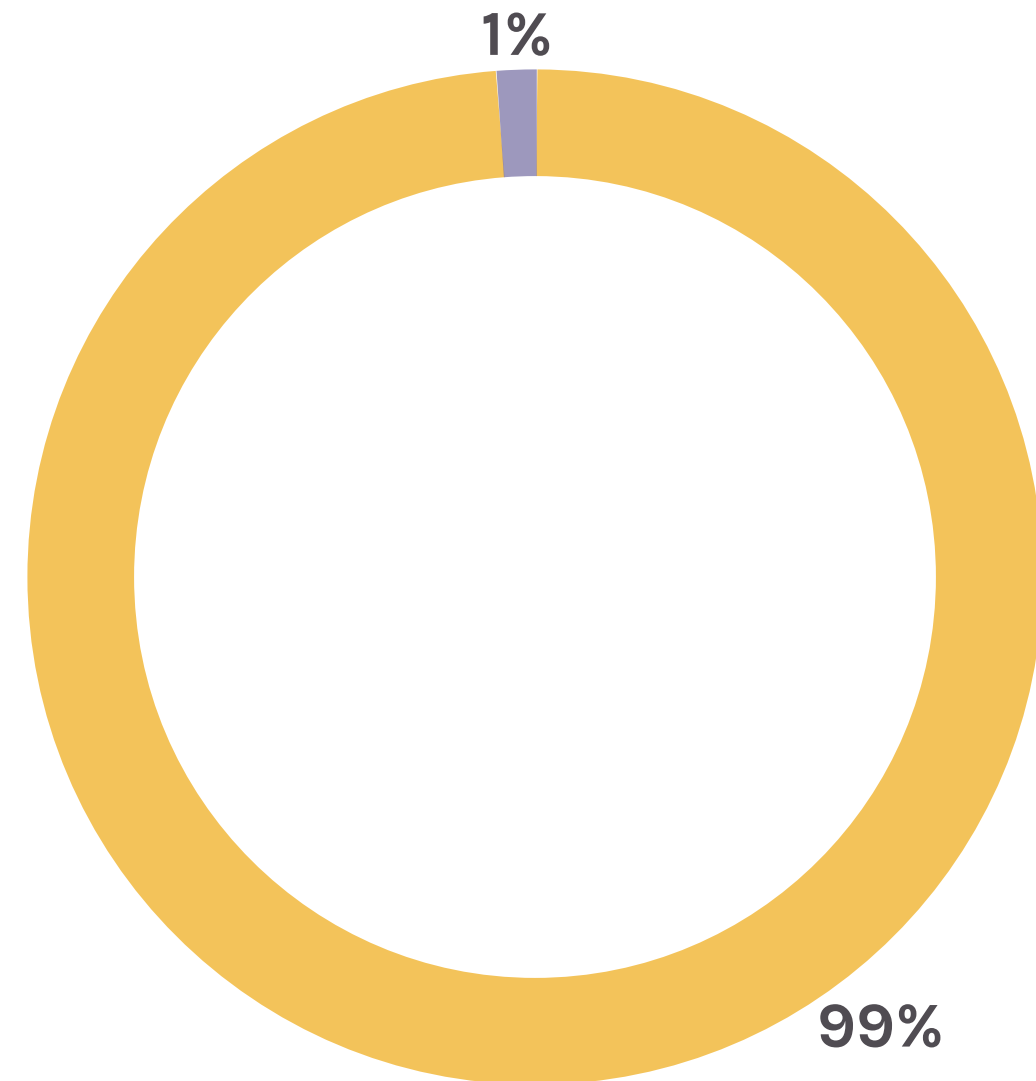


# 4

## LET'S TALK ABOUT SUSTAINABILITY & REUSE STONE VS. CONCRETE REVETMENT

### COMPARISON BY VOLUME

- » 250,000 Cubic Yards of **Stone**
- » 2,900 Cubic Yards of **Concrete**





An aerial photograph of a city coastline. In the foreground, a multi-lane highway runs parallel to a green park area. The park has a winding path and a baseball field. To the right is a large body of water. In the background, a dense city skyline is visible under a hazy sky.

# CONSTRUCTION PLANNING AND LOGISTICS

RAY GIDEROF, PBC

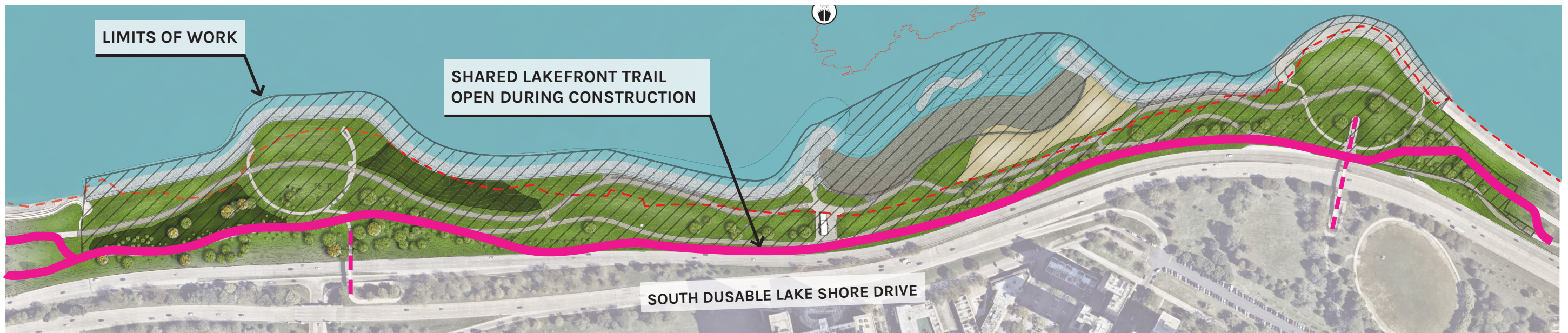


# 5

## LET'S TALK ABOUT CONSTRUCTION LOGISTICS Access During Construction

"As someone who bicycles toward the loop, often several times a week for about 8 months. I am dreading the disruption and will appreciate all you can do to create alternate access and provide good signage; reduce my exposure to diesel please."

- » A shared trail east of DLSD will be established to avoid any disruptions to daily use by residents.
- » Prior to Contractor mobilization, a detailed Site Logistics and Usage Plan will be developed. The Plan shall include proposed temporary construction elements and facilities, signage, traffic control and construction flaggers for the duration of the Project. The Plan will be shared with the Community for awareness.





# 5

## LET'S TALK ABOUT CONSTRUCTION LOGISTICS Prequalifications



"In regards to the PBC efforts to get prequalifications, will those prequalifications for bidding packets be made public when issued? If not, why not?"

» Upon completion of the General Contractor pre-qualification process, the information will be available to the public.



# 5

## LET'S TALK ABOUT CONSTRUCTION LOGISTICS

# Construction Cost Estimate



Aerial of Morgan Shoal project area

"The projected cost for the 110-135 million -- who will pay for that (in terms of federal verses city, state breakdown)."

- » Regarding the construction cost, according to the Water Resources Development Act of 2022, the federal government is required to pay for 65% of the steel sheet pile and step concrete revetment plan for Morgan Shoal recommended in the 1994 Feasibility Study. The 1994 plan will not be built although it remains the basis for the cost share agreement. The City and USACE will agree on what it would have cost to determine the final cost share, which is expected to still be about 65% Federal – 35% Local.





**NEXT STEPS**  
RAY GIDEROF, PBC



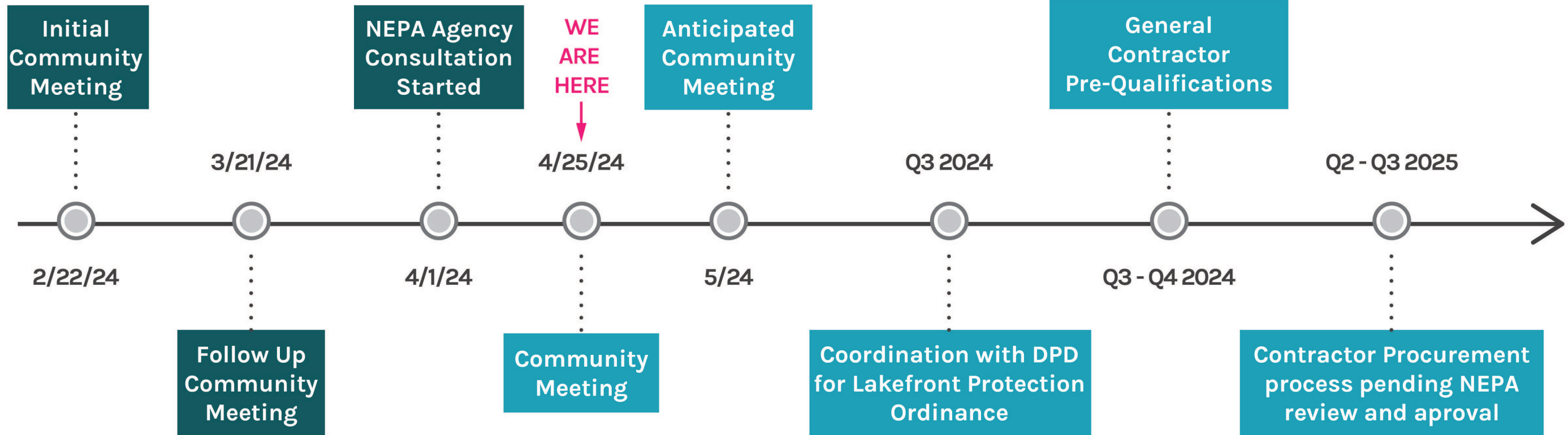
# PROJECT SCHEDULE MOVING FORWARD

2024

Community Engagement and Outreach\*

2024 - 2025

Start April 1, 2024: NEPA Process and Permitting through SHPO, IDNR



\*Community and stakeholder updates will continue throughout the duration of the project.





Link to PBC Project Page

# THANK YOU

We appreciate the active participation and care for the project.

For more information, please contact  
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[www.pbcchicago.com/projects/Morgan-shoal-project](http://www.pbcchicago.com/projects/Morgan-shoal-project)