



2024 WEDA Midwest Chapter Meeting

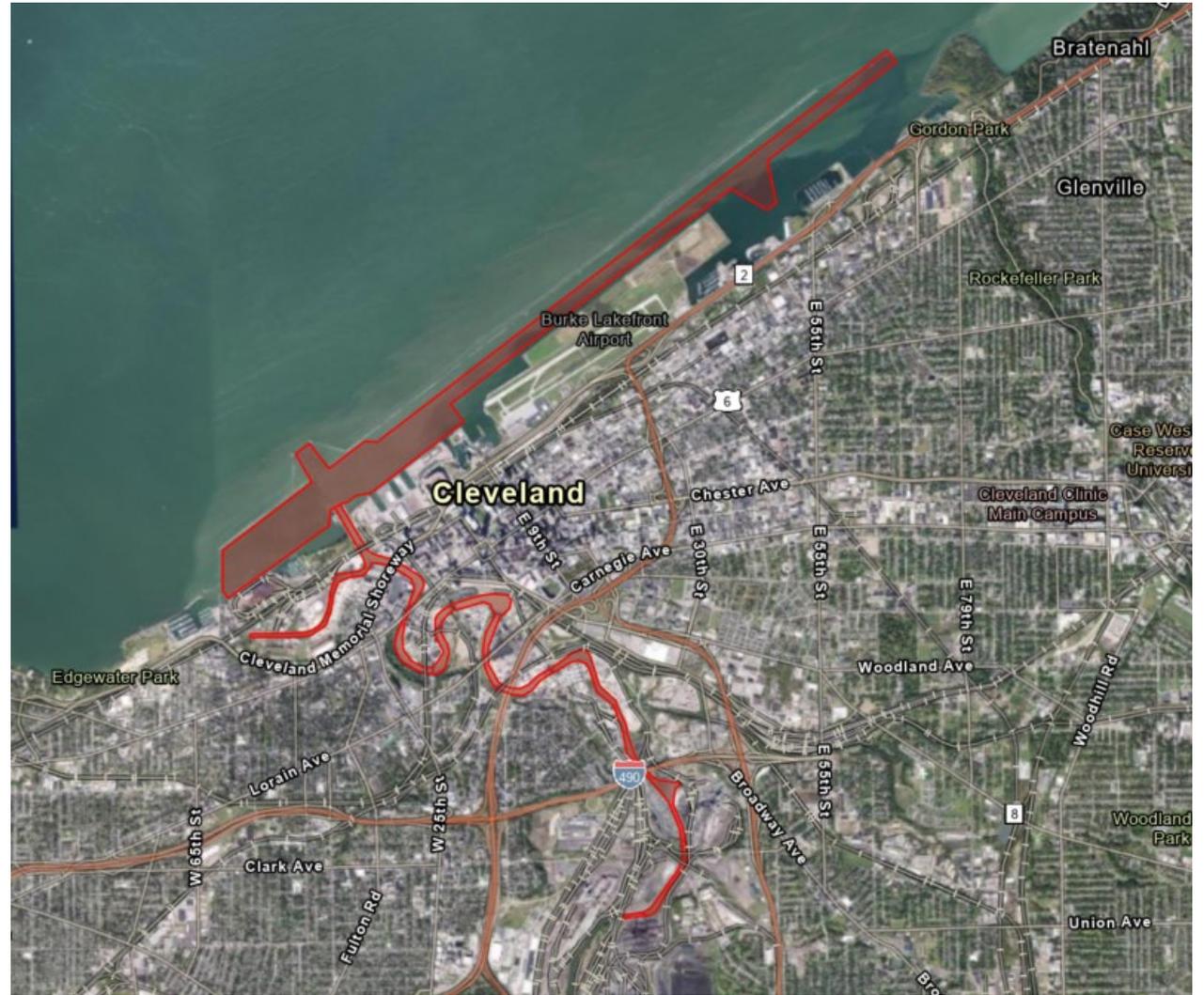
What's New in Cleveland Harbor?

Carly Beck, Sr. Mgr., Planning, Environment, & Information Systems

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CLEVELAND HARBOR

- 13.45 million tons of cargo annually
- 22,000+ jobs
- \$4.7 billion in annual economic activity
- \$240 million in annual local/state taxes
- Congressionally authorized 6+ miles protected breakwater & 5.9-mile navigation channel
- USACE maintains breakwater & performs maintenance dredging





SUSTAINING NAVIGATION & DREDGE MATERIAL MANAGEMENT

- 250,000+ cubic yards (CY) material dredged annually by USACE plus 20,000 CY from private docks & berths
- Dredging is the easy part – managing the material is challenging
- Dredge material management is critical to our regional economy

SEDIMENT MANAGEMENT IS CRITICAL TO OUR REGIONAL ECONOMY

- Federal channel geometry de-energizes river
- Historically, up to 80% of sediment deposited directly into Lake Erie and the remainder into Confined Disposal Facilities (CDFs)
 - Ohio Senate Bill 1 banned open-lake disposal in July 2020
- CDFs nearing capacity in Cleveland
- Costs of constructing a new CDF have been estimated at \$465M+



DREDGE MATERIAL MANAGEMENT HISTORY

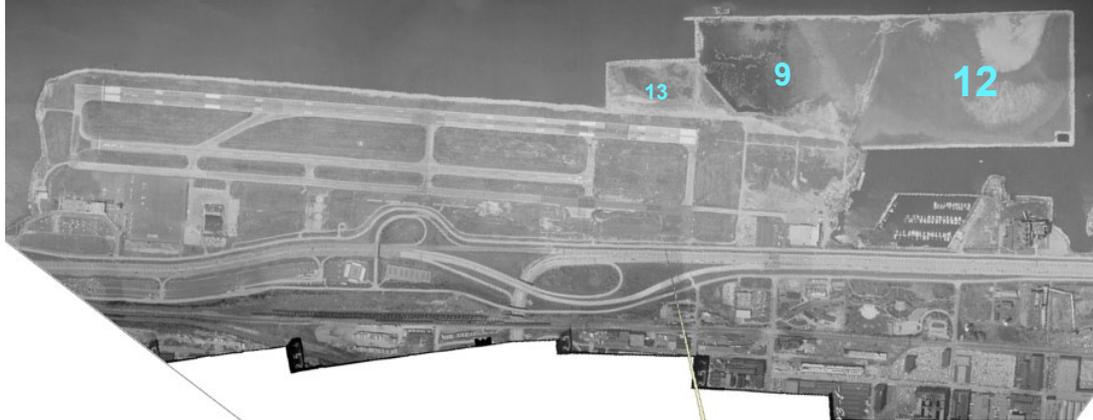
BKL-1968 adj. CDF 13 (Demonstration)



BKL-1973 adj. CDF 9



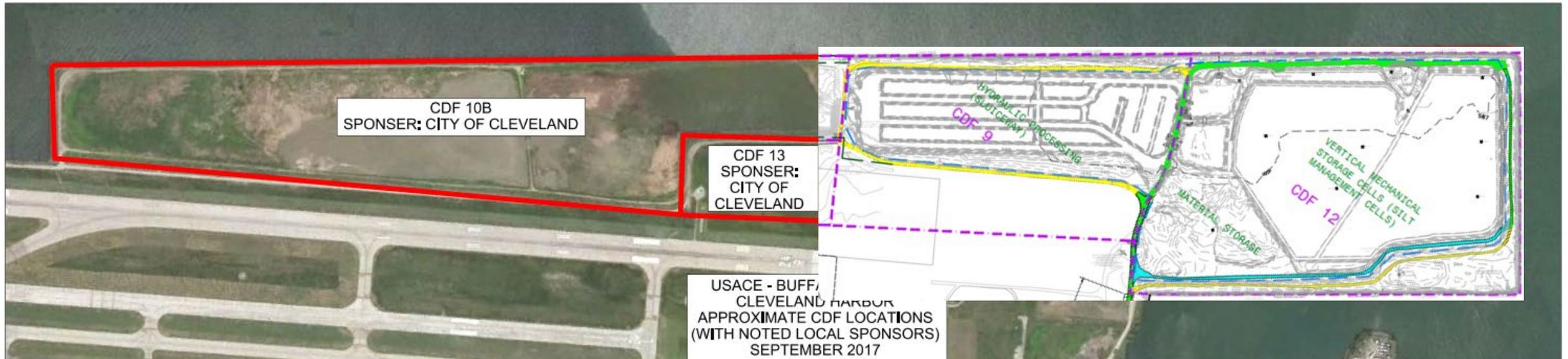
BKL-1980 adj. CDF 12



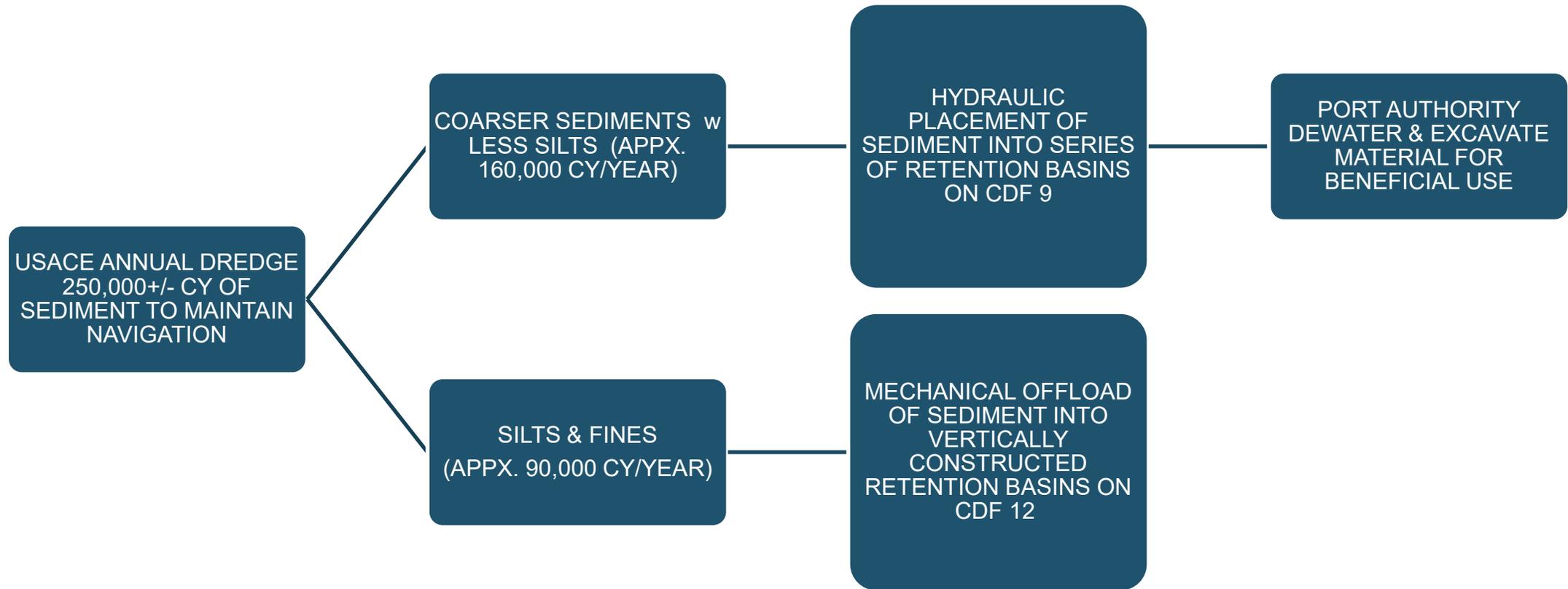
BKL-2002 adj. CDF 10B



PORT OF CLEVELAND'S SEDIMENT PROCESSING FACILITY & BENEFICIAL USE MODEL



PORT OF CLEVELAND'S SEDIMENT PROCESSING FACILITY & BENEFICIAL USE MODEL



HYDRAULIC DELIVERY & BENEFICIAL USE

PUMPED DREDGE SLURRY
(MAX ~80K CY/DREDGE CYCLE)

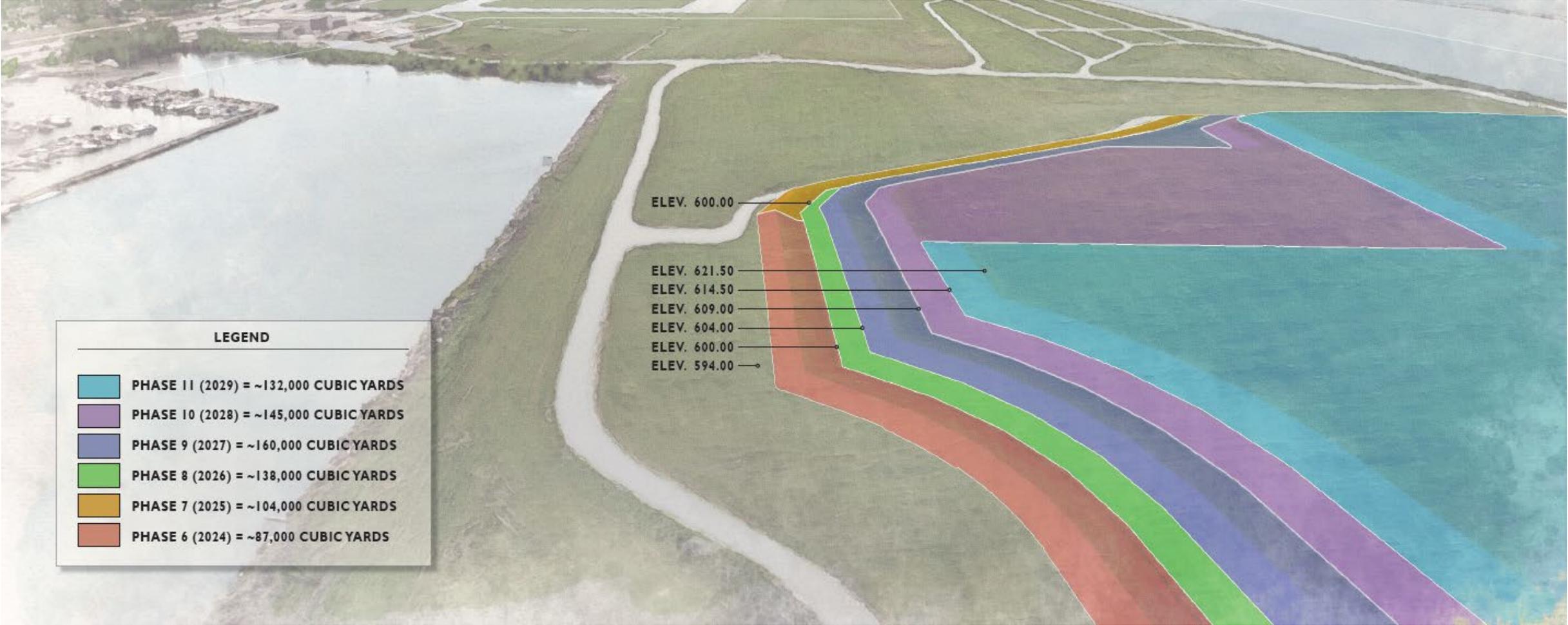
EFFLUENT PERMITTED
PROCESS WATER



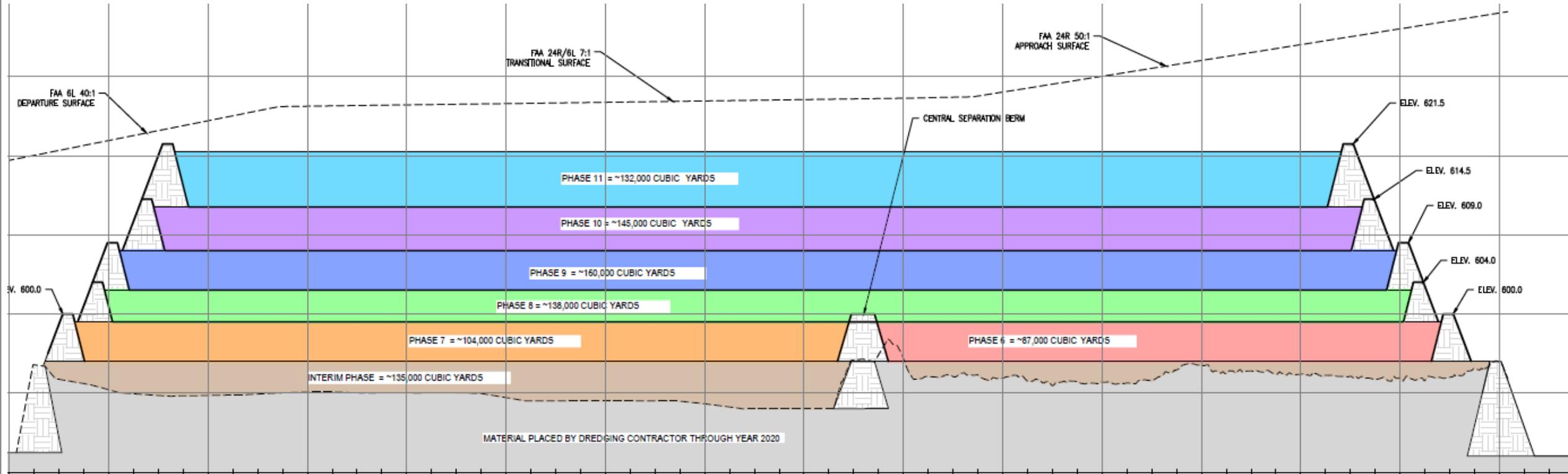




MECHANICAL DELIVERY AND PERMANENT STORAGE

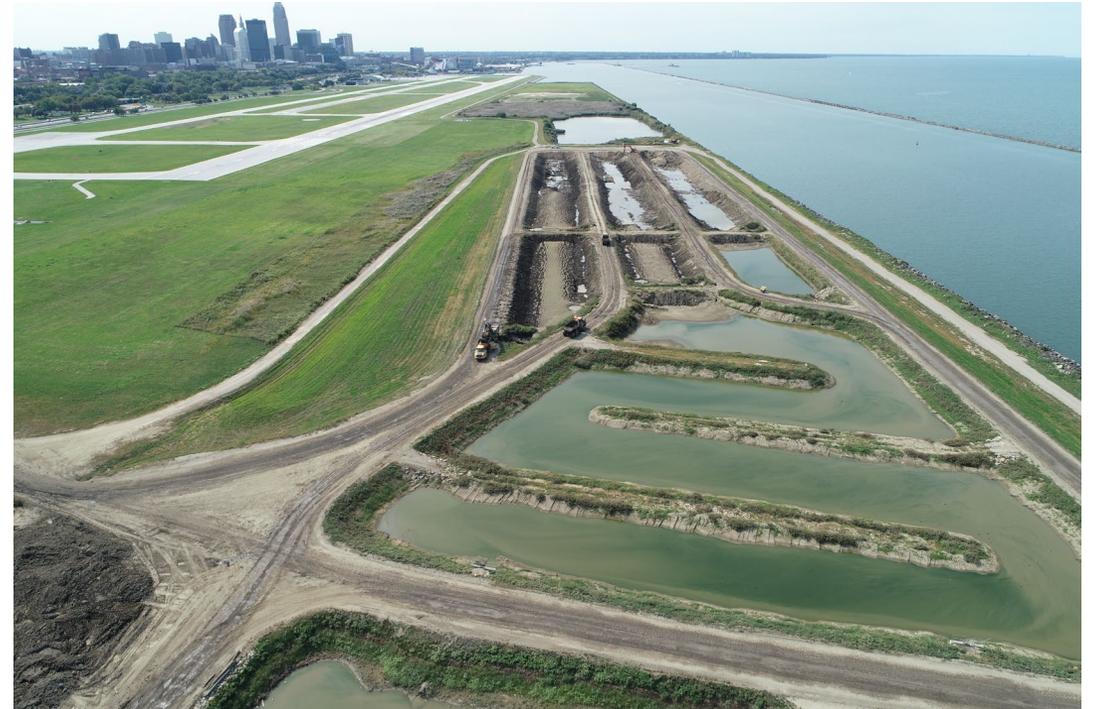


MECHANICAL DELIVERY AND PERMANENT STORAGE



UPCOMING CHALLENGES & OPPORTUNITIES

- Pending USACE "Interim" 5-Year Dredge Material Management Plan (DMMP) to recommend 217 agreement with Port
- Airport restrictions/real estate issues continue to provide operational challenges and uncertainties
- Project this summer to tackle material track out and dust
- While beneficial use operations can continue indefinitely, **mechanical storage capacity will be fully exhausted in 2029**



The Lakefront Today

Federal Breakwater

natural 1870s shoreline

Gordon Park

APPROXIMATE EXTENT OF THE 1876-1877 NATURAL SHORELINE (SOURCE: ODNR)





Partners:



BLACK ENVIRONMENTAL LEADERS



**Cleveland Harbor
Eastern Embayment
Resilience Strategy**

05.2023



Mike Vielhaber @MVielhaber

A little more video of @ODOT_Cleveland trying their best to keep I-90 west clear from E72 to E55 as Lake Erie splashes over her banks. They're laying down about a years worth of salt and have a least 5 trucks making laps.



3:39 AM · Feb 3, 2023 · 986 Views

Mike Vielhaber @MVielhaber · Feb 3

I-90 west between E72 and E55 is an icy mess with this north wind pushing Lake Erie over her banks. A semi has crashed just before the E55th exit closing the right lane and the ramp to E55. This will probably be like this all day today.



0:38 1,995 views

2 7 40 4,787

< Feb 2023

current conditions

October 2012



5:49
66°



< Oct 2012

current conditions









Cleveland Lakefront Bikeway (E. 9th to E. 55th)

The new greenway trail extension of the Cleveland Lakefront Bikeway (E. 9th to E. 55th) will enhance access to the lakefront from adjacent neighborhoods, improve mobility, and enhance the safety of pedestrians and bicyclists by extending the existing bikeway to downtown. The new segment would connect the CHEERS area to East 9th Street and downtown as well as the proposed North Coast Connector land bridge.

Cleveland Harbor Eastern Embayment Resilience Strategy

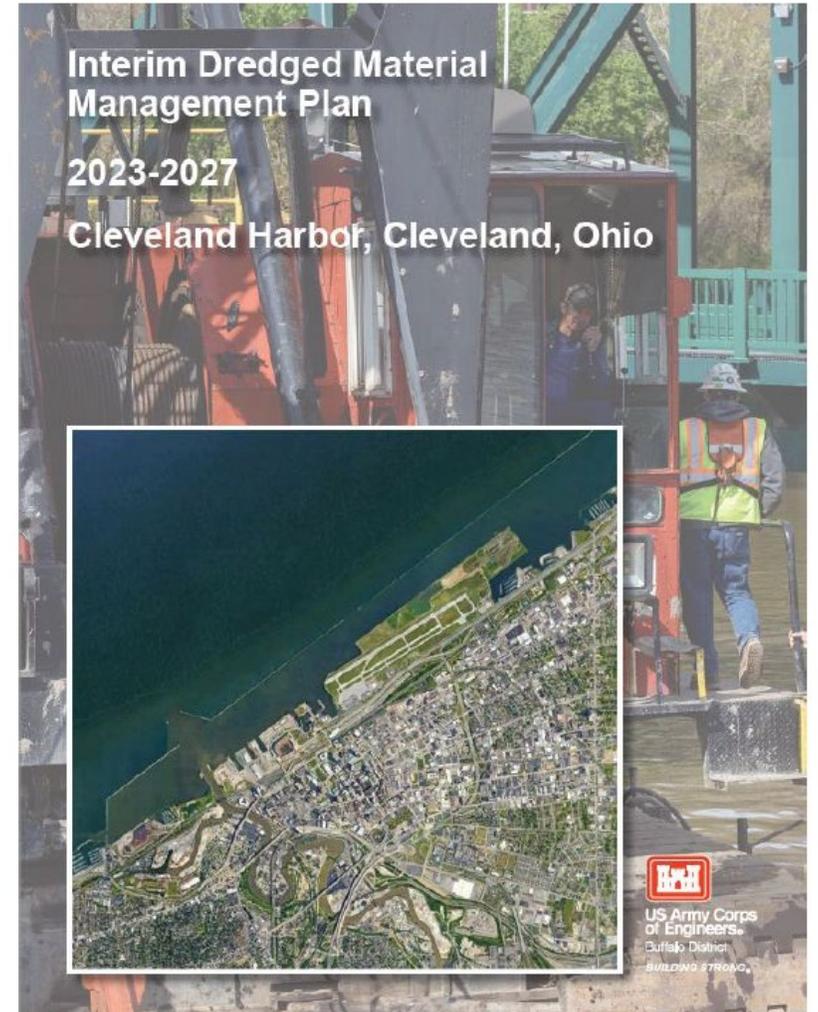
CHEERS will create additional parks and habitat along Cleveland's Lake Erie shore in proximity to east side neighborhoods.

Project Partners



USACE Coordination

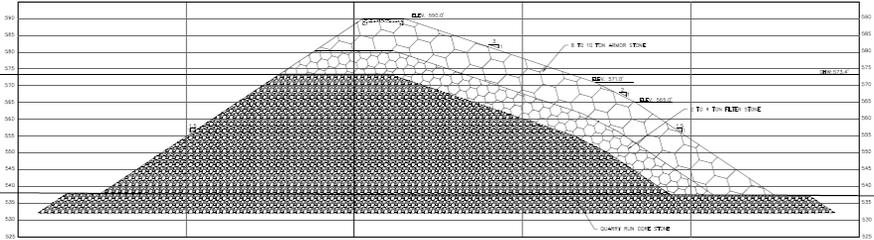
GOAL: USACE 20-Year DMMP Identifies CHEERS as Recommended Plan for the Federal Navigation Project as a Local Led project through a cost-sharing agreement (possibly a 217).



1 March 2023

PROTECT Grant

+ A \$56 million grant award could construct about 900 linear feet of breakwater to protect the most vulnerable portion of I-90



NOAA Grant

Climate Resilience Regional Challenge

+ A \$53 million grant award could construct 17 acres of “The View” landform and habitat areas



Protecting Commerce on the Cuyahoga River

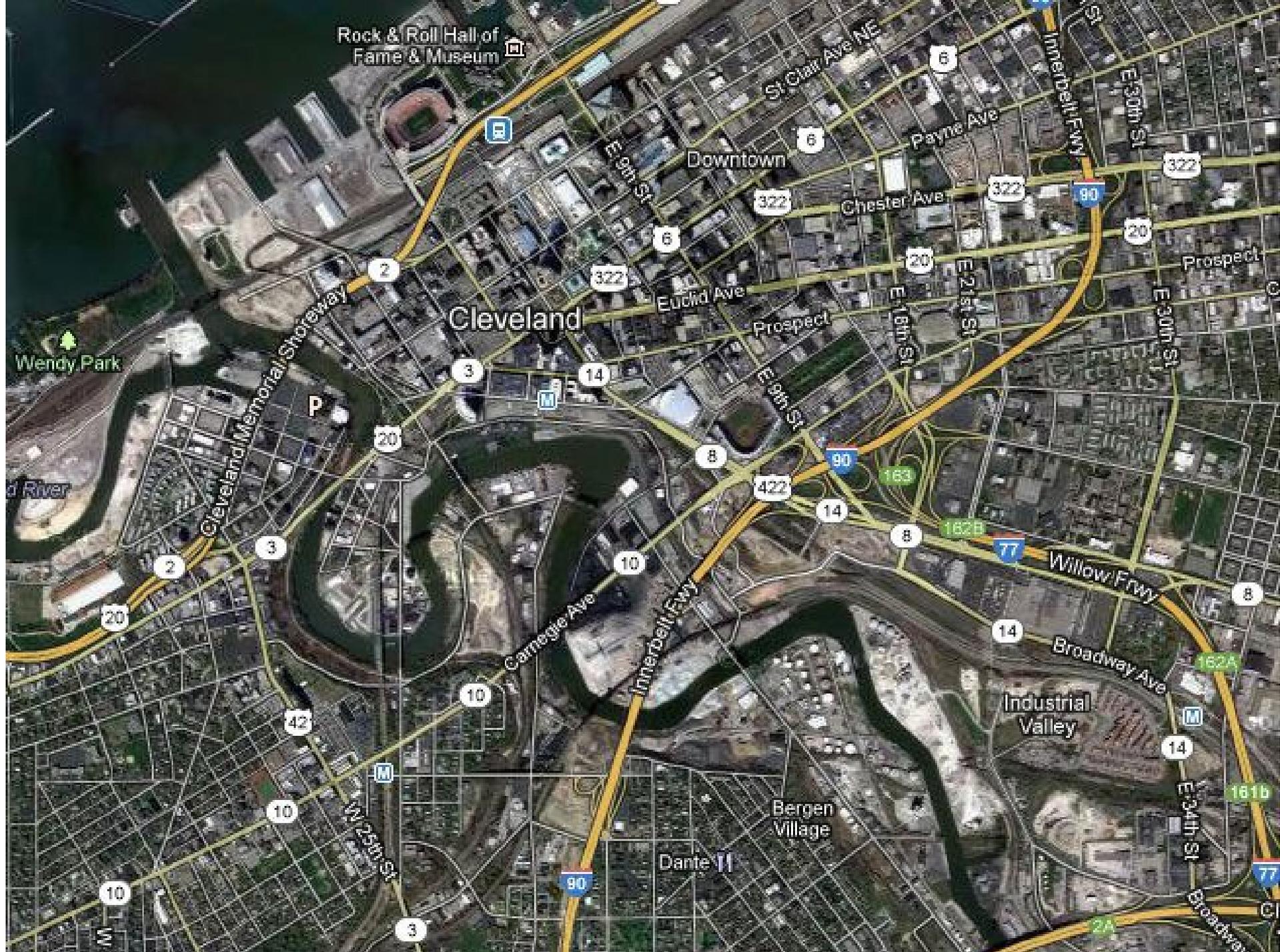


- The Port is championing a fix for Irishtown Bend hillside to assure there will be no interruptions to the 800-900 freighter trips in the ship channel portion of the Cuyahoga River.
- Instability issues along Irishtown Bend have been evident for many years under the Port's leadership is now being fixed

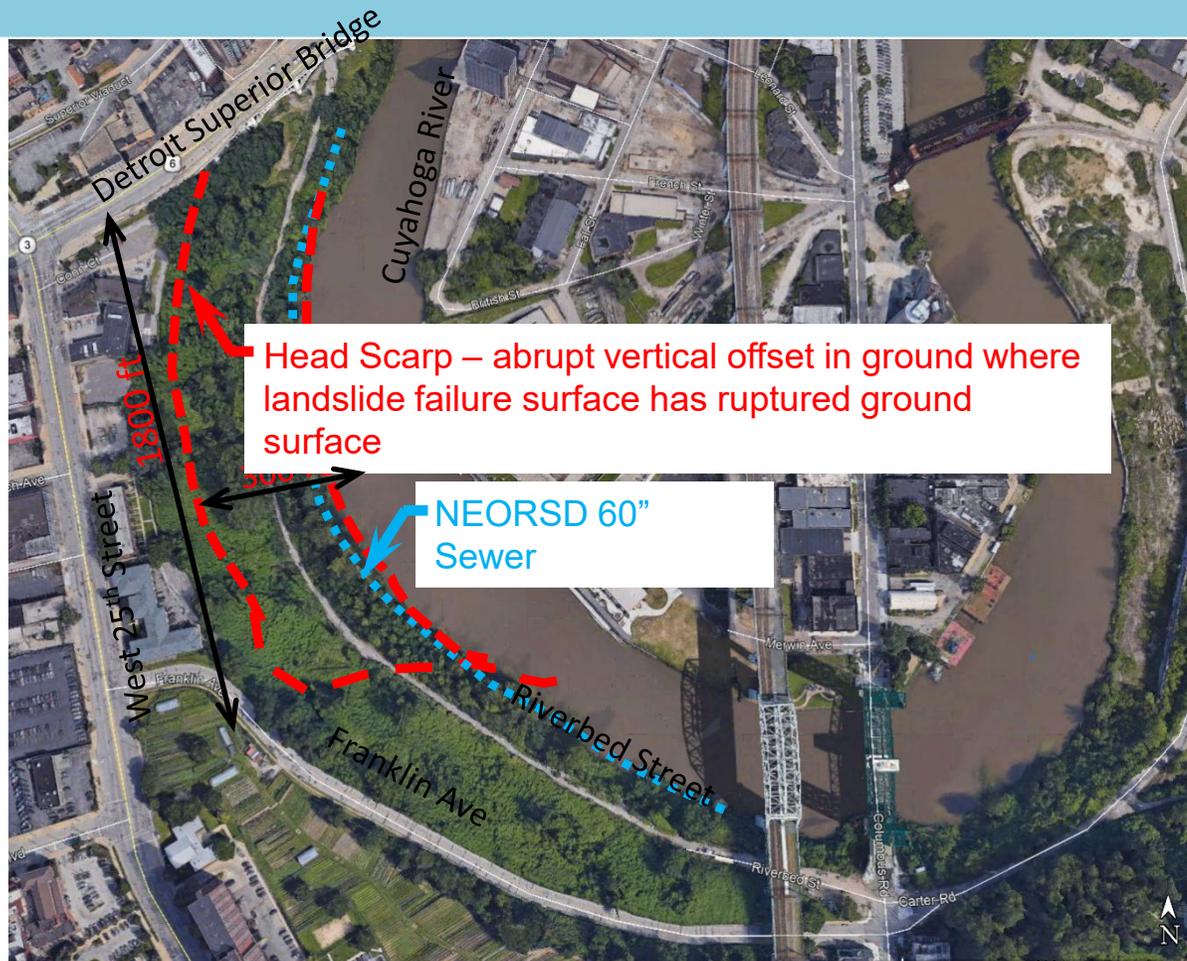


Irishtown Bend Stabilization & Rehabilitation





STABILIZATION TO MITIGATE MASSIVE LANDSLIDE RISK



- Clearly delineated by head scarp at ground surface
- More than quarter mile in length from Detroit Superior Bridge to Franklin Ave
- From Top of Hillside 300 feet to Cuyahoga River
- More local failures due to erosion/collapse of hillside toe
- Surrounded by Critical Infrastructure, including:
 - Detroit Superior Bridge
 - Major Roadways – West 25th St & Franklin Ave at Hillside Top; Riverbed St near Hillside Bottom
 - NEORSD Interceptor Sewer beneath Riverbed Street
 - Cuyahoga River Navigation Channel

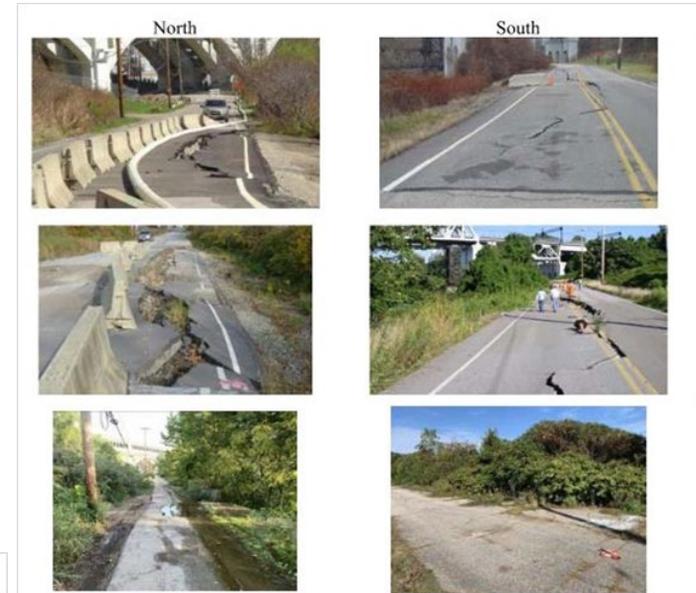
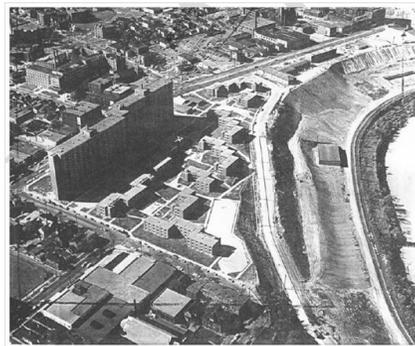
Irishtown Bend Stabilization *Problem and Risk*

Problem

- Geological: Deep weak clay layer
- Manmade: In the 1960s the USACE piled 200,000+ CY of material

Risk

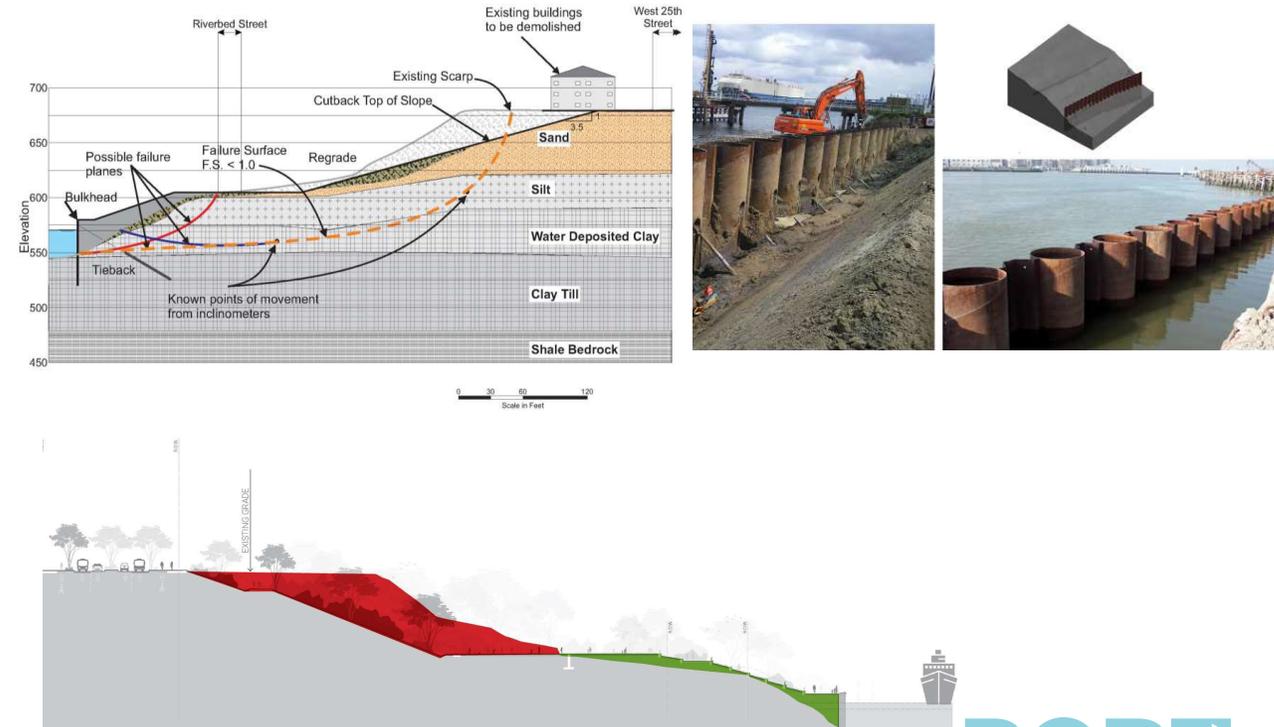
- Inclinometers show the hillside is moving
- Surface failures causing the closure of Riverbed rd.
- Sewer line damaged and at risk
- **Global failure of hillside is likely**



Irishtown Bend Stabilization & Rehabilitation

Steps to Stabilize and Rehabilitate the Hillside

1. Regrade the hillside to remove soil to reduce weight
2. Installation of Bulkhead at the River's edge
3. Installation of Green Bulkhead
4. NEORSD Repair
5. Franklin Road Reconstruction



Thank You!

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