



**Global Reach. Local Benefits.  
2019 Sediments Conference**

*Cleveland Harbor's Advancements In  
Sustainable Dredge Material Management*

February 13<sup>th</sup>, 2019

## Shipping to Ohio's Lake Erie Ports

moves an average of

**40 MILLION** tons of cargo annually

clearing the way

## DREDGING

Dredging Lake Erie's ports, harbors and waterways ensures cargo movement and safe boat travel

**1.5 MILLION** cubic yards PER YEAR  
an abundant resource ready for use

55%

Toledo

9%

Sandusky

6%

Huron

4%

Lorain

15%

Cleveland

5%

Fairport Harbor

3%

Ashtabula

3%

Conneaut

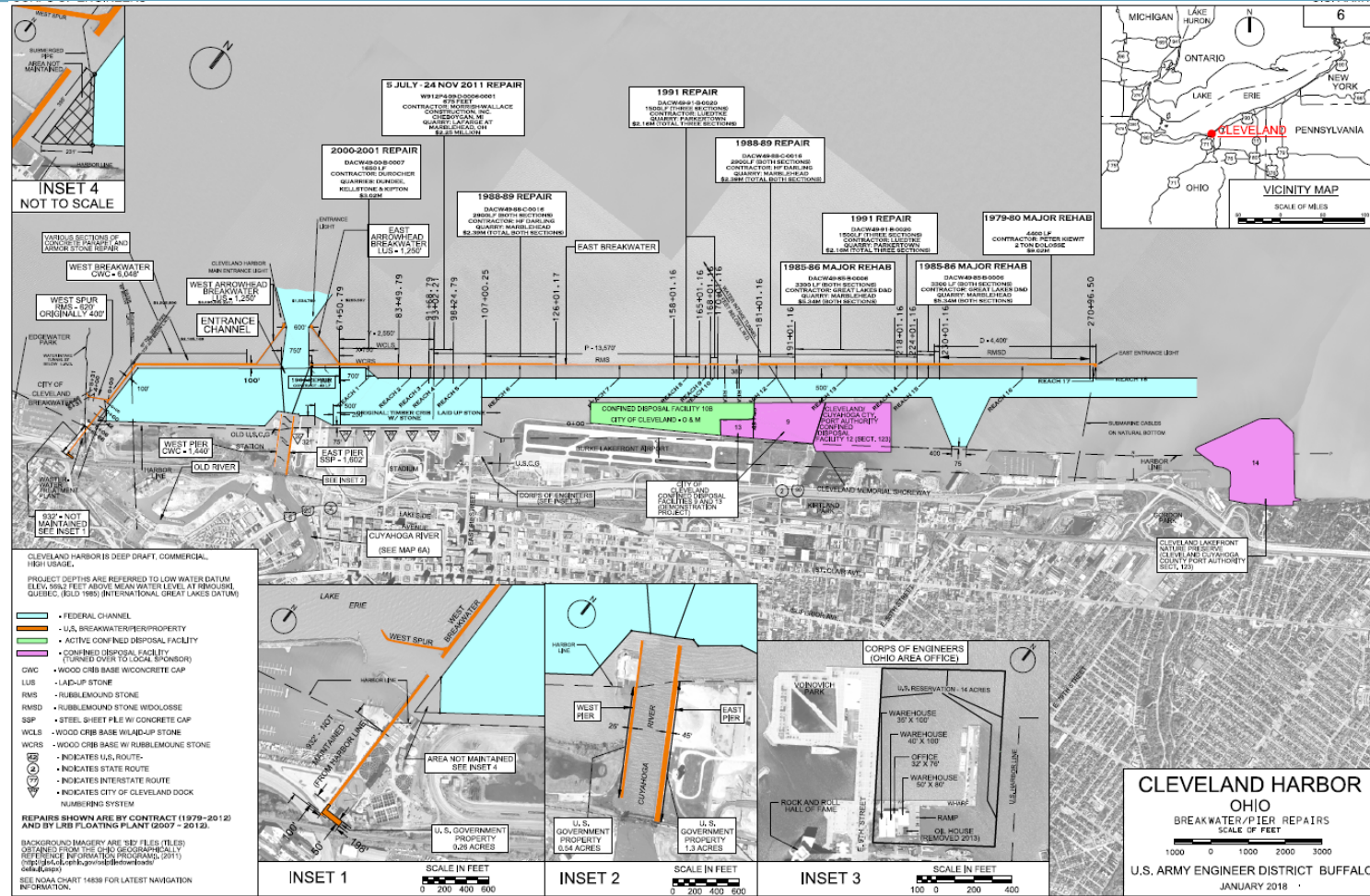
**PORT**  
CLEVELAND

## LAKE ERIE DREDGING FACTS

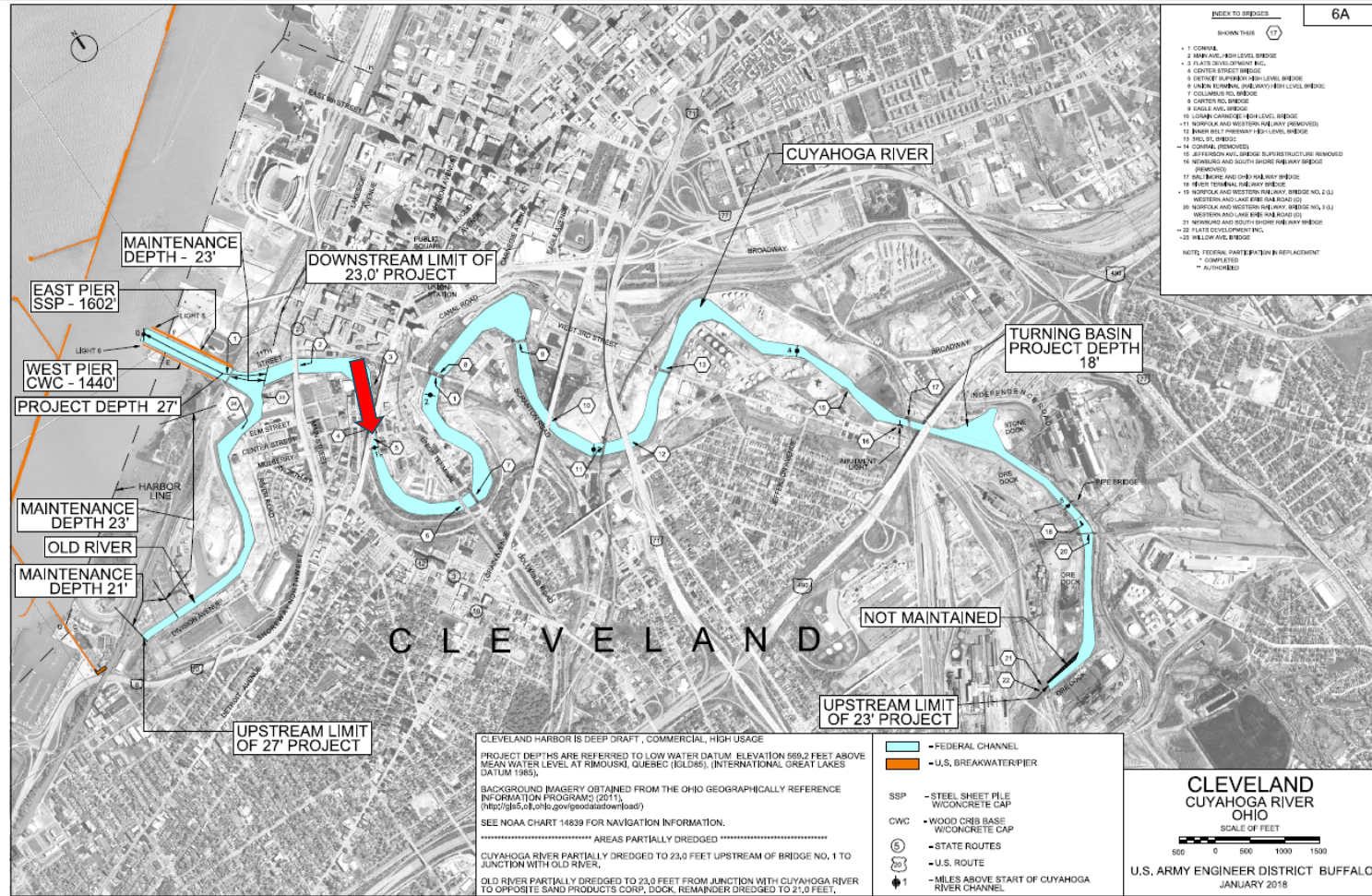
- More Material Dredged Annually From Ohio's Lake Erie Harbors Than All Other Great Lake's Harbors Combined
- Ohio Senate Bill 1 Bans Open Lake Placement/Disposal July 1, 2020
- Statewide Movement Towards Beneficial Reuse Alternatives:
  - Agriculture
  - Manufactured Soils
  - Habitat Creation

# CLEVELAND HARBOR

- 20,000+ Jobs
- \$3.5B Economic Activity
- 13 Million Tons Annually
- 1<sup>st</sup> Major U.S. Port of Call St. Lawrence Seaway System
- 6+ Miles Protected Breakwater
- 5.9 Mile Federally Maintained Navigation Channel



# CUYAHOGA RIVER



# ANNUAL DREDGING & CDF CAPACITY CONSTRAINTS

- 250,000+ CY MATERIAL DREDGED FROM RIVER & HARBOR ANNUALLY
- FEDERAL CHANNEL GEOMETRY DE-ENERGIZES RIVER
- HISTORICALLY MATERIAL DEPOSITED UPLAND IN SERIES OF CONFINED DISPOSAL FACILITIES (CDFs)
- LONG TERM CDF CAPACITY EXHAUSTED IN CLEVELAND HARBOR
- COSTS OF CONSTRUCTING NEW A NEW CDF HAVE BEEN ESTIMATED @ \$175M+



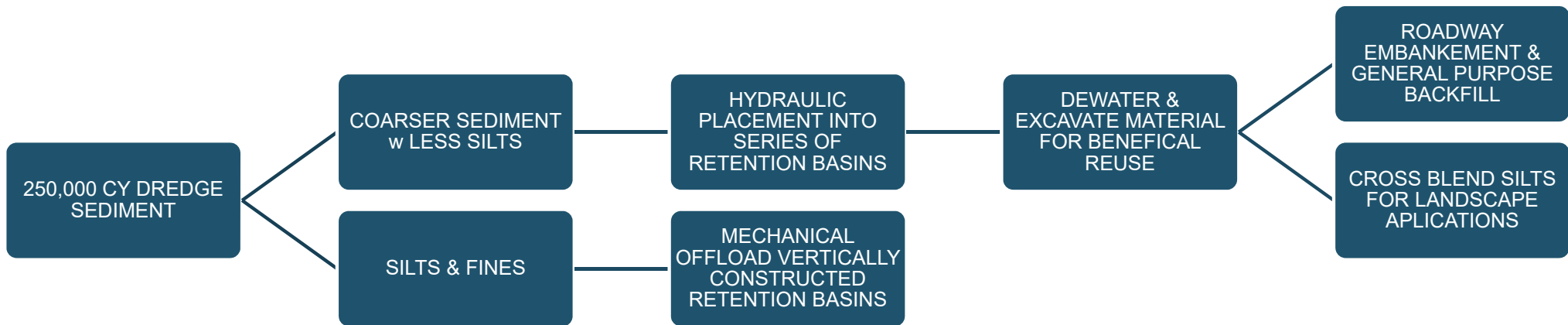
# CLEVELAND HARBOR CONFINED DISPOSAL FACILITIES



**NEW CDF CONSTRUCTION DISPOSAL COST: \$54.65/CY**

USACE August 2011 Interim Capacity Management & Long Term Planning Study

# PORT OF CLEVELAND'S SEDIMENT PROCESSING FACILITY & BENEFICIAL REUSE MODEL



PORT AUTHORITY OPERATION MODEL FORECAST: \$25-\$35/CY

# PORT OF CLEVELAND'S SEDIMENT PROCESSING FACILITY & BENEFICIAL REUSE MODEL

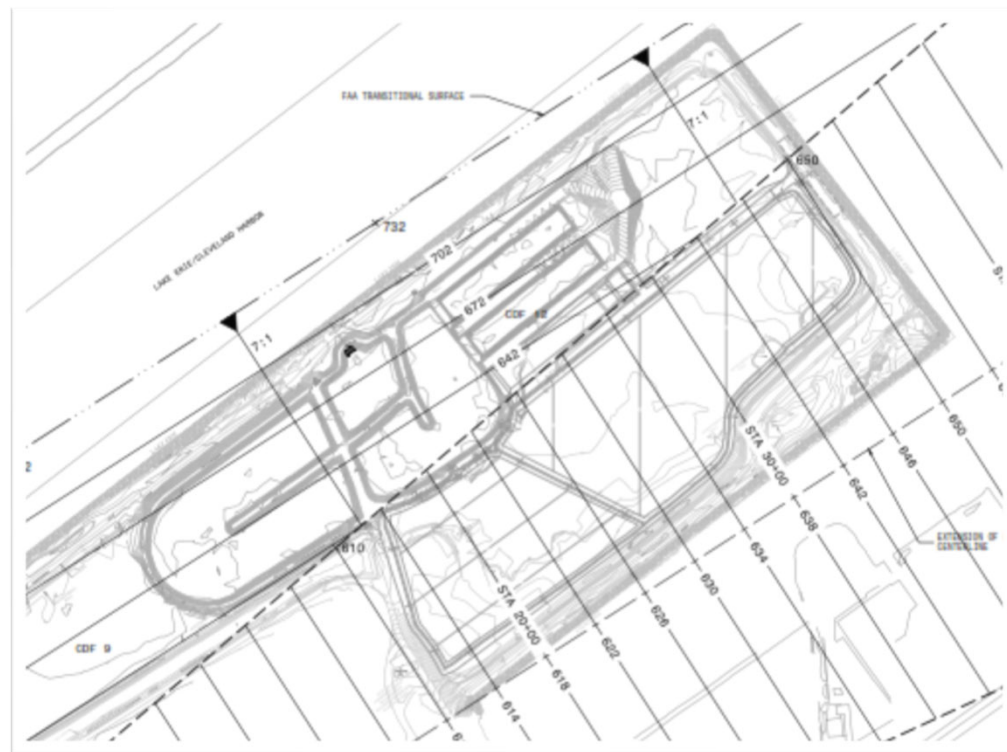




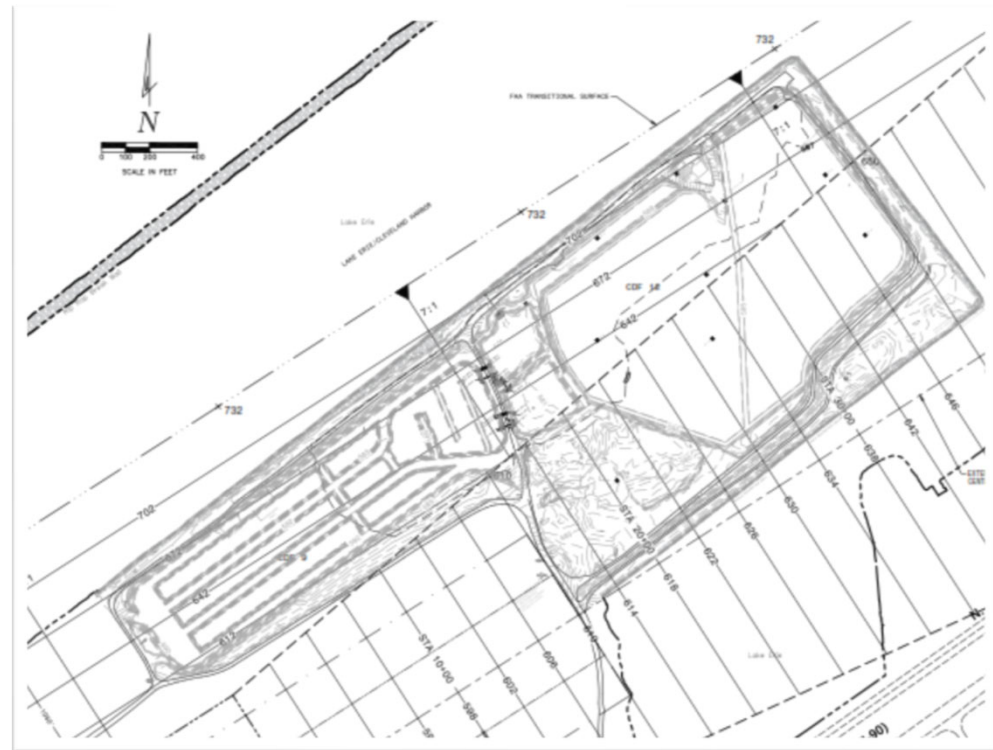
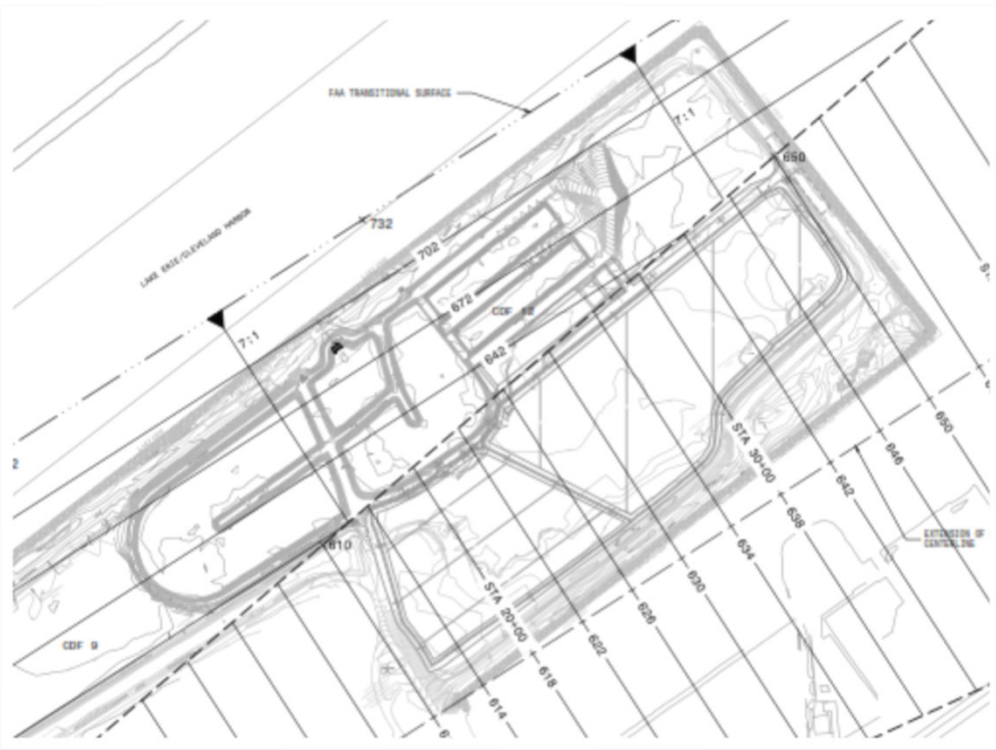
# SEDIMENT PROCESSING & MANAGEMENT PHASE 1 & 2

## ORIGINAL FACILITY LESSONS LEARNED

- HYDRAULIC SLUICEWAY CAPACITY LIMITED TO 45,000 CY
- HYDRAULIC PROCESSING LIMITS VERTICAL PLACEMENT ON CDF 12
- SETTLING POND GEOMETRY & OTHER SLUICEWAY GEOMETRY
  - HAUL ROAD DURABILITY
  - POND SIZE & HYDRAULICS



# SEDIMENT PROCESSING & MANAGEMENT PHASE 3 (2018 EXPANSION)



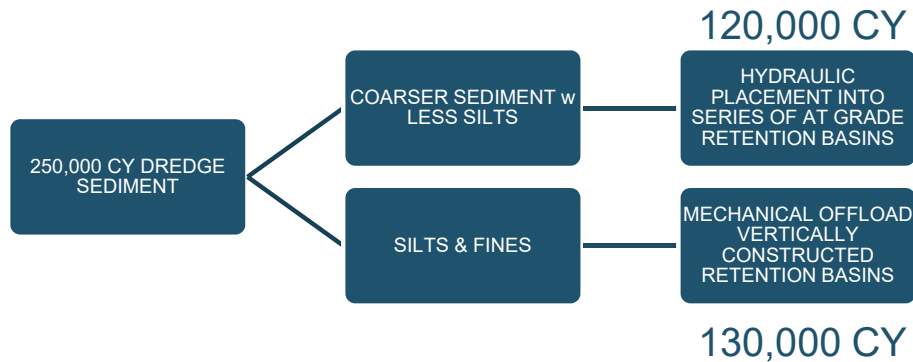
# SEDIMENT PROCESSING & MANAGEMENT PHASE 3 (2018 EXPANSION)



# PORT OF CLEVELAND'S SEDIMENT PROCESSING FACILITY & BENEFICIAL REUSE MODEL

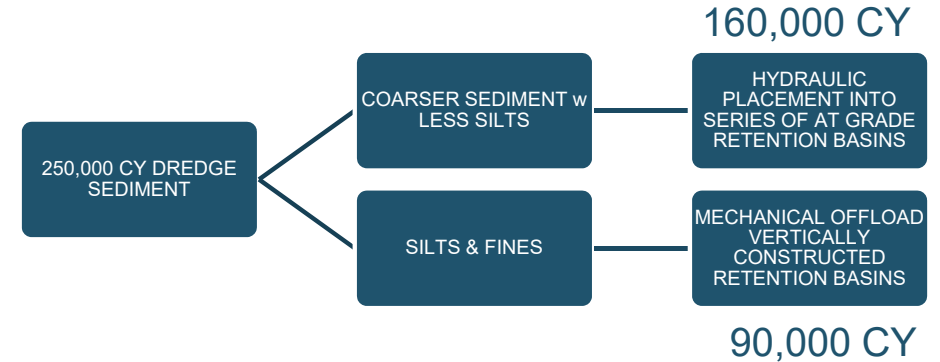
## PHASE 1 & 2

2015-2017



## PHASE 3

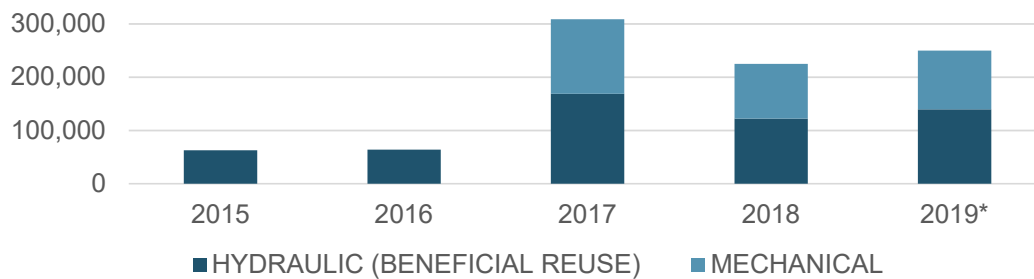
2018+



**REDUCES CRITICAL AIR SPACE CONSUMPTION BY 30%,  
TURNS A 20 YEAR FACILITY INTO A 26 YEAR FACILITY!**

# SEDIMENT PROCESSING & MANAGEMENT FACILITY

SPMF PERFORMANCE



# PORT OF CLEVELAND'S SEDIMENT PROCESSING FACILITY: KEYS TO SUCCESS



## KEYS TO SUCCESS

- KNOW YOUR SEDIMENT
- CLOSE COORDINATION w/ DREDGER, SITE OPERATOR, & USACE
- DESIGN FACILITY FOR FLEXIBILITY
- CONTINUED FACILITY REFINEMENT
- DIVERSIFIED BENEFICIAL REUSE AVENUES
- WATER MANGEMENT

# PORT OF CLEVELAND'S SEDIMENT PROCESSING & MANAGEMENT FUTURE GOALS

- STUDY & EXPAND IN RIVER SEDIMENT INTERCEPTION
- LIMIT SEDIMENT REACHING FEDERAL NAVIGATION CHANNEL
- REDUCE COST OF TRADITIONAL DREDGING IN CLEVELAND
- EXTEND LIFE OF EXISTING CDFs FROM PROJECTED 20-30 YEARS
- EXPAND BENEFICIAL REUSE FROM CURRENT 40%-60% CONSUMPTION RATE
- ASSIST PORT'S w/ DREDGE MANGEMENT ISSUES



# THANK YOU

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