DEVELOPMENT OF THE MILWAUKEE HARBOR DREDGED MATERIAL DISPOSAL FACILITY 2008 - 2011

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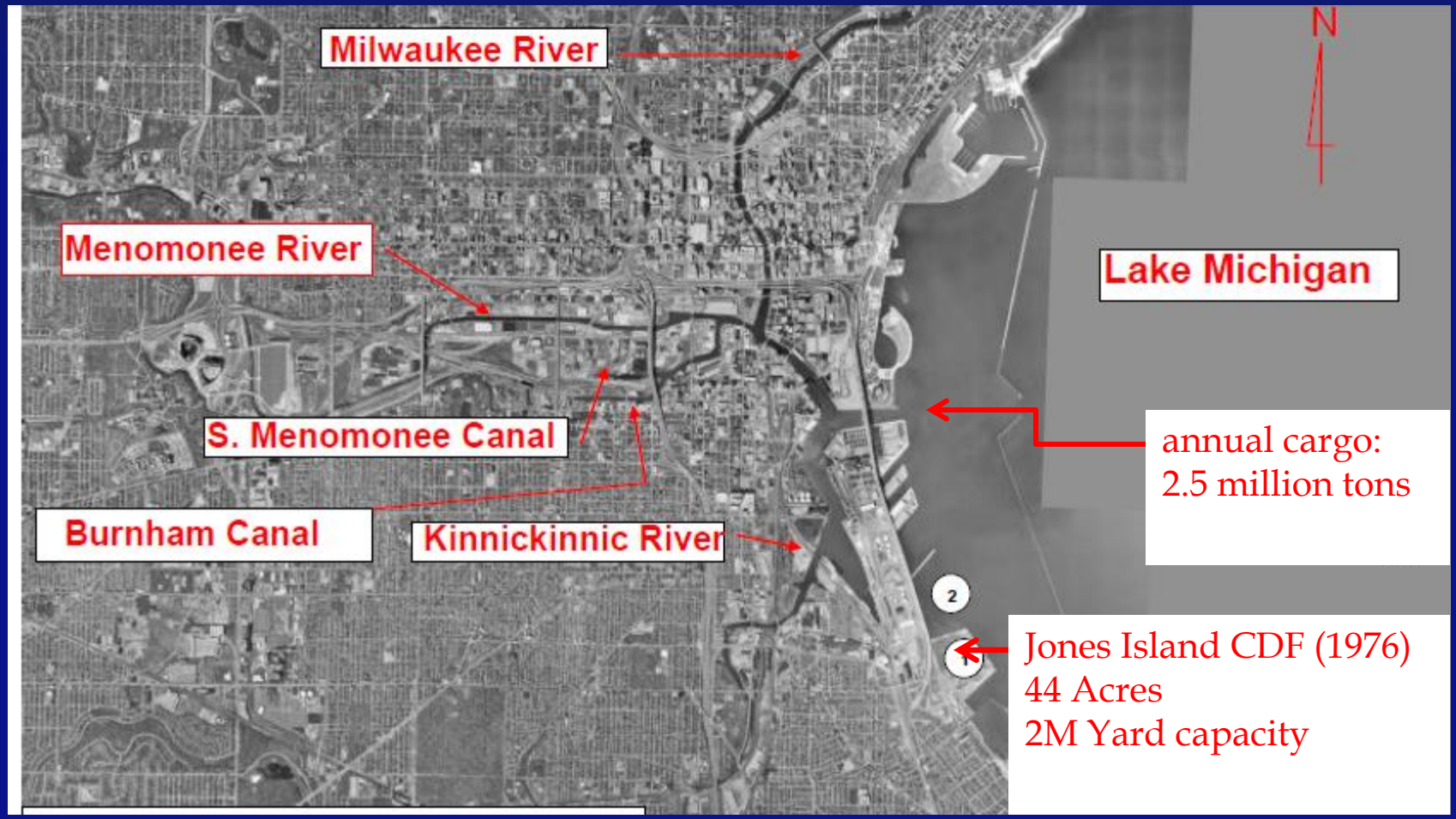
Milwaukee Harbor



So What's The Problem?

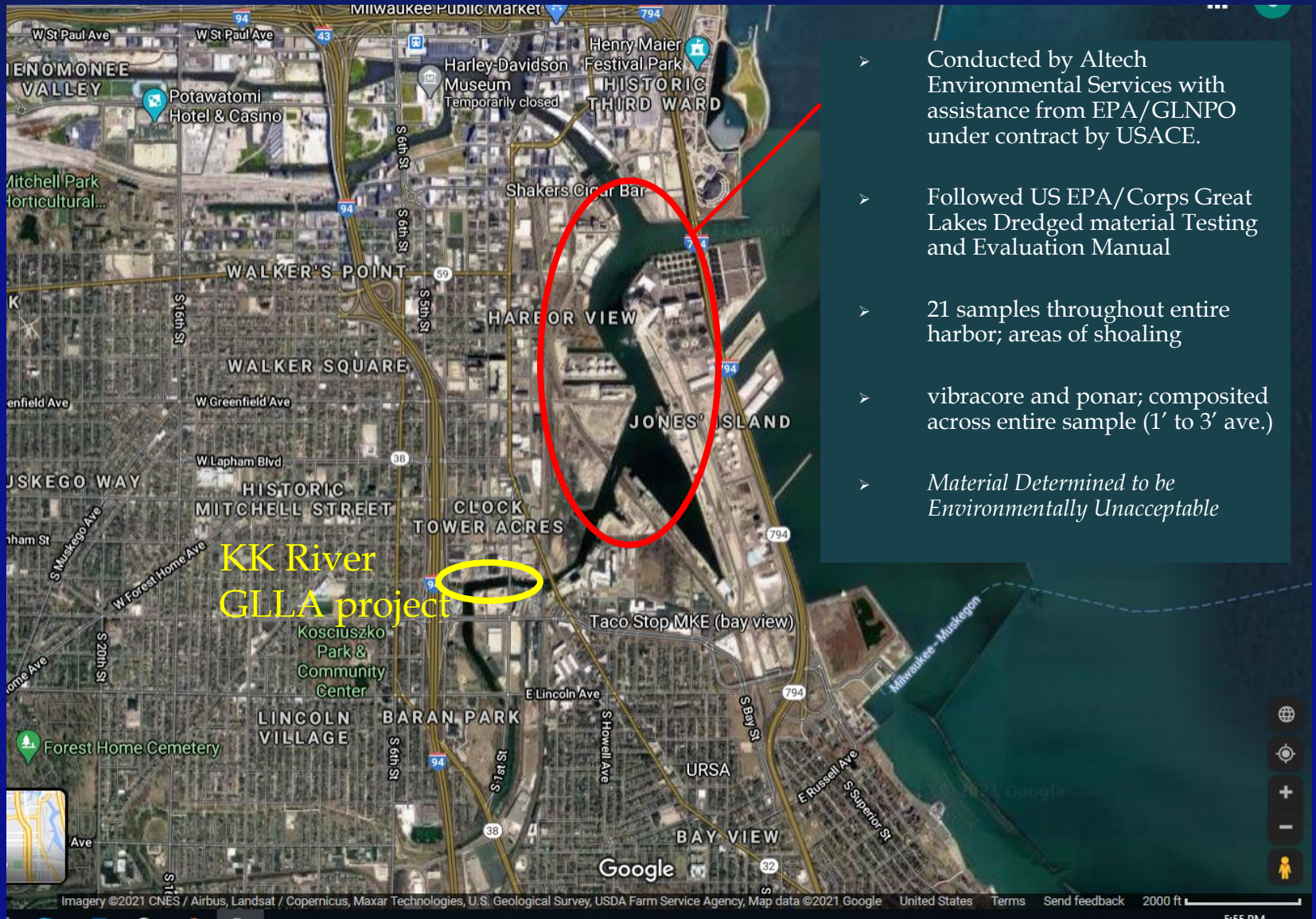
- In 2004, identified that existing CDF will reach capacity by 2009 assuming allowance of 176,000 yards contaminated material from EPA/DNR dredge project on KK River. (Otherwise, capacity by 2011)

2008 Dredged Material Management Plan (Phase II*)

- *PURPOSE:* **"Seek a disposal solution that is the least costly, engineeringly, economically, and environmentally feasible project"**
  - Present Results of Studies to Date
  - Provide Economic Assessment to Justify Continued Maintenance Dredging
  - Discuss Potential Options That Appear Viable for Disposal of Dredged Material
  - Select a Base Plan for Milwaukee Harbor Dredged Material Disposal

* *Sponsored by the Milwaukee Port Authority, developed by USACE.*

2002 Sediment Evaluation



- Conducted by Altech Environmental Services with assistance from EPA/GLNPO under contract by USACE.
- Followed US EPA/Corps Great Lakes Dredged material Testing and Evaluation Manual
- 21 samples throughout entire harbor; areas of shoaling
- vibracore and ponar; composited across entire sample (1′ to 3′ ave.)
- *Material Determined to be Environmentally Unacceptable*

2002 Sampling Results

- The "Heavy Hitters" (ppm)

	ave.	range
Cr	82	(22 – 450)
Zn	324	(22 – 530)
Pb	98	(12 – 170)
Cd	2.1	(.46 – 9.5)

- High-Molec. Weight PAH's
- Hits of Aroclor 1242 (.3 ppm)

Grain Size Distribution: average of 81% fines (#200 sieve; .074mm)

Alternative Options Array

ALTERNATIVE	PLACEMENT	CAPACITY (Cu.Yds)	CONSTRUCTION COST (20-year capacity)	RECOMMEND TO PHASE II
Construct DMDF on top of CDF	Upland	510,000	$2,865,313	YES
Construct DMDF adjacent to CDF	Upland	510,000	$12,307,140	NO
Open Water Disposal (8 miles out, 3' sand cap)	Open Water	510,000	$8,251,440	NO
Beach Nourishment	Beach/below OHWM	(Unlimited)	------	NO
No Action	N/A	N/A	------	NO

Some Detail$

DNR/EPA KK River remed. 'in-lieu' tipping fees:

$ 2,018,000

+

Milw. Port Authority

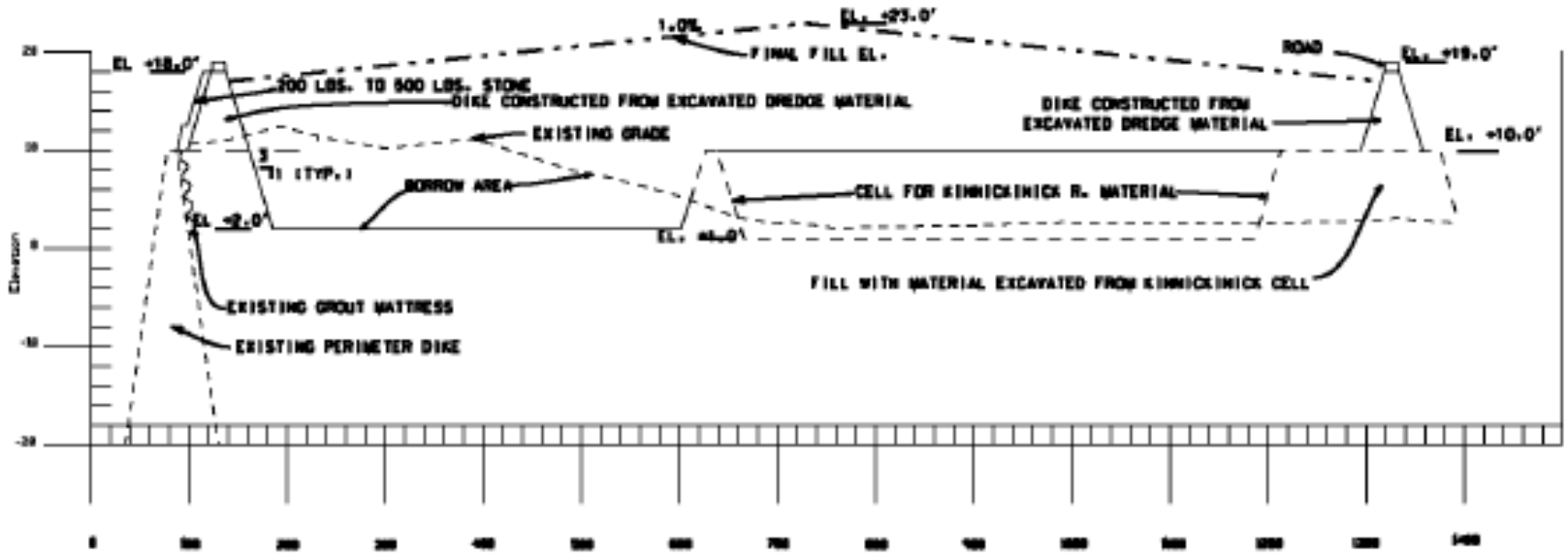
$ 1,500,000

(DOT HAP Grant)

→

$ 3, 500,000 includes E&D, construction, & oversight

Design Basics



- KK cell completed in 2008
- Final DMMF completed in 2011