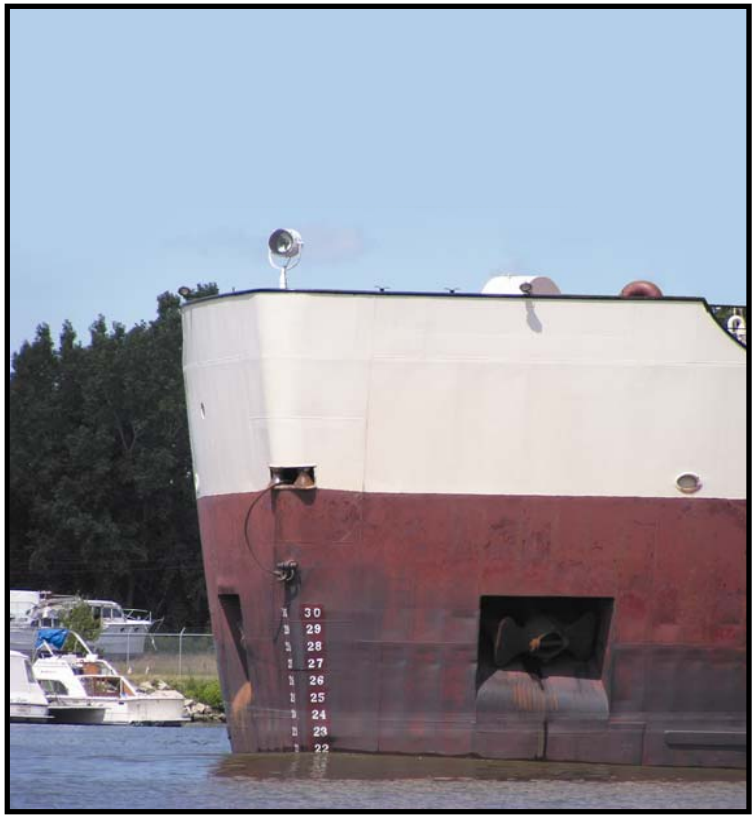
Great Lakes Navigation

Great Lakes Navigation

O&M Five Year Development Perspective

- ✓ Annual Dredging & Removal of the Dredging Backlog
- ✓ Confined Disposal Facilities
- ✓ Breakwaters

BG Bruce Berwick, Commander, Great Lakes and Ohio River Division, USACE presented this briefing to the Great Lakes Task Force (US Senate) on 18 June 2007 at the Dirksen Building, US Senate, Washington DC.



Light Loading

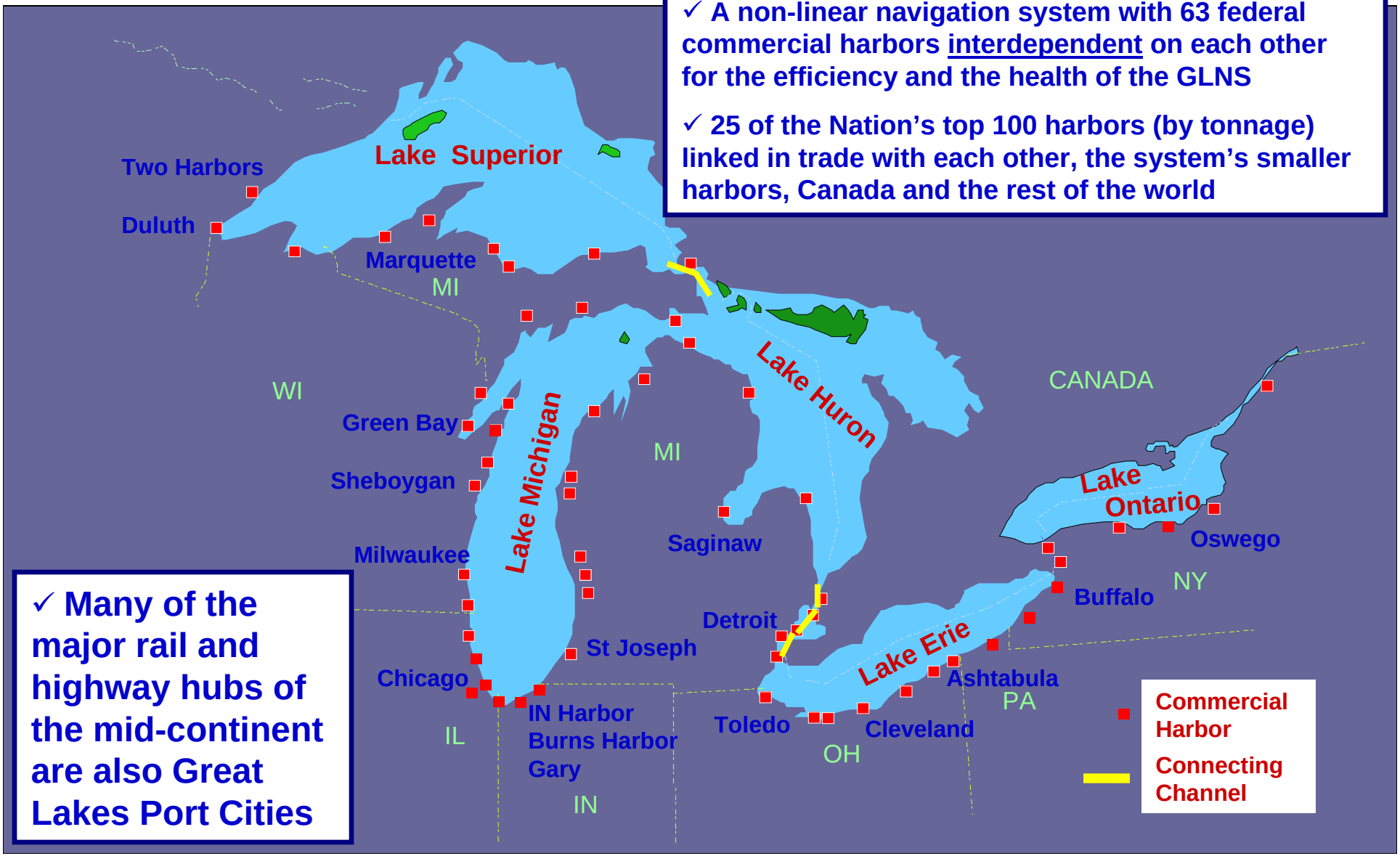
Great Lakes Navigation

Agenda

1. Current Situation – Great Lakes Navigation System
2. Dredging – Great Lakes System Needs
   - Annual Needs (FY09-FY13)
   - Backlog Removal (FY09-FY13)
3. Confined Disposal Facilities (CDFs) / Dredged Material Management Plans (DMMPs)
4. Breakwaters
   - Current Condition
   - O&M Plan
5. Great Lakes Navigation System O&M Needs

Great Lakes Navigation

Great Lakes Navigation System (GLNS)



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Current Situation

Great Lakes Navigation

1. O&M Maintenance on the Great Lakes is under-funded:

   - Large Dredging Backlog at Commercial Harbors
   - At current funding levels the backlog will continue to grow
   - Navigation Structure (Breakwaters) failures are beginning
   - System-wide regular reinvestment in breakwaters must begin
   - To maintain the ability to dredge we must begin construction of several CDFs and initiate several DMMPs

2. This plan does not address recreational harbors, a related but separate issue

Great Lakes Navigation

Vital to the Nation's Economy & Security

- ✓ **Annually 240 million tons are transported on the Great Lakes**
- ✓ **44,000 Jobs directly related to maritime transport (ports, shippers, longshoremen, etc.)**
- ✓ **138,000 Steel Industry Jobs dependent on the GLNS**
- ✓ **54,400 Mining Jobs dependent on the GLNS**

Iron Ore/Steel products (68.2 M tons)
Coal (41.4 M tons)
Petro. Products & Crude (45.9 M tons)
Aggregates (50.3 M tons)
Other Ores (8.9 M tons)
Grain (4.9 M tons)
Chemicals (4.0 M tons)
Other Commodities (12 M tons)

Drives

The Nation's Primary Steel Production

The Region's Electrical Power

Regional Manufacturing

Construction

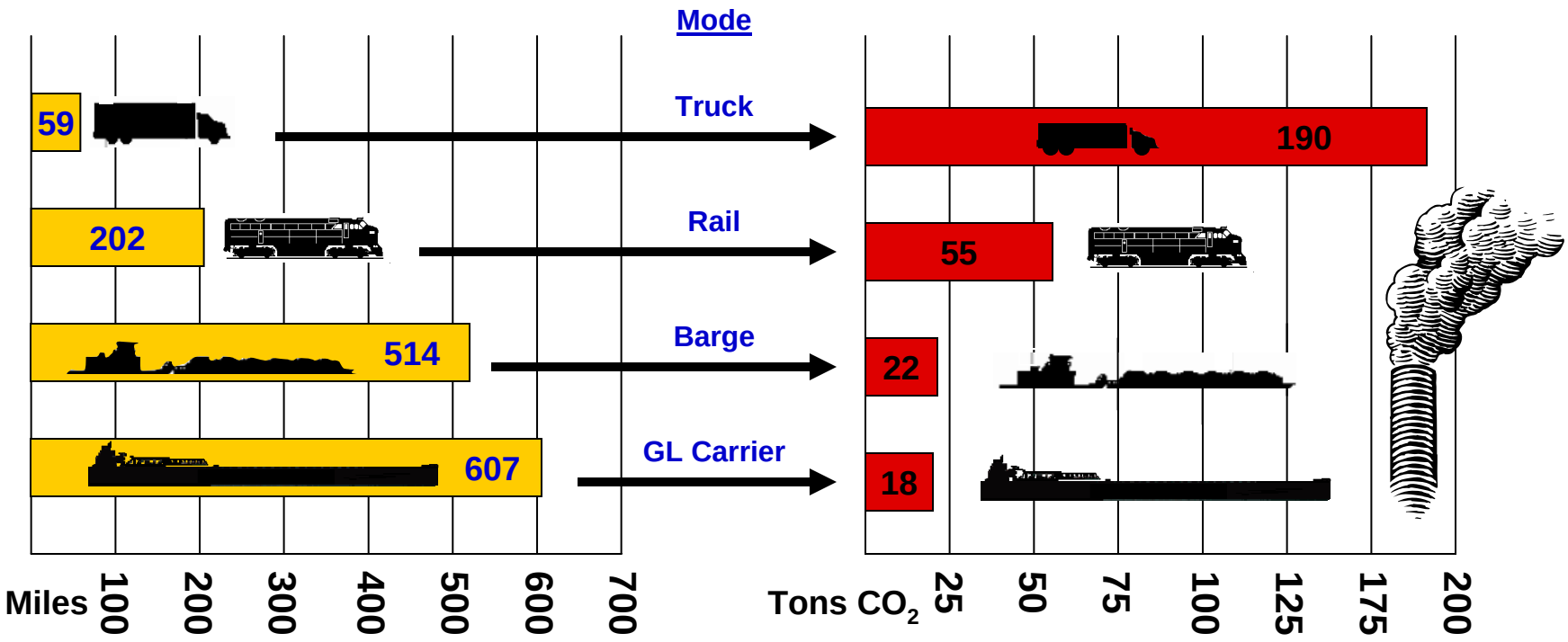
Farming

Coal and Ore Mining

Great Lakes Navigation

Fuel Efficiency & Environmental Impact

Great Lakes Navigation



1. Source: USDOT Maritime Administration and Minnesota Department of Transportation
2. Assumes US DOE Fuel and Energy Emission Coefficient of 22.38 lbs of CO_2 per gallon (No.1,2,4 Fuel Oils and Diesel)

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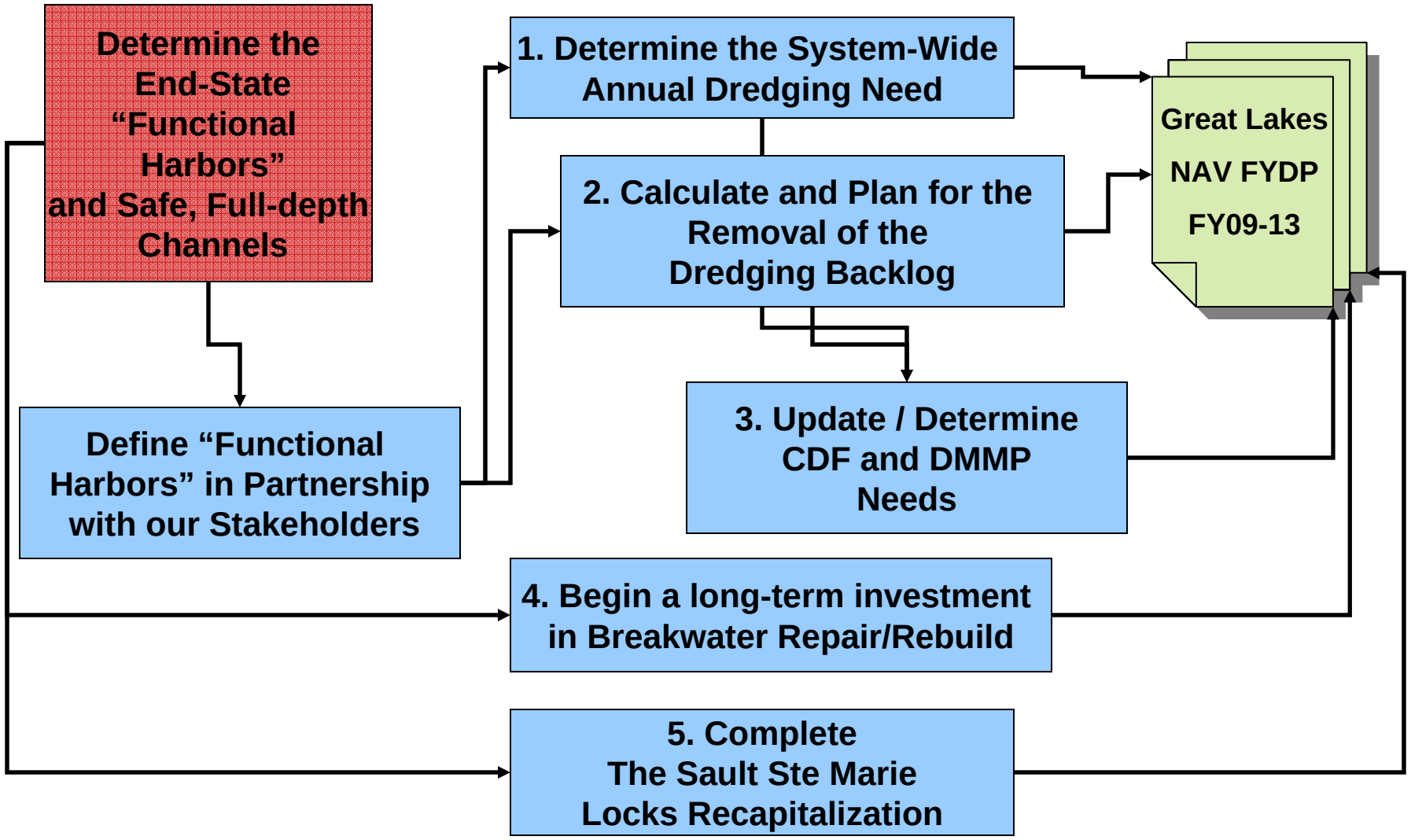
Great Lakes Navigation
The FY09 FYDP Update



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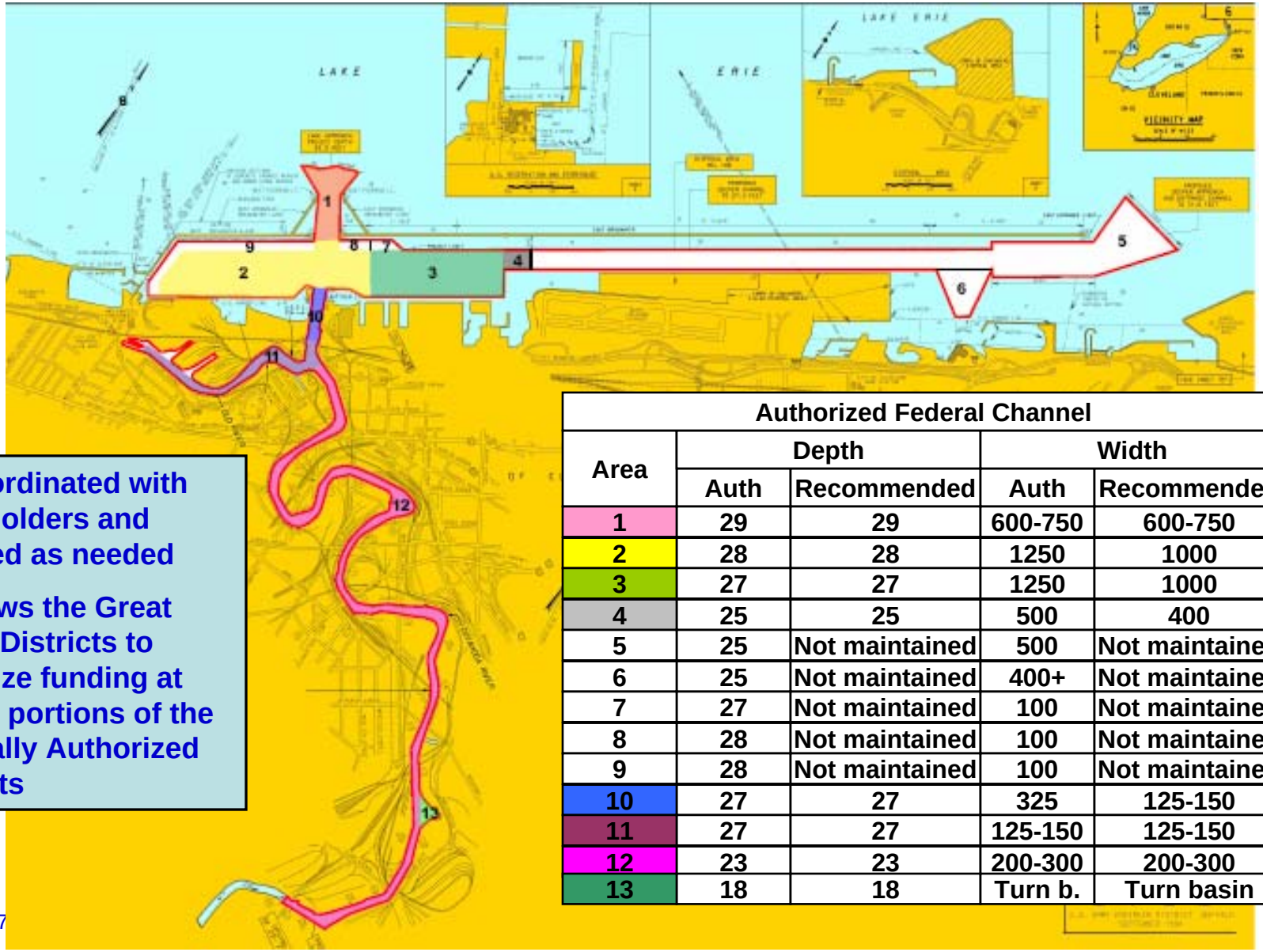
Functional Harbor Example
Cleveland



- ✓ Coordinated with stakeholders and updated as needed
- ✓ Allows the Great Lakes Districts to prioritize funding at active portions of the Federally Authorized Projects

Authorized Federal Channel				
Area	Depth		Width	
	Auth	Recommended	Auth	Recommended
1	29	29	600-750	600-750
2	28	28	1250	1000
3	27	27	1250	1000
4	25	25	500	400
5	25	Not maintained	500	Not maintained
6	25	Not maintained	400+	Not maintained
7	27	Not maintained	100	Not maintained
8	28	Not maintained	100	Not maintained
9	28	Not maintained	100	Not maintained
10	27	27	325	125-150
11	27	27	125-150	125-150
12	23	23	200-300	200-300
13	18	18	Turn b.	Turn basin

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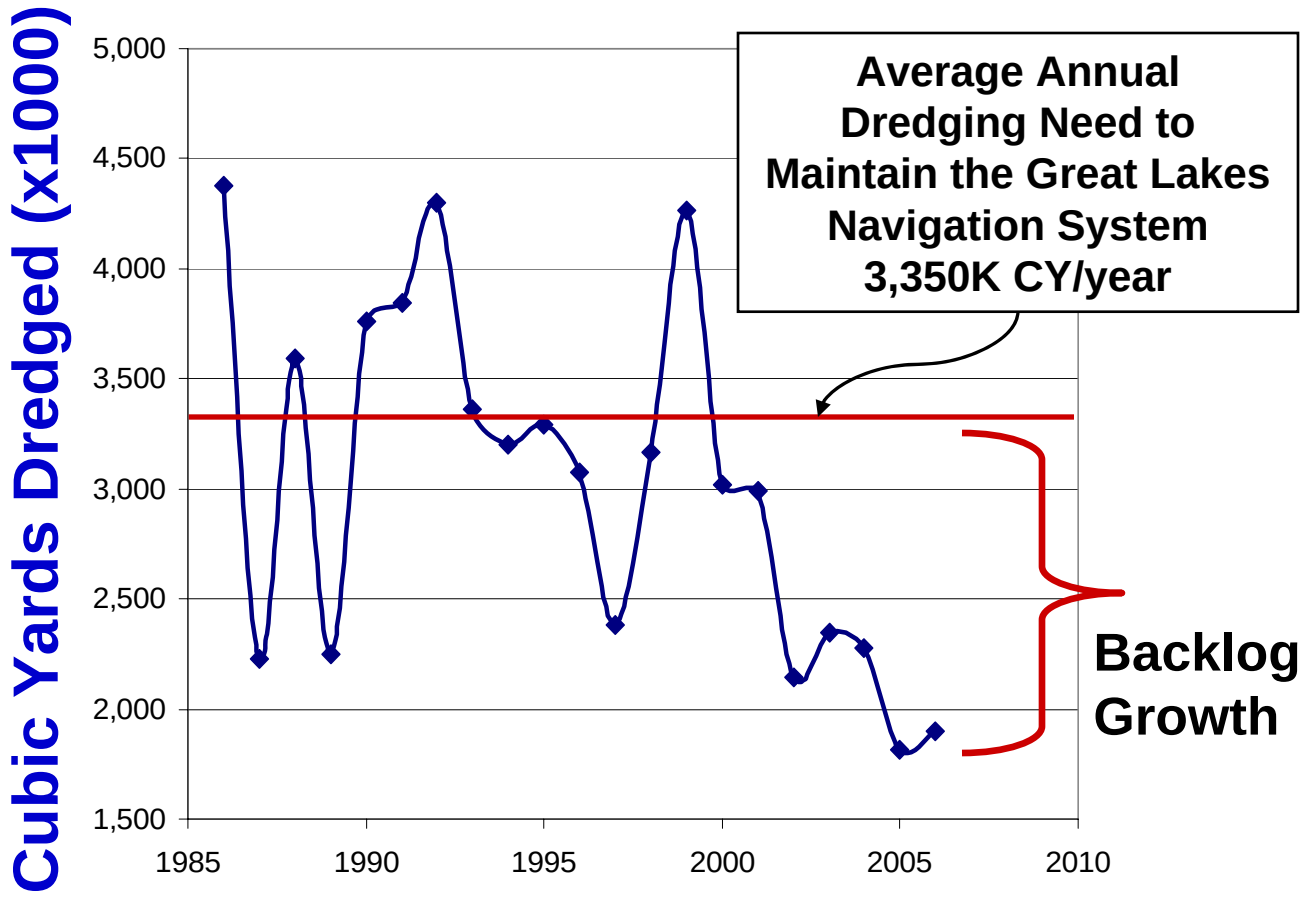
Great Lakes Dredging

Annual Great Lakes Dredging 1986-2006



Great Lake	Annually Required (x1000)
Superior	250 CY
Michigan	900 CY
Huron	235 CY
Erie	1,650 CY
Ontario	45 CY
Connecting Channels	270 CY
Total	3,350 CY

Funding
System wide average $12 per cubic yard Annual Need: $40,200K

- ✓ Based on a multi-year running average. Not all harbors are dredged annually
- ✓ $12 per yard cost estimate is in FY09 dollars

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Backlog Removal Dredging

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Backlog Dredging Needed to Remove the Backlog from FY09 to FY13 (in addition to the annual dredging need)

Fiscal Year	Backlog need (x1000)	Required Funding (x1000)	Required Funding
FY 2009	4,320 CY	$51,840	System wide average $12 (FY09) per cubic yard (adjusted to future FY dollars) Note: The total is a sum of different FY adjusted dollar levels
FY 2010	3,457 CY	$42,355	
FY 2011	3,457 CY	$43,245	
FY 2012	3,457 CY	$44,153	
FY 2013	2,592 CY	$33,800	
Total	17,283 CY	$215,393	

Includes all Great Lakes commercial harbors and connecting channels

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Dredged Material Disposal Priorities

Great Lakes Navigation System DMMP & CDF needs through FY13

✓ Does not include regular O&M at active CDFs

Priority CDF Construction & DMMPs, (x1,000)

Harbor	FY09	FY10	FY11	FY12	FY13
Calumet Harbor Interim CDF	$271	$3,087	$2,608	-	-
Cleveland Harbor New CDF	$417	$532	$65,201	$66,570	$67,968
Milwaukee Harbor CDF	$3,570	$612	-	-	-
Green Bay Harbor DMMP/CDF Renard Island Closure	$192 $991	$2,927 $958	$7,335 $815	-	-
Ashtabula Harbor DMMP	$275	$288	$302		
Lorain Harbor DMMP Lorain Harbor New CDF	$220 $709	- $718	- $190	- $12,204	- $12,461
Indiana Harbor CDF	$19,528	-	-	-	-
System Totals	$26,173	$9,122	$76,541	$78,774	$80,429

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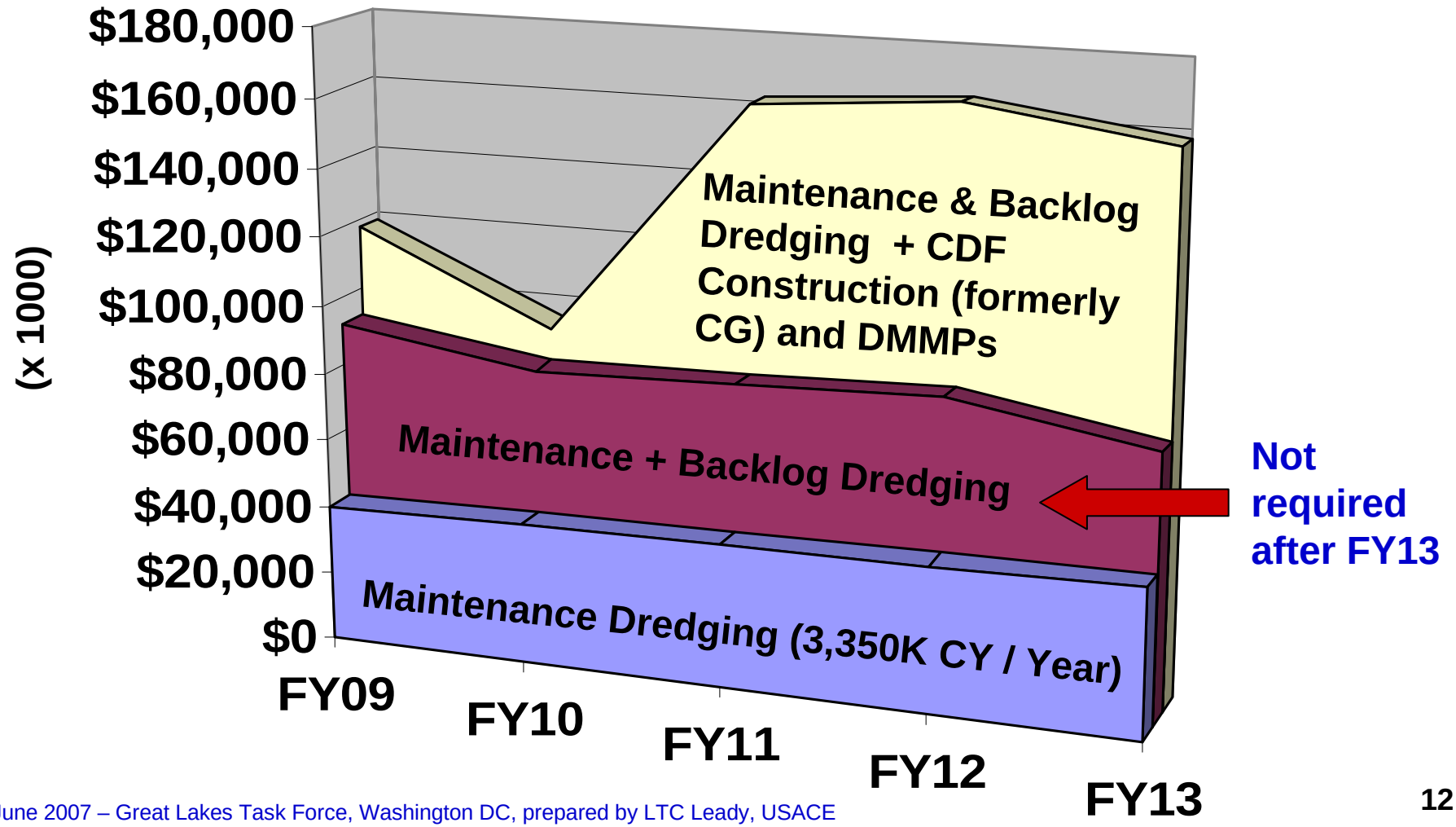
CDFs Funded with O&M

What could appear to be a significant increases in O&M funding will actually only account for CDF Construction, **formerly funded with CG funds**, now funded with O&M funds



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Breakwaters

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- 140+ miles of breakwaters on the Great Lakes
- Most built between 1860 and 1940
- Timber crib construction (typical)
- Low Lake water levels are accelerating deterioration

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Breakwaters

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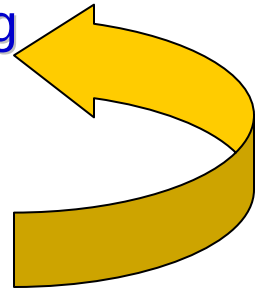
Funding needed to adequately maintain breakwaters system-wide

1. Aggressive Fund Preventative Maintenance

Preventative maintenance extends the life and investment of existing structures. Primarily but not exclusively executed with Corps' Floating Plant. Requires $7.5M per year

2. Fund Breakwater Rehabilitation – Rebuilding

Rebuilds and Rehabilitates structures (or significant sections of structures) that require significant work. Mainly executed by contracted work projects. To maintain the system in the long term $5.2M to $7.3M per year must be re-invested annually.



Significant Rehab / Rebuilding has been largely absent from our priorities for many years

Great Lakes Navigation System Needs (FY09-FY13)

FY	Annual Maint. Dredging (x1000)	Backlog Removal Dredging (x1000)	**DREDGING TOTAL (x1000)**	CDFs & DMMPs (x1000)	Breakwater Prev. Maint. & Rehab. (x1000)	Soo Locks ReCap (x1000)	Other Navigation O&M Costs (x1000)	**Total System O&M Need (x1000)**
FY09	$40,200	$51,840	**$92,040**	$26,172	$13,755	$10,986	$39,300	**$182,253**
FY10	$41,044	$42,355	**$83,399**	$9,123	$14,369	$13,629	$40,100	**$160,620**
FY11	$41,906	$43,245	**$85,151**	$76,452	$14,670	$12,737	$41,000	**$230,010**
FY12	$42,786	$44,153	**$86,939**	$78,774	$14,978	$15,155	$41,800	**$237,646**
FY13	$43,684	$33,800	**$77,484**	$80,428	$15,293	complete	$42,700	**$215,905**

- ✓ Restores the Great Lakes' Commercial Harbors to a functional condition by FY2013 (removes the *Dredging Backlog*)
- ✓ Funds CDFs and DMMPs required to support the systems dredging
- ✓ Begins a long-term reinvestment into the system's breakwaters
- ✓ Maintains the Connecting Channels and the Locks

Great Lakes Navigation

Questions