Ohio River Corridor - Performance Measures

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12 July 2010

Ohio River Corridor Performance Measures

Corps Navigation Mission

Provide safe, reliable, efficient and environmentally sustainable waterborne transportation systems for the movement of commerce, national security needs, and recreation.

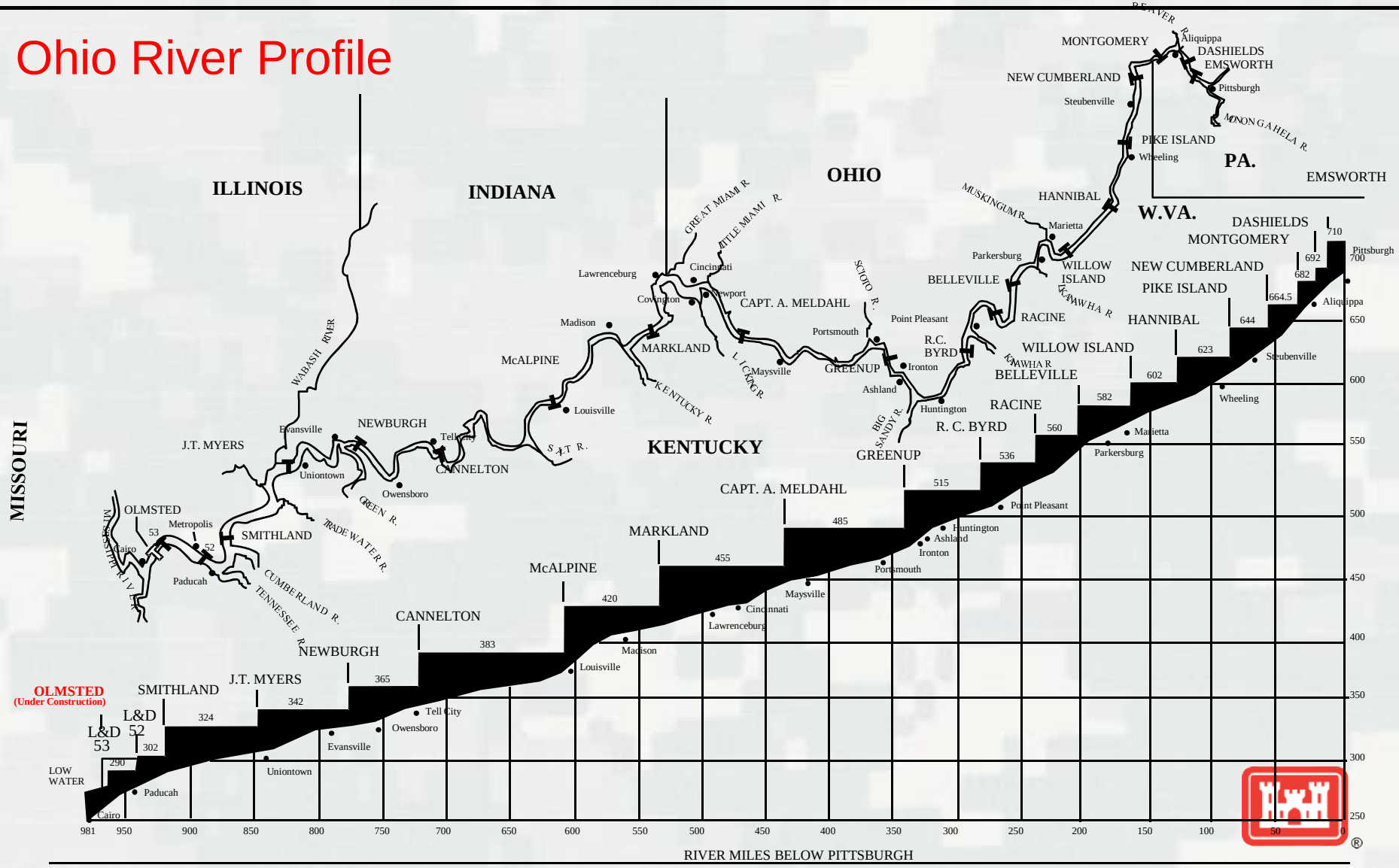
Ohio River Corridor Performance Measures

U.S. Inland Waterway System

- ***Nearly 12,000 Miles 9 ft & Over***
- ***198 Lock Sites / 242 Chambers***
- ***Moving Over 600 Million Tons***
- ***About 2/3rds Cost of Rail and 1/10 Cost of Truck***

Ohio River Corridor Performance Measures

Ohio River Profile

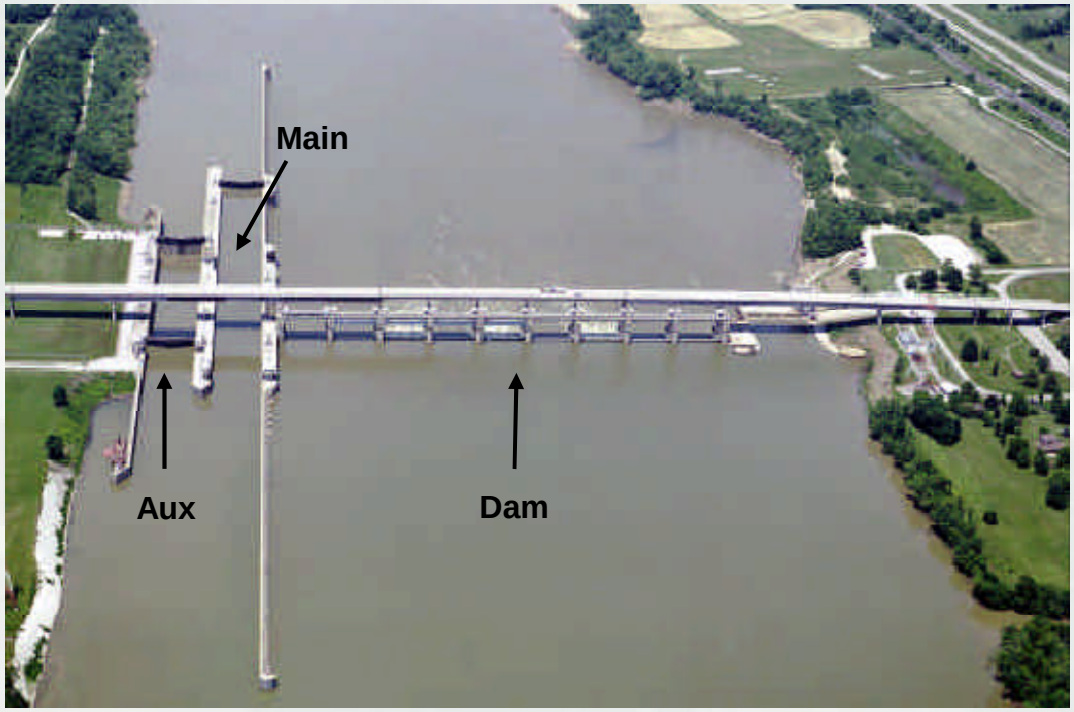


BUILDING STRONG®

Ohio River Corridor Performance Measures

Typical Ohio River Lock Chambers

Typical 15 Barge Tow



Chamber	Dimensions	Avg Age
Auxiliary	600'x110'	49 yrs
Main	1200'x110'	46 yrs

Ohio River Corridor Performance Measures

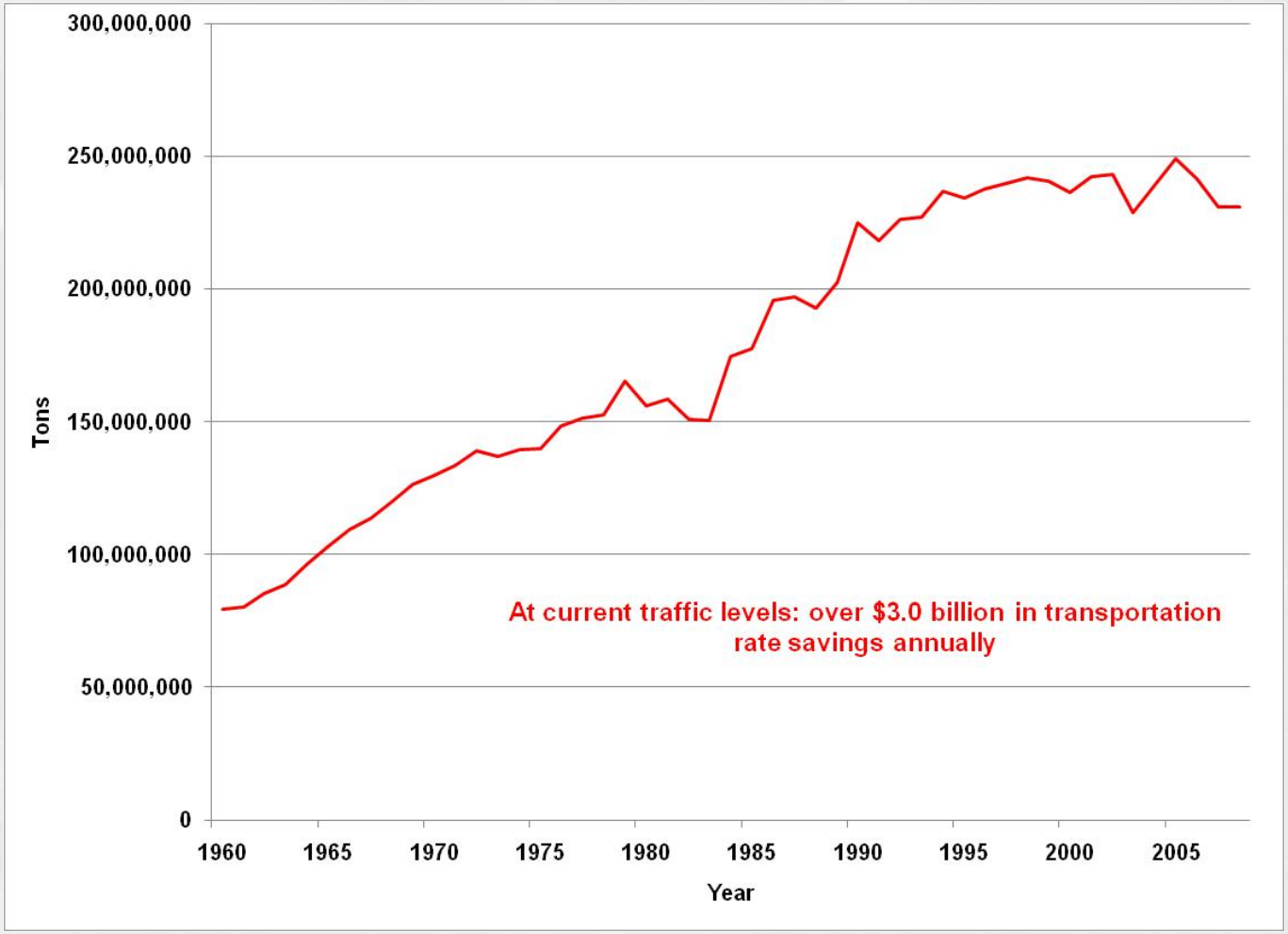
Lock and Dam Specs

	Lock Project	Mile Point	Lock Size		Age (Years)		2009	Auxiliary
			Main	Aux	Main	Aux	Tonnage	Capacity
1	Emsworth	6.2	600'x110'	360'x56'	89	89	15,686,750	12,600,000
2	Dashields	13.3	600'x110'	360'x56'	81	81	16,533,483	12,900,000
3	Montgomery	31.7	600'x110'	360'x56'	74	74	16,389,991	12,900,000
4	New Cumberland	54.4	1200'x110'	600'x110'	51	51	23,574,870	44,500,000
5	Pike Island	84.2	1200'x110'	600'x110'	45	45	27,181,948	47,900,000
6	Hannibal	126.4	1200'x110'	600'x110'	38	38	37,788,499	52,400,000
7	Willow Island	162.4	1200'x110'	600'x110'	38	38	37,192,300	54,200,000
8	Belleville	203.9	1200'x110'	600'x110'	42	42	39,934,762	56,300,000
9	Racine	237.5	1200'x110'	600'x110'	43	43	40,788,720	54,000,000
10	Byrd	279.2	1200'x110'	600'x110'	17	17	43,913,477	55,500,000
11	Greenup	341.0	1200'x110'	600'x110'	51	51	51,271,039	54,300,000
12	Meldahl	436.2	1200'x110'	600'x110'	48	48	49,502,417	55,500,000
13	Markland	531.5	1200'x110'	600'x110'	51	51	47,323,224	57,100,000
14	McAlpine	606.8	1200'x110'	1200'x110'	49	1	55,872,708	123,000,000
15	Cannelton	720.7	1200'x110'	600'x110'	39	39	56,792,867	59,000,000
16	Newburgh	776.1	1200'x110'	600'x110'	35	35	68,289,788	61,700,000
17	Myers	846.0	1200'x110'	600'x110'	35	35	63,280,721	63,600,000
18	Smithland	918.5	1200'x110'	1200'x110'	31	31	68,254,151	132,900,000
19	L/D 52	938.9	1200'x110'	600'x110'	41	82	79,762,180	**
20	L/D 53	962.6	1200'x110'	600'x110'	30	81	67,787,247	**

** No auxiliary capacity estimates due to navigable pass operations

Ohio River Corridor Performance Measures

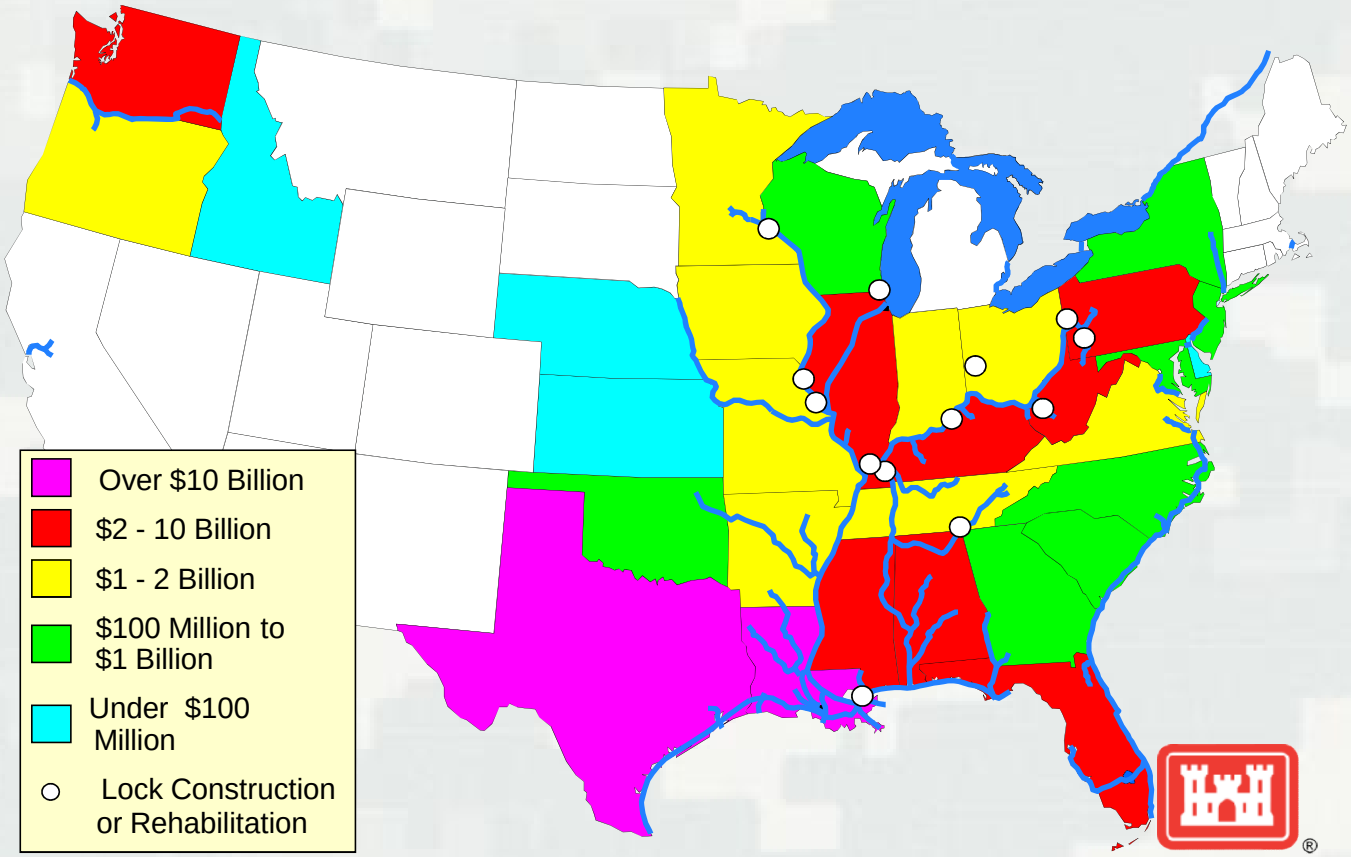
Ohio River – Historic Traffic (1960-2008)



Ohio River Corridor Performance Measures

- 231 million tons
- Valued at $46 billion
- Shipped from 17 states
- Average savings of $13/ton

2008 Ohio River Cargo Value

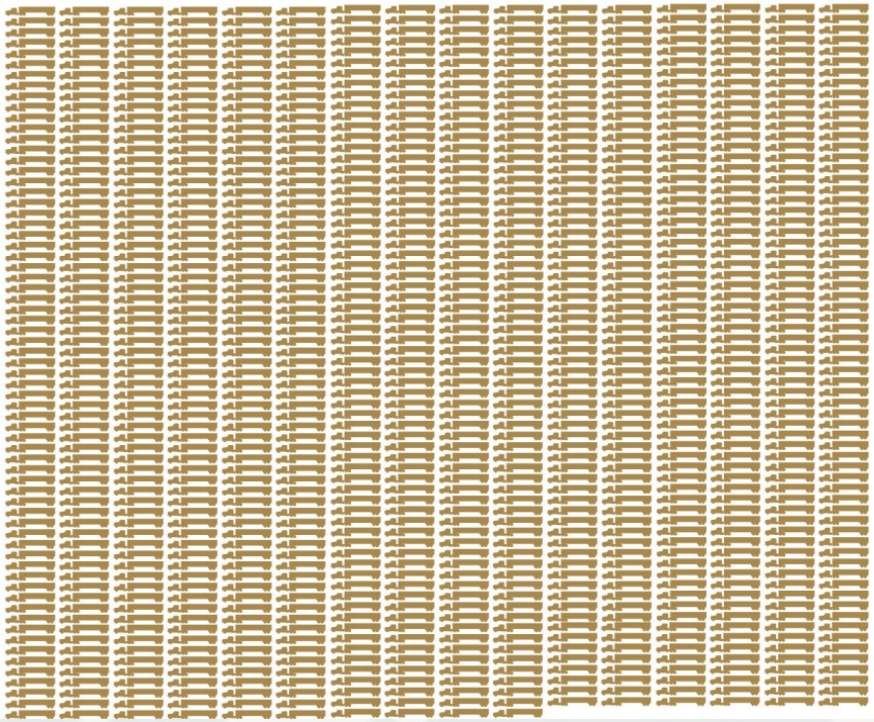


Ohio River Corridor Performance Measures

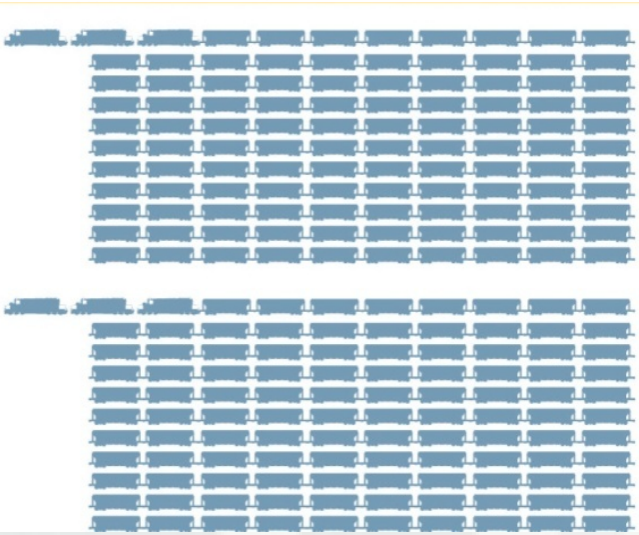
Barge Modal Efficiency

One 15-Barge Tow

1,050 Large Semi Tractor-Trailers



216 Rail Cars + 6 Locomotives



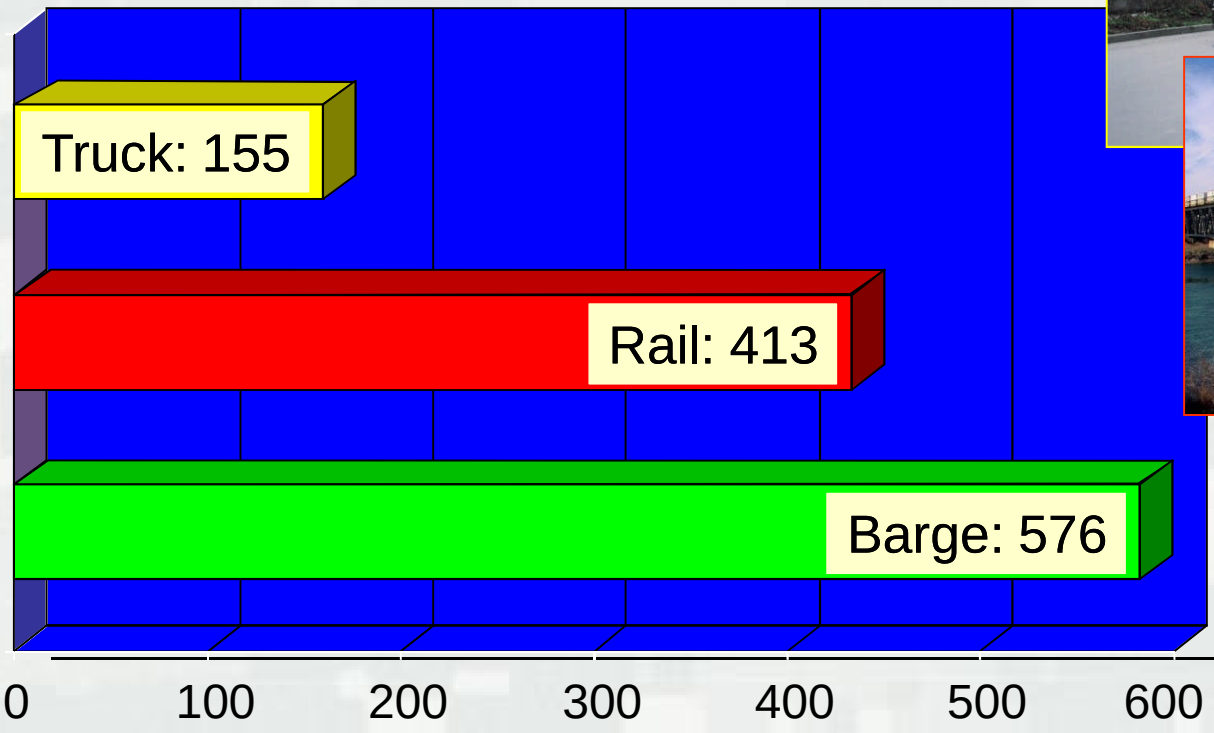
Source: TTI 2007

Ohio River Corridor Performance Measures

Water Transportation Conserves Fuel

Barge transportation is the most fuel efficient method of moving bulk commodities.

How far one gallon of fuel
moves one ton of freight, average by mode…



Source: Texas Transp Inst., 2007

Ohio River Corridor Performance Measures

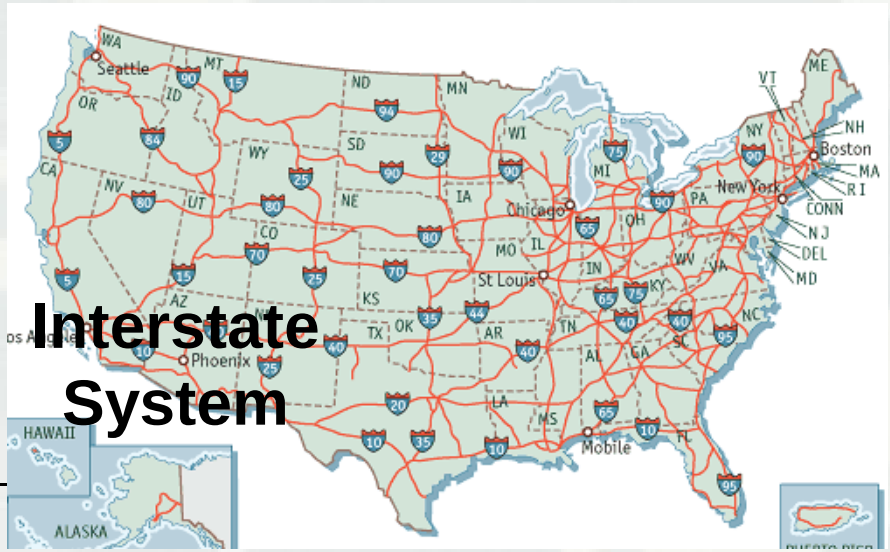
Safety and Emissions Benefits*

- Emissions
  - $95m in lives saved and work loss days avoided
- Safety
  - $365.5m in collisions avoided

* Emissions and collisions avoided from draft externality study

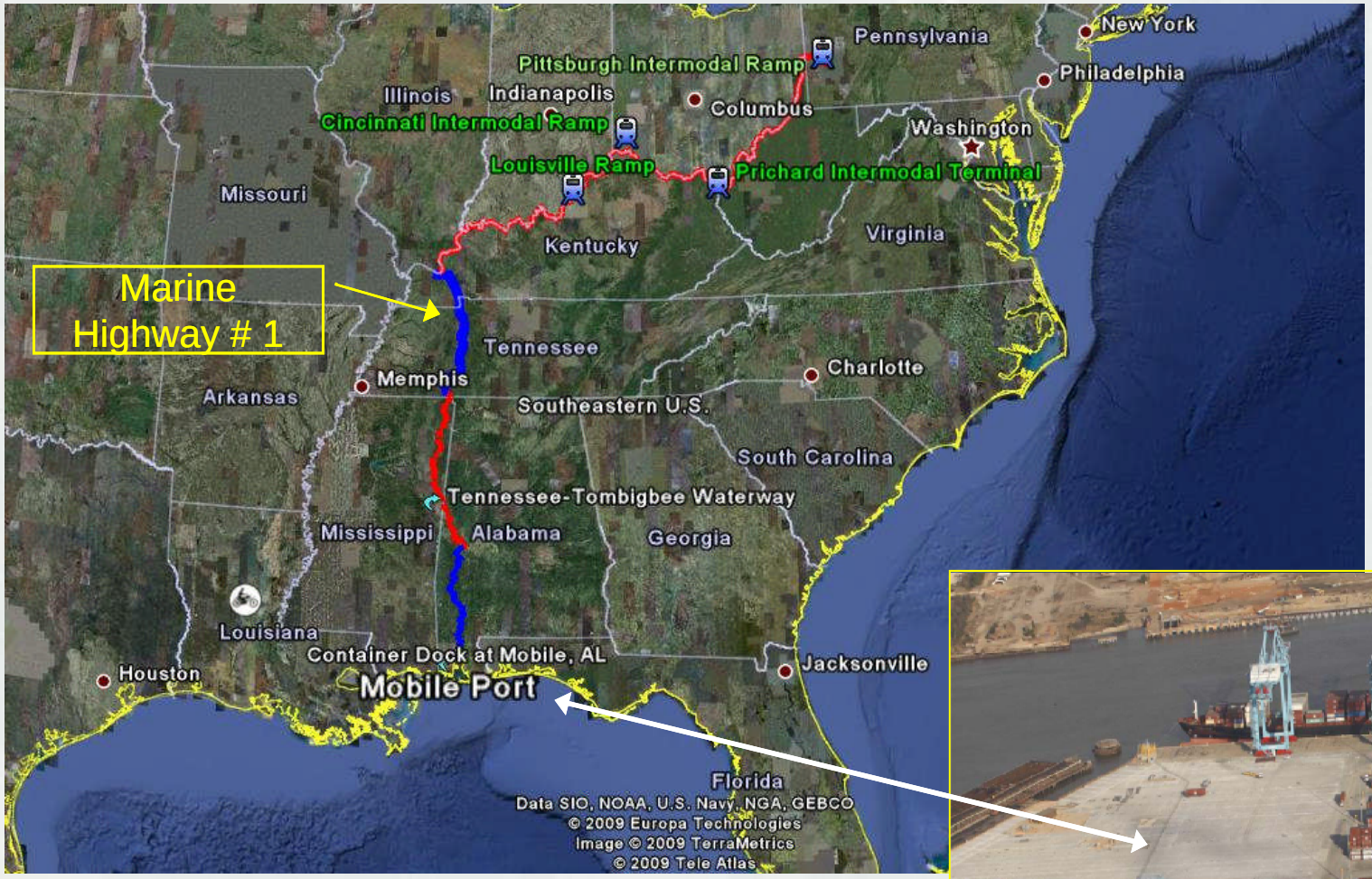
Ohio River Corridor Performance Measures

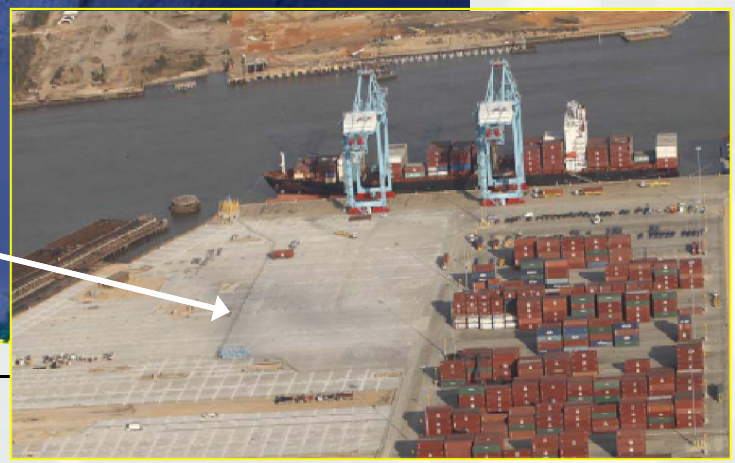
Can Ohio River Corridor help accommodate expected growth in container traffic?



Ohio River Corridor Performance Measures

Container Corridor to the Gulf ??





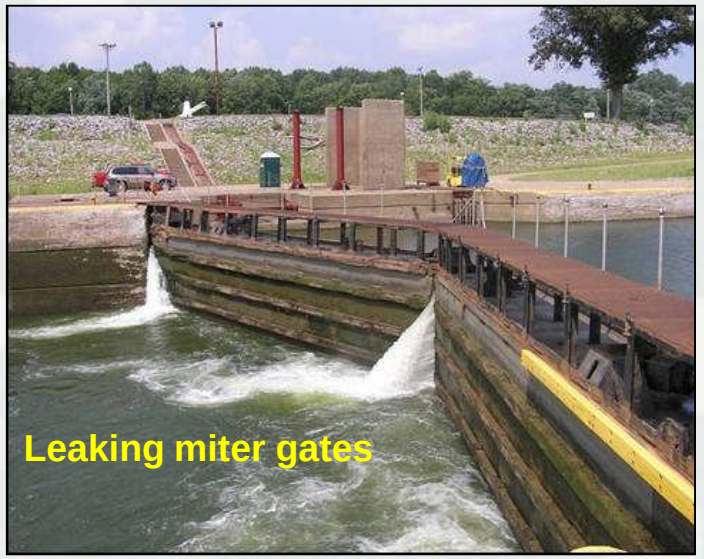
Ohio River Corridor Performance Measures

Ohio River Corridor Performance Measures

Maintenance Challenges

- Aging infrastructure
- Declining “real” budgets
- Year round use

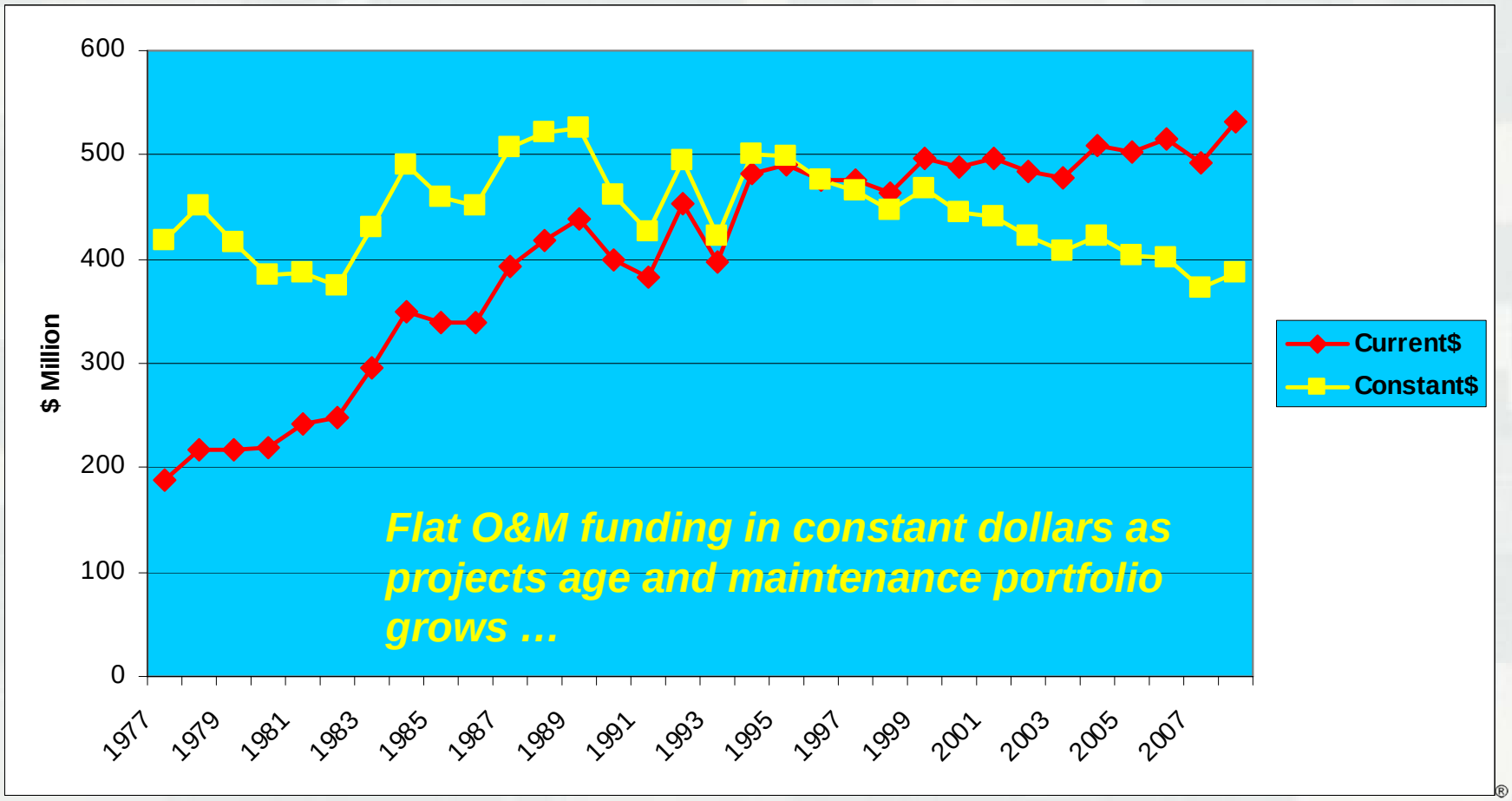

Periodic gate maintenance


Leaking miter gates


Crumbling lock wall

Ohio River Corridor Performance Measures

Challenge: O&M Funding*



* Fuel-Taxed Waterways Only ,1977-2008 Current $ and 1996 Constant $

Ohio River Corridor Performance Measures

Challenge: Maintaining System Reliability

Service disruptions cause significant impacts:

- traffic delays
- higher transportation costs
- lost production

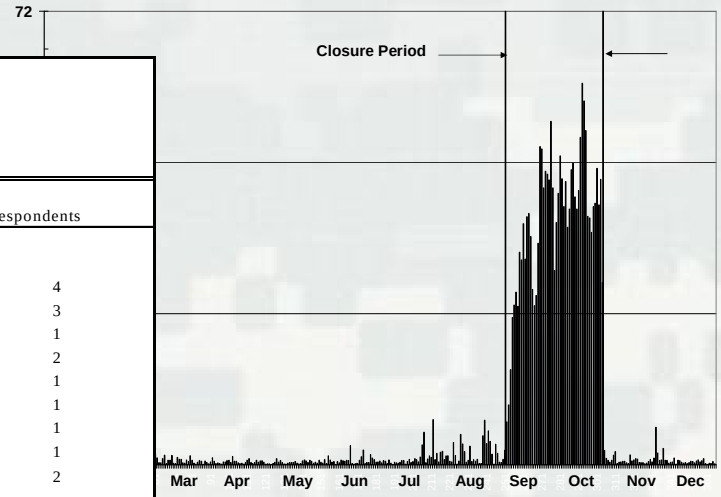
TABLE 7

Greenup Closure Costs to Industry

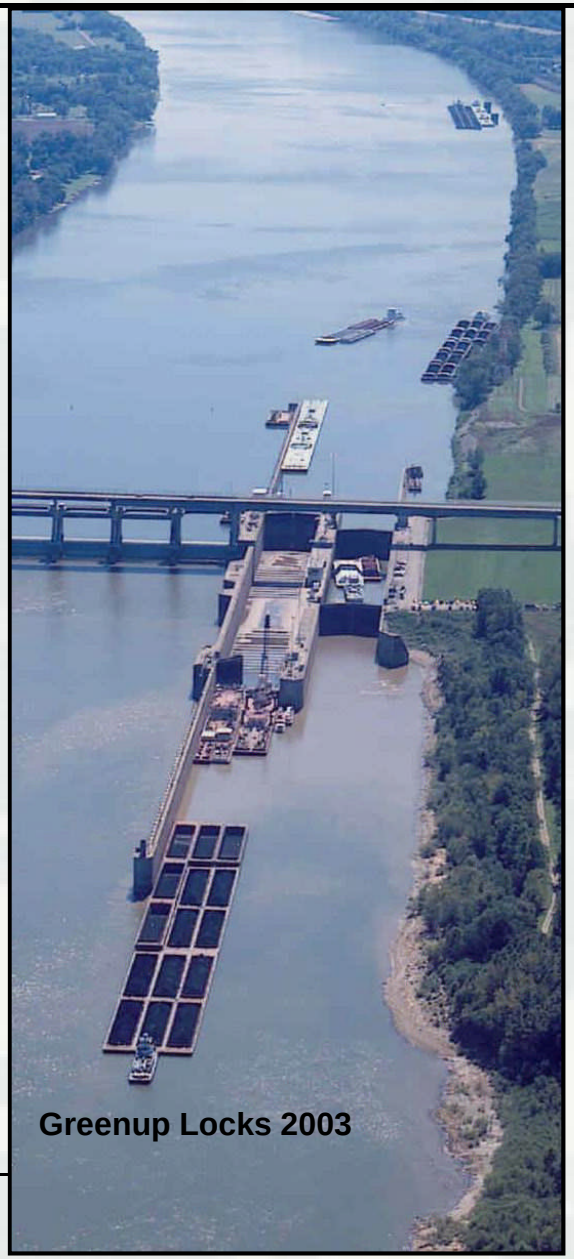
Type of Cost	Cost (Thousand $)	Respondents
Costs from Surveys:		
Modal Shift	8,600	4
Sourcing Shift	1,900	3
Stockpiling	25	1
Altered Production Processes	220	2
Shift in Production Location	36	1
Demurrage	10	1
Additional Equipment	2,500	1
Lost Sales	13,100	1
Other Costs	2,300	2
Computed Costs:		
Delay at Lock	13,200	-
Total	41,891	16

FIGURE 7

AVERAGE DAILY TOW DELAYS AT GREENUP IN 2003



Source: IWR NETS Event Study, Shipper & Carrier Response to the September – October 2003 Greenup Main Lock Closure, February 2005, U.S. Army Corps of Engineers, PCXIN



Greenup Locks 2003

Ohio River Corridor Performance Measures

Ohio River Lock Availability

	Lock Project	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	Emsworth	99%	98%	99%	95%	93%	97%	99%	91%	97%	96%
2	Dashields	98%	100%	95%	95%	94%	98%	99%	99%	98%	97%
3	Montgomery	97%	98%	95%	99%	94%	98%	92%	92%	97%	97%
4	New Cumberland	98%	95%	92%	99%	95%	91%	97%	99%	97%	98%
5	Pike Island	91%	98%	97%	96%	98%	96%	100%	96%	97%	100%
6	Hannibal	100%	94%	100%	94%	94%	94%	100%	92%	100%	97%
7	Willow Island	94%	98%	94%	99%	98%	99%	100%	97%	100%	100%
8	Belleville	100%	100%	100%	100%	92%	90%	97%	100%	98%	94%
9	Racine	100%	91%	96%	98%	83%	90%	88%	88%	90%	91%
10	Byrd	97%	99%	99%	99%	99%	99%	99%	100%	92%	100%
11	Greenup	99%	96%	98%	88%	90%	88%	87%	84%	64%	82%
12	Meldahl	94%	70%	78%	89%	89%	95%	91%	97%	98%	98%
13	Markland	99%	99%	99%	97%	99%	99%	100%	97%	100%	94%
14	McAlpine	99%	99%	99%	99%	98%	99%	99%	99%	98%	98%
15	Cannelton	99%	99%	97%	99%	99%	99%	87%	96%	85%	92%
16	Newburgh	100%	100%	92%	99%	100%	99%	93%	100%	100%	98%
17	Myers	98%	96%	95%	88%	96%	99%	100%	95%	96%	94%
18	Smithland	99%	99%	96%	98%	97%	97%	95%	97%	97%	97%
19	L/D 52	99%	99%	99%	100%	100%	99%	90%	94%	99%	97%
20	L/D 53	100%	100%	92%	96%	100%	100%	100%	100%	100%	100%

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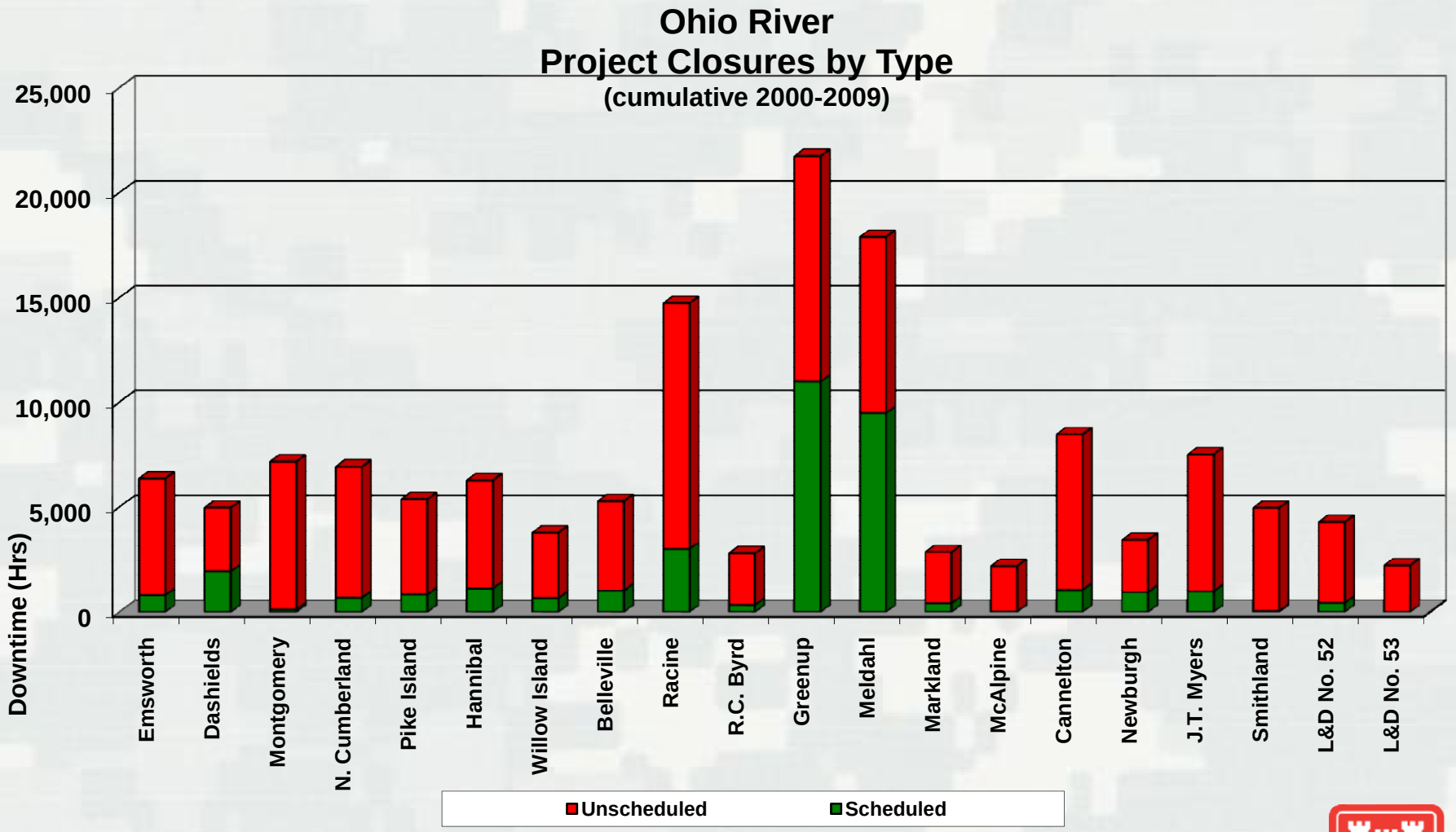

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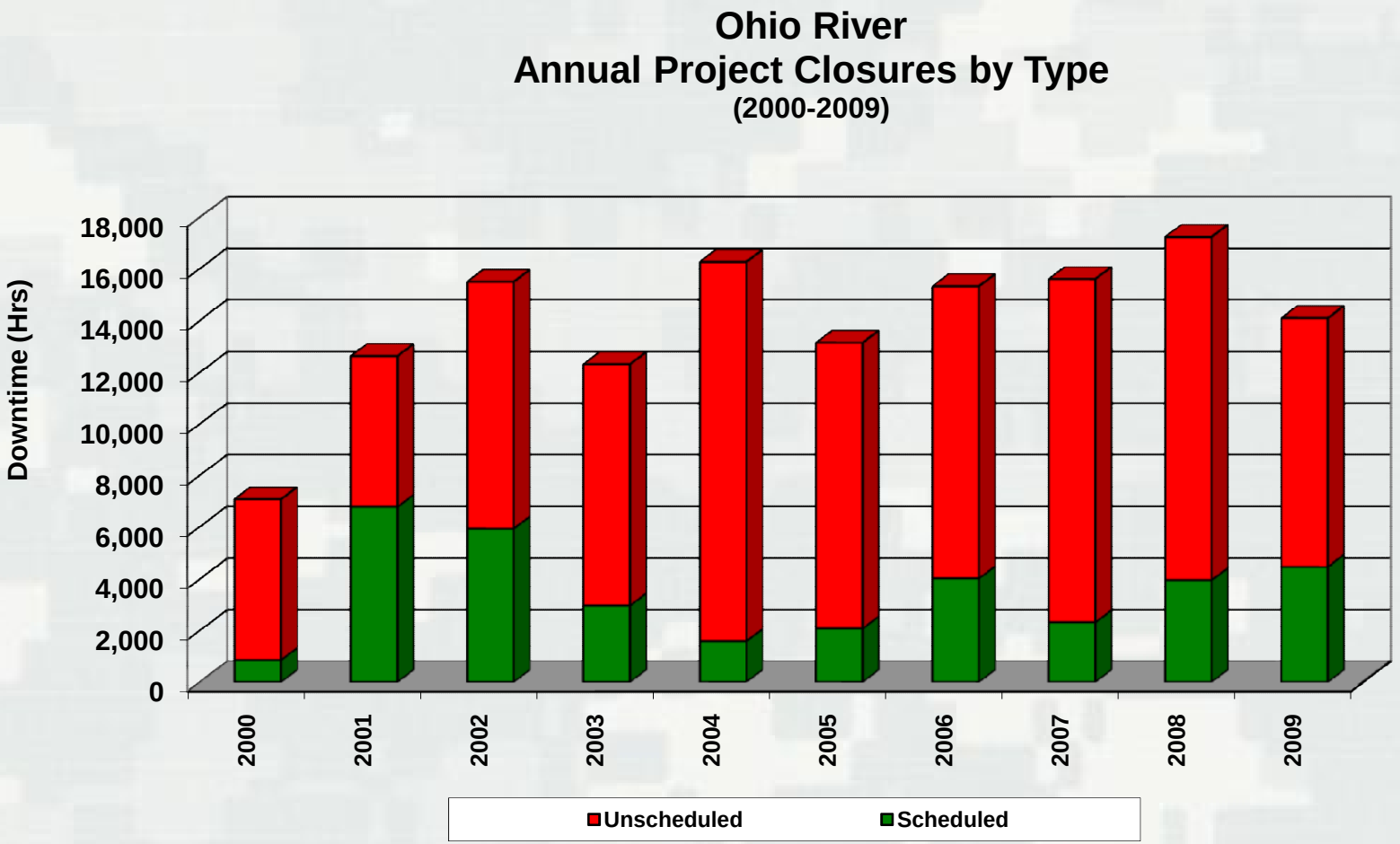

Scheduled closures average 3,500 hrs/yr

Unscheduled closures average 10,500 hrs/yr

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