Challenges and Opportunities Facing the Inland Waterway System

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Fixed Bridge

Today's Presentation

- Navigable Waterway Benefits
- Challenges
- Opportunities

Importance of the Waterway System: Diverse Benefits

Efficient, Economical Shipping

- **Navigation system carries a vast amount of cargo:**
  - 956.3 million tons (2008)
    - 588.5 million tons on the inland system (2008)
  - 8.6% of total inland tonnage (2002)
  - 11.0% of total inland ton miles (2002)
  - Annual value of the inland cargo is conservatively $124 billion
- **The inland system saves ~$7 billion per year in shipping costs**

Waterway Lowers Electric Rates

- Shipping costs are lower for coal, scrubber stone, and equipment
- We estimate the value for **U.S. power plant cooling water** at $20 billion per year
- The Corps of Engineers values **hydro power** generated west of the Mississippi River plus the Nashville District at $4 billion per year. TVA's hydro power might be worth $600 million or so. The Eastern power generation projects at USACE dams are non-federal and are rated at 1,000mw total.
- **Power plants** were designed for **servicing** from the water side
  - Large barge mounted cranes can be moved from reservoir to reservoir to lift equipment and clean trash racks

USACE

Crane and Equipment Barge

Other Waterway Benefits

- **Water supply and sewerage** assimilation is made possible at the lowest cost
- **Property** owners benefit. On the Fort Loudoun Reservoir, the navigation channel accounts for about 1/3 of total property value
- **Flood damages** avoided total about $10 billion per year

Other Waterway Benefits

(cont.)

- **Congestion and safety** impacts in Pittsburgh total $3-$50/ton depending on the projected traffic level
- **Recreational regional impacts** at Corps sites total $16 billion per year
  - In 2009 382,523 recreation vessels were processed in 147,679 lockages
- The inland system is used to **move large pieces of equipment** at the least cost

October 2005

Watts Bar Nuclear Plant Steam Generators

May 2005

Tennessee National Guard 196th

Loading at Raccoon Mountain

Benefits Me?
Cell Phones and Weather Reports

- Boeing uses the inland river system to transport common booster cores–used to launch telecommunications and weather satellites–from a Decatur, Alabama plant, near a supply of aluminum production and away from bad weather on the Florida coast—to the launch sites
- If you own a cell phone, have satellite television or you are looking for a weather report, you receive benefit from the waterway.

Stennis Space Center, Mississippi

Delta Mariner

(Partial*) Benefits From Ohio River Waterway System

- $3 billion in annual shipper savings
- Annually, 80,000 jobs and $17.4 billion of national output are dependent on the Ohio River System

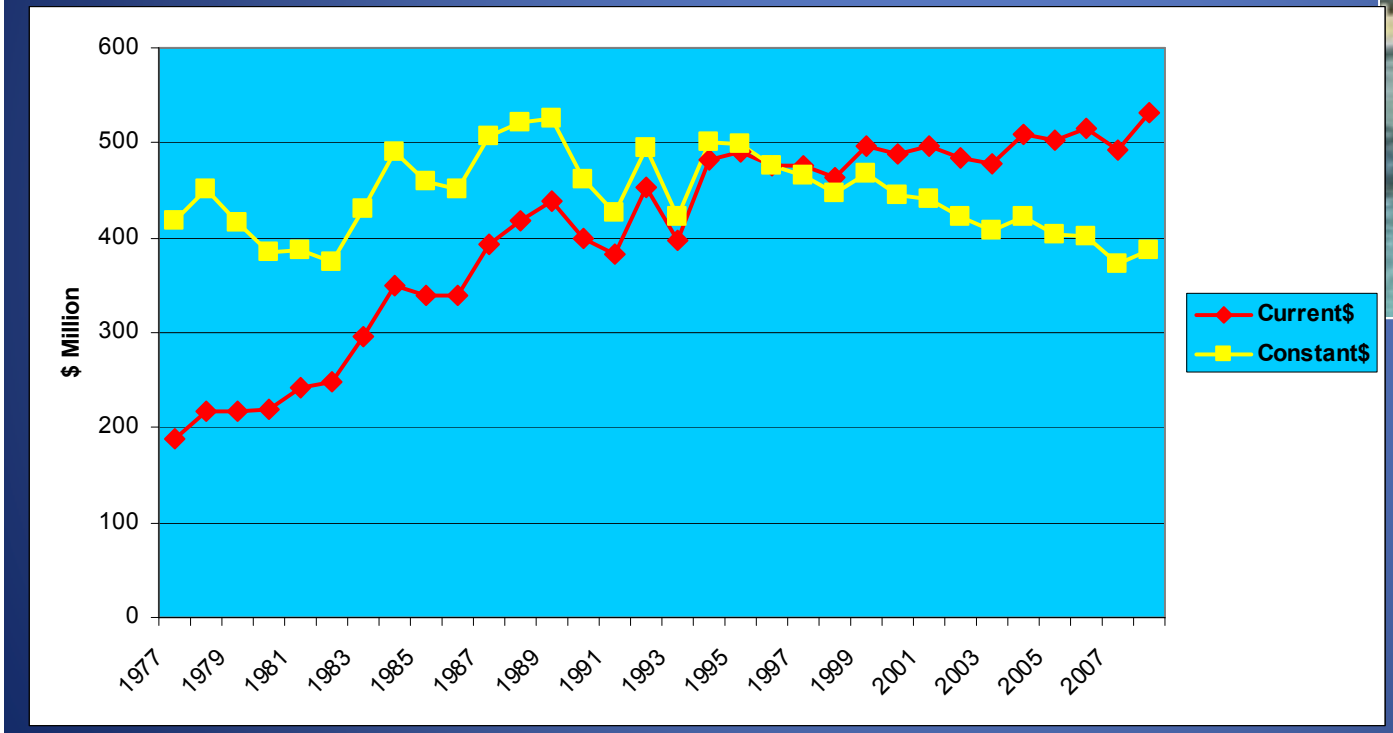
** Due, primarily, to shipper savings and electric rate effects*

Challenges

Challenge: Inland Waterway O&M Funding

1977-2008 Current $ and 1996 Constant $ *

Challenge: Flat O&M funding in constant dollars, even as project portfolio grows and ages…



Lock wall, Lower Mon 3

Lock wall deterioration, Chickamauga

* Fuel-Taxed Waterways Only

Aging Water Resources Infrastructure

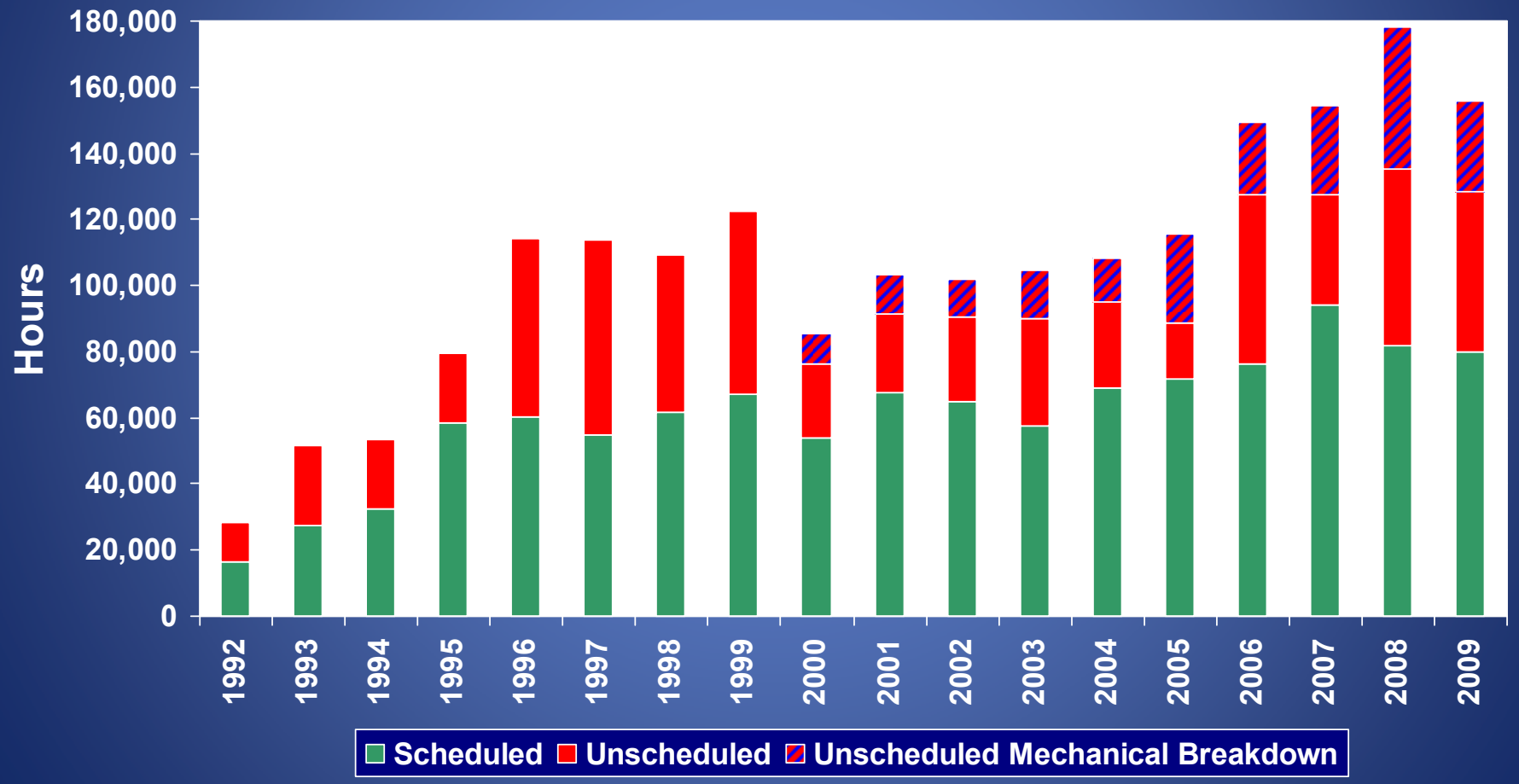
- Half of locks more than 50 years old
- Investments in water resources infrastructure have declined in real terms
- Result: more frequent closures for repairs, decreased performance and costly delays

Leaking miter gates, Lock & Dam 52, Ohio R.

Crumbling lock wall, Lower Mon 3, opened in 1907

Concrete deterioration at Chickamauga could result in lock failure

Aging Infrastructure + O&M Backlog = Increasing "Downtime" at Locks



Reliability Challenges: Markland and Greenup Gate Failures

Sep 27, 2009: “Catastrophic” gate failure downstream end of 1200’ main chamber at Markland. One leaf collapses into river. Chamber closed until end Feb 2010. Delays exceeded 14 hours per tow by late October.

Markland main chamber downstream gate leaf has collapsed into river.

Greenup main chamber downstream gate drops 1.2 feet when anchorage fails.

Jan 27, 2010: Anchorage failure of Greenup main chamber down-stream gate. Tow stuck in chamber for 3 days and chamber was closed for nearly a month.

Small Budgeted O&M Cost

- Presidents budget in 2011 sets inland navigation + MR&T O&M at $578 million.
- Number of households = 114.8 million
- **O&M cost per household = $5.12**
  - Congressman Duncan mentioned in the Subcommittee hearing that people do not realize the benefit they receive from the inland system

Funds for System Expansion Are Inadequate

- 20 cent per gallon tax levied on fuel consumed on fuel tax waterways has become inadequate.
  - System continues to age (deterioration is nonlinear)
  - Domestic traffic down 25% from 1997
  - Backhauls are up (40% now/30% ten years ago)
  - Wider use of fuel efficient towboats
  - Computer assisted fuel efficient throttle settings
  - Deeper drafts (11 feet six inches) are more common (about 50% of the hopper fleet)
  - Barge placement is done with more care

Olmsted Lock and Dam

- There is the issue of how the money is being spent—the cost at Olmsted continues to increase: $2.1 billion now and possibly rising.
- Other projects continue to age and will possibly fail before Olmsted is completed.

Chickamauga Lock

- Chickamauga lock (based on the information available to me before retirement) could reasonably be expected to fail before construction is completed in, maybe, 2025 or thereabouts.
- How will the river above Chattanooga be operated when the upstream land owners figure out that an 11 foot “navigation channel” is no longer needed for navigation?

Proposal to Increase Funding

- Administration
  - First tier—Raise the tax on all commercial users
  - Second tier—Tax commercial users at the locks
- Capital development plan/Waterway industry
  - Increase the fuel tax
  - Require Corps reforms
  - Spread the cost over all waterway users

Opportunities

Opportunities

- The inland system needs to continue to do what it does best—move bulk commodities at a relatively low cost.
- As diesel fuel prices continue to rise, barge transportation is certainly the most fuel efficient mode
- The river system has available capacity as compared to overland modes
- A more reliable system would draw shippers to the river
- Interviews in Chicago suggest that refuse and excavated construction material could become large clients to the industry

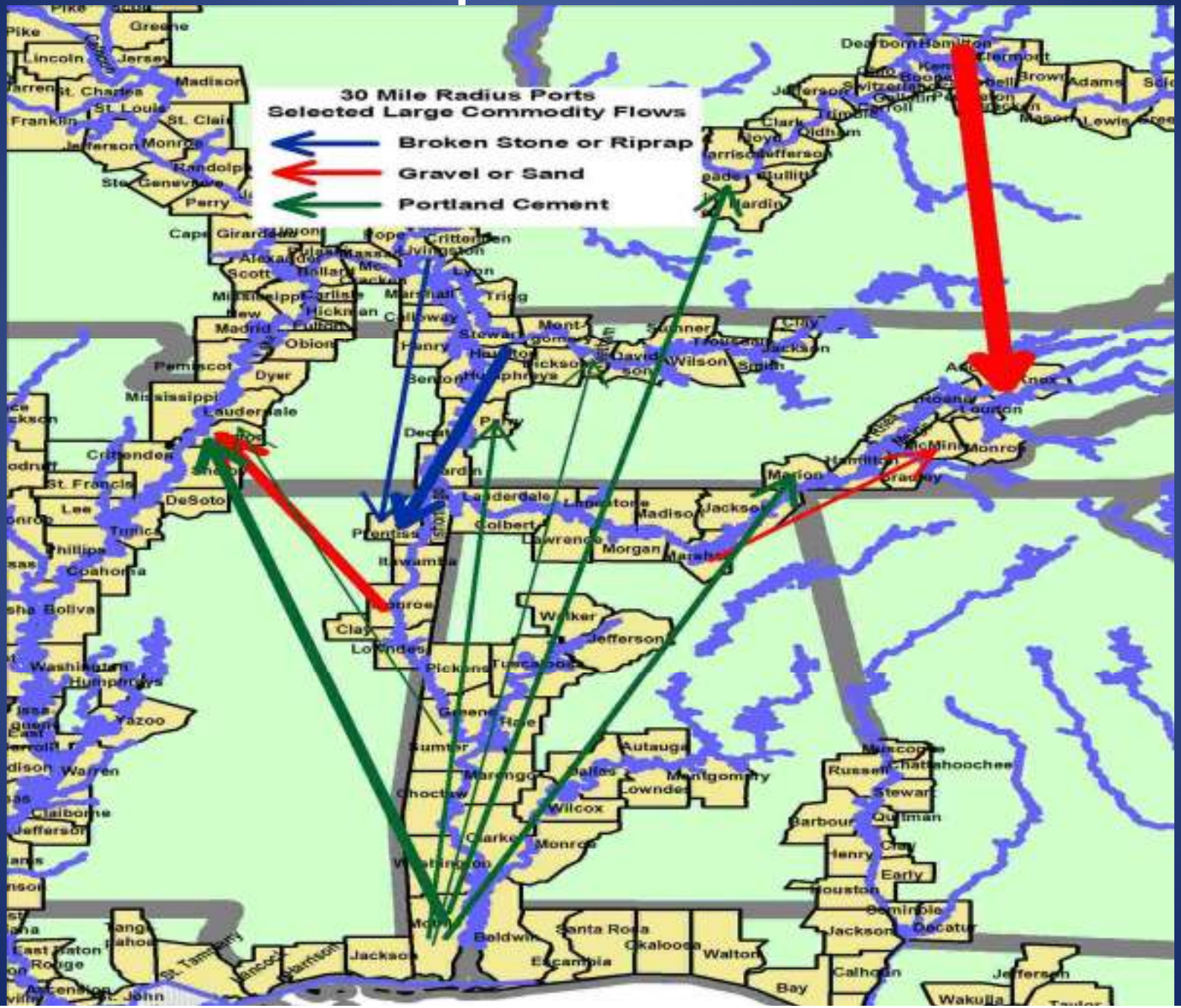
Opportunities (Cont.)

- Some people feel that the expanded Panama Canal will increase barge traffic on the inland river system.
  - A certain level of diversion could happen if container terminals are constructed at both ends of the movement (New Orleans and at destination)
  - railroad excess capacity deteriorates
  - A new towing vessel needs to be developed that would allow the stacking of containers 3 high, have a lower draft, and be piloted from the front of the vessel

Truck Tonnages between Two Interconnected Navigable Waterway Counties

STCC4 Commodity	Movements. >150,000 Tons	
	Total Tons	Est. Total O-D Miles (1-way)
Broken Stone Or Riprap	14,090,524	19,516,326
Warehouse & Distribution	6,132,506	56,633,441
Rail Intermodal Drayage from Ramp	4,669,070	5,345,076
Rail Intermodal Drayage to Ramp	4,007,441	6,130,846
Gravel Or Sand	2,053,373	5,206,841
Metallic Ores	1,392,897	34,279,100
Air Freight Drayage from Airport	1,062,976	851,658
Air Freight Drayage to Airport	831,033	665,825
Ready-mix Concrete, Wet	464,488	475,599
Grain	279,640	722,317
Portland Cement	263,537	5,403,614
Nonmetal Minerals, Processed	179,114	152,261
Clay Ceramic Or Refrac. Minerals	178,683	470,405
Misc. Field Crops	175,334	3,627,385
Primary Iron Or Steel Products	161,030	2,475,146

Sample Movements



Modal Choice Policy Possibility

- Make modal choice a contract criteria in government shipment
  - Reduce negative externalities—highway congestion, crashes, air pollution
  - Possibly reduce the cost of State DOT highway maintenance