Upper Mississippi River Basin Association
Commercial Navigation Summit

July 9-10, 2014
Sheraton St. Louis City Center Hotel, St. Louis, Missouri

The Upper Mississippi River Basin Association (UMRBA) held a two-day summit focusing on four themes related to commercial navigation on the Upper Mississippi: infrastructure investment needs and opportunities, creating an intermodal transportation network, the potential for public-private partnerships (P3s), and strengthening the influence of ports and terminals. Based upon discussions at the summit, UMRBA Board members plan to continue working with various state agencies interested in waterway transportation to advance mutual priorities for enhancing the system's reliability and efficiency, in collaboration with the river's various stakeholders.

Ernie Perry of Mid-America Freight Coalition facilitated the two-day summit.

July 9, 2014 Overview

Objectives for the first day (July 9) were to a) facilitate dialogue among Upper Mississippi commercial navigation stakeholders about key issues and opportunities for action and b) provide the Upper Mississippi states with information needed to develop a comprehensive strategy for enhancing the river's commercial navigation system.

July 9 was attended by 97 individuals, including state and federal agency leadership, key industry representatives, and other river stakeholders. The attendance list is provided on pages 13-15 of this document.

Below is a summary of the presentations and major discussion points the four major themes:

Upper Mississippi Investment Needs and Opportunities: *The status of, and priorities for, investment on the Upper Mississippi's navigation system, including how the 2014 Water Resources Reform and Development Act will help advance those priorities*

- Four Revolutions and America's Response by Brig. Gen. Peter DeLuca — Brig. Gen. Peter DeLuca emphasized that America must leverage its extensive interior navigable waterway system in order to maintain and strengthen its economic advantage and geopolitical dominance. Infrastructure makes delivery of domestic stability, global stability, and security possible. The Mississippi River basin serves as the basis of America's economic and geopolitical power that is furthered by exterior ports, harbors, and sea approaches. Brig. Gen. DeLuca said America is facing four major revolutions, including explosive growth in agricultural and hydrocarbon production, the return of manufacturing, and accelerating impacts of climate change. However, America is not adapting to those revolutions and spending in water infrastructure has markedly decreased since the 1930s. Whereas per capita spending in Corps-facilitated infrastructure investments was about $70 per person in 1930 and $56 per person in 1960, we are now only spending $18 per person or less. America is now realizing the negative implications of insufficient investment, including a two-fold increase in scheduled lock outages. Brig. Gen. DeLuca asserted that America must be more serious about performance-based budgeting. USACE generates $15 billion in annual fees, amounting to more than $50 billion in annual direct national economic development (NED) benefits, but only receives an average of $5 billion to $6 billion in annual appropriations. Brig. Gen. DeLuca advised that America must

consider supplemental financing options, such as grant-making models, system-wide P3 options, and a modified Tennessee Valley Authority model for the entire inland waterway system.

- Commodities by Col. Mark Deschenes — Col. Mark Deschenes provided an overview of the Upper Mississippi waterway system geography and of commodities shipped on the river, to give a sense of its importance to the region's and nation's economies. There are 580 manufacturing facilities, terminals, grain elevators, and docks that ship and receive tonnage in the basin, with grains dominating traffic. Other major commodities include cement, coal, and petroleum products. While tonnage has experienced recent declines due to the recession, the tonnage and value of commodities transported remains significant to the nation.

- State of the Infrastructure by Col. Mark Deschenes — Col. Mark Deschenes provided a visual presentation of the Upper Mississippi's deteriorating lock infrastructure. Maintenance priority needs for the Mississippi Valley Division are more than $1 billion. Of this amount, needs on the Upper Mississippi total $873 million, with $714 million in the Rock Island District. The priorities include replacement of lift and miter gates, dam scour repair, and bulkhead slots. While the maintenance backlog has increased substantially over time, funding for maintenance has been stable and has not kept up with inflation. Costs continue to escalate as these needs remain unfunded.
  Col. Deschenes explained the Mississippi Valley Division's Asset Management Strategy for prioritizing maintenance performed based on impacts to condition and risk.

- Navigation and Ecosystem Sustainability Program by Col. Mark Deschenes — Col. Mark Deschenes discussed how the Navigation and Ecosystem Sustainability Program's (NESP's) 2007 authorization provides for efficiency improvements through mooring cells and switchboats and a second 1,200-foot lock chamber at seven of the most congested lock sites on the Upper Mississippi. The additional lock chamber meets standard lock sizes, providing quicker lockages, and would provide redundancy at those sites by eliminating single points of failure.

- Inland Waterways Users Board Priorities by Martin Hettel — Martin Hettel discussed the Inland Waterways Users Board's (IWUB's) priorities for new lock construction and major rehabilitation of the nation's inland navigation system that require cost share monies from the Inland Waterway Trust Fund (IWTF). Qualifying that these are his own estimates, Hettel provided completions dates for the top priority projects, pre- and post-WRRDA 2014 as well as with the proposed nine cent per gallon increase in the fuel tax. Post-WRRDA 2014, construction of the first of NESP's seven 1,200-foot lock projects would first start in 2035 and all seven would be completed in 2053. This accelerates NESP construction by seven years over pre-WRRDA 2014. With a nine cent per gallon fuel tax increase, NESP's lock construction would begin in 2029 and be completed in 2047, an acceleration of six years over the post-WRRDA timeframe.

Panel Discussion

Mike Klingner noted the importance of forecasting water levels for flood risk reduction and navigation. In response to a question about WRRDA's forecasting provisions, Brig. Gen. DeLuca explained that the Act includes a directive for USACE to update forecasting technology on the Mississippi River and its tributaries. WRRDA 2014 also requires USACE to evaluate the system's response during drought conditions. USACE is currently engaged in interagency discussions on this. Brig. Gen. DeLuca expressed support for probabilistic forecasting. Other participants recognized the need for better forecasting to improve the system's reliability.

In response to a question from Dan Mecklenborg, Hettel said his construction projections assume lock construction is completed in three years. Mecklenborg said it is prudent for Congress to restart appropriations to NESP so that plans will be ready for lock construction when IWTF funding becomes available. Hettel said $17 million in annual appropriations for planning, engineering and design (PED) is necessary to move forward on NESP. In response to a question, Brig. Gen. DeLuca

said USACE has some discretion on spending additional funds for navigation improvements. But NESP construction funding would be a new start, and USACE des not have the sole discretion to initiate new starts. Dru Buntin noted that NESP is at risk of deauthorization if it does not receive funding by the end of FY 2016. Brig. Gen. DeLuca explained that partners do not have the attention of leadership in the Administration or Office of Management and Budget, and therefore staff have been able to make decisions about Upper Mississippi navigation investment such as the inclusion of NESP in the President's budgets. He recalled the effectiveness of industry in getting high-level attention to Mississippi River infrastructure needs during the 2012 drought. Col. Deschenes stressed the need for continued education to Congressional members and Administration staff in Washington about NESP and the need to fund and balance construction, maintenance, and operation priorities.

Brig. Gen. DeLuca acknowledged concerns that Congress might substitute P3s for federal funding, rather than using private funding to supplement federal funding. He encouraged partners to explore P3s to address Upper Mississippi needs. Tom O'Hara said P3s require both private capital and federal funding, and asked what the government plans for P3 investment. Brig. Gen. DeLuca recognized that funding is a challenge, and emphasized that upfront funding will be key to ensure efficiency.

Creating an Intermodal Freight Transportation Network: *Current efforts and opportunities to create an intermodal transportation network that enhances the nation's use of inland waterways system and meets export and import demands*

- Connecting and Coordinating Efforts to Optimize Freight Movement on Inland Waterways by Bill Paape and Kevin Schoeben — Bill Paape provided an overview of MARAD's Inland Waterway Gateway's geographic extent and focus areas and of the MARAD America's Marine Highways initiative. Insights gained from other marine highways are that a) federal and state agencies, port authorities, terminal and service operators, and shippers need to work collaboratively from study concept through development and demonstration phases to make new services viable; and b) a project must be informed by a market analysis and business planning and have sufficient financial capital. Regarding a new service (e.g., container-on-vessel or barge), the service must be marketed, reliable, consistent, and scheduled so that shippers can plan accordingly. Most importantly, though, the new service must be cheaper or faster than the existing alternative. Paape summarized MARAD's Strong Ports Program, which was authorized in 2010 to modernize and expand the capacity of America's ports. Through the program, MARAD strives to improve infrastructure, efficiency, and environmental sustainability of America's ports, leverage existing programs where possible, and improve port competitiveness for public and private funds through enhanced planning and engagement. The Strong Ports Program is undertaking two initiatives in 2014, including 1) PortTalk, where MARAD facilitates stakeholder collaborations to advance maritime plans and projects, and 2) Port Planning and Investment Toolkit, a joint venture between MARAD and the American Association of Port Authorities (AAPA) to help ports obtain funding by developing investment grade plans.

  Paape and Kevin Schoeben reported that the five Upper Mississippi states submitted a joint application in May 2014 to MARAD to designate the Upper Mississippi as Corridor M-35 under the America's Marine Highway Program. Schoeben explained the benefits of the M-55 Corridor along the Mississippi and Illinois Rivers in facilitating collaboration with stakeholders to advance freight opportunities and research. Through the designation, Illinois has been able to study the river's potential to serve as a cost-effective alternative to ground-based transportation. The study then provides baseline information for future port studies and overall awareness of maritime freight. For water transportation to be a preferred alternative, it must provide scheduled and reliable service, the required vessel cuts at coastal ports, the lowest cost expected, and keep the finished goods

undamaged. That would require more equipment and service runs in the short term and a faster marine vessel and further research and development in the long term.

Schoeben explained Illinois' Freight Mobility Plan, which is designed to optimize and integrate all freight modes. He showed maps of Illinois' freight tonnage movements on rail, roads, and waterways; Illinois' intermodal connections; and the potential projected shift in container service lines resulting from the Panama Canal expansion. Per the Moving Ahead for Progress in the 21st Century Act (MAP-21, P.L. 112-141), the five states are employing strategic freight planning that incorporates national freight goals. Schoeben overviewed the national and regional collaborations that are working together on enhancing intermodal freight transportation.

- Ports as the Interface of Intermodal Transportation by Susan Taylor — Susan Taylor described St. Louis Port Authority's recent terminal expansion, which is owned by St. Louis. The Port of Metropolitan St. Louis (PMSL) exemplifies how ports serve as an intermodal connector. The Port is 70 miles long, encompassing all major barge lines and is located in close proximity to seven interstate highways, six class-one rail roads, and two international airports. About 106 million annual barge tonnages transit through the PMSL, with 36.5 million tons crossing PMLS docks. The St. Louis Port Authority established a regional port working group of 35 regional stakeholders to promote area shipping and market development throughout the region. Taylor emphasized the importance of regional collaboration and systemic thinking to optimize intermodal freight movement. In 2015, the group will consider how to attract new barge and truck workers. The East-West Gateway Council of Governments published a 2013 St. Louis Regional Freight Study that recommended creating a regional freight district and a regional freight authority as well as developing a prioritized list of projects.

- Elevating Waterways on a National Stage by Paul Rohde — Paul Rohde said challenges in elevating the public's awareness of river infrastructure issues are that a) the waterways are out of site, and therefore, out of mind; and b) funding is derived from USACE's Civil Works budget, which has expanded in missions/activities but not in appropriations. While the United States spent 11.5 percent of its total federal budget on infrastructure in the 1930s, today it only spends 2.4 percent on infrastructure whereas China spends 9.4 percent. Rohde emphasized that businesses go where the infrastructure exists. Many waterways infrastructure construction or major repair projects are scheduled far out into the future. The fix-as-fail approach with its corresponding increase in scheduled and unscheduled lock closures has significant cost implications for shippers and producers. Rohde explained the history of Inland Waterway Trust Fund (IWTF) revenues and spending, and why the IWTF revenues are no longer sufficient to meet the nation's inland waterways investment needs. He provided several examples of messaging that have been resonating with various stakeholders, including the Administration and Congress. Coalitions have formed to advocate for Mississippi River infrastructure funding, an increase in the IWTF fuel tax, and the Navigation and Ecosystem Sustainability Program.

- Economic Opportunities for Container-On-Vessel by Patrick Donovan — Patrick Donovan discussed new technologies that allow container-on-vessel to be a viable and cost-effective freight transportation mode. Economic advantages of container-on-vessel are reduced freight rates, lowered average variable costs, reduced air emissions, and improved logistics. Donovan showed visuals of new work cat engineering (WCE) vessel designs for carrying containers. In a 2011 market analysis, MARAD concluded that container shipment can be profitable and compete with other shipping modes. Benefits of using containerized shipping include more frequent and efficient service, lower accident rates, added cargo flexibility, enhanced growth of feeder ports and local economies, reduced congestion at ports, shortened drayage, and dual fuel capability. Donovan said there is a large market potential and service scope for short-sea and inland marine highways.

Potential for Public-Private Partnerships (P3s): *The potential for public-private partnerships (P3s) in advancing Upper Mississippi navigation projects and maintaining infrastructure*

- Proposed Financing, Operations, and Governance for Upper Mississippi P3 Projects by Pat McGinnis — Pat McGinnis summarized the conclusions of the Horinko Group's 2013 report on P3 financing, operations, and governance. He said the current financing mechanisms and levels are not sufficient to address Upper Mississippi infrastructure needs, and P3s offer an alternative financing option to advance construction projects at critical supply chain segments. Without P3s, Congress may fail to appropriate the resources to fund necessary repairs and capacity expansion measures. WRRDA 2014 authorizes USACE to implement a pilot program that examines P3 project delivery, cost-saving alternatives, and decentralizing of project management, design, and construction. Regional projects being considered include new construction at Peoria and LaGrange on the Illinois River and Locks 24, 25, Melvin Price, and 27 on the Mississippi River. Types of P3s include outsourcing, design-build, operation and maintenance, and long-term lease. McGinnis asserted that now is a critical time for stakeholders to engage in the national P3 discussions to help inform and shape policy and formulate a pilot project that is in the region's best interest. Proposed next steps are to 1) inform regional stakeholders and establish an *ad hoc* work group to explore P3 implementation questions, as well as to identify a recommended pilot project and sponsor; 2) establish a pilot formulation work group forum to design a pilot project; and 3) gain support from potential investors. Following initial pilot work, stakeholders can then consider a long-term plan and commitment for P3s to advance waterways infrastructure projects.

- Possible P3 Delivery Model by Tom O'Hara — Tom O'Hara discussed the requirements and considerations that need to be addressed to develop for a P3 delivery model that is appropriate for the Upper Mississippi waterway system. The model must include a private entity overseeing project delivery and responsibility for design, construction, management, and financing. The model must be defined by scope (e.g., maintenance and/or capacity expansion, level of flexibility and scalability, site-level or system-level) and geography (e.g., locks included, one state or regional approach). In developing P3s, existing organizations and authorities should be leveraged and states and investors should be the leads developing the delivery models. O'Hara overviewed a conceptual model to demonstrate these ideas. O'Hara said P3s will require a sufficient project size to attract private equity, a private revenue stream (e.g., concession fee, user/lockage fee, sales tax), a combination of federal and state funding and incentives, a market-supported cost analysis, and investment capital.

- Industry Perspective on P3s by Dan Mecklenborg — Dan Mecklenborg said Ingram Barge contracted with Mercator to evaluate financing options for inland waterways capital projects. Private infrastructure funds have significant cash reserves that could be invested if a suitable transaction structure is created and adequate returns are available. Several existing P3 water resource projects were evaluated to gain insights about the transaction structure and revenue mechanisms. Mecklenborg suggested that a P3 on the Illinois River might be a good place to test its feasibility regionally. The state of Illinois could create a special-purpose agency for creation and granting of concessions. The Illinois River has significant tonnage movements relative to infrastructure assets, would only need to comply with one state's policies, and has an agricultural market that offers investors upside volume potential. Mecklenborg provided examples of P3 models and conclusions about their potential on the Illinois River. Conclusions were that a) potential benefits of major rehabilitation are not likely sufficient enough to enable commercial users to absorb more than a small portion of the P3's required revenues; b) potential benefits of lock expansion could generate a significant portion of the required revenue through special-purpose tolls, but a revenue gap would still remain that would necessitate other beneficiaries of the river system to contribute; c) commercial users and local and state officials would likely need to lobby jointly for bonds; and d) USACE's involvement will be critical to gain support for approval of P3 designs, monitoring, and continued operation.

- Iowa's P3 Efforts by Craig Markley — Craig Markley provided an overview of Iowa DOT's planning efforts, including opportunities to engage in P3s to advance Iowa's infrastructure projects. In 2012, Iowa DOT established a freight advisory council of public and industry representatives as well as other planning organizations (e.g., metropolitan planning organizations) to provide a forum for discussion and to seek input on resource allocation and complex transportation issues. Currently, the council is identifying freight transportation bottlenecks throughout Iowa that will inform the state's freight policy and implementation plans. Iowa DOT conducted a lock and dam feasibility study to evaluate the viability of options to modernize and improve the system in order to maintain its efficiency and reliability. Issues addressed include limited federal funds, deteriorating infrastructure, and capacity limitations on rail and road. One key finding is that investers may be deterred from a P3 project until major system repairs are made — i.e., an investor may not want to assume risk of a project if the rest of the system is deteriorating, limiting the economic growth of that site. Iowa held a 2013 workshop to define opportunities and constrains of the system and a unified vision for a Mississippi River action plan, as well as to identify a potential pilot project such as improvements to Locks 15 and 18. Iowa is considering an Iowa waterway executive steering committee to explore P3s and improvements to the navigation system, as well as ecosystem restoration on the Mississippi River. Markley said Iowa, on behalf of the five Upper Mississippi states, submitted a TIGER grant application to support a study that explores opportunities to enhance lock and dam efficiency, reliability, and utilization, such as real-time barge location, infrastructure and operational improvements, condition studies, failure impact analysis, and port development research. Iowa DOT is also developing a statewide freight transportation optimization strategy to identify investment opportunities and strategies that will promote business growth. This will involve prioritizing recommended actions to optimize the multimodal network.
- USACE Pilot P3 Navigation Project by Col. Mark Deschenes — Col. Mark Deschenes explained USACE's thoughts on how a P3 would be implemented on the Illinois River. Under a P3, a special purpose entity would be responsible for developing a supplemental funding stream for deferred critical maintenance and collaborating with USACE regarding investment priorities and implementation. Routine operations and non-critical maintenance would remain USACE's responsibility. Supplemental funding would be provided upfront to address the backlog and prevent future failures, and would include revenue bonds, fees, or direct funding. Col. Deschenes acknowledged that the river's reliability will continue to deteriorate without a new funding stream. Scott Sigman explained Illinois Soy Association's role in helping USACE examine the potential for P3s on the Illinois River.

Discussion

Michael Klingner asked if there is a possibility to fund the three top NESP lock modernization projects simultaneously using a tri-state regional port authority. Tom O'Hara explained that, in the short term, a phased approach may be necessary to prove a P3's effectiveness. In the long run, a larger scale systems approach can be employed. Dan Mecklenborg raised concern that private funding may supplant instead of supplement federal spending, essentially maintaining the status quo on the amount of resources invested in the system. Scott Sigman said USACE has been very explicit that P3s will not be used to supplant private investment. Pat McGinnis said connecting a P3 to regional economic development plans will be important for viewing the project in a regional-context. It is not just about supply chain, but broader, regional economies. He said state engagement will be critical if P3s will be advanced. State and local capital will be needed, as well as state leadership and support. O'Hara suggested exploring a specific project to identify financing needs and models, as well as a leader to champion the project. Col. Deschenes echoed McGinnis's comment that state leadership will be critical, especially in regards to meeting all the different users' needs. Sigman also suggested starting to broaden the base of stakeholder involvement, noting the importance of the public's interest and engagement.

Strengthening Influence of Upper Mississippi Ports: *Learning from other waterway basins, how might the Upper Mississippi strengthen the influence of its ports and terminals*

- Collaboration to Advance Port and Marine Development by Ernie Perry — Ernie Perry provided information on the efforts of the Mid-America Freight Coalition, a 10-state collaboration in the Midwest, to advance port and marine development. The waterways are critically important to the Midwest's economy. In Illinois, a five day closure of Lock 27 stopped 63 vessels or 455 barges, costing $15 million to $20 million to industry. That amount would take 6,100 cars and 26,400 trucks to replace the lost capacity. The waterways industry employs 1,396 individuals in Missouri, generating $388 million annually in GDP. The coalition held an April 22-25, 2014 working sessions to examine issues related to current infrastructure projects, TIGER awards, roll-on roll-off container shipping, operational issues, and rating. Perry also discussed the Wisconsin Port Association's strategic planning development initiative to strengthen the state's waterborne transportation infrastructure.
- Delta Regional Authority by Mike Marshall — Mike Marshall gave an overview of the Delta Region's economy and how the Delta Regional Authority works to revitalize the area's economy. The Authority provides grants to improve infrastructure in small public ports along the Mississippi River and its tributaries as a means to strengthen the economy.
- Gulf Intracoastal Canal Association by Jim Stark — Jim Stark said the Gulf Intracoastal Canal Association (GICA) has about 200 members of tow and barge companies, shippers, refiners, and other companies that serve those industries. GICA focuses on ensuring the Gulf Intracoastal Waterway (GIWW) is maintained, operated, and improved to provide safe, efficient, economical, and environmentally sound freight transportation. GICA's primary functions include a) identifying, analyzing, and addressing GIWW issues; b) educating and informing the public; c) advocating for capital and maintenance funding; d) coordinating with other organizations on waterways issues; e) and assisting the U.S. Coast Guard and USACE in identifying and responding to hazards (e.g., hurricanes) as well as promoting improvements to the system. The waterway ships about $86 billion of product annually, mostly consisting of petroleum and chemicals. The waterway is 1,100 miles long, connecting several Gulf ports and spanning three USACE divisions. There are 11 lock and flood control structures that directly affect navigation. The GIWW is subject to IWTF cost share and faces aged and outdated infrastructure. Other issues GICA is currently addressing are dredging funds to maintain the system, realignment of the navigation channel, additional buoys at mooring basins, encroachment that minimizes the navigation channel, and hurricane storm damage risk reduction.
- Inland Rivers, Ports, and Terminals by Dennis Wilmsmeyer — Dennis Wilmsmeyer said the Inland Rivers, Ports, and Terminals (IRPT) represents the nation's inland waterway ports and terminals professionals by providing them a platform to improve their businesses and inform policy makers on the needs and economic impacts of the navigation industry. Recently, IRPT has advocated on its members behalf about the need for improved tonnage reporting that is applied systemically, increased dredging reserouces, and for an economic impact study that would include private terminals, public ports, commodity values, operators, etc. IRPT has formed a dredging working group to consider case studies and how financing opportunities may be leveraged, including MARAD's marine highway grants, state and federal budgets, and public-private financing.
- Organization Needs for the Upper Mississippi Ports and Navigators by Cheryl Ball — Cheryl Ball reflected on the presentations above and asked participants to consider whether there is a need for more communication and/or coordination among Upper Mississippi ports regionally to strengthen their voice on a national stage and/or to enhance their local activities by thinking more systemically.

Discussion

Phil Bradshaw suggested that messaging needs to be improved, particularly speaking to economic development and P3 opportunities. Wilmsmeyer said marketing is a role for all stakeholders and emphasized the need to start locally and gain support of companies, distributors, and local government leadership. Ball acknowledged the need to better educate the local public, perhaps by developing talking points that highlight the importance of the river and speak to its reliability and successes. Michael Klingner said improving river access is important as well as flood protection in access areas. Wilmsmeyer agreed that flood protection and navigation go hand-in-hand. Pat McGinnis said messaging should include economic development goals related to ports. Wilmsmeyer agreed, and said ports stimulate economic development. He said small, start-up ports need to be supported to promote that growth. Lucy Fletcher said RiverWorks Discovery has an educational program that raises awareness among children.

July 10, 2014 Overview

Objectives for the second day (July 10) were to a) reflect on the July 9 discussion and develop any follow-up needs (e.g., clarifications) and b) identify opportunities to advance marine freight on the Upper Mississippi through greater levels of coordination among the Upper Mississippi states and partners.

The July 10 session was attended by 21 Upper Mississippi state agency staff representing departments of transportation, natural resources, economic development, and agriculture, as well as three UMRBA staff and the facilitator. In addition, Anne Kierig, a legislative assistant for Senator Dick Durbin (IL), joined the meeting via conference call for the P3 discussion. The attendance list is provided on pages 13-15 of this document.

Participants discussed each major theme of the July 9 summit and identified potential joint action. Below is a summary of the discussion.

Upper Mississippi Investment Needs and Opportunities: *The status of, and priorities for, investment on the Upper Mississippi's navigation system, including how the 2014 Water Resources Reform and Development Act will help advance those priorities*

- The states commit to maintaining an integrated, multi-purpose approach to Upper Mississippi management, which has been, and will continue to be, key to the region's successes.
    - *Potential action*: UMRBA tracks and comments, when appropriate, on USACE's new watershed-based budget process and facilitates informational updates at the Board's quarterly meetings. [Note: USACE has initiated pilot projects aimed at restructuring its budget to a watershed planning approach, where water resources management concepts will be integrated into the budget development framework.]
- Education is needed among state agency staff, as well as throughout the region, about the history and content of the Master Plan, 2004 Navigation Feasibility Study, and 2007 Navigation and Ecosystem Sustainability Program (NESP) authorization.
    - *Potential action*: UMRBA develops a brief background summary of commercial navigation planning on the Upper Mississippi, as well as its dual purpose authority, and assists state agencies in educating their staff about NESP's planned navigation and ecosystem improvements.
- State departments of transportation, agriculture, and economic development would like to have greater involvement in Upper Mississippi commercial navigation policy and planning. Balanced and diverse participation among states agencies in navigation discussions is important.
    - *Potential action*: UMRBA Board and state departments of transportation, agriculture, and economic development form a work group to advocate and plan for Upper Mississippi navigation improvements.
    - *Potential action*: UMRBA engages in USACE's inland navigation capital investment planning effort. [Note: Per Section 2002, WRRDA 2014 requires USACE, in consultation with the Inland Waterways Users Board, to develop a 20-year capital investment plan for the nation's inland and intercoastal waterways.]
    - *Potential action*: UMRBA Board and the potential working group (see above) develop, and routinely update, a strategic plan for Upper Mississippi commercial navigation. This would be used to communicate investment needs and priorities.

- Regional messaging about the river's importance to freight transportation and the regional and national economies needs to be strengthened, focused, and better targeted. Brig. Gen. Peter DeLuca included several resonating messages that should be communicated to elected officials, river partners, and interested public. These include how the four revolutions, as well as recreation, will affect the Midwest economy and Upper Mississippi commercial navigation; the slack in inland navigation capacity that can be utilized; and competitiveness of multiple modes that lower overall transportation costs. These messages depict the need for a more integrated transportation system. In addition, federal and state governments, industry, and others will need to demonstrate to the public the importance of investing in infrastructure for the purposes of future prosperity as well as the significant lead time required to expand capacity in the future.
    - *Potential action*: UMRBA and state agency staff develop marketing materials for stakeholders to use when communicating about the river's navigation system, including why states take a systemic approach to navigation planning.
- The issues about Upper Mississippi commercial navigation infrastructure investment need to be elevated and directly communicated to the President and Congressional leaders.
    - *Potential action*: Upper Mississippi Governors send a joint letter to the President of the United States that describes the river's importance to the Midwest and national economies as well as the aged and outdated infrastructure, and requests that funding for NESP is prioritized.
    - *Potential action*: UMRBA and state agency staff partner with industry and ecosystem organizations in advocating for NESP and other navigation improvements. The states noted the success of commodity and industry leaders in highlighting the river's importance during the 2012 drought.
- Given the opportunity to invest with private investment through P3s, the states need to demonstrate an interest in taking advantage of the funding alternative. (See P3 section below for more discussion points on this topic.)

Potential for Public-Private Partnerships (P3s): *The potential for public-private partnerships (P3s) in advancing Upper Mississippi navigation projects and maintaining infrastructure*

[Anne Kierig, a legislative assistant for Senator Dick Durbin (IL), joined the meeting via conference call for the P3 discussion.]

- The states are supportive of exploring how a P3 could advance infrastructure investment on the Upper Mississippi. While WRRDA 2014 provides tremendous potential for improving infrastructure through a P3, there is relatively little knowledge (or examples) of how a P3 would work on a waterway, especially on a lock and dam system that runs along state borders. Participants concluded that robust, thoughtful, iterative dialogue is needed to move from conceptual ideas of how P3s might work to more detailed applications. The discussion should involve the array of stakeholders, including industry shippers and operators.
    - *Potential action*: UMRBA form an interstate navigation work group to discuss P3 implementation and shape perspectives. Board and state agency staff identify and explore a suite of questions related to P3 implementation, such as the following questions identified by participants:
        a) How might we ensure that a P3 will not supplant federal funding with private investment, but rather supplement federal funding to further investment in infrastructure? Is a P3's purpose to accelerate project completion or bring in additional funding? The public needs to be made aware of the common occurrence that new revenue streams eventually replace previous ones.

b) What would be the best suited governance model (financing authority) of an interstate P3? Who would be in charge? What will be its geographic scope? How would the governance model differ for an intrastate P3? Can, and how might, projects be selected and planned through a systemic approach or perspective? How will industry be engaged?

c) How is the funding revenue mechanism structured and who pays? Would the revenue be sufficient and predictable enough to attract investment?

d) Who would be the private investor(s)?

e) What risk would private investors assume and pass off to federal, state, and local governments?

f) Would reliability of the navigation system be ensured to provide reasonable risk? Risk is predicated on an assumption of continued maintenance. If something up or down the river fails, the P3 will not be as viable.

g) How will other federal, state, and local government mandates or policies shape P3 implementation — e.g., NEPA review, industry cost-share requirements, NESP's comparable progress provision with ecosystem restoration?

h) What case studies can be reviewed to gain insights? There are various ways to structure P3 delivery methods.

i) Are there funding alternatives other than P3s that merit exploring?

j) How will the good, collaborative relationship between navigation and ecosystem stakeholders be maintained?

k) Can the pending TIGER grant be used to evaluate P3s? Will this depend on the timing of a pilot P3?

l) Would NESP deauthorization be a concern if setting up a P3 for one of its authorized projects?

m) What is the process and forum for exploring these and other questions?

Creating an Intermodal Freight Transportation Network: *Current efforts and opportunities to create an intermodal transportation network that enhances the nation's use of inland waterways system and meets export and import demands*

- The states view their role in Upper Mississippi waterways commercial navigation as optimizing private sector involvement and benefit, within the context of a comprehensive multimodal transportation system. Not distorting market signal or imposing a particular path, states develop sound public policy that is responsive to market indicators by creating redundancies, expanding capacity, integrating modes, and addressing workforce constraints.
    - *Potential action*: UMRBA Board and state departments of transportation, agriculture, and economic development form a work group to evaluate new opportunities for enhancing multimodal transportation and develop regional perspectives. This may include working with industry to advocate for regional intermodal mapping and analysis, address imbalances between south-bound and north-bound tonnages, and examine feasibility of container-on-barge/vessel and other tow/barge design changes that would create new opportunities for waterways freight shipment — e.g., low draft tows for short to medium length trips.
    - *Potential action*: Create unified messages about the benefits of waterway transportation in a multimodal context and of enhancing relationships among the modes to support industry. Messages should be created that resonate regionally as well as nationally and speak to risk of a single point of failure system. Outreach should include metropolitan planning organizations.

In addition, employ outreach jointly with other regional collaborations to deliver the messages, including the mayors of the Mississippi Rivers and Cities Towns Initiative.

- *Potential action*: Create a clearinghouse of contact information for river stakeholders (e.g., state agency staff, USCG, USACE, shippers, operators), collaborations (e.g., St. Louis Port Authority's regional port working group), and other resources.
- *Potential action*: UMRBA serves as a forum for information exchanges on important policies and programs — e.g., MARAD's Strong Ports Program.

Strengthening Influence of Upper Mississippi Ports: *Learning from other waterway basins, how might the Upper Mississippi strengthen the influence of its ports and terminals*

- TIGER grants are expanding states' roles in supporting port infrastructure for the purposes of economic development. Other inland waterway basins have benefited from a regional organization that facilitates communication among ports and terminals and advocates on their behalf. There are a variety of Upper Mississippi ports – small, medium, and large; privately- or publicly-owned. There are various forums for the ports and terminals to engage, such as the Inland Rivers, Ports, and Terminals and state planning efforts. However, there may be unmet needs and opportunities for strengthening regional collaboration of the ports and terminals.
  - *Potential action*: UMRBA works with the Inland Rivers, Ports, and Terminals Association to connect with the region's ports and terminals and seek their input on needs in order to engage regionally in advocacy. This could include discussion on infrastructure needs for enhancing multimodal connections through systemic planning.
  - *Potential action*: Participate in a MARAD PortTalk interactive session focused on the Upper Mississippi.

Upper Mississippi River Basin Association
Commercial Navigation Summit

July 9-10, 2014
Attendance List

(The table below lists all of July 9 attendees. * indicates participation on July 10.)

*	Robert Flider	Illinois Department of Agriculture
*	Ellen McCurdy	Illinois Department of Commerce and Economic Opportunity
*	Arlan Juhl	Illinois Department of Natural Resources
	Todd Main	Illinois Department of Natural Resources
	Loren Wobig	Illinois Department of Natural Resources
*	Nathan Bishop	Illinois Department of Transportation
*	Kevin Schoeben	Illinois Department of Transportation
*	Harold Hommes	Iowa Department of Agriculture
*	Stuart Anderson	Iowa Department of Transportation
*	Craig Markley	Iowa Department of Transportation
*	Garrett Pedersen	Iowa Department of Transportation
*	Barb Naramore	Minnesota Department of Natural Resources
*	Patrick Phenow	Minnesota Department of Transportation
*	Chris Klenklen	Missouri Department of Agriculture
*	Brian Millner	Missouri Department of Economic Development
*	Bryan Hopkins	Missouri Department of Natural Resources
*	Robert Stout	Missouri Department of Natural Resources
*	Cheryl Ball	Missouri Department of Transportation
	Tom Blair	Missouri Department of Transportation
*	Michelle Teel	Missouri Department of Transportation
*	Erik Maninga	Missouri Department of Transportation
	Bryan Ross	Missouri Department of Transportation
	Wesley Stephen	Missouri Department of Transportation
*	Kathy Heady	Wisconsin Economic Development Corporation
*	Dan Baumann	Wisconsin Department of Natural Resources
*	Donna Brown-Martin	Wisconsin Department of Transportation
*	Sheri Walz	Wisconsin Department of Transportation
	Ken Barr	U.S. Army Corps of Engineers
	Alan Brandt	U.S. Army Corps of Engineers
	Jasen Brown	U.S. Army Corps of Engineers
	Matt Collins	U.S. Army Corps of Engineers
	Michael Cox	U.S. Army Corps of Engineers
	Judith DeHarnais	U.S. Army Corps of Engineers
	Lou Dell'Orco	U.S. Army Corps of Engineers
	Brig. Gen. Peter DeLuca	U.S. Army Corps of Engineers
	Col. Mark Deschenes	U.S. Army Corps of Engineers
	Michael Feldmann	U.S. Army Corps of Engineers
	Dennis Fenske	U.S. Army Corps of Engineers
	Harold Graef	U.S. Army Corps of Engineers
	Capt. Joel Groves	U.S. Army Corps of Engineers
	June Jeffries	U.S. Army Corps of Engineers

	Col. Dan Koprowski	U.S. Army Corps of Engineers
	Mark Moore	U.S. Army Corps of Engineers
	Dennis Norris	U.S. Army Corps of Engineers
	Roger Perk	U.S. Army Corps of Engineers
	Bryan Peterson	U.S. Army Corps of Engineers
	Michael Rodgers	U.S. Army Corps of Engineers
	Andrew Schimpf	U.S. Army Corps of Engineers
	Jeff Stamper	U.S. Army Corps of Engineers
	Deanne Strauser	U.S. Army Corps of Engineers
	Evan Stewart	U.S. Army Corps of Engineers
	Michael Tarpy	U.S. Army Corps of Engineers
	Julie Ziino	U.S. Army Corps of Engineers
	Barbara Nelson	U.S. Department of Transportation, Maritime Administration
	Bill Paape	U.S. Department of Transportation, Maritime Administration
	Charlie Wooley	U.S. Fish and Wildlife Service
*	Anne Kierig	U.S. Senator Dick Durban [July 10 only]
	Martin Hettel	AEP River Operations
	Brian King	Alberici Constructors
	Joseph Schwenk	Alberici Constructors
	Jeremy Goldstein	Alter Logistics/Rock Island River Terminal
	Dennis Wilmsmeyer	America's Central Port/Inland Rivers, Ports, and Terminals
	Tom Horgan	American Waterways Operators
	Mike Marshall	Delta Regional Authority
	Dan Barger	Carpenters' Union
	Dale Roth	Carpenters' Union
	Tom O'Hara	CH2M Hill
	Jim Stark	Gulf Intracoastal Canal Association
	Mike McQuillan	Hanson Professionals Services
	Pat McGinnis	The Horinko Group
	Dan Mecklenborg	Ingram Barge
	Gary Speckhart	Illinois Farm Bureau
	Phil Bradshaw	Illinois Pork Producer and Soy Farmer
	Scott Sigman	Illinois Soybean Association
	Branden Criman	Kansas City, Missouri Port Authority
	Ed Weilbacher	Kaskaskia Regional Port District
	Shannon Hughes	Kirby Inland Marine
	Rich Diffley	Lange Stegmann Company
*	Ernie Perry	Mid-America Freight Coalition
	Emily LaRosa	Mississippi River Cities and Towns Initiative
	Colin Wellenkamp	Mississippi River Cities and Towns Initiative
	Rob Rash	Mississippi Valley Flood Control Association
	Brad Walker	Missouri Coalition for the Environment
	Gretchen Benjamin	The Nature Conservancy
	Robert Sinkler	The Nature Conservancy
	Patrick Donovan	Rahall Transportation Institute
	Christine Favilla	Sierra Club

	Pete Ciaramitaro	Southern Towing Company
	Mike Norris	Southeast Iowa Regional Planning Commission
	Nick Nichols	St. Louis Port Authority
	Susan Taylor	St. Louis Port Authority/St. Louis Development Corporation
	Michael Klingner	Upper Mississippi, Illinois, and Missouri Rivers Association
	Paul Rohde	Waterways Council, Inc.
	Jessica Steverson	World Trade Center of New Orleans
*	Dru Buntin	Upper Mississippi River Basin Association
*	Dave Hokanson	Upper Mississippi River Basin Association
*	Kirsten Mickelsen	Upper Mississippi River Basin Association

FOUR REVOLUTIONS: How Will We Respond?

Brig. Gen. Duke DeLuca
Commander, Miss Valley Division USACE
President, Miss River Commission
9 July 2014

US Army Corps of Engineers
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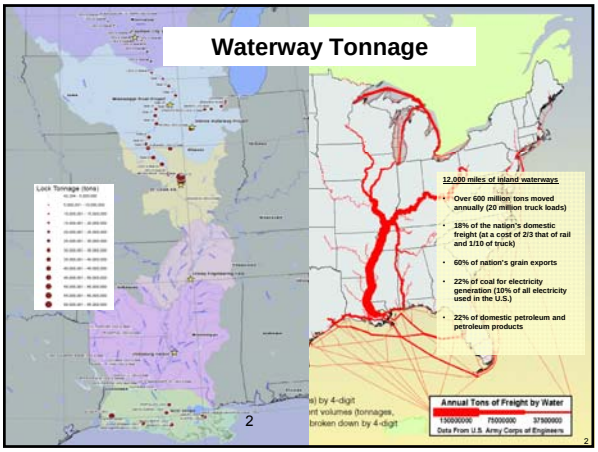
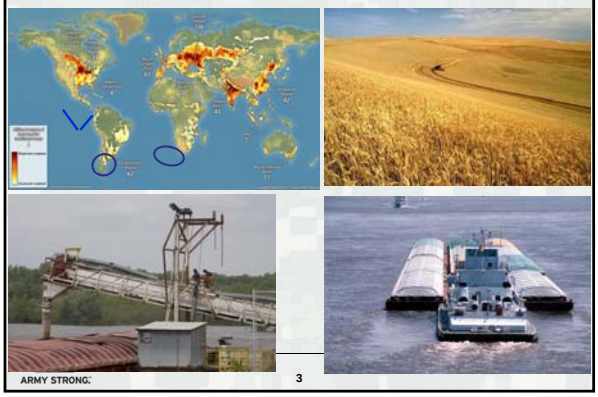
Waterway Tonnage



2

US Agricultural Productivity



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3

Revolution #2: Hydrocarbon Production Revolution

- US Oil Production:
  - Grew 18% in last year alone
  - ~~US will be World #1 producer in 2015~~ (more than KSA) US is #1 Producer July 2014
- US Natural Gas Production:
  - US is World #1 producer as of 2013 (more than Russia)
- Affects Many Other Industries including Chemical, Plastics, and all Manufacturing

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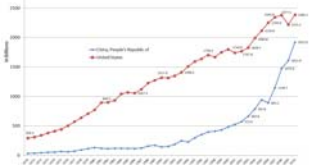
4

BUILDING STRONG®
18 June 2014

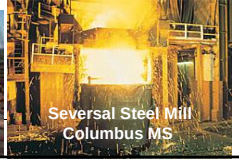
Revolution #3: Return of Manufacturing to the US and The Mississippi Valley

US Manufacturing Output vs China Manufacturing Output 1970 - 2009



Construction Begins Jul 14 on $1.1B Steel Mill

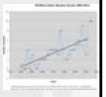
$975M Steel Mill at Port of Caddo-Bossier on Red River in NW LA expected to be complete by 2015

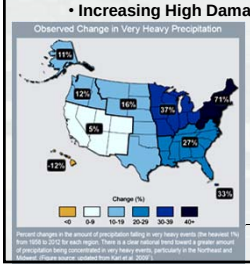


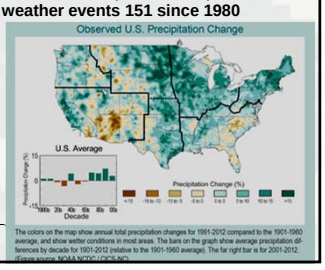
Seversal Steel Mill Columbus MS

Revolution #4: Accelerating Impacts of Climate Change

- Changes to Weather
  - Precipitation more Intense – More Volume in Less Time
  - Increased Runoff from this and development
  - Significant Storm events of high intensity
    - Record number of >$1B events in 2013 (41 - 7 in US)
    - Increasing High Damage weather events 151 since 1980

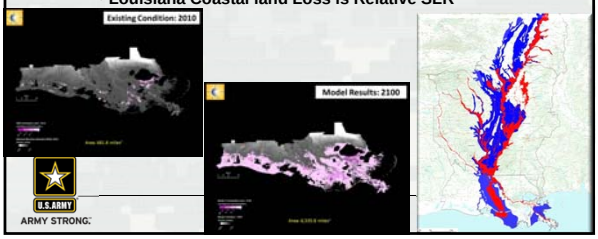




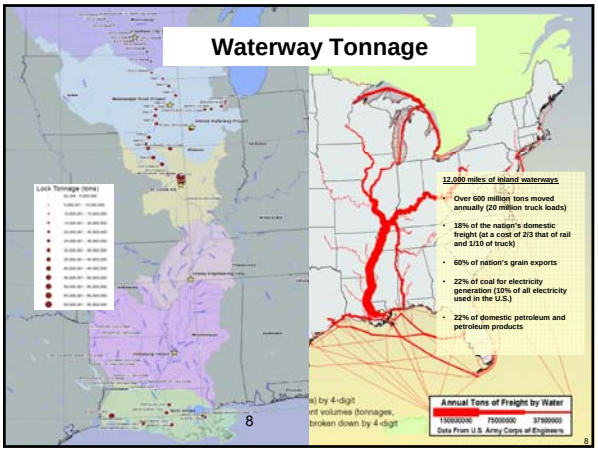


Revolution #4: Accelerating Impacts of Climate Change

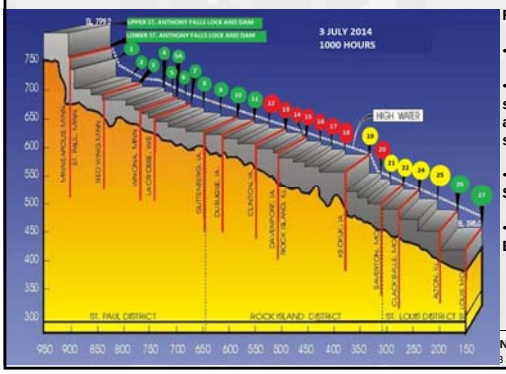
- Changes to Watershed Functioning – part climate chg
  - Higher Stages with same or less flow as in the past (need new flow line for Mississippi River – underway)
  - Bottom Changes (Geomorphology study underway)
    - Accelerating Sea Level Rise
    - Louisiana Coastal land Loss is Relative SLR



Waterway Tonnage

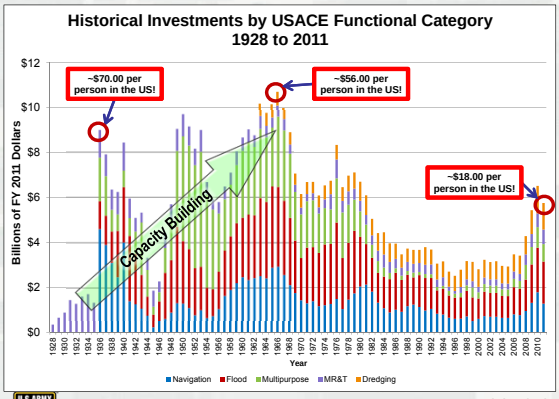


Locks and Dams Have Many Benefits – Not Just NAV

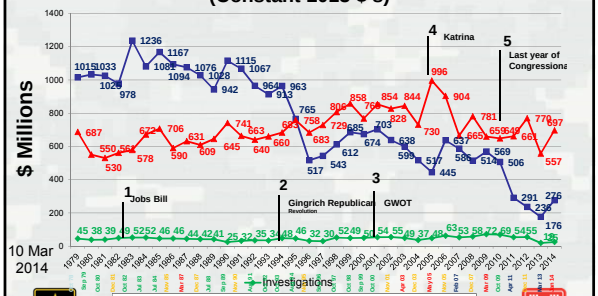


- Flood Risk Reduction
- Recreation
- Eco-systems and eco-services
- Water Supply
- Real Estate

Historical Investments by USACE Functional Category 1928 to 2011



MVD Civil Works Funding Trend Comparison Investigations, Construction and O&M (Constant 2013 $'s)



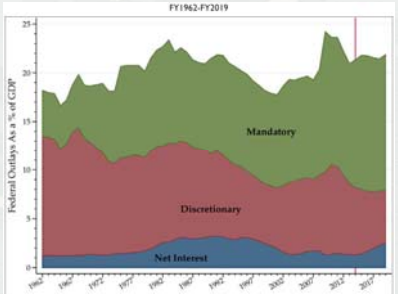
10 Mar 2014

Appropriation Bills

Green = Oct or before | Amber = Nov-Dec

Red = Jan or after | Blue = Year-long CR

Components of Federal Spending: FY1962-FY2019



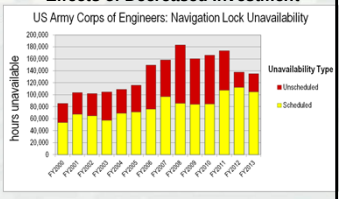
Source: CRS calculations based on data from the FY2015 OMB budget submission.

As published in "The Budget Control Act and Trends in Discretionary Spending," D. Andrew Austin, Congressional Research Service, 2 April 2014, p. 20.

United States Relative to Other Nations

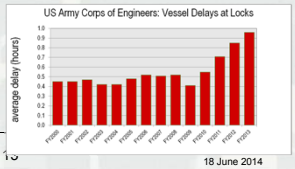
Low investment in infrastructure!
(equivalent to Greece # 143 in world)

Effects of Decreased Investment



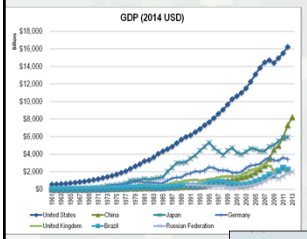
Since 2000:
• ~50% decrease in availability
• Twofold increase in scheduled outages!

Since 2000:
• more than a doubling in delays!

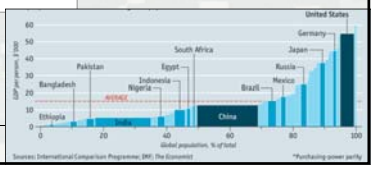


These are actual delays experienced by vessels!

Comparison of Gross Domestic Product



GDP per person at Purchasing Power Parity and share of global population, 2014 forecast



As published in The Economist, "The Dragon takes wing", May 3rd 2014, p. 65.

Failure of Vision

• "Nothing has been proposed during my twenty-two years in the United States Senate that would do more to wreck our fiscal budget system."

➢ Sen. Harry Byrd – VA commenting on the proposed Clay Plan for the Eisenhower Inter-state Highway System 1955

Success of Vision

• US GDP has grown 5.7 times larger today than in 1955 – due in large part to investments in Inland Waterways and the Inter-state Highway system.
• $ 2.78 Trillion in 1955
• $ 15.95 Trillion in 2014

And By the Way…

- **We are not adapting to the four revolutions across MVD and the nation**
- **We are not serious about "performance-based budgeting"**
  - **USACE generates $15B in annual fees for Treasury vs $5-6B appropriations**
    - **Payback period = 4 months**
    - **Annual Payback Ratio = 3:1**
  - **USACE generates > $50 B in annual direct NED benefits vs $5-6B appropriations**
    - **Payback period < 2 months**
    - **Annual Payback ratio = 6:1**
- **Our infrastructure makes delivery of domestic stability, global stability and security possible.**

The Bottom Line:

- **Our infrastructure makes global STABILITY and American domestic SECURITY and ECONOMIC PROSPERITY possible!**
  - Our infrastructure is degrading and our infrastructure is underperforming
  - The US is under-investing in its infrastructure and the US significantly lags other developed nations in its maintenance of prior investments.
  - We stand to lose hard-fought ground earned by prior generations through their financial and personal sacrifices.
  - Our economic prosperity, national security, standard of living, and environmental quality are at risk.
  - Our infrastructure is NOT disposable and should not be treated as such
- ***The United States is on an unsustainable glide-path! Something MUST Change!***
- ***USACE / Federal approps model of the 20th Century UNLIKELY to be restored.***
  - Private Capital and State / Local Capital MUST be brought to bear
    - USACE must incorporate standards and oversight model similar to FAA and airports; MUST consider grant-making model similar to DoT
    - USACE MUST include system-wide P3 options
    - Full privatization MUST be on the table and considered
    - Modified TVA Model for the entire Inland Waterway possible

Is WRRDA 2014 The Beginning of a Response?

• Developing Implementing Guidance – With You!
• Needs your input to exploit full authorities to benefit public
• Needs your active support to achieve in a relevant timeline

• Section 1001, 2, 4, 5 – SMART Planning streamlining studies and reviews

• Section 1007 – Speeds 408 Permission Review Process

• Section 1014 – Raised trigger for Indep. External Peer Review

• Section 1013 – Improve PPA Templates

• Section 1014, 1015 – Allows on-Federal Entities to Contribute Funds to advance projects or to execute – Studies, Construction and receive credits

Is WRRDA 2014 The Beginning of a Response?

- Section 1017 – Explore Non-Federal Entities paying for Expanded Lock Operations
- Section 1018, 1019, 2020-2022 – Clarifies Credits for IN-Kind contributions flexibly applied with some transferable between projects
- Section 1043, 5014 – Directs Public-Private Partnership Pilot Program (Up to 15 Proposals)
- Section 2002 – Refines Inland NAV Project Mgt, Enables ECI, D-B, Continuing Contracts and Milcon-type mechanisms, Expands IWUB's Roles and Responsibilities, Requires a 20-year Inland NAV and Inter-coastal NAV Plan (within 5 years).
- Section 2003-6, 2013 – Adjust Rules on IWTF

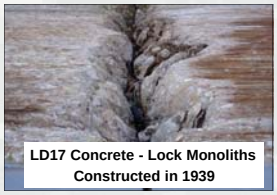
Is WRRDA 2014 The Beginning of a Response?

- Section 2010 – Closure for NAV of Upper ST. Anthony Falls L & D
- Section 4002 – USACE and NOAA upgrade Water Level Forecasting, Special Status of Upper Mississippi Basin and need for the NESP
- Section 1036, 2009, 3001, 3011, 3016, 3017, 3029 – Flood Risk Changes
- Section 5023 – Study Flood Risk and NAV in Upper Miss. Basin
- Title V, SubSection C – Creates WIFIA $175 M over 5 years
  - Loans for Projects worth more than $20 M
- Over $9.1 Billion of new Authorized projects out of $14.6 Billion nationally are in the Mississippi Watershed

Nothing is As Easy As It Looks or Sounds

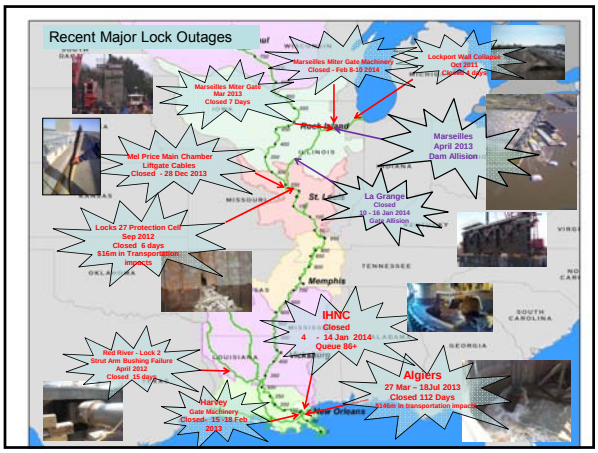
4 Revolutions Back-Up Slides

LaGrange Lock, IWW, Constructed in 1938



LD17 Concrete - Lock Monoliths Constructed in 1939

Gate Leak – Lockport Lock Constructed 1933



2013 Report Card for America's Infrastructure

by the American Society of Civil Engineers

D+

America's Cumulative G.P.A.

Aviation	D	Ports	C
Bridges	C+	Public Parks & Recreation	C-
Dams	D	Rail	C+
Drinking Water	D	Roads	D
Energy	D+	Schools	D
Hazardous Waste	D	Solid Waste	B-
Inland Waterways	D-	Transit	D
Levees	D-	Wastewater	D

A = Exceptional
B = Good
C = Mediocre
D = Poor
F = Failing

Estimated investment needed by 2020 =

$3.6 trillion

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USACE CW's Economic Benefits & Revenues to the Treasury

2010

Each dollar spent on the USACE Civil Works program generated ~ $9.00 in economic benefits and $2.70 in revenues to the U.S. Treasury.

Program	NED Benefits (Billions of Dollars)	Net NED Benefits (Billions of Dollars)	U.S. Treasury Revenues (Billions of Dollars)
Flood Risk Management	$23.1	$22.5	$7.3
Coastal Navigation	$8.7	$7.9	$3.3
Inland Navigation	$7.6	$7.0	$1.9
Water Supply	$6.5	$6.5	$0.1
Hydropower	$2.2	$2.0	$1.1
Recreation	$3.3	$3.0	$1.1
Leases and Sales			$0.1
Total Annual NED	**$51.4**	**$48.9**	**$14.8**

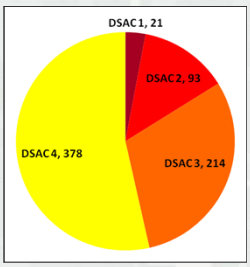
Notes:
NED Benefits represent total NED benefits minus the costs of operations, maintenance, expenses, the USACE regulatory program, FUSRAP, oversight by ASA(CW) and other USACE Civil Works programs.
Benefits and Revenues numbers are not additive.

27

Preparing for the future *(1 of 2)*

- Finalize USACE 2020 Overarching Strategy
  - Value to the Nation
  - Relevancy
- External focus and strategic engagement
  - It's not all about us
  - It's all about relationships

Effects of Decreased Investment



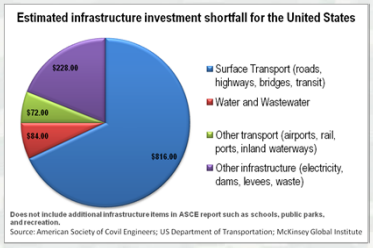
- 707 dams at 557 projects
- DSAC chart includes all USACE dams except one newly constructed dam that has not been assigned a DSAC value.
- Data source: DSPMT, 16 Oct 2013

USACE Dam Safety Action Classifications

Relative Quality of US Infrastructure

Not even among the top 15!

Distribution of US Infrastructure Investment Shortfall by 2020

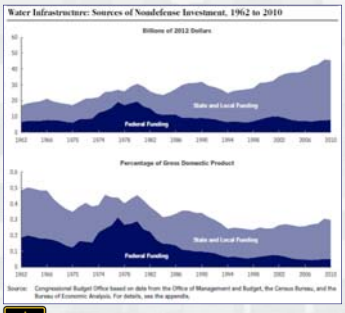


32% of the shortfall ($372B) involves infrastructure associated with Corps authorities!

- Water
- Ports
- Waterways
- Levees
- Dams
- Power generation

Approximately $200.00 per person per year
(the equivalent of one latte per week)

Water Infrastructure Spending

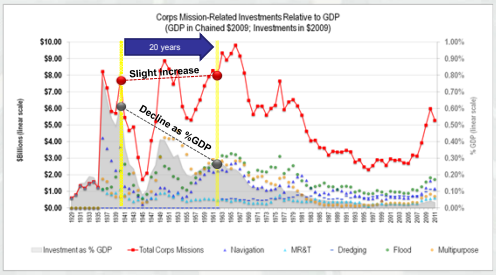


Between 1962 to 2010…

Total funding increased
% GDP decreased

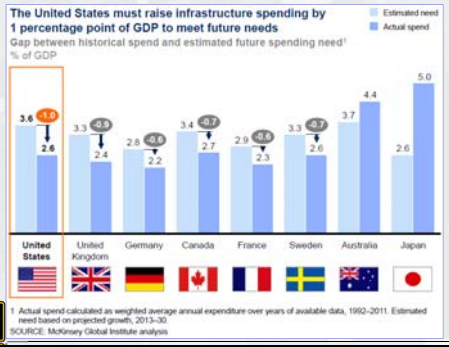
Greater burden on state and local funding sources as infrastructure ages.

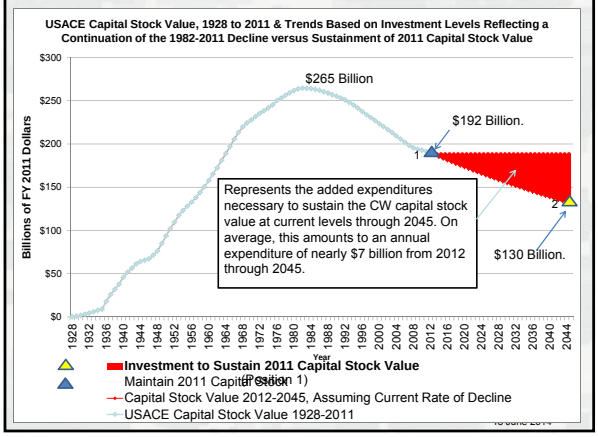
Corps Mission-Related Investments

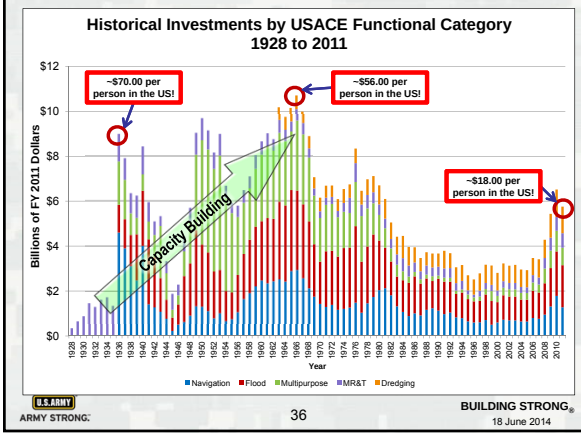


More than a tenfold increase in GDP since 1928!
Similar level of investment will not keep pace with GDP.
Decreasing levels of investment magnify the effect.

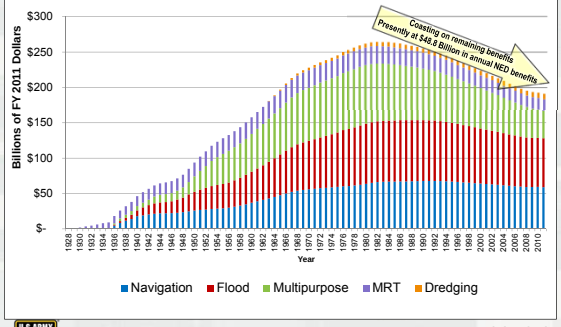
Patterns in Global Spending in Infrastructure



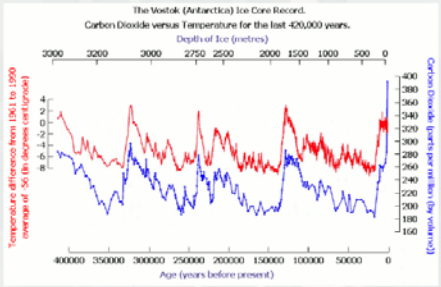




USACE Capital Stock Value by Functional Category 1928 to 2011

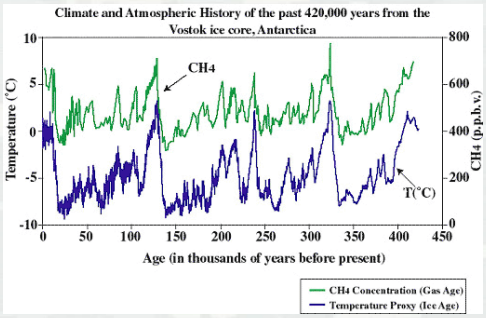


CO_2 Concentrations and Proxy Temperatures from the 400,000+ Vostok Ice Core Data Set



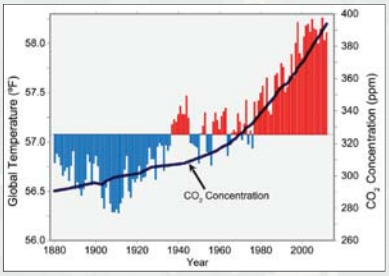
*Graphic courtesy of NOAA Paleoclimatology, National Climatic Data Center.

Vostok Ice Core Data Temp v. CH_4



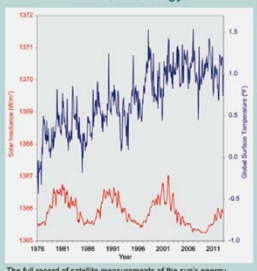
*Graphic courtesy of NASA, Goddard Institute for Space Studies. (http://www.giss.nasa.gov/research/features/200409_methane/)
**pg. 26

Global Temperature and Carbon Dioxide



Climate Change Impacts in the United States: Highlights, U.S. Global Change Research Program, p. 8, http://nca2014.globalchange.gov/highlights

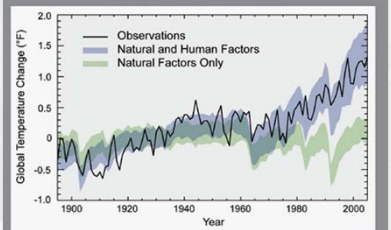
Measurements of Surface Temperature and Sun's Energy



The full record of satellite measurements of the sun's energy received at the top of the Earth's atmosphere is shown in red, following its natural 11-year cycle of small ups and downs, without any net increase. Over the same period, global temperature relative to 1961-1990 average (shown in blue) has risen markedly. This is a clear indication that changes in the sun are not responsible for the observed warming over recent decades. (Figure source: NOAA NCDC / CICS-NC).

Climate Change Impacts in the United States: Highlights, U.S. Global Change Research Program, p. 23 http://nca2014.globalchange.gov/highlights

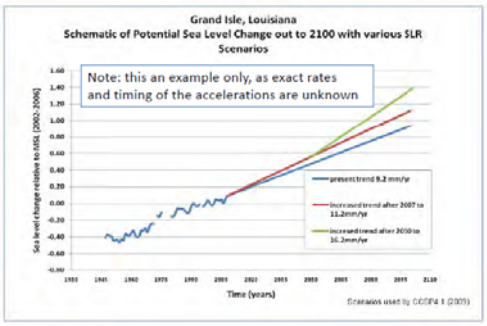
Separating Human and Natural Influences on Climate

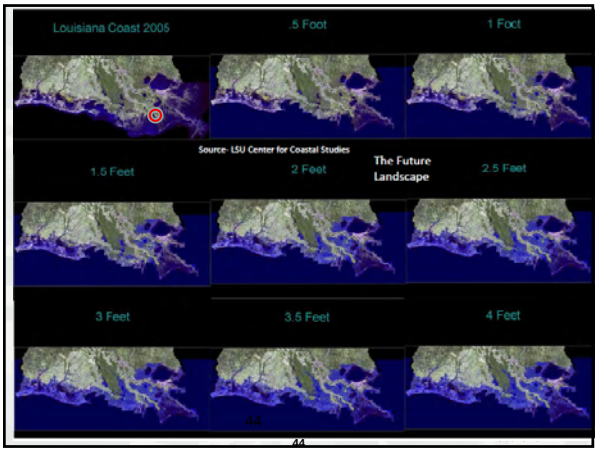


The green band shows how global average temperature would have changed over the last century due to natural forces alone, as simulated by climate models. The blue band shows model simulations of the effects of human and natural forces (including solar and volcanic activity) combined. The black line shows the actual observed global average temperatures. Only with the inclusion of human influences can models reproduce the observed temperature changes. (Figure source: adapted from Huber and Knutti 2012[3]).

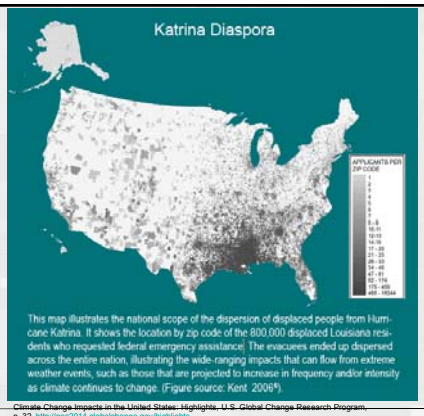
Climate Change Impacts in the United States: Highlights, U.S. Global Change Research Program, p. 5, http://nca2014.globalchange.gov/highlights

Climate models project acceleration in Sea Level Rise starting before 2100 due to climate change- Many Areas through SE Coastal Louisiana See High Rates Now In Excess of 10mm

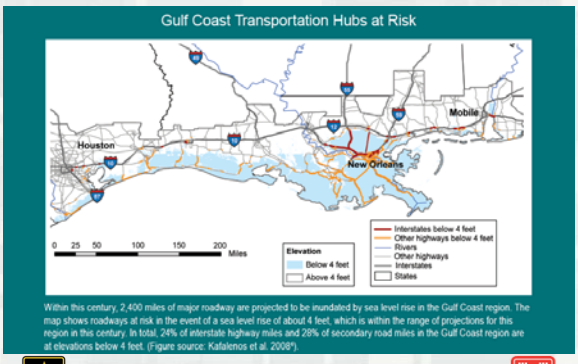




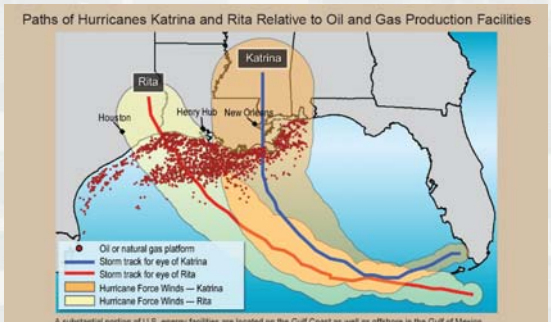
44



This map illustrates the national scope of the dispersion of displaced people from Hurricane Katrina. It shows the location by zip code of the 800,000 displaced Louisiana residents who requested federal emergency assistance. The evacuees ended up dispersed across the entire nation, illustrating the wide-ranging impacts that can flow from extreme weather events, such as those that are projected to increase in frequency and/or intensity as climate continues to change. (Figure source: Kent 2006[9]).



Within this century, 2,400 miles of major roadway are projected to be inundated by sea level rise in the Gulf Coast region. The map shows roadways at risk in the event of a sea level rise of about 4 feet, which is within the range of projections for this region in this century. In total, 24% of interstate highway miles and 28% of secondary road miles in the Gulf Coast region are at elevations below 4 feet. (Figure source: Kafalenos et al. 2008[8]).



A substantial portion of U.S. energy facilities are located on the Gulf Coast as well as offshore in the Gulf of Mexico, where they are particularly vulnerable to hurricanes and other storms and sea level rise. (Figure source: U.S. Government Accountability Office 2006[7]).

Louisiana vs. The Netherlands

	United States	Louisiana	The Netherlands
Coastline:	5,525 miles	397 miles	280 miles
Land Mass:	3,531,905 sq miles	43,203 sq. miles	13,086 sq. miles
GDP (2012):	13,430B	$198.5B	$772.2B
Population:	313.9M	4.6M	16.8M

Louisiana vs. Netherlands

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Population:	313.9M	4.6M	16.8M

CPBM – 2010

Table ES-1. IMTS Investment Strategy Criteria Weighting

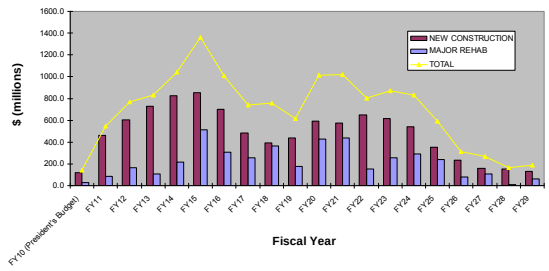
Criteria	Phases 1 and 2	Phase 3
Risk and Reliability	40	60
Condition Index for Locks (rated A through F)		
MSAC for Dams (rated 5 through 1)		
Economic Return	60	40
Net Benefits	15	
BCR	5	
RBRCR	25	
Economic Impact	15	40
Totals	100	100

Table 4-8. Total Ranking for the 10 Highest Ranked Projects

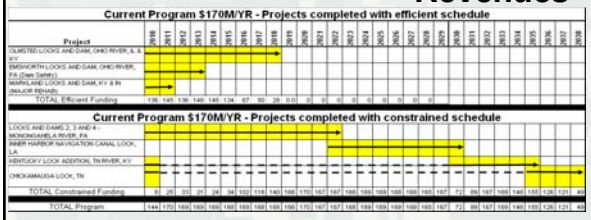
Project Name	Subproject Name	Criteria Total	Rank
Olmsted Locks and Dam	Olmsted L/D Construction	90.5	1
Monongahela Locks and Dams 2, 3, and 4	Lower Mon 2,3,4, Dam Features	69.5	2
Monongahela Locks and Dams 2, 3, and 4	Lower Mon 2,3,4, Lock Features	68.8	3
Greenup Lock, Ohio River	Greenup Lock Extension PED	59.0	4
Chickamauga Lock	Chickamauga Replacement Lock	40.2	5
Upper Mississippi & Illinois Waterway, L/D 25	1200' Lock Addition	26.9	6
Upper Mississippi & Illinois Waterway, L/D 22	1200' Lock Addition	26.5	7
Kentucky Lock Addition	Kentucky Lock Addition	26.3	8

Good results using data and information available at that time!!

Inland Marine Transportation System
Unconstrained Investment Need



IMTS Investment Strategy Team Future Program with Current Revenues



PRESENTATION TO
Upper Mississippi River Basin Association

Commodities

COL Mark Deschenes
Commander
Rock Island District
July 9, 2014

US Army Corps of Engineers
BUILDING STRONG®

Commodities on the Upper Miss

- 580 manufacturing facilities, terminals, grain elevators, and docks that ship and receive tonnage in the Upper Mississippi River basin.
- Grains (corn and soybeans) dominate traffic on the system.
- Other major commodities are cement, coal & petroleum products.
- 50% Agricultural on the Mississippi; 30% Agricultural on the Illinois Waterway.

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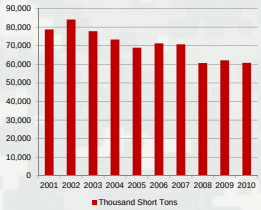
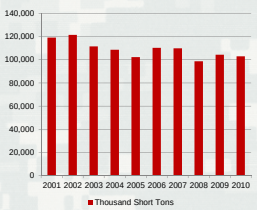
Waterborne Commerce of the U.S

Comparative Statement of Traffic
Mississippi River
Minneapolis, Minn. to mouth of Missouri River



Comparative Statement of Traffic
Mississippi River
Mouth of Missouri River to mouth of Ohio River



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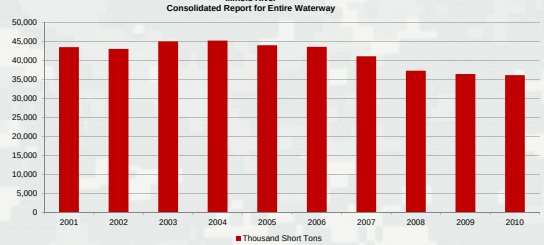
Waterborne Commerce of the U.S

Comparative Statement of Traffic
Illinois River
Consolidated Report for Entire Waterway



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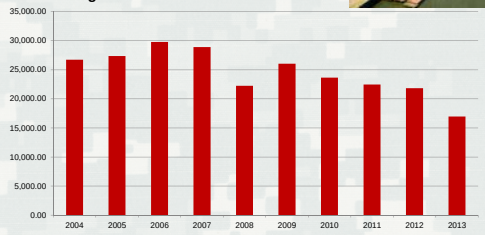
Tonnage Trends

Tonnage at Lock and Dam 22



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Commodity Value

** 2011 Data at LaGrange L&D*

▪Chemical Fertilizers	***$631M***
▪Chemicals (Non Fert.)	***$1.9B***
▪Coal	***$40M***
▪Crude Petroleum	***$31M***
▪Food, Food Products	***$1.7B***
▪Grain	***$18M***
▪Manufactured Goods	***$1.8B***
▪Petroleum Products	***$2.1B***
▪Primary Metal Products	***$431M***
▪Sand, gravel	***$78M***

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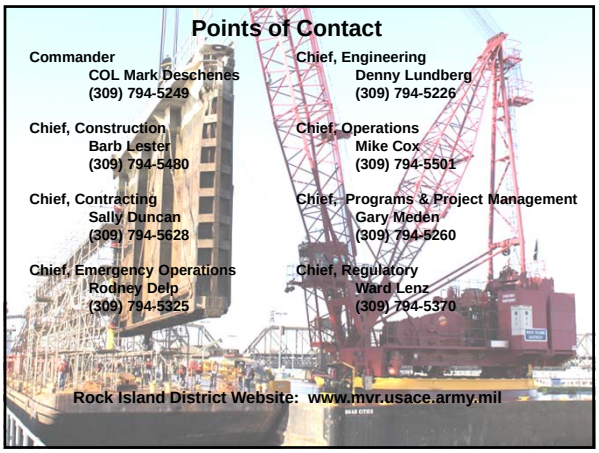

Points of Contact
Commander
COL Mark Deschenes
(309) 794-5249
Chief, Engineering
Denny Lundberg
(309) 794-5226
Chief, Construction
Barb Lester
(309) 794-5480
Chief, Operations
Mike Cox
(309) 794-5501
Chief, Contracting
Sally Duncan
(309) 794-5628
Chief, Programs & Project Management
Gary Meden
(309) 794-5260
Chief, Emergency Operations
Rodney Delp
(309) 794-5325
Chief, Regulatory
Ward Lenz
(309) 794-5370
Rock Island District Website: www.mvr.usace.army.mil

PRESENTATION TO
Upper Mississippi River Basin Association

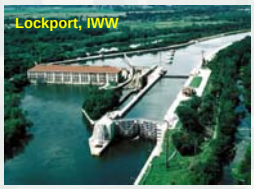
State of the Infrastructure

COL Mark Deschenes
Commander
Rock Island District
July 9, 2014

US Army Corps of Engineers
BUILDING STRONG®

State of Upper Miss Navigation Infrastructure

Priorities of Maintenance (POM)



- Total for Mississippi Valley Division is more than $1 Billion
- Upper Mississippi River = $873 Million
- Rock Island District = $714 Million
  -- $470 on Mississippi River -- $244 on Illinois Waterway

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Backlog of Maintenance

Examples of high ranking FY15 backlog projects	Cost est.
Mississippi River, L&D 27 (MVS), replace lift gate	$2.5M
Illinois Waterway Peoria L/D (MVR), replace miter gates	$2M
Mississippi River, L&D 1 (MVP), dam scour repair	$3.5M
Mississippi River, L&D 14 (MVR), replace miter gates	$3M
Mississippi River L&D 16 (MVR), bulkhead slots	$6M
Illinois Waterway (MVR), work on Joliet Channel	$5.1M
Mississippi River L&D 18 (MVR), bulkhead slots	$3M

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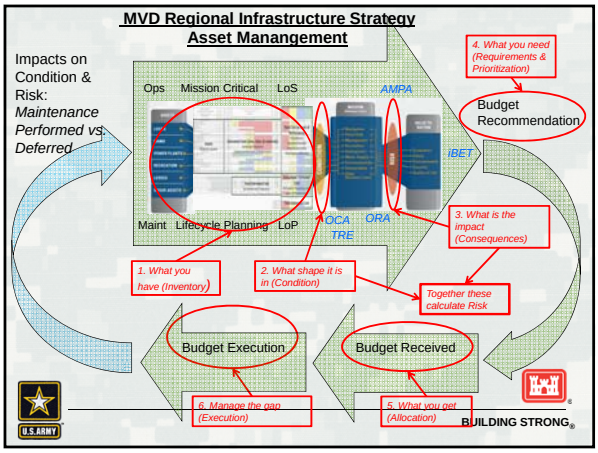
MVD Regional Infrastructure Strategy
Asset Manangement



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PRESENTATION TO
Upper Mississippi River Basin Association

Navigation Ecosystem Sustainability Program (NESP)

COL Mark Deschenes
Commander
Rock Island District

July 9, 2014

US Army Corps of Engineers
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Navigation Ecosystem Sustainability Program

NESP Navigation Authorization = $2.37 billion
(50/50 Cost Share with the Inland Waterway Trust Fund)

- **Small scale structural and non-structural measures** ($274M)
  - Mooring facilities @ Locks 12, 14, 18, 20, 22, 24 and LaGrange
  - Switchboats @ 5 Locks (20 through 25)
  - Develop and test - appointment scheduling system.
- **New 1200' locks at Locks 20 through 25, Lagrange, and Peoria** ($2.09B of which $252M is for mitigation)

NOTE: To date, no NESP construction funds have been appropriated

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NESP Benefits

- Efficiency -- less delay time
- Increased capacity – more tonnage
- Redundancy
  - ► *1,200 foot locks eliminate the single point of failure system at most locations*

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NESP Development

- Requesting $1.5 Million in FY15 to update the economic analysis
  - ►New analysis required before moving forward with program

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Commander
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Marty Hettel
July 9, 2014

AEP RIVER OPERATIONS

Assumptions:

- Basis Financial Report IWUB Meeting #71 in Little Rock, AR.
- Basis 2014 Dollar Value
- No Increase in Construction Costs/Inflation
- $85 Million User Fee Deposits Per Year into IWTF ($170 Million Per Year with Government Match)
- $20 Million Per Year for Major Rehab Projects
- $300 Million Per Lock in NESP
- Full Annual Appropriations to match the IWTF and Completion of Olmsted ($150 Million/Year)

AEP RIVER OPERATIONS

New Construction Pre - WRRDA 2014

- Olmsted Lock & Dam: ($1.458 Billion) Completion 2024
- Lower Monongahela: ($1.2 Billion) Completion 2032 (Twin Chambers at Charleroi)
- Kentucky Lock: ($446 Million) Completion 2035
- Chickamauga Lock: ($523 Million) Completion 2039
- UMR Lock 25: ($300 Million) Completion 2042
- IR Lagrange Lock: ($300 Million) Completion 2045
- UMR Lock 24: ($300 Million) Completion 2048
- UMR Lock 22: ($300 Million) Completion 2051
- UMR Lock 21: ($300 Million) Completion 2054
- IR Peoria Lock : ($300 Million) Completion 2057
- UMR Lock 20: ($300 Million) Completion 2060

AEP RIVER OPERATIONS

New Construction Post - WRRDA 2014

- Olmsted Lock & Dam: ($1.458 Billion) Completion 2024
- Lower Monongahela: ($1.2 Billion) Completion 2025 (Twin Chambers at Charleroi)
- Kentucky Lock: ($446 Million) Completion 2028
- Chickamauga Lock: ($523 Million) Completion 2032
- UMR Lock 25: ($300 Million) Completion 2035
- IR Lagrange Lock: ($300 Million) Completion 2038
- UMR Lock 24: ($300 Million) Completion 2041
- UMR Lock 22: ($300 Million) Completion 2044
- UMR Lock 21: ($300 Million) Completion 2047
- IR Peoria Lock : ($300 Million) Completion 2050
- UMR Lock 20: ($300 Million) Completion 2053

AEP RIVER OPERATIONS

New Construction Post - WRRDA 2014

- Olmsted Lock & Dam: ($1.458 Billion) Completion 2024
- Lower Monongahela: ($450 Million) Completion 2018 (Main Chamber Only/Charleroi)
- Kentucky Lock: ($446 Million) Completion 2022
- Chickamauga Lock: ($523 Million) Completion 2026
- UMR Lock 25: ($300 Million) Completion 2029
- IR Lagrange Lock: ($300 Million) Completion 2032
- UMR Lock 24: ($300 Million) Completion 2035
- UMR Lock 22: ($300 Million) Completion 2038
- UMR Lock 21: ($300 Million) Completion 2041
- IR Peoria Lock : ($300 Million) Completion 2044
- UMR Lock 20: ($300 Million) Completion 2047

AEP RIVER OPERATIONS

New Construction Post - WRRDA 2014
Plus $.09 Increase in User Fee

- Olmsted Lock & Dam: ($1.458 Billion) Completion 2024
- Lower Monongahela: ($450 Million) Completion 2018 (Main Chamber Only/Charleroi)
- Kentucky Lock: ($446 Million) Completion 2020
- Chickamauga Lock: ($523 Million) Completion 2023
- UMR Lock 25: ($300 Million) Completion 2026
- IR Lagrange Lock: ($300 Million) Completion 2029
- UMR Lock 24: ($300 Million) Completion 2032
- UMR Lock 22: ($300 Million) Completion 2035
- UMR Lock 21: ($300 Million) Completion 2038
- IR Peoria Lock : ($300 Million) Completion 2041
- UMR Lock 20: ($300 Million) Completion 2044

AEP RIVER OPERATIONS

My Disclaimer

What we just discussed are my “Back of the Envelope” calculations and in no way should be taken as factual.

I am sure we’ll see more detailed estimates, from the USACE, once WRRDA 2014 is implemented.

Marty Hettel
Senior Manager Waterway Regulatory Programs
Office – (636) 530-2153
mthettel@aepriverops.com

Marine Highways

Connecting & Coordinating Efforts to Optimize Freight Movement on Inland Waterways

Bill Paape
U.S. DOT – Maritime Administration (MARAD)

Kevin Schoeben
Illinois Department of Transportation (IDOT)

July, 2014

MARAD - *Inland Waterways Gateway Office*

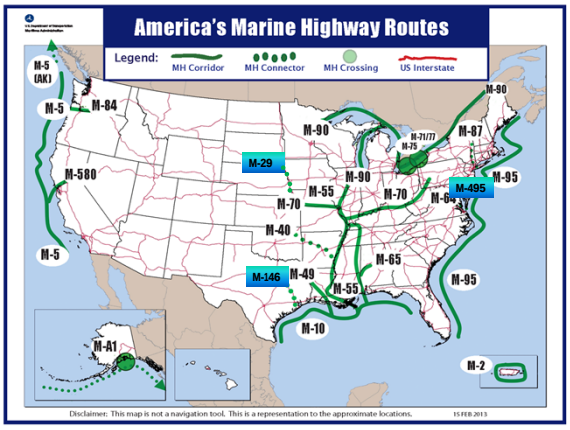
The Inland Waterways Gateway Office area of responsibility includes portions of fifteen States adjacent to the navigable rivers, to include:

- Headwaters of **the Upper Mississippi River** in Minnesota to Memphis TN
- **the Missouri River** from North Dakota to its' Mouth near St. Louis, MO
- **the Illinois Waterway** from Chicago, IL to its' Mouth just North of St. Louis, MO
- **the Ohio River** from its headwaters in Pennsylvania to its Mouth at Cairo, IL.

Inland Waterways Gateway Focus Areas:

- ✓ Stakeholder Outreach [*Supporting Effort*]
- ✓ Grant Management [*Infrastructure*]
- ✓ Inter-Agency Partnerships [*Supporting Effort*]
- ✓ America's Marine Highways - M-55 & M-70 [*Reduced Congestion*]
- ✓ Port Security Grant Program [*Security, Preparedness & Response*]
- ✓ Maritime Green Initiative [*Environmental Stewardship*]

2



America's Marine Highways: From Concept to Reality!

- Authorized in 2007
- Grant program created and $7M awarded in 2010
- Four new services funded
- Three market studies funded
- New vessel designs funded

4

Marine Highway Studies

Three Routes Studied (M-5, M-55, & M-95)

- ✓ Market Analysis
- ✓ Operation/Infrastructure Analysis
- ✓ Business Case

Major Findings

- ✓ Where the geography and market were favorable, services could work
- ✓ Infrastructure gaps and modal connectivity need to be addressed
- ✓ Handling costs and vessel operations continue to be the major cost drivers
- ✓ Must be part of a total supply chain package

5

5

Lessons Learned for forming Marine Highway Services

- It takes a village! Partnerships must be formed among the State DOTs, MPOs, Port Authorities, Terminal Operators, Service Operators, Logistics Providers/Shippers and Federal Agencies (i.e. U.S. Customs)
- Communication and Cooperation
- In-depth Market Analysis
- Sufficient start up capital
- Part of a complete, door to door supply chain
- Value-added services as part of the total service package

Prime Considerations

&

- Where's my freight?
- When will I get it?
- How much will it cost me?

Major Cost Factors

&

- Maximizing vessel utilization
- Efficient terminal operations
- How much will it cost me?

StrongPorts Program

Legislation: Authorizes Port Infrastructure Development Program (2010 National Defense Authorization Act (PL 111-84))

Purpose: Promote, Encourage, Develop Ports and Transportation Facilities in Connection with Water Commerce

- Secretary of Transportation, through the Maritime Administrator **"shall establish a port infrastructure development program for the improvement of port facilities."**
- Provide technical assistance as needed for project planning, design and construction.
- Coordinate with Federal agencies to expedite NEPA.
- Coordinate reviews or requirements with local state and federal agencies.
- Receive (Federal, non-Federal, private) funds to further projects.

StrongPorts Program

Primary Objective:

- Improve state of repair, capacity, efficiency and environmental sustainability of all U.S. ports.
- Leverage existing programs where possible
- Improve port competitiveness for public (Federal, State and local) and private funds through enhanced planning and engagement

Factors, Goals and Methodologies to Consider

- Ensure Federal role is appropriate to circumstances – Right Size, not Super Size
- Competition among/between ports is essential – minimize impact
- Program must be effective with no new Federal Funds – New money only increases scope of program benefits.
- Address the real challenges ports face, not perceived - Consensus
- Program should benefit all ports, not just a select few.

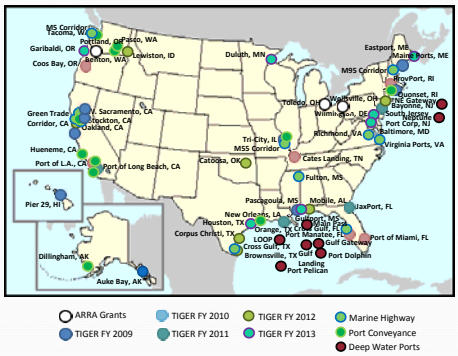
Program Framework - Phase 1

	Category I Planning & Engagement	Category II Financing	Category III Project Support
	All Ports Low Federal Oversight No Market Interference	Limited No. of Ports Moderate Federal Oversight Minimal Market Interference	Very Few Ports High Federal Oversight Minimal Market Interference
A. Guidelines & Data:	Sector advocate through analysis & showcasing opportunities/consequences regarding port role/investment **Activities Include:** • Port Investment Plan Guidelines (With Stakeholders) • National/Regional Studies and Maritime Impact Analysis	**Financing:** Direct funding support via existing/future programs • TIGER I-VI Grants ($420M) • Marine Highway Grants • Eligible for Port Infra Development. Fund	**Project Support:** Increased Federal project assistance where unique Federal interest exists MARAD Co-Manages Project w/Port • Design Development • Eligible For PID Fund • Eligible for Lead Fed. Agency Supp. • Strict Sel. Criteria • Investment Plan Req'd • Project Clearly Defined
B. Assistance:	Direct support to individual ports (upon request) • Investment Plan Devel. Support (TIGER VI Planning Grants) • Delivery of Federal Services (Gateway Offices & HQ) • Dedicated Staff With MPO Experience		

Authority: 46 USC, Section 50302

Maritime Administration Projects

Maritime Administration Projects



13

StrongPorts Initiatives - 2014

Port Planning & Investment Toolkit

A Maritime Industry Joint Venture

A Collection of Investment Plan Best Practices and Tools, Developed by industry experts under a cooperative agreement between AAPA and the Maritime Administration

PortTalk

A Regional Maritime Collaboration

U.S. Department of Transportation

Working with State Departments of Transportation, Metropolitan Planning Organizations, and ports to include water transportation in State freight and passenger transportation plan

14

Port Planning & Investment Toolkit

A Maritime Industry Joint Venture

A **joint venture** between AAPA, a working group of 57 industry expert volunteers, and the Maritime Administration.

Toolkit will help **ports obtain funding** by developing **investment grade plans that:**

- Clearly identify **future port needs**;
- Determine the most **cost-effective**, sustainable and efficient **solutions** to port problems; and
- Get port infrastructure projects into **MPO and state transportation programs** in order to receive **formula funding**;
- Position port projects for **federal funding** such as TIGER grants; and
- Assist ports in obtaining **private sector investment funds**.

15

PortTalk

A Regional Maritime Collaboration

U.S. Department of Transportation

A facilitated day-long session to **foster dialogue** and **develop regional maritime transportation plans**

Target participants include **State Departments of Transportation, MPOs, Economic Development Corporations, Ports, and Port Authorities**

PortTalk Outcomes:

- Identify resources and programs to help build, **modernize and expand** maritime transportation assets
- **Spotlight** maritime transportation's role in regional transportation **system planning**
- Gain **understanding** of freight system plans to 2025
- Generate **innovative solutions** to environmental and logistics challenges

16

M-35 Co-Sponsors

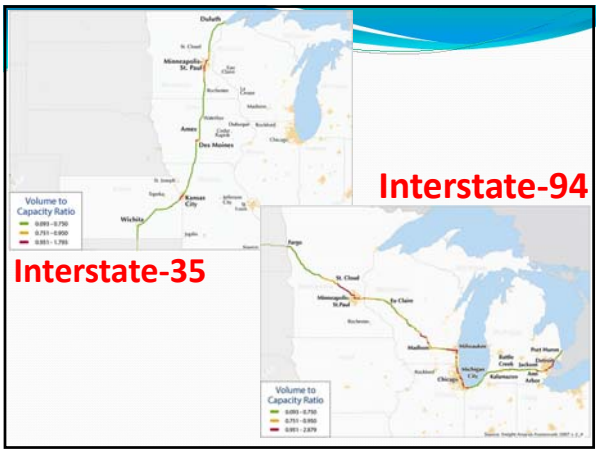
"Waterway of the Saints"

- Illinois Department of Transportation
- Iowa Department of Transportation
- Minnesota Department of Transportation
- Missouri Department of Transportation
- Wisconsin Department of Transportation

First Application Submitted to Collaborate with 5 total States

USDOT – Maritime Administration MARAD

New Corridor Designation M- 35 Upper Mississippi River



M-35 Marine Highway Benefits Data

State	Cargo tons total - CY 2011	Miss. River Waterway Mileage	Roadway mileage (est.) - Route parallel to Miss. River		Modal Cargo Capacity		State of Good Repair - Maintenance Costs *(10.0 cents per VMT for rural road segments)*	Emissions Avoided	Value of Annual costs of CO2
			Description	Miles	# of Truckload equivalents	# of Barge equivalents	If cargo is hauled by trucks...	*(Difference btwn truck and barge emissions)*	*(social costs of emissions...estimate of climate change damage...)*
Minnesota	43,109,000	190	I-35 from IA - MN state line to Minneapolis	114	1,724,360	1,642.2	$ 19,657,704.00	189,603	$ 5,676,713.82
Iowa	9,740,000	312	I-35 from IA - MN state line to SR 27 to IA - MO state line	278	389,600	371.0	$ 10,830,880.00	133,712	$ 4,003,337.28
Illinois	109,663,000	580	Davenport, IA to Springfield to St. Louis via I-74 to I-55	266	4,386,520	4,177.6	$ 116,681,432.00	828,047	$ 24,791,727.18
Wisconsin	32,042,000	231	Hudson, WI to WI - IA state line (near Dubuque) via I-94 to US 61	259	1,281,680	1,220.6	$ 33,195,512.00	447,755	$ 13,405,784.70
Missouri	33,111,000	361	SR 27 @ IA - MO state line to U.S. 61 to St. Louis/Miss. River	185	1,324,440	1,261.4	$ 24,502,140.00	201,728	$ 6,039,736.32

DISCLAIMER: The numbers in the table are calculated estimates using data from the sources listed below. For an actual valuation, more in-depth research would be needed. However, this methodology is sufficient for providing general estimations for a marine highway corridor designation application.

M-55 Study

1. Allows IDOT & MoDOT to pull in other stakeholder agencies for Maritime freight opportunities and development
2. Present Study along the entire M-55 Corridor
3. Study helps establish baseline for future port studies for COB opportunities and overall awareness for maritime freight

Service Requirements Key

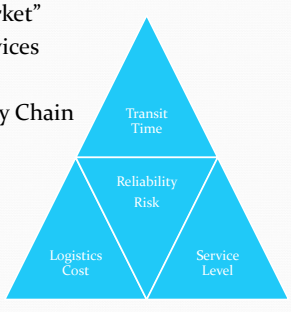
Figure 2: Strategies for Meeting Service Requirements

Requirement	Strategy
• Scheduled and reliable service • Meet vessel cuts at coastal ports • Min. weekly service (container) • Every 10 days suffice for Ro/Ro • 7-days max line-haul transit • Lowest cost expected • No damage to finished goods	Short Term • More equipm't in-lieu of speed • Two weekly "bookend" services • Extra barges loaded pre-arrival Long Term • Faster marine highway vessel • Requires further R&D

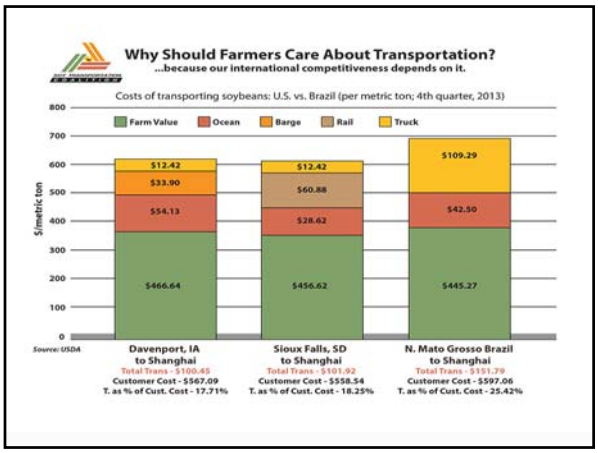
Maritime Freight Considerations

- Shippers are "the market"
- Carriers offer the services
- Government enable
- Performance is Supply Chain Specific

Marc-Andre Roy, CPCS



Illinois-Based Supply Chain: Corn

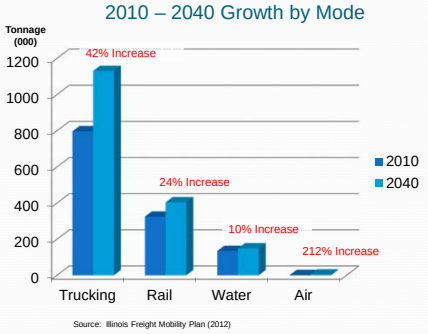


Incorporating Maritime Freight into Multimodal Planning

Illinois Freight Mobility Plan for One Transportation System

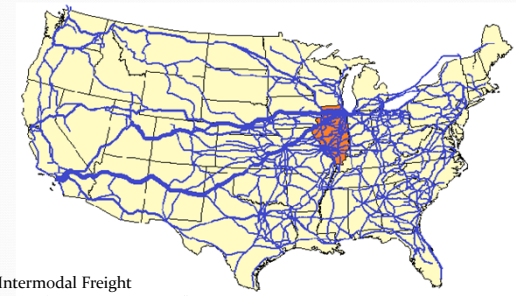
- Role in promoting more sustainable, effective and efficient connections in order to optimize private sector logistics options.
- Support ALL modes.
- Use strategic freight planning under multi-modal lens to tie intermodal connections across all freight modes.

Illinois Based Freight Tonnage



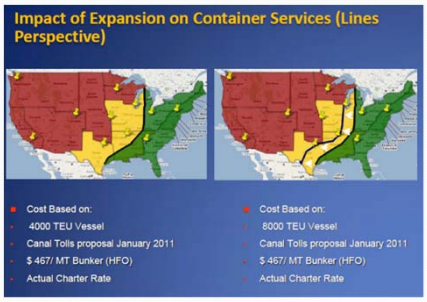
Tonnage on Highways, Railroads, and Inland Waterways: 2010

Rail Density – Illinois' Central Position



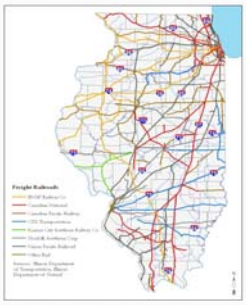
"Intermodal Freight Primarily Moves East/West"
– *IRPT Summit Meeting*

Panama Canal - Logistics Shift



Update on the Panama Canal Expansion, Rodolfe Sabonage, January 2104

Illinois Rail & Highways Networks



Illinois Intermodal Freight Facilities and Connectors

There are 220 intermodal freight facilities in Illinois; most are connections between truck and rail. Over half (130) are located in seven county metropolitan Chicago region.

Illinois Port Districts and Water Landing Facilities- 1,095 Miles of Navigable Waterways

Outbound -2010

COMMODITY	%	TONNAGE (in millions)
Coal	56	58.4
Agriculture	25	26.2
Petro/Gas	11	11.8
Other	8	7.8
TOTAL	100	104.2

Inbound -2010

COMMODITY	%	TONNAGE (in millions)
Stone/Ore	36	6.3
Ferilizer/Chem	20	3.5
Metal Products	14	2.5
Other	30	5.2
TOTAL	100	17.5

Lock & Dams

- Illinois between two great national assets – Great Lakes & Mississippi River
- 5 Locks on Mississippi River & two on Illinois River approved but not yet funded
- **Point of Failure** concern and its impact to other modes

Keeping Freight Mobility in Forefront

Current MAP-21 Requirements for Strategic Freight Planning

1. Strategic Plan how DOTs to meet national freight goals & overview of trends, needs, and issues
2. **Freight policies & strategies aimed to guide freight-related decisions and enhance freight mobility & regional collaboration**
3. Condition & performance of state freight system including measurements to be used to guide investment decision-making

Maritime Collaboration

- USDOT–MARAD, U.S. Corps, State Agencies
- Inland Rivers, Ports & Terminals Assn.
- Upper Mississippi Rivers Basin Assn.
- Upper Mississippi,Ill & Missouri Rivers Assn.
- Big River Coalition & Louisiana Maritime Assn.
- Waterways Council, Inc.
- Mississippi River Cities & Towns Initiative
- Mississippi Valley Flood Control Assn.
- Industry, Shippers, Carriers, etc.

Federal Action Highlights

- **Water Resources Reform & Development Act (WRRDA)**
  - Harbors Maintenance Trust Fund levels ~ Full use by 2025 ($1.8 billion/year)
  - Olmsted Lock and Dam draw from Inland Waterways Trust Fund at only 15%
  - Two pilot programs - Innovative financing (P3) for up to 15 projects & Water Infrastructure Finance and Innovation (WIFIA) loan program
- **President's Grow America Act**
  - **$10 Billion** Initiative for Freight projects (2-tiered)
    - States must demonstrate regional, national and international freight analyses

Federal Action

- **National Freight Advisory Committee**
  - Promote Dredging, Maintenance & Modernization of Inland Waterway system
  - Focus on Intermodal Connectivity (First/Last Mile)
  - Renew Short Line RR Credit
  - Establish a One-Stop Shop Permitting Division
  - Centralize Freight Planning *(Local, State, Regional, National, International levels)*
- **Senate Environment & Public Works Committee**
  - Create and provide incentives for Critical Urban & Intermodal Connector Designations
  - Allow states to allocate up to 10% for freight rail and port facilities that provide facilitate intermodal interchange

State/Local Involvement

- Illinois State Freight Advisory Council (ISFAC)
- Local Freight Plans
- State Freight Plan Alignment
- Illinois Economic Development Plan *(Transportation & Logistics)*
- State Agency Port Working Groups
- Public Port Needs Survey
- IDOT - TIGER Support
- State Agencies Participation in MARAD's Call for Marine Highway projects

Contact Information

Kevin Schoeben
Deputy Director,

Office of Planning & Programming
Illinois Department of Transportation

(217) 557.5434

Kevin.Schoeben@illinois.gov

William K. Paape
Acting Director,

Office of Gateways
Maritime Administration
US Department of Transportation

(202) 366- 5005
(314) 539-6783

William.Paape@dot.gov

St. Louis Development Corporation
Otis Williams, Executive Director

St. Louis Port Authority

- 19-mile riverfront, public & private facilities
- Municipal River Terminal owned by city, now negotiating next long-term operator lease

Operations: Nick Nichols
Port Development: Susan Taylor

Municipal River Terminal
2,000 linear foot dock (completed July 2013)

Pre-construction

Rendering of completed dock

Old South Dock (50 yrs old)

Failed Dock (not ours)

South Dock Rebuild, $20M
$16M, EDA grant
$4M, bank loan

www.stlouisportauthority.org

Port of Metropolitan St. Louis (PMSL)

- 70 miles long, per US Army Corps, both sides of the river
- In Missouri: St. Louis, St. Louis County, & Jefferson County Port Authorities
- In Illinois: St. Clair and Madison County Port Districts
- Northernmost ice-free and lock-free port on the Mississippi
- Multimodal: all major barge lines, 7 interstates, 6 Class One RR's, 2 international airports

Fleeting, looking north from south side of city

Port of Metropolitan St. Louis

Annual Barge Tonnages
- 106M thru PMSL
- 36.5M across PMSL docks
- 15M across St. Louis riverfront

PMSL Data
- 18th largest US port
- 130 facilities in MO and IL

Mississippi River Commerce
- 60% of North American grain for export
- $200B total revenue from all uses
- PMSL competes with other regions (KC, Indianapolis, Memphis)
- Connected to global marketplace

Regional Port Working Group

Goals
1. Promote Area Shipping
2. Market Our Region

Over 35 regional stakeholders:
- Shippers, Carriers, Ports and Terminals
- MARAD, DOT's, and other Governmental Entities
- Civic and Trade Groups
- Universities and Consultants
- MPO: East West Gateway

Bi-monthly lunch meetings:
- Rotating locations/sponsors
- Current topic: what helps/hinders flow of your goods thru the PMSL

Regional Port Working Group

Promote Area Shipping

Market Our Region

2014 bi-monthly agenda: how can we improve regional shipping?

- Feb 5, logistics firms
- Apr 2, barge lines
- Jun 4, trucking companies
- Aug 6, railroads
- Oct 1, ports and terminals
- Dec 3, next steps in 2015?

2015 Action Item #1: attract new barge and truck workers

- ➢ Dire shortages looming
- ➢ Weeks away from home
- ➢ Unglamorous

- ✓ Vocational high schools/colleges
- ✓ Scholarships, apprenticeships
- ✓ Better marketing

East West Gateway Council of Governments: Regional Freight Plan, 2013

Next Steps:

- ✓ **Create Regional Freight District**
- ✓ **Create Regional Freight Authority**
- ✓ **Develop Prioritized List of Projects**

http://www.ewgateway.org/freight/freight.htm

WATERWAYS COUNCIL, INC.

Paul Rohde

UMRBA Navigation Summit

WATERWAYS COUNCIL, INC.

National Public Policy Organization Advocating a World-Class System of Ports and Inland Waterways

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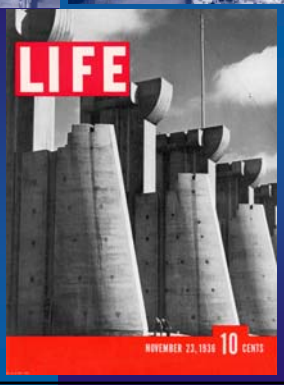
Who is WCI?

- Towboat , Tugboat, & Barge Industry Companies
- Companies Utilizing Waterways for Shipping
- Companies Utilizing Goods Delivered/Sent via Waterways
  - Power, Construction, Agribusiness, etc.…
- Agricultural Associations
- Economic Development Groups
- Ports & Harbors
- Organized Labor Unions
- Conservation Organizations
- Advocates for Reliable River Transportation !

Issues of WCI Focus

- Put Spotlight on Operations & Maintenance & Rehabilitation Funding for Navigation Infrastructure
- Push to Finish Ongoing Construction
- Start Modernization of Locks at Key Locations
- Other Inland Navigation Issues
  - Dredging, Aids to Navigation (AtoNs) Asian Carp, Reduced Lock Operations, Missouri River, etc.…
- Time-Sensitive Issues
  - **Low Water Crisis 2012-2013**, 2012 Lock 27 Closure, 2014 Mel Price Chamber Closure, etc…
- INLAND WATERWAYS TRUST FUND

Challenge:
Out of Sight, Out of Mind



The "Golden Age" of American Infrastructure Construction

Challenge: Project Completion Dates
(Pre-WRRDA, Status Quo, New Construction)

- Olmsted L/D Construction (2020)
- Lower Mon 2,3 & 4 Replacement, phase 1 (2027)
- Kentucky Lock Addition (2041)
- Chickamauga Replacement Lock (2051)
- **L/D 25 Upper MS 1200' Lock Addition** (2064)
- High Island to Brazos River, TX (2053)
- **Lagrange 1200' Lock Addition** (2070)
- Inner Harbor Lock Replacement (2077)
- **L/D 22 Upper MS 1200' Lock Addition** (2083)
- **L/D 24 Upper MS 1200' Lock Addition** (2090)

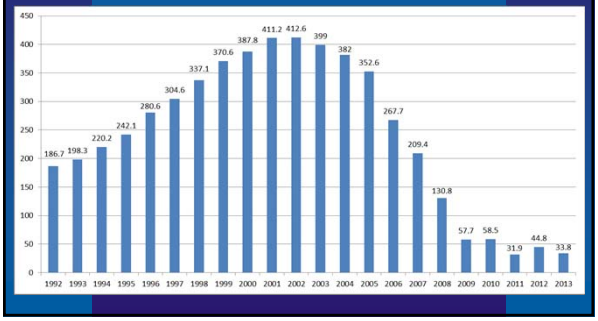
Challenge: Project Completion Dates
(Status Quo, Major Rehab)

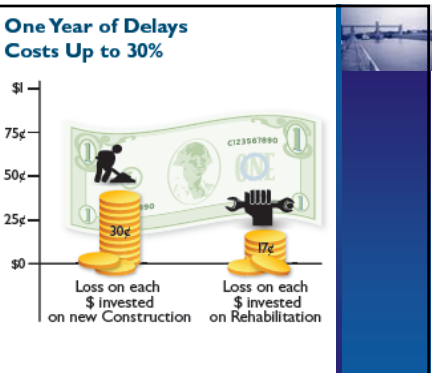
- **L/D 25 Upper Miss Dam (2053)**
- **Lagrange (2064)**
- Lower Monumental **(2065)**
- **ILL WW Thomas O'Brien L/D (2065)**
- Greenup Dam Rehab PED & Constr. **(2079)**
- JT Myers Dam **(2081)**
- Meldahl Dam **(2079)**
- Montgomery **(2084)**
- **Mel Price Upper Miss (2086)**
- No. 2 Lock AR Lock Wall/Bank Slope Rehab **(2085)**
- Willow Island Dam Rehab PED & Constr. **(2089)**
- Marmet Dam **(2090)**

A Path Forward:
The Inland Marine Transportation System Capital Projects Business Model
"Capital Development Plan"

- **Strategic Expenditure of Limited Appropriations**
- **Design & Construct Projects on Time & Within Budget**
- **A Sustainable *Inland Waterways Trust Fund* Operating as it was Intended**

Inland Waterways Trust Fund





1 Year of River Navigation Project Delay = Loss of .30 cents on Every Dollar Invested

	Add'l Total Investment by 2020	Protects $B in Exports	Protects $B in GDP	Protects Jobs	Protects Personal Income
Waterways	$16B	$270B	$697B	738,000	$872B
Airports*	$39B	$54B	$313B	350,000	$361B
Electricity	$107B	$51B	$496B	529,000	$656B
Water/Wastewater	$84B	$20B	$416B	669,000	$541B
Roads	$846B	$114B	$897B	877,000	$930B

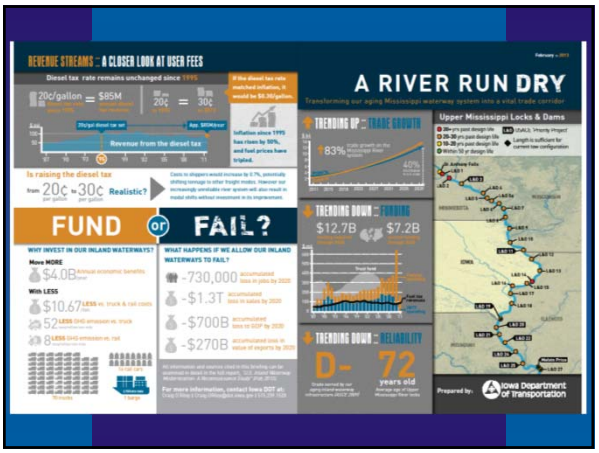
Additional Investments in Waterways Provides Greater Value to the Nation (ROI) Than Other Key Infrastructure Sectors

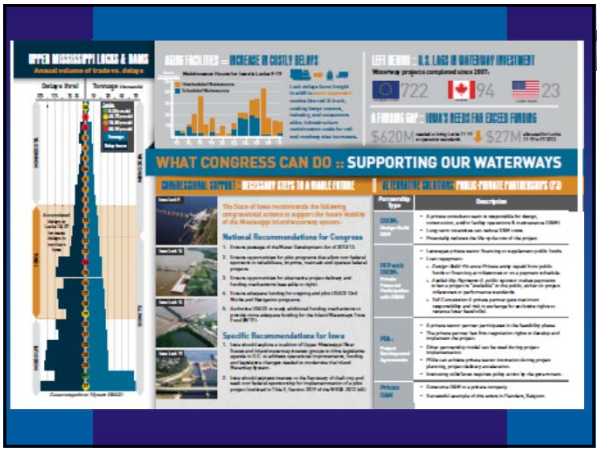
ASCE 2013 "Failure to Act" Study

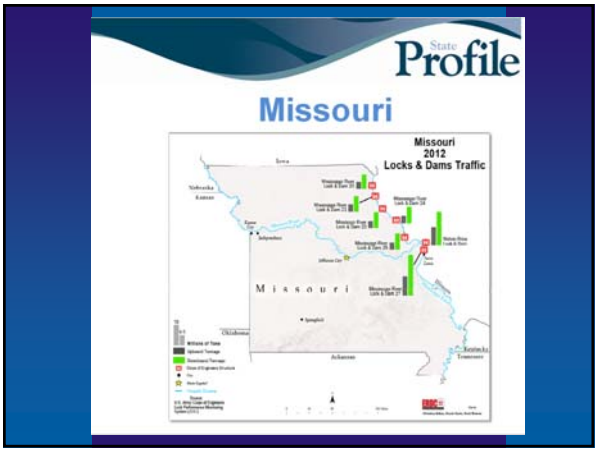
OUTPUT LOSSES

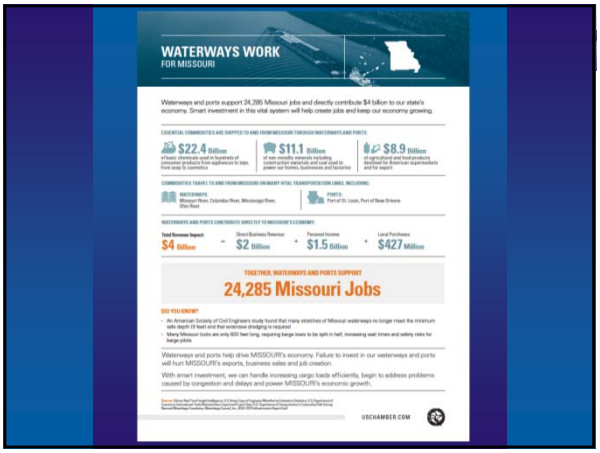
If there was a complete loss of the waterways for shipping without ANY advanced notice to users (a way to measure impacts)

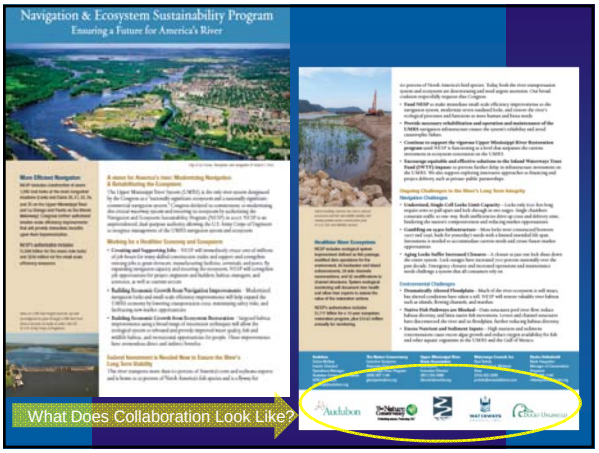
Region	Year 1 (2012 Billion)	Year 10 (2012 Billion)
Ohio River	-$10.724,000	-$16.755,000
Upper Mississippi River	-$12.180,000	-$18.571,000
Lower Mississippi River	**-$19.909,000**	**-$25.427,000**
GIWW	**-$48.775,000**	**-$63.080,000**
Pacific Northwest	-$0.935,000	-$1.525,000
Rest of US	-$31.629,000	-$6.600,000
Total	**-$124.152,000**	**-$131.958,000**
	10 year	
Present value	-$1.063 Trillion	

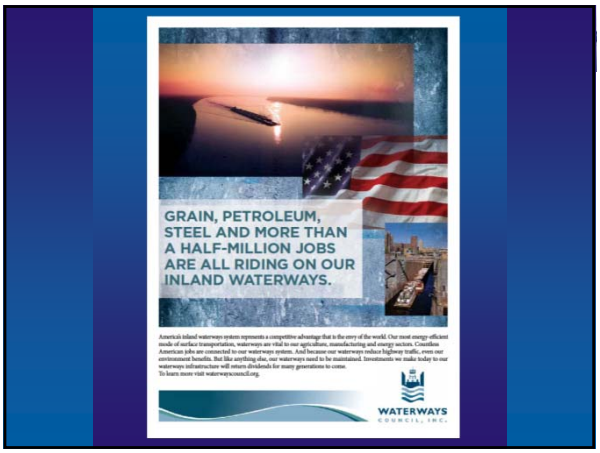


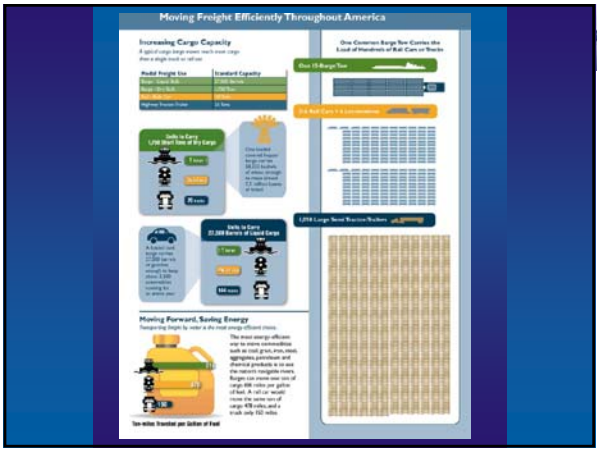












Is the Message Resonating?

- **WRRDA 2014**
- **Olmsted:** Federalization to Finish Olmsted set at 85% to allow IWTF to Address Completing Other Projects
  - Recognizes Dams as Multi-Use Resource
  - 100% Federalization in FY15 Appropriations
- **FY15 Appropriation Levels**
- **Challenge:** Can Navigation "Hit Home" on a Regular Basis, Not Just During Crisis ?

THE USER FEE INCREASE

- **Increase Inland Waterways Fuel User Fee by up to .09 cents-per-gallon on diesel fuel consumed by commercial vessels while operating on the inland waterways of the United States.** (Adopt Sec. 8 of S.407/ RIVER Act or Sec. 9 of HR. 1149/ WAVE 4)
- "In a letter dated September 24, 2013, to the Ways and Means Committee, the Waterways Council and a coalition of nearly 40 stakeholders expressed support for increasing the excise tax that supports the Inland Waterways Trust Fund to at least .26 cents per gallon, in conjunction with spending reforms included in the Water Resources Reform and Development Act, which passed the House of Representatives on October 23, 2013."

***—Tax Reform Act of 2014* Discussion Draft**

FY 2015 FUNDING (HOUSE)

Record-strong funding for Corps' Civil Works program
Policy changes in WRRDA = higher funding levels

- ***Civil Works***: $5.493 billion -- $25 million ↑ FY'14 (enacted) and $959.5 million ↑ President's request.
- ***Construction:*** $1.704 billion -- $48.5 million ↑ FY '14 (enacted) and $579.5 million ↑ President's request.
- Olmsted ($160 million) and Lower Mon ($9 million), Administration- requested levels
- + $112 million (IWTF-financed projects, TBD by Secretary of the Army)
- + $85.5 million (undesignated navigation projects/funding increases from the Harbor Maintenance Trust Fund)

FY 2015 FUNDING (HOUSE)

- ***Operations and Maintenance (O&M):*** **$2.905 billion -- $44 million ↑ FY '14 (enacted) and $305 million ↑ President's request. This is the highest O&M funding level to date.**
- **+ $303.4 million in additional funding, with $45 million (for inland waterways), $150.5 million (for deep-draft harbors/channels), $42.5 million (for small/remote/subsistence projects), $25.4 million (undesignated).**
- ***Investigations:*** **+ $14.5 million for navigation, $4 million (for inland) and $5 million (undesignated).**
- ***Mississippi Rivers & Tributaries (MR&T):*** **$260 million ↓ $307 million in FY '14.**
- ***Office of the Assistant Secretary of the Army:*** **$2 million ↓ $5 million in FY '14.**

FY 2015 FUNDING (SENATE)

Senate Appropriations Committee Energy & Water Development mark-up postponed due to controversial amendments to be offered on climate change and Clean Water Act.

Senate Energy & Water Development Appropriations Subcommittee funding:

- **Corps' Civil Works** program = **$5.143 billion**, $600 million ↑ above Administration's FY '15 $4.561 billion budget request.
- **Inland Waterways Trust Fund-financed projects** = **$229 million**, $60 million ↑ above the Administration's requested level.
- ↑ **O&M** = $2.8 billion; Administration request was $2.6 billion.
- ↑ **Harbor Maintenance Trust Fund** program will receive $1.075 billion; Administration request was $915 million.

Aging Locks

*Includes all operational deep and shallow draft Corps and TVA navigation locks and control structures.

$8 Billion in Backlog Construction

- **240,000 Construction Jobs to be Created**
- **20-Year Capital Development Plan**

Tipping Point: Panama Canal Expansion

A potential game-changer for imports and exports on U.S. waterways

Large Coalition of Diverse Stakeholders Pushing Together

"Okay, great. But what can I do about it?"

- Be a Constituent! Federal – State – Local Levels
- Educate Your Co-Workers/ Employees
- Letters to Editor
- Editorial Board Visits
- Sponsor a Print Ad in a Newspaper
- Statement of Support for Diesel Fee Increase
- Become a WCI Member
- Support Our Media Campaign
- Find Us At:
  - waterwayscouncil.org
  -

WATERWAYS COUNCIL, INC.

prohde@vesselalliance.com

Waterwayscouncil.org



LEADER IN MULTIMODAL TRANSPORTATION AND ECONOMIC DEVELOPMENT

RTI
RAHALL APPALACHIAN TRANSPORTATION INSTITUTE

RTI
RAHALL APPALACHIAN TRANSPORTATION INSTITUTE

Economic Opportunities for Container-On-Vessel Shipping

Overview

- **Purpose:** With innovative ship design and proper market targeting, America's waterway shipping could benefit regional transportation users and logistic planners, further encouraging them to turn to waterway shipping as an affordable and dependable option.
- New vessel design targeting the United States Department of Transportation Marine Highway system of waterways.
- Economic advantages of container of vessel in container feeder markets
  - Reduced freight rates
  - Lower average variable costs
  - Air emission reductions
  - Logistic improvements

Source: www.marad.dot.gov

Background

- Containerization of agricultural exports
- Freight-related urban congestion
- Environmental sustainability
- Over 10,000 miles of navigable waterways
- 21st century technology

The not so distant past

- Energy consumption not a major cost concern
- Emission standards either waived or ignored
- Maritime Industry resistance to new technologies that may obsolete their fleets
- Recapitalizing fleets not a high priority
- Innovative shipbuilding approaches can be capital intensive and require unconventional thinking
- Federal, State and Local budgets place downward pressure on maritime related infrastructure investment

WCE400

Why a Semi-Displacement Catamaran Cargo Vessel

- Most efficient hull for 13-15 knot (and below)
- Has a reasonably large displacement (slightly less than a mono hull)
- Dual-hull structure decreases resistance and required horsepower
- Variable draft allows for full load cargo delivery
- Significant reduction in gas-related emissions
- Catamaran design provides excellent vessel maneuverability
- LNG fueled vessels are a reality due to the catamaran having 2 hulls

Applications

- Containerized Freight
- Roll-on/Roll-off Cargo
- Hi-speed reaction vessel
- Energy-efficient harbor work boat
- United States Department of Transportation Marine Highway System
- Short Sea Shipping-port to port
- Caribbean shipping line hauls
- Waterways or harbors that benefit from increased speed, shallower drafts, reduced energy use and significantly reduced toxic emissions

WCE400

WCE 295 – WCE 400 - Ocean Going Barge Comparison

Ship Characteristic	WCE 295	WCE 400	Ocean Going Barge
Length (foot)	295	400	343
Draft	12	18	16
Deck Space (sq ft)	14,000	25,200	36,942
DWT (metric ton)	2,144	6,294	11,201
Container Capacity (40')	107	315	560
Design Speed (knots)	15	13	9
Engine (hp)	2,200	1,800	4,300
Fuel Flow (Full Displacement) (Gallon per hour)	100	92	190

Market Analysis

- Port of Virginia Container-Feeder Service
  - Baltimore, MD
  - Richmond, VA
- Columbia Coastal Transport LLC (Baltimore, MD)
  - 343-foot *Columbia Elizabeth*, a DWT of 11,201
  - 4,300 Horsepower MV *Katie G. McAllister*
  - 9 knots and crew of 6
  - Twice-weekly container feeder service from Norfolk Marine Terminals
- Baseline Assumption
  - 700 container (Forty Foot Equivalent Unit)(FEU) per week round-trip
  - $600 per container

WCE400 Cost Assumptions

- $22M acquisition cost / 25 year lifecycle
- 9 member crew (2 at $150,000, 7* at $90,000)
- U.S.-flag crewing costs is 68% of total operating cost
- 10% discount rate
- Baltimore tug and barge combo: 560 FEU, 9 knots and a crew of 6
- Fuel flow rates for the vessel with displacement values are estimated based on interview with SwiftWater Consultants LLC

*subject to cargo type

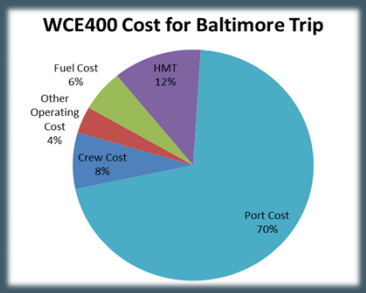
Norfolk - Baltimore Trip Analysis

- **0% market volume growth**
  - 5% interest rate
    - Required Freight Rate* (RFR) of $385 per FEU
    - Profit of $214 per FEU
  - 8% interest rate
    - RFR of $397 per FEU
    - Profit of $203 per FEU
- **4% market volume growth (from year 1 to year 5)**
  - 5% interest rate
  - RFR of $375 per FEU
  - Profit of $225 per FEU

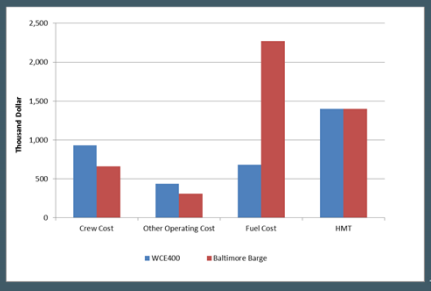
*Required Freight Rate (RFR) - variant of annual cash flow analysis, focuses exclusively on cost, calculates break-even revenue

WCE400 vs Ocean Going Barge Cost comparison

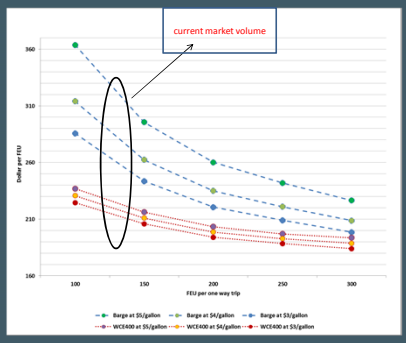
- 175 FEU per trip (one-way)
- Twice a week (700 FEU containers per week)
- WCE400
  - Average cost per container $297
- Ocean going barge
  - Average cost per container $354



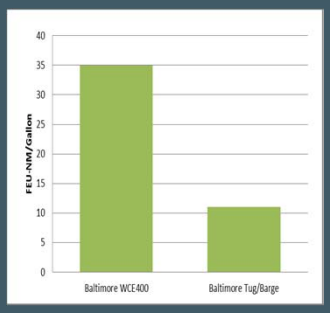
Variable Cost Comparison



Fuel Cost Comparison



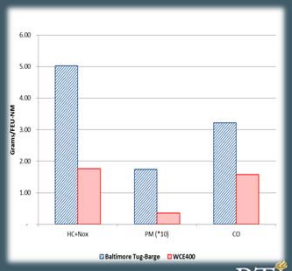
Public Benefit—Fuel Efficiency



The WCE400 operates with much greater fuel efficiency than the tug/barge comb, making almost two times more FEU-nautical miles with the same amount of fuel.

Public Benefit – Air Quality

	Baltimore Tug-Barge	WCE400 Diesel
HC+NOx emission standard (gram/kilowatts-Hour)	7.80	5.60
HC+NOX per FEU per NM (grams)	5.02	1.76
PM emission standard (gram/kilowatts-Hour)	0.27	0.11
PM per FEU per NM (grams)	0.17	0.04
CO emission Standard (gram/kilowatts Hour)	5.00	5.00
CO per FEU per NM (grams)	3.22	1.57



Additional Benefits

- More frequent and efficient service
- Lower accident rates
- Added cargo flexibility
- Enhanced growth of feeder ports and local economies
- Reduced congestion at Ports of Virginia
- Shortened drayage
- Dual fuel capability

Study Results

- Required Freight-Rate shows profitability
- Average Variable Cost shows competitiveness
- Air emission reduction and fuel efficiency enhancement show public benefits

Conclusions

- Large market potential and service scope for short-sea and United States Department of Transportation Marine Highway system
- Innovative design offers public and private benefits
  - lower costs
  - higher reliability
  - quicker delivery
  - less pollution
- Complementary shipping mode to highway and rail

Rahall Transportation Institute Project Researchers

Patrick J. Donovan
Director of Maritime and Intermodal
donovanp@rjrati.org

Eric Pennington
Justin Matthews

www.njrati.org

Proposed Public-Private Partnership Projects for U.S. Inland Waterways Infrastructure Financing, Operations, and Governance

Presentation by: Patrick McGinnis
Upper Mississippi River Commercial Navigation Summit
July 9, 2014

Prepared by: the horinko group

Introduction to The Horinko Group

- THG is a Washington, DC based environmental and business development consulting firm assisting energy, water, and waste client sectors with fact based issue analysis and case development all founded on sustainable principles and sound business practice.
- Our Focus Areas
  - Regulatory & Legislative Support
  - Water Resources and Sustainable Communities
  - Alternative Resourcing Solutions (P3s)
  - Case Communication & Advocacy

www.thehorinkogroup.org

the horinko group

Presentation Outline

- Introduction to The Horinko Group (THG)
  - **Pat McGinnis,** Senior Advisor, Water Resources Policy & Practice
- Briefing on USSEC Report – *Background, Findings, and Conclusions*
- Briefing on Proposed Next Steps – *Building Awareness, Building a Pilot, Building Momentum*
- Wrap Up

USSEC Report completed Dec 2013

USSEC Report,
"Proposed Public-Private Partnership Projects for U.S. Inland Waterways Infrastructure Financing, Operations, and Governance"

Background, Findings, and Conclusions

Defining the Problem

- Financing mechanisms and funding levels are not proving sufficient to sustain USACE locks and dams
  - For the State of Illinois and its bordering waterways alone, current estimates place deferred lock and dam maintenance at $560M
- Status quo
  - "Fix-as-Fail" repair strategy
  - Unscheduled closures reducing efficiency, driving up costs, and threatening system reliability
- Legislative Action
  - WRDA 2007 – NESP Provisions (Appropriation didn't follow Authorization)
  - Proposed increase to fuel tax to strengthen IWTF (pending)
  - WRRDA 2014 Reforms (Alternative Financing – P3 Provisions)

Exploring alternative financing strategies

- Public-Private Partnerships (P3)
  - Supply chain or system perspective
  - P3 types and relevant cases explored
  - UMRS Focus pointing to 1 or 2 Regional Pilot Projects
- Where – at critical supply chain segments of high interest to producers/exporters
  - Illinois River
  - Upper Mississippi River
- Regional P3 Candidate Projects Considered
  - 2 locks & dams in Illinois – Peoria and LaGrange
  - 4 locks & dams on the UMR – Locks 24, 25, Melvin Price, 27
  - Middle River not addressed in report (open river Pilot)

Our P3 Assumptions

- Infrastructure remains under public ownership and control
- Assets are not sold
- Consideration given to private firm(s) providing some level of contractual management
- Types of P3s (short term/long term)
  - Outsourcing
  - Design-Build
  - Operations and Maintenance
  - Long-term Lease (Concession)

Report Conclusions

- Implementation of a pilot P3 merits thoughtful consideration
- Any successful P3 rests on consistent, ongoing, diligent oversight and monitoring by the public sector of the agreement and the non-federal entity's performance under the contract
- WRRDA 2014 could present foothold to actionably advance consideration of P3s.
- Our Report also outlined "next steps" assuming passage of WRRDA.

Where Do We Go From Here?

WRRDA 2014 authorizes evaluation of a Non-Federal Project Implementation Pilot Program that will:

- Identify project delivery and cost-saving alternatives that reduce the Corps' backlog
- Evaluate the efficiencies of a non-federal interest carrying out design, execution, management, and construction of a project or group of projects. WRRDA was silent but non-restrictive on consideration of long term concessioned P3s.
- Evaluate decentralization of the project management, design, and construction of Corps water resource projects

- Pilot program would include regional pilot projects covering most of the Corps' business lines
  - Effort would be made to locate at least one pilot in each of the Corps' regional divisions

- Within 180 days of WRRDA's passage on June 10th 2014, the Corps would commence effort to evaluate the cost-effectiveness and project delivery efficiency of non-federal project implementation

No Action Scenario

- Without this alternative financing Pilot Program the reality is that Congress may fail to find the resources to fund necessary repairs. Private capitalization could further leverage available Federal funds and enhance optics. Resource Leveraging vs. funding offset is an important consideration.
- The length of time that major rehab would take, even if fully funded under present schedules and existing processes, is already cause for concern.
- The consideration of pilot P3 projects could drive heightened transparency and reform of government performance and process which will further enhance IMTS trouble shooting and consideration of enhanced business practices

WRRDA 2014: Challenge and Opportunity

- WRRDA 2014, as authorized, presents transformative opportunity for Corps and IWS Users.
- There is a window of opportunity to:
  - "inform and shape" the alternative financing pilot program; and,
  - bring interested parties together to formulate a pilot project(s) with potential investors

Proposed Next Steps

THG Proposed Next Steps

Building Awareness, Building a Pilot, Building Momentum

Proposed Next Steps

- **Step 1** – *Brief findings to others; ID non-fed entity and champion; seat ad hoc workgroup*
  - Conduct follow-up with those interviewed during initial fact finding and analysis effort. Insure situational awareness and participation of User and Corps leadership.
  - ID Non-Federal regional Entity to serve as local sponsor during pilot formulation stage. This entity could serve in interim capacity if appropriate institution does not currently exist and needs to be chartered (i.e. formation of regional port authority).
  - ID and seat small ad hoc group to guide necessary actions to ID pilot(s), formulate technical requirements, refine pilot for investor and joint venture partnership consideration

Proposed Next Steps (Cont.)

- **Step 2** – *Design and Convene Pilot Formulation Work Group Forum*
  - Engage subject matter experts and recruit pilot formulation work group
  - Design and facilitate forum process to scope, refine, and develop pilot project(s). Request participation of Corps navigation business line experts.
  - Analyze and communicate findings with actionable recommendation (decision point) including post workshop interviews with work group members, key Corps officials, and Members of Congress

Proposed Next Steps (Cont.)

- **Step 3** – *Convene Financial Community, Investors, and Potential Joint Venture Partners*
  - Present proposed pilot project to investor/service provider/legal experts with focus on solutions for achieving financially viable and precise P3 model and contract, including financial opportunity metrics
  - Identify specific implementation steps and attempt to reconcile Federal Pilot Program needs including requisite Congressional authorization, scope of proposed lease arrangement if applicable, and nature of non-federal partner
  - Engage Federal Pilot Program Administrator to introduce project and non-federal project partner to facilitate necessary dialogue and supporting documents
  - Seek Letter of Intent from potential investors and/or joint venture partnership group(s) if appropriate

Proposed Next Steps - Timetable

Key Decision: Await WRRDA Implementation from HQUSACE or commence immediate effort to shape pilots and acquisition strategies that inform implementation

Action Timeline: Aug thru Dec 2014

- Step 1. Convene small ad hoc work group, ID Regional Non-Federal Entity to Steer Effort. (Aug-Sept 2014)
- Step 2. Design and Convene Project Formulation Workshop (Sept-Oct 2014)
- Step 3. Design and Convene Investor/Potential Joint Venture engagement and workshop (Oct-Nov 2014)
- Step 4. Position Non-fed entity to finalize project and hand-off to Corps P3 Pilot Program Administrator. (Nov-Dec 2014)

Acting vs. Reacting

- Shaping a predictable action-to-outcome strategy to modernize IWS
- Building investor awareness to attract private capital
- Moving from short range pilot effort to long-term plan and commitment founded on well-informed public policy and greater private participation

Questions?

Patrick S. McGinnis
Senior Advisor, Water Resources Policy and Practice
The Horinko Group

UMBRA Navigation Summit
July 9, 2014

"Alternative delivery method for rehab/replacement of locks and dams on the Upper Miss./Illinois Rivers"

CH2MHILL.

Tom O'Hara

Delivery Model Spectrum

	Fully Public	Public-Private Partnership	Fully Privatized
Financing	Fed budget / IWTF	P3 Model, Majority Non-Fed	Private, Venture Capital
New Locks in Operation	2026 or later	8 years from start	8 years from start
Governance	Federal-led	Local Joint Power Auth. • Corps • Shipping • Producers • Environmental • Labor • Others	Commercial company
O&M	Federal / Corps	Maintenance: JPA Operations: Corps	Commercial company
Owner	Corps	Corps	Commercial company, long-term lease

Background

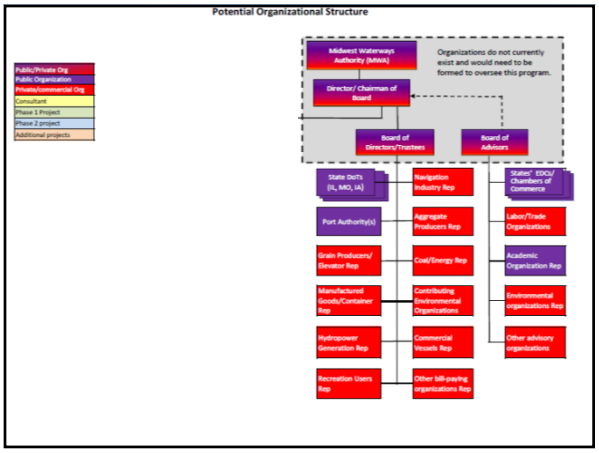
- Area of Interest
- Need
  - Aging facilities
  - Limited federal funding
  - Lack of national priority
  - Potential increased demand

  ⇒ New approach needed
- P3 Initiative
  - Legislation
    - ✓ WRRDA (Sec 5014)
  - Regional governance
    - State enabling legislation
    - Interstate agreement
  - Revenue stream
    - Fed component
    - Private component

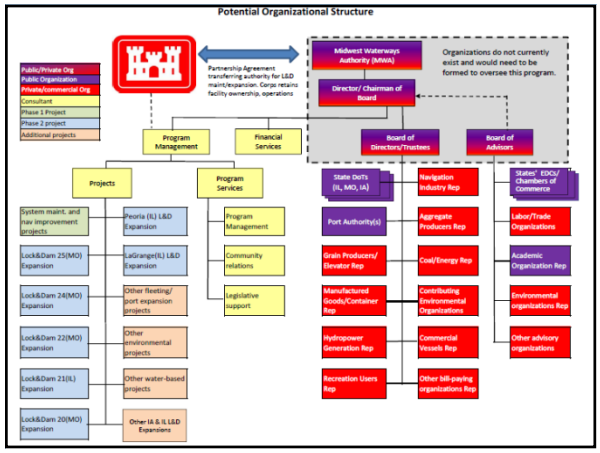
Regional Governance
Formation Considerations

- P3 Requirements (Purpose of the regional authority)
  - Takes over delivery oversight from the Corps/Feds
  - Responsible for design, construction, management and financing
- Defined by scope/geography
  - Maintenance and/or Expansion
  - Locks to include
  - One state first versus regional
  - Want flexibility/scalability
- System view versus site by site focus
  - Improve efficiency of whole system versus improve one site
  - All federal water based missions should be open (Nav, Eco Restoration, Hydro, FRM, Water Supple, Recreation)
- Structure
  - Leverage existing organizations/authorities (Ports, Development Councils, etc.)
  - Must be formed first by States and then interstate
  - Decision making authority vested in bill payers (Commercial bill payers represented in structure)

Potential Organizational Structure



Potential Organizational Structure



Regional Governance
Examples

- Southwestern Illinois Flood Prevention District Council
- Ilianna Expressway Authority (bi-state agreement with IL/IN)
- Bi-State Development Agency of the Missouri-Illinois
- Midwest Interstate Passenger Rail Compact
- West Coast Infrastructure Exchange (California, Washington, Oregon and British Columbia)
- Fargo Moorhead Diversion Authority (Flood risk mgt project in MN/ND)
- Alameda Corridor Transportation Authority (Rail/port projects in California)

Revenue Stream
Formation Considerations

- Sufficient size to attract private equity: $500M+
- P3 will require a private revenue stream. Examples:
  - Concession fee
  - User fee/lockage fee
  - Sales/development tax
- Combine with federal/state funding and incentives
  - "Bankable" commitment on future federal capital investments (lock expansions)
  - Leverage O&M via long term service contract or privatization
  - State/municipal bonds/loan backing
  - Potential to eliminate Major Rehab cost share from IWTF if Maintenance First option is pursued
- Market supported cost analysis must be conducted
- Investment capital is available

Discussion Take Aways

- Status Quo isn't working.
- There are options but not without a willingness to put all delivery and funding options on the table – and to share the pain.
- System-wide, flexible approach is needed.
- Need to leverage existing authorities (Ports, States, Corps, etc) and be as inclusive as possible.
- WRRDA provides an opportunity – the time for action is now, at the State and commercial level.
  - ⇒ The are only 15 pilot slots under the new authority.

Thank You

Tom O'Hara
CH2M Hill
Water Market
618-979-5391
Thomas.ohara1@ch2m.com

MERCATOR INTERNATIONAL LLC
Logistics & Infrastructure Advisors

Private Sector Financing for Inland Waterway Capital Projects Final Report

March 2012

Background and Objective

Assignment

Formulate approach for funding Inland Waterway System (IWS) capital projects with private sector – sourced finance

Rationale

- Current funding model is time-consuming and inefficient
- Inland Waterway Trust Fund is inadequate
- Annual USACE budgets and appropriations are cumbersome and deficient
- Prospects for major increases to USACE appropriations are questionable
- Private infrastructure funds have significant cash reserves that could be invested in key IWS infrastructure components if a suitable transaction structure is created and adequate returns are available

Project Methodology

Approach

- Identify and profile selected public/private partnership ("P3") infrastructure investment initiatives with transaction attributes of potential applicability to IWS
- Identify and review selected IWS capital project(s) with potential to be "test case" for alternative financing approach
- Extract best, most relevant elements of profiled P3 initiatives and formulate suitable P3 transaction structure for IWS projects
- Apply proposed P3 transaction structure to selected IWS capital project(s)
- Examine economics and ramifications of proposed P3 structure

Innovative P3 Transactions

Selected Best-Practice Initiatives

- **Seagirt Marine Terminal (Baltimore, MD)**
- **I-595 Express Corridor Project (Fort Lauderdale, FL)**
- **I-635 Expressway (Dallas, TX)**
- **Eagle Fastracs (Denver, CO)**
- **Port of Brisbane Corporation (Brisbane, QLD, Australia)**

Innovative P3 Transactions

Seagirt Marine Terminal

- Concession Grantor: Maryland DOT and its subsidiary Maryland Port Authority
- Concessionaire: Ports America Chesapeake (PAC)
- MDOT transferred operating responsibility for Port's main container terminal from State Port Authority to PAC
- Obligated PAC to design, build, equip, and operate new berth (at cost of approximately $105 million)
- However, PAC will be able to access lower-cost municipal bond market for debt finance of berth expansion project, through State bond issuance
- Also entailed significant ($140 million) upfront payment to the State by PAC
- PAC will make both fixed rent and variable, revenue-based payments to MDOT, with PAC having full control of terminal pricing and collecting all terminal user fees
- 50-year lease term

Innovative P3 Transactions: Key Takeaways

Transaction Attributes for Attracting Private Sector Equity

- Project capital structure should be matched with anticipated timing of revenues to service debt, pay for maintenance/operation, and provide adequate return to equity
- Risk-reward relationship should be balanced between the public agency granting concession and the concessionaire
  - Agency should insure that land ownership, environmental approvals, and construction permits are obtained on schedule to mitigate risk of construction delay
- User fees should be supplemented with other revenue sources, such as availability payments and/or beneficiary payment structures, if future concession volume levels are highly uncertain
- Length of the concession term should be maximized

Core Elements for IWS P3s

Selected Attributes of IWS Capital Projects to Consider In Designing New P3 Transaction Structure

- IWS commercial volumes/revenues could have low-growth potential
  - *This would suggest the need for P3 transaction to have an availability payment structure to mitigate revenue risks for private sector investors*
- Benefit streams of IWS improvements would likely accrue from the project to non-commercial stake-holders (such as recreational users, farmers, and local businesses supporting those stake-holders)
  - *This suggests the need for beneficiary payments and/or government grants to help finance project*
- Expertise/organization/resources of USACE make it the best entity to operate/maintain IWS infrastructure
  - *This suggests the use of a Design-Build-Finance (DBF) model, rather than a DBFOM contract*
- Long useful lives of lock/dam infrastructure
  - *This suggests utilizing a concession term of 45-50 years, if possible*

IWS P3 – Conceptual Transaction Design Using A Specific Project

Selection of IWW Lock/Dam Projects as IWS P3 "Test Case" – Rationale:

- Illinois River Waterway (IWW) has significant tonnage movements, relative to many IWS assets
- IWW is contained within one state, so potential for inter-state political conflicts to derail a P3 transaction is reduced
- Improvement projects include both rehabilitations and replacements
- Given Illinois' grain production activity, and long-term demand for US grain exports, an IWW P3 could potentially offer private infrastructure investors some upside volume potential

Barge Tonnage Through La Grange Locks - 2011

Code	Commodity	Downbound	Upbound	Total
10	Coal, Lignite & Coke	702	424	1,126
20	Petroleum & Products	2,449	1,191	3,640
30	Chemicals & Products	1,585	3,362	4,947
40	Crude Materials, Inedible	975	2,793	3,768
50	Primary Manufactured	391	1,513	1,904
60	Food & Farm Products	9,245	513	9,758
70	Equip. And Machinery	23	99	122
80	Waste Materials	-	53	53
90	Containers / Pallets	8	30	38
Total - Thousands of Tons		**15,377**	**9,978**	**25,355**

Source - USACE

IWS P3 – Conceptual Transaction Design Using A Specific Project

P3 Test Case: Overview of Potential Concession for Illinois River Waterway

- Creation and granting of concession by State of Illinois, through a special-purpose agency
- Concession to comprise rehabilitation of six locks – La Grange, Peoria, Starved Rock, Marseilles, Dresden Island, and Brandon Road
  - Estimated project investment (per IMTS Capital Projects Report of April 2010) of $363 million
- As an alternative, concession to comprise replacement of La Grange and Peoria Locks and Dams, together with rehabilitation of the other four locks
  - Estimated project investment (per the same IMTS report) of $903 million

IWS P3 – Conceptual Transaction Design Using A Specific Project

P3 Test Case: Estimated Project Costs for IWW Concession

- Capital Spending – Rehab 6 Locks Program

Capital Investments	Lock	Dam	Total	Yr -3	Yr -2	Yr-1
Brandon Road L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Dresden Island L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Marseille L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Starved Rock L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Peoria L&D	-50.0	-20.0	-70.0	-23.3	-23.3	-23.3
La Grange L&D	-53.2	0.0	-53.2	-17.7	-17.7	-17.7
Capitalized Start-Up & Interest Costs				-7.5	-11.3	-15.3
Total IWW CapEx Spending			**-363.2**	-128.5	-132.4	-136.4

- Capital Spending – Replace 2 Locks & Rehab 4 Locks Program

Capital Investments	Lock	Dam	Total	Yr -3	Yr -2	Yr-1
Brandon Road L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Dresden Island L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Marseille L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Starved Rock L&D	-40.0	-20.0	-60.0	-20.0	-20.0	-20.0
Peoria L&D	-322.1	-20.0	-342.1	-114.0	-114.0	-114.0
La Grange L&D	-320.9	0.0	-320.9	-107.0	-107.0	-107.0
Capitalized Start-Up & Interest Costs				-17.8	-27.4	-37.2
Total IWW CapEx Spending			-903.0	-318.8	-328.4	-338.2

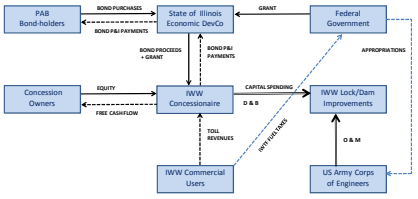
Source for individual project costs:

Inland Marine Transportation Systems (IMTS) Capital Projects Model Final Report April 2010

IWS P3 – Conceptual Transaction Design Using A Specific Project

Test Case: Proposed Transaction Model for IWW Concession

- Option 1: Design – Build – Finance Model With Concession Revenue from User Fees Only
  - Operations and maintenance of locks and waterway would remain with USACE
  - Environmental/construction permits would be provided by State upon concession grant
  - State would issue tax-exempt Private Activity Bonds (PABs) to help fund IWW improvements



IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

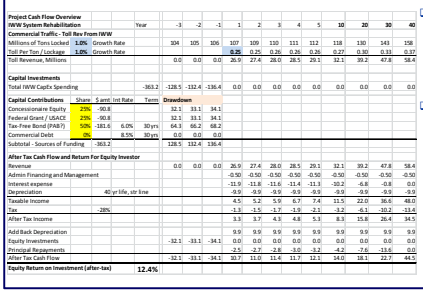
Test Case: Key Assumptions in Financial Model of Transaction

- Option 1: DBF Model With Concession Revenue from User Fees Only
  - Operating concession term of 40 years
  - Concession-holders contribute 25% of project capital costs in equity
  - Proceeds from PAB issue provide 50% of project capital costs
    - PAB bond-holders are paid off over 30-year period at 6% interest rate
  - Federal Government grant provides funds for final 25% of project capital costs
  - Each ton transiting a lock pays a toll
  - Toll rates increase by 1% per year
  - Tolls are concessionaire's sole source of income
  - Improvements are depreciated straight-line over 40 years, matching concession term
  - Concessionaire pays corporate income tax of 28%

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Rehab 6 IWW Locks – Required Revenues

Estimated level of tonnage tariff and volume growth to deliver target 12+% rate of return



Project Cash Flow Overview																				
IWW System Rehabilitation				Year	-3	-2	-1	1	2	3	4	5	10	20	30	40
Commercial Traffic - Toll Rev From IWW																
Millions of Tons Locked	1.0%	Growth Rate			104	105	106	107	109	110	111	112	118	130	143	158
Toll Per Ton / Lockage	1.0%	Growth Rate						0.25	0.25	0.26	0.26	0.27	0.30	0.33	0.37	
Toll Revenue, Millions					0.0	0.0	0.0	26.9	27.4	28.0	28.5	29.1	32.1	39.2	47.8	58.4
Capital Investments																
Total IWW CapEx Spending				-363.2	-128.5	-132.4	-136.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital Contributions	Share	$ amt	Int Rate	Term	Drawdown											
Concessionaire Equity	25%	-90.8			32.1	33.1	34.1									
Federal Grant / USACE	25%	-90.8			32.1	33.1	34.1									
Tax-Free Bond (PAB?)	50%	-181.6	6.0%	30 yrs	64.3	66.2	68.2									
Commercial Debt	0%		8.5%	30 yrs	0.0	0.0	0.0									
Subtotal - Sources of Funding		-363.2			128.5	132.4	136.4									
After Tax Cash Flow and Return For Equity Investor																
Revenue					0.0	0.0	0.0	26.9	27.4	28.0	28.5	29.1	32.1	39.2	47.8	58.4
Admin Financing and Management								-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Interest expense								-11.9	-11.8	-11.6	-11.4	-11.3	-10.2	-6.8	-0.8	0.0
Depreciation		40 yr life, str line						-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Taxable Income								4.5	5.2	5.9	6.7	7.4	11.5	22.0	36.6	48.0
Tax		-28%						-1.3	-1.5	-1.7	-1.9	-2.1	-3.2	-6.1	-10.2	-13.4
After Tax Income								3.3	3.7	4.3	4.8	5.3	8.3	15.8	26.4	34.5
Add Back Depreciation								9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Equity Investments					-32.1	-33.1	-34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Principal Repayments								-2.5	-2.7	-2.8	-3.0	-3.2	-4.2	-7.6	-13.6	0.0
After Tax Cash Flow					-32.1	-33.1	-34.1	10.7	11.0	11.4	11.7	12.1	14.0	18.1	22.7	44.5
Equity Return on Investment (after-tax)				12.4%												

- Rehabilitation of six locks on the Illinois Waterway would cost an estimated $363 million.
- To achieve a 13% IRR for the concession holder would require 1% p.a. volume growth and an added tariff of $0.25/ton per lockage, rising 1% per year to $0.37/ton per lockage.

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Rehab 6 IWW Locks – Required Revenues

Sensitivity of Return on Equity to Changes in Assumptions

STARTING TOLL ($/ton/lockage)	TOLL GROWTH RATE	VOLUME GROWTH RATE	EQUITY ROI
0.250	1.0%	1.0%	12.4%
0.275	1.0%	1.0%	13.9%
0.300	1.0%	1.0%	15.3%
0.325	1.0%	1.0%	16.8%

The table to the left indicates how much ROI for the private infrastructure investor in the 6-Lock Project increases with each 2.5-cent /ton upward adjustment in the lockage toll, using the same annual growth rates in the toll and in tonnage volume through the IWW locks as were used in the financial model summarized on the previous page

VOLUME GROWTH RATE	STARTING TOLL ($/ton/lockage)	TOLL GROWTH RATE	EQUITY ROI
0.5%	0.250	1.0%	11.4%
0.5%	0.275	1.0%	12.9%
0.5%	0.300	1.0%	14.3%

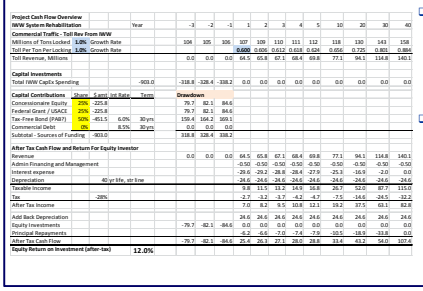
This table shows that the private investor's ROI is reduced by 100 basis points, for each of three different levels of starting tolls, if the IWW tonnage volume averages 0.5% growth per year over 40 years, instead of the previously assumed 1%

Note – the orange-highlighted figures in the two tables above are those utilized in the test case financial model

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Expand 2 IWW Locks and Rehab 4 Locks – Required Revenues

Estimated level of tonnage tariff and volume growth to deliver target 12+% rate of return



Project Cash Flow Overview																				
IWW System Rehabilitation				Year	-3	-2	-1	1	2	3	4	5	10	20	30	40
Commercial Traffic - Toll Rev From IWW																
Millions of Tons Locked	1.0%	Growth Rate			104	105	106	107	109	110	111	112	118	130	143	158
Toll Per Ton Per Lockage	1.0%	Growth Rate						0.608	0.606	0.612	0.618	0.624	0.656	0.720	0.801	0.894
Toll Revenue, Millions					0.0	0.0	0.0	64.5	65.8	67.1	68.4	69.8	77.1	94.1	114.8	140.1
Capital Investments																
Total IWW CapEx Spending				-903.0	-318.8	-328.4	-338.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital Contributions	Share	$ amt	Int Rate	Term	Drawdown											
Concessionaire Equity	25%	-225.8			79.7	82.1	84.6									
Federal Grant / USACE	25%	-225.8			79.7	82.1	84.6									
Tax-Free Bond (PAB?)	50%	-451.5	6.0%	30 yrs	159.4	164.2	169.1									
Commercial Debt	0%		8.5%	30 yrs	0.0	0.0	0.0									
Subtotal - Sources of Funding		-903.0			318.8	328.4	338.2									
After Tax Cash Flow and Return For Equity Investor																
Revenue					0.0	0.0	0.0	64.5	65.8	67.1	68.4	69.8	77.1	94.1	114.8	140.1
Admin Financing and Management								-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
Interest expense								-29.6	-29.2	-28.8	-28.4	-27.9	-25.3	-16.9	-2.0	0.0
Depreciation		40 yr life, str line						-24.6	-24.6	-24.6	-24.6	-24.6	-24.6	-24.6	-24.6	-24.6
Taxable Income								9.8	11.5	13.2	14.9	16.8	26.7	52.0	87.7	115.0
Tax		-28%						-2.7	-3.2	-3.7	-4.2	-4.7	-7.5	-14.6	-24.5	-32.2
After Tax Income								7.0	8.2	9.5	10.8	12.1	19.2	37.5	63.1	82.8
Add Back Depreciation								24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6
Equity Investments					-79.7	-82.1	-84.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Principal Repayments								-6.2	-6.6	-7.0	-7.4	-7.9	-10.5	-18.9	-33.8	0.0
After Tax Cash Flow					-79.7	-82.1	-84.6	25.4	26.3	27.1	28.0	28.8	33.4	43.2	54.0	107.4
Equity Return on Investment (after-tax)				12.0%												

- Replacement of La Grange and Peoria with 1200 ft locks adds $540 million to the capital cost of the IWW project.
- To achieve a 12% Return on Investment for the concession holder would now require an incremental tariff of $0.60/ton per lockage, rising 1% per year to reach $0.88/ton per lockage.

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Expand 2 IWW Locks and Rehab 4 Locks – Required Revenues

Sensitivity of Return on Equity to Changes in Assumptions

STARTING TOLL ($/ton/lockage)	TOLL GROWTH RATE	VOLUME GROWTH RATE	EQUITY ROI
0.600	1.0%	1.0%	12.0%
0.650	1.0%	1.0%	13.2%
0.700	1.0%	1.0%	14.4%

The table to the left indicates how much ROI for the private infrastructure investor in the Expand 2 Locks Project increases with each 5-cent /ton upward adjustment in the lockage toll, using the same annual growth rates in the toll and in tonnage volume through the IWW locks as were used in the financial model summarized on the previous page

VOLUME GROWTH RATE	STARTING TOLL ($/ton/lockage)	TOLL GROWTH RATE	EQUITY ROI
2.5%	0.500	1.0%	12.3%
2.5%	0.550	1.0%	13.5%
2.5%	0.600	1.0%	14.8%
2.5%	0.650	1.0%	16.0%

This table shows the value of a higher growth rate in IWW tonnage volume --- ROI increases by 280 basis points at the toll rate assumed in the model (60 cents/ton), or the starting toll could be reduced to 50 cents/ton to produce roughly the same ROI as the test case

Note – the orange-highlighted figures in the two tables above are those utilized in the test case financial model

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Assessment of Commercial User Fee – Based Revenue Model

Are there sufficient, potential benefits of the 6-Lock Rehab Program for IWW commercial users to be able to support the assumed tolls in the financial model?

- Potential sources of benefits
  - Delay reduction
    - ✓ Reduced waiting & lockage times could lower unit costs
  - Outage avoidance:
    - ✓ Reduction in system disruption could reduce idle assets
  - System preservation:
    - ✓ Maintain the barge mode vs. paying higher rail costs

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Assessment of Commercial User Fee – Based Revenue Model

Are there sufficient, potential benefits of the 6-Lock Rehab Program for IWW commercial users to be able to support the assumed tolls in the financial model?

- Potential sources of benefits
  - Outage avoidance:
    - ✓ What is the value of higher system reliability?
    - ✓ Can this be quantified in terms of tug/barge equipment inventory/rental reductions? Labor pool reductions?
  - System preservation:
    - ✓ What is the value of the IWW to shippers/consignees using it?
    - ✓ How much would their transportation costs increase during a prolonged closure of the IWW?
    - ✓ Would these beneficial cargo owners truly recognize such a risk and be willing to pay to avoid its occurrence?

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Assessment of Commercial User Fee – Based Revenue Model

Are there sufficient, potential benefits of the 2-Lock Replace/4-Lock Rehab Program – incremental to the benefits of the 6-Lock Rehab Program – for IWW commercial users to be able to support the assumed, higher tolls in the financial model?

- Potential sources of benefits of expanded lock chambers
  - Additional delay reductions
    - ✓ Reduced waiting & lockage times through La Grange and Peoria could lower unit costs
  - Ability to operate more barges per tow
    - ✓ Should reduce unit costs on shipments upbound to or downbound from Peoria and La Grange
  - Capacity expansion
    - ✓ Ability to operate larger tows could also increase IWW capacity to handle more volumes and potentially capture share from rail

IWS P3 – Preliminary Evaluation of Conceptual Transaction Design/Test Case

Test Case: Assessment of Commercial User Fee – Based Revenue Model

Are there sufficient, potential benefits of the 2-Lock Replace/4-Lock Rehab Program – incremental to the benefits of the 6-Lock Rehab Program – for IWW commercial users to be able to support the assumed, higher tolls in the financial model?

- Potential Sources of Benefits – Use of Larger Tows
  - If the expanded locks would allow the use of larger, more economical tows upriver as far as Peoria, it may be possible to generate some operational cost savings to offset the investment in lock expansion.
  - The primary impact of the expanded locks would be to reduce locking time and locking delays, not to expand the size of the average tow.
  - In practice, the effect of an expansion of the La Grange and Peoria Locks would be to reduce locking times, making possible the realization of the time savings evaluated on slide 23, which was already shown to be insufficient to support the investment in lock rehab or expansion.

Benefits of Expanded Locks at La Grange and Peoria - Use of Larger Tows on The Lower Illinois (Hypothetical)

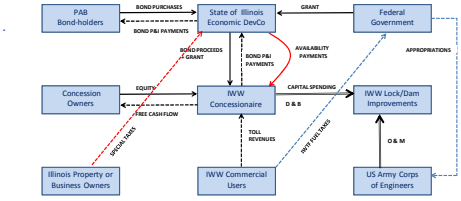
	Current	W/ Expanded Locks		
	St Louis - Lockport	St Louis - Peoria	Peoria - Lockport	St Louis - Lockport
Miles, R-T	659.2	394.6	264.6	659.2
M/V Type	6000hp	10000hp	6000hp	
Avg Barges/Tow	11	20	11	
Cost/Tow				
M/V Oper & Cap, Excl Fuel	99,591	68,934	45,673	
M/V Fuel	47,193	47,733	18,160	
Barge Oper & Cap.	34,968	39,028	16,037	
Cost/Tow				
M/V Oper & Cap, Excl Fuel	9,054	3,447	4,152	7,599
M/V Fuel	4,290	2,387	1,651	4,038
Barge Oper & Cap.	3,179	1,951	1,458	3,409
Total/Barge, $/R-T	**$ 16,523**			**$ 15,046**
			Savings Per Barge R-T	$ 1,477
			Avg Savings Per Ton	$ 0.67

Other navigational limitations on the IWW make it impractical to operate large tows, so achieving cost reductions as outlined above is unlikely.

IWS P3 – Conceptual Design Alternative

Test Case: Alternative Transaction Model for IWW Concession

- A different revenue model – based not only on commercial user fees – will likely be necessary to attract multiple infrastructure investors
- Supplemental cash flows to support the project (for availability payments to the concessionaire) could come from State or county taxes on property owners or businesses in counties proximate to IWW, or from county-issued bonds



IWS P3 – Conclusions on Transaction Design/Test Case

Applying P3 Transaction Concepts to IWS Capital Projects – Conclusions

- Potential benefits of lock/dam rehabilitations are likely to be insufficient to enable commercial users to absorb more than a small portion of the P3 concessionaire's required revenues through special-purpose tolls
- Potential benefits of lock/dam replacements (enlargements), assuming project costs are close to the referenced IMTS estimates of April 2010, could be sufficient to enable commercial users to generate a significant portion of the concessionaire's required revenues through special-purpose tolls, but a gap in revenue would likely remain
- Revenue from other beneficiates of the IWS system will be necessary to close this gap
- Waterway commercial users and local/state officials will likely need to jointly lobby multiple Federal agencies to secure an ability to use TIFIA loans and private activity bonds
- USACE's roles – in design approval, construction monitoring, acceptance of project, continued operation of IWW, etc. – will still be critical; thus, its support for P3 process will be crucial

Iowa's Efforts to Advance Navigation Projects through P3s

Craig Markley, Director
Office of Systems Planning
Iowa DOT

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Iowa Freight Tonnage by Mode: 2011 and 2040

To, From, and Within (in thousands of tons)

	2011	2040	% Change
Truck	359.93	685.7	91%
Rail	71.39	98.7	38%
Water	7.34	10	36%
Air (include air-truck)	0.03	0.09	233%
Multiple modes & mail	14.08	18.9	34%
Pipeline	7.34	7.9	8%
Other	1.49	3.3	122%
TOTAL	461.6	824.6	79%

Source: Freight Analysis Framework, FHWA

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Iowa Freight Values by Mode: 2011 and 2040

To, From, and Within (in billions of dollars)

	2011	2040	% Change
Truck	$241.9	$549.1	127%
Rail	$17.9	$31.3	75%
Water	$1.4	$2.3	64%
Air (include air-truck)	$1.5	$9.7	547%
Multiple modes & mail	$31.0	$119.3	285%
Pipeline	$2.6	$2.8	8%
Other	$3.9	$8.5	118%
TOTAL	$320.9	$723.0	125%

Source: Freight Analysis Framework, FHWA

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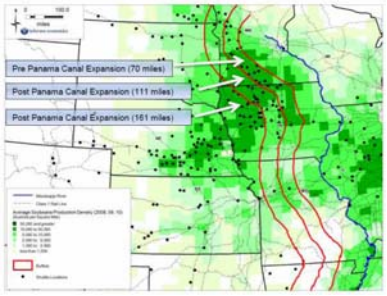
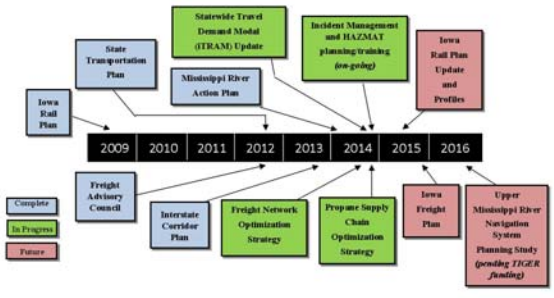
Figure 51: The Line of Indifference Shipping Soybeans to Center Gulf or Pacific Northwest



Freight Planning Initiatives Timeline



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Freight Advisory Council

- Established in April 2012
- Consists of private sector representatives from all transportation modes, shippers, processors, distribution centers, and other freight organizations
- Includes metropolitan planning organizations, regional planning affiliations, and other local, state, and federal government entities
- Currently working on bottleneck identification that will be used as input to Iowa's Freight Policy and Implementation Plans

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Freight Advisory Council – Purpose and Goals

Purpose:
To provide a forum for the exchange of ideas and help the Iowa DOT better understand the complexities associated with freight movements to more effectively guide public investment in transportation infrastructure.

Goals for the Group:
1. Gain a better understanding of how freight decisions are made at the private and public levels.
2. Investigate and evaluate ways the Iowa DOT can assist Iowans in shipping and receiving goods by reducing transportation costs while at the same time increasing profitability.
3. Help shape the Iowa DOT's public policy.

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Freight Advisory Council – Issue Papers

- Council Identified 48 Issues
- Categorized Issues into 7 Areas:
  - Infrastructure Challenges
  - Transloading/Intermodal
  - Operations
  - Regulations
  - Financial
  - Labor and Driver Shortage
  - Other/Research/Education
- Developed Issue Papers for each area
- Issue Papers to be used as Input to State Freight Policy and Implementation Plans

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Freight Website

http://www.iowadot.gov/systems_planning/freight_planning.html

- Freight Advisory Council information
- Freight projects and plans
- Maps, data and tools
- Freight links
- Freight glossary and acronyms
- Iowa DOT freight contacts

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Lock and Dam Feasibility Study

Purpose:
- To discuss the viability of options to modernize and improve the Lock and Dam System in order to maintain its efficiency and reliability.

Issues:
- Limited Federal funds available for operation, maintenance and rehabilitation.
- Infrastructure is deteriorating and wearing out faster than it is being replaced.
- Failure or closure of a lock would increase costs to shippers.
- Additional traffic on the rail and road systems will cause these systems to deteriorate faster, placing added pressure on limited state and private resources.
- New approaches are needed to keep water viable.

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Lock and Dam Feasibility Study

Key Findings:
- No action will result in a loss of economic benefits and a missed opportunity with the expansion of the Panama Canal.
- Increased funding from traditional sources is a short-term solution.
- Partial divestiture should be examined if there is no new funding, but will need more study.
- Public-Private Partnerships will be challenging to develop until major system repairs and upgrades are completed.
- Increased funding from traditional sources can only be part of a more comprehensive funding system.

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Mississippi River Action Plan

- As a follow-up to the Lock and Dam Feasibility Study, the Iowa DOT hosted a Mississippi River Action Plan Workshop on June 27, 2013 in the Quad Cities.
- Workshop was attended by a variety of stakeholders, including other state DOTs, farm interests, major commodity shippers, towing companies, terminal operators, non-governmental organizations, etc.
- Workshop included:
  - Visioning
  - Issue Analysis
  - Issue Categorization
  - Pilot Project

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Mississippi River Action Plan – Workshop Results & Next Steps

- Visioning and issue analysis:
  - Conducted a SWOT analysis to define opportunities and constraints of the system and developed a unified vision for the action plan.
  - Identified key perspectives and issues: Environmental, Regulatory, Economics, Navigation, Recreation
- Potential pilot projects:
  - Brick and Mortar Projects: Improve Lock 15 with a fixed guide wall, improve Dam at Lock 18
  - Studies: Highlight value/efficiency of predictable funding, examine return of the state/federal fuel user fees
- Next Steps:
  - Finalize Workshop outcomes
  - Engage stakeholders on next steps
  - Develop a pilot project

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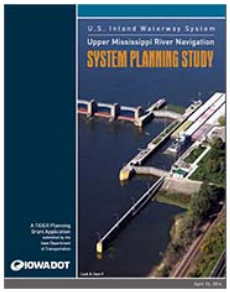
Proposed Iowa Waterway Executive Steering Committee

- Explore public-private partnerships to improve and optimize the lock and dam system
- Discuss options for increased waterway funding
- Increase predictability and reliability of locks/dams
- Restore ecosystems along the Mississippi River
- Potential members – Governor's office, Army Corps, Ag and Land Stewardship, Natural Resources, Economic Development, Agribusiness groups, Environmental groups, key Freight Advisory Council members

TIGER 6 Application

http://www.iowadot.gov/tiger14-river

- Planning application to support a proposed study further exploring opportunities to enhance lock and dam efficiency, reliability, and utilization.
- Potential projects include: real-time barge location, infrastructure and operational improvements, condition studies, failure impact analysis, port development research.
- Partnership: 5 states
- Request: $730,000 (73%)
- Match: $270,000 (27%)



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Marine Highway Application

- Worked with ILDOT, MNDOT, MODOT, and WisDOT as a co-sponsor on the M-35 application for Marine Highway designation.
- Upper Mississippi River from Minneapolis-St. Paul, MN to St. Louis, MO
- Possible designation as early as this summer
- Allows us to compete for funding if it is designated

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Water Resources Reform and Development Act (WRRDA)

- Expands authority for non-federal interests to contribute to feasibility studies and construction projects
- Creates a five-year $175 million credit assistance pilot – Water Infrastructure Financing and Innovation Act (WIFIA)
- If funding appropriated, the Corps could provide assistance for levee, flood control and storm damage reduction
- Funding could assist public-sector entities as well as private companies if supported by state or local governments

Statewide Freight Transportation Network Optimization Strategy

- Freight Optimization project will identify investment opportunities and strategies to lower transportation costs for Iowa businesses and promote business growth in Iowa. This will involve:
  - A thorough evaluation of the existing freight transportation network and strategies to optimize the existing system for current and future freight demand.
  - Identifying areas with high potential for commercial and industrial development.
  - Prioritizing recommended actions to optimize the multimodal network.

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Propane Supply Chain Optimization

- Spurred by severe propane shortage and sharp price increases for users in 2013-2014 season
- This project will:
  - Create an efficient supply chain for State of Iowa
  - Prioritize investments in infrastructure to lower propane supply chain costs for State and its constituents
  - Determine optimal location and size of facilities and the flow through the facility network

IOWA DOT

HAZMAT/Disaster Response

- Leveraging FAC to improve HAZMAT and disaster response planning and preparation
- Coordinating with Emergency Transportation Operations group as well as Motor Vehicle Enforcement
- Developing table-top and in-field training and exercise plans as part of ongoing statewide effort

IOWA DOT

Questions?

Craig Markley, Director, Office of Systems Planning
Phone: (515) 239-1027
Email: craig.markley@dot.iowa.gov

IOWA DOT

PRESENTATION TO
Upper Mississippi River Basin Association

Pilot P3 Navigation Project

COL Mark Deschenes
Commander
Rock Island District
July 9, 2014

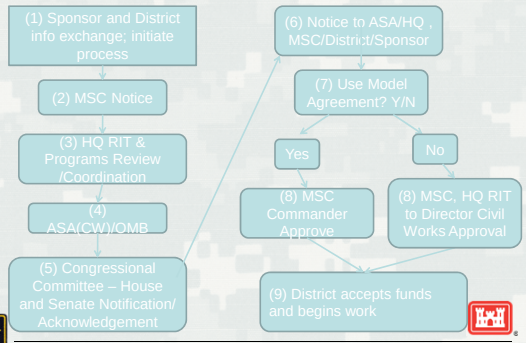
US Army Corps of Engineers
BUILDING STRONG®

Pilot P3 Navigation Project on Illinois Waterway

- Illinois River provides unique opportunity, no political boundaries
- Under PPP Corps remains responsible for normal operations and maintenance
- Special purpose entity would be formed
- Without new funding model, infrastructure will continue to deteriorate
- Illinois Soy Growers looking at lock maintenance as most likely opportunity
- Providing appropriate return on investment is major issue

BUILDING STRONG®

Contributed Funds Flow Chart



BUILDING STRONG®

Points of Contact

Commander
COL Mark Deschenes
(309) 794-5249

Chief, Engineering
Denny Lundberg
(309) 794-5226

Chief, Construction
Barb Lester
(309) 794-5480

Chief, Operations
Mike Cox
(309) 794-5501

Chief, Contracting
Sally Duncan
(309) 794-5628

Chief, Programs & Project Management
Gary Meden
(309) 794-5260

Chief, Emergency Operations
Rodney Delp
(309) 794-5325

Chief, Regulatory
Ward Lenz
(309) 794-5370

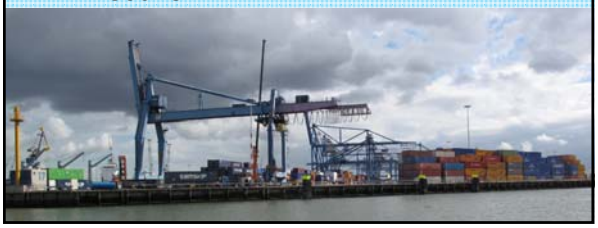
Rock Island District Website: www.mvr.usace.army.mil

Collaboration to Advance Port and Marine Development in the Mid-America Region.

Ernie Perry, PhD
MAFC/CFIRE
ebperry@wisc.edu

Examples of Collaboration

- Multistate
  - MAFC
  - Marine Highway efforts
- State Approaches
  - Wisconsin



Mid-America Freight Coalition

– Ten States

- 22% of total population
- 23% of Country's total truck tonnage
- 63% of Nation's total rail tonnage
- Inland waterway system –about all of it!

CFIRE cfire.wistrans.org

MID-AMERICA FREIGHT COALITION

Natural Partners

- ✓ Six of the Ten MAASTO States on GL
- ✓ Nine of Ten have access MRS
- ✓ 14% of total moves but for Domestic moves
  - ✓ 44% out
  - ✓ 29% in

	MAASTO (Miles)	United States (Miles)	MAASTO Percentage
Inland Waterways	5,001	26,406	18.9%

MAFC RFS: Regional Multimodal Economic Network at: http://midamericafreight.org/rfs/mafc-region/freight-system/water

MID-AMERICA FREIGHT COALITION

MID-AMERICA FREIGHT COALITION

How Important?

Iowa: 10.5 millions tons shipped from 60 terminals, 56% was grain. Most recent lock completed in 1957, the remaining 11 bordering Iowa were built in 1930's!

Illinois: Five day closure of lock 27 stops 63 vessels/455 barges costing $15-20 million to industry and would take 6,100 rail cars and 26,400 trucks to replace the lost capacity!
http://midamericafreight.org/wp-content/uploads/Marine_Highways_Schoeben.pdf

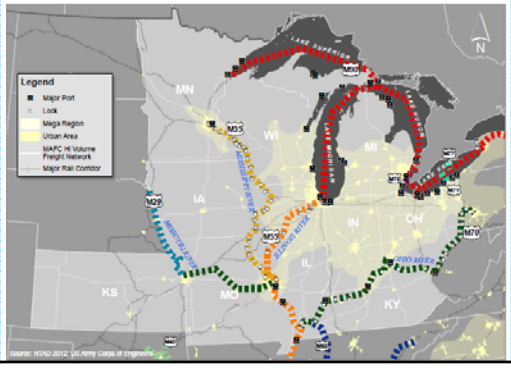
Minnesota: "The closure of the upper St Anthony Falls lock brings an end to 72 jobs."
http://www.dot.state.mn.us/ofrw/PDF/draftpwp.pdf
In 2012 over 4.4 million tons shipped from Minnesota down the Mississippi.

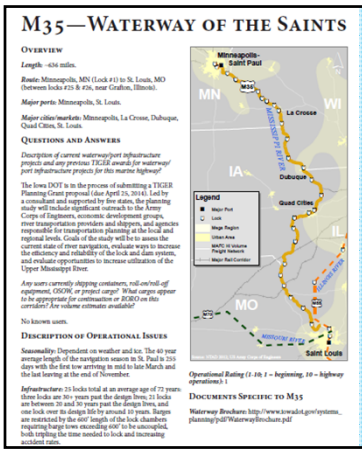
Missouri: Industry employs 1,396 people generating $388 million annually in GSP. This supports approximately 3,500 indirect and induced jobs!
http://www.missourieconomy.org/pdfs/waterway_freight.pdf
Seventy percent of State's economy within 30 minute drive of rivers.
http://docs.pianc.us/smart11/docs/wed/trackd/perry_SmartRivers%20EBP%20MO%20river.pdf

Wisconsin: ports handle over 30 million tons worth over $2.4 billion!
http://www.dot.wisconsin.gov/travel/water/docs/ports-econ-report.pdf

How Important?

MAFC Marine Highways




M35—Waterway of the Saints

Overview

Length: ~436 miles.

Route: Minneapolis, MN (Lock #1) to St. Louis, MO (between locks #26 & #26, near Grafton, Illinois).

Major ports: Minneapolis, St. Louis.

Major cities/markets: Minneapolis, La Crosse, Dubuque, Quad Cities, St. Louis.

Questions and Answers

Description of current waterway/port infrastructure projects and any previous TIGER awards for waterway/ port infrastructure projects for this marine highway?

The Iowa DOT is in the process of submitting a TIGER Planning Grant proposal (due April 25, 2014). Led by a consultant and supported by five states, the planning study will include significant outreach to the Army Corps of Engineers, economic development groups, river transportation providers and shippers, and agencies responsible for transportation planning at the local and regional levels. Goals of the study will be to assess the current state of river navigation, evaluate ways to increase the efficiency and reliability of the lock and dam system, and evaluate opportunities to increase utilization of the Upper Mississippi River.

Any users currently shipping containers, roll-on/roll-off equipment, OSOW, or project cargo? What cargos appear to be appropriate for containerize or RORO on this corridors? Are volume estimates available?

No known users.

Description of Operational Issues

Seasonality: Dependent on weather and ice. The 40 year average length of the navigation season in St. Paul is 255 days with the first tow arriving in mid to late March and the last leaving at the end of November.

Infrastructure: 25 locks total at an average age of 72 years; three locks are 90+ years past the design lives; 21 locks are between 20 and 30 years past the design lives, and one lock over its design life by around 10 years. Barges are restricted by the 600' length of the lock chambers requiring barge tows exceeding 600' to be uncoupled, both tripling the time needed to lock and increasing accident rates.

Operational Rating (1-10; 1 – beginning, 10 – highway operations): 1

Documents Specific to M35

Waterway Brochure: http://www.iowadot.gov/systems_planning/pdf/WaterwayBrochure.pdf

http://midamericafreight.org/rfs/programs-policy/

People, Programs and Policy

- ✓ Length
- ✓ Route description
- ✓ Major ports
- ✓ Major cities/markets

MID-AMERICA FREIGHT COALITION

Marine Highways and Marine Freight Development in the MAFC

Description of:

- ✓ **Current infrastructure projects**
- ✓ **Previous/current Tiger awards**
- ✓ **RORO, containers?**
- ✓ **Operational Issues and rating**
- ✓ **Documents**
- ✓ **People**

MID-AMERICA FREIGHT COALITION

Working Session ■ MAFC Annual Meeting ■ April 22-25, 2014 ■ Chicago, Illinois

Collaboration to Advance Port and Marine Freight Development: The Wisconsin example

Ports and Ports Association, Business, Industry and Agencies

MID-AMERICA FREIGHT COALITION

Wisconsin Commercial Ports Strategic Development Initiative

Project Drivers

- ❑ WisDOT
- ❑ Wisconsin Economic Development
- ❑ Wisconsin DNR
- ❑ Wisconsin Costal Management
- ❑ WCPA
- ❑ UW-Madison, CFIRE

MID-AMERICA FREIGHT COALITION

CFIRE
cfire.wistrans.org

Collaboration – a process and methodology to achieve a common goal

WCP Development

- ❑ Infrastructure baseline
- ❑ Market baseline
- ❑ Port and industry visits
- ❑ Opportunities/Hurdles
- ❑ Strategies
- ❑ Stakeholder meeting
- ❑ Focus strategies
- ❑ Identify and support champions
- ❑ Initiate action with performance metrics
- ❑ Follow-up

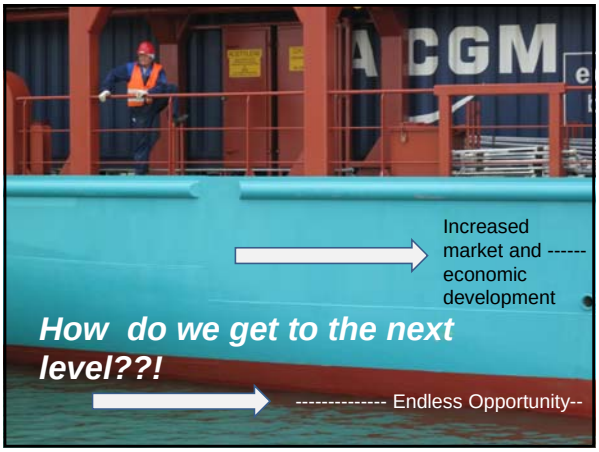
WCP Strategic Development Project status

Lessons from Initiatives:

Reliability, Infrastructure, Time Constraints, Awareness and Market Gateway, Market Attraction, Habit with know Risk.

Results: Business Connections, Increased Awareness, Program Focus, Institutionalized in DOTs, Greater Collaboration.

??Greater Market share, more development??



The Effort will pay off!

Lock and Dam 8, Genoa, Wi. Feb 11, 2014. Negative 15.

Delta Regional Authority

www.dra.gov

Locations and Contact Information

Headquarters:	Washington, DC:
Delta Regional Authority 236 Sharkey Avenue Suite 400 Clarksdale, MS 38614 (P) 662.624.8600 (F) 662.624.8537	Delta Regional Authority 444 North Capitol, NW Suite 309 Washington, DC 20001 (P) 202.434.4870

www.dra.gov

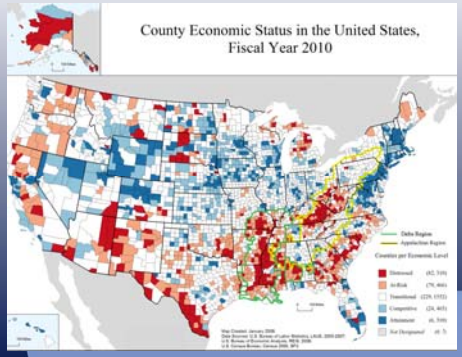
The Delta Region

252 Counties and Parishes

212 Deemed "Distressed"

9,852,807 Residents

Poverty in the Delta



Small Public Ports in the Delta

Delta Regional Authority

Creating Jobs.

Building Communities.

Improving Lives.

@DeltaRegional /delta.regional.authority

www.dra.gov 1-888-GO TO DRA

Gulf Intracoastal Waterway
The Connecting Link

Jim Stark
Executive Director, GICA

GICA Mission

…..to ensure the Gulf Intracoastal Waterway is maintained, operated and improved to provide

the safest, most efficient, economical and environmentally-sound water transportation route in our nation,

serving petrochemical facilities, refineries, farms, mines, ports, commercial fisheries, recreation and more.

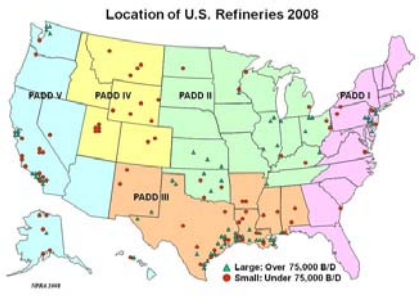
Accomplishing the GICA Mission

- **Identify, analyze and address GIWW issues**
- **Educate and inform the public of GIWW's importance to the nation**
- **Advocate for adequate capital and maintenance funding (Federal and State)**
- **Coordinate and partner with other industry groups/associations on waterways issues**
- **Assist USCG and USACE in identifying and rectifying hazards and improvements to the waterway – (e.g. Joint Hurricane Team)**

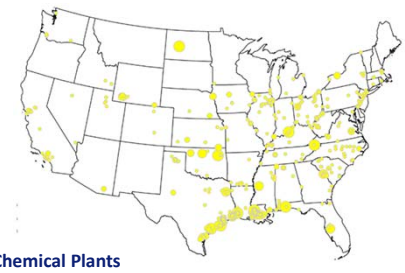
Barge and Towing Industry Inland Waterways

- **Towing Industry transported 565 million tons of cargo on our inland waterways system**
- **GIWW traffic accounts for 112 million tons.**
- **Estimated value of GIWW cargo is about $86 Billion**
- **Only the Mississippi and Ohio Rivers accounted for more waterborne cargo traffic than GIWW.**
- **On the GIWW, cargo leaders are:**
  - **Petroleum / Petroleum Products 51%**
  - **Chemicals 17%**
  - **Crude Materials 17%**
  - **Coal 6%**

GIWW Cargo – Where's it go?

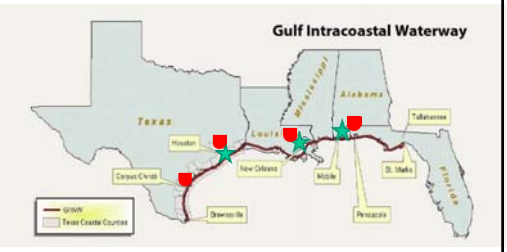


GIWW Cargo – Here, too



Chemical Plants

GIWW is 109 years old, spans 1100 miles St. Marks to Brownsville



GIWW is Key Link for Gulf Ports
Spans Three USACE Districts, Four CG Sectors

GIWW is a Fuel-taxed Inland Waterway

- Capital Projects dependent on Inland Waterways Trust Fund and the IWUB Capital Development Plan
- O&M remains USACE appropriation and responsibility – critical to maintaining aged infrastructure and silted channel
- Coast Guard marks channels, maintains aids, oversees marine safety regulations
- States differ on Non-Federal Sponsor roles
- Enjoy cooperative relationship with Port along the ***Connecting Link***

GIWW Areas of Concern

- USACE Dredging Funds for FY 2015 – Need to maintain momentum of the 2014 plus up in O&M
- Aged / Outdated Infrastructure
  - Brazos River Floodgates
  - IHNC Lock
  - Bayou Sorrel
- High Island to Brazos Realignment
- Mooring Basins – Additional Buoys
- Encroachment – Maintain safe, navigable width
  - USACE effort to establish revised, realistic setback policies-export Galveston District efforts USACE wide?
- Hurricane Storm Damage Risk Reduction System (HSDRRS) impacts

Impacts of Aged Infrastructure

Algiers Lock was prime example of running it til it breaks

- March 27 2013 casualty – lock closed to navigation for 112 days costing industry an estimated $136M.
- Tows required to divert to smaller, less efficient Harvey Lock or distant locks and alternate routes on the Miss (Port Allen or Old River)
- Significant costs associated with delays (3-5 days and additional transits) - additionally subject to opportunity costs for idle assets, demurrage and 2nd and 3rd order impacts to customers

Algiers Gate Damage

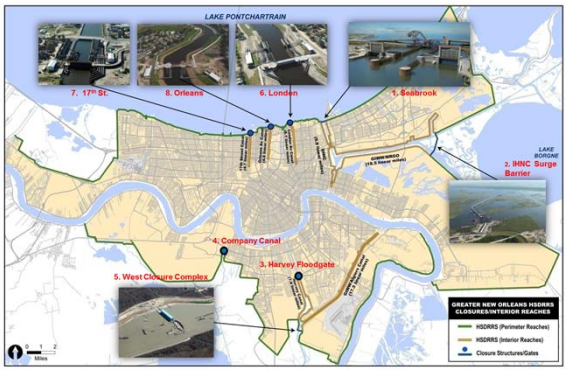
2014 IHNC Lock Failure

2014 IHNC Lock Failure

- 1923 Construction
- Failed Bull Gear
- Dewatering, maintenance had been delayed
- 12 day Emergency Closure and Repair
- Luckily replacement gear available on site

- Can't *plan* on luck – Next up is 45-60 day dewatering for gate and machinery replacement in late summer 2015

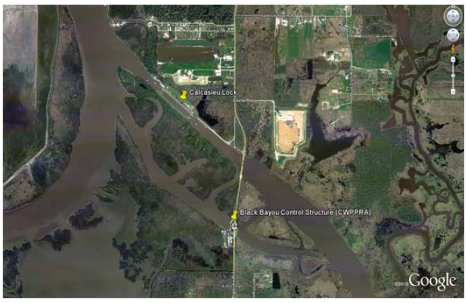
HSDRRS and New Orleans RNA



Planning Studies

- Lock Replacements / Improvements
  - Calcasieu – Improve Navigation
  - Bayou Sorrel – Replace / Modernize
  - Brazos River Floodgates – New Effort w TXDOT
  - IHNC – Shallow Water Lock Replacement
- Moorings – Texas issue tied to Increased GIWW traffic

Calcasieu Lock Study



Brazos River Floodgates

Next Up

- WRRDA Passage – Implementation and Appropriations are next challenge
  - *Congratulations* to our National level advocates: AWO, NWC, WCI and others
- Expect GIWW traffic and value to nation to grow
- GICA Convention, 6-8 August at Westin, New Orleans

Inland Rivers, Ports and Terminals Inc.

Rediscover the **Strength** of America's Inland Rivers

IRPT.NET

Inland Rivers, Ports & Terminals, Inc.

- Trade association for the nation's inland waterway, port and terminal professionals.
- Mission is to provide a platform for inland river port and terminal professionals to improve their businesses
- Inform policy makers on the needs and economic impacts of our industry

IRPT.NET

IRPT Members

IRPT.NET

IRPT River Basins

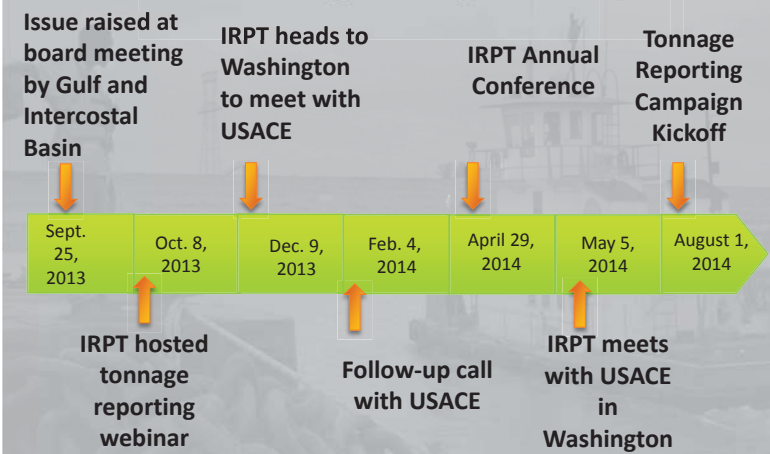
IRPT.NET

IRPT serves as a voice for our members by tackling national issues affecting our industry.

- Tonnage Reporting
- Dredging Concerns
- Economic Impact Study

IRPT.NET

Tonnage Reporting



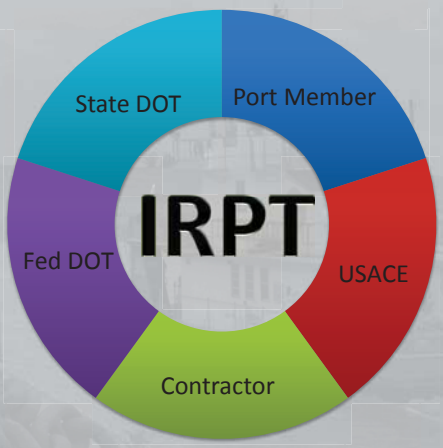
IRPT.NET

IRPT's Emergency Response to Issue Raised by Members

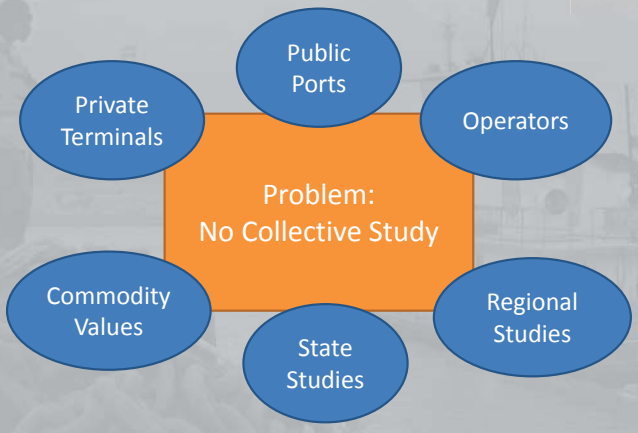
Long Term Goal to Systematic Approach of Reporting and Unifying Operations

Dredging Focus Group

- Marine Highway Designation
- State Budget
- Corp. Budget
- Justification Report
- Case Studies
- Private- Public Financing



Economic Impact Study



Contact: IRPT 1635 W. 1st Street, Granite City, IL 62040
admin@irpt.net
618-877-8496