

Missouri River Freight Corridor
Assessment and Development Plan

Review of Existing Literature, Practices, and Initial Stakeholder Involvement

(Technical Memo 1)



Prepared By



Hanson Professional Services, Inc.



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Technical Memorandum No. 1

The following is a summary of the work undertaken to complete Task 1 of the Missouri River Freight Corridor Assessment & Development Plan. This document was prepared for review by MoDOT project staff and the Project Coordination Team (PCT).

Literature Review

Per the project Work Plan, Hanson collected and reviewed numerous documents pertaining to Missouri River history, development, US Army Corps of Engineers, management, navigation, hydrology, environmental concerns, and many other issues related to the River. A list of the documents collected to date is included as a Bibliography in Appendix A.

A preliminary literature review list was submitted to the PCT for comment early in the project. Comments were received and documents were added to the list. For most of the 143 documents on the list, Hanson has not only reviewed the document but also prepared a brief abstract of its contents for future reference during the study. The abstracts are included in Appendix B.

Stakeholder Involvement Process

Recognizing that stakeholder involvement is critical to the study process and even more critical to the implementation of Concepts of Operations, a stakeholder involvement process was implemented early in the project and will continue throughout. The initial efforts included:

- Collaboration with the PCT
- Coordination with the MRAPS management team
- Stakeholder meetings in three Missouri locations
- Stakeholder surveys
- Personal stakeholder interviews

A list of potential stakeholders was compiled from the participants in the Missouri River Freight Development Forum from December of 2009 and additional stakeholders identified by MoDOT and Hanson. This initial list was sent to the PCT for comment. Additional stakeholders were added to the list. The revised list is included in Appendix C, not including contact information.

Three general stakeholder groups that have an inherent interest in the redevelopment of freight on the Missouri River were identified. The groups include Ports & Terminals, Shippers & Carriers, and Agency & Others.

Ports/Terminals – A port complex may include both public and private terminals as well as industrial sites, railroads, warehousing, and other infrastructure.

River terminals are typically categorized by ownership (public and/or private), operation (public and/or private) and use (special purpose or general purpose) as further explained below:

Public/Private Ownership - Public ownership is where the terminal is owned by a public entity such as a port authority, unit of local government or a state. Private ownership is where a terminal is owned by a private corporation.

Public/Private Operation - Public port authorities may develop and construct facilities, retain ownership of the facilities, but contract or lease the facility to a private company which provides day-to-day operations, marketing and management (private operation).

River Terminal Use - Special purpose facilities are typically built to be very efficient for moving a specific commodity either inbound or outbound. For example, pneumatic systems, special pipelines, conveyors and special crane systems are often used in single-purpose applications such as loading grain, loading petroleum products, unloading cement, unloading liquid fertilizer or for certain steel or mineral products. Special purpose terminals may have little or no versatility with respect to moving other types of cargoes, but are typically very efficient for their special purpose. These terminals are most often seen at an industry, mine, power plant, or for some other on-site need, and are typically privately owned.

General purpose facilities are usually versatile and can be used for a wide variety of applications such as loading or unloading steel coils, pipe, machinery, forest products, or bulk materials. Equipment may include, for example, a mobile crane which can be rigged with a bucket, spreader bar, hook, clamp, magnet or other cargo handling equipment to move the cargo from the dock into short-term storage. A general purpose terminal is constructed for versatility rather than specialization. Some degree of efficiency may be sacrificed when the general purpose facility is compared to a special purpose terminal built and operated for maximizing single cargo efficiency.

General purpose terminals can generate significant local and regional economic growth, including job creation. They serve existing business users, may provide services to attract new industry and create and expand opportunities for port services. The presence of a general purpose terminal can also be expected to affect the competitive rates charged for other modes available in the area by bringing the water mode into play as an alternative.

Shippers and Carriers - This stakeholder group includes major shippers with potential to use waterborne transportation. These shippers own and move the cargo. For example, shippers may include owners of steel, cement and chemical companies.

Carriers include the barge lines. They play an integral role in providing valuable input on future transportation needs.

Agency/Other - This group includes local, state, and federal government agencies as well as development districts, economic development entities, and metropolitan planning organizations (MPOs), trade associations and other interests who have an intrinsic stake in the impact of waterborne commerce bringing jobs and additional tax base into their area.

Stakeholder Meetings

A series of three meetings was undertaken to introduce the project and to seek the stakeholders' participation in determining opportunities and challenges for increasing freight movement on the Missouri River. Meetings were held at MoDOT facilities in Kansas City, Jefferson City, and Chesterfield, MO to attract stakeholders from various locales throughout Missouri as well as neighboring states with the potential for inherent interest in the success of the River. These initial meetings included a presentation of the project work plan developed by MoDOT, the PCT, and Hanson, and interactive stakeholder input discussion and activity. Representatives from shippers, carriers, port authorities, terminals, governmental agencies, and other special interests were present. In total, 67 stakeholders attended these meetings. The sign-in sheets for the three meetings are included in Appendix D.



During the meetings an interactive portion was developed to encourage Stakeholders to express themselves in an efficient and private manner without peer influence. The solicitation from Stakeholders of their perceptions of Challenges & Opportunities to Missouri River Freight Growth was an important goal of the process.

An introduction was provided to prompt the attendees to think about this critical goal from their individual organization's viewpoint and interest. Added in the power point presentation, five interest segments common to Challenges and to Opportunities were noted; Market & Commodity Oriented, Infrastructure, Navigation, Operations and Environmental. To clarify to stakeholders the universe of potential responses; a verbal discussion of key phrases for each of the ten areas was quickly presented.

Because time was important and attendees were made up of many varied interests, ten posters representing the five interest segments of Challenges and Opportunities were prepared. The posters were grouped by Challenges in one area of the meeting room and Opportunities in another. The key phrases were added to the appropriate posters to stimulate stakeholders thinking. The arrangement permitted Stakeholders to circulate, ask questions about the project and respond informally in writing at their own pace from their own viewpoint. Based on color coded post-it-notes for the five interest segments, stakeholders posted opinions, comments, suggestions and concerns in blocks that permitted efficient consolidation and review of findings. Over 140 comments were received across the three meeting sites. The comments received are included in a tabular format in Appendix E.



In addition to coordination meetings with the PCT, the MRAPS management team, and three group-format stakeholder meetings, Hanson conducted numerous on site visits and interviews with a variety of stakeholders. See the Task 2 Technical Memo for further description of site visits. Hanson also participated in an MRAPS scoping meeting and included a brief presentation of the MRAPS project and objectives by the US Army Corps of Engineers in the three group-format stakeholder meetings.

Survey Instruments

In order to further increase understanding of the opportunities and challenges facing freight development on the Missouri River, surveys pertaining to market development and commodities, physical infrastructure, navigation and operations support, and policy involvement and influence were issued to identified stakeholders according to their areas of expertise.

The following sections reflect the position of the stakeholder respondents as it pertains to the categories mentioned above.

Market Development & Commodities Survey – 13 Respondents (10 Shippers, 3 Ports)

These surveys were issued to gain perspective on existing markets and commodities as well as emerging factors for market development.

Existing Commodities - Of the respondents, the top freight commodities transported throughout the region are dry and liquid bulk commodities as indicated in the following table.

Shippers	Ports
Fertilizer (bulk) (2)	Fertilizer (2)
Soybean meal	Salt
Soybean oil	Vegetable oil
Soybeans (2)	Lumber
Grains (2)	Steel
Liquid asphalt (2)	Cement
Heavy fuel oil	Grain
Alfalfa pellets	Clay
Salt	Aggregates
Aggregates	
Sand	
Fire clay	
Shale	
Corn	
Wheat	

Table 1.1 – Existing Commodities

85% of these commodities are shipped by truck and/or rail, but most indicated that water would be their mode of choice for its efficiency and lower cost provided that navigation reliability is present. Respondents were asked to rank the relative importance of three factors in making choices about transportation: reliability, cost, and transit time. Of the three factors, transit time was ranked as third priority by 88% of the respondents. Cost and reliability were consistently ranked first or second. This suggests that the slower transit time associated with barge transportation may be tolerable to shippers, provided that the cost and reliability factors compare favorably with other transportation options.

Typical domestic shipments originate from New Mexico, Iowa, Illinois, Minnesota, Nebraska, North Carolina, Kansas, Utah, Missouri, and Louisiana, Texas, Florida and points along the Gulf. Domestic shipments are then destined for various locales across the US, in particular Kansas City, MO, Omaha Ne, Sioux City IA, Guntersville, AL, St. Louis MO, and the Gulf for possible foreign destinations. Europe and Central and South America are common international destination points.

73% of respondents indicated that shipment volumes have decreased citing declining transportation reliability, fuel volatility, and driver shortages as developing issues. Water transportation was deemed a favorable mode and one that is vital to economic growth. However, perception of water transportation on the Missouri River is negative. Respondents indicated that river depth and reliability must be enhanced, loading and unloading facilities are needed as well as reliable barge lines to run the river to foster the return of freight traffic to the River. Trucking and rail weren't thought of in any more favorable terms. Many indicated that interstates are overly crowded with trucks, congestion is significant, and highway conditions are degrading causing delays in service. Water transportation would be considered as a primary mode choice given service reliability and cost savings to the shippers. Rail service also posed concerns. Declines in service frequency and perceived unreasonable rail rate increases were cited as common issues.

A section of the survey inquired about existing market interests and potential market commodities. Both shippers and port representatives showed high interest in expanding the dry bulk market while port representatives also believed container-on-barge is a pursuable market as shown in the following table.

	Shippers	Ports
Dry Bulk	70%	100%
Breakbulk (coil, plate, rolls, super sacks, scrap, other)	10%	50%
Over-Weight/Over-Dimensional	10%	50%
Container	0%	100%
Liquid Bulk	40%	50%

Table 1.2 – Potential Freight

Physical Infrastructure Survey – 9 Respondents (8 private, 1 private/public mix)

This survey was issued to obtain a basic understanding of physical infrastructure conditions and needs. This data is intended to supplement site visits and other information sources gathered during the Task 2 inventory reporting.

Infrastructure Description – Most respondents described their facilities as either marine cargo terminals and/or truck facilities. No industrial/business parks or marinas were represented. Seven of these were active facilities, one inactive, and one abandoned.

Number of facilities	Facility Description
6	Marine Cargo Terminal
2	Liquid Terminal
2	Fleeting/Mooring
2	Rail Interchange
0	Industrial/Business Park
0	Utility Structure/Intake
5	Truck Facility
1	Boat/Barge Services (fuel, cleaning, shipyard)
0	Marina/Other Recreational

Table 1.3 – Existing Facilities

Generally, facility conditions reported ranged from fair to good; however only one facility was reported as adequate for any future growth. Respondents listed a number of capital upgrades that were needed to capture new cargos and attract freight opportunities to the Missouri River. These included the following comments:

- Capital upgrades will be required without a reliable river transit system
- Need to change status with Coast Guard
- General upgrading and dock repairs
- Need piling and dolphins and high road access for high water loading
- Needs new: storage buildings, barge and pier infrastructure and rail spur connection
- Would need some improvement if other products were stored at the plant
- Have nothing setup for unloading bulk products other than sand and gravel
- Need cable mover to move barge down (barge puller system)
- New dock structure and dolphins
- Sand conveyors are adequate; sheet piling wall could save on mobile equipment; need for sand unloading

Various site capabilities exist at these facilities that could be capitalized on to promote freight development.

- 10 acres; 9,000 tons pellet/grain storage
- Storage space and 2 unloading sites with conveyors. (We) own a 120 ton crane that could load or load product
- Possible fertilizer off loading with large ag market and MFA close by
- Barge, rail, truck; 110,000 tons dry bulk storage, 6 million gallons liquid storage, 25 acres of laydown yard, 300 ft. & 50' concrete barge dock
- We can handle 2 barges to load grain onto

- We can tie off 2 barges. Can load at apprx. 900 bph
- Great potential
- Unlimited
- Sheet piling wall great location for unloading from barge to truck; channel side of river on long straight stretch. We have 30 acres to develop.
- Has unloading barge that can stockpile material by conveyor @ 400-500 tons per hour
- Great location for unloading fertilizer and loading grain. Already a market exists for loading grain just don't have an easy way to load.
- Have fleeting location but need dolphins to keep barges off ground and tows. Could reconfigure tows if dolphins were placed in right spots.

Navigation & Operations Support – 6 Respondents (3 shippers, 3 ports)

Reliable waterways are needed to meet shippers' needs. To resuscitate freight to the river, barge transportation must be competitive and reliable. Though the response rate was not high for this particular survey, answers provided did indicate reliability concerns for river navigation. Deficiencies in navigation aids, unreliable channel characteristics, lack of fleeting services, and limited navigation support has facilitated the decline in freight on the River. All respondents did indicate however, that if risks could be reduced and the operating season predictability could be improved, all would consider operating on the River assuming freight is available.

Agency & Other Interests – 13 Responses

Governmental agencies, trade associations, and political and other interests were surveyed to determine level of interest in the Study, expected goals or outcomes, specialized expertise, and available pertinent resources.

All respondents displayed a high level of interest in revitalizing freight development on the River which suggests a raised awareness amongst stakeholders that are not necessarily direct users of the system. Respondents were overwhelmingly in support of maintaining a viable navigation industry with sustained navigation flows on the Missouri River. Commentary received included comments such as the following:

“Global trade utilizes supply chains that employ multiple carriers and modes from one end to the other. That route has to be made seamless and readily available to the far foreign customer or shipper. If they can't find us in the market they will buy/use the one that they do find.

As yield trends increase at a dramatic rate over the coming years, exports are going to become an increasingly important component of markets for MO corn farmers. In order to remain competitive in a global marketplace it is vital that our country invest in the infrastructure improvements necessary to allow for economical shipments of grains and

other goods on our nation’s waterways. Not only are exports going to be increasing, but shipment of goods upriver becomes more crucial as inputs are imported from further distances. As these needs increase there will be demand for shipping in rural areas found up and down the MO River.”

Preliminary Findings

The Missouri River is an important link to the Mississippi River waterway system since approximately 90 percent of Missouri River’s commercial goods are moved on the Mississippi River. Major commodities transported on the River include agricultural products (farm and food products); chemicals including fertilizers; petroleum products including asphalt; manufactured goods including building products such as cement; and crude materials such as sand, gravel and materials used to maintain the navigation project.¹

After reviewing available literature, conducting stakeholder meetings and coordination meetings, and gathering stakeholder input via stakeholder commentary and surveys, Hanson has arrived at a baseline understanding of the challenges and opportunities regarding freight development on the Missouri River. The following paragraphs describe this baseline.

Challenges and Opportunities

Five categories of challenges and opportunities were utilized in the stakeholder discussions based on preliminary perceptions of the project team derived from the literature review process. The discussion following each bulleted list describes Hanson’s current understanding of the issues. As additional interviews, surveys, and market research is undertaken, the project team anticipates refinement of this baseline understanding followed by proposed methods for capitalizing on the opportunities in the context of the challenges.

Market & Commodity Oriented

Challenges	Opportunities
<ul style="list-style-type: none">• Navigation Reliability	<ul style="list-style-type: none">• Economies of Scale
<ul style="list-style-type: none">• Origin/Destination Flexibility	<ul style="list-style-type: none">• Risk Reduction
<ul style="list-style-type: none">• Other Modal Connectors	<ul style="list-style-type: none">• Transportation Pricing
<ul style="list-style-type: none">• Slowed Supply Chain Perception	<ul style="list-style-type: none">• Commodity Growth Capacity
<ul style="list-style-type: none">• Changing Supply Chain Patterns	<ul style="list-style-type: none">• Pricing Stability
<ul style="list-style-type: none">• Unrealistic Transportation Cost Savings	<ul style="list-style-type: none">• Shipment Transaction Volume
	<ul style="list-style-type: none">• Weight/Density/CDC Advantage

¹ USACE, Missouri River Recovery Program, From Steamboats to Barges: Missouri River Navigation, 2009

Market & Commodity Oriented Challenges are primarily challenges viewed by shippers that could negatively influence freight growth. Shipper decisions regarding modal choice are driven by system reliability, and data indicates the Missouri River has declining seasonal and channel dimension reliability. Because the navigable river systems are finite, shippers perceive origins and destinations when using water transportation as a limiting factor. Modal connectors must be market driven, and first/last mile quality influences shipper decisions on connectivity efficiency. Shippers that change supply chain patterns find waterways are less adaptable than highway options. Because bulk commodities enjoy tremendous cost efficiencies, shippers can have unrealistic expectations for most other commodity groups which require re-handling or additional land transportation.

Market & Commodity Oriented Opportunities include the key element of economy of scale by offering significant savings through larger single shipment size capability where it can be applied. Traffic incident data indicates accident frequency, property damage, contamination/pollution, and personal injury for waterway shipment are far less risky than that encountered for road or rail. Transportation pricing has flexibility as many service activities can be bundled into a single rate package. Waterways have significant unused capacity to transport additional freight without significant new infrastructure investment. This is attractive to the market place because of the huge investment required for additional track and highway lanes to accommodate projected growth and congestion reduction. Pricing stability is an opportunity as the marine mode dampens the per unit influence of labor shortages and fuel expense through lower manning requirements and fuel consumption on a per unit basis. Shipment transaction volumes can be greater and this holds significant promise for reduction of administrative needs to meet documentation and insurance requirements with a single carrier. In certain market segments, water carriage has great advantage over road and rail activity. This is particularly true in high weight and dense cargoes that encounter limits based on infrastructure or the truck trailer or railcar. Over-dimensional cargoes have limits in these same modes and generally encounter minimal restriction on waterways. Certain Dangerous Cargoes (CDCs) move under strict controls and monitoring due to potential impacts to the general public should an incident occur. The risk is reduced significantly as most waterways pass through low population density areas and it is harder for other conveyances or people to be in proximity to facilitate an incident.

Infrastructure

Challenges	Opportunities
• Facility Dock Integrity	• Load Center Growth
• Commodity Load Centers	• First/Last Mile Upgrades
• Carrier Service Facilities	• Intermodal Transition Investment
• Capital Investment Resources	• Business Park Synergy
• Facility Cargo Capacity	• Improved Facility Utilization
• Material Handling Reliability	• Highway Maintenance Reduction
• Certification, Permits & Loadings	
• New Technology Investment	

Infrastructure Challenges highlight physical structure deficiency which may negatively impact freight growth. Facility dock integrity and how to validate it are issues impacting many private and public facilities on the Missouri River because of deferred maintenance and repair from lack of use. A shipper can benefit from freight economies of scale, but load centers to handle these large volumes require infrastructure investment. Carriers need to have support facilities which will permit continuous operation along the waterway. Support facilities include fleeting and fuel at appropriate locations. Few service options of this type exist today. Capital investment in marine structures is expensive and few resources are available to meet this financial need. Port authorities and private industry along the Missouri River have minimal capability to secure investment because of navigation system unreliability. Material handling equipment is somewhat suspect due to lack of use and age. Both the Hanson Infrastructure Report activities in Task 2 and the surveys received during this Task 1 effort have identified specific preliminary infrastructure needs. Operating permits, equipment and dock capacity certification are likely deficient due to lack of demand. Investment in new technology is uncertain due to the expected financial return required by lenders. The overwhelming commentary received from stakeholders is that they are largely holding back on investment in infrastructure because they do not have a sense of security that the water will be available to conduct operations.

Infrastructure Opportunities are primarily found in areas requiring some type of future investment. Load center growth would be a concentration of sufficient capacity to ultimately gain a freight advantage. The chances are good to develop a load center if the public sector prepared a plan to bring freight capacity, in lightly served commodity groups, to a regional location with an open terminal/stevedore approach. Private facilities could do the same with consortiums and shared profit approaches. Several examples of this business model are present on the waterways. First/Last mile upgrades would add appeal to shippers when in appropriate locations and the investment can result in improved traffic capacity or flow that produces reduced cost. Intermodal transition investment usually centers on material handling infrastructure for improved throughput rates, productivity and reduced labor. Business park synergy is generally coupled with a common user facility that serves multiple tenants and multiple commodity groups. It calls for unique infrastructure such as water and sewer capacity

and road and rail improvement supporting an economic development plan. Investments previously noted as infrastructure opportunities improve utilization and thereby lower unit cost for commodity movements to or from carriers. An additional infrastructure opportunity is found in the overall net public benefits of reduced highway maintenance and repair by reducing truck traffic or by directing overweight shipments to water transport for a portion of the journey.

Navigation

Challenges	Opportunities
<ul style="list-style-type: none"> • Channel Dimension/Depth Integrity 	<ul style="list-style-type: none"> • Increased Tonnage Activity
<ul style="list-style-type: none"> • Dredge Response and Availability 	<ul style="list-style-type: none"> • Recognition of Navigation Value
<ul style="list-style-type: none"> • Navigation Season Reliability 	<ul style="list-style-type: none"> • Resource Allocation for Navigation
<ul style="list-style-type: none"> • ATON Improvements 	<ul style="list-style-type: none"> • Channel Condition Reporting
<ul style="list-style-type: none"> • Forecast Condition Accuracy 	<ul style="list-style-type: none"> • Vessel Utilization Improvement
<ul style="list-style-type: none"> • High & Low Water Variables 	<ul style="list-style-type: none"> • Fleeting Investment
<ul style="list-style-type: none"> • Dikes & Markings 	<ul style="list-style-type: none"> • System Vitality/Viability
	<ul style="list-style-type: none"> • Navigation Service Cycle Process

Navigation Challenges define those issues that negatively impact navigation thereby reducing transport capacity, reliability, predictability, and safety. In addition the negative impacts increase risk of incident, collision or allision. Channel dimension and depth integrity are a primary component of safe operation. Tow personnel must ascertain safety and risk relative to the tow’s deep draft, length and width versus channel position and acceptable clearances. Dredge response capability is a potential part of the USACE obligation to maintain channel integrity which may be required in low water or changing conditions. Dredge assets apparently are not readily available due to reduction of freight movement compounded by extensive drought conditions. Navigation reliability from the inland carrier’s perspective puts forth the risk of assigning an inappropriate towboat size/horsepower for anticipated conditions when integrity of channel is not guaranteed. ATON refers to Aids to Navigation and the maintenance and placement of Aids to Navigation by USCG assets. These visual aids are of significant importance to the safe navigation of the channel, and if channel integrity is not maintained, demand for new or improved placement may exceed capability. Channel maintenance assets have a tendency to be dispatched elsewhere when navigation is declining, which perpetuates the decline. Forecast condition accuracy is a term used for the relationship between river velocity, cubic feet per second (cfs) at a particular point and the anticipated channel depth at that point. The forecast condition is a critical component to the mariner’s safe decision making while underway in the defined channel. To the extent the forecast reliability decreases or the relationship is not accurately estimated, the tow incident risk increases. High and low water variables or extremes have also affected navigation. Risk increases when extreme velocity impacts tow steering, negotiating bends or meeting oncoming traffic with attendant high fuel burn to negotiate the current. Low water impacts the channel dimension and increases the risk for grounding, rudder

and wheel (propeller) damage. Meeting traffic situations are more tightly constrained by reduced channel dimension and tight operating parameters. Any navigation protocols for these conditions should be regularly updated. Dikes and any related markings must be maintained as frequently, in extreme high water, they are not always visible. In these conditions, reliance on navigation aids and markings are critical. Dike failures must be updated with the USCG and communicated in a Notice to Mariners in order for the mariner to avoid unforeseen risks.

Navigation Opportunities increase with the enhancement of system reliability. Mitigating the challenges adds to the reliability of the system, and as tonnage increases the addition of USACE and USCG assets correspondingly enhance navigation. A federal agencies' recognition of navigation reliability and risk makes the choice of asset deployment, where discretionary, easier to accomplish. Although assets are somewhat committed in the annual budgetary process, Districts have some discretionary latitude to move resources as certain conditions may dictate. Channel condition reporting is very important and the establishment of an effective process for reporting anomalies provides the means to focus on and correct or improve problems. The more boats on the River, the more frequently the conditions are reported. As channel integrity is corrected, tows can safely operate at an optimized configuration and thereby perform more efficiently. Fleeting investment opportunity, as a separate business line, increases as additional tows take advantage of the reliability of channel dimension and require additional river services. The system remains viable with navigation channel improvements and it becomes a self perpetuating process with increased activity and carrier risk reduction. The Navigation Service Cycle process may create additional opportunity for carriers through understanding the concept of CFS and the operating draft relationship. It is important in creation of an effective process to identify consistent problem locations and to provide a framework for low/high water system adjustments.

Operations

Challenges	Opportunities
• Commodity Production	• Labor/Service Utilization
• Safe Mooring	• Carrier Frequency Improvement
• Stevedore/Terminal Work Rules	• Predictable Carrier Deployment
• Intermodal Operations	• Improved Stevedore/Terminal Rates
• Equipment, Gear & Rigging	• Economical Horsepower Utilization
• Personnel Experience	• Fleeting Services Development
• Cleaning, Washing & Slops Activity	• Red Flag Cargo Acceptance
• Low Water Response	• Third Party Opportunity
• Inventory Control & Software	• Low Water Protocol
	• Forward Looking Planning Horizon

Operations Challenges focus on areas related to terminal and service offerings within the system. One of the challenges is the likely need to increase cargo handling production in an environment of aging systems that have been underutilized the past

decade. The ability to provide safe mooring for barges, particularly at high river velocity, is a concern given the age and possibility of reduced inspection of dock facilities. Stevedore/Terminal work rules should be flexible to accommodate cargo movement when tows arrive rather than daylight only operations, unless unsafe. Investment and accommodation to enhance intermodal activity should be considered to reduce cost and add service improvement but it is generally challenged by insufficient volume and investment capability. Equipment, gear, and rigging may need to be upgraded for improved and damage free discharge for many commodity groups. An aging workforce in the stevedore/terminal handling industry is a challenge as the loss of valuable knowledge has occurred with retirements and the reduction of activity during the past ten years in this system. Fleet operations generally provide services such as cleaning, washing and receipt of oil residue from barges and tows. This is an important function when barges change cargoes from one commodity to another and is essential to enhance backhaul or return use of barges. These services have virtually disappeared as freight declined in the system. Low water response is a challenge in several operating scenarios; assist boats may be needed to help a lightly grounded barge. Facilities may require an assist boat when operating at a dock under low water conditions, and a government agency may have to quickly respond to unpredicted low water conditions impacting continuing operations. As new market opportunities present themselves, investment may have to be made to add or upgrade inventory and terminal systems software. For example, this challenge may occur in an opportunity such as containers.

Operations Opportunity can be created from increased freight growth through improved utilization of labor and services through cost reduction and improved efficiency. Increased cargo volume will develop with improved carrier service frequency and transit time. Facility options are also created by the expectation of predictable and frequent tow deployment and related service capability. The rates for operating services like stevedoring, terminal and other facility services can be improved with volume growth. Assuming predictable conditions of velocity and channel dimension, carriers will recognize operational advantage through the ability to appropriately match towboat horsepower with effort required to move barges and cargo in the system. Additionally, fleeting service opportunities will develop as cargo activity increases and greater barge availability is offered to the market place. Liquid cargo offerings, beyond those commodities now shipped, may increase should carriers and fleets on the system decide to meet those requirements for hazardous materials, security, etc. for what is typically identified as “red flag” cargoes. Business interest in third party operations will increase to address carrier, shore side, and logistics management service needs. In order to protect freight development progress in periods of extreme sustained low water, a “Low Water” operating protocol for all service providers would satisfy a common stakeholder concern. Shallow draft equipment has been discussed in the past, and should probably be considered as a potential operating concept moving forward. A forward looking planning horizon not limited to single agency control, as in its present form, may also represent a significant operational opportunity.

Environmental

Challenges	Opportunities
<ul style="list-style-type: none"> • Habitat protection 	<ul style="list-style-type: none"> • Air Quality Improvement
<ul style="list-style-type: none"> • Endangered Species 	<ul style="list-style-type: none"> • Noise Reduction
<ul style="list-style-type: none"> • Fossil Fuel Dependency 	<ul style="list-style-type: none"> • Congestion Mitigation
<ul style="list-style-type: none"> • Environmental Misperceptions 	<ul style="list-style-type: none"> • Water Quality by Surface Runoff Reduction
	<ul style="list-style-type: none"> • Habitat protection
	<ul style="list-style-type: none"> • Endangered Species
	<ul style="list-style-type: none"> • Highway Safety
	<ul style="list-style-type: none"> • Haz-Mat Safety
	<ul style="list-style-type: none"> • Personnel Safety
	<ul style="list-style-type: none"> • Fossil Fuel Reduction

Environmental Challenges are recognized in multiple areas as they relate to the freight development issue. Significant is the understanding of the science, alternatives, and perceptions of system stakeholders necessary for addressing habitat protection challenges under changing conditions. Endangered species issues are apparently discussed in the context of win or lose which does not tend to lead to problem resolution. Issues such as the “spring pulse” for the pallid sturgeon and the flow restrictions imposed to minimize impact to nesting areas below the Gavins Point dam can benefit or compete with necessary navigation flows. Towing vessels, like other transportation modes, still have a dependency on fossil fuels which negatively impact air quality but marine engine technology is rapidly improving. Apparently, environmental communications regarding the regional goals are perceived as not equally recognizing the water environment and the air quality environment. Sacrificing one environmental arena to accommodate another, air environmental versus water environmental, should not be encouraged in a period of projected national freight growth impacting the region. At the very least, the environment represents a challenge to understand and develop an appropriate balance among many priorities.

Environmental Opportunities are many, particularly in a condition of national and regional forecast freight growth. Addressing freight growth through enhancement of a water transportation option is a significant opportunity. Water transportation is a lower air emission output per unit of freight than any alternative land transportation option, truck or rail. Noise mitigation, as it may impact quality of life factors for people in proximity to highways and rail, is significant when freight movement is able to shift to water. Congestion, a negative impact to air quality and many other factors, is mitigated through the shift of freight to water transportation. Modal shift from truck and rail to water is a recognized air quality improvement strategy. The negative impact of increased surface water runoff from highway and rail transportation infrastructure growth is also mitigated by freight shift to water transportation. The opportunity to address habitat and endangered species issues is increased when presented in the context of essential parameters to accommodate future freight growth. Accidents,

hazardous materials impacts and public safety incidents are all benefited by the safety record of water transportation versus that of truck or rail. Additionally, fossil fuel reduction in water transportation use has great potential benefit for our future when measured against land transportation options.

Final Comments

Not surprisingly, the overwhelming issue impacting all of the areas above is the question of how much water can stakeholders expect will be in the Missouri River. The stakeholder input, the literature review, and Hanson's prior experience serve to illuminate the complexity of the numerous objectives for use or restriction of flows. As the study effort continues, the project team will seek to identify Concepts of Operations that increase freight movements on the River in the context of this complexity of issues.

Appendices

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Appendix A

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Appendix B

Literature Review – Abstracts



Literature Review Abstracts
Missouri River Freight Corridor Assessment Development Plan

The following are abstracts of many of the 143 documents presented in the Bibliography in the previous Appendix. All of the documents were reviewed to some degree, but some were not abstracted. Some were not abstracted due to the repetitive nature of the document when compared to others already abstracted, or upon initial review the document, it was evaluated as not pertaining specifically to the study objectives.

01 Missouri Freight Transportation: Economy on the Move: Truck Freight-Missouri Economic Research & Information Center

Abstract: The report is a statistical summary of the truck freight in Missouri. In most areas it breaks down the freight in: tons and dollars; truck only, truck-water, and truck-rail. It further goes onto break down the freight into For-Hire and Private trucking. Key statistics:

- Trucking industry generates estimated \$5.1B in Gross State Product and \$172M in new net Missouri general revenues
 - “Truck and water intermodal, previously suppressed in 2002 (no reason given), now show a growth in value to \$149 million and 5.9 million tons”
 - Truck-Only average distance 153 miles, truck-rail 795 miles, truck-water 1,760 miles
 - Higher value truck-water shipments predominantly to California (\$12M) and Missouri (\$3M)
 - Higher tonnage truck-water shipments predominantly to Louisiana (1,333 KT) and Missouri (1,277 KT)
 - West Virginia is top truck-water importer by tonnage
 - Truck-water = \$149M and 5.1M tons. Truck-rail = \$5.3B and 5.9M tons
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02 Missouri Freight Transportation: Economy on the Move: Waterway Freight-Missouri Economic Research & Information Center

Abstract: The report is a statistical summary of the waterway freight in Missouri. In most areas it breaks down the freight in: tons and dollars; water only, water-truck, and water-rail. Key statistics:

- Missouri has 14 public Port Authorities, over 200 private ports, over 1,000 miles of waterways along the Missouri and Mississippi rivers
- Waterway industry generates estimated \$388M in Gross State Product and \$13M in new net Missouri general revenues
- Waterway shipments grew 184% between 2002-2007, accounted for over 1.4% of value and 11.7% of tonnage, shipped nearly \$3B in commodities mostly comprised of cereal grains and agriculture.
- Water-Rail declined in value by 85%, Water-truck shows growth to \$149M and 5,9M tons
- Cereal grains and other agriculture products make up 87% of total value of waterway commodities
- One standard tow is equivalent of 900 trucks

- Water-Only average distance 602 miles, water-rail 1,353 miles, water-truck 1,760 miles
-

03 Missouri Freight Transportation: Economy on the Move: Air Freight – Missouri Economic Research & Information Center

Abstract: The report is a statistical summary of the air freight in Missouri. Key statistics:

- Missouri has 500 aviation facilities, 2 international airports, and 18 scheduled airlines
 - Air freight industry generates estimated \$1.3B in Gross State Product and \$30.6M in new net Missouri general revenues
 - Shipped nearly \$1.2B in commodities and 79KT, nearly 1% of the value and 0.0003% of the tonnage
 - Nearly 20% of air shipped value weighted less than 50lbs.
 - Most air shipments to Illinois (\$586M), imports from California (\$447M)
 - Air shipments average distance = 717 miles
 - Most items shipped by air freight are Precision instruments and apparatus and pharmaceutical products
 - In March 2008 study of China Hub showed Missouri is the state that is most rapidly growing in exports to China
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04 Missouri Freight Transportation: Economy on the Move: Parcel and Courier Freight – Missouri Economic Research & Information Center

Abstract: The report is a statistical summary of the parcel and courier industry in Missouri. Key statistics:

- Missouri has 2 Federal Express hobs, 2 UPS hubs, and nearly 1,100 Postal Service facilities.
 - P and C industry generates estimated \$3.3B in Gross State Product and \$111M in new net Missouri general revenues
 - Shipped nearly \$31.1B in commodities and 933KT, nearly 14% of the value and less than 1% of the tonnage
 - 44% increase in value, 10% decrease in tonnage – 2002-2007
 - Most P and C shipments to Missouri (\$4,991M), imports from Illinois (\$2,361M)
 - P and C shipments average distance = 721 miles for high value and 639 miles for high tonnage
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05 US Army Corps of Engineers, Missouri River Basin Water Management Division, November 2007. Missouri River Mainstem Reservoir System: System Description and Regulation

Abstract: This report presents a summary of pertinent data and a description of the Missouri River Mainstem Reservoir System (System) and discusses the regulation of the

System to serve the Congressionally authorized project purposes. The Missouri River Basin Water Management Division (MRBWMD), located in Omaha, Nebraska, directs the regulation of the System to serve the Congressionally authorized project purposes of flood control, navigation, hydropower generation, irrigation, water supply, water quality control, recreation, and fish and wildlife. The System is regulated using guidelines published in the Missouri River Mainstem Reservoir System Master Water Control Manual (Master Manual). The Master Manual presents a highly technical description of the water control plan and operational objectives for the integrated regulation of the System. The purpose of this document is to provide a less technical discussion of the regulation of the System under the Master Manual guidelines.

The document is a concise overview, with sufficient detail and explanation, to provide a good general understanding of how the system parameters interact and how the objectives are intended to be met each year in the AOP. This is a particularly useful background document to further understanding of the USACE role and the competing purposes affecting water supply for navigation on the Missouri River.

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- 06** US Army Corps of Engineers, Missouri River Basin Water Management Division, December 2009. *Missouri River Mainstem System 2009-2010 Annual Operating Plan*

Abstract: The AOP presents the Corps of Engineers' intended regulation of the system through 2010. The AOP is based on the guidelines in the Master Water Control Manual, updated in 2006.

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- 08** Missouri Public Port Authorities: Assessment of Importance and Needs. March 2006

Abstract: The report was prepared to assess the commercial importance of the fourteen public ports. It assesses the general waterway value in the context of benefit to the state's stakeholders and beneficiaries. Each of the waterways, Missouri and Mississippi Rivers, was placed in a geographic, modal competitive and navigation context. Ports descriptions were presented and economic impact and value described. Waterway needs were detailed and built around a framework of regional agricultural and commodity shipment demand. The report graduated to another level of detail describing needs of the ports based on survey response. Included in the report are descriptions of discreet port needs and an estimate of line item cost. Two Appendices were included; A) Blank Survey Forms utilized and B) Survey Responses

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- 09** Update of Missouri Port Authority Assessment. November 2007

Abstract: The report is a fact finding update to the 2006 study *Missouri Public Port Authorities: Assessment of Importance and Needs* because of the inconsistent responses to survey questions. Although the survey information was extremely valuable, certain

consistency was brought to the update by visits at which the interviewer could control the question response quality. The document describes four classifications for the fourteen public ports based on development capability standard. The Missouri River's three ports were grouped due to the common growth capability but each having similar navigation inconsistency. The report provides port by port insight to the capabilities, infrastructure, issues and opportunities encountered by each port authority. Many discussions centered on similar topics and are separately discussed in an Appendix Section, they are; Waterway Benefits, Bio-Fuels, Affects on Transportation, Container-on-Barge and Missouri River Cargo.

10 Missouri Freight Transportation: Economy on the Move: Rail Freight – Missouri Economic Research & Information Center

Abstract: The report is a statistical summary of the rail industry in Missouri. Key statistics:

- Missouri is home to 19 railroads, 4,400 miles of track, 2,500 miles of yard track.
 - Kansas City and St. Louis are ranked as the second and third largest rail hubs in the U.S. respectively.
 - Rail industry generates estimated \$3.7B in Gross State Product and \$82M in new net Missouri general revenues
 - Shipped nearly \$7.2B in commodities imported over \$9.7B
 - Rail only decrease 63% in value, 30% decrease in tonnage, rail-truck increase 334% in value and 421% in tonnage, rail-water decreased 84% in value but increased over 600% in tonnage – 2002-20007
 - Rail-Only average distance 670 miles, rail-truck 795 miles, rail-water 1,353 miles
 - Most real shipments to Texas (\$1,523M), imports from Michigan (\$1,612M)
 - 10 mph increase in rail speed reduce costs by 15%, 30 mph by 40%
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11 Involvement Situation Assessment – MRAPS April 2010

Abstract: The report is an assessment of issues surrounding the Corps undertaking of the Missouri River Authorized Purposes Study. It recommends an approach to developing a Management Plan that is inclusive of all the diverse issues and stakeholders. It explores the background of communication and conflict resolution among competing issues and subsequently explores the context related to why the difficulties exist. Several options and alternatives available for stakeholder communication and productive involvement are explained. The report recommends a number of actions for disseminating information and formation of an Executive Council for Corps success and does not attempt a consensus building approach.

12 Missouri River Authorized Purposes Study: The Osprey Group Situation Assessment (power point). March 2010

Abstract: The document is a presentation of the Involvement Situation Assessment in reference #11 above. It provides concise summary of many of the key ideas and also includes a number of quoted responses from various stakeholders.

13 Low-Flow Water Study for the Missouri River. August 2008

Abstract: The Executive Summary is a part of the Primary Report noted in document # 15. The study identified and reviewed low-flow issues on the Missouri River through comparison to other inland navigation systems and European operations. Specifically, it reviewed those other waterway actions to address low-flow situations through a best practices approach. The study examined technology, equipment and strategy development to determine transferability to the Missouri River. The study was conducted through examination of the River's issues, interviews with a number of marine and shipper stakeholders, commerce trend analysis, and technology review. The study proposed public policy actions and provided a cost/benefit analysis of the proposal.

14 Freight Optimization & Development in Missouri: Ports and Waters Module – TranSystems Corporation. February 2008

Abstract: This report is an assessment of Missouri's ports and waterways and contains recommendations and strategies for Missouri to capitalize on and initiate future national and international growth in the waterways freight industry. This report inventories Missouri's inland water way along with its ports, public and private. This report then analyzes the flow of commodities including container on barge (COB) service. The report analyzes trends and outlooks for the commodities and the ports and waterways, with a major item being agriculture and the biofuel industry. The report also outlines strategies for Missouri's ports; specific strategies are mainly for the Mississippi River ports. The reports also attempts layout a Waterways Prioritization Process by using different methods and analyzing other prioritization tools.

15 Low-Flow Water Study for the Missouri River. August 2008

Abstract: The study identified and reviewed low-flow issues on the Missouri River through comparison to other inland navigation systems and European operations. Specifically, it reviewed those other waterway actions to address low-flow situations through a best practices approach. The study examined technology, equipment and strategy development to determine transferability to the Missouri River. The study was conducted through examination of the River's issues, interviews with a number of marine and shipper stakeholders, commerce trend analysis, and technology review. The study proposed public policy actions and provided a cost/benefit analysis of the proposal.

16 MRAPS – MORAST (power point). March 16, 2010

Abstract: The power point presentation introduces the reader to the MRRAPS process covering the historical changes, authorization, guidance highlights, the study's management, and project's organizational plan draft displayed as a chart. The power point then presents a summary of the Institute for Environmental Conflict Resolution with Osprey Group as the facilitator and the process by which Osprey arrived at a Senior Steering Council Framework for guiding the process. It is composed of several senior leaders from the Corps and nine state governor appointees and outlines the assumptions for operation of the steering committee. The power point concludes with an overview of the intended scoping process including time, location and framework listing ways to be involved.

17 MRAPS St. Joseph, MO and Bismarck, ND Public Presentations. 3/8-10/2010

Abstract: The power point presentation introduces the reader to the MRRAPS process covering the historical changes, authorization, guidance highlights, opportunities, expected output, responsible parties for the project, timeline, communication objectives and scoping locations and format.

18 Farmers Fight With Railroads Over Rates. 6/14/2010

Abstract: This news article presents the conflict and perspective of recent rail rate increases to the Agricultural industry of almost 50% from 2003 to 2007. Agriculture claims railroads are taking advantage of the environment to increase freight prices where no competing mode exists. Railroads counter fuel and operating costs are the reason for increases. Outlined is a legislative effort to make it easier to challenge rates before the STB. Billions of dollars are reported to be at stake. In 2009 some railroads have agreed to arbitration to settle disputes instead of legislation.

19 Planning Guidance – The 10 Steps. Ppt. 4/20/2009

Abstract: The power point presentation prepared by the Great Lakes and Ohio River Division of the USACE highlights the ten steps required for the evaluation procedure of Economic and Environmental typical studies as prescribed in the Principles and Guidelines, pages 52-56, document dated 3/10/1983. The steps are presented in order utilizing the Ohio River mainstem as a model of implementing the ten step procedure through six discreet steps of the Principles and Guidelines Planning Process.

20 Economic and Environmental Principles and Guideline for Water & Related Land Resources Implementation Studies. March 2003

Abstract: The document is the primary guide for the Corps of Engineers water and related land resource planning and studies. It incorporates the applicability of Federal needs to protect the environment and provide guidance to development of plans that protect this objective and considers contributions to national economic development (NED) net benefits. The document sets forth the standards for conduct of studies and ensures social values are included in the technical process through Environmental Quality (EQ), Regional Economic Development (RED) and Other Social Effects (OSE) being included in the process. These areas are reflected in accounts along with NED benefits for later utilization in any study output.

NED procedures are described in Chapter II to facilitate the uniform development of net benefits in equivalent terms for studies and describe the applicability of the procedures to specific areas; Municipal & Industrial Water Supply, Agriculture, Urban Flood Damage, Hydropower, Inland Navigation, Deep-Draft Navigation, Recreation, Commercial Fishing, Other Direct Benefits, Un and Under-employed Labor, and Cost Evaluation Procedures.

Chapter III provides procedures for evaluation of Environmental Quality (EQ) through the outline of purpose, general evaluation requirements, and detailed EQ process in four stages. The EQ procedures address issues and effects on ecological, cultural and aesthetic criteria. Each stage works through a reiteration of definition, inventory, assessment and appraisal of the EQ effort which incorporates issues which are inherently not applicable to the NED process.

21 ER 1105-2-100 Planning Guidance Notebook. April 22, 2000

Abstract: The Planning Guidance Notebook complements the *1983 Principles and Guidelines* to provide overall direction to the planning process for water resource projects. The document's intent is to describe, in plain language, a common sense approach to the planning process understandable to all levels of participants. It recognizes the studies must assure economic and environmental value is included. Detailed planning guidance is provided for expression and contribution of national economic development (NED) benefits, as well as national ecosystem restoration (NER) benefits.

The document describes the requirement to include, limited somewhat by budget, multiple water resource development missions in the same project but through multi-purpose project approaches. The seven Civil Works missions (navigation, flood damage reduction, ecosystem restoration, hurricane and storm damage reduction, water supply, hydroelectric power generation, and recreation) are discussed individually with types of improvement and specific policies. Each mission also has a step by step evaluation procedure provided. The document closes with a discussion on the types of studies being engaged and how these studies actually are steps in the overall project development process. Appendices are provided which describe in great detail the process of conducting many critical parts of the process and includes checklists and samples for certain sections. Appendices also provide definitions of terms and methodology to conduct activity.

22 Proposed National Objectives for Water Resources Planning. December 2009

Abstract: The document summarizes the response of the White House Council on Environmental Quality (CEQ) to the near twenty-five years of minimal upgrade of the first “Principles & Standards” issued in 1973. The objective was for water resource planning to develop projects based on science and to maximize net economic, environmental and social benefits. It established thirteen principles that are to be included in the planning process and CEQ proposes all Federal Agencies shall apply specific procedures to implement the “Principles, Standards and Guidelines”.

The Principles and Standards apply to Federal implementation if site specific projects and project modifications. Explanation of the definition of what are “projects” and “modifications” is provided. Planning Standards are established to implement water resource studies and they include significant clarification and instruction for the following:

- Protect and Restore Natural Ecosystems and the Environment...
- Account for Ecosystem Services
- Avoid Unwise Use of Floodplains and Flood Prone Areas
- Utilize Watershed and Ecosystem Based Approaches
- Utilize Best Available Science, Practices, Analytical Techniques, Procedures and Tools
- Apply a Level of Detail Commensurate with the Potential Decision
- Account for National Benefits and Costs in Monetary and Non-monetary Terms
- Account for Effects and Mitigate Unavoidable Impacts to Ecosystem Services
- Address Risk and Uncertainty, Including Effects of Climate Change and Development
- Incorporate Public Safety
- Ensure Environmental Justice for Low Income, Tribal and Minority Communities
- Ensure the Planning Process is Fully Transparent
- Collaborate Implementation Study Activities Broadly

An Overview of the Planning Process provides a framework for Federal water resources implementation studies. It refers to the planning as dynamic and iterative step by step process. The steps required for the planning process are in the headings below and significant step description and process is contained in the document:

- Initiating Implementation Studies
- Scoping Process
- Define the Study Area
- Determine Existing and Future Conditions
- Identify and Describe Problems and Opportunities
- Specify the Study Objectives
- Specify the Planning Constraints
- Formulate Alternatives
- Evaluate the Potential Effects of the Alternatives
- Compare and Screen Alternatives
- Recommend a Plan

23 The Economic Value of Investment in Freight Transportation. October 2008

Abstract: The document is a briefing summary of the economic impact of the Missouri port industry. It discusses the broad employment, freight tonnage moved by water, value added Gross State Product (GSP) and economic output of the industry. The report provides data on the twenty year economic impact of the industry and the allocation of the State's 2009 investment to specific projects. Provided is a Case Study of the Southeast Missouri Port Authority success in obtaining significant private investment by leveraging public infrastructure investment provided since 1978.

24 Missouri Waterway Facts. 2007

Abstract: The document is a communication device to promote facts of water transportation value to the public and the links to global trade through a message of "Waterway Interstates of Missouri". The facts address commodity type, efficiency, low cost, new markets and tonnage moved with a geographic focus. Summarized is comparative data on capacity differences between barge and truck.

25 Study Shows Strong Link between Waterways and State's Economy. March 2006

Abstract: The document summarizes the importance of waterways to the Missouri economy and the need to support maintenance and expansion of port infrastructure. It utilizes the *Arkansas State Public Riverport Study and Needs Assessment* as a data collection model. The document noted the Missouri River is a source of wealth, emphasized economies of scale of barging, that ports have differing needs and Missouri River navigation is important.

26 Container-on-Barge Service for Missouri Waterways. November 2006

Abstract: The document is a summary of Container-on-Barge (COB) feasibility considering competing truck and rail modes, cost effectiveness and obstacles to COB growth. Reported are bullets demonstrating areas of partnership required between various parties that are important for success. The document outlines minimum requirements for COB service to be successful. Closing the report is an economic impact example for Memphis, TN COB and provides five steps to increase viability.

27 GAO – Missouri River Navigation: Data on Commodity Shipments for Four States Served by the Missouri River and Two States Served by the Missouri and Mississippi Rivers. January 15, 2009

Abstract: Based on commodity shipment data from 1994-2006 for four states bordering the Missouri River and two states served by the Missouri and Mississippi Rivers, the GAO report summarizes the volume and movement patterns on the system of basic commodity groups requiring navigation as a part of the eight congressionally authorized purposes the

Corps manages. Supporting data and charts from the Waterborne Commerce Statistics Center are presented at the end of the report.

28 Benefits of Intermodal Connections for Ports; Access in Missouri. February 2002

Abstract: The report presents information on the value of the barge industry when compared to other modal options but notes the challenge for increasing the utilization of it to poor access. The document provides data showing the value of investment in access improvement and a reduction of transportation cost when freight is shifted to barge.

29 List of Waterways – Port Authorities from MoDOT Website

Abstract: Available on the Port/Waterways Section of the Missouri Department of Transportation website are links to information on Missouri's public port network. Contained are links to a map of the Missouri Port Authorities, full contact information for each port authority, a point of contact, and a link to the Missouri Port Authority Association. The Association provides additional detailed descriptive overviews of each port, common business development information, and a general contact capability to answer inquiries.

30 Waterborne Commerce of the United States – Part 2. June 2005

Abstract: The Waterborne Commerce of the United States is released annually and contains freight information on domestic and foreign commerce in the US and its territories. It is published in five parts. Part 2 includes the Gulf Coast and Mississippi River System which incorporates the study area. Inland vessels report trip information on ENG Form 3925 which designates origin and destination of the commodity listed. The commodity code reported is the Standard International Trade Classification (STIC) commodity code which permits comparison with domestic and international freight in a common descriptive format. Tonnage is reported in net (short) tons and movements provide directional and pass through regional totals. Definitions of these components are contained in a Terminology section. Although the June 2005 report was reviewed, the most recent data is 2008 freight movement. The report is put out annually and is available on line through the USACOE Navigation Data Center. Historical reports are easily found to 1998 but earlier data is tending to get more difficult to find as printed volumes used to be the norm.

31 1998 Preliminary Estimates Waterborne Commerce Statistics. October 1998

Abstract: The document, FTSN-98-EI-001, reports the Bureau of Census (BOC) will no longer report Waterborne Commerce Transportation Statistics for foreign trade but will instead pass all reported data to the USACOE. Although the BOC publishes some annual data in excel format, the reported information is macro data and contains minimal differentiation of waterway. The report is given in tonnage only without commodity classification breakout.

32 Missouri River Mainstem Reservoir System; Master Water Control Manual. Rev. March 2006

Abstract: The document is the first major revision to the master water control document since 1967. It was required based on the USFWS 2003 opinion for a spring pulse to be implemented in the spring 2006. The Manual is organized in seven distinct steps in each topical section; the six dam and control structures and the unobstructed channel below Gavins Point dam to the mouth just above St. Louis at the Mississippi River. The document covers many topical areas in very complete and descriptive detail. These sections include, among others; a) History, legislative, construction background, b) System description and characteristics of topography, soils, climate, runoff, population, etc. c) Project infrastructure and reaches with reservoirs, purposes of structure, locations, components, floodway control, real estate and channel characteristics d) Data collection and communications with hydrologic collection, water quality, sediment, communications networks and projects, reporting protocol and warning system e) Hydrologic forecasts with flood, conservation and long range forecasts as well as, drought forecasts f) Water control plan for the system with the system water control statement, summary and techniques. Included is the system regulatory and purpose for each of the eight authorized purposes followed by criteria discussing adaptation and adjustment for actions or requirements outside of normal conditions g) Water management organization is composed of how the system is organized with coordination among agencies, other committees and river related authorities or compacts, non-federal hydropower and reporting. At the end of the document is a large volume of supporting material in the form of Appendices; Historic flood and flood control regulation examples, sections on the eight authorized purposes, continuing studies and adaptive management. Numerous Tables and Plates are provided at the end to assist the reader with technical clarity detailed information on discreet interests as well as climatologic and water flow data

33 Missouri River Freight Corridor Development Forum-Agenda & Presentations. 12/10/09

Abstract: The document is the Agenda and Presenters for the initial forum titled by Partnering for Innovative Efficiencies. It highlights the key presentations done over the morning and luncheon session. These presentations are linked to the online version of the document for viewing in ppt where provided. Subject matter was an overview of water issues and concerns related to MRAPS study, an overview of the goals of the forum and critical issues of infrastructure, policy, management and implementation. Furthermore several presenters provided real business commentary on varied Missouri River water transport perspectives and a COE presentation addressed navigation and reduction of long haul tonnage for the years 2000-2007. An Agricultural presentation on shipments on the Missouri and Mississippi River closed out the formal presentations. The afternoon session was composed of three breakout groups which are somewhat summarized in document #34,

34 Missouri River Freight Corridor Development Forum–Meeting Summary. 12/23/09

Abstract: The document is a summary of the meeting conducted December 23, 2009. It discusses the format for the meeting and output in the form of bullet comments from a group of approximately 90 participants. The meeting purpose was to exchange information and generate a common understanding of the Missouri River and navigation. The document summarizes the one day session's four areas of interest and pulls together six critical areas to support river operations. Three stakeholder groups were established almost 100 comments are presented in bullet format.

35 US Army Corps of Engineers, Directorate of Civil Works, January 6, 2010. *Memorandum for Commander, Northwestern Division. (Directing the MRAPS study)*

Memorandum for Commander Northwest Division; Subject: Supplemental implementation guidance for Division C, Title I, Section 108 of the Omnibus Appropriations Act of 2009 (P.L. 111-8) Missouri River Projects, Missouri River Basin

Abstract: The memo discusses the direction given regarding the MRAPS study. Specifically, the “study will be conducted in accordance with ER 1105-2-100 and the six step planning process and will be lead jointly by the Omaha and Kansas City Districts. The Districts shall work collaboratively with appropriate Federal and State agencies as well as with Tribes and other stakeholders within the Missouri River basin and the Mississippi Valley Division. The first step shall be to inventory and evaluate the existing Corps and other Federal water resource infrastructure within the basin to establish the base condition and the future without project condition. Next, the current needs and problems within the basin shall be identified to determine if changes are warranted to existing projects.”

Note that the memo directs that “an important part of the study will be to evaluate the potential effects to the Mississippi River from actions and/or alternatives that are proposed in the Missouri River Basin. A full array of alternatives and potential changes within the Missouri River basin will be evaluated on National Economic Development (NED) benefits, Regional Economic Development (RED) benefits, Environmental Quality (EQ), Public Safety, and Other Social Effects (OSE). In addition, the study should evaluate potential effects due to climate change.”

36 "Judicial Challenges to Missouri River Mainstem Regulation" – Missouri ENVTL L. & POL'Y REV., Vol. 16, No.1

Abstract: The stated purpose of the article is to provide a review of the multiple court decisions that both preceded and followed the 2004 master Manual. The article concludes that although the changes to date do not represent what various stakeholders wanted, the process of litigation has clarified the role of the courts in reviewing operational decisions by the Corps. The article also addresses the implications of WRDA 2007 and subsequent efforts to evaluate the ecosystem and work collaboratively to create a vision for the system.

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- 41 U.S. Fish and Wildlife Service. (2000). *U.S. Fish & Wildlife Service Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project and Operation of the Kansas River Reservoir System*. [Includes executive summary].

Abstract: In 2000, the Corps asked the USFWS to formally consult under the Endangered Species Act on the Operations of the Missouri River Main Stem System, and related Operations of the Kansas River Tributary Reservoirs, and the Operations and Maintenance of the Missouri River Bank Stabilization and Navigation Project. The four species involved include the endangered pallid sturgeon, the endangered least tern, the threatened piping plover, and the threatened bald eagle. The USFWS determined that the operation of the three Missouri River projects under past and present operations have severely altered, and continue to alter, the natural hydrology and riverine, wetland, and terrestrial flood plain habitats and fish and wildlife resources of the Missouri River and lower Kansas River ecosystems. Current operations are likely to jeopardize the continued existence of the least tern, piping plover, and pallid sturgeon, but are not likely to jeopardize the continued existence of the bald eagle. To avoid jeopardizing the continued existence of the tern, plover, and sturgeon, it is necessary to restore a portion of suitable riverine aquatic habitats and hydrologic conditions necessary for successful reproduction and recruitment of the three species, and provide culturing and population augmentation (in the near-term) for the pallid sturgeon to ensure genetic viability of the species until the necessary habitat and hydrologic condition are restored. The USFWS and the Corps have developed a Reasonable and Prudent Alternative (RPA) which consists of four primary action parts for the tern, plover, and sturgeon; and a fifth action designed for the pallid sturgeon. The four primary actions are: 1) flow enhancement by implementing a spring rise and summer drawdown at Gavins Point Dam, 2) habitat restoration/creation/acquisition of 20-30 acres of shallow water per mile, 3) unbalanced system regulation of the upper three reservoirs when runoff conditions permit, by holding one reservoir low, one at average levels, and one rising on a 3-year rotation, and 4) adaptive management/monitoring by establishing an interagency coordination team and implementing a robust monitoring program. The fifth action designed for the sturgeon is propagation/augmentation efforts as a short-term action to ensure genetic integrity and prevent extinction of existing pallid sturgeon populations.

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- 42 U.S. Fish and Wildlife Service. (amended 2003). *U.S. Fish & Wildlife Service Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project and Operation of the Kansas River Reservoir System*. [Includes executive summary].

Abstract: Because of new data on mortality of terns and plovers, the 2002 designation of critical habitat for the piping plover, and new information on RPA element II, the Corps requested reinitiation of formal consultation, which started in 2003. The Corps accepted most elements from the RPA in the 2000 Biological Opinion but proposed replacing the element that required the spring and summer flows, and proposed a modified drought conservation plan, Gavins Point Dam summer releases, accelerated construction of shallow water habitat, pallid sturgeon hatchery improvements, accelerated sturgeon brood stock collections, and adaptive management. The USFWS reviewed the new information,

current status of the species, the proposed and ongoing actions, and the adverse and beneficial effects the actions would likely have on the species.

- 43 U.S. Army Corps of Engineers, Missouri River Recovery. (n.d.). *Missouri River Recovery – Integrated Science Program July 2008-July2009 Science Projects*.

Abstract: This bibliography lists reports, documents, and plans regarding topics of the Missouri River Recovery Program including System-wide Status reports, Guidance Documents & Standard Operating Plans; Pallid Sturgeon; Least Tern and Piping Plover; Flow Modifications; Adaptive Management; and Cottonwoods.

- 44 U.S. Army Corps of Engineers, Missouri River Recovery. (January 2010). *Missouri River Recovery Program* [Power Point Presentation].

Abstract: This 26-page Power Point presentation by the U.S. Army Corps of Engineers, Omaha and Kansas City Districts, provides a broad overview of the Missouri River Recovery Program. River management has impacted natural river habitat, native species including the least tern, piping plover, and pallid sturgeon, and decreased cottonwood reproduction and aquatic insects. The mission of the MRRP is to implement actions to accomplish Missouri River ecosystem recovery goals in coordination and collaboration with agency partners and stakeholders. Key recovery initiatives are habitat creation (both shallow water and emergent sandbar), hatchery support for the pallid sturgeon, flow modification for a more natural flow regimen, a science program to ensure informed and adaptive management decisions, and public involvement.

- 45 U.S. Army Corps of Engineers, Missouri River Recovery Program. (August 30, 2002). *2001 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System*.

Abstract: This annual report documents Corps actions to implement the main elements and recommendations outlined in the 2000 Biological Opinion. The following are action updates to the four elements:

- Adaptive Management – An Agency Coordination Team was established, a comprehensive threatened and endangered species monitoring plan is being developed, and this annual report has been prepared.
- Flow Enhancement – Drought conditions in 2000 resulted in lake levels at Fort Peck Dam too low to allow spillway test releases.
- Unbalanced System Regulation – Not implemented in 2001 due to insufficient water in the system.
- Habitat Restoration/Creation/Acquisition – 835 acres of shallow water habitat and 3,635 acres of reconnected floodplain was created.
- Species-specific Measures to Avoid Jeopardy – The Corps monitored and met tern and plover fledge ratios, commenced a piping plover forage ecology study, and conducted pallid sturgeon population assessment surveys.

Reasonable and prudent measures and Conservation Recommendations which were implemented in 2001 were also outlined in the annual report.

- 46 U.S. Army Corps of Engineers, Missouri River Recovery Program. (October 31, 2003). *2002 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents Corps actions to implement the main elements and recommendations outlined in the 2000 Biological Opinion. The following are action updates to the four elements:

- Adaptive Management – An Agency Coordination Team was established, a comprehensive threatened and endangered species monitoring plan is being developed, and this annual report has been prepared.
- Flow Enhancement – Drought conditions in 2001 resulted in lake levels at Fort Peck Dam too low to allow spillway test releases.
- Unbalanced System Regulation – Not implemented in 2002 due to insufficient water in the system.
- Habitat Restoration/Creation/Acquisition – 530 acres of shallow water habitat and 1,200 acres of reconnected floodplain was created.
- Species-specific Measures to Avoid Jeopardy – The Corps monitored and met tern and plover fledge ratios, continued a piping plover forage ecology study, and conducted pallid sturgeon population assessment surveys.

Reasonable and prudent measures and Conservation Recommendations which were implemented in 2002 were also outlined in the annual report.

- 47 U.S. Army Corps of Engineers, Missouri River Recovery Program. (June 18, 2004). *2003 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents Corps actions to implement the main elements and recommendations outlined in the 2000 Biological Opinion. The following are action updates to the four elements:

- Adaptive Management – An Agency Coordination Team was established, a comprehensive threatened and endangered species monitoring plan is being developed, and this annual report has been prepared.
- Flow Enhancement – Drought conditions resulted in lake levels at Fort Peck Dam too low to allow spillway test releases.
- Unbalanced System Regulation – Not implemented in 2003 due to insufficient water in the system.
- Habitat Restoration/Creation/Acquisition – Several shallow water habitat creation projects were in the design phase in 2003. It is estimated that these projects would

result in over 400 acres of new shallow water habitat. Livestock exclusion fences were installed on the Lake Oahe Reservoir, which protected 200 acres of shoreline habitat.

- Species-specific Measures to Avoid Jeopardy – The Corps monitored and met tern and plover fledge ratios, continued a piping plover forage ecology study, and conducted pallid sturgeon population assessment surveys.

Reasonable and prudent measures and Conservation Recommendations which were implemented in 2003 were also outlined in the annual report.

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- 48** U.S. Army Corps of Engineers, Missouri River Recovery Program. (March 31, 2005). *2004 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents Corps actions to implement the main elements and recommendations outlined in the 2003 Amended Biological Opinion. The following are action updates to the four elements:

- Adaptive Management – An Agency Coordination Team was established, a comprehensive threatened and endangered species monitoring plan was continued, and this annual report was prepared.
- Unbalanced System Regulation – Not implemented in 2004 due to insufficient water in the system.
- Habitat Restoration/Creation/Acquisition – Approximately 227 acres of emergent sandbar habitat and 1,320 acres of shallow water habitat were created in 2004.
- Species-specific Measures to Avoid Jeopardy – The Corps monitored and met tern and plover fledge ratios, monitored interior least terns and piping plovers nesting on the Kansas River, prioritized annual operational costs and needs for each pallid sturgeon propagation facility, and implemented the Pallid Sturgeon Population Assessment Program.
- Feasibility and Flow Development and Flow Modification – No work conducted due to lack of adequate storage in the System due to drought.
- Fort Peck Flow Modifications – NEPA documentation to conduct the mini and full tests was completed, but drought conditions resulted in lake levels too low to allow spillway releases.

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- 49** U.S. Army Corps of Engineers, Missouri River Recovery Program. (May 19, 2006). *2005 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents the Corps threatened and endangered species conservation activities to comply with the provisions of the 2000 BiOp and the 2003 Amendment to the BiOp for CY 2005. Corps conservation activities and progress in implementation of the elements of the BiOp are:

- Pallid Sturgeon – 1) shallow water habitat design and construction activities, 2) propagation/augmentation support, 3) population assessment implementation, 4)

research, monitoring, and evaluation activities, and 5) physical and biological monitoring.

- Least Tern and Piping Plover – 1) emergent sandbar habitat creation, 2) preparation of a programmatic EIS for emergent sandbar habitat creation activities, 3) research, monitoring, and evaluation efforts, 4) reasonable and prudent measures, and 5) other research efforts.
- Ecosystem – 1) bald eagle research and 2) construction of Columbia Bottoms.
- Missouri River Comprehensive Recovery Program – 1) Missouri River Recovery Implementation, 2) main stem Water Management in CY 2005, and 3) main stem Water Management CY 2005 litigation.

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- 50** U.S. Army Corps of Engineers, Missouri River Recovery Program. (February 22, 2007). *2006 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents the Corps threatened and endangered species conservation activities to comply with the provisions of the 2000 BiOp and the 2003 Amendment to the BiOp for CY 2006. Corps conservation activities and progress in implementation of the elements of the BiOp are:

- Pallid Sturgeon – 1) shallow water habitat design and construction activities, 2) propagation/augmentation support, 3) population assessment implementation, and 4) research, monitoring, and evaluation activities.
- Least Tern and Piping Plover – 1) emergent sandbar habitat creation, 2) preparation of a programmatic EIS for emergent sandbar habitat creation activities, 3) research, monitoring, and evaluation efforts, 4) reasonable and prudent measures, and 5) other research efforts.
- Ecosystem – 1) bald eagle research.
- Missouri River Comprehensive Recovery Program – 1) Missouri River Recovery Implementation, 2) Mainstem Water Management in CY 2006, and 3) Mainstem Water Management CY 2006 litigation.

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- 51** U.S. Army Corps of Engineers, Missouri River Recovery Program. (April 9, 2008). *2007 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents Corps activities and progress in implementation of the elements of the Reasonable and Prudent Alternative (RPA), Reasonable and Prudent Measures (RPM), and Conservation Recommendations outlined in the 2000 BiOp and the 2003 Amendment to the BiOp for federally listed threatened and endangered species on the Missouri River and activities implemented under the Mitigation Project for CY 2007. Activities described in this annual report are:

- Missouri River Ecosystem Restoration Plan and EIS
- Habitat Creation – Emergent sandbar and shallow water habitat creation, floodplain development, and real estate acquisition along the Missouri River

- Flow Modifications – Implementation of the Spring Pulse, Fort Peck Flow Modification, Unbalanced Intrasystem Regulation, and sediment studies.
- Science – Science-related activities on the Missouri River ecosystem and the native species, with focus on the pallid sturgeon, least tern, piping plover, and bald eagle
- Public Involvement and Communications.

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- 52** U.S. Army Corps of Engineers, Missouri River Recovery Program. (March 18, 2009). *2008 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents Corps activities and progress in implementation of the elements of the Reasonable and Prudent Alternative (RPA), Reasonable and Prudent Measures (RPM), and Conservation Recommendations outlined in the 2000 BiOp and the 2003 Amendment to the BiOp for federally listed threatened and endangered species on the Missouri River and activities implemented under the Mitigation Project for CY 2008. Activities described in this annual report are:

- Missouri River Ecosystem Restoration Plan and EIS
- Habitat Creation – Emergent sandbar and shallow water habitat creation, floodplain development, and real estate acquisition along the Missouri River
- Flow Modifications – Implementation of the Gavins Point Spring Pulse, Fort Peck Flow Modification, Unbalanced Intrasystem Regulation, and sediment studies.
- Science – Science-related activities on the Missouri River ecosystem and the native species, with focus on the pallid sturgeon, least tern, piping plover, and bald eagle
- Public Involvement and Communications.

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- 53** U.S. Army Corps of Engineers, Missouri River Recovery Program. (March 31, 2010). *2009 Annual Report Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.*

Abstract: This annual report documents Corps activities and progress in implementation of the elements of the Reasonable and Prudent Alternative (RPA), Reasonable and Prudent Measures (RPM), and Conservation Recommendations outlined in the 2000 BiOp and the 2003 Amendment to the BiOp for federally listed threatened and endangered species on the Missouri River and activities implemented under the Mitigation Project for CY 2009. Activities described in this annual report are:

- Habitat Creation – Emergent sandbar and shallow water habitat creation.
- Flow Modifications – Implementation of the Gavins Point Spring Pulse, Fort Peck Flow Modification, Unbalanced Intrasystem Regulation, and sediment studies.
- Science – Science-related activities on the Missouri River ecosystem and the native species, with focus on the pallid sturgeon, least tern, piping plover, and bald eagle
- Public Involvement and Communications.

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- 54 U.S. Army Corps of Engineers. (2009). *Missouri River Recovery Program Water Supply and Water Quality*. [MRRP Fact Sheet].

Abstract: The Corps operates a system of six dams and reservoirs on the Missouri River for flood control, navigation, hydropower, recreation, and fish and wildlife. This fact sheet discusses the Corps' efforts regarding three additional uses of irrigation, water supply, and water quality. Irrigation of agricultural lands is the single largest consumptive use of water within the Missouri River Basin. Approximately 900 irrigation intakes access water from reservoirs or the river. Twenty-five coal-fired and nuclear power plants currently draw cooling water from the river. Low flows in the river may force cutbacks of thermal power production. About three million people are served by water supply from the Missouri River. This river is the major water source for the cities of Bismarck, Omaha, Kansas City, and St. Louis as well as Native American communities and other small rural communities. The USEPA, Corps, and state water quality agencies in the basin work together to develop water quality monitoring programs and standards for the Missouri River. During periods of prolonged drought, all authorized purposes of the system are negatively impacted, except for flood management.

- 55 US Army Corps of Engineers, September 2009. *Missouri River Recovery Program Flood Risk Management*

Abstract: This Fact Sheet describes the roles of the USACE in managing the Missouri River's property from flood damage. It illustrates the function of the River's reservoir system in regulating water flow during high-risk flood seasons and periods of drought.

- 56 US Army Corps of Engineers, November 2009. *Missouri River Recovery Program From Steamboats to Barges: Missouri River Navigation*.

Abstract: This Fact Sheet describes the navigation history of the Missouri River beginning with the introduction of the steamboat to the River in 1819 to present day times. Included are descriptions of the Missouri River Bank Stabilization and Navigation Project as well as the current uses and ongoing challenges of navigation today.

- 58 US Army Corps of Engineers, September 2009. *Missouri River Recovery Program River Power to Clean Energy*

Abstract: This Fact Sheet describes hydropower as one of the Congressional authorized uses of the Missouri River. It explains the benefits of hydropower and includes a listing and map of the six hydroelectric power plants located on the River.

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- 59 US Army Corps of Engineers, September 2009. *Missouri River Recovery Program Keeping Recovery on Track: Annual Report*

Abstract: This Fact Sheet highlights the Missouri River Recovery Program (MRRP) efforts in 2008 including new programs, program successes and areas for improvement. Projects described include team efforts on the Missouri River Ecosystem Restoration Plan (MRERP), Emergent Sandbar and Shallow Water Habitat Creation, Flow Modifications, Adaptive Management, Pallid Sturgeon, Least Terns and Piping Plovers, Cottonwoods and the public involvement and coordination process.

- 63 US Army Corps of Engineers, July 2005. *Adaptive Management: Background for Stakeholders in the Missouri River Recovery Program*

Abstract: the document provides discussion of the need for critical decision making despite not always having perfect information and recognizing that ecosystems and social preferences change. It stresses stakeholder involvement, predictive models, monitoring of implementation, and learning by experience.

- 66 US Army Corps of Engineers, June 2005. *Recovery Program-Spring Rise & the Missouri River*

Abstract: This fact sheet describes the benefits of natural fluctuations in the River's water level. Native wildlife and plant life become adaptive to a river's annual rise and fall creating an interdependent food web and ecosystem. Water management of the Missouri River Mainstem Reservoir System keeps the River at more predictable levels which has changed the natural dynamics in some sections of the River affecting species that were adapted to live in a regularly changing environment.

- 75 U.S. Army Corps of Engineers, Omaha District. (May 2010). *Missouri River Recovery Program, Sandy Point Bend, Shallow Water Habitat Construction Project, Draft Project Implementation Report.*

Abstract: The Sandy Point Bend project site consists of 252 acres and is located on the Nebraska side of the Missouri River in Harrison County, IA. This parcel is owned and managed by the Corps. This Project Implementation Report focuses on construction of shallow water habitat development activities at Sandy Point Bend, generally located between RM 656.3 and 657.9. This report includes an Environmental Assessment. The EA provides an alternatives analysis, a detailed description of the recommended plan for a flow-through chute complex at Sandy Point Bend, and an evaluation of environmental impacts.

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- 76 U.S. Army Corps of Engineers, Omaha District. (April 2010). *Missouri River Recovery Program, Emergent Sandbar Habitat Complexes in the Missouri River, Nebraska, and South Dakota Draft Project Implementation Report (PIR) with Integrated Environmental Assessment*.

Abstract: In accordance with the USFWS recommendations found in the 2003 BiOp Amendment, the Corps is proposing to restore three Emergent Sandbar Habitat (ESH) complexes in the 59-mile segment of the Missouri National Recreational River (MNRR) below Gavin's Point dam (RMs 811-753). This segment forms part of the border between the states of South Dakota and Nebraska. Restoration will occur through a combination of dredging, bulldozing, scraping, and contouring. The proposed projects have completed designs and construction may be initiated in 2010. This PIR describes the ESH projects and includes an EA.

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- 79 U.S. Army Corps of Engineers and GeoVal, Inc. (July 2009). *Value Engineering Report: Missouri River Recovery Program: Emergent Sandbar Habitat*.

Abstract: This VE Report summarizes the events of the VE workshop conducted on April 6-8, 2009. The purpose of the VE study was to identify potential viable alternatives to improve overall performance and cost of creating emergent sandbar habitat (ESH) while focusing on concepts that will assist the Corps in meeting its objective to create sufficient habitat to ensure that fledgling ratios and adult population goals for both bird species identified by the USFWS in their 2003 Amended BiOp. The Corps is working to meet near-term requirements of the BiOp for the interior least tern and piping plover through mechanical construction and maintenance of ESH, ESH management measure, and flow modifications. Both bird species nest on sandbars in the Missouri River. While the tern is primarily a riverine species, piping plovers will also use reservoir shorelines to nest. Both species prefer bare sandbar habitats with little or no vegetation. In 2002, the USFWS designated areas along much of the Missouri River as critical habitat for the piping plover and least tern. ESH is proposed to be created at along four Missouri River segments, all upstream of Sioux City, IA. The VE study team developed 15 project alternatives that may potentially improve the project value.

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- 80 U.S. Army Corps of Engineers and GeoVal, Inc. (June 2009). *Value Engineering Report: Lower Yellowstone River Irrigation, Dam, Fish Protection and Passage*.

Abstract: This Value Engineering (VE) Report summarizes the events of the VE workshop conducted on June 1-5, 2009. The purpose of the VE study was to identify potential viable alternatives to improve overall performance and cost of the Lower Yellowstone River Irrigation Dam, Fish Protection and Passage Project. Federal objectives of the project are to continue to provide reliable irrigation water delivery to the irrigation districts, to allow fish species to freely migrate up and down the Yellowstone River and prevent entrainment within the irrigation canal, and to conduct the project with full transparency. The Lower Yellowstone watershed is located in southeastern Montana.

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- 81 2009 Nebraska Game and Parks Commission Broodstock Collection: Pallid Sturgeon Recovery Efforts – April 2009

Abstract: the commission described the 2009 effort to sample pallid sturgeon from the area near the confluence of the Missouri and Platte Rivers. A total of 160 pallid sturgeon were collected, having come from a variety of hatcheries and other unknown locations (presumably natural-born fish).

- 84 U.S. Army Corps of Engineers (April 2009). *Value Engineering Study: Cottonwood Forest Program.*

Abstract: A value engineering (VE) study was conducted on the Cottonwood Conservation and Reforestation project. The project was studied as part of the MRRP, in anticipation of the draft report for the Cottonwood Management Plan (CMP). The project is the protection, conservation, establishment, and maintenance of cottonwood forests along the Missouri River to assist/support nesting and roosting habitat for bald eagles. The two-day VE study resulted in a Summary of Recommendations List to provide value to the success of this ongoing project. A total of 18 recommendations were described.

- 86 U.S. Army Corps of Engineers (March 2009). *Value Engineering Report: Missouri River Recovery Program Mitigation Project including Shallow Water Habitat.*

Abstract: This Value Engineering (VE) report summarizes the events of the VE workshop conducted on March 9-12, 2009. This workshop assessed the MRRP Mitigation Project with specific focus on the creation of shallow water habitats, examining current plans and programs to seek out alternative approaches and ideas that will improve overall performance and costs of the program. The MRRP seeks to mitigate near-term losses of Missouri River habitats and recover threatened and endangered species, one of which is shallow water habitats that are particularly important to the pallid sturgeon. The program proposed to restore the Missouri River ecosystem through habitat creation, flow modifications, and monitoring and research. As defined by the BiOp, shallow water habitat is an aquatic area less than five feet deep where the river flows slowly (< two feet per second). The Corps is developing 20 to 30 acres per mile of shallow water habitat in the 752 miles of Missouri River below Ponca, NE to the juncture with the Mississippi River planned to be created by 2020. The VE study outlined a summary of findings with regard to alternatives that offer the most potential of meeting program objectives, and developed 32 project alternatives.

- 88 U.S. Army Corps of Engineers (February 2009). *Upper Basin Pallid Sturgeon Survival Estimation Project: Final Report.*

Abstract: One component of the MRRP is the artificial propagation and release of the endangered pallid sturgeon. Each year, tens to hundreds of thousands of juveniles are

propagated in captivity and then released in various locations throughout the Upper Basin. Estimation of survival probabilities for hatchery-reared juvenile pallid sturgeon has been identified as an essential step toward assessing the success of augmentation and recovery efforts for the species. This report estimated survival of hatchery-reared pallid sturgeon in Upper Basin Recovery Priority Management Areas (RPMAs) 1, 2, and 3 using mark-recapture analysis methods to select appropriate models for estimation, performed simulations to indicate how much survival estimates may be improved by additional recaptures or sampling effort, and comprehensively evaluated Upper Basin marking, stocking, and sampling data to determine how, or if, existing sampling designs should be modified to best estimate survival.

- 90** WRDA Section 5018, MISSOURI RIVER AND TRIBUTARIES, MITIGATION, RECOVERY, AND RESTORATION, IOWA, KANSAS, MISSOURI, MONTANA, NEBRASKA, NORTH DAKOTA, SOUTH DAKOTA, AND WYOMING

Abstract: Legislation establishing the Missouri River Recovery Implementation Committee and directing that a study be conducted to determine actions required to mitigate losses of water and land habitat, recover federally endangered species, and restore the ecosystem to prevent further declines.

- 92** Missouri River Recovery Implementation Committee, Final MRRIC Annual Report, 2008-2009, November 5, 2009

Abstract: The document describes the membership, working groups, charter, operating procedures, objectives, and accomplishments to date of the committee.

- 93** Memorandum for Director of Civil Works, Subject: Implementation Guidance for Section 5018 of the Water Resources Development Act of 2007 - Missouri River & Tributaries, Mitigation, Recovery, & Restoration, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Wyoming – July 2008

Abstract: This memo from John Paul Woodley specifies that the study “should identify a single, comprehensive and integrated plan to guide the implementation of programs associated with mitigation, recovery, and restoration”. Further, the “study should not be a broad, multiple-purpose effort”, but should focus on the environmental aspects.

- 100** US Army Corps of Engineers, December 2006. *Missouri River Bank Stabilization & Navigation Project, Fish & Wildlife Mitigation Project: Annual Implementation Report FY05 & FY06*

Abstract: The report is an “effort to explain the past activities, current status, and future activities for the Project for both the Omaha and Kansas City Districts.” “The report is

divided into three main parts: Past Mitigation Efforts for FY06 and Prior, Planned Mitigation Efforts for FY07, and Future Mitigation Efforts FY08 to Completion. Within these three main parts, the four main elements of the Project (Real Estate, Habitat Development, Operation and Maintenance, and Monitoring) are detailed.” It also provides a concise section on the background and history of the effort.

- 104** US Army Corps of Engineers, Missouri River Basin Water Management Division, April 2010. *Missouri River Mainstem Reservoirs: Missouri River Stage Trends (RCC Technical Report A-10)*.

Abstract: The purpose of this report is to present the data used and results of the update of the Missouri River stage trends analysis. Trends in river stages are presented for tailwater locations, the navigation channel and headwater locations. Tailwater locations are subject to scour, generally resulting in a lowering of the river stages over time. Headwater locations are subject to sediment deposition, resulting in an increase in river stages over time. Locations along the navigation channel are subject to a variety of factors that can cause increases or decreases in stages over time. Stage records for the Missouri River are available for almost 100 years for each of the eight key mainstem gaging stations below Sioux City. The control of floods and the supplementation of low flows by main stem and tributary reservoirs have undoubtedly contributed to changes in the stage-discharge relationship on the Missouri River during the past 30 to 40 years, but no attempt has been made in this report to differentiate between the effects of this control and those exerted by the river control works or by other encroachments in the flood plain or natural events. This report is an update to the 2007 and 2004 documents (see #106 and #108 below). The only apparent difference in the overall story over the three reports is that the tailwater stage degradation directly downstream of the Garrison, Fort Randall and Gavins Point projects has increased to 8-11 feet from the previously reported 7-10 feet.

One question that comes to mind after looking at the trend data at each of the system locations – does the data seem to indicate that the flows supportive of navigation appear to be the most stable regarding stage degradation/aggradation?

- 105** US Army Corps of Engineers, Missouri River Region Northwestern Division Reservoir Control Center, July 2008. *Missouri River Mainstem Reservoirs: Runoff Volumes for Annual Operating Plan Studies (RCC Technical Report Jy-08)*.

Abstract: This manual is an update to a similar report titled “MRD TECHNICAL REPORT O-98, MISSOURI RIVER MAIN STEM RESERVOIRS, RUNOFF VOLUMES FOR ANNUAL OPERATING PLAN STUDIES,” dated October 1998, and the 2004 addendum to RCC TECHNICAL REPORT O-98. The O-98 report provides a history of runoff volumes used for AOP studies. This report includes nine additional years of runoff from 1998-2006 since the publication of the O-98 report. The AOP studies utilize statistically derived runoff volumes based on the 109-year historical record of runoff above Sioux City, Iowa during the period 1898 to 2006. The AOP studies are comprised of five runoff levels with

statistical significance implied by their titles: upper decile, upper quartile, median, lower quartile and lower decile. All volumes discussed in this report are adjusted to the 1949 level of water resources development in the Missouri River basin.

- 106** US Army Corps of Engineers, Missouri River Basin Water Management Division, January 2007. *Missouri River Main Stem Reservoirs: Missouri River Stage Trends (RCC Technical Report Ja-07)*.

Abstract: This report is an update to the 2004 report and a precursor to the 2004 documents (see #104 above and #108 below). The information here is essentially the same as in the 2004 document.

- 107** US Army Corps of Engineers, Missouri River Basin Water Management Division, July 2005. *Missouri River Incremental Flows Below Gavins Point Dam (RCC Technical Report Jy-05)*.

Abstract: The purpose of this report is to determine the incremental flows at key locations for the Missouri River below Gavins Point Dam. Results of this analysis include the development of statistical data for daily and monthly reach inflows for five conditions of statistical significance. In addition, the average monthly flow data for each reach, as well as the summation of reaches at key locations, was sorted and ranked by month and year.

- 108** US Army Corps of Engineers, Missouri River Basin Water Management Division, April 2004. *Missouri River Main Stem Reservoirs: Missouri River Stage Trends (RCC Technical Report A-04)*.

This report is a precursor to the 2010 and 2007 documents (see #104 and #106 above). The information here is essentially the same as in the other documents, with the slight exception noted in #104 above.

- 111** US Army Corps of Engineers, Missouri River Basin Water Management Division, April 2000. *Missouri River Main Stem Reservoirs: Releases Needed to Support Navigation (RCC Technical Report 2000-A)*.

Abstract: The purpose of this report is to document the methodology, assumptions, data, and results of the analysis of main stem reservoir releases needed to support navigation requirements on the Missouri River. It also provides background information on navigation flow targets, and an analysis of how often each downstream key location serves as the control point for the navigation target. Some key points to consider from the report include: "...inflows to the reservoir system are sufficient to support full service

flows for the 8-month navigation season in 39 years of the 98-year period from 1898-1996.”, and “...inflows to the reservoir system are sufficient to support the minimum flow levels or higher for the 8-month navigation season in 87 years of the 98-year period from 1898-1996.”

115 Final Report: Investigating Large Truck-Passenger Vehicle Interactions – University of Missouri-Columbia and MoDOT. October 2007

Abstract: This report gives a summary of an analysis of truck-passenger car interactions on Missouri’s interstates, primarily I-70 and I-44 for rural analysis and I-70, I-44, I-270 and I-435 for urban analysis. Trucks were found to travel only 2 mph slower on urban interstates and 3.5 mph slower on rural. There was no evidence that, on the average, trucks were traveling much faster than passenger cars. Trucks concentrated mainly in the middle lanes and avoided the slow and fast lanes in situations with 5 and 6 lanes. Trucks accounted for a smaller percentage of crashes as compared to passenger vehicles. However, an analysis of RSEC ratios (a formula to factor in the exposure/volume of trucks as compared to their crash involvement) showed that on urban freeways, the percentage of truck crashes is disproportionately larger. The rural data shows that truck crashes are not as disproportional to the crash rates of passenger vehicles. These results point to a greater safety concern in truck passenger vehicle interactions on urban freeways. The fatal crash rate using the RSEC ratios show that I-70 is the only corridor where there is statistical differences to suggest higher fatal crashes involving trucks.

116 Missouri Airport Investment Study – Wilbur Smith Associates. November 2007

Abstract: This report attempts provide MoDOT with insight to the potential return on investment for airport investments in terms of economic development to not only to airport itself but the regions they’re in. The study evaluates economic development impacts resulting from capital investment at an airport in terms of jobs, earnings, and output and is primarily concerned with how “off-airport” users benefit from the investment in terms of expanded business activity. The analysis focuses on general aviation airport not commercial passenger airports. The study lays out the framework for evaluating the economic impacts, prioritization screening techniques, FAA benefit/costs, and measuring value-added impacts. The study also lays out an investment study approach listing different type of investment projects, location, approach, and ROI. The study conducts five (5) case studies at airports around the state.

117 Missouri Freight & Passenger Rail Capacity Analysis – Missouri Transportation Institute & MoDOT. July 2007

Abstract: The purpose of this study is to come up with a prioritization list of rail enhancements that addresses current passenger and freight performance on the Union Pacific line from Kansas City to St. Louis. Passenger rail, or Amtrak, leases track time from the freight carriers, and is subject to their schedule and gets bumped if conflicts arise. MoDOT theorizes that if they can improve performance and reliability of the passenger rail the rider ship will increase. This corridor handles between 50-60 trains per day, the upper

limit for a double track line. The study breaks the corridor into sections for analysis and highlights areas where improvements can be made in the form of passing or side tracks and river crossings. The study finally compares the cost of various improvement options with the percentage in delay savings to both the UP and Amtrak.

- 118** The Economic Value of Investment in Freight Transportation: Missouri Rail (Original Results Research Report) – MoDOT & MO Dept. of Economic Development. June 2008

Abstract: This report starts with a statistical summary of the rail industry in Missouri, including jobs, value of goods, tonnage shipped and imported. The report then goes onto show the economic impacts of two (2) rail siding projects moving forward from the Missouri Freight & Passenger Rail Capacity Analysis (Abstract 117); the California and Knob Knoster Rail Siding Extensions.

- 119** Container On Barge: Two Case Studies (June 2005)

Abstract: This study evaluated the relative economics of transportation by container-on-barge and highway truckload carrier. Two case studies were presented. Findings concluded that COB is at a competitive disadvantage in the marketplace due to slow transit time and container dwell time in terminals as containers wait for shuttle truck movement at the origin and destination barge terminals. Costs are also high due to the slow transit time, terminal costs, drayage costs, and large amounts of investment required. Highway truckload carriers on the other hand are extremely efficient because cargo moves directly from origin to destination with no intermediate handling and virtually non-existent terminal costs. However, significant changes may occur in the containerized segment of the world upon completion of the Panama Canal expansion project creating opportunities for COB.

- 120** US Army Corps of Engineers Northwestern Division, Missouri River Region, June 2005. *Summary of the preliminary RDEIS: master water control manual, Missouri River review & update study*

Abstract: This report describes the Water Control Plan for operation of the Missouri River Mainstem Reservoir System. The original Master Water Control Manual was developed in 1960. Review and update studies are performed to provide a water control plan that best serves the contemporary needs of the Basin. Update reports cover flood control, hydropower, recreation, navigation, water supply, wildlife resources, wetland and riparian habitat, and fish.

- 121** Black & Veatch (June 15, 2000). *Public River Ports of Missouri: Strategic Plan*

Abstract: This report discusses the growth rate of waterborne commerce throughout the State, capital improvement needs of the ports, funding processes, evaluation methods for funding considerations, and planning efforts. The basic recommendation of this report is

for the State to continue with the current system of responding to the needs as identified by the Port Authorities, implement a point system for evaluation criteria which should be based on benefit/cost analysis, economic impact, technical considerations, and miscellaneous issues.

- 122** Black & Veatch. *Public River Ports of Missouri: Missouri Port Authority Capital Improvement Program Application Toolkit* – June 2005

Abstract: This Toolkit is an instruction manual for all applications submitted for funding through the Port Authority Capital Improvement Program.

- 123** Black & Veatch. *Public River Ports of Missouri: Expansion and Improvement Manual*. (June 2005).

Abstract: The aim of the manual was to provide decision makers with consistent and relevant methods for assessing both the resource savings and the economic impact of a contemplated investment through the use of the Benefit/Cost and the Input/Output analysis. The manual reflects approaches and procedures commonly used for publicly funded port projects.

- 124** Past and Future Grain Traffic on the Missouri River. July 2003

Abstract: The report discusses the authors' conclusion that grain traffic decline for the period of 1964 through 2002 is a function of permanent supply chain restructuring and high Missouri River waterway transportation cost versus that found on the upper Mississippi River. The report provides examples of supply chain restructuring in agriculture and world commodity supply/demand change. Although concluding this is a long term outcome, the example indicates how dynamic the supply chain process is. The authors conclude public cost of navigation exceeds shipper benefits.

- 125** Arkansas State Public Riverport Study and Needs Assessment–Exec. Summary. March 2005

Abstract: The report evaluates Arkansas's nine public riverports to increase their potential within the State's freight transportation system. The report provides an overview of the waterway system, reviews existing and potential commodity, determined discreet port needs for infrastructure/equipment/support and economic value. The report concludes with a section on development issues and strategies. The development of the document data originated from a questionnaire on port expenditures, origin/destination freight information, landside access, development constraints, as well as needs for hard assets. The latter questionnaire item also ranked needs by priority based on timing and urgency.

The document has been referenced as a model for future MoDOT approaches to assess Missouri public ports.

126 A Modal Comparison of Domestic Freight Transportation Effects on the General Public
December 2007: Amended 2009

Abstract: The report takes a broad look at public impact of waterways in several areas; congestion, emissions/air quality, energy efficiency, safety, and infrastructure impact. It describes the geographic influence and cargo commodity mix determined by the water transportation system. It points out the difficulties in doing such a study but applies logical and mathematical approaches to the broader system public impact. The economies of scale of transportation modes are given in comparative charts provided for public understanding and derived from more complex modeling and analysis from many varied data sources. In all respects water transportation compares favorably to alternatives of truck and rail. A Case Study is presented that demonstrates the social and public impact of a river shutdown at St. Louis, MO which would force existing freight to truck or rail alternatives. This is a scenario that could not be responded to by alternative land transportation modes.

127 Estimated Value of Barge Freight Rates for Commodities Shipped on the Missouri River
and Implied Freight Savings. April 2004

Abstract: This research document evaluates the economic value of barge transportation freight rates versus that of alternative modes of truck or train. A sampling of shipments on a wide variety of products was solicited and encompassed a wide geographic range of the Missouri River navigation segment. Rate information was aggregated to protect confidentiality of rates. Responses were recorded on commodity and tonnage, total volume shipped in 2003 and rates per ton and alternative differentials. Tonnages were compared with COE data and differentiation noted for commercial tonnage versus total tonnage on the River with the latter including sand and gravel tonnage. Fertilizer and cement had the largest differentials and grains and oil seeds the lowest. From this data, the relative gross dollar impact caused by river transportation availability was calculated. The analysis indicated that freight rates for alternative transportation versus river Transportation became lower the closer to the river they were offered. The report indicates that a five average (1998-2003) of commercial tonnage for a year shipped by water would cost in excess of \$10.4 million in additional freight if the river alternative did not exist. The gross differential amounts to an implied value of river transportation of approximately \$8.43 per ton for commercial cargoes. Not addressed in the study results are the additional savings for truck and rail moved cargoes enjoyed by tonnage moved by these modes in proximity to the river.

128 Alabama Freight Mobility Study - Parts I & II - Coalition of Alabama Waterways
Associations

Abstract: The Alabama Freight Mobility Study provided an action plan to address freight induced congestion by making better use of the marine highway system, using Alabama as a case study. The multi-year study included:

- Business Perspectives on the Feasibility of Container-on-Barge Service
 - Strategic Market Assessment of the Tenn-Tom and Tennessee River Corridors from Columbus, MS to Chattanooga, TN
 - Barge Industry Business Perspectives for Container-on-Barge Operations
 - Mobile Container Terminal Operations from an Inland Waterways Perspective
 - Important Lessons Learned from River Systems on Which Containers Are Moving
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129 Grain Transportation Report. Weekly Publication

Abstract: The Grain Transportation Report is published weekly by the USDA Agricultural Marketing Service and covers the transportation market for grain movements. The document provides current information on truck, rail, barge, and ocean shipment of agricultural commodities. Much of the content discusses supply and demand trends and activity in the context of pressure on transportation resources and cost. Discreet factors such as fuel, regulatory issues and general indicators are common content. Future outlooks and seasonal projections are also provided. Rate data for rail and barge grain movement is a regular feature. A recent feature identified, by percentage, top countries getting export grains via container. Many USDA contacts are given at the end and are sorted by specific subject matter expertise. Approximately ten years of the weekly reports are easily accessible in an archived pull down menu.

130 USDA, North Dakota State University. (July 2003). U.S. Containerized Grain & Oilseed Exports Industry Survey

Abstract: This study evaluates the market potential of shipping grain and oilseed products in containers. A grain and oilseed industry profile is presented which describes shipper characteristics, market practices, container export activity, and market growth factors. Conclusions drawn indicate a growing market exists for containerized grain and oilseed. Important factors include ocean shipping rates, availability of containers, rail rates for shipping containers, ocean liner routes and services, distance to container terminal, and foreign buyer information have greater than average significance in terms of factors important to the success of containerized grain and oilseed market sector.

131 Distillers Dried Grain Exports Surge on Chinese Demand. June 2010

Abstract: The report discusses the strong recent increase of 53% in DDG for the first ½ of 2010 with China representing a growing market for this feed supplement. As it is a byproduct of ethanol production, supply should continue to increase. It has a 120 to 135 % feed value over corn. DDG is also a supplement for soybean meal. Research shows DDG being used for fish, poultry and pork feed in China. Prior to China's recent emergence, Mexico, Canada and Turkey were important buyers of DDG.

132 Identity Preserved Grain – Logistical Overview. January 2003

Abstract: The report discusses the growing trend in agricultural shipments of Identity Preserved (IP) grain into export markets. It notes that soybeans and animal feeds make up about 50% of IP shipped agricultural products. The paper clearly explains the IP trend is increasing and the demand for this requirement is marketed as a value added product with corresponding higher revenue versus bulk movement. Shipping costs need to be evaluated from origin to destination and not from the perspective of only ocean shipping rates. While acknowledging the costs for containerized shipping of IP grains tends to be higher, transit time, theft and degradation of product is less. Many resources to assist shippers of all sizes are presented and cost comparison tables presented to assist the reader or shipper.

133 Developing Options – An Analytical Approach. April 2001

Abstract: The report was generated by Parson's Brinckerhoff for a presentation to the IRPT. It presents standard definitions for specific levels of infrastructure need (critical, immediate, maintenance and future). It also lays out an approach for infrastructure capital investment estimates a typical data sheet and a listing of Project needs evaluation criteria; description and probable impacts in needs are unmet. Lastly the document presents a standard reporting form with typical fields required on it and photo positioning. Tables are presented at the end developing a summary of the immediate and critical needs and an example summary of need estimates for Mississippi ports.

134 Connecting the World's Best Specialty Grains Shippers with the World's Best Customers. July 2010

Abstract: This document was a power point presentation given at the July 2010 TRB meeting. The presentation outlines the key concerns of Midwest agricultural shippers to remain competitive in the specialty grains markets generally being shipped by ocean container. It notes deficiencies exist in all transportation modes and Midwest inland service being a critical concern. It notes the poor consistency in state to state truck weight limits, access to rail cars, and rail system bottlenecks. Access to containers is reportedly the biggest threat and this reduces opportunity and access to key shipping lanes. Repositioning costs impact the competitiveness of Identity Preserved grain shipments. The document reports export demand will continue to grow but the intermodal shipment system must work efficiently. The document concludes that repositioning of empty containers from consumer areas to inland areas was more cost effective than today and the system needs to readjust back to that model.

135 Projected and Actual Traffic on Inland Waterways. August 2000

Abstract: The 2000 document extract covers traffic projections for the Missouri River and utilizes comparative information related to COE tonnage, self reported tonnage and other data requiring understanding such as "commercial" tonnage versus actual tonnage. This is uniquely treat through the commercial tonnage dropping out intra state sand and gravel

movements. Perspective is given to the rapid reduction of agricultural commodities shipping on the river system, much of it driven by system navigation season unreliability.

136 Multimodal Freight Investment Criteria - Final Report SPR662. July 2010

Abstract: the study was conducted to provide Oregon policymakers with information to aid in developing freight investment criteria. It provides a review of the state of the art and state of practice; it reviews how well decision making process resulted in appropriate project selection; and surveyed stakeholders regarding their views on criteria and where investment would have the greatest impact.

137 Hunter, Timmie Lynn, New Madrid County Port Development. December 10, 2009, PowerPoint presentation

Abstract: The brief pictures-only document is a presentation showing the port facilities, focusing on new storage building construction and a rail connection.

138 US Army Corps of Engineers Northwestern Division Missouri River Basin Water Management Division, *Authorized Purposes (Listing of Public Law related to Projects)*

Abstract: the document provides a list of the operating purposes, authorized purposes, and authorizing laws associated with each USACE project in the Missouri River Division.

139 Missouri River Navigation and Bank Stabilization Project. January 1976

Abstract: The study was completed to analyze the past, present, and future potential commodity movements on the River. It points out that the previous study, completed in 1950, anticipated a 4.1 million annual tonnage, but the actual tonnage was only about 2.5 million. It analyzes transportation costs and provides estimates of cost savings per ton moved on the waterway. It also points out that sand and gravel movements are not included as commercial traffic, as is the case today. One of the key discussion points is that the non-agricultural and related sectors are relatively less dependent on waterway transportation savings, and the agricultural volumes vary widely by crop on a year-to year basis. The main reason growth did not occur was that the anticipated growth in manufactured goods freight did not materialize on the River. It also points out that 2/3 of the ton-miles destined or originating to and from the Missouri River accrue on the Mississippi-Gulf waterway system outside the Missouri River.

140 Role of Navigation among the Competing Uses of the Missouri River. May 1995

Abstract: The document, produced by the Department of Agriculture, provides a history of the regulation of River water, an overview of the various uses and purposes, the relationship between storage volumes and navigation flows, historic commodity volumes, agricultural shipments by River reach, agricultural rail shipments, transportation rate analysis by mode, and comparisons of various water control plans and their impacts. The study concludes that barge transportation is a key role in the transportation of agricultural products.

141 Supplement Missouri River 2001 - Risk and Uncertainty. March 2002

Abstract: The study provides an estimate of the transportation and handling charges savings provided by barge transportation compared to the next-best alternative all-land movement. It was conducted by the TVA for the USACE and includes analysis of 32 commodities across eight commodity groups.

142 Big Dam Era: A Legislative and Institutional History of the Pick-Sloan Missouri Basin Program. 1993

Abstract: The document is intended to add to the understanding of the history of the Missouri River main stem system and to provide a background for the numerous considerations which need to be taken into account in order to properly manage the system. The book details the institutional history of the system and highlights the work done by the USACE to incorporate the technical, social, economic, environmental, and political aspects of planning, developing, and operating the system.

143 Gibbs, Joseph B, P.E. (2001). Boonville Flood Profile. October 2001

Abstract: A brief study in the Booneville area conducted to evaluate if the navigation channel assists in flood control relative to what existed prior to channelization and bank stabilization. The study concludes that “there would be an increase in flood levels if the channelization and bank stabilization works on the river are not maintained”. The study predicts that “flood levels would increase several feet”.

In addition to the study, the author commented to MoDOT that the modeling does show “a trend that flood levels would increase without the channel straightening and stone stabilization structures of wing dike and revetment works.” He further indicated that “This is the reason that (he) strongly support(s) navigation” and that he wants “to encourage that during the discussion of the benefits of navigation that they include a strong emphasis on the importance of the channel in providing flood control.” His “fear is that if navigation is abandoned as the result of MRAPS, that maintenance of the present channel will not continue and we will lose the flood protection provided by it.”

Appendix C

Stakeholder List



FIRST NAME	LAST NAME	COMPANY
Chris	Smith	AASHTO - Intermodal Policy and Program Manager
Mark	Russell	Ag Industry State of MO, Dept of Economic Develop. Bus. and Community Serv.
Don	Frank	City of Kansas City, MO
M	Wessels	City of Washington, MO ?
David	Brandon	COE
Lamar	McKissack	COE - Project Manager MRAPS (Kansas City)
Mark	Harbers	COE - Project Manager MRAPS (Omaha)
Keri	Dozier	Congressman Blaine Luetkemeyer
Dan	Engemann	Congressman Blaine Luetkemeyer
Gary	Marble	Congressman Blaine Luetkemeyer - Chief of Staff
Geoff	Jolley	Congressman Emanuel Cleaver - District Director
Ann	Kutscher	Congressman Ike Skelton
Robert	Hagedorn	Congressman Ike Skelton - Chief of Staff
Steve	McIntosh	Congressman Roy Blunt
Jim	McHugh	Congressman Russ Carnahan
Melissa	Roe	Congressman Sam Graves - Deputy Chief of Staff
Jim	Mitas	Congressman W. Todd Akin
Lou	Aboussie	Congressman William Lacy Clay
Josh	Haynes	Congresswoman Jo Ann Emerson - Chief of Staff
Steve	Hobbs	District 021 MO House of Representatives
Matthew	Vitello	DNR - Engineer
Sam	Rauls	Economic Development Corporation of Jefferson County, Executive Director
Harold	Hombres	Iowa DOA
John	Fleig	Iowa DOT
Craig	O'Riley	Iowa DOT
Stanley	Peterson	Iowa DOT
Clay	Adams	Kansas Department of Transportation
Brian	Basore	Kansas Highway Patrol
Joe	Skellely	KDOT
John	Maddox	KSDOT
Bob	Goodwin	MARAD
Marty	Romitti	MERIC/DED
Mell	Henderson	Mid America Regional Council - Director of Transportation
Darryl	Fields	Mid America Regional Council, Transportation Planner
Donald	Schoenborn	Mid-America Regional Council
Jenny	Frazier	Missouri Attorney General's Office - Assistant Attorney General
Duane S.	Michie	Missouri Highways & Transportation Commission (MHTC)
Steve	Miller	Missouri Highways & Transportation Commission (MHTC)
Vicki	Richmond	Missouri River Relief
Trent	Summers	Mo Chamber of Commerce & Industry - Environmental & Regulatory Affairs
John	Drew	Mo DNR
Tom	Waters	MO Levee & Drainage District Association - Chairman

FIRST NAME	LAST NAME	COMPANY
Don	Ransom	Mo. Department of Economic Development - Business Development Mgr., Transportation/Logistics
Mark	Hitt	Mo. Department of Agriculture
Ron	Blakley	MO-ARC (MO River Authorized Purposes Study)
Karin	Jacoby	MO-ARC, Executive Director
Karen	Rouse	MoDNR, Water Resources Center
Tom	Blair	MoDOT
Mike	Dusenberg	MoDOT
Eric	Schroeter	MoDOT
Roger	Schwartz	MoDOT
Mike	Schupp	MoDOT
Beth	Wright	MoDOT
Allan	Zafft	MoDOT
Steve	Spradlin	MoDOT Bridge Division
John	Sharp	Office of Councilman John A. Sharp, Sixth District
Daniel	Hall	Office of Governor Jay Nixon - Legislative Director
Kenneth	Reeder	Public Citizen Local & Associates
Brian	Klippenstein	Senator Christopher S. Bond - Chief of Staff
Cindy	Hall	Senator Claire McCaskill - Regional Director
Skip	Meisner	SIMPCO
Susan	Taylor	St. Louis Development Corporation
Susan	Stauder	St. Louis Regional Chamber and Growth Association
Bill	Stouffer	State Capitol Building
Steve	Hudson	United States Coast Guard
Des	Goyal, P.E.	US Army Corps of Engineers, Chief Operations Division, CENWK-OD
Paul	Hanley	USACE
Jeanne	Musgrave	USACE
Kara	Reeves	USACE
Drew	Minert	USACE - Kansas City District
Margaret	Ryan	USACE - Kansas City District
Allen	Holland	USACE - Kansas City District
John	Grothaus	USACE - Kansas City District - Chief of Planning Formulation
Jen	Henggeler	USACE - Kansas City District - Economist
Dan	Kilkeary	USCG
Paul	Rohde	Waterways Council, Inc. VP Midwest Area
Sammy	Panettiere	Senator Kit Bond - District Director
Dick	Oldenburg	The City of Washington Missouri
Larry	Taylor	Aziotics LLC
Andy	McCaskill	Burns and McDonnell
Joseph	Gibbs, P.E.	Engineering Services
Seth	Meyer	FAPRI/UMC
David	Shorr	Lathrop & Gage LLP
Duane	Dailey	MU Extension
Karla	Klingner-Diaz	Simon, Diaz and Ellis
Thomas	Johnson	University of Missouri

FIRST NAME	LAST NAME	COMPANY
Joe	Parcell	University of Missouri, Associate Professor - Dept. of Agricultural Economics
David	Humphreys	Watson & Jones, P.A.
Lee	Hutchins	AECOM Transp
Mark	Knoy	AEP River Operations
Robert	Blocker	AEP River Operations
Jeff	Kindl	AEP River Operations - Gulf Division
Mark	Stoppel	AEP-MEMCO Barge Lines
Janice	Luchan	American Commercial Lines
Kevin	Van Meter	ARTCO Barge Line
Roger	Blaske	Blaske Marine
Tim	Klein	Celtic Marine Corp.
Don	Huffman	DCH Marine, LLC
Doug	Halbert	Heartland Barge - VP Barge Line Operations
John	Roth	Heartland Barge Management
Gene	Shiver	Ingram Barge Co.
Lisa	Mareschal	Ingram Barge Co.
John	Janoush	Jantran, Inc. - Vice President
Paul	Wellhausen	Lewis and Clark Marine, Inc.
Roger	Harris	Magnolia Marine - Vice President
Lester	Cruse	Magnolia Marine Transport Company
Brad	Cheramie	McDonough Marine Service
Ron	White	McDonough Marine Service - VP Project Cargo
Donald	Leeker	Olympic Marine Company
Charles	Duet	Osprey Line, LLC
Dave	Dewey	River Marine Enterprises LLC
David	Smith	River Marine Enterprises LLC
Bruce	Sheehan	Robert B. Miller & Associates, Inc.
Ben	Greenberg	Mile Rail
Terry	Moore	AEP River Operations - Director, Business Development
Bill	Jackson	AGRIServices of Brunswick, LLC - General Manager
Lucy	Fletcher	AGRIServices of Brunswick, LLC - Marketing Mgr.
Brian	Weiler	Director Multimodal Division
Chris	Guterrez	Kansas City SmartPort, Inc. - President
Mike	Wells	Mo DNR - Deputy Director & Chief of Water Resources
Chris	Klenklen	Mo. Department of Agriculture - Grain Regulatory Services
Ernie	Perry	MoDOT
Matthew	McMichael	MoDOT
William	Stone	MoDOT Research Group
Sherrie	Turley	MoDOT Waterways Manager
John	LaRandeau	USACE - Norhtwestern Division - Navigation Program Support
Donald	Ransom	Missouri Department of Economic Development
John	Drew	Missouri Department of Natural Resources
Marty	Romitti	Missouri Department of Economic Development
Matthew	Vitello	Missouri Department of Natural Resources

FIRST NAME	LAST NAME	COMPANY
Robert	Goodwin	US Department of Transportation Maritime Administration
Steve		Hermann Sand and Gravel, Inc.
Wayne	Johnson	Ag Processing, Inc.
Jim	Palmer	Big Soo Terminal
Kevin	Knepper	Big Soo Terminal
Nick	Nichols	City of St. Louis Port Authority - Operations Manager
Brad	Frost	Darling International, Inc.
Gordon	Putzke	Excell Marine
Ron	Schram	Farmland Industries' Fertilizer Warehouse
Roy	Humphreys	Howard/Cooper County Regional Port Authority
Bob	Cox	Jefferson City River Terminal
Dan	Govero	Jefferson County Port Authority
John	Brereton	Kinder Morgan
Ron	Lankton	Kinder Morgan - Supervisor Omaha Bulk Terminal
Harold	Aksamit	Kinder Morgan - St. Joeseph Port Authority
Jeff	Chapman	Kinder Morgan Terminals
Dick	Pulse	Lewis County-Canton Port Authority
Terry	Bangert	Limited Leasing Co.
Brian	Viehmann	Limited Leasing Co.
Dave	Bangert	Limited Leasing Co.
George	Walley	Marion County Port Authority
Joe	LaMothe	MID-West Terminal Warehouse Company
Tammi	Hutcheson	Mississippi County Port Authority
Ron	Steele	New Bourbon Regional Port Authority
Timmie	Hunter	New Madrid County Port Authority - Executive Director
David	Madison	Pemiscot County Port Authority - Executive Director
Brandon	Criman	Port Authority of Kansas City
Mike	Sturgeon	Port Authority of Kansas City
Vincent	Gauthier	Port Authority of Kansas City
Gregg	Gehrig	Port Authority of Kansas City
Dan	Overbey	Southeast Missouri Regional Port Authority
Brad	Lau	St. Joseph Regional Port Authority
Jackie	Wellington	St. Louis County Port Authority
Dennis	Wilmsmeyer	Tri-City Regional Port District
Crystal	Anderson	Warren Performance Packaging
Byron	Stewart	Abengoa Bioenergy
Doug	Bonderer	AGRIServices of Brunswick, LLC
Kevin	Holcer	AGRIServices of Brunswick, LLC - Marketing & Distribution Mgr.
Bob	Perry	AgriServices of Brunswick
Mac	McMicheal	Alliance Shippers, Inc.
Frank	Nowak	Alliance Shippers, Inc. - Regional Manager, National Accounts
Dave	Jump	American Milling Company
Debi	Stephens	Ameropa
Joe	Griffith	Bartlett Grain Company, L.P. - Director of Transportation
Brant	Harper	Bunge North America

FIRST NAME	LAST NAME	COMPANY
Bob	Wittenborn	Buzzi Unicem USA
Ray	Bohlken	Capital Sand Company
Rob	Nordmeyer	Cargill, Inc.
Jeff	Porter	Christy Minerals
Rick	Ruzzin	Compass Minerals
Doug	Clark	Conoco Phillips
Bart	Holmes	Conoco Phillips - Account Mgr.
Clint	Rybak	Conoco Phillips - Director, Wholesale Asphalt Sales
Lonnie	Penry	Consolidated Blenders Inc.
Mike	Olson	Consolidated Blenders Inc. - President
Matt	Schuster	DeBruce Fertilizer
Darrin	Hanson	DeBruce Grain Inc
Paul	DeBruce	DeBruce Grain, Inc.
Denny	Gibeson	DeBruce Grain, Inc.
Julie	Waters	Dyno Nobel
Tony	Giordano	Fred Weber, Inc.
Phillip	Mitchum	GE Wind Power
Dennis	Mottola	Global Logistics - Bechtel Corpoation
Tracy	Mack	Growmark
Steve	Engemann	Hermann Sand and Gravel, Inc.
Mike	Odell	Holiday Sand & Gravel - VP - Production
Bob	Cheever	Jebro, Inc
Don	Borgman	John Deere
John	Caldwell	LaFarge
Terry	VanWinkle	Lafarge North America
A.J.	Guthrie	Lafarge North America, River Region
Rich	Coffman	Lange-Stegmann Company
Mike	Sobetski	LifeLine Foods
Mike	Maczuk	Maczuk Industries, Inc.
Ed	Long	MFA
Mike	Watring	MFA
Bill	Dunn	MFA Incorporated
Todd	Rauch	MFA Incorporated
Craig	Childs	MFA, Regional Manager of Glasgow and Lexington
Bonnie	Robbins	North American Salt Company - Director of Logistics
Tom	Siedhoff	Reagent Technology
Kevin	Goins	WATCO - Senior VP & COO
Sam	Ricci	WATCO Companies, Inc.
Tim	Holan	WATCO Transload & Intermodal Services - VP Sales/Marketing
Lynn	Muench	American Waterways Operators
Randy	Asbury	Coalition to Protect the Missouri River
Steve	Taylor	Missouri Agribusiness Association
Becky	Grisham	Missouri Corn Growers
Gary	Marshall	Missouri Corn Growers Association - CEO
Ashley	McCarty	Missouri Corn Growers Association - Director of Public Policy

FIRST NAME	LAST NAME	COMPANY
Dan	Cassidy	Missouri Farm Bureau
Bill	Beacom	Missouri River Navigation Caucus
Dale	Ludwig	Missouri Soybean Association - Executive Director/CEO
Jeff	Schwartz	Missouri Truck Ferry
Don	Curtis	MO-ARK Association
Amy	Larson	National Waterways Conference, Inc. - President
Frank	Conde	North America's Corridor Coalition, Inc.
Robert	Petersen	Transportation, Elevator, & Grain Merchants Assn.
Tom	Schrempp	WaterOne
David	Murray	Waterways Journal
Ron	Kucera	

Appendix D

Stakeholders' Meetings Sign-in Sheets





MISSOURI RIVER FREIGHT CORRIDOR ASSESSMENT AND DEVELOPMENT PLAN

Project Introduction Stakeholder Meeting

Sign In Sheet (Please Print)

LOCATION: St. Louis

DATE: August 20, 2010

	Name	Organization	Phone Number	E-mail Address
✓ 1	SUSAN TAYLOR	ST. L. DEV. CORP. P	314-259-3436	taylor@sstlvscity.com
✓ 2	SHERIE TURLEY	MODOT	888-667-6787	Sherrie.Turley@modot.mo.gov
✓ 3	DAN GOVERO	JEFF COUNTY PORT AUTH	636-464-9300	GILSHAND@GOVERNMENTBUSINESS.COM
✓ 4	Kerry Bourget	Limited Leasing Co	636-665-5180	stcherlessand@yahoo.com
✓ 5	John Breiten	Kinder Morgan	314-954-7539	Sohn-Breiten@kindermorgan.com
- 6	Gene Penn	MODOT		
✓ 7	Kara Reeves	Corps of Engineers	402-995-2688	karam.reeves@usace.army.mil
✓ 8	Karen Rouse	MODNR	573-751-0648	karen.rouse@dar.mo.gov
✓ 9	DAN KILKEARY	USCG	314-771-4325	DKilkeary@uscg.mil DKilkeary@uscg.mil
✓ 10	Tony Graviano	Fred Meyer / The S Breckenridge	314-344-0070	TGRAVIANO@FREDMEYER.COM
✓ 11	Susan Standin	RCGA	314-444-1155	SSSTANDIN@STLRCA.ORG
✓ 12	JIM MITAS	CONGRESSMAN DDD AKIN	314-590-0029	JIM.MITAS@MAIL.HOUSE.GOV
✓ 13	Lisa Mareschal	Ingram Parage Co.	618-344-2872	lisa.mareschal@ingramparage.com
✓ 14	Allan Holland	Corps of Engineers	816-389-3105	edward.a.holland@ce.army.mil
✓ 15	DENNIS WILMSHEK	TRI-CITY PORT DISTRICT	618-452-8459	dus:insareger@tricityport.com



MISSOURI RIVER FREIGHT CORRIDOR ASSESSMENT AND DEVELOPMENT PLAN

Project Introduction Stakeholder Meeting

Sign In Sheet (Please Print)

DATE: August 20, 2010

LOCATION: St. Louis

	Name	Organization	Phone Number	E-mail Address
✓ 16	Bob Blocker	ACL River Ops	636-530-2136	blocker@aclriverops.com
✓ 17	Tom Blair	MoDOT	314 453 1803	THOMAS.BLAIR@MoDOT.MO.GOV
18	Charlie Smith	HANSON		
19	Mike McQ.	HANSON		
20	Todd Altz	HANSON		
21	Matthew McMichael	MoDOT		
22	Brian W	MoDOT		
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MISSOURI RIVER FREIGHT CORRIDOR ASSESSMENT AND DEVELOPMENT PLAN

Project Introduction Stakeholder Meeting

Sign In Sheet (Please Print)

DATE: August 16, 2010

LOCATION: Kansas City

	Name	Organization	Phone Number	E-mail Address
1	Don Borgman	John Deere	913-310-8202	mizzou74@aol.com
2	Pat Skelton	Stimpco	712-223-0408	skelton@stimpco.com
3	Allen Holland	Corps of Engineers	816-389-3105	edward.a.holland@usace.army.mil
4	Vicki Richmond	Missouri River Belle	816-812-5166	vicki@riverbellevillage.org
5	Jeanne Musgrave	Corps of Engineers	816-389-3794	Jeanne.M.Musgrave@usace.army.mil
6	Harold Aksamit	Kinder Morgan	816-390-0378	
7	Rob Nordmeyer	Cargill, Inc	913-323-6332	rob-nordmeyer@cargill.com
8	AJ Guthrie	LAFARGE	615-516-0651	aj.guthrie@lafarge.com
9	Matthew B. McMichael	MoDOT	573-751-9252	Matthew.McMichael@MoDOT.gov
10	Brian Basore	Kansas Highway Patrol	913-782-8100	BBASORE@KHP.KS.GOV
11	Loren Rouse	Missouri DNR	573-751-0648	Karen.vance@dnr.mo.gov
12	Joel Skelton	Kansas Dept of Transportation	785-296-4209	joelsk@ksdot.org
13	Clay Adams	Ks DOT	785-296-3881	cclay@ksdot.org
14	Doug Clark	Conoco Phillips Asphalt	913-381-6776	doug.clark@conocophillips.com
15	Kara Reeves	Corps of Engineers	402-995-2688	Kara.M.Reeves@usace.army.mil



MISSOURI RIVER FREIGHT CORRIDOR ASSESSMENT AND DEVELOPMENT PLAN

Project Introduction Stakeholder Meeting

Sign In Sheet (Please Print)

DATE: August 16, 2010

LOCATION: Kansas City

	Name	Organization	Phone Number	E-mail Address
16	Kevin Krepper	Big So Terrenal P	712-258-0531	Kevin@bigsoo.com
17	Melissa Rae	Cong. Arneis b	816-792-3776	Melissa_rae@mail.house.gov
18	Vincent G. Kothlitz	Port Authority of KC	816-691-2115	VGKOTH@PORTAUTHORITY.COM
19	Tom Schremp	Water One S	913-895-5820	tschremp@waterone.org
20	Beth Wright	MO DOT	816-607-2281	elizabethwright@mo.gov
21	DANAD SCHNEEBORN	Mid-America Regional Council	816-701-8248	dschneeborn@marc.org
22	Stephen R. Miller	MARC	816-561-6200	smiller@millerschinger.com
23	Mike Sturgeon	Port Authority of KC	816-808-6642	MSturgeon@PORTAUTHORITY.COM
24	LUCY FLETCHER	AGRI SERVICES OF BENTONVILLE		LUCY@AGRISERVICES.COM
25	Lee Nutschman	AFZCOM Transp C	312-373-6879	joseph.nutschman@afzcom.com
26	John Caldwell	Lafayette S	816-251-2155	john.caldwell@lafayette-ia.com
27	John Sharp	City of KC Mo P	816-513-1611	johnsharp@kc.org
28	Allan Zapp	A.DOT	816-601-2258	allan.zapp@mo.gov
29	Chris G. Freezz	KC SmartPort	816-374-5690	ChrisFreezz@KCSmartPort.com
30	Jeff Schwartz	Mo Truck Ferry S	816-809-9774	jschwartz@motruckferry.com



MISSOURI RIVER FREIGHT CORRIDOR ASSESSMENT AND DEVELOPMENT PLAN

Project Introduction Stakeholder Meeting

Sign in Sheet (Please Print)

DATE: August 16, 2010

LOCATION: Kansas City

	Name	Organization	Phone Number	E-mail Address
31	BRANDEN CRIMAN	PORT AUTHORITY KEMO	816-691-2137	BRIMMAN@KC PORT AUTHORITY.COM
32	Gregg Gehrig	Port Authority KCMO	816-691-2127	ggehrig@kcpoortauthority.com
33	Charlie Smith	Hanson		
34	Mike Macmillan	Hanson		
35	Shawn Goetz	Hanson		
36	Ernie Pecky	MoDOT		
37	Brand W	MoDOT		
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MISSOURI RIVER FREIGHT CORRIDOR ASSESSMENT AND DEVELOPMENT PLAN

Project Introduction Stakeholder Meeting

Sign In Sheet (Please Print)

DATE: August 17, 2010

LOCATION: Jefferson City

	Name	Organization	Phone Number	E-mail Address
1	Matthew B McMichael	MoDOT	573-751-9252	Matthew.McMichael@modot.mo.gov
2	Eric Schroeter	MoDOT	573-826-6588	Eric.Schroeter@Modot.mo.gov
3	Paul Hanley	USACE CONSULTANT	512-818-0412	PJ.Hanley@verizon.net
4	Steve Spadlin	MoDOT	573-751-2827	Stephen.Spadlin@modot.mo.gov
5	Tom Johnson	U. of MO	573-882-2157	johnsantg@missouri.edu
6	Karen Bouse	MoDNR	573-751-0648	Karen.bouse@dnr.mo.gov
7	Ray Bohken	Capital Land Co. Inc.	573-634-3020	RBOHKEN@CAPITAL.LAND.CO
8	Diane Dziley	MUSE Extension	573-874-1305	diane.dziley@missouri.edu
9	Tom Rouch	MFA	573-876-5214	trouch@mta-inc.com
10	Sherrie Turley	MoDOT	888-667-6787	Sherrie.Turley@modot.mo.gov
11	Mark Russell	DEO	573-526-1366	mark.russell@modot.mo.gov
12	Mark Hirt	Mo Dept Ag	573-751-3970	mark.hirt@mda.mo.gov
13	Steve Taylor	Mo Agri Business Assn	573-636-6130	Staylor@mo-ag.com
14	Roger Schwartze	MoDOT	573-751-7689	Roger.Schwartz@Modot.Mo.Gov
15	Mike Dusenberg	MoDOT	573-751-7699	Michael.Dusenberg@modot.mo.gov



MISSOURI RIVER FREIGHT CORRIDOR ASSESSMENT AND DEVELOPMENT PLAN

Project Introduction Stakeholder Meeting

Sign In Sheet (Please Print)

DATE: August 17, 2010

LOCATION: Jefferson City

	Name	Organization	Phone Number	E-mail Address
16	Mike Schapp	MoDOT	660-287-295	Michael.Schapp@mo.gov
17	Steve Engeman	Hermann Sand S	573 220 4908	Steve@HermannSand.com
18	Allen Holland	Coops of Engineer K	816-389-3105	edward.a.holland@ussee.com
19	Chris Klekley	MDA	573 751 4112	Chris.Klekley@mda.mo.gov
20	Charlie Smith	HANSON		
21	Shawn Goetz	HANSON		
22	Mike McQ.	HANSON		
23	Ernie Peasey	MoDOT		
24	Beian W	MoDOT		
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Ernie Peasey

Appendix E

Stakeholders' Meetings Comments



Stakeholders' Meeting Recap – St. Louis

Market & Commodity Oriented	
Opportunity	Challenge
Need refrigerated container service to export high value agricultural products far; e.g. China	Do you have a communication strategy to continually disseminate what you are doing so as to continue to gather participants in the effort
Can we invite global players to get our system on the sales structure internationally?	Everybody thinks Panama Canal freight will come to them; what will it take to get it into the MO/MS Rivers?
Need to integrate with road and rail into seamless market offering	How will this study incorporate the "bottlenecks" that the road and rail industries have identified so that the resulting strategy provides solutions to the entire supply chain?
Integrate with FTZ so that international investors can utilize all transportation modes plus FTZ benefits	Need to think regional markets which means both sides of the Mississippi
Can we enter the market to sell the route? China, Port Reupert, CN Rail, Terminos, St. Louis?	Need a full season
Deploy barge industry excess; "barge" capacity	Slow transport in an ever-increasing "I need it now" business work
Increase in volume and traffic on the MO River means the same for St. Louis	Inland waterway needs more advocates at state and federal level
Huge upside potential for marketing of our natural asset for the middle of the country	How do you compete with cheap labor elsewhere on supply chain?
What product can "mature" on a barge to take advantage of river freight's longer shipping time?	Attract value added manufacturing
Coordinate with Jefferson County study, St. Louis Port/N. Riverfront land use study, S. Stauder's freight study	How will you market your new facilities? Tell your story in US and globally
Integrate this project with M-55 and M-70 (MARAD): Cargo, funding	
Maintain website for this project. Keep everyone up-to-date. Space for ideas, comments. Post these challenges and opportunity posters.	
What freight especially suited to 2000 LF Dock (in St. Louis, MO)	
Growth in corn production can be moved to gulf export cheaper. Opens door for national distribution locations.	
Chicago Create people worried about losing 3PL business to St. Louis. Which companies were they talking about and how can we get them here?	

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – St. Louis

Navigation	
Opportunity	Challenge
Need to foster workforce development opportunities with local agencies/jurisdictions. Maritime "schooling" and curricula developments	Commitment to volumes and consistent volumes
Can we re-establish river tourism and thereby re-educate the public about the value of the river	Use local private dredging companies for small river maintenance problems
Query prospective towboat operators regarding availability of shallow-draft towboats and their willingness to use them, if no river flows change due to weather conditions or legislation	Getting shippers to commit long-term with capital investment to river facilities
	Sustainable commodity growth
	Need dredging funds

Environmental	
Opportunity	Challenge
Barge industry support of river environment	Long-term - positive political support and consistent and standard policies
This story is how to engage the "Y" generation (really)	What strategy has compelling impact on political forces up river that don't share our view of what the river is for
Include conservation for wetlands mitigation	
Safety: Accidents per ton-mile	
Include US Fish & Wildlife in study as a planning partner to avoid conflicts with this group and other environmental interests later during implementation phase	

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – St. Louis

Infrastructure	
Opportunity	Challenge
Need performance metrics for use in pursuit of funding	How to structure so that our cumulative facilities are complimentary
What consolidation facilities do you need in St. Louis, MO	Very hard to attract USDOT money. Lion's share to highways
Howard Bend Area presents opportunity for port with good access to rail and highway. 2,000 acres of undeveloped ground surrounded by business parks who need to move freight.	Create sub-system for shipments during close of navigation
Jeff County is working on a port on Mississippi River. What type of stakeholder leadership is required to start a port on the MO River? How attainable are federal funds for port development?	Evaluate availability and condition of road and rail networks adjacent to and serving prospective port facilities to determine adequacy and investment needed to make them fully serviceable
Create pool of funding at state level to spur investment (infrastructure bank)	What are the technologies of the future of logistics that we need to incorporate?
Develop incentives for businesses to acquire special equipment for ops on the MO River (e.g., tax credits)	Levee construction creates new impediments for river access
	Aging levees
	Locks & dams - need funding

Operations	
Opportunity	Challenge
Job creation - shore side and on the river	Continued fight with upper river interests continue to discourage investment down stream
Cooperative effort with new Jefferson County Port for offloading and uploading for depth control of barges and fleeting	Right boats to operate the river
	Any security issues: bums, theft
	Union issues: teamsters vs. stevedores; non-union labor

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – Kansas City

Market & Commodity Oriented	
Opportunity	Challenge
Improved competitiveness of Missouri businesses	Out of MS lime
Hyperion Union County SD	Lime for water softening transport opportunity
Ethanol DDGS	Need to work with shippers producers. They organize and employ freight carriers
Impacts of Panama Canal	Reasons to engage MO River as niche market - shippers, terminals and navigators must see consistent ability to turn a profit
Being able to have some form of clearinghouse for suppliers/users to tap into	What does more control of MO River do for flow on Mississippi River?
Kansas City Regional Freight Outlook Study (MARC)	
SmartPort information?	
Influence of future I-49 (New Orleans to Kansas City, MO)	
NASCO; eco-dev; Midwest corridor supply chain	
NAFTA - localized reg. opp.; NASCO	
Possible Opportunity to move OS/OW loads off of highway for portion of trip	

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – Kansas City

Navigation	
Opportunity	Challenge
Ethanol	Interest - Agriculture. Very good job identifying the operational aspects. Missing however, is the 800 lb. gorilla -- all of the organized and well funded anti-navigation interest. The study needs to suggest a strategy for dealing with "opponents".
DDGS	Synergies with other uses; e.g., water supply
Economic development	Address bed degradation
Need to improve cycle times to create the efficiency needed to bring navigation back to MO River	Lack of carrier confidence
Economic development	On the MO - low water, light loads = higher costs
Impact of Panama Canal project	Navigation reliability
Value of navigation to other uses of river - recreation, water supply, thermal cooling, stable summer flow important	Limited carriers servicing MO river
Navigation flows impact other important uses; e.g., power generation, recreation, power supply	On the MO - no reliability YTY
	Deal specifically with the river degradation at KC downtown bend

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – Kansas City

Environmental	
Opportunity	Challenge
Air quality attainment - KC metro/other metro areas along corridor	MO River Eco System Study
Environmental resources inventory (MARC)	Keep transparent - use diverse models to engage citizens
	Consequences of draft EIS and dredging
	Interest - Agriculture. Must engage allies (municipal water, power companies, drainage districts, agribusiness, etc) to help. The study plan should include efforts to recruit allies from a broad spectrum.
	Air quality attainment (KC metro & other corridor metros)
	Coordination with Corps and changes to river due to birds, etc. - least tern, piping plover
	Water quality protection for water supply

Infrastructure	
Opportunity	Challenge
Multimodal	Older infrastructure, but operational. Terminals are actively pursuing freight
Congestion management	Lack of modern barges and towboats
Solicit citizen input in diverse ways. Use existing networks but be mindful of less electronic means of communication	Help assess the best long-term site for an expandable port facility in KCMO
	Facility conditions - overall poor given inactivity last number of years
	Mode connectors
	Port infrastructure expansion potential - affect on roadway, intermodal infrastructure and congestion
	Identify limitations to infrastructure related to intermodal operations
	Need better wharf and docking facilities

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – Kansas City

Operations	
Opportunity	Challenge
Infrastructure expansion potential - affects on highway and intermodal infrastructure and congestion	Revitalize existing centers of material handling facilities
Intermodal freight technology workgroup (IFTW)	Sonal Hate (2009), MO DED, Transportation industry competency report, outlines operations and educational requirements
Sonal Hate (2009), MODED, Transportation Industry Competency Report	Lack of shallow draft barges and boats
	Barge fleetling - shifting to docks
	Lack of fleetling service

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – Jefferson City

Market & Commodity Oriented	
Opportunity	Challenge
Start a MO Univ. School of River Navigation. Teach all aspects of river transportation. Buy small (shallow) boats, offer low rates, student delivered, light loads. Teach, create demand for equipment, docks and open markets. Such a school should also research/develop new technologies, navigation designs, or radical ideas that industry isn't willing to risk trying	Favorable MRAPS Rod
If industry lacks people it needs to change to accommodate people. Maybe mixed gender, even family on one boat. Make it a life desirable to the type of people wanted: dependable, honest, family types	Maintenance long-term
Bulk salt delivery up MO River	
Emerging biomass freight potential	
RRs frustrate shippers - they may appreciate an option	
Over length and width and weight freight	

Navigation	
Opportunity	Challenge
Europe ships containers on barges - can we follow the European model	Reinvest in equipment
Biomass may be a "new" opportunity. Low value, not timely	Maintain consistent channel depth
Rely less on flow targets and more on minimum river levels or add more flow targets	With limited amount of funding for navigation there needs to be a team to prioritize areas of concern. Who does the corps answer to?
The more product and regular trips, the cheaper the cost will be	

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Stakeholders' Meeting Recap – Jefferson City

Environmental	
Opportunity	Challenge
Develop a better understanding of benefits of shipping water/land less pollution, etc.	Environmental is an opportunity. Environmental restoration projects and funding used in conjunction with construction/ dredging
Each barge is approximately 60 semi's off interstates - safer highways	Those that make their living fostering the environmental misperceptions
	Reach a balance
	Endangered Species Act has too much power

Infrastructure	
Opportunity	Challenge
How to best ID node sites that serve economic, river access and ground transportation	Investment ROI
	With the consistent studies on the MO River, it is hard to secure investment for facilities and equipment

Operations	
Opportunity	Challenge
	Work force available
	Tow boat work force
	River commission for action and politics
	Training workforce
	Barge ownership and access to barges

Shippers	Blue
Carriers	Green
Other	Pink
Agencies	Purple
Ports/Terminals	Yellow

Appendix E

Survey Instruments



Individual Responses Will Be Kept Confidential

Results will be incorporated in aggregate format

Market Development & Commodities Survey Form

Firm / Trade Name: _____ Date _____

Point of Contact: _____

Contact Information: Title _____ Phone _____ email _____

Address _____

City _____ State _____ Zip _____

Existing Market Interests (check those that apply):

Dry Bulk Breakbulk (coil, plate, rolls, super sacks, scrap, other)

Over Weight/Over-Dimensional Container Liquid Bulk

Existing Commodities _____

Domestic Origins _____

Domestic Destinations _____

Foreign Origins _____

Foreign Destinations _____

Port of Entry or Exit _____

Current Mode(s) utilized: Truck ___ Rail ___ Water ___

Primary Mode: Truck ___ Rail ___ Water ___

Supply Chain Priority for Primary Mode (rank in order of priority):
 Transit Time ___ Cost ___ Reliability ___

Potential Market Commodities: _____

Potential Origins _____

Potential Destinations _____

Questions

- | | | |
|---|------------|-----------|
| 1. Are or have you experienced declining transportation reliability? | Yes | No |
| 2. Have you found fuel volatility or driver shortages a developing issue? | Yes | No |
| 3. What is your/firm's perception of water transportation? _____ | | |

4. What is your perception of traffic congestion? _____

5. What is your perception of highway condition? _____

6. Is competitive rail service available or are/would you be a captive shipper?	Yes	No
---	------------	-----------

7. Of what priority do you/firm place on air and water quality?	High	None	Low
---	-------------	-------------	------------

Commodity Specifics for Shippers:

Transport Characteristics (check those that apply):

- Hazardous Open equipment Closed (dry) equipment Tank containment
- Insulated or heat required High density cargo (heavy) Over-dimensional /over-weight permit required

Typical Origin/Destination pairs: _____

International Port Connection _____

Typical Shipment Quantities (total volume potential not conveyance size) _____

Approximate annual volume moved (Receive/Produce): _____

Water Shipping:

1. Have you ever moved your commodities by water to/from any location? **Yes** **No**
 If so, which commodities? _____

2. Have your shipments ever moved on the Missouri River? **Yes** **No**
3. **If yes**, when was the last shipment date? _____
- a) Have your shipment volumes...? **Declined** **Increased** **No change**
- b) Do you operate a facility or barge line on the Missouri River? **Yes** **No**
 Name the Location(s) _____
- c) On other River systems? **Yes** **No** Name the Location(s) _____
- d) Suggestions for increasing shipments or to reverse declines: _____

- 3) Are first/last mile connectors adequate for water terminal connection? **Yes** **No**

Rail and/or Truck Shipping:

1. Do you utilize all the cube capacity? or meet weight limits? **Cube** **Weight**
2. **If Rail**
 - a) What is your rail connection to/from the region?
 Main Carrier _____ Connecting _____
 - b) Have you in the past or recently experienced any of the following challenges:
 - Car shortages? **Yes** **No** type of car(s) _____
 - Service limits in minimum number of cars for switching? **Yes** **No**
 - Service frequency declines? **Yes** **No**
 - Perceived unreasonable rail rate increases? **Yes** **No**
 - Other rail service concerns? (congestion, reliability, maintenance, etc.) _____
3. **If Truck**
 - a) What is your main highway routing in/out? **Local** **State** **Interstate**
 - b) Is your first/last mile connection adequate? **Yes** **No**

-
- | | | |
|---|------------|-----------|
| c) Have you recently or in the past experienced driver/service shortages? | Yes | No |
| d) Do you operate your own truck fleet? | Yes | No |
| e) Have you perceived unreasonable truck rate increases? | Yes | No |
| f) Is service decreasing or getting less reliable? | Yes | No |
| g) Other truck service concerns? (regulation, insurance, congestion/delays, etc.) | | |
-

May we contact you for additional detail or insight regarding Missouri River Freight Development?
Yes **No**

What is the preferred method of contact for you? (circle) **Phone** **Email**
Other _____

Comments: (add commentary regarding answers on which you wish to expand and anything else you wish to share regarding your commodity and responsibilities for the supply chain and/or water, rail and truck concerns)

Please return completed surveys via email, fax, or mail to:

Debbie McClish
Hanson Professional Services Inc.
1 Burton Hills Blvd, Ste 360
Nashville, TN 37215

email: dmcclish@hanson-inc.com
fax: 615-665-9616

Individual Responses Will Be Kept Confidential

Results will be incorporated in aggregate format

Physical Infrastructure Survey Form

Firm / Trade Name: _____ Date _____

Point of Contact: _____

Contact Information: Title _____ Phone _____ email _____

Address _____

City _____ State _____ Zip _____

Missouri River Site 1:

Infrastructure/Location Name: _____

River Mile Mark: _____ Descending Bank _____

Physical Address: _____

Facility Type (circle one): Public Private Mix

Infrastructure Description (check those that apply):

Marine Cargo Terminal Liquid Terminal Fleeting/Mooring Rail Interchange

Industrial/Business Park Utility Structure/Intake Truck Facility

Boat/Barge Services (fuel, cleaning, shipyard) Marina/Other Recreational

Facility Purpose or Primary Cargo: _____

General Facility Classification (circle one): Active Inactive Abandoned
Under Improvement Under Demolition Other (describe) _____

General Infrastructure Condition Assessment (circle one):

Good Fair Needs Significant Repair

Describe Repairs Needed: _____

General Infrastructure Capacity Assessment (circle all that apply):

Adequate for Now Adequate for the Future Needs Upgrades

Describe Upgrades Needed: _____

Can a site visit be scheduled? Yes No

Point of Contact for Visit and Contact Information _____

Are you an Owner or Lessee? _____

If Lessee, who is the Owner? _____

Do intermodal operations take place? Yes No
1. If Yes; (circle those that apply) Rail Truck

a) What commodity(s) _____

b) How often? _____

2. What site capabilities does or might this location offer? _____

Missouri River Site 2:

Infrastructure/Location Name: _____

River Mile Mark: _____ Descending Bank _____

Physical Address: _____

Facility Type (circle one): Public Private Mix

Infrastructure Description (check those that apply):

Marine Cargo Terminal Liquid Terminal Fleeting/Mooring Rail Interchange

Industrial/Business Park Utility Structure/Intake Truck Facility

Boat/Barge Services (fuel, cleaning, shipyard) Marina/Other Recreational

Facility Purpose or Primary Cargo: _____

General Facility Classification (circle one): Active Inactive Abandoned
Under Improvement Under Demolition Other (describe) _____

General Infrastructure Condition Assessment (circle one):
Good Fair Needs Significant Repair
Describe Repairs Needed: _____

General Infrastructure Capacity Assessment (circle all that apply):
Adequate for Now Adequate for the Future Needs Upgrades
Describe Upgrades Needed: _____

Can a site visit be scheduled? Yes No

Point of Contact for Visit and Contact Information _____

Are you an Owner or Lessee? _____

If Lessee, who is the Owner? _____

Do intermodal operations take place? Yes No

1. If Yes (circle those apply) Rail Truck

a) What commodity(s) _____

b) How often? _____

2. What site capabilities does or might this location offer? _____

Comments: (add commentary regarding answers on which you wish to expand and anything else you wish to share regarding your facilities or other infrastructure issues)

PLEASE INCLUDE MISSOURI RIVER SITE DATA FOR ALL LOCATIONS IF MORE THAN TWO (2)

Please return completed surveys via email, fax, or mail to:

Debbie McClish
Hanson Professional Services Inc.
1 Burton Hills Blvd, Ste 360
Nashville, TN 37215

email: dmcclish@hanson-inc.com
fax: 615-665-9616

Individual Responses Will Be Kept Confidential

Results will be incorporated in aggregate format

Navigation & Operations Support Survey Form

Firm / Trade Name: _____ Date _____

Point of Contact: _____

Contact Information: Title _____ Phone _____ email _____

Address _____

City _____ State _____ Zip _____

Vessel Operations (circle those that apply):

1. Do you or have you ever operated on the Missouri River? Yes No
2. With what frequency do you operate? Regular Infrequent None
3. When was the last time you operated on the Missouri River? Month _____ Year _____
4. What is or was your normal tow configuration? Barges _____ Boat (hp) _____ Draft _____
5. Does your firm restrict draft under all conditions? Yes No
 - a) If so, at what draft? _____
 - b) What other tow restrictions are followed? _____
6. Do you have specific crews that run the Missouri River? _____
7. Do you, or would you, provide training for a Missouri River Pilot? Yes No

Navigation (circle those that apply):

1. Does an active Missouri River Navigation Committee exist? Yes No
2. Does, or would, your firm participate in a MO River Navigation Committee? Yes No
3. Do you actively encounter regular areas of concern, such as;
 - Aids to Navigation deficiencies? Yes No
 - Reported channel characteristics being unreliable? Yes No
 - Unreliability in generally predictable areas? Yes No
 - Velocity and current issues at predictable areas? Yes No
 - Do your Captains and company report issues to the responsible party? Yes No
4. May we communicate further on these concerns and issues? Yes No
5. Under what chart system do your boats operate? _____
6. What additional operating precautions, limits or preparation do you take to operate?

7. Assuming freight is available; would you operate on the Missouri River if these risks could be reduced and if operating season predictability could be improved? Yes No
8. Can we visit with you further on your valuable information and comments? Yes No

Marine Services:

1. Comment on the following services and importance on this system to your operations now or in the future, including suggested locations (up to three):
 - Fleeting services _____
 - Shift boat availability _____
 - Fuel services _____
 - Vessel Repair services and type, if any _____

- Barge Cleaning services _____
- Waste oil collection, if any _____

2. What is the general operating range (in months) for your current or potential freight moves on the Missouri River? _____

3. Why do you have this preference? _____

Freight Opportunity:

1. Does the company have specific draft limits for specified conditions it places on the shipper?

Yes No

2. If yes, what are they and how are they communicated? _____

3. Do you or would you provide third party barge service in your tows? Yes No

4. Would you place your barge equipment into a third party service operator? Yes No

5. If yes; what service level would you prefer to see provided in this type offering? _____

6. What parameters might you have for backhaul opportunity, if any? _____

May we contact you for additional detail or insight regarding Missouri River Freight Development?

Yes No

What is the preferred method of contact for you? (circle)

Phone

Email

Other _____

Comments: (add commentary regarding answers on which you wish to expand and anything else you wish to share regarding navigation or river operational support issues)

Please return completed surveys via email, fax, or mail to:

Debbie McClish
Hanson Professional Services Inc.
1 Burton Hills Blvd, Ste 360
Nashville, TN 37215

email: dmcclish@hanson-inc.com
fax: 615-665-9616

Individual Responses Will Be Kept Confidential
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Agency Survey Form

Firm / Agency Name: _____ Date _____
Point of Contact: _____
Contact Information: Title _____ Phone _____ email _____
Address _____
City _____ State _____ Zip _____

Agency Level Organized (circle response):

Federal State Local Regional

Agency Mission:

1. What is the Agency's primary mission? _____
2. What is the Agency interest in the MoDOT Freight Development Study? _____
3. Identify the Agency's expected goal or objective? _____
4. Does the Agency have a specific area of expertise to contribute? **Yes No**
5. What type of expertise can you offer the Study? _____

Respondent Interest:

1. As a part of a larger organization, what is the interest of your Section or Unit, if any different than the overall agency mission? _____
2. Does your Unit have a specific goal or outcome they would like to see? **Yes No**
3. What is the goal or objective? _____
4. Is pertinent data available from your organization? **Yes No**
5. **If Yes**, what is the nature of that data (please list all data groups)?

May we contact you for additional detail or insight regarding Missouri River Freight Development?
Yes No

What is the preferred method of contact for you? (circle) **Phone Email**
Other _____

Comments: (add commentary regarding answers on which you wish to expand and anything else you wish to share regarding your agency or its issues related to the Study)

Please return completed surveys via email, fax, or mail to:

Debbie McClish
Hanson Professional Services Inc.
1 Burton Hills Blvd, Ste 360
Nashville, TN 37215

email: dmcclish@hanson-inc.com
fax: 615-665-9616

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Other Interests Survey Form

Firm / Group Name: _____ **Date** _____

Point of Contact: _____

Contact Information: Title _____ Phone _____ email _____

Address _____

City _____ State _____ Zip _____

Can you classify your stakeholder interest ? **(circle response)**

Political Stakeholder _____ Policy Interest _____ Other State Interest _____ Other _____

How large is your constituency, or what is your representation?

Membership Size _____ District _____ Federal _____ State _____ Local _____

What committees or other affiliations does your interest hold? _____

Might your position or interest have direct influence on policy impacting Missouri River issues?

Yes No

Have you, your committees, or other affiliations issued policy or position statements on Missouri River issues?

Yes No

What are the specific policy areas on which a position has been issued? _____

May we request, through you, these policy or position statements if applicable to the Study?

Yes No

May we contact you for additional detail or insight regarding Missouri River Freight Development?

Yes No

What is the preferred method of contact for you? (circle)

Phone Email

Other _____

Comments: (add commentary regarding answers on which you wish to expand and anything else you wish to share regarding your specific area of interest related to the study)

Please return completed surveys via email, fax, or mail to:

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Nashville, TN 37215

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