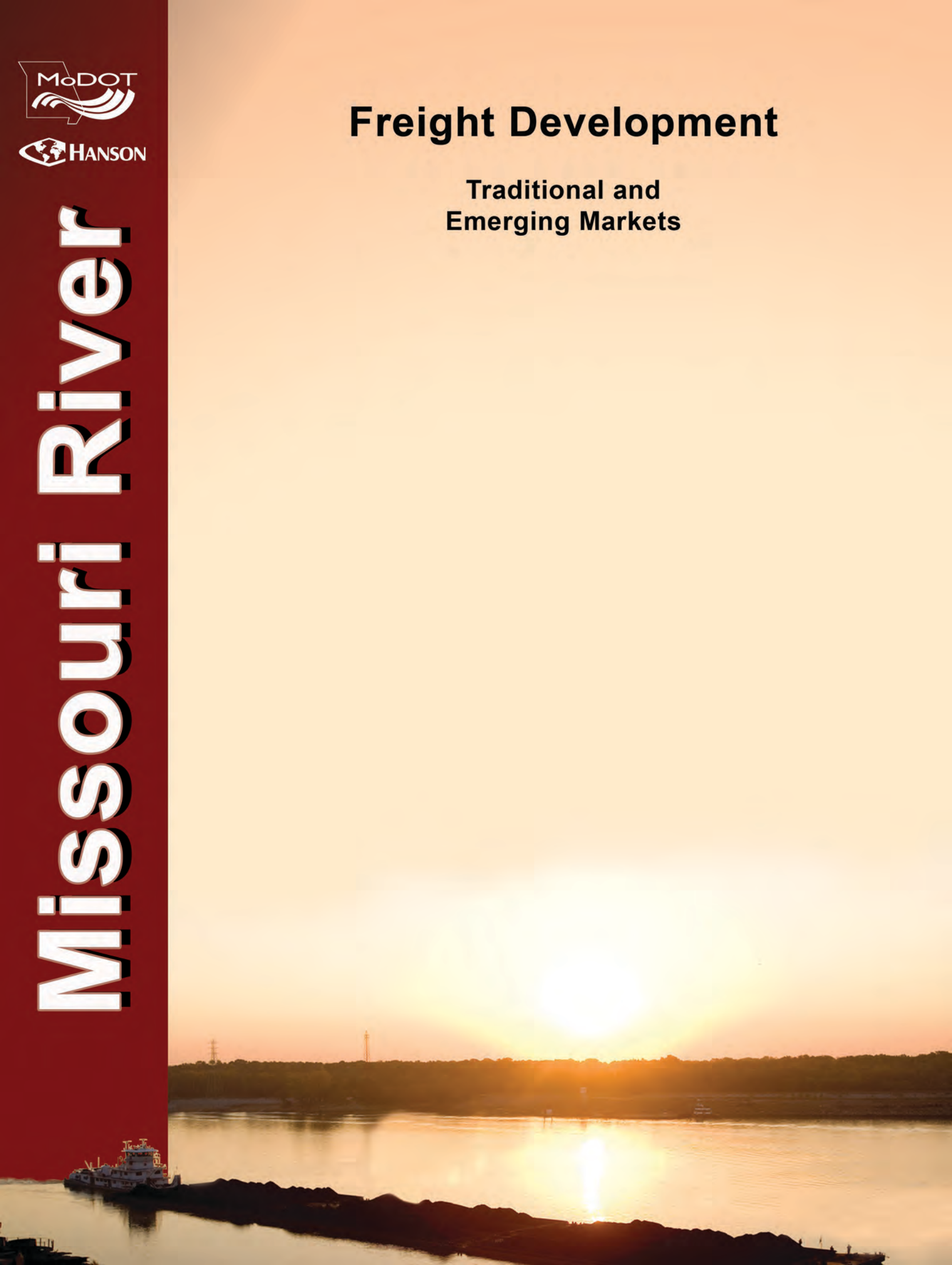
MoDOT

HANSON

Missouri River

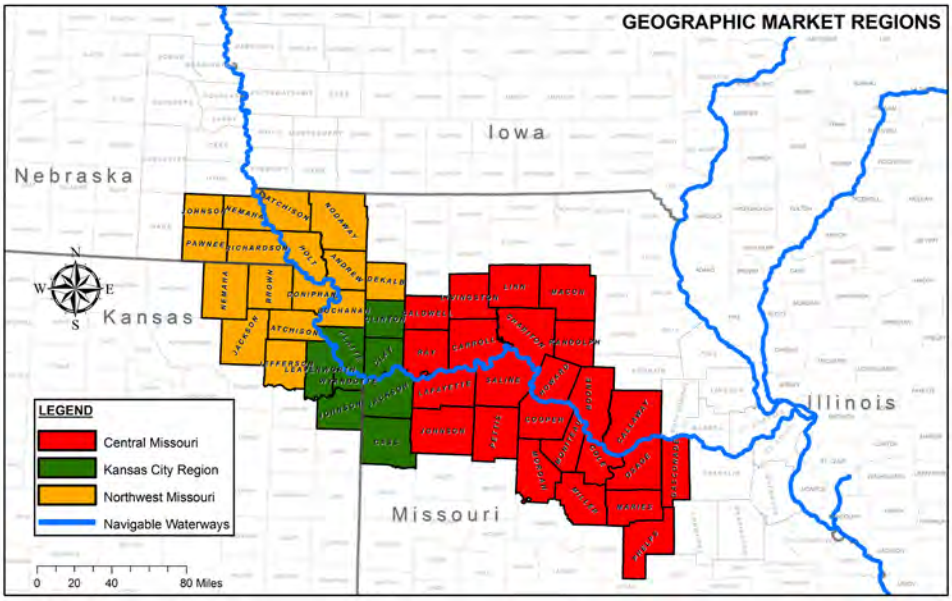
Freight Development

Traditional and Emerging Markets



Traditional and Emerging Markets

Identifying markets and commodities that can sustain river freight growth and promote economic development opportunities



Missouri River Freight Market - Commodities and Volumes

- Based on historic freight movements in the market region, there are approximately 19 million tons of freight that could potentially move on the Missouri River within this market area each year. Of this total potential, over 1.3 million tons of commodities have been identified that could annually be moved on the river over the next five years.

- The key traditional market commodity groups include Agricultural Dry Bulk (Cereal Grains, Soybeans, other Oilseeds, and other Grains), Non Metallic Mineral Products (Clay, Cement, Salt), and other Non-Agricultural Commodities (Dry Fertilizer, Petroleum Products, Gravel & Crushed Stone).

- The key emerging market groups include Waste Scrap Metal, Coal, Alfalfa Pellets, Dried Distillers Grains, Liquid Fertilizer, Ethanol, Over-Dimensional and Over-Weight Cargo, and Container-on-Barge.

Commodity	Tons Shiftable to Water
Traditional Markets:	
Agricultural Dry Bulk	615,000
Salt, Cement, Clay, & Fertilizer Products	193,000
Emerging Markets:	
Waste Scrap	100,000
Coal	114,000
DDGS	50,000
Alfalfa Pellets	50,000
Liquid Fertilizer	50,000
Ethanol	63,100
OD/OW	20,000
COB	70,000
Total Shiftable to Water	***1,325,100***

Missouri River

Benefits of Moving Freight on the River

- In 2010, freight moving on the Missouri River included 334,000 tons of traditional commercial commodities and more than 4.5 million tons of sand and gravel. The commercial tonnage alone equates to more than 13,000 truckloads or 3,000 rail cars of tonnage on the river.

- The total freight identified as shiftable to the water in 1 to 5 years includes more than 800,000 tons of traditional commodities and more than 500,000 tons of emerging market freight per year.

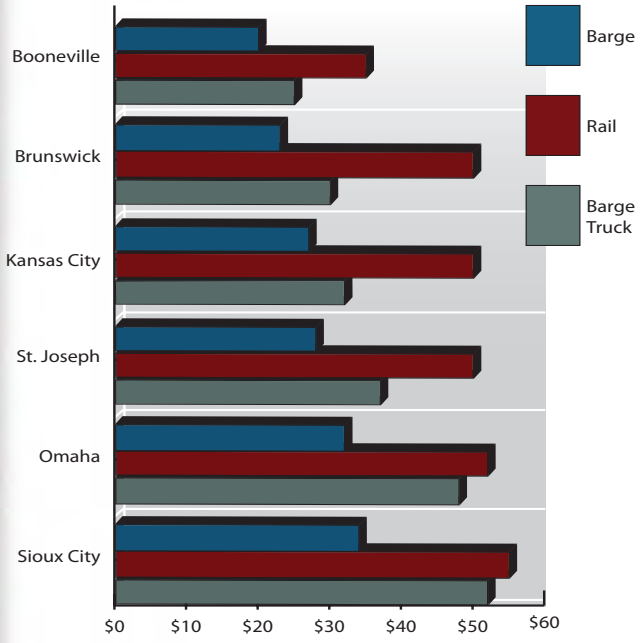
- Combined with 334,000 tons from 2010, the additional 1.3 million tons of commercial freight on the river would pull an additional 52,000 truckloads per year off of Missouri highways.

- Moving this tonnage by water would result in an estimated 42% fuel use reduction; directly and positively impacting freight rates as well as the consumption of petroleum; not to mention projected benefits in reduction of highway maintenance, congestions, and injuries and fatalities.

Benefits of Moving More Freight On The Water- First Five Years	
Additional annual truckloads pulled off the highway	52,000
Reduction in harmful emissions:	
CO	33%
NOx	7.5%
PM	7.4%
CO2	42%
Fuel use reduction	42%

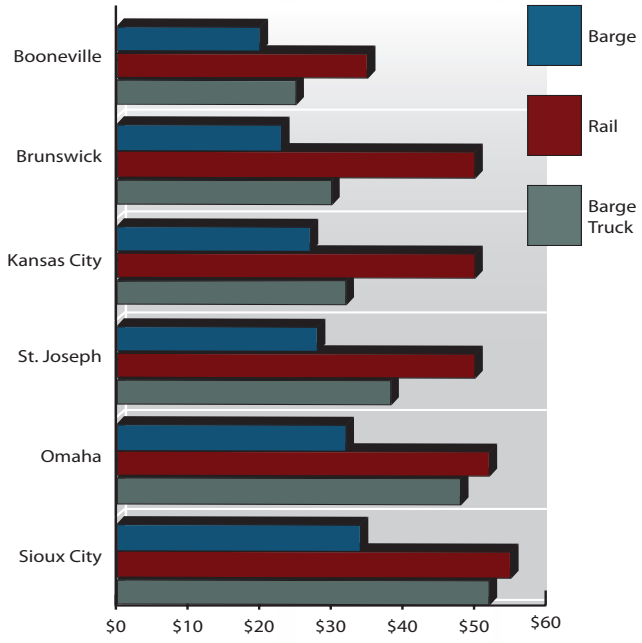
Potential for reduced freight rates - using the Missouri River rather than truck or rail options.

Northbound Freight rates from NOLA



*Barge- 6 barge low
Rail - Published Tariff rates
Barge/Truck - includes $4/ton handling charge

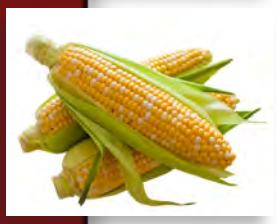
Southbound Freight rates to NOLA



*Barge- 6 barge low
Rail - Published Tariff rates
Barge/Truck - includes $4/ton handling charge

This information taken from www.agriservices.com/barge.htm. Please contact for current rates.

Traditional Markets – Agricultural Dry Bulk Commodities



Missouri Market Potential for Barge Movement

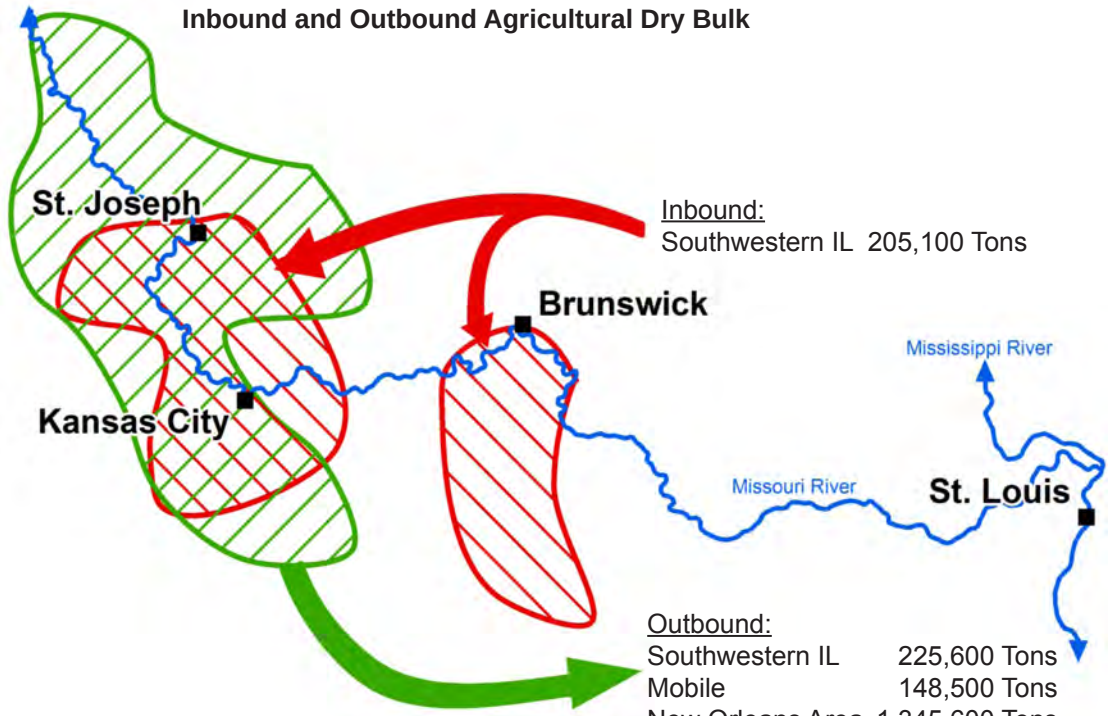
Commodity	Total Tonnage on Shiftable Routes	Tonnage Shift (est.)	Percent Shift (%)
Ag. Dry Bulk	5,700,000	615,000	10.8

Benefits of Shifting Agricultural Dry Bulk to Barge Transportation

Freight Mode	Cost*
Truck	$34.6 MM
Rail	$19.1 MM
Barge	$12.1 MM
Sum of Truck & Rail	$53.7 MM
Savings by Barge	**$41.6 MM**

*Cost of shipping the estimated shiftable tonage.

Inbound and Outbound Agricultural Dry Bulk



Inbound:
Southwestern IL 205,100 Tons

Outbound:

Southwestern IL	225,600 Tons
Mobile	148,500 Tons
New Orleans Area	1,345,600 Tons
Other Louisiana	55,400 Tons
Houston TX	1,640,900 Tons
Sabine TX	1,297,100 Tons
Corpus Christi TX	73,100 Tons
*Portland OR	85,000 Tons
*Seattle/Tacoma WA	596,000 Tons

* Portions of these movements could shift to the Gulf Coast export locations.

Traditional Markets – Salt, Cement, Clay & Fertilizer Products

Missouri Market Potential for Barge Movement

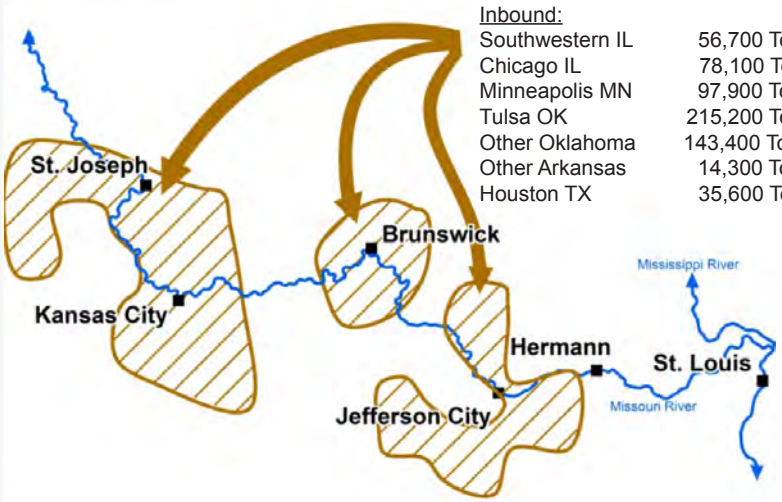
Commodity	2009 Barge Movements (tons)	MO Market Area Total Tonnage (est.)	Projected 5-yr Waterborne Market Growth (tons)	Percent Increase (%)
Cement	57,358	120,000	50,000	41.7
Clay	16,667	20,000	4,000	20.0
Salt	2,283	160,000	50,000	31.3
Fertilizer	23,724	1,600,000	93,000	5.8

Origins and Destinations for Cement, Clay, and Salt

	Cement	Clay	Salt
Origins	Chicago	Central MO	Southern LA
Destinations	Jeff City & KC	OK	STL, Jeff City, KC

- Market demand for Cement and Clay are closely tied to domestic economic conditions, so growth volume could be expected to increase with an improving U.S. economy.
- This commodity group is particularly attractive since barge carriers can benefit from complementary opportunities. Market research indicates fertilizer movements will bring covered equipment upstream. This leads to potential back hauls for all commodities and increased utilization of cement barges already working the Missouri River.
- Terminal locations with existing and planned covered storage can increase freight in salt and fertilizer, particularly in Kansas City and St. Joseph.
- One of the additional benefits of this market group is that demand can occur throughout the normal navigation season.
- The added market tonnage represents over 130 loaded covered hopper barges into the system; a valuable asset to use for many outbound commodities.

Inbound Fertilizer



Inbound:

Southwestern IL	56,700 Tons
Chicago IL	78,100 Tons
Minneapolis MN	97,900 Tons
Tulsa OK	215,200 Tons
Other Oklahoma	143,400 Tons
Other Arkansas	14,300 Tons
Houston TX	35,600 Tons

Benefits of Shifting Fertilizer to Barge Transportation

Freight Mode	Cost*
Truck	$4.1 MM
Rail	$0.6 MM
Barge	$1.3 MM
Sum of Truck & Rail	$4.7 MM
Savings by Barge	**$3.4 MM**

*Cost of shipping the estimated shiftable tonage.

Traditional Markets – Other Commodities

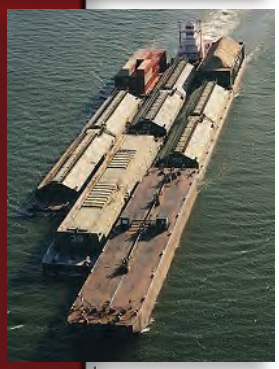


Image source:
www.tidewater.com

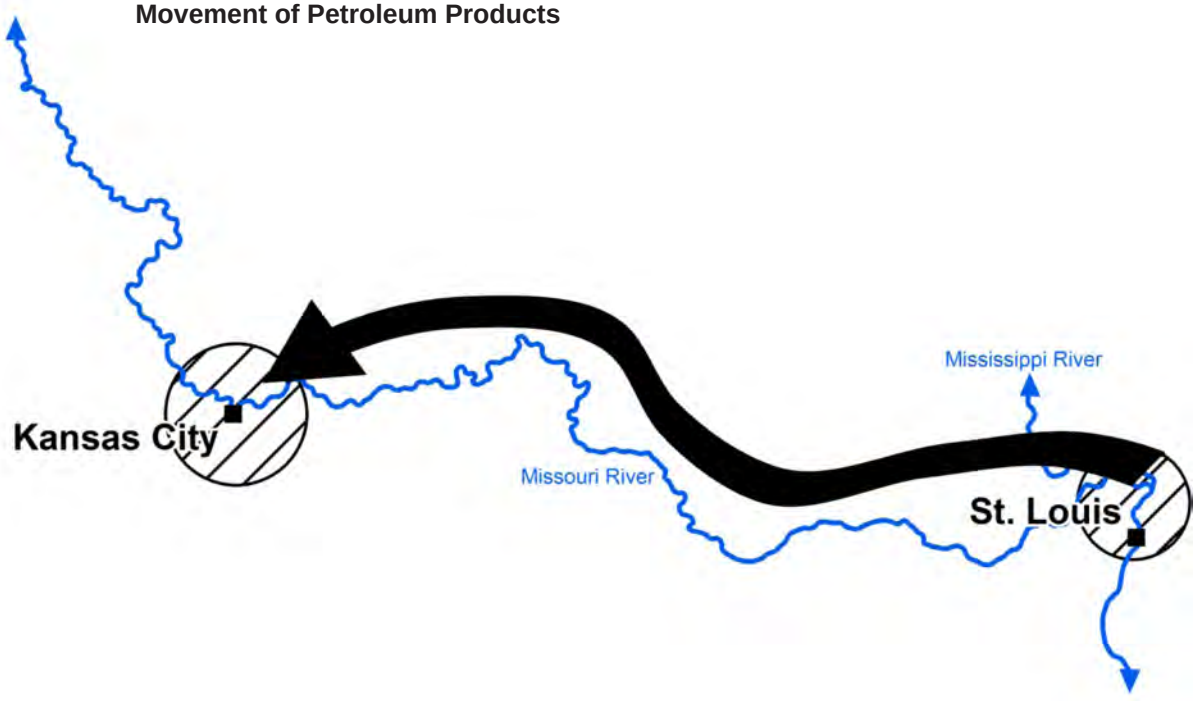
Missouri Market Potential for Barge Movement

Commodity	2009 Barge Movements (tons)	MO Market Area Total Tonnage (est.)	Projected 5-yr Waterborne Market Growth (tons)	Percent Increase (%)
Petroleum Products	119,856	138,000	18,000	13.0
Gravel & Crushed Stone	116,920	*	*	*
Natural Sand	4,600,000	5,900,000	1,300,000	22.0

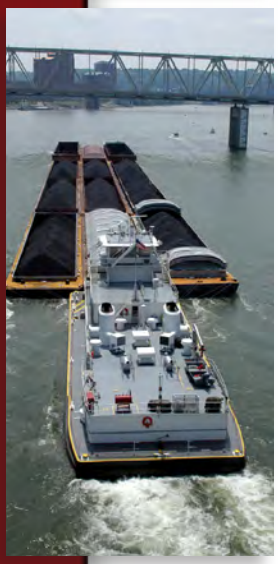
*Market and growth for gravel and crushed stone are dependent on the USACE budget and the overall freight activity on the Missouri – which dictates the level of federal support.

- Total market demand for sand and petroleum commodities can be expected to increase with an improving economy – perhaps beyond what is indicated above for projected growth.
- If the existing waterborne asphalt movements changed to land, it would result in a landside increase of nearly 5,400 trucks on Missouri highways.
- Considering that approximately 5 million tons of dredged material moves annually, it is obvious that this tonnage is an important contributor with other freight cargoes on the Missouri River when calculating the critical “ton miles” as a measure of utilization. The one-billion ton-mile threshold is what dictates the level of federal support allocated to Navigation on the Missouri.

Movement of Petroleum Products



Emerging Markets – Waste Scrap Metal & Coal

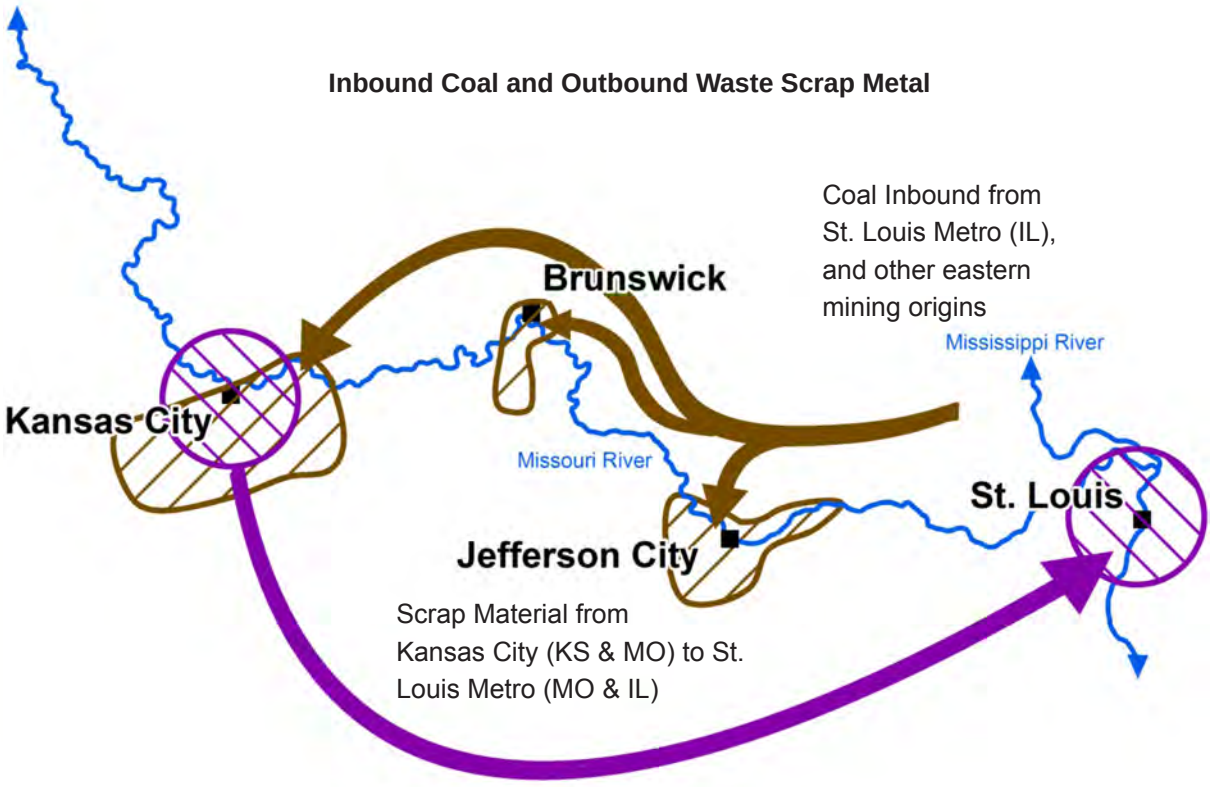


Missouri Market Potential for Barge Movement

Commodity	MO Market Area Total Tonnage (est.)	Tonnage Shift (tons)	Percent Shift (%)
Waste Scrap Metal	335,000	100,000	29.9
Coal	250,000	114,000	45.6

- Scrap metal represents a market of significant potential and transportation cost savings from the Kansas City region to mini-mills and export destinations.
- Mini-mills represent 50% of U.S. steel production and are estimated to require more than 14 million tons of scrap each year.
- Scrap export volume remains high due to demand in developing countries. Direct scrap shipment from Kansas City will permit continuous shipment from the origin to the ultimate destination without intermediate re-handling to other transport – resulting in transportation savings.
- Coal destinations include power plants in central Missouri. Transportation savings of moving coal by barge instead of truck could be significant, potentially supporting lower overall energy costs. These plants might be best served by Missouri River terminals located at Chamois, Jefferson City and/or the Brunswick/Miami area.

Inbound Coal and Outbound Waste Scrap Metal



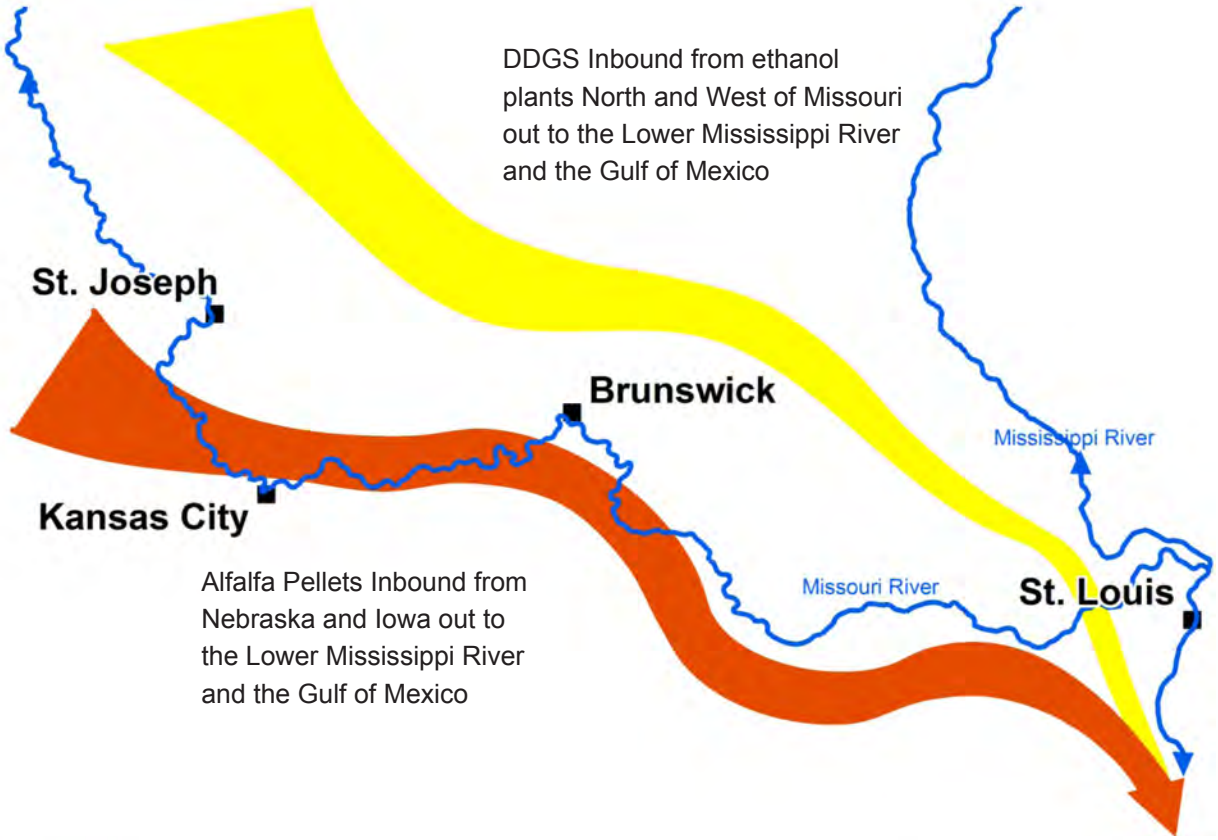
Emerging Markets – Dried Distillers Grains & Alfalfa Pellets

Missouri Market Potential for Barge Movement

Commodity	MO Market Area Total Tonnage (est.)	Tonnage Shift (tons)	Percent Shift (%)
DDGS	790,000	50,000	6.3
Alfalfa Pellets	150,000	50,000	33.3

- Dried Distillers Grains with Solubles (DDGS) is an emerging market with growing demand and supply in close proximity to the Missouri River.
- DDGS primarily moves to domestic and export markets by rail and truck, but barge is gaining in market share. A modest penetration potential of 50,000 tons (5% of current market size) in bulk is projected for Lower Mississippi River (LMR) export. Significantly more is possible.
- DDGS also moves in increasing numbers in containers which creates a transload potential for the Kansas City region, moving product in high volume between barge and containers, with subsequent Container-on-Barge potential to the (LMR) and world markets.
- Alfalfa pellet volumes are price sensitive with other growing regions. Like other similar crops, large volumes have responded rapidly to the market place during periods of strong pricing advantage. One of the key components of pricing advantage is transportation, and water transportation can result in significant cost savings over other modes.

Inbound and Outbound DDGS and Alfalfa Pellets



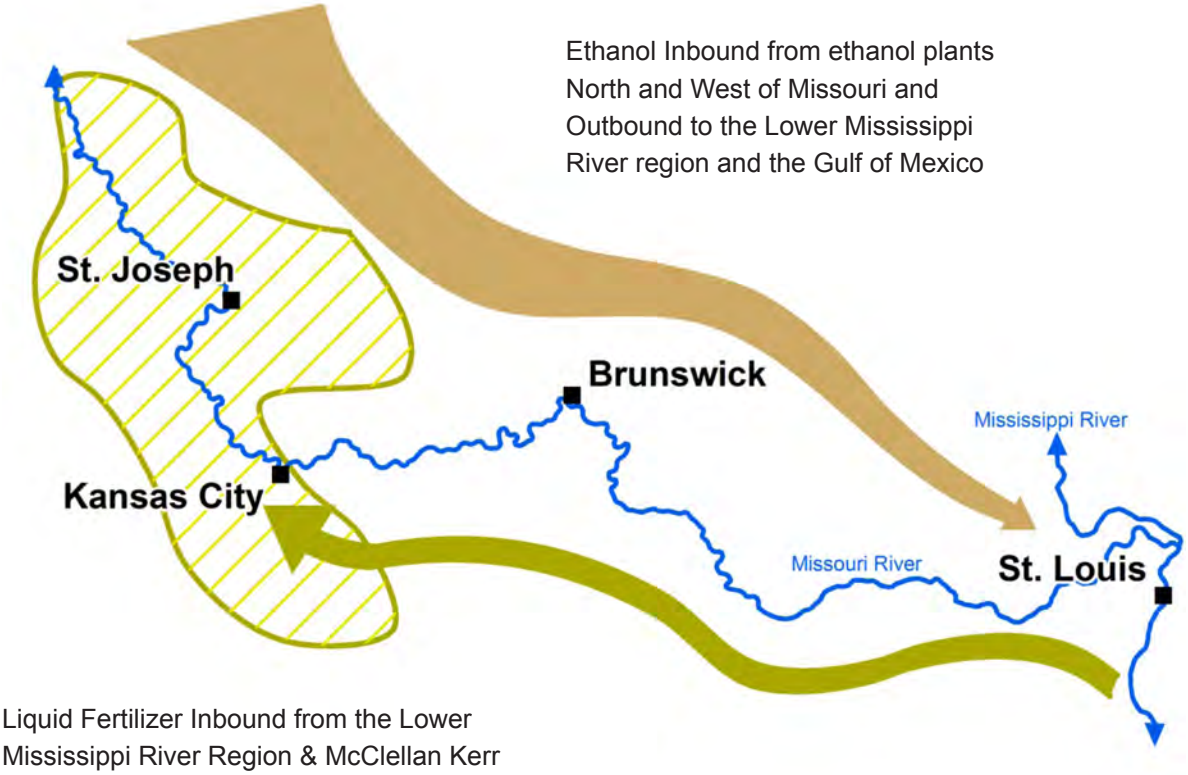
Emerging Markets – Liquid Fertilizer & Ethanol

Missouri Market Potential for Barge Movement

Commodity	MO Market Area Total Tonnage (est.)	Tonnage Shift (tons)	Percent Shift (%)
Liquid Fertilizer	150,000	50,000	33.3
Ethanol	763,802	63,100	8.3

- The Liquid Fertilizer market could shift back to water with appropriate infrastructure development and throughput capacity similar to the way the business model was structured in the past.
- Liquid Fertilizer origins from the Lower Mississippi River and the McClellan-Kerr system take advantage of both foreign and domestic producers.
- Ethanol as an emerging market is mainly distributed by truck and rail with some transportation opportunity with barge; plants near the Missouri River can change the supply chain and potentially reduce transportation cost and increase destination options.
- Ethanol destinations include major refining complexes and blended product demand distribution centers, which frequently have waterway access.

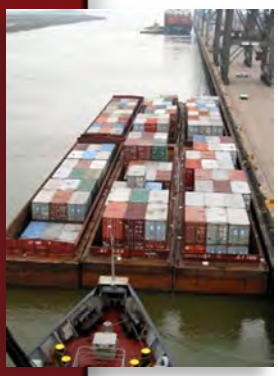
Inbound Liquid Fertilizer, Inbound and Outbound Ethanol



Ethanol Inbound from ethanol plants North and West of Missouri and Outbound to the Lower Mississippi River region and the Gulf of Mexico

Liquid Fertilizer Inbound from the Lower Mississippi River Region & McClellan Kerr Arkansas River Navigation System

Emerging Markets – Marine Highway Container-on-Barge



Marine Highway Container on Barge (COB)

COB Benefits	Current COB Challenges	COB Strategies
Can maximize weight capacity	Availability of containers	Develop ocean carrier support
Can maximize cubic capacity	Total transit time	Create scheduled service with multi-barge tows
Shallow draft operations	Supply chain perceptions	Improve navigation reliability
Can lower transport cost	Inland terminal capabilities	Appropriate terminal upgrades
Lower fuel consumption		Consider start-up incentives
Improved public safety		Marketing & sales
Environmentally friendly		Advocacy

- Potential for immediate Container on Barge movement may include empty container repositioning. These movements could originate from the Kansas City market and ship to destinations that have demand for empties to fill with exports: Memphis, Baton Rouge and potentially Minnesota.
- Container on Barge service is supported by open hoppers and could provide backhaul prospects should coal or project cargoes develop as inbound freight to the system.
- Opportunity for moving loaded containers on the Missouri River could be supported once sufficient terminal capacity is developed in Kansas City in combination with transloading of specialty agricultural grains and DDGS.
- Container on Barge could move in a market with scheduled weekly service of multiple barges at maximum weights for shipper freight cost advantages. The initial 5-year estimate includes a potential 70,000 tons annually.

The M-55 and M-70 Marine Highway provides a 1,400 mile unencumbered transportation corridor between ocean routes at New Orleans, LA to Kansas City, MO, thus alleviating five distinct state DOT permit jurisdictions, eliminating bridge clearance constraints, improving public safety and resulting in numerous environmental benefits.

Emerging Markets – Marine Highway Over Dimensional Over Weight Cargos

Marine Highway Over Dimensional Over Weight Cargos (ODOW)

Number of ODOW Moves on Missouri Highways	Estimated Market size	Estimated Market Penetration in 5 Years
140,000 per year	12,500 per year	40% penetration = 20,00 tons (potentially 1,000 barge movements per year)

- The cargo types moving on the highways that could move on the water include metal shapes, coolers & chillers, cylindrical tanks of all types, military equipment and wind energy components to name just a few.
- The market volume could be expected to increase as freight capabilities develop and new routes are established.

Initial market analysis of ODOW truck movements in and through Missouri indicates that 12,500 movements on I-29, I-70, and I-55 may be shiftable to the Marine Highway. The origins and destinations are compatible, and the cargo types could move by barge.

Contact information for Missouri River Freight Movement

Active Missouri River Barge Carriers and Other Carriers Who Have Expressed Interest in Missouri River Freight Growth

- **AEP River Operations**
  Terry Moore • 636-530-2490
  tmmoore@aepriverops.com
- **AGRIServices of Brunswick, LLC**
  Kevin Holcer • 800-279-4229
  kevin@agriservices.com
- **American Commercial Lines**
  Janice Luchan • 502-751-9441
  Janice.Luchan@aclines.com
- **ARTCO Barge Line**
  Kevin Van Meter • 217-424-5556
  K_vanmeter@admworld.com
- **Capital Sand Company**
  Ray Bohlken • 573-634-3020
  rbohlken@capitalsandcompany.com
- **Celtic Marine Corp.**
  Tim Klein • 773-774-2569
  tklein@celticmarine.com
- **Excell Marine**
  Gordon Pulzke • 513-792-9291
  gputzke@excellmarine.com
- **Heartland Barge**
  Doug Halbert • 618-281-451
  Doug.halbert@heartlandbarge.com
- **Hermann Sand and Gravel, Inc.**
  Steve Engemann • 573-220-4908
  steve@hermannsand.com
- **Holiday Sand & Gravel**
  Mike Odell • 913-438-0240
  mike.odell@hollidaysand.com
- **Ingram Barge Co.**
  Gene Shiver • 618-344-2875
  gene.shiver@ingrambarge.com
- **Jantran, Inc.**
  John Janoush • 662-759-6841
  john@jantran.com
- **Lewis and Clark Marine, Inc.**
  Paul Wellhausen • 618-876-1116
  pwellhausen@lewisandclarkmarine.com
- **Limited Leasing Co.**
  Terry Bangert • 636-665-5180
  stcharlessand@yahoo.com
- **Magnolia Marine Transport Company**
  Lester Cruse • 601-629-6652
  lester.cruse@ergon.com
- **McDonough Marine Service**
  Ron White • 281-452-5887
  ronwhite@marmac.net
- **Osprey Line, LLC**
  Charles Duet • 504-569-2166
  charles.duet@ospreyline.com

Missouri River Public Port Authorities

- **Howard/Cooper County Regional Port Authority**
  Roy Humphries • 660-882-5858
  howcoop-port@sbcglobal.net
- **St. Joseph Regional Port Authority**
  Brad Lau • 816-232-4461
  blau@saintjoseph.com
- **Port Authority of Kansas City**
  Michael Collins • 816 559-3721
  mcollins@kcportauthority.com
- **Missouri Port Authority Association**
  Sherrie Turley • 888-667-6787
  Sherrie.Turley@modot.mo.gov