Transportation and Agriculture

- Transportation creates time and place utility
- Creation of markets…...and value that otherwise would not exist
- As farm productivity and technology improves, the need for an efficient transportation system increases

That efficiency depends on all transportation modes:

- Truck
- Barge
- Rail
- Ocean
- Pipeline

Freight Transportation Services Index and Real GDP ($ billion)
Bigger Crops . . . Something to Move

Composition of Crop Production

- Corn
- Soybeans
- Wheat
- Sorghum
- Barley
- Oats

Million Bushels

Crop Year

... Someplace to Go: Top Destination Markets for Corn and Soybean Exports

Corn Exports (Past 5 Years)

- Japan: 15%
- Mexico: 30%
- South Korea: 2%
- China: 5%
- Egypt: 3%
- Colombia: 8%
- Venezuela: 2%
- Taiwan: 1%
- Saudi Arabia: 3%
- Other West Hemis.: 1%
- All Other: 10%

Soybean Exports (Past 5 Years)

- China: 67%
- EU-27: 2%
- Mexico: 5%
- Japan: 7%
- Indonesia: 7%
- Egypt: 3%
- Taiwan: 3%
- South Korea: 6%
- Canada: 3%
- Turkey: 1%
- All Other: 1%
Grain Export Flow Patterns by Port Range
Highways / Bridges
Strong Truck Freight Demand

**Year over Year % Change in Revenue Per Loaded Mile**

**Year over Year % Change in Originated Truck Freight**

**Truck Driver Surplus / Deficit**

Source: FTR Associates

Year and Quarter
Funding Highway Needs

**Roads / Highways:**

- 32% of major roads are in poor or mediocre condition
- 42% of major urban highways are congested

- Estimated cost to maintain at existing condition: $101 billion capital investment / year
- Estimated cost to improve highway conditions: $170 billion / year

- Total Federal, State and local spending on highway capital investments: $91 billion / year

Source: American Society of Civil Engineers, 2013 Report Card for America’s Infrastructure
Funding Bridge Needs

Bridges:

- 11% (one in nine) are structurally deficient
- 25% are functionally obsolete
- Average age is 42 years old
- 30% of bridges have exceeded their 50 year design life

- FHWA estimates costs to repair or replace deficient bridges $76 billion
- FHWA estimates in order to eliminate bridge backlog by 2028, would require about $20.5 billion / year, current investment is $12.8 billion / year

Source: American Society of Civil Engineers, 2013 Report Card for America’s Infrastructure
Highway Trust Fund Shortfall

Receipts, Outlays, and Balance or Shortfall for the Highway Trust Fund Under CBO’s April 2014 Baseline

(Billions of dollars)

Highway Account

Outlays³

Receipts²

End-of-Year Balance or Shortfall

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Funding Highway Needs

- Over the past 10 years, Highway Trust Fund outlays have exceeded revenues by $52 billion dollars (typically from the General Fund)
- That gap is projected to reach $167 billion dollars over the next 10 years

State Alternatives:
- **Raise Taxes**
  - Raise state fuel tax at the pump (MD, WY, MA, VY, NH) or wholesale (PA)
  - Dedicated sales taxes (VA, AK)
- **Issue Public Bonds**
  - Repaid on toll revenues (OH, MA)
- **Long-Term Loans**
  - Transportation Infrastructure Finance and Innovation Act (TIFIA)
    - Requirements: Total cost > $50 million (bundle projects) >25 million in rural areas (rural areas are eligible for interest rates ½ those in urban areas)
Barge and Inland Navigation
Strong Barge Freight Demand

Weekly Grain Barge Movements through Key Locks and Dam

- 2012/2013
- 2013/2014
- 2014/2015
- 5-Yr. Ave.

Weekly Soybean Barge Movements through Key Locks and Dam

- 2012/2013
- 2013/2014
- 2014/2015
- 5-Yr. Ave.

SOURCE: Army Corps of Engineers

Weekly Upbound Loaded Barges
Mississippi River Lock 27

Weekly Upbound Loaded Barges
Ohio River Lock 52
Barge Freight Rates High

Illinois River Barge Freight Rate (percent of tariff) by Crop Year (Sep/Aug)

St. Louis Barge Freight Rate (percent of tariff) by Crop Year (Sep/Aug)

Cairo / Memphis Barge Freight Rate (percent of tariff) by Crop Year (Sep/Aug)

Lower Ohio Barge Freight Rate (percent of tariff) by Crop Year (Sep/Aug)
Funding Inland Navigation

Freight Backbone:

- Inland river navigation represents 12,000 miles, 200 locks
- 566 million tons of freight per year, $152 billion in value

Inland Waterways Trust Fund:
- Generates about $85 million per year (20 cent fuel tax on barge operators)
- Estimated total capital investment needs over next 20 years: $18 billion or $900 million per year
- If Federal funding continues at existing levels, the 22 planned major construction and rehab projects won’t be completed until 2090
Rail
Rail Capacity Constraints

U.S. Weekly Average Train Speed

U.S. Weekly Average Grain Train Speed

U.S. Weekly Average Terminal Dwell Time

Source: American Association of Railroads
Rail Car Backlog: November 12, 2014

Total Outstanding Grain Car Orders
As of Nov. 12, 2014

- 0
- 1 - 13
- 14 - 35
- 36 - 66
- 67 - 153
- 154 - 307
- 308 - 488
- 489 - 822
- 823 - 1,244
- 1,245 - 5,890

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Increased Crude Carloadings

Weekly U.S. Class I Carloadings of Petroleum and Production of Crude Oil

U.S. Class I Non-Metallic Minerals Carloadings

U.S. Class I Intermodal Units Originated
Soybean Crush and Crude Oil Infrastructure
Key U.S. Shale Basin Activity and Refinery Infrastructure

1.2 million barrels = 1,714 tank cars or 15 unit trains / day
4 - 5 thousand tons sand / well = 80 unit trains to Bakken

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Long Term Outlook

- Class I railroads addressing capacity constraints with investments in labor, equipment and track

- Funding highways / bridges still an issue, particularly for rural America

- Failure to make adequate investments in locks / dams and maintain barge freight system poses significant risks of lock/dam failure
Action Items

- Global U.S. Grain Export Competitiveness Study

- Grain Market Optimization Assessment Tool
  ◊ Evaluate Issues
  - Rail rate spikes and service disruptions
  - Lock and dam closures
  - Facility expansion/contraction (new export terminals, shuttle facilities, etc.)
  - Regional production impacts (drought or flood impacts)
  - Government policy changes (truck weight limits, hours of service, etc.)

- Panama Canal Expansion Impacts

- Long-Term Container Port Changes and Impacts to Agriculture
Overview of U.S. Agriculture Transportation Issues

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