FUNDING THE FUTURE SURFACE TRANSPORTATION SYSTEM: THE IMPACT ON AGRICULTURE

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11/24/2010

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The Texas A&M University System
College Station, Texas 77843

December 2010

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SECTION 1 - INTRODUCTION

Agricultural commodities are often produced seasonally and typically the production is dispersed across wide geographic regions. Moving these commodities from thousands of farms over thousands of miles require the use of several transportation modes, mainly truck, rail, and barge, through a vast transportation network of highways, rail lines, and the waterway system. The network also includes warehouses, distribution centers, and the street network for final distribution to the consumer.

The transportation network used to handle agricultural products from the farm to final destination in the U.S. or the export locations is funded by public sector funding mechanisms. All levels of government—federal, state, and local—are failing to keep pace with the demand for transportation investment. Therefore several mechanisms are being sought to identify new and innovative sources of funding to solve the growing transportation infrastructure investment deficit. These potential funding mechanisms that are being analyzed will have an effect on the agricultural industry, as transportation costs play an important role in competitiveness of the U.S. producers.

The objective of this project is to analyze the various funding options that are being explored, responding to funding deficits, and define the potential ramifications from funding options to the agricultural sector, with special emphasis on the soybean industry.

The second section of the report discusses the export supply chain, and the third section of the report presents an overview of current funding mechanism for America's surface transportation system, and the additional amount of funding necessary to upgrade the U.S. surface transportation system. This section also summarizes the leading financing proposals at the national level. The fourth section discusses the point of charge and periodicity of the proposed financing mechanisms. The fifth section documents macro level flows in the soybean and corn industry from various public and private data sources and also presents various statistics in regard to the industry. Sections 6, 7, and 8 develop the analysis at the macro level. In an effort to complement the macro analysis and document the effects on the producer side of the soy and corn industry, the Sections 9, 10, and 11 develop the analysis of finance proposals for the Iowa corn and soybean crop reporting districts based on an exhaustive study conducted by Iowa State University in 2009. Section 12 presents impacts based on survey level information compiled from a convenience sample of grain handlers, corn and soy processors. The final section is comprised of conclusions as developed from the three tiered approach.

SECTION 2 - SOYBEAN SUPPLY CHAIN

The task of transporting numerous agricultural commodities from millions of farms over thousands of miles of rural and interstate roadways, and railroads and waterways to thousands of warehouses and processors and ultimately to domestic retail markets, and to ports and finally to foreign destinations in a timely and efficient manner is a daunting task. There are various stakeholders that participate in this supply chain from production to final destination, and transportation costs play an important role on the decisions on the transportation mode.

The following figure presents the flow of product from the grower to the final destination that could be within the U.S. or to export. The diagram shows the typical transportation modes used to move product from in each stage of the process.

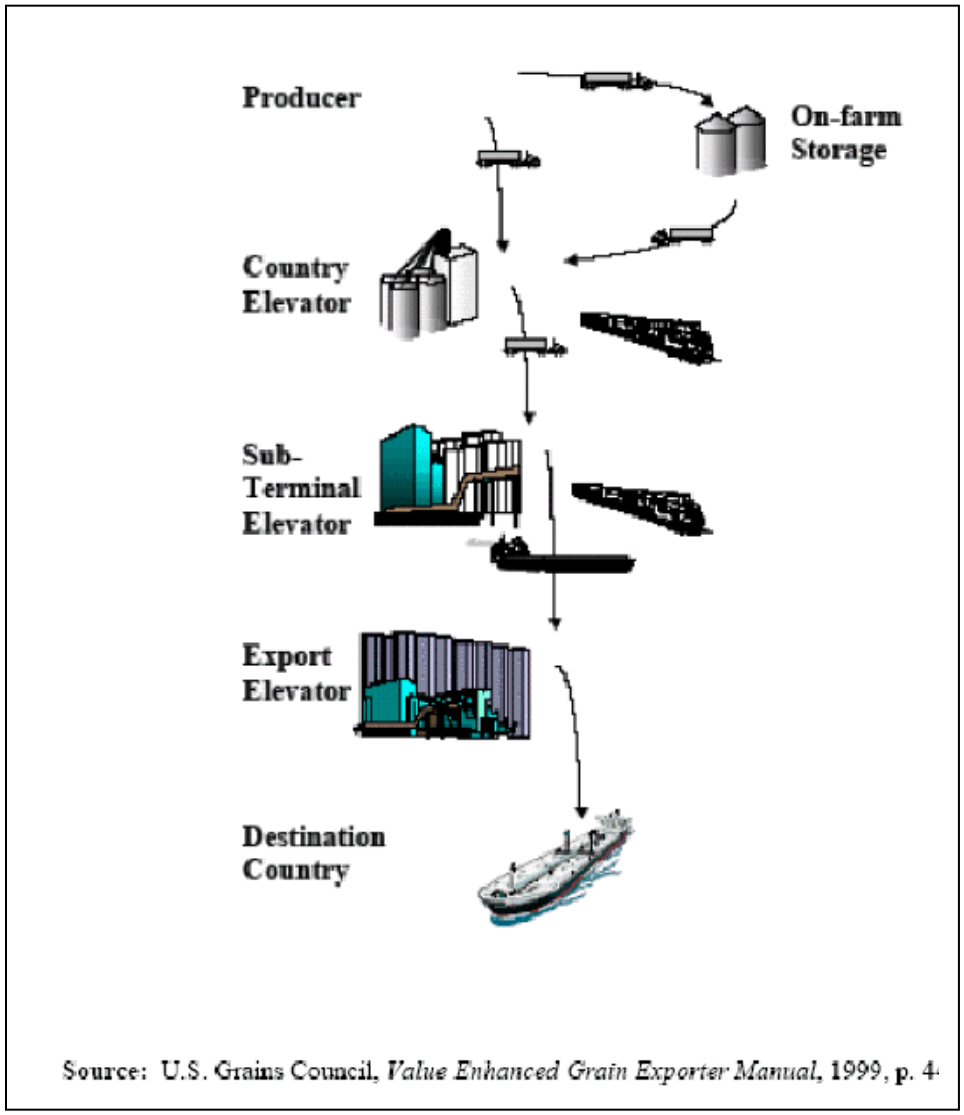

Figure 1. Grain Export Supply Chain.

Stakeholders in the Chain

The different stages of the soy export chain include the following stakeholders. Domestic moves involve other stakeholders.

Grain Farm/Grower/Producer
The farm is where soybeans are planted, grown, and harvested by farmers. Usually the grower delivers soybeans to their customers, which are usually an elevator by truck, and the grower owns and drives its own trucks.

Country Elevators
The country elevators purchase soybeans from farmers, store it, and sell it to other firms. At the country elevator, raw soybean first enters commercial channels. Country elevators also provide farmers with input supplies and services, such as seed and fertilizer. These facilities are usually served by truck for soybean coming from the farm, and outgoing grain is moved by rail or barge.

Terminal Elevators
These facilities are major grain collection points, typically located on main rail lines and/or rivers in larger cities. Terminal elevators often receive soybean from country elevators and move it by rail or barge to export or processors.

Export Elevators
Sell and ship grain and oilseeds to markets in foreign countries via ship.

Corn and Soybean Processors
The processors grind the soybean to extract the oil and meal. Meal products include livestock and poultry feeds, as well as premixes and concentrates, while oil products include margarine, cooking oil, etc. Both meal and oil products are transported from the processor to distribution centers and warehouses by truck.

Even though soybeans are transported by truck, rail, and barge, truck is the dominant mode and has gained share from the railroads. Truck share of tons of grain transported rose from 30% in 1980 to 48% in 2004, while rail share fell from 50% to 35% in the same time period. The barge share fell from 21% to 17%.[1] For soybeans moving domestically, the truck share is 81% of the 2000 to 2004 traffic, while rail captured 16% within the U.S., and barge handled 3%.[2] The USDA reports that the higher truck usage in the agricultural sector is due to an increase in local processing of grain, as well as increase tendency of farmers to purchase commercial vehicles for their own use. Given that truck is the most important transportation mode and that railroads in the U.S. are operated and maintained by the private sector, the analysis of funding mechanisms will concentrate on the highway sector, where trucks operate.

[1] Association of American Railroads, Policy Economic Department, The Rail Transportation if Grain, Volume 5, July 2008.
[2] U.S. Department of Agriculture, Agricultural Marketing Service, Transportation of U.S. Grains A Modal Share Analysis, 1978–2004, October 2006.

SECTION 3 - SURFACE TRANSPORTATION SYSTEM FUNDING MECHANISMS

The grain industry's competitiveness in the world market depends on an efficient and reliable freight transportation system. In 2004, expenditures for highway, freight rail, and water transportation infrastructure in the U.S. were $75.6 billion, including public and private sector expenditures.[3] Highways received $66.7 billion in investments from the federal, state, and local governments, while freight railroad's investment was from the private sector and amounted to $6.4 billion. Ports, harbors, and inland waterways received a total of $2.5 billion, with $1.7 billion coming from state and local governments (Figure 2).

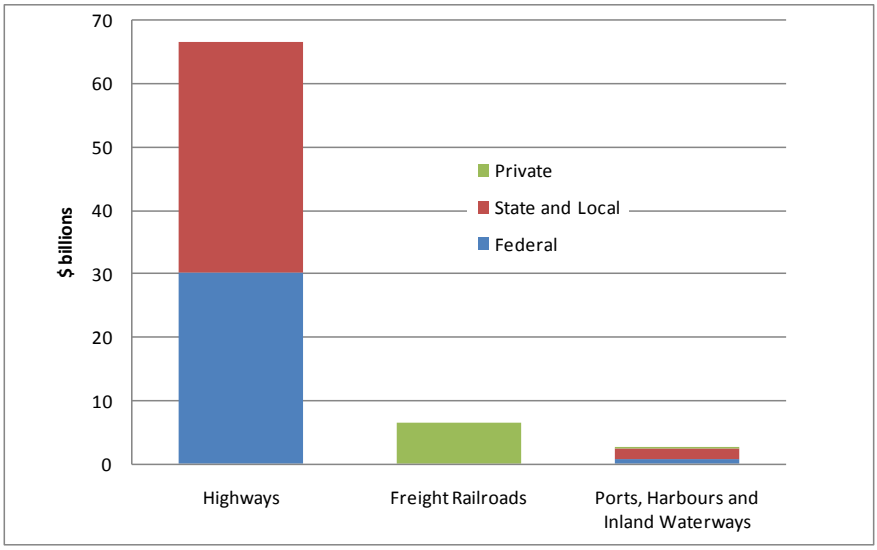

Figure 2. Capital Expenditures for Freight Transportation Infrastructure.

Most highways serve passenger and freight traffic, and therefore it is not straightforward to allocate costs between passenger and freight traffic on the highway system. Highway agencies receive between 20% and 25% of highway user tax revenue from operators of large trucks, and truck traffic has a major impact on highway maintenance and new infrastructure.[4]

Close to 90% of the total expenditures in transportation infrastructure for the three main modes used by the grain industry is for highways. Rail infrastructure is funded by private sector rail operators and inland waterway's expenditures are less than 4% of the highway ones. These facts and the increased use of truck by the grain industry to move their products, support the idea of concentrating the discussion of funding mechanisms for highway infrastructure in the following section.

[3] Congressional Budget Office, Current and Future Investment in Infrastructure, May 2008.
[4] Federal Highway Administration, Highway Statistics, 2007.

Current Funding Structure

Funding for highway projects comes from a variety of local, state, and federal funding sources. The main source of funding for highways comes from the federal highway bill. The Safe, Accountable, Flexible and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) was signed into law in August 2005. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005–2009.[5] After the expiration of the federal highway and transit programs legislation on, September 30, 2009, it has been operating on a series of short-term extensions.

The federal highway bill provides spending authorizations and the annual funding level is generally tied to receipts of highway user taxes, which are placed in the Highway Trust Fund (HTF). The HTF is the mechanism by which the federal government provides resources to states for highway investments, and in 2007 it provided close to 90% of the federal transportation funding. The rest of the funding comes from appropriations from the General Fund of the U.S. Treasury.[6] The HTF was authorized in 1956 to account for the collection of certain federal highway user taxes on motor fuels and vehicles and to ensure a dependable source of funding for the National Interstate Highway System. Since the original authorization in 1956, the HTF has been extended and tax rates increased. The most recent extension was by the SAFETEA-LU, which extended the imposition of taxes and the transfer of the taxes to the HTF through September 30, 2011.[7]

The large majority of the HTF revenues come from federal excise taxes on highway motor fuels. Gasoline and other fuels contributed 65% in 2008, while diesel taxes contributed with 27%. These two categories combined account for more than 90% of the total revenues, with the rest from retail tax on trucks (truck sales), highway-type tires and heavy vehicle use tax (truck use) (Figure 3).[8]

[5] U.S. Department of Transportation, Federal Highway Administration, SAFETEA-LU http://www.fhwa.dot.gov/safetealu/index.htm.
[6] Office of Management and Budget, Budget of the United States Government, Fiscal year 2009.
[7] U.S. Department of Transportation, Federal Highway Administration, Financing Federal-aid Highways, Publication No. FHWA-PL-07-017, March 2007.
[8] U.S. Treasury, FY 2008 Highway Consolidated Report.

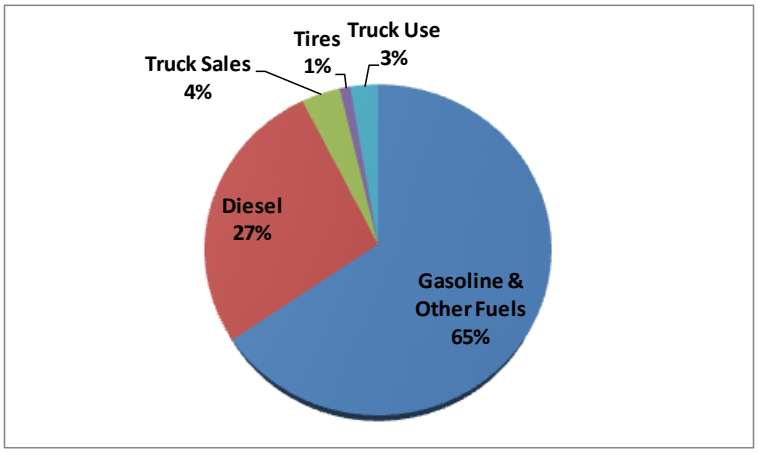

Figure 3. Highway Trust Fund Revenues.

Table 1 presents the current HTF rates and the average yields between 2007 and 2008. The largest yield comes from the motor fuel taxes. For each 1 cent per gallon of gasoline tax the fund receives close to $1.4 million per year, and a tax of 1 cent per gallon of diesel yields more than $400 million per year.

Table 1. Highway Trust Fund Rates and Yields.

Source	Current Rate	Average Yield (2007–08) ($ millions)
Gasoline & Other Fuels	18.3 ¢/gal	1¢/gal = $1,386
Diesel	24.3¢/gal	1¢/gal = $425
Truck Sales	12.0% on retail sales	1% = 219
Tires	9.45 ¢/100 lb capacity	1¢/100 lb = $45
Truck Use	$100 + $22/1,000 lb	$10 + $2.2/1,000 lb = $103

Source: Report of the National Surface Transportation Infrastructure Financing Commission, February 2009

The federal government and states view fuel taxes as an attractive revenue source for highway construction and maintenance. This is because these taxes are somehow linked to the use of the highway system, and historically revenues have been relatively stable and predictable. The system has been in place for many years, therefore the costs to administer the programs to collect fuel taxes are low.

However, there have been some changes in the transportation system that have eroded the revenue from these taxes. One of them is the disparity in vehicle fuel economy, which tends to make the fuel tax less equitable, and another factor is that future vehicle fuel economy is predicted to increase, thereby reducing fuel tax revenues for each vehicle mile traveled (VMT).[9]

The U.S. Energy Information Administration, in its Annual Energy Outlook 2010, produced a forecast of VMT for Light Duty Vehicles (<8,500 lb), Commercial Light Trucks (8,500 to

[9] U.S. Department of Transportation, Federal Highway Administration, The Future of Highway Financing, Innovative Financing Series: Article 3, Publication Number: FHWA-HRT-05-001.

10,000 lb), and Freight Trucks (>10,000 lb).[10] Between 2007 and 2009, there was a decline in the VMT for all three vehicle types, and for the long term it is expected that VMT will grow at an average rate of 1.5 to 1.7% between 2007 and 2035 (Figure 4). VMT growth in the long term is expected to be relatively low and driven by population and economic growth and changes in land use patterns toward "smart growth" in urban areas.

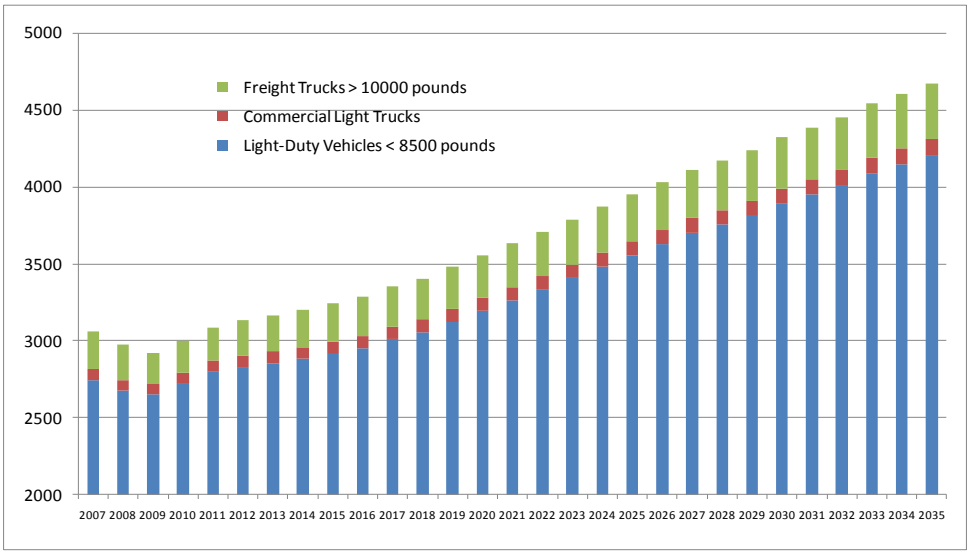

Figure 4. Projected Travel Indicators (Billion Vehicle Miles Traveled).

The other element that drives revenue for transportation funding, other than VMT is vehicle fuel efficiency. The U.S. Energy Information Administration estimates that the "compliance new light duty vehicle"[11] will have a fuel efficiency of 40 MPG by 2035. Heavy freight truck's efficiency will also improve but not at the same pace as light duty vehicles (Figure 5). These estimates assumes that there is no major change in fuel efficiency technology or a strict public policy to reduce greenhouse gases that could make the change to more efficient vehicles move faster.

[10] U.S. Energy Information Administration, Independent Statistics and Analysis, Annual Energy Outlook 2010: Transportation Sector Key Indicators, http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html.
[11] Includes CAFE credits for alternative fueled vehicles sales, but does not include banked credits.

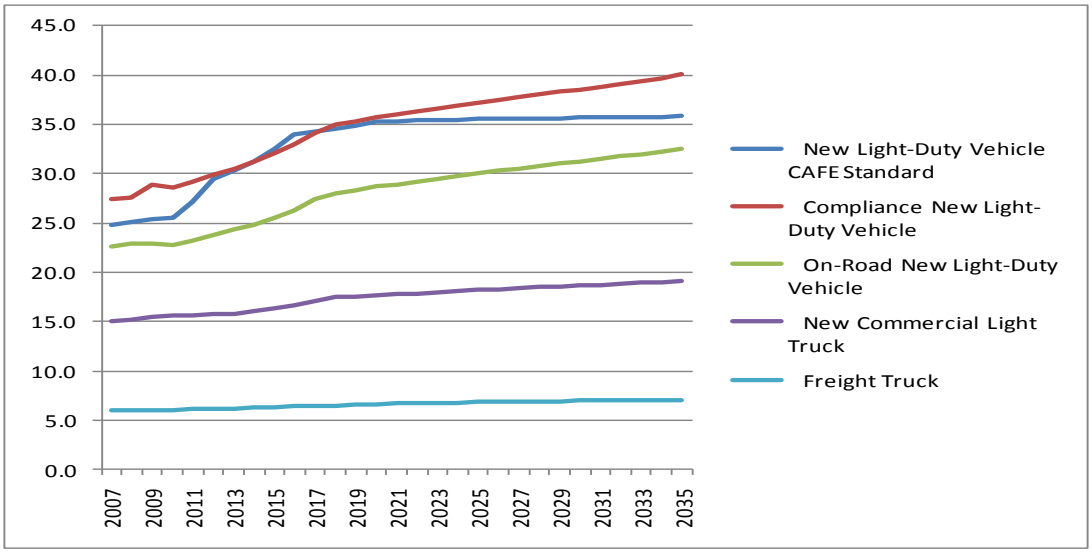

Figure 5. Projected Vehicle Fuel Efficiency (Miles per Gallon).

Between 1998 and 2006, the total VMT increased over 48%, while the total annual spending on highways by all levels of government increased only 38%.[12] Costs to maintain or to improve the transportation infrastructure are increasing. The gap between revenues and costs is described in the next section.

Funding Gap

Several analyses have been produced to estimate the funding gap of the transportation system in the country. The most recent one was produced by the National Surface Transportation Infrastructure Commission in a report entitles "Paying Our Way: A New Framework for Transportation Finance" that was published in February 2006. In this report, the Commission reported two different scenarios. The first scenario comes from the National Cooperative Highway Research Program (NCHRP) study[13] that updated cost estimates produced by the U.S. Department of Transportation Conditions and Performance (C&P) Report.[14] The C&P report was based on 2004 data and was released in 2007. The NCHRP study revised inflation assumptions to account for higher-than-expected construction costs in recent years. These adjusted figures were converted to 2008 dollars.

The second scenario comes from the National Surface Transportation Policy and Revenue Study Commission, that developed a series of estimated of capital investment in its 2008 final report.[15] This study developed medium and high estimated of capital investment needs using the same analytical tools used in the C&P report.

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[12] U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2006.
[13] Cambridge Systematics, Mercator Advisors, Alan Pisarski, and Martin Wachs, *Future Financing Options to Meet Future Highway and Transit Needs*, NCHRP 20-24(49), 2006, http://www.trb.org/Main/Blurbs/Future_Financing_Options_to_Meet_Highway_and_Trans_158506.aspx
[14] U.S. Department of Transportation, Federal Highway Administration, 2006 Conditions and Performance Report, http://www.fhwa.dot.gov/policy/2006cpr/.
[15] Transportation for Tomorrow: Report of The National Surface Transportation Policy and Revenue Study Commission, 2008.

The Financing Commission took the two scenarios developed by the NCFRP and the Policy Commission and developed its own estimates. The estimates included a "Base Case Investment Scenario" and an "Alternative Investment Strategy." The Base Case Scenario assumes the federal share of highway and transit capital investment will be maintained at the 45% historical average. The Alternative Investment Strategy Scenario assumed a more aggressive implementation of road pricing coupled with greater use of technology that should result in more efficient investment.

The Infrastructure Commission prepared three different versions of capital needs and gap estimates based on the three reports mentioned earlier: a) the C&P 2006 update by the NCHRP Study, b) the Financing Commission Report, and c) the own Policy Commission Estimates.

All three estimates had a "Maintain Scenario" and an "Improve Scenario." Based on the comparison of needs and revenues, and assuming a federal annual revenue of $32 billion and state/local revenue level of $44 billion; the "Maintain Scenario" funding gap estimate ranges from $134 billion in the C&P 2006 NCHRP study to $194 billion in the Policy Commission analysis (Figure 6). For the "Improve Scenario," the funding gap estimate ranges from $189 billion in the C&P 2006 NCHRP study to $262 billion in the Policy Commission analysis (Figure 7). These calculations show that the gap ranges from a low $134 billion for the maintain scenario using the NCHRP 2006 estimates to a high value of $262 billion for the Policy Commission estimate under the improve scenario.

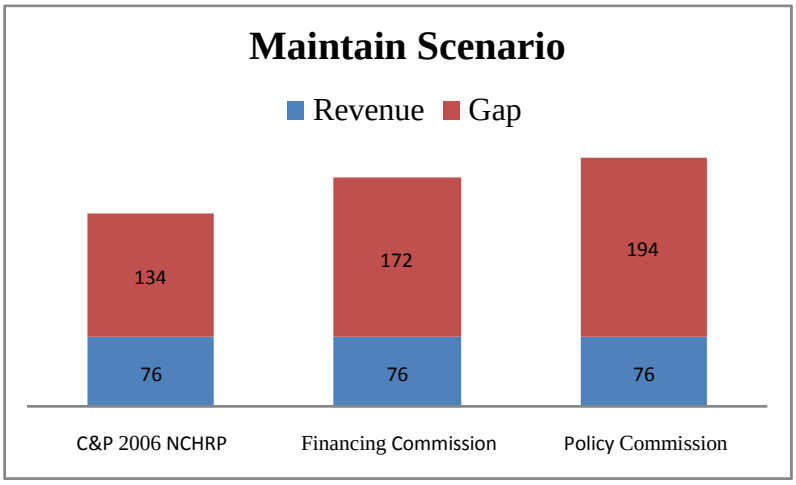

Figure 6. Average Annual Capital Needs and Gap Estimates for Federal, State, and Local Governments, 2008–2035 (2008 Billion Dollars) – Maintain Scenario.

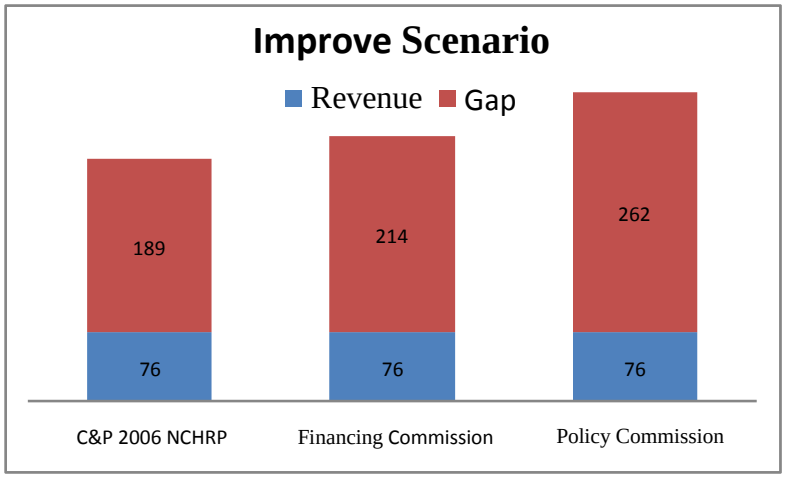

Figure 7. Average Annual Capital Needs and Gap Estimates for Federal, State, and Local Governments, 2008–2035 (2008 Billion Dollars) – Improve Scenario.

The various analyses show that regardless of the methodology that is used, all scenarios point to a difficult situation not only to cope with existing demand and maintain the system, but to invest in backlog infrastructure projects. The federal HTF faces great risks in the near future that require a long-term solution. The scenarios presented earlier show that current revenues cover 57% of the total needs under the best case scenario, and only 29% under the improve scenario.

Much of the risk referred to above can be seen in the Figure 8 below as VMT per capita continues to increase on an annual basis, while fuel used which is directly proportional to fuel tax revenue per capita decreases on an annual basis. (Note: The increase in annual fuel tax revenue per capita seen from 2010 to 2012 is due primarily to economic recovery.)

The VMT per capita forecast estimation was developed by TTI by analyzing historical vehicle miles traveled (1980 to 2008)[16], and historical population data (1980 to 2008).[17] Change in per capita miles over time were examined to produced an estimate of future VMT per capita that captured the general decrease in VMT per capita over time. This trend was then applied to annual estimate of VMT per capita.

Fuel usage forecasts were developed by dividing VMT projections by future fuel efficiency rates that were developed by Cambridge Systematics for the Texas Department of Transportation.[18]

[16] U.S. Federal Highway Administration Highway Statistics Series
[17] U.S. Census Bureau, Population Estimates and Projections Program
[18] Cambridge Systematics Inc., Accounting for Fuel Efficiency, Fuel Tax Revenue Estimations, January 2007

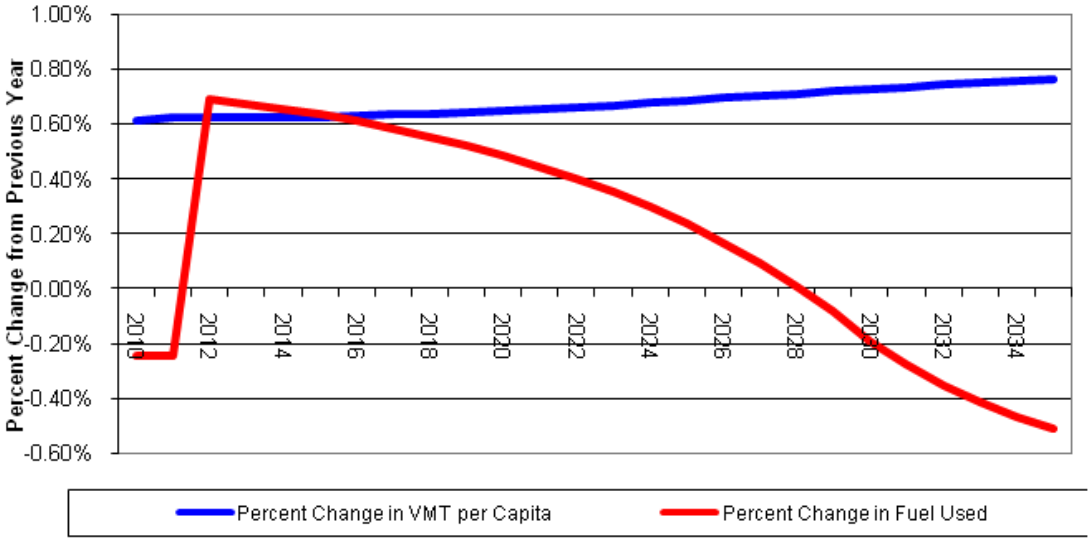

Figure 8. Percent Change from Previous Year in VMT per Capita and Fuel Tax Revenue per Capita.

The shortfall in revenues requires innovative forms to raise funds to compensate for increased construction costs and declining revenue due to more efficient vehicles and reduction in fuel used. The following section presents an analysis of the potential solutions that have been proposed to try to solve this problem.

Infrastructure Costs

One important element of the transportation infrastructure funding issue is the cost of building new infrastructure, and maintaining and operating the existing one. There are several factors that affect transportation infrastructure costs, and the most important one is the increase in prices of materials used to build infrastructure. A recently released report by Congressional Budget Office[19] concluded that between 2003 and 2007 the cost of highway and road construction increased by an average of 10% a year, compared with an average annual increase of 2.4% during the two decades preceding 2003. The cost of building other types of transportation structures increased 9% annually during that period, also a much more rapid rate of increase than had occurred in previous years.

Another element that is extremely important is not only the need to build additional infrastructure to cope with growing transportation demand, but also the massive investment backlog in the highway system. The backlog of investment requirements was estimated to be $430 billion in 2006, with approximately 80% of the backlog in urban areas. With the extensive increases in construction costs mentioned earlier, the investment backlog is considerably higher today.[20]

[19] Congressional Budget Office, Public Spending on Transportation and Water Infrastructure, November 2010.
[20] Cambridge Systematics, Inc. with Alan E. Pisarski, Bottom Line Technical Report: Highway and Public Transportation National and State Investment Needs, American Association of State Highway and Transportation Officials (AASHTO), March, 2009.

The General Accounting Office reported that unreliable initial cost estimates by state departments of transportation and other agencies contribute significantly to the cost growth observed on major highway and bridge project.[21] Some of the factors that create distinct challenges to the development of early and accurate project cost estimates include the following:[22]

- Difficulty in evaluating the quality and completeness of early project cost estimates.
- Difficulty in describing scope solutions for all issues early in project development.
- Difficulty in identifying major areas of variability and uncertainty in project scope and costs.
- Difficulty in tracking the cost impact of design development that occurs between major cost estimates.

These cost estimates could lead to cost overruns of infrastructure projects that have adverse consequences, including:

- Disruption of plans, postponing, or canceling scheduled projects to satisfy budgetary constraints.
- Reduction in project scope, resulting in projects that do not fully provide the service initially intended.
- Extension in construction duration until additional funds become available.
- The public losing faith in the agency's competency, or worse, trustworthiness.[23]

These elements that negatively affect costs of building and maintaining infrastructure, plus the reduction in revenues, produce a gap that is described in more detail in the next section of the report.

Leading Funding Proposals

In order to reduce the gap between projected funding for transportation projects and investment needs, several funding proposals have been analyzed. This section of the report describes the main funding proposals that could be implemented to reduce the gap between funding and investment needs. The funding proposals that are described in this section include the following:

1. Increase in gasoline and diesel tax.
2. VMT Tax.
3. Increased use of Tolling.
4. Establishment of a National Infrastructure Bank.
5. Increasing the per barrel fee on crude oil and imported gasoline and diesel.

[21] United States General Accounting Office, "Cost and Oversight of Major Highways and Bridge Projects—Issues and Options." Washington D.C., (May 8, 2003).
[22] Anderson, Stuart, Molenaar, Keith, and Schexnayder, National Cooperative Highway Research Program, Project 8-49. Guidance for Cost Estimation and Management for Highway Projects During Planning, Programming, and Preconstruction, NCHRP Report 574, Transportation Research Board, Washington, D.C., 2007.
[23] S. Alavi and M. Tavares, Project Cost Estimating and Management for the Montana Department of Transportation, February 2009.

6. Increasing the tax on heavy vehicles and other registration fees.
7. Transaction Taxes on Speculative Crude Oil Trading.
8. Increased Taxes on Containerized Shipping.

Each proposal is described, followed by the calculation on the range needed to reduce or eliminate the revenue gap.

Increase in Gasoline and Diesel Tax

As mentioned earlier, the tax on diesel and gasoline contribute with the largest amount to the HTF. The current rate is 18.4¢ per gallon for gasoline, gasohol, and special fuels, and 24.4¢ per gallon for diesel. These current rates have not been adjusted since 1993, when there was a 5¢ per gallon increase.

In order to eliminate the base case scenario gap, an increase in 4.2¢ per gallon will be required. To eliminate the $262 billion gap of the improve scenario, the tax on all motor fuels would need to be raised by 8.2¢ per gallon.

Vehicle Miles Travel Fees

This alternative is a fee applied to the user of roads. There are two different schemes: a fixed fee per mile or a variable fee that could be a function of several factors such as congestion level, time of travel, road type, vehicle emission levels, or type. There are several examples of this variable fee alternative already in operation. Germany established a system that charges a fee for trucks based on miles traveled, number of axles, and vehicle emissions. Fees are charged on main roadways and mileage is calculated with a global positioning satellite system (GPS) device that is installed in the vehicle.

A VMT fee charged on all roads of 2¢ per mile would be required to generate $134 billion in 2008 dollars, which is the gap under the maintain scenario. A fee of 4.41–4.9¢ per mile on all roads would be needed to close the gap and generate funding required to improve the system and it includes both federal and local components.

Increased Use of Tolling

Tolls on road facilities are usually applied by the state or local agencies, and there are three common tolling concepts in operation in the U.S.: a) specific facilities such as bridges or tunnels, b) turnpikes, which are long-distance roadways that charge a rate per mile for its use, and c) managed lanes on existing roadways. Managed lane projects include specific-use lanes such as High Occupancy Vehicle lanes for carpoolers and public transit vehicles, or the High Occupancy Toll (HOT) in which users can pay a toll to use that particular lane. Tolling rates for these type of facilities could be fixed to use that particular facility (bridge or tunnel), or variable with a rates that could change based on time of day or congestion level.

Current federal law does not allow tolling existing Interstate Highways. Pennsylvania requested approval to implement tolls on I-80 and it was rejected. The law requires that funds collected through tolls to existing facilities, could only be used for roads where they're raised. This interpretation of the law does not prevent future roads from being built and funded through tolls.

This alternative is not only difficult to implement, as it is not widely accepted by the public that considers tolling double taxation, but historically contributed a relatively small share of highway revenues. Approximately 5% of highway revenues at all levels of government come from tolling.[24]

Establishment of a National Infrastructure Bank

President Obama's 2011 fiscal budget proposal included the creation of a National Infrastructure Bank (NIB) that would fund projects "that provide a significant economic benefit to the nation or a region" and "encourage collaboration among non-federal stakeholders including states, municipalities, and private investors, and also promote coordination with investments in other infrastructure sectors." The proposed national bank is similar to the Transportation Investment Generating Economic Recovery grant (TIGER) program, and the Transportation Infrastructure Finance and Innovation Act (TIFIA) program. The TIGER program funds projects that will have a significant impact on the nation, a metropolitan area or a region, and are awarded on a competitive basis. TIFIA provides federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance.

According to budget documents[22] the National Infrastructure Innovation and Finance Fund would have to be authorized by Congress and would not be subject to pay-as-you-go rules. Investment categories would include highways, tunnels, bridges, transit, commuter rail, passenger rail, freight rail, airports, aviation, and ports. The proposed funding is $4 billion, with $2 billion for infrastructure grants and $417 million to subsidize $2.1 billion of direct loans. About $270 million would fund administration, cost-benefit analyses, planning, and other areas, with $1.313 billion left over for fiscal 2012.

There have been both positive and negative opinions on the proposed infrastructure bank. The *Wall Street Journal*[25] commented that "the national infrastructure bank could begin to reverse federal policies that treat infrastructure as a way to give states and localities resources for projects that meet local political objectives rather than national economic ones. The bank would evaluate prospective infrastructure projects on consistent terms. It would be able to negotiate with state or local sponsors of a project what their cost shares should be. The bank also could help groups of states come together for regional projects such as high-speed rail and better freight management. Such consolidation would improve project selection." On the other hand, *The Atlantic*[26] points out some issues with the proposed infrastructure bank "…smaller and less populous states would almost certainly fight it. If a project isn't likely to benefit as many people, then it will be very hard to get the federal government to pick up the tab."

Increasing the Per Barrel Fee on Crude Oil and Imported Gasoline and Diesel

This alternative has been proposed with some positive characteristics. Given the amount of oil that is imported, a small tariff as a proportion of the total cost per barrel of crude oil could raise

[24] Report of the National Surface Transportation Infrastructure Financing Commission, February 2009.
[22] Felix G. Rohatyn, The Wall Street Journal Opinion, The Case for and Infrastructure Bank, September 15, 2010, http://online.wsj.com/article/SB10001424052748703376504575491643198373362.html.
[23] Daniel Indiviglio, The Atlantic.com, Would a National Infrastructure Bank Help?, September 15, 2010, http://www.theatlantic.com/business/archive/2010/09/would-a-national-infrastructure-bank-help/63052/.

significant revenues. On the negative side, this alternative could raise free trade issues. The fee could be implemented as a fixed fee per barrel of crude oil that is imported, providing a stable revenue stream, or proportional to the value of imported oil that would be less stable because of the fluctuations on oil prices, but could reduce demand during periods when prices go up.

In 2009, the U.S. imported 3.3 billion barrels of crude oil,[27] therefore a $1.00 per barrel would yield $3.3 billion annually, or 30¢ per barrel would yield $1 billion. In order to cover the $134 billion gap of the maintain scenario solely with this alternative, $40.6 per barrel of crude oil would need to be charged. This amount is extremely high compared to price of a barrel of oil, therefore this alternative would be difficult to implement in isolation, with no other additional sources of funding to cover the funding gap.

Increasing the Tax on Heavy Vehicles (HVUT) and Other Registration Fees

An annual fee is currently already imposed on all trucks 55,000 lb gross vehicle weight (GVW) or greater. The tax rate is $100 plus $22 for each 1,000 lb of GVW in excess of 55,000 lb, up to a maximum annual fee of $550 (thus, all trucks with GVW greater than 75,000 lb pay the maximum). This tax is justified in part because it helps to recover some of the system damage costs caused by heavier vehicles. A 10% increase in both the base rate and the fee for vehicle weights in excess of 55,000 lb (assuming a concurrent increase in the ceiling) is estimated to yield about $103 million annually (based on 2007–08 average).

As for vehicle registration fees, all states impose this type of fees and is a common source of revenue for transportation funding. The way this tax is imposed varies widely from state to state, from a flat fee to fees based on weight, horsepower, value, etc. A 2008 study found that the national average for total registration and related fees paid for a mid-size car was $185.38 per year.[28] Based on a flat-fee approach, a national annual vehicle registration fee of $1 for light-duty vehicles (includes automobiles and light trucks) and $2 for trucks could yield roughly $366 million per year; thus an annual fee of about $2.75 per car and $5.50 per truck would be required to raise $1 billion per year.

Transaction Taxes on Speculative Crude Oil Trading

In June 2009, Congressman Peter DeFazio (OR-04) proposed a transaction tax on crude oil securities to pay for the deficiency in the Highway Trust Fund. This proposal was among those presented by Honorable James Oberstar to the Ways and Means Committee in 2009. The proposed transaction tax on crude oil is 0.02% on futures contracts (a contract to buy crude oil at a previously set price on a future date) and 0.5% on the option for a futures contract (the premium paid to have the option to buy a futures contract). Congressman DeFazio argued that the tax imposes a small burden that penalizes short-term traders for speculating on the price of oil. The Commodity Futures Trading Commission (CFTC) distinguishes between end users and legitimate hedgers, like airlines and railroads, and short-term speculators. This proposal would

[24] U.S. Energy Information Administration, Petroleum Supply Annual 2009, Volume 1, http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/petroleum_supply_annual/psa_volume1/current/pdf/table24.pdf.

rebate all transaction taxes paid by legitimate hedgers. The transaction tax on crude oil securities would raise more than $190 billion over 6 years.

Some skeptics argue that this tax would make traders move away from the Chicago's Mercantile Exchange and off Wall Street to other exchanges where no such taxes apply. Futures trades work on small commissions and arbitrage. Others opine that this tax does not provide a revenue source that adds accountability or supports performance-based transportation spending.

Increased Taxes on Containerized Shipping

A national container fee could be established on some or all containers moving through a U.S. port. A $10 fee on every container moving through a U.S. port would currently raise about $500 million annually; thus a $20 fee per container would be required to raise $1 billion annually. If the charge is only assessed on imports, it can be expected to raise approximately one-third less revenue.[29]

[29] Report of the National Surface Transportation Infrastructure Financing Commission, February 2009.

SECTION 4 - PROPOSED TRANSPORTATION FINANCING POLICIES-MACRO PERSPECTIVES

Transportation funding issues have always been a subject of great interest in the grain handling and processing industry.[30] Historically, the debate centered on user fees associated with barge movements, but concern has now widened to encompass all transport modes in the face of competitive markets. A United States Department of Agriculture (USDA) report notes that grain movements comprise approximately half of total tonnage on rivers and about a third on annual grain tonnage to market by rail. Proposals like those made by the NSTIF, and those proposed by Committee on Transportation and Infrastructure add a new dimension to funding issues that are likely to have an impact on transportation of soybeans and soybean products, and other grain products. Table 1 summarizes these leading finance proposals based on point of charge and periodicity of levy. In what follows an attempt is made to evaluate the potential impact on the soybean and corn industry. This study adopts a three-pronged approach to this evaluation process. The first part of the study documents soy and corn flows at the macro level and highlights leading corridors and top origin-destination pairs. Soy volume-enhanced supply chains are developed to document the soy/corn journey from the farm/producer site to various end markets since some proposals might impact a single transport leg, or multiple transport modes/legs of a chain.

[30] J. Fritelli. CRS Report for Congress, Grain Transport: Modal Trends and Infrastructure Implications, 2005.

Table 2. Leading Finance Proposals – Rate, Point of Charge, and Periodicity.

Option	Range	Point of Charge	Periodicity
VMT Fee	Fixed ($0.044)/mile or higher) or variable rate based on weight and distance.	Trucks. In a variable form it works like a freight ton-mile tax.	Actual highway usage based.
Motor fuel tax (Gasoline/Diesel)	$0.074–$1.46/gallon or an increase of $0.56–$1.28/gallon over the current rate. This proposal has been supported by organizations such as American Trucking Association as long as funds are dedicated to highways.	Trucks and Auto and all modes using gasoline/diesel	Fuel/diesel use based Annual
Tolls	Locally built toll roads for specified distances. Interstate highways cannot be tolled.	Trucks using tolled routes only. Toll rates are developed based on number of truck axles (2+ axles).	Use based
National Infrastructure Bank (NIB)	-	Bank facilitating infrastructure improvement through evaluation and planning through cost-benefit analysis.	-
Per barrel fee on crude oil and imported gasoline/diesel	$0.23–$0.46/ barrel of crude or as a percentage of value.	Broad based excise tax. Works like a petroleum tariff. Current tax is 8 cents per barrel. Exemptions: Farms, Aviation, non-transportation uses.	Annual.
Heavy vehicle use tax (HVUT)	10% increase in base rate of $100 +$22 for each 1000 lb over 50,000. Maximum base rate is $550 currently.	Trucks over Gross vehicle weight (GVW) >50,000 lb. Increase in rates. Broad based tax. Motivation to recover costs of their system impact on pavements.	Annual
Vehicle registration fees	Ranges for flat annual fees of: $1 for light duty vehicles and $2 for trucks	Autos and trucks	Annual
Transaction taxes on speculative crude oil trading	Transactions tax of 0.2% on crude oil futures contract to deter speculative trade. Some exemptions apply to commercial trades.	Levy basis: Traders Oil based hence impacts all modes in a chain.	During trades
Taxes on containerized shipping	$10 –$20 on every container	All container transport (all modes) moving through a U.S. port. Freight tax Levy basis: imports or exports or both.	Usage based

SECTION 5 - UNDERSTANDING SOY AND CORN TRANSPORTATION FLOWS

In order to obtain an understanding of an impact of transportation finance mechanisms on the soy and corn industry, it is important to understand the transportation by key modes.

How Much Is Moved by Rail?

Soy and Corn Rail Transportation Flows

The Surface Transportation Board's Public Waybill sample allows specific analysis of railroad transportation of grains and oilseeds. In this particular study, the reference year was taken to be 2008—the most recent year for which the Waybill data are available. The Standard Transportation Commodity Codes (STCC) selected for detailed analysis are shown in the table below and represent both corn and soy, and also soy products (Soy oil, Ethanol, Wet milling) (Table 3). This table presents numbers that are slightly higher than those that are published by American Association of Railroads in their Railroads and Grain Report (see Figure 9).

Table 3. Transportation Flows by Surface Transportation Commodity Code (Short Tons) (Soy, Soy Products, and Corn).[31]

STCC Code	Expanded Tons	Revenue Ton-Miles	Expanded Revenue ($)
Soybeans: 01144	24,086,068	27,822,075,930	768,606,757
Soy Products (Soy Oil & Meal):			
20921: Soy Oil	7,569,264	5,038,400,600	214,643,872
20923: Soybean meal	19,205,321	17,267,726,830	600,183,962
Total Soy Products	26,774,585	22,306,127,430	814,827,834
Dried Distillers Grain with Solubles (DDGS) DDGS 20859 20823	7,775,392	9,010,091,810	303,877,116
Ethanol: 28184	30,834,519	26,478,766,840	1,309,976,812
Wet Milling: 2046	18,514,258	15,357,646,540	575,760,365
Corn: 01132	80,309,530	85,178,995,680	2,403,157,834

[31] The Waybill sample includes carload waybills for all U.S. rail traffic submitted by those rail carriers terminating 4,500 or more revenue carloads annually including Class 1 Railroads. The numbers here are therefore slightly higher than the contributions of Class 1 Railroads alone. Soybeans tonnage in 2008 contributed by Class 1 Railroads totaled approximately 22 million short tons (STCC 01144). In regard to corn, the American Association of Railroads reports 75.8 million tons of corn moved in 2008 by Class 1 Railroads (*Source: AAR Railroads and Grain Traffic Report, 2009*). This analysis is also consistent with soy movements reported by the Soy Coalition in their Report: *Railroad Movement of Soybeans and Soy Products*," 2009.

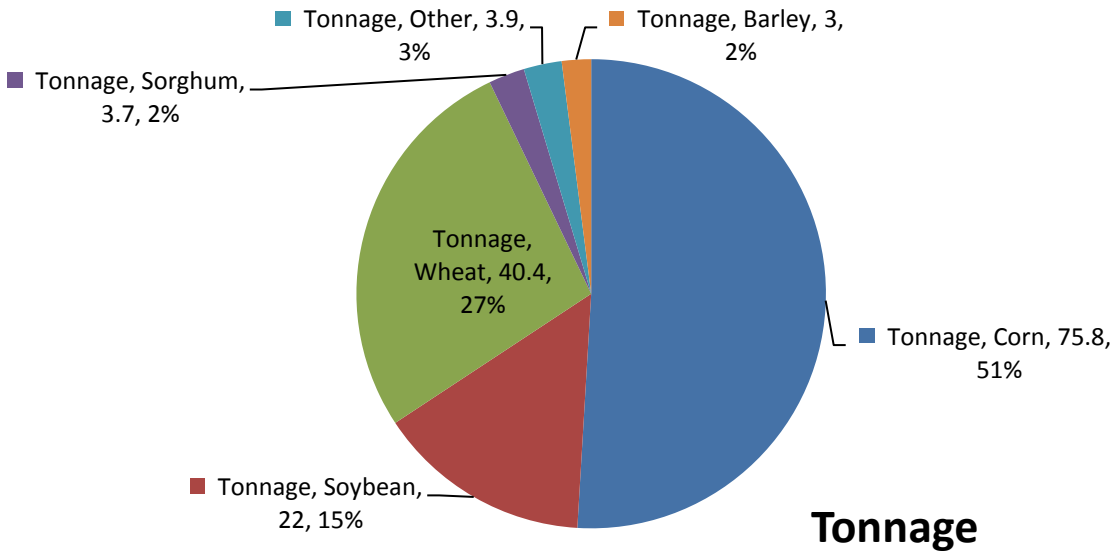

Figure 9. U.S. Class 1 Railroads Grain Traffic including Soy and Corn.[32]

Where Do the Rail Shipments Go?

Rail shipments are reported on a freight territory basis as originally developed by the Interstate Commerce Commission (ICC). Appendix A shows a map of the six freight rate territories (numbered 0-5) which are used to evaluate railroad movements. Rail movements may also be evaluated at the Bureau of Economic Analysis (BEA) regional level. However, for the purpose of demonstrating key corridors and volumes, the freight territory breakdown was also adequate. Appendix B shows details on rail flows for soy, corn and related products obtained from the public Waybill Sample 2008 database.

Corn Shipments (STCC 1132)

Leading Origin Territory:

Western Trunk Line Territory (3) – 50,108,634 tons and 67,890,647,190 ton-miles (62.4% and 79.7% of total tonnage and ton miles respectively).

Leading Destination Territories:

Mountain Pacific Territory (5) – 29,203,702 tons and 49,301,290,150 ton-miles (36.3% and 57.9%, respectively).

Southern Territory (2) – 20,780,536 tons and 14,955,430,100 ton-miles (25.8% and 17.6%, respectively).

Leading Origin-Destination Pair:

Western Trunk Line Territory (3) to Mountain Pacific Territory (5).

[32] *American Association of Railroads- Railroads and Grain Traffic, 2009,* www.aar.org/~/media/aar/backgroundpapers/**railroadsandgrain**.ashx

Average length of haul is 1639 miles across all shipment sizes. Appendix A shows a map of these freight territories.

Soybean Shipments (STCC 1144)

Leading Origin Territory:

Western Trunk Line Territory (3) – 16,426,451 tons and 23,166,185,210 ton-miles (68.2% and 83.3% of total tonnage and ton-miles, respectively).

Leading Destination Territories:

Mountain Pacific Territory (5) – 11,568,056 tons and 19,051,027,910 ton-miles (48% and 68.5%, respectively).
Southern Territory (2) – 6,070,220 tons and 5,111,783,330 ton-miles (25.2% and 18.4%, respectively).

Leading Origin-Destination Pair

Western Trunk Line Territory (3) to Mountain Pacific Territory (5).
Average length of haul is 1670 miles across all shipment sizes.

Soy Product Shipments (STCCs 20921, 20923)

Soy Oil Shipments

Leading Origin Territory:

Western Trunk Line Territory (3) – 4,426,912 tons and 3,490,879,360 ton-miles (58.5% and 69.3% of total tonnage and ton miles, respectively).

Leading Destination Territories:

Western Trunk Line Territory (3) – 2,471,500 tons and 880,290,440 ton-miles (32.7% and 17.5% of total tonnage and ton miles, respectively).
Southern Territory (2) – 1,541,620 tons and 636,734,320 ton-miles (19.5% and 12.6%, respectively).

Leading Origin-Destination Pair

Western Trunk Line Territory (3) to Western Trunk Line Territory (3).
Average length of haul is 347 miles across all shipment sizes.
Most of soy oil shipments are internal to zone 3.

Soy Meal Shipments

Leading Origin Territory:

Western Trunk Line Territory (3) – 9,628,138 tons and 11,234,625,200 ton-miles (50.1% and 65.1% of total tonnage and ton miles, respectively).

Leading Destination Territories:

Southern Territory (2) – 5,376,238 tons and 3,700,140,630 ton-miles (28% and 21.4%, respectively).
Southwestern Territory (4) – 4,285,659 tons and 3,800,073,360 ton-miles (22.3% and 22%, respectively).

Leading Origin-Destination Pairs

Official Territory (1) to Southern Territory (2) (Rank 1).
Average distance traversed is 724 miles across all shipment sizes.
Western Trunk Line Territory (3) to Mountain Pacific Territory (5).
Average length of haul is 1670 miles across all shipment sizes.

DDGS (STCC 20859, 20823)

DDGS is a co-product of the ethanol production process and uses starch of corn and sorghum.

Leading Origin Territory:

Western Trunk Line Territory (3) – 5,549,412 tons and 7,654,173,810 ton-miles (71.6% and 85% of total tonnage and ton-miles, respectively).

Leading Destination Territories:

Mountain Pacific Territory (5) – 2,665,863 tons and 4,734,343,640 ton-miles (34.4% and 52.5%, respectively).
Southwestern Territory (4) – 1,751,621 tons and 2,059,520,610 ton-miles (22.6% and 22.9%, respectively)

Leading Origin-Destination Pair

Western Trunk Line Territory (3) to (5) Mountain Pacific Territory.
Average haul length is 1834 miles across all shipment sizes.

Waterborne Commerce-How Much Is Moved by Barge?[33]

Figure 10 shows the map of the inland waterway system that is used in waterborne commerce of corn and soy on barges. The data flows have been developed from the private database of Waterborne Commerce Statistics (WCC) (2008).

[33] Appendix C shows provides details on waterborne flows obtained from the WCC 2008 confidential private database.

Corn and Corn Products[34]

Leading Corridor (for both Up and Down movements individually):

Mississippi River (Figure 2 (Corridor 6). Down movements account for approximately 99% of tons and ton-miles on the river.

Average distance traveled for corn and corn products on the Mississippi waterway in 2008: 693 miles.

Average length of haul for corn and corn products: 375–1080 miles.

Soy and Soy Products

Leading Corridor (for up-bound and down-bound movements individually):

Mississippi River (Figure 11) - Down movements account for approximately 98% of tons and ton-miles on the river.

Average length of haul for soy and soy products on the Mississippi waterway in 2008: 672 miles. The distance range for soy and soy products: 46–1240 miles.

Table 4 shows the ranking of river corridors in terms of both corn and soy flows.

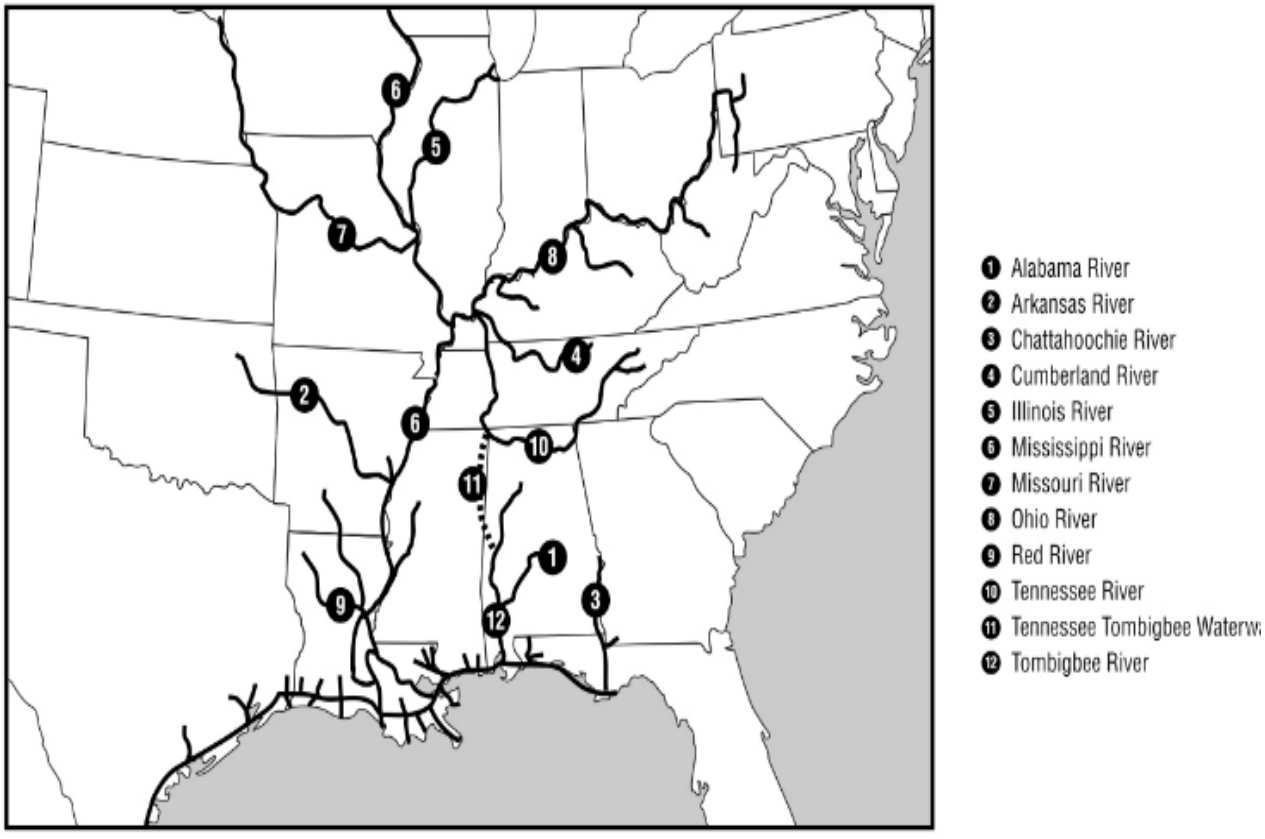

Figure 10. The Inland Waterway System.

[34] Includes Corn and Corn Products: Categories WCSC 4400, 5461, 8140, 59212. Soy and Soy Products: Categories WCSC 22220, 22390.

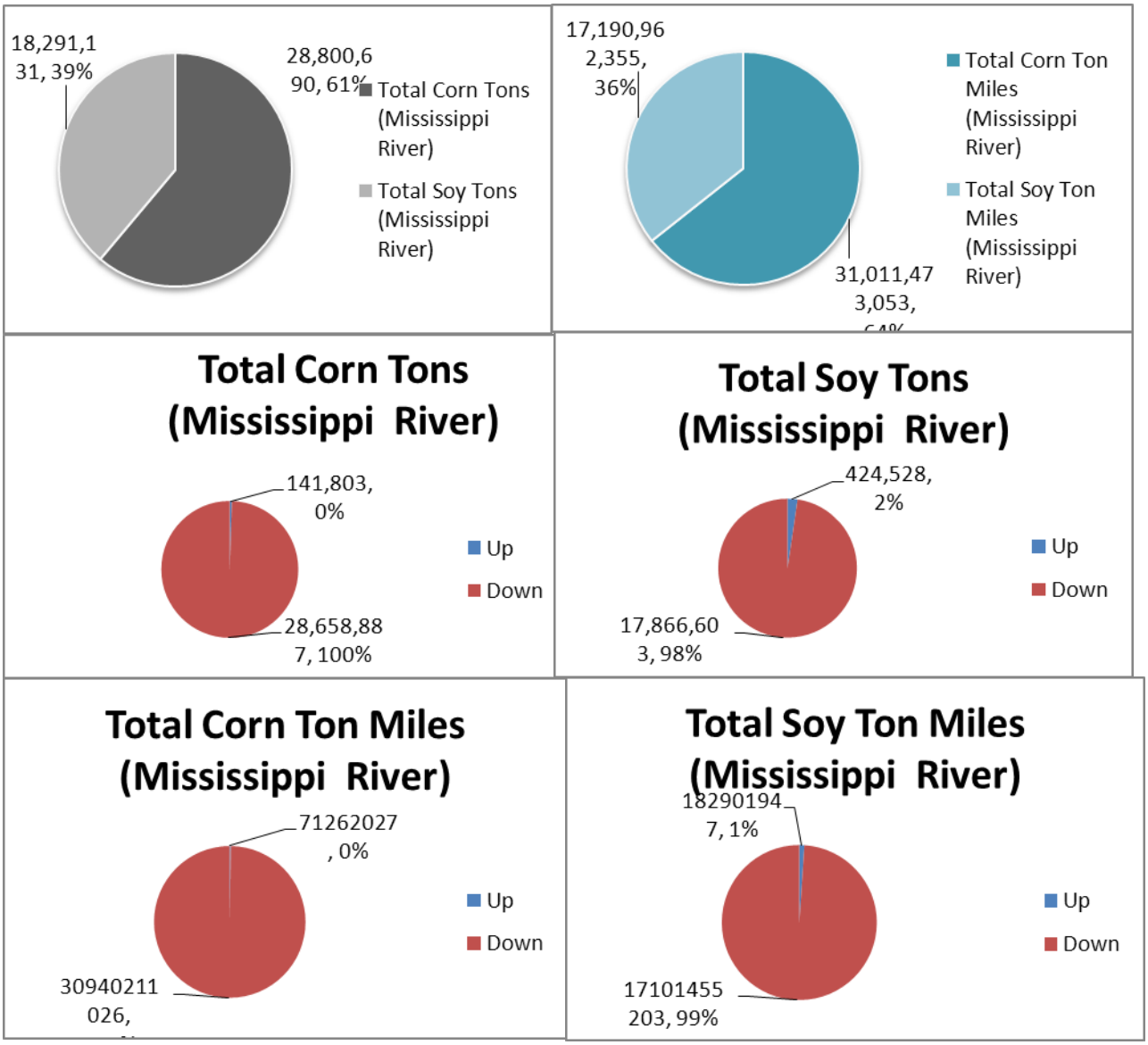

Figure 11. Corn and Soy Flows on Mississippi River.

Table 4. Ranking of River Corridors in the Transport of Corn, Soy, and Bi-Products (2008 Data).

Corn/Corn Products	Soy/Soy Products
Mississippi River	Mississippi River
Illinois River	Ohio River
Ohio River	Illinois River
Minnesota River	Arkansas River
Arkansas River	Minnesota River

Container Movements

Containerized shipping developed as a result of the need to transport general cargo or product in lots too small for the traditional bulk system, as well as the need to move high-value and delicate cargo. It has become an important mechanism in the logistical chain of soybean transport. An Agriculture Marketing Service Report indicates that containers were used to transport 5% of total waterborne grain exports and 6% of U.S. grain exports to Asia in 2009.[35] Soybeans and soybean meal are shipped worldwide in ocean containers and also to other destinations domestically. Also, because of comparatively high bulk grain ship rates in 2008, container rates became comparatively attractive. Further, because of unequal trade flows between Asia and U.S., steam ship companies have offered comparatively attractive rates on westbound (U.S.-Asia) container movements.

A 2002 study conducted by USDA and Upper Great Plains Transportation Institute (UGTPI) compared the costs of soybean container shipping with that of bulk, and truck from Iowa to Japan via Seattle.[36] The study also calculated container costs per short ton of shipping soybean at $75.23, truck at $134.88, single car at $56.33, and finally unit train at $55. This container shipment cost includes drayage cost (if applicable), rail and ocean freight costs. The authors noted a rising trend since 1990s on containerized shipments of soybean and reported a total of 125–130 (thousands of 20-ft containers) at the end of 2002. Appendix D shows rail container movements of corn, soybean, and other related products based on Public Waybill Sample 2008. A relatively small tonnage (total of 1.09 million tons- soybean, soymeal, and soy oil) of rail container movements is seen in 2008. The tonnages transported on rail are low; however, the ton-miles are very large. The Waybill sample is unable to distinguish between domestic deliveries of containers and deliveries of containers to port via trucks. For the purpose of this analysis, however, the Waybill data are utilized to only indicate potential tonnage moving in rail containers.

Soy and Corn Rail Container Movements

Leading Origin-Destination Pair for Rail Containerized Movements

Freight territory 3 (Western Trunk Line) to freight territory 5 (Mountain-Pacific region) (according to the Public Waybill Sample 2008 for corn and soy and products)

Appendix E shows the trends in soybean and corn export container activity as reported by the United States Soybean Export Council and the United Soybean Board. Soybean and corn are the top grain export movements transported in containers. In 2008, approximately 90 million (2.7 million short tons) bushels of soybean and 78million bushels of corn (2.2 million short tons) were exported in containers. Furthermore, USDA notes that ocean rates for containerized soybeans were around $1400 dollars per TEU (for a shipment from the West Cost to Japan).

[35] Agriculture Marketing Service. *A Reliable Waterway System is Important to Agriculture*, September 2010 http://www.ams.usda.gov/AMSv1.0/.

[36] K. Vachal and H. Reichert. *Identity Preserved Grain- Logistical Overview*. Upper Great Plains Transportation Institute January 2000. (www.ams.usda.gov/tmd/ipgrain) (http://www.ugpti.org/pubs/pdf/SP143.pdf).

Soy and Corn Waterborne Export Movements

Based on the 2008 Waterborne Commerce Statistics, the export movements through various destinations is documented in Appendix E. These export volumes are important to identify significant export ports and port related destinations bound for foreign markets. Proposals like container fees, if levied on exports could have a disproportionate affect on ports. In addition, the United States is a leading exporter of both soybeans and corn (Appendix E – Figures E3, E4, and Table E1)

Leading US Port Destinations for Soybean and Corn Waterborne Export Movements

Gulf Coast

Corn: 34,849 (1000 short tons)

Soybeans: 19,572 (1000 short tons)

Pacific North West Coast -Tacoma and Seattle

Corn: 9,416 (1000 short tons)

Soybeans: 5,582 (1000 short tons)

SECTION 6 - FLOWS/VOLUME ENHANCED SOYBEAN SUPPLY CHAIN

The soy, and in general, the grain logistical transport chain in the United States is a complex, high-volume supply chain that is dependent on a variety of interdependent factors including production, supply to storage, and movement out of storage to meet changing domestic and export market demands. Railroads, along with barges and trucks, are a critical part of the transport chain linking most origins to final destinations; the current transport system for grain has largely evolved because of modal cost advantages. This composite soy chain is comprised of several important linkages including a) transport movements to meet export market demands, b) transport to meet soybean and associated product demands of domestic markets and for other end uses, and c) a specific chain in which soy is used for livestock and feed. The supply chain for soy transport through its various stages for both domestic and export moves is shown in Figure 11. Using the 2008 supply, disappearance data[37] and using bushels to short ton conversions, the volume enhanced chain with starting stocks and disappearance chain is shown in Figure 12.

[37] *Oil Crops Yearbook/OCS 2009 March, Economic Research Service, USDA.*

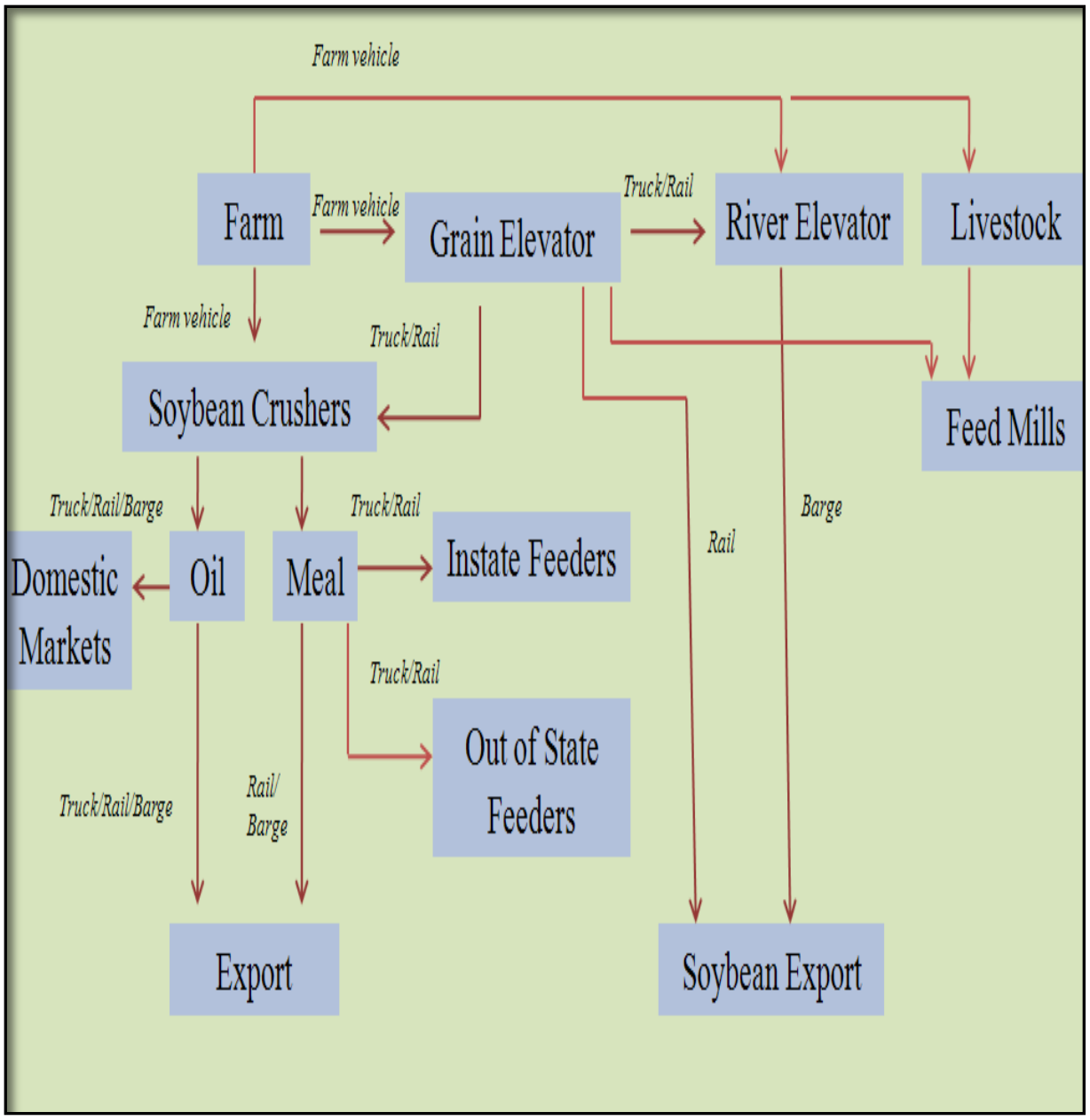

Figure 12. The Typical Soy Transport Chain for Domestic and Export Moves.

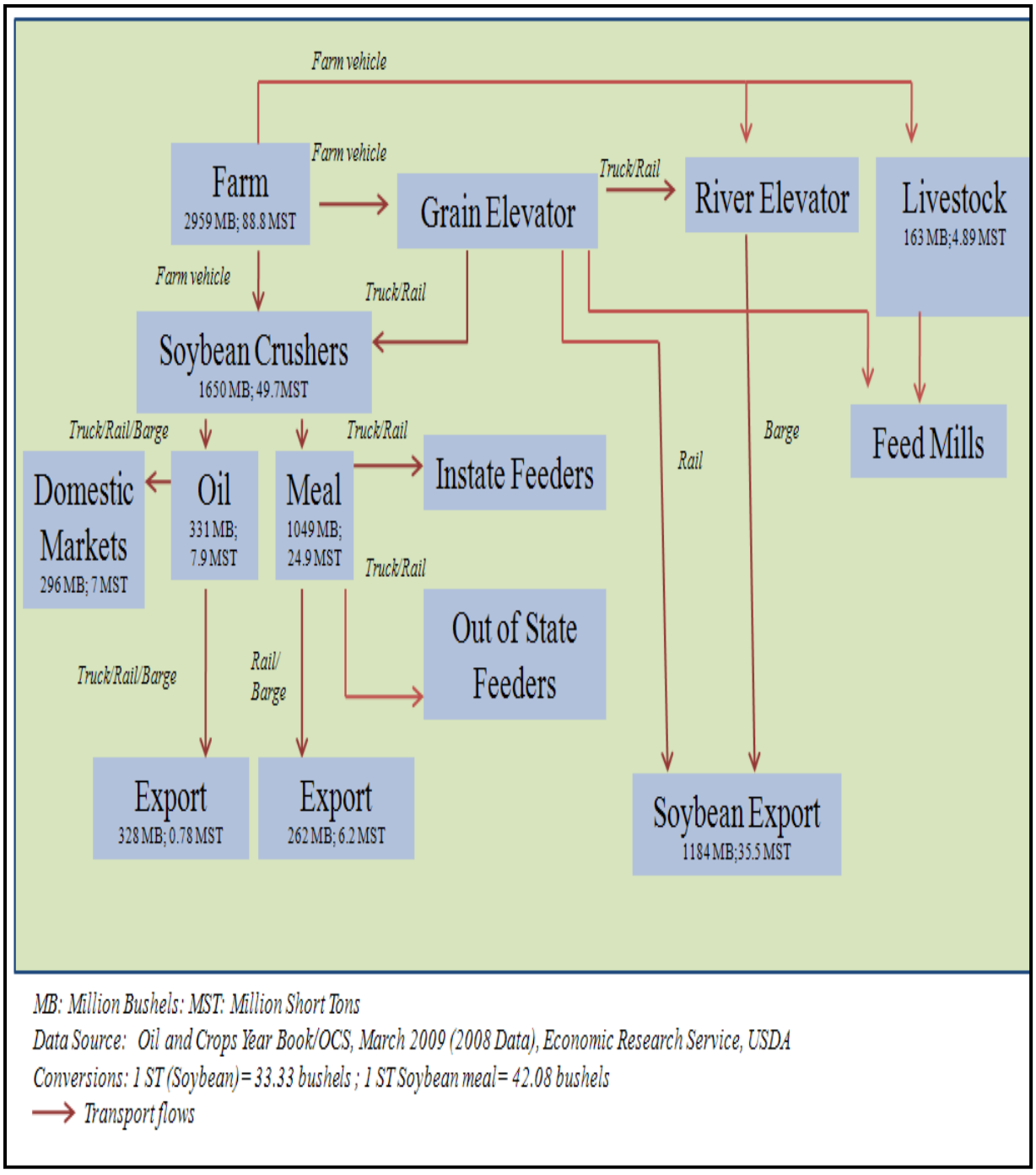

Figure 13. The Typical Soy Transport Chain – Volume Enhanced.

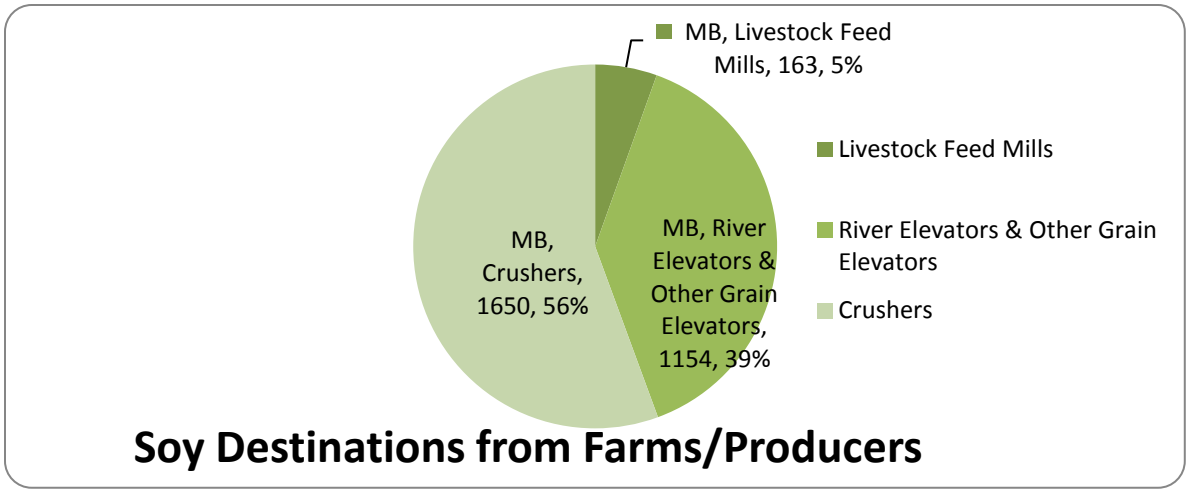

Figure 14. Primary Destinations of Soy from Farms.

Based on 2008 data, Figures 13 and 14 suggest that more than half of the soy produced is bound to nearby crushers where the soy is processed into oil and meal and then sent onward. Most of those flows are dominated by the truck mode. About 5% are bound to livestock feeds. However, approximately 39% are bound to elevators (river, other grain elevators) from where soy is either bound for export on rail/barge or on to crushers. One implication of this flow pattern is that the methods of financing and revenue generation can impact transport costs on various modes and legs of the chain depending on levy basis. Methods aimed at raising revenues from domestic trucks and truck usage are likely to impact flows from producers markets most. Based on Figure 13, moves onward from crushers of soy products are also likely impacted since they are also truck dependent to some extent. Measures that are based on oil/fuel usage, on the other hand, impact transport costs on every leg of the supply chain and mode used in travel.

Modal Share in Soybean Movements

A 2005 study conducted by United States Department of Agriculture presents a modal breakdown of grain movements in both export and domestic moves.[38] According to that study, the modal breakdowns for soybean are different for export and domestic moves (Table 5). Most of soy movements for domestic consumption tend to move by truck using rural interstates and rail. The export segment relies on trucks, rail, and barges to transport grains/oilseeds to ports and border crossing areas.

Table 5. United States – Modal Shares in Domestic and Export Soybean Movements.

Export		**Domestic**
Barges	59%	3%
Rail	34%	16%
Truck	7%	81%

[38] USDA, Transportation of U.S. Grains: A Modal Share Analysis, 1978–2000, October 2004.

Freight related taxes can have a disproportionate effect on each of chains depending on specific forms of tax, modal elements involved in the specific chain, and volume of movements occurring in any leg of the chain.

SECTION 7 - POTENTIAL INCIDENCE AND IMPACT OF LEADING FINANCE PROPOSALS – A MACRO-LEVEL DISCUSSION

The impact of the leading finance proposals is developed in Tables 6–11.

Table 6. Likely Incidence and Impact of Leading Finance Proposals on Soybean Industry – VMT Fees.

Option	Potential to Impact to Agriculture (Soy/Corn Industry) and Incidence	Spillover Effects
VMT Fee[39]	Large volumes of loads move on trucks in the case of soy or corn. Increases variable costs of operation since it is based on distance driven. Typical truck variable costs include fuel, labor, maintenance, wear and tear. Since vehicle miles traveled in the movement of specific cargo are difficult to establish with any degree of accuracy, VMT flows in soy transport (soy and soy products) are conservatively estimated in the range of 39 million -miles—236.05 million ton-miles based on 2008 data presented in Figure 3.[40] A VMT fee's incidence will likely fall on truckers and shippers and farmers transporting soy and soy products. At a fixed rate of $.04 per mile, and 2008 flows, the total fees are estimated in the range of $1.7–$10.4 million for trip lengths of 25–150 miles. These estimates would be significantly different if the fee was variable and based on both weight and distance. Effect: Very negative	As soy demand and freight increases, these fees will also increase even at fixed rates. Higher operating costs as production costs may have a negative effect on farmer prices.[41] Interior elevators are more likely to use trucks to transport to nearest markets and their market prices could be affected by the higher variable cost of VMT fees. The effect is likely to be concentrated in Midwest regions where most of soy and corn is produced and traverses the longest distance on truck[42] (Appendix F and surveys). Economic Research Service, U.S. Department of Agriculture (ERS, USDA) note that the North Central USDA regions are also highest in truck utilization. As a distance charge, a VMT fee (fixed or variable) will increase truck rates per truckload (Appendix G shows 2009 average truck rates including fuel). North Central regions have the highest average truck rates. Truckload per mile average rates can increase by almost 0.57% for both North Central and South Central regions for a 50-mile trip to processors or elevators or other final destinations. Potential to impact farmer transport costs of hauling grain to the nearest market, or storage.[43] Farm rental costs are not impacted.

[39] All calculations assume that the VMT fee is applicable uniformly for all States. VMT fees are currently only operational in Oregon and some pilot studies are underway.

[40] The VMT calculations assume transport via a semi-trailer with a capacity of 25 tons. In addition, the truck modal shares from Table 4 are employed for both domestic and export moves combined with tonnage estimates from Figure 3. The export moves are assumed to be a more conservative 50% than that suggested in Table 4. Distance estimates are assumed to range from 25 miles to 150 miles (ranges as obtained from surveys) corresponding to the range of VMT estimates. Typical maximum threshold distances for truck transport are in the range of 200–250 miles after which threshold truck transport is typically not employed.

[41] "*Transportation and The Farmer's Bottom Line*." June 2010. O'Neil Commodity Consulting, (on behalf of the Soy Transportation Coalition and the United Soybean Board). The authors show the effect of transport costs on farmer's origin basis.

[42] Appendix F on Soy and Corn production regions and a convenience sample of surveys.

[43] An Iowa State University Study Extension studying conducted an Iowa farm custom rate survey in 2010. Farm transport costs of trucks including fuel and labor were reported in the range of 0.03–0.12 cents for transport to farm storage (average 6 cents per bushel), a similar range for transport from storage to market (average 7 cents per bushel). In addition, farm costs for transport to market were noted to increase with distance to market. For instance, the 1-way average truck (wagon) trip cost per bushel increases from 10 cents (for a trip 5 miles to market) to 14.4 cents for a 100-mile trip to market. Source: *2010 Iowa Farm Custom Rate Survey*, File A3-10, Ag Decision Maker, Iowa State University, University Extension, March 2010. The report notes that a wagon is a semi-trailer. (http://www.extension.iastate.edu/publications/fm1698.pdf).

Table 7. Likely Incidence and Impact of Leading Finance Proposals on Soybean Industry- Motor Fuels Taxes and Tolls.

Option	Potential to Impact to Agriculture (Soy/Corn Industry) and Incidence	Spillover Effects
Motor Fuel Tax (Gasoline/Diesel)	Impact through all modes of transport. Increases the rate for all modes. The charges are proposed to be levied at fuel distribution points as opposed to pumps. Current federal excise taxes are 18 cents for fuel and 24.4 cents for diesel. Effect: (Least negative effect)	As soy demand and freight increases, these fees will also likely increase even at fixed rates. Effects are similar to VMT fees, except impacts are mild and spread out over the bushels carried. Increases operating costs based on fuel use. The effect is somewhat similar to VMT fees except the costs related to fuel taxes are a function of fuel efficiency of trucks used and frequency of refueling for a trip. However, the effects are much less severe since the operating costs are spread out over a large tonnage. Current truck fuel efficiencies are in the range of 5–6 miles per gallon. Truck rates (Appendix G) show that diesel component accounts for about 28% of rates. Shorter trip lengths with higher rates might be more impacted; this is likely to occur on farmer trips to nearest elevator or market. Since fuel costs are an important component of all rates, a $0.56 increase in the tax could lead to a small increase on all modal rates and containers.
Tolls	Impact dependent only if trucks include routes that are tolled. No impact on other modes used in transportation of soy or corn. Tolls can be fixed or variable (varying by time of day – step toll or in response to congestion – dynamic) for a given distance. Typical tolls for trucks vary by axle size. Effect: Varies based on context.	Contextual. The economics of tolled routes must be considered on a case by case basis. The benefits come from reduced congestion, improvements in travel time and speeds, and potentially reduced fuel consumption on congested roadways. These benefits must be traded off against toll costs and other incurred fixed and variable costs of adopting a route. Interstates are currently prohibited from tolls.

Table 8. Likely Incidence and Impact of Leading Finance Proposals on Soybean Industry-National Infrastructure Bank and Per Barrel Fee.

Option	Potential to Impact to Agriculture (Soy/Corn Industry) and Incidence	Spillover Effects
National Infrastructure Bank (NIB)	Could support infrastructure investments on freight significant corridor investments employed in transport of grain through coordinated activities related to planning and analysis of such improvements. Effect: + (Contextual. Must be evaluated in the near and long term in the light of current and projected demands in the region)	Freight infrastructure capacity investment decision making and analysis. The NIB could serve as funding agency (or loan underwriter) for much needed grain infrastructure project and improvements. As with any bank, there is a learning curve associated with acquiring needed funds. Regions with high volumes of flows and with leading corridors Freight Territory 3, Freight Territory 5, Midwest regions with high corn and soy production and North Central regions with high truck utilization must consider these options on a case by case basis.
Per barrel fee/tariff on crude oil (imported and domestic) and imported gasoline/diesel	Impact through all modes of transport used in shipping soy and corn. Trucks, rail, barge, and ocean shipping are all highly energy intensive modes. Effect: - - (Less negative effect compared to a VMT fee)	Only a fraction of the cost could be passed on to consumers since it works through the excise tax system. This would increase fixed operating costs for transportation and variable costs for transportation that will be felt through the entire soy and /or corn supply chain. The effects would be similar to a VMT fee and motor fuels tax.[44] This could impact rates across modes.

[44] Estimates of impact require an assessment of fuel consumption needs for every mode and assumed fuel efficiencies. Hence, the discussion is based on an assessment of likely impact as opposed to a full quantitative analysis.

Table 9. Likely Incidence and Impact of Leading Finance Proposals on Soybean Industry – Heavy Vehicle Use Tax, Vehicle Registration Fees.

Option	Potential to Impact to Agriculture (Soy/Corn Industry) and Incidence	Spillover Effects
Heavy Vehicle Use Tax (HVUT)	All truck dependent industries already face this currently. The annual tax is paid to the Internal Revenue Service for vehicles over 55,000 lb. Revenues are sent back to the state where they are raised to support construction and maintenance. They are paid by trucks and truck tractors). In some states such as Wisconsin there are exemptions for a) trucks travelling less than 5000 miles and b) for agricultural vehicles.[45] HVT was last increased in 1983. The current rate is $100 + $22 per 1000 lb for every pound over 55,000 lb.[46] A proposed increase of 10% in the base and variable rate were estimated to raise $103 million in 2008. In addition, the NSTIF report also made a recommendation to index the rate to inflation. It is based on user-pay principle to facilitate pavement damage cost recovery. Incidence is a function of levy basis: weight. Effect: Very negative	Likely to be felt the greatest in the North Central Region (ERS, USDA), which are more reliant on trucks. The proposed could lead to an additional $157,268[47] in fees paid (estimate for 2008) for truck owners and carriers. This impact is a lower bound since it is based only on the flat component not dependent on weight. An increase in the fixed cost for operating truck fleets assuming that the cost increase is applied across all States. If loads exceed 55,000 lb, the impact will be much larger.[48] This is also a function of load limits.
Vehicle Registration Fees	Already a source of revenues for highway finance. It could impact freight carriers and shippers with truck fleets. It could also be double taxation when combined with HVT. Proposed increase ranges from $2 for light trucks to $5.50 for trucks. Effect: Very negative but it is a fixed cost spread out over large loads.	An increase in fixed cost for operating truck fleets assuming that the cost increase is applied across all States. A 2008 estimate of likely annual fees for trucks in soy transport is approximately $3.1 million–$8.6 million.

[45] *Facts and Figures, 2009: Heavy Vehicle Use Tax*. http://www.dot.wisconsin.gov/drivers/docs/hvut.pdf.
[46] *NSTIF Commission Report*. http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Advance%20Copy_Feb09.pdf.
[47] The truck volumes estimated for VMT fee impact are used in this case (1,572,681) in 2008. In addition, it is assumed all trucks are at 55,000 lb since the weight is a function of axles. The estimates therefore exclude the variable component of the fees.
[48] Many states have truck gross vehicle weight load limits of 80,000 lb. Ohio increased its load limit to 94,000 lb on November 9, 2010 (http://ocj.com/crops/new-weight-limit-for-trucking-containers-levels-the-playing-field-for-ohio-ag/). The agriculture industry has also been pursuing Congress for load limits of 97,000 on productivity grounds. With an HVUT fee, the economics of fuel productivity must be re-examined.

Table 10. Likely Incidence and Impact of Leading Finance Proposals on Soybean Industry – Taxes on Speculative Crude Oil Transactions.

Option	Potential to Impact to Agriculture (Soy/Corn Industry) and Incidence	Spillover Effects
Transaction taxes on speculative crude oil trading	Actual elements of proposal under discussion especially exemptions for end users like transportation companies like airlines, trucking companies, and others who use futures contracts to hedge against fuel price volatility. (70% of oil consumption is driven by transportation companies). This falls in the broad category of a financial transaction tax. The tax on crude oil securities of 0.2% and 0.5% on crude oil options was deemed to deliver an additional $190 billion over 6 years.[49] The tax is based on speculation alone. Effect: Difficult to determine. Likely +	Might have a positive long-term effect for a small upfront cost to transportation companies. Some of that cost may be passed on to industries such as grain that travel long distances. The tax could serve to limit price volatility especially important for energy intensive industries such as grain—an important consideration recognizing that oil prices and commodity prices often tend to co- move. The effects of financial transaction taxes are the subject of continued debate and discussion in economic circles.

[49] "*Long Term Financing Options for the Highway Trust Fund*," Statement of the Honorable Peter DeFazio. Chairman of the Subcommittee on Highways and Transit, Committee on Transportation and Infrastructure. Hearing of the Subcommittee on Select Revenue Measures, Committee on Ways and Means. July 2009. The estimates assumed $50 price per barrel and a reduction of 60% in trading oil securities. The Commodity Futures Trading Commission exempts legitimate hedgers like airlines and railroad companies.

Table 11. Likely Incidence and Impact of Leading Finance Proposals on Soybean Industry – Taxes on Containerized Shipping.

Option	Potential to Impact to Agriculture (Soy/Corn Industry) and Incidence	Spillover Effects
Taxes on containerized shipping	The proposed rates range from $10–$20 per container moving through a US port.. Levy basis: Imports and perhaps exports.. Containerized shipping is predominant in export trade (ocean containers). Effect: - -	Soybean industry serves several global markets. This will be a significant impact on global trade with potential for raising prices on exports and/or imports depending on levy basis. The NSTIF report notes the following three issues with container fees: • Potential constitutional and international trade law conflicts. • Discriminating against international shippers especially on imports and possibly on backhaul moves. • Likelihood to benefit states with large port facilities like Los Angeles and New York relative to Pacific Northwest and Gulf ports where most grain shipments typically start their export move. Other impacts: An increase in ocean container rates, barge and rail rates that has the potential to alter the container shipping economics relative to bulk transport.

SECTION 8 - MACRO LEVEL EFFECTS – CONCLUSIONS

This report evaluated soybean, corn flows, and related products using public and private data sources such as the Waybill Sample and Waterborne Commerce Statistics (confidential database) to examine rail and waterborne commerce. The report also summarizes various other aspects including container movements and rates in various modal moves which occur through the logistics chain of corn and soy movements. Eight of the proposed finance reforms to address the Highway Trust Fund Shortfalls were discussed and their potential incidence and impact traced using the 2008 flows.

Several assumptions had to be made in evaluating the effect of the finance proposals. When no quantitative information could be provided, a qualitative discussion was included. The proposals for which a purely qualitative discussion was provided include National Infrastructure Bank, speculative taxes on crude oil. The assumptions made include:

- Fuel efficiency of 5–6 miles per gallon.
- Truck capacity of semi-trucks of 25 tons.
- Gross vehicle weights of 55,000 lb used in calculating the effect of a 10% increase in base rate for HVUT. Variable portions were not considered.
- Modal splits for domestic and export moves based on a USDA 2005 study.
- Oil Crops Yearbook Information (2009), USDA to develop soybean disappearance through the supply chain.
- Truck Rates from Agricultural Marketing Service.
- Truck estimates used in soy transport based on flows as well as an assessment of VMT flows associated with soybean and related products alone.

Proposals like VMT fees, HVUT, registration fees have the potential to impact corn and soy industry and in general the grain industry the most. A per barrel fee on crude oil imports also can impact the industry since it impacts all modes in the soy or corn transport chain. Some of these proposals must be evaluated with better data on truck usage, truck VMT, and modal fleets involved in transportation of soy/corn or related products. Of all the proposals impacting truck fees, motor fuel taxes appear to have the least incidence while distance-based charges such as VMT could lead to high trip costs. VMT fees could increase truck rates for the shortest trip of 5 miles to over 200%. Additionally, energy usage or transportation fleets could not be established across all modes, hence effects of crude oil fees and other fees were difficult to trace out.

Many studies point to rising grain demand levels and transport cost efficiency as critical parts of maintaining a competitive industry in the face of rising demand. As a final note, the following observations need to be made:

- Many truck related fees (VMT, motor fuel taxes, vehicle registration fees, and HVUT) could be considered double taxation if two types of charges are undertaken simultaneously.

- The full incidence is masked in a macro view since much of the variation is driven by the spatial orientation of the production and demand regions implicit in the crop reporting districts. Even at this macroscopic level, the top corridors likely to be impacted are:
  - The corn and soybean and related product movements from Freight Territory (3) to Freight Territory (5) from VMT fees, fuel taxes, oil related fees, container fees, and HVUT.
  - The Mississippi River corridor for barge movements from fuel/oil related fees.
  - The North Central Regions (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin) because of their high truck utilization rates. These regions could be most vulnerable to VMT fees and perhaps HVUT.
- Export ocean container moves to global markets and domestic container moves on all modes (barge, rail, truck) from containerized shipping charges.
- The effect of a fee or charge is noted to have spillover effects due to cost-pass through to farm prices, farm basis, and elevator sales.
- Truck rate increases are most likely with VMT, HVUT, motor fuel taxes, and vehicle registration fees.
- Crude oil related fees are likely to affect all modal rates.
- In yet other cases like local tolling and National Infrastructure Bank, the effects are entirely contextual and costs-benefits must be incorporated into planning decisions. The macro-level analysis has pointed out to some leading corridors and origin-destination pairs for corn, soy, corn and soy products. These corridors should seriously consider effect of NIB for infrastructure improvements to those high volume corridors. These include:
  - Freight Territory (3) to Freight Territory (5) for soybean, soy oil, corn, and DDGS rail flows. These corridors are served by Class 1 Railroads like Burlington Northern Santa Fe (BNSF) and haul lengths on these corridors are well over 1600 miles.
  - Freight Territory (1) to Freight Territory (2) for soy oil rail flows.
  - Mississippi River corridor, followed by Illinois and Ohio River corridors, for the transport of corn, soy, and related products by barge.
- Taxes on speculative crude oil transactions could serve as price signals for deterring speculation and restoring fuel price volatility. To that extent, they could also be of value in smoothing out commodity price volatility.
- It has been assumed that fuel efficiency will stay the same in the near term (<5 years). However, in the mid to long run (5+ years) with improved fuel efficiency standards, the effect of many distance fees and motor fuel taxes could be damped in the long run as engine retrofits transpire at individual facilities. This reduction may or may not be offset by the growth in demand for soy and corn (Appendix H shows trends in demand). Oil dependence, on the other hand could grow due to growth in freight demand.

A summary of the costs to the soy industry from the macro level for those proposals for which estimates could be provided is provided below:

- VMT fee costs: Very negative at all levels (producers, handlers, processors). Costs for are estimated at $1.7 million–$10.4 million for haul lengths of 25–150 miles to destination by truck. Other spillover effects are likely to occur like impacts to truck rates,

farm basis, and elevator sales. If VMT fee is applied to all trucks then farm truck rates could increase up to 1.2% for a one-way trip.

- HVUT fee costs: Very negative at all levels. Base rate increase could lead to an additional $157,268 in costs. Variable fee components were not evaluated. Spillover effects are somewhat similar to VMT. Efforts to consolidate loads could have fuel productivity gains that may offset this increase.
- Vehicle registration fee increase at $2–$5.50 for trucks: $3.1 million–$8.6 million annual estimate based on 2008 flows. Very negative at all levels but it differs from HVUT and VMT in that it is a fixed annual cost and may be spread out over large loads.

SECTION 9 - A MICRO-LEVEL ANALYSIS BASED ON IOWA CORN AND SOYBEAN FLOWS

Figure 15 shows the Crop Reporting Districts (CRD) in the Iowa region. Iowa plays a large role in the nation's agriculture. Over 90% of the land is designated to agriculture. It leads the nation in corn production and soybeans are among the top five commodities grown in Iowa.

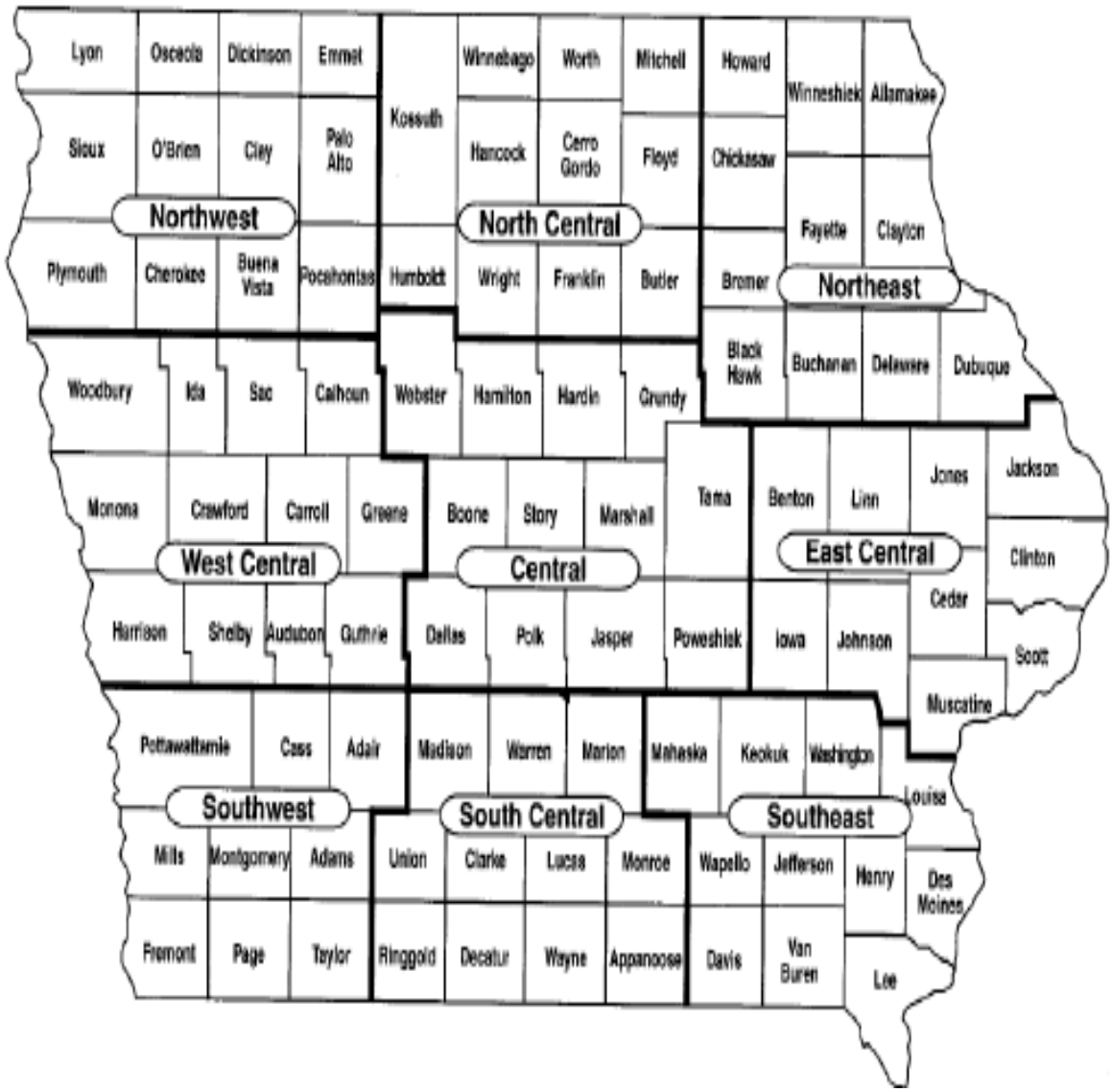

Figure 15. Iowa Crop Reporting Districts (CRD).

How Much Corn and Soy Are Produced by Iowa Regions?

A study conducted by Yu and Hart[50] provides an excellent survey summary that allows a fairly detailed analysis of the producer side of flows associated with corn and soy as of 2008. The data provided in their report on distances, corn and soy production, and share of farm shipments by vehicle size and CRD allow an assessment of the farm flows associated with corn and soy. Tables 12, 13, and 14 below provide estimates of bushel-miles of transport associated with producer's assembly of corn to various markets for each vehicle type. The analyses are based on info in various tables (for average distance, CRD corn and soy production data, and share of shipments by vehicle type) from the Iowa survey publication and assuming that 95% of the production is marketed to various destinations. Distance covered by other modes is not covered in the Iowa survey study.

The CRDs in West Central, Central, Northwest, and North Central are associated with the largest bushel-miles of corn transported followed by Southwest. The CRDs associated with the largest bushel-miles transported of soy are West Central, Central, and Northwest. According to Tables 12, 13, and 14, a typical producer in the Northwest could transport about 58% of corn by semi-trucks traveling an average of 13 miles on semi-trucks to the nearest market. A typical producer in the Southwest could transport 89% or more of corn traveling the longest average distance of 43 miles to the nearest market on semi-trucks. According to Tables 15, 16, and 17, a typical soy producer could transport an average of 51 miles on semi-trucks travelling a distance of 13 miles.

[50] Tun-Hsiang Yu and Chad Hart. *The 2007/08 Iowa Grain and Biofuel Flow Study*: A Survey Report. Center for Agricultural and Rural Development, Iowa State University. Staff Report 09-SR 103.

Table 12. Bushel-Miles of Corn Transported by Producers by Region (North).

Vehicle	Average % Share Transported by Vehicle Size	Bushel-Miles Transported (million)	Average Distance Traveled (miles)	Total Bushel-Miles (million)
Region	**Northwest**			
Wagon <500 bu	7	22.19	5	110.96
Wagon >500 bu	24	76.08	6	456.50
Single Axle	0	0.00	4	0.00
Tandem Axle	12	38.04	9	342.38
Semi	58	183.87	13	2390.29
Total	**100**	**320.19**		**3300.13**
Region	**North Central**			
Wagon <500 bu	13	45.11	5	225.57
Wagon >500 bu	23	79.82	5	399.09
Single Axle	2	6.94	4	27.76
Tandem Axle	7	24.29	8	194.34
Semi	54	187.40	18	3373.18
Total	**100**	**343.56**		**4219.95**
Region	**Northeast**			
Wagon <500 bu	2	5.43	4	21.74
Wagon >500 bu	15	40.76	5	203.78
Single Axle	0	0.00	5	0.00
Tandem Axle	5	13.59	8	108.68
Semi	78	211.93	13	2755.04
Total	**100**	**271.70**		**3089.23**

Table 13. Bushel-Miles of Corn Transported by Producers by Region (South).

Vehicle	%Transported	Bushel-Miles Transported (million)	Average Distance (miles)	Total Bushel-Miles (million)
Region	**Southwest**			
Wagon <500 bu	0	0.00	4	0.00
Wagon >500 bu	4	6.09	4	24.35
Single Axle	2	3.04	16	48.70
Tandem Axle	4	6.09	18	109.58
Semi	89	135.45	43	5824.31
Total		**150.67**		**6006.94**
Region	**South Central**			
Wagon <500 bu	4	3.34	3	10.03
Wagon >500 bu	8	6.69	5	33.44
Single Axle	2	1.67	6	10.03
Tandem Axle	12	10.03	13	130.42
Semi	75	62.70	26	1630.20
Total	**100**	**84.44**		**1814.12**
Region	**South East**			
Wagon <500 bu	5	8.03	3	24.08
Wagon >500 bu	2	3.21	3	9.63
Single Axle	2	3.21	5	16.06
Tandem Axle	10	16.06	18	288.99
Semi	81	130.05	35	4551.59
Total	**100**	**160.55**		**4890.35**

Table 14. Bushel-Miles of Corn Transported by Producers by Region (West Central, Central, East Central).

Vehicle	%Transported	Bushel-Miles Transported (million)	Average Distance (miles)	Total Bushel-Miles (million)
Region	**West Central**			
Wagon <500 bu	8	25.92	4	103.66
Wagon >500 bu	8	25.92	4	103.66
Single Axle	4	12.96	6	77.75
Tandem Axle	10	32.40	8	259.16
Semi	70	226.77	27	6122.66
Total		**323.95**		**6666.89**
Region	**Central**			
Wagon <500 bu	9	31.54	4	126.16
Wagon >500 bu	19	66.59	5	332.93
Single Axle	2	7.01	5	35.05
Tandem Axle	2	7.01	10	70.09
Semi	69	241.81	22	5319.91
Total	**100**	**353.96**		**5884.14**
Region	**East Central**			
Wagon <500 bu	11	27.67	3	83.01
Wagon >500 bu	15	37.73	4	150.94
Single Axle	2	5.03	6	30.19
Tandem Axle	5	12.58	7	88.05
Semi	68	171.06	21	3592.28
Total	**100**	**254.08**		**3944.46**
Total all 9 Regions		**2263.09**		**39816.2**

Table 15. Bushel-Miles of Soy Transported by Producers by Region (North).

Vehicle	Average % Share Transported by Vehicle Size	Bushel-Miles Transported (million)	Average Distance Traveled (miles)	Total Bushel-Miles (million)
Region	**Northwest**			
Wagon <500 bu	11	7.99	5	39.97
Wagon >500 bu	28	20.35	6	122.09
Single Axle	0	0.00	4	0.00
Tandem Axle	10	7.27	9	65.41
Semi	51	37.06	13	481.84
Total	**100**	**72.68**		**709.31**
Region	**North Central**			
Wagon <500 bu	21	11.55	5	57.76
Wagon >500 bu	26	14.30	5	71.51
Single Axle	2	1.10	4	4.40
Tandem Axle	10	5.50	8	44.00
Semi	42	23.10	18	415.84
Total	**100**	**55.56**		**593.50**
Region				**6**
Wagon <500 bu	20	6.69	4	26.75
Wagon >500 bu	2	0.67	5	3.34
Single Axle	5	1.67	5	8.36
Tandem Axle	68	22.74	8	181.91
Semi	78	26.08	13	339.08
Total	**100**	**57.85**		**559.45**

Table 16. Bushel-Miles of Soy Transported by Producers by Region (West Central, East Central, and Central).

Vehicle	%Transported	Bushel-Miles Transported (million)	Average Distance (miles)	Total Bushel-Miles (million)
Region	**Southwest**			
Wagon <500 bu	0	0.00	4	0.00
Wagon >500 bu	4	1.74	4	6.98
Single Axle	7	3.05	16	48.84
Tandem Axle	5	2.18	18	39.24
Semi	83	36.19	43	1556.26
Total		**43.17**		**1651.32**
Region	**South Central**			
Wagon <500 bu	8	1.72	3	5.15
Wagon >500 bu	11	2.36	5	11.81
Single Axle	3	0.64	6	3.86
Tandem Axle	5	1.07	13	13.96
Semi	73	15.67	26	407.50
Total	**100**	**21.47**		**442.28**
Region	**South East**			
Wagon <500 bu	3	0.91	3	2.74
Wagon >500 bu	0	0.00	3	0.00
Single Axle	3	0.91	5	4.57
Tandem Axle	7	2.13	18	38.42
Semi	86	26.23	35	917.90
Total	**100**	**30.19**		**963.64**

Table 17. Bushel-Miles of Soy Transported by Producers by Region (South).

Vehicle	%Transported	Bushel-Miles Transported (million)	Average Distance (miles)	Total Bushel-Miles (million)
Region	**West Central**			
Wagon <500 bu	6	4.00	4	16.01
Wagon >500 bu	9	6.00	4	24.01
Single Axle	6	4.00	6	24.01
Tandem Axle	13	8.67	8	69.36
Semi	66	44.02	27	1188.42
Total		**66.69**		**1321.80**
Region	**Central**			
Wagon <500 bu	13	8.41	4	33.64
Wagon >500 bu	27	17.47	5	87.34
Single Axle	7	4.53	5	22.64
Tandem Axle	5	3.23	10	32.35
Semi	48	31.05	22	683.18
Total	**100**	**64.70**		**859.15**
Region	**East Central**			
Wagon <500 bu	11	4.21	3	12.63
Wagon >500 bu	15	5.74	4	22.97
Single Axle	2	0.77	6	4.59
Tandem Axle	5	1.91	7	13.40
Semi	68	26.03	21	546.71
Total	**100**	**38.67**		**600.31**
Total 9 Regions		**450.96**		**7700.76**

If the typical producer in Northwest region marketed 200,000 bushels of corn, the following would be case:

Vehicle	% Transported	Bushel Transported	Ave Distance Miles	Total Bushel Miles
Wagon (<500 bu)	7%	14,000 bu	5 miles	70,000
Wagon (>500 bu)	24%	48,000 bu	6 miles	228,000
Tandem-axle	12%	24,000 bu	9 miles	216,000
Semi	57%	114,000 bu	13 miles	1,482,000
	100%	200,000 bu		2,056,000 bu-miles

A typical farmer in Midwest would market between 140,000–160,000 bushels of corn and between 40,000 and 60,000 bushels of soybeans.

Where Do the Shipments Go?

The soybean and corn journey from the farm takes it in many directions. Table 18 indicates that the largest percentage (approximately 50%) of corn and soy farm flows are bound to cooperative elevators followed by private elevators. Table 18 is also based on the Iowa study.

Table 18. Markets for Iowa Corn and Soy Farm Shipments.

Market Corn	**Average Percentage Corn**	**Market Soy**	**Average Percentage Soy**
Cooperative Elevators	48 (minimum 27.4) (maximum 66.9)	Cooperative Elevators	52 (minimum 8.2) (maximum 70.5)
Private Elevators	14	Private Elevators	12
Iowa Ethanol Plants	16	Soybean Crushers Iowa	18
Out of State Ethanol Plants	1	Out of State Crushers	1
Iowa Processors	9	Mississippi River Terminals	7
Out of State Corn Processors	1	Missouri River Terminals	1
Mississippi River Terminals	6	Destination Unknown	9
Missouri River Terminals	1		
Other farm/herding operations	1		
Destination Unknown	3		

SECTION 10 - WHAT IS THE LIKELY IMPACT OF LEADING FINANCE PROPOSALS TO IOWA PRODUCERS?

Tables 19 and 20 attempt to evaluate the likely size of impact of vehicle mile fee, vehicle registration fees, and Heavy Vehicle Use Tax only on the producer side. There is little available information to evaluate the effect of remaining proposals beyond the analysis conducted at the macro level. There is also little information available in the Iowa or other studies that allow one to evaluate the effects of VMT, HVUT, and registration fees after the corn or soy reach the elevators or other initial destination market. The aggregate effect of fees is estimated based on CRD Iowa survey study information on:

- Farm grain hauling use of various kinds of farm vehicles including wagons <500 bu, wagons >500 bu, single axle trucks, tandem axle trucks, and semi-trucks.
- The average share of shipments by vehicle size.
- Regional distances traveled on state highways (since unpaved and paved roads may not be impacted by distance based charges due to tracking needs required for distance charging).

Table 19. Likely Magnitude of VMT Fees on the Grain Industry (Corn) in Producer to Market Transport.

Region	Average Distance on State Highways Corn	Average Distance on State Highways Soy	Single Truck Usage 2006 (#)	Tandem Trucks 2006	Semi Trucks 2006	Single 2012	Tandem 2012	Semi 2012
Northwest	6	8	727	1149	2521	302	1033	3169
North Central	14	15	528	1512	3264	267	1177	4083
Northeast	15	23	921	856	1519	576	982	2108
West Central	13	13	1883	987	1780	835	937	3089
Central	18	21	1451	1515	2922	699	881	3265
East Central	21	18	895	692	1301	661	815	1734
Southwest	20	35	570	511	1455	26	296	1594
South Central	27	30	366	535	761	268	372	825
Southeast	38	57	943	575	1449	688	372	1322

Region	VMT Fees 2006-Single Soy	VMT Fees 2006-Tandem Soy	VMT Fees 2006-Semi Soy	VMT Fees 2012-Single Soy	VMT Fees 2012-Tandem Soy	VMT Fees 2012-Semi Soy
Northwest	$257	$406	$891	$107	$365	$1,121
North Central	$350	$1,002	$2,164	$177	$780	$2,707
Northeast	$936	$870	$1,544	$586	$998	$2,143
West Central	$1,082	$567	$1,023	$480	$538	$1,775
Central	$1,347	$1,406	$2,712	$649	$818	$3,031
East Central	$712	$551	$1,035	$526	$648	$1,380
Southwest	$882	$791	$2,251	$40	$458	$2,466
South Central	$485	$709	$1,009	$355	$493	$1,094
Southeast	$2,376	$1,449	$3,651	$1,733	$937	$3,331
Total	**$8,427**	**$7,751**	**$16,280**	**$4,653**	**$6,037**	**$19,046**
Total		**$32,459**			**$29,736**	

Region	VMT Fees 2006-Single Corn	VMT Fees 2006-Tandem Corn	VMT Fees 2006-Semi Corn	VMT Fees 2012 Single Corn	VMT Fees 2012-Tandem Corn	VMT Fees 2012-Semi Corn
Northwest	$193	$305	$669	$80	$274	$840
North Central	$327	$936	$2,020	$165	$728	$2,527
Northeast	$611	$568	$1,007	$382	$651	$1,398
West Central	$1,082	$567	$1,023	$480	$538	$1,775
Central	$1,154	$1,205	$2,325	$556	$701	$2,598
East Central	$831	$642	$1,208	$614	$756	$1,609
Southwest	$504	$452	$1,286	$23	$262	$1,409
South Central	$437	$638	$908	$320	$444	$985
Southeast	$1,584	$966	$2,434	$1,156	$625	$2,220
Total	**$6,722**	**$6,279**	**$12,879**	**$3,775**	**$4,980**	**$15,361**
Total			**$25,879**			**$24,115**

VMT Fees are only calculated for average travel mileage on state highways and assume they are applicable in all the regions. Wagons (< or > than 500 bu) are not considered. The estimate is based on producer dimension only and use fixed base rate. Rate 4.42 cents/mile for all trucks

Table 20. Likely Magnitude of Heavy Vehicle Use Tax (HVUT) and Vehicle Registration Fees on the Grain Industry.

Region	2006 Base[51] HVUT	2012 base HVUT	2006 new base HVUT	2012 new base HVUT	Vehicle Registration Fees 2006[52]	Vehicle Registration Fees 2012
Northwest	$1,076,600	$1,141,900	$1,184,260	$1,256,090	$146,465	$117,766
North Central	$1,380,600	$1,524,300	$1,518,660	$1,676,730	$173,608	$142,252
Northeast	$761,100	$969,400	$837,210	$1,066,340	$123,805	$102,284
West Central	$858,700	$823,600	$944,570	$905,960	$95,557	$70,752
Central	$956,500	$1,161,000	$1,052,150	$1,277,100	$100,183	$86,279
East Central	$980,400	$708,700	$1,078,440	$779,570	$124,768	$86,735
Southwest	$413,900	$318,600	$455,290	$350,460	$42,372	$22,083
South Central	$231,300	$187,600	$254,430	$206,360	$37,158	$21,087
Southeast	$537,400	$463,100	$591,140	$509,410	$80,163	$54,846
Total	$7,196,500	$7,298,200	$7,916,150	$8,028,020	$924,077	$704,083
Difference between New and Old Base			$719,650	$729,820		

Producer Dimension – Other Fees/Taxes

Container Grain Shipments and Container Fees

The Iowa study provides insight into the regional variations in producer containerization. For simplicity the results of the report are summarized in Table 21. Container fees do have the potential of increasing container rates and having a spatial effect since containerization appears to be much more predominant in the Northern crop reporting districts.

Table 21. Container Shipments by CRD.

Region	Corn (million) bushels	Soy (million) Bushels
Northwest	15.9	3.2
North Central	7.1	1.1
Northeast	11.7	1.6
West Central	2.5	0.0
Central	3.0	0.6
East Central	9.4	8.2
Southwest	8.2	2.4
South Central	0.5	0.0
Southeast	2.0	1.1

[51] Assuming $100 as old base and $110 as new base. Variable portions based on weight are not included. Hence, these estimates are lower bounds.

[52] Assuming fees if issued in 2006. Registration fees of $5.50 are levied on all truck vehicle types.

SECTION 11 - IOWA PRODUCER IMPACTS – CONCLUSIONS

The Iowa CRD regions show significant disparity in production and transport of corn to various markets and containerization. The Iowa study provides significant information to evaluate the flows and impacts of some leading transport finance proposals based on average distances and fleets. An estimate of effect is made for VMT fees, HVUT, and registration fees (producer dimensions only). A qualitative discussion of containerized movements and their implications is included. Finally, the remaining proposals are covered in the macro-section. Some of the key findings are:

- There is evidence that registration fees and HVUT impact would likely be the greatest; however they are operating costs and may be spread out over the tonnage. HVUT also has a variable component that has not been considered in this study that increases by $2.20 per 1000 lb of gross vehicle weights over the 55,000 lb.
    - Evidence of spatial disparity in size of effect with the greatest impact to the Northern regions of Iowa with higher truck usage and higher use of containerization.
- Distance charges seem to have the highest magnitude in the Southeast CRDs. A typical Southeast CRD producer traveling an average of 57 miles to the nearest soy elevator or 38 miles on state highways could pay an additional $2.52 or an additional $1.67 in transport costs, respectively, if distance charges were put into effect.
- When compared to macro level estimates of VMT fees and HVUT fees it seems clear that the macro level estimates might seem to mask some of the details that a detailed flow study such as Iowa provides.

Although much of the grain is used in proximity of production, a considerable volume is shipped long distances (often export markets by rail and barge), and empirical studies have suggested spatial linkages between domestic inland prices and the prices at export locations. To the extent that ownership (fixed costs) and transport costs (variable) are likely to increase due to proposed financial measures, and farm prices could be impacted depending on the ability to pass on costs increases to ultimate buyers (elevators or other).

SECTION 12 - SURVEYS OF GRAIN HANDLERS, PROCESSORS (CORN AND SOY)

A convenience sample of grain handlers, processors, (soy and corn) and corn producers was collected based on a surveys sent out in October 2010. A total of 15 handlers, 1 corn processor, and 5 soy processors were obtained. The surveys provide additional insight into the transportation movements of corn, corn products, soy, and soy products as well as modes involved and typical distances traveled on those modes during the period 2007–2008 beyond farm level movements, which were extensively covered in the Iowa study conducted by Iowa State University.[53] The survey results are summarized in Tables 21–32 for grain handlers, Tables 33–56 for soy processors, and Tables 57–59 for corn processors.

Grain Handlers – Mode Use

An average (based on sample) handler receives approximately $6.5 million bushels of corn and $1.4 million of soybeans. The average handler sends another $5.2 million (80% of received) of corn and $1.3 million (87% of received) on to various destinations. On the other hand, a large handler receives approximately $31.3 million bushels of corn and $5.9 million of soybeans. This large handler would also send out 95% ($30.1) of corn to other markets (Table 21).

- The key difference between an average handler and a large handler lies in the mode choice for shipments for sending out grain to markets. Livestock feeders receive about 14.7% of in-state corn shipments and a smaller percentage of out-state shipments (7.5%) (Tables 22–32). Large handlers have very high truck usage for in-state and out-state corn shipments to livestock feeders, in-state and out-state ethanol plants, in-state and out-state river terminals, and in-state processors in comparison to the average handler.
- Large handlers also more likely to use containers ($8.5 million bushels of corn and $3.5 million soybeans). Larger and smaller handlers use rail for transporting corn to out-state processors and to export locations like Mexico. Larger handlers report almost 100% rail use for out of state processors.
- In the case of soybean, larger handlers have high truck usages for movements to in-state and out-state processors, river terminals. Rail is the predominant mode among large handlers to transport to export destinations like Gulf or West Coast. Trucks are used for a few other export locations.
- Table 60 presents the average distances and distances traveled by handlers in various corn, corn product, soy, and soy product related movements. An average handler transports corn via truck to livestock feeders, to ethanol plants in the making of ethanol, to processors, and to river elevators for final transport on barge or to the West coast or other international markets. The average haul length in all these moves is 75.4 miles within the state and 161 out-state miles. In the case of soybean, the average distance is 48 miles in-state and 170 out-state miles. An average of 128 miles is indicated for the West coast export truck moves by handlers with a maximum distance of 1670 miles in

[53] Tun-Hsiang Yu and Chad Hart. *The 2007/08 Iowa Grain and Biofuel Flow Study*: A Survey Report. Center for Agricultural and Rural Development, Iowa State University. Staff Report 09-SR 103.

the case of both corn and soybean movements. Both soybean and corn are seen to travel to a variety of destinations. A small percentage also is bound for export markets especially the West Coast. These distances are inputs for the assessment of VMT fees, HVUT fees, and container fees.

- The container volumes suggest that large handlers may be more impacted by container fees relative to smaller handlers. Since the predominant mode is trucks, the truck use would also be impacted by VMT fees if the VMT proposal is accepted as also by HVUT, registration fee increase, motor fuel tax, and to a smaller extent other oil related proposals.
- International shipments to Mexico are reported as using rail with an average haul of 153 miles and a maximum distance of 2000 miles.
- Tables 61 and 62 trace out the effects of the proposed VMT fee, HVUT fee increase, and new container fees for the stated distances and volumes transported.

The survey results for soy processors are discussed below.

Soy Processors

- The average volume of soybeans processed in the year 2009 by soy processors amounted to 34.4 million bushels (3 year average of 42.67 million bushels). The maximum reported for the year 2009 was 50 million bushels (3year average of 72 million bushels).
- Soybean processors use both truck and rail modes for purchasing soybeans, in-state, and out-state. The average truck distance reported for in-state was 41.6 miles and 75 miles for out-state moves. The average rail distance reported for in-state was 45.8 miles and 136 miles for out-state moves.
- Soybean processors reported using only truck and rail modes for soy product movements (meal), in-state and out-state. The average truck distance reported for in-state was 54 miles and 79 miles for out-state moves. The average rail distance reported was 600 miles for out-state moves.
- Soybean processors reported using only truck and rail modes for soy product movements (oil), for in-state and out-state movements. The average truck distance reported for in-state was 39 miles and 134 miles for out-state moves. The average rail distance reported was 25 miles for in-state moves and 595 miles for out-state moves.
- Soybean processors reported using only truck and rail modes for soy product shipments of other soy products, for in-state and out-state movements. The average truck distance reported for in-state was 51.6 miles and 87.5 miles for out-state moves. The average rail distance reported was 13 miles for in-state moves and 425 miles for out-state moves.
- International moves of soybean meal use all three modes (truck, rail, and barge). The average reported distances for truck was 50 miles, 487 miles for rail, and 233 miles for barge movements.
- International moves of soybean meal are reported use all truck and barge. The average reported distances for truck was 154 miles and 233 miles for barge movements.

The survey results for corn processors are discussed below.

Corn Processors

- The average volume of corn processed in the year 2009 amounted to 15.9 million bushels.
- Corn processors use trucks for purchasing corn, in-state and out-state. The average truck distance reported was 15 miles.
- Corn processors reported using truck and rail modes for corn product movements (ethanol), for in-state and out-state movements. The average truck distance reported for in-state was 15 one-way miles.
- Corn processors reported using truck and rail modes for corn product movements (ethanol), for in-state and out-state movements. The average truck distance reported for in-state was 55 one-way miles and 50 miles for out-state moves. The average rail distance was 350 miles for out-state moves.
- Corn processors reported using truck and rail modes for corn product movements (DDGS), in-state and out-state. The average truck distance reported for in-state was 10 one-way miles. The average rail distance was 350 miles for out-state moves.
- International moves of DDGS are reported as using rail. The average reported distance was 100 miles for rail movements.

VMT Fees, Container Fees, HVUT, and Other Financial Proposals

Tables 61 and 62 evaluate the effects of some leading finance proposals. VMT fees are evaluated based on reported distances and must be doubled when there are one-way miles involved. The VMT fee assessments assumed all travel occur on state highways or other highways that might permit use of distance charging. VMT fees are seen to increase base truck rates by about 1.2%. Larger handlers, processors using a greater volume of trucks might see a greater cost increase than those who rely on fewer trucks. HVUT fees on the other hand can be a significant expense for the corn and soy industry and lead to significant cost increases. The HVUT fees calculated with only the flat component range from $9740–$81,600 for the corn industry and $3590–$38,100 for the soy industry. When the variable component is considered, these ranges are $61,566–$530,400 for the corn industry and $23,349–$247,663 for the soy industry. These proposals must consider additional factors such as annual number of trips, and transportation fleets that are involved in order to obtain a yearly expense or cost.

Other Finance Proposals

Oil and fuel related fees are not evaluated in this section since truck fleets are needed to make this evaluation. Tolling and NIB proposals must be evaluated again on a case by basis. Tolling if introduced in any of the specific regions or corridors for reporting regions (Iowa, Illinois, North Dakota, California, Kansas – Handlers) (Indiana, Kentucky – Processors) must consider whether the operating cost increase is offset by any productivity savings there might be in labor costs or fuel costs. Similarly, the NIB proposal must be considered in these regions since many of the reporting areas rely on strong corridors and infrastructure investments. Many of these regions connect to international market and are involved in export moves.

Table 22. Corn, Soybean Shipped and Received (Bushels).

	Average	Min	Max (Large Handler)
Corn Received (bushels)	6,576,694	0	31,334,472
Soybeans Received (bushels)	1,433,753	0	5,974,664
Corn Shipped (bushels)	5,277,108	0	30,067,122
Soybeans Shipped (bushels)	1,252,170	0	6,239,250

Table 23. Corn, Soybean Shipped (Containers Shipments).

	Average	Min	Max (Large Handler)
Corn Shipped in Containers (bushels)	986,667	0	8,500,000
Soybeans Shipped in Containers (bushels)	330,000	0	3,500,000

Table 24. Corn, In-State Modal Movement to Livestock Feeder.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Livestock Feeder In-state % of Volume	14.7	0.0	75.0	-	-	
Corn Shipment Livestock Feeder In-state % received by Truck	24.1	0.0	100.0	26.4	0.0	200.0
Corn Shipment Livestock Feeder In-state % received by Rail	7.7	0.0	100.0	0.0	0.0	0.0
Corn Shipment Livestock Feeder In-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 25. Corn, Out-State Modal Movement to Livestock Feeder.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Livestock Feeder Out-state % of Volume	7.4	0.0	70.0			
Corn Shipment Livestock Feeder Out-state % received by Truck	8.5	0.0	100.0	4.4	0.0	23.0
Corn Shipment Livestock Feeder Out-state % received by Rail	0.0	0.0	0.0	57.7	0.0	750.0
Corn Shipment Livestock Feeder Out-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 26. Corn, In-State Modal Movement to Ethanol Plant.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Ethanol Plant In-state % of Volume	17.7	0.0	80.0	-	-	-
Corn Shipment Ethanol Plant In-state % received by Truck	30.4	0.0	100.0	30.8	0.0	240.0
Corn Shipment Ethanol Plant In-state % received by Rail	9.2	0.0	100.0	0.8	0.0	10.0
Corn Shipment Ethanol Plant In-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 27. Corn, Out-State Modal Movement to Ethanol Plant.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Ethanol Plant Out-state % of Volume	2.0	0.0	15.0	-	-	-
Corn Shipment Ethanol Plant Out-state % received by Truck	15.4	0.0	100.0	16.9	0.0	16.9
Corn Shipment Ethanol Plant Out-state % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Corn Shipment Ethanol Plant Out-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 28. Corn Shipment/Processor In-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Miller/processor In-state % of Volume	19.2	0.0	95.0	-	-	-
Corn Shipment Miller/processor In-state % received by Truck	28.8	0.0	100.0	11.8	0.0	44.0
Corn Shipment Miller/processor In-state % received by Rail	6.2	0.0	80.0	18.1	0.0	235.0
Corn Shipment Miller/processor In-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 29. Corn Shipment/Processor Out-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Miller/processor Out-state % of Volume	0.9	0.0	12.0			
Corn Shipment Miller/processor Out-state % received by Truck	0.0	0.0	0.0	0.0	0.0	0.0
Corn Shipment Miller/processor Out-state % received by Rail	7.7	0.0	100.0	15.4	0.0	200.0
Corn Shipment Miller/processor Out-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 30. Corn Shipment/River Terminal In-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment River Terminals In-state % of Volume	0.5	0.0	5.0			
Corn Shipment River Terminals In-state % received by Truck	15.4	0.0	100.0	6.4	0.0	53.0
Corn Shipment River Terminals In-state % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Corn Shipment River Terminals In-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 31. Corn Shipment/River Terminal Out-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment River Terminals Out-state % of Volume	7.9	0.0	73.0			
Corn Shipment River Terminals Out-state % received by Truck	7.7	0.0	100.0	11.2	0.0	100.0
Corn Shipment River Terminals Out-state % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Corn Shipment River Terminals Out-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 32. Corn Shipment/Direct Export to West Coast.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Direct to Export West Coast % of Volume	5.8	0.0	75.0			
Corn Shipment Direct to Export West Coast % received by Truck	0.0	0.0	0.0	128.5	0.0	1670.0
Corn Shipment Direct to Export West Coast % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Corn Shipment Direct to Export West Coast % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 33. Corn Shipment/Direct Export to Mexico.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Corn Shipment Direct to Export Mexico % of Volume	0.0	0.0	0.0	-	-	-
Corn Shipment Direct to Export Mexico % received by Truck	0.0	0.0	0.0	0.0	0.0	0.0
Corn Shipment Direct to Export Mexico % received by Rail	0.7	0.0	9.0	153.8	0.0	2000.0
Corn Shipment Direct to Export Mexico % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 34. Soybean Processor In-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment Processor/Crusher In-state % of Volume	48.1	0.0	100.0	-		-
Soybean Shipment Processor/Crusher In-state % received by Truck	48.3	0.0	100.0	25.9	0.0	70.0
Soybean Shipment Processor/Crusher In-state % received by Rail	2.0	0.0	30.0	6.7	0.0	100.0
Soybean Shipment Processor/Crusher In-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 35. Soybean Processor Out-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment Processor/Crusher Out-state % of Volume	7.1	0.0	40.0			
Soybean Shipment Processor/Crusher Out-state % received by Truck	16.0	0.0	100.0	21.7	0.0	140.0
Soybean Shipment Processor/Crusher Out-state % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Soybean Shipment Processor/Crusher Out-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 36. Soybean Shipment River Terminal In-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment River Terminals In-state % of Volume	7.3	0.0	43.0			
Soybean Shipment River Terminals In-state % received by Truck	20.3	0.0	100.0	22.2	0.0	100.0
Soybean Shipment River Terminals In-state % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Soybean Shipment River Terminals In-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 37. Soybean Shipment River Terminal Out-State Modal Movement.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment River Terminals Out-state % of Volume	8.0	0.0	100.0			
Soybean Shipment River Terminals Out-state % received by Truck	13.3	0.0	100.0	6.7	0.0	55.0
Soybean Shipment River Terminals Out-state % received by Rail	6.7	0.0	100.0	26.7	0.0	400.0
Soybean Shipment River Terminals Out-state % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 38. Soybean Shipment Direct Export to Gulf.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment Direct to Export Gulf % of Volume	0.6	0.0	9.0			
Soybean Shipment Direct to Export Gulf % received by Truck	0.0	0.0	0.0	0.0	0.0	0.0
Soybean Shipment Direct to Export Gulf % received by Rail	6.7	0.0	100.0	53.3	0.0	800.0
Soybean Shipment Direct to Export Gulf % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 39. Soybean Shipment Direct Export to West Coast.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment Direct to Export West Coast % of Volume	10.3	0.0	80.0			
Soybean Shipment Direct to Export West Coast% received by Truck	6.7	0.0	100.0	128.0	0.0	1670.0
Soybean Shipment Direct to Export West Coast % received by Rail	6.7	0.0	100.0	86.7	0.0	1300.0
Soybean Shipment Direct to Export West Coast % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 40. Soybean Shipment Direct Export to Mexico.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment Direct to Export Mexico % of Volume	0.2	0.0	3.0			
Soybean Shipment Direct to Export Mexico % received by Truck	0.0	0.0	0.0	0.0	0.0	0.0
Soybean Shipment Direct to Export Mexico % received by Rail	6.7	0.0	100.0	73.3	0.0	1100.0
Soybean Shipment Direct to Export Mexico % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 41. Soybean Shipment Direct Export to Other Locations.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment Direct to Export Other % of Volume	0.3	0.0	5.0			
Soybean Shipment Direct to Export Other % received by Truck	6.7	0.0	100.0	16.7	0.0	250.0
Soybean Shipment Direct to Export Other % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Soybean Shipment Direct to Export Other % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 42. Soybean Shipment – Other Locations.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean Shipment Other % of Volume	1.6	0.0	15.0			
Soybean Shipment Other % received by Truck	13.3	0.0	100.0	8.7	0.0	100.0
Soybean Shipment Other % received by Rail	0.0	0.0	0.0	0.0	0.0	0.0
Soybean Shipment Other % received by Barge	0.0	0.0	0.0	0.0	0.0	0.0

Table 43. Soy Processing Data.

	Average	Min	Max
Average volume of soybeans processed during past three years (bu per year)	42,666,667	26,500,000	72,000,000
Soybeans processed 2009(bu)	34,416,667	24,500,000	50,000,000

Table 44. Soybean Purchases In-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean purchases In-state % of Volume	66.67	30.00	90.00			
Soybean purchases In-state % received by Truck	84.33	30.00	100.00	41.67	30.00	50.00
Soybean purchases In-state % received by Rail	4.00	0.00	16.00	45.83	0.00	125.00
Soybean purchases In-state % received by Barge	0.00	0.00	0.00	0.00	0.00	0.00

Table 45. Soybean Purchases Out-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean purchases Out-state % of Volume	33.33	10.00	70.00			
Soybean purchases Out-state % received by Truck	55.00	0.00	100.00	75.00	0.00	150.00
Soybean purchases Out-state % received by Rail	39.83	0.00	100.00	136.67	0.00	450.00
Soybean purchases Out-state % received by Barge	16.83	0.00	100.00	57.50	0.00	300.00

Table 46. Contribution to Product Sales.

	Average	Min	Max
Percentage of total product sales contributed by soybean meal	60.50	40.00	80.00
Percentage of total product sales contributed by soybean oil	31.00	18.00	50.00
Percentage of total product sales contributed by soybean products	5.17	2.00	10.00

Table 47. Soybean Product Shipments-In-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments soybean meal In-state % of Volume	25.17	10.00	46.00			
Soybean product shipments soybean meal In-state % received by Truck	68.33	0.00	100.00	54.17	50.00	60.00
Soybean product shipments soybean meal In-state % received by Rail	0.00	0.00	0.00	0.00	0.00	0.00
Soybean product shipments soybean meal In-state % received by Barge	0.00	0.00	0.00	0.00	0.00	0.00

Table 48. Soybean Product Shipments-Out-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments soybean meal Out-state % of Volume	50.67	20.00	70.00			
Soybean product shipments soybean meal Out-state % received by Truck	25.83	0.00	90.00	79.17	0.00	150.00
Soybean product shipments soybean meal Out-state % received by Rail	72.50	0.00	100.00	600.00	0.00	1000.00
Soybean product shipments soybean meal Out-state % received by Barge	0.00	0.00	0.00	0.00	0.00	0.00

Table 49. Soybean Product Shipments-International Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments soybean meal International % of Volume	22.50	0.00	70.00			
Soybean product shipments soybean meal International % received by Truck	4.17	0.00	25.00	50.00	0.00	300.00
Soybean product shipments soybean meal International % received by Rail	45.83	0.00	100.00	487.50	0.00	2000.00
Soybean product shipments soybean meal International % received by Barge	33.33	0.00	100.00	233.33	0.00	1400.00

Table 50. Soybean Product Shipments-Soybean Meal International Modal Movements.

	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments soybean meal International Average Distance of Truck (one-way miles)	50.00	0.00	300.00
Soybean product shipments soybean meal International Average Distance of Rail (one-way miles)	487.50	0.00	2000.00
Soybean product shipments soybean meal International Average Distance of Barge (one-way miles)	233.33	0.00	1400.00

Table 51. Soybean Product Shipments-Soybean Oil In-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments soybean oil In-state % of Volume	15.83	0.00	40.00			
Soybean product shipments soybean oil In-state % received by Truck	64.17	0.00	100.00	39.17	0.00	75.00
Soybean product shipments soybean oil In-state % received by Rail	3.33	0.00	20.00	25.00	0.00	150.00
Soybean product shipments soybean oil In-state % received by Barge	0.00	0.00	0.00	0.00	0.00	0.00

Table 52. Soybean Product Shipments-Soy Oil Out-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments soybean oil Out-state % of Volume	80.50	60.00	100.00			
Soybean product shipments soybean oil Out-state % received by Truck	31.67	0.00	95.00	134.17	0.00	350.00
Soybean product shipments soybean oil Out-state % received by Rail	76.67	50.00	100.00	595.83	300.00	925.00
Soybean product shipments soybean oil Out-state % received by Barge	7.50	0.00	45.00	0.00	0.00	0.00

Table 53. Soybean Product Shipments-Soy Oil International Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments soybean oil International % of Volume	3.67	0.00	20.00			
Soybean product shipments soybean oil International % received by Truck	16.67	0.00	100.00	154.17	0.00	925.00
Soybean product shipments soybean oil International % received by Rail	0.00	0.00	0.00	0.00	0.00	0.00
Soybean product shipments soybean oil International % received by Barge	16.67	0.00	100.00	233.33	0.00	1400.00

Table 54. Soybean Product Shipments-Other Products In-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments other products In-state % of Volume	30.83	0.00	80.00			
Soybean product shipments other products In-state % received by Truck	71.67	0.00	100.00	51.67	0.00	100.00
Soybean product shipments other products In-state % received by Rail	0.83	0.00	5.00	13.33	0.00	80.00
Soybean product shipments other products In-state % received by Barge	0.00	0.00	0.00	0.00	0.00	0.00

Table 55. Soybean Product Shipments-Other Products Out-State Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments other products Out-state % of Volume	51.67	0.00	90.00			
Soybean product shipments other products Out-state % received by Truck	20.00	0.00	65.00	87.50	0.00	200.00
Soybean product shipments other products Out-state % received by Rail	56.67	0.00	100.00	425.00	0.00	1000.00
Soybean product shipments other products Out-state % received by Barge	0.83	0.00	5.00	0.00	0.00	0.00

Table 56. Soybean Product Shipments-Other Products International Modal Movements.

	Average (%)	Min (%)	Max (%)	Average Distance (miles)	Min Distance (miles)	Max Distance (miles)
Soybean product shipments other products International % of Volume	0.83	0.00	5.00			
Soybean product shipments other products International % received by Truck	0.00	0.00	0.00	0.00	0.00	0.00
Soybean product shipments other products International % received by Rail	0.00	0.00	0.00	0.00	0.00	0.00
Soybean product shipments other products International % received by Barge	16.67	0.00	100.00	0.00	0.00	0.00

Table 57. Corn Processor – Average.

Volume of corn processed (bu)	15,900,000
Corn purchases In-state % of Volume	100
Corn purchases In-state % received by Truck	100
Corn purchases In-state % received by Rail	0
Corn purchases In-state % received by Barge	0
Corn purchases In-state Average Distance of Truck (one-way miles)	15
Corn purchases In-state Average Distance of Rail (one-way miles)	0
Corn purchases In-state Average Distance of Barge (one-way miles)	0
Corn purchases Out-state Average Distance of Truck (one-way miles)	0
Corn purchases Out-state Average Distance of Rail (one-way miles)	0
Corn purchases Out-state Average Distance of Barge (one-way miles)	0
Percent of total product sales contributed by ethanol	85
Percent of total product sales contributed by wet distillers grains	0
Percent of total product sales contributed by dry distillers grains	15
Percent of total product sales contributed by corn gluten meal	0
Percent of total product sales contributed by corn gluten feed	0
Percent of total product sales contributed by other products	0

Table 58. Corn Processor – Corn Product Shipments – Average.

Corn product shipments ethanol In-state % of Volume	50
Corn product shipments ethanol In-state % received by Truck	100
Corn product shipments ethanol In-state % received by Rail	0
Corn product shipments ethanol In-state % received by Barge	0
Corn product shipments ethanol In-state Average Distance of Truck (one-way miles)	55
Corn product shipments ethanol In-state Average Distance of Rail (one-way miles)	0
Corn product shipments ethanol In-state Average Distance of Barge (one-way miles)	0
Corn product shipments ethanol Out-state % of Volume	50
Corn product shipments ethanol Out-state % received by Truck	0
Corn product shipments ethanol Out-state % received by Rail	100
Corn product shipments ethanol Out-state % received by Barge	0
Corn product shipments ethanol Out-state Average Distance of Truck (one-way miles)	0
Corn product shipments ethanol Out-state Average Distance of Rail (one-way miles)	350
Corn product shipments ethanol Out-state Average Distance of Barge (one-way miles)	0
Corn product shipments dry distiller's grain In-state % of Volume	20
Corn product shipments dry distiller's grain In-state % received by Truck	100
Corn product shipments dry distiller's grain In-state % received by Rail	0
Corn product shipments dry distiller's grain In-state % received by Barge	0
Corn product shipments dry distiller's grain In-state Average Distance of Truck (one-way miles)	10
Corn product shipments dry distiller's grain In-state Average Distance of Rail (one-way miles)	0
Corn product shipments dry distiller's grain In-state Average Distance of Barge (one-way miles)	0

Table 59. Corn Processor – DDGS Shipments – Average.

Corn product shipments dry distiller's grain Out-state % of Volume	30
Corn product shipments dry distiller's grain Out-state % received by Truck	0
Corn product shipments dry distiller's grain Out-state % received by Rail	100
Corn product shipments dry distiller's grain Out-state % received by Barge	0
Corn product shipments dry distiller's grain Out-state Average Distance of Truck (one-way miles)	0
Corn product shipments dry distiller's grain Out-state Average Distance of Rail (one-way miles)	350
Corn product shipments dry distiller's grain Out-state Average Distance of Barge (one-way miles)	0
Corn product shipments dry distiller's grain International % of Volume	50
Corn product shipments dry distiller's grain International % received by Truck	0
Corn product shipments dry distiller's grain International % received by Rail	100
Corn product shipments dry distiller's grain International % received by Barge	0

Table 60. Distance Traveled (Truck Mode) Corn, Soybean, and Corn and Soy Products (miles) (Handlers and Processors).

	Average	Max	Average	Max	Average	Max	Average	Max
Destination/Action/ Category	**In-State**		**Out-State**		**In-State**		**Out-State**	
	CORN				**SOYBEAN**			
Livestock feed	26.4	200	4.4	100				
Ethanol Plant	30.8	240	16.9	90				
Miller/Processor	11.8	44	0	0	25.9	70	21.7	140
River Terminal	6.4	53	11.2	100	22.2	100	6.7	55
West Coast (Export Move)			128.5	1670	0	0	128	1670
Gulf (Export Move)			0	0			0	0
Export Other Locations	-	-	-	-			16.7	250
Shipments –Other Locations	-	-	-	-			8.7	100
Mexico (Export Move-International)	0	0	0	0	0	0	0	0
Total- Handlers	**75.4**	**537**	**161**	**1960**	**48.1**	**170**	**181.8**	**2215**
Processors/Purchases	-	-	-	-	41.6	50	75	150
Processors/Soybean Product Shipment (Meal)	-	-	-	-	54.2	60	79.2	150
Soybean Product Shipment (Meal) International Moves	-	-	-	-			50	300
Soybean Product Shipment (Oil)	-	-	-	-	39.2	75	134.7	350
Soybean Product Oil Shipments- International Moves	-	-	-	-			154.2	925
Soybean Product Shipment (Other)	-	-	-	-	51.6	100	87.5	200
Soybean Product Shipments- International Moves	-	-	-	-			0	0
Total –Processors (Soy)					**186.6**	**285**	**580.6**	**2075**
Corn Processors/Purchases	15 one way	-	-	-	-	-	-	-
Corn Product Shipments (Ethanol)	55		-	-	-	-	-	-
Corn Product Shipment DDGS	10		-	-	-	-	-	-
DDGs International	-	-	-	-	-	-	-	-
Total- Processors (Corn)	**80 one-way miles**							

Table 61. Effect of Finance Proposals on One-Way Truck Costs (Corn, Soybean, and Corn and Soy Products (Miles) (Handlers and Processors) (VMT Fee).

	Average	Max	Average	Max	Average	Max	Average	Max
Destination/Action/ Category	**In-State**		**Out-State**		**In-State**		**Out-State**	
	CORN				**SOYBEAN**			
	(All Truck Miles Assumed to be on State Highways.) VMT fee of 4.42 cents per mile							
Total- Handlers Fees	$3.33	$23.74	$7.12	$86.63	$2.13	$7.51	$8.04	$97.90
Total -Soy Processors Fees					$8.25	$12.60	$25.66	$91.72
Total- Corn Processors Fees (Assuming all truck miles subject to VMT fees of 4.42 cents/mile and doubling one-way miles)	**$7.07**							
Base Truck Costs (Appendix G)	**$3.50 Base per miles**							
Total Truck costs (for Stated Distances) to Handler Flows on Trucks (Without fee)	**$263.9**	**$1,879.5**	**$563.5**	**$6,860.0**	**$168.3**	**$595.0**	**$636.3**	**$7,752.5**
Total Truck costs (for Stated Distances) to Handler Flows on Trucks VMT Fees	**$267.2**	**$1,903.2**	**$570.6**	**$6,946.6**	**$170.4**	**$602.5**	**$644.3**	**$7,850.4**
% increase in Costs to Handlers	1.26%	1.26%	1.26%	1.26%	1.26%	1.26%	1.26%	1.26%
Total Truck Costs to Soy Processors with fees					**$661.3**	**$1,010.1**	**$2,057.7**	**$7,354.2**
% increase in Costs to Handlers					1.26%	1.26%	1.26%	1.26%
Total Truck Costs to Soy Processors with fees	**$283.5**							
% increase in Costs to Handlers	**1.26%**							

Table 62. Effect of Finance Proposals on Truck Costs (Corn, Soybean, and Corn and Soy Products (Miles) (Grain Handlers) (HVUT, Container Fees).

	Average	Min	Max/Large Handler	Average	Min	Max Large Handler
	CORN			**SOYBEAN**		
Total- Handlers Container Use[54]	947	0	8160	359	0	3810
Proposed Container Fee of $10 Container Costs	$9470	0	$81,600	$3590	0	$38,100
Proposed HVUT fee: Base portion of additional $10[55] **Handlers without variable component.**	$9470	0	$81,600	$3590	0	$38,100
Proposed HVUT fee: Base portion of additional $10[56] **Handlers with variable component (assuming gross vehicle weights are all at 80,000 lb instead of 55,000 lb)**	$61,566	0	$530,400	$23,349	$0	$247,663

[54] Based on 60 lb bushel conversion factor to short tons, data from Table 22, and assumed container capacity of 25 tons.
[55] Excludes variable portion of $2.2 per 1000 lb extra. The HVUT fee will be much higher once the variable portions are included.
[56] Excludes variable portion of $2.2 per 1000 lb extra. The HVUT fee will be much higher once the variable portions are included.

SECTION 13 - TRANSPORT COSTS, BASIS, PRICES, AND CONCLUSIONS

Since several of the leading finance proposals could lead to higher transport costs both fixed and variable, this section discusses the effects of transport costs on farm basis and price effects. These finance proposals vary in their likely global or industry effect. On the other hand, there are a few initiatives like the NIB and tolling that may positively impact transport costs on specific corridors.

There has been increased discussion of the effect of transport costs on farm basis. Two recent studies conducted by Market Solutions, LLC and O'Neil Consulting[57,58] have suggested that transport costs negatively impact farm basis. The Market Solutions Study found that soybean basis widened in more recent years, leading to many U.S. farmers receiving a smaller share of the futures price of soybeans on the Chicago Board of Trade (CBOT). The study notes that transportation often accounts for 30–60% of soybean basis and that transportation challenges are critical to reducing the basis. Similarly, if transport costs increase on long distance moves on rail and on international moves though oil/fuel related fees, prices at export markets may have some effect on interior domestic prices.[59]

This report discusses several of the leading proposals that have been brought forward for further consideration and assessment in bridging the infrastructure finance gap and addressing the Highway Trust Fund deficit. The report from tri-level analysis concludes that VMT fees, HVUT fees are likely to most negatively affect the soy and corn industry. In addition to having variable components, they are likely to disproportionately affect specific regions and corridors relative to others. Agricultural movements are by their very nature tied to supply and demand destinations. These fees seem to penalize that movement pattern even though they are based on usage. Other proposals like those based on fuel and motor fuel/diesel taxes might be less onerous since they are fixed costs and the incidence is likely lower. The effect of speculative taxes is a subject that is worthy of further investigation as the discussion provided here is at best cursory. Proposals like NIB and tolling must be evaluated by the industry specifically for high volume corridors several of which have been identified in this document.

[57] "*Transportation and The Farmer's Bottom Line*." June 2010. O'Neil Commodity Consulting, (on behalf of the Soy Transportation Coalition and the United Soybean Board). The authors show the effect of transport costs on farmer's origin basis.
[58] Market Solutions, Inc. http://www.soytransportation.org/newsroom/sbbasisdev.pdf.
[59] T. Yu. Essays on the Upper Mississippi River and Illinois Waterway and U.S. Grain Market, 2005, Dissertation. http://hdl.handle.net/1969.1/2278.

APPENDIX A - SURFACE TRANSPORTATION BOARD FREIGHT TERRITORIES

Origin Freight Rate Territory (1 digit numeric)
The freight rate territory, as defined by the ICC, in which the reported waybill movement originated. Freight rate territories are imputed from ICC-defined Freight Rate Areas, and coded as follows:

(0) Unknown

(1) Official Territory: Commencing at the eastern terminus of the United States-Canadian boundary on the Atlantic Ocean and proceeding westwardly along the border to the Straits of Mackinac, thence southwestwardly across Lake Michigan to Kewaunee, Wisconsin, thence southward along the shore of Lake Michigan to Manitowoc, Wisconsin, thence southward along the line of the Chicago and North Western Railway to Milwaukee, Wisconsin, thence northwest along the Milwaukee Railway to Rugby Junction, Wisconsin, thence south along the Soo Line to Duplainville, Wisconsin, thence west along the Milwaukee Railway through Montfort Junction, Wisconsin, to Benton, Wisconsin, thence southwest by air line to the intersection of the Wisconsin-Illinois boundary with the Mississippi River, thence south along the Mississippi River to the mouth of the Ohio River, thence eastward along the Ohio to Cincinnati, Ohio, thence eastward along the Chesapeake and Ohio Railway to Kenova, West Virginia, thence eastward along the Norfolk and Western Railway to its intersection with the former Virginian Railway (now Norfolk and Western) west of Roanoke, Virginia, thence east along the former Virginian Railway to Suffolk, Virginia, thence northeast along the Norfolk and Western Railway to Norfolk, Virginia, and then northeastward along the Atlantic Coast to the point of beginning.

(2) Southern Territory: Commencing at Norfolk, Virginia, and proceeding westwardly along the southern border of Official Territory as described in (1) above, to the mouth of the Ohio River, thence south along the Mississippi River to its mouth and thence east and north along the Gulf and Atlantic Coast to the point of beginning.

(3) Western Trunk Line Territory: Commencing at the Straits of Mackinac and following the international boundary northeastward and thence westward to the western boundary of North Dakota, thence south along the North Dakota and South Dakota-Montana line to Sheridan, Wyoming, thence southward along the line of the Burlington system to the Colorado-New Mexico line, thence eastward following the northern boundary of New Mexico, Oklahoma, and Arkansas to the Mississippi River, thence northward along the Mississippi River to the Wisconsin-Illinois line, and thence back to the point of beginning following the northwest boundary of Official Territory, as described in (1) above.

(4) Southwestern Territory: Commencing at the intersection of the Missouri Arkansas boundary with the Mississippi River and proceeding westward along the southern boundary of Missouri, Kansas and Colorado to the point where the Santa Fe Railway crosses the Colorado-New Mexico line, thence southward along the Santa Fe Railway to El Paso, Texas, thence following the international boundary to the mouth of the Rio Grande River, thence along the Gulf Coast to the

mouth of the Mississippi River and thence northward along the Mississippi River to the point of beginning.

(5) Mountain-Pacific Territory: That portion of the United States which lies west of the western boundaries of Western Trunk Line and Southwestern Territories as described in (3) and (4) above. These territories are shown in Figure A1 below.

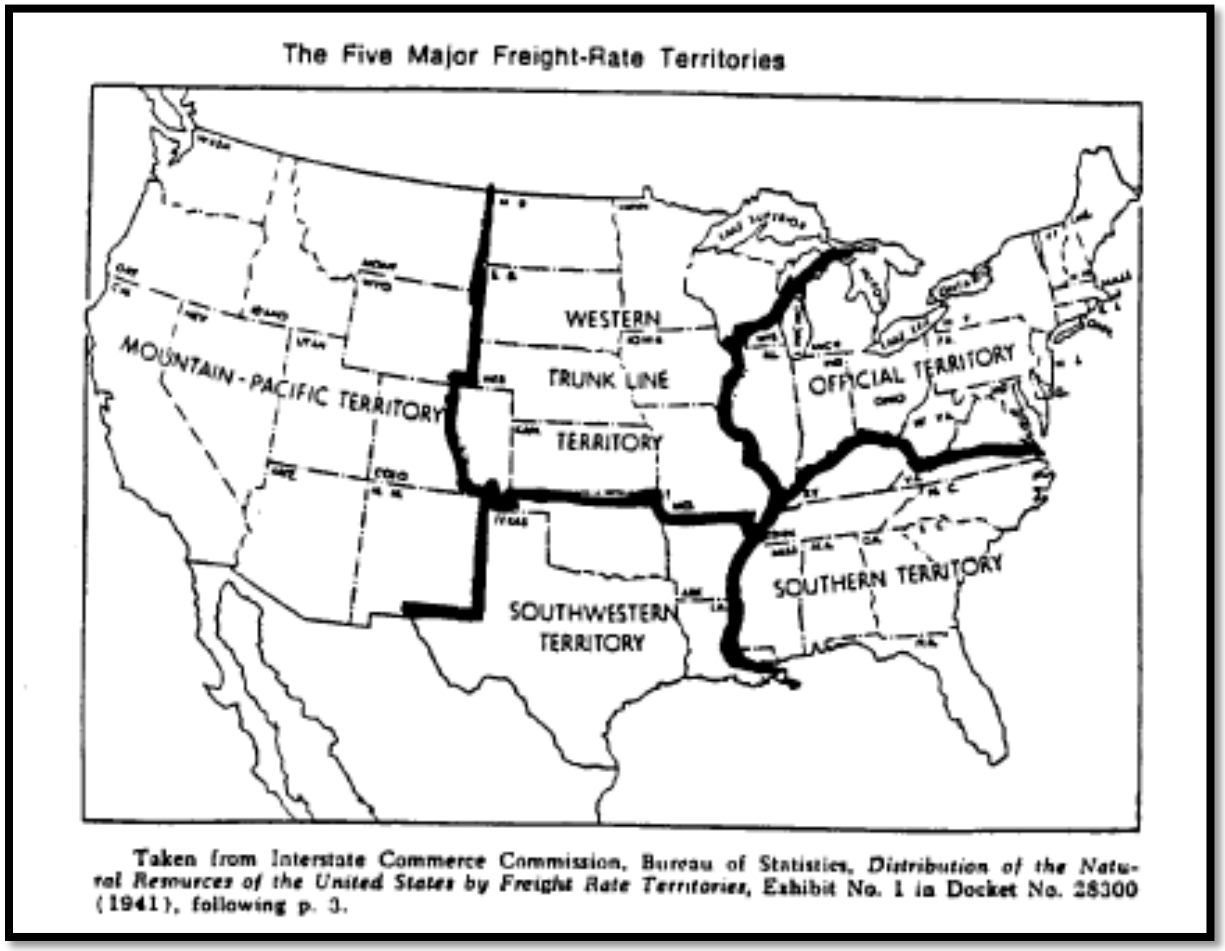

Figure A1. Map of Railroad Freight Rate Territories.

APPENDIX B - ORIGIN AND DESTINATION OF CORN AND SOY SHIPMENTS (TONS AND TON-MILES)

Table B1. Origin and Destination of Corn Shipments.

Origin Freight Territory	Destination Freight Territory	Exp. Tonnage	Exp. Ton-Miles
0	0	0	0
0	1	105,684	34,992,440
0	2	9,540	9,253,800
0	3	0	0
0	4	0	0
0	5	0	0
1	0	242,220	93,763,640
1	1	7,725,832	1,963,589,380
1	2	18,185,901	13,595,975,290
1	3	49,076	26,010,280
1	4	0	0
1	5	0	0
2	0	0	0
2	1	11,916	6,359,760
2	2	1,737,536	611,786,590
2	3	800	1,184,000
2	4	0	0
2	5	0	0
3	0	3,217,513	5,299,444,160
3	1	20,080	26,960,800
3	2	578,947	688,937,500
3	3	4,236,217	1,020,451,850
3	4	12,989,773	11,628,218,030
3	5	29,066,104	49,226,634,850
4	0	0	0
4	1	0	0
4	2	268,612	49,476,920
4	3	3,960	1,900,800
4	4	1,722,221	819,400,290
4	5	45,472	60,012,200
5	0	0	0
5	1	0	0
5	2	0	0
5	3	0	0
5	4	0	0
5	5	92,126	14,643,100

Table B2. Origin and Destination of Soybean Shipments.

Origin Freight Territory	Destination Freight Territory	Exp. Tonnage	Exp. Ton-Miles
0	0	0	0
0	1	19,880	8,065,200
0	2	0	0
0	3	8,320	3,494,400
0	4	0	0
0	5	0	0
1	0	19,800	11,484,000
1	1	2,302,504	624,666,700
1	2	4,075,091	3,159,306,940
1	3	0	0
1	4	0	0
1	5	0	0
2	0	0	0
2	1	6,516	2,476,080
2	2	543,352	206,545,360
2	3	0	0
2	4	0	0
2	5	0	0
3	0	448,903	742,379,530
3	1	287,550	217,653,660
3	2	1,131,321	1,419,337,650
3	3	1,941,064	495,833,280
3	4	1,051,957	1,241,045,180
3	5	11,565,656	19,049,935,910
4	0	9,800	9,506,000
4	1	0	0
4	2	320,456	326,593,380
4	3	3,840	4,147,200
4	4	331,778	276,042,660
4	5	0	0
5	0	0	0
5	1	0	0
5	2	0	0
5	3	0	0
5	4	15,880	22,470,800
5	5	2,400	1,092,000

Table B3. Origin and Destination of Soy Oil Shipments.

Origin Freight Territory	Destination Freight Territory	Exp. Tonnage	Exp. Ton-Miles
0	0	0	0
0	1	3,520	1,654,400
0	2	6,720	7,929,600
0	3	0	0
0	4	0	0
0	5	0	0
1	0	29,760	29,611,200
1	1	1,396,864	588,031,560
1	2	497,120	395,952,200
1	3	3,640	2,002,000
1	4	0	0
1	5	0	0
2	0	0	0
2	1	54,668	24,349,960
2	2	829,880	272,911,600
2	3	0	0
2	4	3,440	68,800
2	5	0	0
3	0	79,144	68,102,960
3	1	18,160	22,698,400
3	2	151,568	182,697,560
3	3	2,467,860	878,288,440
3	4	787,980	729,518,400
3	5	922,200	1,609,573,600
4	0	0	0
4	1	0	0
4	2	56,332	52,123,000
4	3	0	0
4	4	238,088	169,481,320
4	5	0	0
5	0	0	0
5	1	0	0
5	2	0	0
5	3	0	0
5	4	0	0
5	5	22,320	3,405,600

Table B4. Origin and Destination of Soy meal Shipments.

Origin Freight Territory	Destination Freight Territory	Exp. Tonnage	Exp. Ton-Miles
0	0	46,480	19,401,600
0	1	6,320	4,156,000
0	2	0	0
0	3	4,200	7,728,000
0	4	0	0
0	5	0	0
1	0	123,820	49,736,000
1	1	3,094,317	1,768,696,520
1	2	4,371,343	3,163,695,760
1	3	0	0
1	4	0	0
1	5	0	0
2	0	0	0
2	1	18,680	18,538,400
2	2	809,547	331,968,590
2	3	0	0
2	4	0	0
2	5	0	0
3	0	872,560	794,927,680
3	1	110,288	110,559,280
3	2	168,956	184,445,480
3	3	1,593,704	662,784,040
3	4	3,238,983	3,178,149,800
3	5	3,643,647	6,303,758,920
4	0	0	0
4	1	0	0
4	2	26,392	20,030,800
4	3	3,600	2,952,000
4	4	1,046,676	621,923,560
4	5	3,800	9,272,000
5	0	0	0
5	1	0	0
5	2	0	0
5	3	4,200	10,416,000
5	4	0	0
5	5	17,808	4,586,400

Table B5. Origin and Destination of DDGS Shipments.

Origin Freight Territory	Destination Freight Territory	Exp. Tonnage	Exp. Ton-Miles
0	0	3,640	2,002,000
0	1	61,400	38,194,800
0	2	7,320	5,343,600
0	3	0	0
0	4	0	0
0	5	0	0
1	0	46,356	32,690,440
1	1	1,063,164	537,191,760
1	2	733,992	608,008,440
1	3	38,552	22,496,160
1	4	11,480	15,260,800
1	5	0	0
2	0	0	0
2	1	3,800	1,482,000
2	2	50,160	12,970,800
2	3	0	0
2	4	0	0
2	5	0	0
3	0	516,132	554,299,160
3	1	14,920	19,747,200
3	2	69,132	76,892,320
3	3	722,580	298,328,880
3	4	1,661,537	1,999,908,010
3	5	2,565,111	4,704,998,240
4	0	0	0
4	1	0	0
4	2	0	0
4	3	0	0
4	4	78,604	44,351,800
4	5	0	0
5	0	0	0
5	1	0	0
5	2	0	0
5	3	3,760	6,580,000
5	4	0	0
5	5	100,752	29,345,400

APPENDIX C - ORIGIN AND DESTINATION OF CORN, SOY AND DDGS SHIPMENTS (TONS (SHORT) AND TON-MILES) WATERBORNE FLOWS

Table C1. Commodities.

Commodity	WCSC Commodity Code	WCSC Commodity Name	WCSC Commodity Group Code	WCSC Commodity Group Name
1	4400	Maize (Not Including Sweet Corn), Unmilled	4	**Grains & Grain Products**
2	5461	Sweet Corn	4	**Grains & Grain Products**
3	8140	Flours, Meals & Pellets (Meat, Offal, Fish etc), Inedible	4	**Grains & Grain Products**
4	22220	Soya Beans	4	**Grains & Grain Products**
5	22390	Flours & Meals of Oil Seeds or Oleaginous Fruits	4	**Grains & Grain Products**
6	51216	Ethyl Alcohol & Other Spirits, Denatured, Any Strength	5	**Chemicals**
7	59212	Corn (Maize) Starch	5	**Chemicals**
Corn and Corn Products: Categories WCSC 4400, 5461, 8140, 59212				
Soy and Soy Products: Categories WCSC 22220, 22390				
Dried Distillate Grain with Solubles: DDGS 51216				
Down Movements = West/South Up Movements = East/North				
Both Up and Down Movements include Originating, Terminating, Local, & Through Movements				
Data source: 2008 trip reports from U.S. Army Corps of Engineers (USACE) Waterborne Commerce Statistics Center (WCSC)				

Table C2. Major Rivers.

	River
1	Mississippi River (Minneapolis MN to Gulf of Mexico)
2	Ohio River (Pittsburgh PA to Cairo IL)
3	Illinois River (including Calumet-Sag Channel, Chicago Sanitary & Ship Canal, and Chicago River)
4	Arkansas River (Navigable section to mouth)
5	Minnesota River (Navigable section to mouth)
Note: No Flows recorded on Missouri River	

Table C3. Corn, Soy Movements on Major Rivers (Mississippi River).

Direction of Movement	Total Corn Tons (Mississippi River)	Total Soy Tons (Mississippi River)	Total Corn Ton-Miles (Mississippi River)	Total Soy Ton-Miles (Mississippi River)
Up	141,803	424,528	71,262,027	180,925,422
Down	28,658,887	17,866,603	30,940,211,026	17,010,036,933
Total	**28,800,690**	**18,291,131**	**31,011,473,053**	**17,190,962,355**
Up (%)	0.49%	2.32%	0.23%	1.05%
Down (%)	99.51%	97.68%	99.77%	98.95%
Total	100%	100%	100.00%	100.00%

Table C4. Corn, Soy Movements on Major Rivers (Ohio River).

Direction of Movement	Total Corn Tons (Ohio River)	Total Soy Tons (Ohio River)	Total Corn Ton-Miles (Ohio River)	Total Soy Ton-Miles (Ohio River)
Up	892,681	673,916	748,373,219	536,801,960
Down	6,032,087	3,363,597	6,064,209,588	3,527,477,963
Total	**6,924,768**	**4,037,513**	**6,812,582,807**	**4,064,279,923**
Up (%)	12.89%	16.69%	18.41%	7.88%
Down (%)	87.11%	83.31%	149.21%	51.78%
Total	100%	100%	100%	100%

Table C5. Corn, Soy Movements on Major Rivers (Illinois River).

Direction of Movement	Total Corn Tons (Illinois River)	Total Soy Tons (Illinois River)	Total Corn Ton-Miles (Illinois River)	Total Soy Ton-Miles (Illinois River)
Up	4,104	17,999	3,199,748	6,633,461
Down	8,018,197	1,615,922	9,344,676,420	1,889,184,355
Total	**8,022,301**	**1,633,921**	**9,347,876,168**	**1,895,817,816**
Up (%)	0.05%	1.10%	0.03%	0.35%
Down (%)	99.95%	98.90%	99.97%	99.65%
Total	100%	100%	100%	100%

Table C6. Corn, Soy Movements on Major Rivers (Arkansas River).

Direction of Movement	Total Corn Tons (Arkansas River)	Total Soy Tons (Arkansas River)	Total Corn Ton-Miles (Arkansas River)	Total Soy Ton-Miles (Arkansas River)
Up	3,489	3,266	1,283,856	3,236,176
Down	99.296	869,047	52,037,530	688,913,758
Total	**102,785**	**872,313**	**53,321,386**	**692,149,934**
Up (%)	3.39%	0.37%	0.19%	6.07%
Down (%)	96.61%	99.63%	7.52%	1292.00%
Total	100%	100%	100%	100%

Table C7. Corn, Soy Movements on Major Rivers (Minnesota River).

Direction of Movement	Total Corn Tons (Minnesota River)	Total Soy Tons (Minnesota River)	Total Corn Ton-Miles (Minnesota River)	Total Soy Ton-Miles (Minnesota River)
Up	4,800	0	1,838,400	0
Down	149,309	273,171	245,068,316	423,057,226
Total	**154,109**	**273,171**	**246,906,716**	**423,057,226**
Up (%)	3.11%	0.00%	0.43%	0.00%
Down (%)	96.89%	100.00%	57.93%	171.34%
Total	100%	100%	100%	100%

Table C8. DDGS Movements on Major Rivers (Mississippi River).

Direction of Movement	Total DDGS Tons (Mississippi River)	Total DDGS Ton-Miles (Mississippi River)
Up	43,115	182,901,947
Down	73,751	17,101,455,203
Total	**116,866**	**17,284,357,150**
Up (%)	36.89%	1.06%
Down (%)	63.11%	98.94%
Total	100%	100.00%

Table C9. DDGS Movements on Major Rivers (Illinois River).[60]

Direction of Movement	Total DDGS Tons (Illinois River)	Total DDGS Ton-Miles (Illinois River)
Up	0	0
Down	53,794	77,304,985
Total	**53,794**	**77,304,985**
Up (%)	0.00%	0.00%
Down (%)	100.00%	100.00%
Total	100%	100%

[60] No DDGS flows noted on any of the other river segments.

APPENDIX D - RAIL CONTAINER MOVEMENTS (WAYBILL) (CORN, SOY AND BI-PRODUCTS)

Table D1. Corn Rail Container Movements.

Origin Freight Territory	Terminating Freight Territory	Shipment Size	Tons	Ton-Miles	Rev	$/Ton-Miles
1	1	01~05	4,120	2,744,000	$133,600	$0.049
		06~49				
		50~				
		06~49				
		50~				
3	5	01~05	122,760	254,342,000	$3,681,560	$0.014
		06~49				
		50~				
		50~				
4	5	01~05	5,000	8,850,000	$209,840	$0.024
		06~49				
		50~				
Total			131,880	265,936,000	4,025,000	

Table D2. Soybean Rail Container Movements.

Origin Freight Territory	Terminating Freight Territory	Shipment Size	Tons	Ton-Miles	Rev	$/Ton-Miles
0	1	01~05	920	533,600	$25,880	$0.049
		06~49				
		50~				
1	0	01~05	1,440	907,200	$57,760	$0.064
		06~49				
		50~				
1	1	01~05	3,320	1,412,800	$58,680	$0.042
		06~49				
		50~				
3	0	01~05	880	1,566,400	$15,840	$0.010
		06~49				
		50~				
3	3	01~05				
		06~49	47,520	6,652,800	$337,280	$0.051
		50~				
3	4	01~05				
		06~49				
		50~				
3	5	01~05	24,160	50,474,000	$835,760	$0.017
		06~49				
		50~				
Total			131,880	265,936,000	4,025,000	

Table D3. Soymeal Rail Container Movements.

Origin Freight Territory	Terminating Freight Territory	Shipment Size	Tons	Ton-Miles	Rev	$/Ton-Miles
1	0	01	1,680	554,400	$54,880	$0.099
		02~05				
		06~10				
		11~				
1	1	01	2,000	700,000	$125,440	$0.179
		02~05				
		06~10				
		11~				
1	2	01	880	800,800	$32,320	$0.040
		02~05				
		06~10				
		11~				
2	0	01	800	920,000	$56,200	$0.061
		02~05				
		06~10				
		11~				
3	1	01	1,200	1,512,000	$374,560	$0.248
		02~05				
		06~10				
		11~				
3	2	01	400	648,000	$140,120	$0.216
		02~05				
		06~10				
		11~				
3	4	01	1,760	2,428,800	$171,240	$0.071
		02~05				
		06~10				
		11~				
3	5	01	354,680	741,887,200	$12,393,840	$0.017
		02~05				
		06~10				
		11~				
5	3	01	880	1,487,200	$77,560	$0.052
		02~05				
		06~10				
		11~				
Total			364,280		13,426,160	

Table D4. Soy Oil Bi-product Rail Container Movements.

Origin Freight Territory	Terminating Freight Territory	Shipment Size	Tons	Ton-Miles	Rev	$/Ton-Miles
1	0	01	1,680	554,400	$54,880	$0.099
		02~05				
		06~10				
		11~				
1	1	01	2,000	700,000	$125,440	$0.179
		02~05				
		06~10				
		11~				
1	2	01	880	800,800	$32,320	$0.040
		02~05				
		06~10				
		11~				
2	0	01	800	920,000	$56,200	$0.061
		02~05				
		06~10				
		11~				
3	1	01	1,200	1,512,000	$374,560	$0.248
		02~05				
		06~10				
		11~				
3	2	01	400	648,000	$140,120	$0.216
		02~05				
		06~10				
		11~				
3	4	01	1,760	2,428,800	$171,240	$0.071
		02~05				
		06~10				
		11~				
3	5	01	357,200	747,113,600	$12,500,840	$0.017
		02~05				
		06~10				
		11~				
5	0	01	640	1,612,800	$30,320	$0.019
		02~05				
		06~10				
		11~				
5	3	01	880	1,487,200	$77,560	$0.052
		02~05				
		06~10				
		11~				
Total			367,440	3,100,000	13,563,480	

Table D5. Wet Milling Rail Container Movements.

Origin Freight Territory	Terminating Freight Territory	Shipment Size	Tons	Ton-Miles	Rev	$/Ton-Miles
1	0	01	6,040	5,709,200	$363,880	$0.064
		02~05				
		06~10				
		11~				
1	1	01	28,800	26,406,400	$1,436,240	$0.054
1	2	01	8,360	10,595,600	$250,200	$0.024
		02~05				
		06~10				
		11~				
1	3	01	800	1,480,000	$126,520	$0.085
		02~05				
		06~10				
		11~				
1	4	01	920	1,343,200	$77,560	$0.058
		02~05				
		06~10				
		11~				
1	5	01	840	2,780,400	$95,440	$0.034
		02~05				
		06~10				
		11~				
2	1	01	400	344,000	$59,040	$0.172
		02~05				
		06~10				
		11~				
2	2	01	400	172,000	$27,160	$0.158
		02~05				
		06~10				
		11~				
2	5	01	800	1,832,000	$78,040	$0.043
		02~05				
		06~10				
		11~				
3	0	01	840	1,083,600	$33,040	$0.030
		02~05				
		06~10				

		11~				
3	4	01	10,160	12,015,200	$704,280	$0.059
		02~05				
		06~10				
		11~				
3	5	01	17,080	35,882,400	$1,057,640	$0.029
		02~05				
		06~10				
		11~				
4	2	01	800	1,212,000	$191,800	$0.158
		02~05				
		06~10				
		11~				
4	5	01	720	1,260,000	$26,680	$0.021
		02~05				
		06~10				
		11~				
Total			76,960	102,116,000	4,527,520	

Table D6. DDGS Rail Container Movements.

Origin Freight Territory	Terminating Freight Territory	Shipment Size	Avg. Distance	Tons	Ton-Miles	Rev	$/Ton-Miles
0	1	01	580	400	232,000	$27,560	$0.119
		02~05					
		06~10					
		11~					
4	5	01	1,650	1,520	2,508,000	$151,720	$0.060
		02~05					
		06~10					
		11~					
Total				76,960	102,116,000	4,527,520	

APPENDIX E - TRENDS IN SOYBEAN AND CORN EXPORT CONTAINER ACTIVITY, EXPORTS, AND CONTAINER RATES

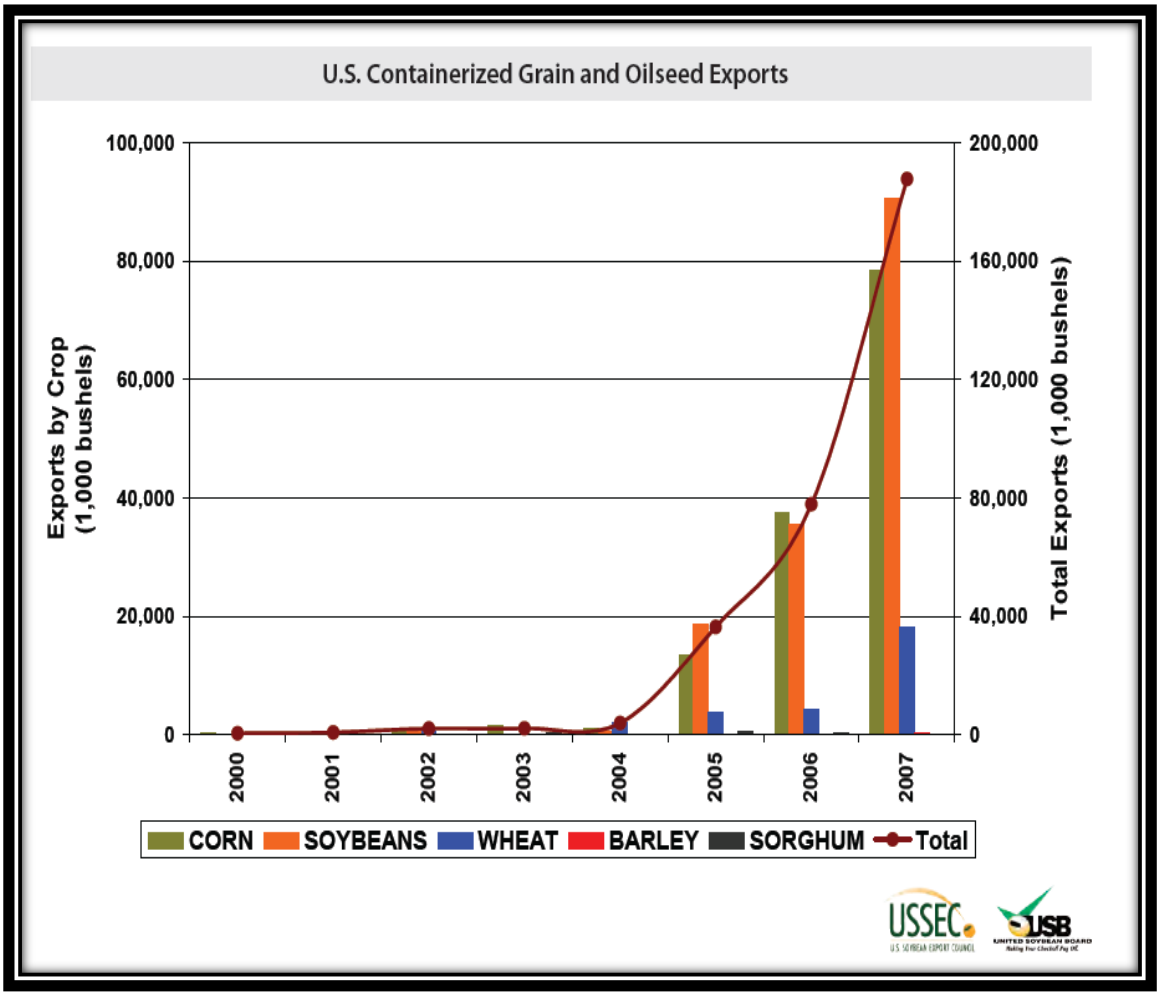

Figure E1. Trends in Export Container Activity.

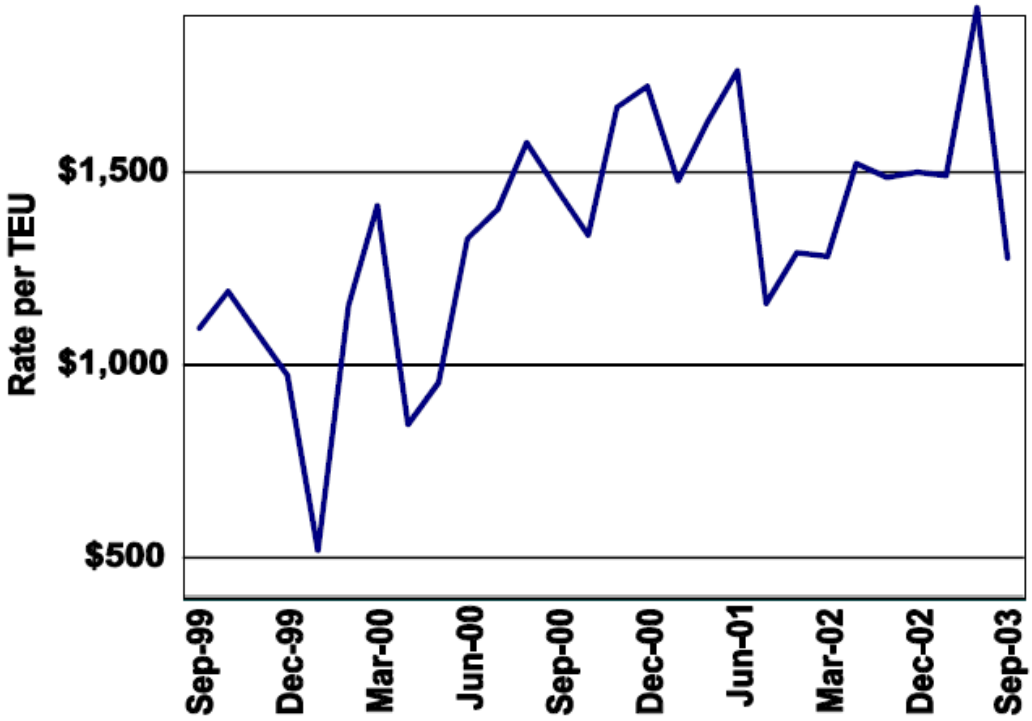

Figure E2. Trends in Ocean Container Rates – Soybean (Seattle, WA, Origin to Tokyo, Japan).[61]

[61] Grain Transportation Report, USDA, 2003. These rates tend to be typically lower than rates from California Ports- West Coast to other Asian markets.

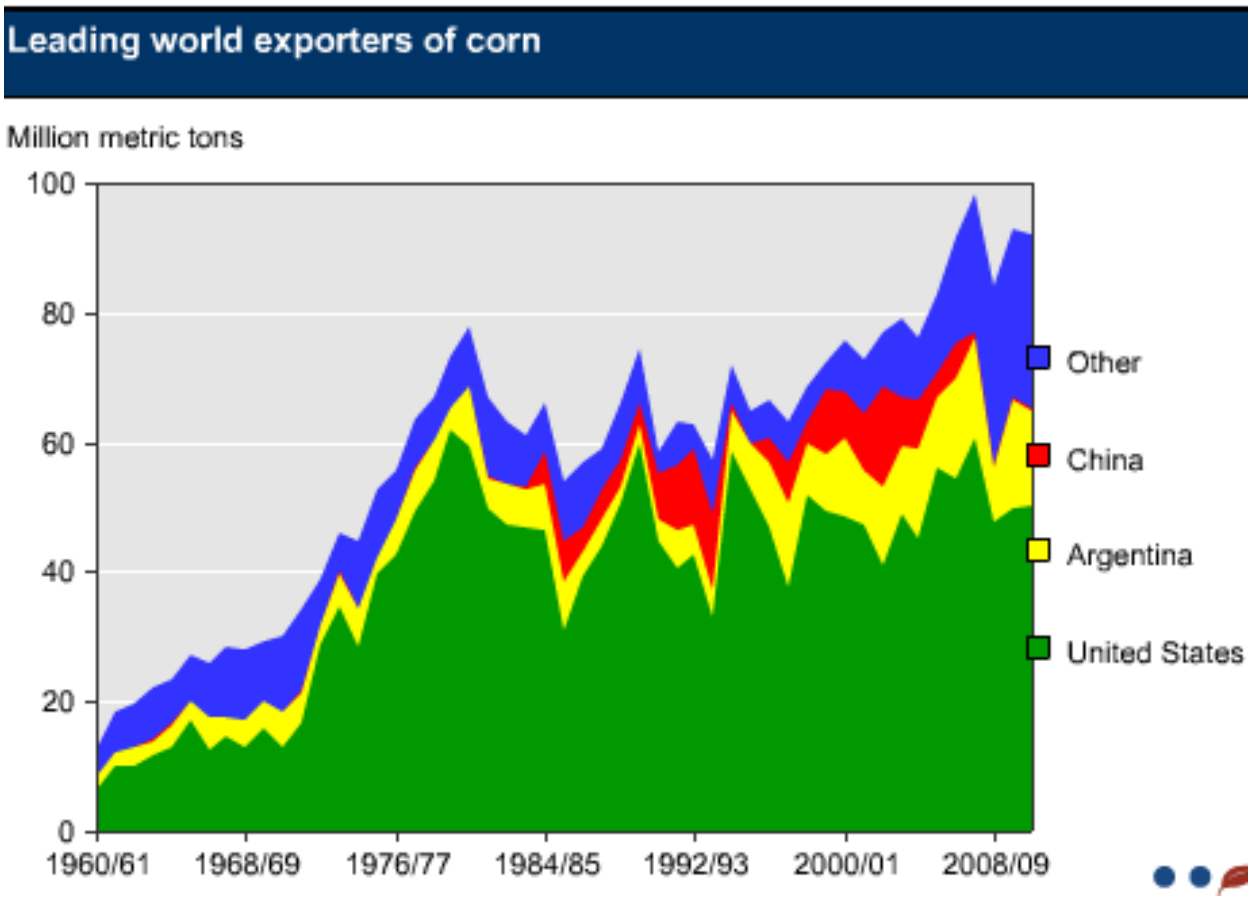

Figure E3. United States and Other Leading Exporters of Corn[62].

[62] Source: USDA , Economic Research Service, Foreign Agricultural Service, Production, Supply, and Distribution Database, 2010.

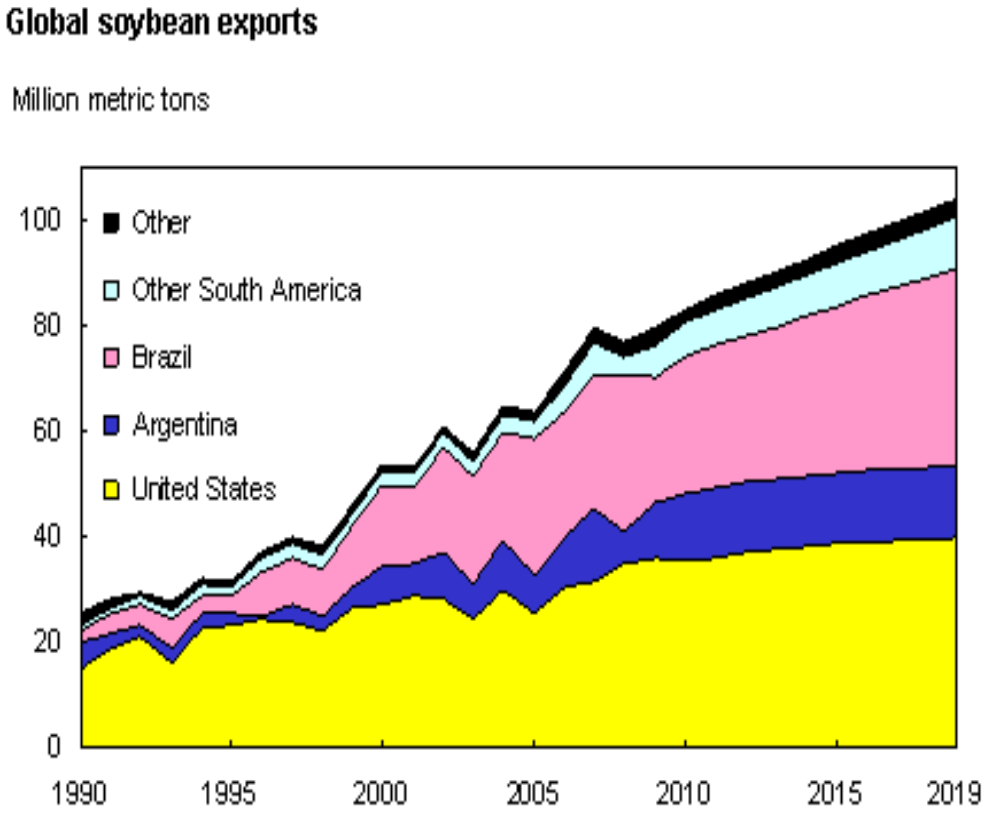

Figure E4. United States and Other Leading Exporters of Soybean[63]

[63] USDA Agricultural Projections to 2019, February 2010. USDA, Economic Research Service.

Table E1. Waterborne Export Volumes by Destination (Corn and Soy).[64]

Foreign Outbound (1000 Short Tons) (2008)						
PACIFIC COAST						
	Los Angeles	**Long Beach**	**Oakland Harbor**	**Columbia**	**Tacoma Harbor**	**Seattle Harbor**
	CA	**Harbor, CA**	**CA**	**River System**	**WA**	**WA**
Corn	735	755	199	4,963	5,331	4,085
Soybean	921	741	101	5,141	2,437	3,145
ATLANTIC COAST						
	Port of Albany	**Port of New York**	**Delaware river**	**Baltimore Harbor**	**Norfolk Harbor**	**Wimingotn Harbor**
Corn	3	55	0	1	531	0
Soybean	10	75	5	12	570	11
ATLANTIC COAST						
	Savannah Hoarbor	**Brunswick Harbor**	**Miami Harbor**			
Corn	15	96	4			
Soybean	43	126	0			
GREAT LAKES						
	Great Lake Ports					
Corn	226					
Soybean	303					
GULF COAST						
	Mobile, AL	**Baton Rouge to Mouth of Passes**	**Beaumont, TX**	**Galveston Channel, TX**	**Houston Ship Channel, TX**	**Corpus Christi, TX**
Corn	1102	32,391	0	957	290	109
Soybean	384	18,970	67	42	109	0
TOTAL (1000 SHORT TONS)						
Corn	51,846	1.8 billion bushels				
Soybean	33,143	1.1 billion bushels				

[64] Waterborne Commerce Statistics, 2008.

APPENDIX F - SOY PRODUCTION REGIONS (2008 AND 2009)

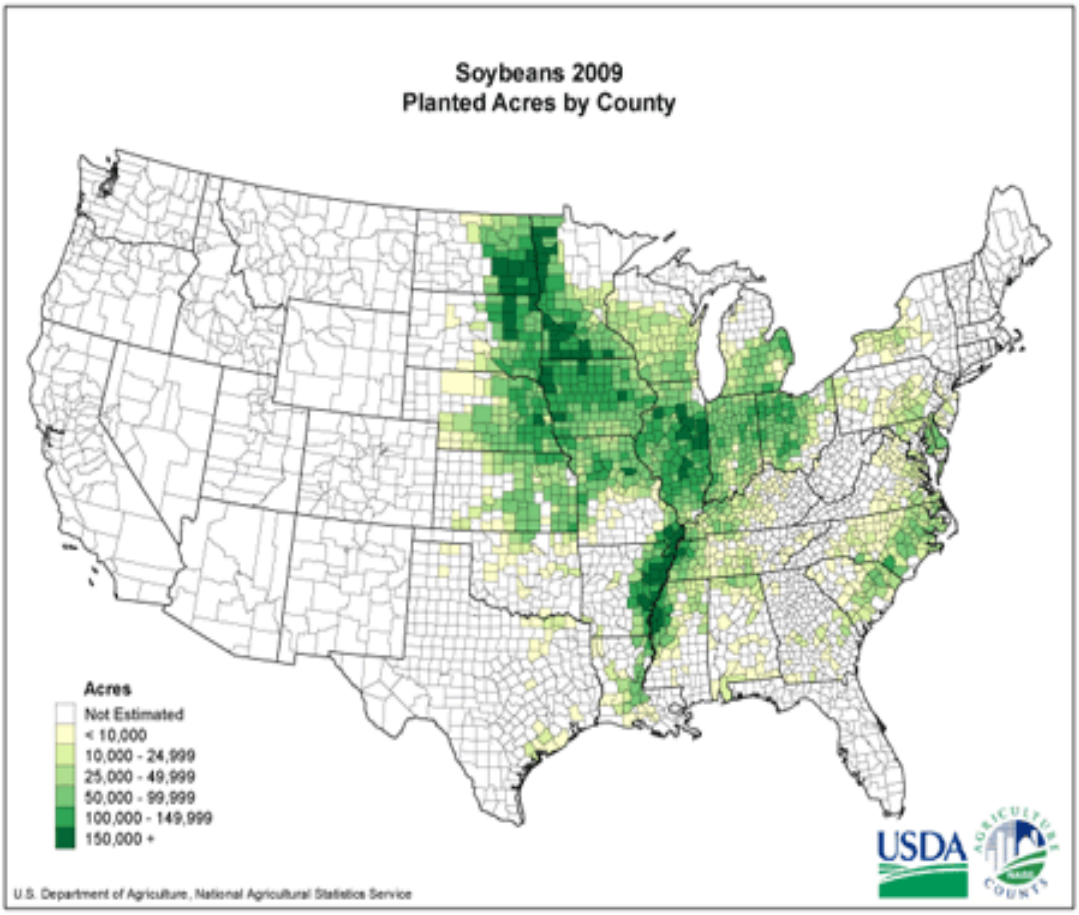

Figure F1. Soy Production by County (2009).

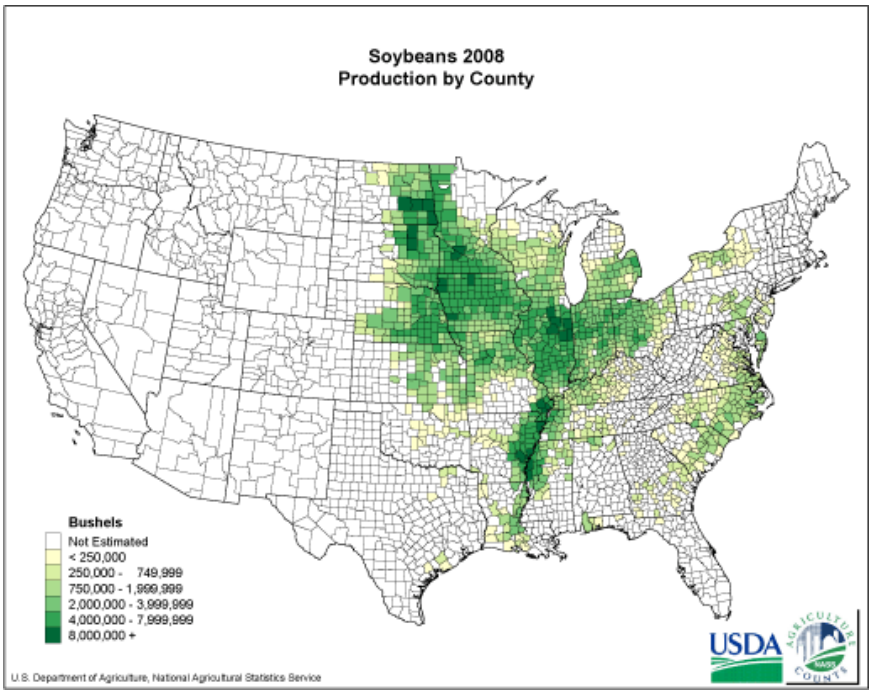

Figure F2. Soy Production by County (2008).

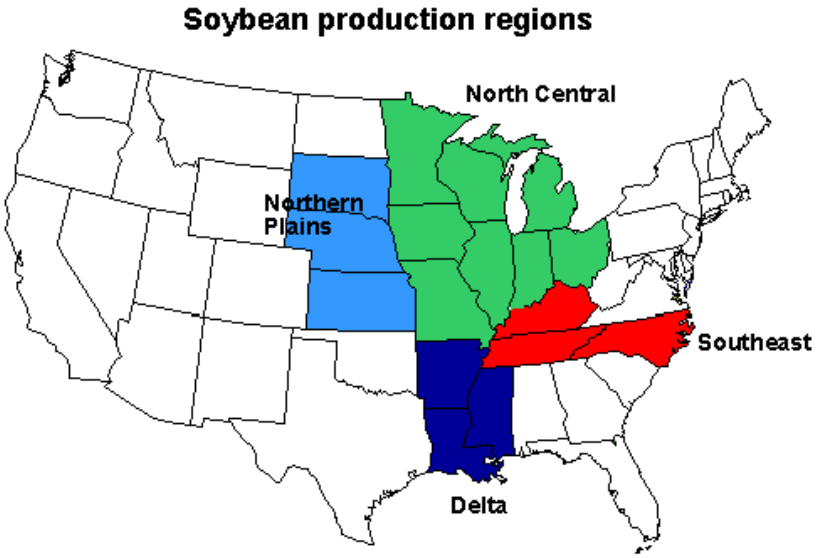

Figure F3. Soy Production Regions (As Defined by Economic Research Service, USDA).[65]

[65] http://www.ers.usda.gov/data/costsandreturns/oldregions.htm. North Central region includes: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin. Northeast region includes: New York and Pennsylvania. Plains States include Colorado, Texas, Kansas, Nebraska, and South Dakota. Southeast: Georgina, Kentucky, Louisiana, and North Carolina.

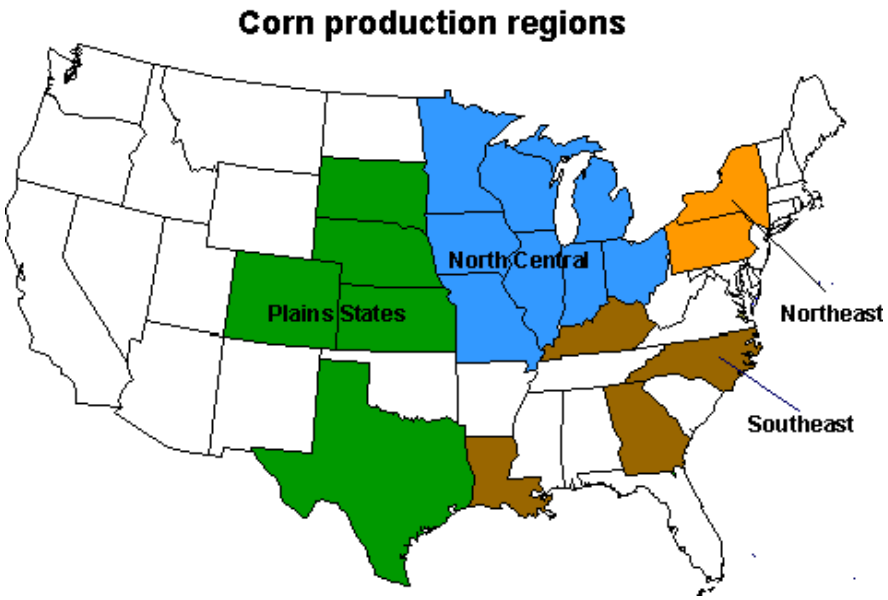

Figure F4. Corn Production Regions (As Defined by Economic Research Service, USDA).

APPENDIX G - TRUCK RATES (2009)[66]

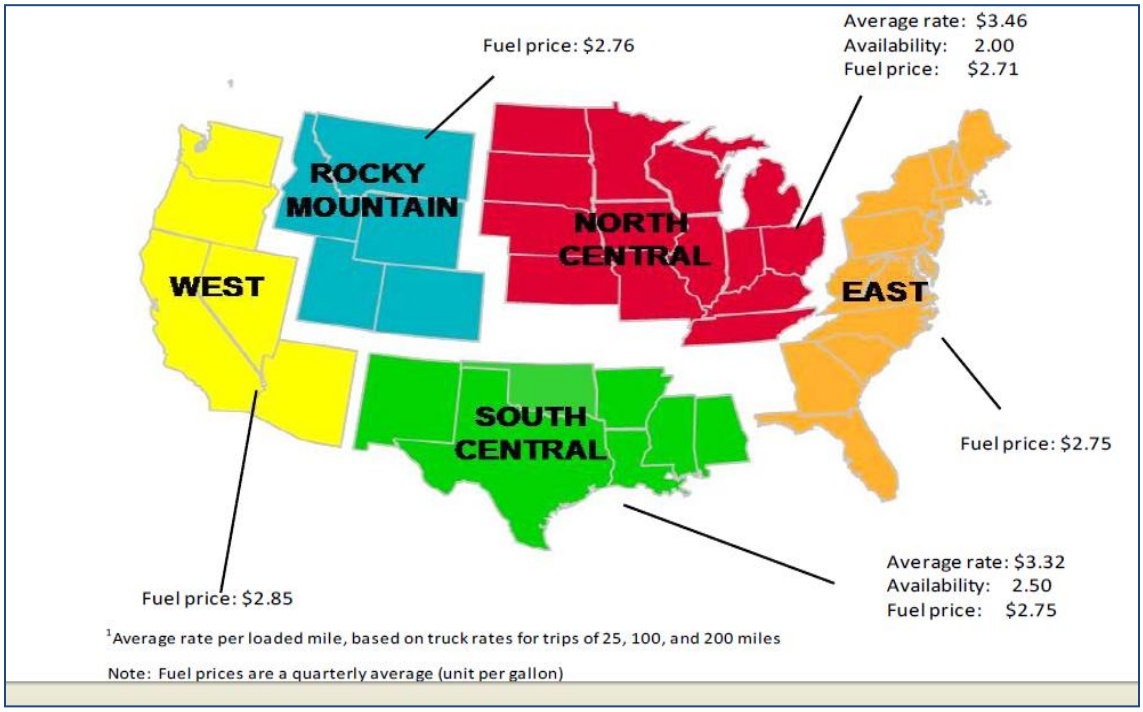

Figure G1. Average Truck Rates per Mile by Region ($ per Mile per Truckload).

[66] Source: Transportation and Marketing Programs/AMS/USDA. Agriculture Marketing Service, Grain Transportation Quarterly Updates- Truck Advisory. www.ams.usda.gov/AgTransportation. February 2010. Truck weight assumed at 80,000 pounds of gross vehicle weight carrying a load of 25 metric tons or (55,000 lb).

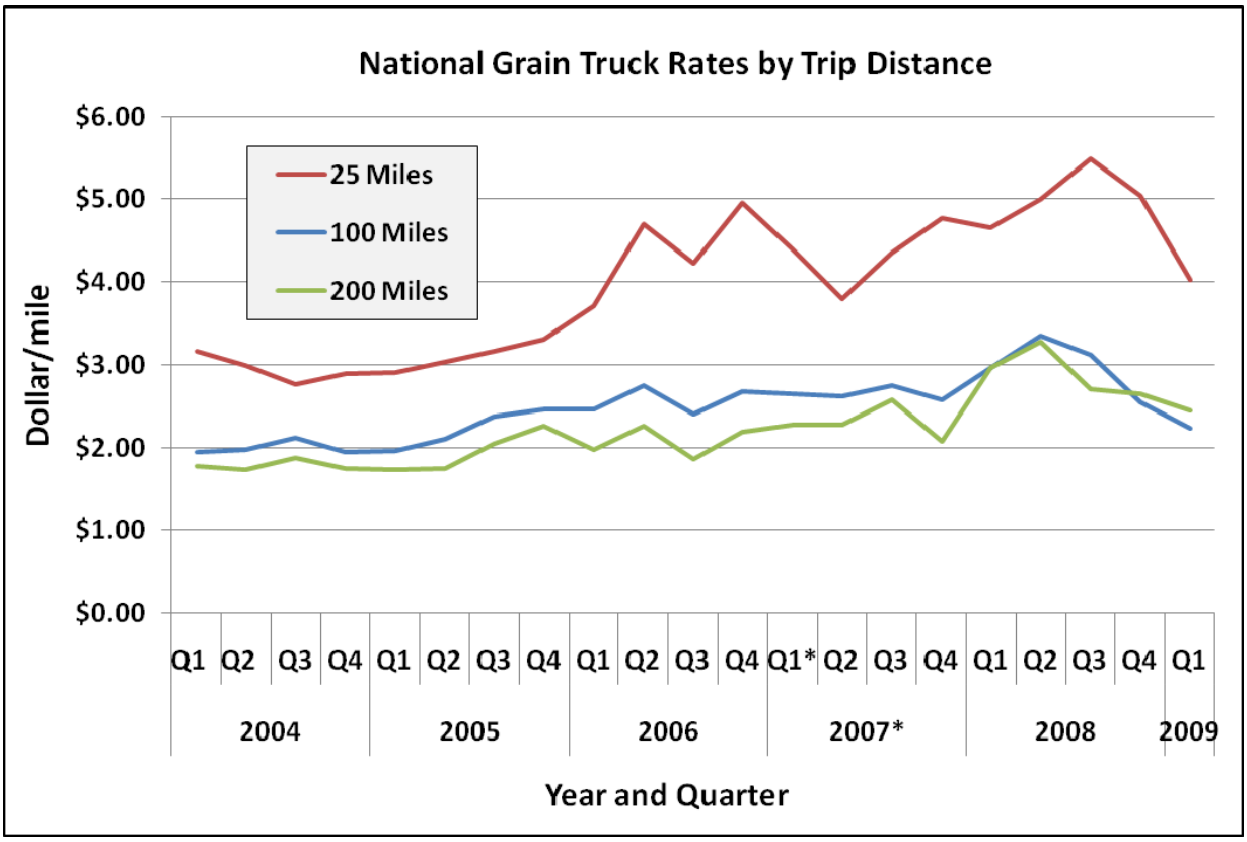

Figure G2. National Grain Truck Rates by Trip Distance.[67]

[67] Agriculture Marketing Service, USDA: "Truck Transportation". http://www.ams.usda.gov/AMSv1.0/.

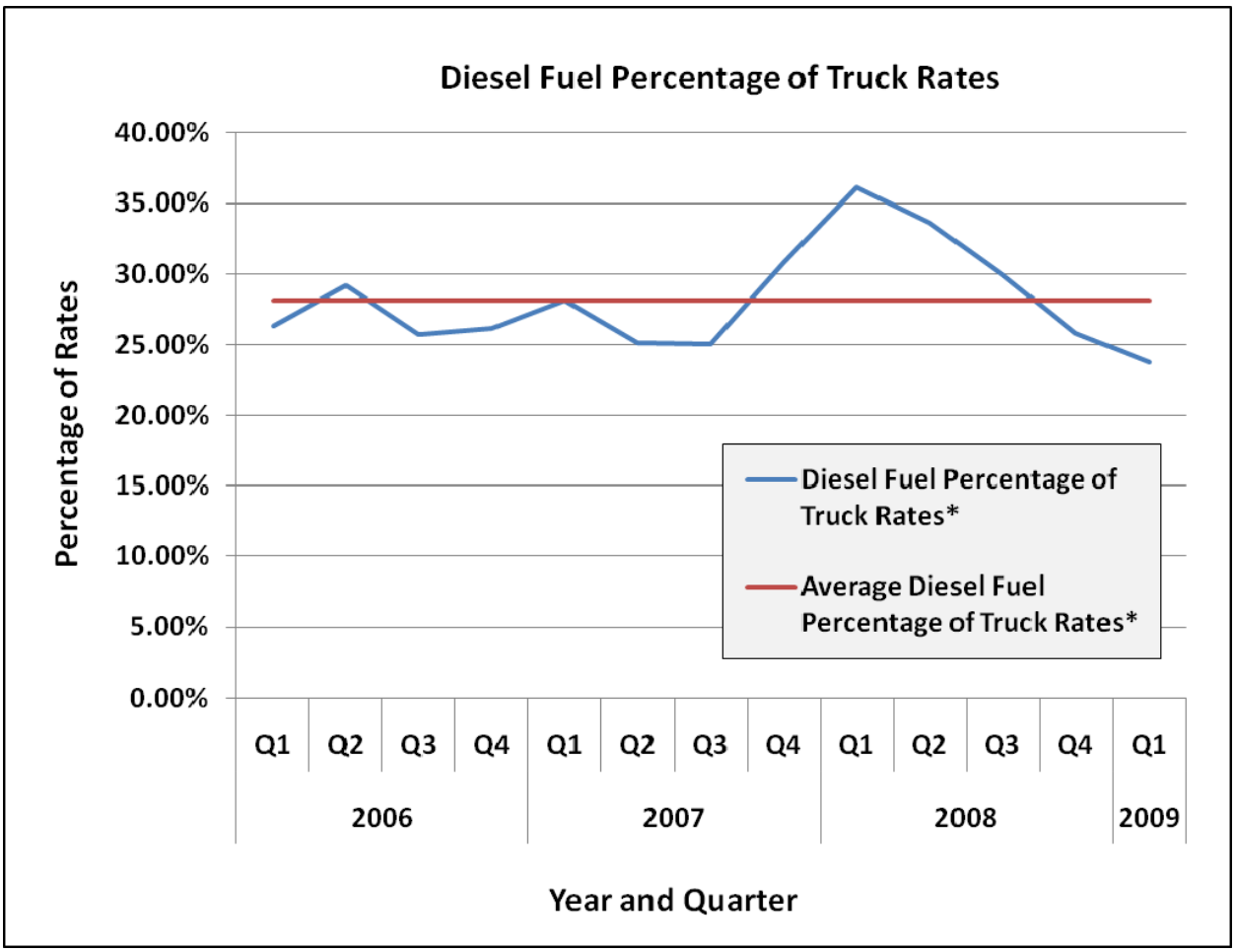

Figure G3. Diesel Fuel as a Percentage of Truck Rates.[68]

[68] Agriculture Marketing Service, USDA: http://www.ams.usda.gov/AMSv1.0/. Based on fuel efficiency of 5.3 miles per gallon.

APPENDIX H - FREIGHT DEMAND PROJECTIONS[69]

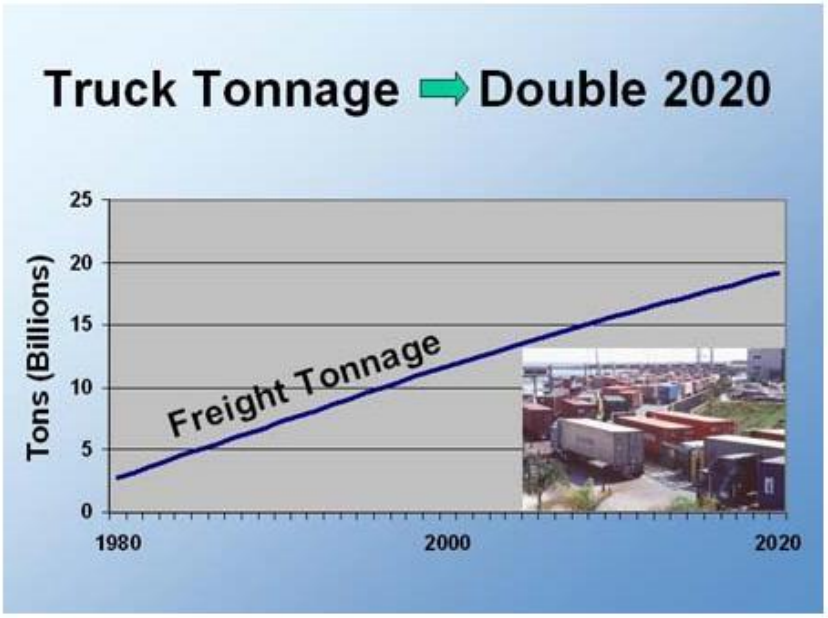

Figure H1. Freight Demand Projections.

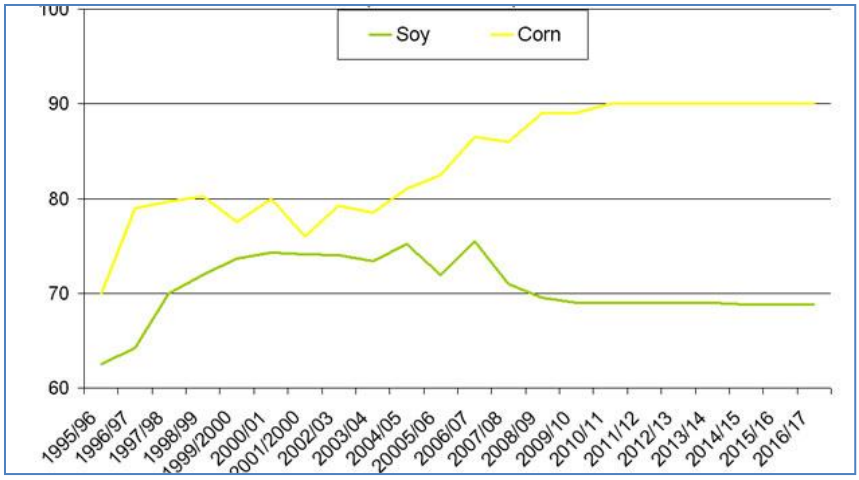

Figure H2. Planted and Projected Acreage for Soy and Corn (USDA Data) (Million Acres).

[69] The Perfect Storm, Federal Highway Administration, 2004. http://www.fhwa.dot.gov/pressroom/re040124.htm.

APPENDIX I - GRAIN HANDLERS SURVEY

GRAIN HANDLERS TRANSPORTATION SURVEY

State_____
County_____

Please classify your operations by marking following category with an X.

Country elevator _____ Subterminal _____ Terminal_____
River Elevator_____

1. What was the approximate volume of grain received/shipped at/by this facility during the 2008–2009 crop year (September 1, 2008–August 31, 2009)

Bushels received
Corn _____ bu. Soybean_____bu.

Bushels shipped
Corn _____ bu. Soybean _____ bu.

2. How many bushels of corn and soybeans were shipped in containers during 2008–09 crop year?

Corn _____bu. Soybean _____bu.

3. What is the railcar siding capacity at this facility _____cars?

4. Indicate the typical number of rail cars per shipment for corn and soybean.
(Please identify (x) typical number of railcars per shipments)

	Number of railcars				
	1–24	25–49	50–74	75–99	100+
Corn	____	____	_____	____	____
Soybeans	____	____	_____	____	____

5. Identify the percentage of corn shipments to each of the listed corn markets, the mode of transport used to access each market, and the average distance of haul to each market.

(Corn shipments from September 1, 2007, through August 31, 2008)

Market	% of volume	% shipped by Truck	Rail	Barge	Total	Average distance by Truck	Rail	Barge
a.**Livestock Feeder**						-- one-way miles --		
In-State	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
b.**Ethanol Plant**								
In-State	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
c.**Miller/processor**								
In-State	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
d.**River Terminals**								
In-State	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
e.**Direct to Export**								
Gulf	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
West Coast	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Mexico	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Other	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
f. **Other**	_____%	_____%	_____%	_____%	_100%	_____	_____	_____

TOTAL (a+b+c+d+e+f) 100%

6. Identify the percentage of soybean shipments to each of the listed soybean markets, the mode of transport used to access each market, and the average distance of haul to each market.

(Soybean shipments from September 1, 2007, through August 31, 2008)

Market	% of volume	% shipped by Truck	Rail	Barge	Total	Average distance by Truck	Rail	Barge
a. **Processor/Crusher**						-- one-way miles --		
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
b. **River Terminals**								
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
c.**Direct to Export**								
Gulf	_____%	_____%	_____%	_____%	100%	_____	_____	_____
West Coast	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Mexico	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Other	_____%	_____%	_____%	_____%	100%	_____	_____	_____
f. **Other**	_____%	_____%	_____%	_____%	100%	_____	_____	_____

TOTAL (a+b+c+f) 100%

Handler Comments_____

_____

_____

_____

THANK YOU FOR YOUR HELP.

THE INFORMATION YOU PROVIDE WILL BE CENTRAL TO THE POSITIONS THAT THE SOYBEAN BOARD TAKE ON LEGISLATIVE PROPOSALS THAT DEAL WITH TRANSPORTATION.

APPENDIX J - SURVEY OF CORN PROCESSORS

CORN PROCESSOR SURVEY

Identify state where this facility is located_____

1. Is this facility a wet or dry corn mill? (Identify with an X)

Wet Mill _____ Dry Mill _____

2. Do you produce ethanol at this facility? (Identify with an X)

YES_____ NO_____

3. Please indicate the volume of corn processed at this facility in 2008–09 marketing year?
_____ bu.

4. Please identify the source of corn (in-state, out-of-state) purchases, the transport modes used in assembly of corn to facility, and average distance of haul for each of the utilized transport modes.

Market	% of volume	% received by Truck	Rail	Barge	Total	Average distance by Truck	Rail	Barge
Corn Purchases						-- one-way miles --		
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
TOTAL	**100%**							

5. What percent of total product sales from this facility was contributed by each of the following products during the 2008–09 crop year?

Ethanol	_____%
Wet Distillers Grains	_____%
Dry Distillers Grains	_____%
Corn Gluten Meal	_____%
Corn Gluten Feed	_____%
Other Products	_____%
TOTAL	100%

6. Identify for each corn product the percent of sales to various markets (in-state, out-of-state, international), the mode of transport used to access each market, and the average distance of haul to each market by each transport mode.

(Corn product shipments from September 1, 2007, through August 31, 2008)

Market	% of volume	% shipped by Truck	Rail	Barge	Total	Average distance by Truck	Rail	Barge
Ethanol						-- one-way miles --		
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Total	100%							
Dry Distillers's Grain								
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Total	100%							
Wet Distillers's Grain								
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Total	100%							
Corn Gluten Meal								
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Total	100%							
Corn Gluten Feed								
In-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Total	100%							
Other Products								
In-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Total	100%							

COMMENTS_____
_____
_____

THANK YOU FOR YOUR HELP.
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APPENDIX K - SURVEY OF SOY PROCESSORS

SOYBEAN PROCESSORS SURVEY

Identify state where this facility is located_____

1. Please indicate the average volume of soybeans processed at this facility during the past three years _____ bu.

2. Please indicate the volume of soybeans processed at this facility in 2008–09 marketing year? _____ bu.

3. Please identify the source of soybean (in-state, out-of-state) purchases, the transport modes used in assembly of soybeans to facility, and average distance of haul for each of the utilized transport modes.

	% of	% received by				Average distance by		
Market	volume	Truck	Rail	Barge	Total	Truck	Rail	Barge
Soybean Purchases						-- one-way miles --		
In-State	_____%	_____%	_____%	_____%	100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	100%	_____	_____	_____
TOTAL	**100%**							

4. What percent of total product sales from this facility was contributed by each of the following products during the 2008–09 crop year?

Soybean Meal	_____%
Soybean Oil	_____%
Other Products	_____%
TOTAL	100%

5. Identify for each soybean product the percent of sales to various markets (in-state, out-of-state, international), the mode of transport used to access each market, and the average distance of haul to each market by each transport mode.

(Soybean product shipments from September 1, 2007, through August 31, 2008)

Market	% of volume	% shipped by Truck	Rail	Barge	Total	Average distance by Truck	Rail	Barge
Soybean Meal						-- one-way miles --		
In-State	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Total	100%							
Soybean oil for Industry								
In-State	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Total	100%							
Soybean oil for Food								
In-State	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Total	100%							
Other Products								
In-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Out-of-state	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
International	_____%	_____%	_____%	_____%	_100%	_____	_____	_____
Total	100%							

COMMENTS_____
_____
_____

THANK YOU FOR YOUR HELP.

THE INFORMATION YOU PROVIDE WILL BE CENTRAL TO THE POSITIONS THAT THE SOYBEAN BOARD TAKE ON LEGISLATIVE PROPOSALS THAT DEAL WITH TRANSPORTATION.

APPENDIX L - SURVEY OF GRAIN PRODUCERS

GRAIN PRODUCER MARKET/TRANSPORTATION SURVEY

Identify the state and county where farm is located.

State_____
County_____

CORN MARKETS/TRANSPORTATION

1. How many bushels of corn were produced on this farm in 2009?_____bu.

2. Estimate % of your corn production that will be used on-farm? _____%

3. Indicate % of off-farm corn sales of 2009 crop that was marketed to the following market outlets:

	%
Country Elevators	_____%
Subterminal	_____%
Dedicated Ethanol Plant	_____%
Corn Miller/Processor	_____%
River Terminal	_____%
Another Farm/Feeding Operation	_____%
Unknown	_____%
Total	100%

4. Indicate % of corn transported to each market outlet by each alternative transportation mode. For example, 10% of sales to Country Elevators may have been by wagon, 25% by Tandem Axle truck and the remaining 65% of sales to Country Elevators by Semi. The sum of percentages for each market outlet should equal 100%.

	Wagon	Single Axle Truck	Tandem Axle Truck	Semi Truck	
Country Elevator	_____	_____	_____	_____	100%
Subterminal	_____	_____	_____	_____	100%
Ethanol Plant	_____	_____	_____	_____	100%

	Wagon	Single Axle Truck	Tandem Axle Truck	Semi Truck	
Miller/Processor	_____	_____	_____	_____	100%
River Elevator	_____	_____	_____	_____	100%
Farm/Feeder	_____	_____	_____	_____	100%

5. Indicate average distance of haul for each transport mode that is used to transport to corn to each market outlet. For example, for shipments to Country Elevators, the average distance of haul for Wagons might have been 4 miles, for Tandem Axle Trucks 8 miles, and the average distance of haul for Semi's used in marketing to Country Elevators may have been 15 miles.

	Wagon	Single Axle Truck	Tandem Axle Truck	Semi Truck
	Miles	Miles	Miles	Miles
Country Elevator	_____	_____	_____	_____
Subterminal	_____	_____	_____	_____
Ethanol Plant	_____	_____	_____	_____
Miller/Processor	_____	_____	_____	_____
River Elevator	_____	_____	_____	_____
Farm/Feeder	_____	_____	_____	_____

SOYBEAN MARKETS/TRANSPORTATION

1. How many bushels of soybeans were produced on this farm in 2009?_____bu.

2. Estimate % of your soybean production that will be used on-farm? _____%

3. Indicate % of off-farm soybean sales of 2009 crop that was marketed to the following market outlets:

	%
Country Elevators	_____%
Subterminal	_____%

In-State Crusher	_____%
Out-of State Crusher	_____%
River Terminal	_____%
Unknown	_____%
Total	100%

4. Indicate % of soybean transported to each market outlet by each alternative transportation mode. For example, 10% of sales to Country Elevators may have been by wagon, 25% by Tandem Axle truck and the remaining 65% of sales to Country Elevators by Semi. The sum of percents for each market outlet should equal 100%.

	Wagon	Single Axle Truck	Tandem Axle Truck	Semi Truck	
Country Elevator	_____	_____	_____	_____	100%
Subterminal	_____	_____	_____	_____	100%
In-State Crusher	_____	_____	_____	_____	100%
Out-of-State Crusher	_____	_____	_____	_____	100%
River Elevator	_____	_____	_____	_____	100%

5. Indicate average distance of haul for each transport mode that is used to transport soybeans to each market outlet. For example, for shipments to Country Elevators, the average distance of haul for Wagons might have been 4 miles, for Tandem Axle Trucks 8 miles, and the average distance of haul for Semis used in marketing to Country Elevators may have been 15 miles.

	Wagon	Single Axle Truck	Tandem Axle Truck	Semi Truck
	Miles	Miles	Miles	Miles
Country Elevator	_____	_____	_____	_____
Subterminal	_____	_____	_____	_____
In-State Crusher	_____	_____	_____	_____

Out-of-State Crusher _____ _____ _____ _____

River Elevator _____ _____ _____ _____

<u>THANK YOU FOR YOUR HELP</u>. THE INFORMATION YOU PROVIDE WILL BE CENTRAL TO THE POSITIONS THAT THE <u>SOYBEAN BOARD</u> TAKES ON VARIOUS <u>LEGISLATIVE PROPOSALS</u> THAT DEAL WITH <u>TRANSPORTATION</u>