

14. Looking to the Future for the Kansas Grain Industry: Elevators, Railroads and Services

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Daniel O'Brien was raised on a grain and livestock farm in south central Nebraska. He received bachelors and masters degrees in Agricultural Economics from the University of Nebraska-Lincoln. After completing his Ph.D. at Iowa State, he worked as the Extension Agricultural Economist at the Northwest Research and Extension Center in Colby and was Northwest Area Extension Administrative Director starting in 2003 before returning to his Extension Agricultural Economist position in January 2007. His ongoing extension and applied research interests and efforts are in the areas of a) grain market supply-demand analysis, bioenergy impacts and risk management strategies, b) grain industry market structure, conduct and performance – focusing on grain handling and transportation issues, and c) economic analysis of irrigated and dryland cropping systems, and associated cropland leasing arrangements.

Abstract/Summary

Competitive forces within the Kansas grain industry have led to significant changes among grain elevators and railroad shuttle handling facilities in the state since 2007. Continued development of railroad shuttle train grain loading facilities in key grain producing locations in Kansas has heightened the competitiveness of grain markets around the state. This is especially the case in areas of the state where either ethanol plants or livestock feeding industries have already been established. These threats and opportunities faced by local grain elevators and farm marketers in the Kansas grain industry has helped bring about a number of proactive, aggressive, strategic mergers and acquisitions of grain elevator facilities - both on the part of local farmer's cooperatives and independent agribusinesses. The competitive environment in the Kansas grain industry has also forced the formation of a number of joint ventures between cooperatives and independents - particularly in the establishment of new, efficient shuttle train loading facilities in key locations around the state.

In this session we will examine the current state of the Kansas grain industry in 2015 in terms of number and storage capacity of grain elevators and where they are located, the cooperative and/or independent business associations that exist in different parts of the state, the locations of high capacity-high speed shuttle train loading facilities in the state as well as ethanol plants and livestock feeding operations, and the status of railroad service for both primary (i.e., BNSF and UP) and other (K&O, SKOL, CKRY, the former KYLE, etc.) rail providers to Kansas grain industry locations. This information will be compared to similar data from 2007, and will also be examined on a crop reporting district basis for different regions across the state. The session will wrap up with observations and discussion on future trends in the competitive structure of the Kansas grain industry, i.e., whether the trends observed from 2007 through 2015 are likely to continue in the same manner over the next 8-10 years.

Looking to the Future for the Kansas Grain Industry: Elevators, Railroads, & Services

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Study Objective & Factors Examined

► Objective

- To examine changes in the structure of the Kansas grain industry from 2008 through 2014



► Kansas Grain Industry Characteristics examined

- Grain elevator numbers, regional location, & storage capacity
- Access to rail service (by grain elevators) & by which Railroad
- Rail car capacity of Elevators, including Shuttle Train facilities
- Numbers of competing elevators (affiliated & non-affiliated)
- Elevator proximity to ethanol plants & wheat mills

Factors Affecting Competition in Kansas Grain Markets

- ▶ Feedgrain Demand for Livestock Feeding
- ▶ Consolidation of Local Grain Elevators
 - Formation of multi-location cooperatives
 - "Strategic" entry of national firms into local markets
- ▶ Grain Ethanol Plant Development
- ▶ Railroad Infrastructure Changes
 - Emphasis on Shuttle (75-110 cars) Train facilities
 - "Short Line" de-emphasis or abandonment over time



Market Factors Expected to Positively Affect Local Cash Grain Prices...

- ▶ Competitive Environment (↑ # of competitors)
 - **Issue:** *Affiliated versus Nonaffiliated Firms*
- ▶ Supply/Demand Conditions in Local Market
 - **Issue:** *Equilibrium \$ for grain S/D in local markets*
- ▶ Elevator Grain Handling & Storage Capacity
 - **Issue:** *Local market share (cost structure & market power-leadership)*
- ▶ Form of Business Organization
 - **Issue:** *Cooperative dividends reflected in grain \$s*



Economic Principles @ Work

"Oligopsonistic" Competition likely exists among grain elevators in local-regional grain markets

- ▶ **Competition among a small number of independent grain elevators (i.e., competing grain buyers)**
 - Reflected in competitive local grain basis bids
- ▶ **Barriers to entry into local markets**
 - Cost of facilities for grain handling & storage
 - Rail car handling facilities access & scale/size issues
 - *"Nothing to buy!"*, i.e., tight ownership of existing grain facilities



Economies of Scale & Scope

- ▶ **Scale Economies**
 - Theory: "Average cost falls as firm output increases"
⇒ *Cost efficiency improves as firm – facilities grow larger*
- ▶ **Scope Economies**
 - Theory: "Less costly for 1 firm to perform 2 integrated activities than for 2 specialized firms to perform them separately"
- ▶ **Relevance to the Kansas Grain Industry**
 - Grain handling effectiveness of single/multiple elevator facilities
 - Multi-Location grain firms &/or Joint Venture handling facilities

Transmitting Grain Prices\$ Through Grain Market Systems



► Impact of Shuttle Train Facilities on local grain prices?

- Lower rail carrier rates & access during peak demand

► "Upstream" vs "Downstream" locations

- "Upstream" – Coming from an upstream location through an elevator to get to another final user located downstream
- "Downstream" – A location closer to a final grain user than an upstream grain elevator
- "Cross Region Arbitrage" – Often via truck transportation
 - Responding to grain bids from outside regular sales region

Study Focus & Data Resources

► Focus: Examining Kansas grain market structure in 2015

► Data Resources

- Grain Elevator Characteristics
 - 2015 & 2009 KS Grain & Feed Assoc. Directories
- Railroad Info: BNSF, Union Pacific, & Other online sources
- Public information (via the Web & personal contacts)
 - Directories, google satellite images, grain business websites, etc.
- Interviews of Grain Elevator Managers: June-July, 2015 (more in Sept)



All Kansas Grain Elevators



► Total Grain Elevators (2015): 687 < 698 in 2009

► Total Grain Storage Capacity per Elevator (2015)

- Average: 1,433,000 bu > 1,304,000 bu (2009)
- Median: 840,000 bu > 721,000 bu (2009)
- Maximum: 40,100,000 bu < 47,000,000 bu (2009)

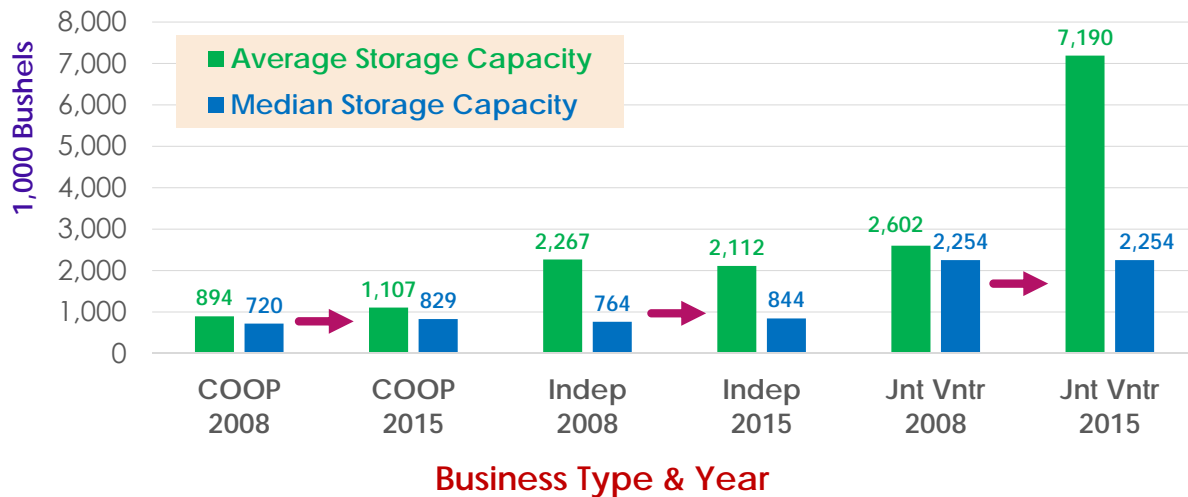
► Upright Grain Storage Capacity per Elevator (2015)

- Average: 1,179,000 bu > 1,128,000 bu (2009)
- Median: 734,000 bu > 657,000 bu (2009)

Rail Access & Handling Capacity

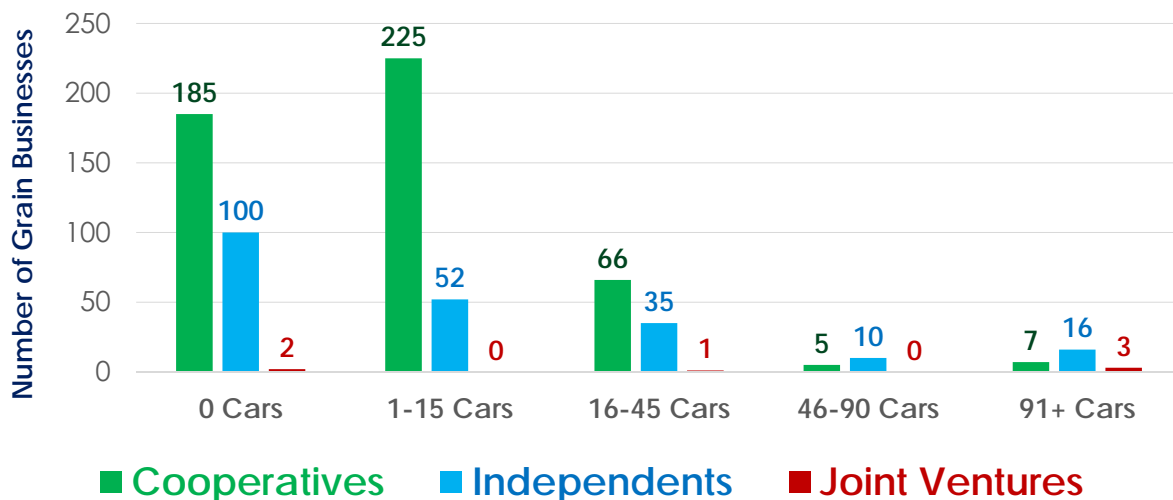
Category	2015 # Elevators	2015 % of Total	2008 # Elevators	2008 % of Total
No Rail Service	398	57.8%	287	40.6%
1 to 15 cars	179	26.0%	277	39.2%
16 to 30 cars	60	8.7%	92	13.0%
31 to 45 cars	7	1.0%	10	1.4%
46 to 60 cars	3	0.4%	5	0.7%
61 to 75 cars	7	1.0%	6	0.8%
76 to 90 cars	3	0.4%	4	0.6%
91 to 105 cars	7	1.0%	10	1.4%
106 to 120 cars	24	3.4%	16	2.3%

Storage Capacity by Business Type 2008 vs 2015



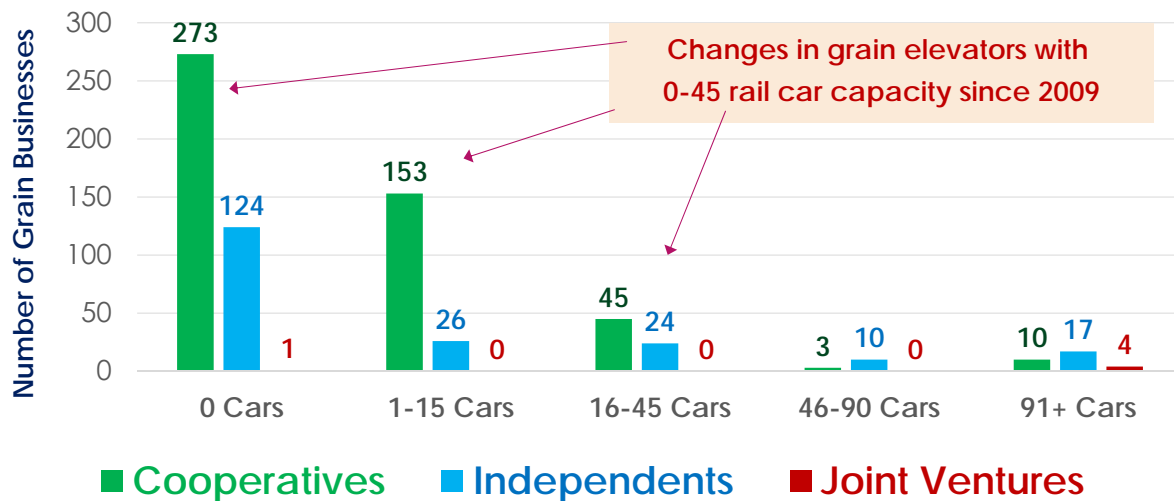
Kansas Elevator Rail Capacity - 2008

Rail Cars Handled by Business Type (per Location)

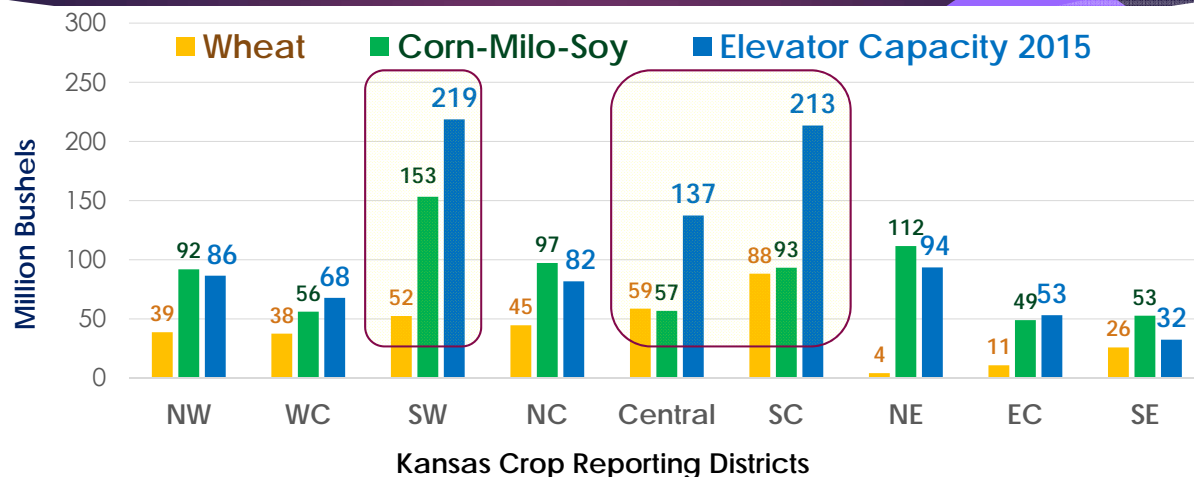


Kansas Elevator Rail Capacity - 2015

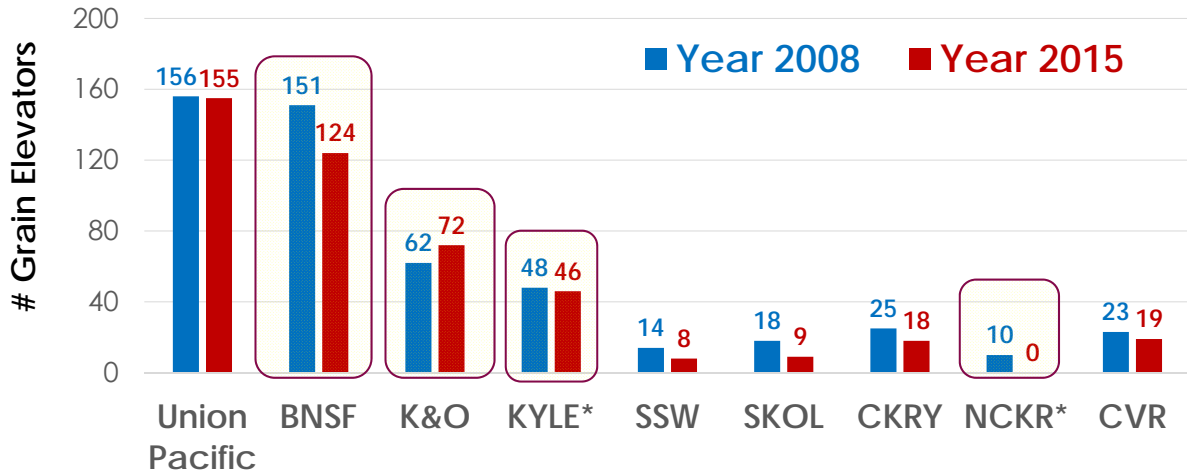
Rail Cars Handled by Business Type (per Location)



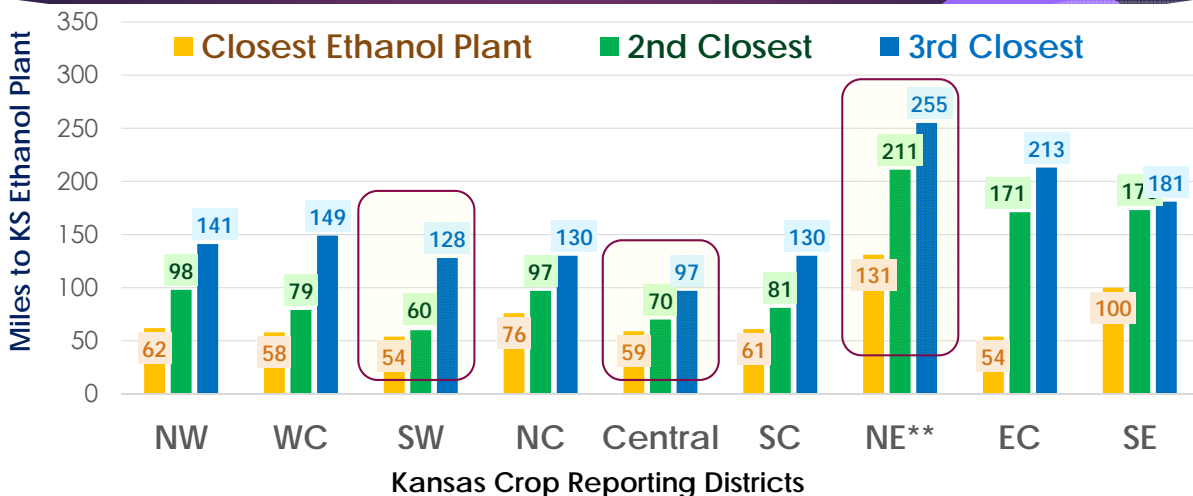
Grain Elevator Capacity vs 2010-14 Average Crop Production by Kansas CRD*



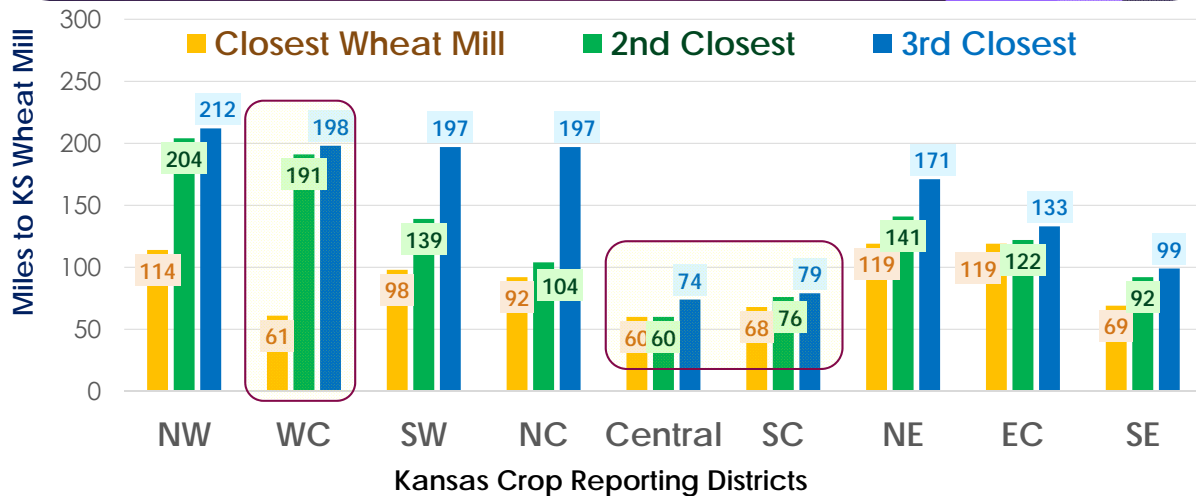
of Kansas Grain Elevators Served by Alternative Railroads - 2008 vs 2015



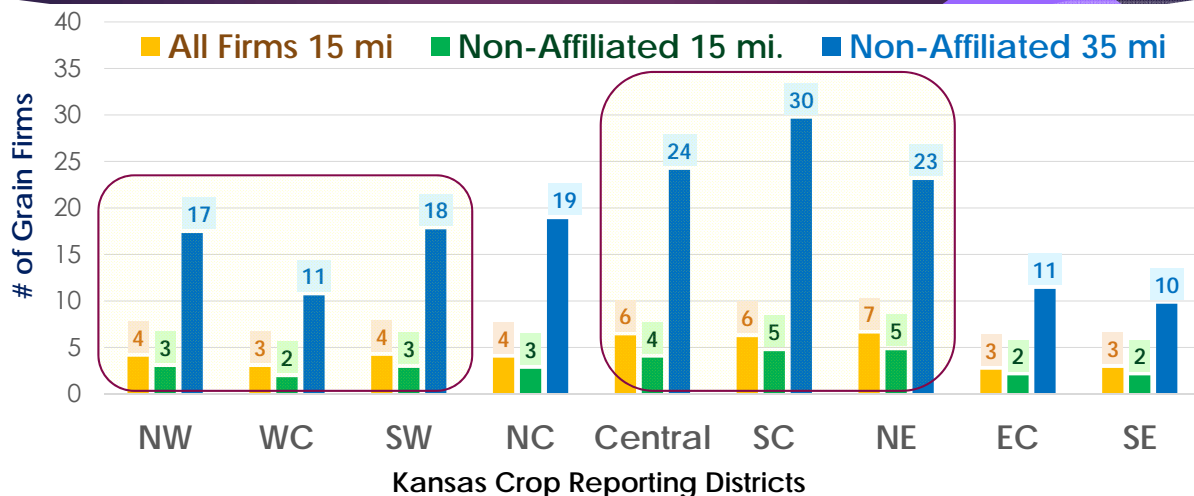
Minimum Distances to Ethanol Plants by Kansas CRD



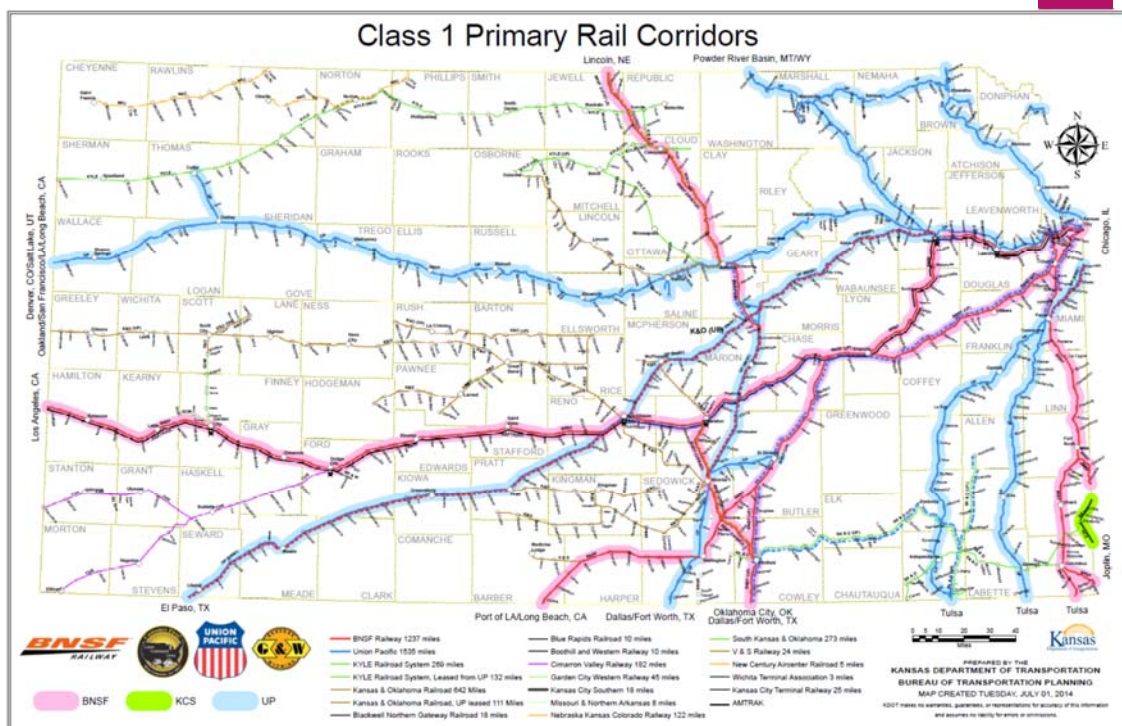
Minimum Distances to Wheat Mills by Kansas CRD

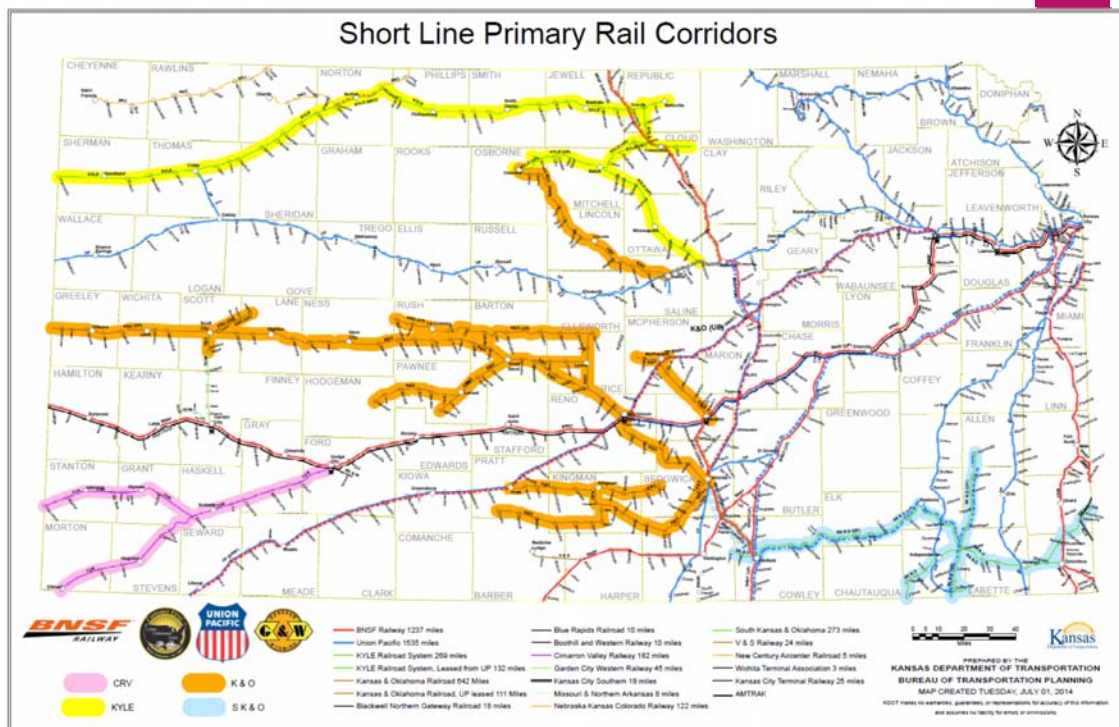


Grain Elevators within 15 & 35 miles by Kansas CRD (Affiliated & non-affiliated)



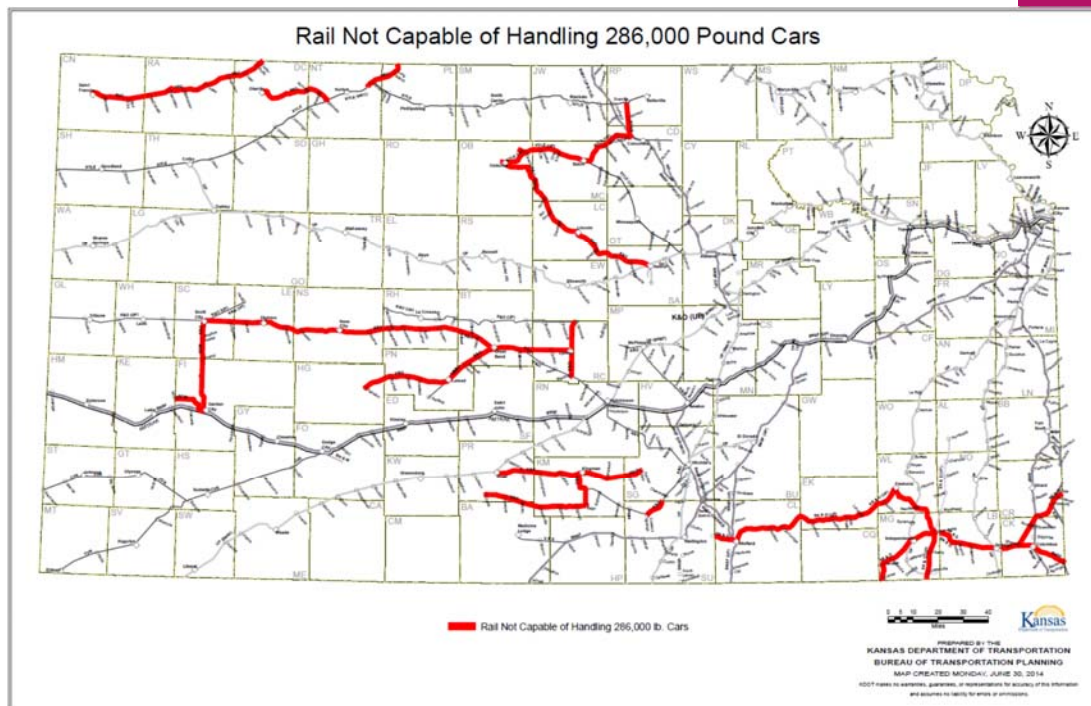
A photograph showing a long train of brown grain cars stretching across a green field. In the background, a large white grain elevator stands against a blue sky with some clouds. The scene is illuminated by warm, golden light, suggesting late afternoon or early morning.



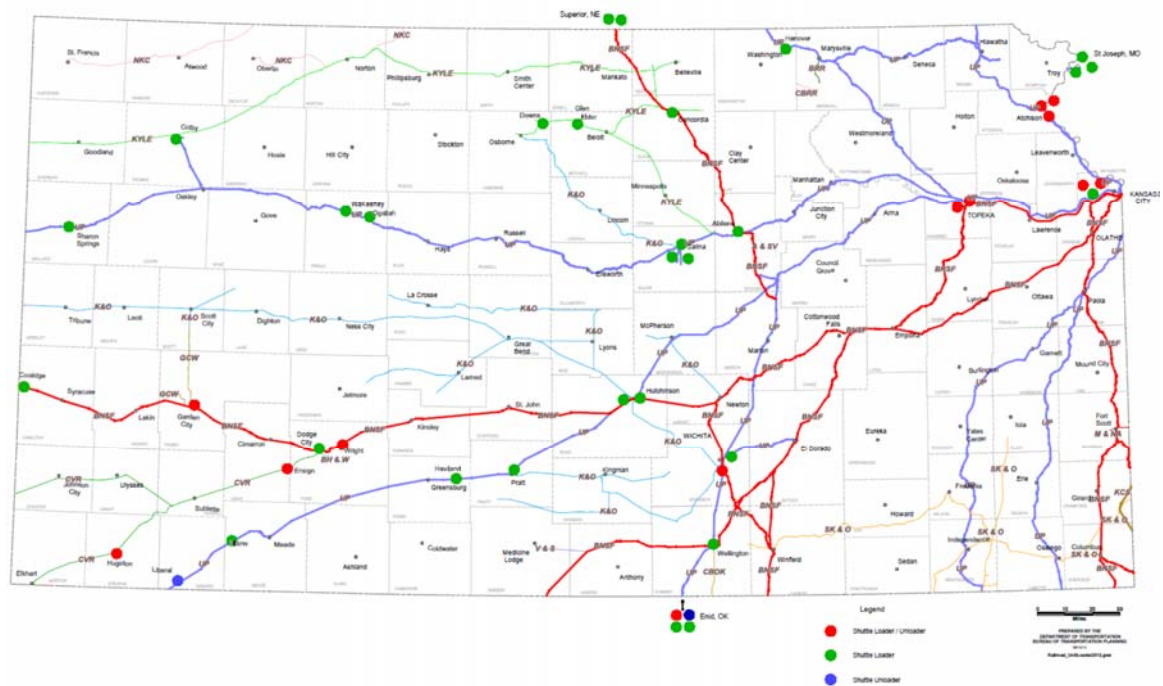


Kansas Railroad Lines & Grain Elevator Map - 2013

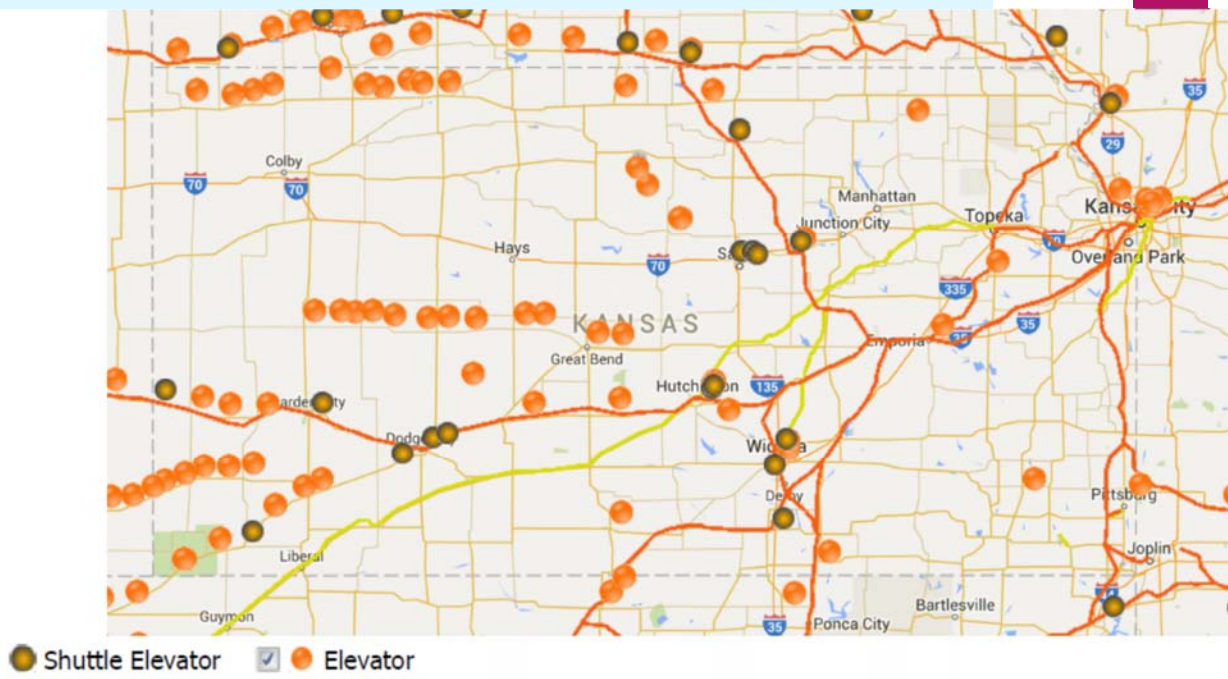




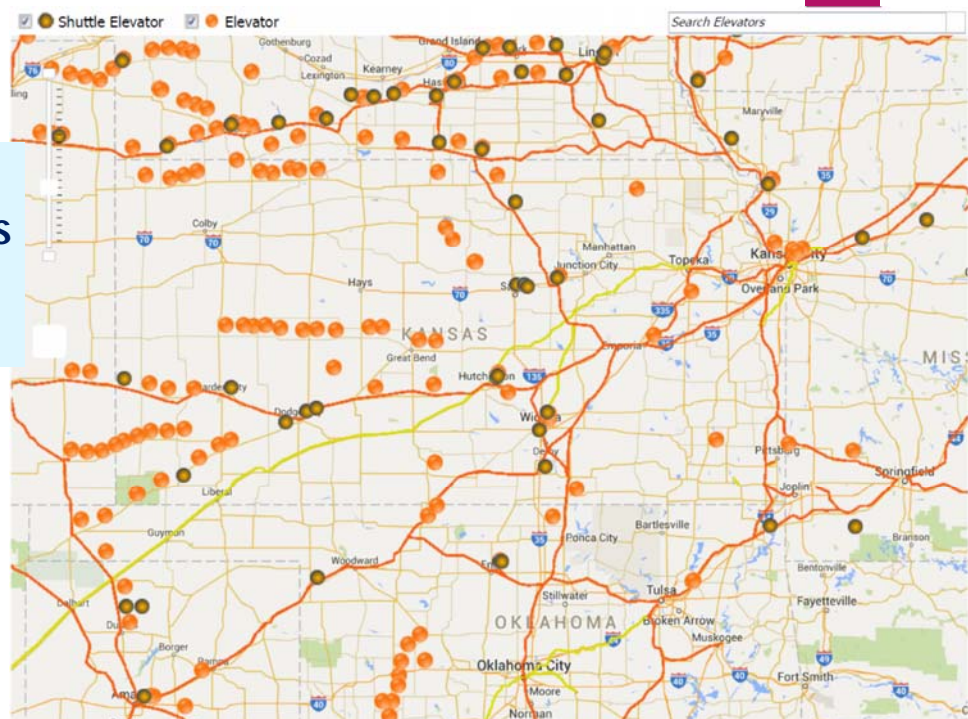
2012 Kansas Unit Loader Locations

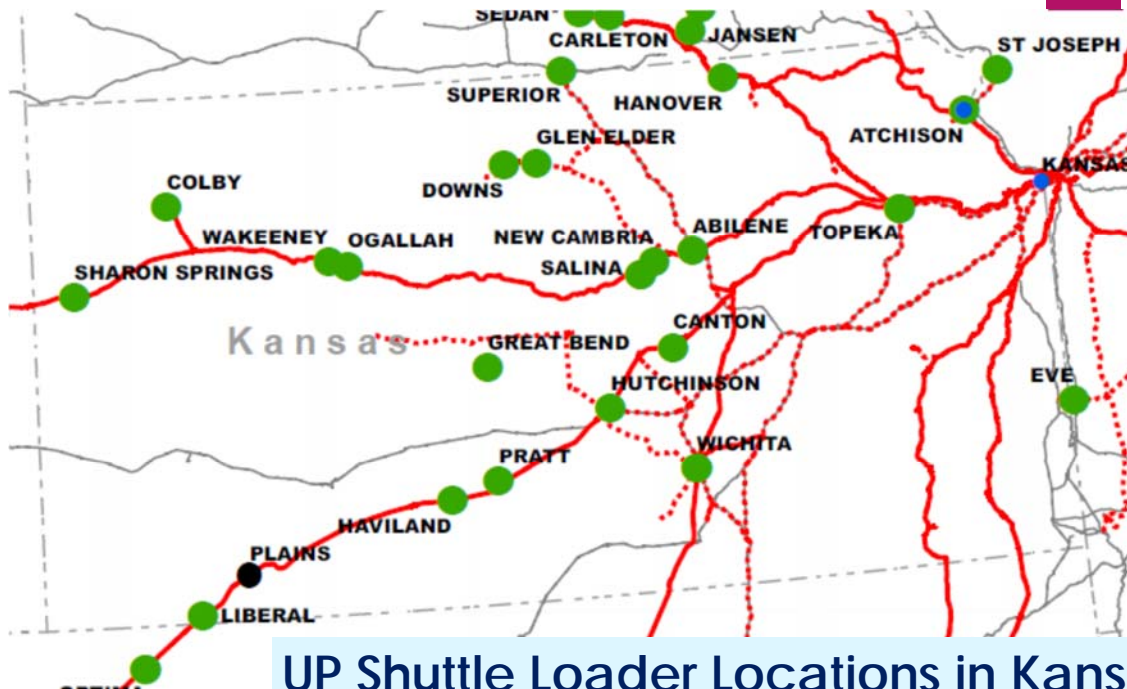


BNSF Shuttle Loader Locations in Kansas

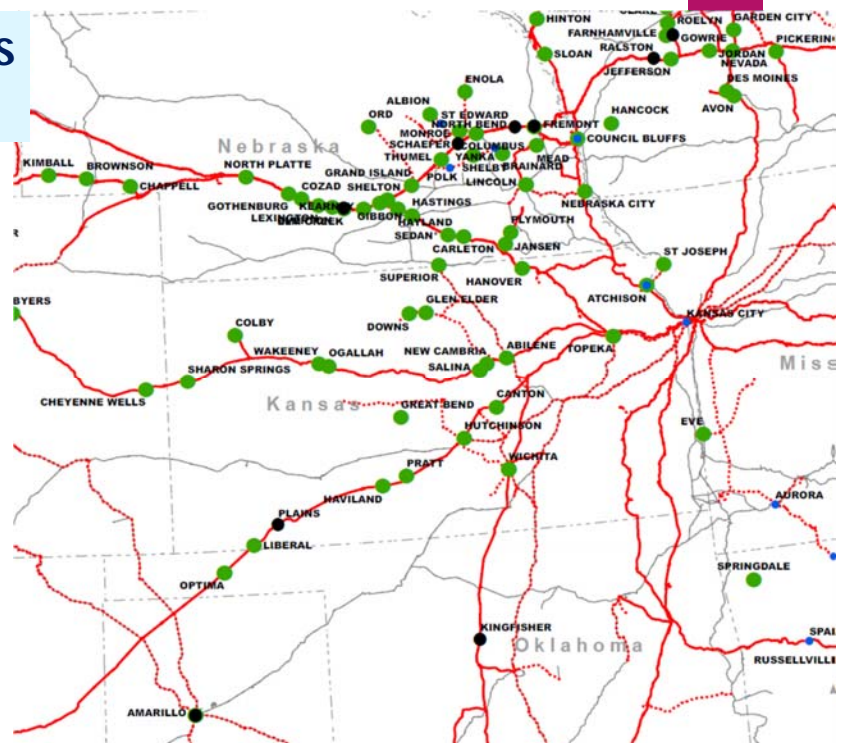


BNSF
Shuttle Loaders
in
NE, KS, OK, IA





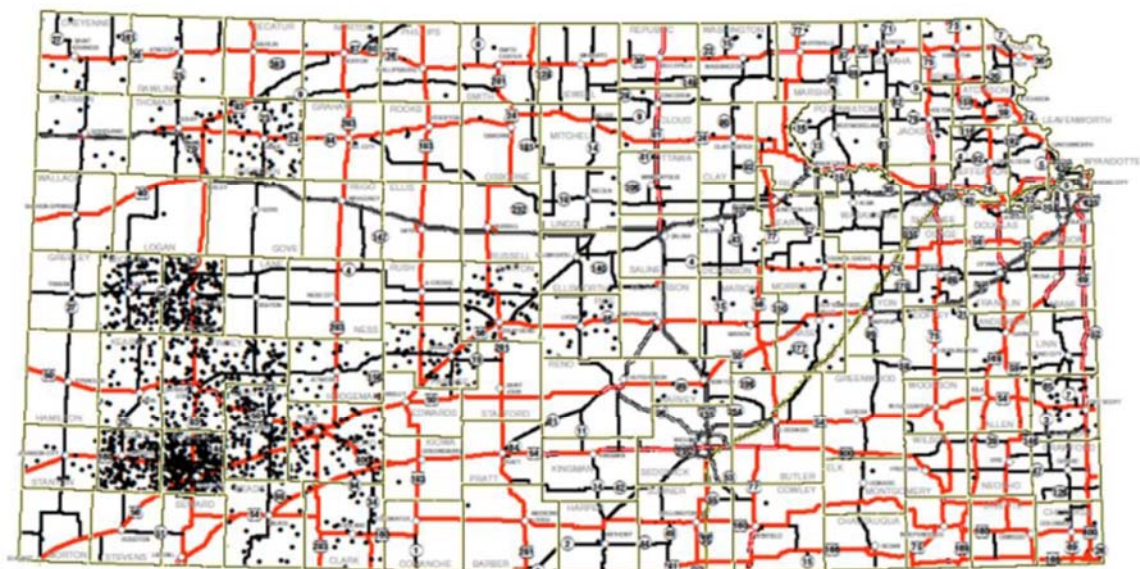
UP Shuttle Loaders in NE, KS, OK, IA



Focus on Grain Truck Transportation by Location & Region in Kansas



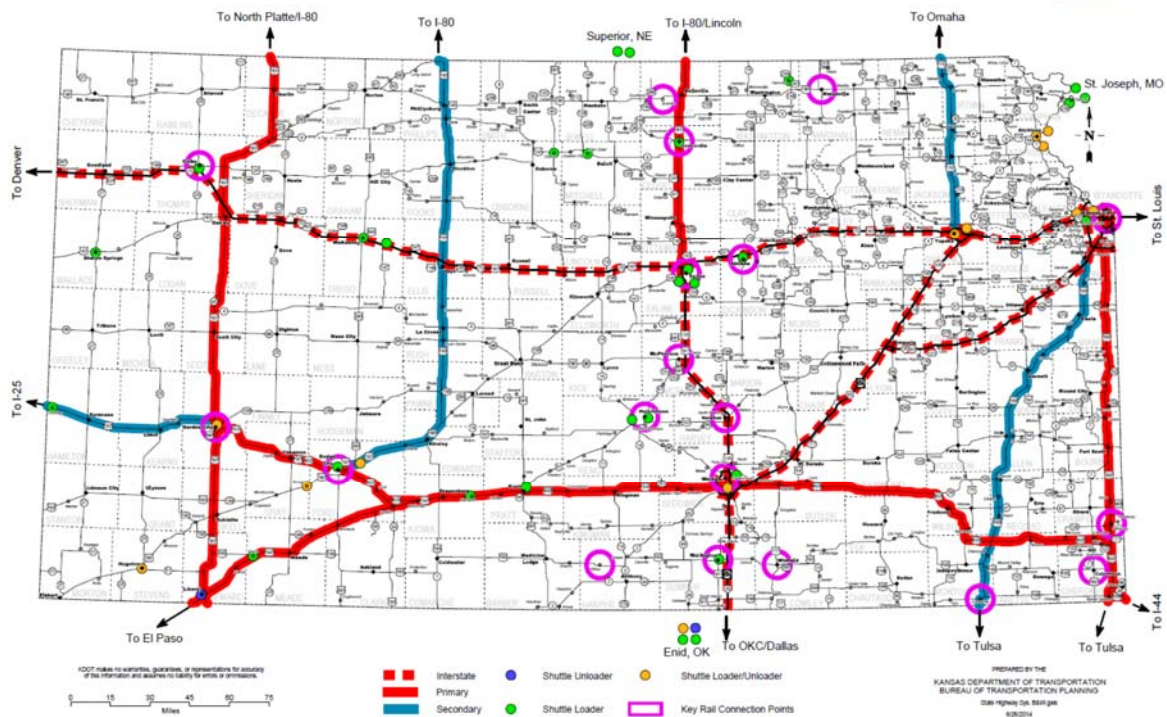
2012 Livestock and Transportation



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BUREAU OF TRANSPORTATION PLANNING
KDOT makes no warranties, guarantees, or representations for accuracy of this information
and assumes no liability for errors or omissions.

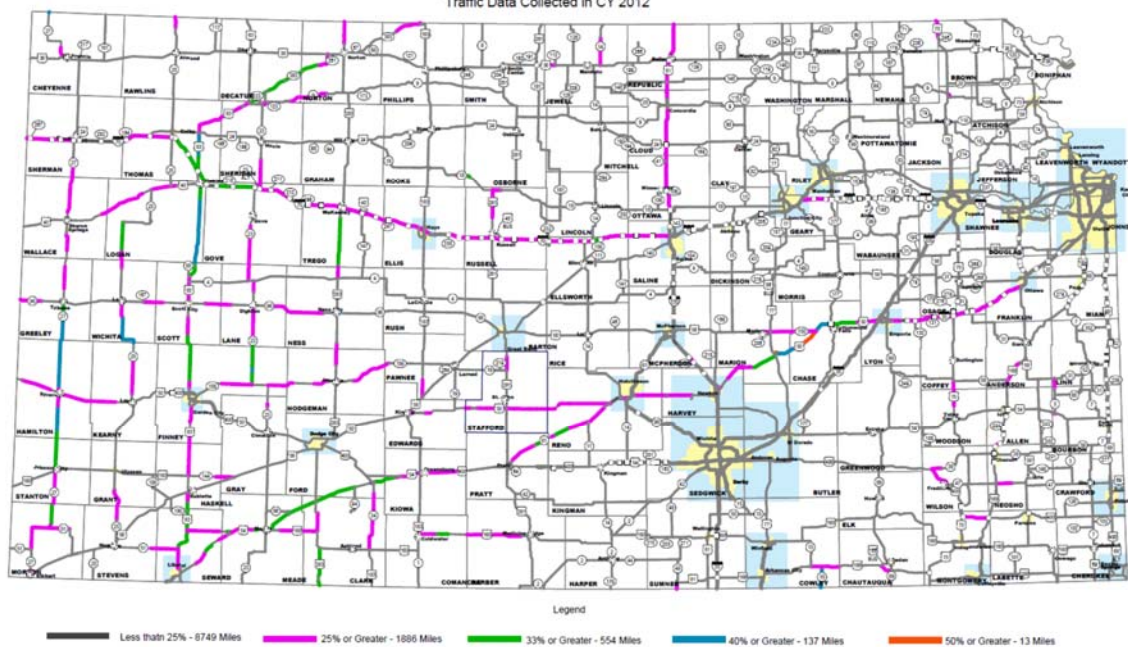
2012 Cattle on Feed
1 Dot = 1,000 head

DataSource
USDA, NASS, Kansas Field Office
Kansas Farm Facts 2012



Average Daily Truck Counts

FHWA Class 8 and above
Traffic Data Collected in CY 2012



Concluding Observations

► Differences Among Grain Elevators

- Grain Handling & Storage Capacity
- Rail Car Handling Capacity
- Ownership Structure
- Terminals vs. Other Grain Elevators
 - *Future roles if direction of grain flows change?*

► Variation by Crop Reporting District

- Crop Production
- Grain Handling, Storage, Rail Car Capacity

Questions?

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