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General Session III:
Transporting and Handling Grains and Minor Crops

Post-harvest Handling and Transportation for Agricultural Products: Issues and Alternatives, Conference
December 8, 2014
Fargo, North Dakota
Overview

- Dependency on Rail
- Seasonal Challenge of Shipping Grain
- Rail Service Problems
  - Supply Side Factors
  - Demand Side Factors
- Effects on Grain Shipping
Dependency on Rail

Many Parts of Upper Great Plains States Served by Single Class I Railroad

- No competing railroad
- Barge facilities inaccessible
- Truck only economical over short distance
Dependency on Rail

Rail Market Share of Grain Transportation 2009-2012

States
Market Share
- 6 to 9%
- 10 to 18%
- 19 to 29%
- 30 to 46%
- 47 to 83%

Notes: 1) Grains and oilseeds include Barley, Corn, Cottonseeds, Flaxseed, Oats, Peanuts, Rough Rice, Rye, Sorghum, Soybeans, and Wheat. 2) Annual crop production compared to rail movements during the subsequent marketing year for each grain and oilseed.

Sources: Surface Transportation Board, Confidential Waybill Samples
USDA National Agricultural Statistics Service, Crop Production Annual Report
Seasonality of Grain Shipments & Peak Demand

Class I Railroad Weekly Grain Carloadings

Source: AMS Analysis of Association of American Railroads, Weekly Railroad Traffic
Supply Side Factors

- Reduced Rail Capacity
- Track Maintenance and Expansion Work
- Congestion and Winter Weather
BNSF Track Capacity Work

Terminal & Line Capacity Expansion Projects
Major line and terminal projects by region, route and subdivision (sub)

North Region
1. Bellingham Sub: two staging tracks and one power switch project
2. Devils Lake Sub: three siding projects
3. Dickinson Sub: four siding tracks
4. Fauba Sub: two siding projects
5. Forsyth Sub: six siding projects
6. Glasgow Sub: six segments of double track
7. Hillsboro Sub: four siding projects
8. Jamestown Sub: one siding project plus CTC (centralized track control) across subdivision
9. Lakeside Sub: five double-track projects and one siding project
10. Zap Sub: one siding project
11. Noyes Sub: interchange tracks and siding project between Noyes and Noyes Junction

South Region
12. Fort Worth Sub: completion of the multi-year Tower 55 project

Central Region
13. Hannibal Sub: one siding project
14. River Sub: one double-track and one siding project
15. Sioux City Sub: one bypass track and one siding project
16. Barstow Sub: one siding project

Terminals
17. LaCrosse, Wis: continue double tracking and signaling improvements through terminal (project started 2013)
18. Argentine Yard at Kansas City, Kan: reconfigure portion of yard to accommodate more automotive car switching and increase overall terminal throughput
19. Forsyth, Mont: extend track lengths at terminal
20. Glendale, Mont: extend track lengths at terminal
21. Lafayette Sub: continue construction of new terminal to serve customers in the Lake Charles, La, area

Bridges
Construction work is underway on some of the largest bridges on BNSF, including:
22. Fauba Sub: Bridge 24.8 over Washougal River in Camas, Wash.; replacement of river bridge will take more than two years to complete due to the permitting and right-of-way constraints
23. Mendota Sub: Bridges 106.58 and 110.26 near Princeton, Ill.; replacement of both double-track bridges is being combined as one project
24. St. Joe Sub: Bridge 160.76 in Tecumseh, Neb.; replace bridge across North Fork of the Nemaha River
25. Lafayette Sub: Bridge 32.06 in Des Allemands, La.; major work to the moveable bridge that crosses Bayou Des Allemands
26. New Westminster Sub: Bridge 129.3 near Coquitlam, B.C.; continue work from 2013 on bridge over Serpentine River

Source: www.bnsf.com
Chicago Congestion

- Busiest hub & largest chokepoint for U.S. Rail
- 6 of 7 Class I Freight Railroads, Amtrak, Local commuter lines
- More tracks originate here than any other city
- Major distribution center for grain (corn & wheat)
- One of the top five areas in grain elevator capacity in U.S.
Chicago Congestion

Source: USDA Grain Transportation Report, July 10, 2014
Coldest Winter on Record

- Severe cold affects train air brakes
- Requires shorter trains, additional crew and locomotives
- More resources needed to move same amount of rail traffic
- Capacity is reduced across the network
- Chicago congestion is intensified, compounding network delays
Demand Side Factors

- Increased demand from many sectors
- Demand in excess of rail capacity
- Changing commodity traffic mix
- 2013/2014 record U.S. & Canadian grain and oilseed harvest
  - U.S. – 553.3 million tons, 20% higher than previous crop year
  - Canada – 99.3 million tons, 27% higher than previous crop year
**Congestion**

**Class I Railroad Traffic Density* and Train Speed**

*Traffic Density - Gross Ton-Miles/Track Mile

Source: Association of American Railroads, *Analysis of Class I Railroads; Railroad Performance Measures*
Reduced Capacity on Rail

Class I Railroad Traffic Volume and Train Speed

Traffic - Carloads and Intermodal Units
Source: Association of American Railroads, *Weekly Railroad Traffic; Railroad Performance Measures*
Surface Transportation Board, *Quarterly Freight Commodity Statistics*

* 2014 traffic estimate calculated from year-to-date performance on November 8, 2014 vs November 9, 2013
Reduced Capacity on Rail

BNSF Traffic Volume and Train Speed

Traffic - Carloads and Intermodal Units
Source: Association of American Railroads, Weekly Railroad Traffic; Railroad Performance Measures
Surface Transportation Board, Quarterly Freight Commodity Statistics
* 2014 traffic estimate calculated from year-to-date performance on November 8, 2014 vs November 9, 2013
Reduced Capacity on Rail

CP Traffic Volume and Train Speed

Traffic - Carloads and Intermodal Units

Source: Association of American Railroads, Weekly Railroad Traffic; Railroad Performance Measures
Surface Transportation Board, Quarterly Freight Commodity Statistics

* 2014 traffic estimate calculated from year-to-date performance on November 8, 2014 vs November 9, 2013
Change in Traffic Mix

- Traffic volume in 2014 is almost at 2006 level
- Traffic mix in 2014 is not the same as 2006
- Excess capacity where traffic volume has decreased
- Insufficient capacity in areas where traffic volume has increased
- Transitional changes
  - Different train types
  - Different service requirements
Change in Traffic Mix

Change in Class I Carloads from Peak Year 2006 to 2013

Source: AMS analysis of Surface Transportation Board Quarterly Freight Commodity Statistics
Change in Traffic Mix

Change in Class I Traffic First Half 2014 vs First Half 2013

Grains and Oilseeds
Fertilizers
Intermodal
Ethanol
Industrial Sand
Petroleum
Coal

Units (000s)

Source: AMS analysis of Surface Transportation Board Quarterly Freight Commodity Statistics
Canadian Service Problems

- Record harvest overwhelmed storage and transportation in Canada
- March 7, Canadian government order for CP and CN to each move 500,000 metric tons of grain per week (increased to 536,260 metric tons on Aug. 7)
- Penalties up to C$100,000 per day for non-compliance
- November 29, mandate extended through March 2015, but at varying lower weekly levels
- CN and CP cycling cars West to port locations for faster car cycling time; not east to Thunder Bay or south into U.S.
Effects on Grain Shipping

- Inadequate rail service – trouble securing railcars
- Grain backlogs
- Inadequate grain storage
- Record high rail rates
- Recent signs of improving rail performance with 2014 harvest
Grain Car Backlog as of 3/28/14

Source: AMS Analysis of BNSF AgUpdate – Podcast March 28, 2014
Grain Car Backlog - 11/23/14

Source: AMS Analysis of BNSF, CP, and UP Weekly Status Reports to Surface Transportation Board
Grain Production, Stocks & Storage

Average Secondary Railcar Market Shuttle Bids per Car

Source: USDA Grain Transportation Report
Secondary Railcar Market Effect on Rail Shipping Costs: Shuttle

Index Value
(Set at 100 in Base Year, 2000)

- Blue line: Shuttle Index: Tariff, Fuel Surcharge, Secondary Railcar Market Bids
- Red line: Shuttle Index: Tariff, Fuel Surcharge

Key Events:
- Record Export Year
- Russian Grain Export Ban
- Current Service Problems

Source: USDA Grain Transportation Report
Secondary Railcar Market Effect on Rail Shipping Costs: Non-Shuttle

Index Value
(SET at 100 in Base Year, 2000)

- Non-shuttle Index: Tariff, Fuel Surcharge, Secondary Railcar Market Bids
- Non-shuttle Index: Tariff, Fuel Surcharge

Source: USDA Grain Transportation Report
Take Aways

- Great Plains Region is rail dependent
- Grain shipments are seasonal; can be volatile
- Railroads are in a transitional and expansionary phase
- Rail capacity is constrained; will likely continue into next year
- Big crops are challenging – add in congestion & bad winter and the results can be brutal
- Adequate grain storage is essential in mitigating rail delivery problems
- The overall grain rail shipment situation is improving, but a bad winter is a wild card
For Current Info on Ag Transportation Please Visit Our Website
http://www.ams.usda.gov/AgTransportation