



# Evaluation of the Social Cost of Rail Freight Diversion: A Multi-Modal Safety Analysis



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## Introduction

- The volume of freight moved on Washington state's rail network is expected to more than double by the year 2035 to more than 260 million tons (116 million tons in 2010).
- Given the expected increase in oil trains through the state and the fact that the oil train lines pass through 22 cities with populations in excess of 3,000 residents per square mile, this is a major issue for Washington.
- Inevitably, capacity constraints on rail lines will, and already has, divert freight traffic onto the roadways at a time when many states are seeking to divert more trucks to rail.

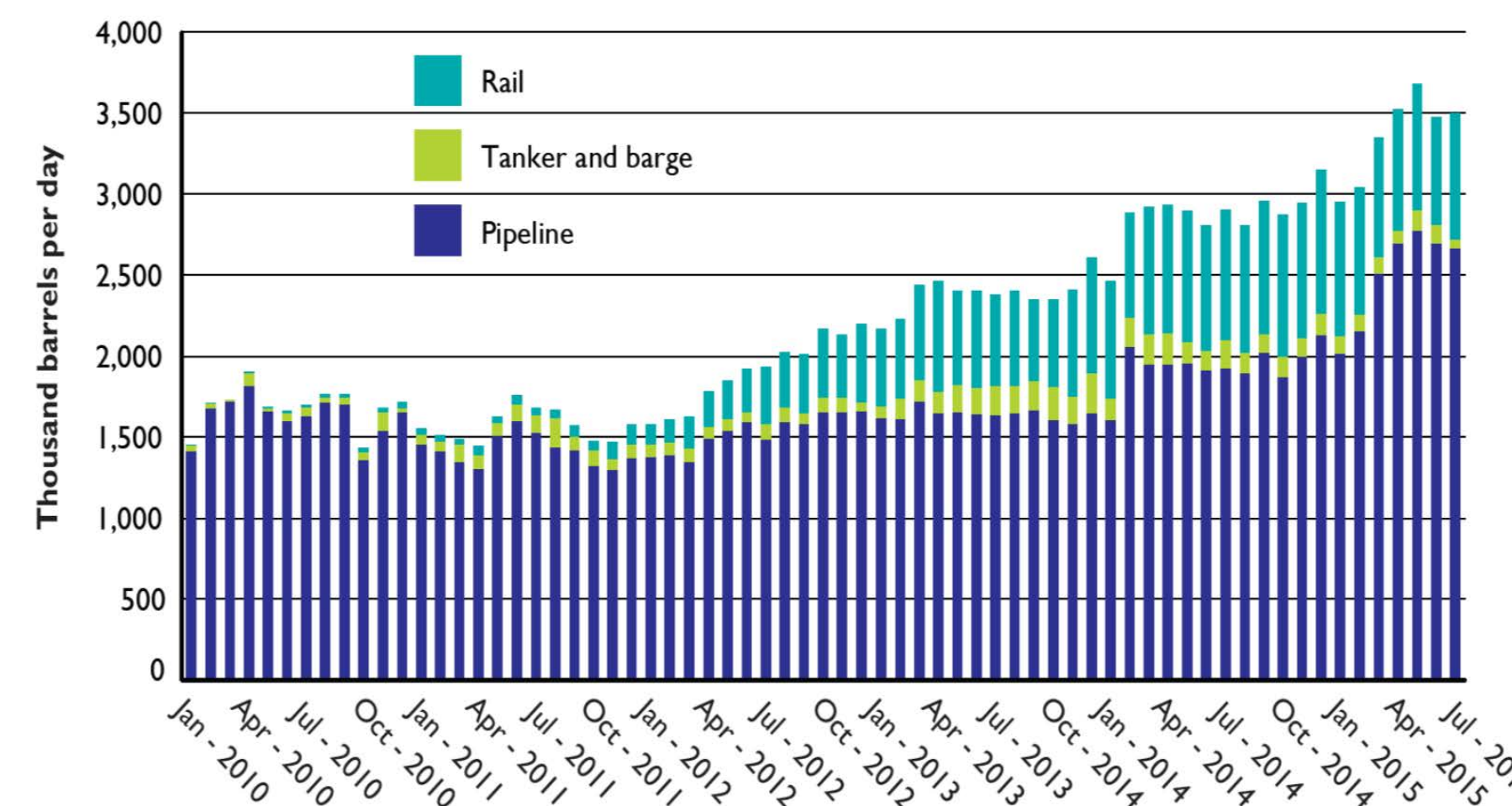
## Objective

- To determine the impacts of increased oil and coal movement, and the safety actions concerned with this movement, on
  - Washington agriculture producers
  - The overall transportation system and its users.

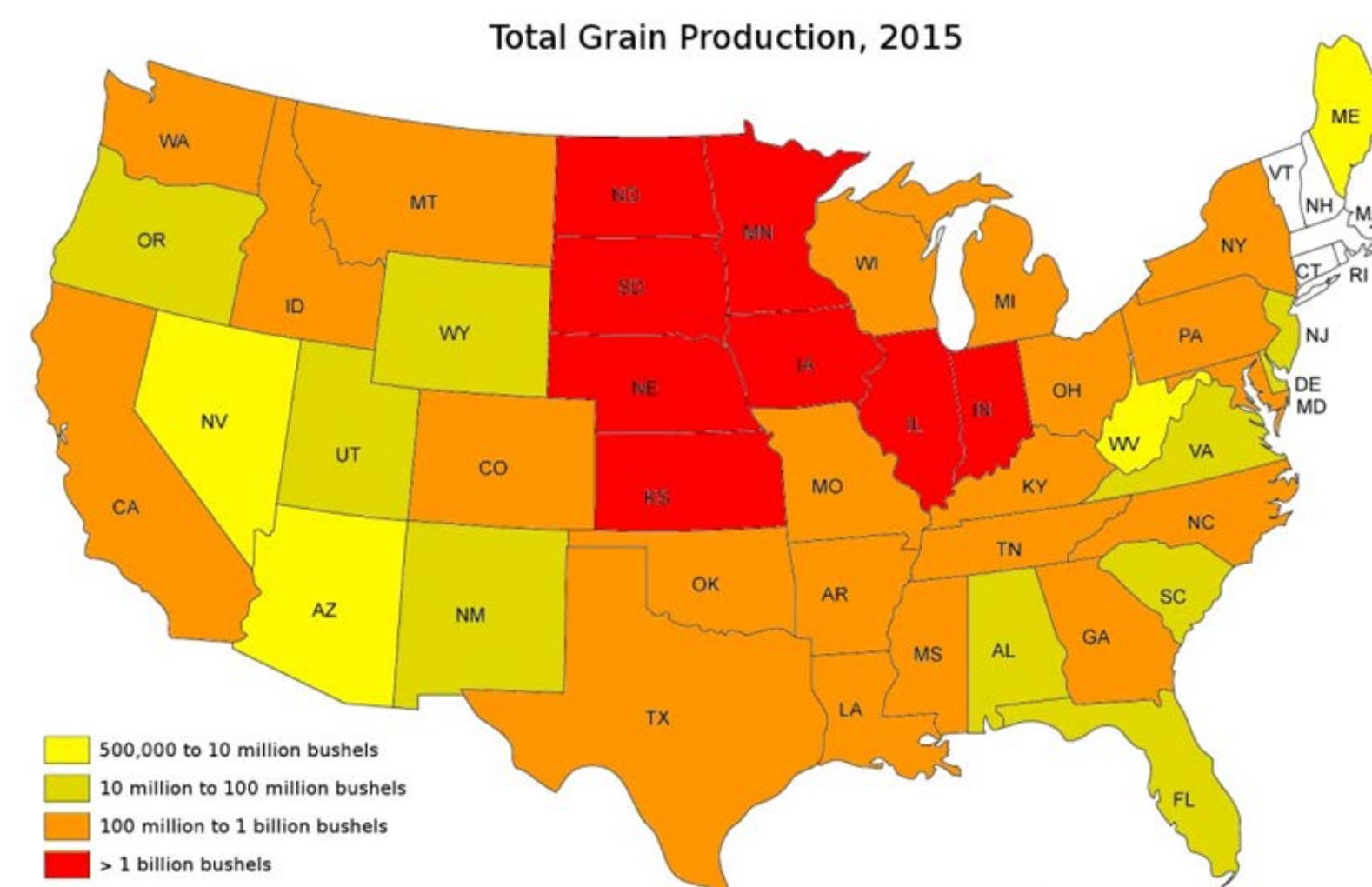
## Formulation

- **Capacity Induced Diversion:** Increased rail demand under capacity constraints drives up prices and diverts hauls back to the roadways.
- **Derailment Abatement:** Oil car derailment poses direct threats to the safety of all communities it passes through. Rail safety based legislation pose a significant likelihood of slowing down rail or altering movement. These safety actions have the potential to compound the effects of capacity constraints and further induce diversion to the roadways.
- **At-Grade:** Oil export terminals in the Pacific Northwest are established within some of the most populated cities of the region. These increased exports pose significant safety concerns as the necessary number of at-grade crossing delays dramatically increases as train volume increases.

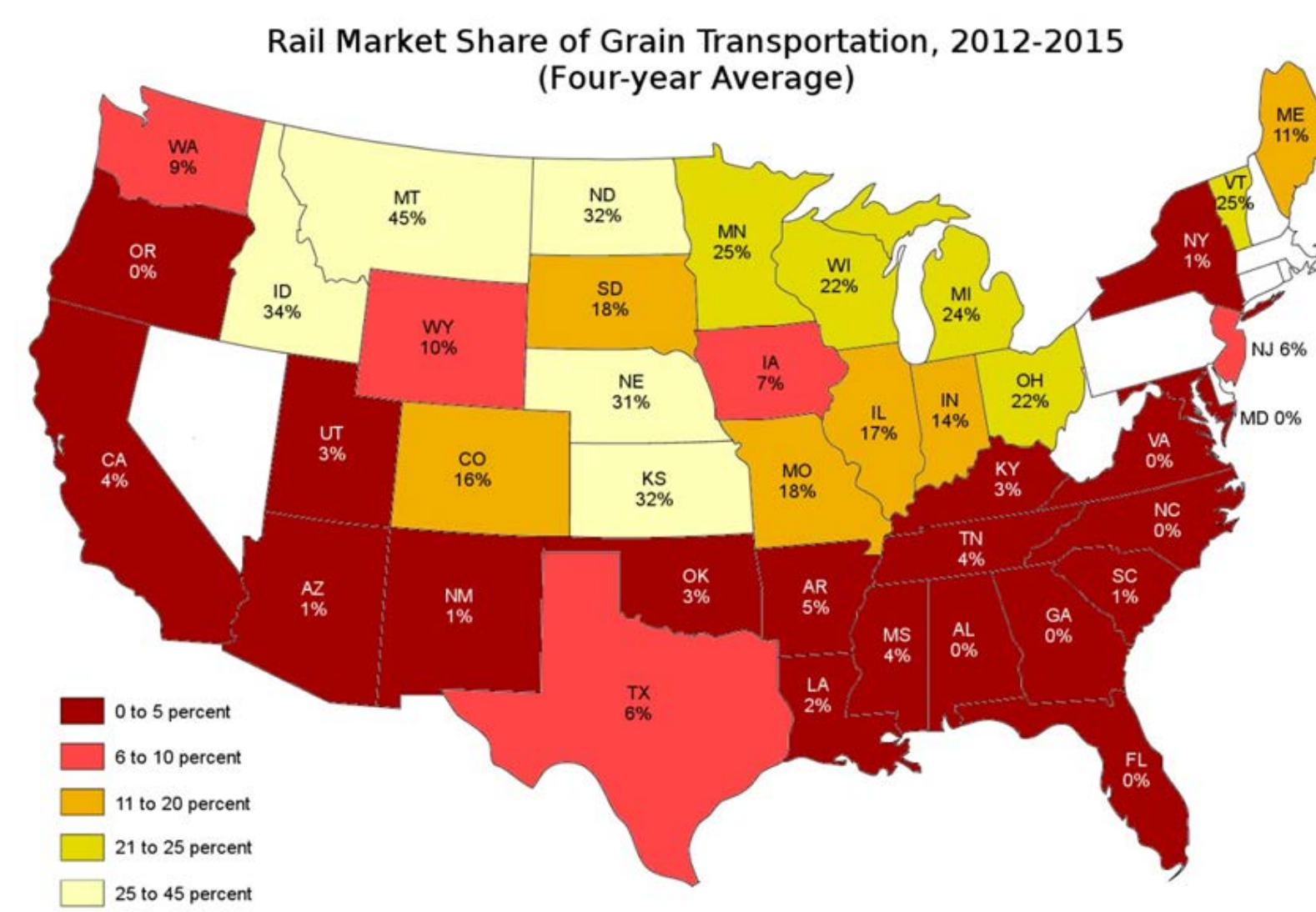
## Current Trends



SOURCE: U.S. Energy Information Administration based on data from the Surface Transportation Board and other information, October 2015.



Source: USDA/National Agricultural Statistics Service



Source: Freight Analysis Framework Data Tabulation Tool

## Case Study

- In 2013, Washington based agriculture producers were moving nearly 1,000 containers per month out of the Port of Quincy on the Cold Train Express to Chicago, IL. Taking advantage of the reliability and on time percentage in excess of 90%, Washington producers were nearly guaranteed a 3-day transit time to Chicago. However, in August 2014, the Cold Train Express ceased all movement. The 90% on time performance had drastically dropped to 5% due to increased oil and coal movements. The expected transit time of nearly 6-days cost the Cold Train Express much of its perishable business as producers were forced to find another, more reliable mode; truck.



Photo courtesy of the Port of Quincy

## Next Steps

- Develop a transportation optimization model to model diversion of freight traffic from rail to road as a result of increased oil and coal movement and/or rail based safety legislation.
- Perform analysis on cost impacts and potential safety concerns based on rail to road freight traffic diversion.
- Calculate impact to agriculture producers due to increased competition and capacity constraints on rail lines.