

# BNSF Update

## 4 State Grade Crossing Conference

**French Thompson III**

DIRECTOR PUBLIC PROJECTS

APRIL 11, 2018



## BNSF Grade Crossing Fast Facts

## BNSF Organizational Structure

## Grade Crossing Safety Initiatives

- Crossing Closures
- Interconnected Crossings
- Vegetation Control

## Coordination Opportunities

- BNSF and State DOT Coordination
- Quiet Zones
- Trespassing
- Land Use Planning



## 30,115 Total Crossings

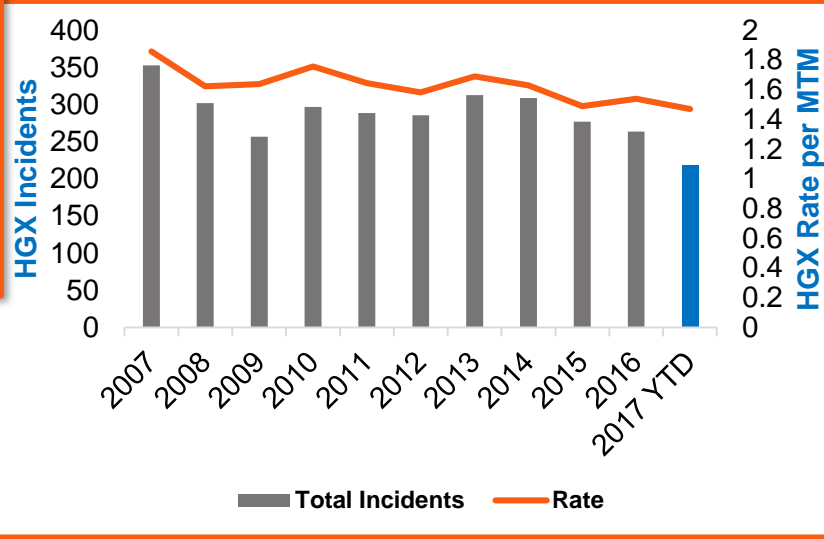
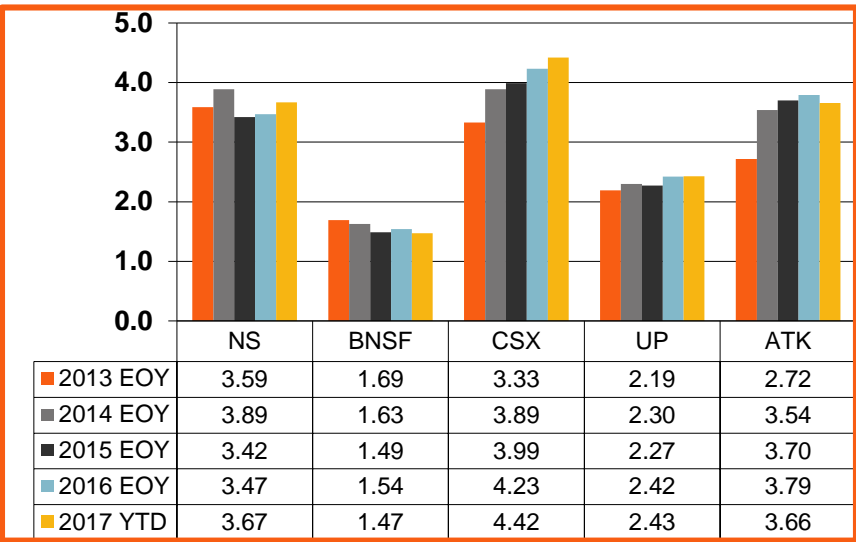
- 17,015 Public At-Grade (8,727 with active warning devices)
- 8,469 Private At-Grade (162 with active warning devices)
- 178 Pedestrian At-Grade
- 2,301 Overpasses
- 2,152 Underpasses



# BNSF Railway – Grade Crossing Safety



BNSF has the lowest highway-railroad grade crossing collision rates in the rail industry. Since BNSF's merger in 1995, the rate of grade crossing collisions has declined 70 percent – from **5.3** per MTM in 1995 to a rate of **1.4** YTD. Achieved through **aggressive crossing closures** and **permitting** as well as partnering with our agencies and the public focused on **Engineering, Education and Enforcement**.



## 2017 Grade Crossing Highlights

- 78** Crossings Closed, *6320 since 2000*
- 11** Quiet Zones Established, *205 total on BNSF*
- 62** Private Crossings Permitted, *approx. 900 total*
- 164** Signal Projects, *(modify to lights, gates, LED's, etc)*
- 138** Surface Projects, *(rehab, replace, etc)*
- 25** Active Grade Separations, *(construction or planned)*

FRA Preliminary Data for 2017, through October 31

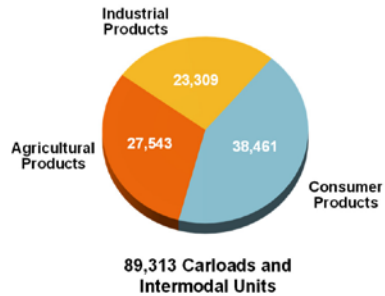
# New Public Project Territories



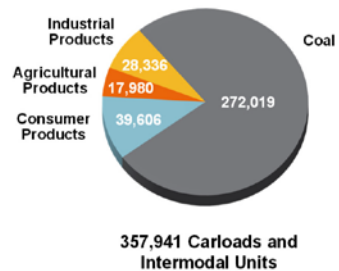
# 4 - State Specific Data – 2017 Volumes

## BNSF 2017 Volume—Missouri

Products Shipped From Missouri

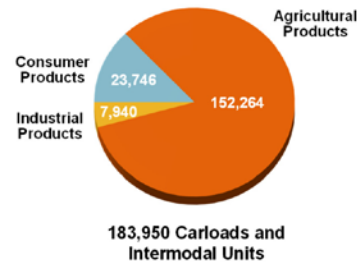


Products Shipped To Missouri

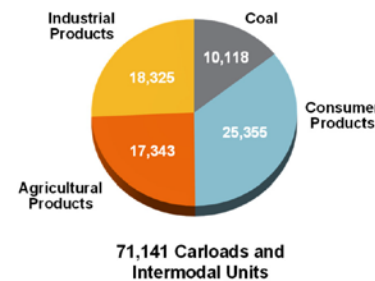


## BNSF 2017 Volume—Nebraska

Products Shipped From Nebraska

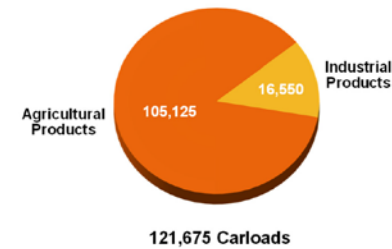


Products Shipped To Nebraska

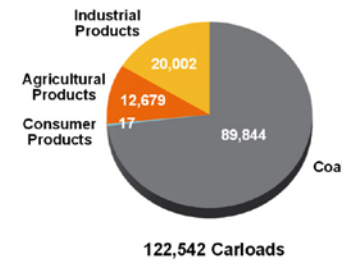


## BNSF 2017 Volume—Iowa

Products Shipped From Iowa

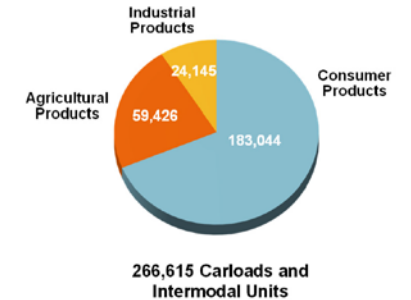


Products Shipped To Iowa

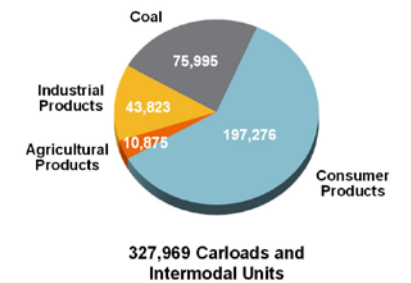


## BNSF 2017 Volume—Kansas

Products Shipped From Kansas



Products Shipped To Kansas



### Missouri Crossing Data

2176 Crossings

1118 - Public

718 – Private

**\$120M – 2018 Investment**

### Nebraska Crossing Data

2176 Crossings

1235 - Public

761 – Private

**\$110M – 2018 Investment**

### Iowa Crossing Data

1106 Crossings

530 - Public

343 – Private

**\$40M – 2018 Investment**

### Kansas Crossing Data

1913 Crossings

1260 - Public

441 – Private

**\$130M – 2018 Investment**

# Grade Crossing Approach

BNSF views grade crossing safety through 3 lenses:

## Engineering

- Safety upgrades (Section 130, signal and surface upgrades)
- Grade separations
- Quiet Zones
- Pedestrian Crossings
- Other public infrastructure

## Education

- Community Safety Events
- Operation Lifesaver
- Level Crossing Awareness Day

## Enforcement

- Officer on the train
- Targeted enforcement with local public safety officers



An aerial photograph of a long freight train crossing a bridge over a wide river. The train consists of several orange locomotives at the front and a long line of white and brown freight cars. The bridge is a long, narrow structure supported by a series of piers. The surrounding landscape is lush with green trees and vegetation. In the background, there are large, rugged mountains under a clear sky. The text "Grade Crossing Safety Initiatives" is overlaid on the right side of the image, flanked by two horizontal yellow lines.

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# Grade Crossing Safety Initiatives

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## Corporate initiative started in 2000 to eliminate redundant or unnecessary crossings

**6330** Crossings Closed LTD (public and private)

BNSF pursues redundant crossings in conjunction with capital expansion projects, sidings, quiet zones, etc.

BNSF works with communities to encourage crossing elimination in several ways.



## 576 Interconnected Crossings on BNSF

BNSF has ongoing initiative to work with agencies to bring crossings up to current MUTCD standards.

Each interconnected crossing has been evaluated by BNSF and status report was sent to each agency.

Reinforced emphasis from FRA (2016) to State DOT's and Railroads to review interconnected crossings and address gaps.

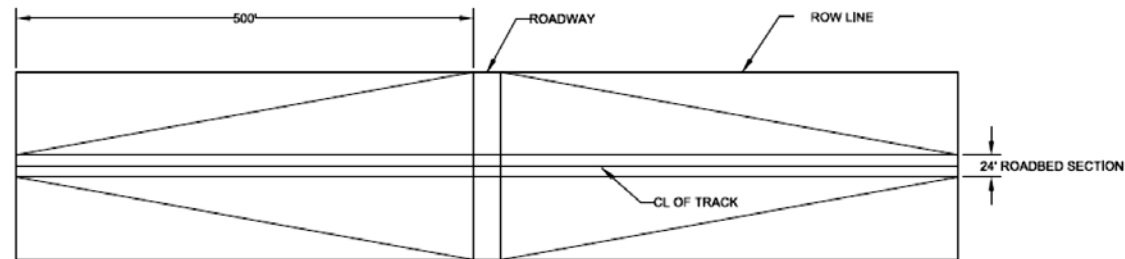


# Vegetation Control

BNSF has implemented a vegetation control program that either *meets or exceeds* state statutes

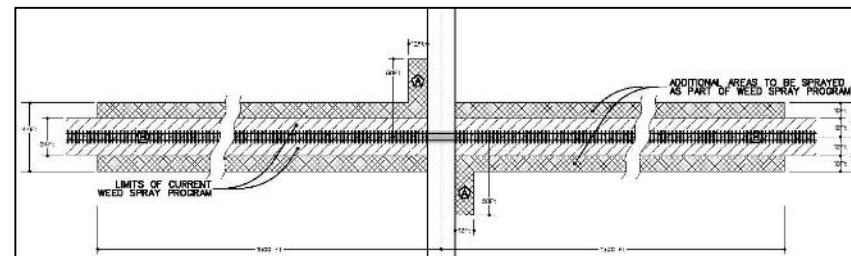
## Public Crossings:

Triangle spray pattern – 500 ft. from edge of roadway



## Private Crossings:

10 ft. x 1500 ft. in all 4 quadrants including 10 ft. x 50 ft. on each approach



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# Public Agency Coordination

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## **Systematic review** of long range roadway and rail projects by State DOT and BNSF

**Goal:** Identify “win-win” opportunities for capital efficiency and operating benefits through mutual accommodation and cost sharing

### **Focus areas:**

- Road crossings in rail sidings
- Grade separations
- Highway projects adjacent to (or over) rail facilities
- Property swaps and land use optimization

*Same process can be done with MPO's, counties and municipalities!*

## 205 Total Quiet Zones on BNSF

- 22 Pre-rule, 183 New Rule, Representing 719 total crossings

### BNSF strongly recommends agencies interested in QZ's to:

- Perform on-site diagnostic process with BNSF, Local Agency, State DOT, Regional FRA rep to review all crossings included in proposed QZ
- Consider SSM's at all crossings included in QZ to discourage motorist from driving around gates (i.e. raised concrete medians)
- Include public awareness campaign with QZ plan to educate community about QZ



BNSF has *dedicated* legal counsel to review all NOI's and NOE's for compliance with Train Horn Rule

## Trespassing

- Pedestrian trespassing incidents are on the rise
- BNSF would like to work with agencies to educate and discourage trespassing
- Currently railroads and states provide potentially conflicting policies or regulations

## Land Use Planning

- Sensible policies regarding development of non compatible land use around railroad property
- Example: School built on one side of tracks residential community build on other side, railroad becomes target for complaints around school busses, pedestrian safety, train horns, etc.



# Grade Crossing Safety: FRA Partnerships and Opportunities



## Quiet Zones

- 200 Total (21 Pre-Rule, 178 Post-Rule, 703 Total Crossings)
- Participated in GAO Study, Received recommendations
- Appreciate FRA's dedication to safe implementation of QZ's (SSM's, closures, etc.)
- Looking to collaborate with FRA on challenging proposed QZ locations: Colorado Front Range, Southern California, Single Crossing QZ's
- Status of FRA's Comment Period on the Train Horn Rule?

## Current Status of FRA Initiatives

- ENS Signage – received guidance document on proper orientation
- Grade Crossing Inventory – BNSF is 99% up to date
- Private Crossing Report to Congress – Will the Rail Industry be briefed on findings prior to congressional submittal?
- Prioritized Research Topics from 2017 Workshop? Opportunities for BNSF to be a partner in those efforts?

## 2017 FRA Partnerships

- FRA Grade Crossing Manager's Meeting – *Milwaukee, WI*
- FRA Research Needs Workshop – *St. Louis, MO*
- FRA Rail Program Delivery Conference – *Washington, DC*
- Eastern Region Highway Grade Crossing Conference – *State College, PA*
- AAR-FRA Grade Crossing Taskforce – *Washington, DC*
- NCUTCD – Committee on railroad and light rail – *Washington, DC, Pittsburg, PA*
- SHRP2-R16: FRA/FWHA/AASTHO/State DOT Railroad coordination initiative – *Chicago, IL*
- Transportation Research Board – *Washington, DC*

## 2018 Opportunities

- Bi-Annual Grade Crossing Manager's Touchpoint
- Co-Facilitate Nationwide Grade Crossing Safety Conference
- Grade Crossing Inventory Database
- Trespasser Prevention research and strategies
- Grade Crossing warning device technology – improved train detection
- Test partnerships with Google/Apple on Autonomous Vehicles
- Section 130 Fund Usage Guidance



# BNSF PTC Update



## BNSF PTC Progress

These metrics represent where BNSF stands in some key areas as of December 31, 2017. They are derived from BNSF's quarterly PTC progress report to the Federal Railroad Administration (FRA).

**21K+** BNSF employees trained to operate and maintain PTC trains and equipment



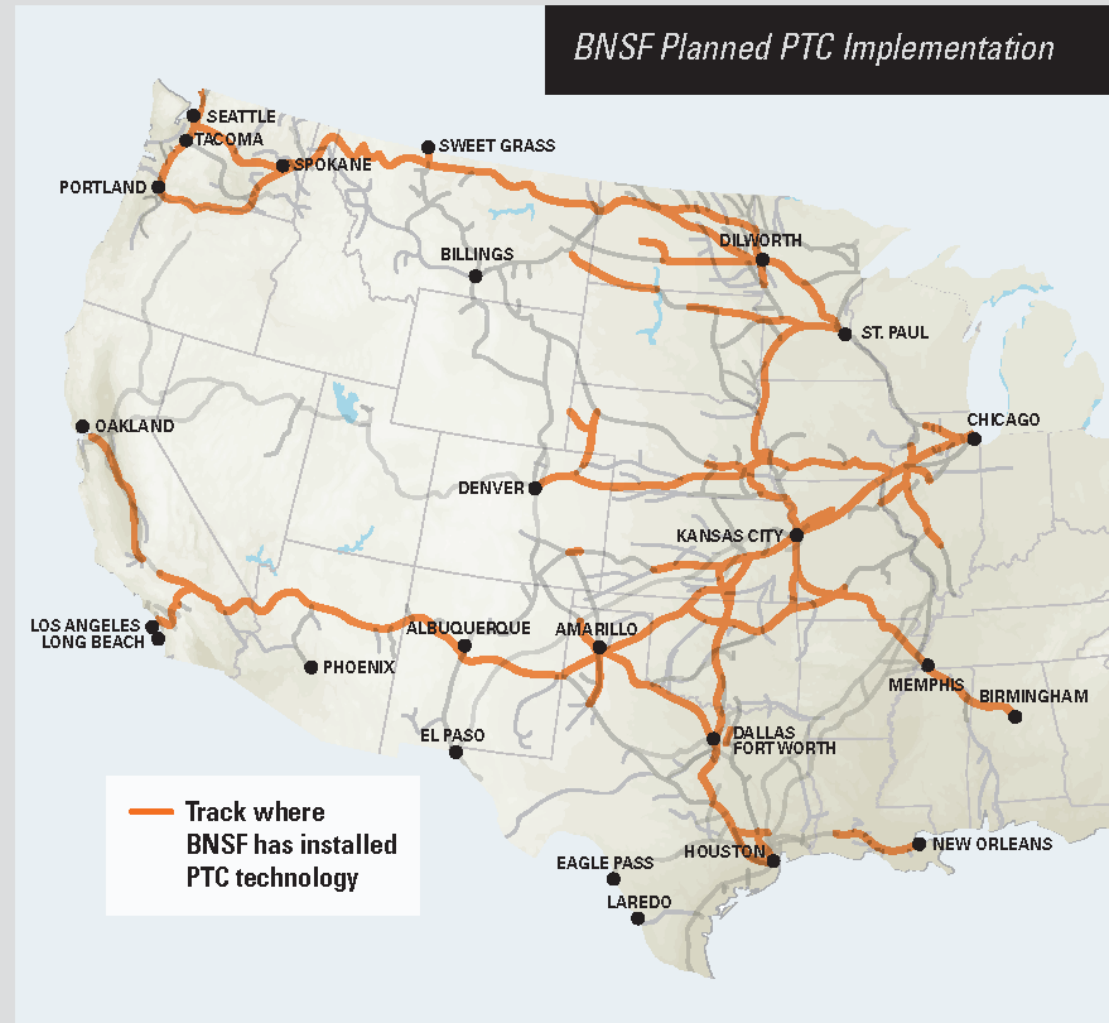
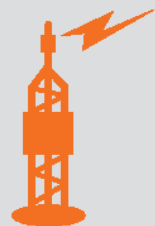
**100%** Locomotives equipped with PTC technology  
(5,000 locomotives)



**100%** Route miles of PTC infrastructure installed  
(11,500+ route miles)



**100%** PTC radio towers installed  
(6,000+ radio towers)



## PTC Milestones Achieved

BNSF completed the installation of PTC on all its federally mandated subdivisions. Across BNSF's required subdivisions:

**1 million+** revenue service trips have been operated using PTC (as of January 2, 2018)

**80%** of freight volume is moving on PTC routes

**11,500+** route miles of PTC infrastructure have been installed



## On Track for Success

BNSF will continue to test and refine this highly complex system that must work as designed to support safe, efficient train operations 24/7/365. BNSF continues to work through the technological and hardware challenges that arise from such a complex system as it drives toward complete implementation.

## Looking to the Future

Interoperability is a challenge and focus in 2018. This means another railroad's locomotive can access another railroad's network and still have PTC protection. Interoperability of PTC systems between Class I, commuter and short line rail carriers is a vital concern. BNSF is unable to test interoperability on a wide scale until other railroads have also completed their infrastructure installation. BNSF looks forward to working with other railways to expand interoperability and with the FRA to ensure PTC enhances rail safety wherever it operates.

