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# Grade Crossing Safety Trends

*A Class I Perspective*

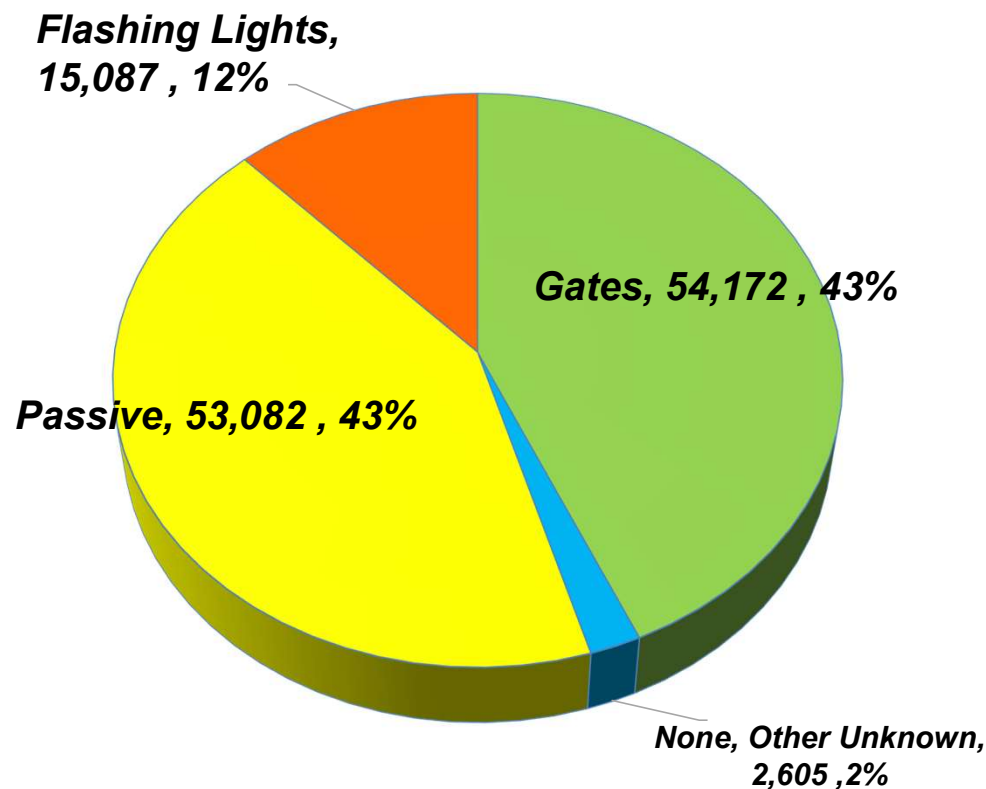


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Over 50% of all public at-grade crossings have active warning devices.



Source: FRA analysis as of December 31, 2023. FRA Grade Crossing Inventory. Based on FRA Warning Device determination.  
Does not include pedestrian pathway or station crossings.

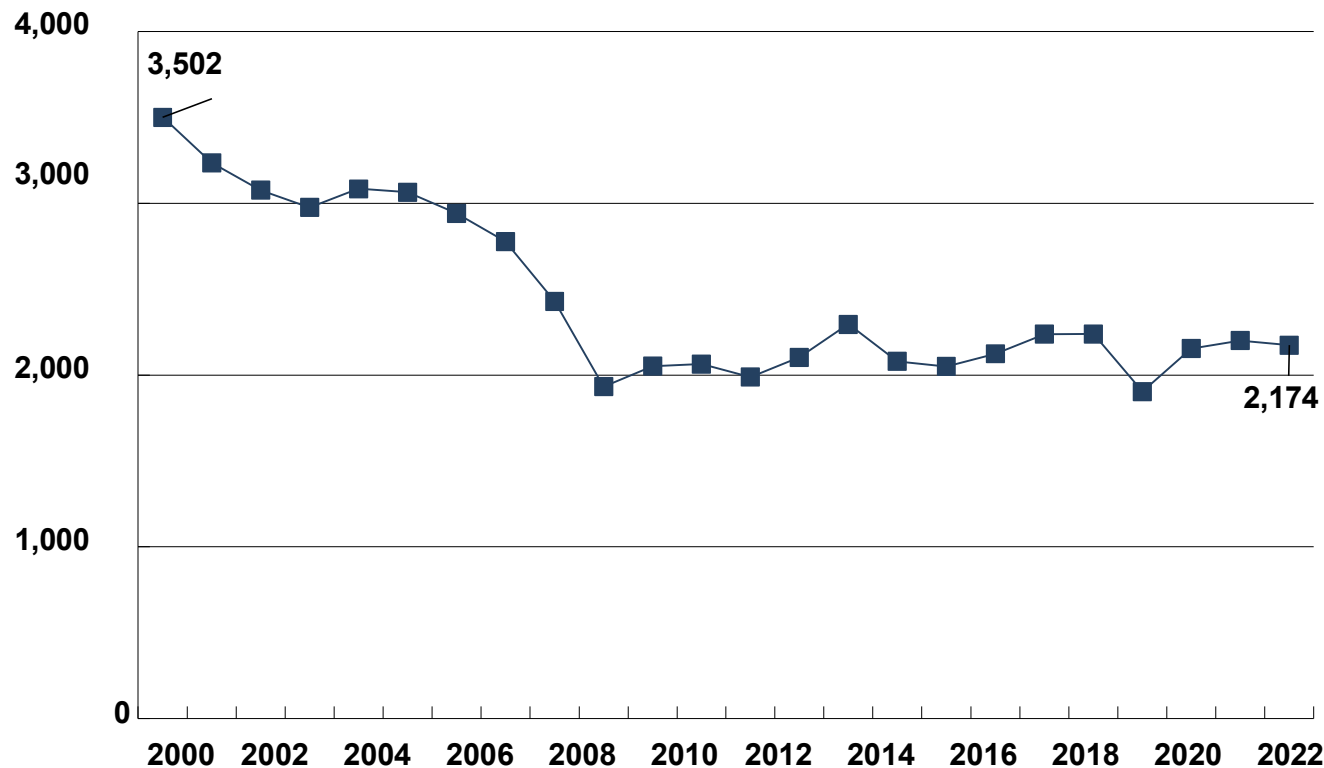


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Grade crossing collisions have declined 30% since 2004 **and plateaued since 2009.**



Sources: <http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx>

Notes: Includes collisions involving pedestrians. Includes collisions at private crossings. Data for 2023 are preliminary, as of March 2024.

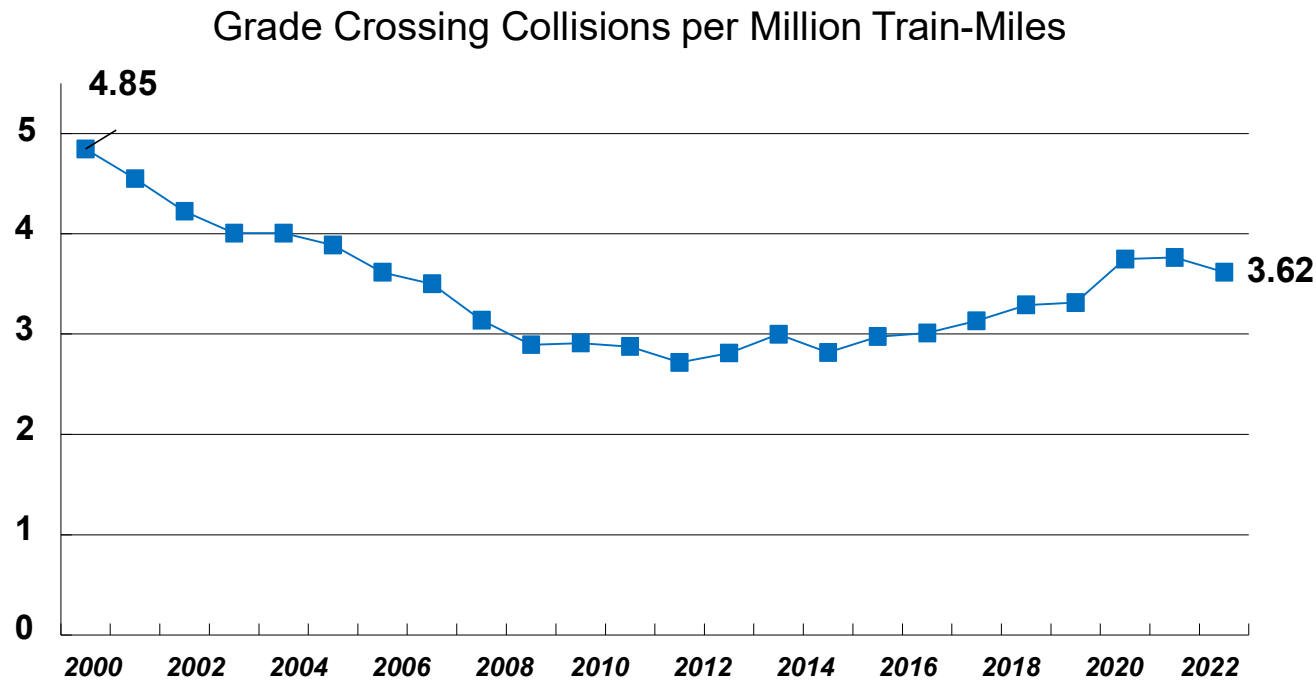


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Grade crossing collision rates have declined 25% since 2000 and 10% since 2004.  
*They are a challenge.*



Sources: <http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx>

Note: Includes accidents involving pedestrians and collisions at private crossings. Data for 2023 is preliminary, as of March 2024.

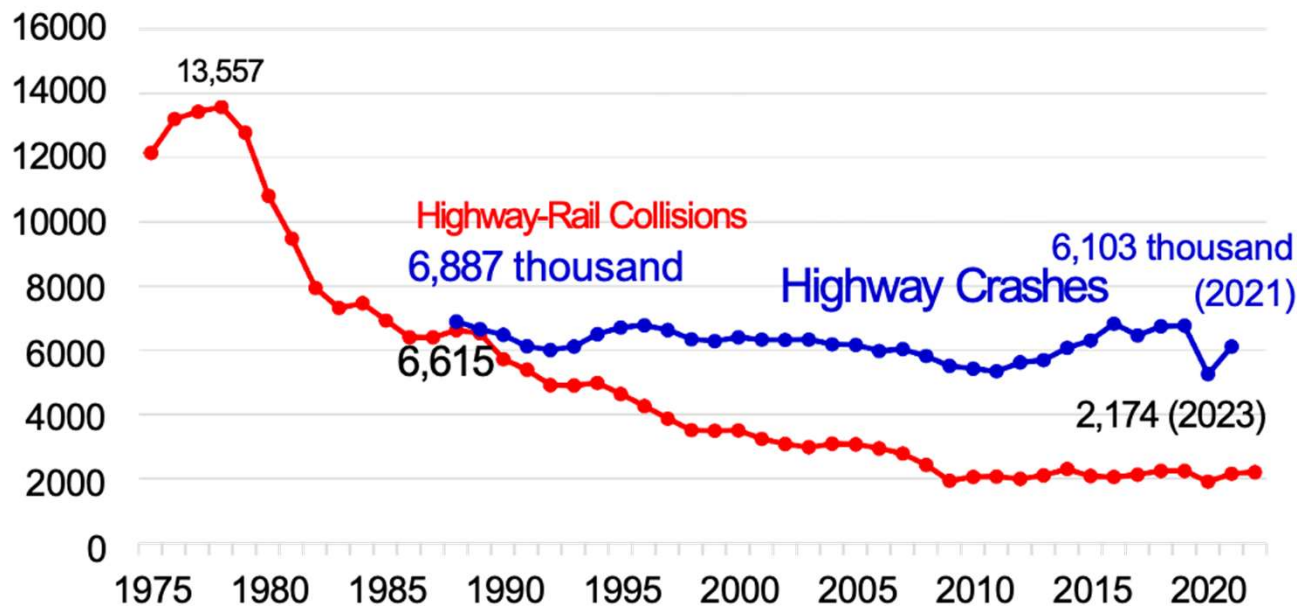


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Highway-rail collisions have declined 84% from their 1978 peak.  
And from 1988 through 2021, they declined 67% while highway crashes decreased 11%.



Sources: <http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx> (2010 thru 2023 data as of March 2024). FRA, Railroad Safety Statistics Annual Report, 1997-2010, Table 1-1. FRA Highway/Rail Crossing Accident/Incident & Inventory Bulletin, 1980-1996, Table S. NHTSA, DOT HS 813 435, April 2023 Overview of Motor Vehicle Traffic crashes in 2021, Table 2 (most recent year available as of Feb 2024). NHTSA Traffic Safety Facts Annual Report. Table 1. <https://cdan.nhtsa.gov/tsftables/tsfar.htm#>.

Notes: Includes collisions involving pedestrians. Includes collisions at private crossings. (Highway crashes are in thousands for comparability of trend with highway-rail collisions trend.) Stay at home orders and work from home policies during the pandemic reduced exposure in 2020 and 2021.



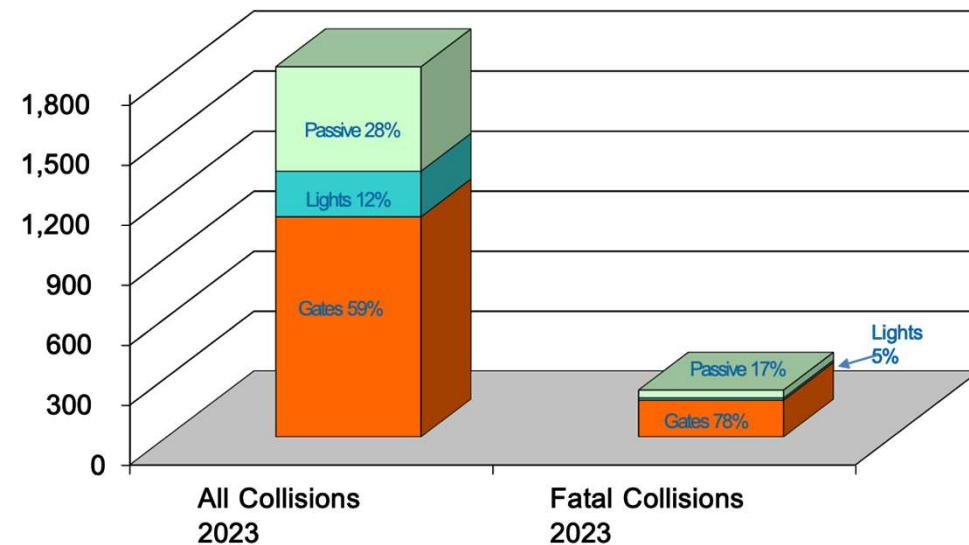
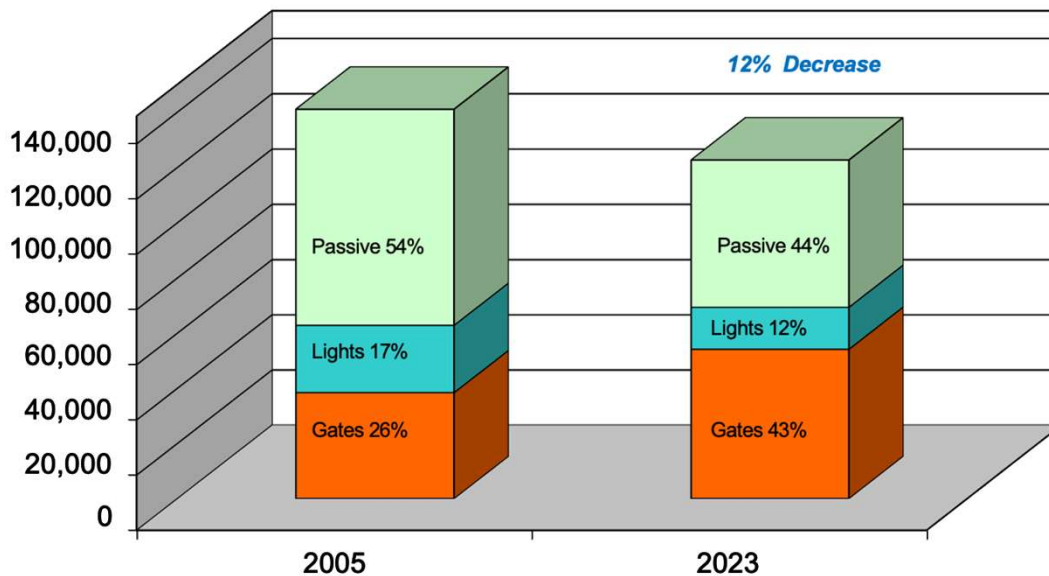
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## General Data: ***“Correlation is not Causation”- Thomas Sowell***

**Since 2005, the total number of public crossings has declined 12%, while the number with gates has increased 41%.**



***In 2023, 59% of all grade crossing collisions and 78% of all fatal grade crossing collisions occurred at gated crossings.***

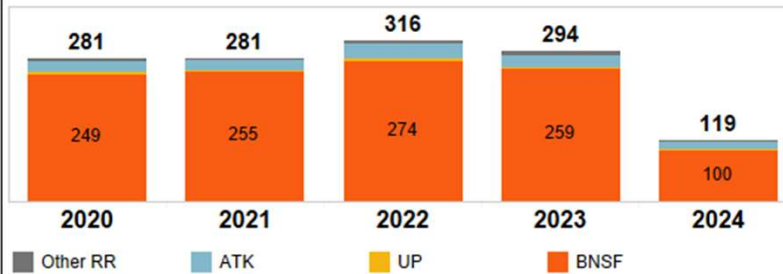
Sources: FRA Analysis of Grade Crossing Inventory for 2005. AAR analysis of Inventory as of December 31, 2023.  
Note: Percentages are rounded. Warning device information was not reported for some crossings.



## Grade Crossing Accident Deep Dive: Where BNSF is the Track Maintenance Carrier

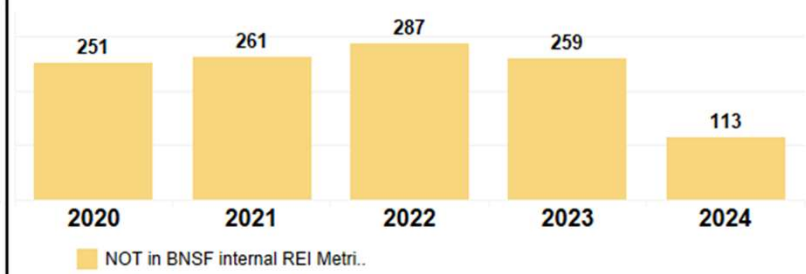
### By Year and by Carrier Involved

(Select to Filter Dashboard by RR)



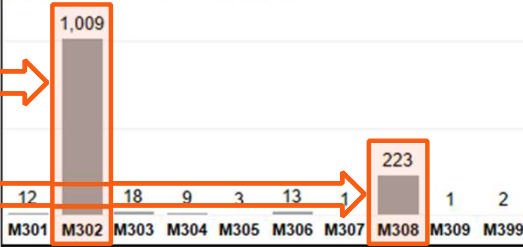
### Which accidents are counted in other INTERNAL BNSF Metrics

(Select to Filter Dashboard by Year)



### By Cause Code

(Select to Filter by Cause Code)

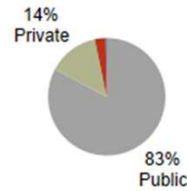


M302 - Highway User Inattentiveness

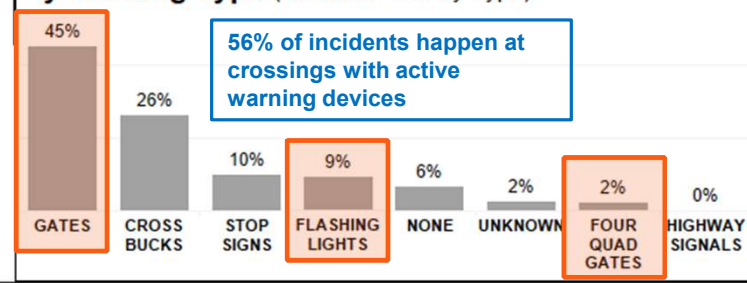
M308 - Highway User Deliberately Disregarded Crossing Warning Devices

### By Crossing Type

(Filter)

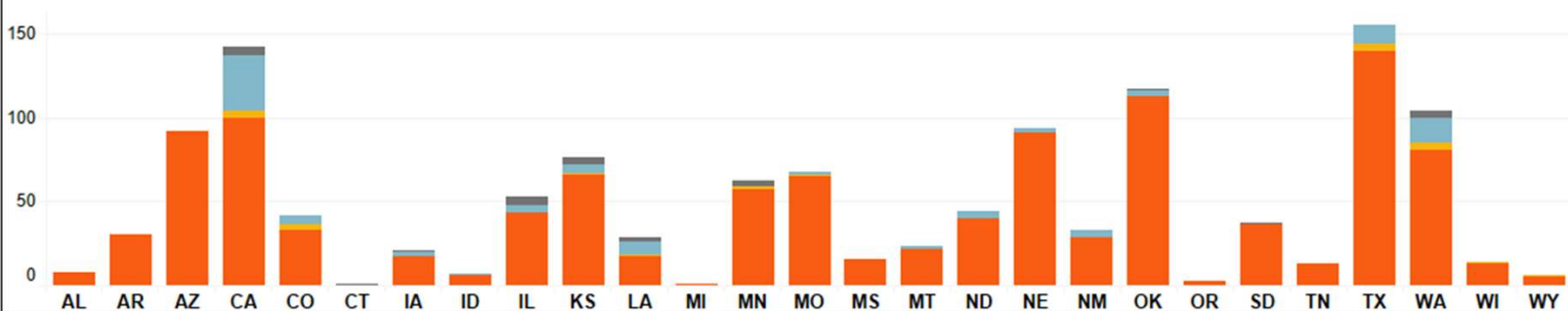


### By Warning Type (Select to Filter by Type)



56% of incidents happen at crossings with active warning devices

### By State and By Carrier Involved (Select to Filter by State)





YTD data through 8/20/2024

### HGX/Trespasser Summary



Display details for:

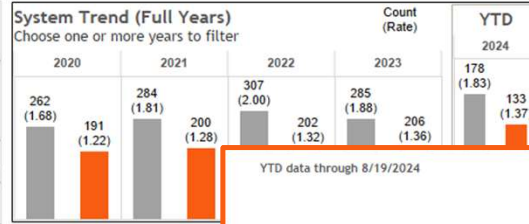
- ☐ HGX Incidents  
☒ Trespasser Injuries

Group by:

- ☐ State  
☒ County

Displaying **Trespasser Injuries** for Multiple Years - All cause codes

- ☐ HGX Incidents  
☒ Trespasser Injuries (excl HGX)



#### Incident Details - Trespa

08/12/24	Minneapolis
08/08/24	Bakersfield
08/04/24	Auburn
08/02/24	Saint Cloud
	Tulsa

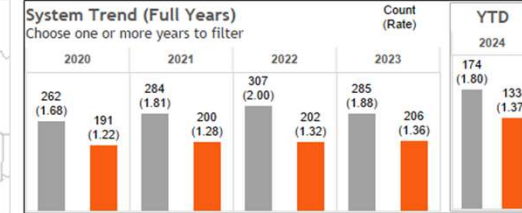
- Display details for:  
☒ HGX Incidents  
☐ Trespasser Injuries

- Group by:  
☐ State  
☒ County

Displaying **HGX Incidents** for Multiple Years - All cause codes



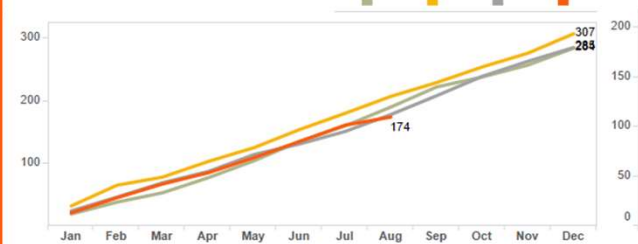
- ☐ HGX Incidents  
☒ Trespasser Injuries (excl HGX)



#### Incident Details - HGX Incidents

8/13/2024	Edison	CA	COMANCHE DRI..	H-MODBAR9-13	■
8/12/2024	Kalispell	MT	PIONEER RD	R-MON8761-12	■
8/11/2024	Louisiana	MO	SO Carolina St	U-OSLBMN0-15	■
8/8/2024	Bainville	MT	CO RD	Z-chcsse1-07	■
	Chariton	IA	COUNTY ROAD H..	E-CNMATM0-45	■

#### HGX Trend

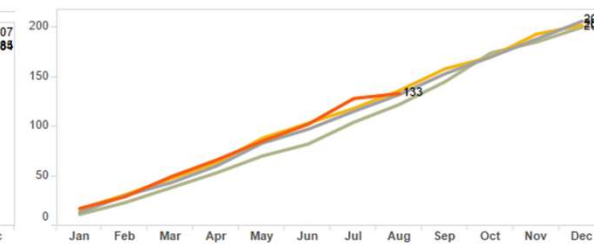


Choose End Date Type:

Thru Yesterday

If Select Custom: Set End Date: 12/31/2019

#### Trespasser Injury - Trend

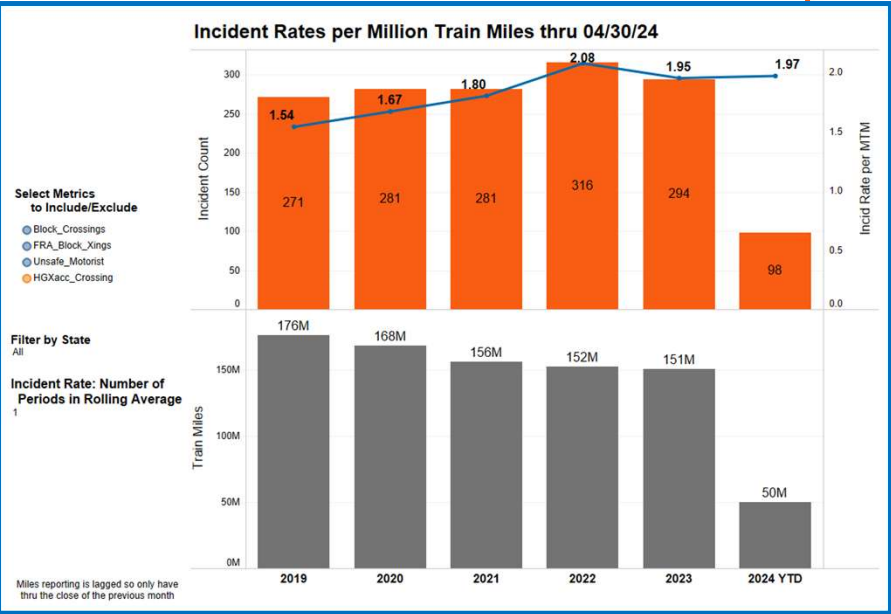


Choose YTD or Full Year Graph:

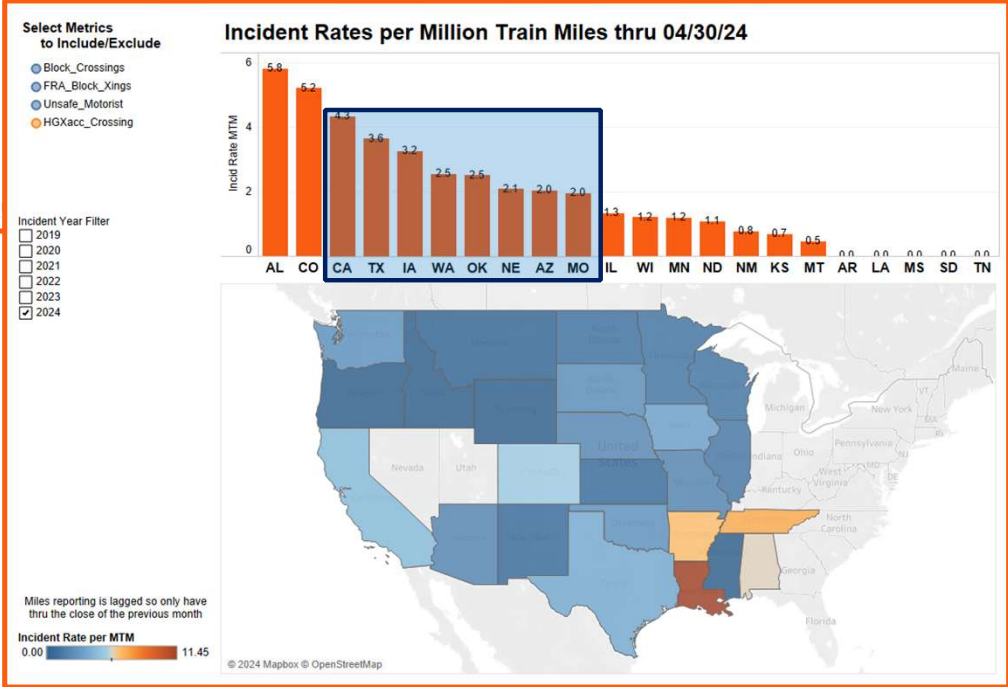
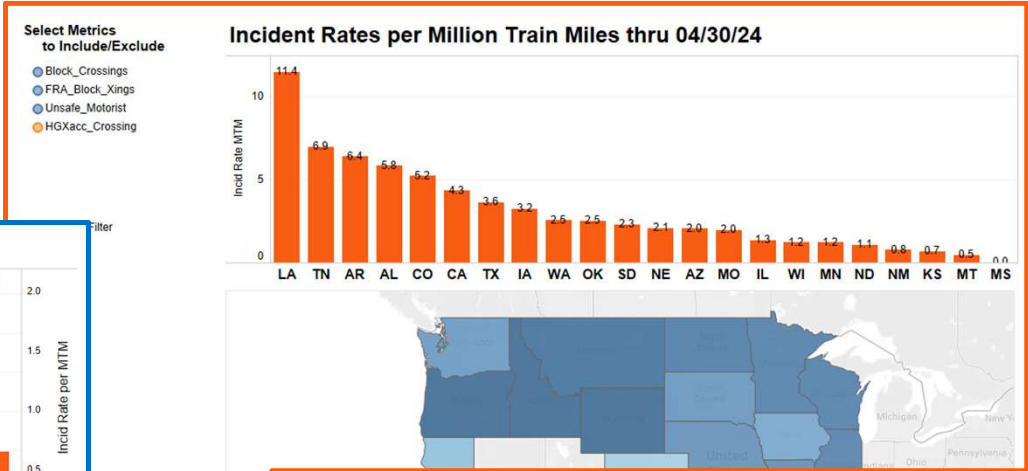
Full Years

## Trespasser and Grade Crossing Incidents by County





The opportunity lies in the refined data and the high incident and MTM states



## What the Data Does and Doesn't Show

- W Britton Road – N Western Avenue crossing
- BNSF has an average of 24 trains per day traveling at 55 mph.
- *The FRA Crossing Inventory shows the average daily vehicle data of **14,516 reported in 1988.***
- **58** Service Interruptions Just in past 5 years
- Vehicles stopping, stalling, hitting other vehicles, or are being abandoned on the crossing and/or track.
- These events caused the trains to go into an emergency braking application and train remain stopped until crossing is clear
- While trains are stopped, the length of train has occupied other crossings in either direction.

*The FRA Crossing Inventory shows 0 accidents in past 5 years for their Accidents Prediction System (APS) = 0.021941, but it is not capturing the Vehicle-Vehicle Accidents related to the traffic intersection and not the crossing.*







# Tracking to Zero Awards – A BNSF Initiative

- BNSF has a vision of 1.0 by 2030 for our grade crossing incident rate across our system.
- BNSF's **"Tracking to Zero"** award highlights our DOT partners for averaging less than one grade crossing incident per one million BNSF train miles traveled.
- 2024 Inaugural winners: New Mexico, Montana, Idaho, Wyoming inaugural winners,
- State to Watch: Illinois





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## CSX Observations

- Proximity of RR crossing to Intersection is (highly likely) the main factor that impacts crossing safety
  - The top 18 CSX crossings in GA using the Accident Prediction Rank all had intersections less than 100' from the crossing.
  - They are the most expensive for warning devices
  - Profile issues are most common
- Corridor Projects (IL, GA, SC, OH) are great opportunities to gain efficiencies (LEDs/Controllers)
- Crossings with multiple hazards are often handled one agency/issue at a time
- Virtual/Pre-Diagnostics are the way to go:
  - 30-60 min/crossings
  - 30k' view/root cause discussion
  - Discuss Safety for onsite diagnostic
  - Uses multiple tools that are difficult to use in the field (accident reports, maps, train operations)
- Utilizing mapping software (Google Maps, Apple, etc...) to encourage drivers avoid RR crossings/hazards
  - Humped Crossings
  - Crossings with frequent train activity
  - Low (RR) bridge clearances
  - Bridges with weight restrictions



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# Thank You!

Any Questions?