



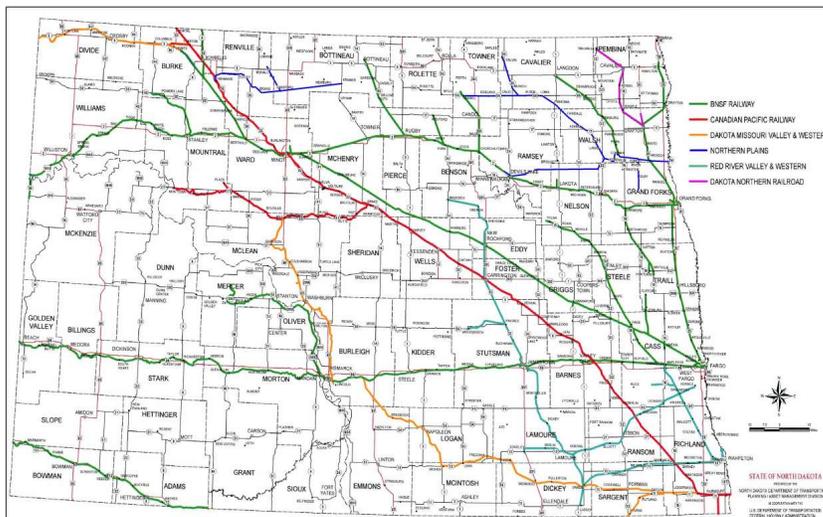
Public Service Commission  
Division of Railroad Safety

## NDPSC Rail Safety Program 67<sup>th</sup> Legislative Assembly

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## North Dakota Rail System



**3,532 Miles of  
Main Line Track**

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# Communities Impacted by Railroads

- **290 communities intersect or are in close proximity to the railroad, many of which the Commission has inspected at:**

Absaraka, Adams, Alsen, Amenia, Ambrose, Aneta, Anamoose, Ardoch, Argusville, Arvilla, Ayr, Balfour, Baldwin, Barney, Barton, Beach, Belfield, Benedict, Bergen, Berlin, Berthold, Beulah, Bisbee, Bismarck, Blaisdell, Bordulac, Bottineau, Bowbells, Bowman, Braddock, Bremen, Buchanan, Bucyrus, Buffalo, Burlington, Butte, Buxton, Calvin, Cando, Canton City, Carpio, Carrington, Casselton, Cathay, Cavalier, Cayuga, Chaffee, Churchs Ferry, Cleveland, Clifford, Cogswell, Coleharbor, Colfax, Conway, Coulee, Courtenay, Crary, Crosby, Crystal, Cuba, Cummings, Dahlen, Davenport, Dawson, Des Lacs, Devils Lake, Dickinson, Donnybrook, Douglas, Drake, Drayton, Driscoll, Dwight, Doyon, Eckelson, Edgeley, Edinburg, Egeland, Eldridge, Elliot, Emerado, Emrick, Enderlin, Englevale, Epping, Erie, Fairdale, Fairmount, East Fairview, Fargo, Fessenden, Fingal, Finley, Flaxton, Fordville, Forest River, Forman, Fortuna, Foxholm, Fredonia, Fryburg, Fullerton, Galesburg, Gardner, Garrison, Gascayne, Gladstone, Glen Ullin, Glenfield, Gilby, Grace City, Grafton, Grand Forks, Grandin, Grano, Granville, Gwinner, Hamberg, Hankinson, Hannaford, Harmon, Harvey, Harwood, Hatton, Havana, Haynes, Hazen, Hebron, Hensler, Heimdal, Hettinger, Hillsboro, Hoople, Hope, Horace, Jamestown, Juanita, Judson, Karlsruhe, Kelso, Kenaston, Kenmare, Kensal, Kindred, Kintyre, Kief, Knox, Kramer, Kulm, Lakota, LaMoure, Langdon, Lankin, Lansford, Larimore, Larson, Leal, Leeds, Lehr, Lemmon, Leonard, Lidgerwood, Lignite, Lisbon, Logan, Lucca, Luverne, Maddock, Makoti, Mandan, Manfred, Mantador, Manvel, Mapleton, Marmarth, Martin, Mayville, Max, McKenzie, McLeod, McVille, Medina, Medora, Menoken, Michigan, Milnor, Milton, Minto, Minot, Moffit, Mohall, Mooreton, Munich, Nash, Napoleon, Nekoma, New Rockford, New Salem, New Town, Niagara, Niobe, Nolan, Noonan, Norma, Northgate, Northwood, Norwich, Oakes, Oberon, Oriska, Osabrock, Palermo, Page, Park River, Parshall, Pekin, Perth, Petersburg, Pillsbury, Pingree, Pisek, Plaza, Portal, Portland, Powers Lake, Prosper, Ray, Reeder, Reile's Acres, Reynolds, Rhame, Richardton, Rogers, Rolla, Ross, Rugby, Ruso, Rutland, Ryder, Sanborn, Sawyer, Scranton, Selz, Sentinel Butte, Sharon, Sheldon, Sheyenne, Simcoe, South Heart, Spiritwood, Springbrook, Stanley, Stanton, Steele, Sterling, Stirum, Surrey, Sutton, Tappen, Taylor, Thompson, Tioga, Tolna, Tolley, Tower City, Towner, Trenton, Underwood, Valley City, Velva, Verona, Voltaire, Walcott, Walhalla, Washburn, Wellsburg, West Fargo, Wahpeton, Wheatland, White Earth, Williston, Willow City, Wilton, Wimbleton, Windsor, Wishek, Wyndmere, York.

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# Rail Safety Program Mission

Implementing inspection and compliance programs that:

- Reduce the potential for injuries, deaths, and property damage in and along North Dakota railroads and communities.
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- Reduce fatalities and injuries in addition to economic losses and environmental impacts.

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# Rail Safety Program Priorities

- Expand safety inspections of track infrastructure to include main line, sidings and industrial spurs, railroad equipment and cars.
- Use enforcement actions to include education, notification, and penalties regarding compliance with safety standards.
- Work with railroads and shippers to upgrade safety and community relations.
- Ensure crude oil/HAZMAT routes are inspected regularly, as well as components and equipment used to transport/carry commodities.
- Serve as a safety resource and provide guidance regarding federal and state laws.

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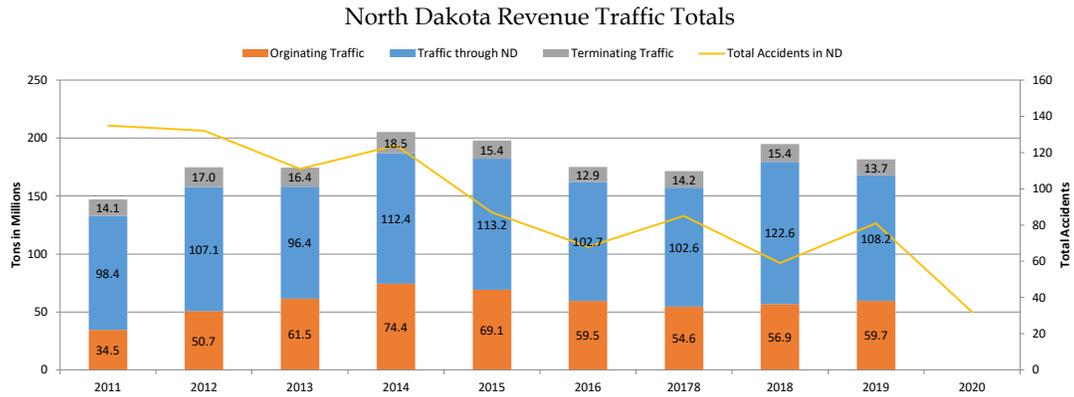
# Inspection Update

- **Commission Rail Safety Track Inspector:**
  - 793 Inspections
  - 15,744 Units Inspected
  - 4,812 Defects Identified
  - 39 Violations Issued
- **Commission Rail Safety Mechanical Inspector:**
  - 745 Inspection
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\*\* Data is current through December 31, 2020 \*\*

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# 10 Year Revenue Traffic vs. Total Accidents

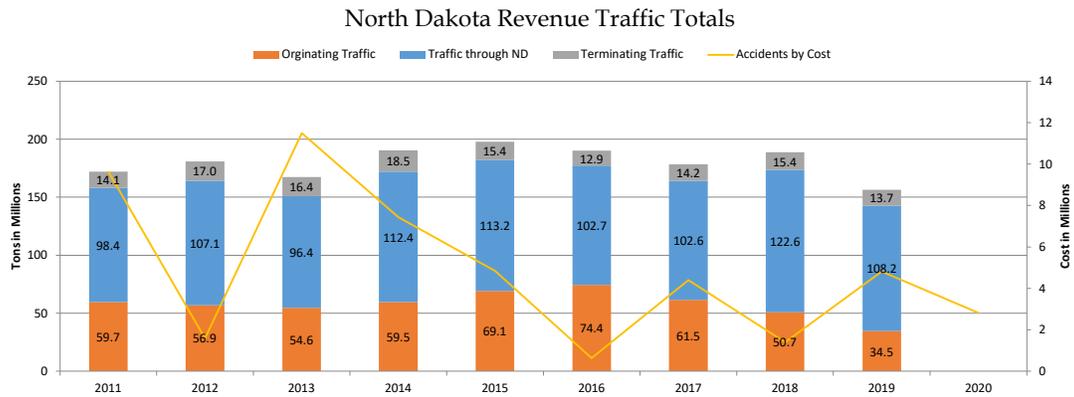


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# 10 Year Revenue Traffic vs. Total Accident Cost



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## Top Mechanical Defects and Violations

| Category                                       | Description                                                                                                                                                                                   | Defects | Violations |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------|
| Railroad Freight Car Standards                 | This section includes the mechanical components of a freight car (wheels, axles, suspension, etc.). <b>These defects cause the most frequent and severe mechanically related derailments.</b> | 1,763   | 39         |
| Reflectorization of Rail Freight Rolling Stock | Reflectorization of rail cars increases visibility and reduces highway-rail grade crossing accidents, deaths, injuries, and property damage.                                                  | 231     | 0          |
| Railroad Locomotive Safety Standards           | Minimum Federal safety standards for all locomotives, except those propelled by steam power.                                                                                                  | 49      | 0          |
| Railroad Safety Appliance Standards            | This section includes handbrakes, handholds, ladders, sill steps and platforms. <b>These defects lead to personnel safety hazards/injuries.</b>                                               | 2,689   | 41         |
| Brake System Standards                         | This section includes brake test requirements, brake system effectiveness, head end and end of train devices.                                                                                 | 1,379   | 8          |

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## Top 5 Track Defects and Violations

| Category               | Description                                                                                                                           | Defects | Violations |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------|------------|
| Continuous Welded Rail | Continuous welded rail is track joined together by welding sections together rather than being bolted together using joint bars.      | 192     | 4          |
| Rail Joints            | Rail joints are the places where two sections of track are joined together using bolts and the appropriate joint bars.                | 1,150   | 6          |
| Turnouts and Crossings | Turnouts are the portion of a switch that connects to another track and crossings refers to roadway grade crossings.                  | 1,646   | 0          |
| Switches               | Track switches are equipment that enables trains to transfer from one track to another.                                               | 229     | 1          |
| Ballast                | Ballast is the rock that securely holds rail ties in place and supports the massive amount of weight transferred from passing trains. | 157     | 3          |

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# Track Violation



Failure to repair identified track issue.

- A broken joint bar used to join two sections of track was previously identified on two separate occasions by the railroad (indicated by the pink and green survey tape) but was left unrepaired.
- If left unrepaired, it can lead to rail separation causing a derailment. This track is located near a hospital and county courthouse/jail and carries crude oil unit trains and other HAZMAT.

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# Track Violation

Collapsed  
Culvert



Shows depth of hole created by collapsed drainage culvert.

Drainage culvert failures found on a 25-mile section of track.

- State inspector found 13 separate drainage culvert failure locations.
- This section of track was previously inspected by the railroad 10 days earlier.
- Drainage culvert failures/collapses can lead to catastrophic track failures.

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# Mechanical Violation



Defective wheel having a shelled spot 2.5 inches or greater.

- Car was previously inspected by railroad's inspector earlier the same day.
- Car was scheduled to be loaded with Bakken crude oil.

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# Mechanical Violations



## Broken Side Bearings

- Car identified to have broken side bearings within days of having a mechanical inspection completed by the railroad.
- During the inspection conducted by the railroad, zero defects were identified.
- State inspector's inspection of 100 freight cars found 59 total defects on 41 defective cars for a 59% defect ratio.
- Side bearings allow the rail car to navigate curves without tipping to one side too severely.

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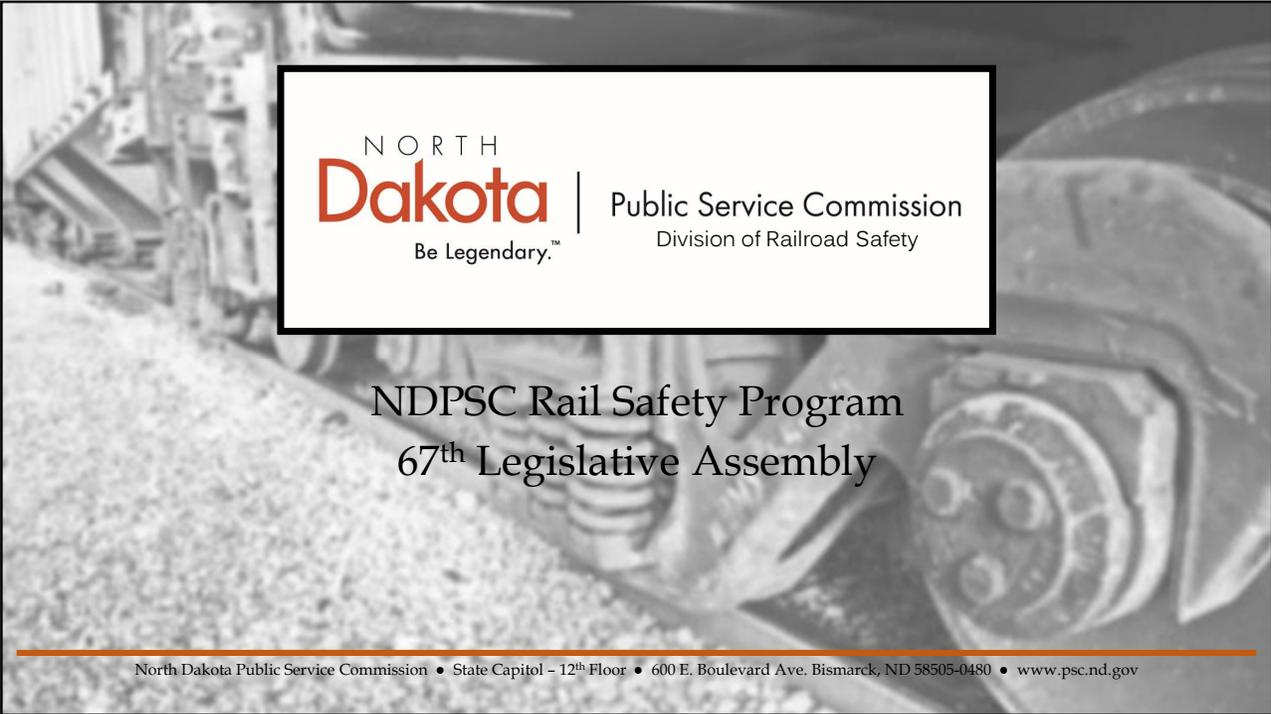
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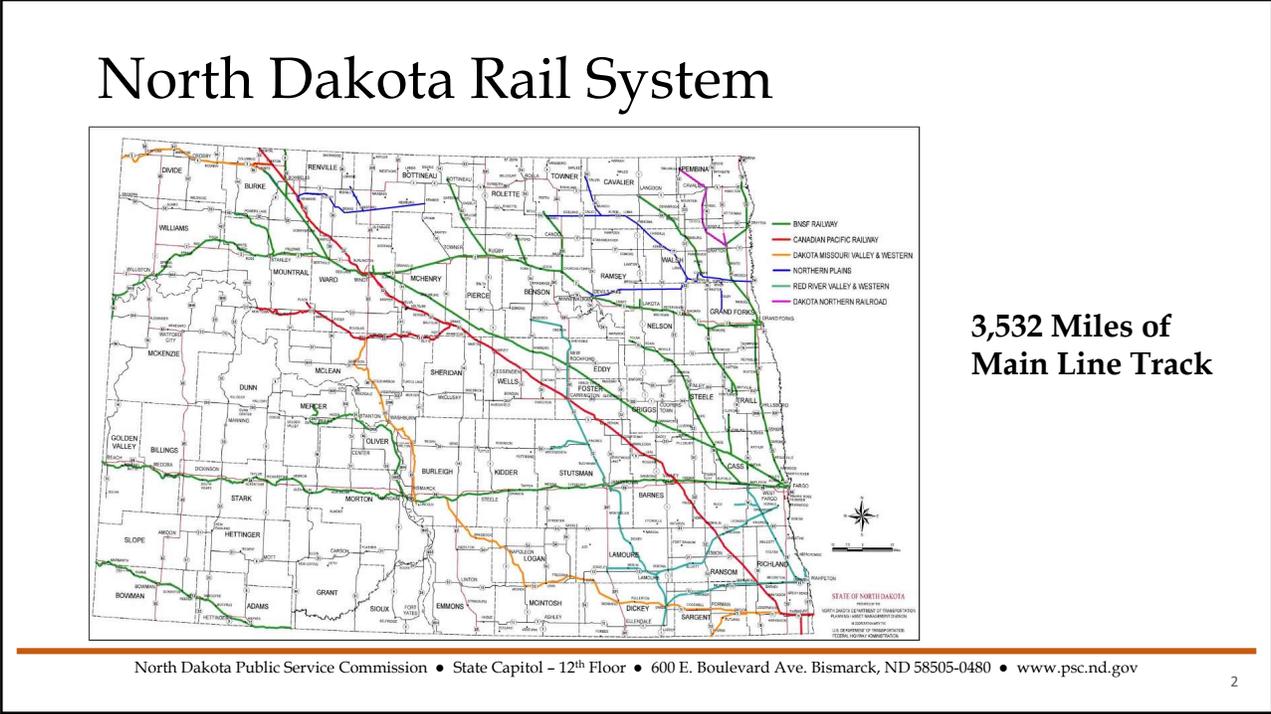
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  - Mechanical Inspection completed by the railroad three days prior to the state inspector identifying issue.
  - This type of defect has a high probability of causing a derailment due to being able to slip through a switch point.

# Other Safety Outreach and Education

- Identified critical defect in maintenance and inspection electronic tracking and log program allowing data manipulation after entry. Program used by numerous Class I railroads.
- Worked with FRA to heighten national visibility of broken side bearings on crude oil trains. This was driven by inspections conducted by the PSC's inspector.
- Worked with railroad mechanical departments to ensure all mechanical inspections of crude oil trains are being conducted at the correct locations and proper intervals.
- Cleared blocked crossings on multiple occasions by working with railroads, local government and citizens.
- Served as liaison between railroad and landowners obtaining new or repairing existing livestock fences along railroad right-of-way.
- Presented at schools and expos on the importance of safety near trains and railroad tracks.
- Working on dual inspection certification for inspectors (Mechanical to take on HAZMAT and Track to take on Grade Crossing Safety and Trespasser Prevention).
- Provided track inspection report to help local investors determine the merits of replacing the burned rail bridge which threatened line abandonment in northeast North Dakota.
- Work with North Dakota Department of Emergency Services to coordinate rail maintenance which has the possibility of causing brush fires; ensure first responders are aware of potential risks within their jurisdictions.



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# Communities Impacted by Railroads

- **290 communities intersect or are in close proximity to the railroad, many of which the Commission has inspected at:**

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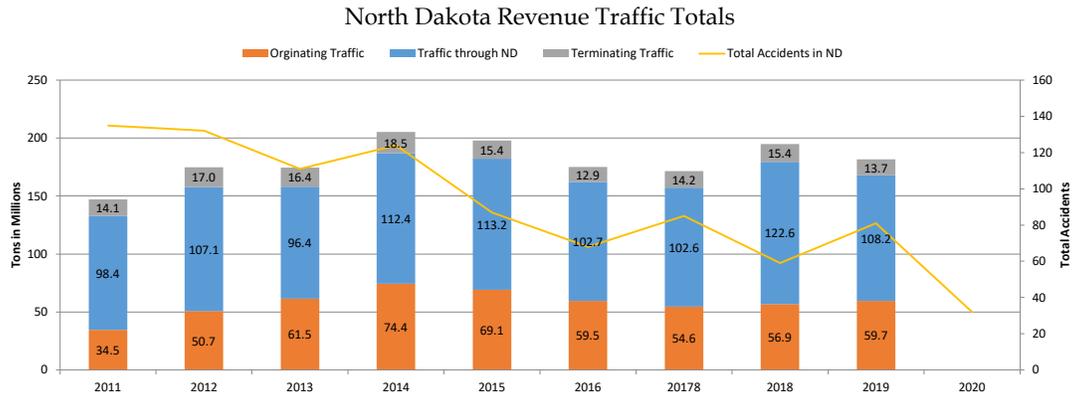
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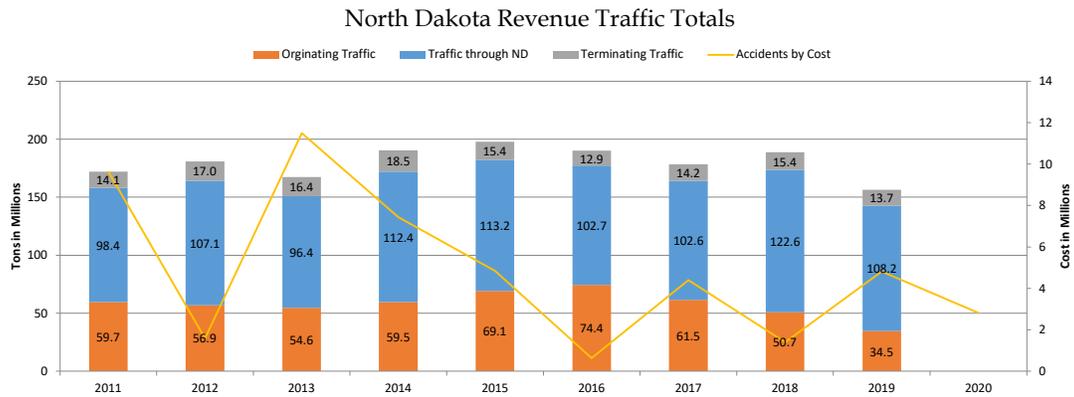


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