

# Data for Decisions – 2014 Best Practices Competition

## Sponsored by the TRB Special Task Force on Data for Decisions and Performance Measures (A0030T)

Communicating Data to Support Decision Makers – Operational Decisions

### Optimizing PennDOT's Snow Routes and Planning Process with GIS

Pennsylvania Department of Transportation

#### The Decisions

Winter maintenance operations – fleet size, truck deployment to snow routes, stockpile locations, service cycles and applications rates

#### The Data

GIS Snow Route Planning Application Includes:

- Routing of trucks and deployment of specialized equipment
- Service route gaps and overlaps
- Planned service cycles
- Routes, mileage, and trucks assigned to winter stockpiles
- Winter materials and application rates planned on all routes
- Anti-icing networks-pretreated locations

#### The Message

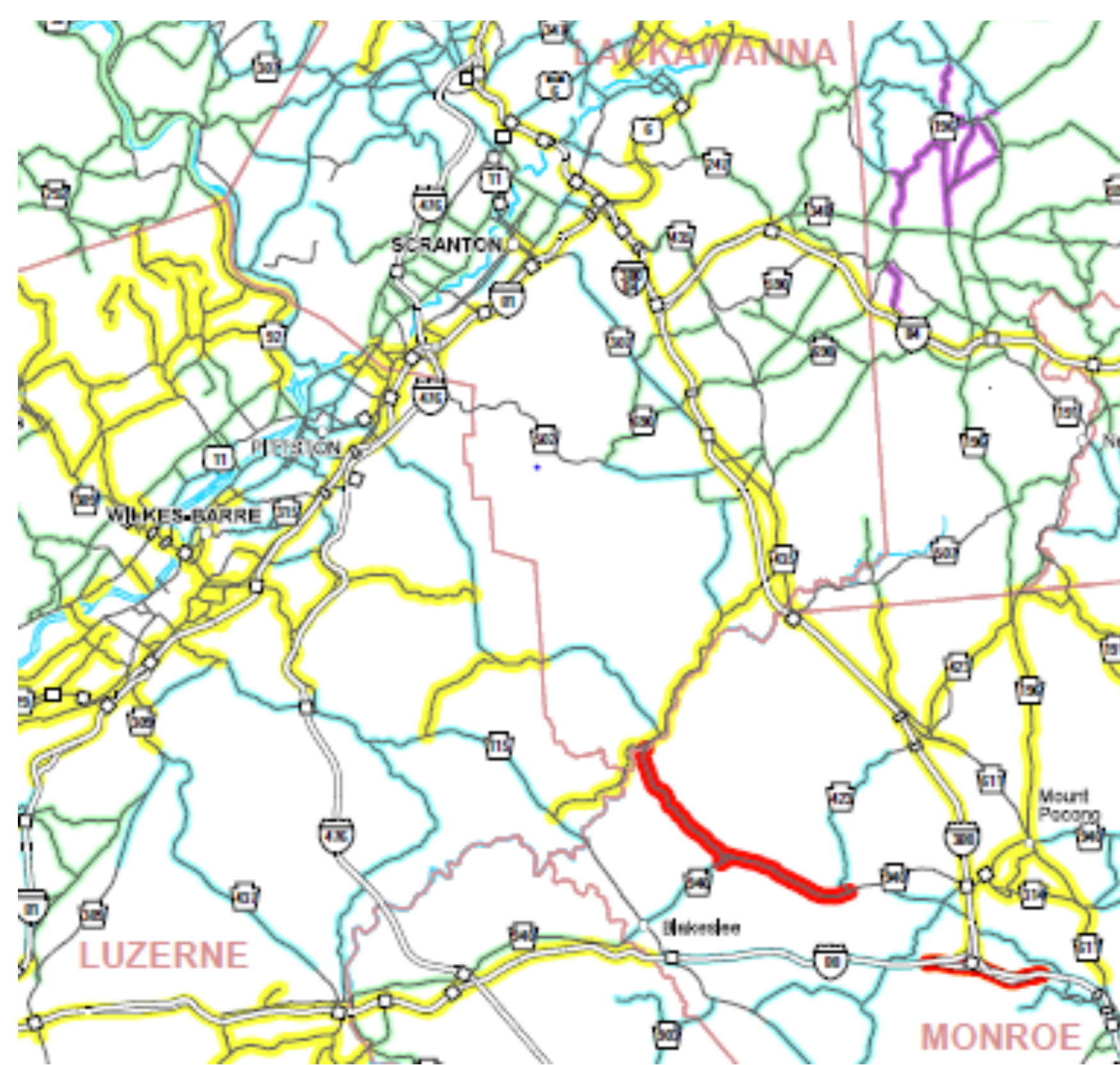
- Winter maintenance efficiency can be improved by adjusting snow route assignments
- There is a need to improve consistency in winter maintenance strategies across the state

#### The Audience

State DOT Executive Staff and County Maintenance Managers

#### The Results

Optimized snow routes, reduction in trucks and/or rental agreements - reduced operating costs  
Increased consistency in winter maintenance service across the state



#### Legend

- Truck Total SLM
- < 20
- 20 to 29.99
- 30 to 39.99
- 40 to 49.99
- 50 to 59.99
- Equal to or > 60

#### Using the Maps

Using GIS maps to help optimize routing of trucks with low snow lane mile assignments. Map identifies truck assignments by snow lane mileage thresholds

#### Fleet Assessment Summary

District	Required Department Force Fleet for Winter services (based on formula)	DF Dump Trucks Assigned Snow Routes (from GIS application)	Spare Trucks Maintained for Winter Operations
01	201	167	23
02	193	198	36
03	224	220	8
04	192	197	23
05	181	209	12
06	133	184	12
08	281	310	23
09	200	224	21
10	173	163	20
11	139	126	9
12	193	196	17
Statewide	2110	2194	204

#### Calculated Truck Fleet Size Compared to Actual Assignments and Spare Trucks

- Are reductions feasible?
- Why do several districts operate in excess of the recommended fleet size guidelines?
- Why can some districts operate with far less spares?
- What is the usage of the spare trucks by days?
- Can spare trucks be reduced?

### Oregon Department of Transportation Key Performance Measures

#### Rail Safety one-pagers

Oregon Department of Transportation

#### The Decisions

Dedicating additional resources to enhance rail safety given increase in crude oil transport by rail

#### The Data

- Annual trends in train derailments
- Annual trends in rail crossing incidents

#### The Message

Oil trains are moving in greater numbers on rail in Oregon. While the safety record of these trains is impressive, ODOT will need additional resources to continue the downward trend in rail incidents.

#### The Audience

Governor and the State Legislature

#### The Results

ODOT Rail Division received authorization to hire an additional four rail inspectors.

### Rail Crossing Incidents

Rail Crossing Incidents: Number of highway/railroad at-grade incidents

#### Our strategy

A priority for ODOT is to have the safest infrastructure possible. Safe infrastructure is promoted by implementing design practices that mitigate structural safety risks on Oregon's transportation system. There are several ODOT activities specific to the Rail Division associated with this general strategy. The Crossing Safety Section manages crossing improvement projects and inspects crossings to ensure they are appropriately maintained. The Rail Division works with public and private entities,

including the railroad companies, public road authorities and law enforcement to address crossing safety concerns and participate in transportation planning activities to improve the mobility of highway and rail traffic.

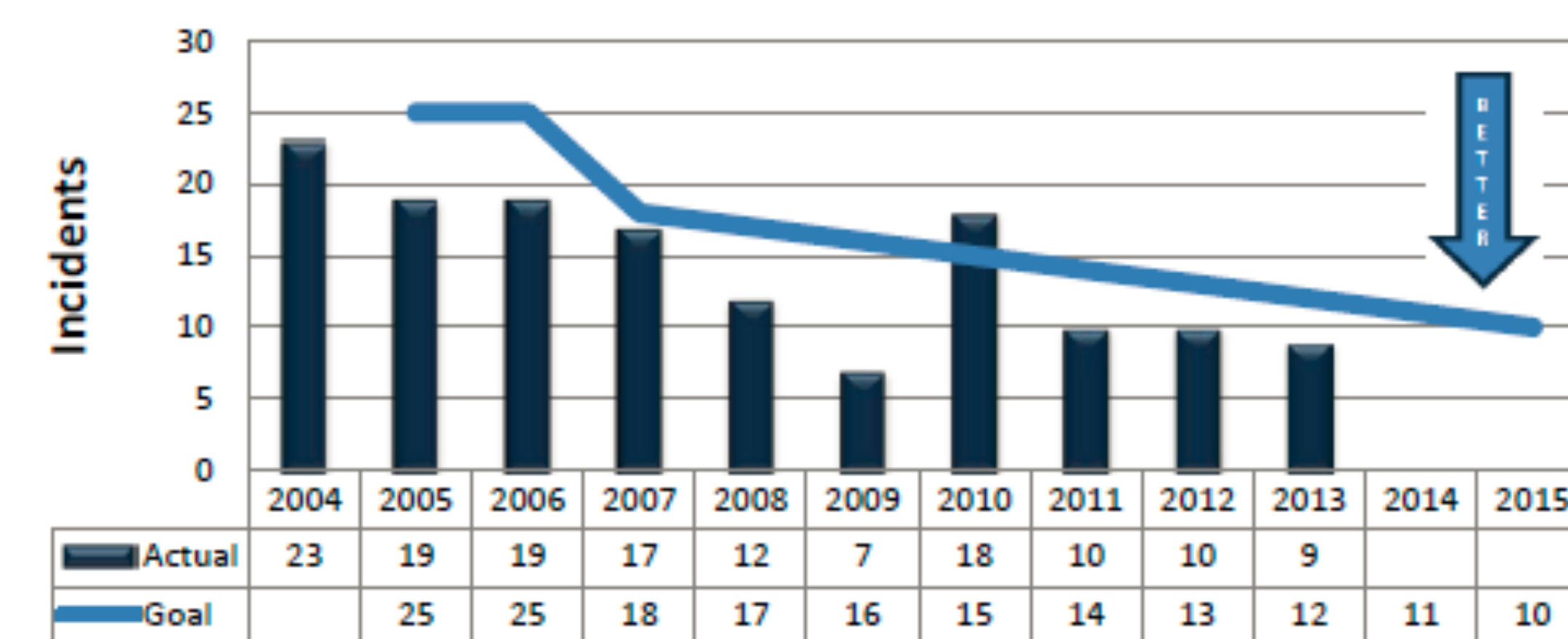
#### About the target

The Rail Division strives for a zero incident performance. The goal reflects the reality that some number of incidents are outside the control of the division and its transportation safety partners.

#### How we are doing and how we compare

In 2013, nine rail crossing incidents occurred, which outperformed our goal. The data shows that in 2013, all nine incidents involved motor vehicles and zero incidents involved pedestrians. There were no fatalities or injuries. The Federal Railroad Administration reports that, during recent years, Oregon has been in or near the top twenty states for least number of motor vehicle incidents at public rail crossings. In

#### Rail Crossing Incidents - Number of highway/railroad at-grade incidents



#### Fact

Since 2004, rail crossing incidents have decreased by 60.9 percent.

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