



**National Center for  
Rural Road Safety**

*A Federal Highway Administration Center for Excellence*

# Blowing Snow Mitigation Strategies, Prioritization, and Implementation

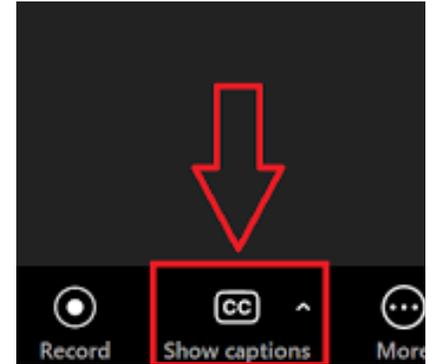
February 25, 2026 Webinar





# Webinar Logistics

- Duration is 1.5 hours
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  - Click on the “Show Captions” button at the bottom of your screen.
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- Recording webinar for website archival
  - <https://ruralsafetycenter.org/webinar-archive/>
- Q&A pod to ask questions of presenters and alert organizers of technical difficulties
- Handouts are available for download
- Please complete feedback form at the end of the webinar
- Certificates of Completion/Application for CEUs will be provided





# \*NEW\* Home Safely Podcast: Episode 6



- Nick Parr
  - Director of the Boone County Highway Department in Indiana.
- In this conversation:
  - Nick's decades long experience in rural road safety
  - How the Boone County Highway Department has evolved over the years
  - How they identify opportunities to implement the Safe System Approach
- Listen and subscribe!





# Road Safety Champion Program

- Safety 101 program
- P&E Modules
  - Tuesdays 1-3 pm ET starting March 3<sup>rd</sup>
- PH Modules
  - Wednesdays 1-3 pm ET starting March 4<sup>th</sup>



Learn More!



Register Now!



# FHWA Rural Road Safety Webinar Series

- **Thursday February 26, 2026, from 1:00 to 3:00 pm ET: Accelerate Delivery of Road Safety Projects in Rural Areas: Successful Implementation of Modular Designs and Materials**
  - State DOTs and local agencies will present on successful projects that use modular designs and materials to advance road safety in rural areas and highlight policies supporting accelerated delivery of road safety projects.
- **Thursday May 21, 2026 from 1:00 to 3:00 pm ET: Innovative Funding Processes for Rural Road Safety**
  - State, regional and local transportation agencies will present on innovative funding programs, alternative contracting methods, and flexibilities to distribute resources effectively and efficiently across State, Tribal, and local-owned rural roads to maximize safety impact. Strategies will emphasize effective investments and program eligibilities, non-traditional funding sources, and systemic data-driven investments.





# Today's Presenters



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# Today's Presenters Continued



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# National Center for Rural Road Safety

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# Managing Blowing Snow in Rural Areas























Questions  
Or  
Comments?



# South Dakota Blowing Snow Mitigation Strategies, Prioritization, & Implementation (SD2023-06)

February 25, 2026



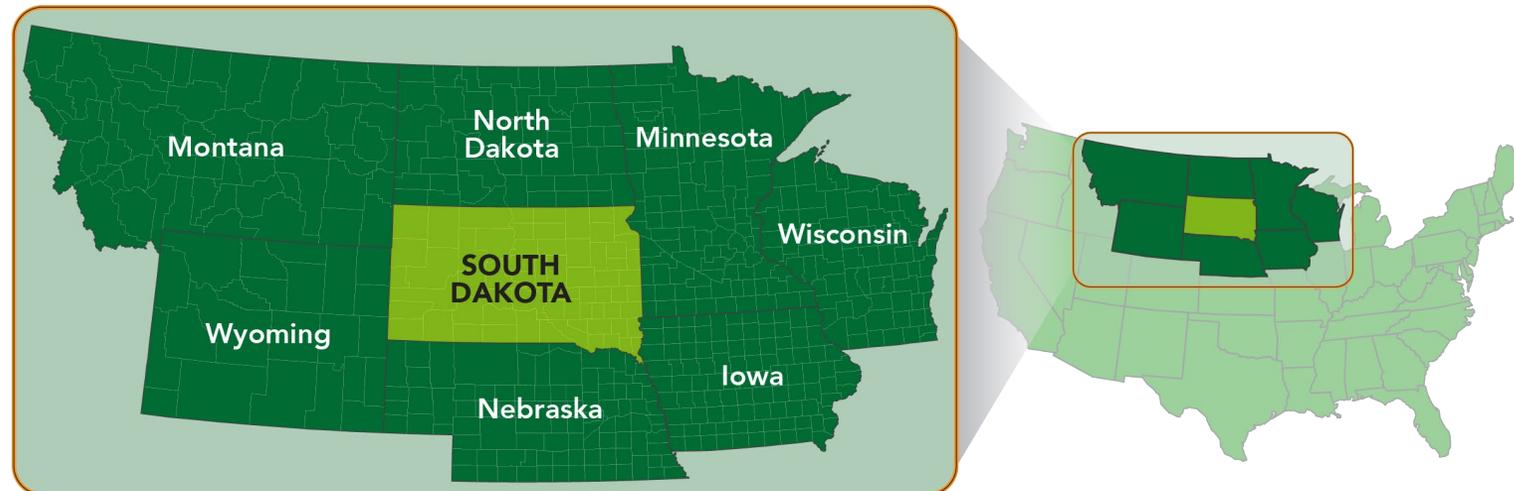
# Project Objectives

- **Objective 1:** Evaluate commonly used blowing snow mitigation strategies and designs and give the benefits, challenges, and suitability for each.
- **Objective 2:** Identify the potential impacts of snow fences on wildlife migration, habitat fragmentation, and carbon sequestration and emissions to ensure environmentally responsible implementation.
- **Objective 3:** Develop a prioritized list of non-interstate routes, of blowing snow mitigation locations based on the benefit-cost analysis of the preferred strategies, provide a preliminary cost estimate, and identify potential funding types.
- **Objective 4:** Develop a guidance document to implement a blowing snow mitigation program in South Dakota.

# Interview Surrounding States

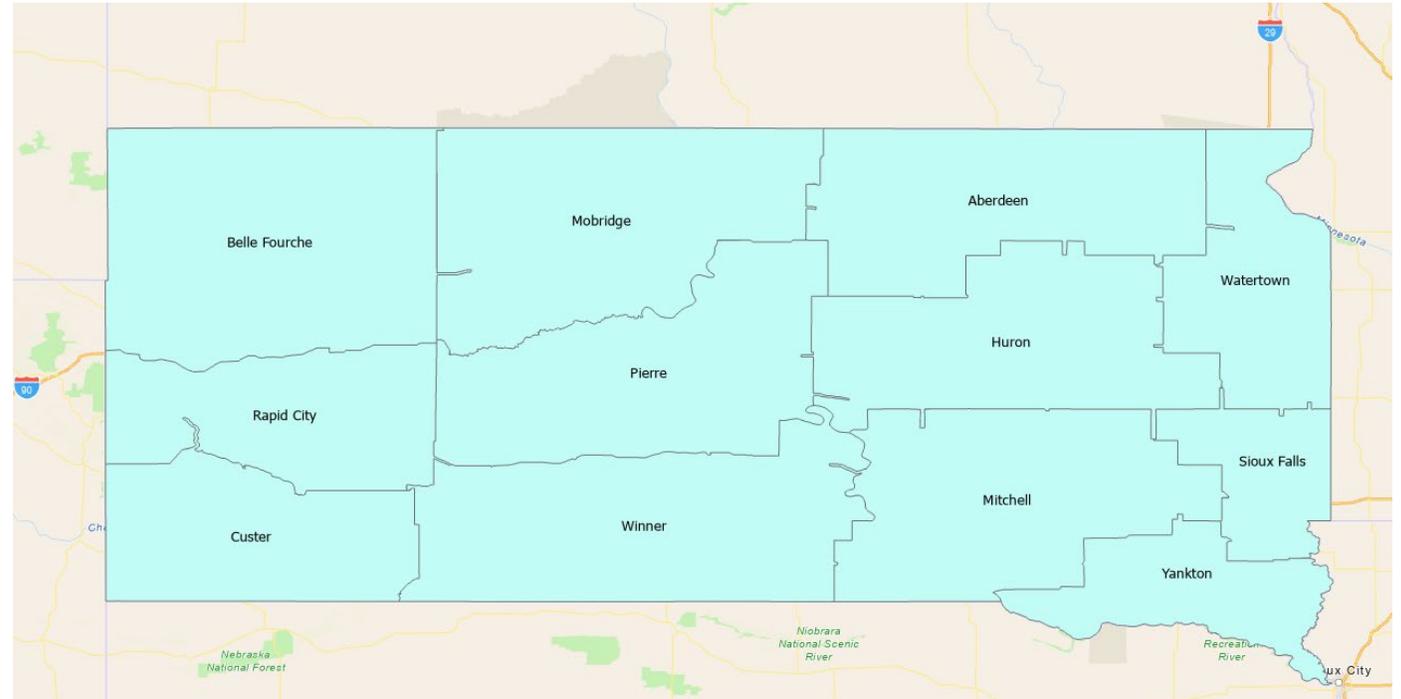
- Interviewees

- Iowa, Minnesota, Montana, Nebraska, North Dakota, Wisconsin, Wyoming
- State Department of Transportation staff who plan, design, construct, & maintain snow fences



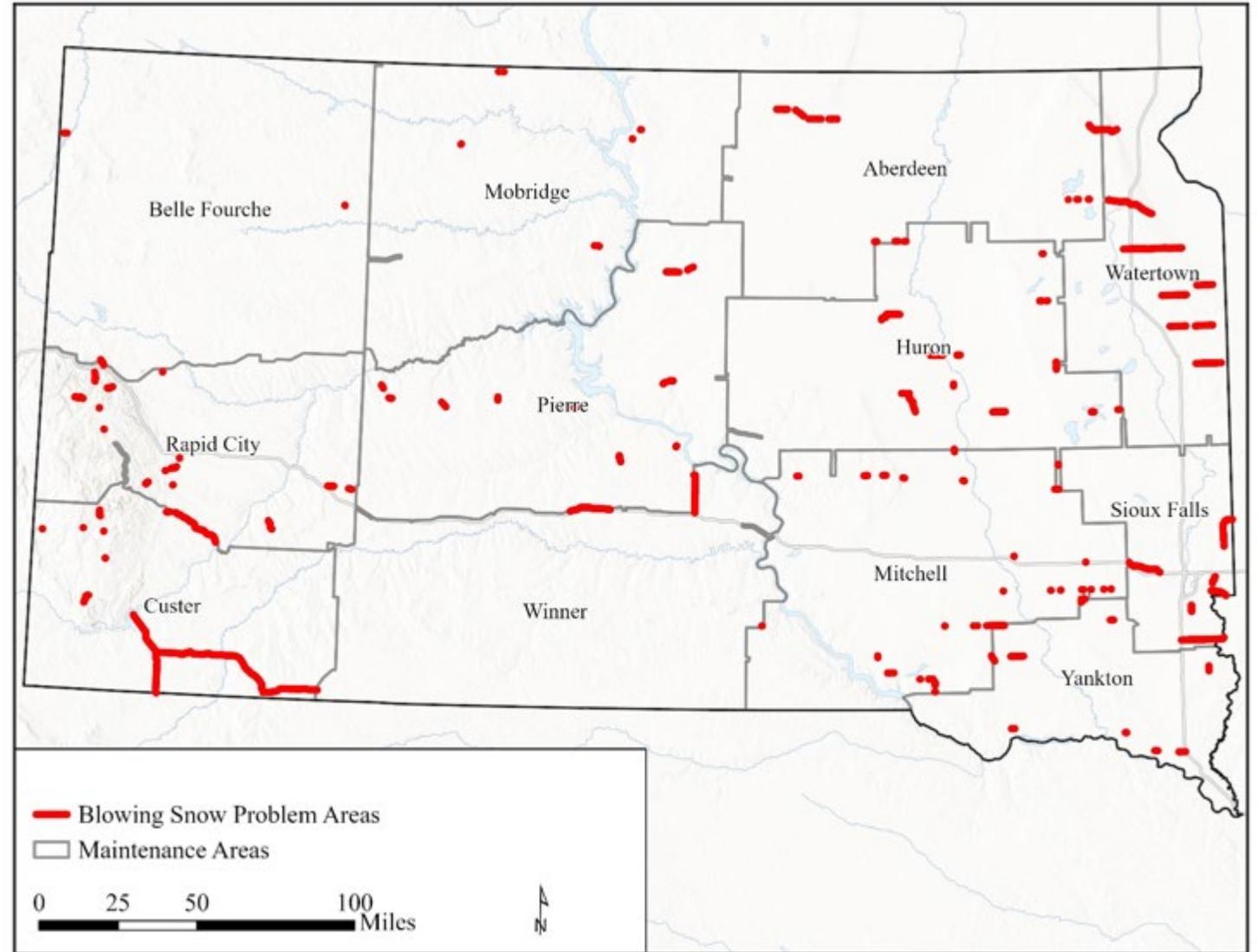
# Obtain SDDOT Input

- Virtual Meetings with 12 SDDOT Maintenance Area Staff
  - Blowing and drifting snow locations on non-interstate rural SDDOT highways
  - Experience & challenges with addressing blowing and drifting snow
  - Past funding & other ideas for future funding to implement snow fences/address blowing and drifting snow



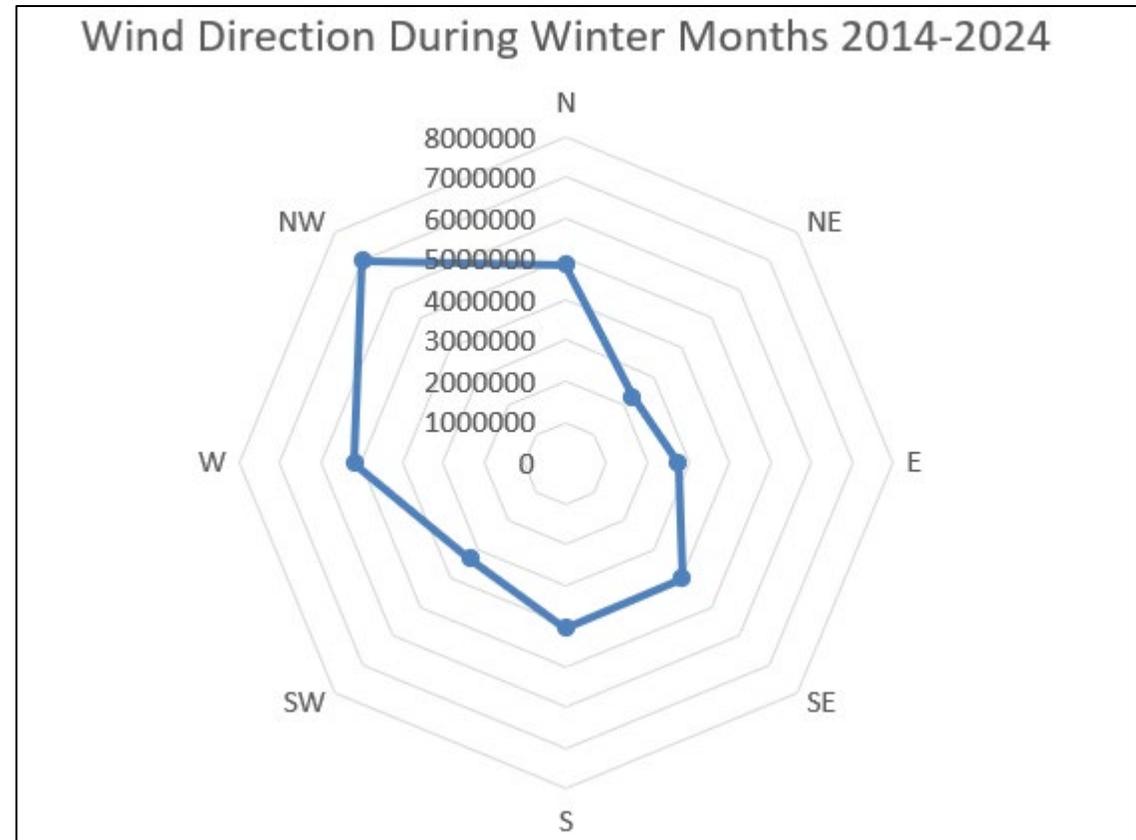
# Blowing Snow Locations on Rural South Dakota State Roadways

- 181 locations identified

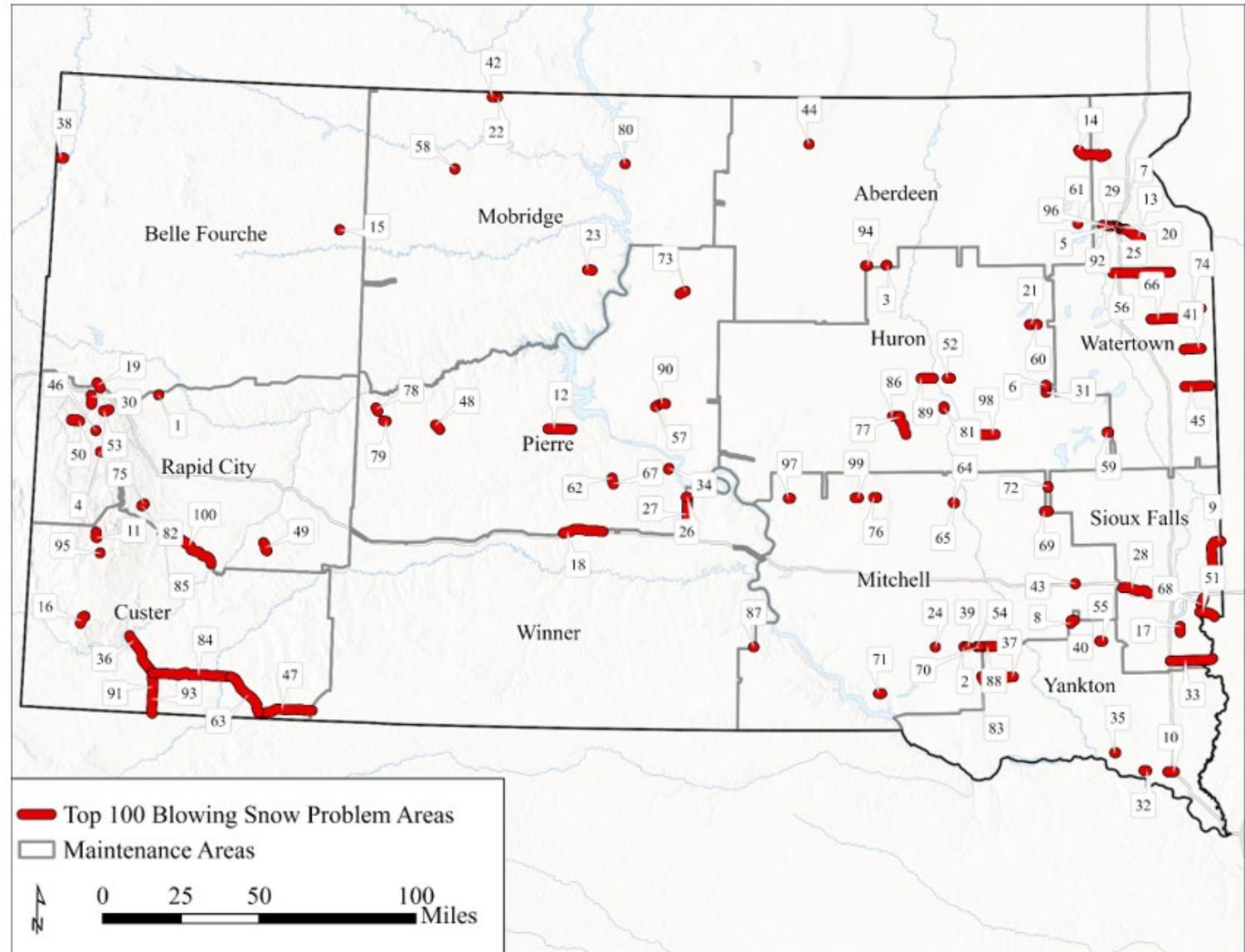


# Data Used for Prioritization

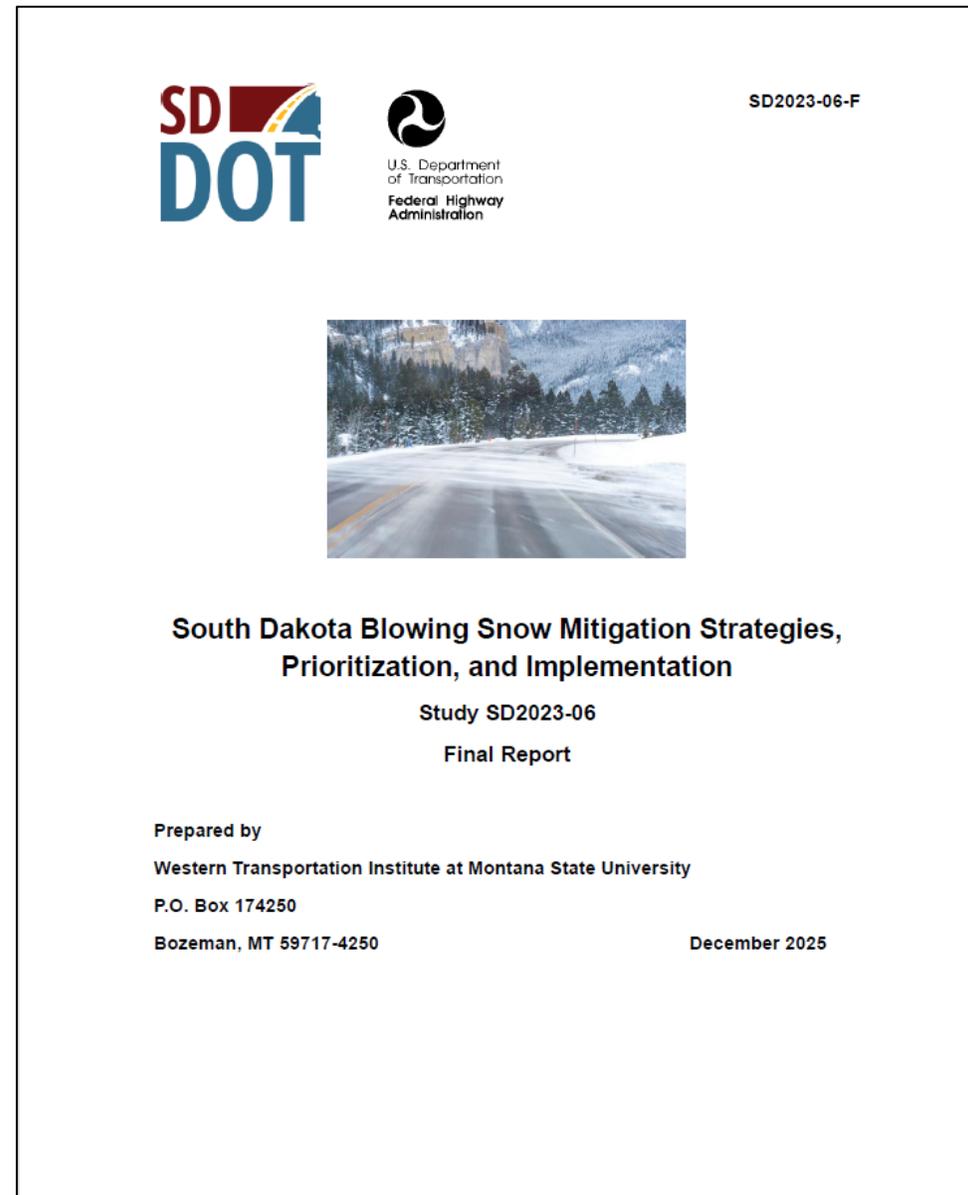
- Maintenance Area Feedback
- Crash & Incident Data
- Roadway Functional Classification
- Distance from Maintenance Shed
- Prevailing Wind Direction
- Land Ownership



# Top 100 Blowing Snow Locations on Rural South Dakota State Roadways



- Final report to be available on the South Dakota Department of Transportation's (SDDOT's) Research page: <https://dot.sd.gov/programs-services/programs/research/>



# Guidance Outline

- Blowing Snow Mitigation Options
  - Structural Fences
  - Temporary Fences
  - Living Snow Fences
  - Grading Strategies
- Selecting the Right Blowing Snow Mitigation Strategy for each Location
- Life Cycle Cost Framework



# Structural Snow Fences



- Typically wood, polymer straps, or I-beam designed for snow quantity and wind direction.
- Run 4-14 ft high
- Anchored with rebar, helical anchors, or embedded posts
- Types: Wyoming, vertical, cribbing or lath

# Vertical Snow Fence



# Cribbing or Lath



# Other structural snow fence options

## W-beam Guardrail



## Concrete Beam



# Temporary Snow Fence



- Catch all category for any snow fence that is expected to last for a short time, one season, or that has durable construction and is movable



# Temporary Snow Fences



# Living Snow Fence (LSF)

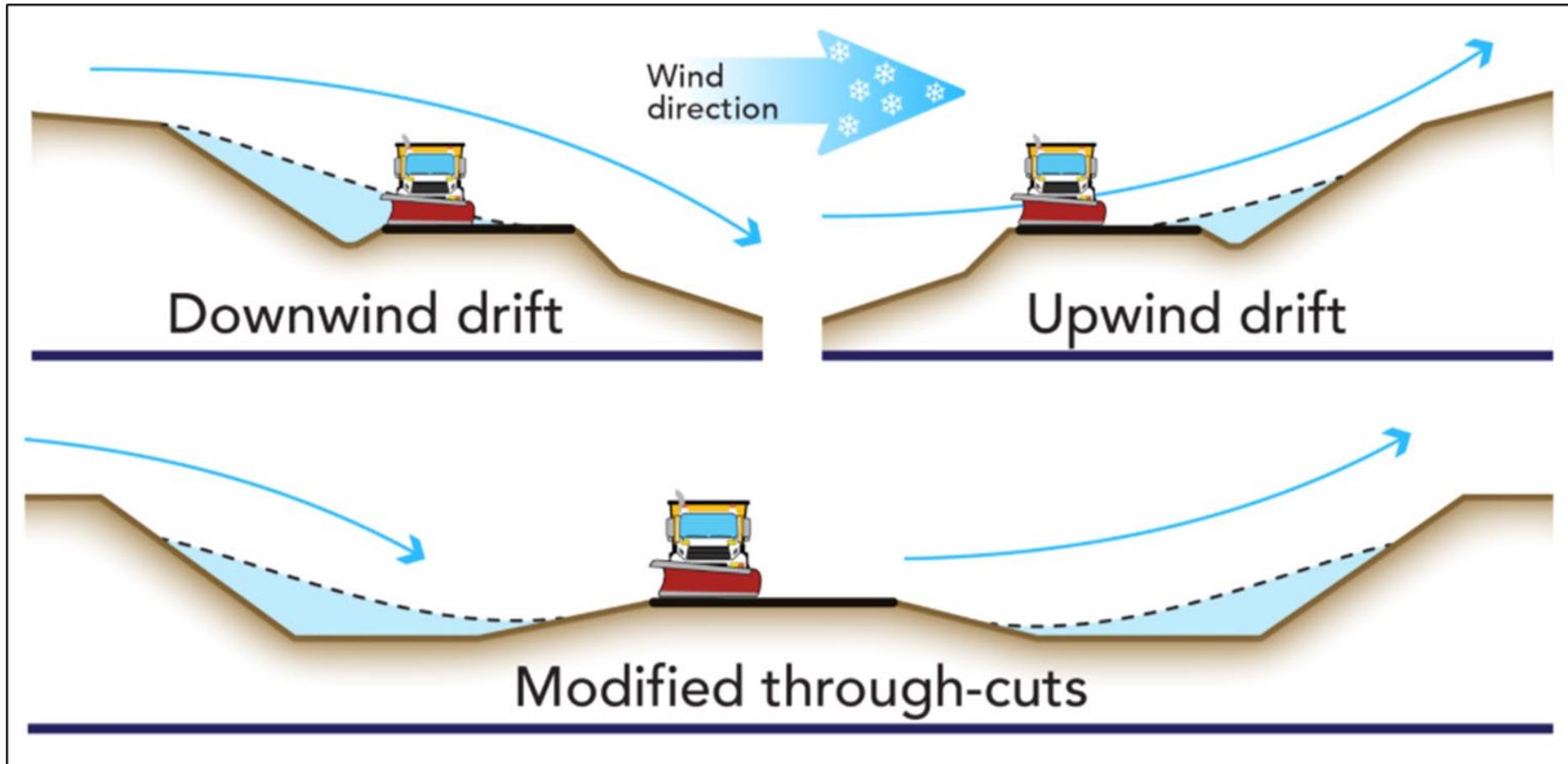


- Trees, shrubs, 1-3 rows deep
- Consider plant height in the design
- May require a structural fence until established
- Work with landowners, conservations groups, FFA, etc.

# Corn Rows



# Earthwork Grading



- Modification of existing topography where snow drifting occurs.
- Cut back slopes, flat bottom ditches for snow storage.
- Typically done along with other construction.

# Snow Ridging



- Use equipment to create snow berms
- Fill in over time, need to be cleaned out, reshaped
- Work with landowners
- No need for a structure

# Other options....

## Solar Snow Fence



## Floating Snow Fence Over Utilities



# Other options ....

## Woven Willow

## Hay bales



# Selecting the Right Blow Snow Mitigation Strategy for each Location

- Considerations
  - Adjacent landowner
  - Site specific considerations

- Identified challenges
  - Topography
  - Rotation of crops (corn, soybeans)
  - Cattle
  - Ability to grow LSF
  - Landownership
  - Bridges or structures



# Site Specific Considerations

- Design
- Maintenance
- Soils
- Geology
- Terrain
- Context sensitivity & Land Use Planning
- Wildlife presence and migration



Top 100 List Ranking	Segment ID	Segment Name	Length (Miles)	Adjacent to Tribal Land	Adjacent to FLMA Land	Adjacent to Crops or Pastureland	Adjacent to Cultivated Crops	Adjacent to Pastureland/Hay	LSF	Maintenance Area Feedback on LSF	Standing Corn Rows	Maintenance Area Feedback on Standing Corn Rows	Structural Snow Fence	Maintenance Feedback on Structural Snow Fence	Temporary Snow Fence	Grading
15	74	Hwy 73, MRM 196	0.095	No	No	No	No	No	No	Yes	No	NF	Yes	Yes	NF	No
19	73	Hwy 34, MRM 23-25	1.986	No	No	No	No	No	No	Yes	No	NF	Yes	Yes	NF	Yes
38	125	Hwy 20, MRM 2-3	0.953	No	No	Yes	No	Yes	Yes	Yes	No	NF	Yes	Yes	NF	Yes

- Length
- Land Adjacent
  - Tribal
  - Crops or Pastureland
  - Cultivated Crops
  - Pastureland / Hay
- Snow Fence Type
  - LSF
  - Standing Corn Rows
  - Structural Snow Fence
  - Temporary Snow Fence
  - Grading
- Maintenance Area Feedback
  - Interest/feasibility: Yes, Maybe, No

# Cost, Years of Functionality, Benefits

Snow Fence	Costs (US\$)	Years of Effectiveness
LSF	~ \$2300 acre	50 - 75
Corn Rows	~ \$400 - \$550 acre	1
Wooden, structural	~ \$400 - \$600 panel	25
Wood slate	~ \$7.25 ft	5 - 7
Temporary plastic	~ \$7.25 ft	1 - 3

- Benefits

- Improved safety
- Carbon sequestration
- Reduced emissions
- Cost savings
- Reduced winter maintenance plowing and deicing
- Wildlife habitat

# Life Cycle Cost Framework

- An Excel based tool
- Considers
  - Set Costs/Factors
    - Round trip distance to the location from the nearest maintenance shed
    - The length of the blowing snow treatment area
    - Land Lease or Easement costs per year
  - Blowing Snow Treatment Costs
    - Structural - set up personnel, equipment, & materials costs, maintenance cost
    - Temporary - set up personnel, equipment, & materials costs, maintenance cost
    - LSF – set up personnel, equipment, materials & watering costs, maintenance cost
    - Corn Rows – reimbursement rate
    - Earthwork – cost per foot
    - Snow Ridging – Setup and maintenance personnel and equipment costs

# Life Cycle Cost Framework - Example

Blowing Snow Treatment	Contract Cost or Build Costs (materials, personnel, equipment)	Maintenance Costs	Land Lease / Easement Costs	Crop Reimbursement	Total Cost	Life Cycle (years)	Cost per Year of Service
Structural	\$7,995	\$11,245	\$850		\$20,090	20	\$1,005
Temporary	\$9,273	\$1,873	\$850		\$11,996	3	\$3,999
LSF	\$7,995	\$16,112	\$850		\$24,957	50	<b>\$499</b>
Corn Rows				\$475	\$475	1	<b>\$475</b>
Earthwork Grading	\$21,320				\$21,320	100	<b>\$213</b>
Snow Ridging/Berming	\$312	\$624	\$850		\$1,786	1	\$1,786

# Existing Cost Benefits Tools

1. **LSF** costs and benefits calculator , *Economic and Environmental Costs and Benefits of Living Snow Fences: Safety, Mobility, and Transportation Authority Benefits, Farmer Costs, and Carbon Impacts* (<https://www.dot.state.mn.us/environment/livingsnowfence/cost-benefit.html>)
2. Cost-Benefit analysis tool for a **Snow Fence**, *Evaluating the Costs and Benefits of Snow in Illinois: Phase 2* (<https://www.ideals.illinois.edu/items/116556>)

