



Weather Stations out West What is Wise Roads?



Monday, December 2, 2019
North Dakota Township Officers Association
53rd Annual Meeting – Bismarck, ND

Dale C. Heglund, North Dakota LTAP Director
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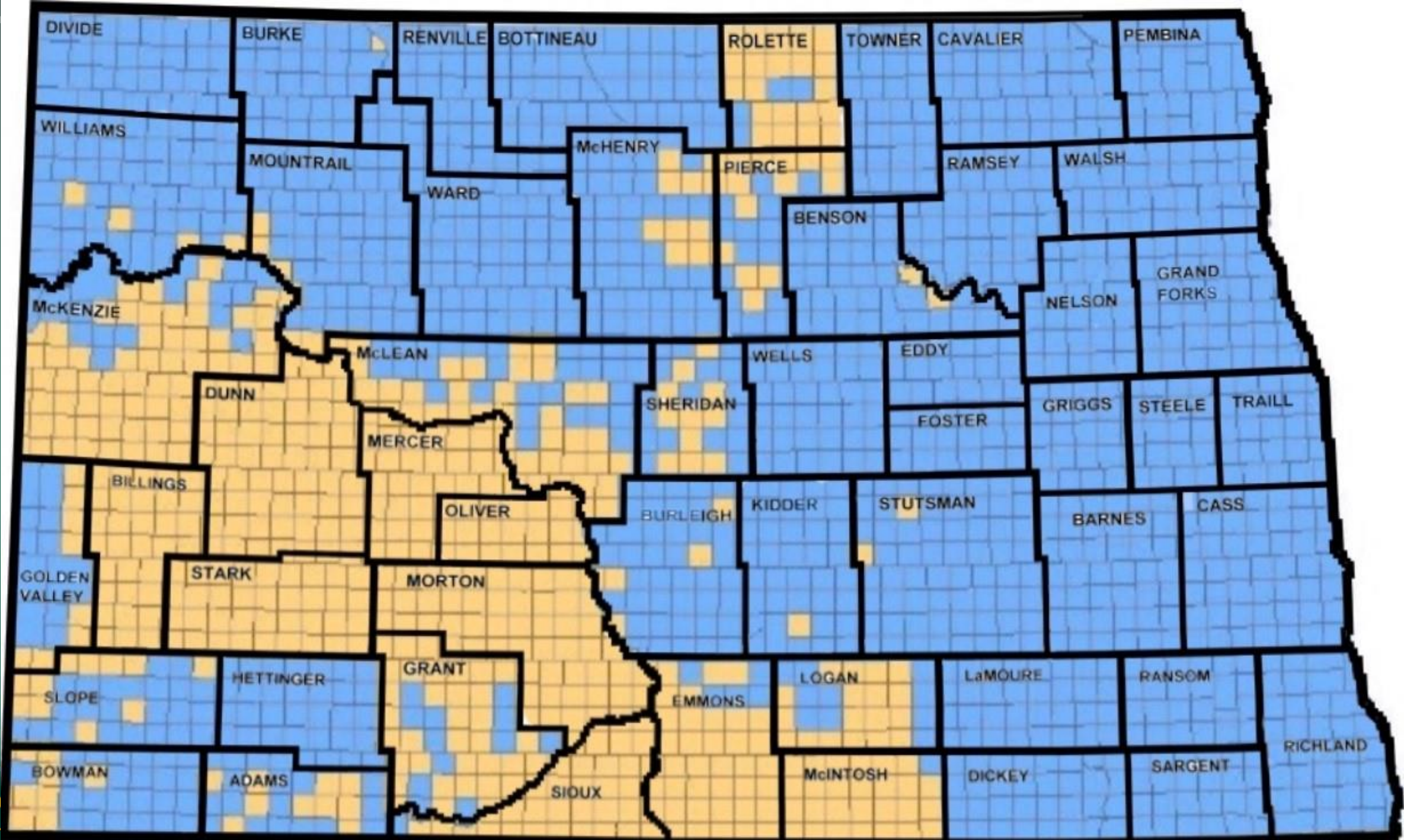
**Thank
You!**



NDLTAP/NDTOA



North Dakota Township
Officers Association

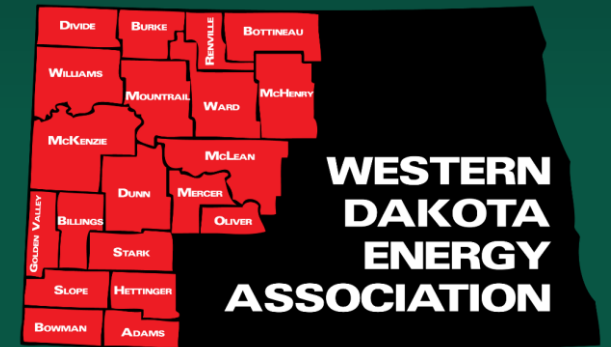


Thank You!

\$2,500 Support – Tap into us

Wise Roads

Weather Information System to Effectively
Reduce Oilfield Delays and Disruption



Problem:

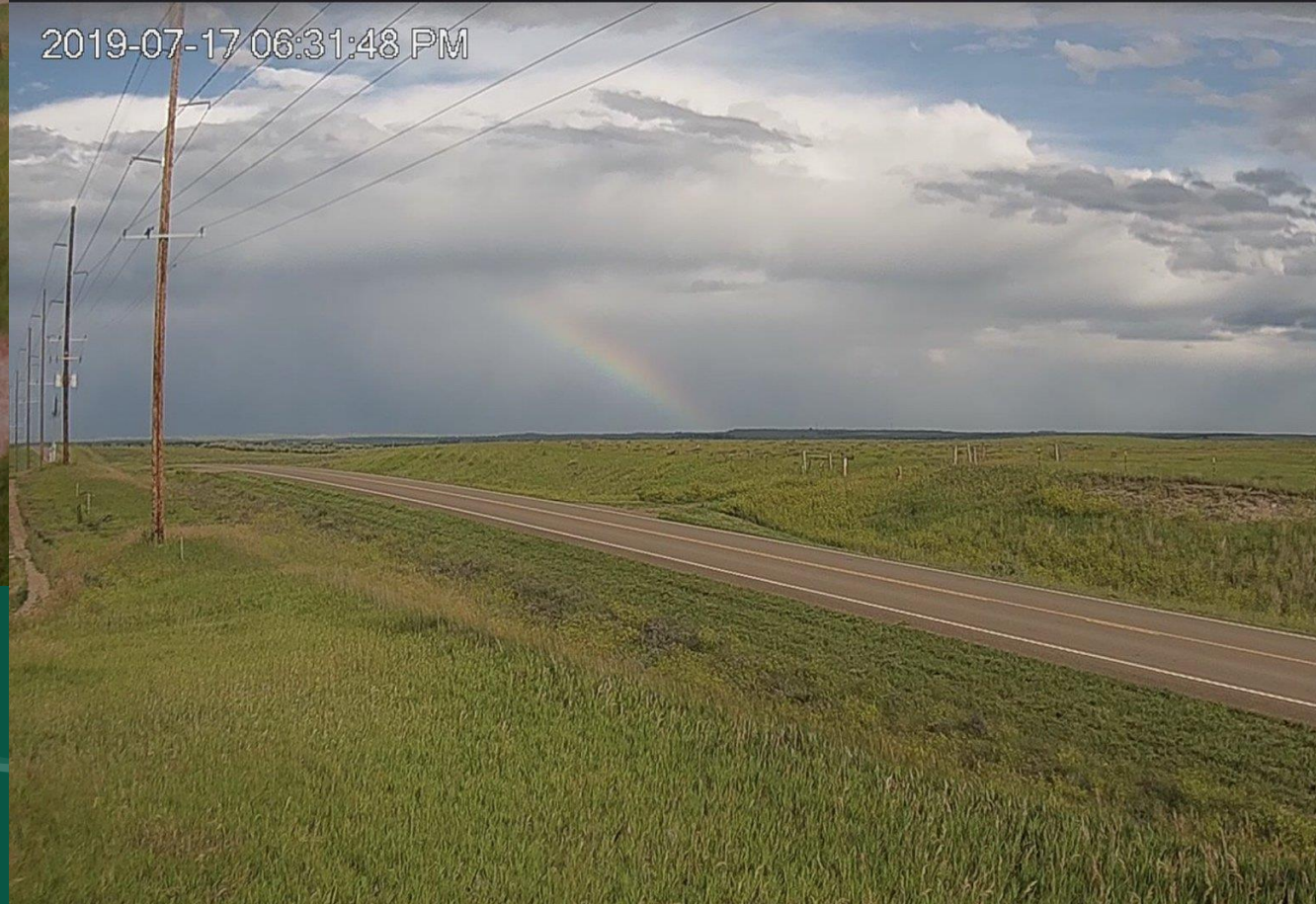
When inclement weather strikes, local governments impose weight restrictions on gravel roads that prohibit the movement of oilfield truck traffic until road conditions improve.



2019-07-12 09:33:41 PM



2019-07-17 06:31:48 PM



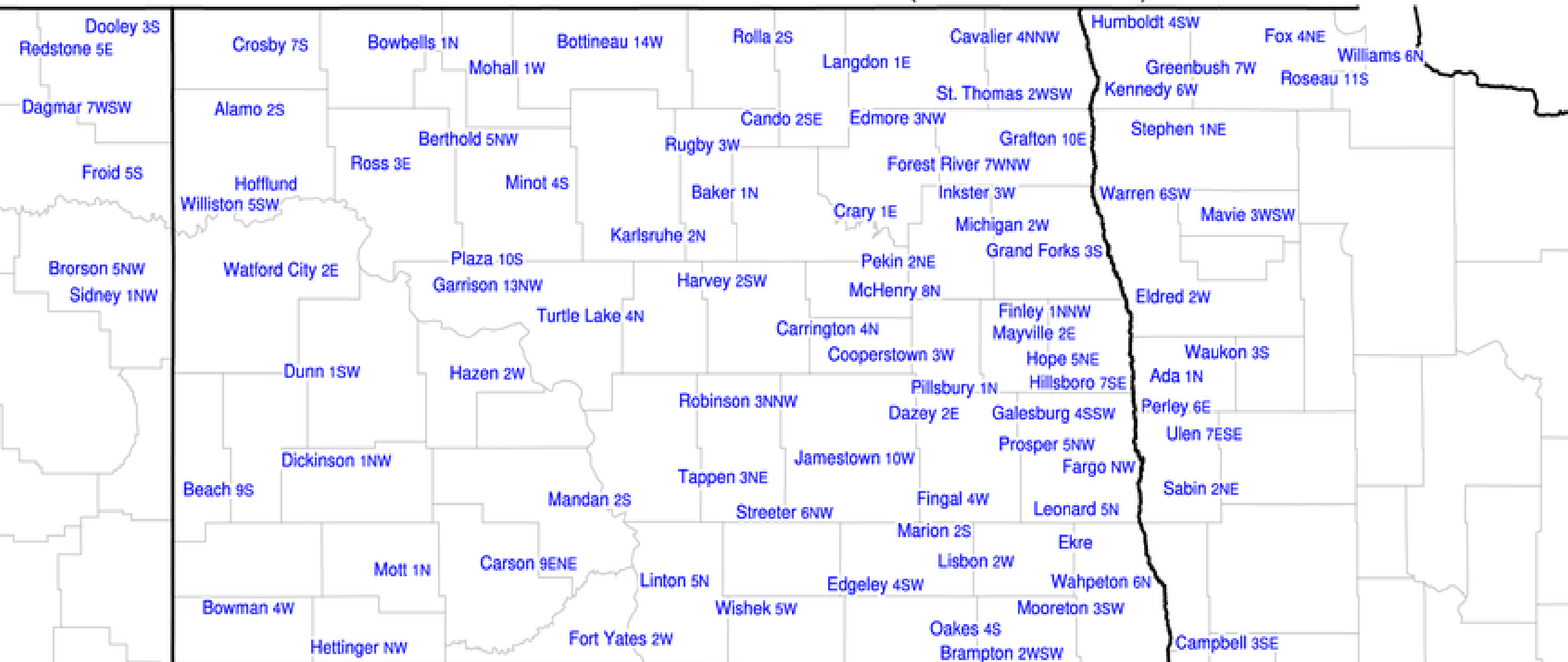


2019-06-27 09:18:59 AM

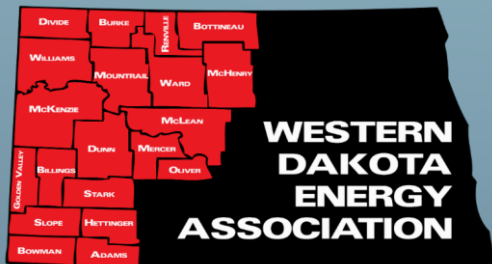


NDAWN - 9N Arnegard

NDAWN Station Locations (2019-07-02)

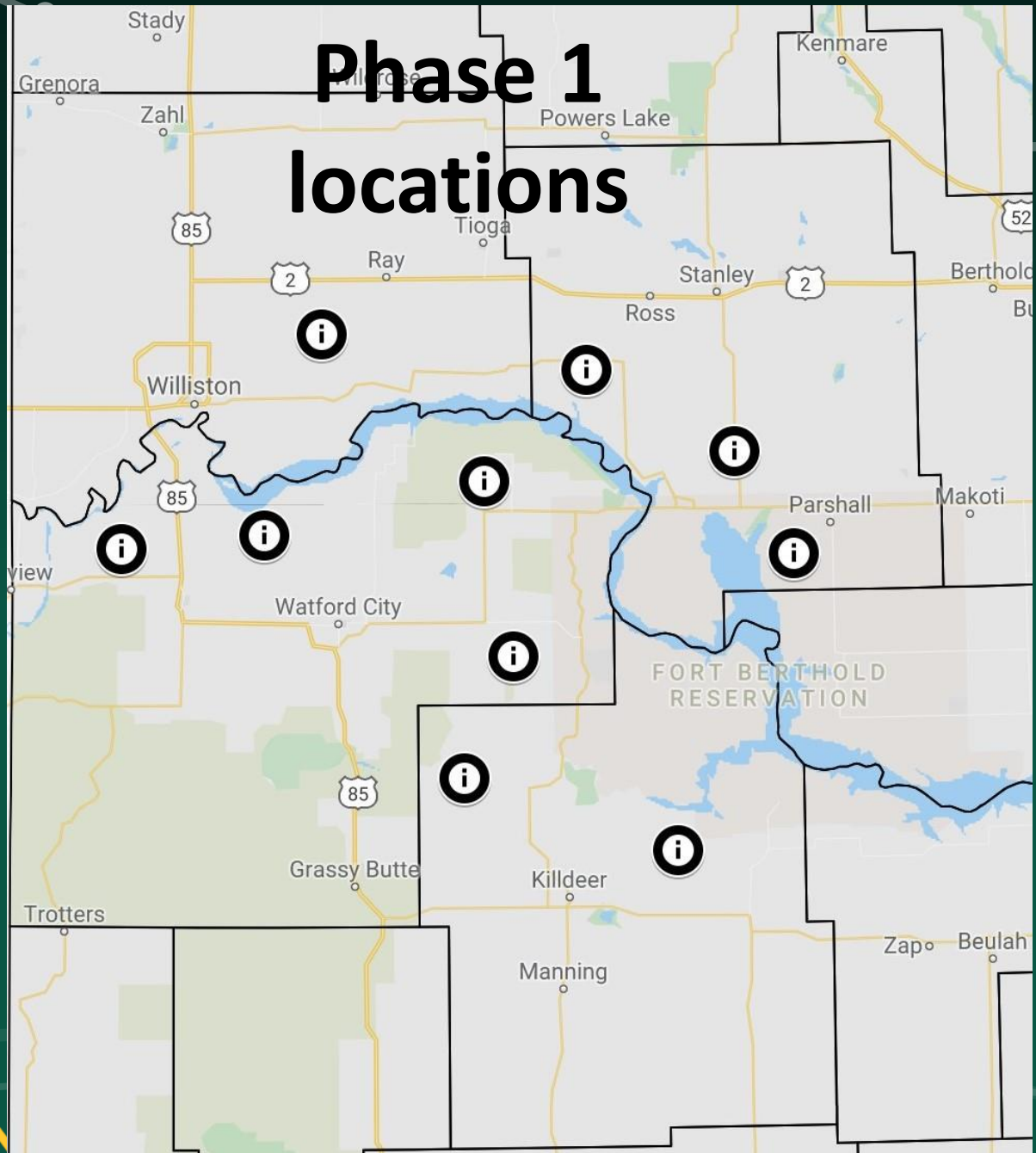


Source: North Dakota Agricultural Weather Network (NDAWN)
<https://ndawn.ndsu.nodak.edu>
Copyright © North Dakota State University

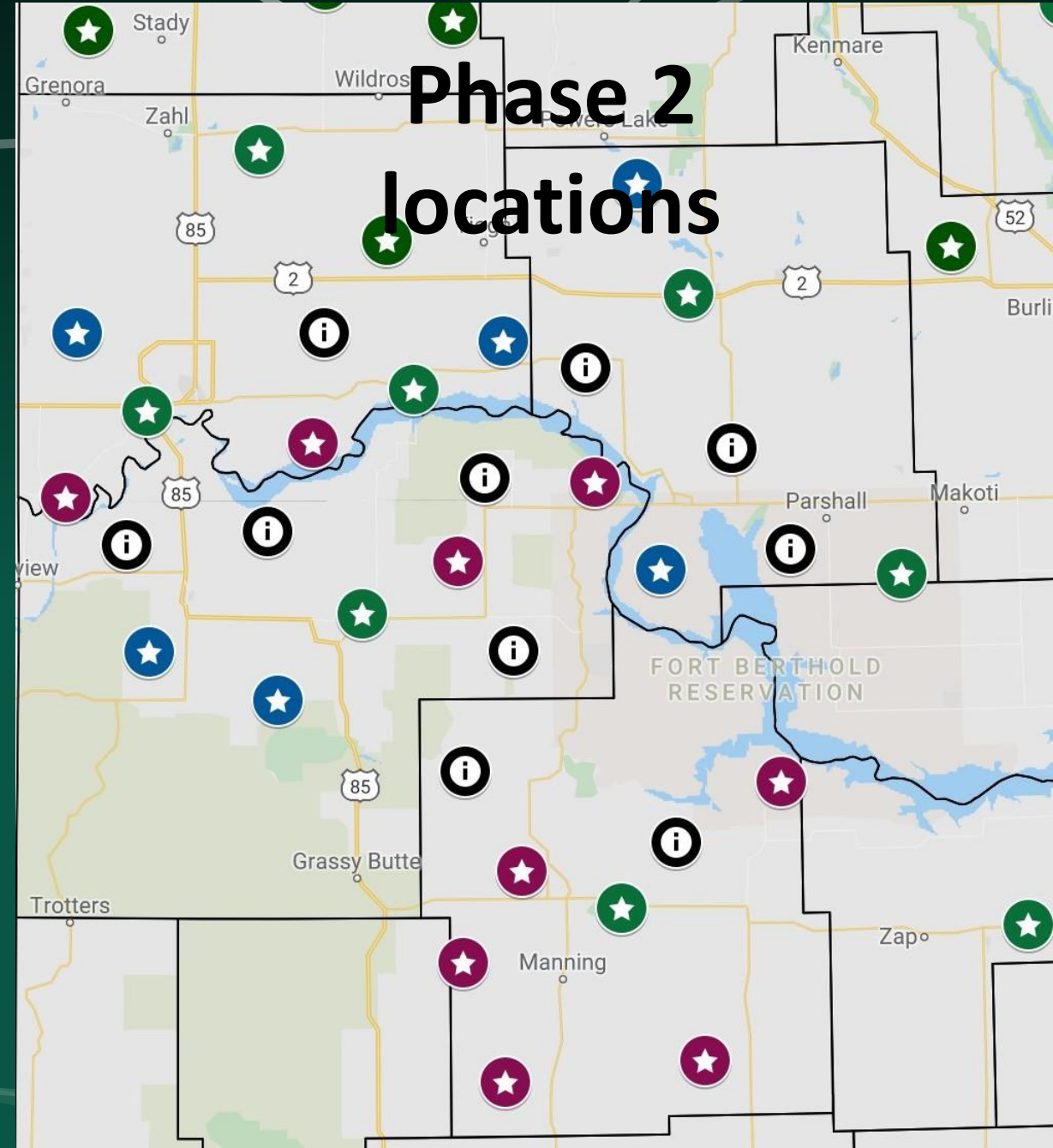


Wise Roads First 10 Stations

Phase 1 locations



Phase 2 locations



2019-07-17 05:20:41 PM



NDAWN - 5NW Charbonneau

2019-07-17 05:19:40 PM



NDAWN - 9N Arnegard

in Stream(5009kbps, 1920*1080) [control icons]

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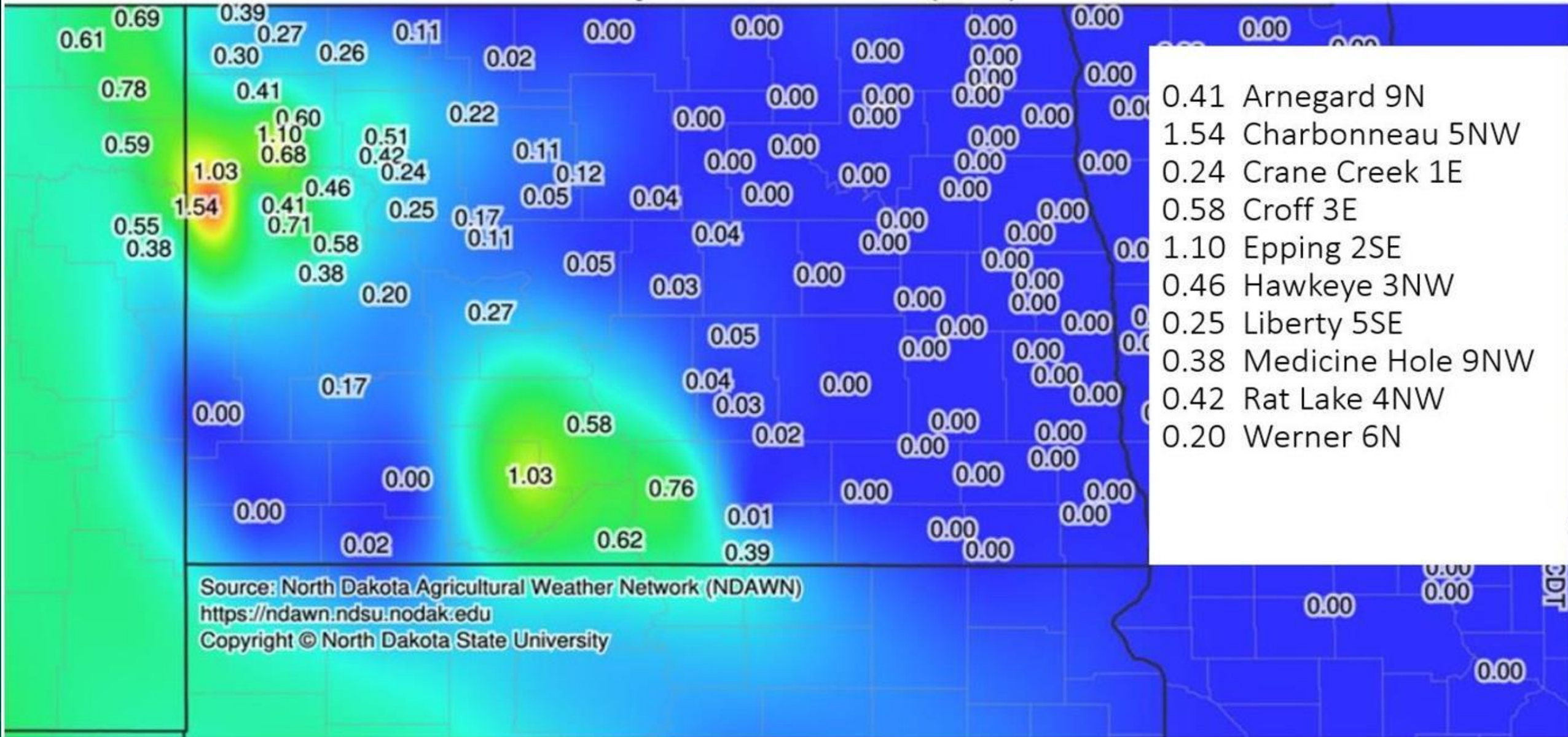
NDAWN - 3E Croff

2019-07-17 05:19:41 PM



NDAWN - 3NW Hawkeye

Today's Total Rainfall (inch)



The new stations can be identified by the precipitation numbers on the map. The names are either related to a nearby community or the township in which the station is located.

WISE ROADS PROJECT

- ▶ Work with research partners to maximize benefit
- ▶ Install research-grade weather stations in areas with heavy oilfield traffic
- ▶ Make data publicly available through NDAWN, LoadPass and other sites
- ▶ Provide training to road managers through LTAP



EXPECTED BENEFITS OF THE PROJECT

- ▶ More narrowly defined local road restrictions and more geographic zones established
- ▶ Significant savings to oil industry thru improved productivity and reduced revenue loss due to shut-in wells
- ▶ Use of weather data for research to evaluate the performance of road building materials
- ▶ Benefits to agriculture producers, i.e., soil temperature, precipitation, wind speed, etc.

From: LoadPass Notification System
<cms@loadpasspermits.com>
Sent: Tuesday, July 09, 2019 10:05 AM
To: Geoff Simon <geoff@ndenergy.org>
Subject: Notice from Dunn : Restriction Added:
Zone 1 County Gravel roads

LoadPass Notification

The following restriction has been added:

County: Dunn
Active Date: 7/9/2019
Road: Zone 1 County Gravel roads
URL: <https://permits.loadpasspermits.com/n/1613>
Due to the wet conditions, we will be restricting Zone 1 to 12,000GVW at 10:00am mst until further notice. At this time all other zones will remain open. Please refer to the Zone map for location.
[Load Pass Zone Map](#)

WEATHER DATA RESOURCES

- ▶ NDAWN.ORG

 - [NDAWN current weather webpage](#)

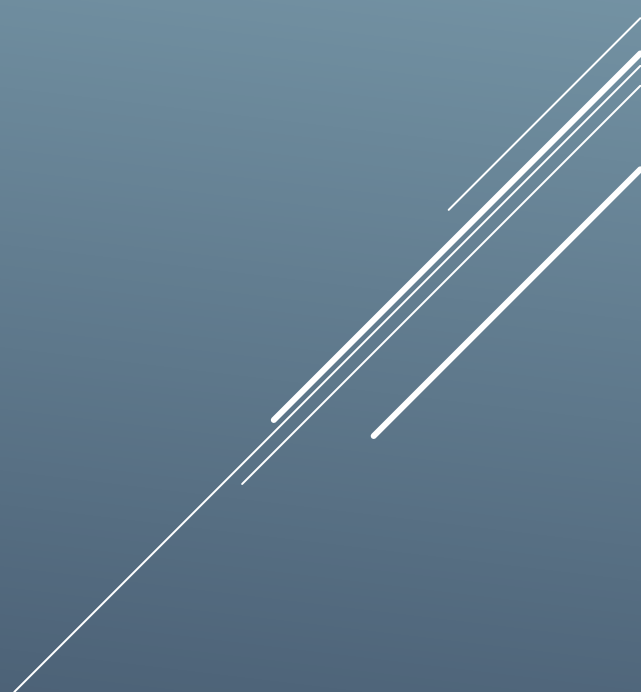
- ▶ stationname.ndawn.org

 - Example: [ratlake.ndawn.org](#)

- ▶ Pictures.ndawn.org

 - [Recent images from new stations](#)

- ▶ More to come in the future





NDLTAP & NDTOA

Together, we do great things!



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"Helping local transportation leaders grow"

NDSU

UPPER GREAT PLAINS
TRANSPORTATION INSTITUTE
NORTH DAKOTA LOCAL TECHNICAL ASSISTANCE PROGRAM

NDTOA

North Dakota Township
Officers Association



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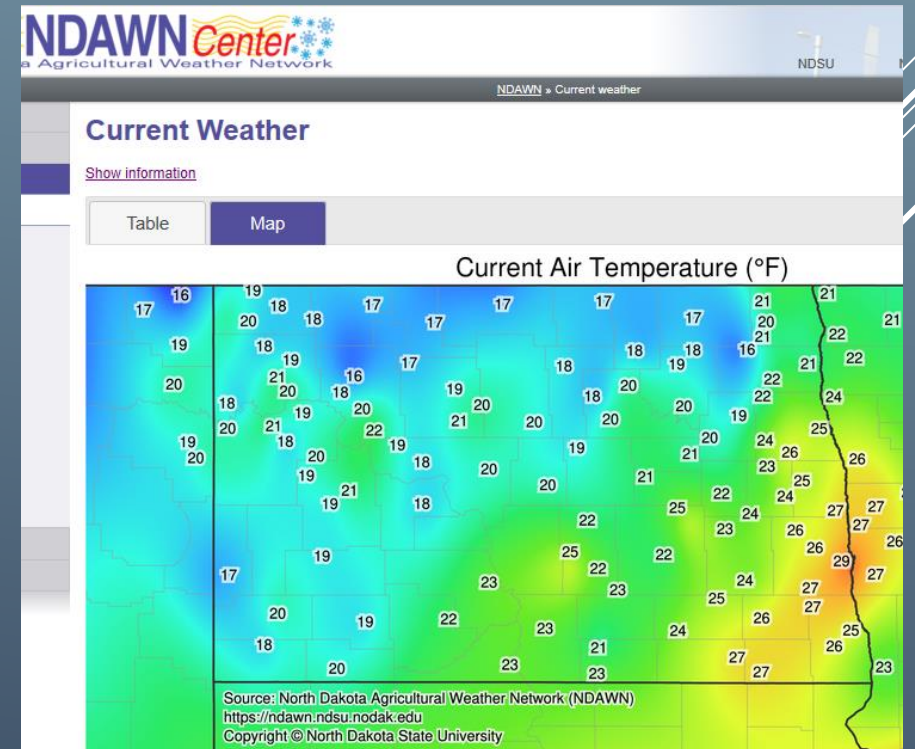
SCOPE OF WISE ROADS PROJECT

- Install up to 50 weather stations in the oil-producing counties
- Prioritize areas with significant drilling and production activity
- Locate stations to fill gaps in existing RWIN (DOT) and NDAWN networks
- Stations will be owned by NDAWN, operational costs covered by WDEA



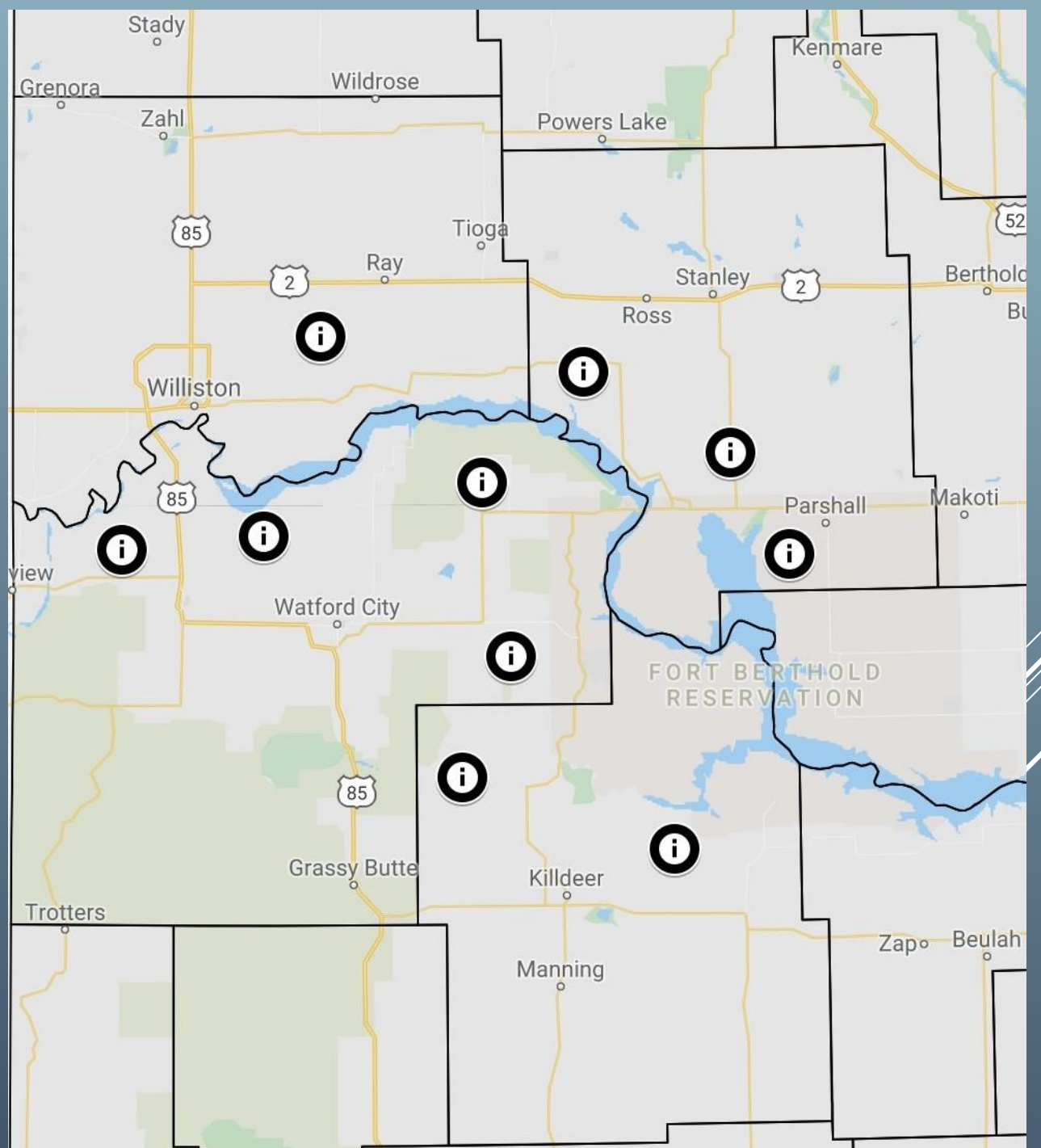
EXPECTATIONS OF THE PROJECT

- ▶ County Road Departments utilize the weather data to determine the area of impact for closures
- ▶ County Road Departments use weather station locations to create/modify road “zones” for issuing restrictions
- ▶ Forecast and weather accessible from:
 - ▶ Ndenergy.org and LoadPassPermits.com
 - ▶ NDAWN (ndawn.ndsu.nodak.edu)
 - ▶ County Websites



PHASE 1 LOCATIONS

Installed Summer 2019

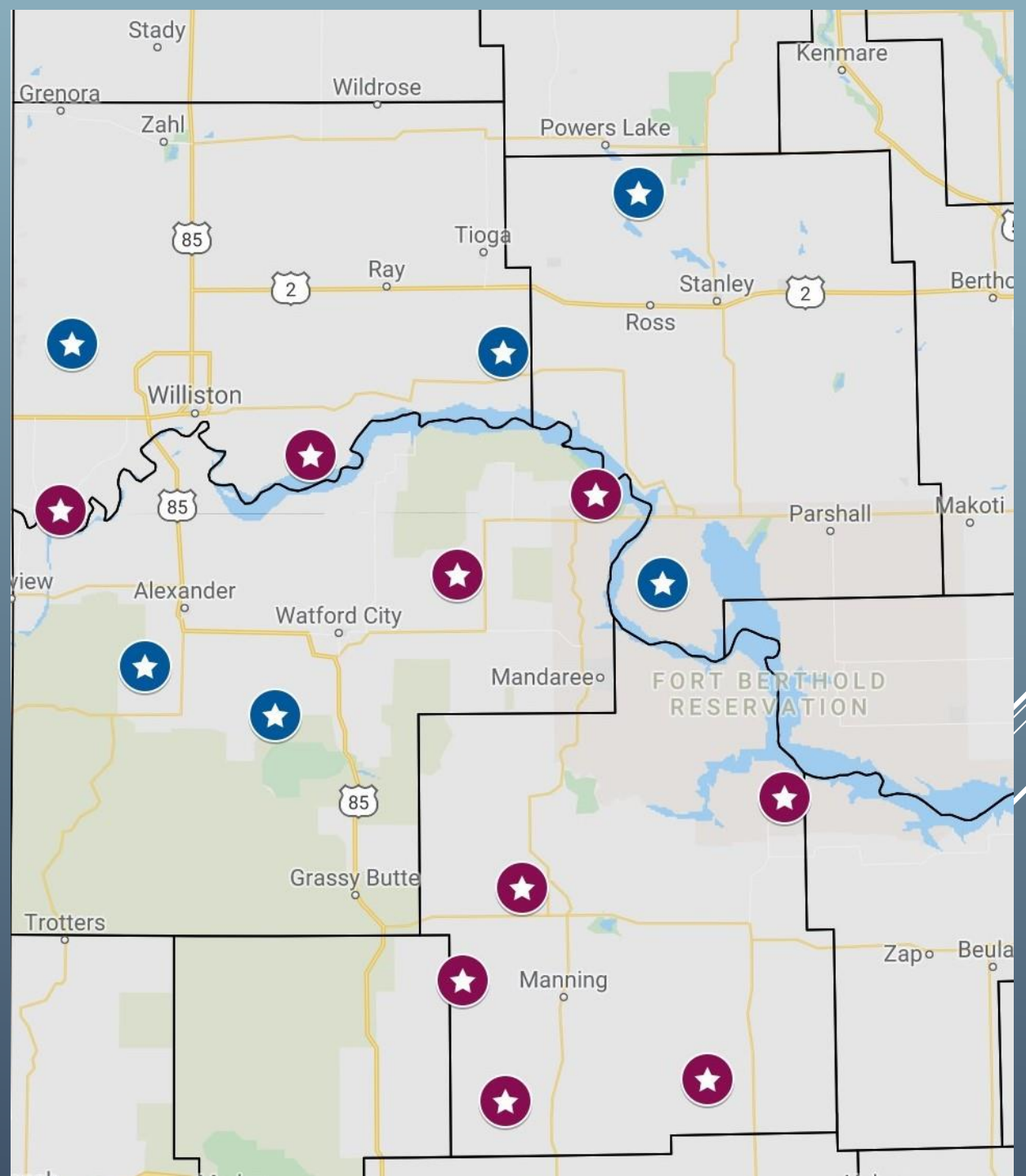


PHASE 2 LOCATIONS

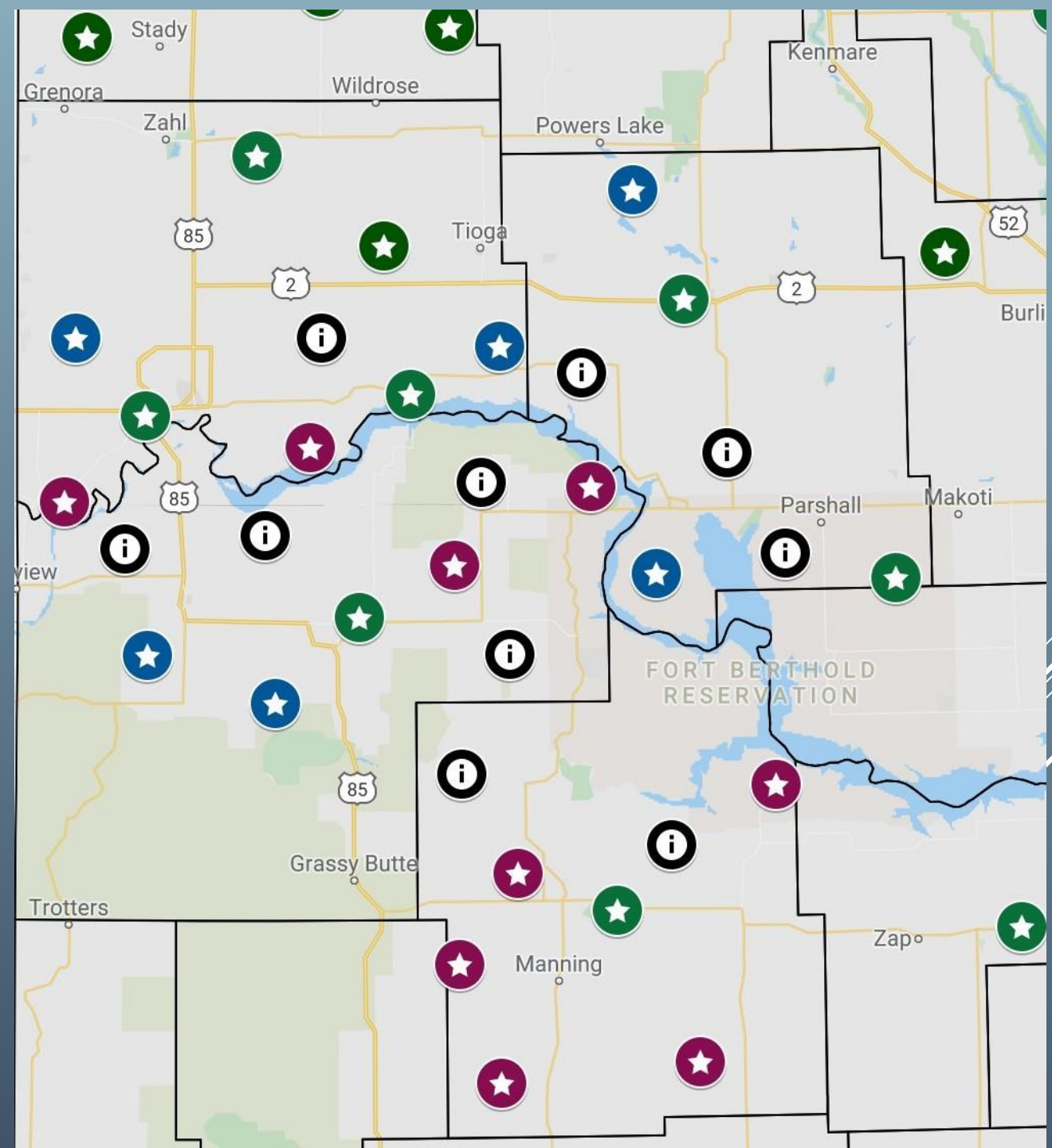
Installation In Progress

Blue Locations Installed

Locations Approximate



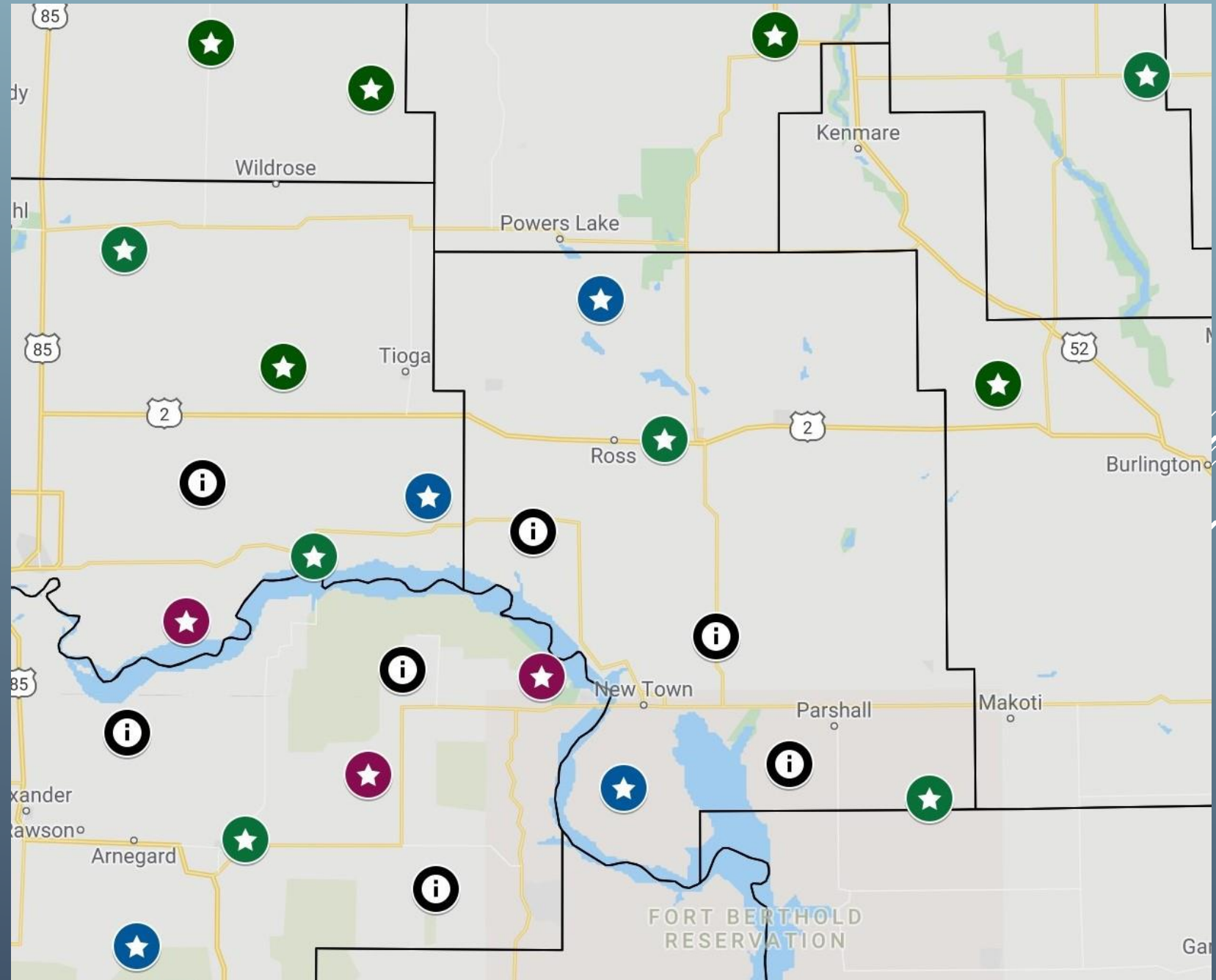
CURRENT AND PHASE 2 LOCATIONS



MOUNTRAIL COUNTY

2 NDAWN Stations
Ross
Plaza

5 New Stations
Rat lake
Crane Creek
Big Bend
Powers Lake
Liberty



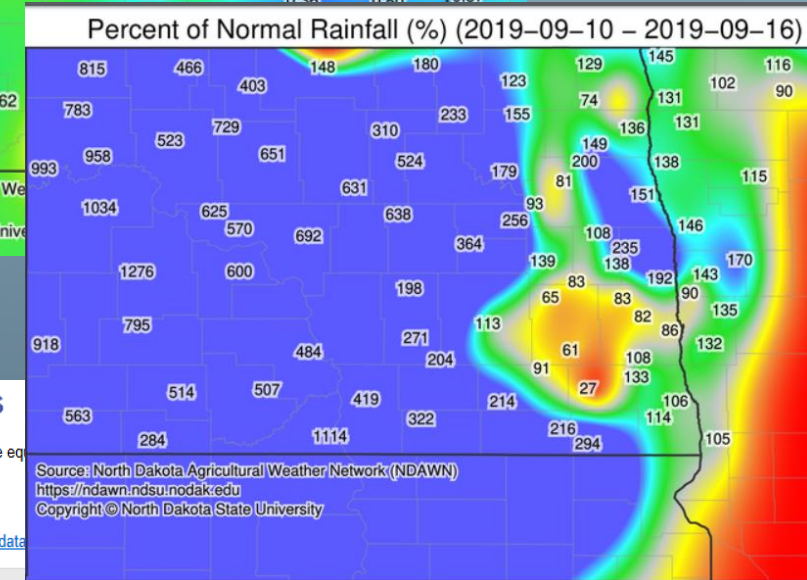
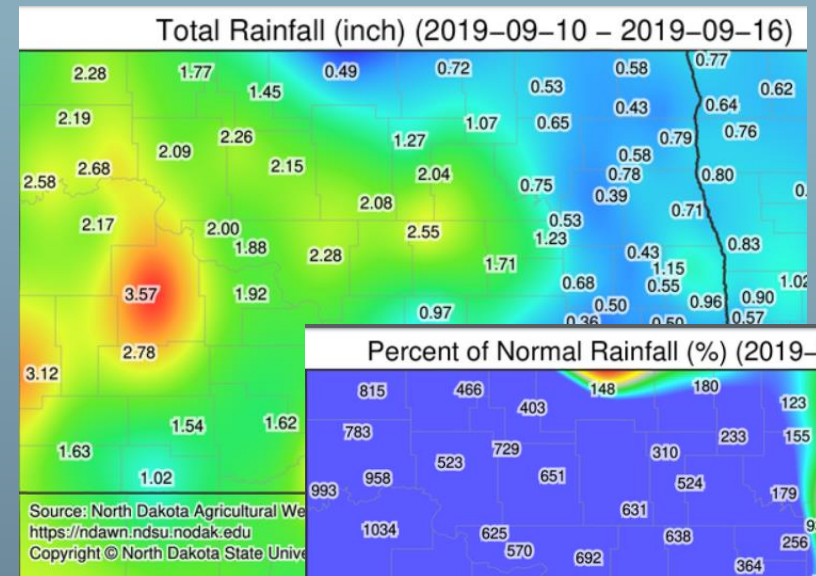
WEATHER DATA UTILIZATION

- ▶ WDEA in partnership with OGRC contracted meteorologist services
 - ▶ Jonathan Rosencrans
 - ▶ Services and tasks
 - ▶ Installation, maintenance, and support of weather stations
 - ▶ Data utilization
 - ▶ Forecasting
 - ▶ Training and Support
- 

SOLUTION:

PROVIDE ACCURATE WEATHER INFORMATION, SPECIFICALLY PRECIPITATION DATA, TO ASSIST ROAD MANAGERS IN MORE PRECISELY IDENTIFYING ROADS THAT REQUIRE TEMPORARY WEIGHT RESTRICTIONS AND EXCLUDE THOSE THAT DO NOT.

PROVIDE MORE DETAILED WEATHER FORECASTING DATA FOR INDUSTRY TO ASSIST IN PLANNING OPERATIONS



Current Deep Soil Temperatures

This page shows deep soil temperatures for those stations which are equipped with soil temperature probes. Values are in degrees Celsius and are updated hourly.

Disclaimer: The data on this page have not been quality controlled.

[Switch to metric units](#) [Download current data](#) [Download all data](#)

Station	Last Updated	5 cm (2 in)	10 cm (4 in)	20 cm (8 in)	30 cm (12 in)	40 cm (16 in)	50 cm (20 in)	60 cm (24 in)	80 cm (31 in)	100 cm (39 in)	125 cm (49 in)	150 cm (59 in)	175 cm (69 in)	200 cm (79 in)	225 cm (89 in)
Adams	17 Sep 21:00 CDT	66 °F	65 °F	63 °F	60 °F	58 °F	57 °F	56 °F	55 °F	54 °F	53 °F	52 °F	52 °F	51 °F	50 °F
Amidon	17 Sep 21:00 CDT	67 °F	67 °F	65 °F	63 °F	62 °F	61 °F	61 °F	60 °F	59 °F	59 °F	58 °F	57 °F	56 °F	55 °F
Bottineau	17 Sep 21:00 CDT	63 °F	62 °F	60 °F	58 °F	57 °F	57 °F	56 °F	56 °F	55 °F	54 °F	54 °F	53 °F		
Bowman	17 Sep 21:00 CDT	65 °F	65 °F	65 °F	64 °F	62 °F	62 °F	61 °F	59 °F	59 °F	58 °F	57 °F	56 °F	55 °F	54 °F
Carrington	17 Sep 21:00 CDT	68 °F	67 °F	65 °F	63 °F	61 °F	60 °F	59 °F	58 °F	57 °F	57 °F	56 °F	56 °F		
Courtenay	17 Sep 21:00 CDT	75 °F	75 °F	73 °F	69 °F	66 °F	64 °F	62 °F	61 °F	60 °F	59 °F	59 °F	58 °F	57 °F	56 °F
Crane Creek	17 Sep 21:00 CDT	64 °F	64 °F	65 °F	63 °F	61 °F	60 °F	59 °F	58 °F	57 °F	57 °F	56 °F	56 °F	55 °F	54 °F
Croff	17 Sep 21:00 CDT	69 °F	67 °F	64 °F	62 °F	60 °F	59 °F	59 °F	58 °F	57 °F	56 °F	56 °F	55 °F	54 °F	53 °F
Denhoff	17 Sep 21:00 CDT	68 °F	67 °F	65 °F	63 °F	61 °F	60 °F	59 °F	57 °F	57 °F	56 °F	55 °F	54 °F	53 °F	52 °F
Dickinson	17 Sep 21:00 CDT	68 °F	67 °F	65 °F	64 °F	63 °F	62 °F	61 °F	60 °F	60 °F	59 °F	58 °F	58 °F		
Epping	17 Sep 21:00 CDT	65 °F	64 °F	62 °F	60 °F	59 °F	59 °F	58 °F	57 °F	57 °F	56 °F	56 °F	55 °F	54 °F	54 °F

