

## Kaushagen, Taylor

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**Subject:** FW: Commission Meeting Request  
**Attachments:** Geologic Study – Drilling for Data in North Dakota press quality (1).pdf; Commitment to Safety\_ SCS 2022 (1).pdf; Summit Map Overview.pdf; SCS\_CASS\_ND\_20220211.pdf

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**Sent:** Monday, March 28, 2022 4:33 PM  
**To:** Kaushagen, Taylor <KaushagenT@casscountynd.gov>  
**Subject:** FW: Commission Meeting Request

**CAUTION: EXTERNAL EMAIL**

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**From:** Joey Borracci  
**Sent:** Monday, March 28, 2022 4:29 PM  
**To:** [kaushagen@casscountynd.gov](mailto:kaushagen@casscountynd.gov)  
**Subject:** Commission Meeting Request

This is Joey Borracci from Summit Carbon Solutions and I am requesting to be put on the agenda for the Commissioners meeting on April 18<sup>th</sup>. We are the company that is going to install the Co2 pipeline through Cass County. The Summit attendees will be Joey Borracci and Jay Volk that does all of the non-environmental permitting. This meeting is intended to be a meet and greet and go over the project perimeters. I am also requesting that the following departments, if possible, to attend as they will be crucial in the process of getting permits for the pipeline: Highway Superintendent, Planning/Zoning, County Engineers. Attached are some of the materials I was going to pass out to the principal attendees.

Joey Borracci  
Authorized Summit Carbon Solutions Agent  
318-272-3221



# SUMMIT CARBON SOLUTIONS

## ***Meeting Objectives & Agenda***

### **Objectives**

- Provide Summit Carbon's Project Overview
- Make appropriate introductions between Cass County and Summit with regards to understanding County permitting requirements and processes

### **Agenda**

- Who is Summit Carbon Solutions
- Project Overview
- Timeframe

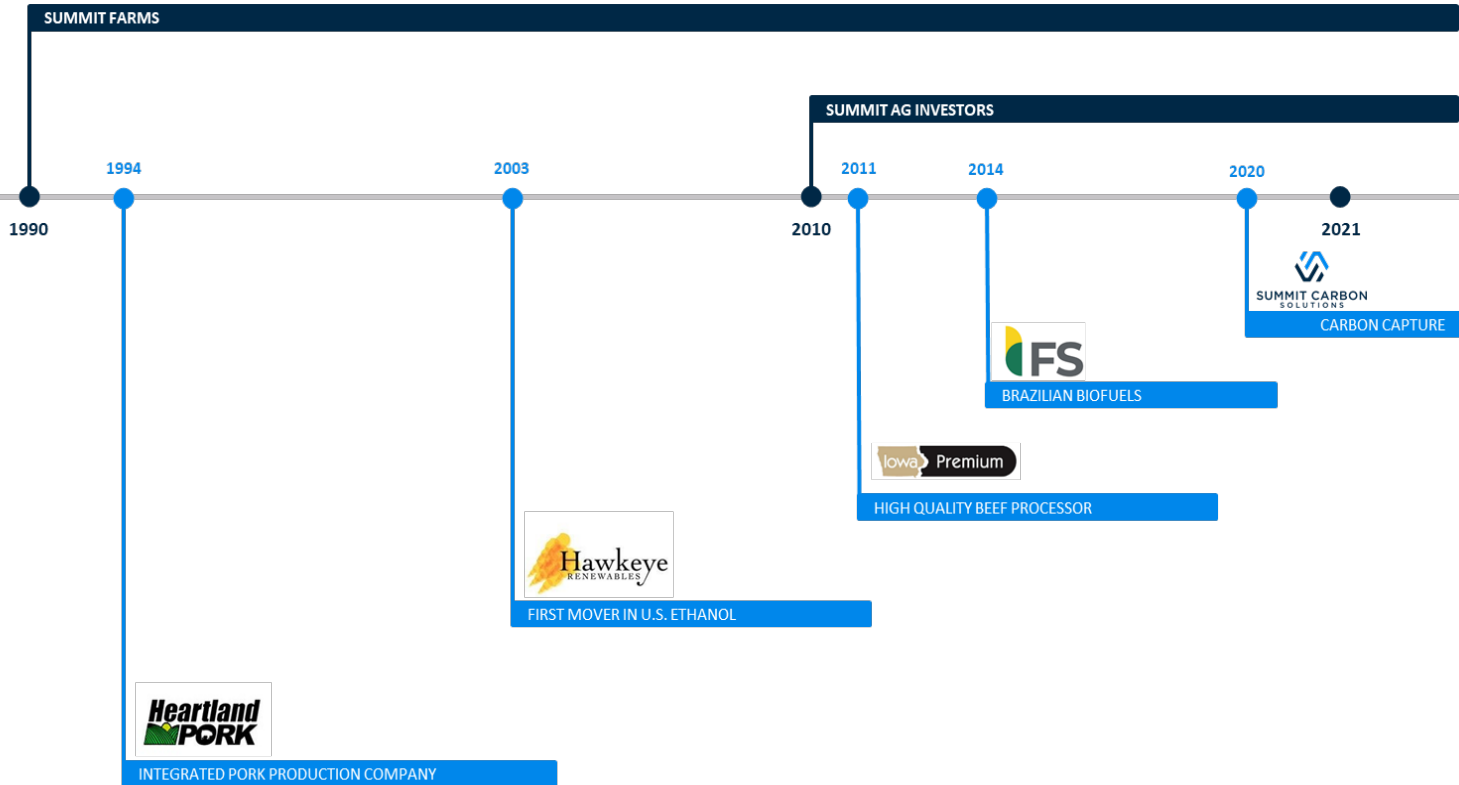
# Summit Agricultural Group Today



SUMMIT CARBON SOLUTIONS

## SUMMIT AGRICULTURAL GROUP ("SUMMIT")

### KEY STATISTICS



**\$1.5B**  
THIRD PARTY AUM

**12**  
ACTIVE INVESTMENT FUNDS

**4.3x**  
NET MOIC ACROSS ALL INVESTMENTS

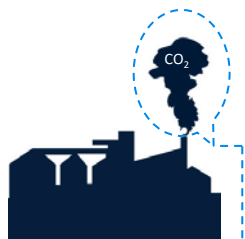
**30+**  
YEARS OF AGRICULTURE OPERATIONS

**120+**  
YEARS OF COLLECTIVE EXPERIENCE



## Midwest Carbon Express Overview

At our 31 partner ethanol plants, Summit Carbon Solutions will install new, state-of-the-art infrastructure



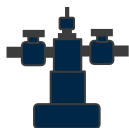
Step 1

Carbon dioxide is captured that otherwise would be emitted into the atmosphere.



Step 2

The captured greenhouse gases are compressed and moved through a newly constructed pipeline system.



Step 3

CO<sub>2</sub> arrives at the injection site in North Dakota where it will be permanently and safely stored in deep underground geologic formations.





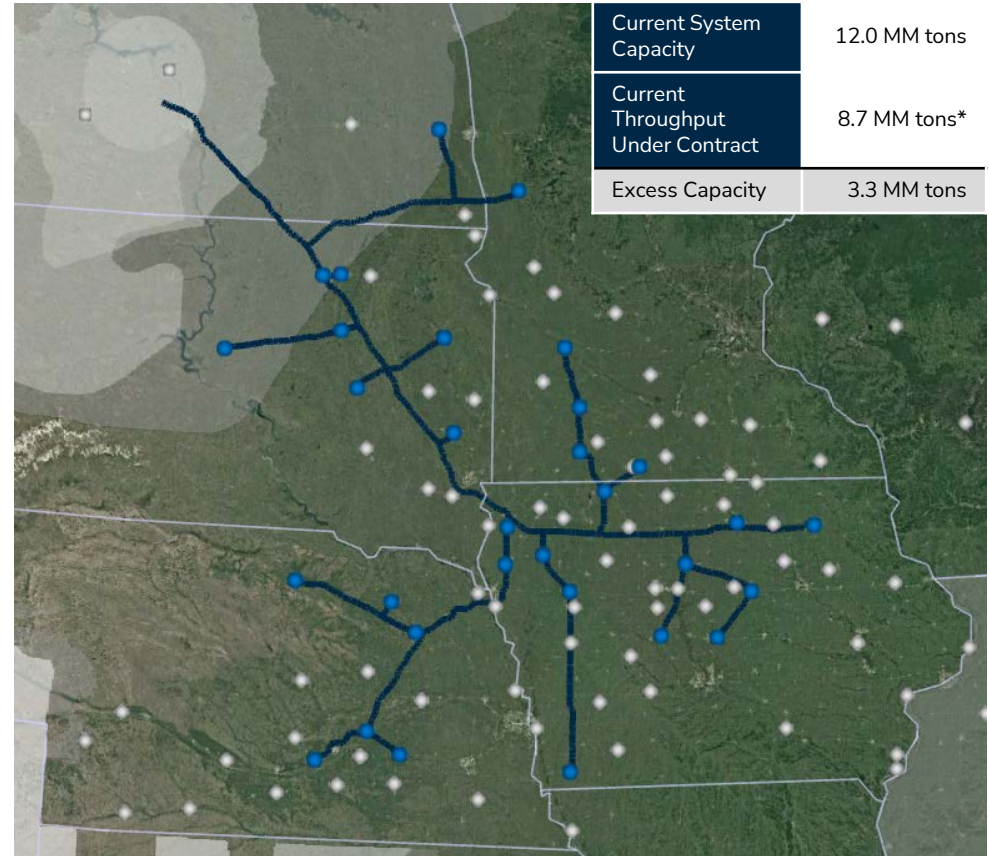
# Strategy

SCS is engineering A CO<sub>2</sub> pipeline system to accommodate growth in volumes from additional partner facilities

**Oversized infrastructure** to accommodate more than ~3M additional tons of CO<sub>2</sub> annually

**Partnering with already best-in-class biofuel facilities** with direct access to the **lowest cost** inputs

Carbon capture and storage further **increases facility profitability and credit worthiness**, supporting **long-term viability** of SCS' partner facilities



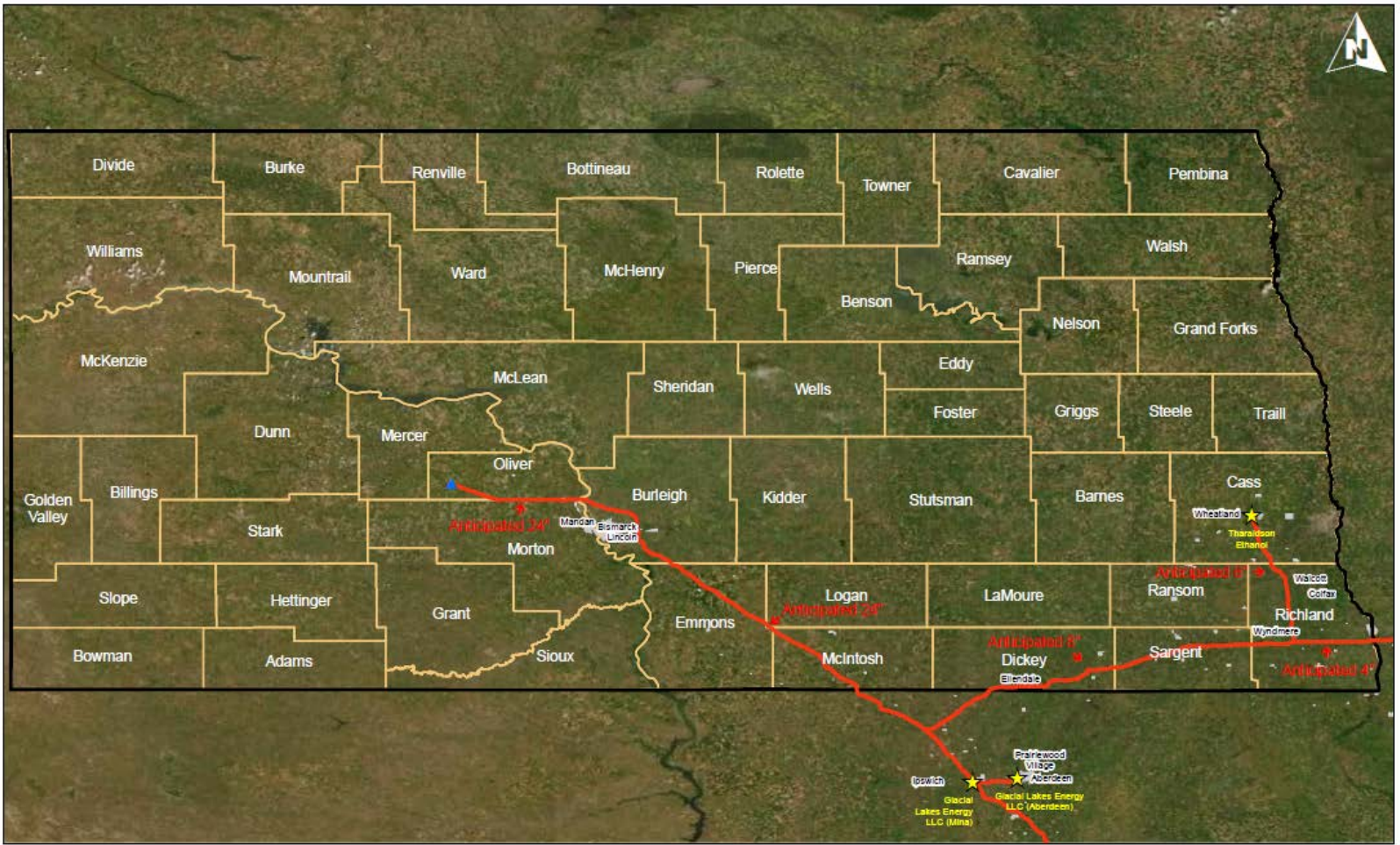
- Partner Facility
- Other Low-Cost CO<sub>2</sub> Facility
- Potential CO<sub>2</sub> Sequestration Zones
- Pipeline Route

\* Assumes all 31 partner facilities are running at nameplate capacity

# North Dakota - Overview



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★ Participating Ethanol Plant     State Boundary  
▲ Sequestration Site     County Boundary  
— Route

**303.82 MILES  
 OF ANTICIPATED  
 PIPELINE ROUTES IN NORTH DAKOTA**

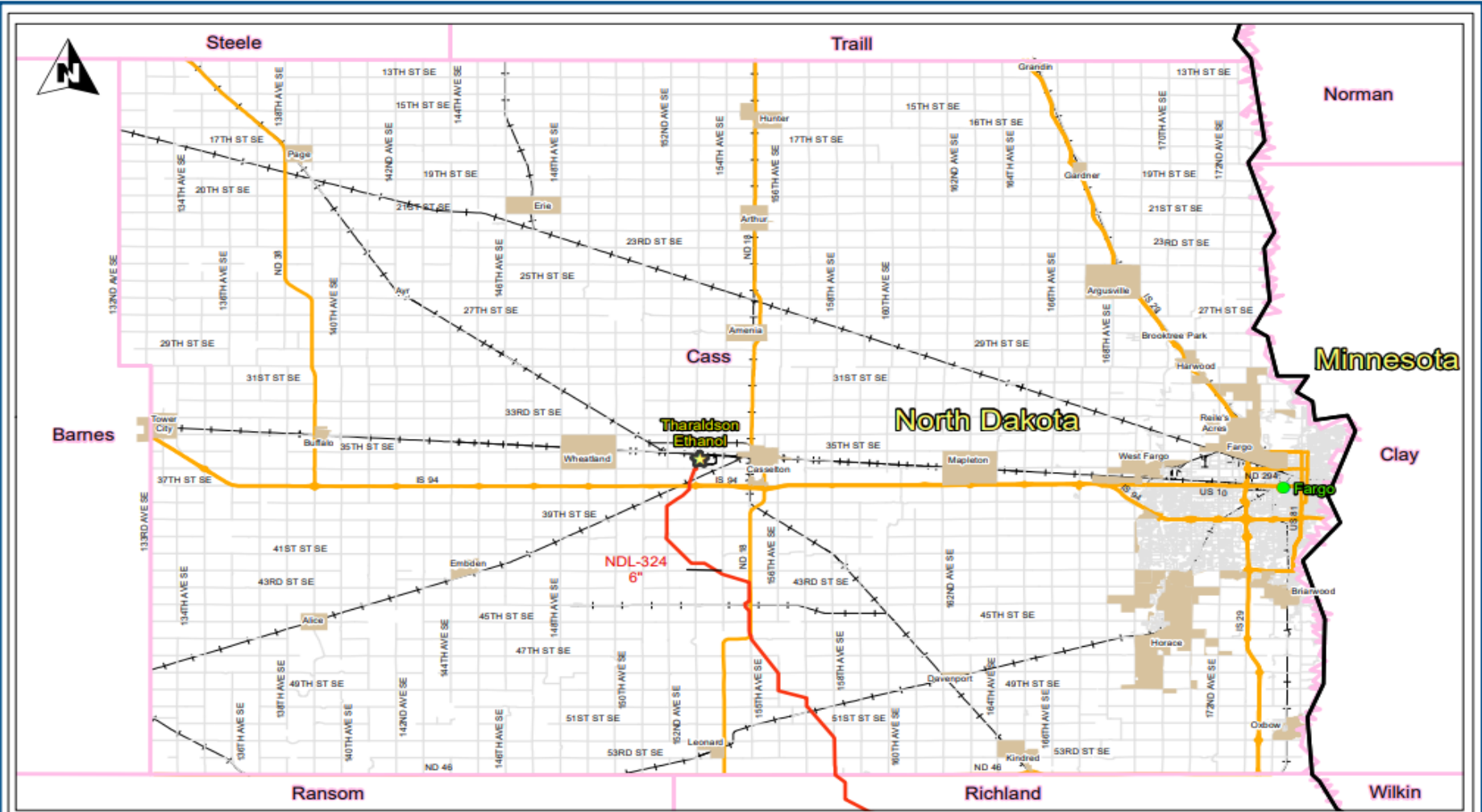
*North Dakota Pipeline Mileage Overview*

COUNTY MULTIPLE	DRAWN BY: CNH
STATE: NORTH DAKOTA	CHECKED BY:
REV. NO.: REVISION	DATE:
SUBJECT FOR REVIEW: 2017-10-17	
PRELIMINARY ROUTE SUBJECT TO CHANGE	
DATE: 10/20/17	PROJECT: NAD 03

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0 5 10 20 40 Miles  
 0 5 10 20 40 Kilometers

DATE: 10/20/17    PROJECT: NAD 03    SHEET: 1



- Participating Ethanol Plant
- County Seat
- Highly Populated Areas
- State Boundary
- County Boundary
- Route
- Primary Road
- Secondary Road
- Local Road
- Railroad

**20.74 MILES OF ANTICIPATED PIPELINE**  
**CASS COUNTY**  
**NORTH DAKOTA**

Pipeline centerline is based on the 02/11/2022 route.

<i>Cass County North Dakota Pipeline Mileage Overview</i>	
COUNTY: CASS	DRAWN BY: KAG
STATE: NORTH DAKOTA	CHECKED BY:
REV. NO.:	REVISION DATE
1	ISSUED FOR REVIEW 2021.04.24
<b>PRELIMINARY ROUTE SUBJECT TO CHANGE</b>	
DATE: 2/11/2022	PROJECTION: NAD 83

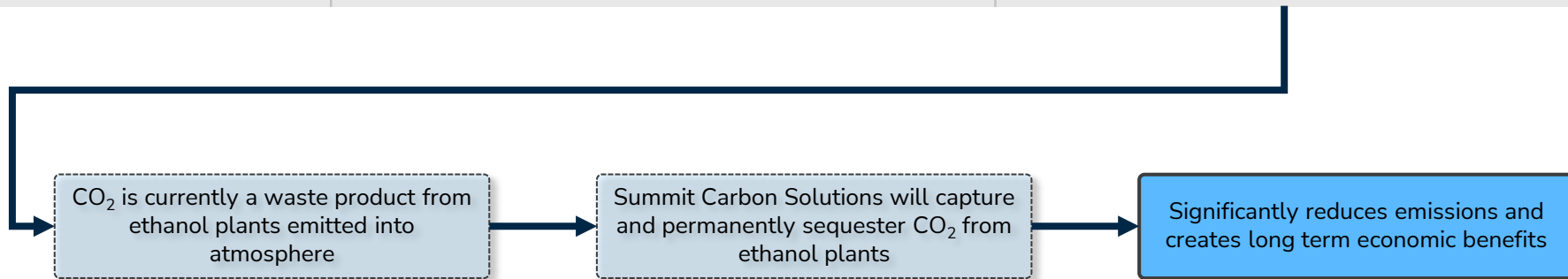
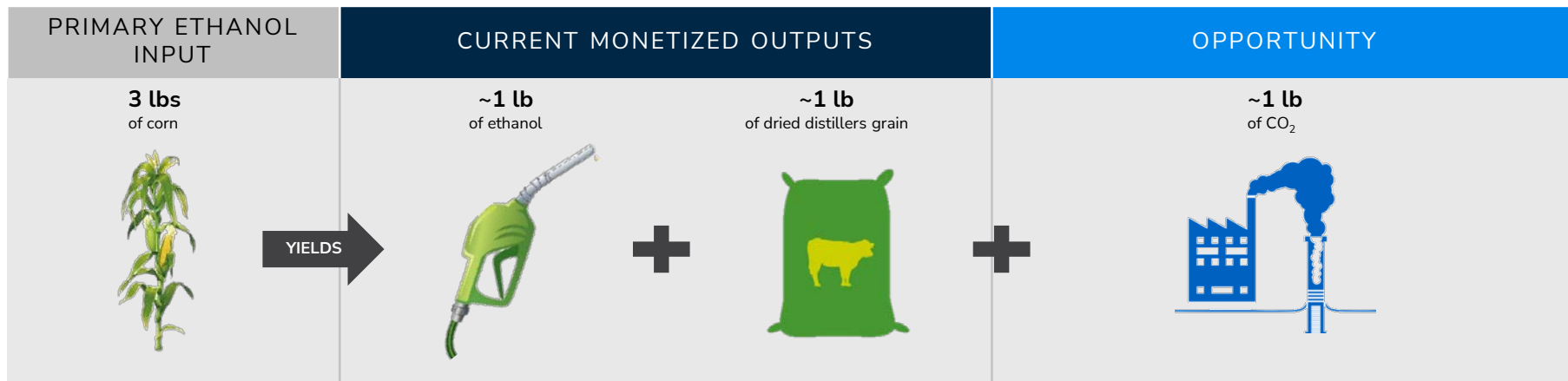
**SUMMIT CARBON SOLUTIONS**





# Opportunity to Scale a Transformational Carbon Capture Platform

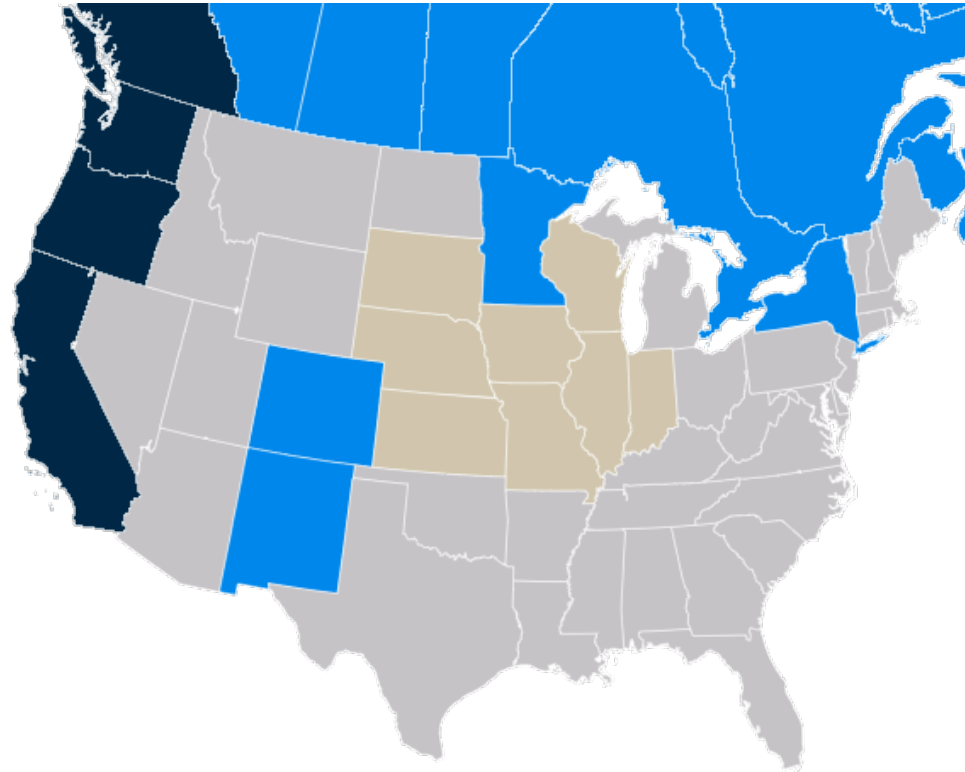
SCS will help seize economic and environmental opportunities



SCS WILL LEAD THE DECARBONIZATION OF THE BIOFUELS INDUSTRY IN THE MIDWEST

# Growing Low-Carbon Markets Provides Attractive Market

NORTH AMERICAN LOW-CARBON FUEL MARKETS



BILLION GALLONS OF LOW-CARBON ETHANOL DEMAND

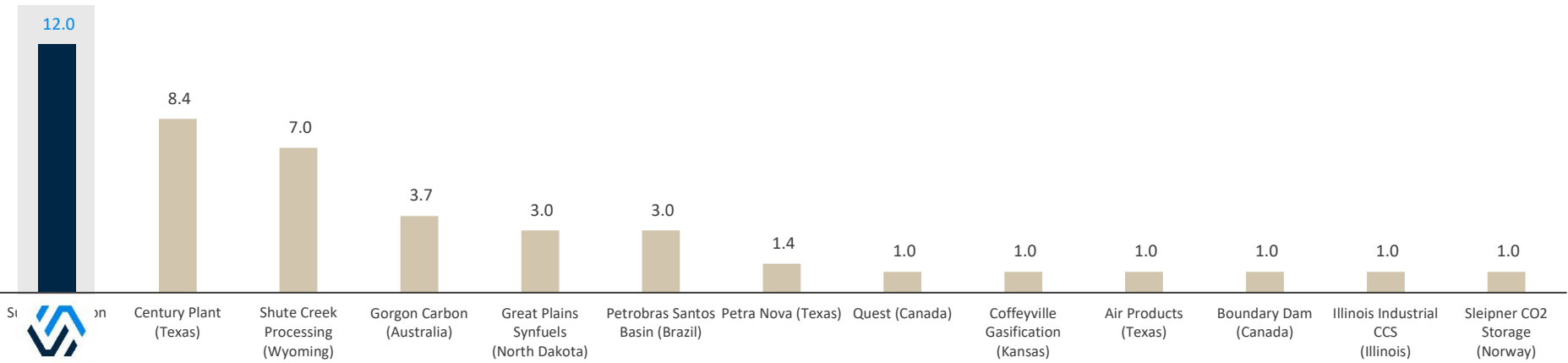
Existing	Likely	Proposed	Total
2.1	2.2	1.8	6.1

Source: Energy Information Administration



# Midwest Carbon Express: Environmental Benefits

CREATING THE WORLD'S LARGEST CARBON CAPTURE AND STORAGE PROJECT



CAPACITY TO CAPTURE, TRANSPORT AND STORE **12 MILLION METRIC TONS OF CO<sub>2</sub>** EACH YEAR EQUIVALENT TO:

**REMOVING CO<sub>2</sub> EMISSIONS FROM 2.6 MILLION CARS EACH YEAR**

OR

**AMOUNT OF CO<sub>2</sub> STORED BY 14.7 MILLION ACRES OF FOREST**

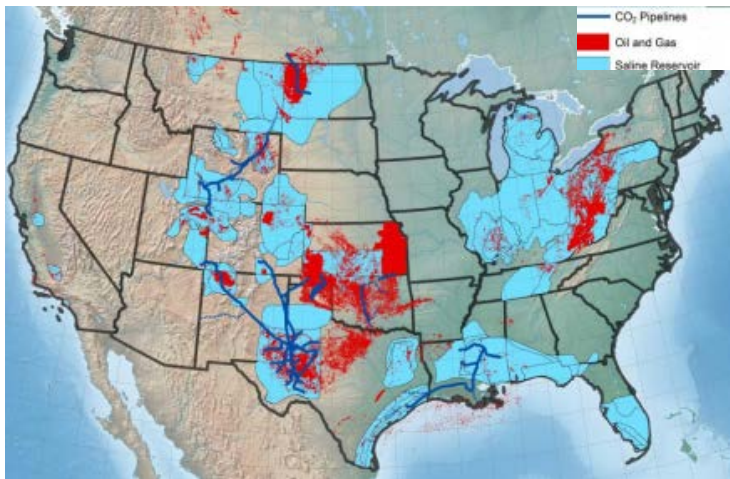
Source: EPA, Global CCS Institute



# Summit Carbon Solutions: A Commitment to Safety

CCS technology has been safely and successfully implemented since the 1970s

## CURRENT U.S. CO<sub>2</sub> PIPELINE FOOTPRINT



Capture technology has been deployed at 40+ ethanol facilities throughout the U.S.



Pipeline transportation is the safest method.



More than 5,000 miles of CO<sub>2</sub> pipelines exist in the U.S.



SCS will only utilize highly rated and safe materials, including carbon steel.



**We will utilize proven technologies and employ the best industry practices to ensure the project is safe for landowners and the communities where they live, work, and raise families.**

## IMPECCABLE SAFETY RECORD

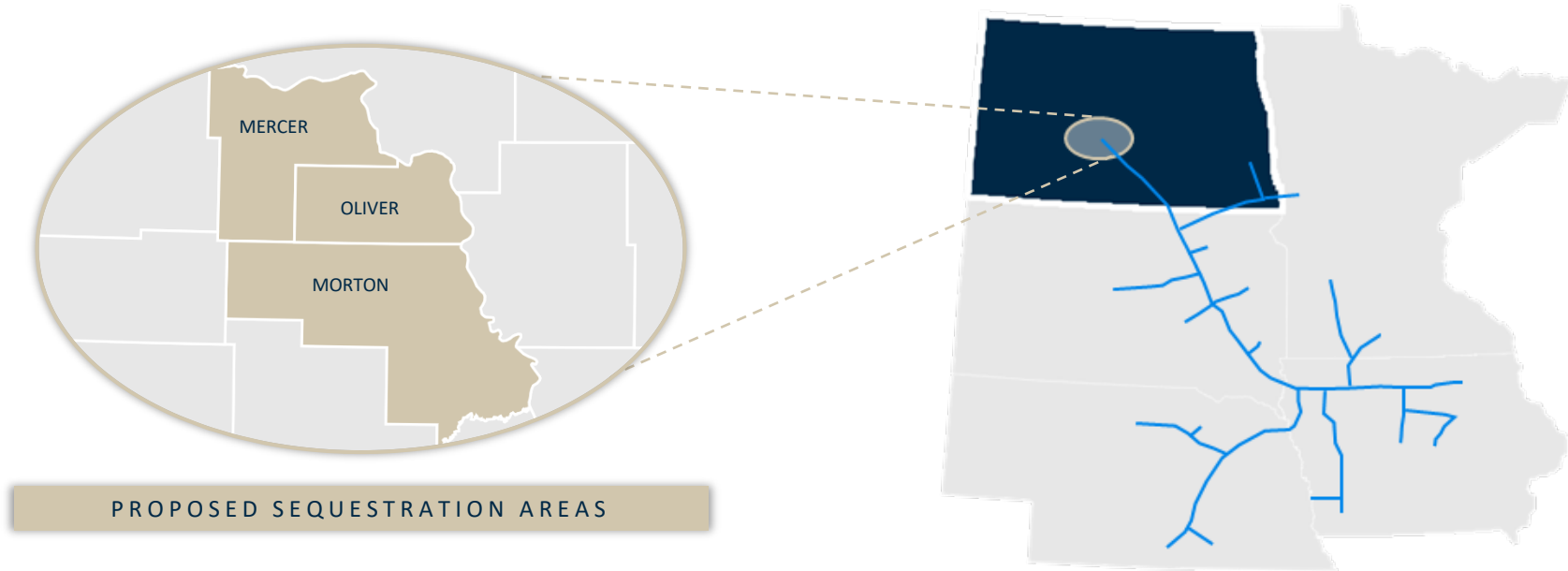
# Zero

CO<sub>2</sub> pipeline fatalities in the last 20 years<sup>1</sup>

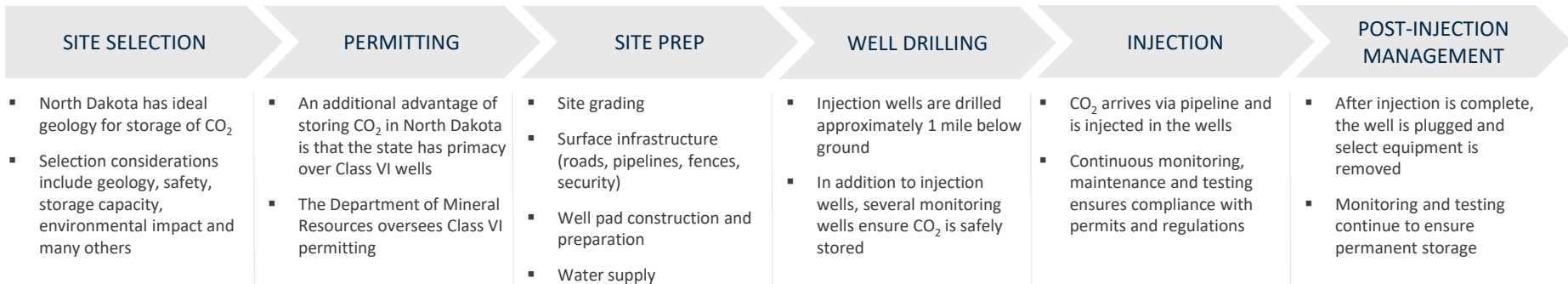
CO<sub>2</sub> is much less of a health and environmental hazard than other pipelines.

CO<sub>2</sub> is not combustible (it is used as a fire retardant).

## TARGET STORAGE REGIONS



## SELECTION, CONSTRUCTION AND OPERATIONS



# *Stratigraphic Test Wells:*

*Drill & Core – 3 wells – Triangle*

*Determine Thickness of Cap Rock*

*Determine Porosity & Permeability of  
the injection zone*

*Determine Thickness of the Base Rock*



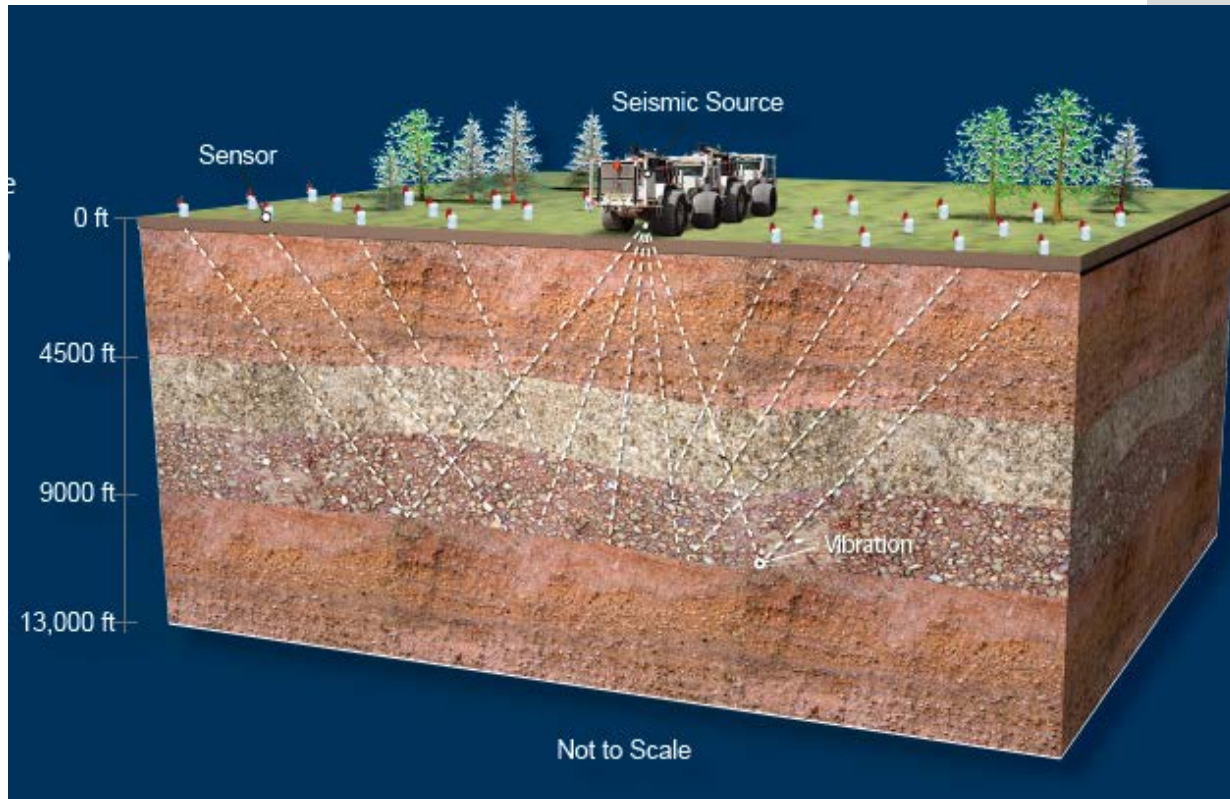
*Rock core cut from about 1 mile below the surface.*





# *GEOPHYSICAL SURVEY:*

Ground Vibration allows us to see underground formations

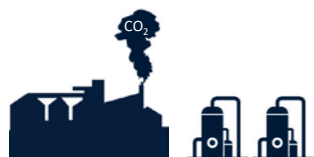


## Summit Carbon Solutions Economic Benefits

SCS will drive economic growth and job creation across the Midwest and beyond

# \$4.5 Billion

capital investment with operations beginning in 2024



	Capture & Compression	Pipeline	TOTAL
PROJECT JOBS	132 - 198	14,067 - 17,193	14,199 - 17,391
OPERATION JOBS	220 - 307	128 - 156	348 - 463
<b>TOTAL JOBS</b>	<b>352 - 505</b>	<b>14,195 - 17,349</b>	<b>14,547 - 17,854</b>

SUMMIT CARBON SOLUTIONS IS COMMITTED TO UTILIZING LOCAL UNION AND NON-UNION CONTRACTORS, LOCAL SUPPLIERS, AND LOCAL BUSINESSES TO PROVIDE ONGOING ECONOMIC BENEFITS TO LOCAL COMMUNITIES ACROSS IOWA AND THE MIDWEST.



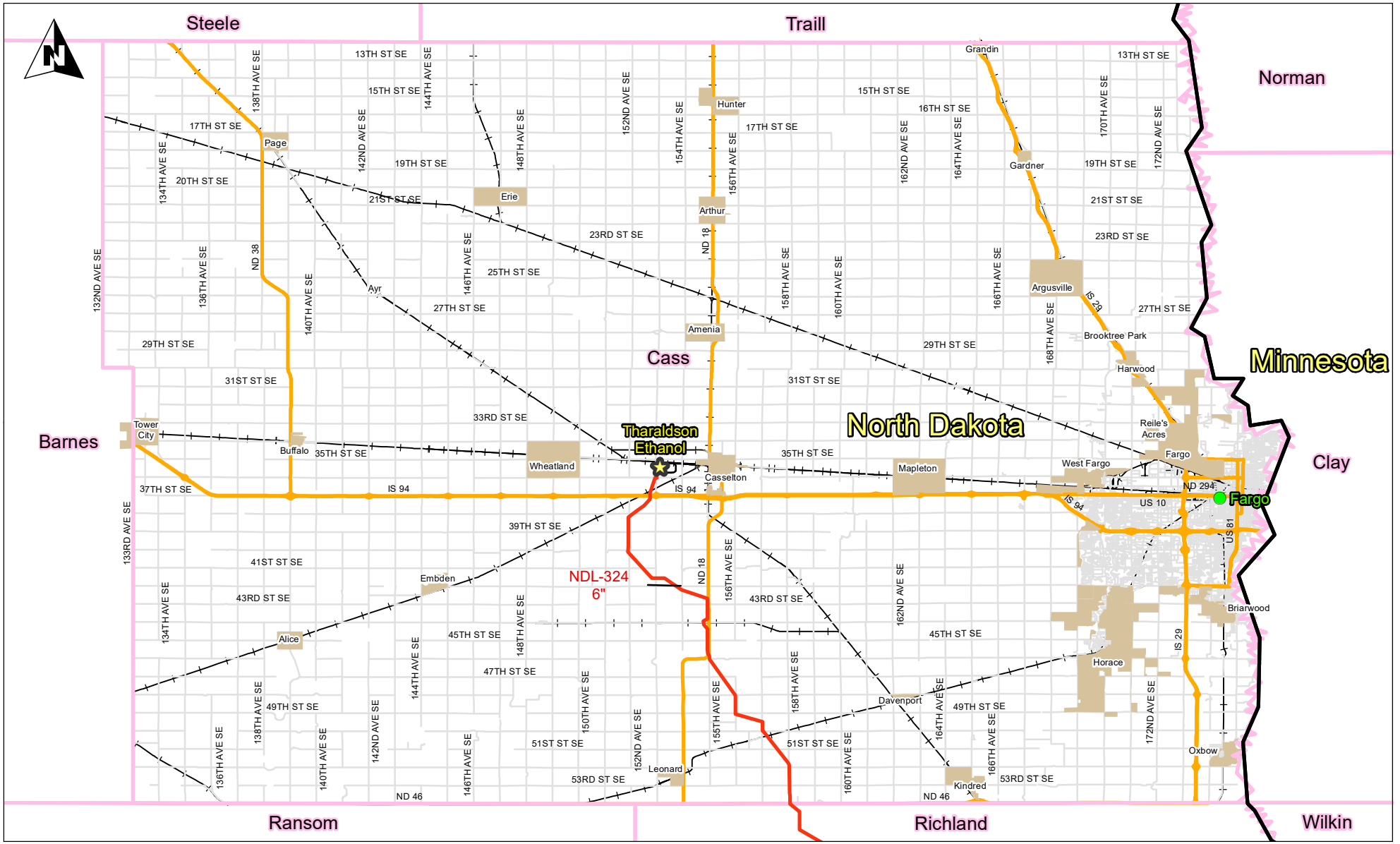
## Projected Project Timeline





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***Thank You***



- Participating Ethanol Plant
- County Seat
- Highly Populated Areas
- State Boundary
- County Boundary
- Route
- Primary Road
- Secondary Road
- Local Road
- Railroad

## 20.74 MILES OF ANTICIPATED PIPELINE CASS COUNTY NORTH DAKOTA

Pipeline centerline is based on the 02/11/2022 route.

### Cass County North Dakota Pipeline Mileage Overview

COUNTY: CASS		DRAWN BY: KAS	
STATE: NORTH DAKOTA		CHECKED BY:	
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW	2021-10-04	
<b>PRELIMINARY ROUTE SUBJECT TO CHANGE</b>			
DATE: 2/12/2022		PROJECTION: NAD 83	



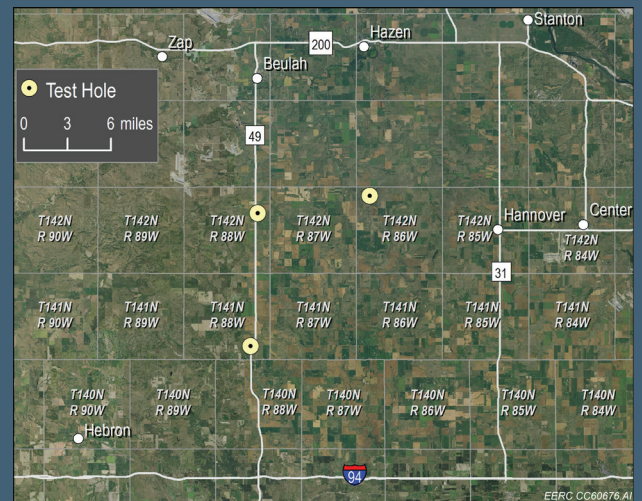
DWG: SHEET: 1

## Geologic Study – Drilling for Data in North Dakota

Rock samples (called core) and geologic data will be collected from three exploratory holes to be drilled in central North Dakota starting in late 2021. The data gathering is an essential part of investigating the feasibility of developing safe, permanent geologic storage for carbon dioxide, or CO<sub>2</sub>, as part of the Summit Carbon Solutions Midwest Carbon Express project. No CO<sub>2</sub> is injected during these tests.

### What Is the Benefit of Drilling a Test Hole?

A critical step in determining whether the potential storage zones are suitable for permanent CO<sub>2</sub> storage is drilling three test holes more than 2 miles deep to collect data, fluids, and rock samples. Information collected from this activity will be added to results from other geologic investigations and existing information to help scientists verify that the deep rock layers underlying the study area will safely and permanently store CO<sub>2</sub>. Permits from state and county officials are needed to perform the test.



### What Precautions Are Taken?

Land and groundwater resources are protected by impermeable barriers installed prior to and during drilling (illustrated at right).

### How Will the Collected Data Be Used?

In the several months following the drilling activity, the rock core, fluids, and data will be analyzed and the results incorporated into a computer model of the subsurface. Using the model, geologists will determine how CO<sub>2</sub> moves in the rock layers and whether the system meets the criteria for safe, permanent geologic storage of CO<sub>2</sub>. In addition, this information is necessary to prepare the required state permits for CO<sub>2</sub> injection and storage.

### What Is Carbon Capture and Storage or CCS?

CCS captures CO<sub>2</sub> from industrial processes before it is emitted by the plant, transports the CO<sub>2</sub> to an injection site, and injects the CO<sub>2</sub> deep underground for safe, permanent storage in a suitable rock layer. CCS can help reduce the carbon footprint of large stationary facilities such as ethanol plants, coal-fired power plants, cement plants, oil and gas refineries, and agricultural processing plants.



As required under the permit to drill, groundwater resources are protected during drilling by using a special freshwater drilling mud, then isolated with layers of steel casing and concrete. The surface casing and cement remain as permanent protection for groundwater; see "Drill the Hole" on the back page for more details.



A drilling rig equipped to drill a test hole more than 2 miles deep to collect rock core and fluids as well as data about the rock layers, their fluids, and their pressures.



Rock core cut from about 1 mile below the surface.

## What Are the Basic Steps for This Activity?

Drilling, sampling, and data collection follow the same practices and procedures used to characterize the geology of hydrocarbons, coal, and groundwater (also called the freshwater zone) resources in North Dakota.

**Obtain Permits** – Drilling the holes for geologic research requires permits from the North Dakota Industrial Commission Department of Mineral Resources and a temporary use permit from the county. The permits ensure that proper steps are taken to protect groundwater, the environment, and human safety.

**Prepare Drill Site** – Pad preparation entails leveling and laying aggregate on an area of land approximately 400 × 400 ft to make a flat, stable work area for drilling equipment. Each pad takes 10–14 days to complete.

**Drill the Hole** – Drilling is completed in four stages. Stage 1 involves digging a hole 90 feet deep, which is lined with steel pipe (conductor casing) and sealed with concrete to the surface. Stage 2 involves drilling a hole to at least 50 feet below the bottom of the freshwater zone (~1950 ft deep). Using special drilling mud prevents groundwater contamination. The hole is lined with steel pipe (surface casing), the outside of which is cemented from the bottom to the surface to protect freshwater sources during subsurface activities. Stage 3 continues drilling to a depth just above the seal overlying the potential storage zone (several thousand feet deep).



Multiple cylindrical rock samples called cores will be retrieved from a section of the hole using a specialized coring drill bit.

Stage 4, the coring stage, involves collecting multiple cylinders of rock called cores, which are cut using a special hollow drill bit. Stages 3 and 4 are repeated for each target zone, yielding hundreds of feet of core per zone.

**Gather Downhole Data** – After the core samples are removed, a truck with specialized instruments runs sensors into the hole, a technique called wireline logging. This standard drilling industry practice collects data about the rock layers, their fluids, and their pressures.

**Close the Hole** – The test holes are planned to be monitoring wells. After data collection is completed, the test holes will be lined with steel pipe (called casing) and concrete, then sealed temporarily to maintain integrity while data and rock core analysis are performed.

Summit Carbon Solutions seeks to lower greenhouse gas emissions by connecting industrial facilities via strategic infrastructure to safely and permanently store CO<sub>2</sub>.

To learn more, contact:

**Jeff Skarre**, Sequestration Director, Land, Legal & Regulatory Affairs  
jskaare@summitcarbon.com, 701.590.3995

**Jason Erickson**, Sequestration Director Project Development  
Jerickson@summitcarbon.com, 701.290.5158

[summitcarbonsolutions.com](http://summitcarbonsolutions.com)

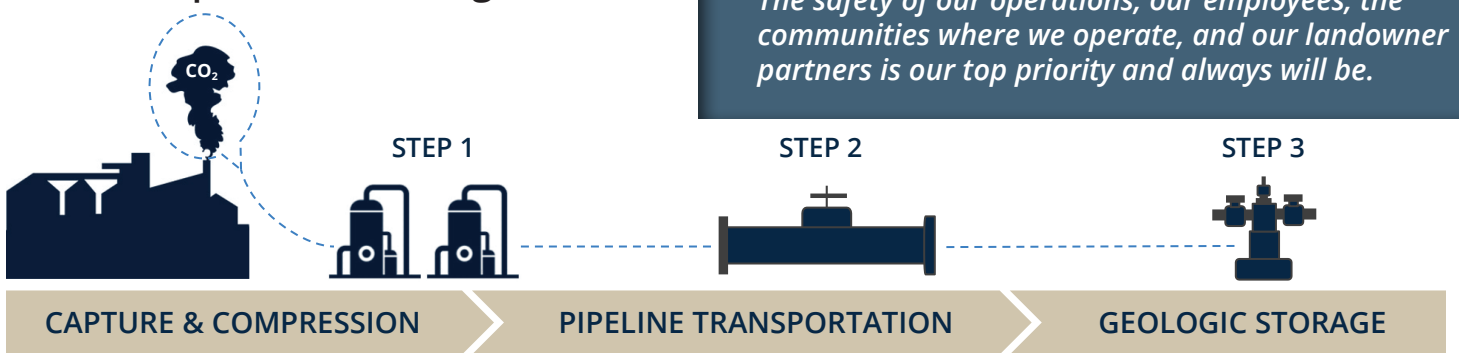


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## Proven Technologies Make Carbon Capture and Storage Safe

The Summit Carbon Solutions (Summit) carbon capture and storage (CCS) project will reduce the carbon footprint of biofuel plants across the five-state Midwest region to create long-term economic benefits and support long-term viability of Summit's partner facilities. The project will use proven, safe technology and equipment.

### Carbon Capture and Storage



At Summit's partner facilities, carbon dioxide capture and compression equipment will be installed to capture CO<sub>2</sub> emissions.

CO<sub>2</sub> capture technology has been safely and successfully implemented since the 1970s and is deployed at over 40 ethanol facilities throughout the United States for manufacturing, refrigeration, and food-grade CO<sub>2</sub>.

Small underground pipelines will connect each facility to a large trunk pipeline, which will transport CO<sub>2</sub> to the sequestration site in North Dakota.

Pipeline is the safest method for CO<sub>2</sub> transport. Established federal and state regulations govern pipeline materials, siting, construction, and operation. Summit follows all requirements for CO<sub>2</sub> pipeline construction and is committed to safety.

Captured CO<sub>2</sub> will be safely and permanently stored in rock layers about a mile deep in North Dakota, with permission of and oversight by the North Dakota Department of Mineral Resources.

Safe, permanent CO<sub>2</sub> storage in geologic layers has been proven during more than 40 years of field operations associated with oil production in Texas, 20 years in Saskatchewan, and 10 years in Montana.

Summit is committed to using proven technologies and employing the best industry practices to ensure the project is safe for landowners and the communities where they live, work, and raise families.

Summit's infrastructure will be capable of storing 12 million tons of CO<sub>2</sub> a year, equivalent to:

~1.4 MILLION

Homes Powered per Year



~2.6 MILLION

Cars Removed from the Road per Year

~1.4 BILLION

Gallons of Gasoline Consumed



Source: Global CCS Institute, EPA

### CO<sub>2</sub> is:

- A gas in atmospheric conditions.
- A fluid deep underground or in a pipeline.
- Nonexplosive, nonflammable, and cannot burn.
- A major greenhouse gas that helps create and maintain the natural greenhouse effect that keeps our planet hospitable to life.
- Essential to plant life.
- A byproduct of animal metabolism.
- A byproduct of burning carbon-based fuels (wood, ethanol, biodiesel, and fossil fuels), making cement, and plowing.
- Low-risk to fish and aquatic life.

## Pipeline Transport Is Critical to CCS

Transporting carbon dioxide by pipeline is the safest method for the large volumes of CO<sub>2</sub> that will be captured and permanently stored. With more than 5000 miles currently operating in the United States, carbon dioxide pipelines have an impeccable safety record of no fatalities and only one **injury** in the last 20 years.

## Pipelines Are Highly Regulated

The U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) has established stringent requirements for the safe design, construction, and operation of CO<sub>2</sub> pipelines. In addition, constructing a carbon dioxide transportation pipeline requires permits from the following entities:

Federal: U.S. Army Corps of Engineers

State:

- Iowa Utility Board
- South Dakota Public Utility Commission
- North Dakota Public Service Commission
- Minnesota (county jurisdiction)
- Nebraska (county jurisdiction)

Summit must complete access agreements with all landowners on their proposed route as part of the permit applications. The entire process is anticipated to be completed by the end of 2022.

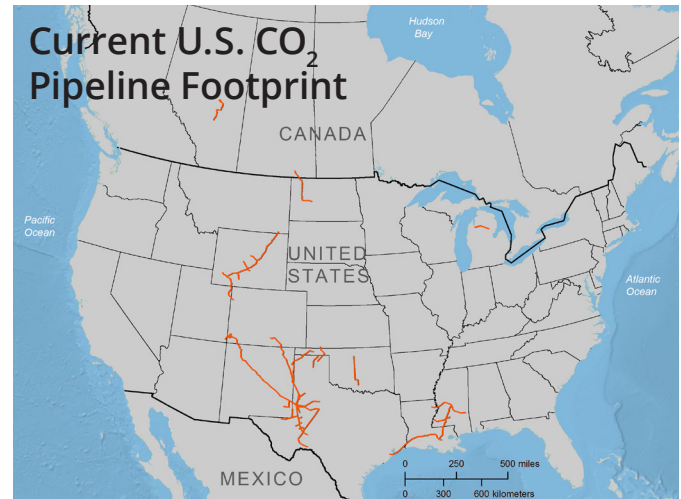
## Summit's Pipeline Route Is Carefully Selected

Selecting a safe route for a carbon dioxide pipeline requires many data sources. An interactive software platform that includes all publicly available information is used to determine the path. This platform includes data regarding:

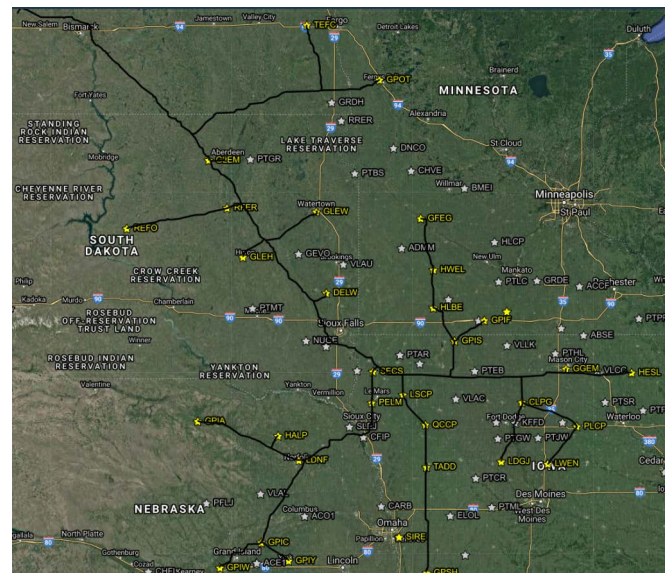
- High-population-density areas
- Environmentally sensitive areas, such as wetlands and protected waterways
- Culturally sensitive areas
- Historical preservation areas
- Federally restricted areas, such as grasslands and migratory bird-nesting areas

## Summit's Pipeline Is Overbuilt for Safety

Summit's pipeline will be built beyond federal specifications and deeper than required. Every weld is inspected by x-ray technology, and the pipeline will have the latest in leak detection-monitoring technology.



More than 5000 miles of CO<sub>2</sub> pipelines are in operation in the United States.



The pipeline system will be approximately 2000 miles, constructed with high-strength carbon steel, and buried at least 4 feet deep. All pipeline segments will have a wall thickness ranging from 0.189 to 0.750 inches thick, and the diameter will range from 4 to 24 inches.

Summit Carbon Solutions seeks to lower greenhouse gas emissions by connecting industrial facilities via strategic infrastructure to safely and permanently store CO<sub>2</sub>.

To learn more, contact:

Rod Dillon, Director of Regulatory Compliance

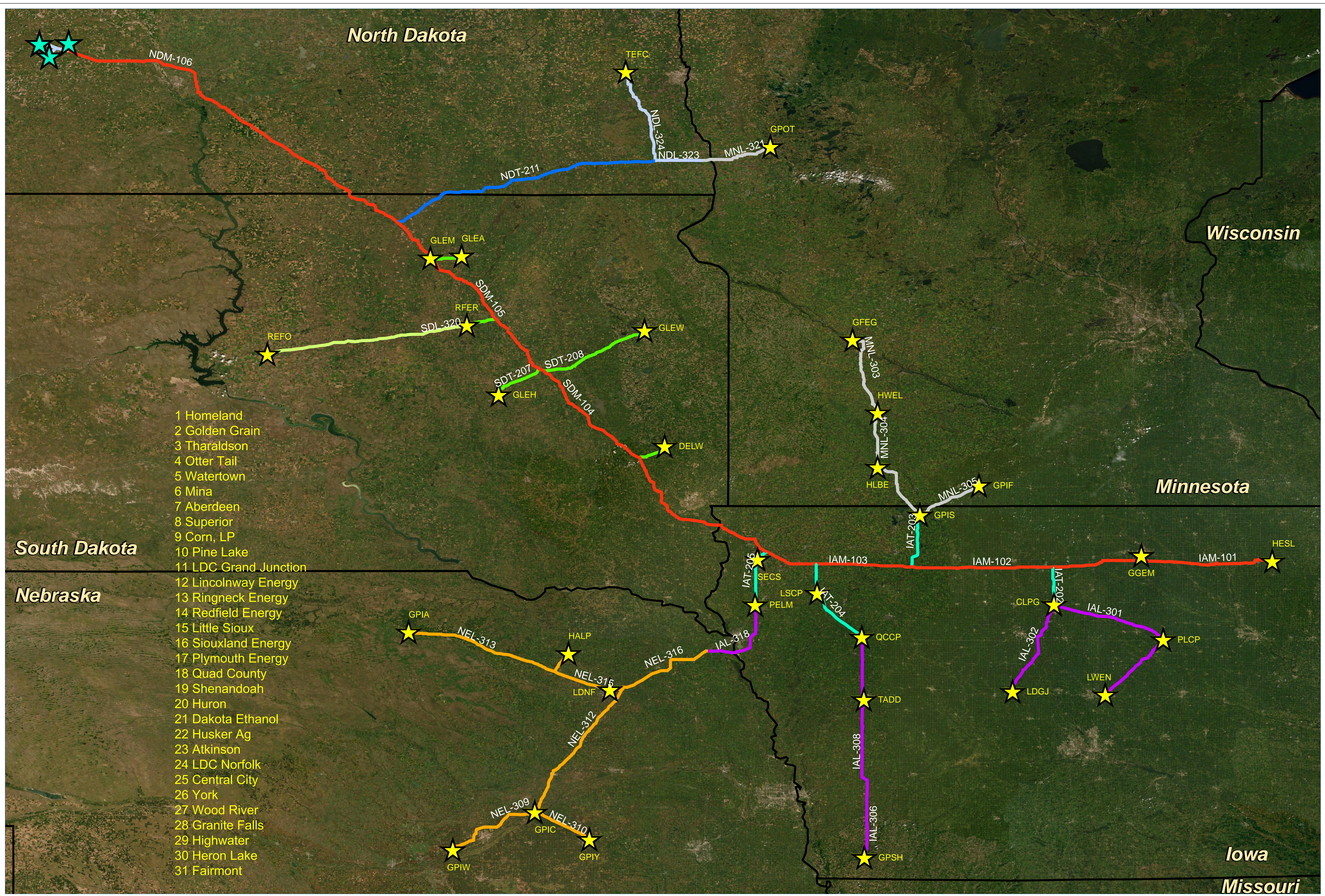
rdillon@summitcarbon.com

info@summitcarbon.com

summitcarbonsolutions.com



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- 1 Homeland
- 2 Golden Grain
- 3 Tharaldson
- 4 Otter Tail
- 5 Watertown
- 6 Mina
- 7 Aberdeen
- 8 Superior
- 9 Corn, LP
- 10 Pine Lake
- 11 LDC Grand Junction
- 12 Lincolnway Energy
- 13 Ringneck Energy
- 14 Redfield Energy
- 15 Little Sioux
- 16 Siouxland Energy
- 17 Plymouth Energy
- 18 Quad County
- 19 Shenandoah
- 20 Huron
- 21 Dakota Ethanol
- 22 Husker Ag
- 23 Atkinson
- 24 LDC Norfolk
- 25 Central City
- 26 York
- 27 Wood River
- 28 Granite Falls
- 29 Highwater
- 30 Heron Lake
- 31 Fairmont

**Midwest Carbon Express**  
01/18/2022  
Project Overview

COPY: MIA, TP/E      DRAWN: JNT/SJR/TEK  
STATE: IA, MN, NE, SD, ND      CHECKED BY:      DATE: 01/18/2022  
REV. NO.: 1      REVISION:      01/11/2022 ACTIVE ROUTE      2022-01-11  
DATE: 01/18/2022  
PROJECTION: GCS NAD83  
BACKGROUND: AERIAL OVERVIEW

**CONFIDENTIAL & PRELIMINARY**

**SUMMIT CARBON SOLUTIONS**

0 12.5 25 50 75 100 Miles

**LEGEND**

- ★ Carbon Sequestration
- ★ C02 Capture Facility
- ▭ State Boundary
- Main Line
- Iowa Trunk Line
- South Dakota Trunk Line
- North Dakota Trunk Line
- Iowa Lateral
- Minnesota Lateral
- Nebraska Lateral
- South Dakota Lateral
- North Dakota Lateral

Capture Facility Label	Capture Facility Name	Capture Type	City	State	Capture Facility Label	Capture Facility Name	Capture Type	City	State	Capture Facility Label	Capture Facility Name	Capture Type	City	State	Capture Facility Label	Capture Facility Name	Capture Type	City	State
DELW	Dakota Ethanol LLC	Ethanol	Wentworth	South Dakota	GPIC	Green Plains Inc. (Pine Bluff)	Ethanol	Central City	Nebraska	HWEL	Heron Lake BioEnergy LLC	Ethanol	Heron Lake	Minnesota	PLCP	Pine Lake Corn Processors LLC	Ethanol	Steamboat Rock	Iowa
GFEG	Granite Falls Energy LLC	Ethanol	Granite Falls	Minnesota	GPIS	Green Plains Inc. (Fairmont)	Ethanol	Fairmont	Minnesota	HLBE	Heron Lake BioEnergy LLC	Ethanol	Heron Lake	Minnesota	QCCP	Quad County Corn Processors	Ethanol	Gibbs	Iowa
GLEA	Glacial Lakes Energy LLC (Aberdeen)	Ethanol	Aberdeen	South Dakota	GPIS	Green Plains Inc. (Superior)	Ethanol	Superior	Iowa	HWEL	Highwater Ethanol LLC	Ethanol	Lamberton	Minnesota	REFD	Ringneck Energy & Feed LLC	Ethanol	Onida	South Dakota
GLEH	Glacial Lakes Energy LLC (Huron)	Ethanol	Huron	South Dakota	GPIS	Green Plains Inc. (York)	Ethanol	York	Nebraska	LDGJ	Louis Dreyfus - Grand Junction	Ethanol	Grand Junction	Iowa	RFER	Redfield Energy LLC	Ethanol	Redfield	South Dakota
GLEW	Glacial Lakes Energy LLC (Mina)	Ethanol	Mina	South Dakota	GPIS	Green Plains Inc. (Watertown)	Ethanol	Watertown	South Dakota	LWEN	Louis Dreyfus - North	Ethanol	North	Nebraska	SECS	Shenandoah Energy Cooperative	Ethanol	Snow Center	Iowa
GPOT	Green Plains Inc. (Otter Tail)	Ethanol	Fergus Falls	Minnesota	GPIS	Green Plains Inc. (Shenandoah)	Ethanol	Shenandoah	Iowa	LWEN	Lincolnway Energy LLC	Ethanol	Nevada	Iowa	TEFC	Tharaldson Ethanol	Ethanol	Casselman	North Dakota