STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF SCS CARBON TRANSPORT LLC FOR A CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR THE MIDWEST CARBON EXPRESS PROJECT IN BURLEIGH, CASS, DICKEY, EMMONS, LOGAN, MCINTOSH, MORTON, OLIVER, RICHLAND AND SARGENT COUNTIES, NORTH DAKOTA	)))))))))	Case No. PU-22-391

DIRECT TESTIMONY OF JASON HOWARD
ON BEHALF OF
LANDOWNER INTERVENORS

Q: Please state your name and purpose for providing testimony in these proceedings.

A: My name is Jason Howard. The purpose of my testimony is to provide the North Dakota Public Service Commission (PSC) information helpful when considering the siting of Summit's proposed pipeline route.

Q: What experience, education, training, or background qualify you to provide opinions and your concerns as you have herein?

A: Please see a summary of my education and experience in **Attachment No. 1**.

Q: Can you explain the analysis you conducted regarding the proposed pipeline route as included in Attachment No. 2 ?

A: Yes, I mapped out the dwelling units and estimated population within one mile of Summit's proposed route. Total dwelling units were determined by a visual review of aerial imagery within one mile of the proposed pipeline route. The distance was chosen based on the potential to be affected by a CO2 plume in the event of a pipeline rupture. I estimated the population by determining the persons per household (Persons in Households / Total Households) within the Census block groups that intersected the proposed pipeline route to create "sub block groups." The sub block groups were then spatially joined to the dwelling unit data to determine the count of dwelling units within each sub block group, and the persons per household value was applied to this count. Population in group quarters was not included in this analysis.

Q: Does Attachment No. 3 to this testimony highlight a concern you want the PSC to be aware of?

A: Yes, **Attachment No. 3** is a map I created using Summit's most recent Mapbook filed on January 20, 2024 and data on recorded landslides that I retrieved from North Dakota's Geographic Information Systems website. I stand by the content contained therein and am competent to testify about them as necessary. I urge the PSC to carefully consider this testimony during the Hearing in this matter and in

your deliberations. I further reserve the right to amend or modify these opinions upon presentation of any additional information that may justify such a change.

Q: Are all of your statements and opinions rendered here, including in your Attachments, given to a reasonable degree of professional certainty and based upon your education, experience, background, and training?

A: Yes.

/s/ Jason Howard

Jason Howard

State of Arizona)

) ss.

County of Maricopa)

I, Jason Howard, being first duly sworn on oath, depose and state that I am the person identified in the above Pre-Filed Direct Testimony that I have caused to be prepared and I am familiar with the contents therein and competent to testify on these matters. My Pre-Filed Direct Testimony found in the foregoing pages is true and correct to the best of my knowledge.

Jason Howard

Subscribed and sworn to before me, a Notary Public in and for said County and State this 8th day of May, 2024

Luisangel Barrera
Notary Public
Maricopa County, Arizona
My Comm. Expires 06-28-27
Commission No. 652568

Notary

Notary Public Commission expires: 06-28-27

Jason Howard

GIS Professional

2311 E. Anchor Dr., Gilbert, AZ 85234
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jhowardgeo@gmail.com
linkedin.com/in/jasonhoward

PROFESSIONAL EXPERIENCE

Oct. 2007 – present

GIS PROGRAM MANAGER

Maricopa Association of Governments, Phoenix, AZ

- Managed day-to-day operation of the GIS group, balancing the demands of other divisions within MAG with regular maintenance of data collected and maintained by the Regional Analytics Division; established work priorities for GIS staff; evaluated staff on an annual basis; tracked performance of staff regarding tasks and goals; aligned work with annual performance measures for the division.
- Established vision for online mapping presence of MAG and established a path to see that vision realized. Initially managed MAG's ArcGIS Server implementation. Developed map services in response to the demands of internal and external users. Conducted training sessions for the use of MAG's online map viewers, which doubled as a means of generating feedback regarding the map viewers.
- Managed MAG's ArcGIS Online presence: user accounts, groups, and credit allocation. Develop applications as requested to highlight specific data and projects. Managed MAG's open data portal to provide public access to data maintained by the Regional Analytics Division. Manage MAG's *My Esri* organizational account. Responded to requests for software licenses. Served as primary contact for Esri support.
- Maintained geospatial data library in a versioned Enterprise Geodatabase. Load data, manage users and privileges, and manage indexing on over 200 geospatial data sets and related attribute tables. Maintained the Enterprise geodatabase state tree to ensure best possible performance. Ensured that MAG staff had access to the most recent imagery, parcels, road networks, boundaries, and other data from numerous external sources. Ensured that MAG staff were kept up to date on changes and additions to commonly used data sets.
- Managed on-call consultant contracts for GIS projects, including drafting and execution of task orders, contract and task order budgeting, and overseeing the quality of deliverables.
- Developed and maintained metadata for geospatial data sets. Produced detailed documentation of core land use data sets maintained by Regional Analytics Division.
- Provided introductory GIS instruction to MAG staff.
- Provided maps and analyses as requested by MAG staff and MAG member agencies.
- Served as point-of-contact for all geospatial data requests.
- Developed data collection, maintenance, and review schedule for geospatial data maintained by GIS Group within Information Services. Established schedule of updates for base data from outside agencies.
- Developed and documented enterprise geodatabase standards.
- Developed print/PDF and PowerPoint map templates for use by MAG staff.
- Interim Regional Analytics Division Director, July 2024

Jan. 2007 – Oct. 2007

GIS ANALYST III

Maricopa Association of Governments, Phoenix, AZ

- Developed and maintained multiple ArcIMS viewers using GeoCortex IMF.

Jason Howard
GIS Professional

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- Designed, deployed, and maintained ArcSDE Enterprise Geodatabase implementation, including database design, data loading, versioned workflow development, and testing.
- Provided maps and analyses as requested by MAG staff and MAG member agencies.
- Maintained Municipal Planning Area and Traffic Analysis Zone boundaries data sets.
- Provided GIS support for Central Arizona Groundwater Replenishment District personnel, including geodatabase development and mapping of groundwater replenishment districts from legal descriptions.

Feb. 2002 – Dec. 2006 **ASSISTANT STATE CARTOGRAPHER**
Arizona State Land Department, State Cartographer's Office, Phoenix, AZ

- Designed and maintained the Arizona Geographic Information Council (AGIC) and State Cartographer's Office (SCO) web sites, keeping content current and relevant.
- Designed, developed, and maintained a geospatial data portal for State agency data (AGIC Portal). Developed a stand-alone front-end application to maintain entries in the portal database.
- Prepared maps for reports, grant applications, and other publications.
- Created new geospatial datasets from existing tabular data acquired from other state agencies for inclusion in Arizona State Land Department ArcIMS sites, as well as for sharing with other State agencies. These datasets included state and county office locations and libraries. Performed maintenance on existing data sets in the ArcIMS sites.
- Developed ArcObjects tools for data loading and distribution.
- Installed and configured ArcIMS and web servers on Solaris and Windows platforms.
- Created, maintained, and customized ArcIMS sites on Sun Solaris and Windows platforms.
- Researched hardware requirements for GIS database server and made recommendations to procurement staff. Installed and configured ArcSDE and set up an Enterprise Geodatabase to host statewide imagery. Developed map services and ArcIMS sites to host the imagery services.

April 2001 – Feb. 2002 **GIS ANALYST**
CH2M Hill, Tempe, AZ

- Created maps for project deliverables and other documents.
- Developed Access database applications for EPA Superfund Site management. Developed interfaces for querying and adding data to Access databases using VBA.
- Served as lead mapping resource for Imperial Sand Dunes Recreation Area Draft Environmental Impact Statement (EIS). This included coordinating mapping needs of three section leaders, developing a base map and template applied uniformly throughout the project, map production, and providing acreage reports from various analyses.
- Created test-well dataset from GPS points for analysis of groundwater pollution and mapping of project area.

Jan. 2001 – April 2001 **AGIC INTERN**
Arizona Geographic Information Council, Phoenix, AZ

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GIS Professional

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- Designed and developed web sites for the Arizona State Cartographer's Office and AGIC.
- Provided staff support to AGIC.

May 2000 – April 2001 **GIS TECHNICIAN**
Arizona State University, Tempe, AZ

- Created new datasets from tabular data collected from State agencies, including alcohol retailers and gang member residences.
- Designed and developed MapObjects interface using Visual Basic.
- Created an ArcIMS application for online delivery of map data.
- Created an ASP application for selecting and downloading geospatial data sets.

May 1999 – May 2000 **GIS TECHNICIAN/RESEARCH ASSISTANT**
City of Phoenix Water Services, Phoenix, AZ

- Corrected water/wastewater quarter section maps using ArcInfo. Corrected pre-existing and conversion errors on in GIS database.
- Researched as-built drawings for map accuracy and conducted field research where map features were questionable.
- Performed QA/QC checks on maps produced by other staff.
- Assigned duties to other students and acted as liaison between City of Phoenix project manager and ASU faculty (Dr. Elizabeth Burns).

EDUCATION

- Master of Arts, Geography, Arizona State University, 2008
- Bachelor of Arts, Geography, University of Colorado at Colorado Springs, 1997

COMMITTEE SERVICE

- Arizona Geographic Information Council (AGIC), 2012 – present
  - Chair, 2015
- AGIC Administrative and Legal Committee, 2014 – present
- AGIC Data Committee, 2012 – 2018
- AGIC Technology Committee, 2003 – 2006
- AGIC Conference Committee, 2002 – 2012; 2018 – 2021
  - Chair, 2005 – 2006
  - Chair, AGIC 2005 GIS Conference

PUBLICATIONS

- Cotner, K and J. Howard. *Developable Land in Central Arizona* [map]. In: *Esri Map Book, Volume 30.* Redlands, CA: Esri Press, 2015, 64-5.

- Bagley, A., K. Cotner, J. Howard, M. Roberts, and R. Walton. *Visualizing Regional Growth* [map]. In: *Esri Map Book, Volume 24*. Redlands, CA: Esri Press, 2009, 53.

Jason Howard
GIS Professional

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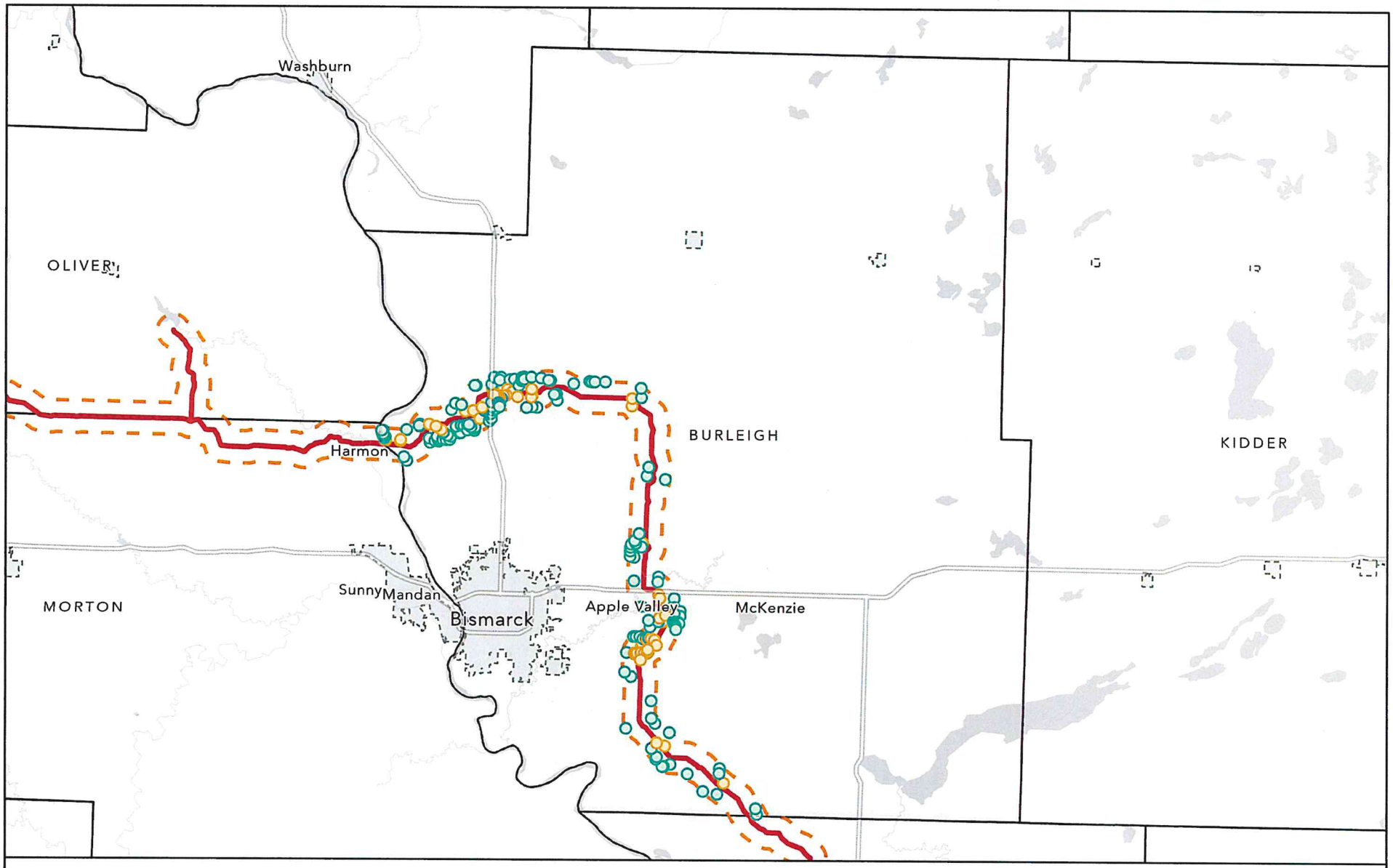
CERTIFICATIONS

- Geographic Information Systems Professional (GISP), certification #32395, 2007 – present
- FAA Remote Pilot Small Unmanned Aircraft System, certification #4931376, 2023 – present



Summit Pipeline Route
Burleigh County, North Dakota

0 5 10 15 20

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 992

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

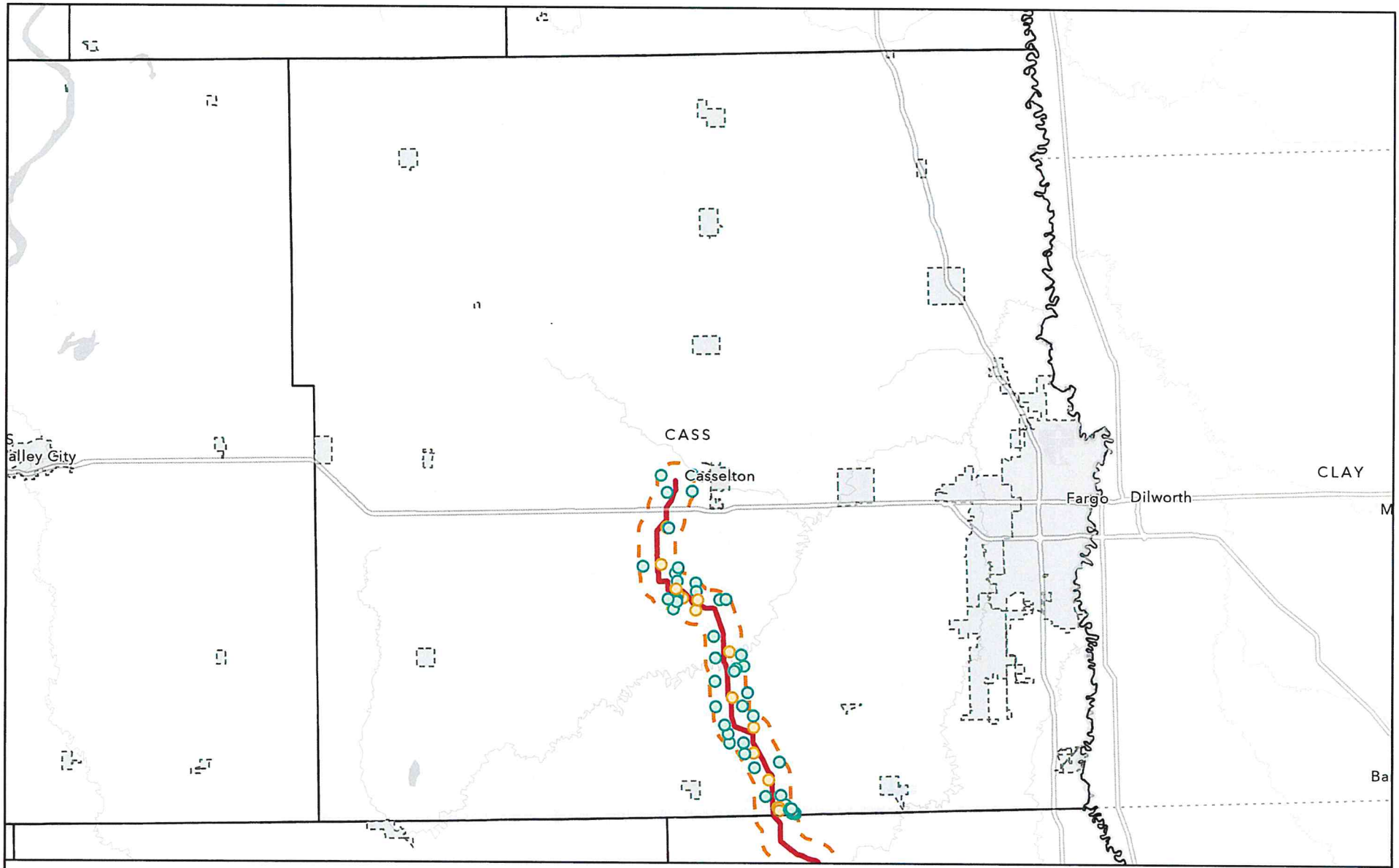
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Cass County, North Dakota

0 5 10 15

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 174

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

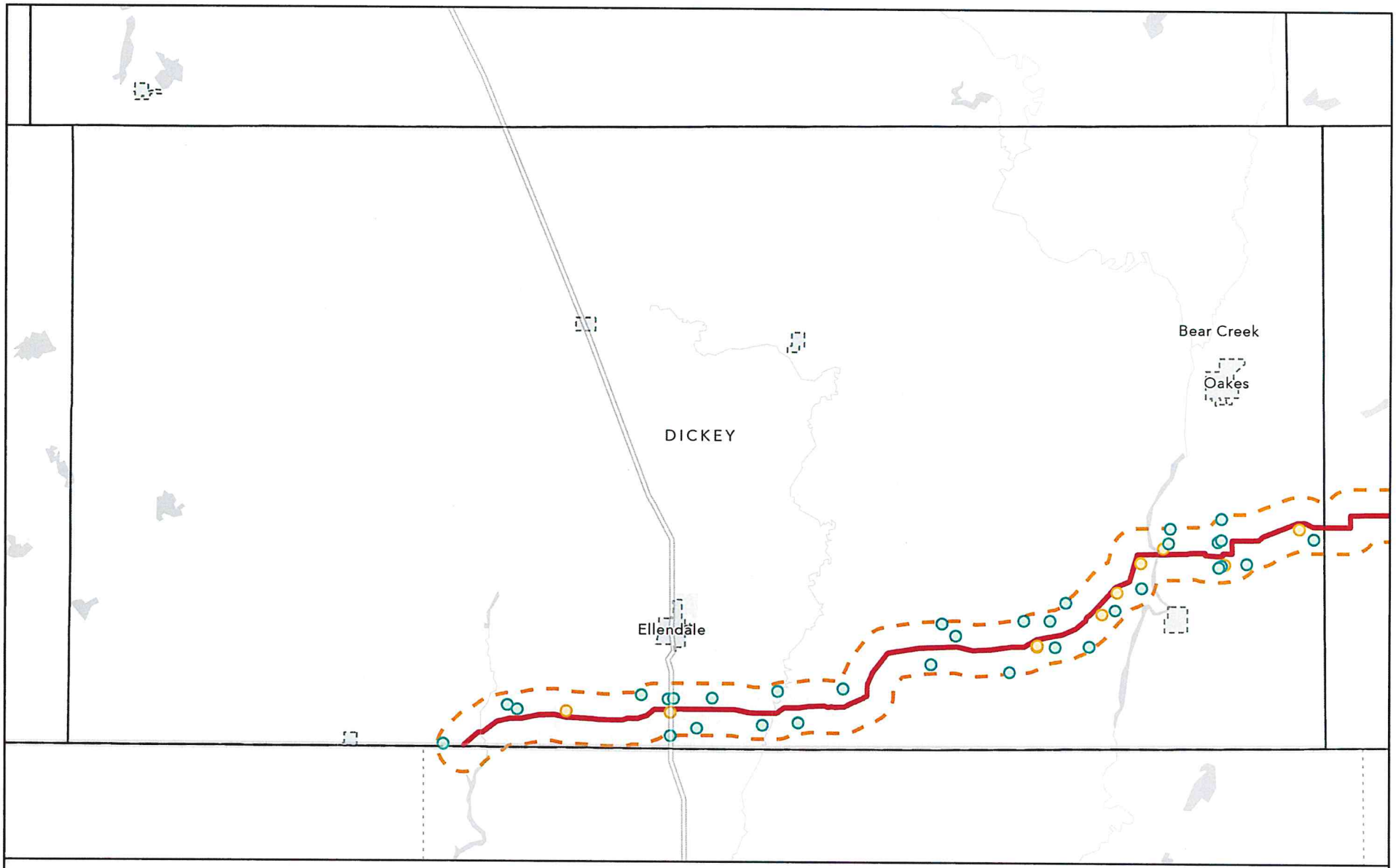
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Dickey County, North Dakota

0 5 10

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 109

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

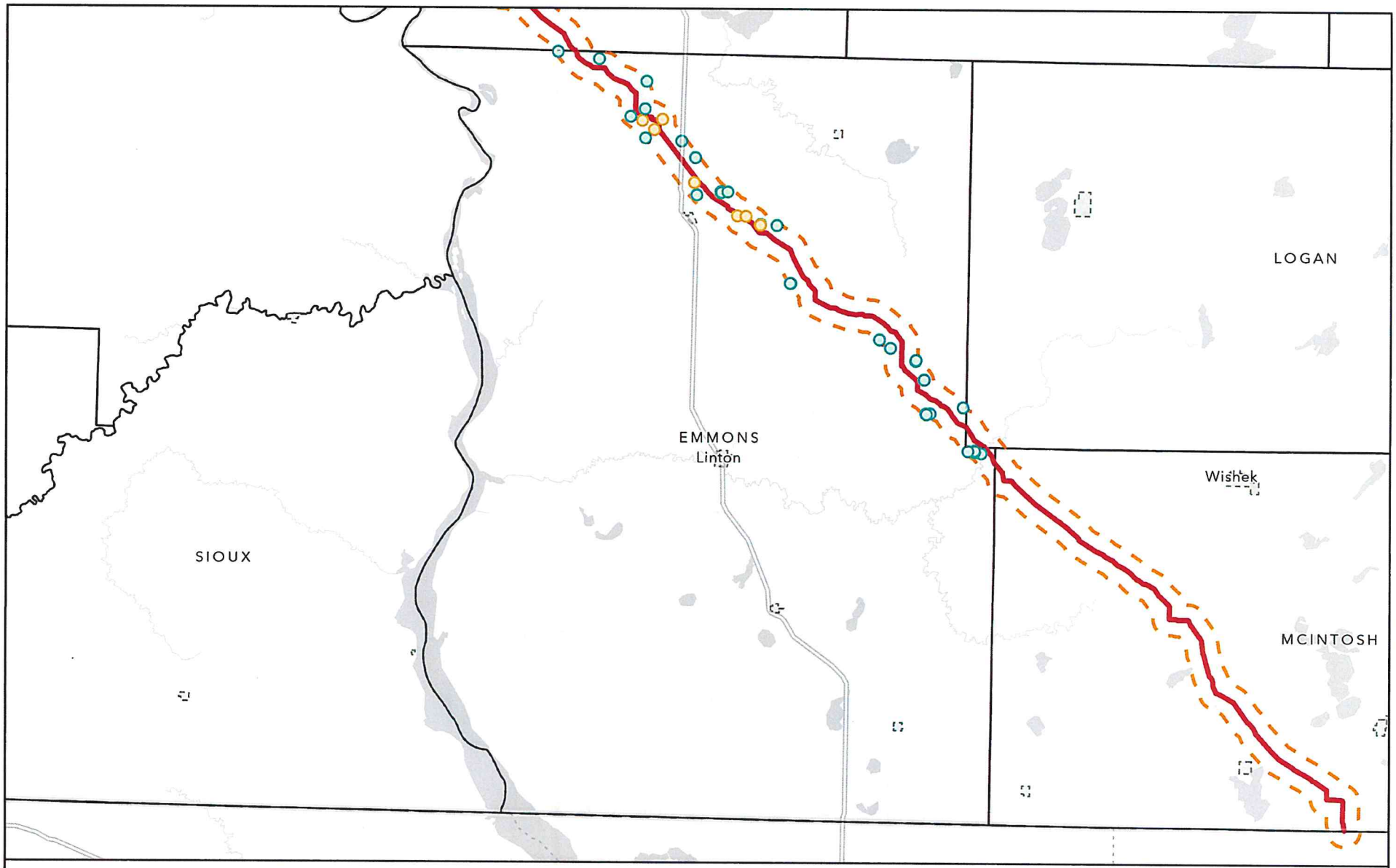
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Emmons County, North Dakota

0 5 10 15 20

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 87

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

12

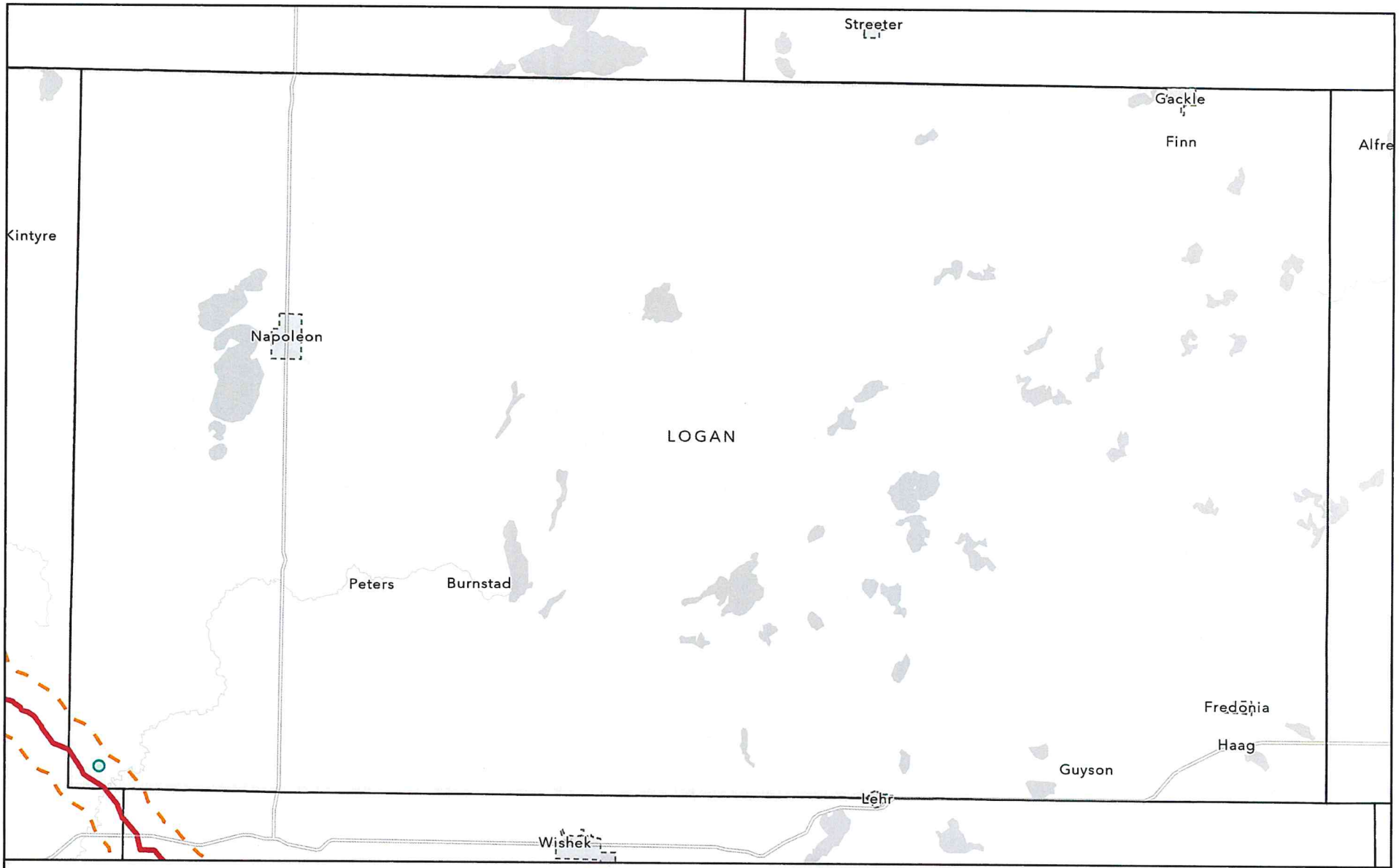
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Logan County, North Dakota

0 5 10

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 2

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

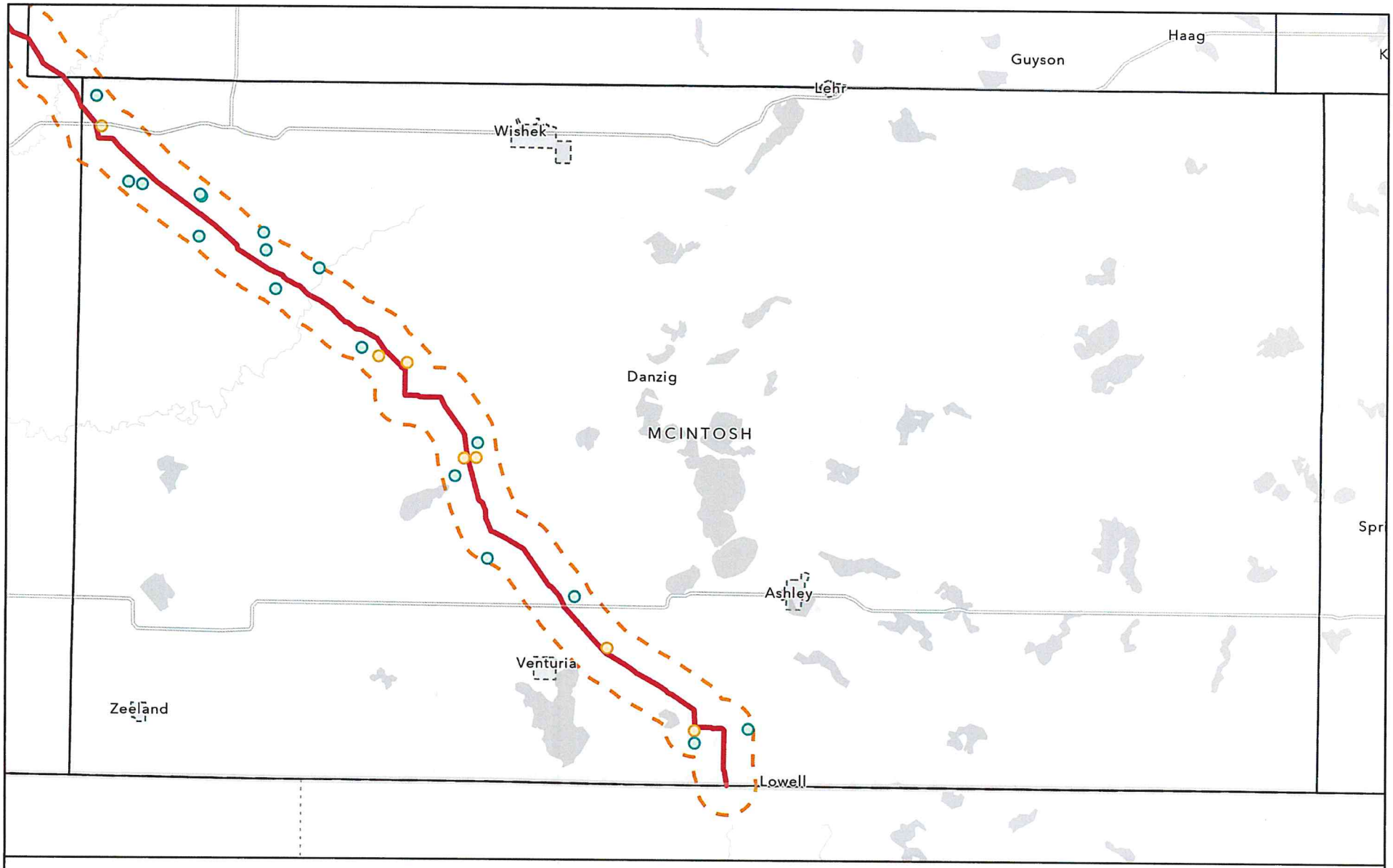
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
McIntosh County, North Dakota

0 5 10

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 48

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

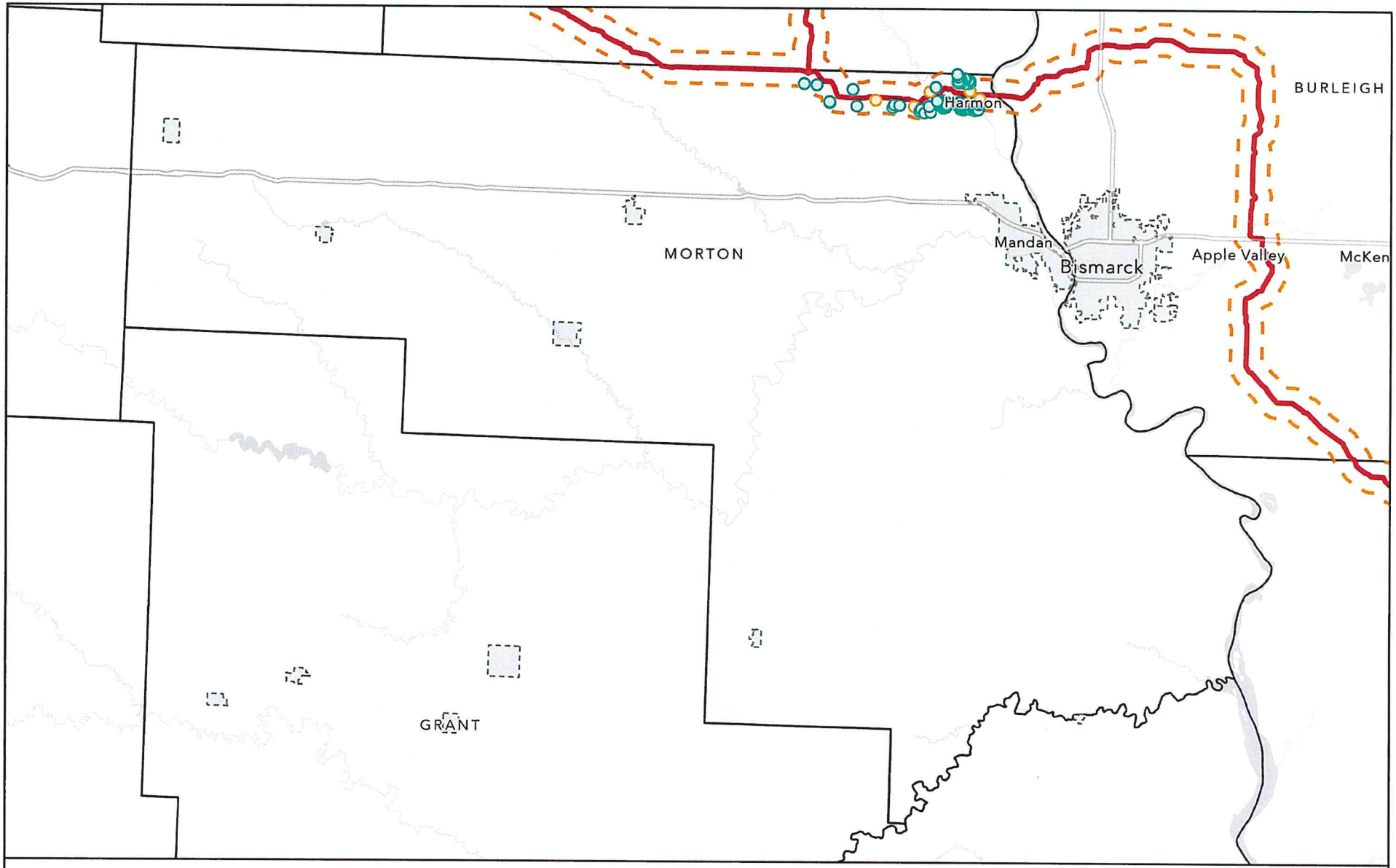
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Morton County, North Dakota

0 5 10 15 20

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 371

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

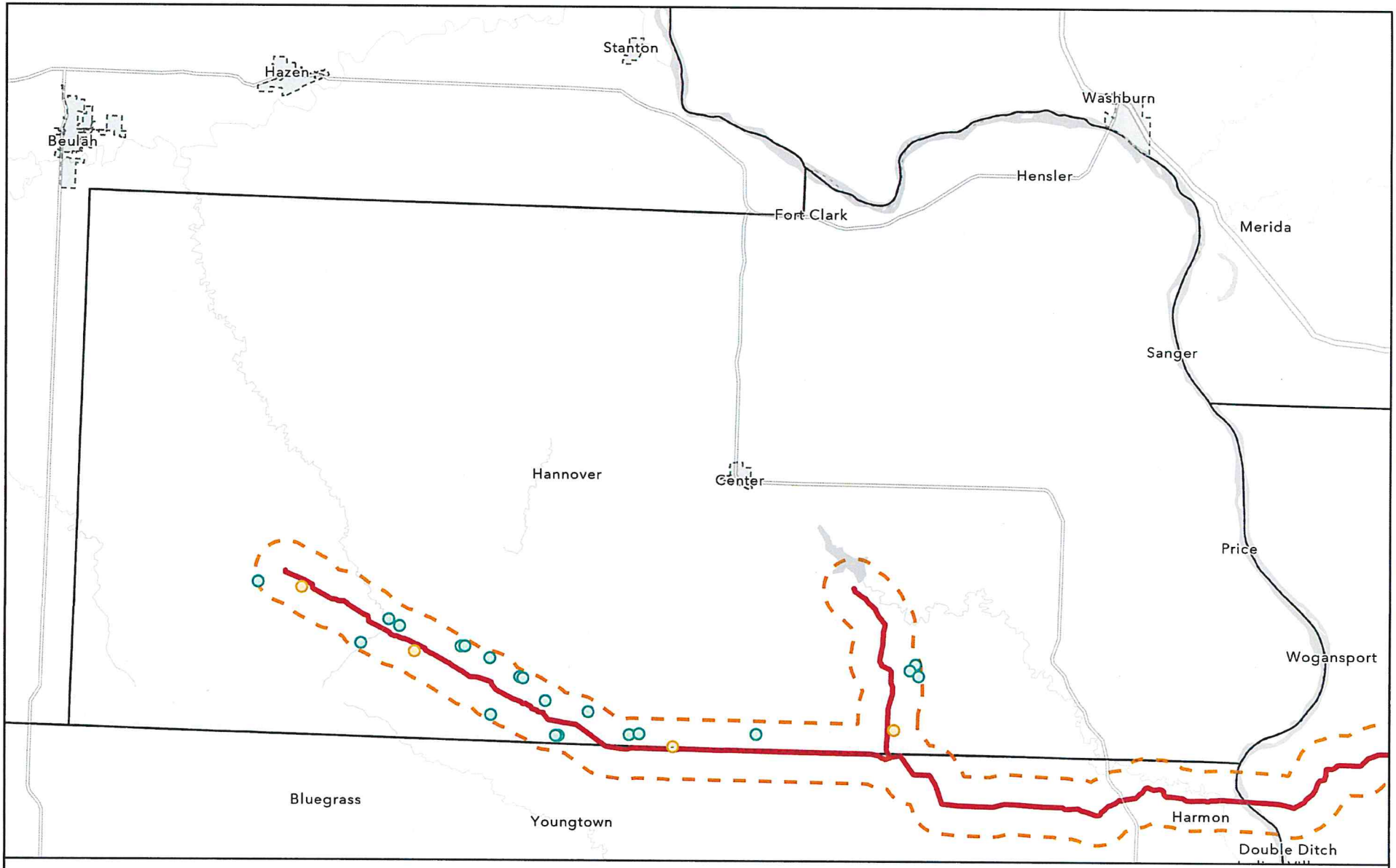
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Oliver County, North Dakota

0 5 10

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 63

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

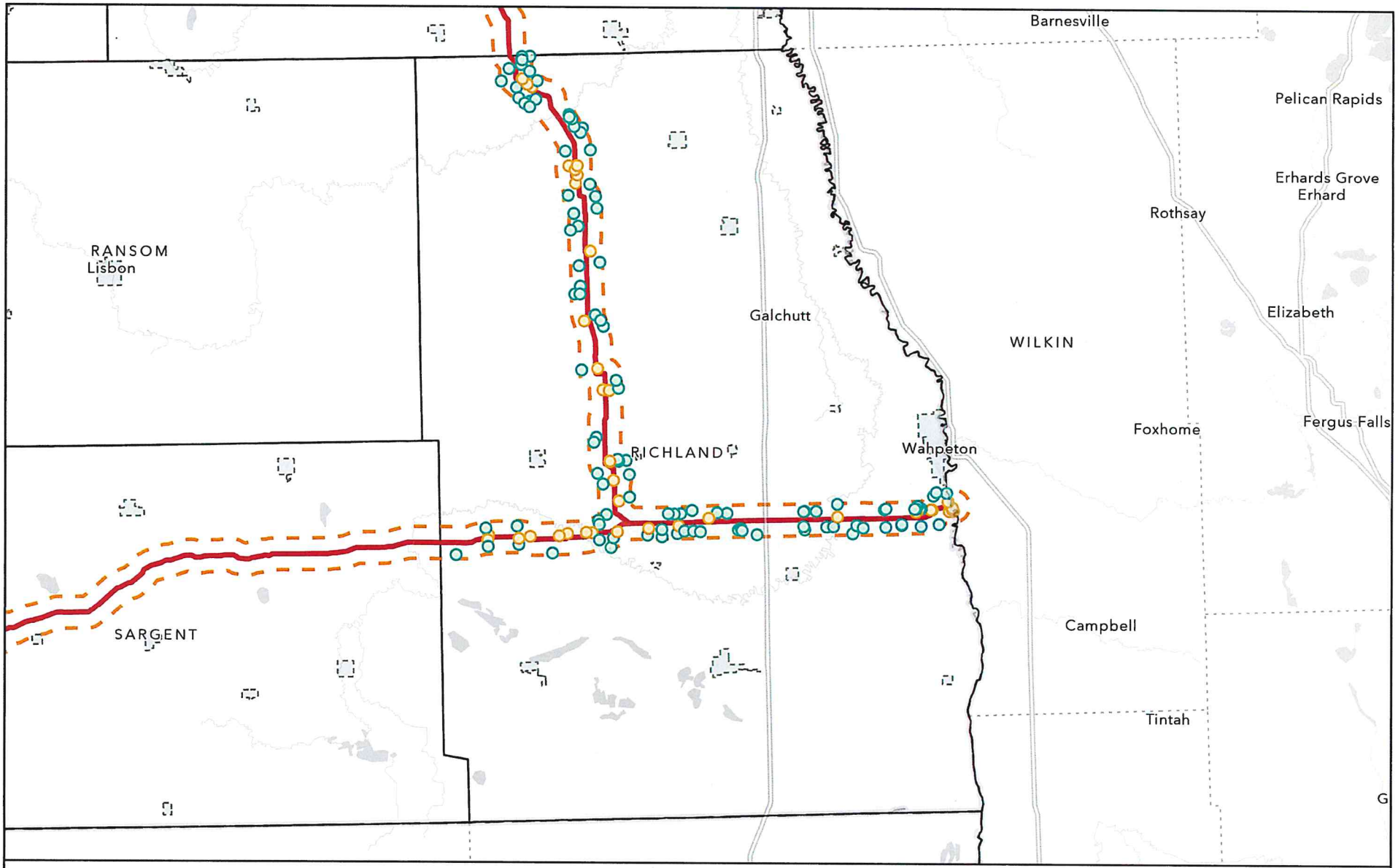
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Richland County, North Dakota

0 5 10 15 20

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 337

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

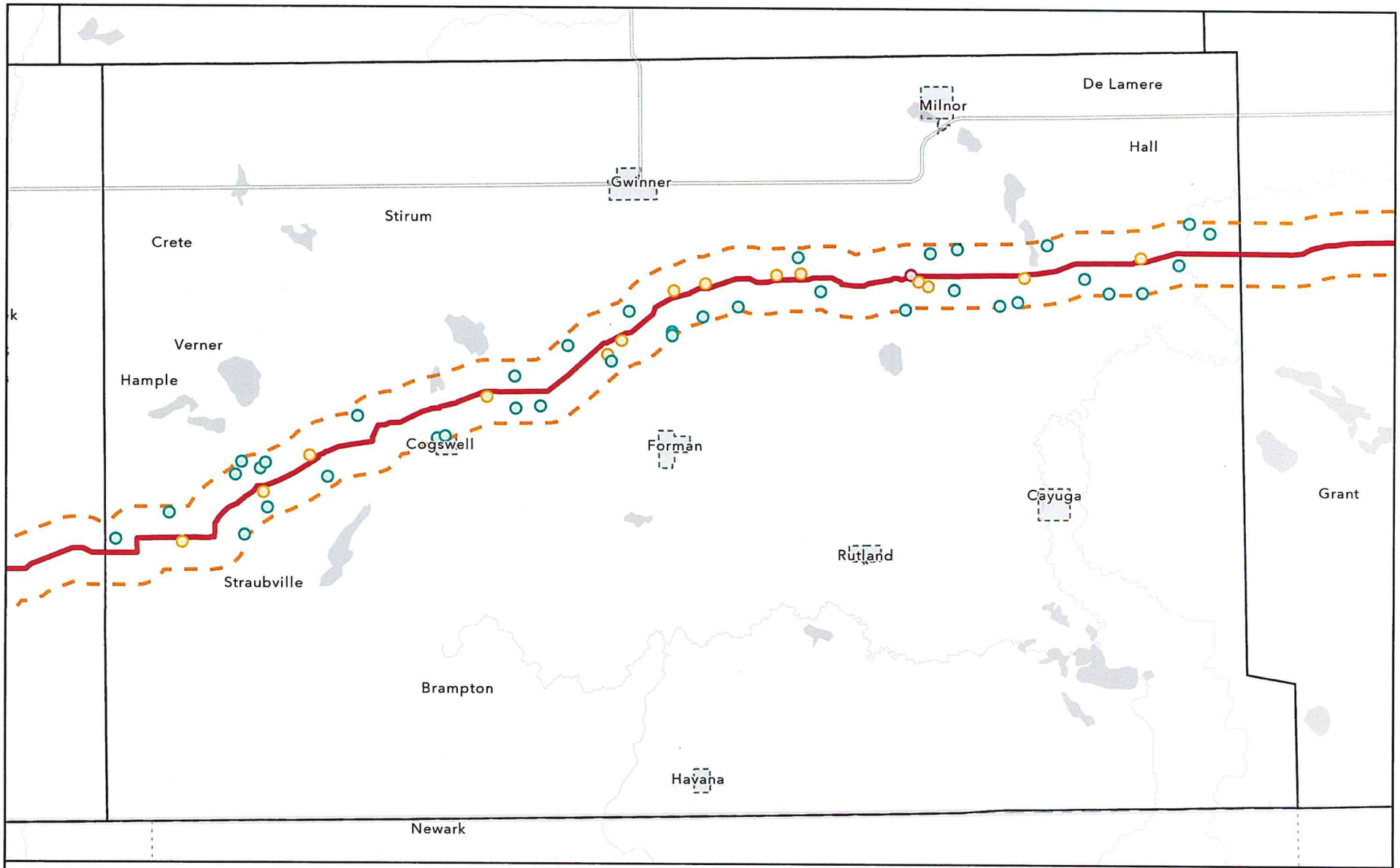
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



Summit Pipeline Route
Sargent County, North Dakota

0 5 10

Miles

May 2024 Map prepared by JHGeo

Estimated impacted population: 116

Population estimates based on American Community Survey 2018-2022 5-Year Estimates of population in households and does not include group quarter population.

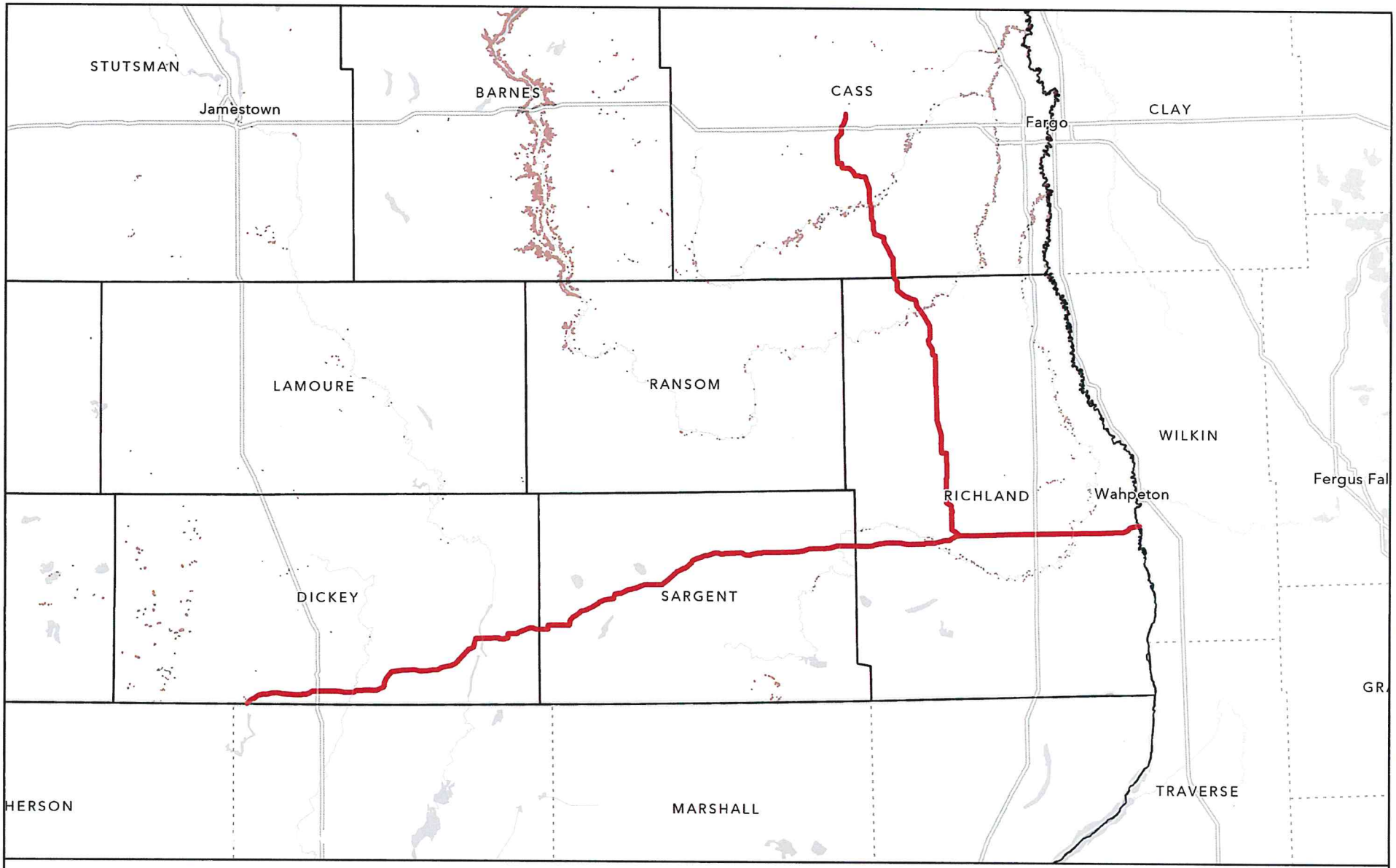
Dwelling Units

Distance to Pipeline

- 400' or less
- 401' to 1855'
- Greater than 1855'

Other Features

- Summit Pipeline Route
- One Mile Buffer
- County Boundary
- Incorporated Area



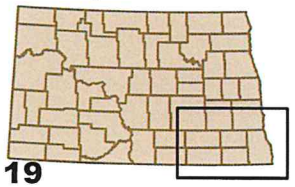
Summit Pipeline Route and Landslide Areas
East Section, North Dakota

0 10 20 30

Miles

May 2024 Map prepared by JHGeo

Map Location

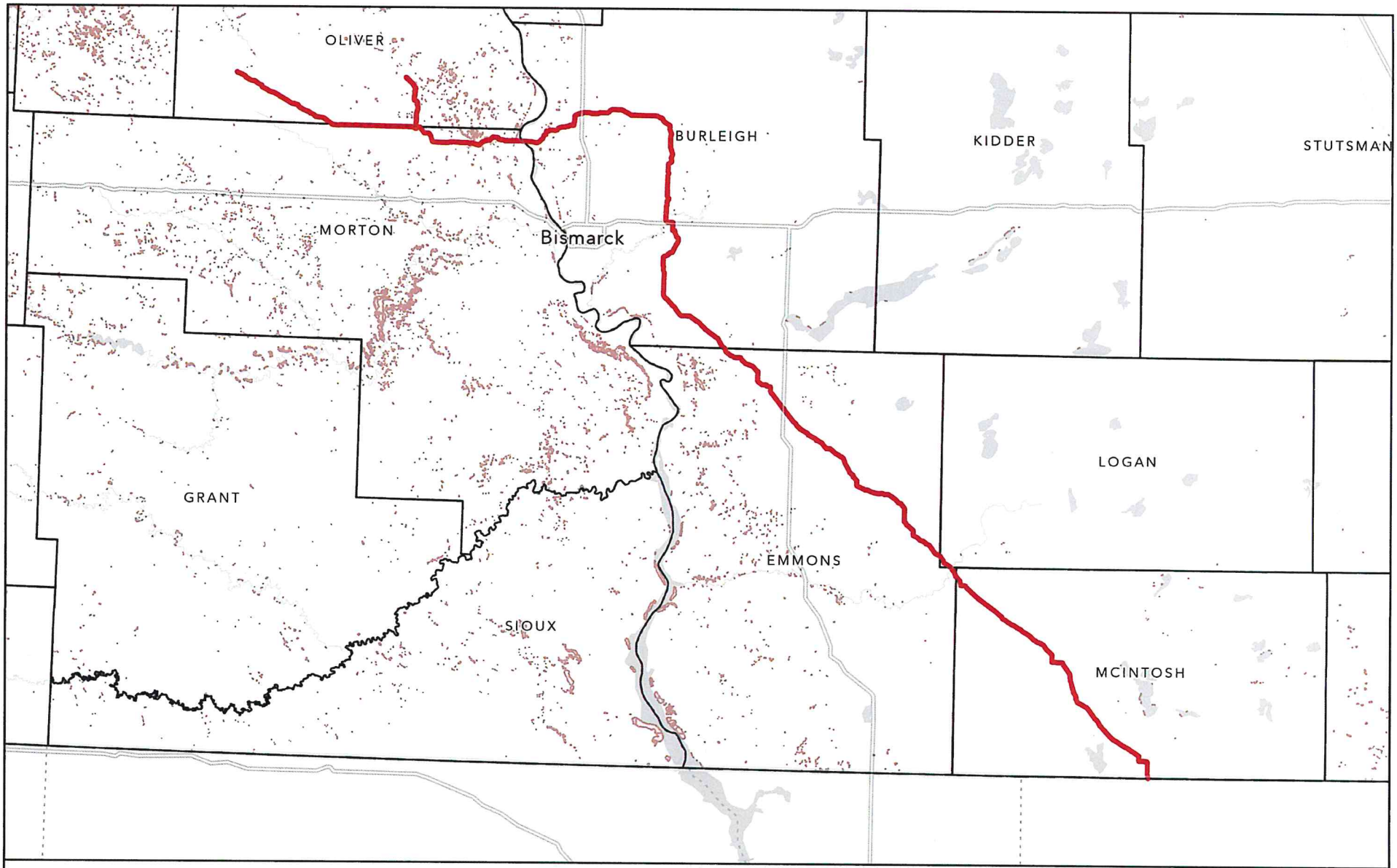


Summit Pipeline Route

One Mile Buffer

Landslide Area (NDGS)

County Boundary



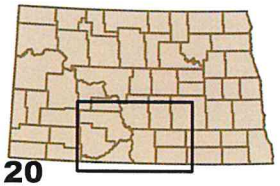
Summit Pipeline Route and Landslide Areas
West Section, North Dakota

0 10 20 30

Miles

May 2024 Map prepared by JHGeo

Map Location



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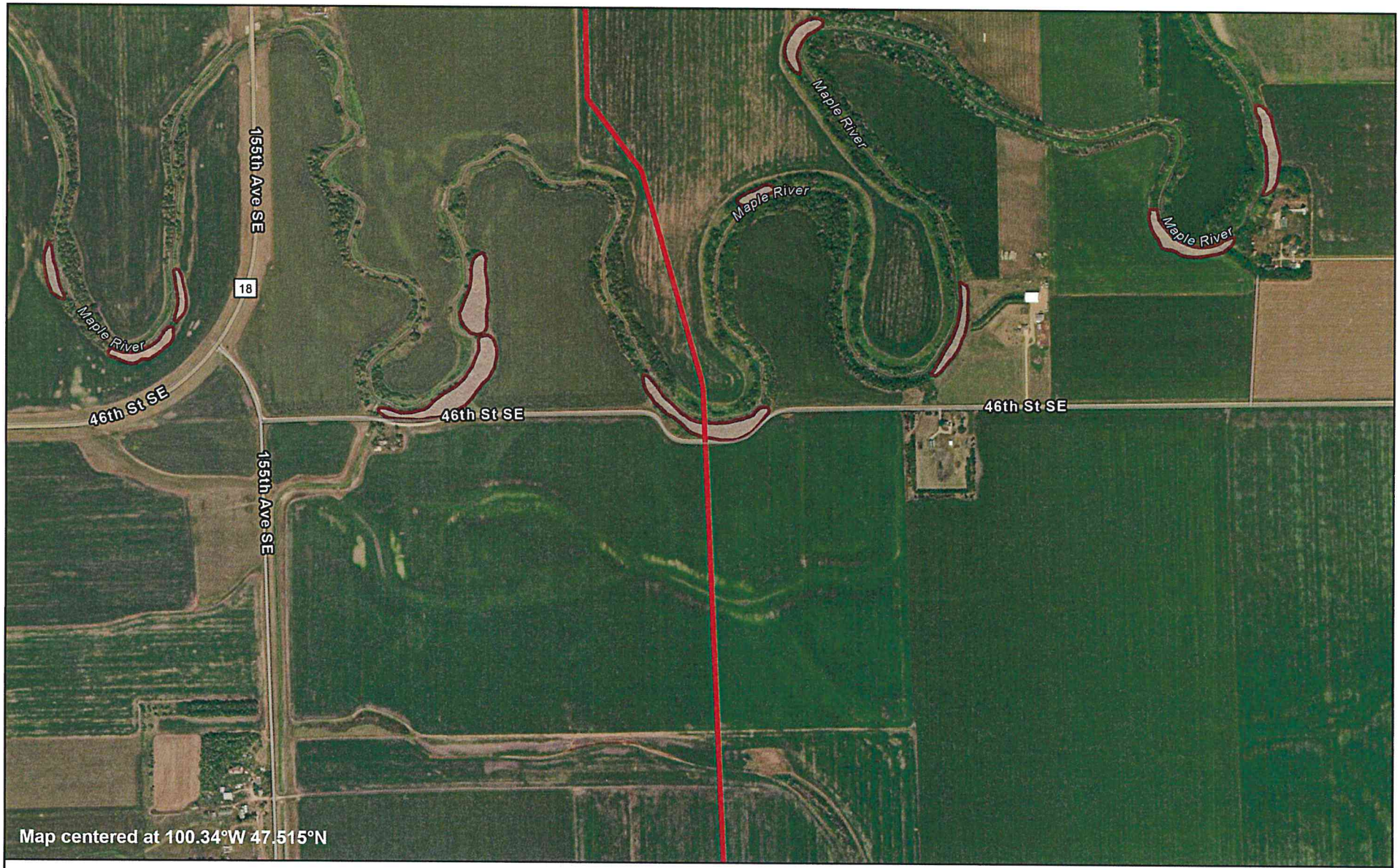
Summit Pipeline Route

One Mile Buffer

Landslide Area (NDGS)

County Boundary



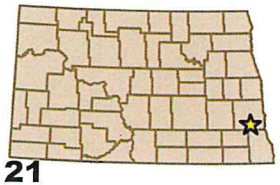
Summit Pipeline Route and Landslide Areas
Cass County, North Dakota

0 1,000 2,000

Feet

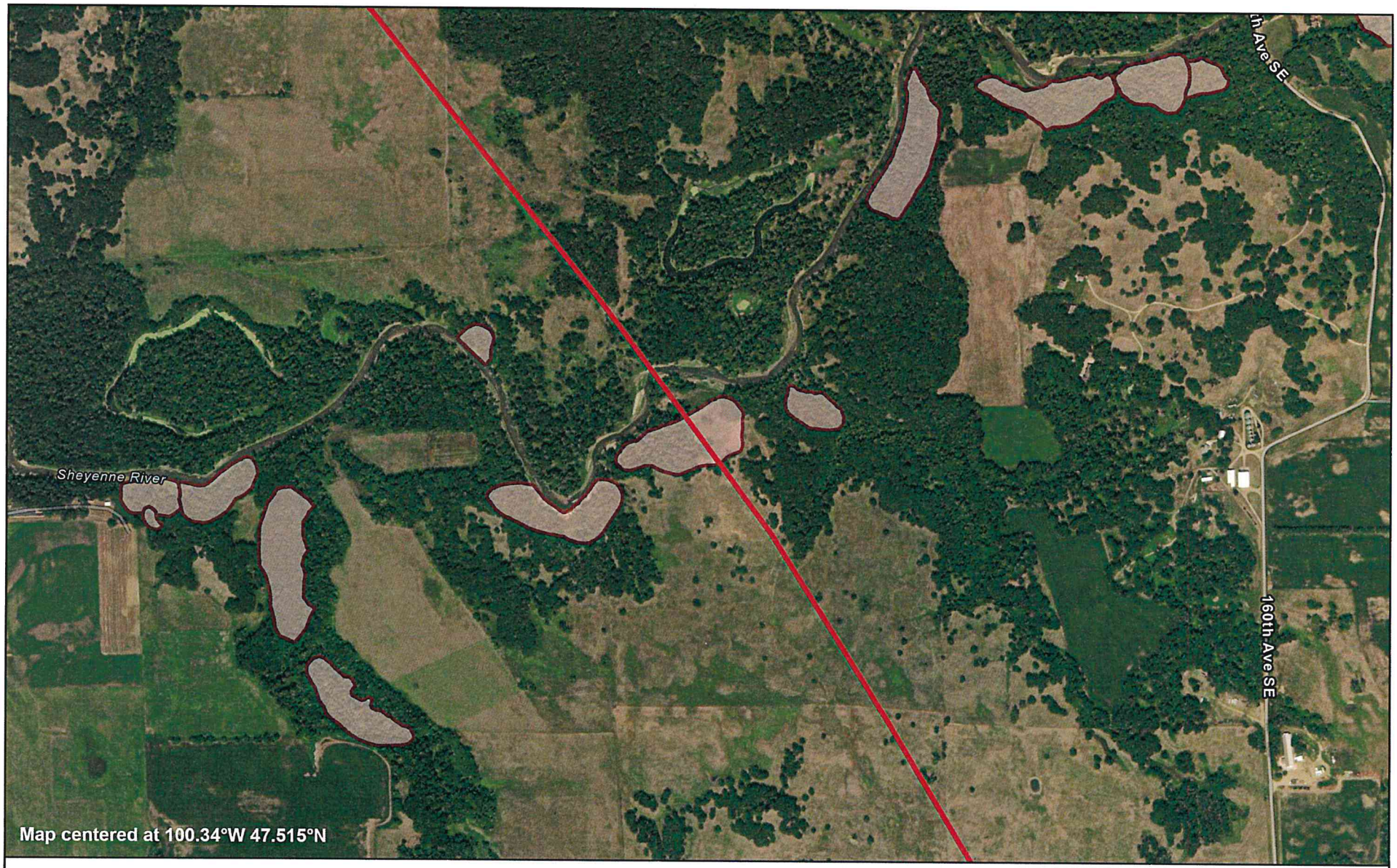
May 2024 Map prepared by JHGeo

Map Location



Landslide Area (NDGS)

Summit Pipeline Route



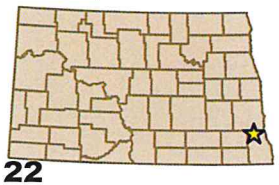
Summit Pipeline Route and Landslide Areas
Richland County, North Dakota

0 1,000 2,000

Feet

May 2024 Map prepared by JHGeo

Map Location



Landslide Area (NDGS)

Summit Pipeline Route