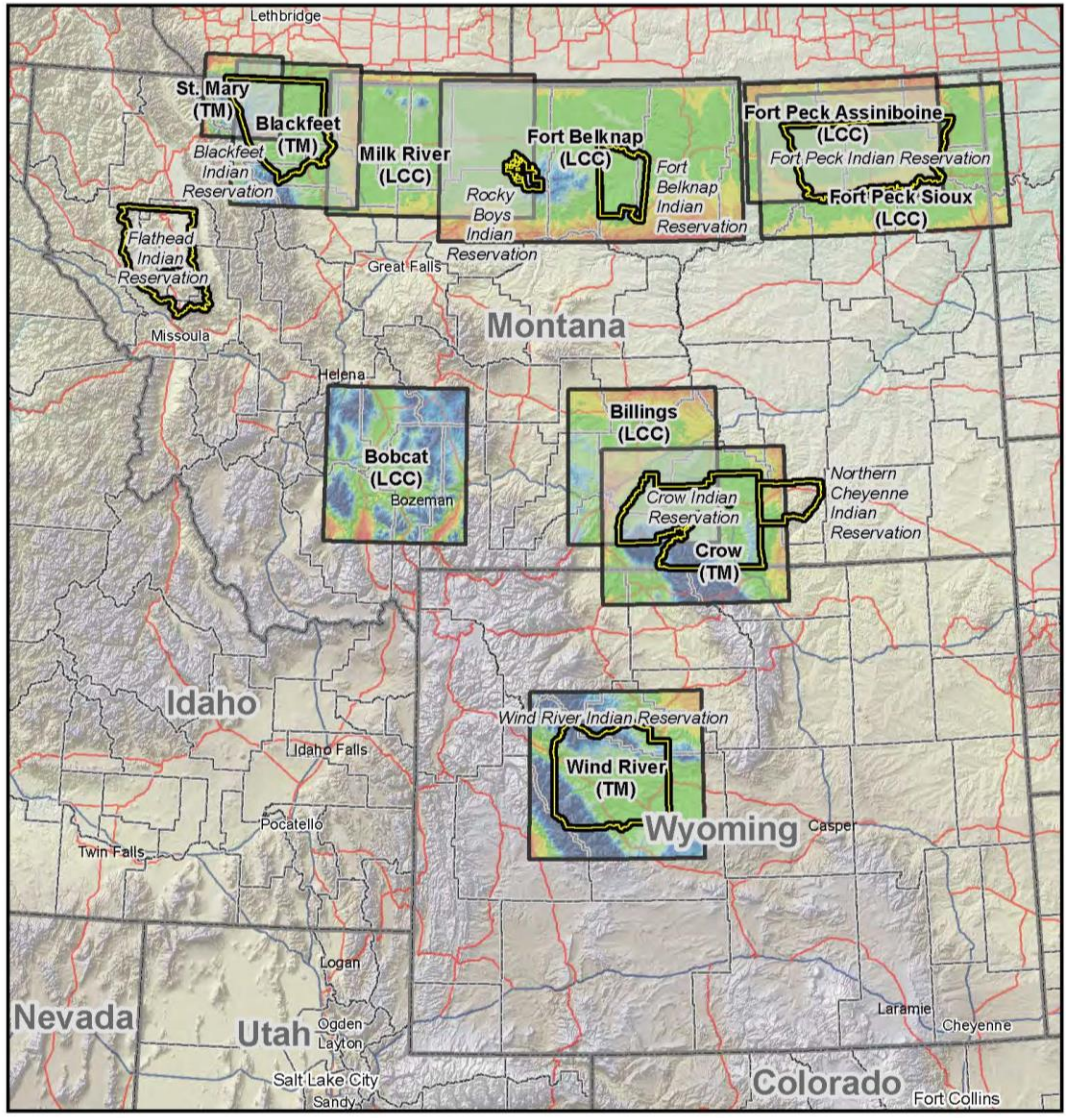
On the Road: Transportation Programs Driving Regional Tribal Mapping Project

John Healy, Director, Fort Belknap Transportation
Wallace Gladstone, NECI
Stephanie Rodriguez, GISP, NECI
Dawn Chandler, Tribal Surveyor, Fort Belknap Transportation Department

Overview

- Introductions
- Tribal Mapping Project Overview
- GIS development and RIFDS
- Practical applications
- Questions

Rocky Mountain Tribal Mapping Project



Rocky Mountain Tribal Transportation Association

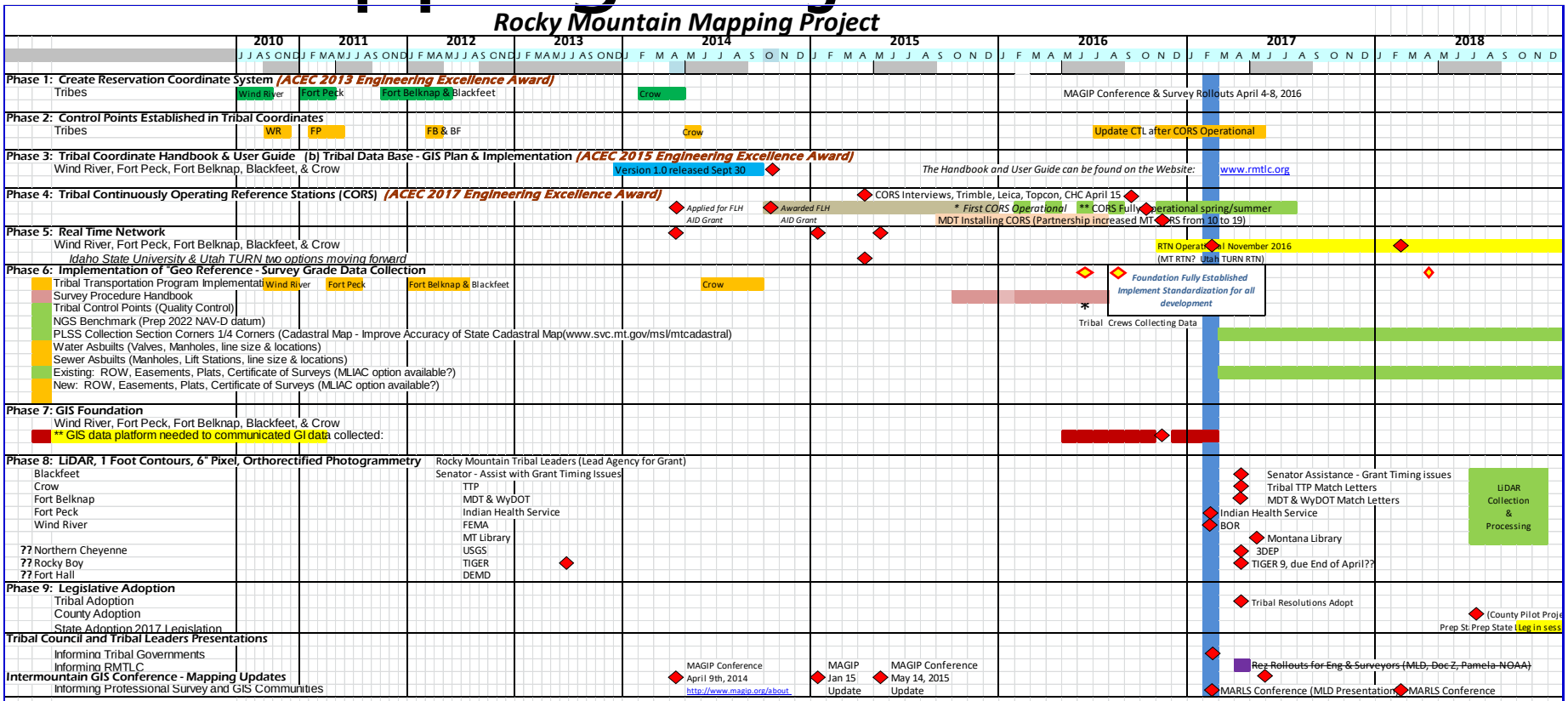
President
John Healy, Vice President
Connie Thompson, Secretary

<u>Board of Directors</u>
Don White, Blackfeet
Curry Kirn, Fort Peck
Buddy Wind Boy, Crow

The Survey Grade Accuracy World Meets GIS and LiDAR (A Planning and Design Tool)

The benefits of merging the survey grade accuracy world with the GIS world. Imagine a world that allows anyone doing surveying, engineering and GIS development to coordinate and associate all projects onto one simple mathematical base. A world where the DOT, Land Department, Irrigation, Tribal Housing, DNR, Forestry, Utilities and all others involved with development and mapping will be able to put all data onto one common survey grade base map. The Blackfeet Nation, Crow Nation, Fort Belknap Indian Community, Fort Peck, and Wind River Reservations were awarded the ACEC 2013, 2015, and 2017 Engineering Excellence Award in Montana for such a project.

Mapping Project Phases



Phase 1: 100% Complete: The purpose is to merge the survey grade accuracy world with the GIS world. The Low Distortion Projection (LDP) will allow anyone doing surveying, engineering, and GIS development to coordinate and associate all projects onto one simple mathematical base. **The group received the "ACEC 2013 Engineering Excellence Award" for phase 1**

Phase 2: Priority switch, see phase 4: 1. For QC purposes control points, including High Accuracy Reference Network (HARN) points for Fort Peck were established. National Geodetic Survey (NGS) no longer maintains passive control, replaced by OPUS-DB solutions that depend on CORS. Because of NGS change the tribal mapping team has added **Phase 4, CORS to the mapping project.** With CORS we will be able to do same control work in 5 hours versus 100+ hours

Phase 3 (100% complete): Mapping Handbook and User guide: Objective: 1. Guide for current and future users 2. QC procedures, testing methods best practices 3. Adding coordinate systems to software (ESRI, Leica, Trimble, Carlson, Topcon) 4. History and development of coordinate systems 5. History of Montana projections (State Plane) 6. Types of projections, managing map distortion **The group received the "ACEC 2015 Engineering Excellence Award" for phase 3**

Phase 4 (95% complete): Tribal Continuously Operating Reference Stations (CORS) Objective: 1. Foundation for all GPS users (survoyors and GIS data collectors) 2. Enhance quality and production of survey grade GPS data 3. Technology is similar to cell towers, the closer the CORS the better the speed and accruacy of the data collected 5. Enhance the Montana Height Modernization Program for reservation lands (see executive summary) 6. create state of the art foundation for geodetic ctl to supplement outdated NGS Ctl Mark program **The group received the "ACEC 2013 Engineering Excellence Award" for phase 4**

Phase 5 (10% complete): Establishing a Real Time Network (RTN). The purpose of the RTN is: 1. establish catalyst for GPS users to georeferenced data 2. standardized infrastructure for machine controlled equipment including intelligent compaction. Benefits include: 1. need for user to establish permanent/semi-permanent base station eliminated 2. RTN can monitor its own QC 3. Loss of one station does not result in failure of system 4. and best of all "All users of the system are using a common, established reference coordinate frame", surveying and mapping has been standardized NOTE: Densification of CORS needed, current layout meets NGS standards for RTN additional CORS needed

Phase 6: Collecting data in tribal coordinate systems (CFedS, County, BOR, BLM, Indian Health Service, Housing Programs, BIA, Water & Sewer Program adopt plan) Note, data can be collected along roads that are in the trbes TTP inventory as part of the tribes master transportation plan of creating a tribal roads ROW map for planning purposes.

Phase 7 (75% Complete): Crea GIS foundation so data can be safely stored and communicated with other departments (

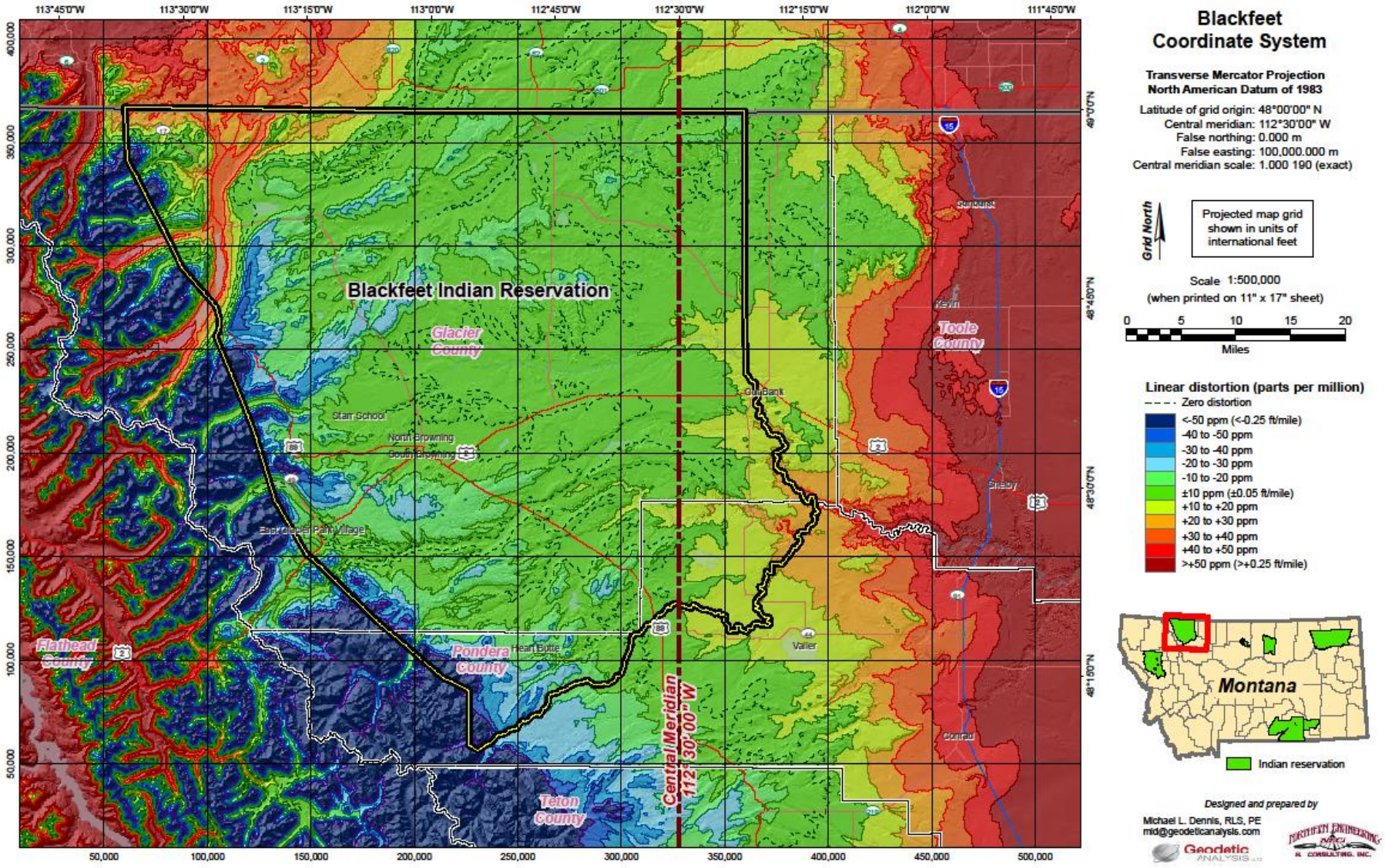
Phase 8: LiDAR & Orthorectified Photogra (numerous partners needed, USGS?, DEMD (BIA)?, Housing?, Montana Library?, FEMA? TIGER, Others?

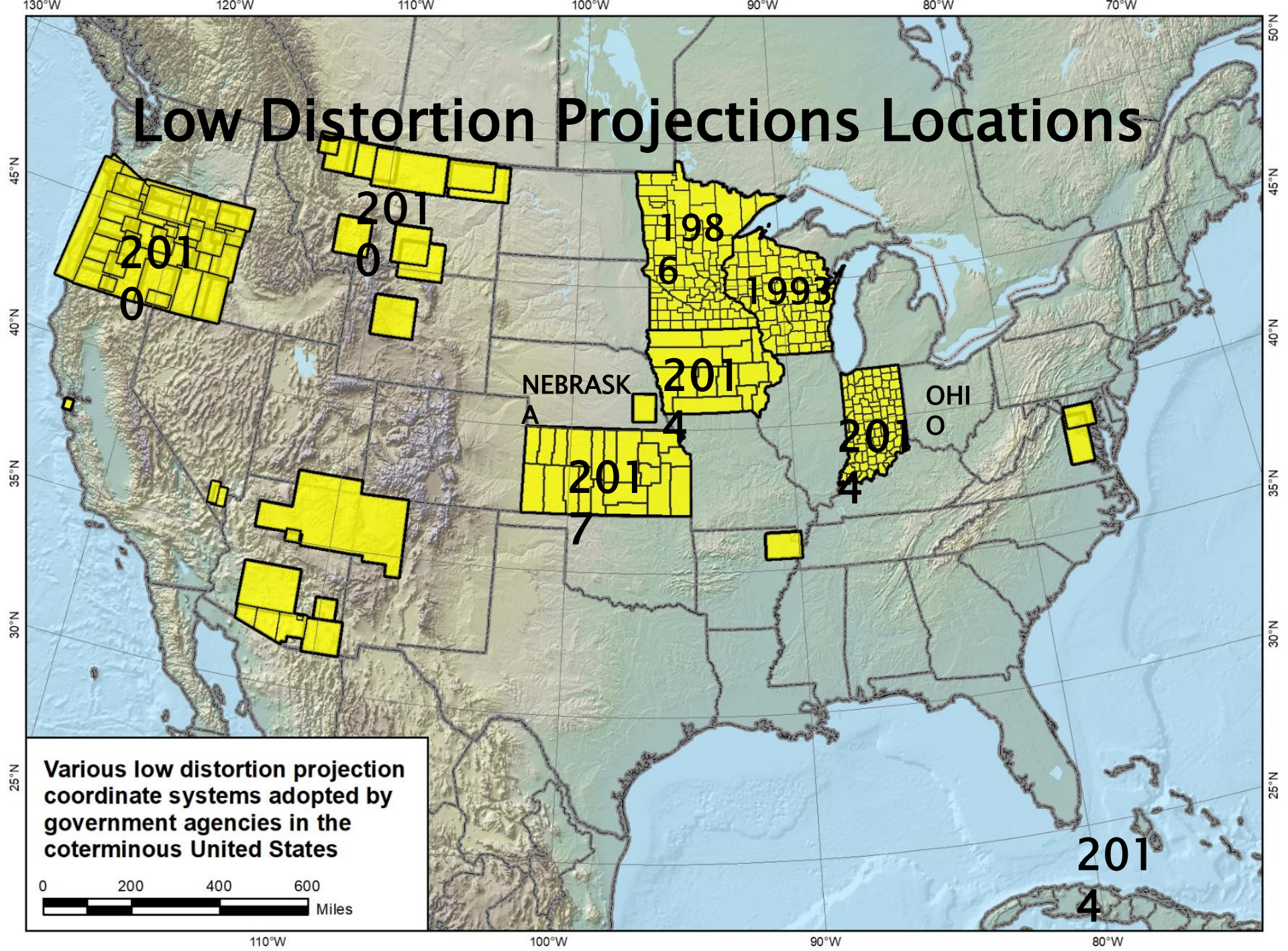
Phase 9: Legislative adoption will provide fundamenta ntance by engineering, surveying, and mapping professionals within tribes as well as other Federal Agencies such as BLM, NGS and FEMA

Phase 10: Measure project success. Success is defined by 1. How m mbers have been inspired to become surveyors, engineer technicians, engineers, GIS technicians, GIS coordinators and GIS professionals?

Phase 1: Coordinate Systems

Example: Blackfeet Coordinate System




Low Distortion Projections Locations
2010
2010
1986
1993
2014
NEBRASKA
2017
OHIO
2014
2014
Various low distortion projection coordinate systems adopted by government agencies in the coterminous United States
0 200 400 600
Miles
130°W
120°W
110°W
100°W
90°W
80°W
70°W
50°N
45°N
40°N
35°N
30°N
25°N

Phase 3

Handbook & User Guide

Free Downloads

Rocky Mountain Tribal Leaders Website

www.rmtlc.org

Resources➔ Mapping & Surveying

or

Montana Association of Registered Land Surveyors (MARLS) http://marls.com/

Resources ➔ RMTCRS Information

Rocky Mountain Tribal Transportation Association

John Smith, President
John Healy, Vice President
Connie Thompson, Secretary

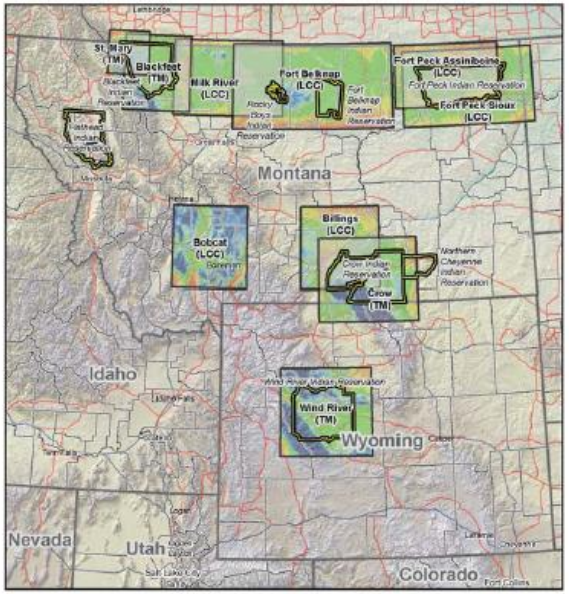
Board of Directors
Don White, Blackfeet
Cleo Hamilton, Fort Peck
Robert Stewart, Crow
Vashti Dawn Plentyhoops, Crow

Michael L. Dennis, RLS, PE
Geodetic Analysis, LLC
(928) 322-0956

Rocky Mountain Tribal Coordinate Reference System

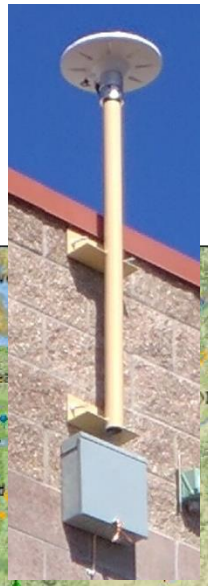
Handbook and User Guide

For the
Blackfeet
Crow
Fort Belknap
Fort Peck
& Wind River Reservations



Version – v1.0
30 September 2014

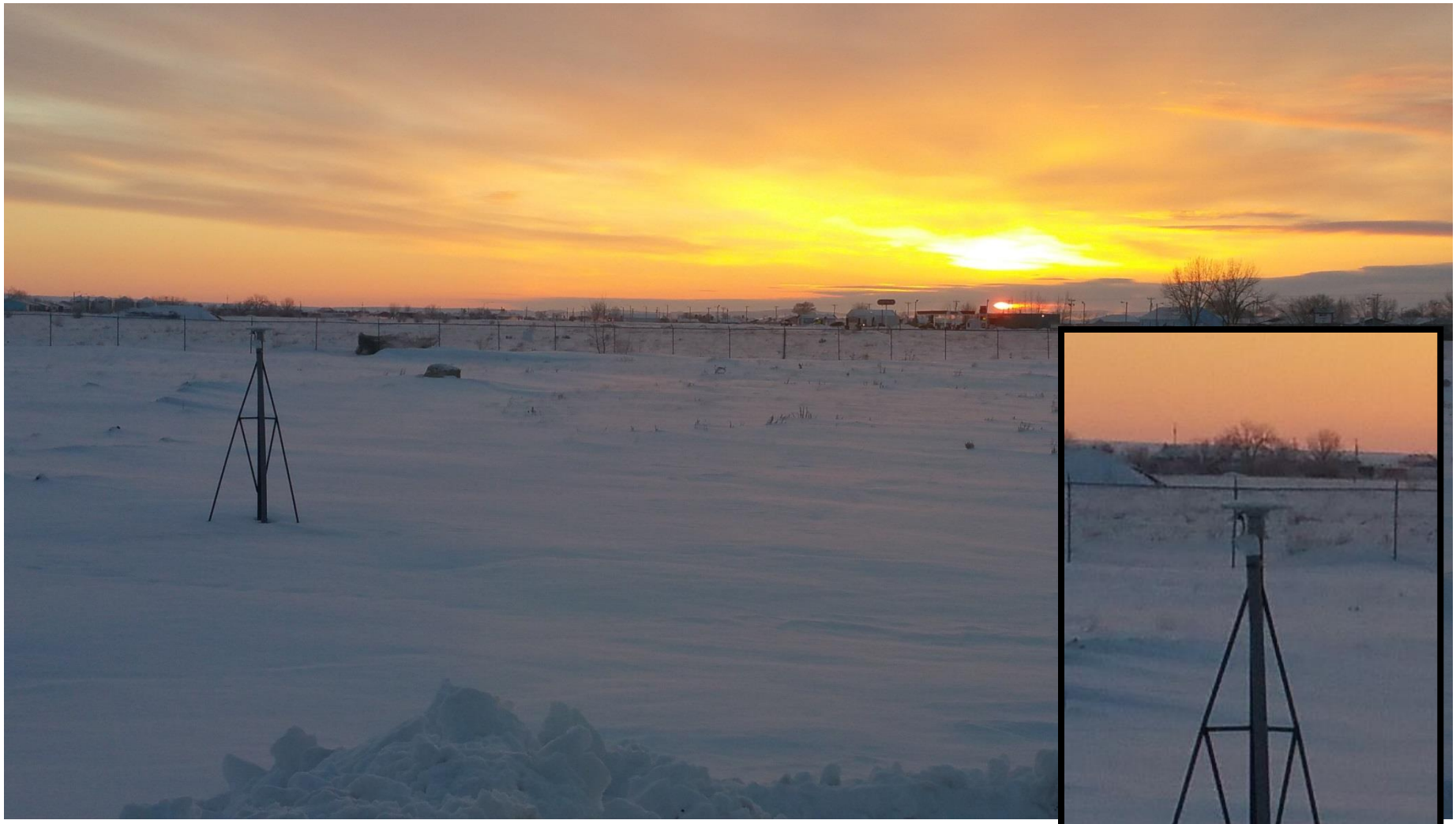
Rocky Mountain Tribal Coordinate Reference System
Embed in the Software



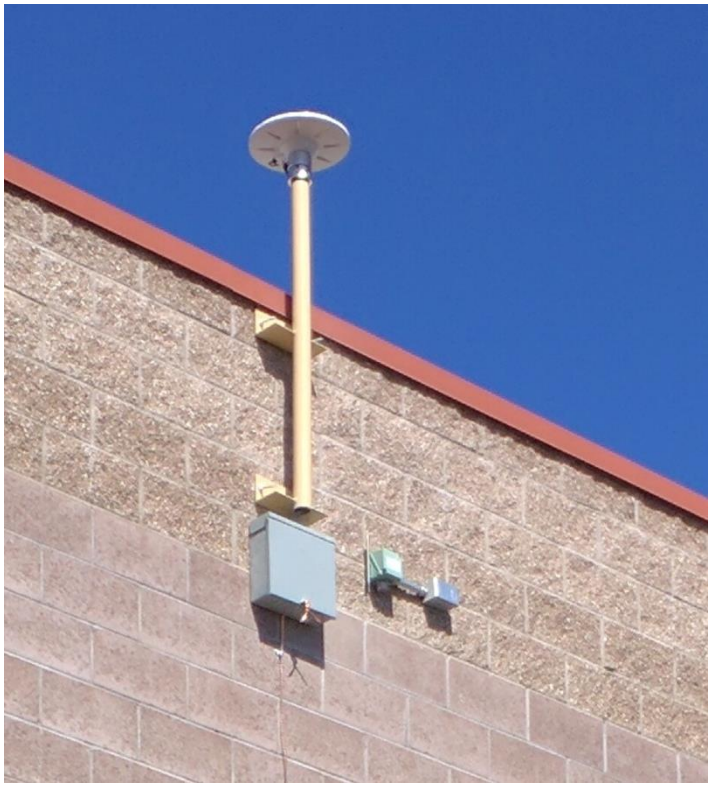
Phase 4

Continuously Operating Reference Station (CORS)

Continental United States with Proposed MDT & Tribal CORS



Fort Peck
Poplar, Montana



Blackfeet Browning Montana CORS

Phase 4: CORS

National Geodetic Survey
Continuously Operating Reference Station

GPS	GNSS	RATE
		1 SEC
		5 SEC
		15 SEC
		20 SEC

- Tribal CORS
- Proposed Tribal/MDT CORS
- Proposed MLIA Grant CORS
- NGS CORS 25 km radius

BLACKFEET
FORT BELKNAP
MONTANA
MISSOULA
BOZEMAN/HELENA
CROW/BILLINGS RTN
FORT PECK
A
B
C
D
F
G
H
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41

expand RTN
burg Project

Real Time Network (RTN) – Phase 5

City of Seattle

UTAH AGRC
LOCATION MATTERS
gis..gov

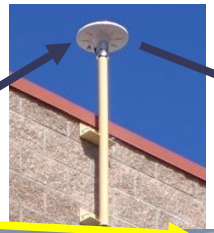
Phase 5 – Real Time N

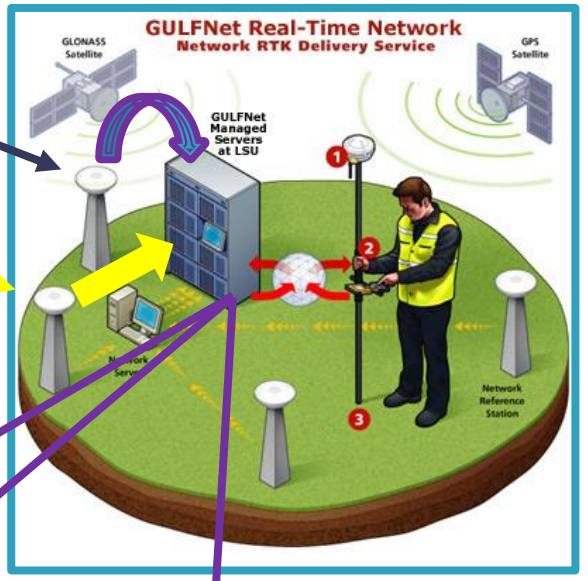
RTN = Real Time Network

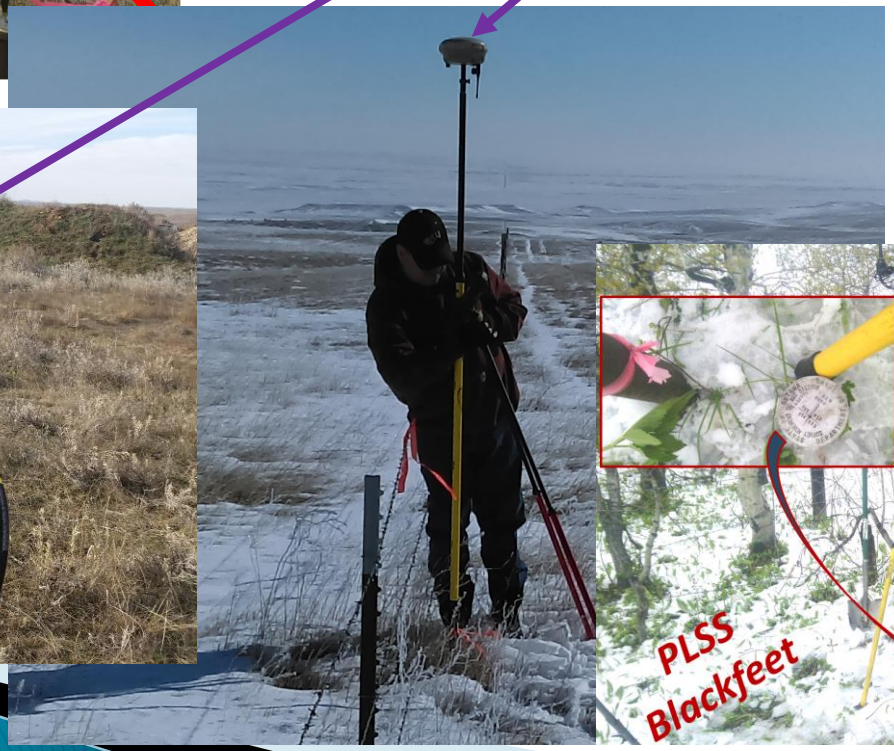
Phase 5 – Real Time N

RTN = Real Time Network

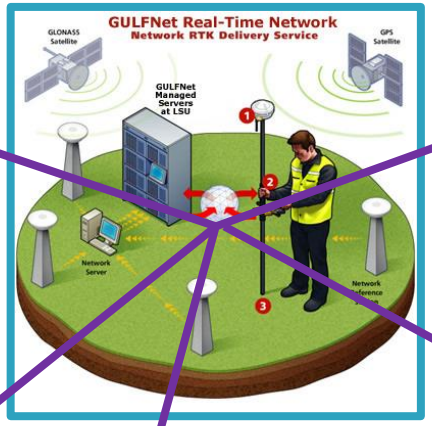
Fort Belknap

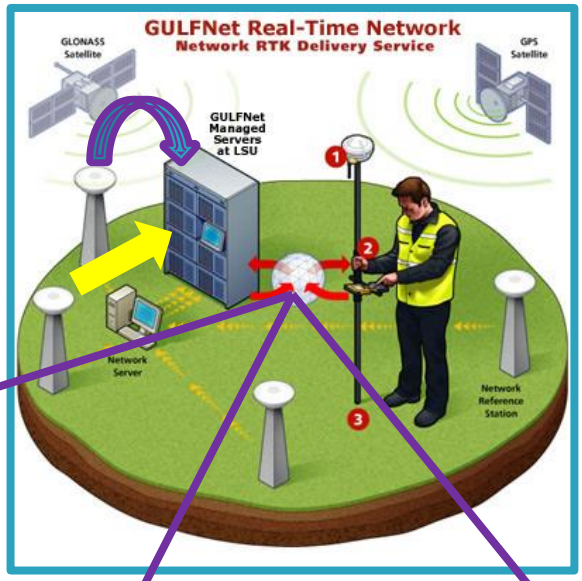



GULFNet Real-Time Network
Network RTK Delivery Service
GLONASS Satellite
GPS Satellite
GULFNet Managed Servers at LSU
Network Reference Station
1
2
3




PLSS
Blackfeet

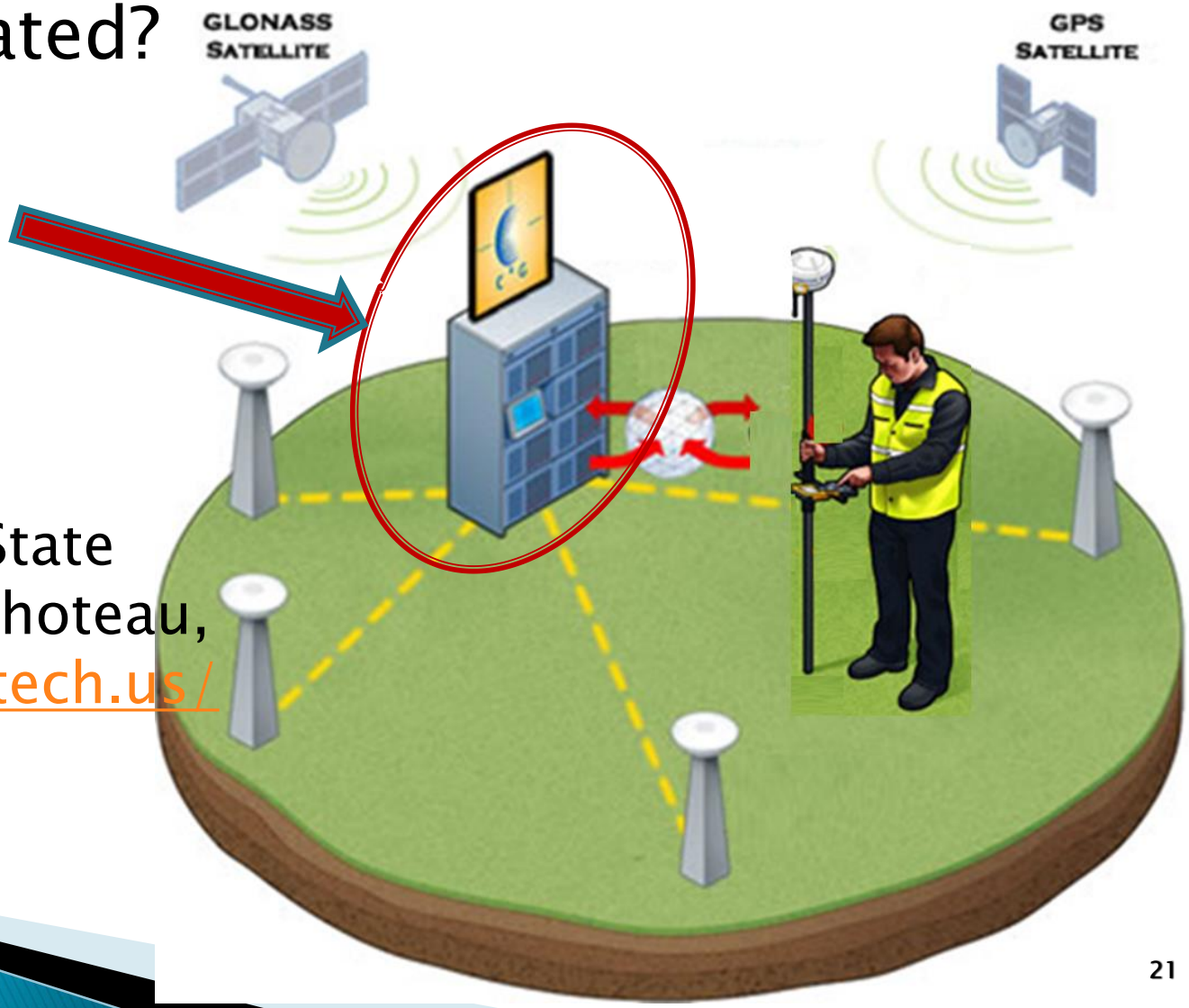

GULFNet Real-Time Network
Network RTK Delivery Service
GLONASS Satellite
GPS Satellite
GULFNet Managed Servers at LSU
Network Server
1
2
3


GULFNet Real-Time Network
Network RTK Delivery Service
GLONASS Satellite
GPS Satellite
GULFNet Managed Servers at LSU
Network Server
Network Reference Station
1
2
3


CASE IH
7120
CASE IH

RTN: Current Status

Where is the system located?



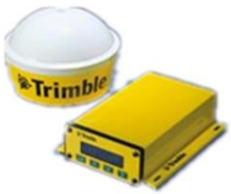
State Agency:
1. State Library
2. MDT

Pilot Project:
1. Washington State
2. FarmTech: Choteau, MT http://farmtech.us/

What program?

1. Leica Spider?
2. Trimble?
3. Topcon?
4. Geo++?

* *needs to be universal*



Phase 6

Survey Grade GIS Layer

Objective: Create a highly accurate and comprehensive survey grade GIS system based on GPS data.

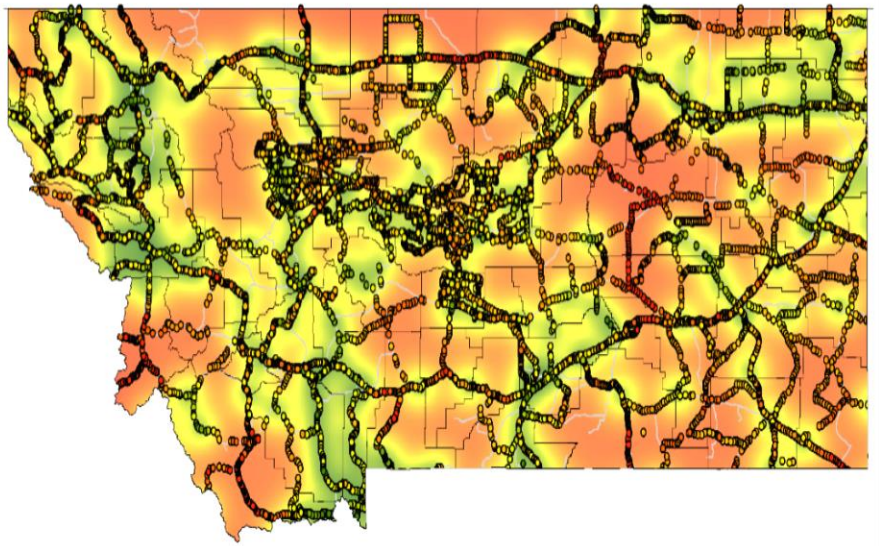
Phase 2

Establish Passive Control Networks

Objective: Establish ground based control points for project control and quality assurance.

Phase 6d = Phase 2: Tribal Control

Use NGS, MDT, Section Corners, and ¼ Corners

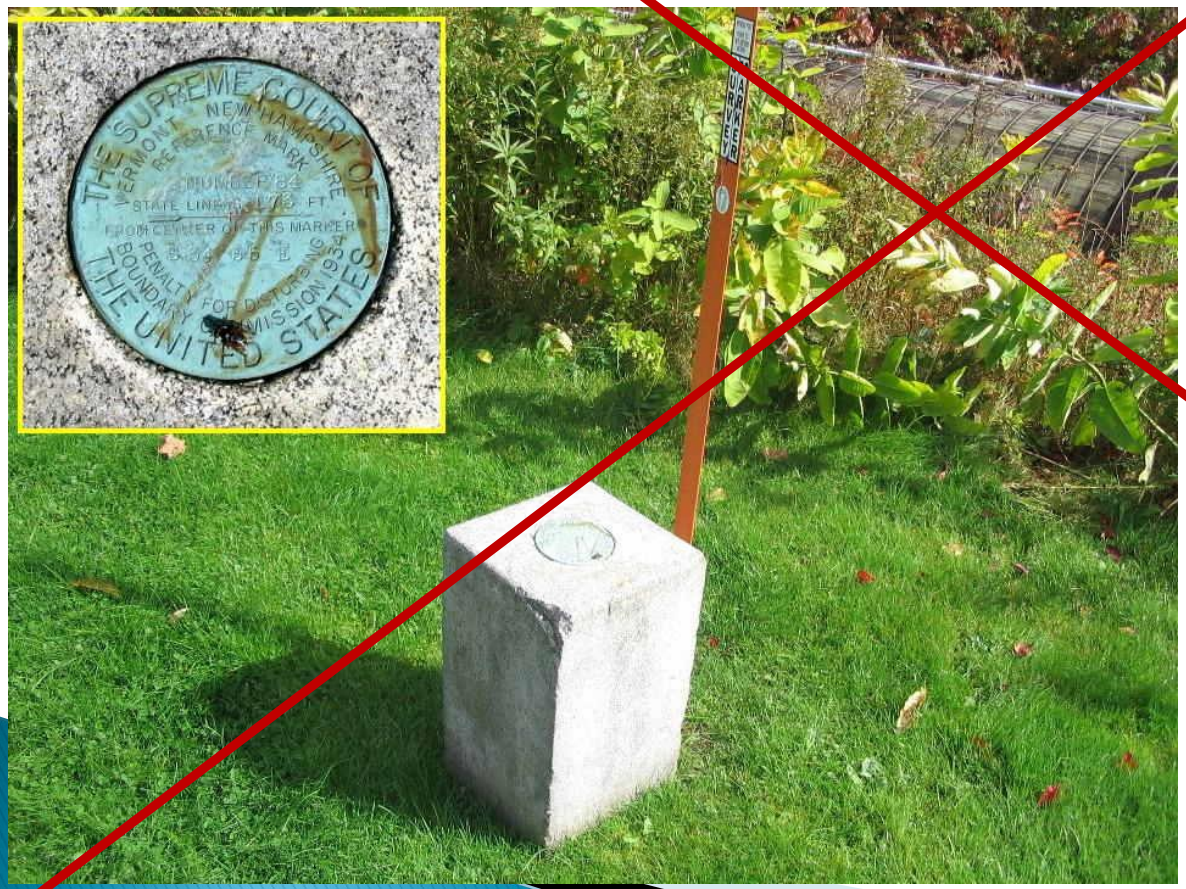


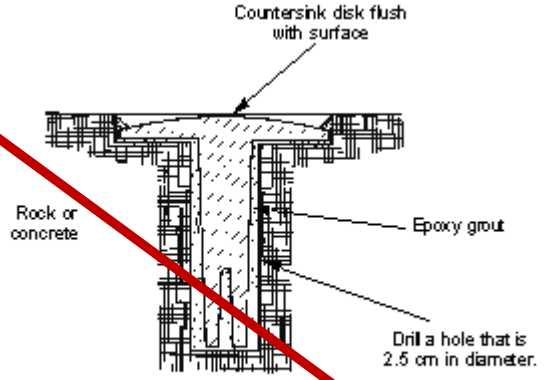
NORTHERN ENGINEERING & CONSULTING, INC.

Phase 6d = Phase 2: Tribal Control

Phase 2

Control Networks Passive Control



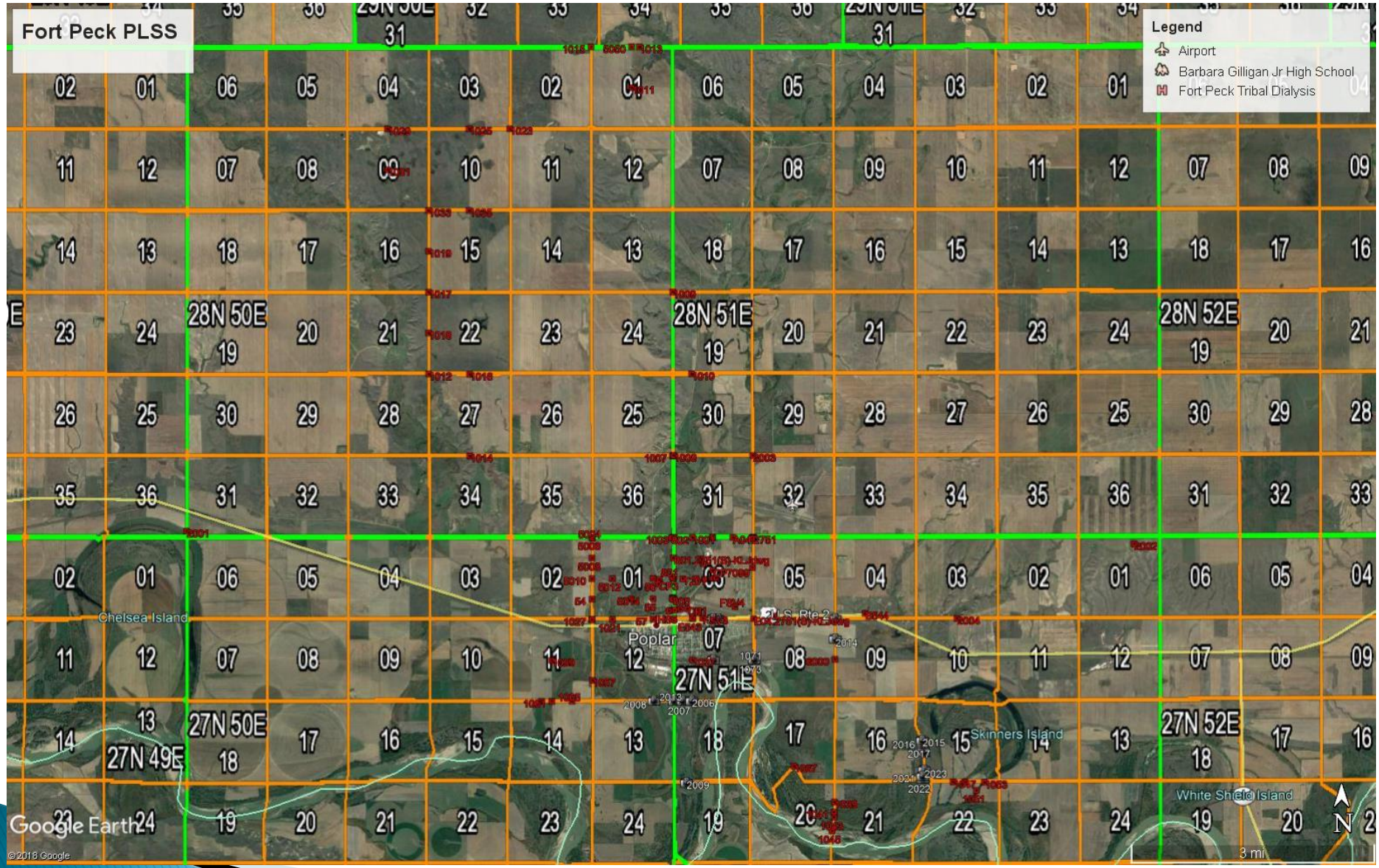


Phase 6
Data Collection

a) ~~Survey Procedure Handbook~~ – Done
b) Roads – Ownership, Condition, Type
c) Tribal Control Points
d) NGS Benchmarks (Prep 2022 NAV-D datum)
e) PLSS Collection Section, ¼ Corners
f) Water Asbuilts
g) ROW, Easements, Plats to Data Base

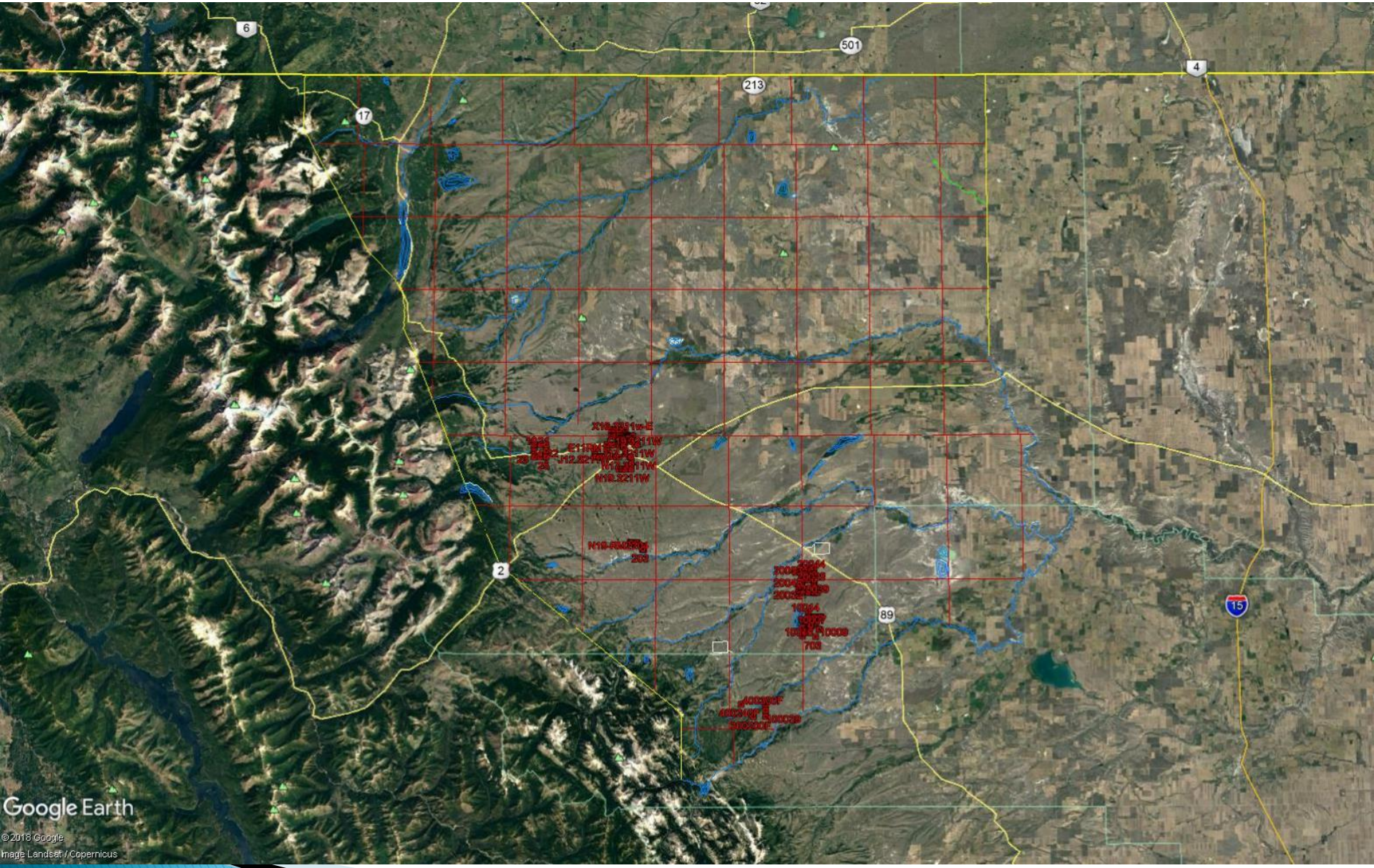
Fort Peck CORS

Phase 6e: PLSS




STATE OF MONTANA
DEPARTMENT OF
SURVEY MONUMENT
DO NOT DISTURB
PLSS
Blackfeet

Phase 6e: PLSS



Phase 6 - *Data Collection*

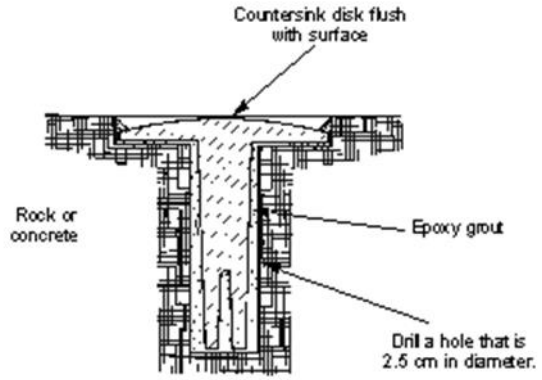
1. *Survey Procedure Handbook*
2. *Roads – Ownership, Condition, Type*
3. *Tribal Control Points*
4. *NGS Benchmarks (Prep 2022 NAV-D datum)*
5. *PLSS Collection Section, ¼ Corners*
6. *Water Asbuilts*
7. *ROW, Easements, Plats to Data Base*

Phase 6
Data Collection

1. *Survey Procedure Handbook*
2. *Roads – Ownership, Condition, Type (RIFDS)*
3. *Tribal Control Points*
4. *NGS Benchmarks (Prep 2022 NAV-D datum)*
5. *PLSS Collection Section, ¼ Corners*
6. *Water Asbuilts*
7. *ROW, Easements, Plats to Data Base*

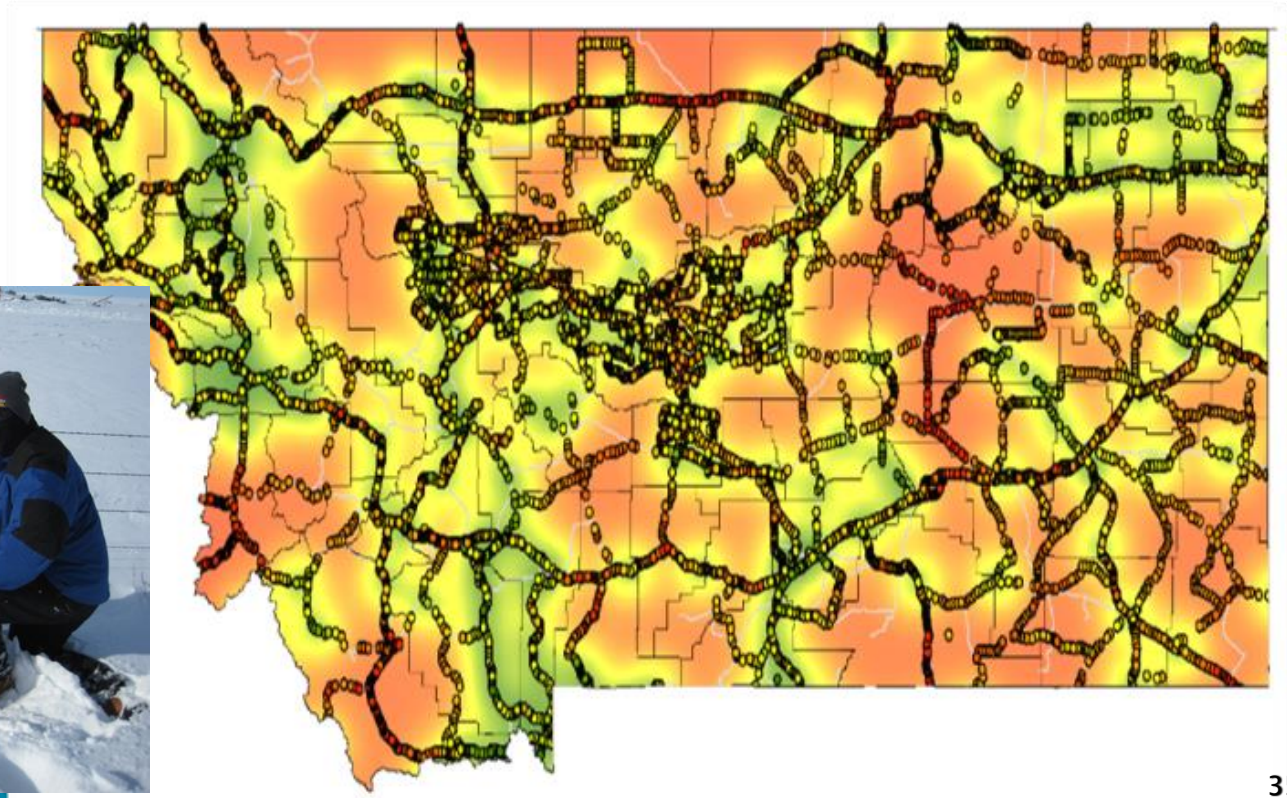
Phase 6
Data Collection

1. *Survey Procedure Handbook*
2. *Roads – Ownership, Condition, Type*
3. *Tribal Control Points*
4. *NGS Benchmarks (Prep 2022 NAV-D datum)*
5. *PLSS Collection Section, ¼ Corners*
6. ***GIS Data Platform***
7. *Water Asbuilts*
8. *ROW, Easements, Plats to Data Base*



Phase 6 – *Data Collection*

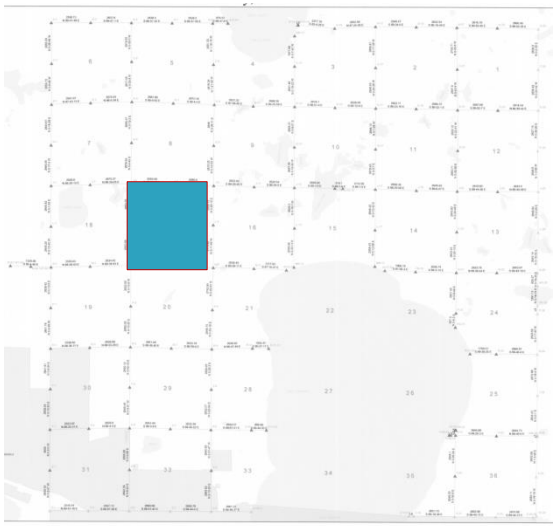
1. *Survey Procedure Handbook*
2. *Roads – Ownership, Condition, Type*
3. *Tribal Control Points*
4. *NGS Benchmarks (Prep 2022 NAV-D datum)*
5. *PLSS Collection Section, ¼ Corners*
6. *Water Asbuilts*
7. *ROW, Easements, Plats to Data Base*



Phase 6 – *Data Collection*

1. *Survey Procedure Handbook*
2. *Roads – Ownership, Condition, Type*
3. *Tribal Control Points*
4. *NGS Benchmarks (Prep 2022 NAV-D datum)*
5. *PLSS Collection Section, ¼ Corners*
6. *Water Asbuilts*
7. *ROW, Easements, Plats to Data Base*

Section Breakdown



CROW WING COUNTY SURVEYOR

TWP. DEERWOOD
SEC. 7 T. 46 R. 28
DATE 10/12/09 BY DON SIGETY
RLS #23945

● IRON PIPE, CAST IRON MONUMENT, ETC.

■ CROW WING COUNTY SQUARE TUBULAR MONUMENT WITH STAMPED ALUMINUM CAP

NAD83 COUNTY COORDINATES

N 222073.7086
E 633537.2164

N 222087.315
E 635775.245

N
E

S89-39-06W
2238.07

ROUND CAP'D MON FND

1½" PIPE FND

1374.80
N03-19-04W

N00-38-54W
2627.85

220714.8213
635854.8122

¾" PIPE FND

PIPE FND

SERPENT LAKE

N 219446.025
E 633566.954

N
E

S00-42-38E
2734.89

CALC'D CORNER IN LAKE

1½" PIPE FND

N85-23-19E
2381.24

¾" IP FND

2297.79
N 85-30-59E

1¼" PIPE FND

MC
N 216719.412
E 633700.913

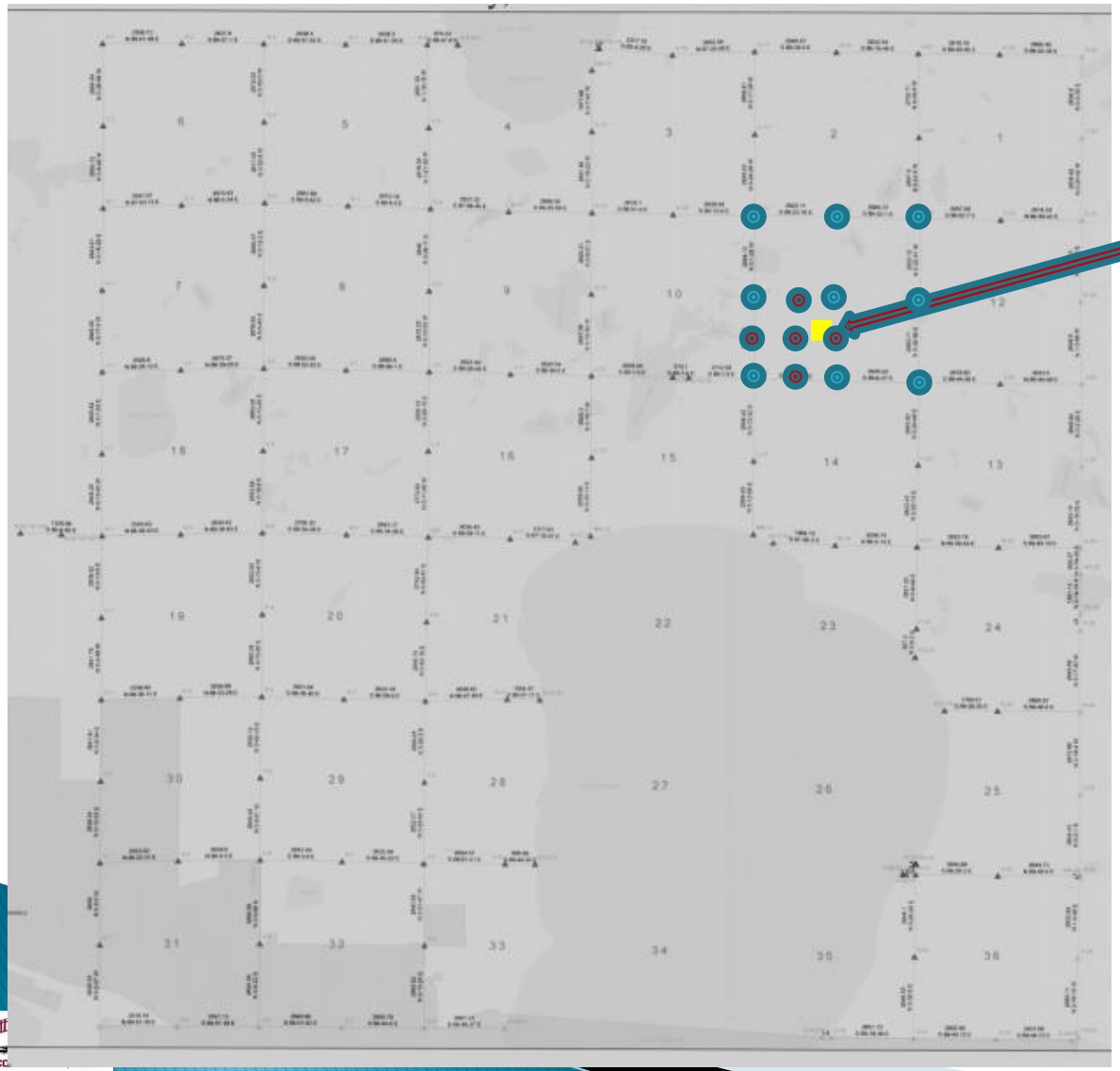
MC

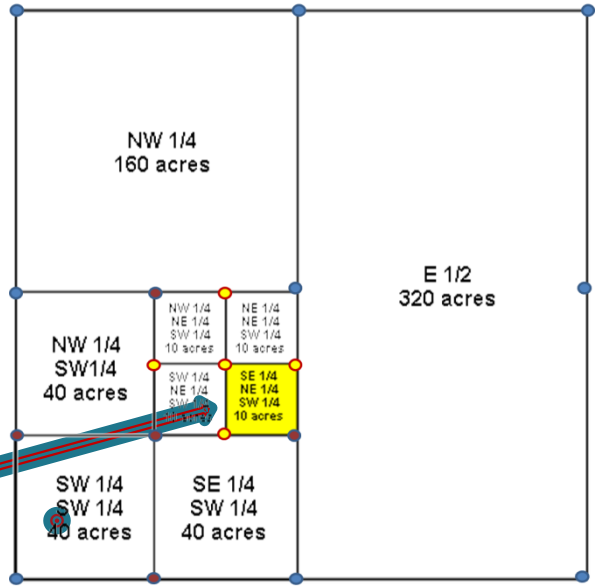
N 216711.343
E 633600.874

N 216910.8583
E 636074.4436

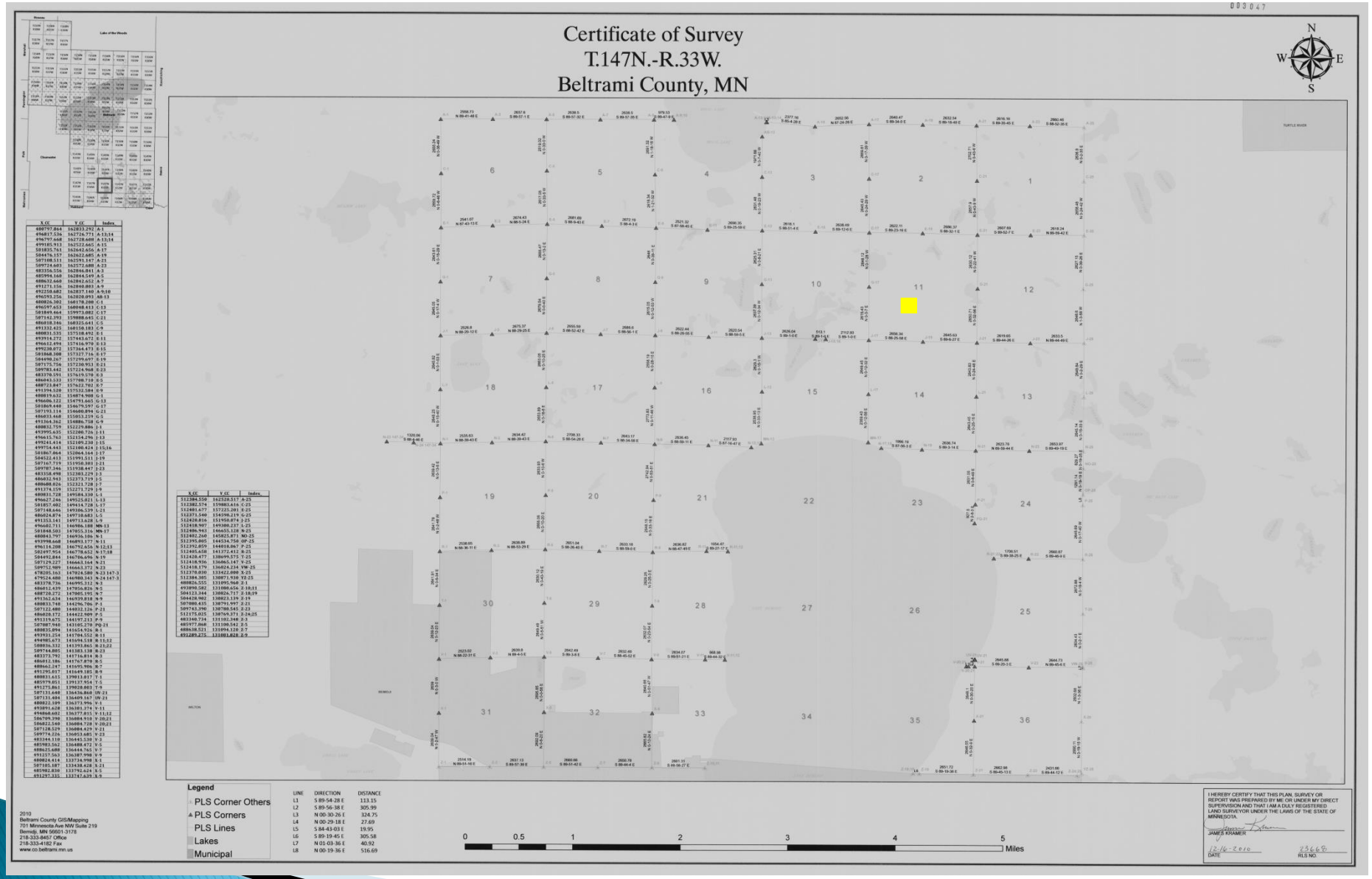
MC
N 217090.483
E 638365.204

10 acres

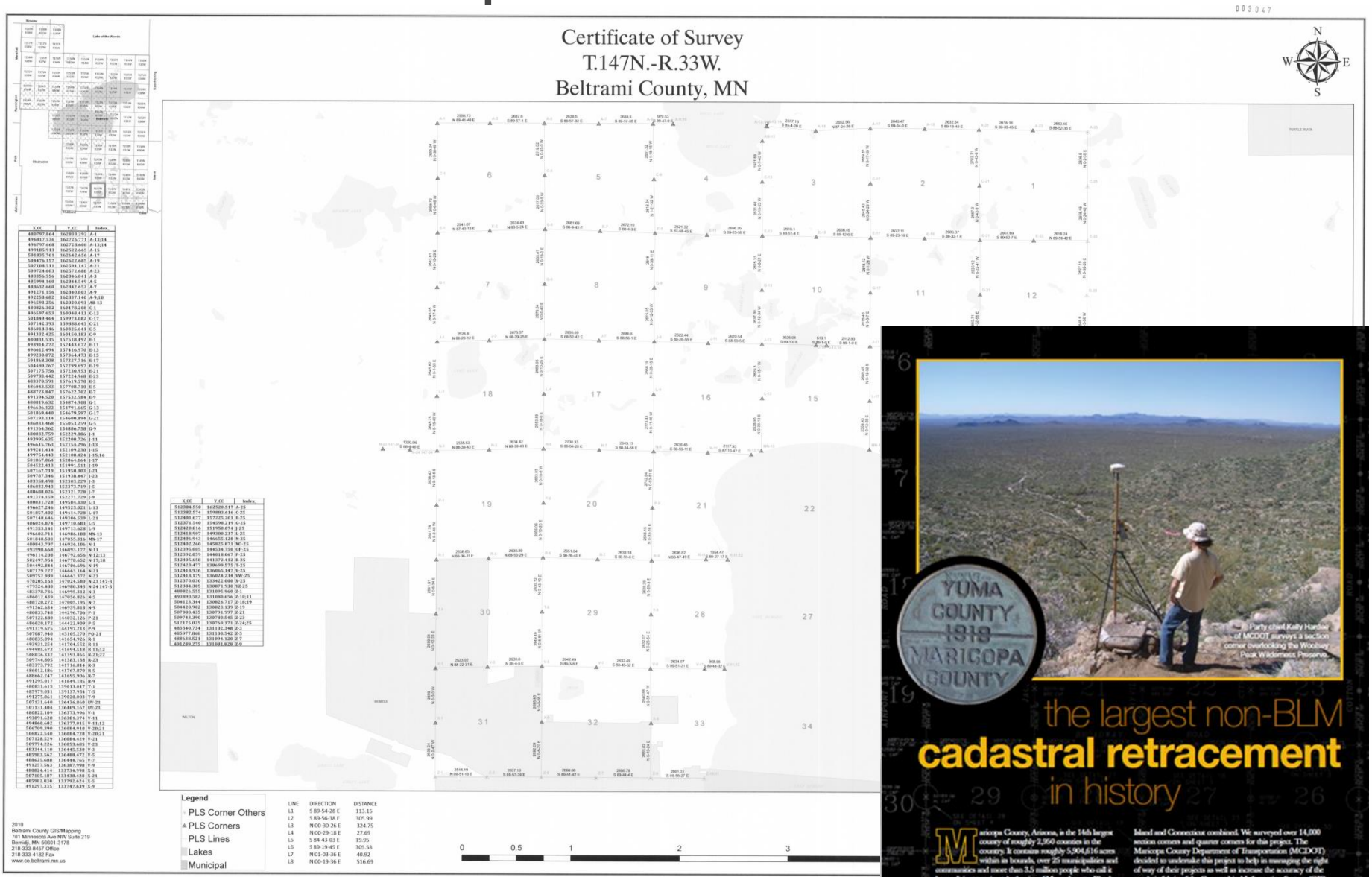



NW 1/4
160 acres
E 1/2
320 acres
NW 1/4
SW1/4
40 acres
NW 1/4
NE 1/4
SW 1/4
10 acres
NE 1/4
NE 1/4
SW 1/4
10 acres
SW 1/4
NE 1/4
SW 1/4
10 acres
SE 1/4
NE 1/4
SW 1/4
10 acres
SW 1/4
SW 1/4
40 acres
SE 1/4
SW 1/4
40 acres

Entire Townships



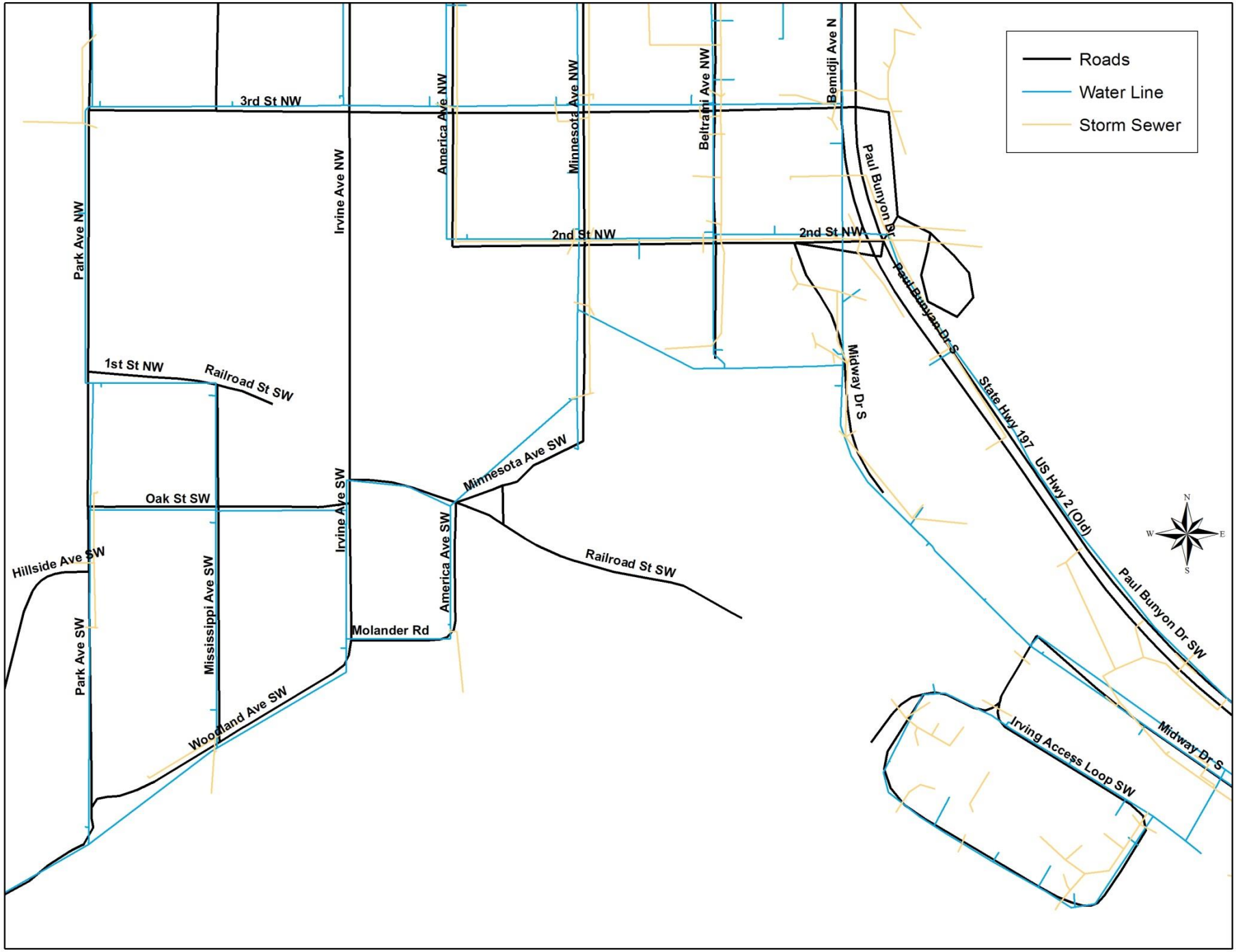
Entire Townships

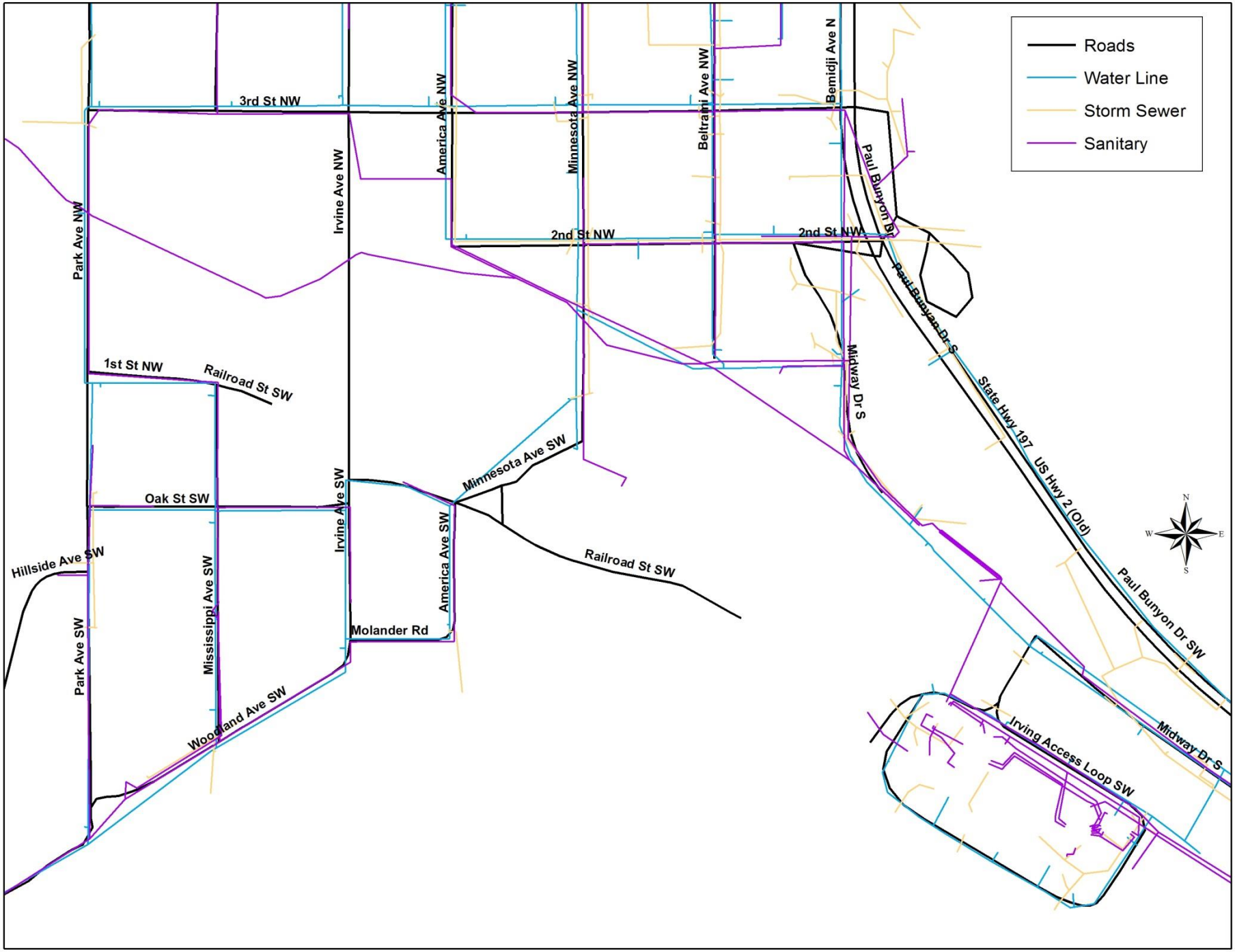


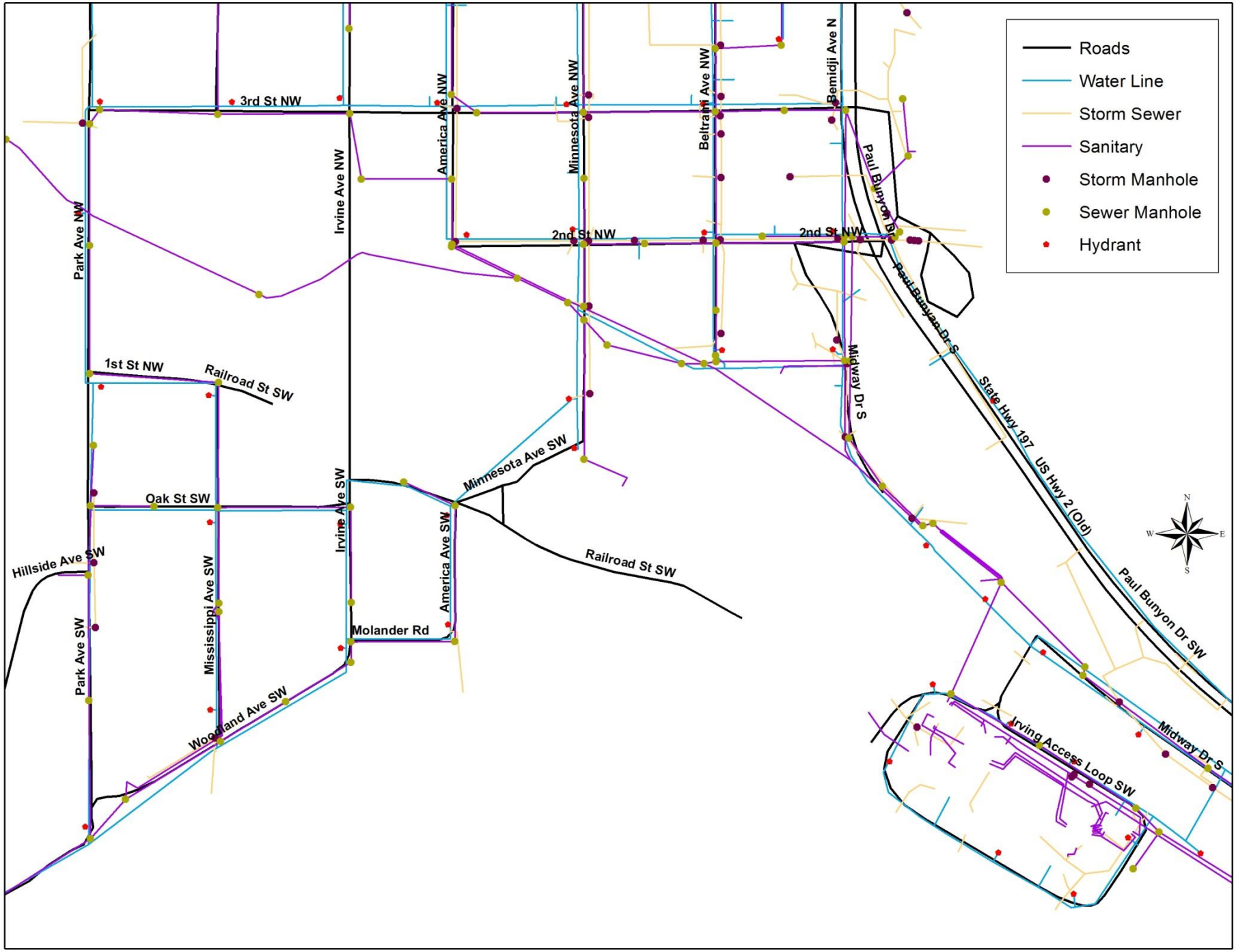
Bureau of Indians Land Surveyor (BILS)
BLM – Thomas Laakso

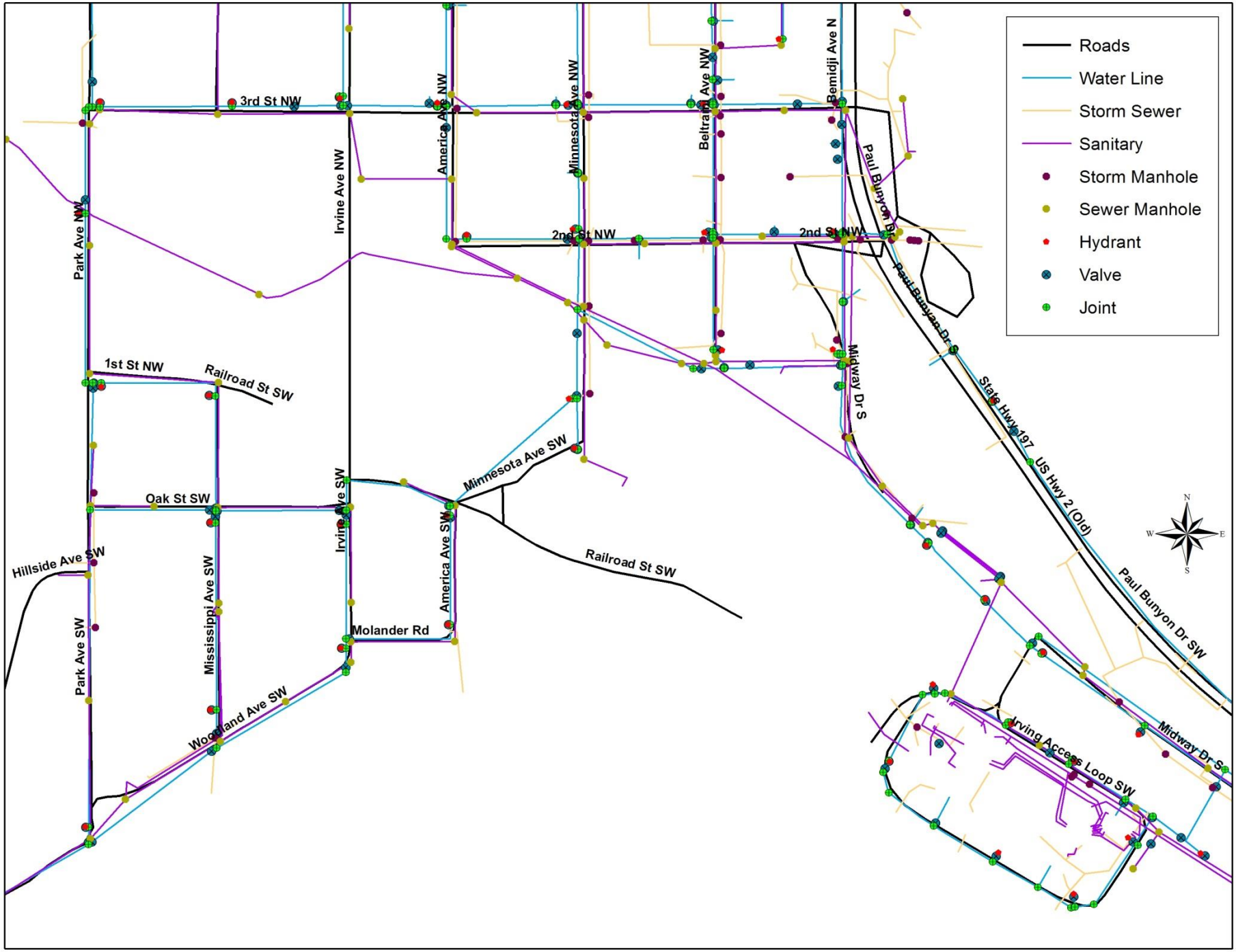
Phase 6
Data Collection

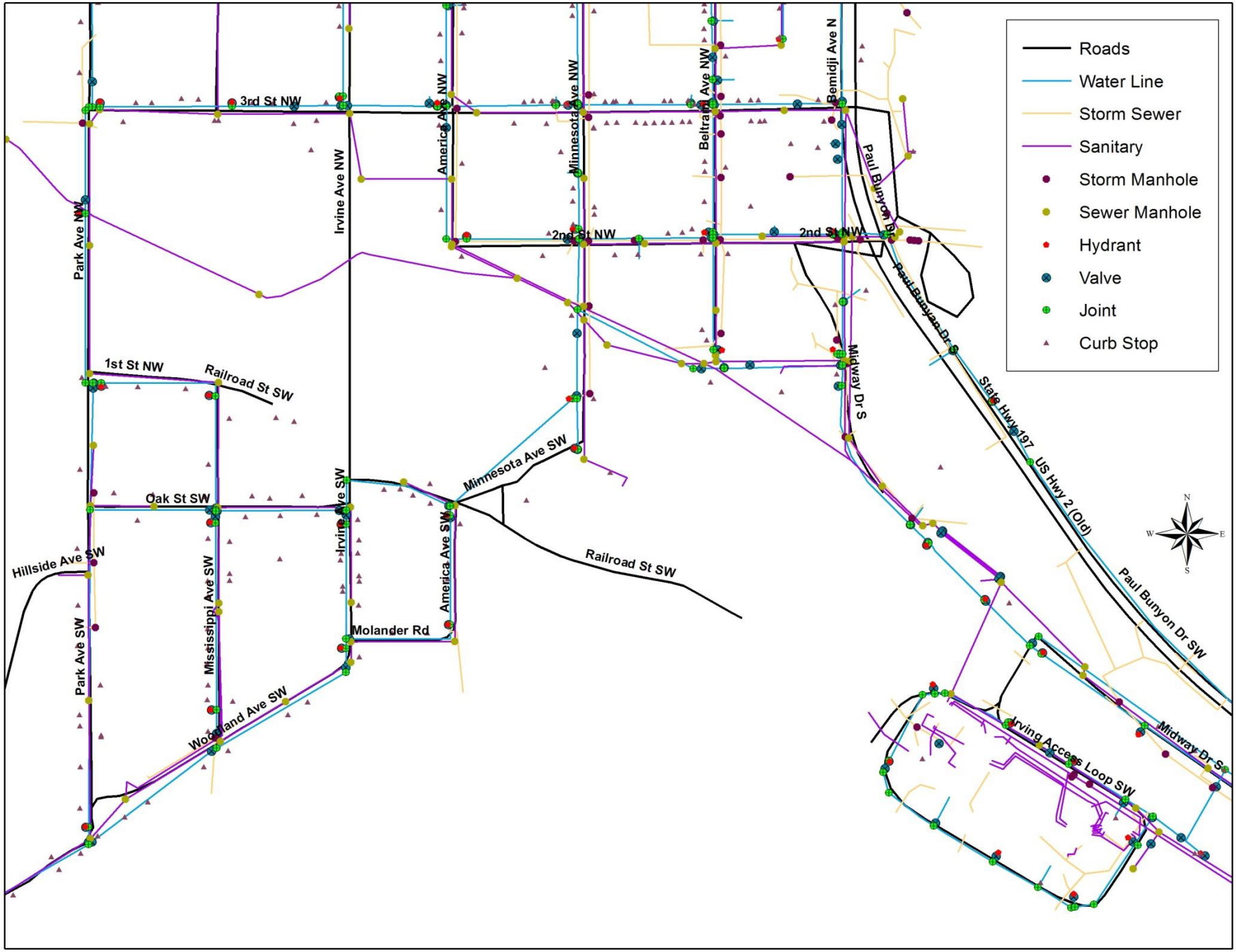
1. *Survey Procedure Handbook*
2. *Roads – Ownership, Condition, Type*
3. *Tribal Control Points*
4. *NGS Benchmarks (Prep 2022 NAV-D datum)*
5. *PLSS Collection Section, ¼ Corners*
6. *Water & Sewer Asbuilts*
7. *ROW, Easements, Plats to Data Base*

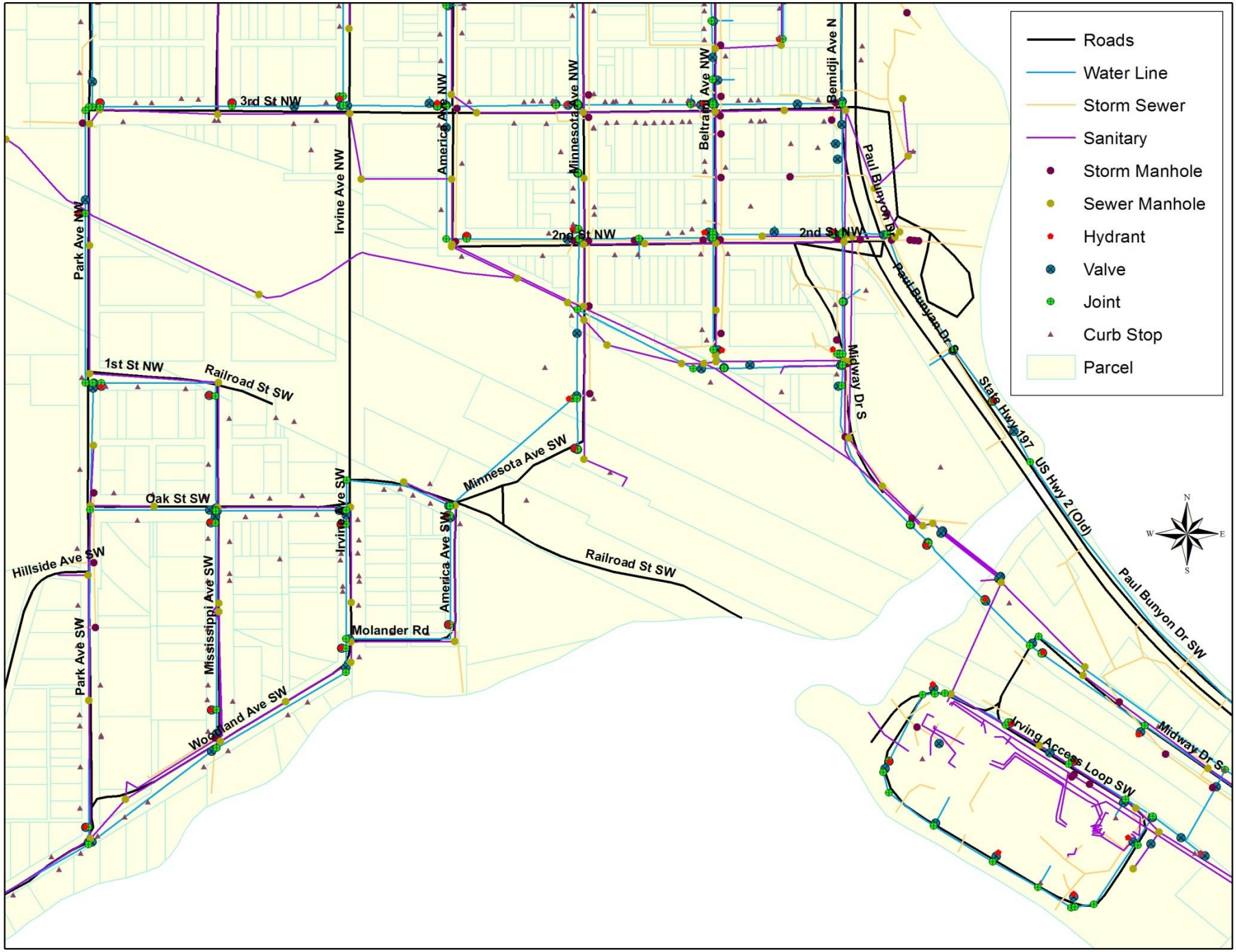

Roads
Water Line
Storm Sewer
3rd St NW
America Ave NW
Minnesota Ave NW
Beltrami Ave NW
Bemidji Ave N
Paul Bunyon Dr
Park Ave NW
Irvine Ave NW
2nd St NW
2nd St NW
Paul Bunyon Dr S
1st St NW
Railroad St SW
Midway Dr S
State Hwy 197
US Hwy 2 (Old)
Minnesota Ave SW
Oak St SW
Irvine Ave SW
America Ave SW
Railroad St SW
Hillside Ave SW
Mississippi Ave SW
Molander Rd
Paul Bunyon Dr SW
Park Ave SW
Woodland Ave SW
Irving Access Loop SW
Midway Dr S
N
W
E
S


Roads
Water Line
Storm Sewer
Sanitary
3rd St NW
America Ave NW
Minnesota Ave NW
Beltrami Ave NW
Bemidji Ave N
Paul Bunyon Dr
Irvine Ave NW
Park Ave NW
2nd St NW
2nd St NW
Paul Bunyon Dr S
Midway Dr S
State Hwy 197
US Hwy 2 (Old)
1st St NW
Railroad St SW
Minnesota Ave SW
Oak St SW
Irvine Ave SW
America Ave SW
Railroad St SW
Hillside Ave SW
Mississippi Ave SW
Park Ave SW
Molander Rd
Woodland Ave SW
Paul Bunyon Dr SW
Irving Access Loop SW
Midway Dr S
N
W
E
S


Roads
Water Line
Storm Sewer
Sanitary
Storm Manhole
Sewer Manhole
Hydrant
3rd St NW
Park Ave NW
Irvine Ave NW
America Ave NW
Minnesota Ave NW
Beltrami Ave NW
Bemidji Ave N
Paul Bunyon Dr
2nd St NW
Paul Bunyan Dr S
Midway Dr S
State Hwy 197
US Hwy 2 (Old)
Paul Bunyon Dr SW
1st St NW
Railroad St SW
Minnesota Ave SW
Oak St SW
Irvine Ave SW
America Ave SW
Hillside Ave SW
Mississippi Ave SW
Park Ave SW
Molander Rd
Woodland Ave SW
Irving Access Loop SW
Midway Dr S
N
W
E
S


Roads
Water Line
Storm Sewer
Sanitary
Storm Manhole
Sewer Manhole
Hydrant
Valve
Joint
3rd St NW
Park Ave NW
Irvine Ave NW
America Ave NW
Minnesota Ave NW
Beltrami Ave NW
Bemidji Ave N
Paul Bunyon Dr
2nd St NW
Midway Dr S
State Hwy 197
US Hwy 2 (Old)
Paul Bunyon Dr SW
1st St NW
Railroad St SW
Oak St SW
Minnesota Ave SW
Irvine Ave SW
America Ave SW
Hillside Ave SW
Mississippi Ave SW
Park Ave SW
Molander Rd
Woodland Ave SW
Irving Access Loop SW
Midway Dr S
N
W
E
S


Roads
Water Line
Storm Sewer
Sanitary
Storm Manhole
Sewer Manhole
Hydrant
Valve
Joint
Curb Stop
3rd St NW
2nd St NW
1st St NW
Oak St SW
Molander Rd
Park Ave NW
Irvine Ave NW
America Ave NW
Minnesota Ave NW
Beltrami Ave NW
Bemidji Ave N
Paul Bunyon Dr
Midway Dr S
State Hwy 197
US Hwy 2 (Old)
Railroad St SW
Minnesota Ave SW
Irvine Ave SW
America Ave SW
Hillside Ave SW
Park Ave SW
Mississippi Ave SW
Woodland Ave SW
Paul Bunyon Dr SW
Irving Access Loop SW
Midway Dr S
N
W
E
S

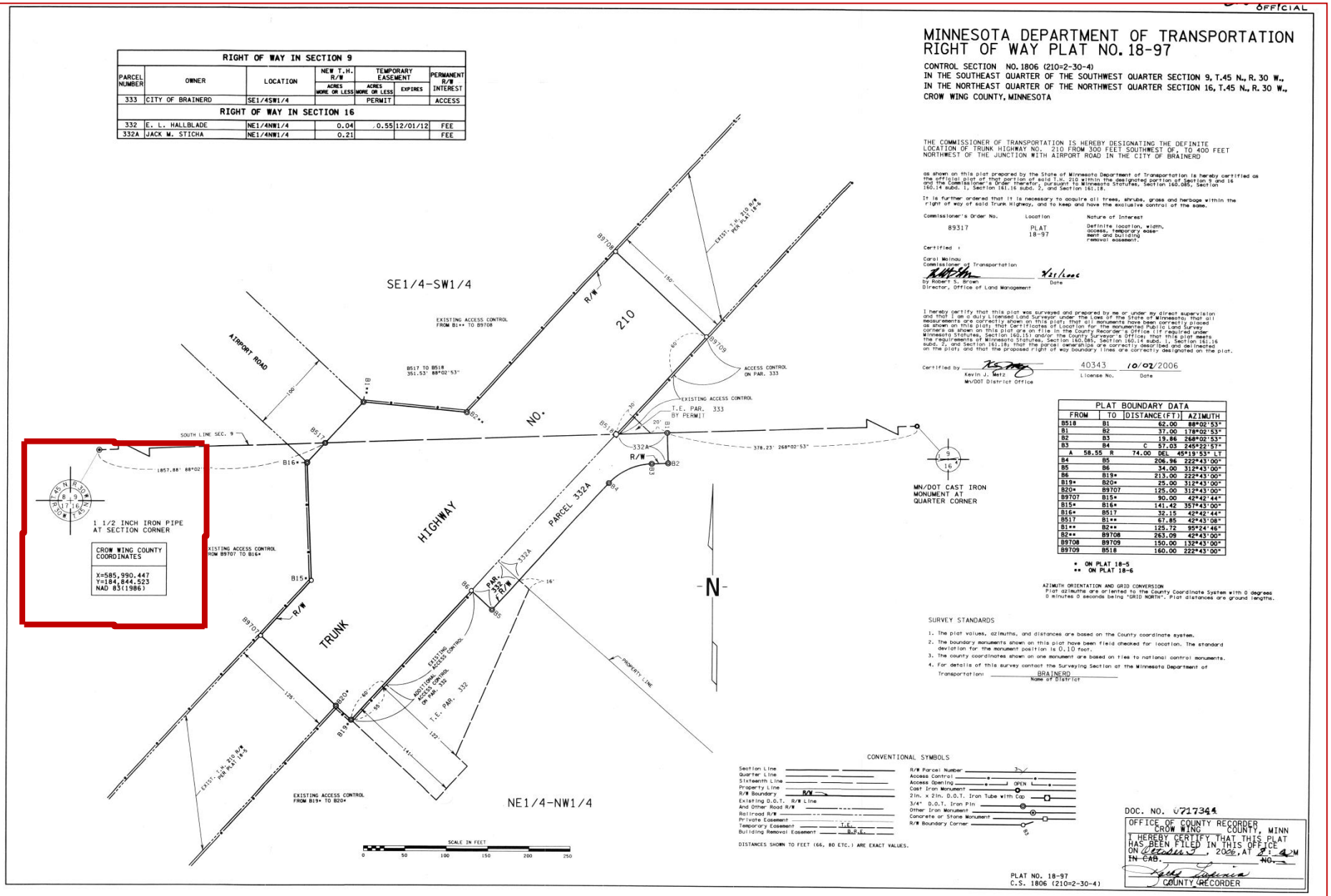

Roads
Water Line
Storm Sewer
Sanitary
Storm Manhole
Sewer Manhole
Hydrant
Valve
Joint
Curb Stop
Parcel
3rd St NW
Park Ave NW
Irvine Ave NW
America Ave NW
Minnesota Ave NW
Beltrami Ave NW
Bemidji Ave N
Paul Bunyon Dr
2nd St NW
Midway Dr S
State Hwy 197
US Hwy 2 (Old)
Paul Bunyon Dr SW
1st St NW
Railroad St SW
Oak St SW
Minnesota Ave SW
Irvine Ave SW
America Ave SW
Hillside Ave SW
Park Ave SW
Mississippi Ave SW
Molander Rd
Woodland Ave SW
Irving Access Loop SW
Midway Dr S
N
W
E
S


Roads
Water Line
Storm Sewer
Sanitary
Storm Manhole
Sewer Manhole
Hydrant
Valve
Joint
Curb Stop
Parcel
3rd St NW
America Ave NW
Minnesota Ave NW
Beltrami Ave NW
Bemidji Ave N
Irvine Ave NW
Park Ave NW
2nd St NW
Paul Bunyon Dr S
Midway Dr S
State Hwy 197
US Hwy 2 (Old)
Paul Bunyon Dr SW
1st St NW
Railroad St SW
Oak St SW
Irvine Ave SW
Hillside Ave SW
Mississippi Ave SW
Park Ave SW
Woodland Ave SW
Irving Access Loop SW
Midway Dr S
O2-UK
11:58
100%
DODADOG
Carshalton
Carshalton Beeches
Stop My Walk
N
S
E
W

Phase 6
Data Collection

1. *Survey Procedure Handbook*
2. *Roads – Ownership, Condition, Type*
3. *Tribal Control Points*
4. *NGS Benchmarks (Prep 2022 NAV-D datum)*
5. *PLSS Collection Section, ¼ Corners*
6. *Water & Sewer Asbuilts*
7. *ROW, Easements, Plats to Data Base*

DOT ROW Map



RIGHT OF WAY IN SECTION 9

PARCEL NUMBER	OWNER	LOCATION	NEW T.H. R/W ACRES MORE OR LESS	TEMPORARY EASEMENT ACRES MORE OR LESS	TEMPORARY EASEMENT EXPIRES	PERMANENT R/W INTEREST
333	CITY OF BRAINERD	SE1/4SW1/4		PERMIT		ACCESS
RIGHT OF WAY IN SECTION 16						
332	E. L. HALLBLADE	NE1/4NW1/4	0.04	0.55	12/01/12	FEE
332A	JACK W. STICHA	NE1/4NW1/4	0.21			FEE

MINNESOTA DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY PLAT NO. 18-97

CONTROL SECTION NO. 1806 (210=2-30-4)
IN THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER SECTION 9, T.45 N., R. 30 W.,
IN THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER SECTION 16, T.45 N., R. 30 W.,
CROW WING COUNTY, MINNESOTA

THE COMMISSIONER OF TRANSPORTATION IS HEREBY DESIGNATING THE DEFINITE LOCATION OF TRUNK HIGHWAY NO. 210 FROM 300 FEET SOUTHWEST OF, TO 400 FEET NORTHWEST OF THE JUNCTION WITH AIRPORT ROAD IN THE CITY OF BRAINERD

as shown on this plat prepared by the State of Minnesota Department of Transportation is hereby certified as the official plat of that portion of said T.H. 210 within the designated portion of Section 9 and 16 and the Commissioner's Order therefor, pursuant to Minnesota Statutes, Section 160.085, Section 160.14 subd. 1, Section 161.16 subd. 2, and Section 161.18.

It is further ordered that it is necessary to acquire all trees, shrubs, grass and herbage within the right of way of said Trunk Highway, and to keep and have the exclusive control of the same.

Commissioner's Order No.	Location	Nature of Interest
89317	PLAT 18-97	Definite location, width, access, temporary easement and building removal easement.

Certified :

Carol Molnau
Commissioner of Transportation
by Robert S. Brown
Director, Office of Land Management
4/21/2006
Date

I hereby certify that this plat was surveyed and prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the Laws of the State of Minnesota; that all monuments are correctly shown on this plat; that all monuments have been correctly placed as shown on this plat; that Certificates of Location for the monumented Public Land Survey corners as shown, have been duly filed in the County Recorder's Office (if required under Minnesota Statutes, Section 160.151) and/or the County Surveyor's Office; that this plat meets the requirements of Minnesota Statutes, Section 505.021; Section 160.14 subd. 1, Section 161.16 subd. 2, and Section 161.18; that the parcel ownerships are correctly described and delineated on the plat; and that the proposed right of way boundary lines are correctly designated on the plat.

Certified by Kevin J. Metz
Mn/DOT District Office
40343
License No.
10/02/2006
Date

PLAT BOUNDARY DATA

FROM	TO	DISTANCE(FT)	AZIMUTH
B518	B1	62.00	88°02'53"
B1	B2	37.00	178°02'53"
B2	B3	19.86	268°02'53"
B3	B4	C 57.03	245°22'57"
A 58.55 R	74.00	DEL 45°19'53" LT	
B4	B5	206.96	222°43'00"
B5	B6	34.00	312°43'00"
B6	B19*	213.00	222°43'00"
B19*	B20*	25.00	312°43'00"
B20*	B9707	125.00	312°43'00"
B9707	B15*	90.00	42°42'44"
B15*	B16*	141.42	357°43'00"
B16*	B517	32.15	42°42'44"
B517	B1**	67.85	42°43'08"
B1**	B2**	125.72	95°24'46"
B2**	B9708	263.09	42°43'00"
B9708	B9709	150.00	132°43'00"
B9709	B518	160.00	222°43'00"

* ON PLAT 18-5
** ON PLAT 18-6

AZIMUTH ORIENTATION AND GRID CONVERSION
Plat azimuths are oriented to the County Coordinate System with 0 degrees 0 minutes 0 seconds being "GRID NORTH". Plat distances are ground lengths.

SURVEY STANDARDS

1. The plat values, azimuths, and distances are based on the County coordinate system.
2. The boundary monuments shown on this plat have been field checked for location. The standard deviation for the monument position is 0.10 foot.
3. The county coordinates shown on one monument are based on ties to national control monuments.
4. For details of this survey contact the Surveying Section at the Minnesota Department of Transportation: BRAINERD
Name of District

CONVENTIONAL SYMBOLS

Section Line
Quarter Line
Sixteenth Line
Property Line
R/W Boundary
Existing D.O.T. R/W Line And Other Road R/W
Railroad R/W
Private Easement
Temporary Easement T.E.
Building Removal Easement B.R.E.

R/W Parcel Number
Access Control
Access Opening OPEN
Cast Iron Monument
2in. x 2in. D.O.T. Iron Tube with Cap
3/4" D.O.T. Iron Pin
Other Iron Monument
Concrete or Stone Monument
R/W Boundary Corner

DISTANCES SHOWN TO FEET (66, 80 ETC.) ARE EXACT VALUES.

DOC. NO. 0717344
OFFICE OF COUNTY RECORDER
CROW WING COUNTY, MINN
I HEREBY CERTIFY THAT THIS PLAT HAS BEEN FILED IN THIS OFFICE ON October 7, 2006, AT 8:02 M IN CAB. NO.
COUNTY RECORDER

PLAT NO. 18-97
C.S. 1806 (210=2-30-4)

1 1/2 INCH IRON PIPE AT SECTION CORNER

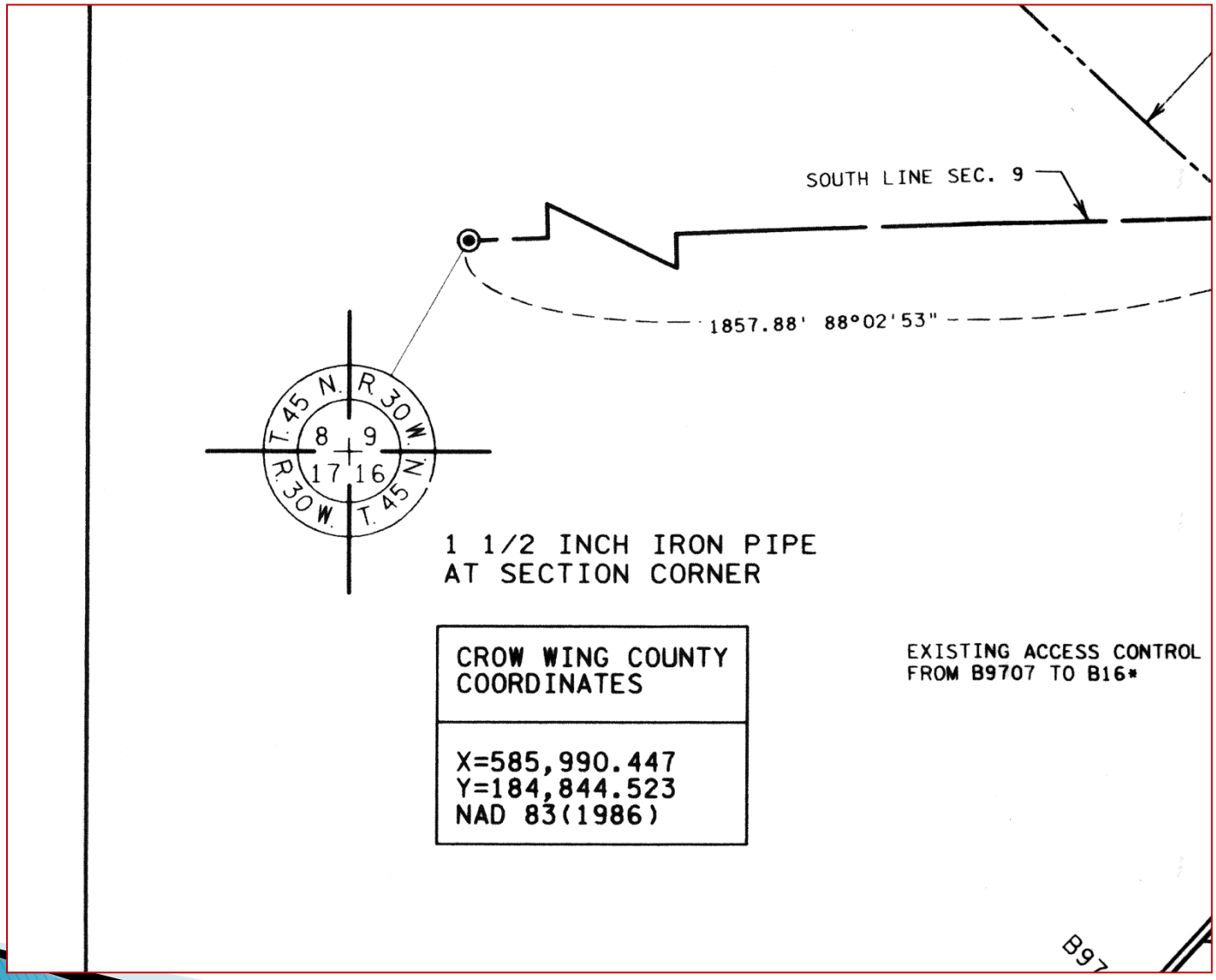
CROW WING COUNTY COORDINATES
X=585,990.447
Y=184,844.523
NAD 83(1986)

MN/DOT CAST IRON MONUMENT AT QUARTER CORNER

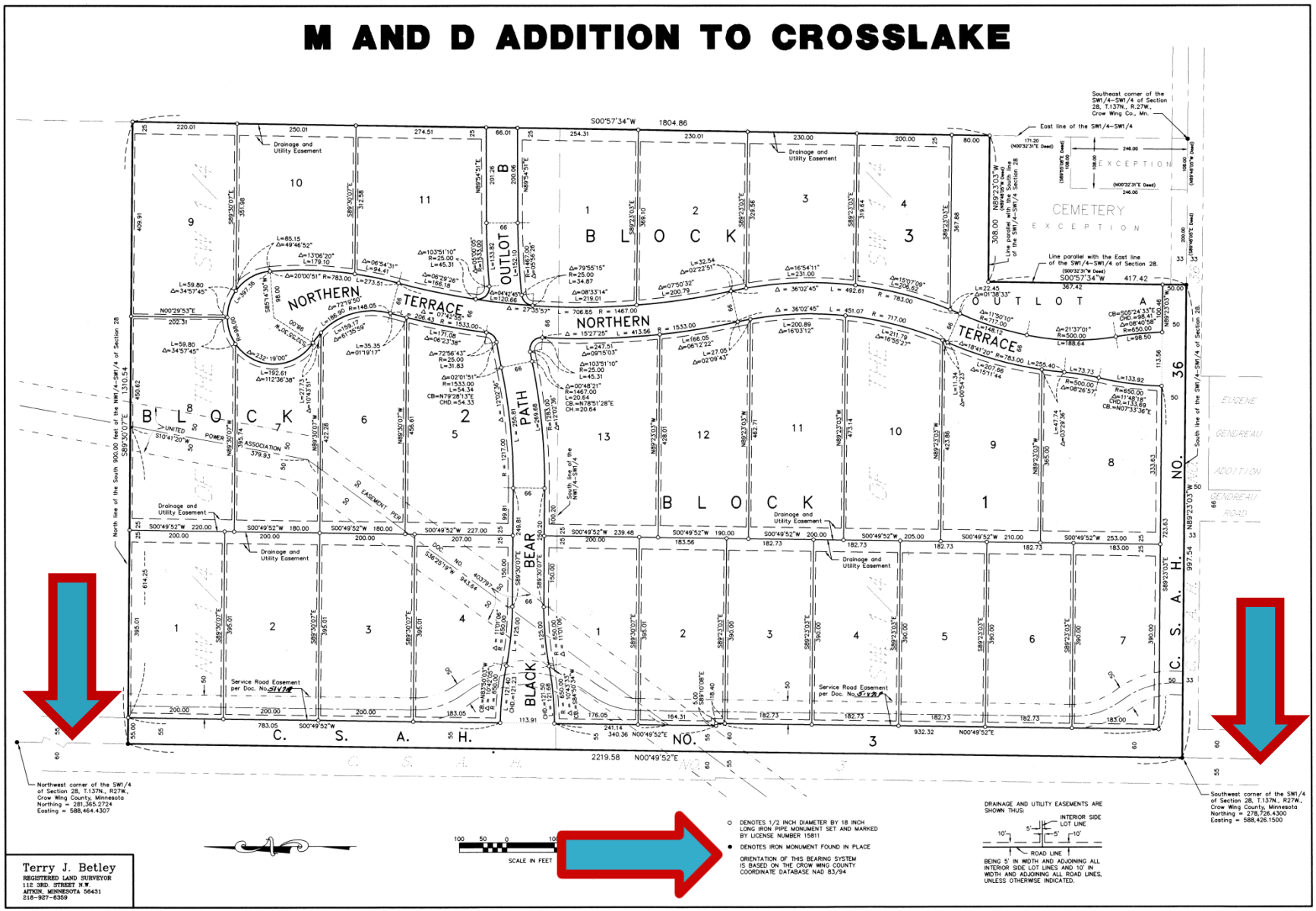
SE1/4-SW1/4
NE1/4-NW1/4
HIGHWAY NO. 210
TRUNK HIGHWAY 210
AIRPORT ROAD
PARCEL 332A
PROPERTY LINE
SOUTH LINE SEC. 9
EXISTING ACCESS CONTROL FROM B1** TO B9708
EXISTING ACCESS CONTROL FROM B9707 TO B16*
EXISTING ACCESS CONTROL FROM B19* TO B20*
ACCESS CONTROL ON PAR. 333
EXISTING ACCESS CONTROL
T.E. PAR. 333 BY PERMIT
ADDITIONAL ACCESS CONTROL ON PAR. 332
T.E. PAR. 332
PAR. 332 R/W
EXIST. T.H. 210 R/W PER PLAT 18-6
EXIST. T.H. 210 R/W PER PLAT 18-5
B517 TO B518 351.53' 88°02'53"
1857.88' 88°02'
378.23' 268°02'53"
SCALE IN FEET
0 50 100 150 200 250

OFFICIAL

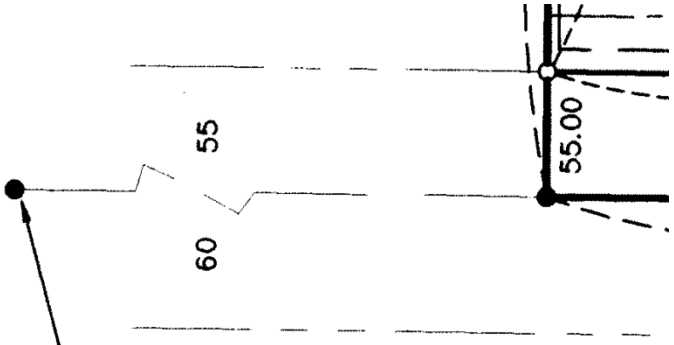
DOT ROW Map


SOUTH LINE SEC. 9
1857.88' 88°02'53"
T.45 N. R.30 W.
8 9
17 16
R.30 W. T.45 N.
1 1/2 INCH IRON PIPE
AT SECTION CORNER
CROW WING COUNTY
COORDINATES
X=585,990.447
Y=184,844.523
NAD 83(1986)
EXISTING ACCESS CONTROL
FROM B9707 TO B16*
B97

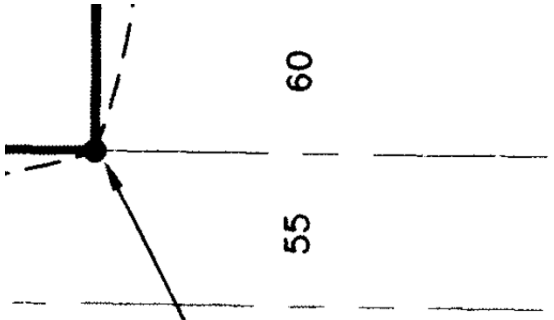
Plat


M AND D ADDITION TO CROSSLAKE
COPY
S00°57'34"W 1804.86
Southeast corner of the SW1/4–SW1/4 of Section 28, T.137N., R.27W., Crow Wing Co., Mn.
East line of the SW1/4–SW1/4
EXCEPTION
CEMETERY
EXCEPTION
Line parallel with the East line of the SW1/4–SW1/4 of Section 28.
Line parallel with the South line of the SW1/4–SW1/4 of Section 28
Drainage and Utility Easement
NORTHERN TERRACE
NORTHERN PATH
BEAR BLOCK
OUTLOT B
OUTLOT A
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
UNITED POWER ASSOCIATION
EASEMENT
Service Road Easement per Doc. No. 317178
C. S. A. H. NO. 36
C. S. A. H. NO. 3
EUGENE GENDREAU ADDITION
GENDREAU ROAD
South line of the SW1/4–SW1/4 of Section 28.
North line of the South 900.00 feet of the NW1/4–SW1/4 of Section 28
Northwest corner of the SW1/4 of Section 28, T.137N., R27W., Crow Wing County, Minnesota Northing = 281,365.2724 Easting = 588,464.4307
Southwest corner of the SW1/4 of Section 28, T.137N., R27W., Crow Wing County, Minnesota Northing = 278,726.4300 Easting = 588,426.1500
2219.58 N00°49'52"E
SCALE IN FEET
DENOTES 1/2 INCH DIAMETER BY 18 INCH LONG IRON PIPE MONUMENT SET AND MARKED BY LICENSE NUMBER 15811
DENOTES IRON MONUMENT FOUND IN PLACE
ORIENTATION OF THIS BEARING SYSTEM IS BASED ON THE CROW WING COUNTY COORDINATE DATABASE NAD 83/94
DRAINAGE AND UTILITY EASEMENTS ARE SHOWN THUS:
INTERIOR SIDE LOT LINE
ROAD LINE
BEING 5' IN WIDTH AND ADJOINING ALL INTERIOR SIDE LOT LINES AND 10' IN WIDTH AND ADJOINING ALL ROAD LINES, UNLESS OTHERWISE INDICATED.
Terry J. Betley
REGISTERED LAND SURVEYOR
112 3RD. STREET N.W.
AITKIN, MINNESOTA 56431
218-927-6369
SHEET 2 OF 2 SHEETS

County Coordinates



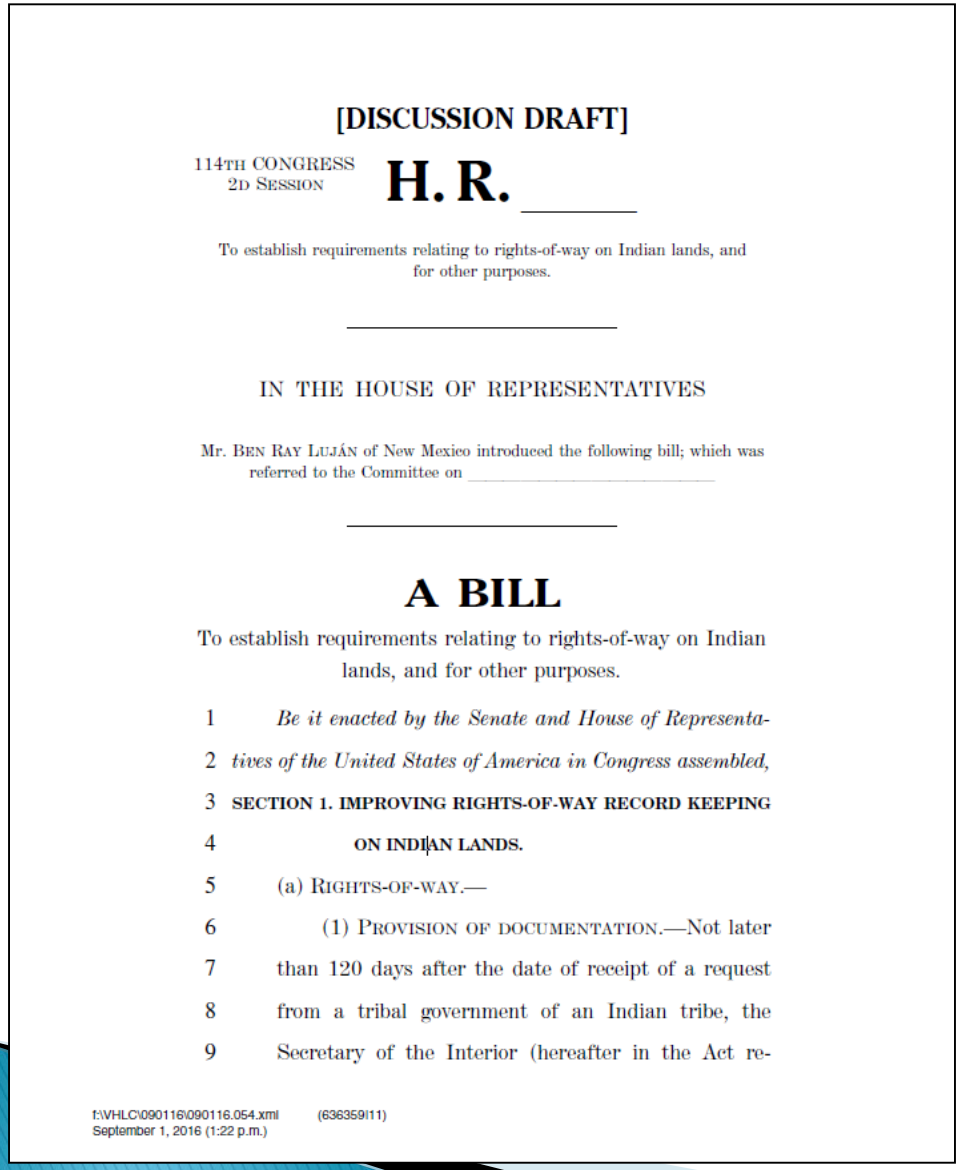
Northwest corner of the SW1/4
of Section 28, T.137N., R27W.,
Crow Wing County, Minnesota
Northing = 281,365.2724
Easting = 588,464.4307



Southwest corner of the SW1/4
of Section 28, T.137N., R27W.,
Crow Wing County, Minnesota
Northing = 278,726.4300
Easting = 588,426.1500

ORIENTATION OF THIS BEARING SYSTEM
IS BASED ON THE CROW WING COUNTY
COORDINATE DATABASE NAD 83/94

Data Base – BIA ROWs, Easements, … Senator Lujan



[DISCUSSION DRAFT]

114TH CONGRESS
2D SESSION

H. R. _____

To establish requirements relating to rights-of-way on Indian lands, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. BEN RAY LUJÁN of New Mexico introduced the following bill; which was referred to the Committee on _____

A BILL

To establish requirements relating to rights-of-way on Indian lands, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. IMPROVING RIGHTS-OF-WAY RECORD KEEPING ON INDIAN LANDS.

(a) RIGHTS-OF-WAY.—

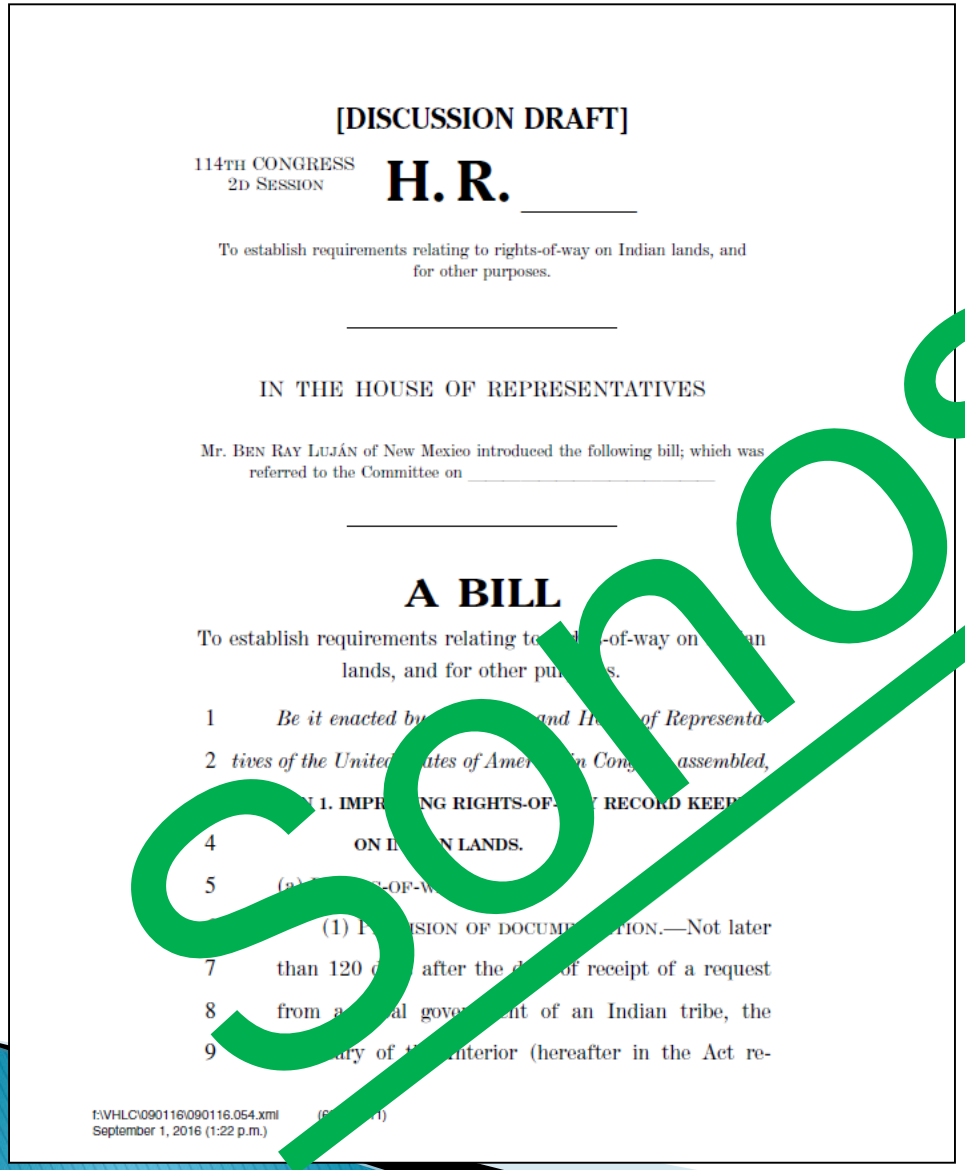
(1) PROVISION OF DOCUMENTATION.—Not later than 120 days after the date of receipt of a request from a tribal government of an Indian tribe, the Secretary of the Interior (hereafter in the Act re-

f:\VHLC\090116\090116.054.xml (636359|11)
September 1, 2016 (1:22 p.m.)

* Requires the BIA to develop a comprehensive national update of all right-of-way records in a computerized and publicly available database.

* Authorizes $10 million annually for the BIA to carry out the requirements of the legislation for fiscal years 2017 through 2022.

Data Base – BIA ROWs, Easements, … Senator Lujan



[DISCUSSION DRAFT]

114TH CONGRESS
2D SESSION

H. R. _____

To establish requirements relating to rights-of-way on Indian lands, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. BEN RAY LUJÁN of New Mexico introduced the following bill; which was referred to the Committee on _____

A BILL

To establish requirements relating to [illegible]-of-way on [illegible]n lands, and for other pu[illegible]s.

Be it enacted by [illegible] and H[illegible] of Representa-
tives of the United [illegible]tates of Amer[illegible]n Cong[illegible] assembled,

[illegible] 1. IMPR[illegible]NG RIGHTS-OF-[illegible] RECORD KEEP[illegible]
ON I[illegible]N LANDS.

(a) [illegible]-OF-W[illegible]

(1) I[illegible]ISION OF DOCUMI[illegible]TION.—Not later than 120 [illegible] after the [illegible] of receipt of a request from a[illegible]al govo[illegible]nt of an Indian tribe, the [illegible]ary of t[illegible]nterior (hereafter in the Act re-

f:\VHLC\090116\090116.054.xml
September 1, 2016 (1:22 p.m.)

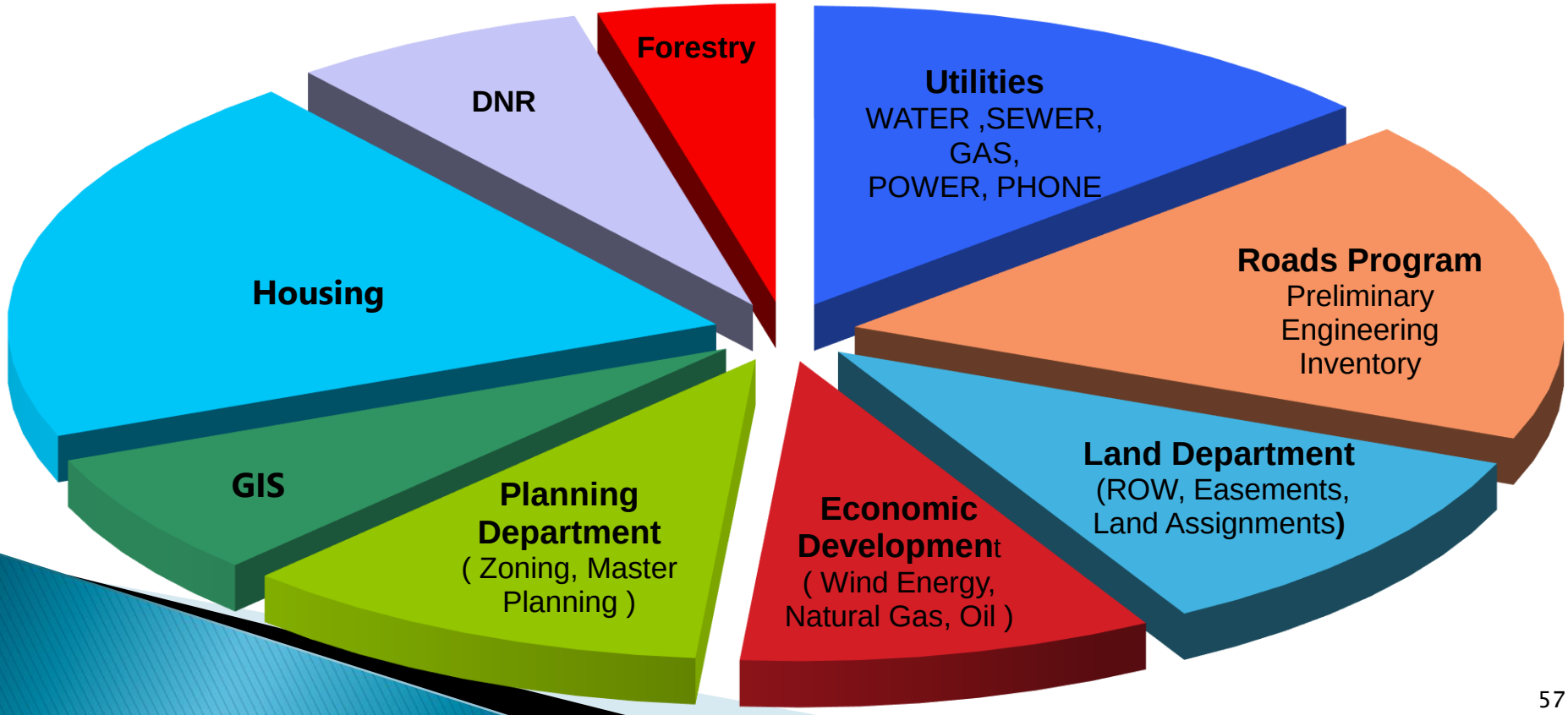
SONOSKY

* Requires the BIA to develop a comprehensive national update of all right-of-way records in a computerized and publicly available database.

* Authorizes $10 million annually for the BIA to carry out the requirements of the legislation for fiscal years 2017 through 2022.

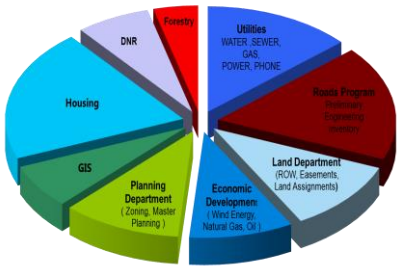
DATA COLLECTION
Everyone Benefits

In 5, 10, 15, 20 years…



In 5, 10, 15, 20 years… the survey and engineering data produced/collected will be easily retrievable!

- ROW's
- Easements
- Land Surveys
- Land Corners
- Utility Asbuilts
  - Water & Sewer Lines
  - Gas Lines
  - Power Lines
- Irrigations Structures
- Topographic Surveys



Who collects the data?

1) Engineers
2) Surveyors

GIS

What is it and what can it do?

- A geographic information system (**GIS**) is a framework for gathering, managing, and analyzing data. ESRI

Explore, manage, visualize and analyze

GIS

What is it and what can it do?

- A geographic information system (GIS) is a framework for gathering, managing, and analyzing data. ESRI

- Explore, manage, visualize and analyze

Needs

- A comprehensive Geographic Information System to manage and share spatially related data amongst Tribal departments and interests to improve the management, maintenance, and utilization of Tribal assets.
- To create a process and strategy to accomplish this.
- To create a training mechanism to enable tribes to implement the process and strategy

Approach

- So why start with the Road Information Field Data System?
  - The current system provided by the BIA does not provide an easily accessible visual representation of the inventory
  - Being able to easily identify routes for maintenance projects, such as snow removal, is a priority for Tribal Transportation Departments Example
  - Accuracy of data catalogued in RIFDS impacts funding through the Tribal Transportation Program (TTP)

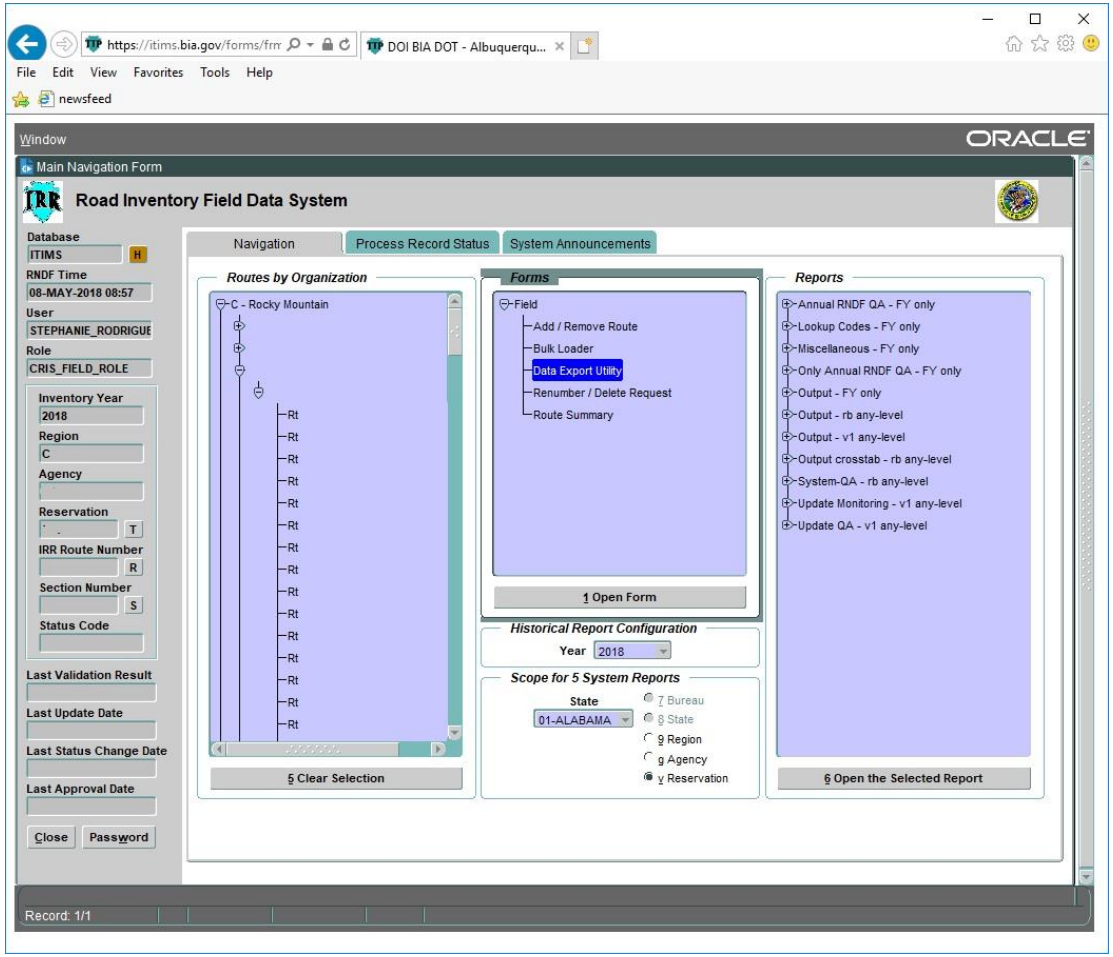
Where to begin?

- Identify the current processes in place for cataloging Routes in RIFDS and how to access this information:
  - RIFDS training
  - Other colleagues and Tribal members with previous training and experience to identify challenges and places for improvement
  - Cooperation and communication with BIA TTP representatives
  - Cooperation and communication with end users who need RIFDS information to complete their daily tasks

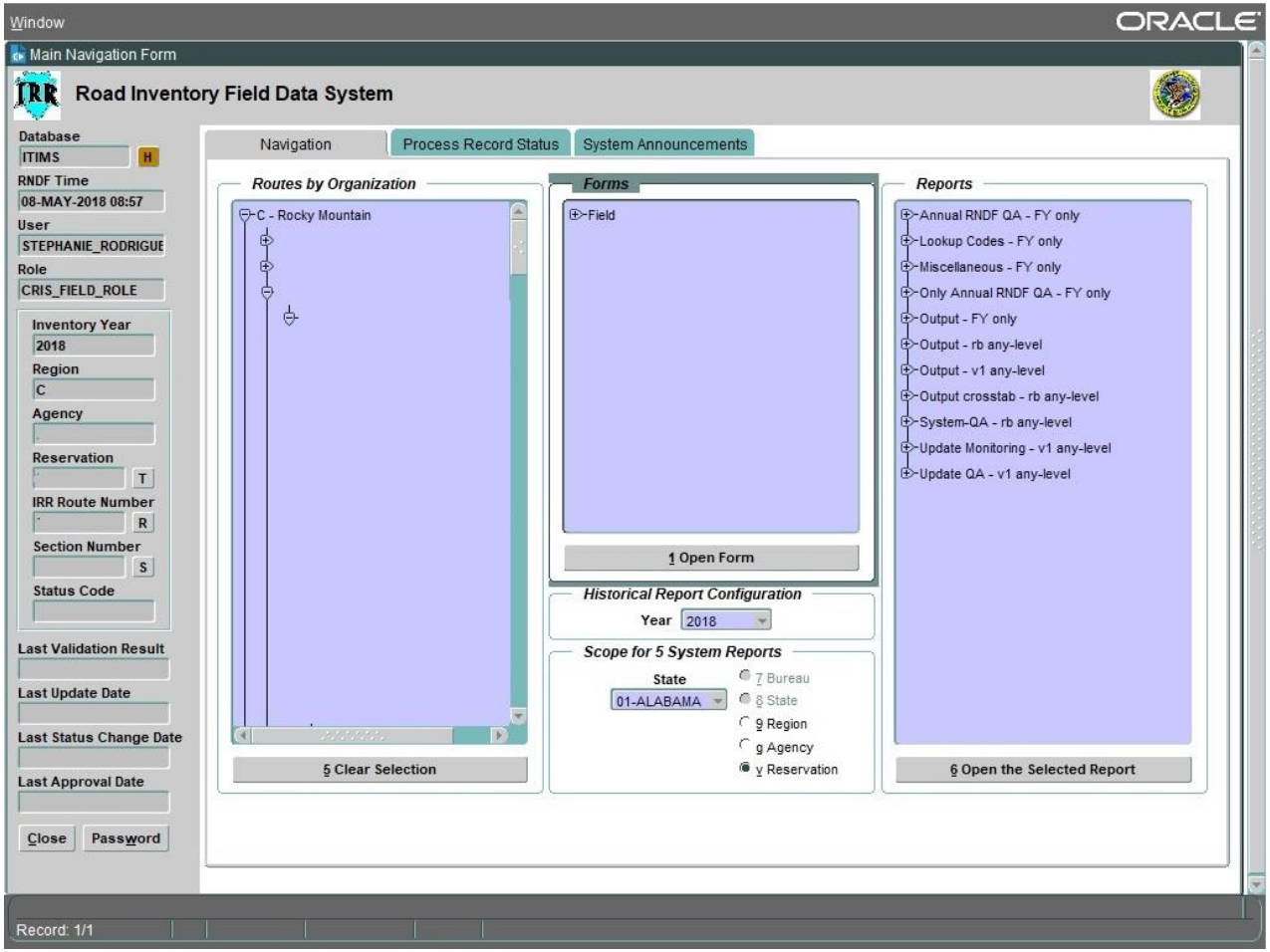
Challenges Identified in Current Process:

- Visualization and identification of Routes difficult
  - Most efficient current strategy for many is to consult strip maps, narratives, and the legacy knowledge of those previously involved in submitting Routes
    - Access to RIFDS is limited and gaining access is a complicated and lengthy process, a lapse in authorization can seriously impact a Tribes ability to see and update their data
    - When former Tribal, BIA, and consultant depart, their extensive personal knowledge goes with them
  - Challenges in visualizing and tracking Routes without a spatial context leads to duplicates, overlaps, ghost trails, proposed projects since abandoned, and unintentional omissions from the system.

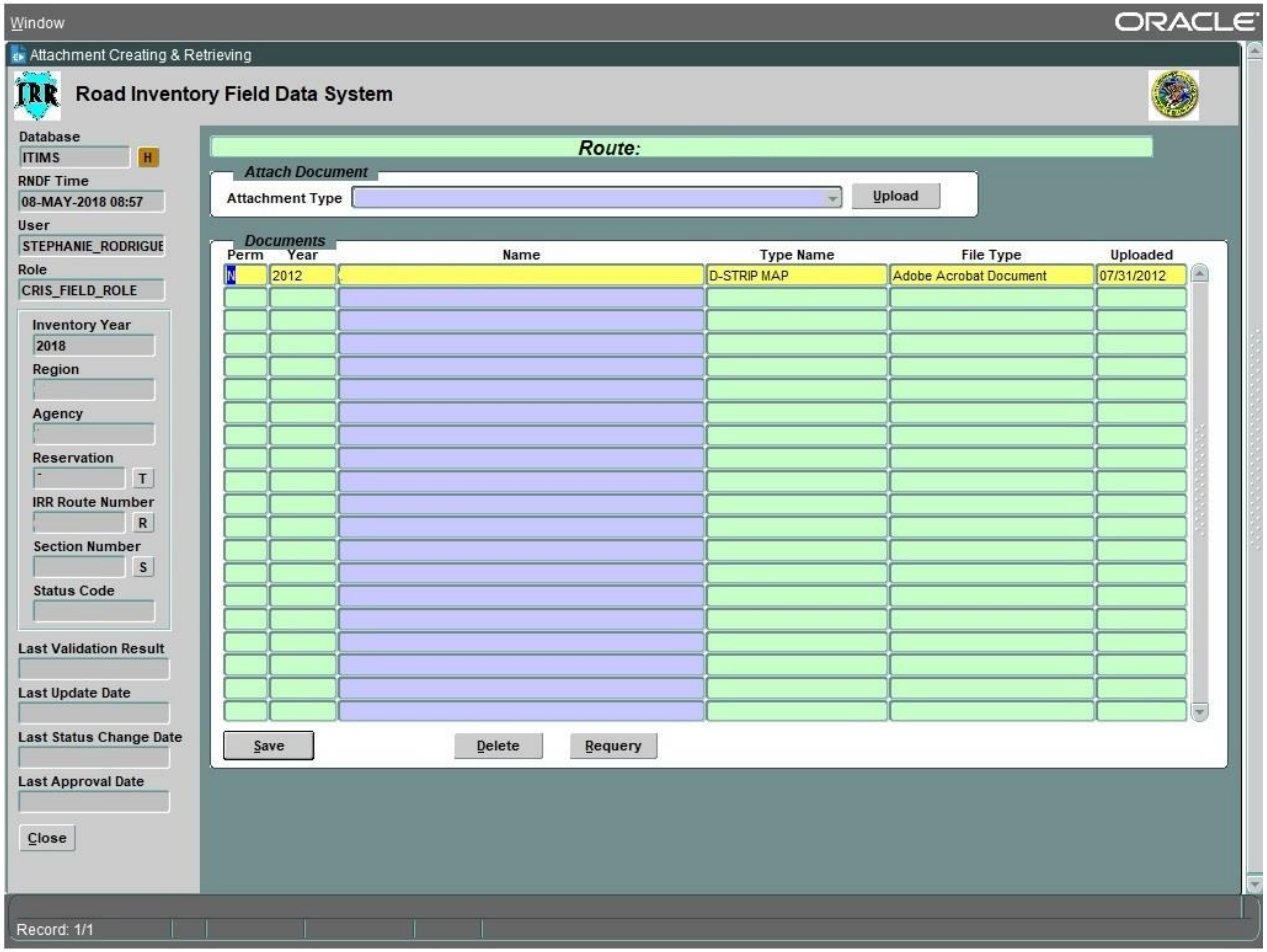
RIFDS


https://itims.bia.gov/forms/frm
DOI BIA DOT - Albuquerqu...
File Edit View Favorites Tools Help
newsfeed
Window
ORACLE
Main Navigation Form
Road Inventory Field Data System
Database
ITIMS
RNDF Time
08-MAY-2018 08:57
User
STEPHANIE_RODRIGUE
Role
CRIS_FIELD_ROLE
Inventory Year
2018
Region
C
Agency
Reservation
IRR Route Number
Section Number
Status Code
Last Validation Result
Last Update Date
Last Status Change Date
Last Approval Date
Close
Password
Navigation
Process Record Status
System Announcements
Routes by Organization
C - Rocky Mountain
Rt
5 Clear Selection
Forms
Field
Add / Remove Route
Bulk Loader
Data Export Utility
Renumber / Delete Request
Route Summary
1 Open Form
Historical Report Configuration
Year 2018
Scope for 5 System Reports
State
01-ALABAMA
7 Bureau
8 State
9 Region
g Agency
y Reservation
Reports
Annual RNDF QA - FY only
Lookup Codes - FY only
Miscellaneous - FY only
Only Annual RNDF QA - FY only
Output - FY only
Output - rb any-level
Output - v1 any-level
Output crosstab - rb any-level
System-QA - rb any-level
Update Monitoring - v1 any-level
Update QA - v1 any-level
6 Open the Selected Report
Record: 1/1

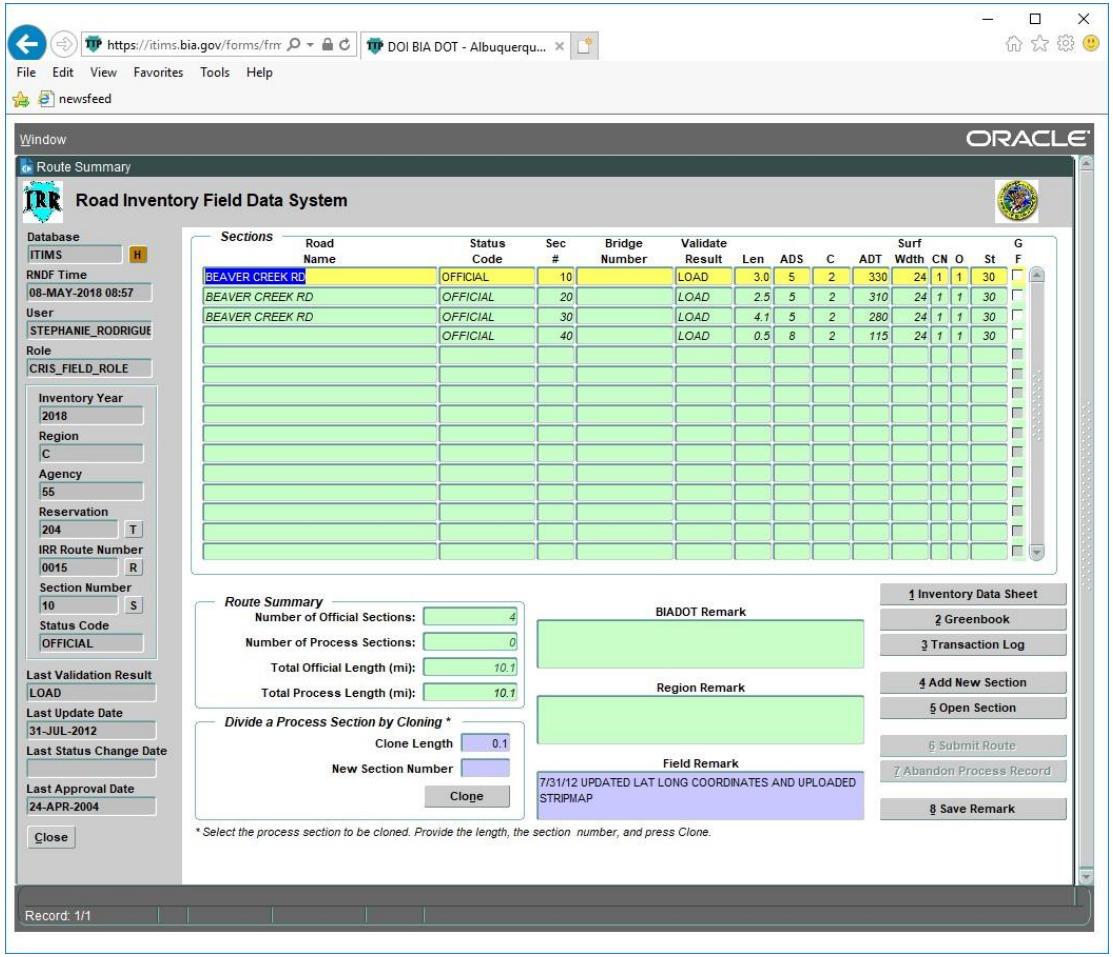
RIFDS


Window
ORACLE
Main Navigation Form
Road Inventory Field Data System
Database
ITIMS
H
RNDF Time
08-MAY-2018 08:57
User
STEPHANIE_RODRIGUE
Role
CRIS_FIELD_ROLE
Inventory Year
2018
Region
C
Agency
Reservation
T
IRR Route Number
R
Section Number
S
Status Code
Last Validation Result
Last Update Date
Last Status Change Date
Last Approval Date
Close
Password
Navigation
Process Record Status
System Announcements
Routes by Organization
C - Rocky Mountain
5 Clear Selection
Forms
Field
1 Open Form
Historical Report Configuration
Year
2018
Scope for 5 System Reports
State
01-ALABAMA
7 Bureau
8 State
9 Region
g Agency
v Reservation
Reports
Annual RNDF QA - FY only
Lookup Codes - FY only
Miscellaneous - FY only
Only Annual RNDF QA - FY only
Output - FY only
Output - rb any-level
Output - v1 any-level
Output crosstab - rb any-level
System-QA - rb any-level
Update Monitoring - v1 any-level
Update QA - v1 any-level
6 Open the Selected Report
Record: 1/1

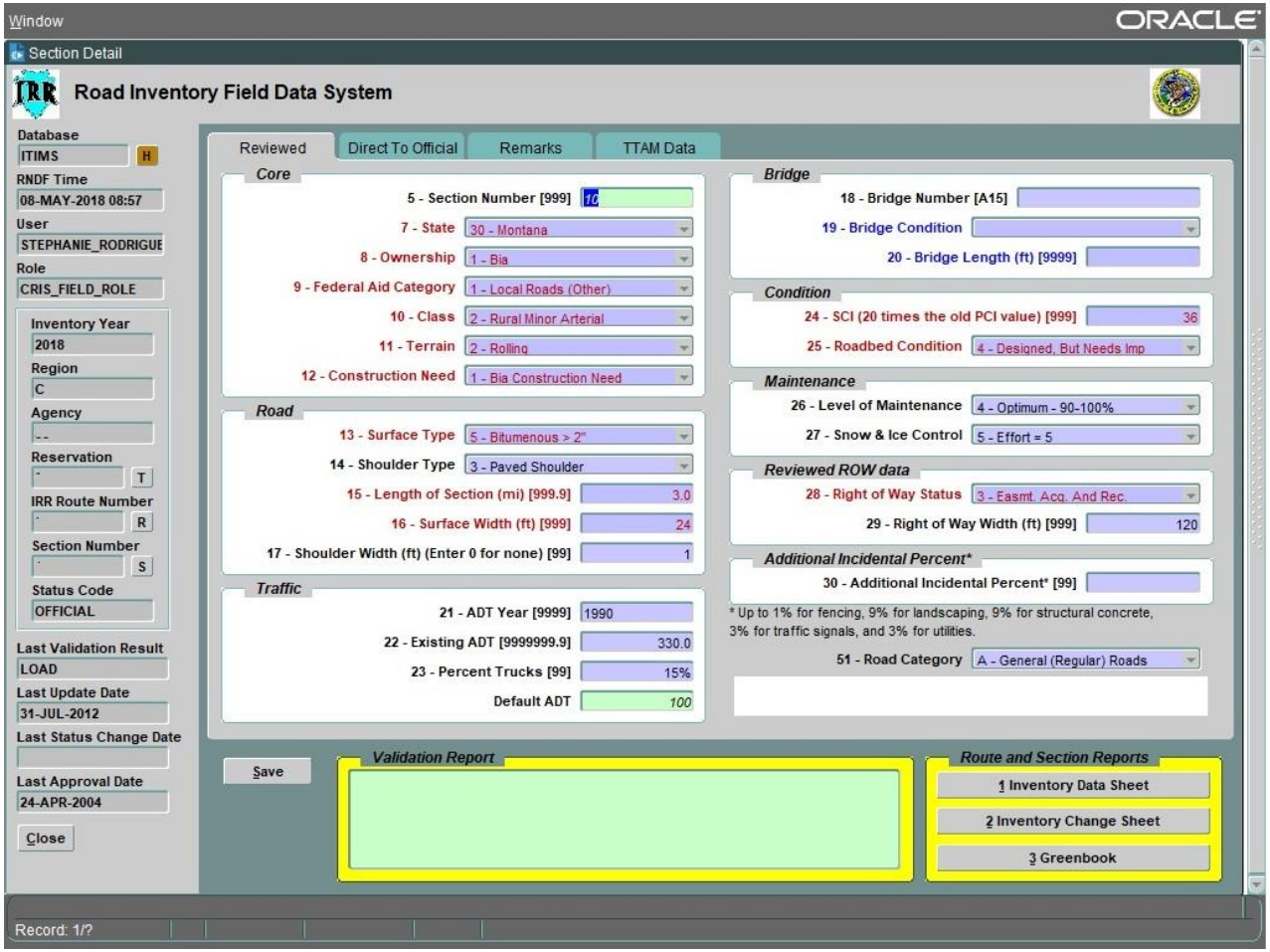
RIFDS


Window
ORACLE
Attachment Creating & Retrieving
Road Inventory Field Data System
Database
ITIMS
H
RNDF Time
08-MAY-2018 08:57
User
STEPHANIE_RODRIGUE
Role
CRIS_FIELD_ROLE
Inventory Year
2018
Region
Agency
Reservation
T
IRR Route Number
R
Section Number
S
Status Code
Last Validation Result
Last Update Date
Last Status Change Date
Last Approval Date
Close
Route:
Attach Document
Attachment Type
Upload
Documents
Perm
Year
Name
Type Name
File Type
Uploaded
2012
D-STRIP MAP
Adobe Acrobat Document
07/31/2012
Save
Delete
Requery
Record: 1/1

RIFDS


https://itims.bia.gov/forms/frm
DOI BIA DOT - Albuquerqu...
File Edit View Favorites Tools Help
newsfeed
Window
ORACLE
Route Summary
Road Inventory Field Data System
Database
ITIMS
RNDF Time
08-MAY-2018 08:57
User
STEPHANIE_RODRIGUE
Role
CRIS_FIELD_ROLE
Inventory Year
2018
Region
C
Agency
55
Reservation
204
IRR Route Number
0015
Section Number
10
Status Code
OFFICIAL
Last Validation Result
LOAD
Last Update Date
31-JUL-2012
Last Status Change Date
Last Approval Date
24-APR-2004
Close
Sections
Road Name | Status Code | Sec # | Bridge Number | Validate Result | Len | ADS | C | ADT | Surf Wdth | CN | O | St | G F
BEAVER CREEK RD | OFFICIAL | 10 | LOAD | 3.0 | 5 | 2 | 330 | 24 | 1 | 1 | 30
BEAVER CREEK RD | OFFICIAL | 20 | LOAD | 2.5 | 5 | 2 | 310 | 24 | 1 | 1 | 30
BEAVER CREEK RD | OFFICIAL | 30 | LOAD | 4.1 | 5 | 2 | 280 | 24 | 1 | 1 | 30
OFFICIAL | 40 | LOAD | 0.5 | 8 | 2 | 115 | 24 | 1 | 1 | 30
Route Summary
Number of Official Sections: 4
Number of Process Sections: 0
Total Official Length (mi): 10.1
Total Process Length (mi): 10.1
Divide a Process Section by Cloning *
Clone Length 0.1
New Section Number
Clone
* Select the process section to be cloned. Provide the length, the section number, and press Clone.
BIADOT Remark
Region Remark
Field Remark
7/31/12 UPDATED LAT LONG COORDINATES AND UPLOADED STRIPMAP
1 Inventory Data Sheet
2 Greenbook
3 Transaction Log
4 Add New Section
5 Open Section
6 Submit Route
7 Abandon Process Record
8 Save Remark
Record: 1/1

RIFDS


Window
ORACLE
Section Detail
Road Inventory Field Data System
Database
ITIMS
H
RNDF Time
08-MAY-2018 08:57
User
STEPHANIE_RODRIGUE
Role
CRIS_FIELD_ROLE
Inventory Year
2018
Region
C
Agency
--
Reservation
T
IRR Route Number
R
Section Number
S
Status Code
OFFICIAL
Last Validation Result
LOAD
Last Update Date
31-JUL-2012
Last Status Change Date
Last Approval Date
24-APR-2004
Close
Reviewed
Direct To Official
Remarks
TTAM Data
Core
5 - Section Number [999]
7 - State
30 - Montana
8 - Ownership
1 - Bia
9 - Federal Aid Category
1 - Local Roads (Other)
10 - Class
2 - Rural Minor Arterial
11 - Terrain
2 - Rolling
12 - Construction Need
1 - Bia Construction Need
Road
13 - Surface Type
5 - Bitumenous > 2"
14 - Shoulder Type
3 - Paved Shoulder
15 - Length of Section (mi) [999.9]
3.0
16 - Surface Width (ft) [999]
24
17 - Shoulder Width (ft) (Enter 0 for none) [99]
1
Traffic
21 - ADT Year [9999]
1990
22 - Existing ADT [9999999.9]
330.0
23 - Percent Trucks [99]
15%
Default ADT
100
Bridge
18 - Bridge Number [A15]
19 - Bridge Condition
20 - Bridge Length (ft) [9999]
Condition
24 - SCI (20 times the old PCI value) [999]
36
25 - Roadbed Condition
4 - Designed, But Needs Imp
Maintenance
26 - Level of Maintenance
4 - Optimum - 90-100%
27 - Snow & Ice Control
5 - Effort = 5
Reviewed ROW data
28 - Right of Way Status
3 - Easmt. Acq. And Rec.
29 - Right of Way Width (ft) [999]
120
Additional Incidental Percent*
30 - Additional Incidental Percent* [99]
* Up to 1% for fencing, 9% for landscaping, 9% for structural concrete, 3% for traffic signals, and 3% for utilities.
51 - Road Category
A - General (Regular) Roads
Save
Validation Report
Route and Section Reports
1 Inventory Data Sheet
2 Inventory Change Sheet
3 Greenbook
Record: 1/?

Strip Maps

AREA C BILLINGS

AGENCY 55 FORT BELKNAP

RESERVATION 204 FORT BELKNAP

ROUTE 3 4 3.4
(NO.) (CLASS) (LENGTH MI.)

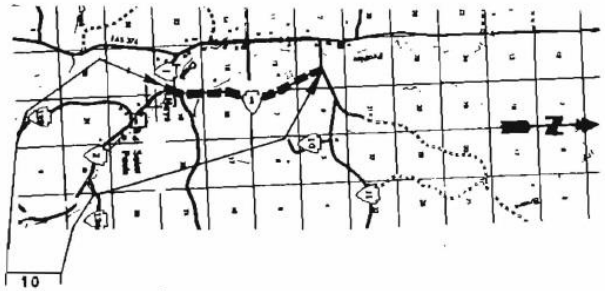
ESTIMATED COSTS FOR IMPROVEMENT

RIGHT OF WAY	M-$	
INCIDENTAL CONSTRUCTION		6.8
GRADE & DRAIN		
BASE AND/OR SURFACING		40.9
BRIDGES		
TOTAL	M-$	47.6

DATE OF THIS REPORT 02/01/88

COUNTY BLAINE
T26N, R23E

FORT BELKNAP INDIAN RESERVATION

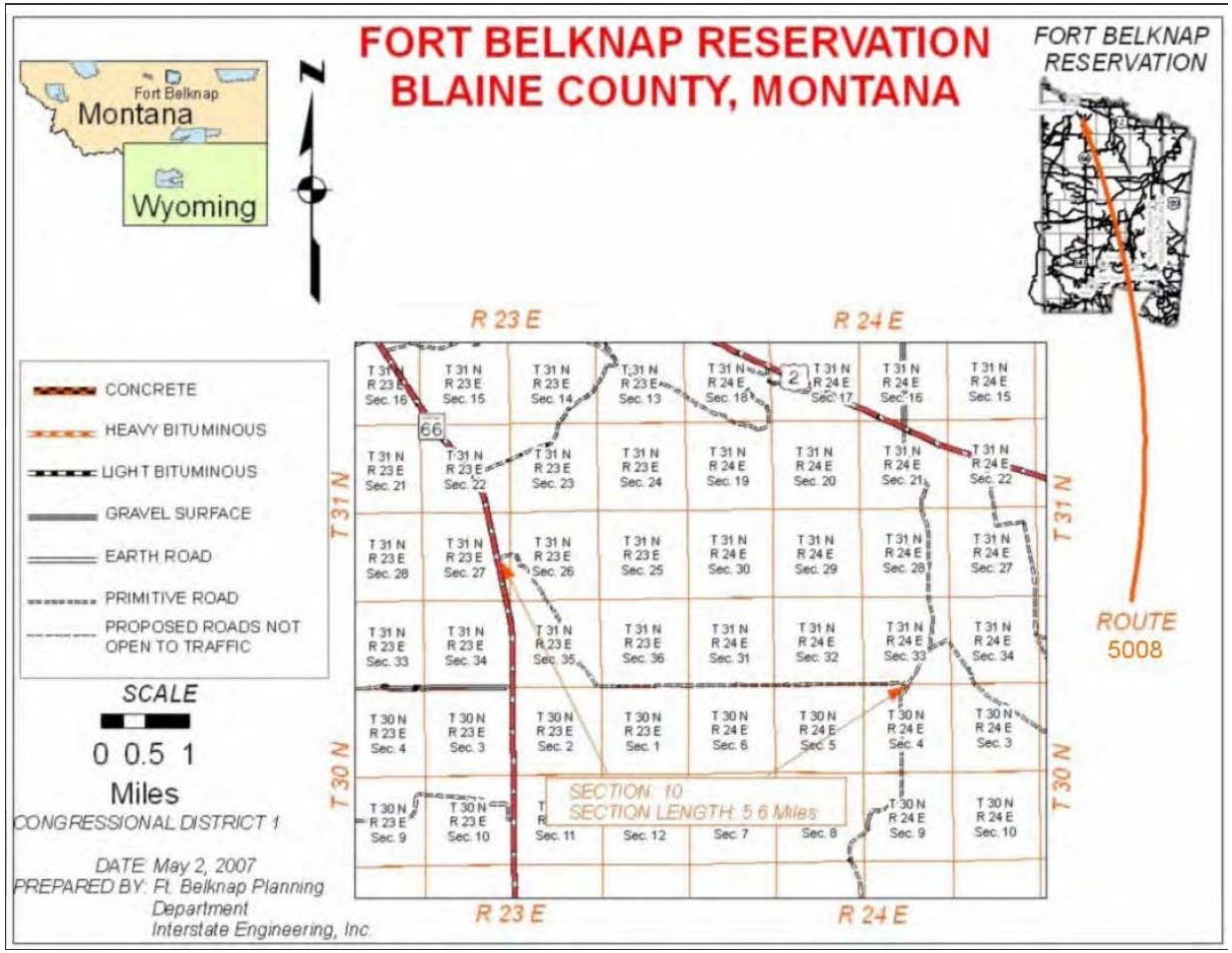


PAGE 3
HAYS CUT OFF
ROUTE 3

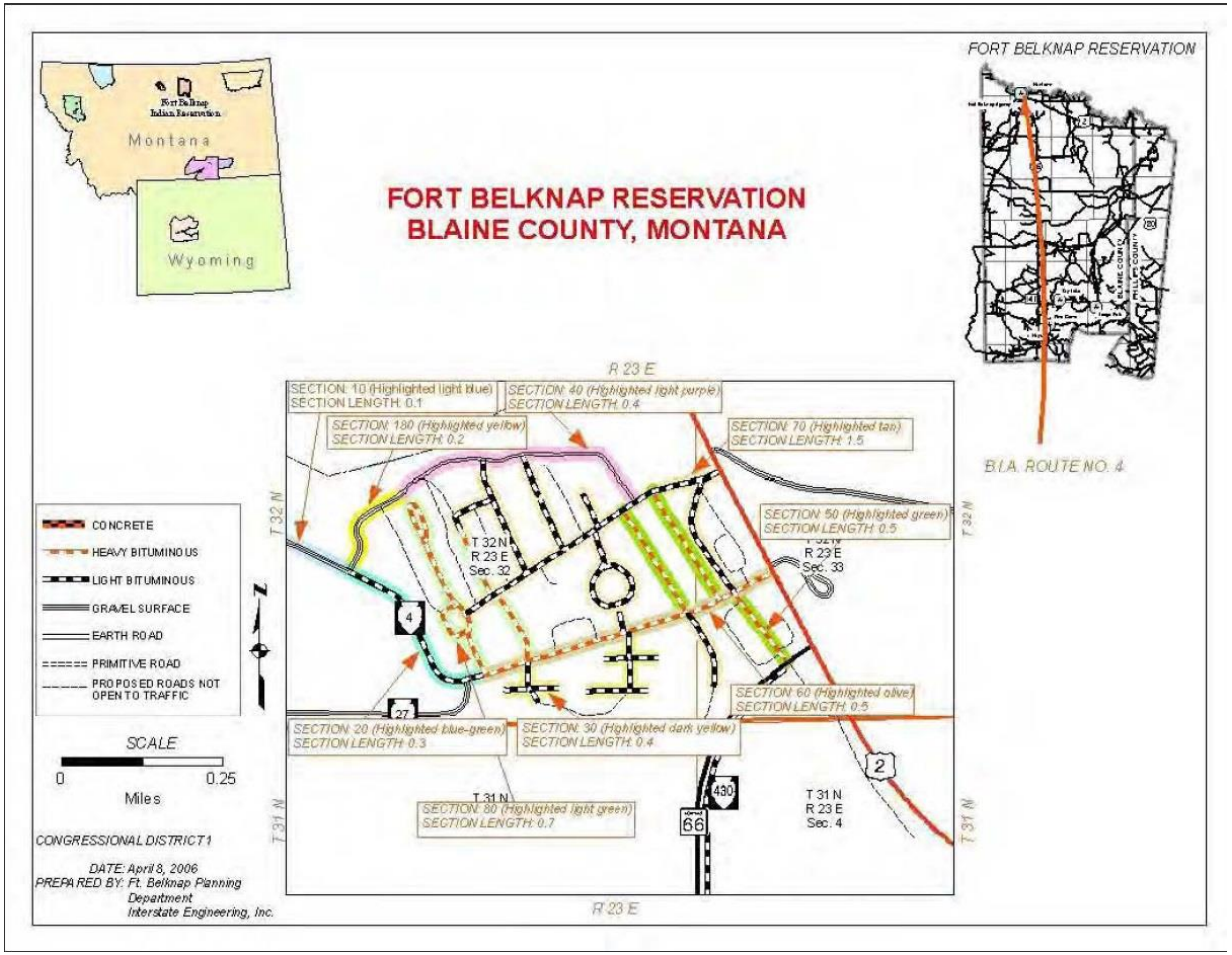
02/01/88
Atlas Map 2 of 3

SECTION NUMBER		10
COUNTY		5
CONGRESSIONAL DISTRICT		2
STATE		MT
LENGTH OR BRIDGE MILEPOST	(MILES)	3.4
JURISDICTION NAME		
NUMBER	(NO.)	0
BRIDGE NUMBER	(NO.)	
LENGTH	(L.F.)	
SURFACE WIDTH	(FT.)	24
TYPE		HBIT
SHOULDER WIDTH	(FT.)	3
TYPE		STAB
ROADWAY WIDTH	(FT.)	30
RIGHT OF WAY WIDTH	(FT.)	120
ADT (YEAR)	(YR.)	1974
(EXISTING)	(V.P.D.)	30
(EST. FOR ADT YEAR + 20)	(V.P.D.)	150
ADEQUACY DESIGN STANDARD NO.	(NO.)	14
FUTURE SURFACE TYPE		HBIT
RATING		96
SURFACE WIDTH & TYPE	(25)	25
SHOULDER WIDTH & TYPE	(6)	5
STOPPING SIGHT DISTANCE	(8)	8
NON-PASSING SIGHT DISTANCE	(6)	6
HORIZONTAL ALIGNMENT	(8)	8
GRADIENT	(6)	6
SAFETY	(6)	6
FOUNDATION CONDITION	(15)	15
WEARING SURFACE CONDITION	(10)	7
DRAINAGE CONDITION	(5)	5

Strip Maps


FORT BELKNAP RESERVATION
BLAINE COUNTY, MONTANA
Fort Belknap
Montana
Wyoming
N
FORT BELKNAP RESERVATION
R 23 E
R 24 E
T 31 N
T 30 N
CONCRETE
HEAVY BITUMINOUS
LIGHT BITUMINOUS
GRAVEL SURFACE
EARTH ROAD
PRIMITIVE ROAD
PROPOSED ROADS NOT OPEN TO TRAFFIC
SCALE
0 0.5 1
Miles
CONGRESSIONAL DISTRICT 1
DATE: May 2, 2007
PREPARED BY: Ft. Belknap Planning Department
Interstate Engineering, Inc.
SECTION 10
SECTION LENGTH: 5.6 Miles
ROUTE 5008

Strip Maps


FORT BELKNAP RESERVATION
BLAINE COUNTY, MONTANA
Montana
Wyoming
FORT BELKNAP RESERVATION
B.I.A. ROUTE NO. 4
R 23 E
SECTION: 10 (Highlighted light blue)
SECTION LENGTH: 0.1
SECTION: 40 (Highlighted light purple)
SECTION LENGTH: 0.4
SECTION: 180 (Highlighted yellow)
SECTION LENGTH: 0.2
SECTION: 70 (Highlighted tan)
SECTION LENGTH: 1.5
SECTION: 50 (Highlighted green)
SECTION LENGTH: 0.5
SECTION: 60 (Highlighted olive)
SECTION LENGTH: 0.5
SECTION: 20 (Highlighted blue-green)
SECTION LENGTH: 0.3
SECTION: 30 (Highlighted dark yellow)
SECTION LENGTH: 0.4
SECTION: 80 (Highlighted light green)
SECTION LENGTH: 0.7
T 32 N
T 31 N
T 32 N
R 23 E
Sec. 32
T 32 N
R 23 E
Sec. 33
T 31 N
R 23 E
Sec. 4
CONCRETE
HEAVY BITUMINOUS
LIGHT BITUMINOUS
GRAVEL SURFACE
EARTH ROAD
PRIMITIVE ROAD
PROPOSED ROADS NOT OPEN TO TRAFFIC
SCALE
0
0.25
Miles
CONGRESSIONAL DISTRICT 1
DATE: April 8, 2006
PREPARED BY: Ft. Belknap Planning Department
Interstate Engineering, Inc.

So How Do We Improve the Process?

- Streamline the data evaluation process by creating a value-added system to improve the efficiency of data collection, attachment creation, and data input, all while creating a Geographic Information System to visualize and improve utility for end users of the information.

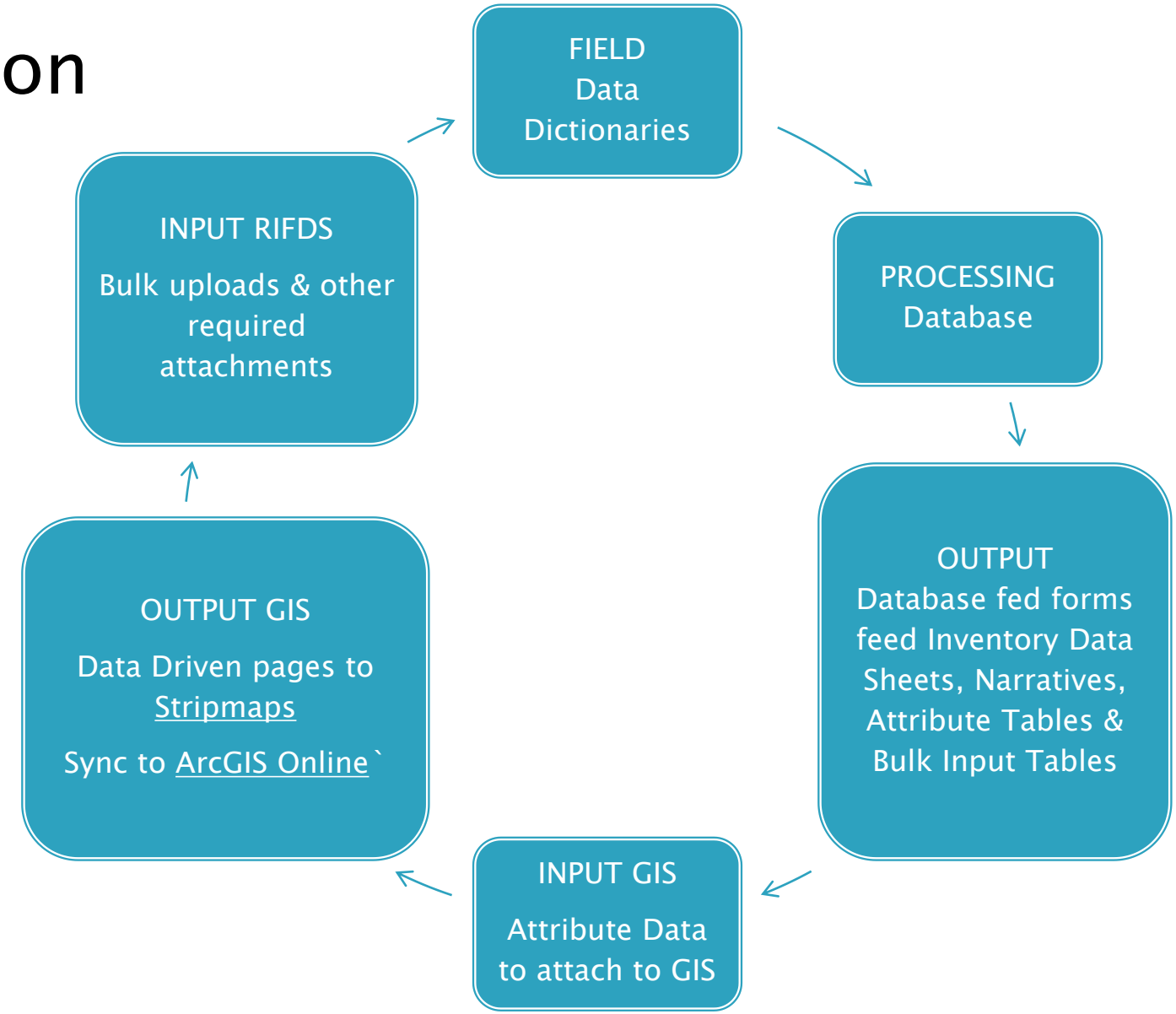
For each tribe, the first step is to evaluate what data is currently available:

- What is currently in a Tribal GIS?
  - Surveyed roads?
  - GPS'd roads?
  - Digitized roads?
- What is available through RIFDS?
  - Accuracy of strip maps?
  - Accuracy and presence of coordinates for section nodes?
- What is available publicly?
  - Quality and completeness of State data?
  - Quality and completeness of Census data?
  - Quality and completeness of USGS data?

Once Data Needs were Established, the rest were developed.

- A full circle approach to streamline both RIFDS entry and GIS incorporation

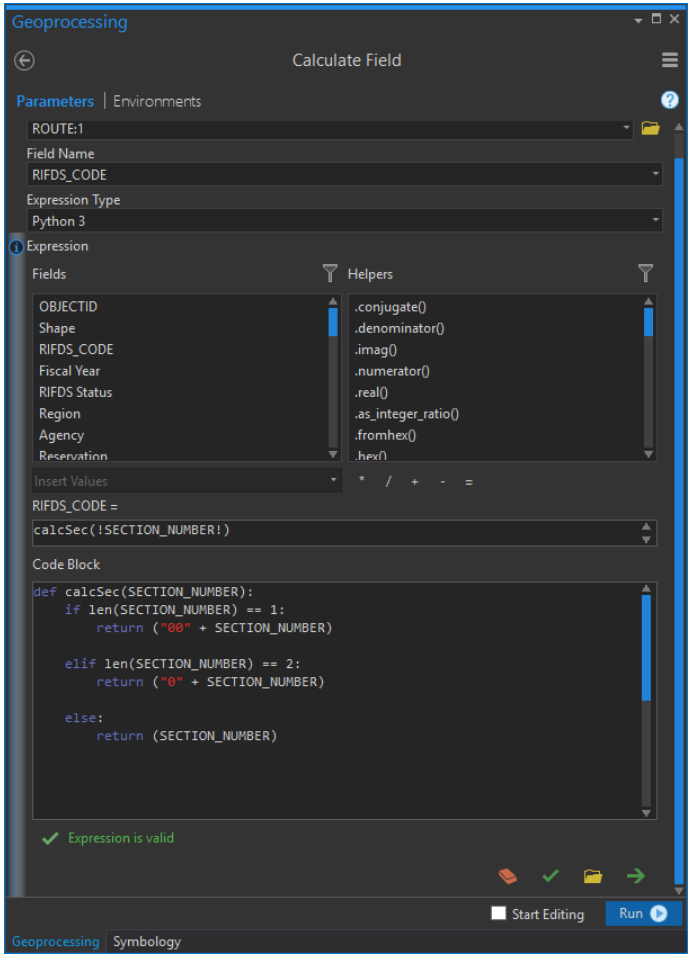
Vision


FIELD
Data
Dictionaries
PROCESSING
Database
OUTPUT
Database fed forms
feed Inventory Data
Sheets, Narratives,
Attribute Tables &
Bulk Input Tables
INPUT GIS
Attribute Data
to attach to GIS
OUTPUT GIS
Data Driven pages to
Stripmaps
Sync to ArcGIS Online`
INPUT RIFDS
Bulk uploads & other
required
attachments

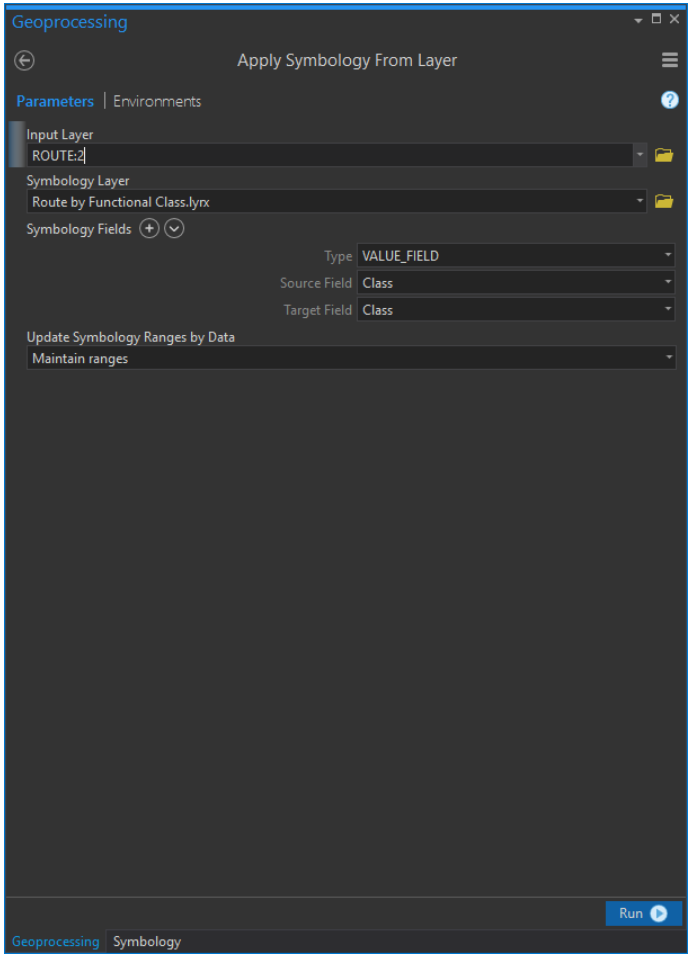
Streamlining

- In addition to the tools described above customized additional interfaces were created to improve the ease of sharing and training, including:
  - Pre-programmed queries & formulas
  - Layer symbologies
  - Labeling preferences

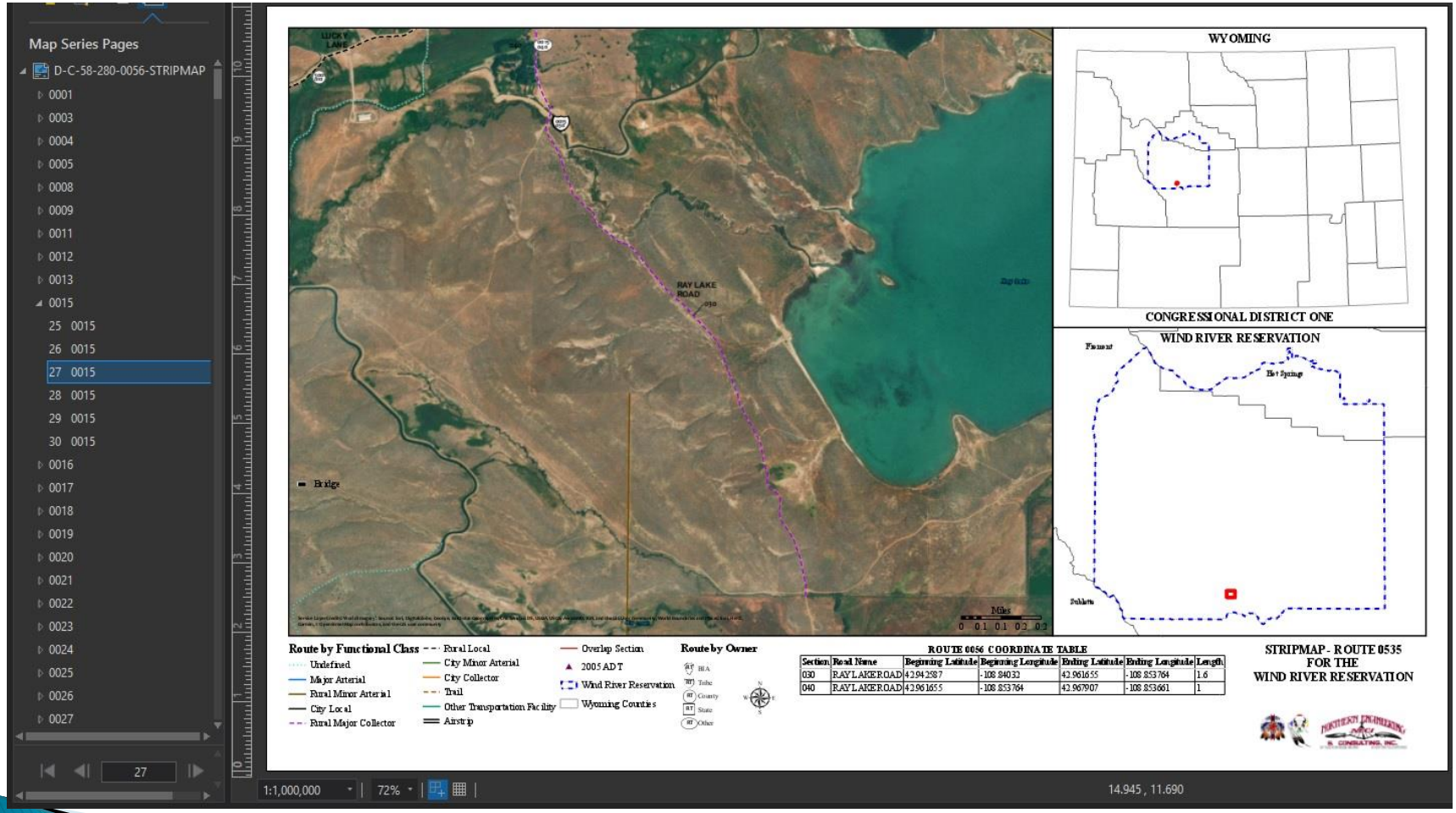
Calculate Field



Layer Symbology



Strip map from map series



Training

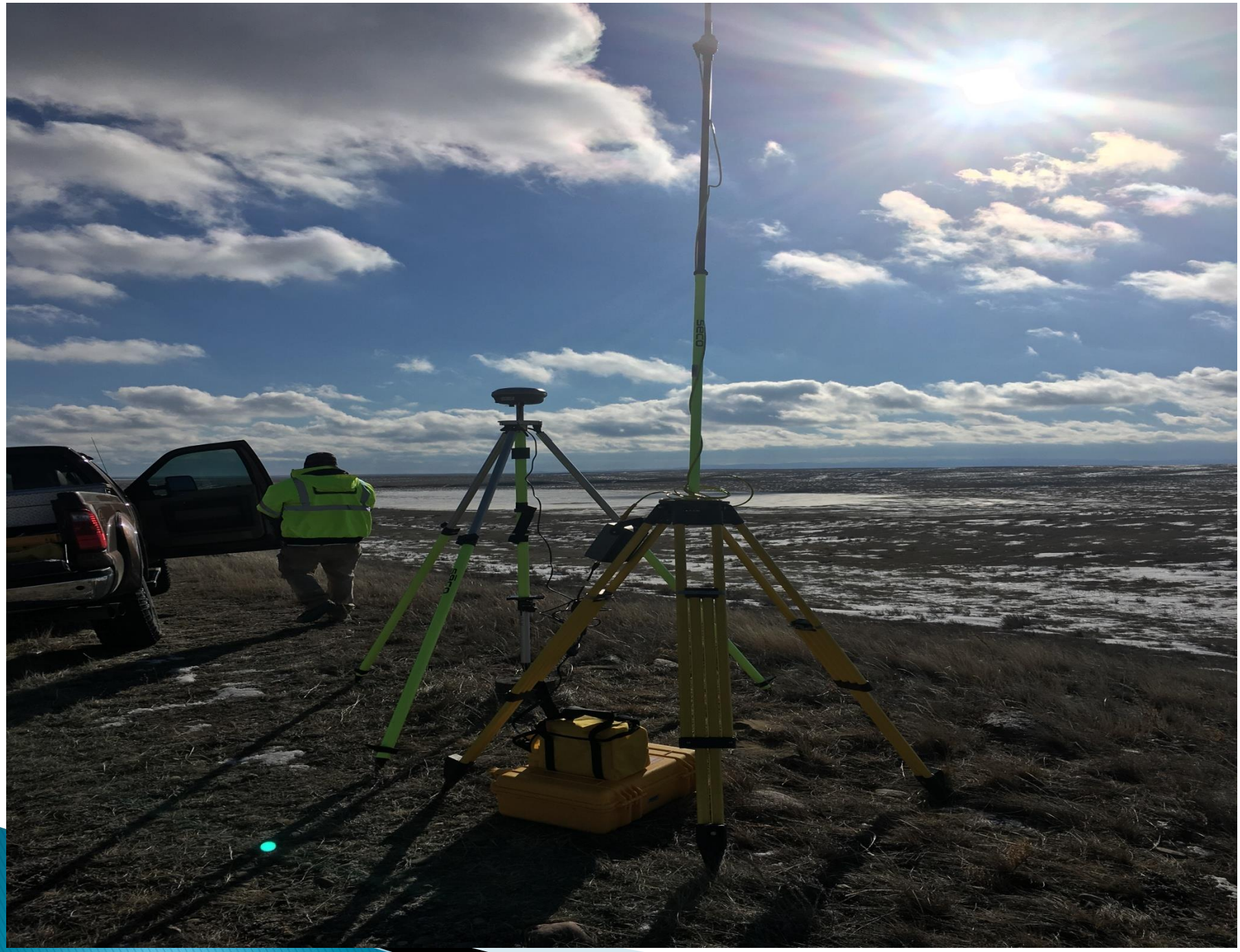
- With the creation of templates and approach, a training system was possible to bring in Tribal members to begin implementation of the system and science
- Fort Belknap was the first too participate in this process with my colleague Dawn Chandler joining me for on the job training in Billings
- As a result of this, the Fort Belknap roads are online

Outcomes

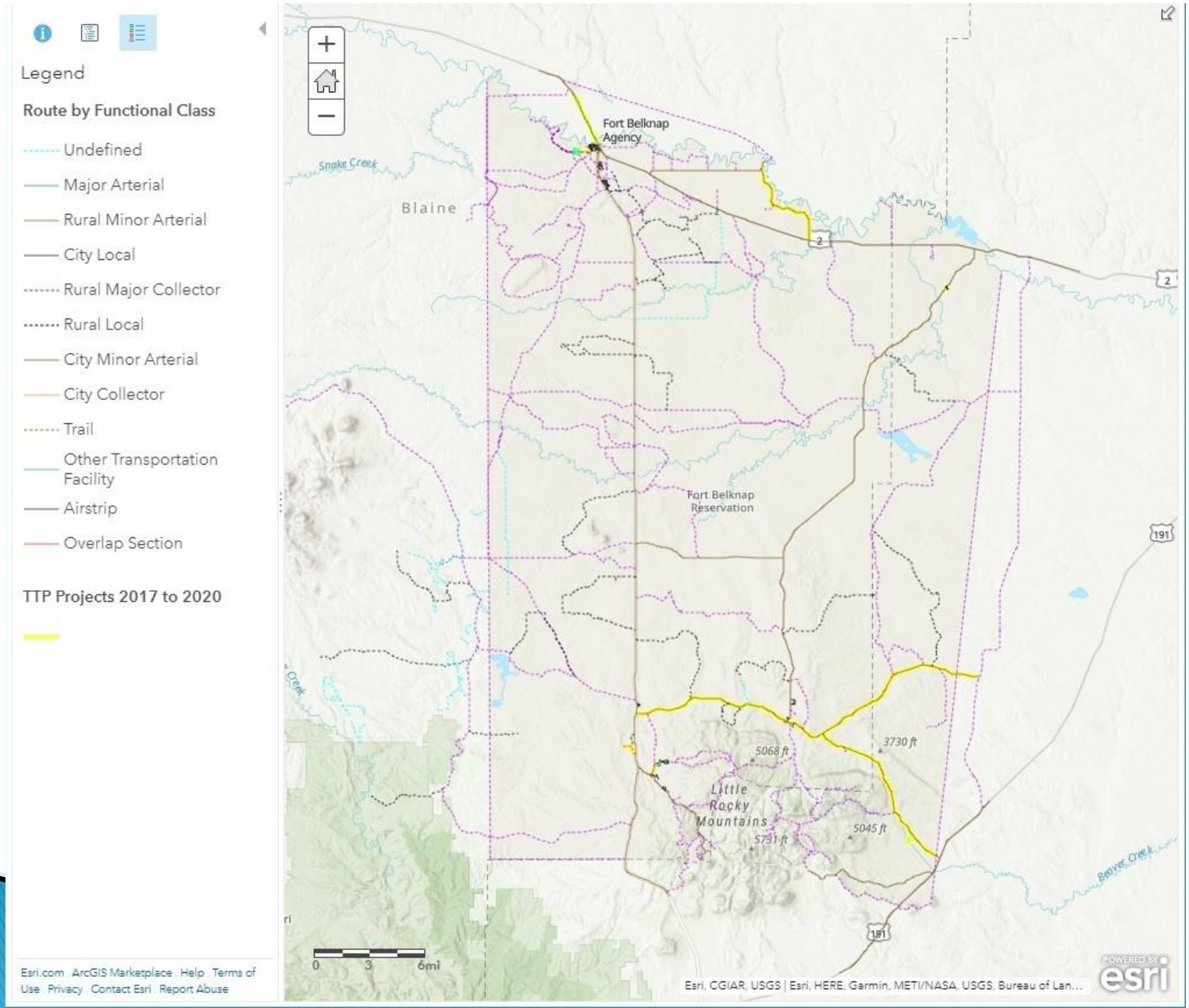
- Blackfeet, Fort Belknap, Fort Peck, and Wind River Tribes are in various stages of development of GIS for their TTP programs
- The final products will be hosted online
- Online hosting and sharing through ArcGIS Online:
  - Enables integration of other sources of data (federal, state, other Tribal) to create a more complete picture of Tribal assets for Leaders and decision makers.
- Enable Tribal & Departmental control of data accessibility and security settings

Next Steps

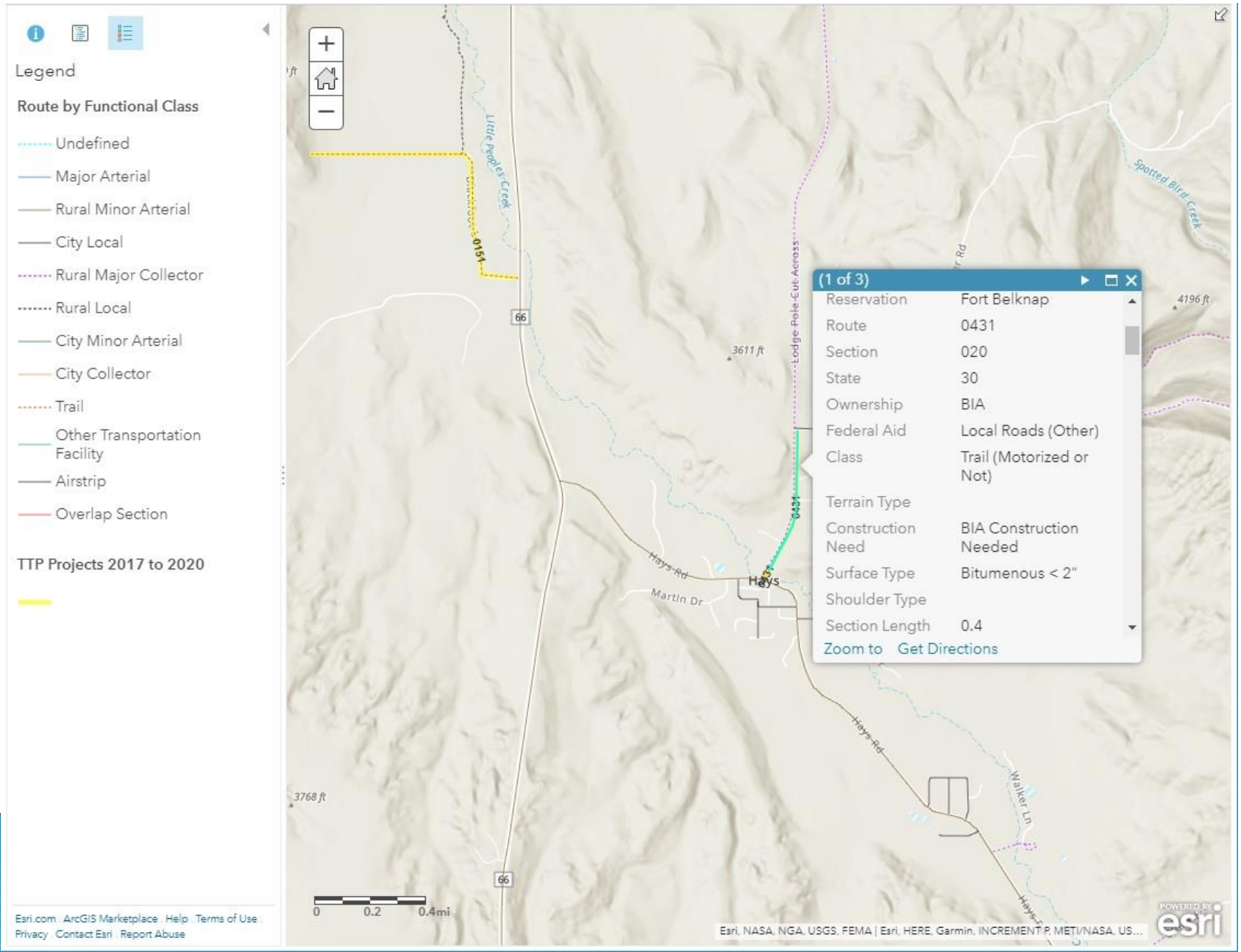
- Error tracking & repair
  - Utilization of new information to update existing registered Routes, including but not limited too:
    - Elimination of improper or duplicate Routes
    - Update of appropriate lengths
    - Update of nodes
    - Input of unintentionally omitted Routes
    - Examples
- Continued training
  - Training for launching and managing ArcGIS Online
  - Continued collaborative development as future challenges are addressed


SECO

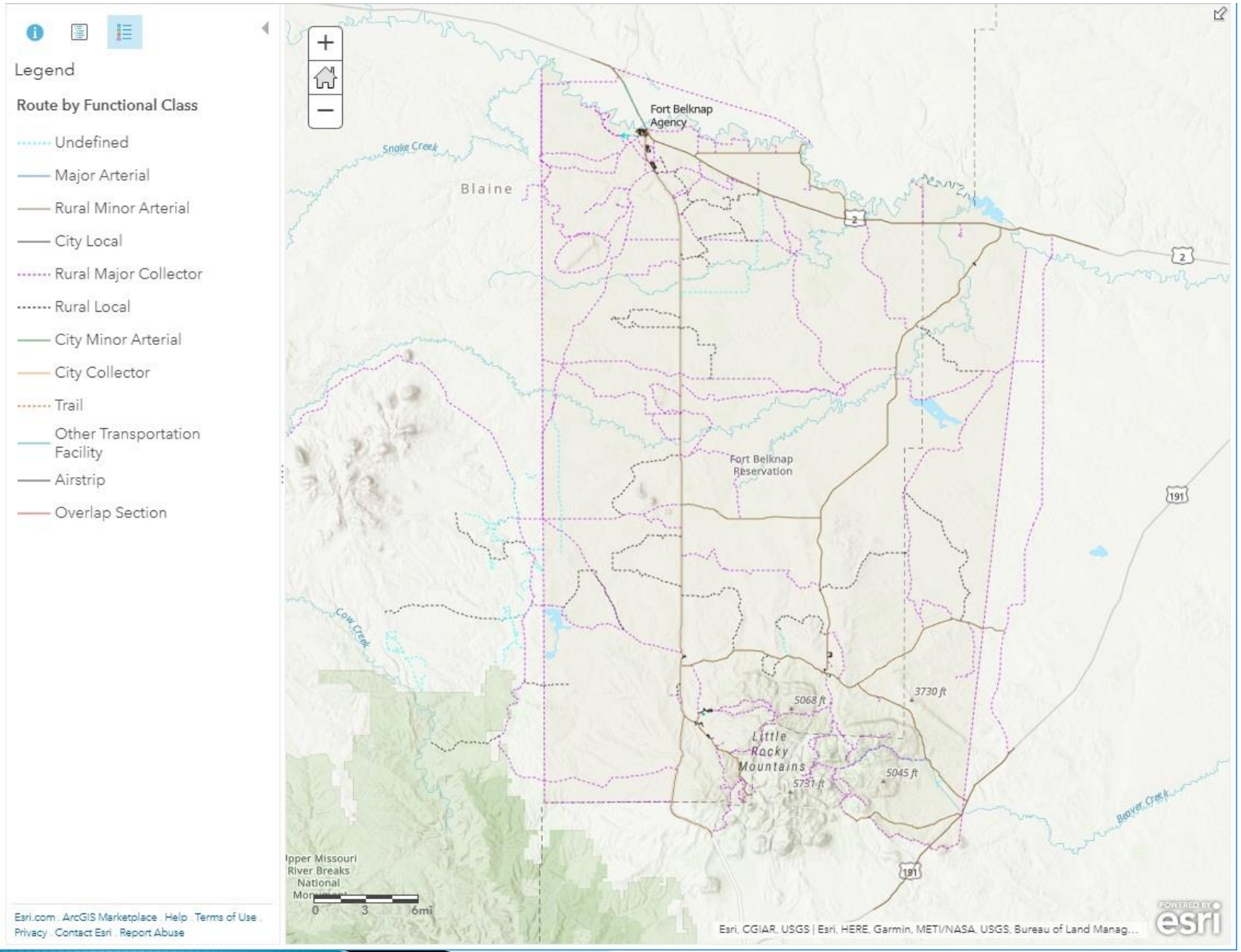
TTP Project Explorer



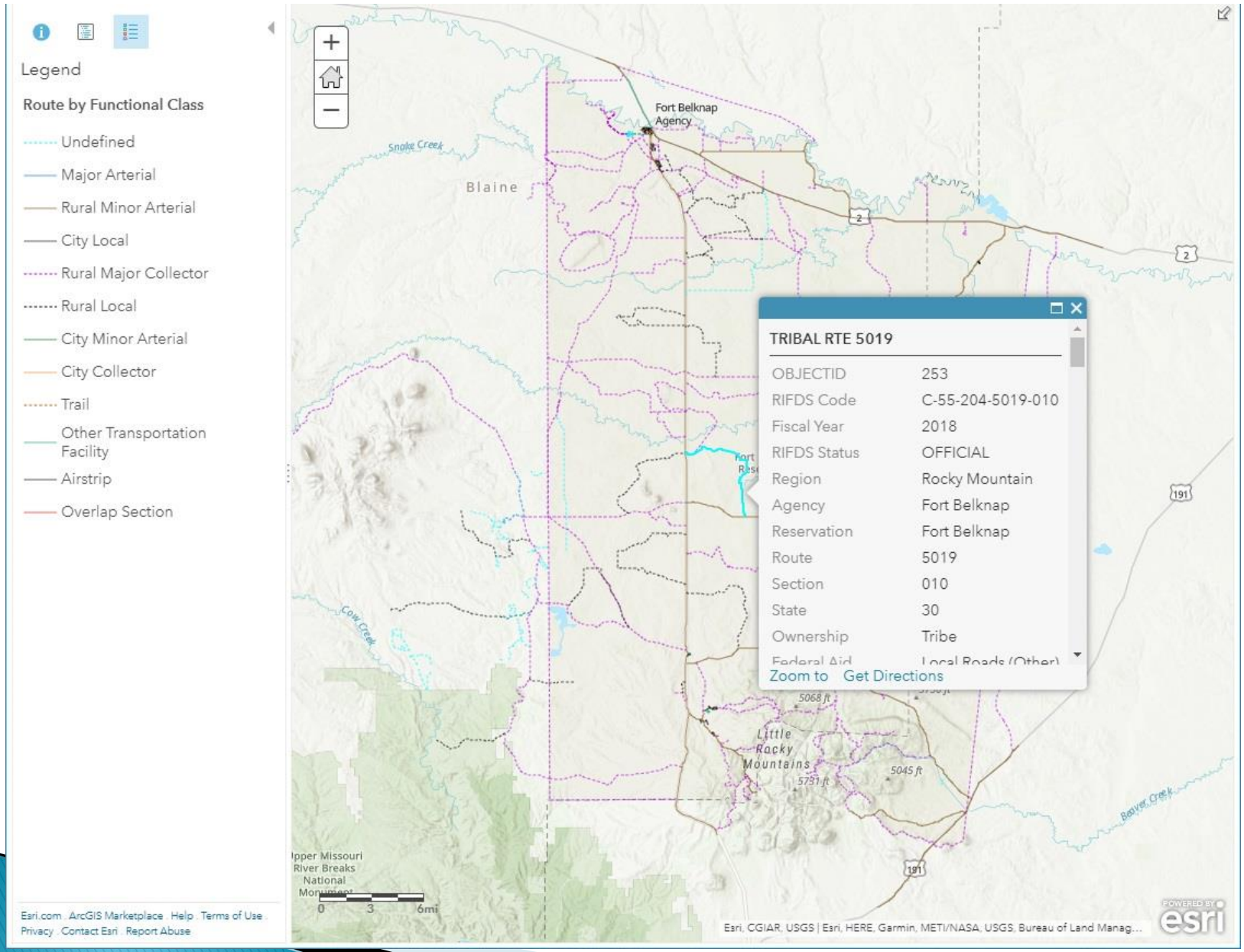
TTP Explorer Zoom



RIFDS


Legend
Route by Functional Class
Undefined
Major Arterial
Rural Minor Arterial
City Local
Rural Major Collector
Rural Local
City Minor Arterial
City Collector
Trail
Other Transportation Facility
Airstrip
Overlap Section
Fort Belknap Agency
Snake Creek
Blaine
Fort Belknap Reservation
Cow Creek
Little Rocky Mountains
5068 ft
3730 ft
5045 ft
5731 ft
Beaver Creek
Upper Missouri River Breaks National Monument
0 3 6mi
Esri.com . ArcGIS Marketplace . Help . Terms of Use . Privacy . Contact Esri . Report Abuse
Esri, CGIAR, USGS | Esri, HERE, Garmin, METI/NASA, USGS, Bureau of Land Manag...
POWERED BY esri

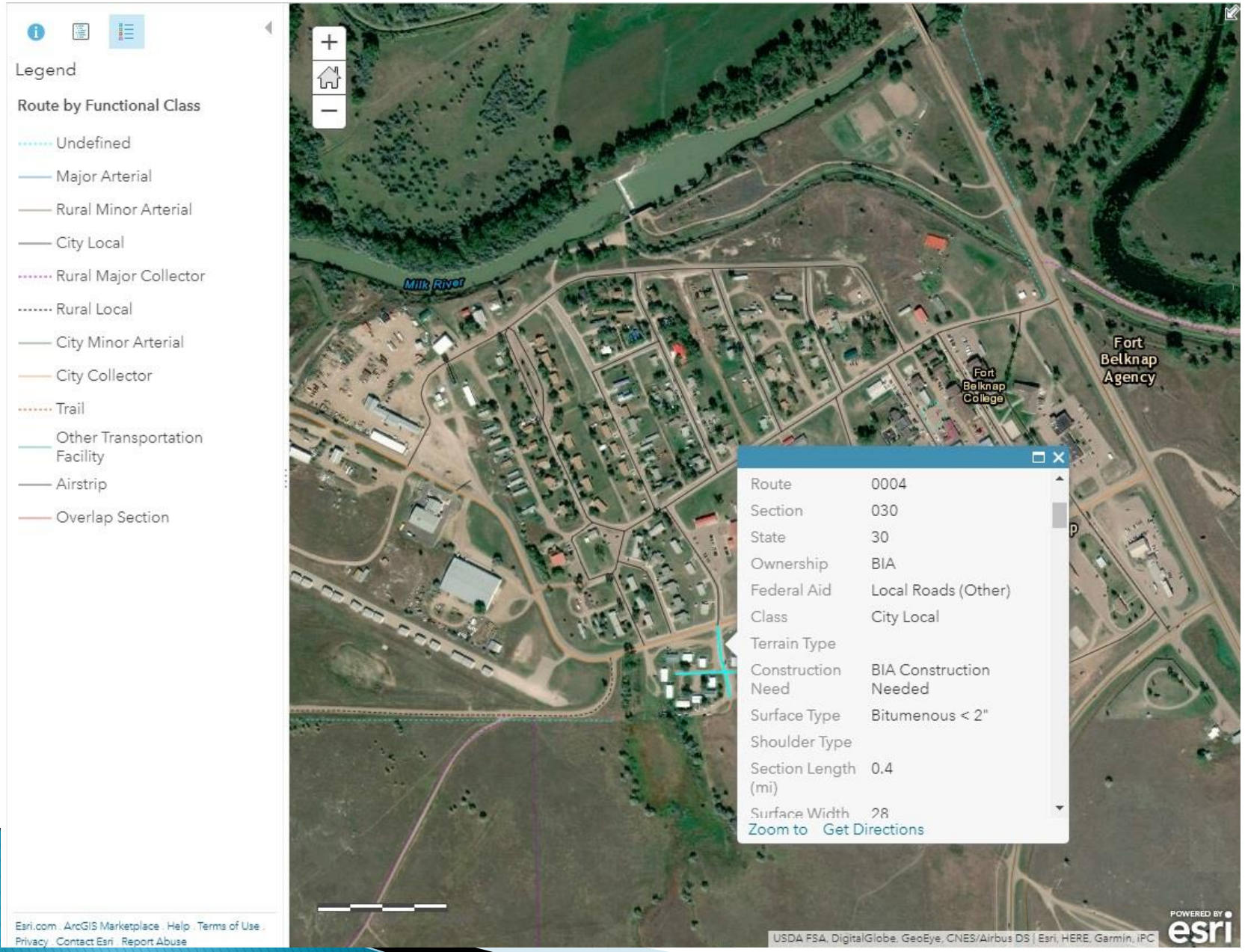
RIFDS


Legend
Route by Functional Class
Undefined
Major Arterial
Rural Minor Arterial
City Local
Rural Major Collector
Rural Local
City Minor Arterial
City Collector
Trail
Other Transportation Facility
Airstrip
Overlap Section
Fort Belknap Agency
Snake Creek
Blaine
TRIBAL RTE 5019
OBJECTID 253
RIFDS Code C-55-204-5019-010
Fiscal Year 2018
RIFDS Status OFFICIAL
Region Rocky Mountain
Agency Fort Belknap
Reservation Fort Belknap
Route 5019
Section 010
State 30
Ownership Tribe
Zoom to
Get Directions
Little Rocky Mountains
5068 ft
5045 ft
5731 ft
Cow Creek
Beaver Creek
Upper Missouri River Breaks National Monument
0 3 6mi
Esri.com . ArcGIS Marketplace . Help . Terms of Use . Privacy . Contact Esri . Report Abuse
Esri, CGIAR, USGS | Esri, HERE, Garmin, METI/NASA, USGS, Bureau of Land Manag...
esri

RIFDS


Legend
Route by Functional Class
Undefined
Major Arterial
Rural Minor Arterial
City Local
Rural Major Collector
Rural Local
City Minor Arterial
City Collector
Trail
Other Transportation Facility
Airstrip
Overlap Section
Milk River
Fort Belknap Agency
Fort Belknap College
Fort Belknap
Esri.com ArcGIS Marketplace Help Terms of Use Privacy Contact Esri Report Abuse
USDA FSA, DigitalGlobe, GeoEye, CNES/Airbus DS | Esri, HERE, Garmin, iPC
POWERED BY esri

RIFDS


Legend
Route by Functional Class
Undefined
Major Arterial
Rural Minor Arterial
City Local
Rural Major Collector
Rural Local
City Minor Arterial
City Collector
Trail
Other Transportation Facility
Airstrip
Overlap Section
Esri.com . ArcGIS Marketplace . Help . Terms of Use . Privacy . Contact Esri . Report Abuse
Milk River
Fort Belknap College
Fort Belknap Agency
Route 0004
Section 030
State 30
Ownership BIA
Federal Aid Local Roads (Other)
Class City Local
Terrain Type
Construction Need BIA Construction Needed
Surface Type Bitumenous < 2"
Shoulder Type
Section Length (mi) 0.4
Surface Width 28
Zoom to Get Directions
USDA FSA, DigitalGlobe, GeoEye, CNES/Airbus DS | Esri, HERE, Garmin, iPC
POWERED BY esri

Fire Hydrant Locate