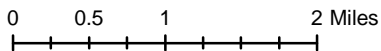
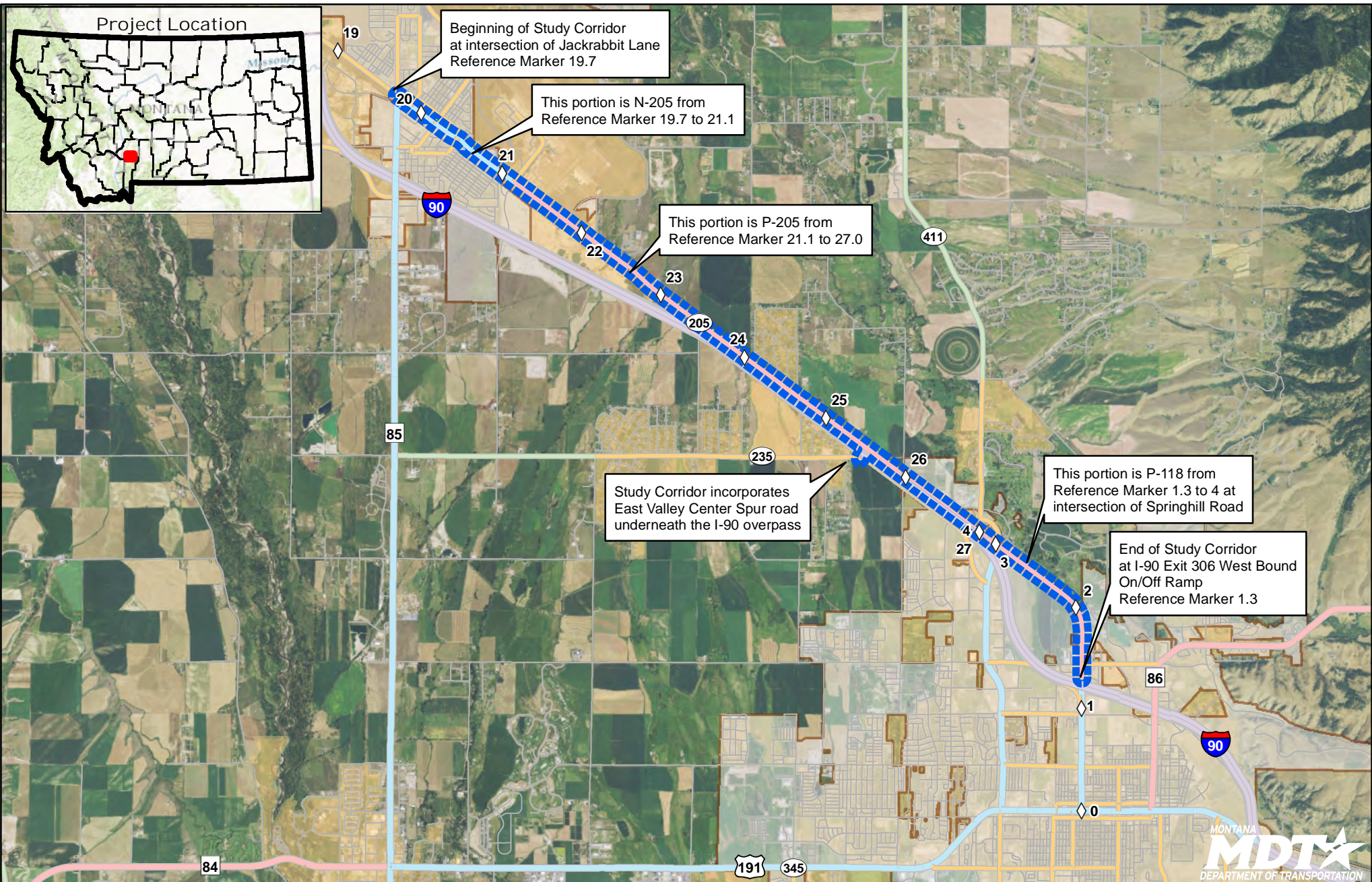


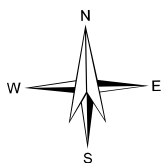
# Attachment 1

## Exhibits





Scale: 1:80,000

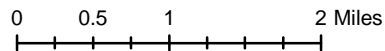
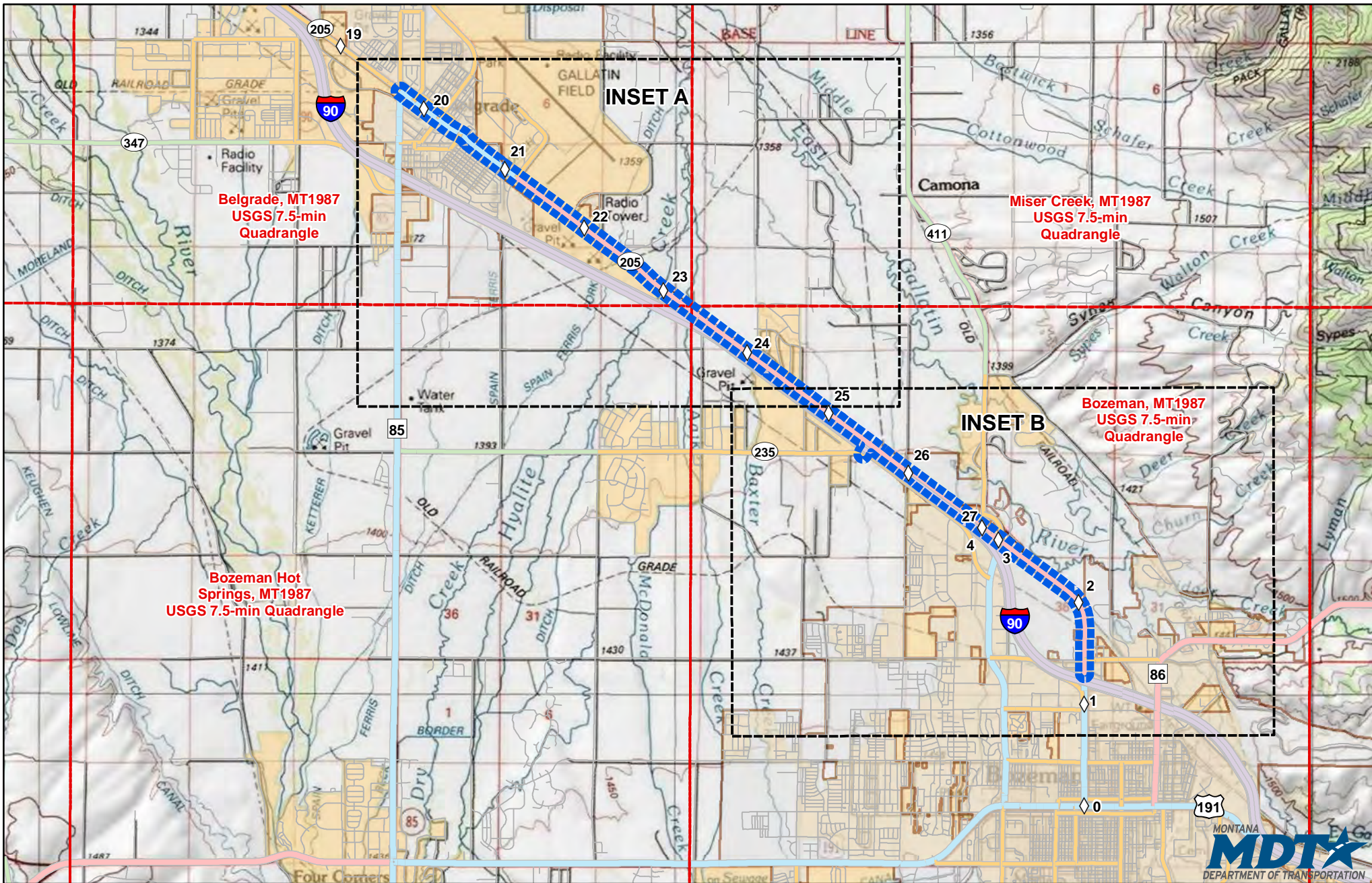


Projection: NAD 1983 StatePlane Montana FIPS 2500  
Sources: Aerial Imagery - NAIP 2013

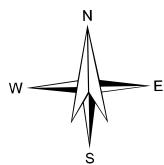
### EXHIBIT 1 - STUDY AREA BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA

- STUDY AREA
- REFERENCE MARKER
- CITY BOUNDARY
- 2010 URBANIZED AREA
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- SECONDARY
- URBAN
- OFF SYSTEM ROUTE





Scale: 1:80,000

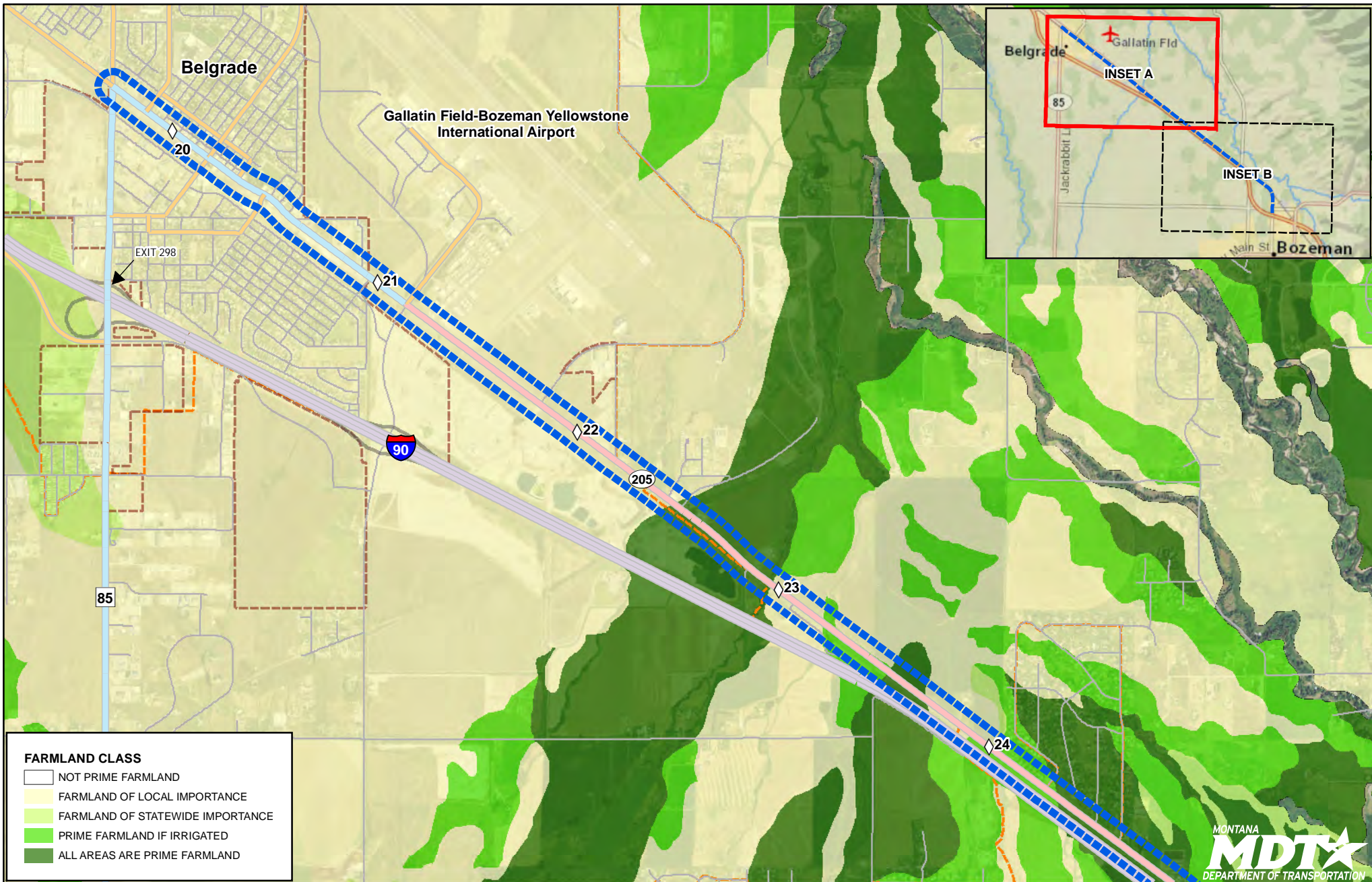


Projection: NAD 1983 StatePlane Montana FIPS 2500  
Sources: USGS Topographic 7.5 - minute quadrangles

### EXHIBIT 2 - TOPOGRAPHIC MAP OF STUDY AREA BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA

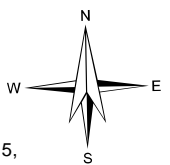
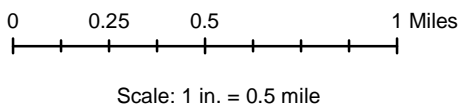
- |  |                     |  |                    |
|--|---------------------|--|--------------------|
|  | STUDY AREA          |  | NHS INTERSTATE     |
|  | REFERENCE MARKER    |  | NHS NON-INTERSTATE |
|  | USGS 7.5-MIN QUADS  |  | PRIMARY            |
|  | CITY BOUNDARY       |  | SECONDARY          |
|  | 2010 URBANIZED AREA |  | URBAN              |
|  |                     |  | OFF SYSTEM ROUTE   |





**FARMLAND CLASS**

[White Box]	NOT PRIME FARMLAND
[Light Yellow Box]	FARMLAND OF LOCAL IMPORTANCE
[Light Green Box]	FARMLAND OF STATEWIDE IMPORTANCE
[Medium Green Box]	PRIME FARMLAND IF IRRIGATED
[Dark Green Box]	ALL AREAS ARE PRIME FARMLAND

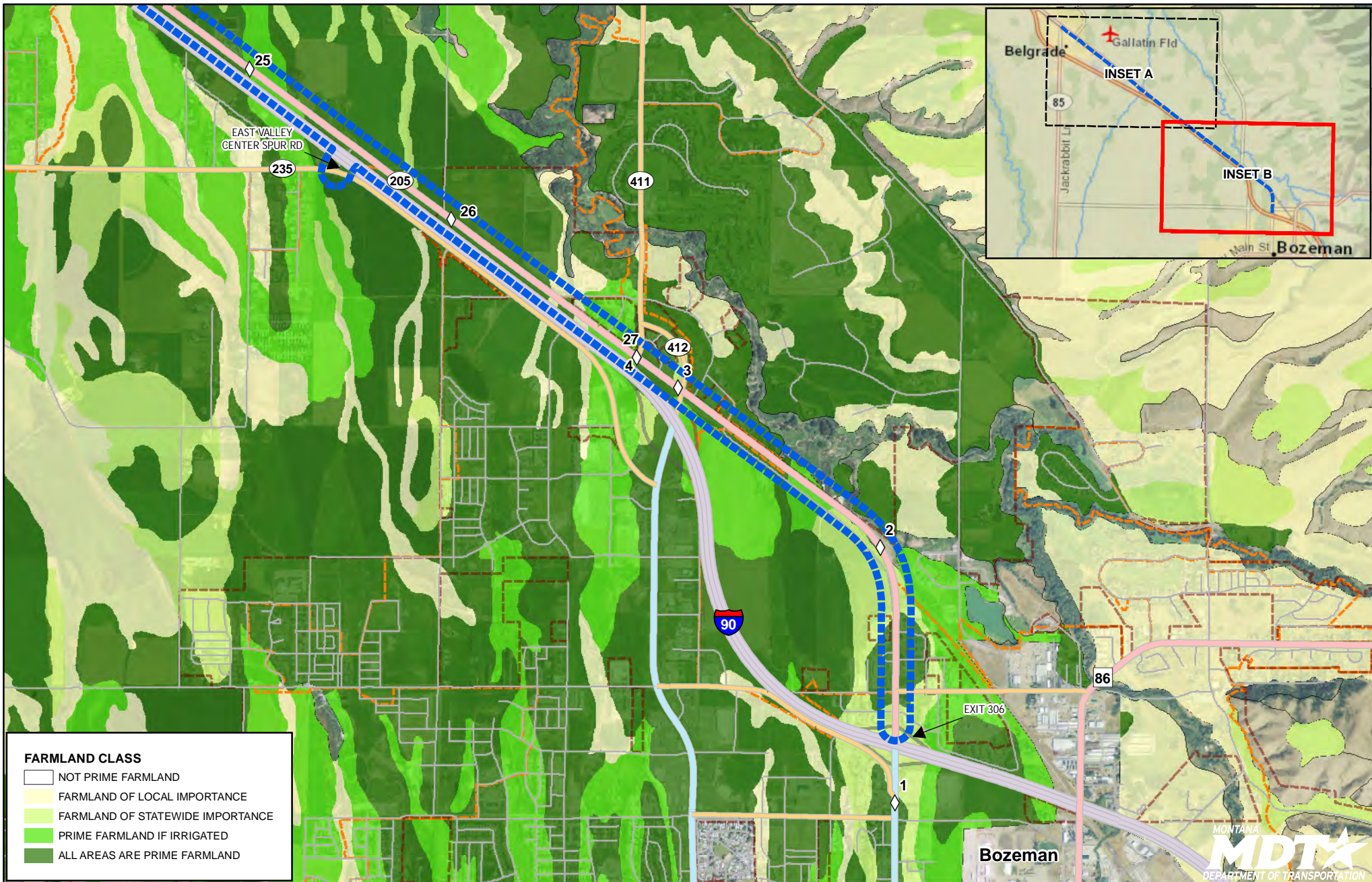


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: NRCS SSURGO database for Gallatin County - 2015, Aerial Imagery - NAIP 2013

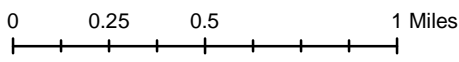
**EXHIBIT 3A - PRIME FARMLANDS  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

[Diamond Symbol]	REFERENCE MARKER	[Purple Line]	NHS INTERSTATE
[Blue Dashed Line]	STUDY AREA	[Light Blue Line]	NHS NON-INTERSTATE
[Red Dashed Line]	CITY BOUNDARY	[Pink Line]	PRIMARY
[Orange Dashed Line]	2010 URBANIZED AREA	[Orange Line]	URBAN
		[Grey Line]	INTERSTATE RAMP
		[Thin Grey Line]	OFF SYSTEM ROUTE

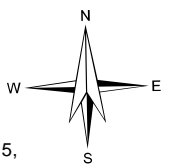




- FARMLAND CLASS**
- NOT PRIME FARMLAND
  - FARMLAND OF LOCAL IMPORTANCE
  - FARMLAND OF STATEWIDE IMPORTANCE
  - PRIME FARMLAND IF IRRIGATED
  - ALL AREAS ARE PRIME FARMLAND



Scale: 1 in. = 0.5 mile

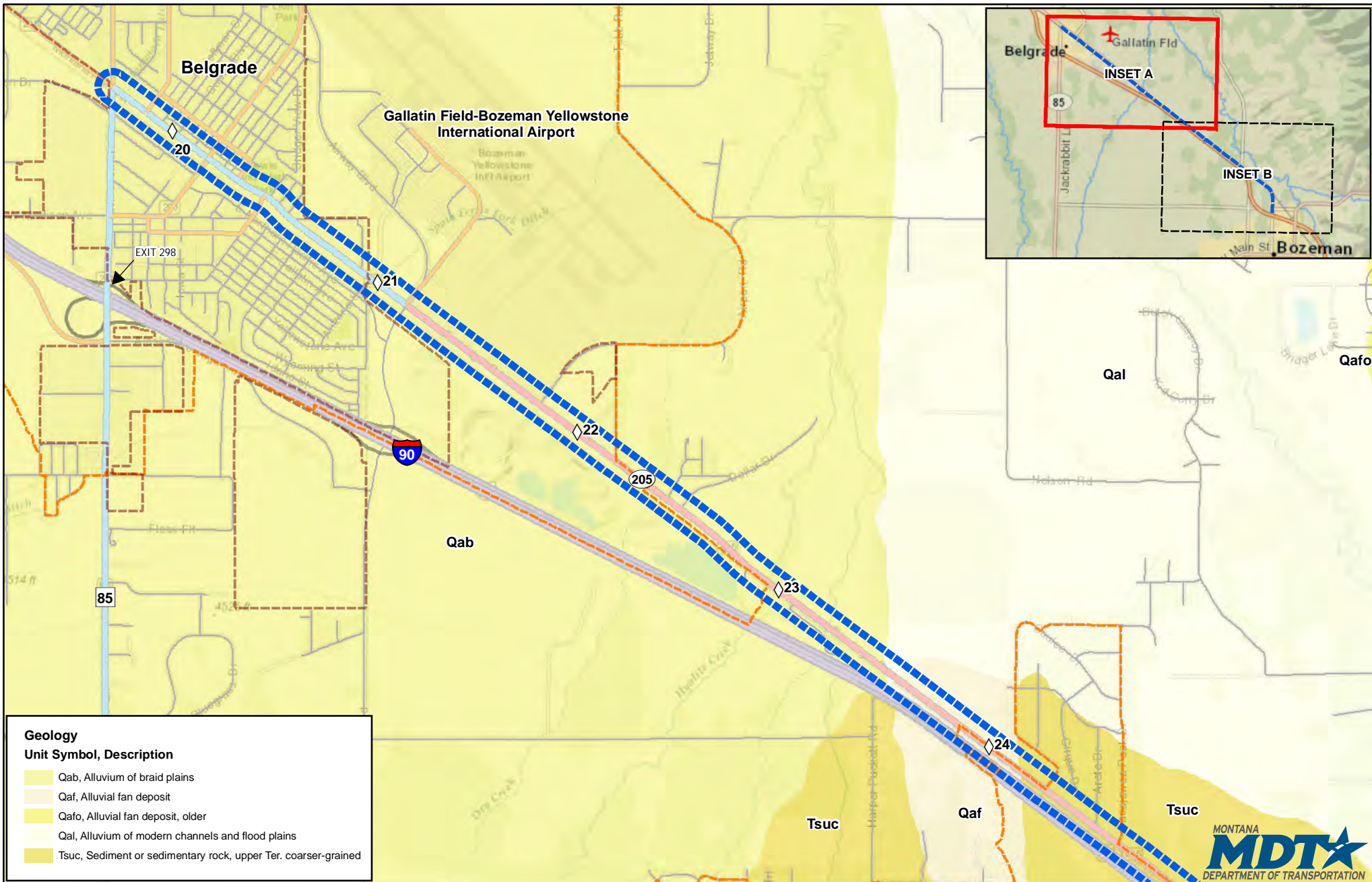


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: NRCS SSURGO database for Gallatin County - 2015, Aerial Imagery - NAIP 2013

**EXHIBIT 3B - PRIME FARMLANDS  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

- REFERENCE MARKER
- STUDY AREA
- CITY BOUNDARY
- 2010 URBANIZED AREA
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- URBAN
- INTERSTATE RAMP
- OFF SYSTEM ROUTE

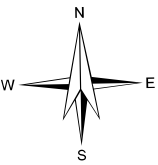
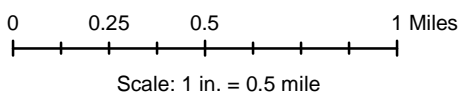




**Geology**

**Unit Symbol, Description**

	Qab, Alluvium of braid plains
	Qaf, Alluvial fan deposit
	Qafo, Alluvial fan deposit, older
	Qal, Alluvium of modern channels and flood plains
	Tsuc, Sediment or sedimentary rock, upper Ter. coarser-grained

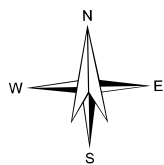
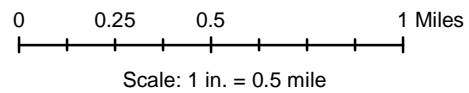
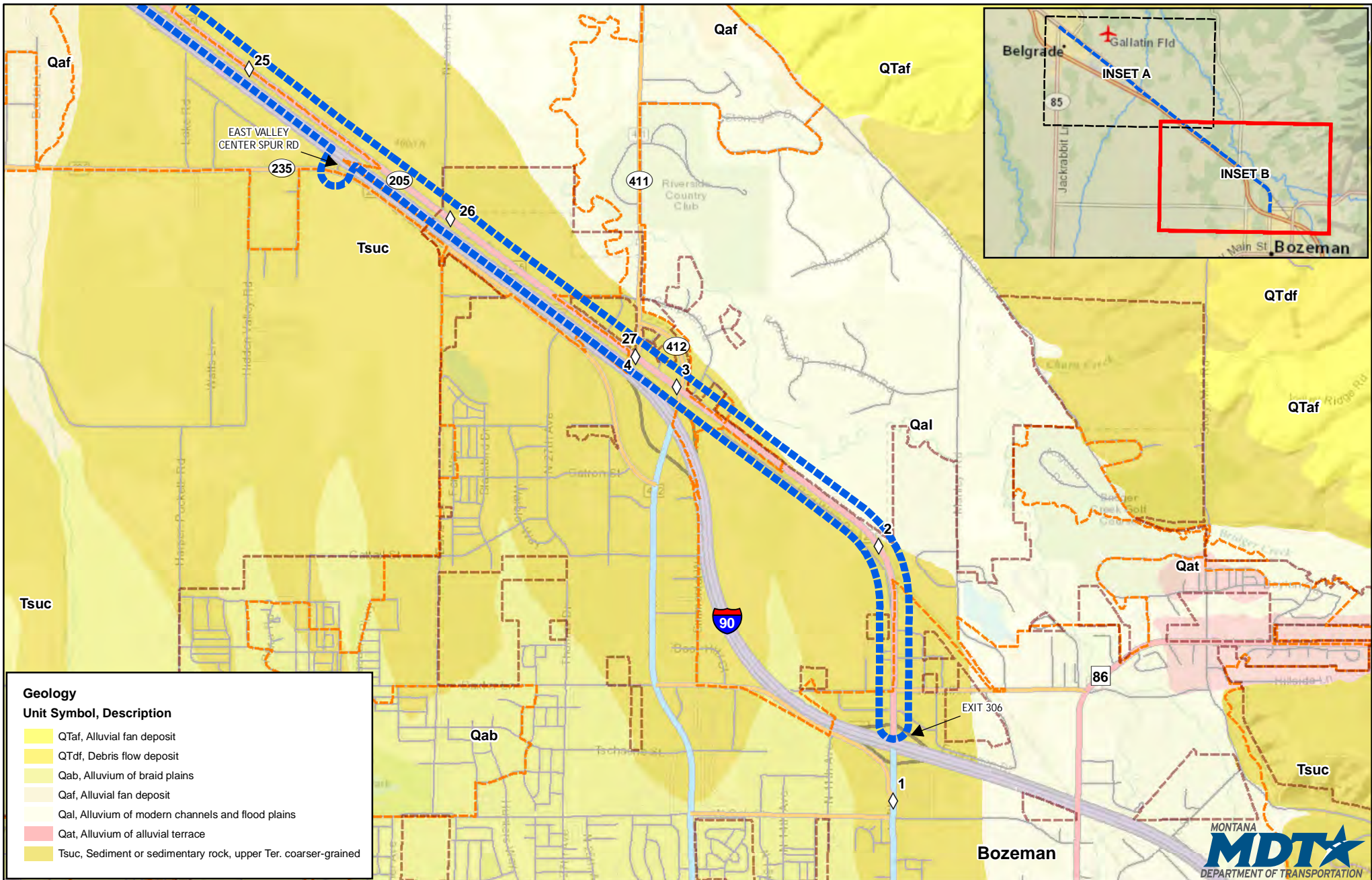


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana Bureau of Mines and Geology (MBMG)  
 Bozeman 100k Geologic Quad - Vuke, S.M., Lonn,  
 J.D., Berg, R.B., and Schmidt, C.J., 2014.  
 Aerial Imagery - NAIP 2013

**EXHIBIT 4A - GEOLOGY  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

	REFERENCE MARKER		NHS INTERSTATE
	STUDY AREA		NHS NON-INTERSTATE
	CITY BOUNDARY		PRIMARY
	2010 URBANIZED AREA		URBAN
			INTERSTATE RAMP
			OFF SYSTEM ROUTE

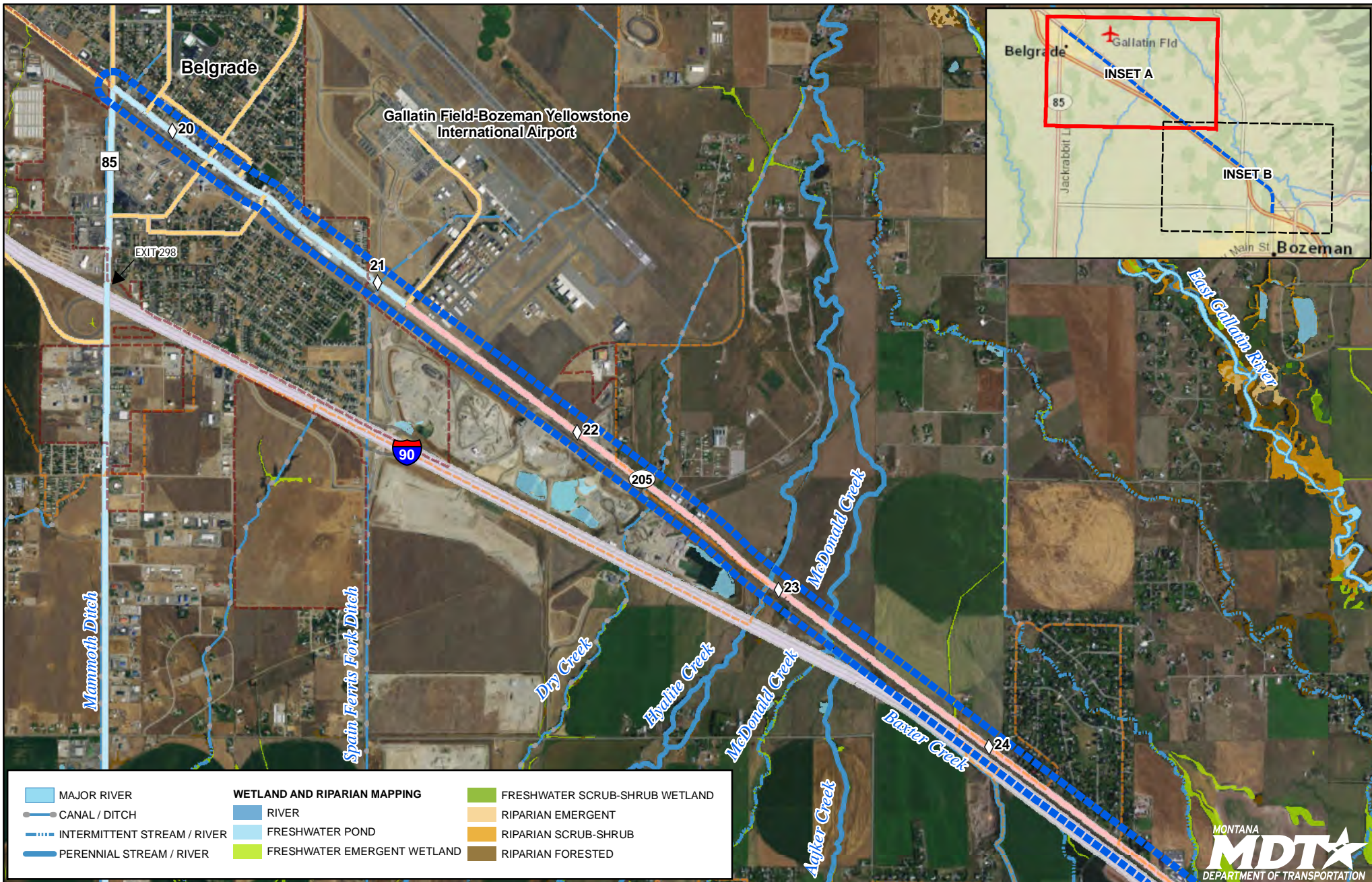




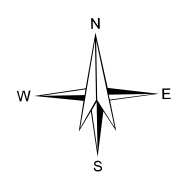
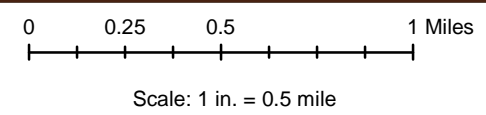
Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana Bureau of Mines and Geology (MBMG)  
 Bozeman 100k Geologic Quad - Vuke, S.M., Lonn,  
 J.D., Berg, R.B., and Schmidt, C.J., 2014.  
 Aerial Imagery - NAIP 2013

**EXHIBIT 4B - GEOLOGY  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**





MAJOR RIVER	<b>WETLAND AND RIPARIAN MAPPING</b>	FRESHWATER SCRUB-SHRUB WETLAND
CANAL / DITCH	RIVER	RIPARIAN EMERGENT
INTERMITTENT STREAM / RIVER	FRESHWATER POND	RIPARIAN SCRUB-SHRUB
PERENNIAL STREAM / RIVER	FRESHWATER EMERGENT WETLAND	RIPARIAN FORESTED

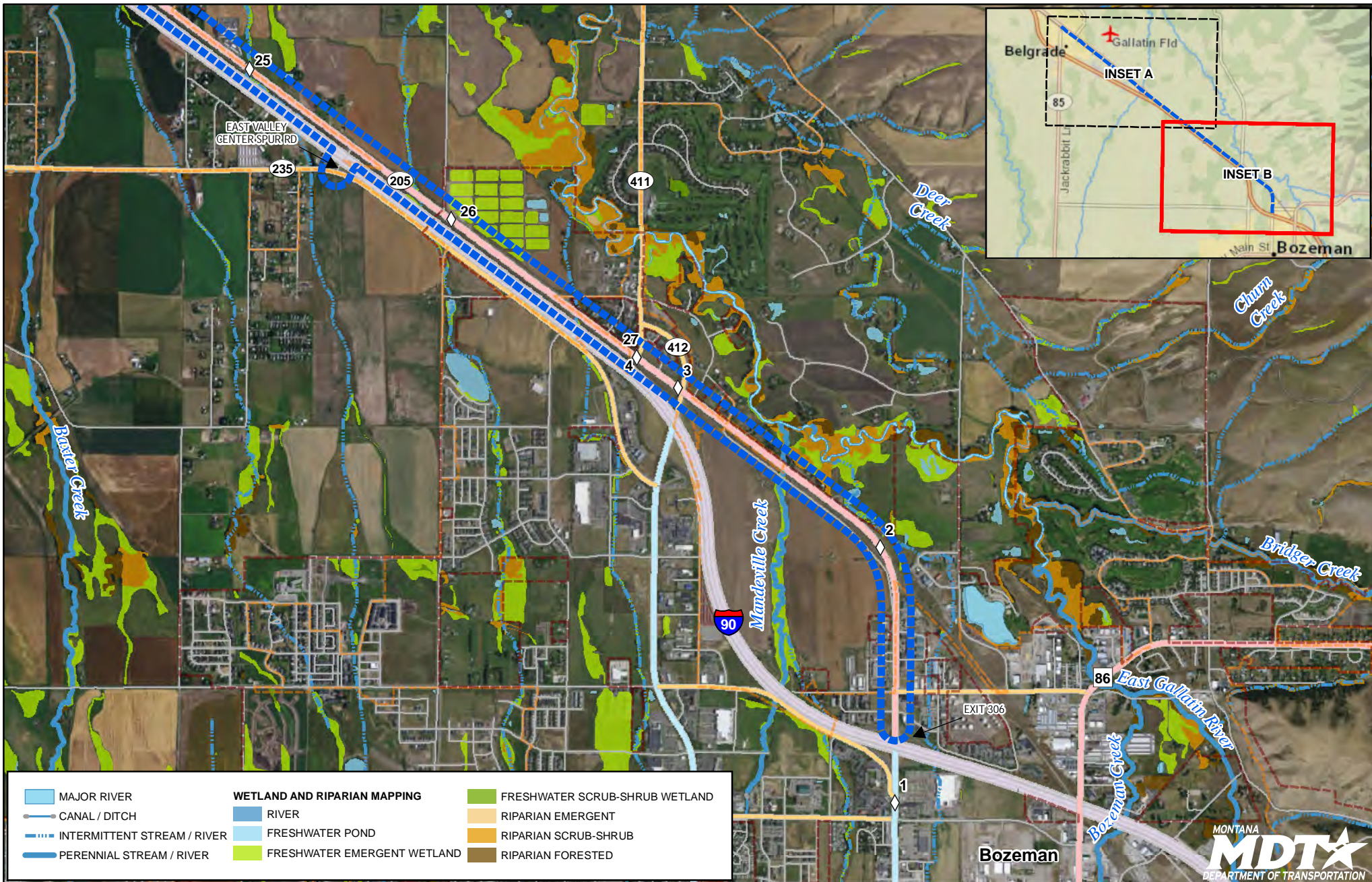


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: National Hydrography Dataset 2015,  
 Montana NHP Wetland And Riparian Framework 2015,  
 Aerial Imagery - NAIP 2013

**EXHIBIT 5A - SURFACE WATER  
 & WETLANDS  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

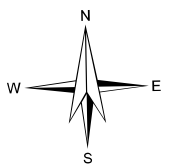
REFERENCE MARKER	NHS INTERSTATE
STUDY AREA	NHS NON-INTERSTATE
CITY BOUNDARY	PRIMARY
2010 URBANIZED AREA	URBAN
	INTERSTATE RAMP





0 0.25 0.5 1 Miles

Scale: 1 in. = 0.5 mile

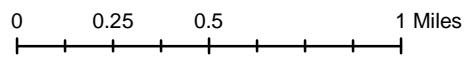
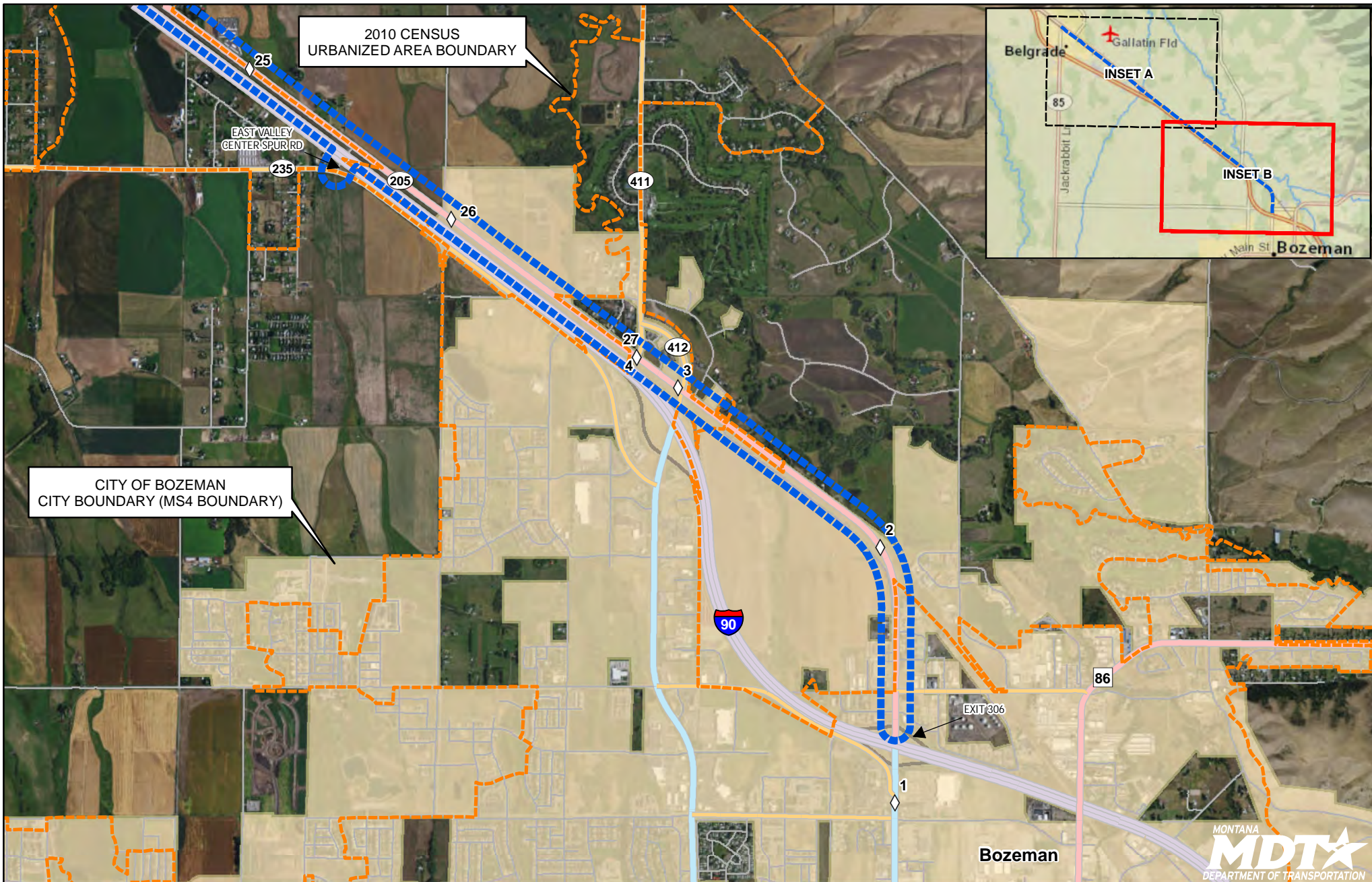


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: National Hydrography Dataset 2015,  
 Montana NHP Wetland And Riparian Framework 2015,  
 Aerial Imagery - NAIP 2013

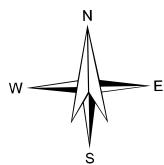
**EXHIBIT 5B - SURFACE WATER  
 & WETLANDS  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

- REFERENCE MARKER
- STUDY AREA
- CITY BOUNDARY
- 2010 URBANIZED AREA
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- URBAN
- INTERSTATE RAMP
- OFF SYSTEM ROUTE





Scale: 1 in. = 0.5 mile

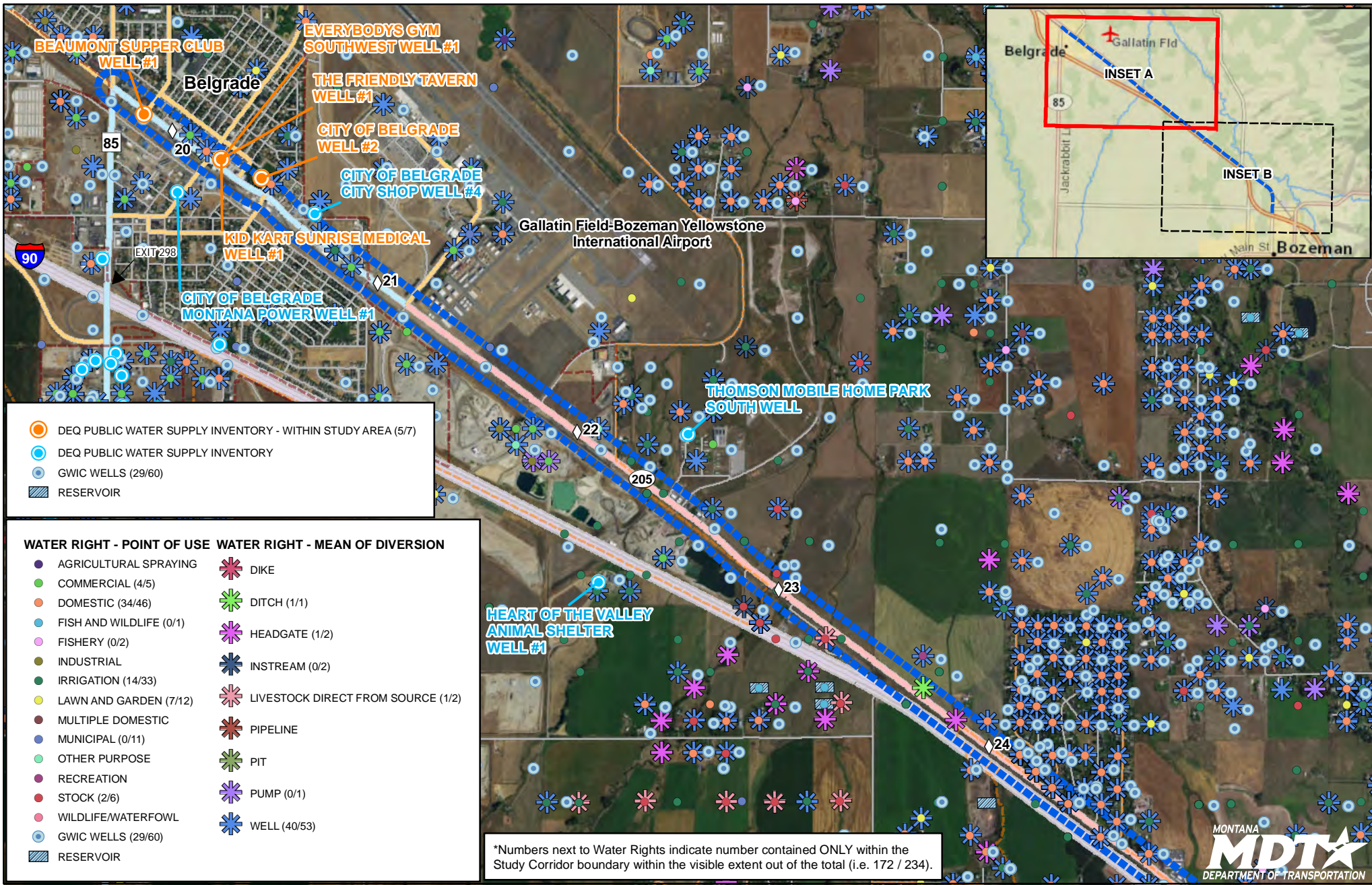


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: MS4 and MPO Boundaries 2015,  
 Aerial Imagery - NAIP 2013

**EXHIBIT 6 - MS4 AND  
 URBAN BOUNDARIES  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

- |  |                              |  |                    |
|--|------------------------------|--|--------------------|
|  | REFERENCE MARKER             |  | NHS INTERSTATE     |
|  | STUDY AREA                   |  | NHS NON-INTERSTATE |
|  | 2010 URBANIZED AREA          |  | PRIMARY            |
|  | CITY BOUNDARY (MS4 BOUNDARY) |  | URBAN              |
|  |                              |  | INTERSTATE RAMP    |
|  |                              |  | OFF SYSTEM ROUTE   |

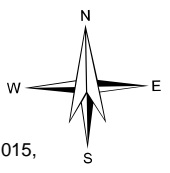




\*Numbers next to Water Rights indicate number contained ONLY within the Study Corridor boundary within the visible extent out of the total (i.e. 172 / 234).

0 0.25 0.5 1 Miles

Scale: 1 in. = 0.5 mile

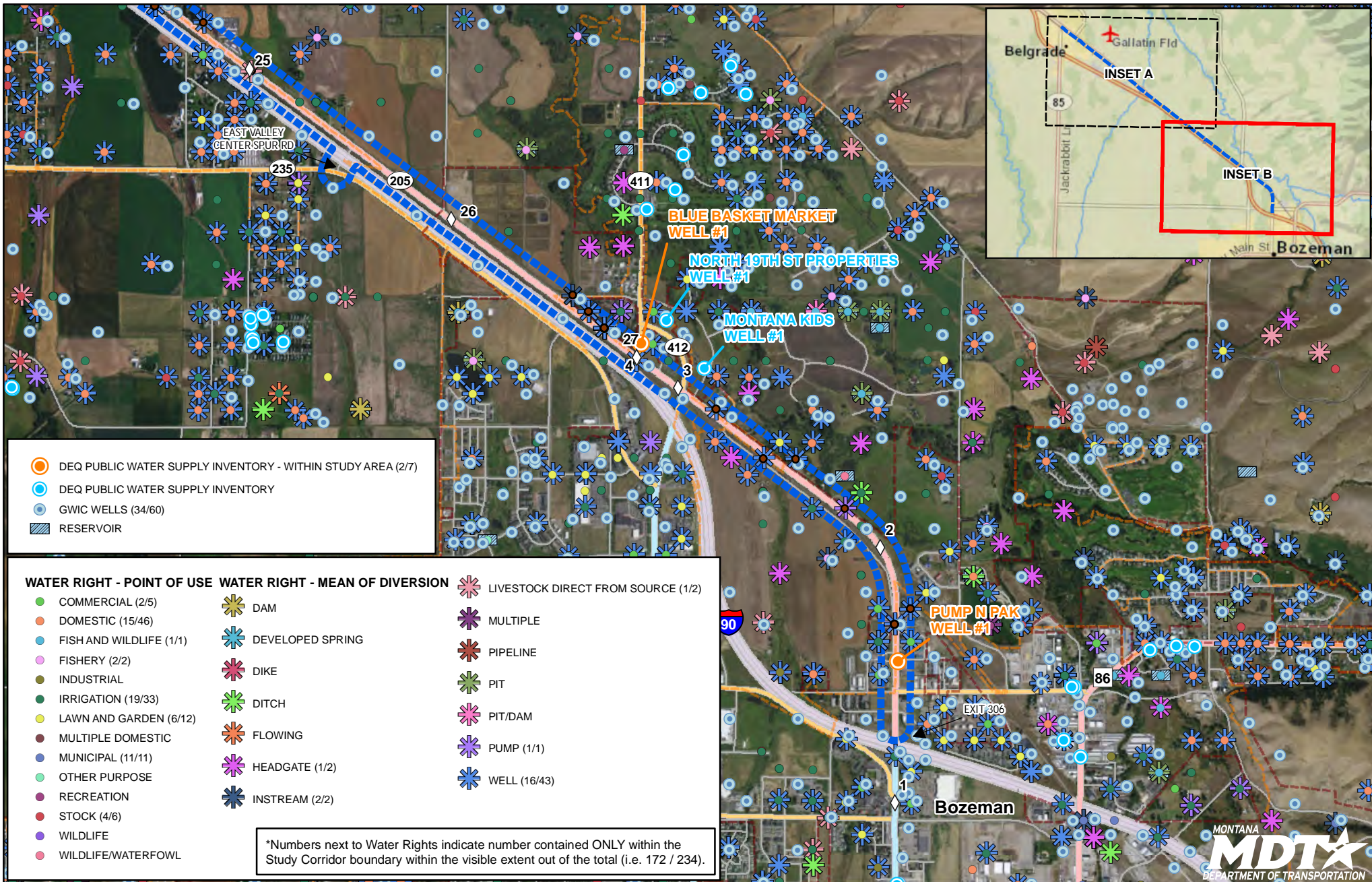


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana DNRC Water Rights 2015, DEQ Public Water Supply Inventory 2015, MBMG GWIC Well Database 2015, Aerial Imagery - NAIP 2013

### EXHIBIT 7A - WELLS & WATER RIGHTS BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA

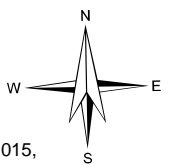
- REFERENCE MARKER
- STUDY AREA
- 2010 URBANIZED AREA
- CITY BOUNDARY
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- URBAN
- INTERSTATE RAMP
- OFF SYSTEM ROUTE





0 0.25 0.5 1 Miles

Scale: 1 in. = 0.5 mile

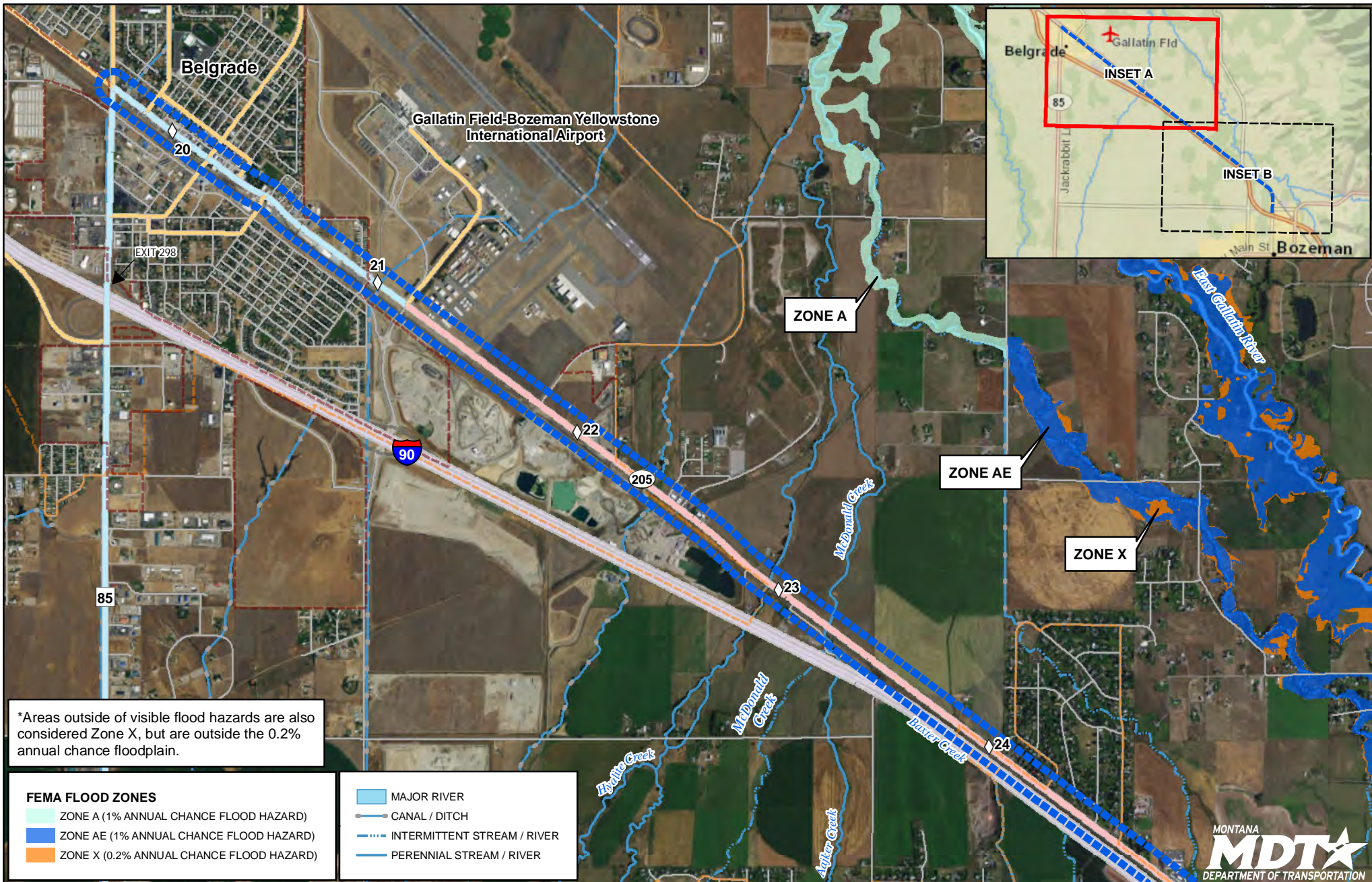


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana DNRC Water Rights 2015, DEQ Public Water Supply Inventory 2015, MBMG GWIC Well Database 2015, Aerial Imagery - NAIP 2013

### EXHIBIT 7B - WELLS & WATER RIGHTS BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA

- ◇ REFERENCE MARKER
- ▭ STUDY AREA
- ▭ CITY BOUNDARY
- ▭ 2010 URBANIZED AREA
- ▭ NHS INTERSTATE
- ▭ NHS NON-INTERSTATE
- ▭ PRIMARY
- ▭ URBAN
- ▭ INTERSTATE RAMP
- ▭ OFF SYSTEM ROUTE





\*Areas outside of visible flood hazards are also considered Zone X, but are outside the 0.2% annual chance floodplain.

FEMA FLOOD ZONES	
	ZONE A (1% ANNUAL CHANCE FLOOD HAZARD)
	ZONE AE (1% ANNUAL CHANCE FLOOD HAZARD)
	ZONE X (0.2% ANNUAL CHANCE FLOOD HAZARD)

	MAJOR RIVER
	CANAL / DITCH
	INTERMITTENT STREAM / RIVER
	PERENNIAL STREAM / RIVER

0 0.25 0.5 1 Miles

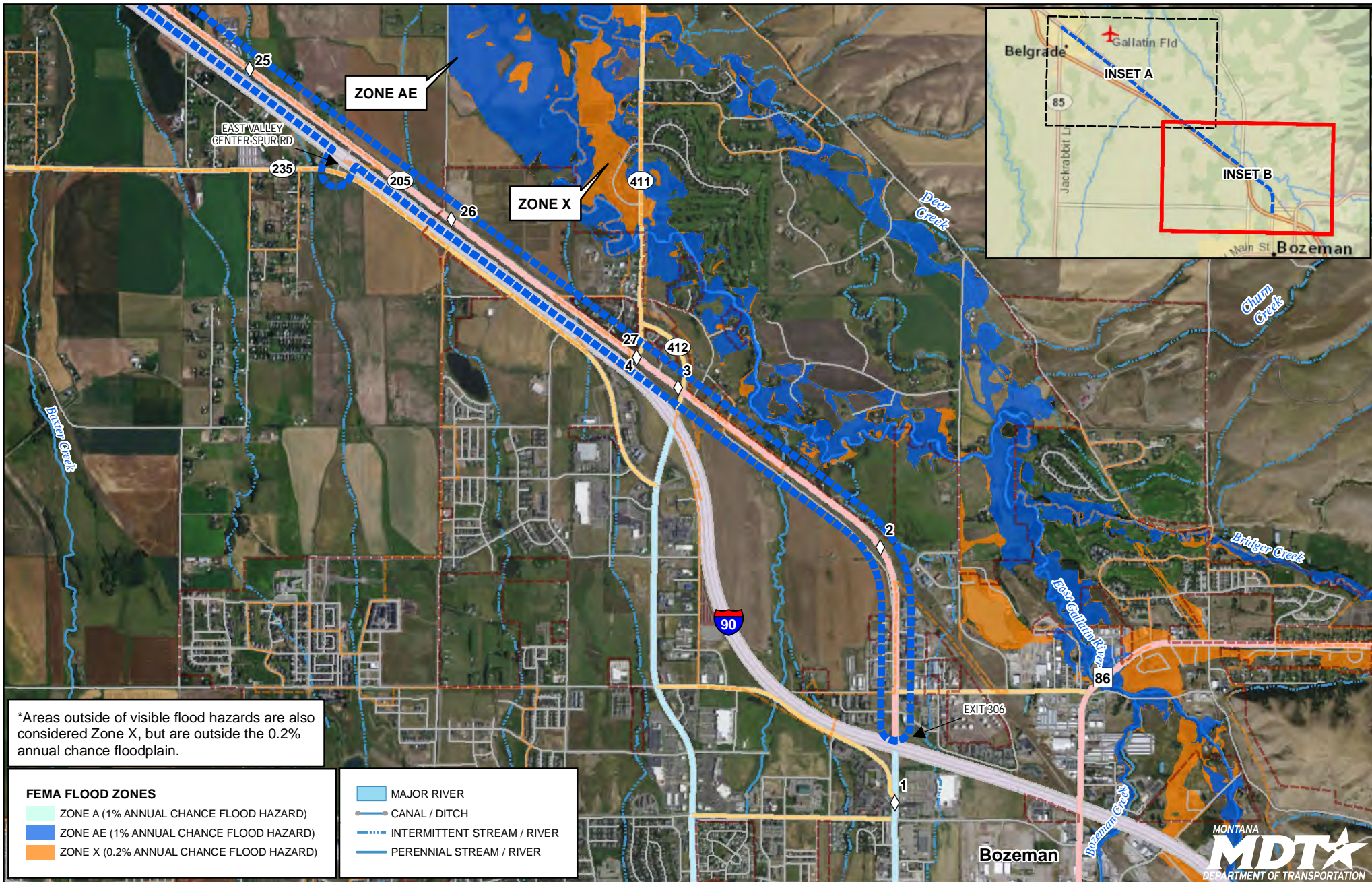
Scale: 1 in. = 0.5 mile

Projection: NAD 1983 StatePlane Montana FIPS 2500  
Sources: National Hydrography Dataset 2015, FEMA DFRIM Panels '30031' eff. 9/2/2011, Aerial Imagery - NAIP 2013

### EXHIBIT 8A - FEMA FLOOD ZONES BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA

	REFERENCE MARKER		NHS INTERSTATE
	STUDY AREA		NHS NON-INTERSTATE
	CITY BOUNDARY		PRIMARY
	2010 URBANIZED AREA		URBAN
			INTERSTATE RAMP
			OFF SYSTEM ROUTE



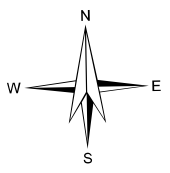
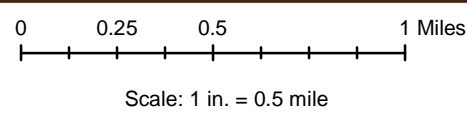


\*Areas outside of visible flood hazards are also considered Zone X, but are outside the 0.2% annual chance floodplain.

FEMA FLOOD ZONES	
	ZONE A (1% ANNUAL CHANCE FLOOD HAZARD)
	ZONE AE (1% ANNUAL CHANCE FLOOD HAZARD)
	ZONE X (0.2% ANNUAL CHANCE FLOOD HAZARD)

	MAJOR RIVER
	CANAL / DITCH
	INTERMITTENT STREAM / RIVER
	PERENNIAL STREAM / RIVER

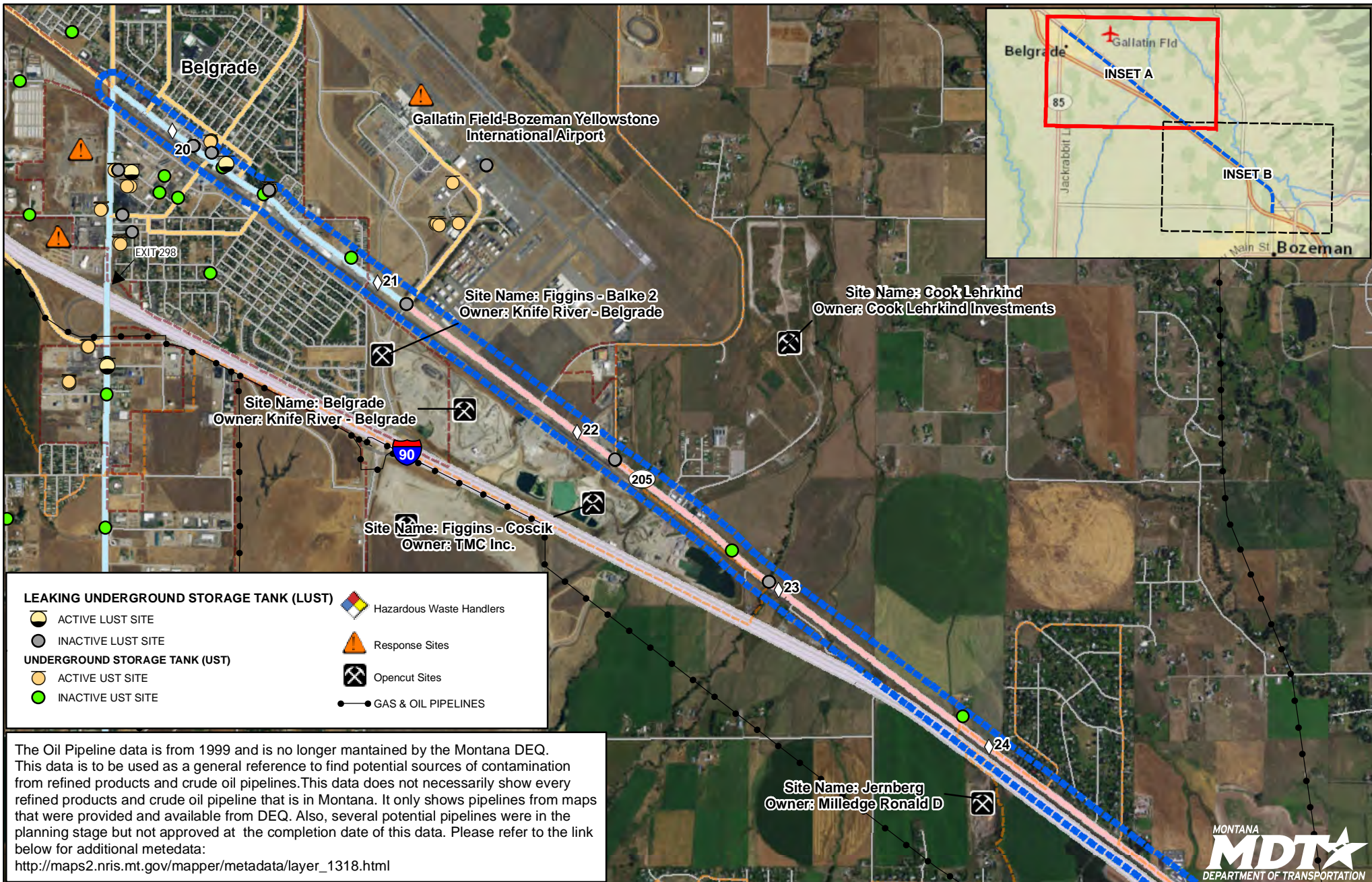


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: National Hydrography Dataset 2015,  
 FEMA DFRIM Panels '30031' eff. 9/2/2011,  
 Aerial Imagery - NAIP 2013

### EXHIBIT 8B - FEMA FLOOD ZONES BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA

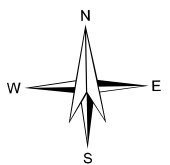
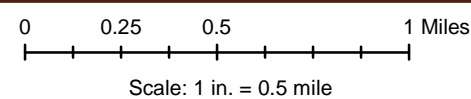
	STUDY AREA		NHS INTERSTATE
	CITY BOUNDARY		NHS NON-INTERSTATE
	2010 URBANIZED AREA		PRIMARY
	REFERENCE MARKER		URBAN
	MAJOR RIVER		INTERSTATE RAMP
	CANAL / DITCH		OFF SYSTEM ROUTE
	INTERMITTENT STREAM / RIVER		
	PERENNIAL STREAM / RIVER		





- LEAKING UNDERGROUND STORAGE TANK (LUST)**
- ACTIVE LUST SITE
  - INACTIVE LUST SITE
- UNDERGROUND STORAGE TANK (UST)**
- ACTIVE UST SITE
  - INACTIVE UST SITE
- Hazardous Waste Handlers
  - Response Sites
  - Opencut Sites
  - GAS & OIL PIPELINES

The Oil Pipeline data is from 1999 and is no longer maintained by the Montana DEQ. This data is to be used as a general reference to find potential sources of contamination from refined products and crude oil pipelines. This data does not necessarily show every refined products and crude oil pipeline that is in Montana. It only shows pipelines from maps that were provided and available from DEQ. Also, several potential pipelines were in the planning stage but not approved at the completion date of this data. Please refer to the link below for additional metadata:  
[http://maps2.nris.mt.gov/mapper/metadata/layer\\_1318.html](http://maps2.nris.mt.gov/mapper/metadata/layer_1318.html)



Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana DEQ/DST Mapping Service includes: LUST/UST, Hazardous Waste Handlers, Petro Fund, Response Sites, and Opencut Sites 2015, Aerial Imagery - NAIP 2013

**EXHIBIT 9A - LUST, UST, & HAZARDOUS WASTE FACILITIES BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA**

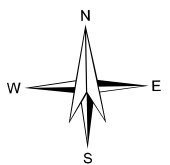
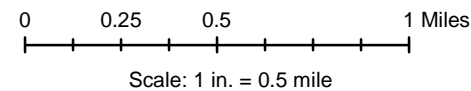
- REFERENCE MARKER
- STUDY AREA
- CITY BOUNDARY
- 2010 URBANIZED AREA
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- URBAN
- INTERSTATE RAMP
- OFF SYSTEM ROUTE





- LEAKING UNDERGROUND STORAGE TANK (LUST)**
- ACTIVE LUST SITE
  - INACTIVE LUST SITE
- UNDERGROUND STORAGE TANK (UST)**
- ACTIVE UST SITE
  - INACTIVE UST SITE
- Hazardous Waste Handlers
  - Response Sites
  - GAS & OIL PIPELINES

The Oil Pipeline data is from 1999 and is no longer maintained by the Montana DEQ. This data is to be used as a general reference to find potential sources of contamination from refined products and crude oil pipelines. This data does not necessarily show every refined products and crude oil pipeline that is in Montana. It only shows pipelines from maps that were provided and available from DEQ. Also, several potential pipelines were in the planning stage but not approved at the completion date of this data. Please refer to the link below for additional metadata:  
[http://maps2.nris.mt.gov/mapper/metadata/layer\\_1318.html](http://maps2.nris.mt.gov/mapper/metadata/layer_1318.html)

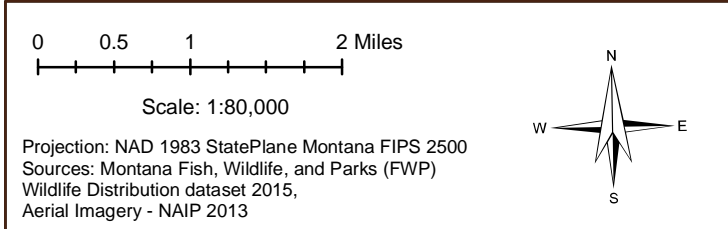
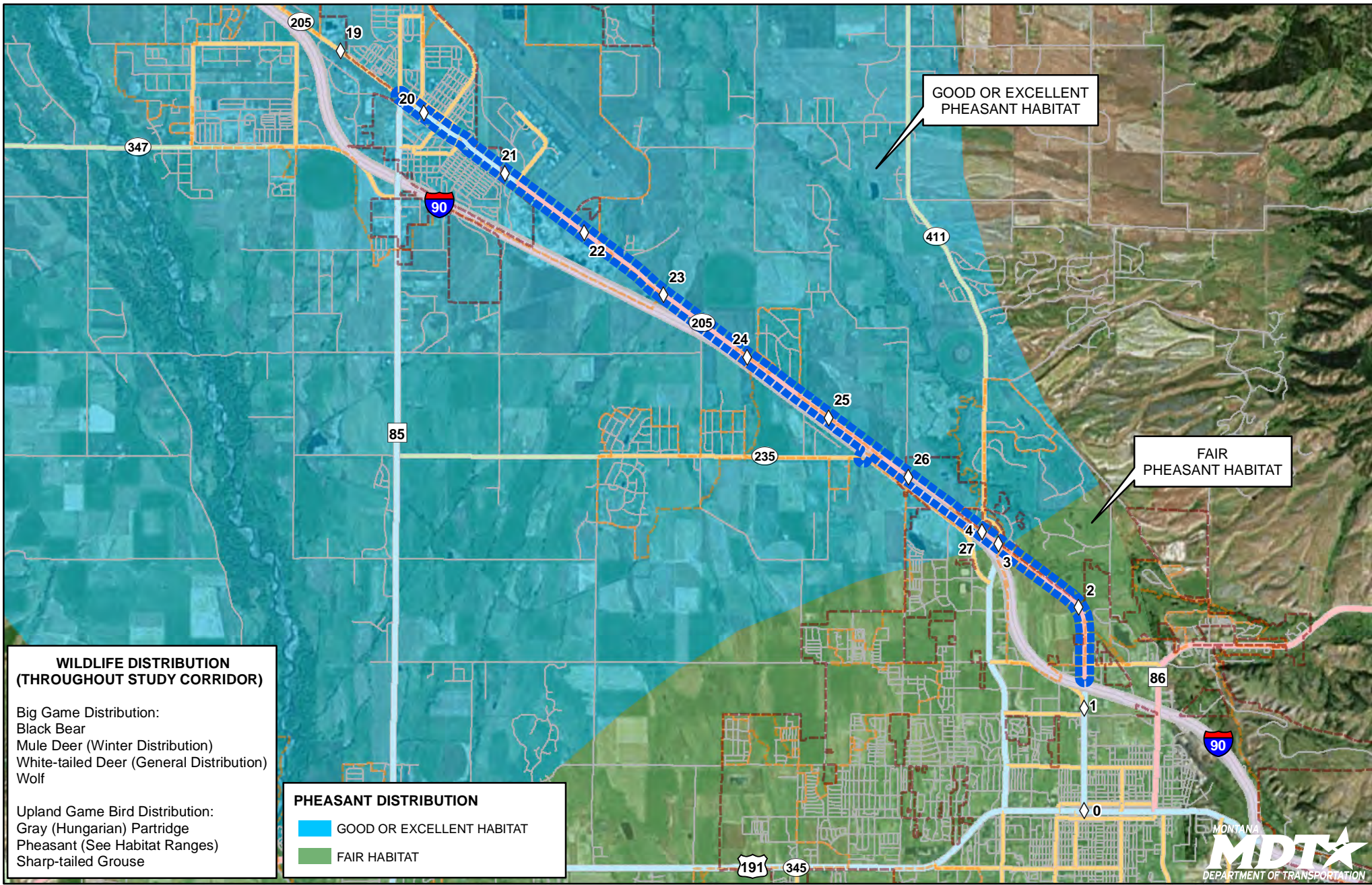


Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana DEQ/DST Mapping Service includes: LUST/UST, Hazardous Waste Handlers, Petro Fund, Response Sites, and Opencut Sites 2015, Aerial Imagery - NAIP 2013

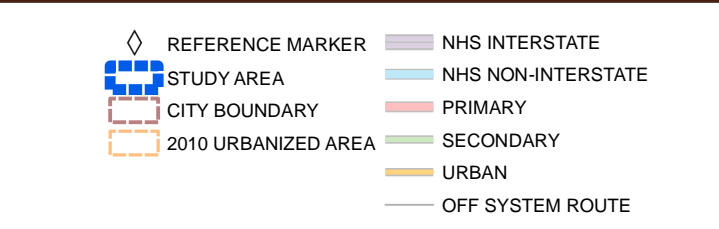
**EXHIBIT 9B - LUST, UST, & HAZARDOUS WASTE FACILITIES BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA**

- REFERENCE MARKER
- STUDY AREA
- CITY BOUNDARY
- 2010 URBANIZED AREA
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- URBAN
- INTERSTATE RAMP
- OFF SYSTEM ROUTE

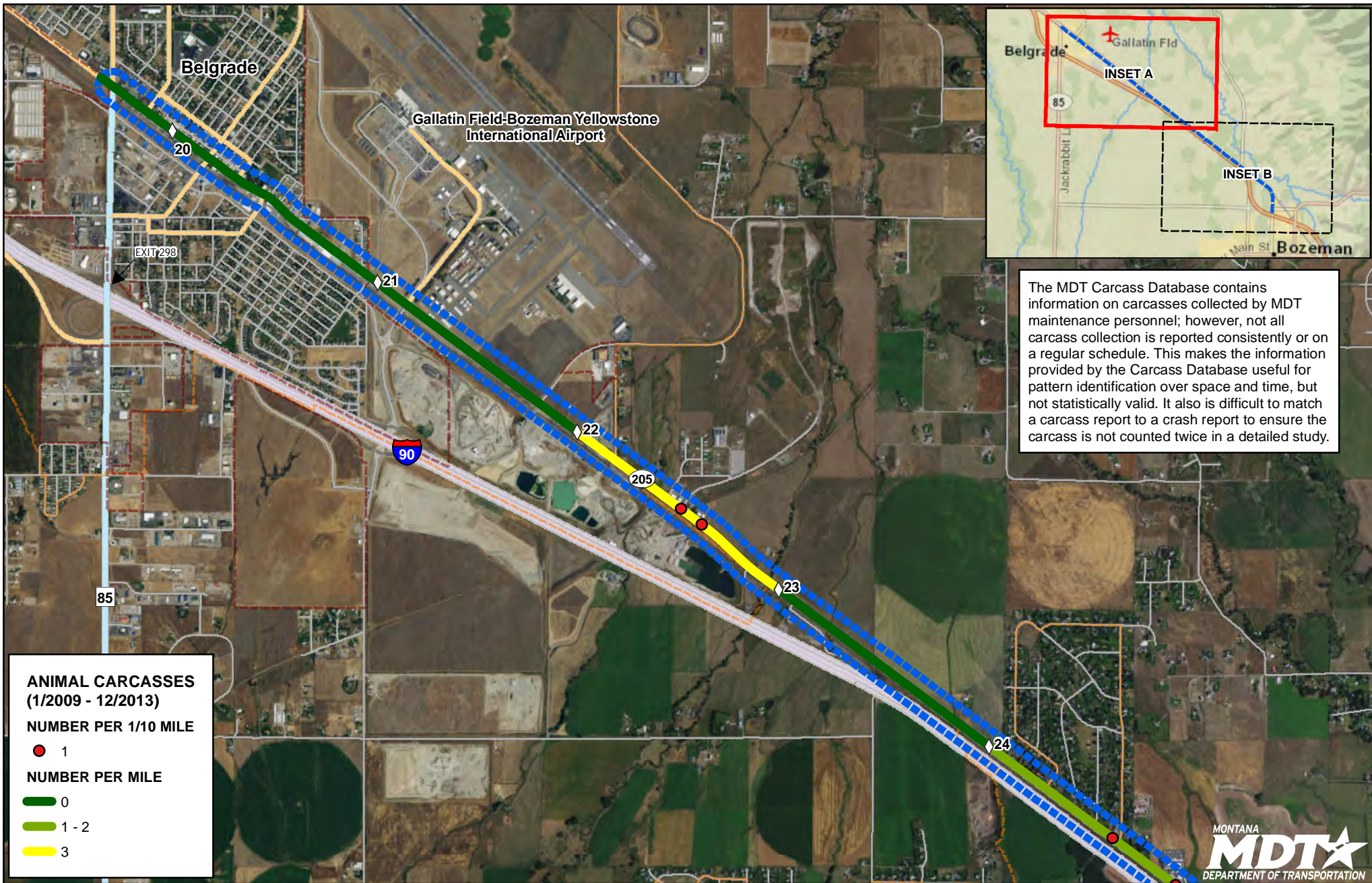




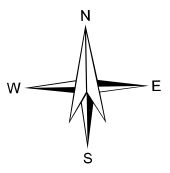
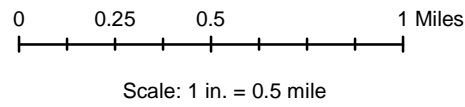
**EXHIBIT 10 - WILDLIFE DISTRIBUTION AREAS BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA**





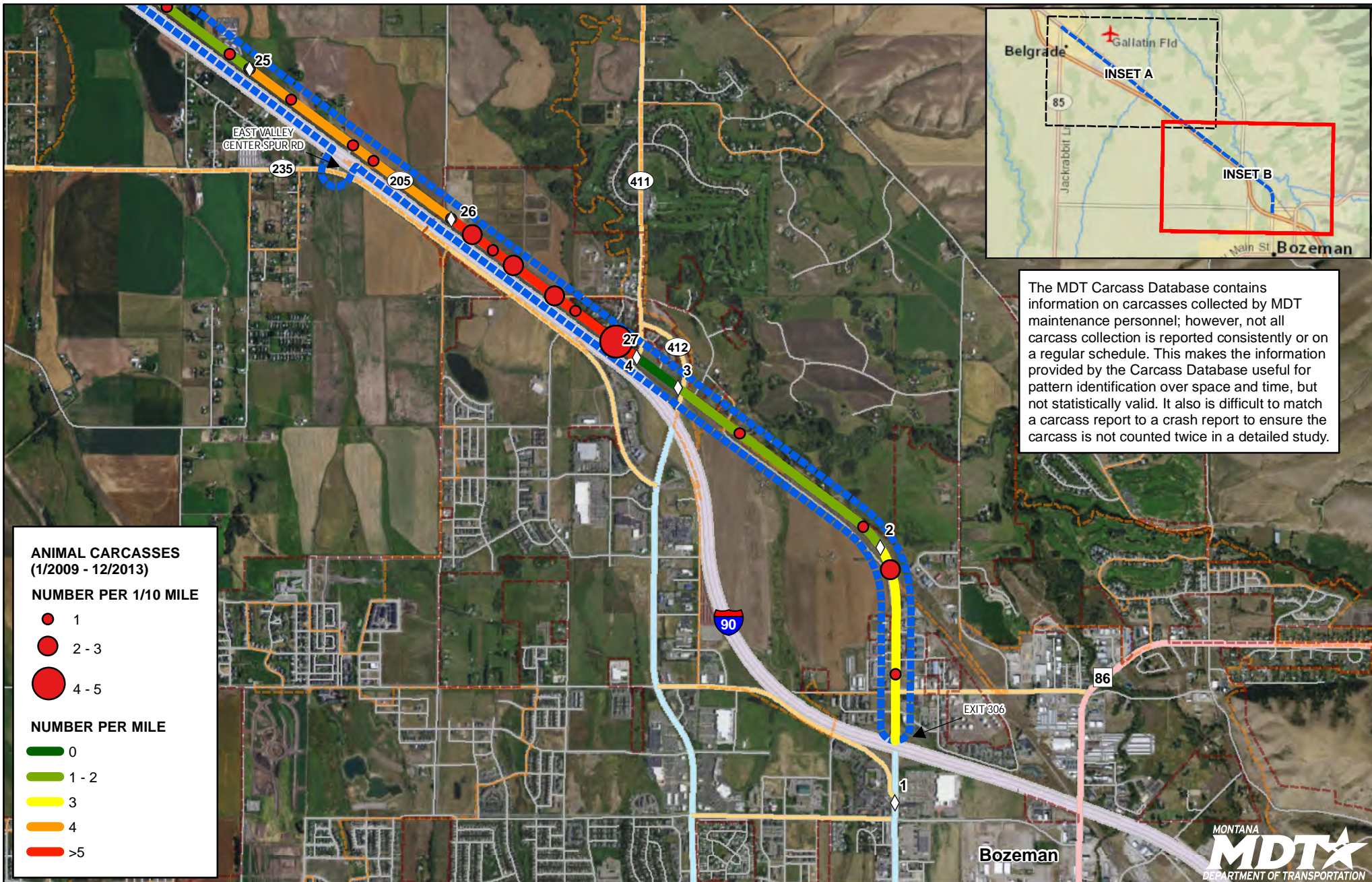


The MDT Carcass Database contains information on carcasses collected by MDT maintenance personnel; however, not all carcass collection is reported consistently or on a regular schedule. This makes the information provided by the Carcass Database useful for pattern identification over space and time, but not statistically valid. It also is difficult to match a carcass report to a crash report to ensure the carcass is not counted twice in a detailed study.



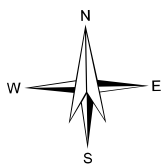
Projection: NAD 1983 StatePlane Montana FIPS 2500  
Sources: MDT Animal Carcass Dataset 2015, Aerial Imagery - NAIP 2013





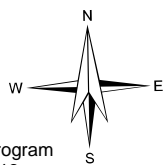
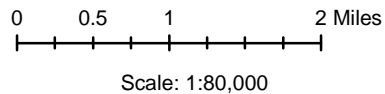
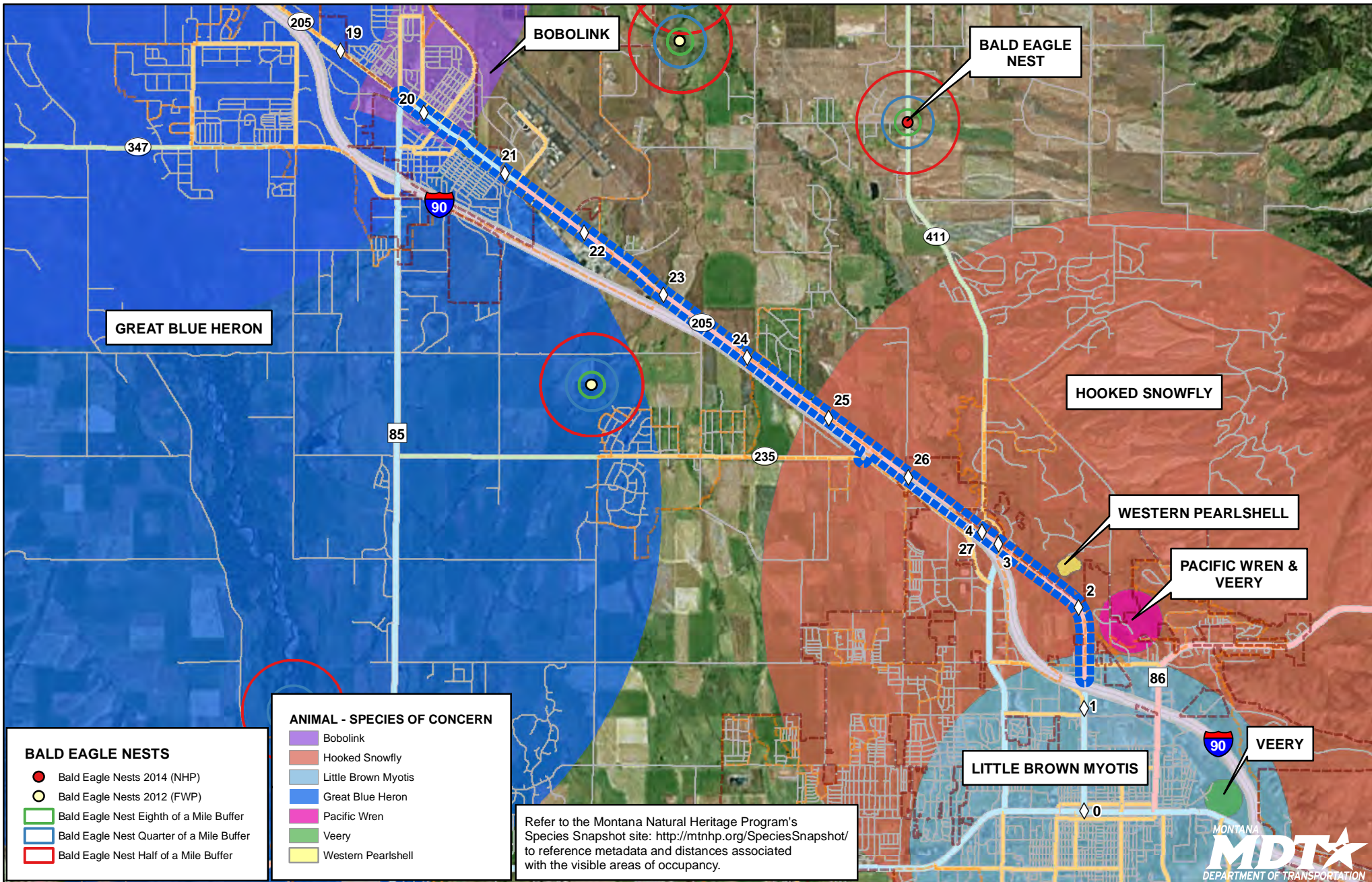
0 0.25 0.5 1 Miles

Scale: 1 in. = 0.5 mile



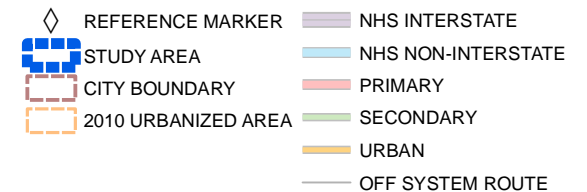
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Sources: MDT Animal Carcass Dataset 2015, Aerial Imagery - NAIP 2013



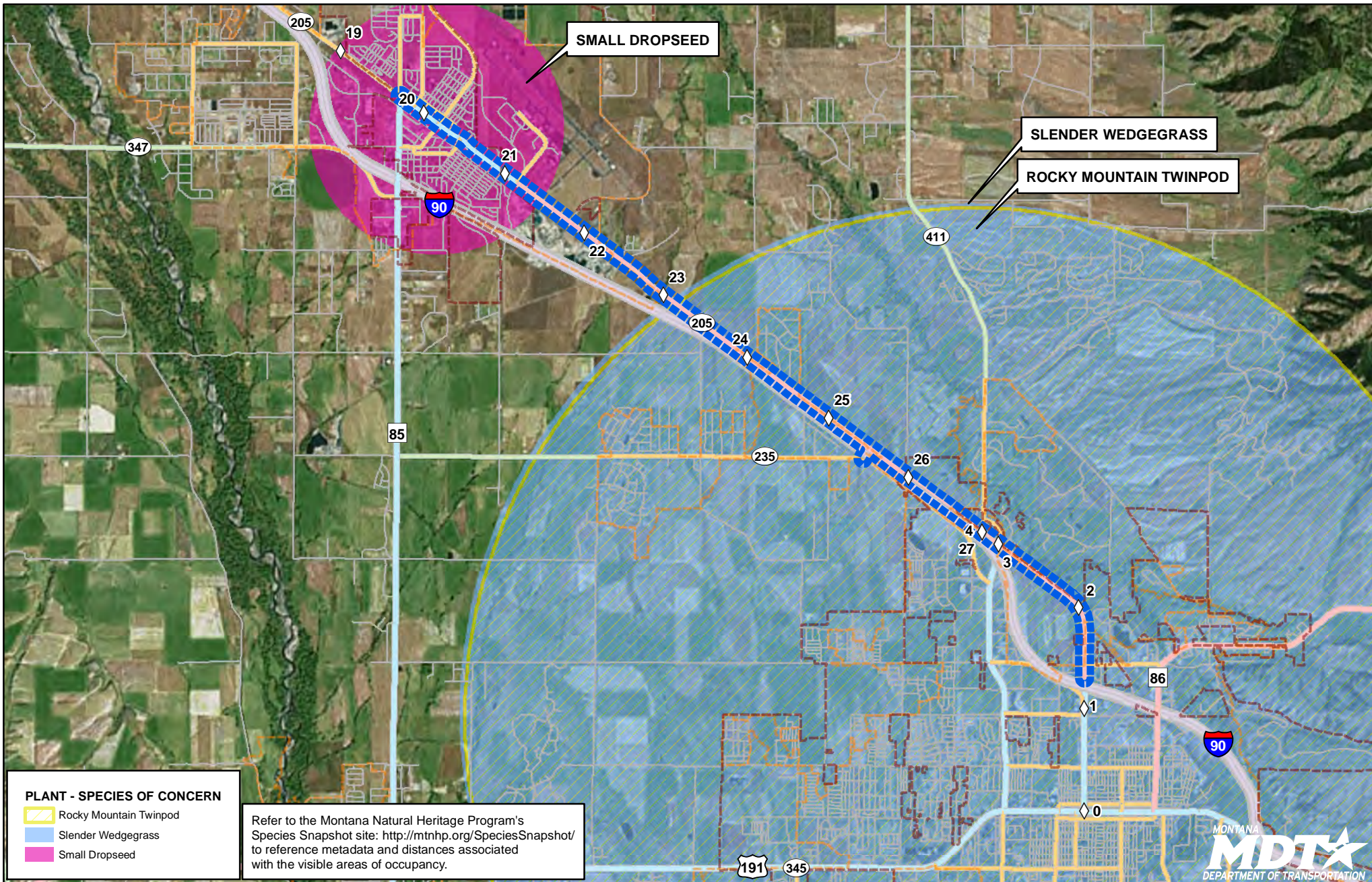


Projection: NAD 1983 StatePlane Montana FIPS 2500  
Sources: Montana Fish, Wildlife, and Parks (FWP)  
Bald Eagle Nests dataset 2014, Montana Natural Heritage Program  
Montana Field Guide dataset 2015, Aerial Imagery - NAIP 2013

**EXHIBIT 12A - ANIMAL  
SPECIES OF CONCERN  
BELGRADE TO BOZEMAN  
CORRIDOR STUDY  
GALLATIN COUNTY, MONTANA**

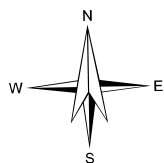






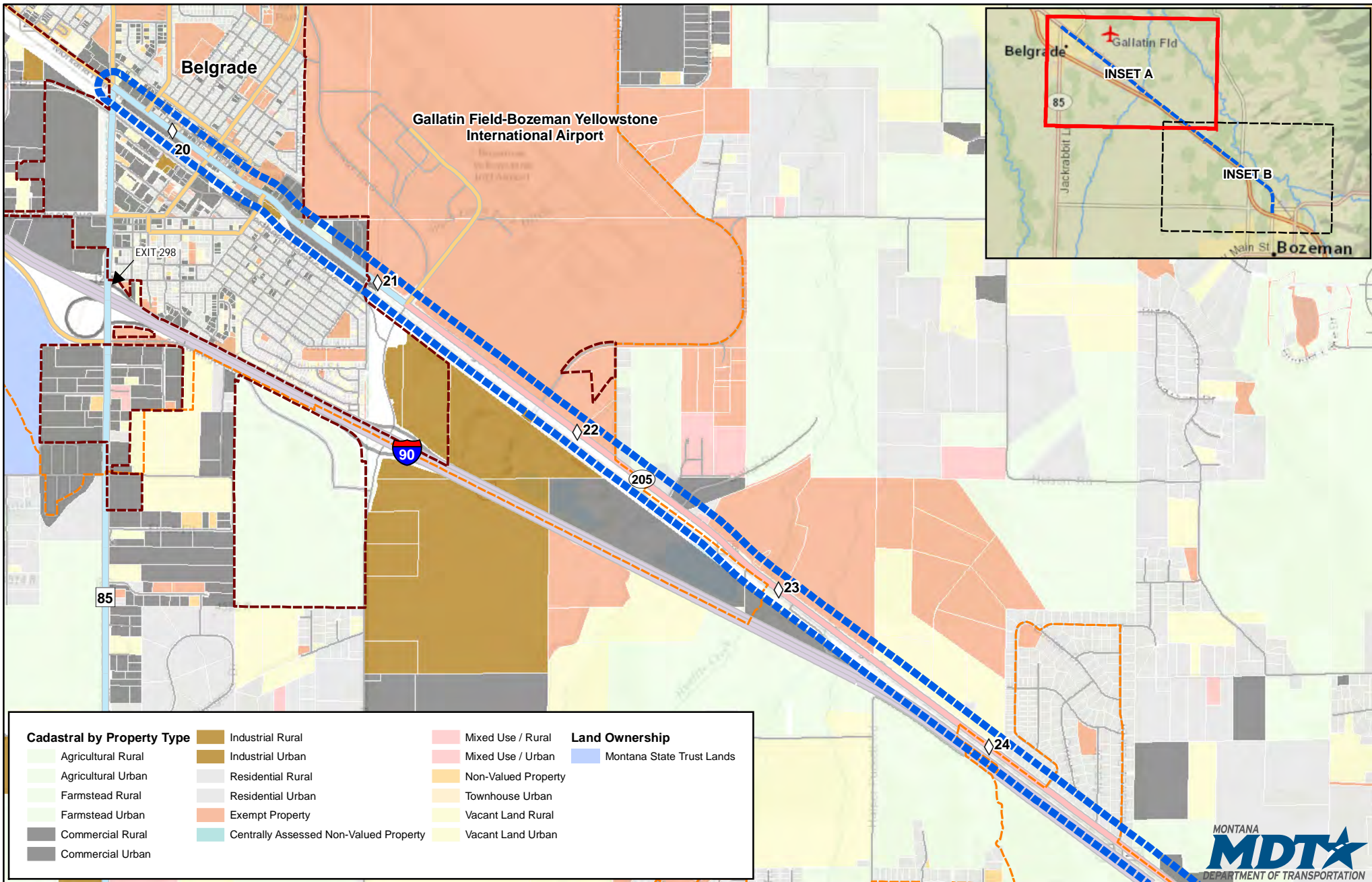
0 0.5 1 2 Miles

Scale: 1:80,000



Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana Natural Heritage Program  
 Montana Field Guide dataset 2015,  
 Aerial Imagery - NAIP 2013





Cadastral by Property Type		Land Ownership	
	Agricultural Rural		Mixed Use / Rural
	Agricultural Urban		Mixed Use / Urban
	Farmstead Rural		Non-Valued Property
	Farmstead Urban		Townhouse Urban
	Commercial Rural		Exempt Property
	Commercial Urban		Centrally Assessed Non-Valued Property
	Industrial Rural		Vacant Land Rural
	Industrial Urban		Vacant Land Urban
	Residential Rural		Montana State Trust Lands

0 0.25 0.5 1 Miles

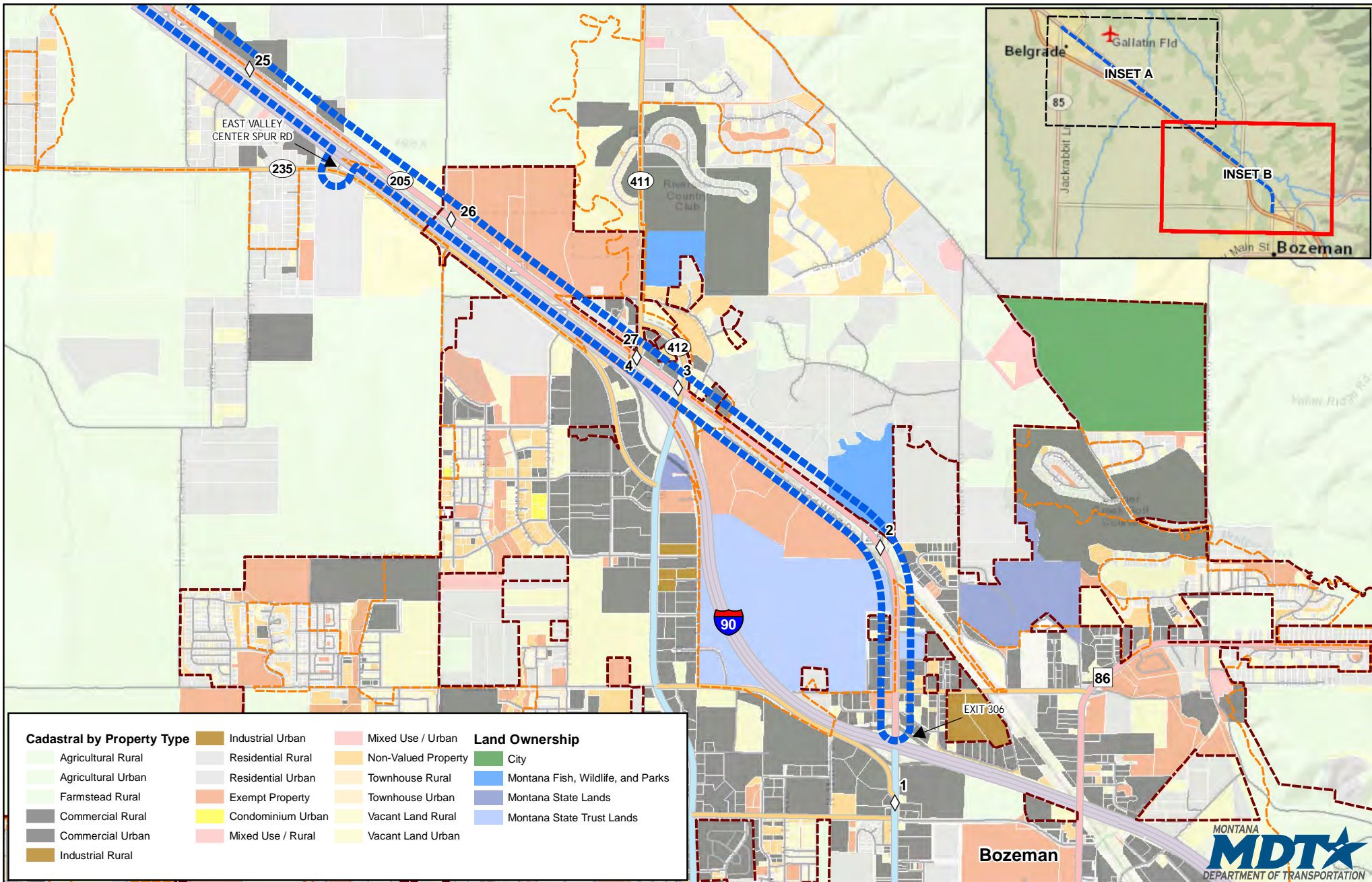
Scale: 1 in. = 0.5 mile

Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana Cadastral Framework (DOR/MSL) 2015,  
 Montana Public Lands Dataset (DOR/MSL) 2015,  
 ESRI ArcGIS Online - World Topographic Map

**EXHIBIT 13A - PUBLIC LANDS & CADASTRAL BY PROPERTY TYPE BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA**

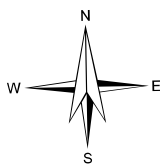
	STUDY AREA		NHS INTERSTATE
	REFERENCE MARKER		NHS NON-INTERSTATE
	CITY BOUNDARY		PRIMARY
	2010 URBANIZED AREA		URBAN
			INTERSTATE RAMP
			OFF SYSTEM ROUTE





0 0.25 0.5 1 Miles

Scale: 1 in. = 0.5 mile



Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana Cadastral Framework (DOR/MSL) 2015,  
 Montana Public Lands Dataset (DOR/MSL) 2015,  
 ESRI ArcGIS Online - World Topographic Map

**EXHIBIT 13B - PUBLIC LANDS & CADASTRAL BY PROPERTY TYPE  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

- ◇ REFERENCE MARKER
- ▭ STUDY AREA
- ▭ 2010 URBANIZED AREA
- ▭ CITY BOUNDARY
- ▭ NHS INTERSTATE
- ▭ NHS NON-INTERSTATE
- ▭ PRIMARY
- ▭ URBAN
- ▭ INTERSTATE RAMP
- ▭ OFF SYSTEM ROUTE

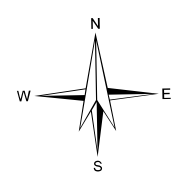




**6(F) LOCATIONS**  
 PARK



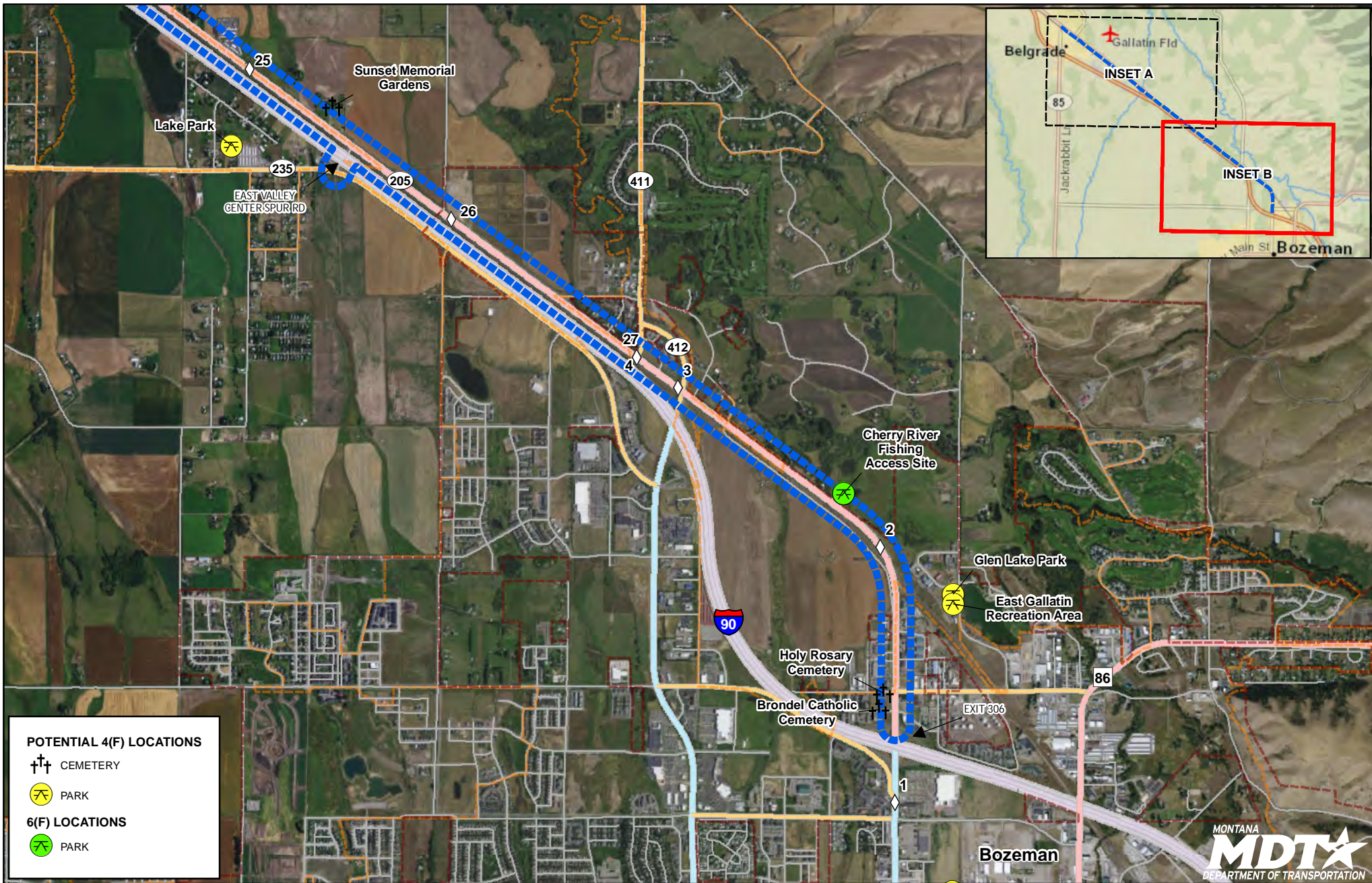
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 Scale: 1 in. = 0.5 mile  
 Projection: NAD 1983 StatePlane Montana FIPS 2500  
 Sources: Montana Geographic Names Information System (GNIS) 2015, Aerial Imagery - NAIP 2013



**EXHIBIT 14A - 4(F) & 6(F) LOCATIONS  
 BELGRADE TO BOZEMAN  
 CORRIDOR STUDY  
 GALLATIN COUNTY, MONTANA**

- REFERENCE MARKER
- STUDY AREA
- CITY BOUNDARY
- 2010 URBANIZED AREA
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- URBAN
- INTERSTATE RAMP
- OFF SYSTEM ROUTE





**POTENTIAL 4(F) LOCATIONS**

- ⛦ CEMETERY
- ⦿ PARK

**6(F) LOCATIONS**

- ⦿ PARK

0 0.25 0.5 1 Miles

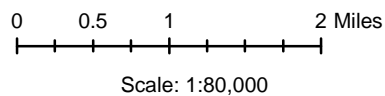
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Projection: NAD 1983 StatePlane Montana FIPS 2500  
Sources: Montana Geographic Names Information System (GNIS) 2015, Aerial Imagery - NAIP 2013

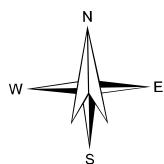
**EXHIBIT 14B - 4(F) & 6(F) LOCATIONS  
BELGRADE TO BOZEMAN  
CORRIDOR STUDY  
GALLATIN COUNTY, MONTANA**

◇ REFERENCE MARKER	▬ NHS INTERSTATE
▬ STUDY AREA	▬ NHS NON-INTERSTATE
▬ CITY BOUNDARY	▬ PRIMARY
▬ 2010 URBANIZED AREA	▬ URBAN
	▬ INTERSTATE RAMP
	▬ OFF SYSTEM ROUTE





Projection: NAD 1983 StatePlane Montana FIPS 2500  
Sources: Montana Cultural Resource Information System 2015, USGS Topographic 7.5 - minute quadrangles



**EXHIBIT 15 - CULTURAL AND HISTORICAL RESOURCES BELGRADE TO BOZEMAN CORRIDOR STUDY GALLATIN COUNTY, MONTANA**

- REFERENCE MARKER
- STUDY AREA
- PLSS TWNSHIP / RANGE
- PLSS SECTION
- CITY BOUNDARY
- 2010 URBANIZED AREA
- NHS INTERSTATE
- NHS NON-INTERSTATE
- PRIMARY
- SECONDARY
- URBAN
- OFF SYSTEM ROUTE



# **Attachment 2**

## Noxious Weeds – Invaders Database System





## Invaders Database System – Gallatin County

**Database queried on: April 15, 2015    Database last updated on: July 27, 2014**

Genus	Species	Common Name	Noxious In	Exotic
Agropyron	repens	quackgrass	OR,WY	×
Arctium	minus	common burdock	WY	×
Artemisia	absinthium	absinth wormwood	WA	×
Bryonia	alba	white bryony	WA	×
Cardaria	draba	hoary cress	ID,MT,OR,WA,WY	×
Carduus	acanthoides	plumeless thistle	OR,WA,WY	×
Carduus	nutans	musk thistle	ID,OR,WA,WY	×
Centaurea	diffusa	diffuse knapweed	ID,MT,OR,WA,WY	×
Centaurea	jacea	brown knapweed	WA	×
Centaurea	maculosa	spotted knapweed	ID,MT,OR,WA,WY	×
Centaurea	repens	Russian knapweed	ID,MT,OR,WA,WY	×
Centaurea	solstitialis	yellow starthistle	ID,MT,OR,WA	×
Chrysanthemum	leucanthemum	oxeye daisy	MT,WA,WY	×
Cirsium	arvense	Canada thistle	ID,MT,OR,WA,WY	×
Cirsium	vulgare	bull thistle	OR,WA	×
Conium	maculatum	poison hemlock	ID,OR,WA	×
Convolvulus	arvensis	field bindweed	ID,MT,OR,WA,WY	×
Cuscuta	approximata	clustered dodder	OR,WA	×
Cynoglossum	officinale	houndstongue	MT,OR,WA,WY	×
Daucus	carota	wild carrot	WA	×
Equisetum	arvense	field horsetail	OR	
Euphorbia	esula	leafy spurge	ID,MT,OR,WA,WY	×
Gypsophila	paniculata	baby's breath	WA	×
Hieracium	aurantiacum	orange hawkweed	ID,MT,OR,WA	×
Hyoscyamus	niger	black henbane	ID,WA	×
Hypericum	perforatum	St. Johnswort	MT,OR,WA,WY	×
Iris	pseudacorus	yellowflag iris	MT,WA	×
Isatis	tinctoria	dyer's woad	ID,MT,OR,WA,WY	×
Kochia	scoparia	kochia	OR,WA	×
Lepidium	latifolium	perennial pepperweed	ID,MT,OR,WA,WY	×
Linaria	dalmatica	dalmatian toadflax	ID,MT,OR,WA,WY	×
Linaria	vulgaris	yellow toadflax	ID,MT,OR,WA,WY	×
Lysimachia	vulgaris	garden loosestrife	WA	×
Matricaria	maritima	scentless chamomile	WA	×
Mirabilis	nyctaginea	wild four o'clock	WA	
Myriophyllum	spicatum	Eurasian watermilfoil	ID,MT,OR,WA	×
Onopordum	acanthium	Scotch thistle	ID,OR,WA,WY	×
Panicum	miliaceum	wild proso millet	OR	×
Phalaris	arundinacea	reed canarygrass	WA	×



Polygonum	bohemica	Bohemian knotweed		×
Polygonum	sachalinense	giant knotweed	OR,WA	×
Potentilla	recta	sulfur cinquefoil	MT,OR,WA	×
Ranunculus	acris	tall buttercup	MT	×
Secale	cereale	cultivated rye	WA	×
Solanum	rostratum	buffalobur	ID,OR,WA	
Sonchus	arvensis	perennial sowthistle	ID,WA,WY	×
Sorghum	halepense	Johnsongrass	ID,OR,WA	×
Tanacetum	vulgare	common tansy	MT,WA,WY	×
Vaccaria	hispanica	cowcockle		×

---



# **Attachment 3**

## Water Resources Survey Maps





RON ROMAN

# Water Resources Survey

RECORDS  
MANAGEMENT  
WRS COPY



Part I:  
**HISTORY OF LAND AND WATER  
USE ON IRRIGATED AREAS**

and

Part II:  
**MAPS SHOWING IRRIGATED AREAS  
IN COLORS DESIGNATING THE  
SOURCES OF SUPPLY**

## Gallatin County, Montana

Published by  
**STATE ENGINEER'S OFFICE**  
Helena, Montana, January, 1953  
(Reprint as of June, 1961)



# DRAINAGE MAP OF GALLATIN CO.






# MAP SYMBOL INDEX









## BOUNDARIES

- COUNTY LINE
- NATIONAL FOREST LINE



## DITCHES

-  CANALS OR DITCHES
- > DRAIN DITCHES
- > PROPOSED DITCHES

## STRUCTURES & UNITS

-  DAM
-  DIKE
-  FLUME
-  SIPHON
-  SPILL
-  SPRINKLER SYSTEM
-  WEIR
- == PIPE LINE
- PUMP
- PUMP SITE
-  RESERVOIR
- ⊖ WELL
- +++ NATURAL CARRIER USED AS DITCH

## TRANSPORTATION

- == PAVED ROADS
- === UNPAVED ROADS
- +++ RAILROADS
-  STATE HIGHWAY
-  U. S. HIGHWAY
- ◇ AIRPORT
- \* SPRING
-  SWAMP
-  GAUGING STATION
-  POWER PLANT
-  STORAGE TANK
-  CEMETERY
- ⊙ FAIRGROUND
- FARM OR RANCH UNIT
-  LOOKOUT STATION
-  RANGER STATION
- - - - RAILROAD TUNNEL
- SCHOOL
-  SHAFT, MINE, OR DRIFT



## **BOZEMAN CREEK RESERVOIR COMPANY**

The Bozeman Reservoir Company was first incorporated on March 11, 1901, for a period of 20 years. Purposes of this corporation were to appropriate and use for irrigation, waters from Mystic Lake and Bozeman Creek. On September 13, 1901, the company filed on 3,000 miners inches of flood water from Bozeman Creek and Mystic Lake. A dam was then built of rock, stone, and other suitable materials across Bozeman Creek at the point where the creek flows from and forms the outlet of Mystic Lake. These flood waters so dammed, reser-voired, and appropriated were run down the natural channel of Bozeman Creek to points where ditches diverted and conveyed the water to farms and other places of intended use. This company continued operations under the provisions set forth in the Articles of Incorporation until its term of existence expired on March 11, 1921.

On June 27, 1922, a new corporation of the same name was formed to succeed the defunct "Bozeman Reservoir Company." All property, rights, titles and interests owned by the former "Bozeman Reservoir Company" were acquired by the new corporation. Most important of the changes in the provisions of the new corporation were: "That the water appropriated may be used upon the lands of the stockholders in the corporation for irrigation, culinary, domestic, power, and other useful and beneficial purposes to the extent required by them; and in proportion to their respective shares and interest in the company; and for a water supply for the City of Bozeman, Montana, and the inhabitants thereof, in proportion as the shares and interests of the City of Bozeman appears or shall appear in said Company."

The Bozeman Reservoir Company is incorporated for a period of forty (40) years. Stock issued by the company amounts to 60 shares having a par value of \$500 each. The total amount of stock actually subscribed to is 20 shares. The stock in the corporation is assess-able.

A regular assessment of \$25.00 per share of stock is made each year. Operation and maintenance charges have averaged about \$20.00 per share for the last several years. One share of stock entitles each stockholder to the use of 100 miner's inches of water a day for a total of 14 days during the irrigation season or 50 miner's inches a day for a total of 28 days.

Largest stockholder in the corporation at the present time is the City of Bozeman, whose 6 shares are used to supply water for domestic use in the city of Bozeman. The other 14 shares (of 20 subscribed to) are owned by nine farmers in the company, being divided as follows: six having 1 share; one owning 2 shares; and the other two having 3 shares each. The water represented by the latter shares is used for irrigation on farm lands south of Bozeman. This water is diverted from Bozeman Creek and carried in the following irrigation ditches: Mystic Lake, "68", "66", and the Lower Williams.

In 1952, 437 acres of land were irrigated or supplied supplemental water from the Bozeman Reservoir Company.

(See map in Part II, Pages 38, and 42).

## **DRY CREEK IRRIGATION COMPANY**

Prior to the organization of the Dry Creek Irrigation Company several land owners lo-cated in the Lower Dry Creek Valley, between Reynolds Creek and the East Gallatin, had



no means of irrigation because the early water rights were held by farmers at the lower end of the valley near the East Gallatin River. To acquire the early water rights on Dry Creek the upstream land owners agreed to build an irrigation canal for the farm owners in the lower valley along the East Gallatin in exchange for these rights. The Dry Creek Canal's water supply from the East Gallatin River and Smith Creek was secured, since water rights from these streams were held by farmers under the proposed canal.

To accomplish this agreement the Dry Creek Irrigation Company was incorporated on April 9, 1907, and capitalized for \$12,500 divided into 1,250 shares valued at \$10.00 per share par value. Each share of stock was equal to one miner's inch of water. On March 24, 1909, water rights in the amount of 1,250 miner's inches were deeded to the Dry Creek Irrigation Company. These water rights acquired by the company are all, or a part, of several appropriations in which the deed record did not clearly define any further than owner and the amount of water. These rights are as follows: From Smith Creek: John A. Moore, 100 miner's inches; S. J. Miller, 50 miner's inches; W. H. Cox, 100 miner's inches; J. S. Ballard, 100 miner's inches; G. D. Tribble, 50 miner's inches; W. M. Cowan, 100 miner's inches. From the East Gallatin River: Harvey LaRue, 50 miner's inches; L. P. Miller, 87 miner's inches; Sam P. Miller, 29 miner's inches; Will V. Callantine, 58 miner's inches; M. J. Craver, 58 miner's inches; W. T. Yadon, 58 miner's inches; Peter Stevens, 50 miner's inches; Robert Jones, 50 miner's inches; H. W. Ray, 15 miner's inches; Rebecca A. Moore, 45 miner's inches; Kate Cowan, 150 miner's inches; and William Durham, 100 miner's inches.

On June 3, 1932, new Articles of Incorporation were filed with a capital of \$15,000 divided into 1,500 shares at \$10.00 per share. Subscriptions issued to date amount to 1,300 shares which are equal to 1,300 miner's inches of water. This amount is 50 miner's inches in excess of the water rights deeded to the company. However, the company has established a use right for this additional water and intends to make filings accordingly.

The Dry Creek Canal diverts water from the East Gallatin River at a point on the north bank in the southeast quarter of Section 18, Township 1 North, Range 5 East. It flows in a northerly direction and into Smith Creek; it is then diverted from Smith Creek and flows northwesterly into Reese Creek; and thence diverted from Reese Creek and flows northwesterly, finally returning to the East Gallatin River in the Southwest Quarter of Section 29, Township 2 North, Range 4 East.

Water charges vary each year depending upon the requirements of the system. Assessments for operation and maintenance are levied in proportion to the shares owned in the company. The canal diverts water several miles below the critical area of the East Gallatin River and the return flow to the river eliminates any water shortage problem for the canal system.

In 1952, 1,368 acres of land were irrigated from the Dry Creek Canal with no acres potentially irrigable under the canal system.

(See Map in Part II, Pages 5, 6, and 12)

## **FARMERS CANAL COMPANY**

On October 6, 1890, an appropriation was filed for 5,000 miner's inches of water from the West Gallatin River by the Excelsior Canal Company, an organization that was formed



lows: 3,400 miner's inches appropriated May 9, 1890; and 1,600 miner's inches appropriated June 1, 1901. Also a water right was decreed to the Low Line Canal in a Supplemental Decree, Case No. 6751, of 2,500 miner's inches appropriated June 1, 1913.

This canal company has a shortage of water due to the late dates of priority of the above mentioned rights. Therefore, these rights are considered "flood rights," since the water is shut-off by July 15 and sometimes as early as July 1st each year.

In 1952, 7,783 acres were irrigated with 646 acres potentially irrigable under existing facilities, making a maximum acreage of 8,429 acres under the Low Line Canal.

(See Map, Part II, Pages 4, 29, and 30).

### **MAMMOTH DITCH COMPANY**

The first incorporation of the Mammoth Ditch Company was on May 17, 1904. However, it should be pointed out that the ditch was used in 1866, 38 years before its date of incorporation and is probably one of the oldest ditches in the Gallatin Valley. Among the earliest water users under the ditch were Charles H. Waterman, C. H. McDonald, and Frank L. Benepe.

On February 16, 1927, the Mammoth Ditch Company re-incorporated for 40 years with a capital stock of \$26,000 which was divided into 52 shares having a par value of \$500.00. All 52 shares of stock issued are subscribed to and divided under the ditch system among fourteen farmers. The stock of the company was made assessable in certain amounts and at such times as prescribed in the by-laws by order of the trustees of the corporation. Annual assessments for operation and maintenance have averaged \$10.00 per share for the last ten years. One share of stock is equivalent to 50 miner's inches.

The point of diversion of the main ditch is: A point on the east bank of the West Gallatin River in SW $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 2, Township 2 South, Range 4 East.

Two water rights were decreed to the Mammoth Ditch Company from the West Gallatin River in Case No. 3850: W. D. Bell, Jr., et al, Plaintiffs vs. F. K. Armstrong, et al, Defendants, dated October 7, 1909.

- (1) 2,361 miner's inches, or a flow equivalent to 59.02 cubic feet per second, appropriated June 1, 1866.
- (2) 579 miner's inches, or a flow equivalent to 14.47 cubic feet per second, appropriated May 31, 1884.

These rights are on file in Judgment Book 9, Page 288, in the office of the Clerk of the District Court of Gallatin County.

In 1952 there were 2,854 acres irrigated under the Mammoth Ditch with 122 acres potentially irrigable, making a maximum of 2,976 acres under existing ditch facilities.

(See Map, Part II, Pages 5, 6, 30, and 31).



In 1952 there were 2,702 acres irrigated from the Middle Creek Ditch with 87 acres potentially irrigable under the system.

(See Map in Part II, Pages 37, 38, and 41).

### **SPAIN-FERRIS DITCH COMPANY**

On December 12, 1905, the water users who were transporting their water through the Spain-Ferris Ditch filed Articles of Incorporation with capitalization of \$42,000, divided into 4,200 shares at \$10.00 per share. In the formation of the corporation, water rights were exchanged for shares of stock in the ditch company.

The corporation's term of existence was for 20 years from and after the date of filing. In 1909 when the West Gallatin River was adjudicated (Case No. 3850), the company was decreed 4,264 miner's inches of water consisting of 1,200 miner's inches appropriated 1886; 2,764 miner's inches appropriated in 1890; and 300 miner's inches appropriated in 1892. On March 12, 1927, new Articles of Incorporation were filed for a 40 year period, claiming all property owned by the old corporation. In each of the incorporations the company name remained the same. Capital stock of the new organization was \$50,000 being divided into 5,000 shares, having a par value of \$10.00 per share. At the present time there are 4,200 shares of active stock subscribed to in the ditch company, with each share of stock representing one miner's inch of water. The company, with a total of 4,264 shares of water available, has 64 shares or miner's inches remaining to be disposed of at the company's discretion. In addition to the water decreed to the Spain-Ferris Ditch the ditch is carrying 638 miner's inches of individual decreed water rights of 1894 priority for three users. This water was transferred to the Spain-Ferris Ditch from the Beck-Border Ditch as a matter of convenience to the users. Practically all of the water rights in the ditch are of a comparatively late priority date and should be considered "high water rights." The water supply is generally shut-off sometime between the first and fifteenth of July each year, the exact time depending upon the amount of river flow.

The Spain-Ferris Ditch diverts water from the West Gallatin River through a slough, which starts at a point on the east bank in the northwest quarter of Section 14, Township 2 South, Range 4 East. The main ditch diverts water from the slough approximately three quarters of a mile from its source, then flows northeasterly for a distance of approximately nine miles ending in the vicinity of the airport, Gallatin Field, near Belgrade.

The average water assessments the last 10 years have been 45 cents for operation and maintenance for each share of stock and the same charge applies to the three individual decreed water rights carried by the company.

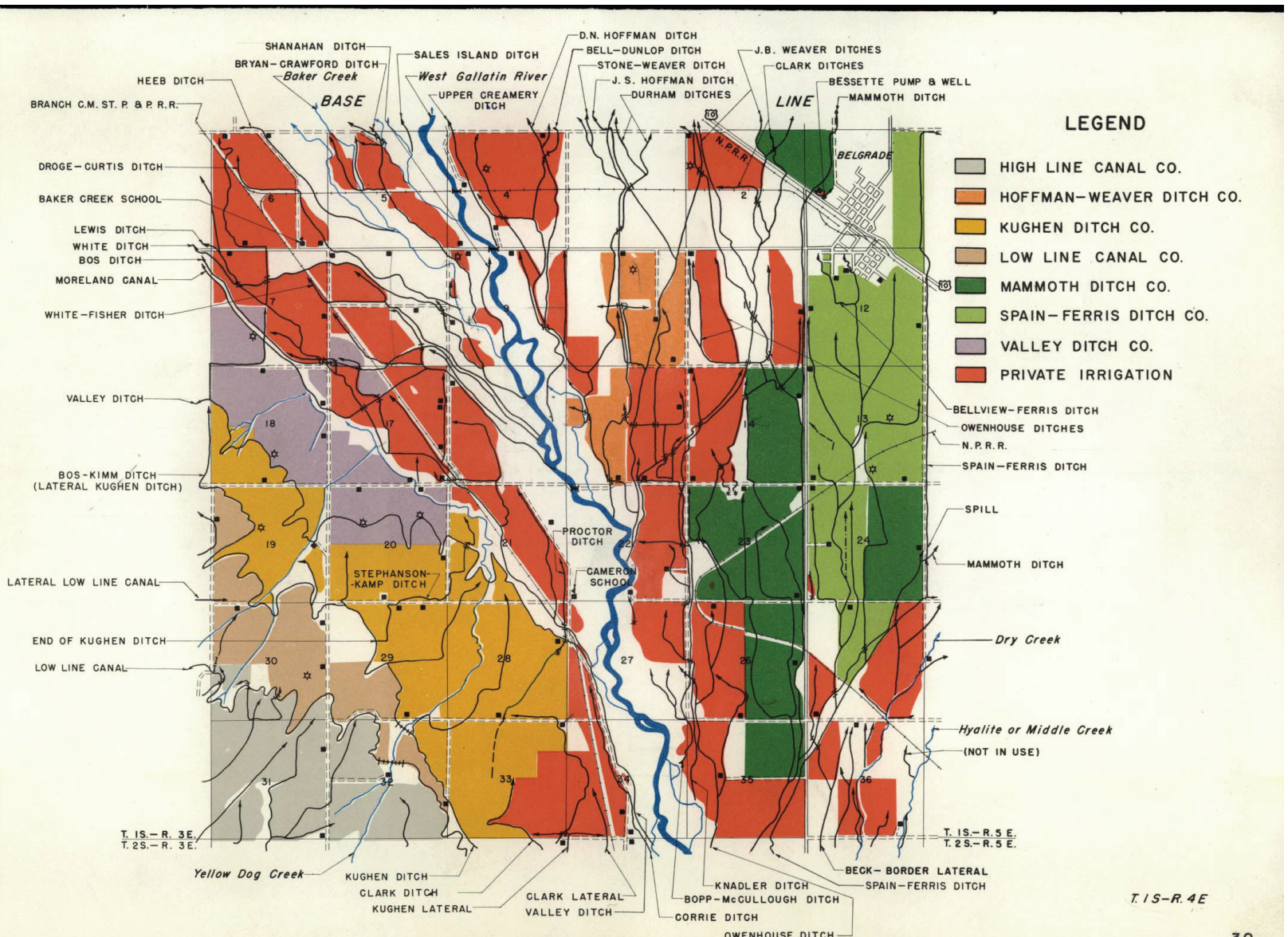
In 1952, 3,784 acres of land were irrigated from the Spain-Ferris Ditch and 313 acres of potentially irrigable land could be irrigated under present facilities.

(See Map, Part II, Pages 6, 30, and 31).

### **VALLEY DITCH COMPANY**

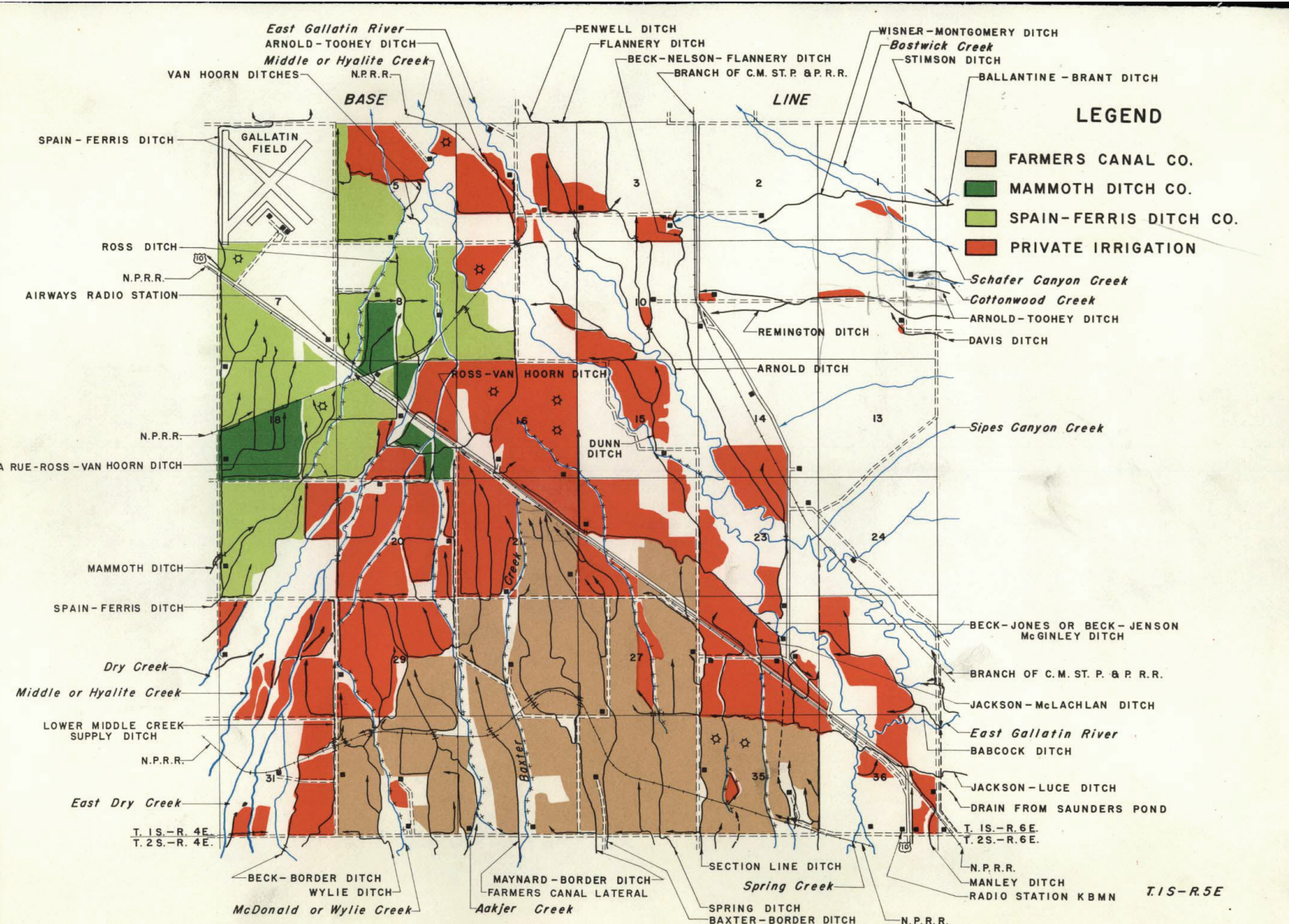
On May 16, 1906, Alex Smith, Fred and Brown Heiskell, Arie TeSelle, Derk and Annie Hooyenga, Nicholas Froenkena, Walter H. Sales, Martin Leach, George Leach, and Alfred



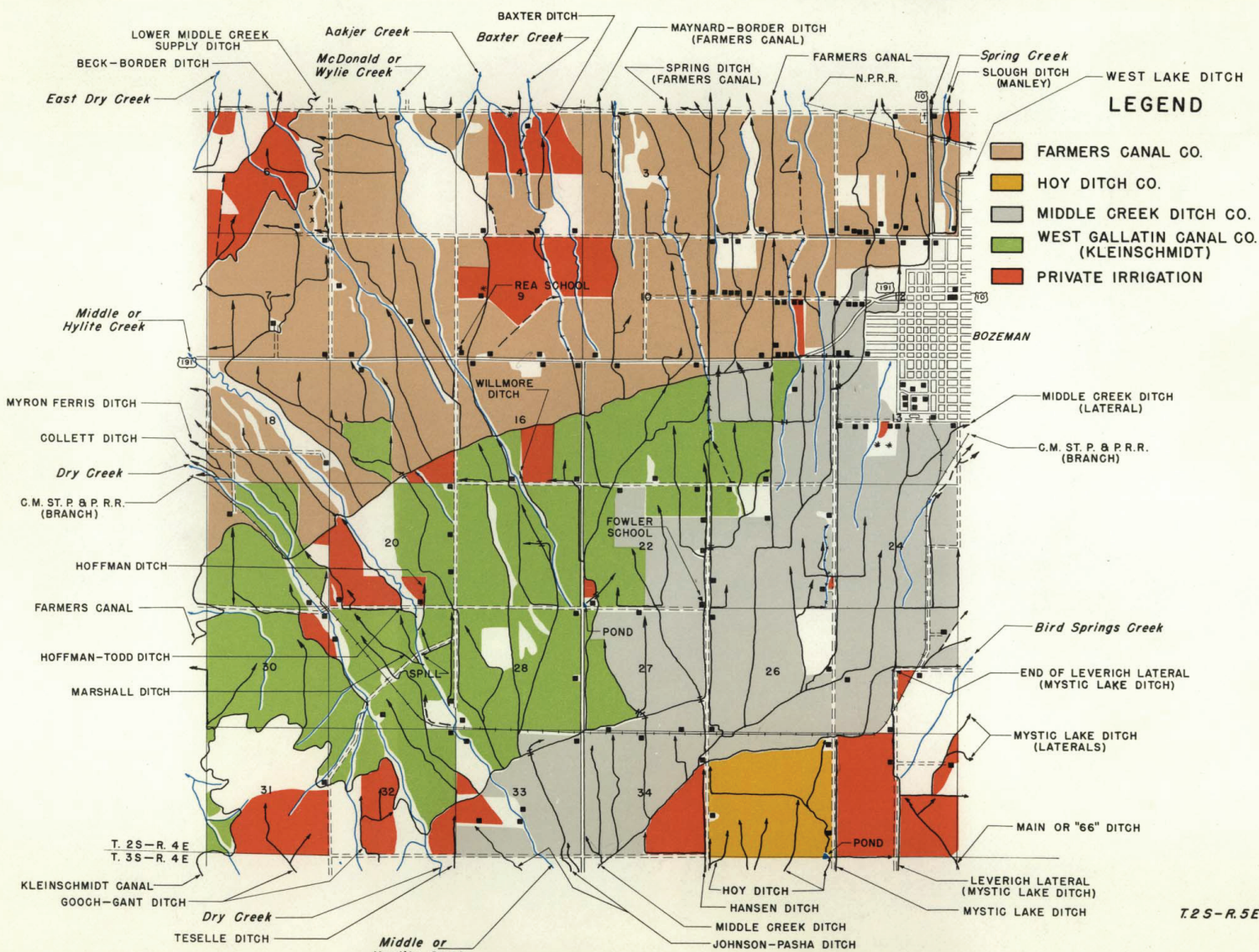


T. 15.-R. 4E



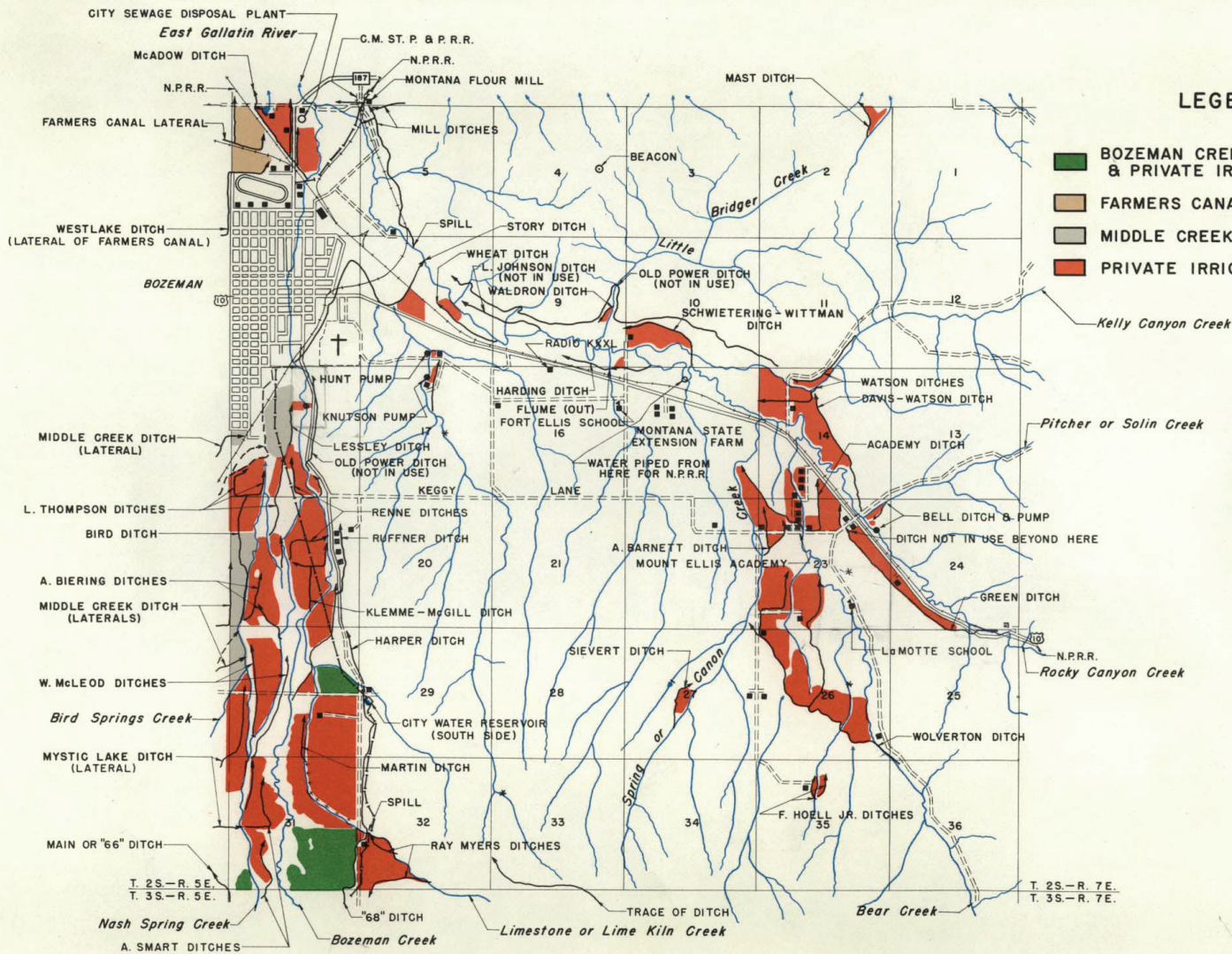






T2S-R5E





LEGEND

- BOZEMAN CREEK RES. CO. & PRIVATE IRRIGATION
- FARMERS CANAL CO.
- MIDDLE CREEK DITCH CO.
- PRIVATE IRRIGATION