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Existing Roadway Conditions Memorandum

To: ***Darren Laesch, PE, MnDOT District 2***

From: ***Jack Corkle, PTP, AICP, WSB & Associates, Inc.***
Adam Smith, AICP, WSB & Associates, Inc.

Date: ***July 3, 2015***

Re: ***TH 11 Existing Roadway Conditions***
WSB Project No. 03063-000

The purpose of this memo is to document the existing roadway characteristics and conditions on TH 11 between Greenbush and Roosevelt in Roseau County that are a part of the TH 11 Corridor Study. The memo is divided into six sections that describe existing roadway characteristics and conditions. The first section provides some general information on TH 11 and the area in which the study is occurring. The second section provides information on the roadway's functional classification and designation. Section three documents existing roadway geometrics – including number of travel lanes, roadway design, shoulder width, turn lanes and passing zones. The fourth section provides information about existing right of way width. Section five includes information on the different speeds along the corridor and describes the context of corridor. The final section describes access on the corridor and its consistency with designated MnDOT spacing guidelines. By understanding what is out there today, it is easier to understand where there may be gaps in the network or deficiencies that should be corrected when opportunities arise.

Study Background Information

TH 11 is the primary east-west route for communities located near the Canadian border including, Greenbush, Badger, Roseau, Warroad and Roosevelt (**Figure 1**). It serves an important connection to international border crossings with Canada – including one that is open year-round, 24 hours a day. The corridor is home to two major employers, Polaris and Marvin Windows, as well as the Seven Clans Casino which is also a larger employer for the area. In addition, Lake of the Woods borders the corridor in Warroad. Much of the area between the communities along the corridor is largely undeveloped, with a smattering of manufactured home communities, contractor yards, agricultural uses, isolated businesses, residential development and the Roseau Airport.

The corridor study area covers the approximately 60 miles of TH 11 between Greenbush and Roosevelt. As part of the study, existing and future conditions will be evaluated and recommendations for improvements along the corridor will be identified for implementation over the next 20 years. A number of items will be studied including congestion hot spots, safety problem areas, roadway design consistency, infrastructure condition, future growth and development, and American with Disabilities Act requirements.

Functional Classification

Roadways are typically organized by the roles that they play within a larger transportation system. As drivers, people are aware that roadways serve different purposes – some roadways serve local trips through a neighborhood while other roadways provide connections between communities and urban areas. This system of organization is known as functional classification. There are three primary groups or classes into which roadways generally fall. These include local streets, collectors and arterials. There are a few subsets (e.g., minor and major collectors; and minor and principal arterials and freeways) that fit within the primary groupings.

A roadway's functional classification identifies its role in the roadway hierarchy used by agencies and planning officials to manage access, speed, right of way width, spacing with other routes, and other design-related features of the roadway. A roadway's functional classification can also influence the types of land use and/or development that may be in an area. For example, developments that result in numerous individual driveways or homes along a principal arterial would be discouraged for safety and mobility reasons, as well as driver expectations. The paragraphs on the following pages describe traits of the primary roadway classifications. **Figure 2** shows the accessibility / mobility balance by roadway classification and **Table 1** provides a summary of roadway characteristics by functional classification.

Roseau County

Lake of the Woods

Warroad

Roseau

Roosevelt

Badger

Greenbush

MINNESOTA 313
MINNESOTA 310
MINNESOTA 89
MINNESOTA 11
MINNESOTA 11
MINNESOTA 11
MINNESOTA 89
MINNESOTA 32

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Figure 1- Corridor Study Area

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Arterial Routes (Freeways, Principal Arterials and Minor Arterials)

In general, arterials provide the greatest connectivity (linking communities, counties and states) and have significant continuity. Arterial routes serve longer trips (through traffic) and have higher posted speeds and less access. They primarily connect to other arterial and collector routes and only connect to local routes and have private driveway access when there are no alternatives. In some locations, these routes are freeways (interchange access only) and in other instances they have at-grade access. Generally only the state operates freeway facilities, with the state and counties operating principal and minor arterials – with a limited number of principal arterial routes under county jurisdiction.

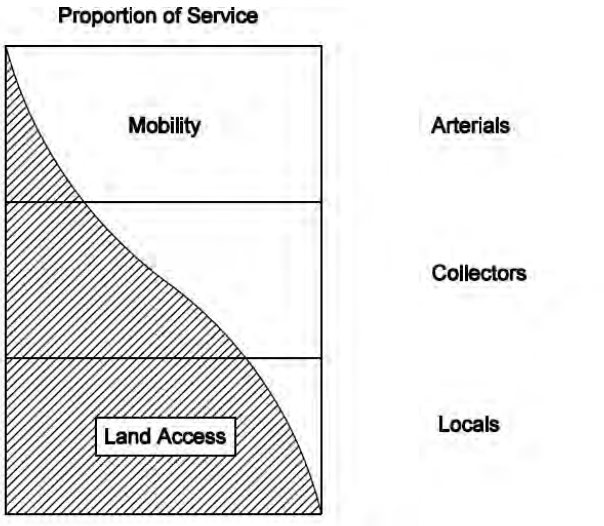
Collectors (Major and Minor Collectors)

Collector routes provide intracounty travel and serve larger developed areas. Trip length on these routes is shorter than that of arterial routes, but longer than a local street. Collector routes typically provide connections to communities that are not served by the arterials and to other traffic generators of intracounty importance (major employers, schools, county parks, etc.). They also can provide land access and traffic circulation within smaller urban areas. One of their primary roles in more developed areas is to "collect" traffic from local streets and link it to important destinations (minor arterial routes, schools, shopping zones, etc.). Generally access is a bit more frequent on these routes than it is on arterials routes and posted speeds are lower than arterial routes. Collector routes are typically operated by counties and cities.

Local Streets

Local streets provide the most access and have the shortest trip length. They normally serve local neighborhoods and development areas. Posted speeds on these routes are generally low, access and traffic control are frequent, and parking is generally allowed. Cities own local routes.

Figure 2 – Access Versus Mobility by Functional Classification



Source: A Policy on Geometric Design of Highways and Streets, AASHTO, 2011
AASHTO Green Book

Table 1 – Roadway Functional Classification Characteristics

Characteristics	Roadway Classification		
	Arterial	**Collector**	**Local**
Place Connections	Connects communities, counties and other states. In more rural areas may link major regional business concentrations.	Interconnect neighborhoods and minor business concentrations. Provide supplementary interconnection of major generators with regional business concentrations.	Interconnect blocks within residential neighborhoods and land parcels with commercial and industrial developments.
Spacing	Spacing should vary in relationship to density. In highly urbanized areas may be spaced as closely as 1 – 2 miles (minor arterials). Principal arterials are generally spaced at greater distances, especially in rural areas – 10+ miles apart.	As needed in conjunction with minor arterials to provide adequate connections of places. In addition, collectors should be designated at an average spacing of not less than 4 miles.	As needed to access land uses.
System Connections	Primarily to other principal and minor arterial routes as well as some collector routes. On freeway facilities, generally limited to other arterial routes. Local street and driveways only in locations when no other access is available on non-freeway facilities.	To minor arterials, other collectors and local streets	To a few minor arterials. Primarily to collectors and other local streets.
Trip Making	Generally longer trips consisting of a few miles up to hundreds of miles on the interstate. Typical trip lengths would be 5+ miles.	Short trips (depending upon development density) at low to moderate speeds. Longer trips for accessing the arterial network.	Short trips (under 2 miles) at low speeds. Longer trips accessing the collector network.
Mobility vs. Access	Greater emphasis on mobility than land access. Little or no direct land access. More access in areas where there are no alternate routes.	Equal emphasis on mobility and land access. Direct land access predominantly to development concentrations.	Emphasis on land access, not mobility. Direct land access predominantly to residential and agricultural land uses.
Access Spacing	Defer to MnDOT guidelines for state roadways. Some counties have guidelines for their facilities.	Local guidelines	Local guidelines for distances between driveways.
System Mileage	Between 6 and 12 percent	Between 5 and 25 percent (depends upon development level – in more rural areas is closer to 20 – 25 percent)	Between 65 and 80 percent
Intersections	Interchange access only on freeways. Traffic signals and side-street stops for other principal and minor arterials. Traffic signals should be limited to the extent practical.	Four-way stops and some traffic signals	As required
Parking	None on freeways. None to limited on other arterial routes.	Restricted as necessary	Permitted as necessary
Large Trucks	Generally not restricted	Restricted as necessary	Permitted as necessary
Management Tools	Access control/spacing, median barriers, and traffic signal progression	Number of lanes, traffic signal timing and land access management	Intersection control, cul-de-sacs, diverters, traffic calming measures
Vehicles Carried	Varies – generally higher traffic volumes. > 7,000	250 – 15,000	Less than 1,000
Posted Speed Limit	> 40 mph	30 – 40 mph	30 mph maximum
Right of Way	60 – 300 feet (depends upon design)	60 – 100 feet	50 – 80 feet

TH 11 in the Study Area

Within the study area TH 11 is classified as a principal arterial. It generally meets the criteria of a principal arterial route. It connects a number of counties, links to Canada, has higher posted speeds, is spaced quite a distance from other arterial routes, a majority of the intersections are side-street stop or are signalized, trucks are not restricted, generally has adequate right of way and has heavier traffic volumes. Access on the corridor (discussed later in the memo) is more frequent than desired, but in many locations there are few alternate routes for property owners to connect to without sharing access or building frontage roads. MnDOT can purchase access rights, but it would only be in locations where there are no alternatives – MnDOT will not usually utilize this strategy unless there are compelling reasons, such as safety, to do so.

Roadway Geometrics

This section of the memo addresses existing design features of TH 11 in the study area. Within this section, number of travel lanes and roadway width are identified; shoulder widths are documented; the urban and rural sections are noted; and turn lanes and bypass lanes by type are mapped and identified in tables.

Travel Lanes and Roadway Widths

For a majority of the study area, TH 11 is a two-lane roadway with 12-foot wide travel lanes. Two sections of roadway through the Cities of Roseau and Warroad are three-lane sections. In these areas there is one travel lane in each direction and a 14-foot wide center left-turn lane to access driveways and public streets. In some locations within the three-lane segment there are also right-turn lanes. **Table 2** identifies the beginning and ending points of the different roadway configurations. **Figures 3** and **4** show the existing three-lane segments of the corridor.

Table 2 – Number of Travel Lanes

General Area	Segment Description	Number of Lanes
Greenbush/ Badger/ Roseau	From CR 104 (200th Street) to east of 15th Avenue NW in Roseau	2
Roseau	From east of 15th Avenue NW to 11th Avenue NE	3
Roseau/Salol /Warroad	From 11th Avenue NE in Roseau to west of TH 313 in Warroad	2
Warroad	From west of TH 313 to north of the Warroad River crossing	3
Swift/Roosevelt	From north of the Warroad River crossing to the Lake of the Woods County border.	2

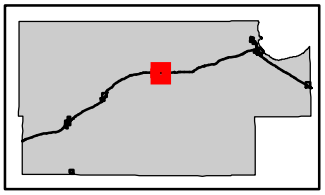


Figure 3 - Roseau 3 Lane Section

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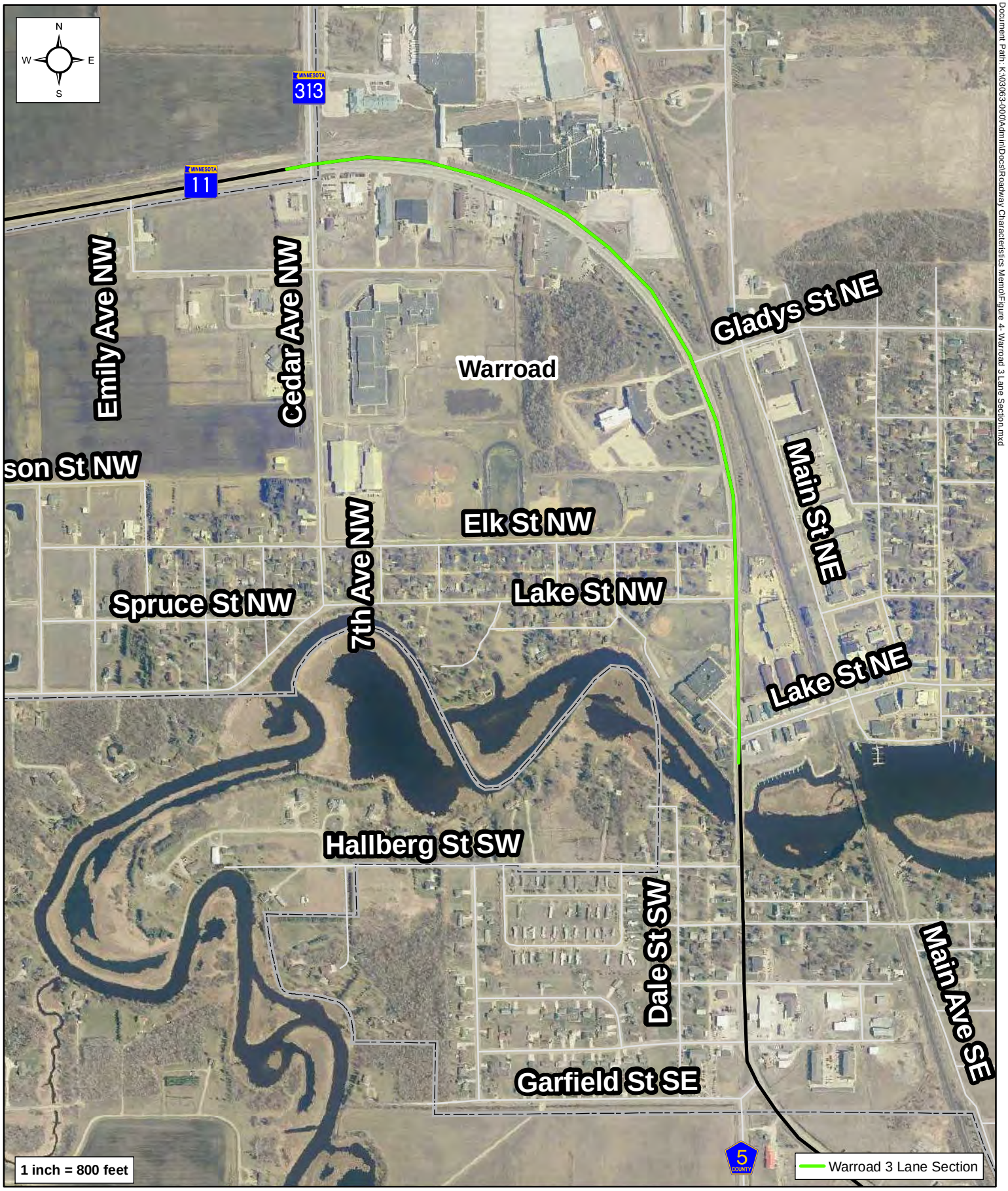

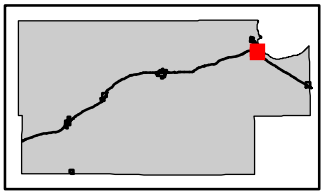

Figure 4 - Warroad 3 Lane Section

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Shoulder Widths

Shoulder width along TH 11 varies. Roadway segments that have been reconstructed or have had significant paving projects have wider shoulders than sections of the corridor that have not yet been reconstructed. Generally an eight- to 10-foot wide shoulder is preferred (especially in rural areas where there are fewer side streets and driveways to pull into) to allow vehicles to pull over and get out of the travel lane in case of an emergency or in case motorists need to pull over to get out of the way of other vehicles. **Table 3** identifies the segments of roadways with narrow shoulders. **Figures 5 – 8** show locations where shoulders are narrower than eight to 10 feet.

Table 3 – Segments of TH 11 with Narrow Shoulders

General Area	Segment Description	Distance (miles)	Shoulder Width (feet)
Greenbush	From CR 104 (200th Street) to 6th Street	0.5	3 on both sides
*Roseau	From CSAH 15 to west of 18th Avenue NW	2	6 on both sides
Roseau	From the Roseau River Bridge to 11th Avenue NE	0.6	2 on north side
Warroad	From Gladys Street to Lake Street	0.5	5 on north side
Warroad/Roosevelt	From Garfield Street SW in Warroad to the Roseau-Lake of the Woods County Line in Roosevelt	12.6	4 on both sides

*Shoulder widths are being widened to 10 feet as part of a 2015 construction project

Rural and Urban Sections

Roadways are designed as rural, suburban and urban sections. This designation refers to the type of stormwater control used on the facility and generally reflects the intensity of land use near a corridor. Segments of roadway designated as rural generally do not have curb and gutter, but rather use ditches to convey stormwater runoff. Segments designated as suburban may have curb and gutter on one side of the roadway and ditches on the other. Urban roadways have curb and gutter on both sides of the corridor and use stormwater pipe and catch basins to collect and control stormwater runoff. Urban and suburban designs are used when right of way is more constrained, adjacent development is more intense or there is a resource that the owner of the roadway is attempting to avoid impacting.

A majority of TH 11 is of rural design. There are urban segments in Greenbush, Roseau and Warroad. **Table 4** identifies the urban segments and **Figures 9 – 11** areas with urban design.

Table 4 – Areas of Urban Design

General Area	Segment Description	Distance (miles)
Greenbush	From 6th Street to 1st Street/Old Hwy. 11	0.2
Roseau	From TH 89/310 to 11th Avenue	1.0
Warroad	From TH 313/Cedar Avenue to Garfield Street	1.4

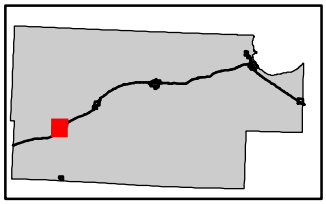

Figure 5
Narrow Shoulders in Greenbush

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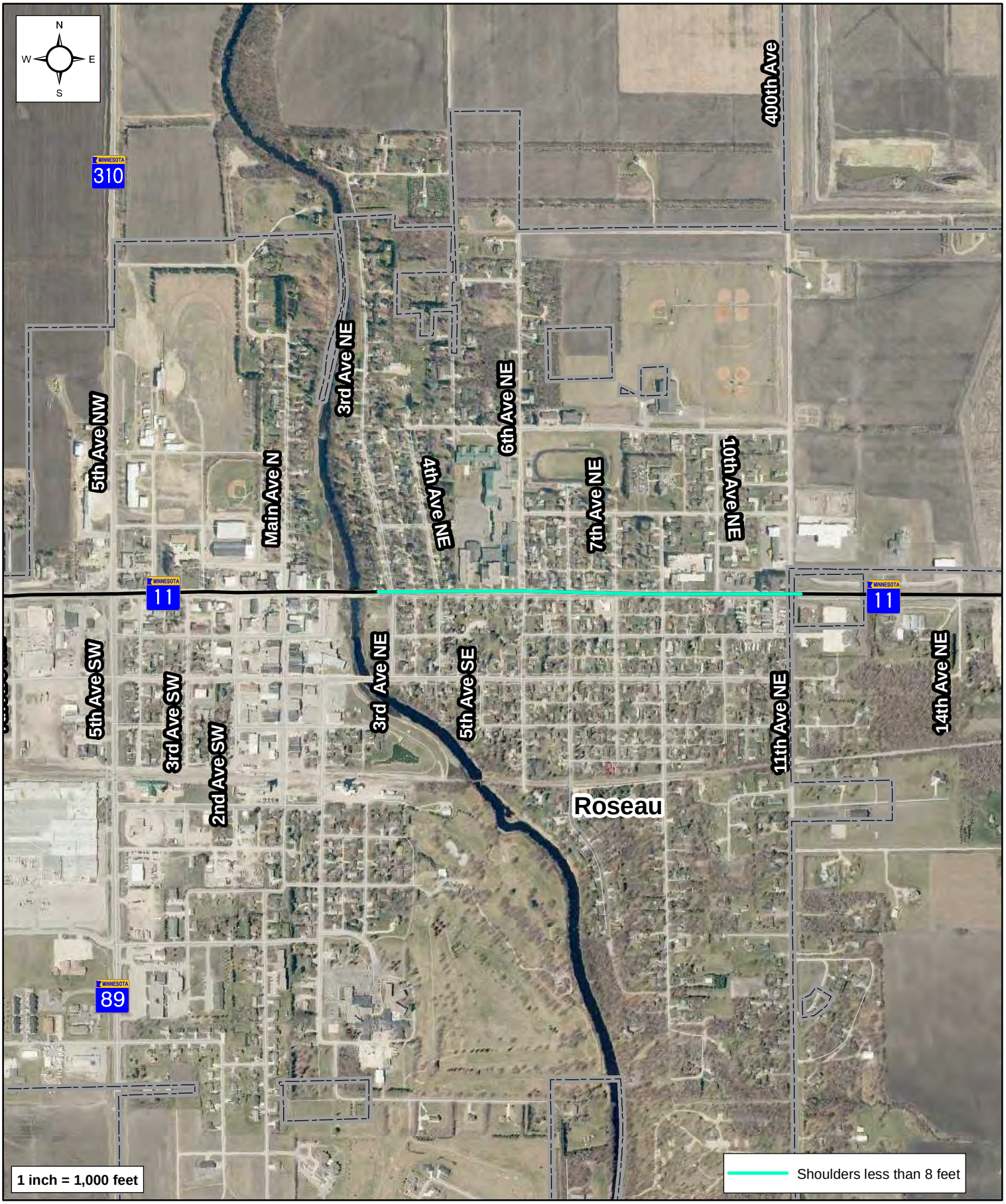

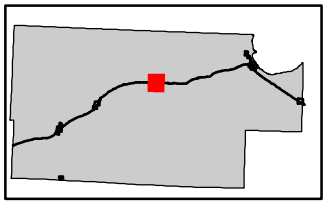

Figure 6 - Narrow Shoulders in Roseau

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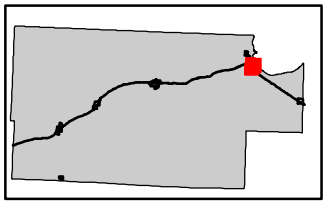

Figure 7 - Narrow Shoulders in Warroad

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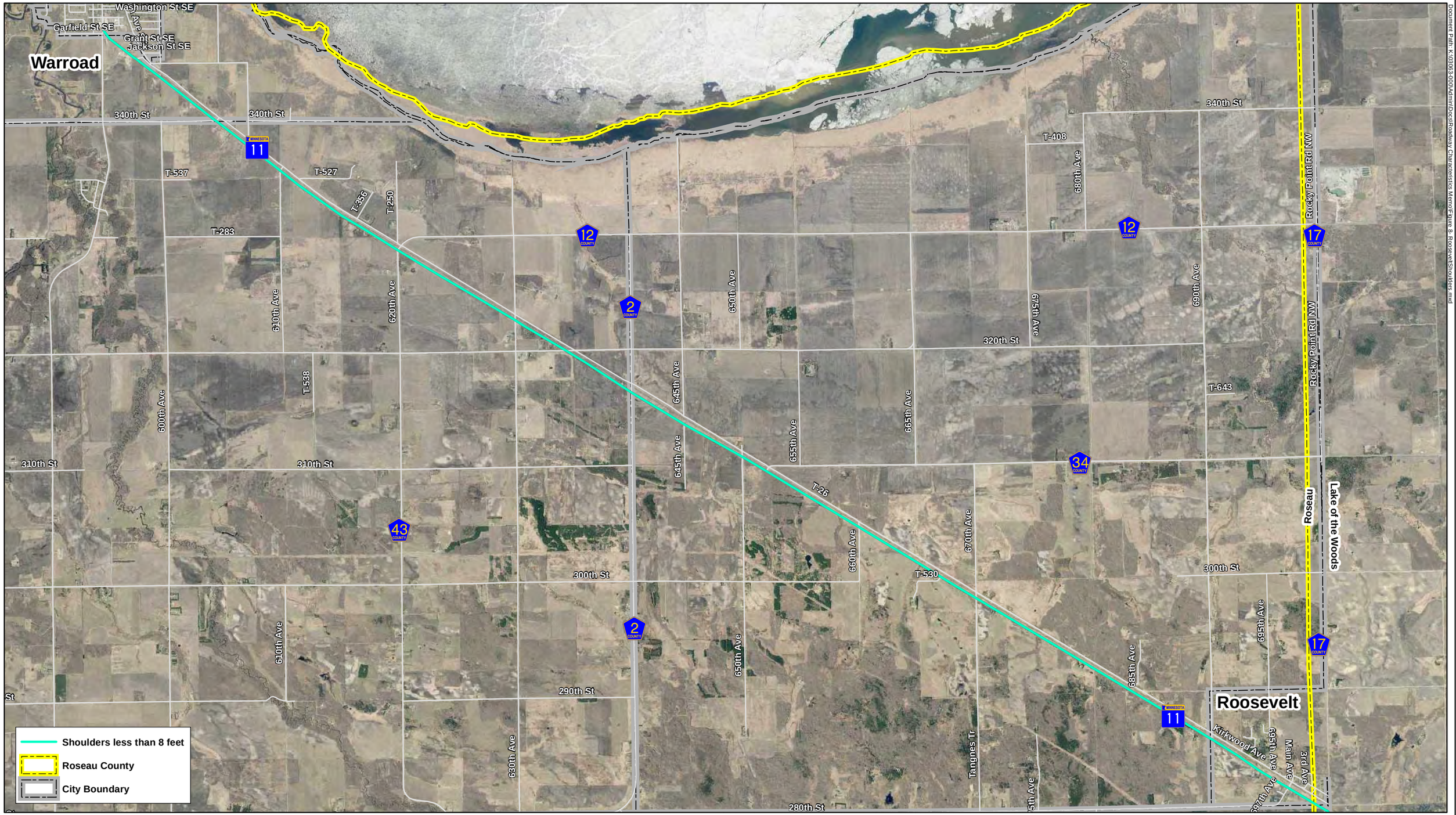
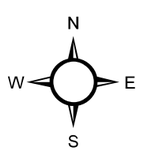


1 inch = 4,000 feet



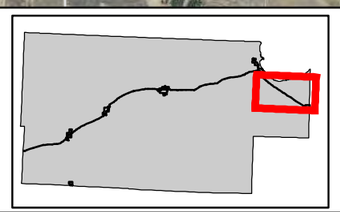


Figure 8 - Narrow Shouldes between Warroad & Roosevelt

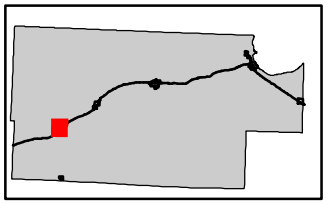


Figure 9 - Urban Roadway in Greenbush

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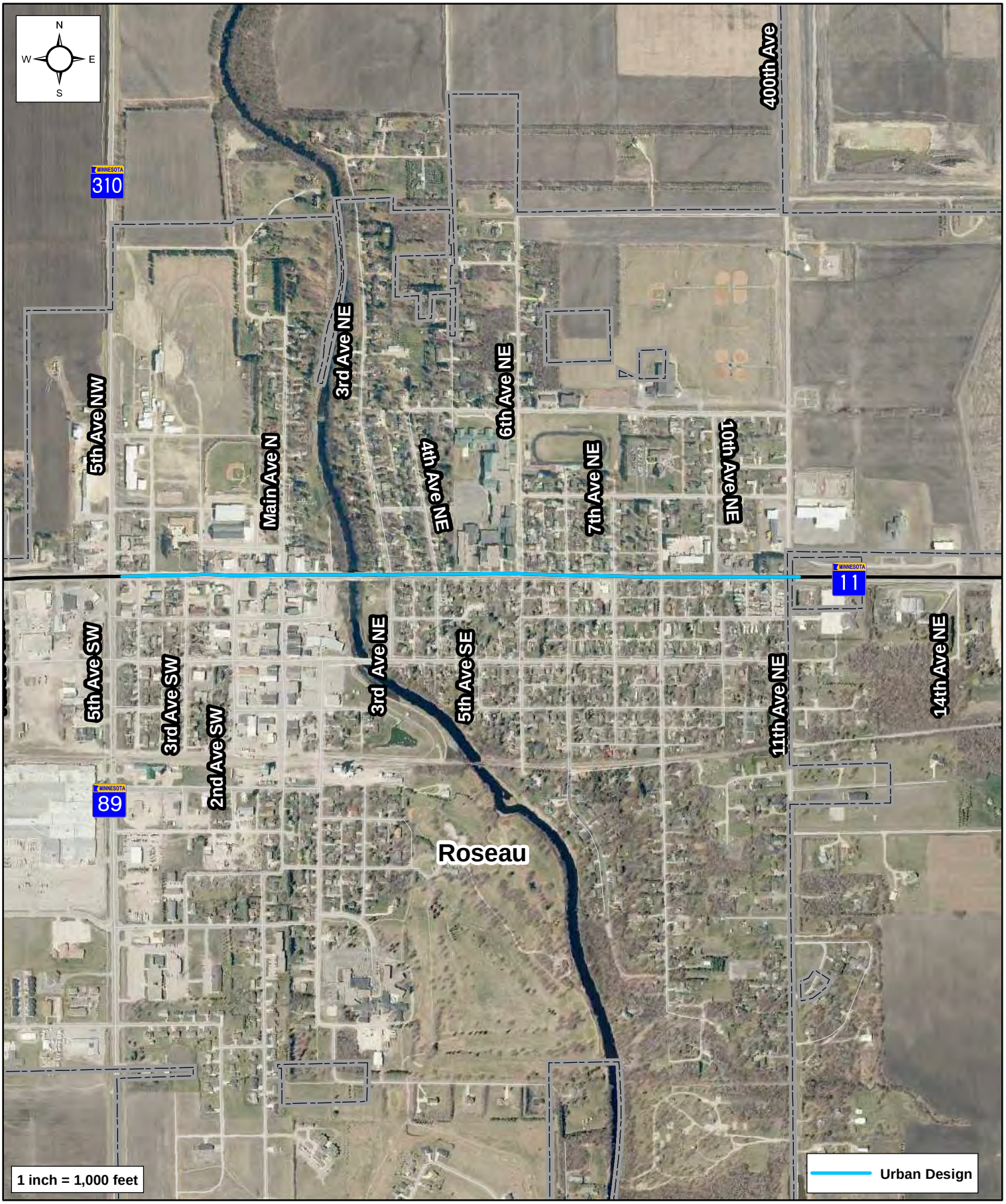

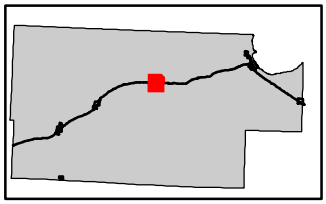

Figure 10 - Urban Roadway in Roseau

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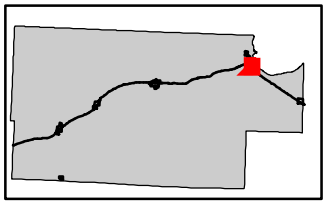

Figure 11 - Urban Roadway in Warroad

Bypass and Turn Lanes

Bypass and turn lanes enhance the safety of a corridor by enabling turning traffic to get out of the travel lane. This is especially important in areas where posted speeds are high and there is a possibility of high-speed rear end or left-turn crashes. In general, a dedicated turn lane is preferred over a bypass lane because through traffic is able to maintain its course when a turn lane is provided. When a bypass lane is present, through traffic has to shift slightly to maintain its through travel movement. Turn lane and bypass lanes are used inconsistently on TH 11 in areas outside of the three-lane sections. In general, more right-turn lanes are provided than left-turn or bypass lanes.

Table 5 identifies the location of bypass lanes on the corridor and notes the direction of travel in which the bypass lane is used.

Table 5 – TH 11 Bypass Lane Locations

General Area	Intersection/Location	Description	Direction of Travel
Roseau/Salol	CSAH 9/460th Avenue	Shared bypass and right-turn	Westbound
Salol/Warroad	East of 500th Avenue – Timberline Mobile Home Park	Bypass lanes at two of the three entrances – eastern two	Westbound
Salol/Warroad	510th Avenue	Shared bypass and right-turn	Westbound
Salol/Warroad	East of 520th Avenue – Woodland Trailer Park	Bypass lane	Westbound
Salol/Warroad	550th Avenue	Shared bypass and right-turn	Both
Salol/Warroad	350th Street	Shared bypass and right-turn	Westbound
Salol/Warroad	570th Street	Shared bypass and right-turn	Both
Salol/Warroad	CSAH 35	Shared bypass and right-turn	Both

As listed in **Table 5**, and shown on **Figures 12 – 14**, a majority of the bypass lanes are concentrated in the area between Salol and Warroad, with an additional one between Roseau and Salol. As a note – there is a bypass lane on TH 32 at the intersection with TH 11 in Greenbush. It is not included in the maps because it is on TH 32; however, it does assist traffic operations at the intersection.

As noted previously, dedicated turn lanes are limited on the corridor. Very few intersections have both dedicated left- and right-turn lanes on both intersection approaches. Some intersections have them in one direction, but not the other. **Figures 15 – 18b** show these locations on a map. **Table 6** lists the public streets where there are both dedicated left- and right-turn lanes in at least one travel direction.

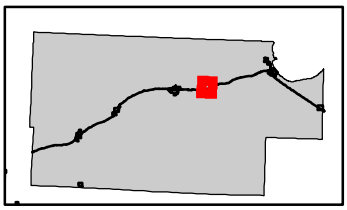

Figure 12
Bypass Lane between Roseau & Salol

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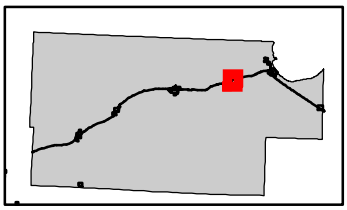

Figure 13
Bypass Lane between Salol & Warroad
500th Avenue to 520th Avenue

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1 inch = 1,200 feet

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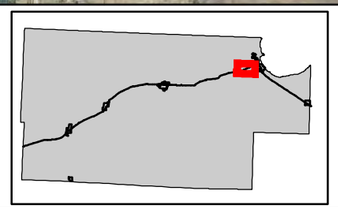

Figure 14
Bypass Lane between Salol & Warroad
550th Avenue to CSAH 35

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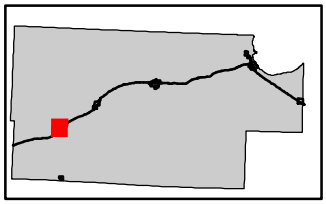

Figure 15
Dedicated Left & Right Turn Lanes in Greenbush

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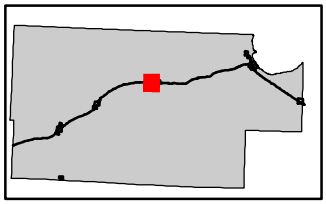

Figure 16
Dedicated Left & Right Turn Lanes in Roseau

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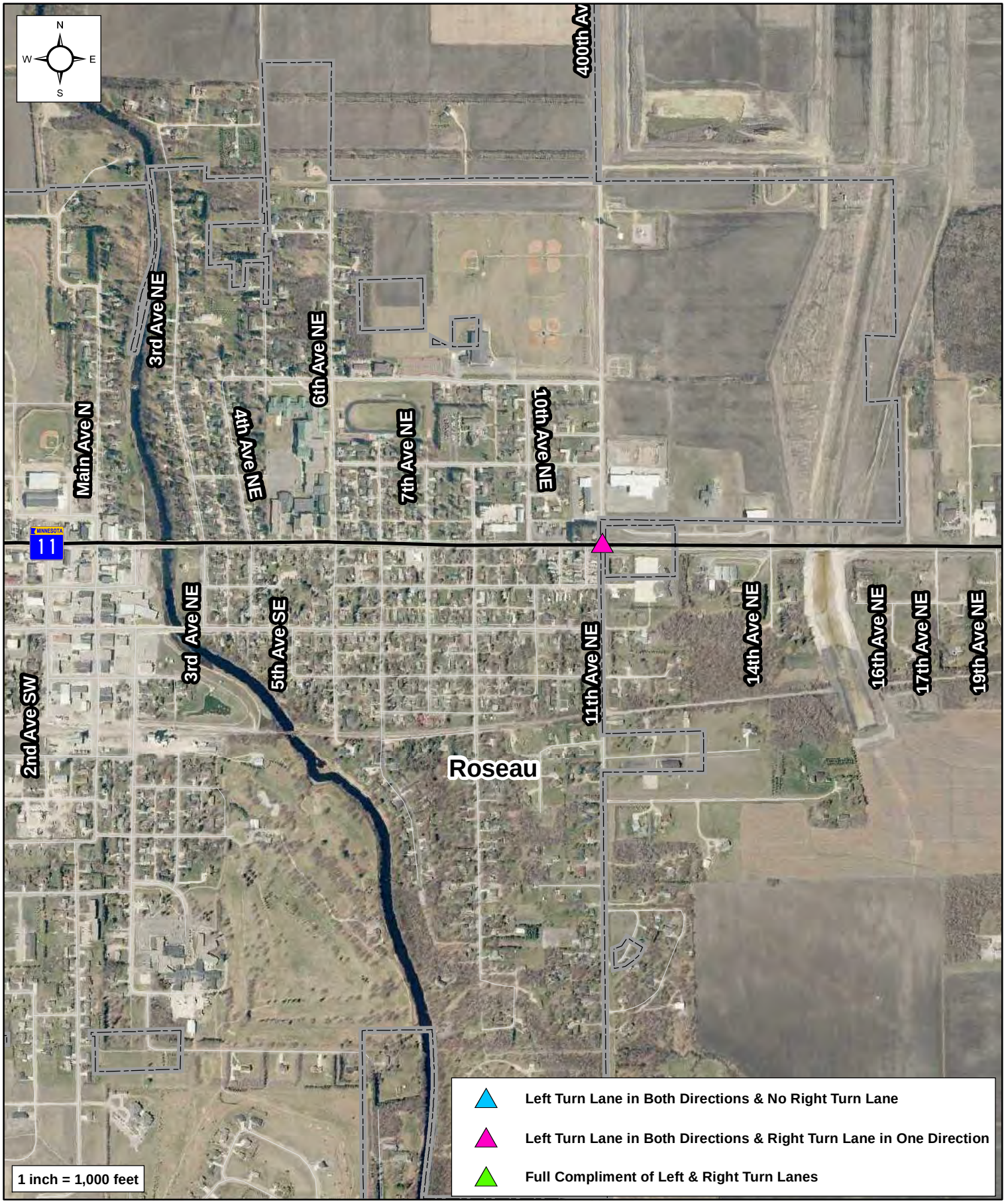

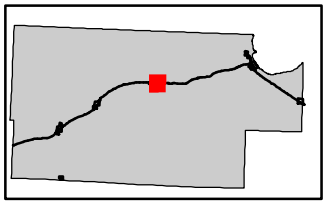

Figure 17
Dedicated Left & Right Turn Lanes in Roseau

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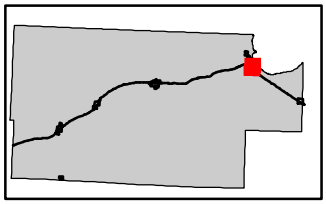

Figure 18
Dedicated Left & Right Turn Lanes in Warroad

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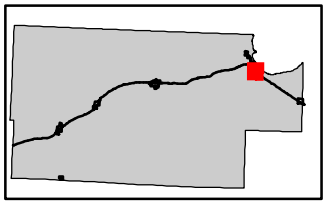

Figure 18b
Dedicated Left & Right Turn Lanes in Warroad

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Table 6 – Public Streets with Dedicated Left- and Right-Turn Lanes in at Least One Direction

General Area	Intersection/Location	Direction of Travel	Note
Greenbush	TH 11/TH 32	Eastbound	T-intersection – dedicated left- and right-turn lane
Roseau	380th Avenue/18th Avenue NW	Both	
Roseau	15th Avenue NW	Both	T-intersection – Dedicated left- and right-turn lane
Roseau	Frontage Road – western access	Both	In three-lane section
Roseau	Frontage Road – eastern access	Both	In three-lane section
Roseau	7th Avenue SW / private driveway	Both	In three-lane section
Roseau	TH 89/310 and 5th Avenue NW	Eastbound	Dedicated left-turn lane in both directions. Dedicated right-turn lane in eastbound direction. Intersection is signalized.
Roseau	11th Avenue NE	Westbound	Dedicated left-turn lane in both directions. Dedicated right-turn lane in the westbound direction.
Warroad	TH 313/Cedar Avenue NW	Both	At beginning of three-lane section. Intersection is signalized.
Warroad	Gladys Street / private driveway	Both	T-intersection – dedicated left- and right-turn lane
Warroad	Elk Street NW	Both	T-intersection – dedicated left- and right-turn lane
Warroad	Lake Street NW/CR 74 (north junction)	Both	T-intersection – dedicated left- and right-turn lane
East of Warroad	7 Clans Casino (new entrance roadway)	Both	T-intersection – dedicated left- and right-turn lane

Table 7 lists the public streets that have a right-turn lane in at least one direction. **Table 8** includes private access points with a dedicated right-turn lane in at least one direction outside of the three-lane roadways in Roseau and Warroad. It should be noted that private access points with a dedicated right-turn lane are limited. Three of the five locations are at manufactured home communities and the other two are at commercial establishments.

In locations where there are no dedicated right-turn lanes, motorists often use the shoulder (where they are wider) as a default right-turn lane. This can create confusion if other drivers expect right-turning traffic to use the shoulder and they do not.

Table 7 – Public Streets with a Dedicated Right-Turn Lane in at Least One Direction

General Area	Intersection/Location	Direction of Travel	Note
Greenbush	TH 11/32	Southbound	Location where TH 11 changes direction
Greenbush	CSAH 4	Both	
Badger	East Stokes Avenue	South-/westbound	
Badger	CSAH 2	Both	
Badger	North Main Street	South-/westbound	
Badger	CSAH 26/CR 115	South-/westbound	
Fox	TH 308/CR 119	South-/westbound	
Fox	TH 89	Westbound	
Fox	340th Avenue	Both	
Fox	350th Avenue	Westbound	
Roseau	CSAH 15/360th Avenue	Both	
Roseau	14th Avenue NE	Westbound	
Roseau	Unnamed Rd	Eastbound	
Roseau	CSAH 28	Both	
Roseau	CR 338/420th Avenue	Eastbound	
Roseau	CSAH 31/430th Avenue	Both	
Roseau	440th Avenue	Both	
Salol	CR 129	Eastbound	
Salol	CSAH 9/460th Avenue	Eastbound	Westbound is a shared bypass and right-turn lane.
Salol	480th Avenue	Eastbound	
Salol	Main Street	Eastbound	
Salol	CSAH 13	Both	
Salol	500th Avenue	Both	
Salol	510th Avenue	Eastbound	Westbound is a shared bypass and right-turn lane.
Salol	520th Avenue	Westbound	
Salol	CR 137/530th Avenue	Both	
Warroad	350th Street	Eastbound	Westbound is a bypass and shared right-turn lane with 560th Avenue
Warroad	1st Lakewood Avenue	Westbound	
Warroad	Lakewood Circle	Westbound	
Warroad	Emily Avenue NW	Eastbound	
Warroad	CSAH 5	South-/eastbound	

Table 8 – Private Entrances with a Dedicated Right-Turn Lane Outside of the Three-Lane Sections

General Area	Intersection/Location	Direction of Travel	Note
Roseau	East of CSAH 15/360th Avenue on the north side of TH 11	Westbound	Pioneer Farm and Village
Salol	East of Main Street on the north side of TH 11	Westbound	Grain elevator
Salol	East of 500th Avenue on the south side of TH 11	Eastbound	Timberline Mobile Home Park - Western and eastern access points. Middle entrance does not have one. Eastern access has a bypass lane in the westbound direction.
Salol	East of 520th Avenue on the south side of TH 11	Eastbound	Woodland Trailer Park
Warroad	West of 570th Avenue on the south side of TH 11	Eastbound	North Ridge Storage

Figures 19 – 25 show locations with just right-turn lanes.

In addition to locations with dedicated right-turn lanes, there are two public street intersections that just have dedicated left-turn lanes. There are no right-turn lanes at these intersections due to space constraints. One of these intersections is Main Avenue North in Roseau and it is a signalized intersection. The other is Lake Street NE/CR 74 (south junction) in Warroad, and there is only a left turn lane in the south-/eastbound direction. This intersection is signalized.

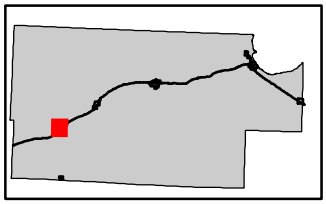

Figure 19
Right - Turn Lanes
Greenbush

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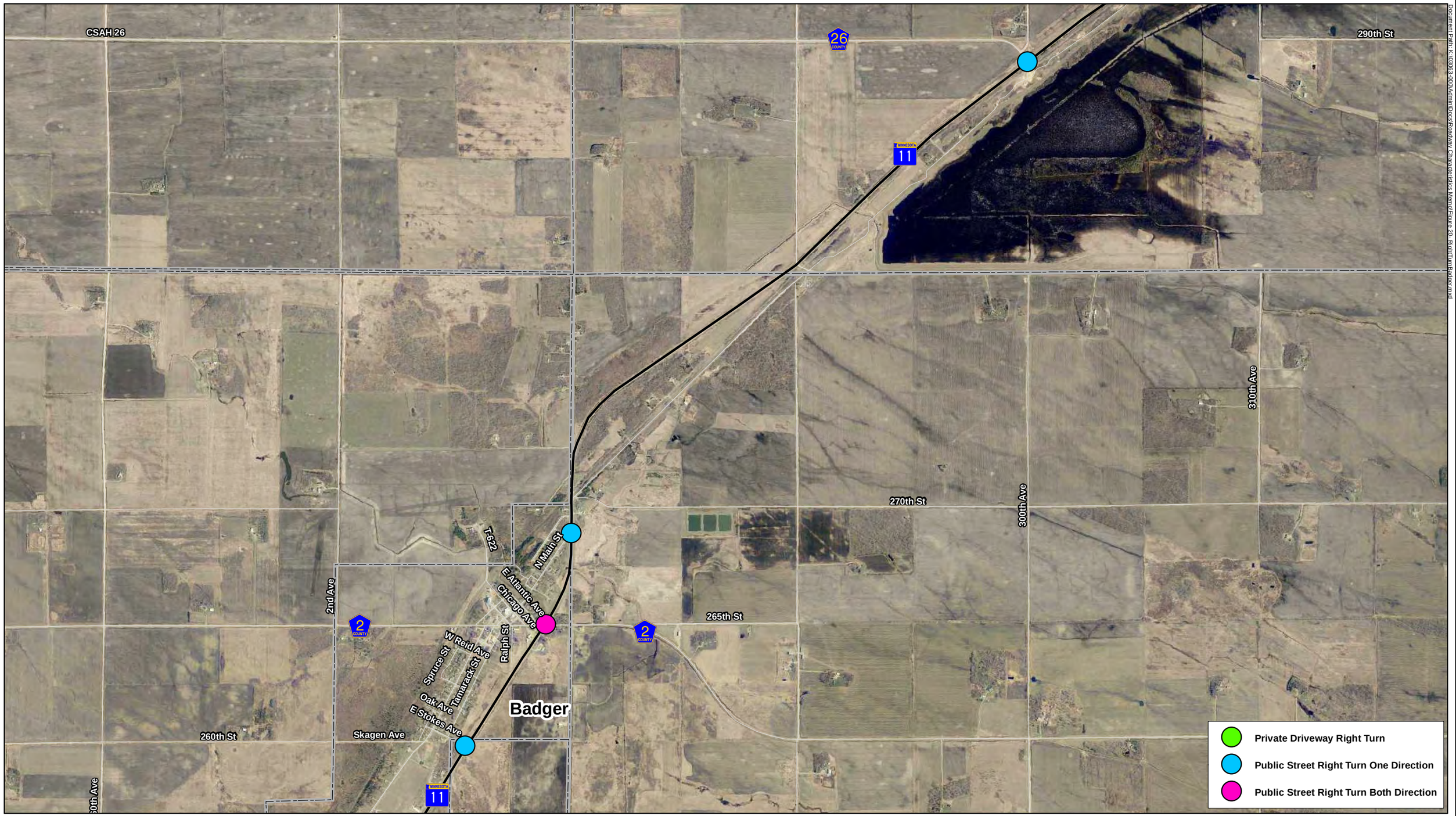

1 inch = 2,000 feet

N
W E
S

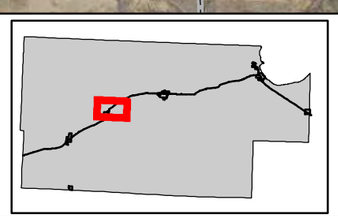

Figure 20
Right Turn Lanes
Badger

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1 inch = 1,250 feet

N
W E
S

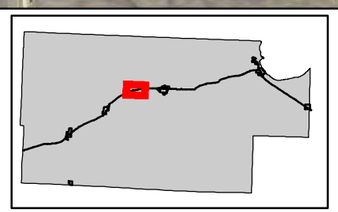

Figure 21
Right -Turn Lanes
Fox

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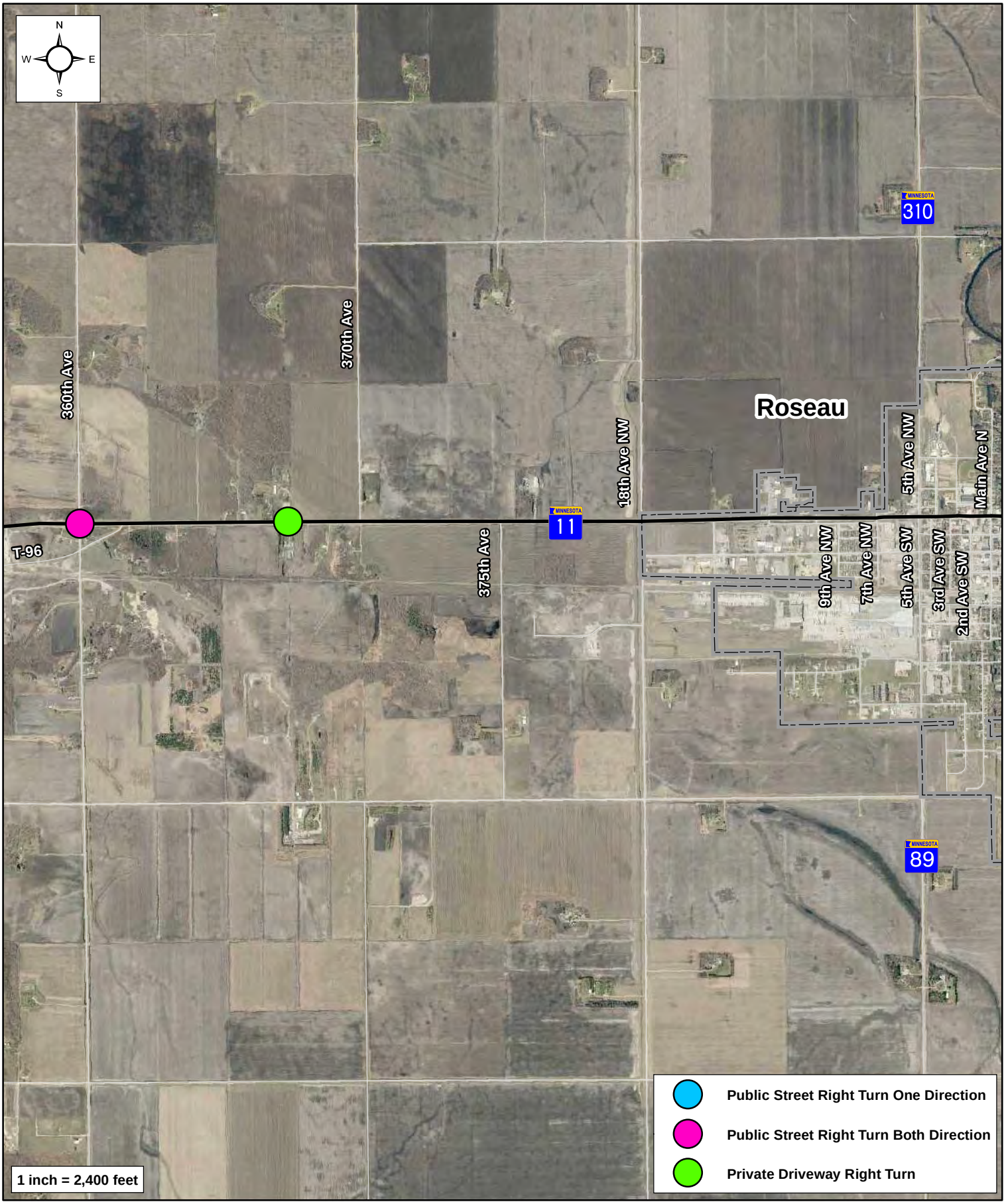

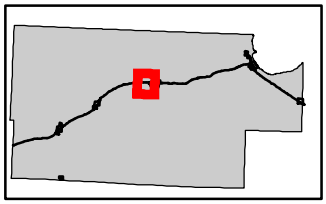

Figure 22
Right - Turn Lanes
Roseau

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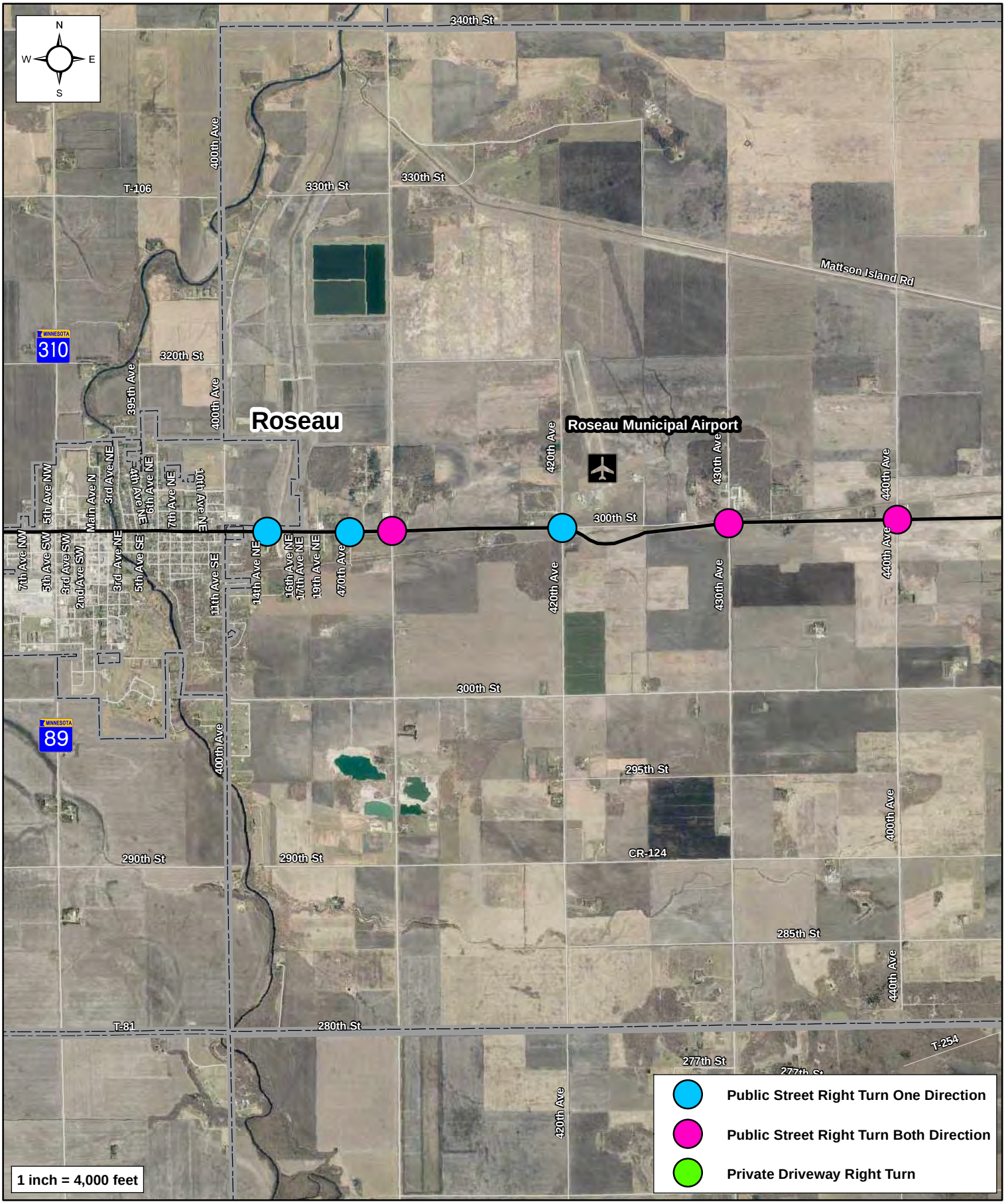
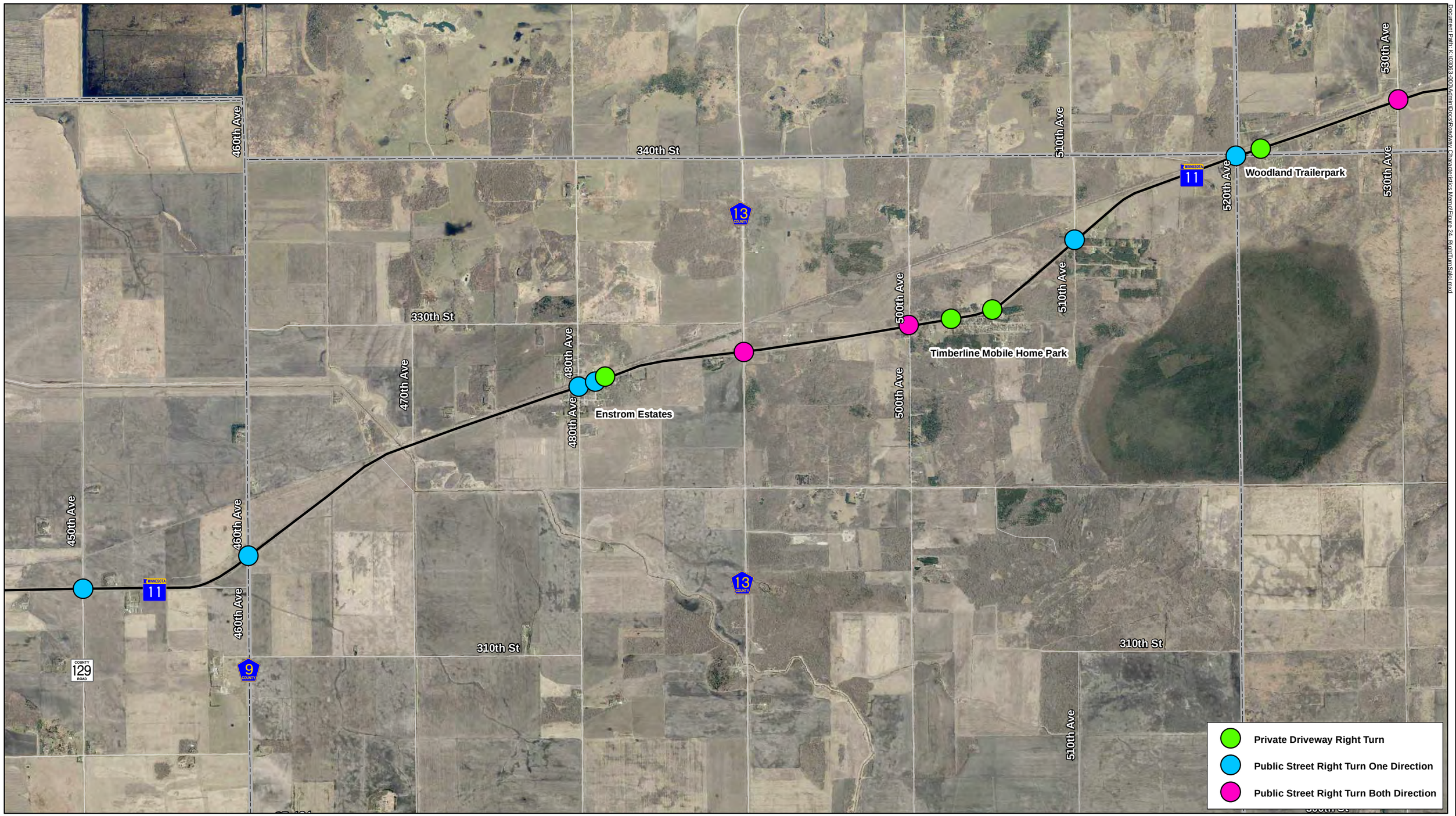


Figure 23
Right - Turn Lanes
Roseau



Document Path: K:\03063-000\Admin\Docs\Roadway Characteristics Memo\Figure 24- RightTurnSalol.mxd

1 inch = 2,800 feet

N W E S

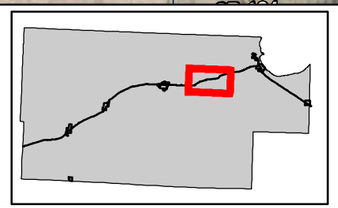
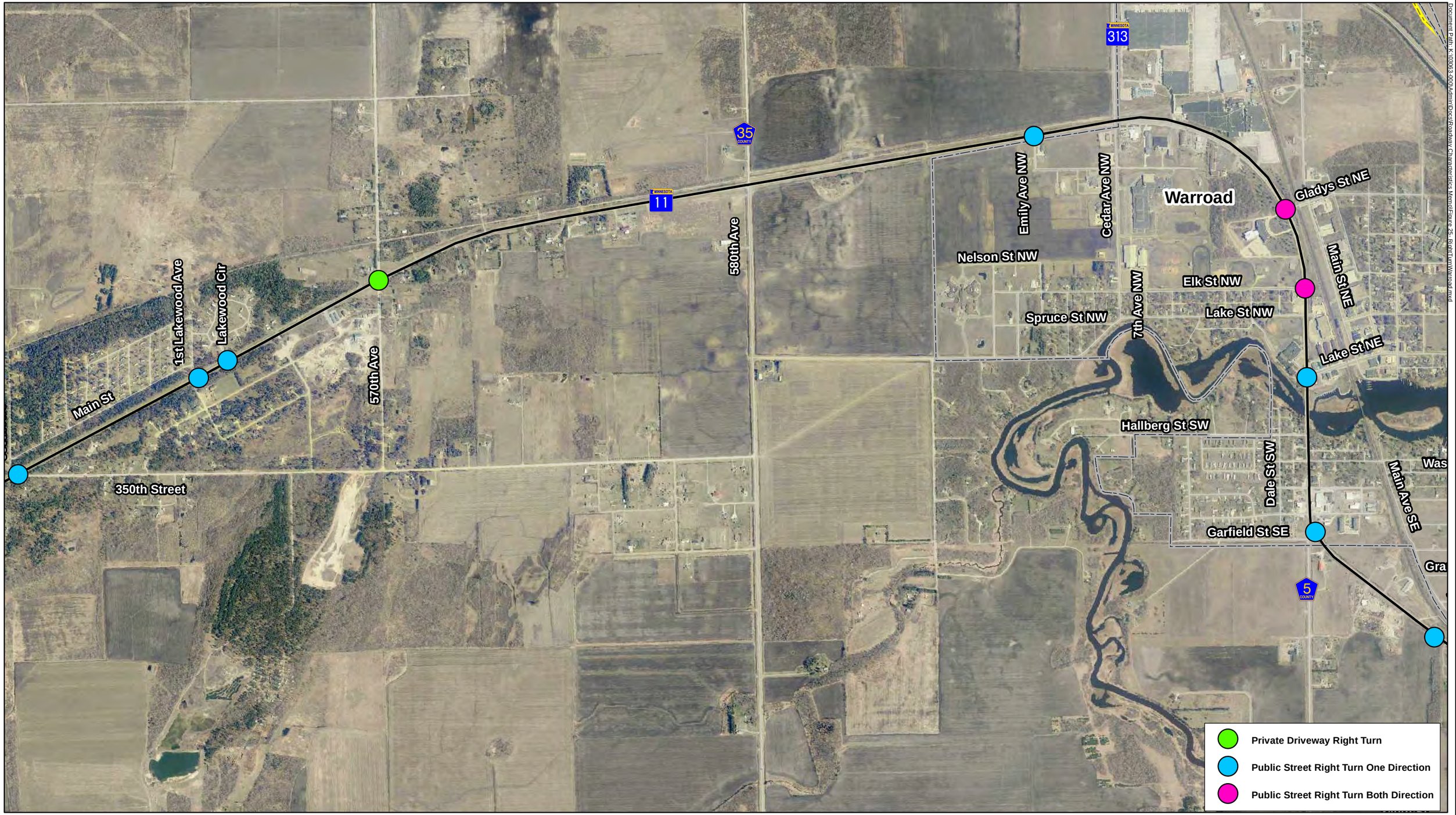
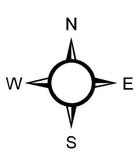


Figure 24
Right -Turn Lanes
Salol

MINNESOTA DEPARTMENT OF TRANSPORTATION



1 inch = 1,250 feet



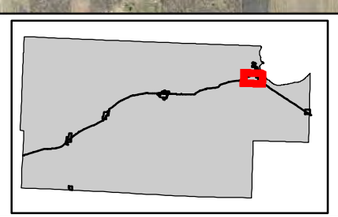


Figure 25
Right -Turn Lanes
Warroad

MINNESOTA DEPARTMENT OF TRANSPORTATION

Right of Way

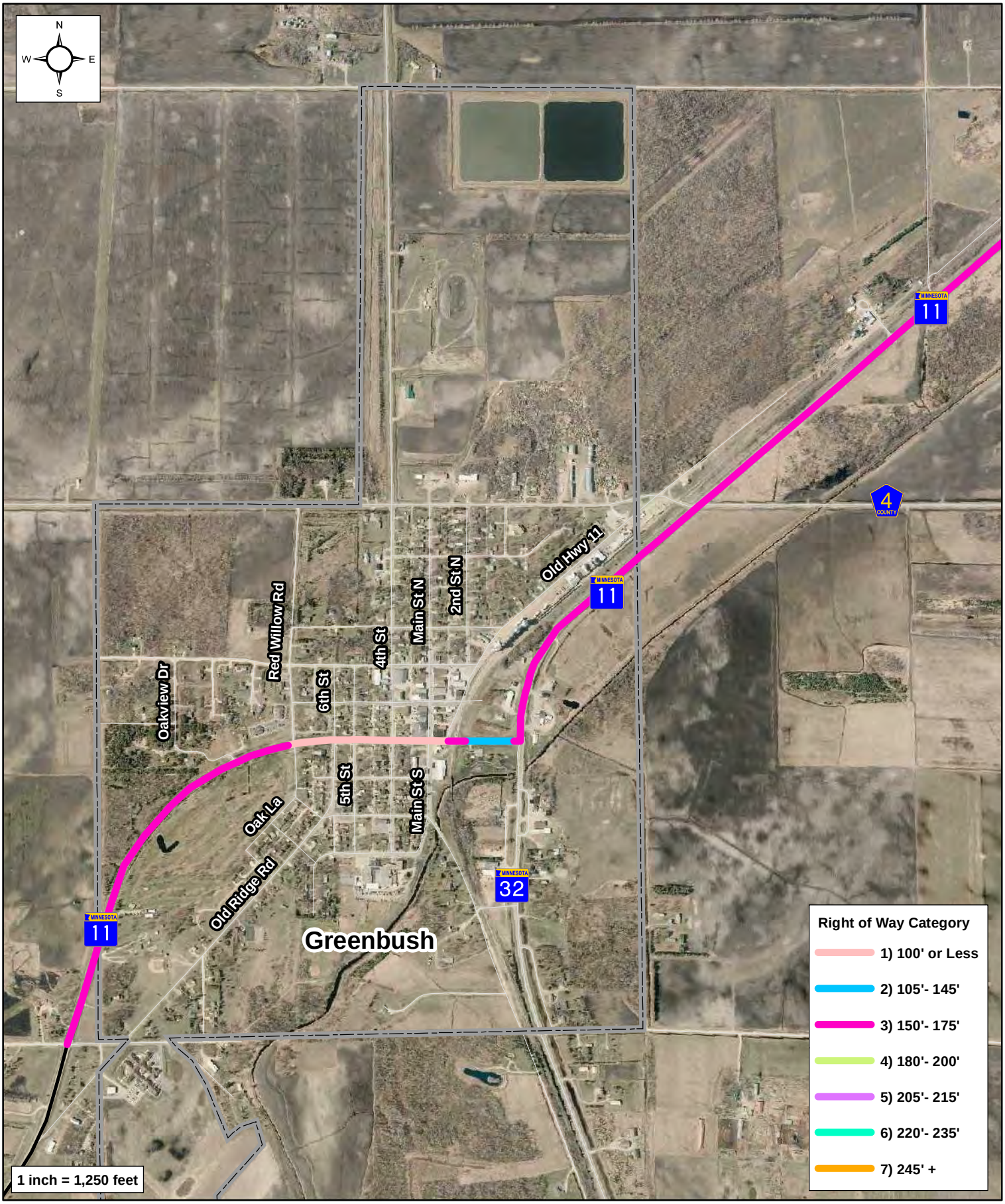
Right of way is the property that is owned by the agency that is responsible for the roadway. It is the area in which the roadway, drainage, traffic control, signage, etc. must be located in. If an agency needs to make improvements that extend beyond the existing right of way, it must be purchased from the property owner.

Right of way located along TH 11 varies throughout the corridor. In some locations it is narrow – less than 100 feet wide - (river crossing bridges, in town in Greenbush, small sections in Badger and Salol). In other locations it is quite wide – up to 275 feet in areas south/east of Warroad. In general, much of the corridor has right of way between 150 and 180 feet.

Right of way between 150 and 180 feet generally provides enough space to allow for at a travel lane in each direction, shoulders, dedicated left- and right-turn lanes and some stormwater treatment. Exactly what can be accommodated can vary by location due to topography, slopes, environmental constraints and type of stormwater treatment needed. It should be noted that TH 11 was constructed at a time when stormwater treatment requirements were quite different than they are today. Today much more rigorous requirements are in place. If improvements are made to TH 11 that expand the amount of impervious surface (e.g., roadway widening, installing turn lanes, etc.) additional stormwater treatment will be needed.

In many locations on the corridor with right of way of at least 150 feet, up to two travel lanes in each direction with a median can be accommodated. Right of way less than 150 feet makes it challenging to provide additional travel lanes.

Figures 26 – 36 show general right of way widths on the corridor.



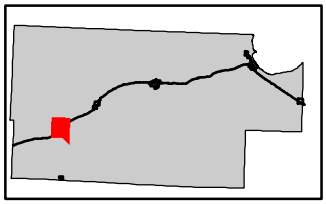


Figure 26 - Existing Right of Way Greenbush

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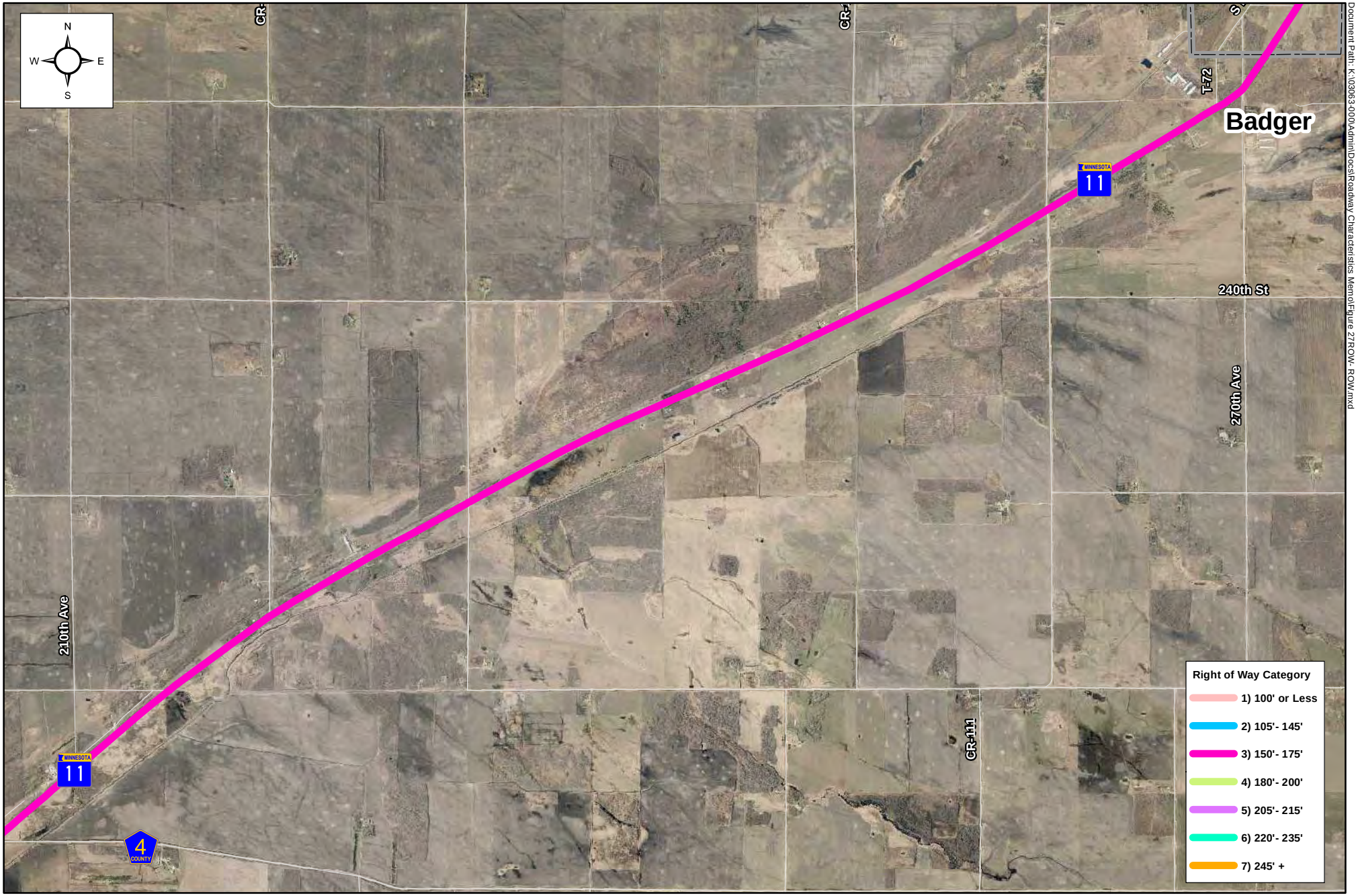


1 inch = 3,500 feet

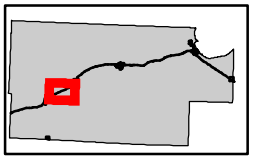


Figure 27 - Existing Right of Way
Greenbush to Badger

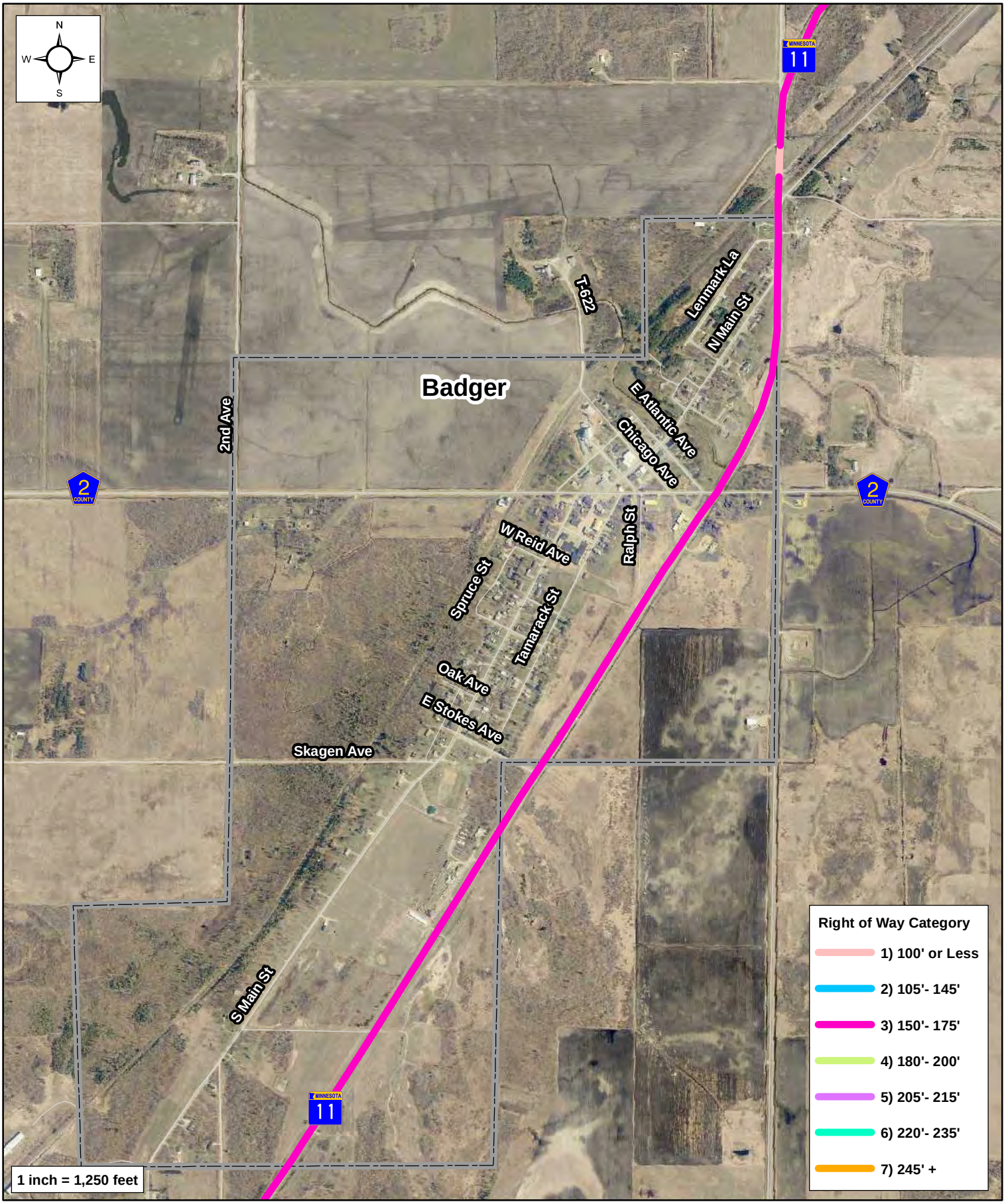
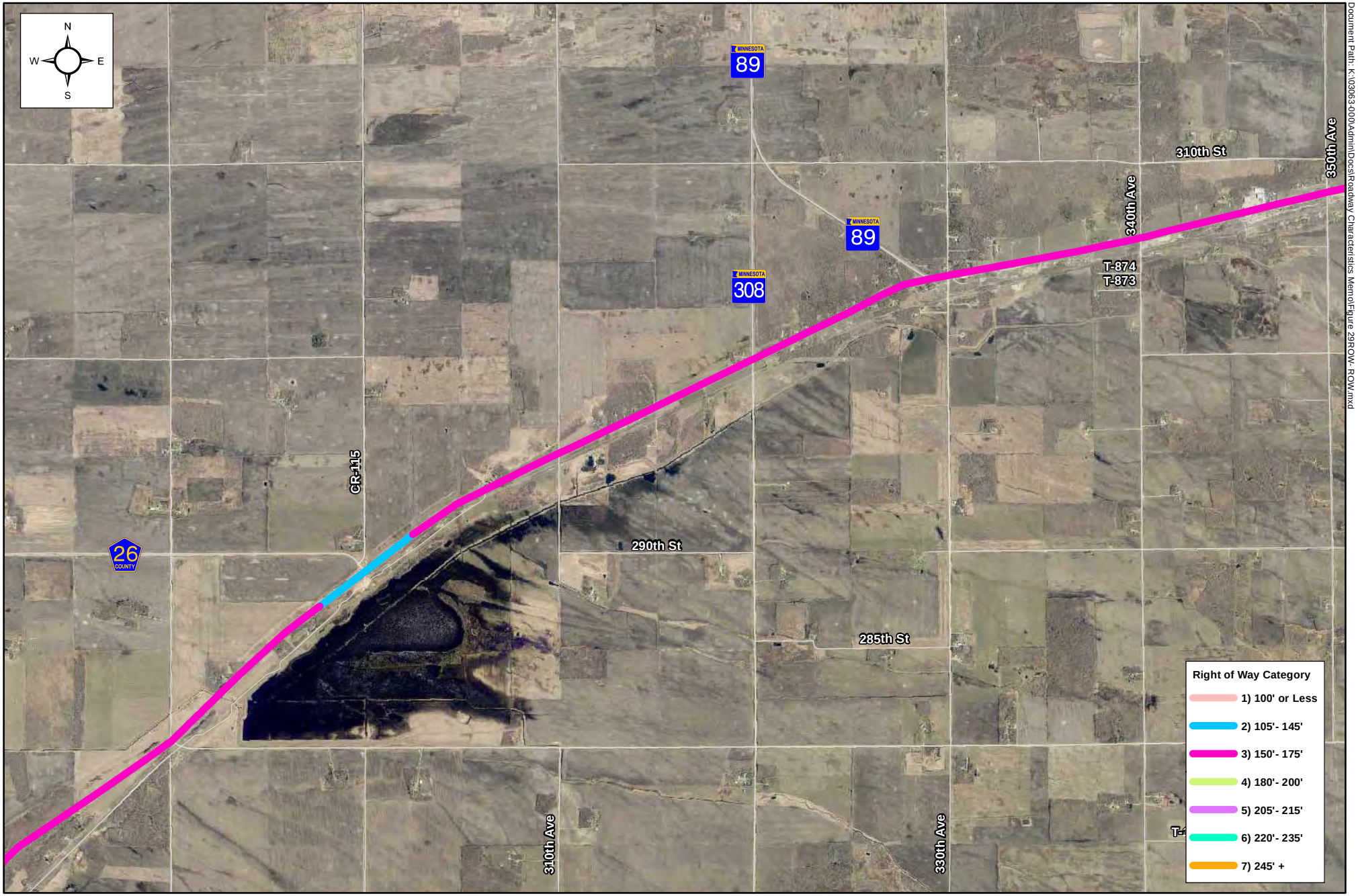


Figure 28 - Existing Right of Way
Badger



1 inch = 3,500 feet

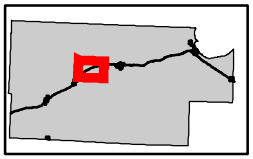


Figure 29 - Existing Right of Way
East of Badger

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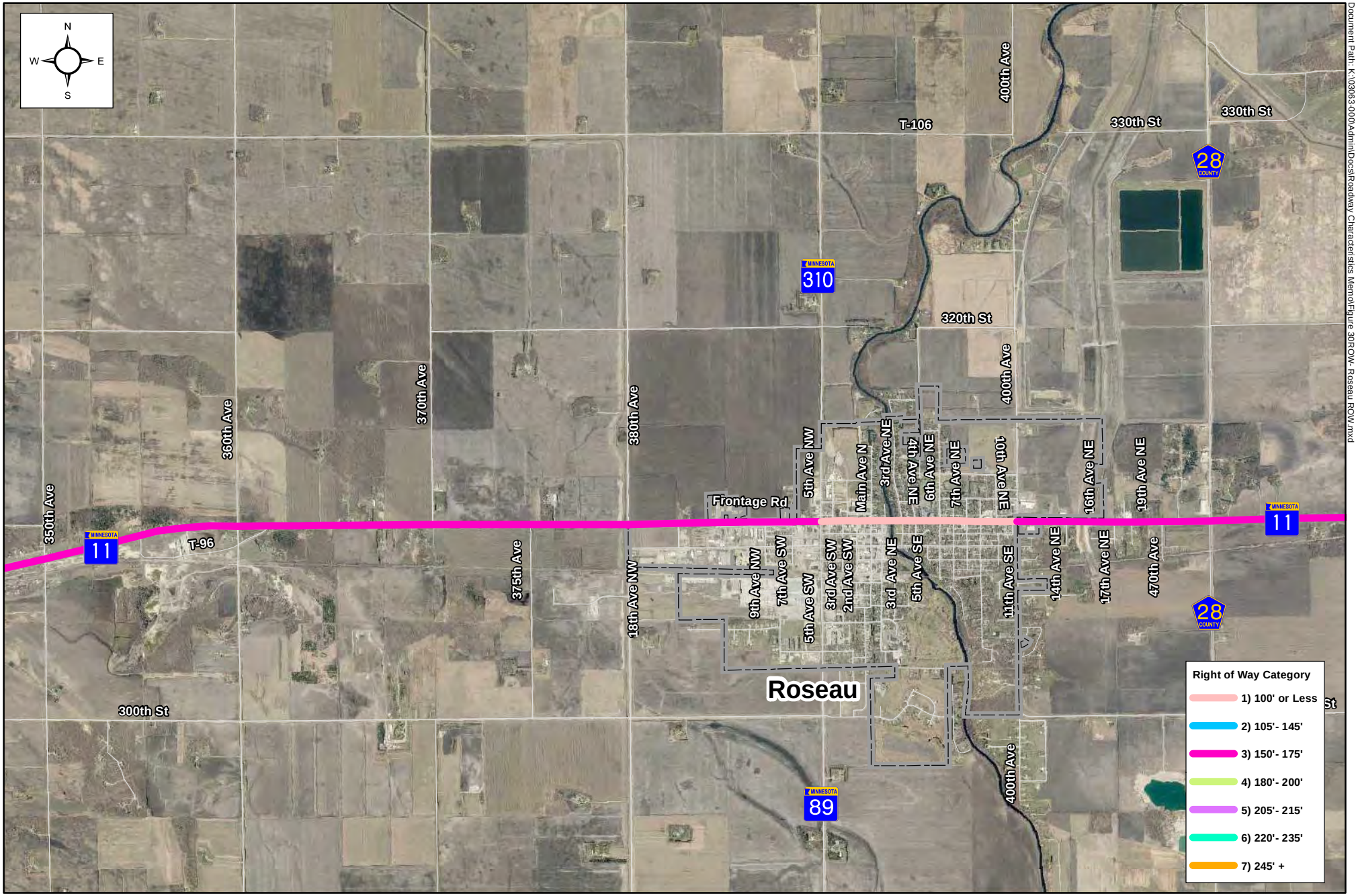

1 inch = 3,500 feet

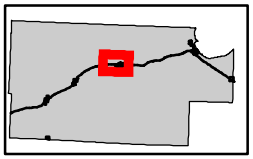

Figure 30 - Existing Right of Way
Roseau

MINNESOTA DEPARTMENT OF TRANSPORTATION

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1 inch = 3,500 feet

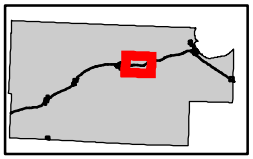

Figure 31 - Existing Right of Way
Roseau Airport

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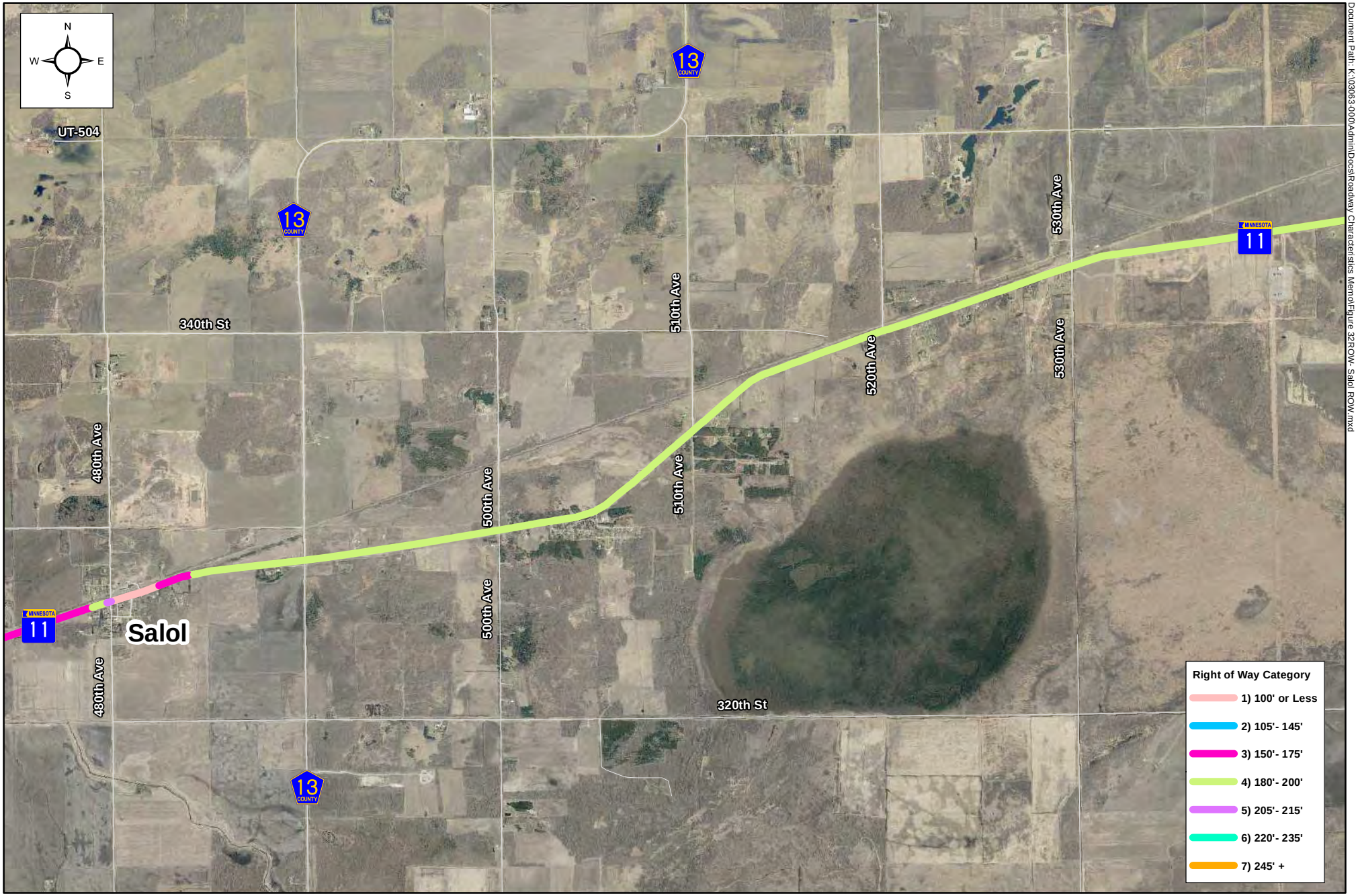


1 inch = 3,500 feet

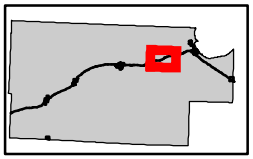
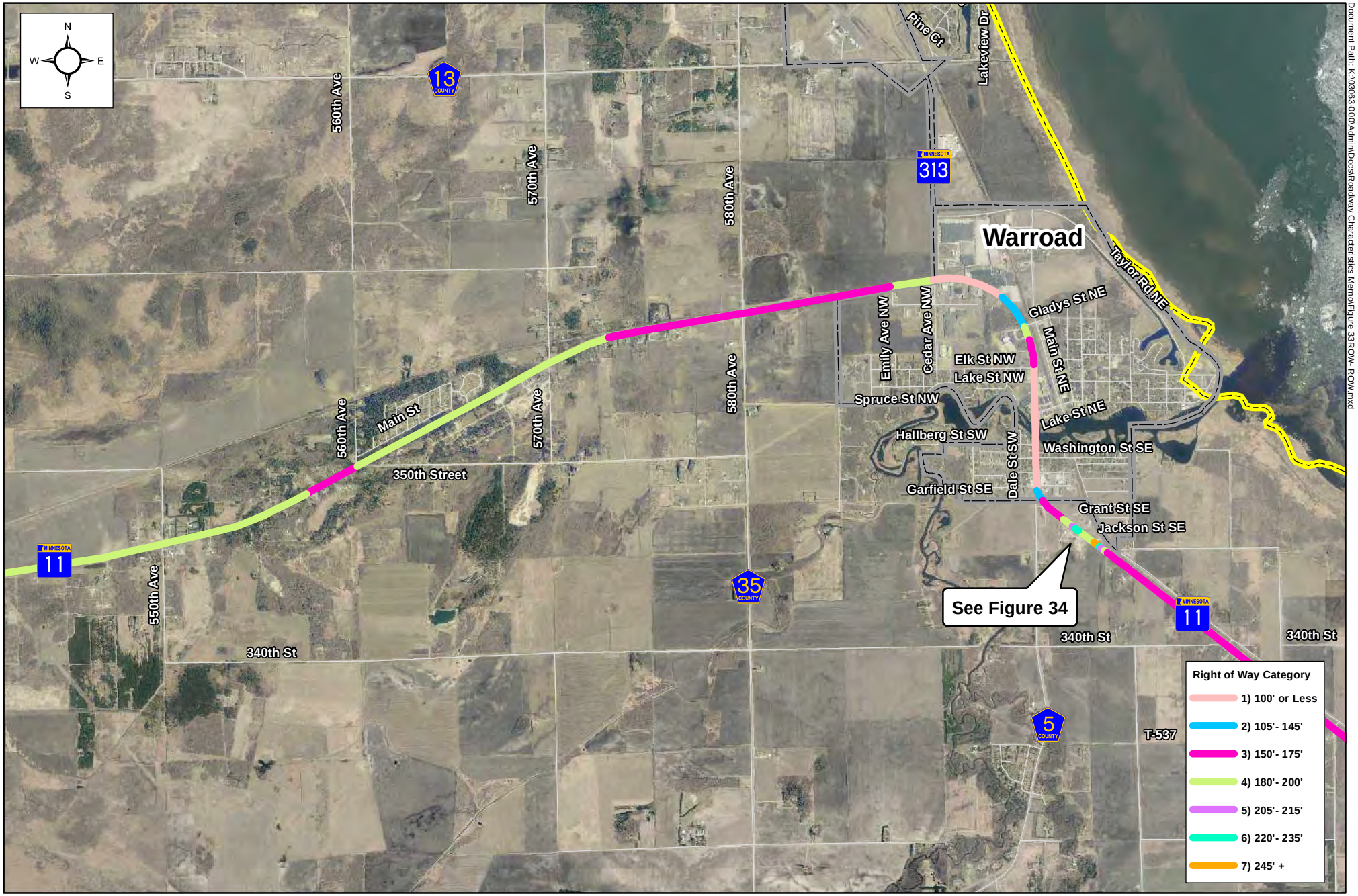


Figure 32 - Existing Right of Way
Salol



1 inch = 3,500 feet

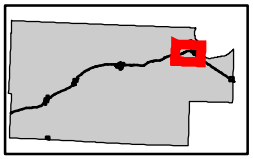
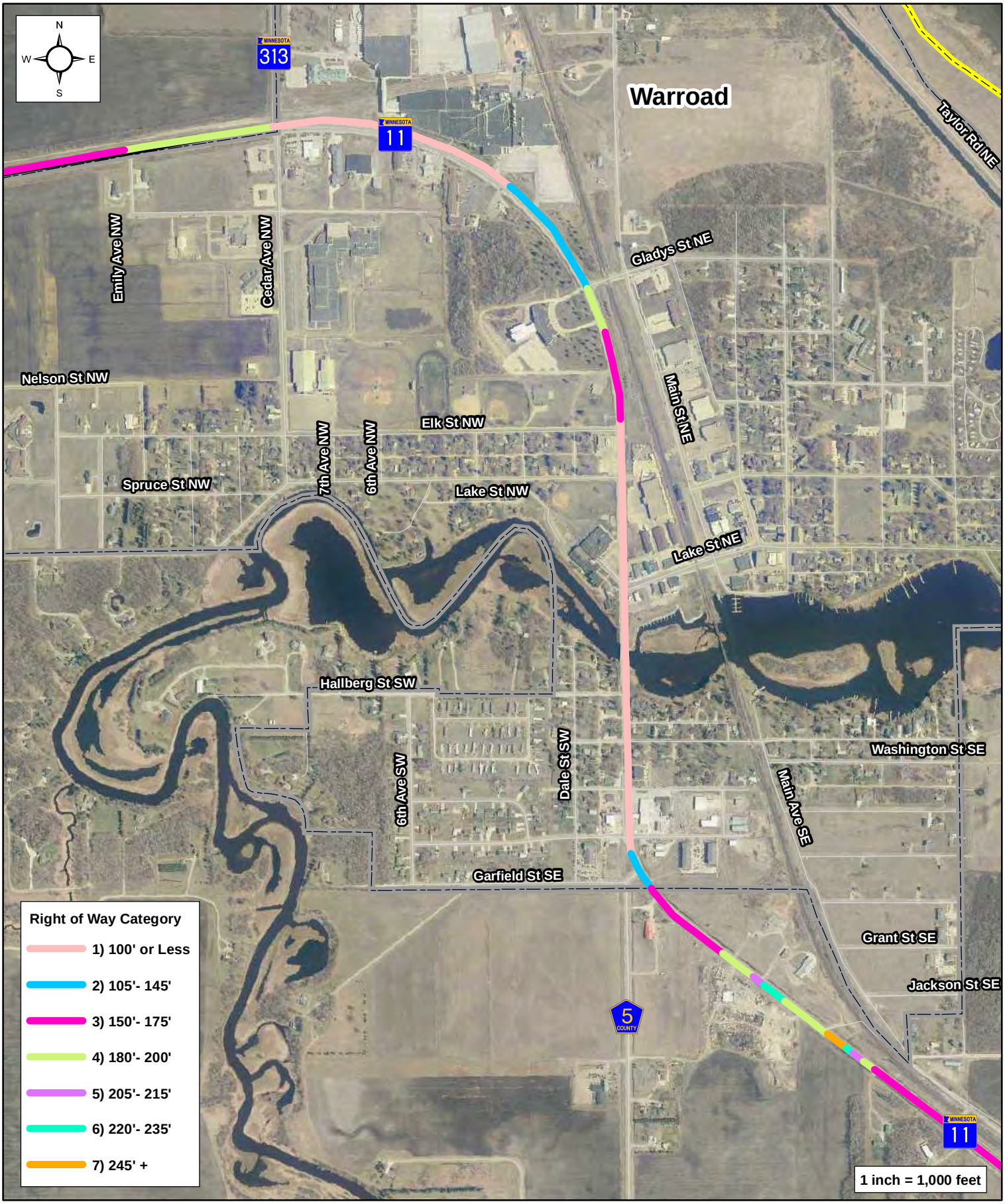


Figure 33 - Existing Right of Way
Warroad

MINNESOTA DEPARTMENT OF TRANSPORTATION



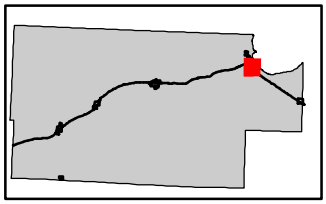
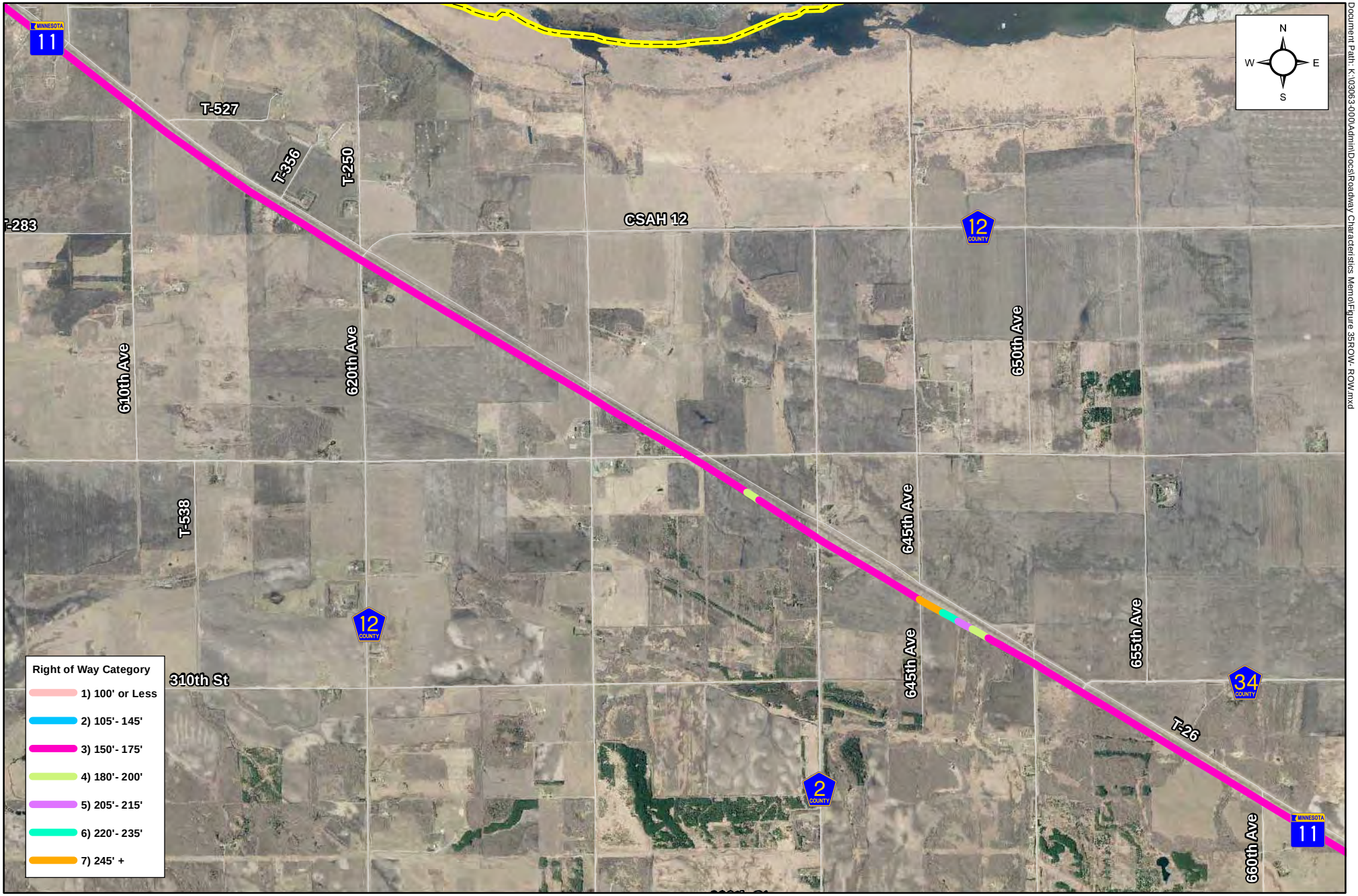


Figure 34 - Existing Right of Way Warroad Close Up

MINNESOTA DEPARTMENT OF TRANSPORTATION



1 inch = 3,000 feet

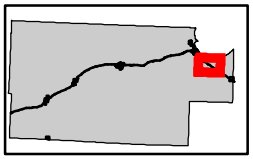


Figure 35 - Existing Right of Way
East of Warroad

MINNESOTA DEPARTMENT OF TRANSPORTATION

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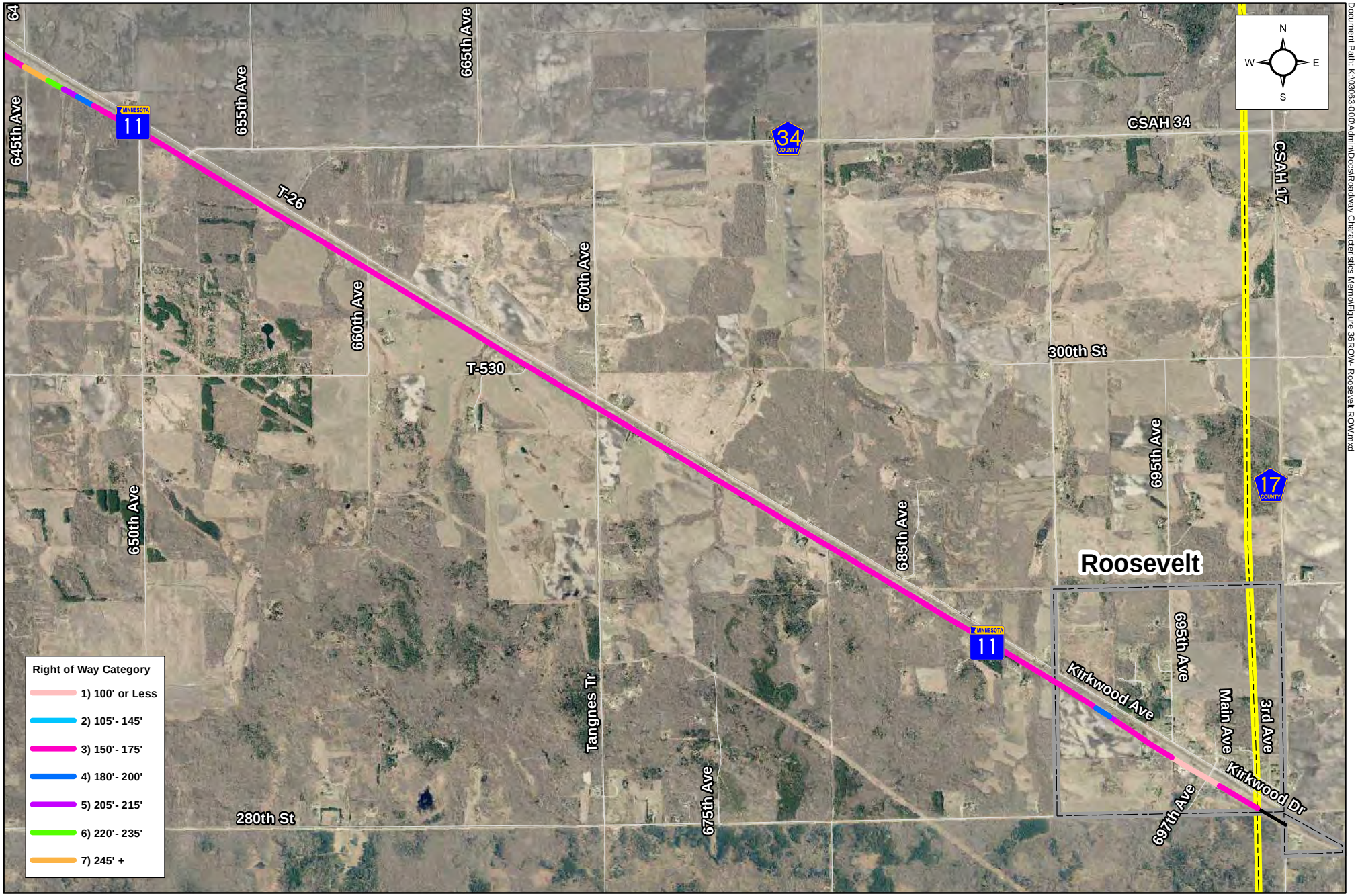

1 inch = 3,000 feet

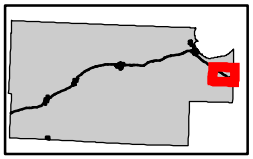

Figure 36 - Existing Right of Way
Roosevelt

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