US 151 Freeway Study

WisDOT ID 1110-00-09

Columbus to Waupun
Dodge County

Prepared for:

Wisconsin Department of Transportation
Southwest Region – Madison Office

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1.0 Executive Summary

US 151 is a major corridor in Wisconsin, extending from the far southwest corner of the state near Dubuque, Iowa, northeast to the city of Manitowoc, for a distance of approximately 220 miles. It is part of the National Highway System (NHS) and is identified as a backbone route in the WisDOT Connections 2030 program. Connections 2030 is part of WisDOT's long-range highway improvement plan and is designed to provide links to key employment and population centers throughout the Wisconsin. This segment of US 151 is part of the "Wild Goose" Corridor which is a major passenger and freight route that connects Green Bay and the Fox River Valley to Madison and locations farther south and west.

This study was initiated by WisDOT to analyze a portion of the US 151 corridor for conversion to a freeway facility between the cities of Columbus and Waupun in Dodge County. This study is the first of three planned phases and involves collecting data; obtaining input from regulatory agencies, local officials, and the general public; and preparing conceptual roadway plans for freeway conversion of this 27-mile long segment. Subsequent phases will involve preparing an environmental assessment (EA) to document potential impacts, and mapping the corridor through Wisconsin State Statute 84.295. The statute is a long-term planning tool that allows WisDOT to officially designate and preserve highway corridors as freeways.

Traffic volumes along US 151 have increased at a rate of over 3% per year for the majority of the length of the corridor since 1995. Traffic forecasts indicate these volumes will continue to increase and reach a range between 18,450 and 26,375 by the year 2035. A crash analysis revealed that across the entire corridor, crash and injury rates typically exceeded average rates for similar types of facilities across the state. The study also indicated that most of the accidents occurred in the rural expressway segments. The crash rates for the bypass segments were found to be typically lower than statewide rates for similar facilities.

Even though the corridor is anticipated to provide adequate capacity for many years into the future, the at-grade intersections and numerous private entrances are anticipated to experience increases in crashes. Intersection crash rates are below the typical rate threshold for similar types of highways; however, the crash rates aren't the only criteria to analyze. The relatively high speeds of these types of expressway facilities combined with numerous at-grade intersections and private access points increase the potential for more severe crashes and fatalities, even if the total number of crashes appears insignificant. Increasing traffic volumes will result in even fewer gaps for at-grade access at intersections and will increase higher risk driver behavior at those locations.

WisDOT also realizes the significance of land use within the study area and the importance of balancing land use with a functional transportation system. Knowledge of existing land use patterns near US 151 is essential to assessing the impacts of US 151 improvements on the local communities and their future development. Conversely, the existing and planned development near US 151 can provide insights into how best to design and configure US 151 to freeway standards.

One goal of this study is to develop a long-term access plan to accommodate future use and area transportation needs. Access management involves planning and management of the number and location of driveway connections, field entrances, and public roadway

intersections to help maintain safe, efficient movement of traffic. It also helps to prevent the roadway from becoming too congested while still providing adequate access to adjacent lands. While growth and development are usually beneficial for area economies, they can result in too many access points located too close together if not properly managed. If access is not controlled, speed limits may have to be lowered as a result of increasing conflicts and crashes.

The 27-mile study corridor includes segments around the Cities of Beaver Dam and Waupun that currently function as freeway facilities. This study focused more on the rural segments between Columbus and Beaver Dam and between Beaver Dam and Waupun, where numerous at-grade intersections and private entrances are present. Conceptual plans involving options for freeway conversion have been developed for further analysis in the next phase of the project, which will involve the preparation of an environmental document.

The study identifies potential long-term solutions for addressing conversion to a full freeway facility. Given that the construction associated with converting US 151 to a full freeway is not in WisDOT's 6-year program and likely more than 10 years away, WisDOT may decide to implement other interim improvements to meet the needs of the facility users prior to any full reconstruction to a freeway. These could include safety improvements, intersection modifications, geometric upgrades, or access changes phased in over a number of years. The intent would be that any such improvements would be designed so that they are compatible with the future freeway conversion that was used to develop the official map as part of the 84.295 process.

This report is intended to summarize the results of the first of three phases associated with the development of the official corridor map. The environmental document phase is anticipated to involve the preparation of an environmental assessment (EA) adhering to the requirements of the National Environmental Policy Act (NEPA) and the Wisconsin Environmental Policy Act (WEPA), followed by the completion of the official map within the next three to five years.

2.0 Introduction

2.1 Study Summary

The Wisconsin Department of Transportation (WisDOT) – Southwest Region retained the services of Ayres Associates to analyze the US 151 corridor for conversion to a freeway facility between the Cities of Columbus and Waupun. The objective of the study is to obtain input from various agencies and the general public, gather data, and develop conceptual designs for converting the roadway from an expressway to a full freeway facility. Identifying the locations of interchanges and access modifications will allow local municipalities to plan more effectively for future land use. Subsequent phases of the project study will involve preparing an environmental assessment (EA) to document potential impacts and mapping the corridor through Wisconsin State Statute 84.295. The statute is a long-term planning tool that allows WisDOT to officially designate and preserve highway corridors as freeways.

The study was initiated in June 2007 and involved collecting data on existing environmental resources, land use plans, traffic volumes, and crash statistics. The consulting firms of TranSmart Technologies and Vandewalle & Associates were included on the project team to assist Ayres Associates with these efforts. The study also involved holding meetings with local agencies and the general public and sending surveys to schools, emergency medical services (EMS), and owners of agricultural operations. A crash analysis was performed to identify areas of safety concerns. Existing plans and plats were reviewed and field visits were conducted to identify the locations of existing private access points along the corridor.

This report was prepared to provide a summary of the results from this first phase of the study. The report includes discussions on the objective of the study, a summary of the existing conditions, the process used during the study, and layouts of potential roadway modifications required to convert this segment of US 151 to a freeway.

2.2 Study Team

The following individuals were involved in the research associated with this study and the preparation of this report:

- Mark Westerveld, PE
  WisDOT – Southwest Region Planning

- Thomas Koprowski, MUP
  WisDOT – Southwest Region Planning

- Matthew Barr, PE
  Ayres Associates

- William Roth, PE
  Ayres Associates

- Kathleen Melland
  Ayres Associates

- Charles Wade, AICP
  TranSmart Technologies

- Manfred Enburg, PE
  TranSmart Technologies

- Daniel Moser
  Vandewalle & Associates

2.3 Project Study Location

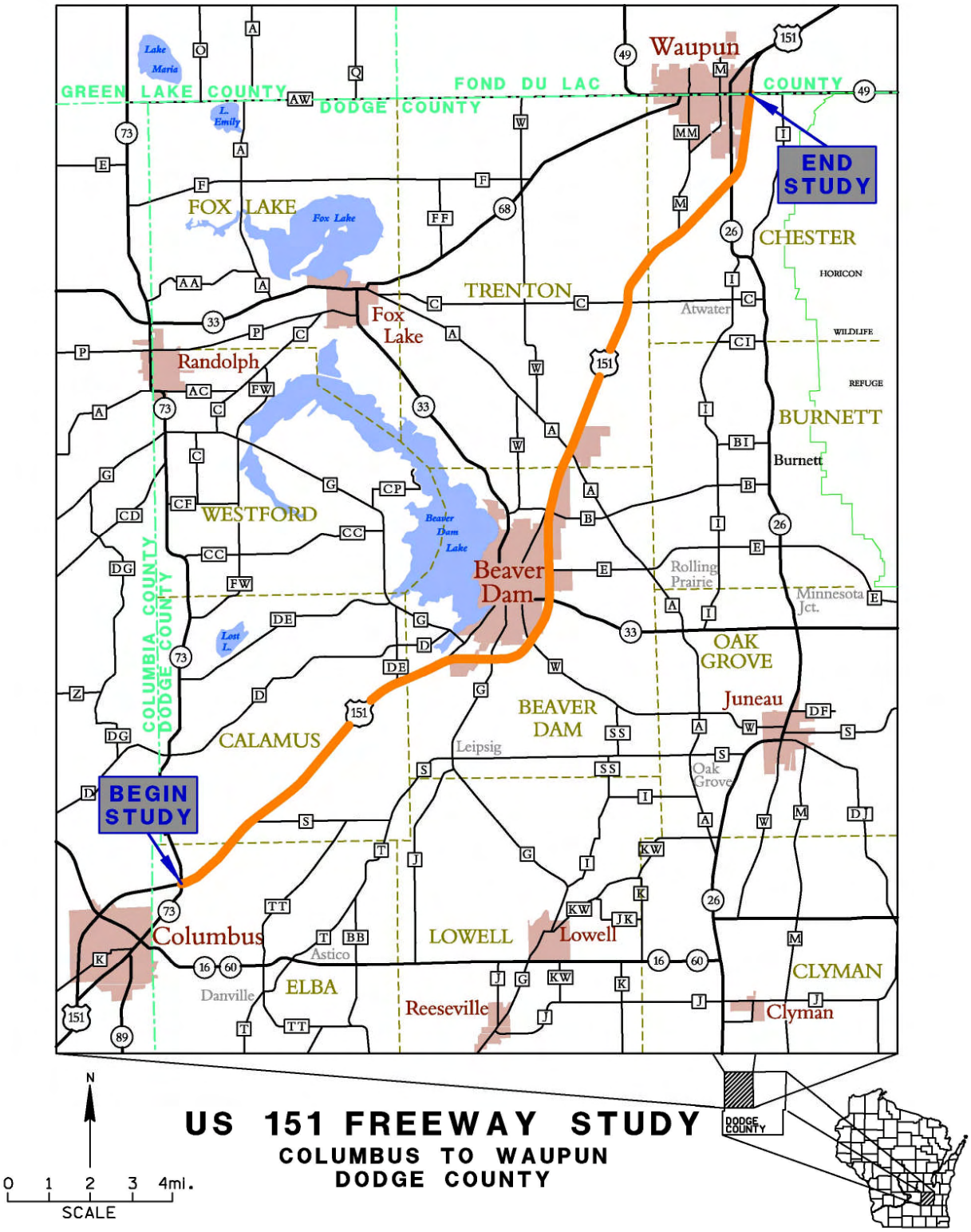
The segment of US 151 being studied for conversion to a freeway is located between the Cities of Columbus and Waupun in Dodge County in east-central Wisconsin. Dodge County is located in the middle of a triangle formed by the metropolitan communities of Madison, Milwaukee, and the Fox Valley. The exact limits are from just north of the WIS 73 interchange on the north side of Columbus to the WIS 49 interchange on the east side of Waupun (see Figure 1). The total length of the study corridor is approximately 27 miles. For study purposes, a corridor width of approximately 1 mile on either side of US 151 was selected to assess the influences of adjacent land uses and collect relevant data. The area for analyzing local roadway circulation may extend beyond those limits, depending on potential alternatives being analyzed in a specific area.

2.4 US 151 Description

US 151 extends from the far southwest corner of the state near Dubuque, Iowa, northeast to the city of Manitowoc, for a distance of approximately 220 miles. It is part of the National Highway System (NHS) and is identified as a backbone route in the WisDOT Connections 2030 program. Connections 2030 is part of WisDOT's long-range highway improvement plan and is designed to provide links to key employment and population centers throughout the Wisconsin. This segment of US 151 is part of the "Wild Goose" Corridor which is a major passenger and freight route that connects Green Bay and the Fox River Valley to Madison and locations farther south and west. As part of the planning process, Wisconsin's highways were classified based on operational and economic factors. The plan's goal is to complete improvements to all backbone routes, which will connect all communities with a population of 5,000 or more to the state highway system.

Connections 2030 supports economic development as the highway system assists the state in meeting its intercity mobility needs. These connections are important for the movement of goods and services within the state, as well as to other market areas outside the state. Connections 2030 helps create a safe and positive traveling environment, allowing business, industry, agriculture, and tourism to expand in the state. Significant capacity improvements have been made to US 151 over the years, particularly the expansion in the past 20 years of several segments to four lanes.

Figure 1. Project Study Location



The segment of US 151 included in this study is approximately 27 miles long and is the major route for traffic between the southwest part of the state (including the city of Madison) and the Fox Valley area and city of Green Bay in the northeast part of the state. The continued development of these metropolitan areas is contributing to the increasing traffic volumes along this corridor. Dodge County communities use US 151 to commute to jobs, transport goods, access local and regional services, and travel to the aforementioned metro areas.

The area between Columbus and Waupun consists primarily of agricultural land, with industrial and commercial properties located around the cities of Columbus, Beaver Dam, and Waupun. There are also large wetland areas that abut the existing roadway in several locations. The amount of land used for agricultural purposes has declined slightly in recent years; however, agriculture is expected to remain an important component of the Dodge County's economy for the foreseeable future.

2.5 Study Area

2.5.1 Study Area Summary

The US 151 corridor study area can be divided into several segments, as described on the following pages. US 151 passes through the towns of Elba, Calamus, Beaver Dam, Trenton, and Chester and skirts the cities of Columbus, Beaver Dam, and Waupun, with rural segments in between. Other than a few minor crossings, the bypass areas provide access only at interchanges; therefore, they currently function as freeway facilities. As a result, the majority of the focus of this study took place in the two rural segments between Columbus and Beaver Dam and between Beaver Dam and Waupun. With at-grade intersections and numerous driveways, field entrances, and commercial access points, these segments are classified as expressways. The following are descriptions of the segments contained within the project study area.

2.5.2 Columbus Bypass

US 151 bypasses the city of Columbus and contains three interchanges. The bypass was initially built as a 2-lane facility with land acquired for conversion to four lanes. The additional two lanes were added in the early 1990s to provide a full freeway facility around the city. There are no private access points along US 151 between the WIS 73 interchanges on the

Looking north from STH 73 interchange (south study limits)

north and south side of the city. The study initially included this bypass segment, but the limits were modified to start at the north WIS 73 interchange, since the bypass is already a freeway facility and no modifications are proposed. This section was eliminated from any further analysis for the study.

2.5.3 Columbus to Beaver Dam

The 9-mile segment of US 151 between Columbus and Beaver Dam was built in the 1960s as a two-lane highway, at which time additional land was purchased for the addition of two future lanes. The roadway was reconstructed as a four-lane expressway facility in 1993, with some minor additional right of way acquired. Private access points were consolidated and access rights acquired where feasible to eliminate the possibility of access points being added in the future. The following side roads intersect US 151 at grade with stop-controlled conditions:

Name of Road	Type of Facility	Description
Maier Road	Town road	T-intersection and dead end road
Bethel Road	Town road	T-intersection
Moriah Road	Town road	T-intersection
County S	County highway	T-intersection
East Salem Road	Town road	Across from North Salem Road
North Salem Road	Town road	Across from East Salem Road
Forest Road	Town road	T-intersection
Klatt Road	Town road	T-intersection
Jackson Road	Town road	Across from County DE
County DE	County highway	Across from Jackson Road
Beaverland Parkway	Town road (dead end)	T-intersection and dead end road
Iron Road	Town road	T-intersection
Hammer Road	Town road (dead end)	T-intersection (Primarily used as a private entrance.)

Looking south at US 151/County S intersection

Also included within this segment is the crossing of Calamus Creek and an underpass crossing of the Union Pacific Railroad. The majority of this segment of US 151 contains agricultural land with large wetlands near Calamus Creek and the city of Beaver Dam. Several commercial properties are present near County DE and just south of the Union Pacific Railroad crossing.

2.5.4 Beaver Dam Bypass

US 151 bypasses the city of Beaver Dam for a distance of approximately 5 miles. It was reconstructed in the mid 1990s as a freeway facility from the County D interchange north to the County B interchange. The majority of access rights were acquired, with the exception of two private access crossings just south of the WIS 33 interchange. When the facility was reconstructed in the 1990s, full or partial interchanges were provided at County D, WIS 33, Industrial Drive, and County B. In the late 1990s, an additional interchange was constructed at the County G crossing on the south side of the city to provide better access to US 151 for areas to the south, including the villages of Lowell and Reeseville. In the mid- 2000s, the interchange at County B was modified to a full interchange to improve access to the new developments proposed for that area. Roads intersecting US 151 include the following:

Name of Road	Type of Facility	Description
County D	County road	Partial interchange accommodating three movements
Center Road	Town road	Overpass with no access
County G	County road	Full diamond interchange
County W	County road	Underpass with no access
WIS 33	State trunk highway	Full diamond interchange
Prospect Avenue	City street	Underpass with no access
County E	County road	Overpass with no access
Industrial Drive	City street/town road	Half diamond interchange
County B	County road	Modified full diamond interchange

Beaver Dam bypass looking southwest

Between Center Road and County G is the Beaver Dam River, which crosses under US 151 through a multi-cell culvert. An at-grade crossing of the Wisconsin and Southern Railroad is located just north of County E on the east side of the city.

The southern portion of the bypass is primarily open space with wetland and agricultural areas. The segment from WIS 33 to the north contains residential, industrial, and commercial properties.

2.5.5 Beaver Dam to Waupun

Similar to the rural segment to the south, the 10-mile segment of US 151 between Beaver Dam and Waupun was originally built in the 1960s as a two-lane highway with additional land purchased for the addition of two lanes. The roadway was reconstructed as a four-lane expressway facility in the late 1990s, with minor additional right of way acquired. Private access points were consolidated and access rights were acquired where feasible to eliminate the possibility of access points being added in the future. These acquisitions were done under the authority of Section 84.09 of the Wisconsin State Statutes. The following side roads intersect US 151 at grade with stop-controlled conditions (with the exception of two interchanges):

Name of Road	Type of Facility	Description
Hemlock Road	Town road	T-intersection on both sides of US 151
County A	County road	Full diamond interchange
Walnut Road	Town road	T-intersection
Breezy Point Road	Town road	T-intersection on both sides of US 151
Redwood Road	Town road	T-intersection on both sides of US 151
County C	County highway	T-intersection on both sides of US 151
Oakwood Road	Town road	T-intersection on both sides of US 151
County M	County road	Partial interchange accommodating two movements

Looking north at US 151/Redwood Road intersection

Also included within this segment are the crossings of Mill and Plum Creeks and an at-grade crossing of the Wisconsin and Southern Railroad. The majority of this segment of US 151 consists of agricultural land, with a large wetland area just north of the County M interchange. A few commercial properties are present near Hemlock Road and County A, including a large Wal-Mart distribution center.

2.5.6 Waupun Bypass

US 151 extends around the east side of Waupun for a distance of approximately 4 miles. It was reconstructed in the late 1990s as a freeway facility north of the County M interchange. The majority of access rights were acquired, with the exception of two private access crossings along the east side of Waupun. These acquisitions were done under the authority of Section 84.09 of the Wisconsin State Statutes. Roads intersecting US 151 include the following:

Name of Road	Type of Facility	Description
WIS 26 (south)	State trunk highway	Full diamond interchange
WIS 49	State trunk highway	Full diamond interchange
WIS 26 (north)	State trunk highway	Partial interchange accommodating 2 movements

Looking north from STH 26 interchange

WIS 49 is located on the border between Dodge and Fond du Lac counties, which is also the border between the WisDOT Southwest and Northeast Regions. The northern limit of this study is at the WIS 49 interchange. US 151 is currently a freeway around the northern part of Waupun; therefore, analysis for freeway conversion in that segment is not necessary.

STH 49 interchange in background (north study limits)

3.0 Corridor Conditions and Study Objectives

3.1 Corridor Conditions

3.1.1 Significance of US 151 route

US 151 is classified as a National Highway System (NHS) route and a backbone route in the WisDOT Connections 2030 plan; therefore, it is considered a key transportation facility in Wisconsin. Connections 2030 is a long-range plan designed to link major economic centers throughout the state. These routes are important for the movement of goods and services both inside and outside the state. The Connections 2030 plan is intended to help create a positive and safe traveling environment, allowing business, industry, agriculture, and tourism to expand in the state. As traffic continues to increase and land development expands, it is important to protect the operations of these facilities and maintain safety.

3.1.2 Traffic Volumes

Table 1 below shows traffic volumes for various segments along the corridor based on counts taken from 1995 through 2008. This data indicates that traffic has grown considerably since 1995. The volumes ranged from 12,600 to 21,200 in 2008. Volumes were the highest on the southern segments from WIS 73 through the city of Beaver Dam and the lowest on the northern end around the city of Waupun. These numbers, along with anticipated land development, were used to project future volumes in 2015, 2025, and 2035. (See Appendix A for Traffic Forecast Report.)

Table 1. US 151 Historic Traffic Volumes

Segment	1995	1998	2001	2004	2008	Change in % 1995 to 2008	Avg. annual % change
WIS 73 – County S	12,100	14,300	15,300	17,600	17,700	46.3	3.6
County S – County D	11,700	13,600	15,300	17,500	17,500	49.6	3.8
County D – County G	10,500	12,800	14,900	17,300	17,300	64.8	5.0
County G – WIS 33	11,900	12,600	14,900	17,600	18,500	55.5	4.3
WIS 33 – Industrial Drive	13,800	13,300	16,200	18,600	21,200	53.6	4.1
Industrial Drive – County B	11,300	10,000	11,300	14,900	20,000	77.0	5.9
County B – County A	12,700	13,200	15,600	16,600	16,400	29.1	2.2
County A – County C	11,600	13,000	14,400	15,600	15,700	35.3	2.7
County C – County M	11,300	12,600	14,200	14,900	17,600	55.8	4.3
County M – WIS 26	6,400	13,900	11,600	13,200	12,600	96.9	7.5
WIS 26 – WIS 49	10,100	11,200	11,800	12,500	12,600	24.8	1.9

Table 2 below shows traffic counts for 2008 and forecasts along the corridor up through 2035. Forecasts for the year 2035 show a range from 18,450 near Waupun to 25,575 adjacent to Beaver Dam. They indicate that segment-specific trends are expected to continue, albeit at slower than recent growth rates. A projection of traffic volumes based on historic trends would be much higher than those based on WisDOT forecasts. It's possible that the actual future volumes could fall somewhere between the trend projection and the WisDOT forecasts.

According to the WisDOT Facilities Development Manual (FDM), section 11-15-1, expansion to six lane facilities should be considered for Connections 2030 routes when design year volumes reach 40,000 vehicles per day. Therefore, this four-lane segment of US 151 is anticipated to provide sufficient capacity beyond the year 2035.

Table 2. US 151 Traffic Counts and Forecasts

Segment	2008	2015	2025	2035	Change in % 2008 to 2035	Avg. annual % change
WIS 73 – County S	17,700	19,775	22,400	24,750	39.8	1.5
County S – County D	17,500	19,125	21,550	23,750	35.7	1.3
County D – County G	17,300	19,225	21,925	24,325	40.6	1.5
County G – WIS 33	18,500	19,350	22,000	24,400	31.9	1.2
WIS 33 – Industrial Drive	21,200	20,875	23,775	26,375	24.4	0.9
Industrial Drive – County B	20,000	18,600	22,100	25,575	27.9	1.0
County B – County A	16,400	19,900	22,750	25,275	54.1	2.0
County A – County C	15,700	19,100	21,875	24,350	55.1	2.0
County C – County M	17,600	17,125	19,300	21,275	20.9	0.8
County M – WIS 26	12,600	16,325	18,400	20,250	60.7	2.2
WIS 26 – WIS 49	12,600	14,825	16,725	18,450	46.4	1.7

3.1.3 Operational Issues

Analyses were performed to determine the long-term function of US 151 in its existing configuration. All traffic capacity and operational analyses were performed using HCS Plus Software and the 2000 Highway Capacity Manual methodology in accordance with WisDOT standards as indicated in the FDM, section 11-5-3. A level of service (LOS) was determined for each segment from the analysis. LOS is a letter grade designating the quality of operations or extent of delay, where A is the best and F is the worst. According to the FDM, an LOS of C is acceptable for a Connections 2030 backbone route like US 151.

LOS evaluations were determined using the traffic projections shown in Table 2. All segments were evaluated based on their present configuration and access conditions. The analysis indicates that US 151 is operating at an acceptable LOS and is anticipated to continue to do so. Table 3 shows that in 2008 US 151 was operating at LOS A on most segments and LOS B on four segments. All segments are anticipated to retain LOS A or B without any changes to the existing facility.

Table 3. Current and Future Level of Service (LOS)

Segment	2008	2015	2025	2035
WIS 73 – County S	B	B	B	B
County S – County D	B	B	B	B
County D – County G	A	B	B	B
County G – WIS 33	A	B	B	B
WIS 33 – Industrial Drive	B	B	B	B
Industrial Drive – County B	B	B	B	B
County B – County A	A	B	B	B
County A – County C	A	B	B	B
County C – County M	A	A	B	B
County M – WIS 26	A	A	A	B
WIS 26 – WIS 49	A	A	A	A

As traffic volumes continue to increase, the length and frequency of gaps in US 151 traffic will be further decreased, making crossing maneuvers of US 151 more difficult. This is especially true for the owners of agricultural property who need to cross the highway to access their farmland. This is sometimes done with slow moving farm equipment pulling various forms of machinery. Feedback from area landowners identified a relatively large number of property owners who use this type of crossover maneuver. Those who do not drive directly across the highway often make left or right turns directly onto US 151 at low speeds, also creating potential safety concerns.

A factor affecting the operations of a full freeway facility is the spacing of interchanges. For the segments along the corridor that currently function as freeway facilities, existing interchanges are present that provide varying types of movements. The only area where spacing could be an issue is around the city of Beaver Dam, where five full or partial interchanges exist. The closest spacing between adjacent interchanges is between County D and County G, which are approximately 1 mile apart, and Industrial Drive and County B, which are slightly less than 1 mile apart. Traffic operations do not seem to be affected due to potential conflicts from traffic entering and exiting US 151 at these locations. With the exception of the County D interchange, these interchanges have been reconstructed within the last 15 years and ramp tapers and lengths should be adequate. The County D interchange is expected to be reconstructed to current standards in 2012.

Hourly volumes have not been analyzed as part of this study; however, traffic levels likely increase during the morning and evening peak periods. But those fluctuations are not near the level of rush hour volumes that exist in more highly populated urban environments and are not an issue at this time. Periods that do experience drastic volume increases along this corridor are before and after Green Bay Packer and Wisconsin Badger football games. Those typically occur on Saturdays and Sundays from September through December.

3.1.4 Safety Concerns

As part of this study, a crash analysis was completed that investigated crashes occurring between the years 2002 and 2006. The corridor was analyzed in segments that distinguish between the rural expressway portions and the bypass segments around the cities of Columbus, Beaver Dam, and Waupun. This study revealed that across the entire corridor, crash and injury rates typically exceeded average rates for similar types of facilities across the state. The study also indicated that most of the accidents occurred in the rural expressway segments. The crash rates for the bypass segments were found to be typically lower than statewide rates for similar facilities. As expected, deer and weather were factors in a large portion of the crashes that occurred along the corridor. Of the total number of crashes, 204 (36%) involved collisions with deer.

Table 4 below provides a summary of the data and the following Figures 2, 3, 4, and 5 illustrate the crash locations throughout the corridor and associated rates.

Table 4. US 151 Segment Crash Statistics

Segment Description	Number of Crashes*	Crash Rate* (per 100 MVM)	Number of Injury Crashes*	Injury Crash Rate* (per 100 MVM)	Number of Fatalities*	Fatality Crash Rate* (per 100 MVM)
Entire Corridor**	570/366	77/50	137/133	19/18	5/4	0.7/0.5
Southern Expressway Segment	241/149	88/54	53/51	19/19	3/3	1.1/1.1
Beaver Dam Bypass Segment	103/88	55/47	35/35	19/19	0/0	0.0/0.0
Northern Expressway Segment	157/80	87/44	33/32	18/18	1/0	0.6/0.0
Waupun Bypass Segment	67/48	70/50	15/14	16/15	1/1	1.1/1.1
Statewide Averages	**-**	***76/56***	**-**	***18/17***	**-**	***0.5/0.5***

Note: Crash rates at or above statewide averages are shaded.

*Deer/non-deer.
**Two crashes occurred on US 151 within the project limits at undetermined locations.

Figure 2. Crash Data (Columbus to Beaver Dam)

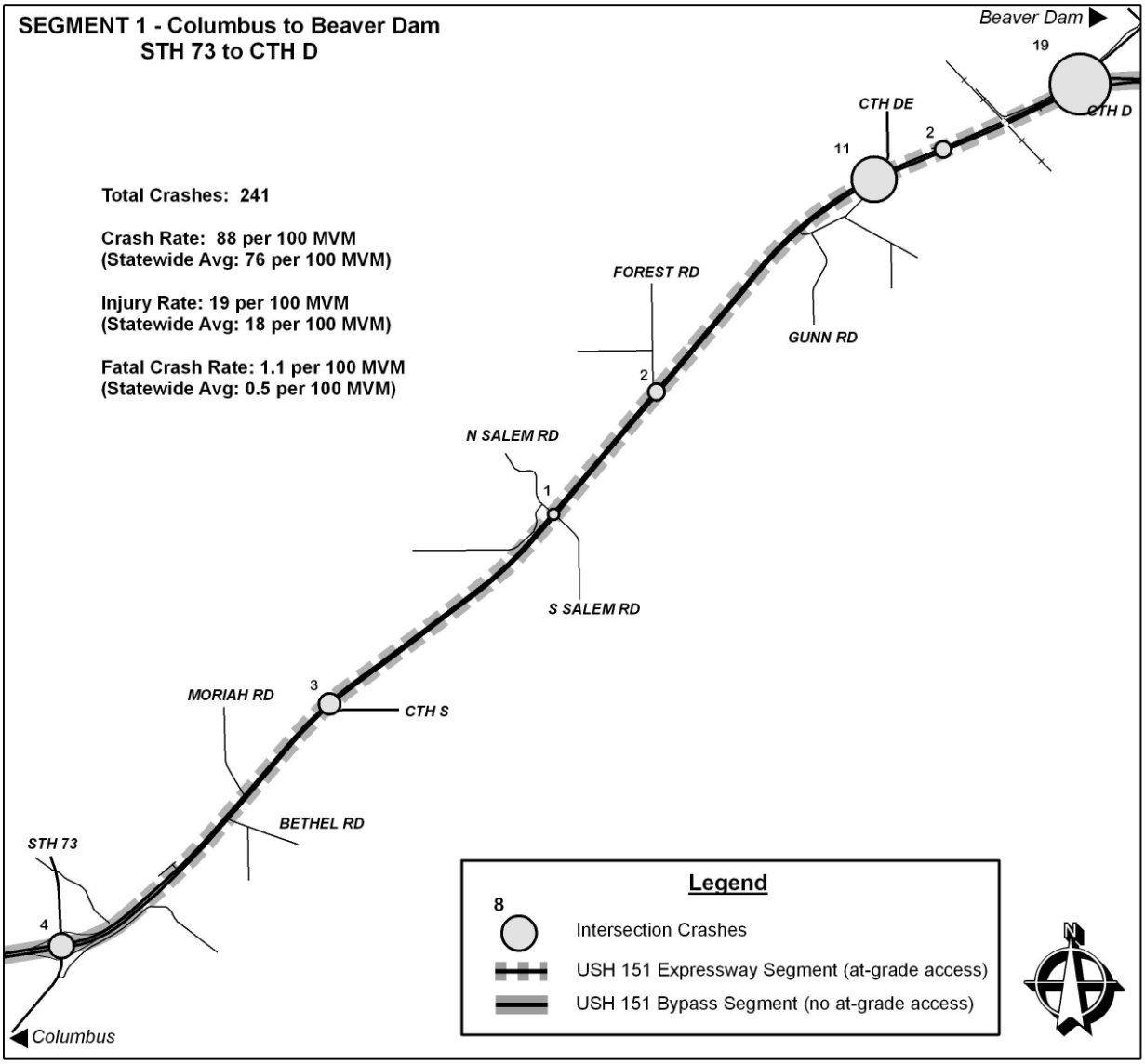


Figure 3. Crash Data (Beaver Dam Bypass)

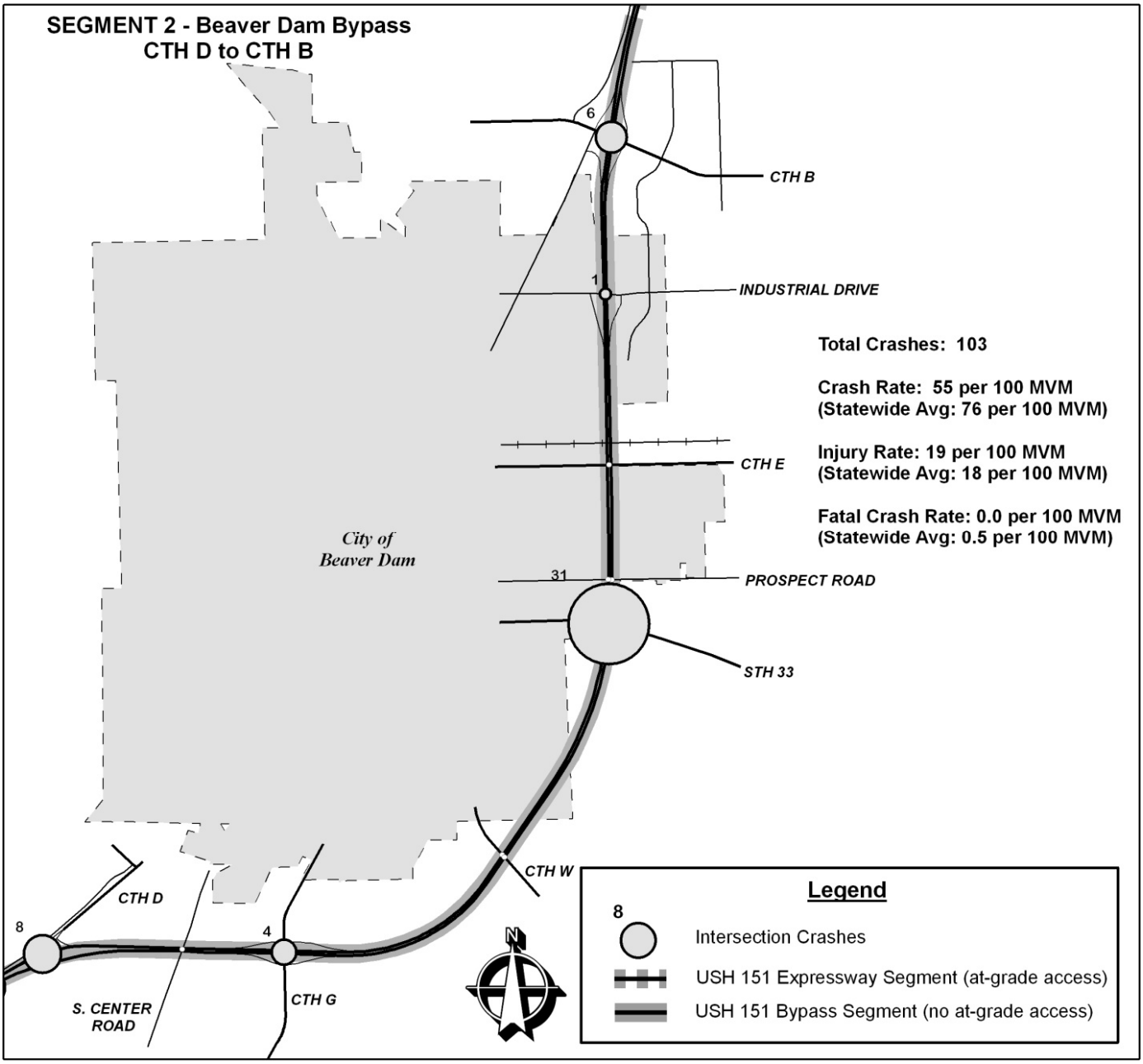


Figure 4. Crash Data (Beaver Dam to Waupun)

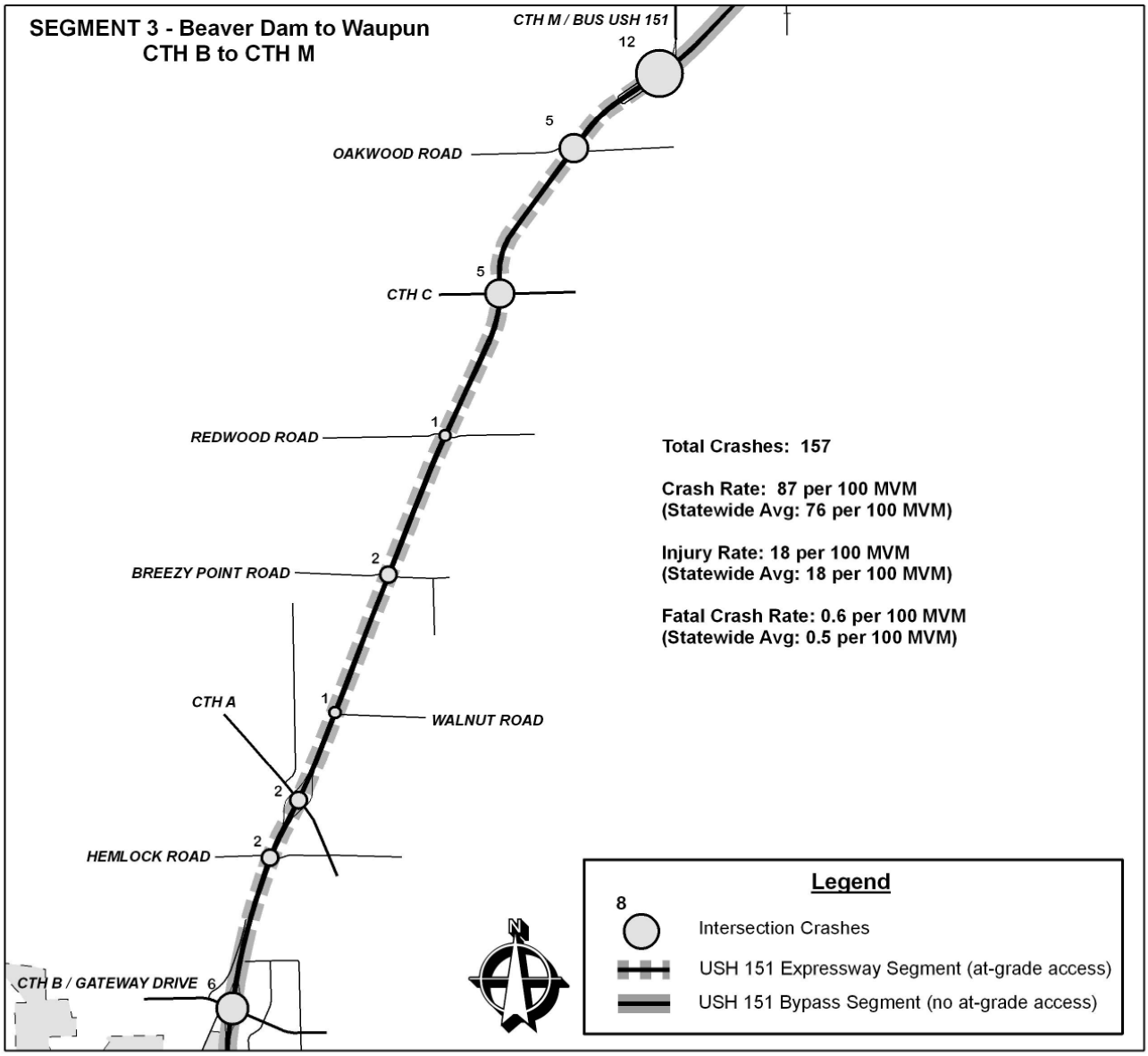
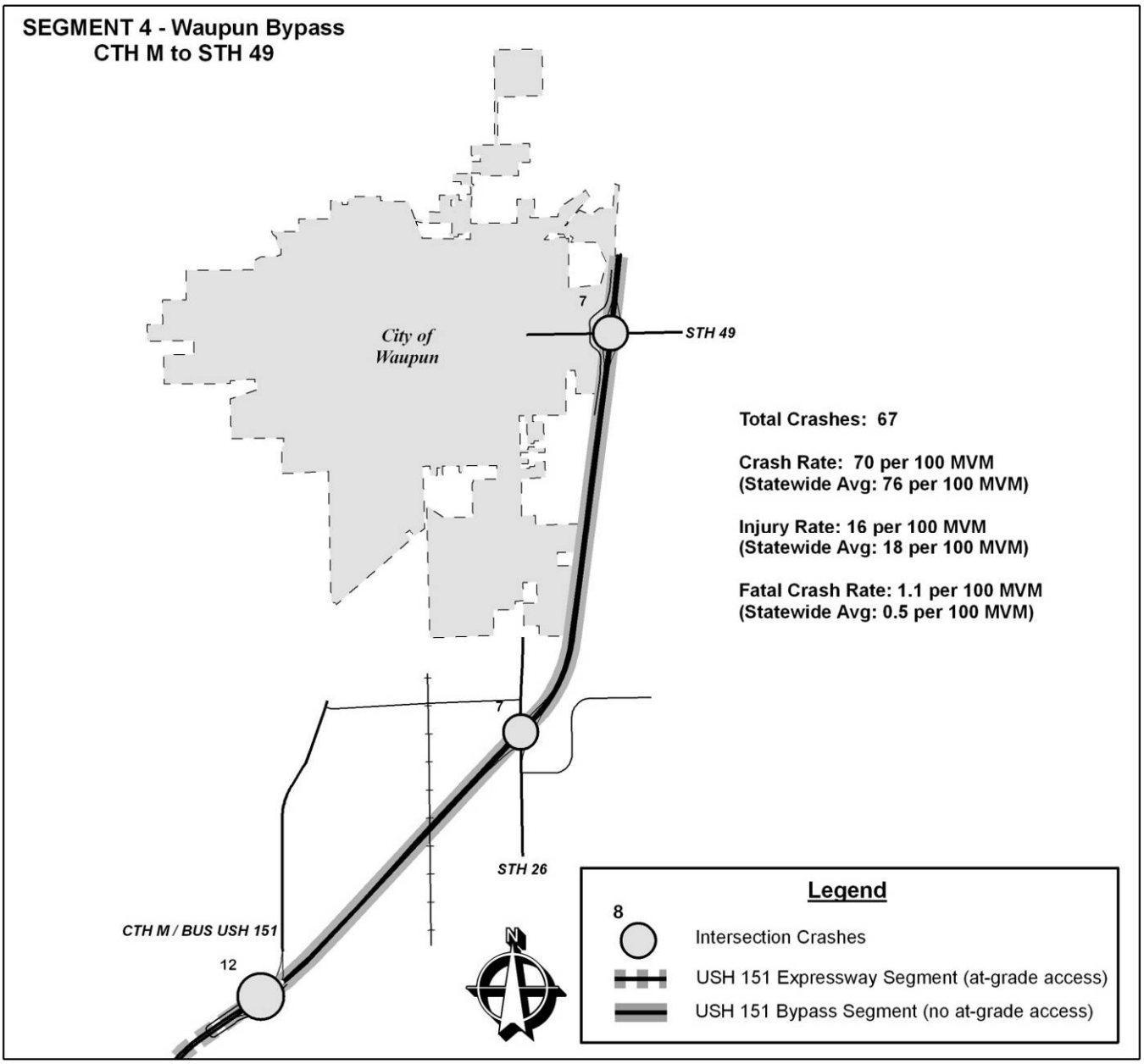


Figure 5. Crash Data (Waupun Bypass)



One of the most significant concerns regarding safety is the crashes that occur at intersection locations. The intersection crash rates provided in Table 5 range from 0.03 MEV (million entering vehicles) and 0.96 MEV. These are well below the typical rate threshold of 1.5 MEV, in which further evaluation is recommended. However, the crash rates aren't the only criteria that should be analyzed. The relatively high speeds of expressway facilities combined with numerous at-grade intersections and private access points increase the potential for more severe crashes and fatalities, even if the total number of crashes is not significant.

Table 5. US 151 Intersection Crashes

Intersection	Total Crashes	Estimated Entering Volumes	Intersection Crash Rate	Severity
WIS 73 (interchange)	4	5,150*	0.43	50%
County S	3	17,500	0.09	100%
Salem Road	1	17,000	0.03	0%
Forest Road	2	17,000	0.06	0%
County DE/Jackson Road	11	17,000	0.35	55%
Beaverland Parkway	2	17,000	0.06	0%
Iron Road/Hammer Road	11	17,200	0.35	45%
County D (interchange)	8	19,300	0.23	25%
County G (interchange)	4	4,970*	0.44	0%
WIS 33 (interchange)	31	17,675*	0.96	39%
Industrial Drive (interchange)	1	7,150*	0.08	100%
County B (interchange)	6	10,350*	0.32	33%
Hemlock Road	2	15,600	0.07	50%
County A (interchange)	2	5,070*	0.22	50%
Walnut Road	1	15,600	0.04	0%
Breezy Point Road	2	15,600	0.07	50%
Redwood Road	1	15,600	0.04	100%
County C	5	15,900	0.17	20%
Oakwood Road	5	14,900	0.18	40%
County M (interchange)	12	15,850	0.41	25%
WIS 26 (interchange)	7	5,000*	0.77	14%
WIS 49 (interchange)	7	15,500*	0.25	57%

*Only includes ramp and intersecting highway entering volumes.

Over half of the intersections evaluated (62%) experienced significant crash severity (more than 30% of crashes at the intersection resulting in injury). The highest concentration was at the interchanges with County D, WIS 33, and County M. Many of those occurred at the ramp terminals. The County D interchange is a somewhat unusual configuration and will be replaced in 2012 with a full diamond interchange. In addition, the median crossover that existed there was removed during a rehabilitation project in 2008. That crossover was used by motorists as a method of accessing northbound US 151 from the south side of Beaver Dam via a very short and unsafe weave movement.

As traffic volumes increase over time, it is anticipated that the at-grade access points, including driveways, local road connections, and field entrances, should experience increased crashes. Converting this corridor to a full freeway facility will not eliminate all crashes but will eliminate the concerns of the at-grade intersections and private access conflict points. (See Appendix B for entire Safety Analysis Report).

3.1.5 Growth & Land Use Trends

For most of the length of the US 151 study corridor, both the existing and future land use is identified as consisting primarily of agricultural land. With the exception of the area around Beaver Dam, there hasn't been a significant change in existing land use since the four-lane expansion was completed in the 1990s. (More detailed information on existing and future land use can be found in Section 4.11).

The communities of Columbus, Beaver Dam, and Waupun have experienced moderate growth but nothing like that experienced by similarly sized communities located closer to the Madison and Fox Valley metropolitan areas. The conversion of US 151 to four lanes may have had an effect on the populations along this corridor. Larger increases likely occurred in the 1990s, when the four-lane expansion was completed. The new facility reduced the commute time to the Madison area, increasing the appeal of living in the Dodge County area, where housing costs are much less. The projections into the near future indicate that a trend of moderate population growth is likely throughout the study area, as shown in Table 7 in Section 4.

The major area of development adjacent to the US 151 corridor is around the city of Beaver Dam. Significant development has occurred between the crossing of County E and the area just north of the County B interchange. The amount of development in this area led to the addition of two new interchange ramps at the interchange with County B in the early 2000s.

3.1.6 Corridor Preservation

WisDOT has constructed numerous facilities in the past that are very similar to this segment of US 151. Corridors that warranted the need for expansion were rebuilt as four-lane facilities, which typically involved expressway type facilities. These types of highways are easier to implement than full freeways due to the lower initial costs and fewer associated impacts to adjacent properties. History has shown that as traffic volumes increase, the need to preserve the corridor for future conversion to a freeway has become increasingly important. If these facilities are not managed, development will occur that may not be consistent with the future use of the highway. Safety will be compromised and the capacity will be affected.

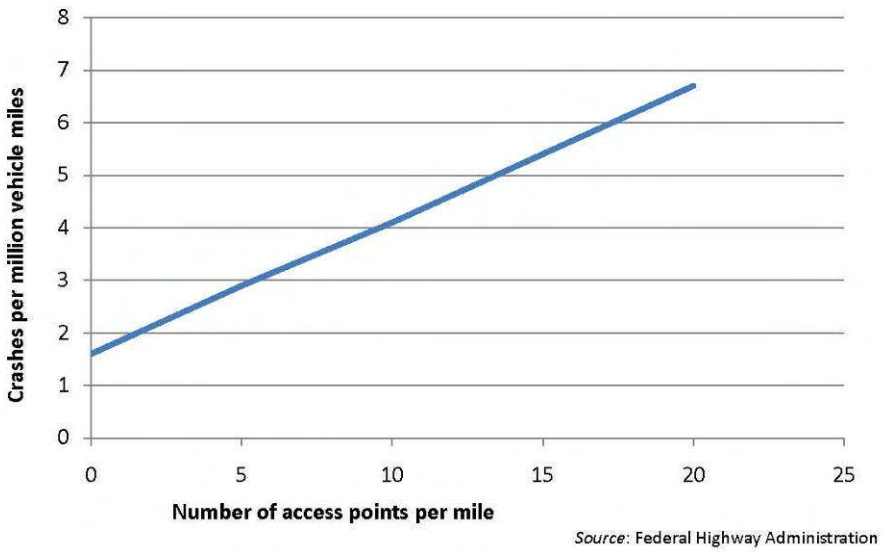
US 151 not only acts as a route used by local motorists but is also a major arterial for regional traffic in the state. Maintaining mobility has to be weighed against the local use of the everyday commuters and area landowners. Therefore, proper access management controls need to be incorporated to ensure the preservation of the corridor and allow for controlled development meeting the needs of the area communities.

3.1.7 Access Control

When US 151 was constructed as a two-lane roadway in the 1960s, access control was implemented to limit the number of private access points for adjacent property owners. As part of the four-lane expansion in the 1990s, access locations were again analyzed and further restrictions implemented to the extent possible. The existing corridor contains numerous driveways, commercial entrances, and agricultural entrances to meet the needs of existing property owners. These points of access, however, are not consistent with conversion to a full freeway facility with limited access. The southernmost segment of the study area from WIS 73 to County D has the highest number and greatest density of access points, which is due to the expressway character of this segment and the predominance of established agricultural operations in the area.

One goal of this study is to develop a long-term access plan to accommodate future use and area transportation needs. Access management involves planning and management of the number and location of driveway connections, field entrances, and public roadway intersections to help maintain safe, efficient movement of traffic. It also helps to prevent the roadway from becoming too congested while still providing adequate access to adjacent lands. While growth and development are usually beneficial for area economies, they can result in too many access points located too close together if not properly managed. As a result, traffic congestion increases, conflicts between land uses and highway traffic grow, crashes increase, property owners become frustrated, and property values may fall as some owners move away. Figure 5 illustrates the relationship between crash rates and the number of access points per mile of rural expressways.

Figure 6. Crash Rate versus Roadway Access Points for Rural Expressways



Access management can be used to help reduce or better manage congestion and delay problems. Successful access management can also increase the capacity of the existing facility, thereby lessening the need for highway capacity expansion. According to WisDOT FDM section 7-40-1, Wisconsin State Statute 84.295 authorizes official mapping and access control of freeways and expressways "to more adequately serve the present and anticipated future needs of highway travel." On an existing highway alignment, reasonable provision of access to abutting property shall be provided by service roads.

3.2 Study Objectives

3.2.1 Prepare Preliminary Freeway Concepts

A major goal of this study is to develop preliminary concepts for converting this facility to a freeway so that associated impacts can be identified. Conversion to a freeway will involve removal of all at-grade intersections, private access points, and railroad crossings. Access to and from US 151 will only be allowed at interchanges. This process will include the following steps:

- Collect existing plans and plats.
- Review local road routes.
- Identify existing at-grade intersections.
- Identify existing private access points.
- Collect environmental data.
- Obtain feedback from general public.
- Identify concerns from local, state, and federal agencies.
- Present alternatives for review and comment.

Coordination with local officials and the general public is important in identifying key issues, eliminating alternatives, and determining the next steps. Once feasible alternatives have been developed, the associated impacts will be assessed through the federal NEPA/WEPA process in the next phase of the study and an environmental document will be prepared.

3.2.2 Develop Corridor Preservation Map

The final phase of this study will involve preservation of the corridor through the use of the provisions of Wisconsin State Statute 84.295. This statute is a long-term planning tool that allows WisDOT to designate and preserve highway corridors. It also allows WisDOT to officially map future roadway improvements that would be required to implement the construction of a freeway. The map would identify the future freeway corridor by indicating the location of approximate right of way boundaries. WisDOT can then address the safety, operation, and land use needs before the existing system would begin to fail to serve its intended function.

The future roadway improvements map that is developed is beneficial to property owners and area communities. The location of the future freeway is identified, allowing them to plan for the future. Before improvements are made to these mapped areas, WisDOT will have the right to review the plans and make an assessment on whether to allow a landowner to proceed with the proposed improvements. The map will also help municipalities implement land use plans that are compatible with the future conversion to a freeway.

4.0 Existing Conditions & Trends

4.1 Existing Plans and Aerial Maps

Right of way plats and construction plans that were prepared during the 1990s for the reconstruction of this corridor were obtained. Those were used to identify the locations of allowable private access locations and were then compared to existing conditions.

WisDOT provided digital orthophotography that was obtained within the last three years, which was used to identify existing features and for meeting displays.

4.2 Utilities

Like most significant highway corridors, utility facilities are present to serve area residents. A list of utilities that have facilities within the study area was provided by the WisDOT Southwest Region and letters were sent on April 30, 2008, informing the utilities of the study and requesting information regarding future plans. The purpose of the contact was to determine if any utilities have plans to expand their existing facilities. Several companies did inquire about the project scope to facilitate their planning activities. The utilities that were contacted include the following:

- AT&T Wisconsin
- Adams-Columbia Electric Coop.
- Alliant Energy
- American Transmission Company
- CenturyTel/Teleview of Wisconsin
- Charter Communication
- Columbus Water and Light Dept.
- Elba Sanitary District 1
- Koch Pipeline Company
- McLeod USA Telco Services
- Waupun Utilities
- WE Energies

No significant utility facilities were identified as having planned improvements within the project corridor. Additional coordination with utility companies will be completed during subsequent phases of the study and eventually as part of the plan development process if construction projects are programmed at some point.

4.3 Railroads

The Union Pacific Railroad crosses US 151 just south of Beaver Dam under two bridges that carry US 151 traffic. This track carries approximately seven trains per day, which travel from 15 to 50 mph. There are several businesses just south of these tracks that currently access US 151 with at-grade intersections that would have this access removed when the road is converted to a freeway facility.

The removal of that access may require some type of crossing of the railroad to provide access for these businesses to a new interchange being proposed at County D to the north. Correspondence received from Union Pacific indicates its opposition to any new at-grade crossing of the line.

The Wisconsin & Southern Railroad has two at-grade crossings of US 151. One is located east of Beaver Dam and the other is just south of Waupun. Both crossings average three to seven trains per week at speeds of approximately 30 mph. These at-grade crossings would be removed with the conversion of US 151 to a freeway facility. A meeting was held on January 12, 2009, with railroad officials, who indicated that there are no plans to eliminate either of these lines and that the crossings need to be accommodated. (See Appendix C for correspondence.)

4.4 Agricultural Land

According to the Wisconsin Department of Natural Resources (DNR) Ecological Landscapes of Wisconsin, the US 151 study corridor is located in the Southeast Glacial Plains Landscape, which makes up a large portion of the non-coastal land area in southeast Wisconsin. This landscape is comprised of moraines and glacial till plain and the underlying soils are lime rich, typically overlain by silt loam. Historically, the land was rich with diverse vegetation and forest ecosystems, but current land use is primarily agricultural.

Approximately 85% of the land use surrounding the US 151 project corridor is agricultural. Agricultural use is mixed and consists of fallow field, open pasture, hay, corn, and soy bean fields, among others. Impacts to agricultural land will be a significant issue to address as part of this analysis.

4.5 Parklands

City Parks: City parks can be found scattered throughout Waupun, Beaver Dam, and Columbus. The majority of parks within city limits are outside of the project corridor. In Waupun, parks closest to the corridor include Tanner Park, McCune Park and Beach Area, Dodge Park, Wilcox Park, and Buwalda Park. In Beaver Dam, the closest parks to the study corridor include Swan City Park, Crystal Lake Park, Minnie's Meadow Park, and Vo-Tech Park. The southern project corridor limit is within Dodge County; therefore, no Columbus Parks are located within half a mile of the project corridor.

County Parks: There are five county parks in Dodge County, including Ledge Park, Harnischfeger Park, Astico Park, Derge Park, and Nitschke Mounds Park. None of the Dodge County parks are within half a mile of the US 151 centerline. The park closest to US 151 is Derge Park, which is located just north of Beaver Dam, approximately two miles west of US 151. The park covers approximately 13 acres along the shore of Beaver Dam Lake. The next closest county park, Nitschke Mounds Park, is located approximately two miles east of US 151 and is adjacent to the Wild Goose State Trail and Horicon Marsh. Nitschke Mounds Park is an archaeological site totaling approximately 54 acres and containing 39 effigy, conical, and linear mounds. According to the Dodge County Land Resources and Parks, Nitschke Mounds Park webpage, these mounds are

thought to have been constructed between 800 to 1100 by the Late Woodland Effigy Mound Culture.

State Parks and Natural Areas: Although state parks are abundant throughout Wisconsin, there are no state parks located within Dodge County or within half a mile of the project corridor.

4.6 Wildlife Areas

There are six state wildlife areas within Dodge County, including Horicon Marsh Wildlife Area, Mud Lake Wildlife Area, Shaw Marsh Wildlife Area, Sinnissippi Public Hunting Grounds, Theresa Marsh Wildlife Area, and Waterloo Wildlife Area. None of the state wildlife areas are located within half a mile of the study corridor. The closest wildlife areas include Horicon Marsh near Waupun and Shaw Marsh near Beaver Dam.

Horicon Marsh is located approximately one mile east of US 151, just east-southeast of Waupun, and designated as both a State Wildlife Area and a National Wildlife Refuge. This 32,000-acre inland freshwater marsh is the largest cattail marsh in the United States and, according to the DNR, is home to more than 290 species of birds, in addition to many other species of plants and animals. Within Horicon Marsh is a designated State Natural Area – Fourmile Island Rookery (No. 41), which contains one of the largest heron and egret rookeries in the Midwest.

A “National Waterfowl Production Area” is mapped in Section 25 (T13N-R14E) and Section 30 (T13N-R15E) on the 1995 Wisconsin Gazetteer, which was derived using U.S. Geological Survey 7.5-minute topographic maps. This area, which is located west of Horicon Marsh, is crossed by the US 151 project centerline. Communication with state, local, and federal regulators may be needed to determine the exact nature and extent of this area.

Shaw Marsh Wildlife Area is a 900-acre mixed wetland and prairie ecosystem located approximately one mile south of Beaver Dam and US 151. Recreation at Shaw Marsh Wildlife Area includes hunting, trapping, hiking, cross country skiing, bird watching, wildlife viewing, and geocaching.

4.7 Recreational Facilities

Wild Goose State Trail: Wild Goose State Trail is a multi-use trail located within an abandoned railroad corridor in Dodge County and Fond du Lac County. It runs north-south east of the US 151 study corridor, with the closest point being approximately one mile east of US 151 near Waupun. The main trail is 34 miles long and is owned by the DNR and maintained by the counties. Uses of the trail include year-round biking, walking, hiking, and jogging, as well as cross country skiing, snowmobiling, and ATV use in winter. There is a horse trail that runs parallel to the east of Wild Goose State Trail for 7.5 miles.

Snowmobile and ATV Trails: There are several club and county snowmobile trails running throughout Dodge County. County snowmobile trails cross US 151 four times between Columbus and Waupun at the following locations:

- South of County S
- Through highway culvert south of railroad crossing south of Beaver Dam
- Breezy Point Road
- South of WIS 26 just north of railroad crossing

There are also two trails that are not publicly funded that cross US 151. Those are located at County C and on the east side of Waupun.

The Dodge County ATV trail runs on Wild Goose State Trail from Highway 60 to Highway 49. The ATV trail is approximately one mile east of US 151 at its northern terminal near Waupun.

Bike Routes: In addition to the Wild Goose State Trail, biking takes place on many of the scenic rural roads within Dodge County. Oak Center Road in Waupun and Prospect Road in Beaver Dam are identified on the Wild Goose State Trail map as recommended bike routes to the state trail. A master bike trail plan for Dodge County is being developed by the Dodge County Land Resources Department, and further communication may be needed to determine the extent of any new bike trails in the area. The city of Waupun has expressed an interest in bike accommodations along WIS 26 and WIS 49 that cross US 151.

4.8 Aesthetics

The study area falls within relatively flat terrain with mainly open space and a few wooded areas. Drumlins typical of this part of the state are present throughout the corridor, especially south of Beaver Dam. The view from the corridor primarily includes agricultural lands, wetlands, and the communities of Columbus, Beaver Dam, and Waupun. The only significant woodlands are limited to an area just north of County C south of Waupun.

4.9 Environmental Data

4.9.1 Wetlands

Wetland areas are present throughout the length of the corridor. For this phase of the study, wetlands were identified from DNR maps. The next phase of the study will include obtaining additional mapping data and verifying the limits through the use of field reviews. The significant wetland areas within the project study limits include the following locations: the Calamus Creek area south of Beaver Dam; adjacent to Park Creek on the southeast side of Beaver Dam; just north of the railroad crossing on the east side of Beaver Dam; near the crossing of County C; and along both sides of US 151 just north of County M along Plum Creek.

4.9.2 Streams

Most of the stream crossings along US 151 are fairly small creeks, with the exception of the Beaver Dam River on the south side of Beaver Dam. Just south of the study area and west of the WIS 73 interchange, US 151 spans the Crawfish River along two bridges. A box culvert carries Calamus Creek under US 151 just north of Forest Road. As part of the reconstruction of US 151 in the 1990s, a bridge spanning the Beaver Dam River was replaced with a large box culvert on the south side of Beaver Dam. Park Creek crosses US 151 through culverts in two locations on the east side of Beaver Dam. Just north of County C is the crossing of Mill Creek through a large culvert under US 151. North of County M within a large wetland area is Plum Creek, which also flows under US 151 through a culvert.

4.9.3 Threatened & Endangered Species

According to the DNR Natural Heritage Inventory (NHI) online website (updated October 1, 2008), several threatened, endangered, special concern species, and natural communities are located within the general vicinity of the US 151 study corridor. Due to the sensitivity of these species and communities, their exact location cannot be determined without further regulatory communication. A NHI data request has been filed with the DNR; however, no additional information has been received to date. The NHI data derived from the website should be used as guidance during planning and is not intended to fulfill WEPA or NEPA guidelines.

Based on NHI data for Dodge County, two threatened, three endangered, and ten special concern species have been documented since 1896 within the general vicinity of the project corridor, with the most recent occurring in 2008 (bald eagle). The majority of occurrences are generalized to a location by township; however, terrestrial occurrences have been documented in Section 4 (T13N-R15E), Section 24 (T13N-R14E), and Section 12 (T12N-R14E). The terrestrial and aquatic occurrences within the vicinity of the project corridor are summarized in the table below. This information was derived off of the DNR NHI online database, and regulatory contact is needed to determine the exact location of these species.

Table 6. Threatened, Endangered, and Special Concern Species Potentially within Range of US 151 Corridor

Town Range	Scientific Name	Common Name	State Status*	Group Name	Occurrence	Year
T10N-R13E	*Lythrurus umbratilis*	Redfin shiner	THR	Fish	Aquatic	1974
T11N-R14E	*Anguilla rostrata*	American eel	SC/N	Fish	Aquatic	1979
T11N-R14E T12N-R14E	*Spermophilus franklinii*	Franklin's ground squirrel	SC/N	Mammal	Terrestrial	2005
T11N-R14E T12N-R14E	*Microtus ochrogaster*	Prairie vole	SC/N	Mammal	Terrestrial	1896
T12N-R14E	*Acris crepitans blanchardi*	Blanchard's cricket frog	END	Frog	Aquatic	1983
T13N-R14E	*Ammodramus henslowii*	Henslow's sparrow	THR	Bird	Terrestrial	1986
T13N-R15E	*Chlosyne gorgone*	Gorgone checker spot	SC/N	Butterfly	Terrestrial	1988
T13N-R15E	*Haliaeetus leucocephalus*	Bald eagle	SC/P	Bird	Aquatic	2008
T13N-R15E	*Liodessus cantralli*	Cantrall's bog beetle	SC/N	Beetle	Aquatic	1985
T13N-R15E	*Nycticorax nicticorax*	Black-crowned night heron	SC/M	Bird	Aquatic	2000
T13N-R15E	*Opsopoedus emiliae*	Pugnose minnow	SC/N	Fish	Aquatic	1971
T13N-R15E	*Pelecanus erythrorhynchos*	American white pelican	SC/M	Bird	Aquatic	2005
T13N-R15E	*Sorex hoyi*	Pygmy shrew	SC/N	Mammal	Terrestrial	1995
T13N-R15E	*Sterna forsteri*	Forster's tern	END	Bird	Aquatic	1986
T13N-R15E	*Tyto alba*	Barn owl	END	Bird	Terrestrial	1970

*END = Endangered. THR = Threatened. SC/N = Special Concern (No laws regulating use, possession, or harvesting). SC/N = Special Concern (Fully protected under Migratory Bird Act). SC/P = Special Concern (Fully protected).

4.9.4 Natural Communities

Six natural communities were recorded in the NHI database currently within or historically within townships and ranges crossed by the US 151 project corridor. The last dates of recorded occurrence of these communities range from 1978 (Southern Dry Mesic Forest and Shallow Hard Seepage Lake) to the most recent recording of Southern Mesic Forest in 1988. Descriptions of each of these communities are detailed below. For completeness and accuracy, the definitions of these communities have been copied verbatim from the DNR Endangered Resources Program Website. Consultation with federal, state, and local agencies may be necessary to determine the likelihood of these communities occurring within project site boundaries.

Southern Dry Mesic Forest (T10N-R13E; T12N-R14E, 1978)
Red oak is a common dominant tree of this upland forest community type. White oak, basswood, sugar and red maples, white ash, shagbark hickory, and black cherry are also important. The herbaceous understory flora is diverse and includes many species listed under southern dry forest plus jack-in-the-pulpit, enchanter's-nightshade, large-flowered bellwort, interrupted fern, lady fern, tick-trefoils, and hog peanut.

Shallow Hard Seepage Lake (T11N-R13E, 1978)
Inland lakes are naturally occurring bodies of standing water with a huge diversity in size, configuration, water chemistry, and biota. Their surface area can range from less than one acre to over 137,000 acres and their depth can range from less than a foot to more than 230 feet.

Seepage lakes – These lakes do not have an inlet or an outlet, and only occasionally overflow. As landlocked waterbodies, the principal source of water is precipitation or runoff, supplemented by groundwater from the immediate drainage area. Since seepage lakes commonly reflect groundwater levels and rainfall patterns, water levels may fluctuate seasonally. Seepage lakes are the most common lake type in Wisconsin.

Shrub Carr (T11N-R13E, 1979)
This wetland community is dominated by tall shrubs such as red-osier dogwood, silky dogwood, meadowsweet, and various willows. Canada bluejoint grass is often very common. Associates are similar to those found in alder thickets and tussock-type sedge meadows. This type occupies areas that are transitional between open wetlands such as wet prairie, calcareous fen, or southern sedge meadow, and forested wetlands such as floodplain forest or southern hardwood swamp. Shrub-carr can persist at a given site for a very long time if natural hydrologic cycles are maintained. This type often occurs in bands around lakes or ponds, on the margins of river floodplains, or, more extensively, in glacial lakebeds. It is common and widespread in southern Wisconsin but also occurs in the north. In the south, shrub-carr was often an integral part of prairie-savanna landscapes, though it also occurred in wetlands within more forested regions. In the north, the landscape matrix around the shrub-carr type was usually upland forest. Statewide, shrub-carr remains quite common, and has fared considerably better than many of the other native wetland types within its range.

Emergent Marsh (T13N-R14E, 1979)
These open, marsh, lake, riverine and estuarine communities with permanent standing water are dominated by robust emergent macrophytes, in pure stands of single species or in various mixtures. Dominants include cattails, bulrushes (particularly *Scirpus acutus*, *S. fluviatilis*, and *S. validus*), bur-reeds, giant reed, pickerel-weed, water-plantains, arrowheads, the larger species of spikerush (such as *Eleocharis smallii*), and wild rice.

Southern Mesic Forest (T13N-R14E, 1988)
This upland forest community occurs on rich, well-drained loamy soils, mostly on glacial till plains or loess-capped sites south of the tension zone. The dominant tree species is sugar maple, but basswood, and near Lake Michigan, American beech may be co-dominant. Many other trees are found in these forests, including those of the walnut family, ironwood, red oak, red maple, white ash, and slippery elm. The understory is typically open, or sometimes brushy with species of gooseberry on sites with a history of grazing, and supports fine spring ephemeral displays. Characteristic herbs are spring-beauty, trout-lilies, trilliums, violets, bloodroot, blue cohosh, mayapple, and Virginia waterleaf.

Wet Mesic Prairie (T13N-R15E, 1979)
This herbaceous grassland community is dominated by tall grasses, including big bluestem, Canada bluejoint grass, cordgrass, and Canada wild-rye. The forb component is diverse and includes azure aster, Eastern shooting-star, sawtooth sunflower, prairie blazing-star, prairie phlox, prairie coneflower, prairie docks, late and stiff goldenrods, and culver's-root.

4.9.5 Upland Habitat

Based on aerial photography, DNR mapping, and county land use mapping, there are no extensive woodlands within the US 151 study corridor. The nearest large forested parcels are located within county parks and state wildlife areas greater than half a mile from the US 151 project centerline. Small woodlots are scattered throughout the corridor and, in their entirety, comprise approximately 5% of the land use surrounding US 151.

4.9.6 Historical Buildings/Archaeological Resources

A preliminary review was completed at the Wisconsin State Historical Society for the study corridor and included the following databases:

- Archaeological Sites Inventory (ASI)
- Architecture and History Inventory (AHI)
- Bibliography of Archaeological Reports (BAR)

Thirteen buildings were identified from this process and are shown on the preliminary freeway concept layouts shown in Appendix K. In addition to those buildings, several cemeteries are present near the corridor, which are also identified on the concept layouts. All proposed roadway concepts were laid out to avoid affecting the cemeteries, which include the Welsh Calvanistic Cemetery along Maier Road at the south end of the study area; a cemetery in the Town of Calamus south of North Salem Road; and Highland Memorial Gardens adjacent to the intersection of US 151 and Redwood Road.

A more in-depth study will be completed as part of the next phase of the study to further identify historic buildings, as well as potentially significant archaeological sites. That study will be completed after alignment alternatives are further developed to minimize the area needed to be covered. Field reviews will be completed as part of that research.

4.9.7 Contaminated Materials

A report identifying potential environmentally hazardous sites was ordered from FirstSearch Technology Corporation (FirstSearch) and included all sites within a 0.25-mile radius of the corridor that were listed on state and federal environmental databases. The FirstSearch report identified 169 sites within the 0.25-mile search radius on either side of US 151 within the study limits. This included the following:

- 27 sites listed on the U.S. Environmental Protection Agency (EPA) Federal Engineering and Institutional Controls (Federal IC/EC) database
- 2 sites identified on the EPA Comprehensive Environmental Response Compensation and Liability Information System (NFRAP)
- 1 site on the EPA/NRC Emergency Response Notification System (ERNS) database
- 24 sites identified as having a hazardous materials release (State Spills 90)
- 12 individual sites identified on the DNR Solid Waste Landfills (SWL) list
- 14 sites identified as having leaking underground storage tank (LUST) incidents
- 83 individual sites containing registered aboveground/underground storage tanks
- 6 sites are listed on the DNR Listing of Emergency Repair Program sites

An overview map and three maps concentrated around Waupun, Beaver Dam, and Columbus are provided in Appendix D. Forty-seven of the sites identified by FirstSearch are not mapped, as their exact locations were unidentifiable; however, these sites were listed in the same zip code as the study corridor and are included in the FirstSearch report.

The searched databases include both current and past sites, sites that have undergone remediation and been closed by the appropriate regulatory agency, and sites that are currently open. Listed sites include those that have stored hazardous substances and/or petroleum products and have an existing release, a past release, or material threat of a release into the soil, groundwater, or surface water. However, the listing of a site on a particular database does not

always indicate a violation or a release at that site, and sites that have reported violations or releases do not necessarily pose an environmental hazard to the surrounding area. Likewise, sites that have undergone remediation or have not reported violations or releases may still pose a threat.

It should be noted that this assessment is not a Phase I Environmental Site Assessment and does not satisfy due diligence requirements for property transfers, or ASTM E 1527-00: Standard Practice for Environmental Site Assessments. Additional research of certain sites will be completed as part of the next phase of the study.

4.10 Area Demographics

4.10.1 Study Area

The selected study area includes all municipalities immediately adjacent to the US 151 corridor and those within 1 mile of the highway. Direct effects resulting from the future conversion of US 151 from an expressway to a freeway (such as acquisition of additional right of way, physical improvements, closure of intersections, etc.) could occur in these communities. Conversion of US 151 to a freeway could have potential effects on existing land uses, as well as future land uses. Conversely, future changes to land use, population, and other traffic generators within the study area may increase the need for safety improvements and enhanced traffic operations, both along and across the US 151 corridor. These types of changes may help define the location and nature of specific improvements.

This summary of land use, population, and traffic generators is not intended to be a detailed indirect and cumulative effects analysis of land use changes resulting from freeway conversion. It is intended to provide background information and create a general framework for identifying and evaluating such impacts in the future phases of the study.

4.10.2 Population

One indicator of future transportation and land use demand is population trend. The rate and location of both historic and projected population growth within the study area may provide some guidance in determining the most appropriate location and type of improvements within the US 151 corridor.

The Wisconsin Department of Administration (DOA) population growth projections through 2030 shown in Table 7 below are based on a number of factors, including past trends, prevailing life expectancy, rates of fertility, and net migration. Actual population change will be determined by a number of additional factors, including local land use, transportation, and economic development policies and developments. Dodge County is experiencing growth at a rate slightly higher than the state as a whole.

Table 7 indicates that the highest rates of growth will occur in some unincorporated towns located near cities and major highways intersecting US 151 (towns of Chester, Beaver Dam, Fountain Prairie) and in three incorporated

municipalities (cities of Beaver Dam, Columbus, and Waupun). Other towns that are more rural in nature are expected to grow at slower rates or even decline. These projections reflect a continued decline in agricultural related employment and are made more likely by local land use policies that discourage major residential, commercial, and industrial developments in areas that are currently agricultural. The data reveal that traffic demand is likely to continue to increase at and near existing major arterial intersections and interchanges within the US 151 corridor.

Some local communities, it should be noted, project somewhat different (typically higher) rates of population growth than those projected by the DOA. The communities apply these projections to their comprehensive plans This is sometimes done to ensure that the community's comprehensive plan takes into consideration the possibility that actual growth may be higher than historical trends suggest and allows the community to plan for that contingency. This is not to say that these locally adopted projections are more or less accurate than the projections found in Table 7. As with any population projection, both the local and DOA population projections depend on a number of variables. It is more useful to look at differences in population projections as a range of likely outcomes for planning purposes. The differences between local and DOA projections do not reveal significant discrepancies in either the total amount of projected growth or the distribution of that growth among the US 151 corridor communities.

Table 7. Study Area Population Projections

	Census 2000	2005 Estimate	2010 Projection	2015 Projection	2020 Projection	2025 Projection	2030 Projection	Numeric Change	% Change
T. Columbus	711	700	688	681	674	664	651	**-60**	**-8.4**
T. Fountain Prairie	810	845	866	893	919	942	960	**150**	**18.5**
C. Columbus*	4,479	4,766	4,958	5,181	5,404	5,605	5,771	**1,328**	**29.9**
T. Calamus	1,005	1,045	1,052	1,066	1,080	1,091	1,095	**90**	**9.0**
T. Elba	1,086	1,114	1,138	1,167	1,197	1,224	1,244	**158**	**14.5**
T. Beaver Dam	3,440	3,742	3,936	4,144	4,356	4,553	4,723	**1,283**	**37.3**
C. Beaver Dam	15,169	15,483	15,707	16,011	16,333	16,602	16,781	**1,612**	**10.6**
T. Burnett	919	936	938	947	954	960	960	**41**	**4.5**
T. Trenton	1,301	1,307	1,300	1,299	1,300	1,297	1,287	**-14**	**-1.1**
T. Chester	734	891	934	982	1,032	1,077	1,116	**382**	**52.0**
T. Waupun	1,385	1,414	1,414	1,421	1,427	1,430	1,424	**39**	**2.8**
C. Waupun**	10,944	10,753	10,800	10,901	11,009	11,086	11,105	**161**	**1.0**
Total Project Area	41,983	42,996	43,731	44,693	45,685	46,531	47,117	**5,134**	**12.2**

Source: Wisconsin Department of Administration 2008
*Includes Columbia and Dodge County Portions
**Includes Dodge County and Fond du Lac County Portions

4.10.3 Number of Households

Another key determinant of transportation demand for the US 151 corridor is the number, size, and location of households. Table 8 summarizes the projected number of new households through 2030 by study area community as calculated by the DOA. The number of households is expected to increase more rapidly than the population, owing to an expected decline in the number of individuals per household. The projected decline in household size is expected to result from a greater number of single adults of all ages, couples with no children (particularly older couples with grown children), and fewer children per household than in previous generations for households with children.

The increased number of households generally indicates that the average vehicular trips may increase for each study area community – though fewer trips associated with school age dependents will likely occur. However, the number of vehicular trips may not increase in proportion to the increase in the number of households for a number of reasons. One factor to consider is the increased share of households made up of elderly who no longer drive or drive less frequently. Another potentially significant consideration is the decline in the number of children per household, which may result in fewer school related trips for households with dependent children and young adults living with parents. Finally, for households in or very near cities and villages, there is a greater potential for non-motorized trips due to shorter distances between origins and destinations. For this reason, increases in the number of households in unincorporated towns will likely correspond more directly to more trips requiring use of or crossing of US 151 than a similar increase in cities and villages. Nevertheless, motorized transit will likely remain the dominant mode of transportation in both cities and towns in the study area.

Table 8. Household Projections

Municipality	Census 2000	2005 Estimate	2010 Projection	2015 Projection	2020 Projection	2025 Projection	2030 Projection	Numeric Change	Percent Change
T. Columbus	236	236	237	239	240	238	236	**0**	**0.0%**
T. Fountain Prairie	299	317	332	349	364	376	387	**88**	**29.4%**
C. Columbus*	1,843	2,000	2,123	2,259	2,388	2,501	2,597	**754**	**40.9%**
T. Calamus	379	403	414	428	440	449	455	**76**	**20.1%**
T. Elba	385	403	421	440	458	474	486	**101**	**26.2%**
T. Beaver Dam	1,301	1,447	1,555	1,669	1,776	1,878	1,968	**667**	**51.3%**
C. Beaver Dam	6,349	6,634	6,881	7,138	7,373	7,583	7,738	**1389**	**21.0%**
T. Burnett	330	343	352	362	369	376	380	**50**	**15.2%**
T. Trenton	456	468	476	485	492	496	497	**41**	**9.0%**
T. Chester	280	347	372	398	424	449	469	**189**	**67.5%**
T. Waupun	472	493	506	516	524	529	529	**57**	**12.1%**
C. Waupun**	3,351	3,395	3,507	3,616	3,710	3,788	3,839	**488**	**14.6%**
Total Project Area	15,681	16,486	17,176	17,899	18,558	19,137	19,581	**3,900**	**24.9%**

Source: Wisconsin Department of Administration 2008
*Includes Columbia and Dodge County Portions
**Includes Dodge County and Fond du Lac County Portions

4.10.4 Age

Table 9 indicates population by age group in 2000 for the most recent census year available. The working age individuals category generally correlates highly with trip generation of all types, especially work related trips. The percentage of individuals 18 years or younger corresponds to trips generated for school attendance. A high percentage of population 65 and older generally indicates less traffic generation per capita than other age groups. However, increasing life expectancies and working ages may offset a small portion of the general reduction in trip generation rates for senior age groups.

Table 9. Population by Age Category (2000)

Municipality	<18	% of Total	18-64	% of Total	65+	% of Total
T. Columbus	191	27%	426	60%	94	13%
T. Fountain Prairie	212	26%	509	63%	89	11%
C. Columbus*	1,165	26%	2,541	57%	773	17%
T. Calamus	233	23%	645	64%	127	13%
T. Elba	287	26%	699	64%	100	9%
T. Beaver Dam	932	27%	2,111	61%	397	12%
C. Beaver Dam	3,787	25%	8,881	59%	2,501	16%
T. Burnett	245	27%	568	62%	106	12%
T. Trenton	352	27%	810	62%	139	11%
T. Chester	195	20%	666	69%	99	10%
T. Waupun	401	29%	825	60%	159	11%
C. Waupun**	2,137	20%	7,143	67%	1,438	13%
Total Project Area	10,231	24%	25,824	62%	6,022	14%

Source: Wisconsin Department of Administration 2008
*Includes Columbia and Dodge County Portions
**Includes Dodge County and Fond du Lac County Portions

Projections for future age composition were not available for the individual communities in this study. However, the DOA has projected changes in population by age for the counties of Columbia, Dodge, and Fond du Lac through 2035. These projections are summarized in Table 10. These projections indicate that the percentage of working age people (ages 20-64) will increase steadily by 2035, which in turn indicates likely potential for increased trip generation. The number of people 19 years or younger will likely increase by a smaller amount, indicating a relatively smaller increase in trips related to child rearing and education. The largest increases by far will occur in the population 65 years or older, indicating that trip generation will likely increase less rapidly than overall population growth. This report assumes that these general shifts in age will be similar for the individual communities within the US 151 study area.

Table 10. Population Projections by Age Category (Area Counties)

County	Age Category	Estimated Population 2005	Projected Population 2035	Percent Change 2005-2035
Columbia County	**0-19**	14,220	15,008	**6%**
	20-64	33,122	37,228	**12%**
	65+	7,679	15,699	**104%**
Dodge County	**0-19**	22,530	22,972	**2%**
	20-64	54,223	57,608	**6%**
	65+	12,071	22,494	**86%**
Fond du Lac County	**0-19**	26,318	27621	**5%**
	20-64	59,879	61,481	**3%**
	65+	14,115	27,198	**93%**

Source: Wisconsin Department of Administration, 2008

4.10.5 Race and Ethnicity

Table 11 indicates that the study area communities are fairly homogenous, with non-Hispanic whites making up the vast majority of the population in each community. Furthermore, there are few existing or planned residential areas of any type near US 151 or connecting routes. Therefore, any proposed improvements are unlikely to have disproportionate effects (whether positive or negative) on any racial or ethnic group.

Table 11. Race and Ethnicity

Entity	White	Black/ African American	Native American/ Alaskan	Asian	Pacific Islander	Other	Two or More Races	Hispanic/ Latino (Any Race)
T. Columbus	98.5	0.1	0.1	0.3	0.0	0.1	0.8	1.0
T. Fountain Prairie	98.6	0.0	0.0	0.0	0.0	0.1	1.2	1.5
C. Columbus*	98.3	0.4	0.2	0.3	0.0	0.0	0.5	1.0
T. Calamus	97.7	0.7	0.9	0.0	0.0	0.3	0.4	1.0
T. Elba	98.5	0.6	0.5	0.0	0.0	0.3	0.1	1.6
T. Beaver Dam	96.5	0.1	0.4	0.4	0.0	1.9	0.7	3.9
C. Beaver Dam	96.0	0.4	0.3	0.6	0.0	1.6	1.0	4.2
T. Burnett	98.6	0.3	0.0	0.0	0.0	0.7	0.4	0.9
T. Trenton	98.3	0.6	0.4	0.2	0.0	0.0	0.5	0.9
T. Chester	87.9	9.4	1.0	0.1	0.0	0.0	0.9	3.5
T. Waupun	98.2	0.2	0.0	0.2	0.0	1.0	0.4	1.1
C. Waupun**	86.1	11.8	0.9	0.3	0.0	0.5	0.4	2.8
Columbia County	97.2	0.9	0.4	0.3	0.0	0.4	0.9	1.6
Dodge County	95.3	2.5	0.4	0.3	0.0	0.9	0.6	2.5
Fond du Lac Co.	96.2	0.9	0.4	0.9	0.0	0.8	0.8	2.0

Source: Wisconsin Department of Administration 2008
*Includes Columbia County and Dodge County Portions
**Includes Dodge County and Fond du Lac County Portions

4.10.6 Income and Poverty

Table 12 shows median household income and percentage of population below poverty in the study area communities and counties. Compared with Wisconsin and the United States, study area communities generally have fewer families below the poverty line and slightly higher median household incomes. Because there are few residential areas immediately adjacent to the US 151 corridor, relatively few households of any income level would be directly affected by a freeway conversion project. However, there may be significant local effects, particularly on households that currently rely on direct driveway access or other local roads that would be closed as the result of conversion of US 151 to a freeway. The data do not reveal how many of these particular households have incomes below the poverty line.

Table 12. Household Income and Poverty Rates

Entity	Median Household Income (1999 dollars)	Percent of Families Below Poverty Line
T. Columbus	$55,682	3.0
T. Fountain Prairie	$51,726	5.7
C. Columbus*	$42,667	3.7
T. Calamus	$50,000	7.8
T. Elba	$57,132	2.3
T. Beaver Dam	$49,964	4.5
C. Beaver Dam	$37,873	4.5
T. Burnett	$55,000	4.2
T. Trenton	$50,820	4.8
T. Chester	$49,688	7.0
T. Waupun	$55,071	9.0
C. Waupun**	$40,597	4.4
Columbia County	$45,064	3.3
Dodge County	$45,190	3.7
Fond du Lac County	$53,325	3.5

Source: 2000 Census
*Includes Columbia County and Dodge County Portions
**Includes Dodge County and Fond du Lac County Portions

4.11 Land Use Plans

4.11.1 Existing Land Uses

Knowledge of existing land use patterns near US 151 is essential to assessing the impacts of US 151 improvements on the local communities and their future development. Conversely, the existing and planned development near US 151 can provide insights into how best to design and configure US 151 to freeway standards.

Figures 7, 8, 9 are composite maps that summarize existing land use patterns within the study area communities. Much of the area is in agricultural or other open space use, with more intensive development primarily located in and near the three incorporated communities (cities of Columbus, Beaver Dam, and Waupun). The development pattern reflects the influence of existing US 151 and other major federal, state, and county highways on past decisions to locate more intensive forms of development, particularly commercial and industrial development. These land uses have been located to take advantage of the visibility and access provided by arterial corridors. Local land use policies and regulations have further encouraged the existing land use patterns by allowing intensive development near major interchanges and intersections while discouraging these new commercial, industrial, and intensive residential uses further from the major roadways.

Converting US 151 to a freeway would typically require less land or right of way than a new highway corridor. However, two general impacts of freeway conversion need to be addressed. The first are existing land uses that rely on direct driveway or local road access to US 151 along the corridor. Many of these are farm or farmstead driveways that were established long before US 151 traffic increased to current levels, but some are residential and commercial. A combination of new frontage roads, grade-separated crossings, and possible relocations may be necessary to retain the viability of existing activities. The second trend is recent and future growth of more intensive commercial, industrial, and residential uses that may require access to US 151 in the form of new or improved interchanges.

Local comprehensive plans and comments received from the public information meetings reveal an interest in several new or improved interchanges with US 151, including at County DE, County A, and County C. The Dodge County comprehensive plan calls for improved direct access from County DE to US 151; identifies County A as an important alternative truck route; and mentions County C as a possible new location for an interchange. The city of Beaver Dam comprehensive plan also mentions rerouting traffic traveling from west of the city southward to US 151 by exploring options for a new US 151 interchange at DE. Currently, much of that traffic enters the city to access US 151 at County G. Opinions at the public information meetings held to date indicate that some residents and users agree that it would be better for traffic, particularly truck traffic from a grain elevator west of Beaver Dam, to have more direct access to US 151.

Figure 7. Existing Land Use – Southern Study Area Communities

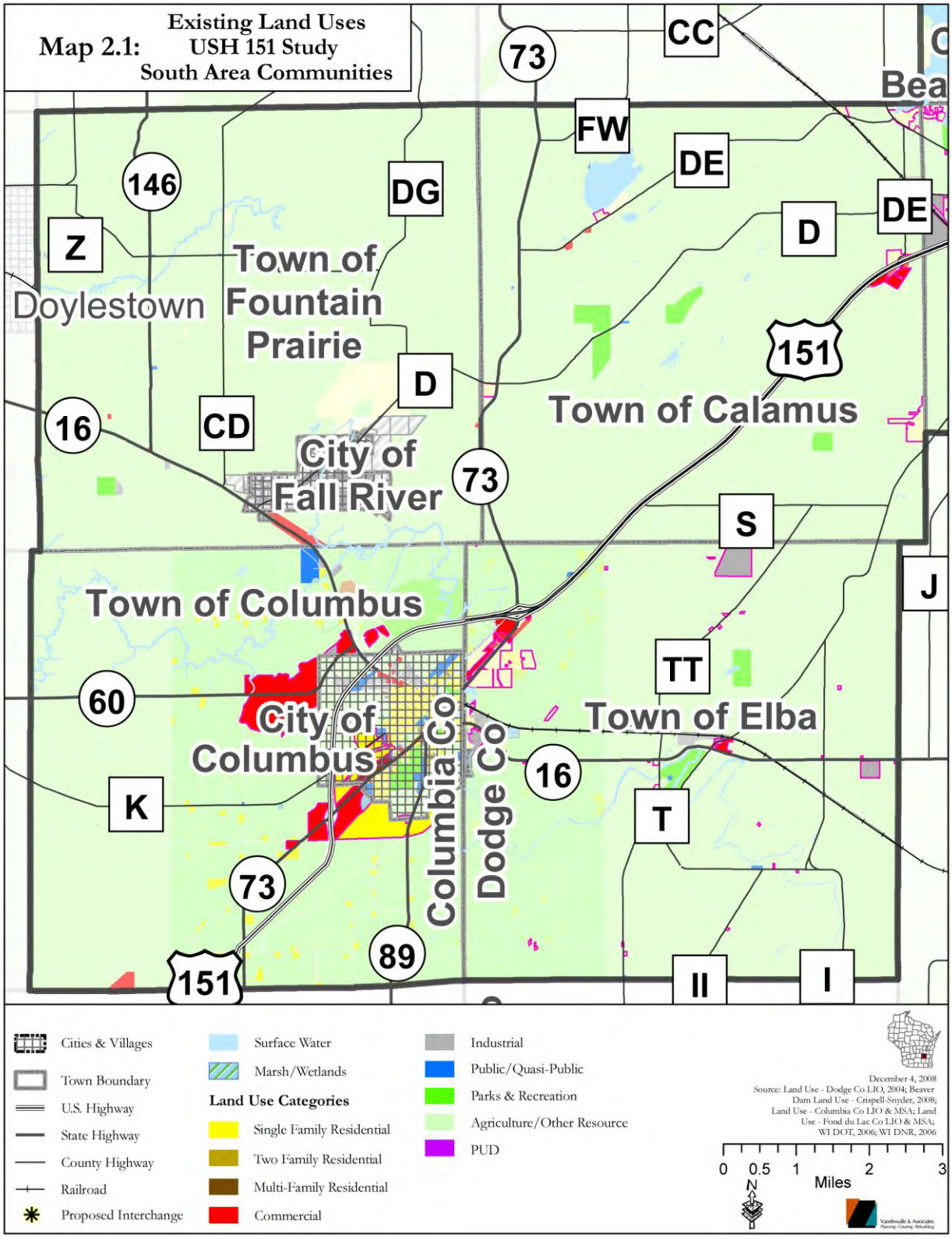


Figure 8. Existing Land Use – Central Study Area Communities

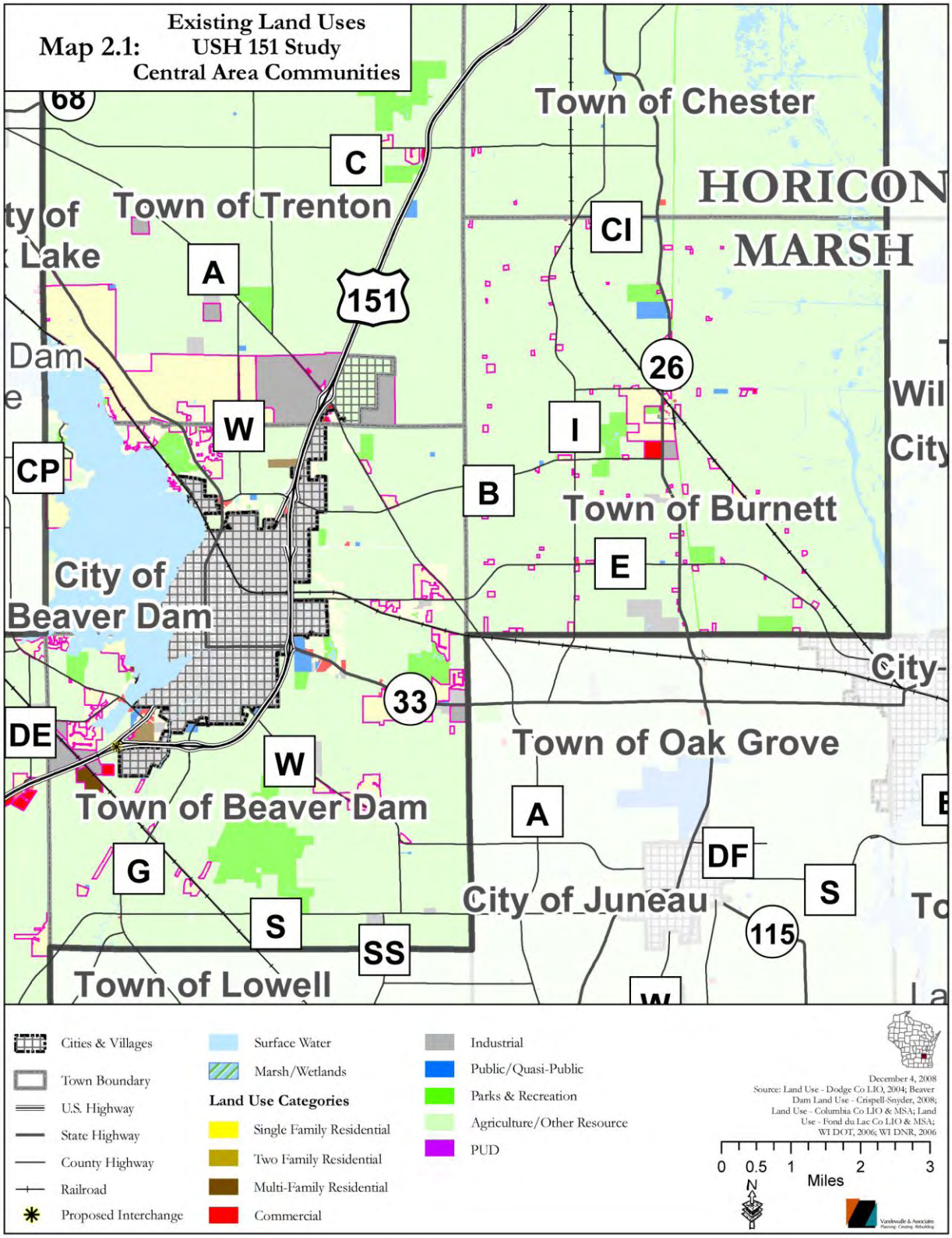
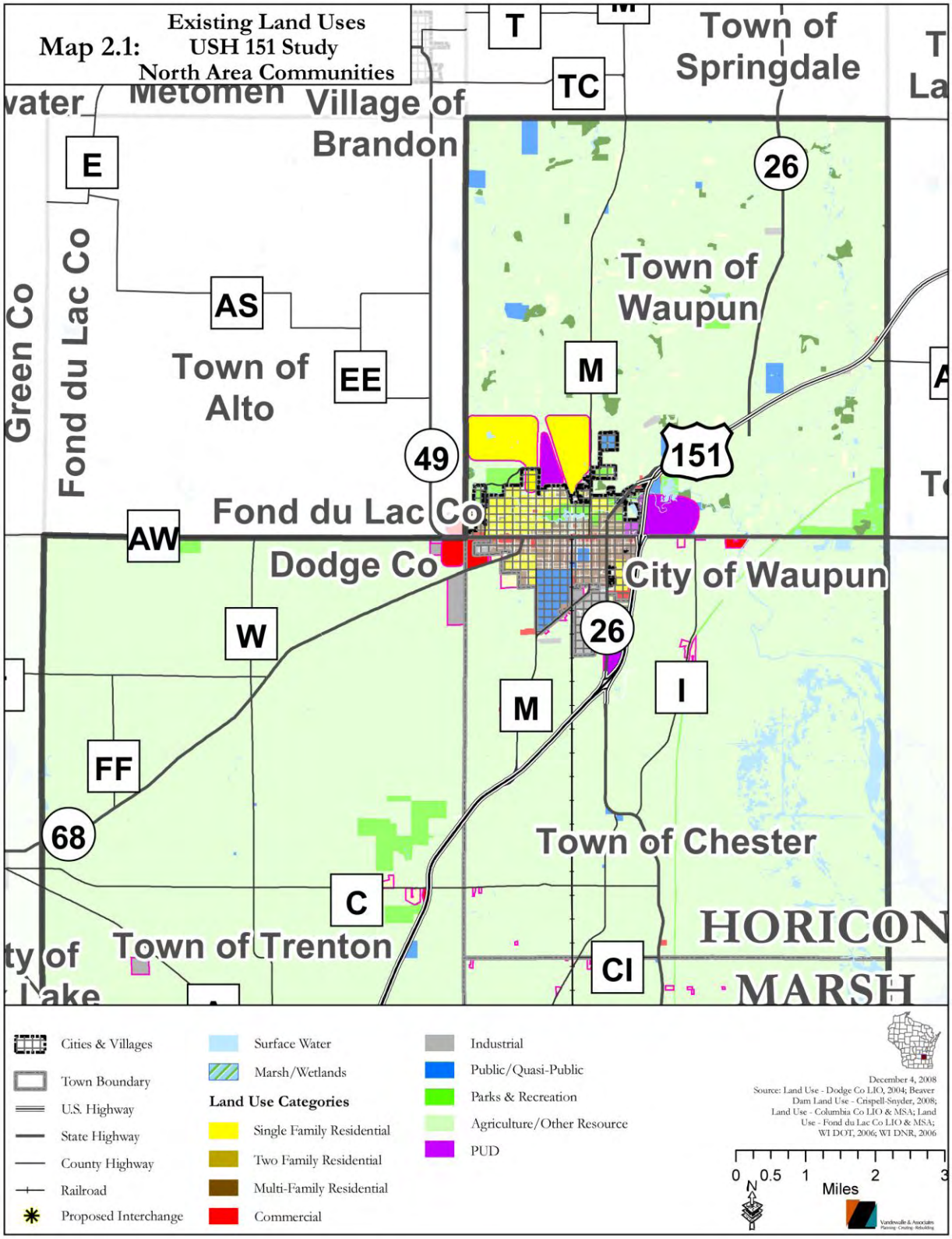


Figure 9. Existing Land Use – Northern Study Area Communities



4.11.2 Status of Local Land Use and Comprehensive Planning

A local government's adoption of plans (such as land use and transportation plans) and its ability to exercise land use regulations for implementation of local land use and transportation policies provides insight into the potential effects of future freeway conversion on a given community's land use. Such topics may also provide information that could assist in designing a project that will provide the most benefit to local communities. Local plans and regulations are also strong indicators of a jurisdiction's ability to manage any direct, indirect, and cumulative effects resulting from potential changes in the transportation system.

The state of Wisconsin requires that all local units of government (counties, towns, villages, and cities) create and adopt a comprehensive plan by 2010 that includes recommendations concerning agricultural, natural, and cultural resources; housing and neighborhood development; economic development; and community facilities, transportation, and land use. The law also requires that each plan addresses methods for its implementation, as well ways of improving intergovernmental cooperation. Each plan must forecast growth at least 20 years into the future and adopt policies that are intended to guide local decision making throughout the 20-year plan period or until amended. State statutes require that local government decisions be consistent with their adopted comprehensive plan beginning in 2010. Because of the consistency provision of the Wisconsin comprehensive ("smart growth") planning statute, local comprehensive plans serve as the best available guide for the future land use vision that could influence the US 151 corridor.

As of November 2008, most of the communities in the US 151 study area have adopted plans that comply with the Wisconsin comprehensive planning statute. In addition, of the three counties in which the study area communities reside, Columbia and Dodge have adopted plans. Fond du Lac County has yet to adopt a comprehensive plan. The status of plan adoption is summarized in Table 13. Major recommendations affecting the US 151 study area are summarized in Section 4.11.3.

Table 13. Status of Comprehensive Planning

Community	Source	Date of Adoption	Prepared by	Other Comments
Columbia County				
Columbia County	County website	2007	County	
City of Columbus	Hard copy	March 2003	MSA Professional Services	
Town of Columbus	County website	2007	County	
Town of Fountain Prairie	County website	2007	County	.
Dodge County				
Dodge County	County website	March 2006	County, Foth and Van Dyke, towns	County Plan includes: Juneau, Brownsville, Iron Ridge, Lomira, Neosho, Theresa; Towns: Ashippun, Burnett, Elba, Fox Lake, Herman, Hustisford, Leroy, Lomira, Portland, Rubicon, Shields, Trenton
City of Beaver Dam	City website	February 2009	Crispell Snyder	
City of Waupun	City website	November 2006	MSA	Plan includes towns of Alto, Chester, and Waupun; and city of Waupun
Town of Beaver Dam	County website	December 2002	Dodge County Planning Department	Developed cooperatively with Dodge County
Town of Calamus	Town Hall, CD	2007	Foth and Van Dyke	Developed independently. Dodge County to consider adopting as element of county comprehensive plan.
Town of Chester	Dodge County Website	July 2006	City, town of Waupun	Developed in cooperation with city of Waupun.
Town of Elba	Dodge County Website	November 2005	Dodge County, Foth and Van Dyke	Developed cooperatively with Dodge County.
Town of Trenton	Dodge County Website	November 2005	Dodge County, Foth and Van Dyke	Developed cooperatively with Dodge County.

Community	Source	Date of Adoption	Prepared by	Other Comments
Fond du Lac County				
Fond du Lac County	NA	NA	NA	To be developed.
Town of Waupun	City of Waupun website	November 2006	MSA	Plan includes towns of Alto, Chester, and Waupun; and city of Waupun.

4.11.3 Summary of Community Future Growth Areas and Comprehensive Plan Recommendations

Each of the locally developed comprehensive plans also includes projections of future land use demand and maps indicating the desired types and locations of future development. The comprehensive plan future land use recommendations are illustrated in Figures 10, 11, and 12. The implications of future growth and land use patterns on trip generation are analyzed and discussed in greater detail in Section 4.12.

Local community comprehensive plans need not be compatible with those of neighboring or overlapping jurisdictions. Furthermore, under Wisconsin enabling statutes, incorporated municipalities (cities and villages) may choose to exercise extraterritorial powers over town and county units of government for a specified radius around the municipality (1.5 miles for cities and villages with less than 10,000 people; 3 miles for cities and villages with 10,000 people or more). These powers include extraterritorial planning, subdivision authority, and, with cooperation of the affected town, extraterritorial zoning.

Therefore, the future growth area maps (Figures 10, 11, and 12) are composite maps of individual local comprehensive plans that give priority to the recommendations found in the cities of Columbus, Beaver Dam, and Waupun wherever recommendations for future growth differ.

Figure 10. Future Growth Areas – Southern Study Area Communities

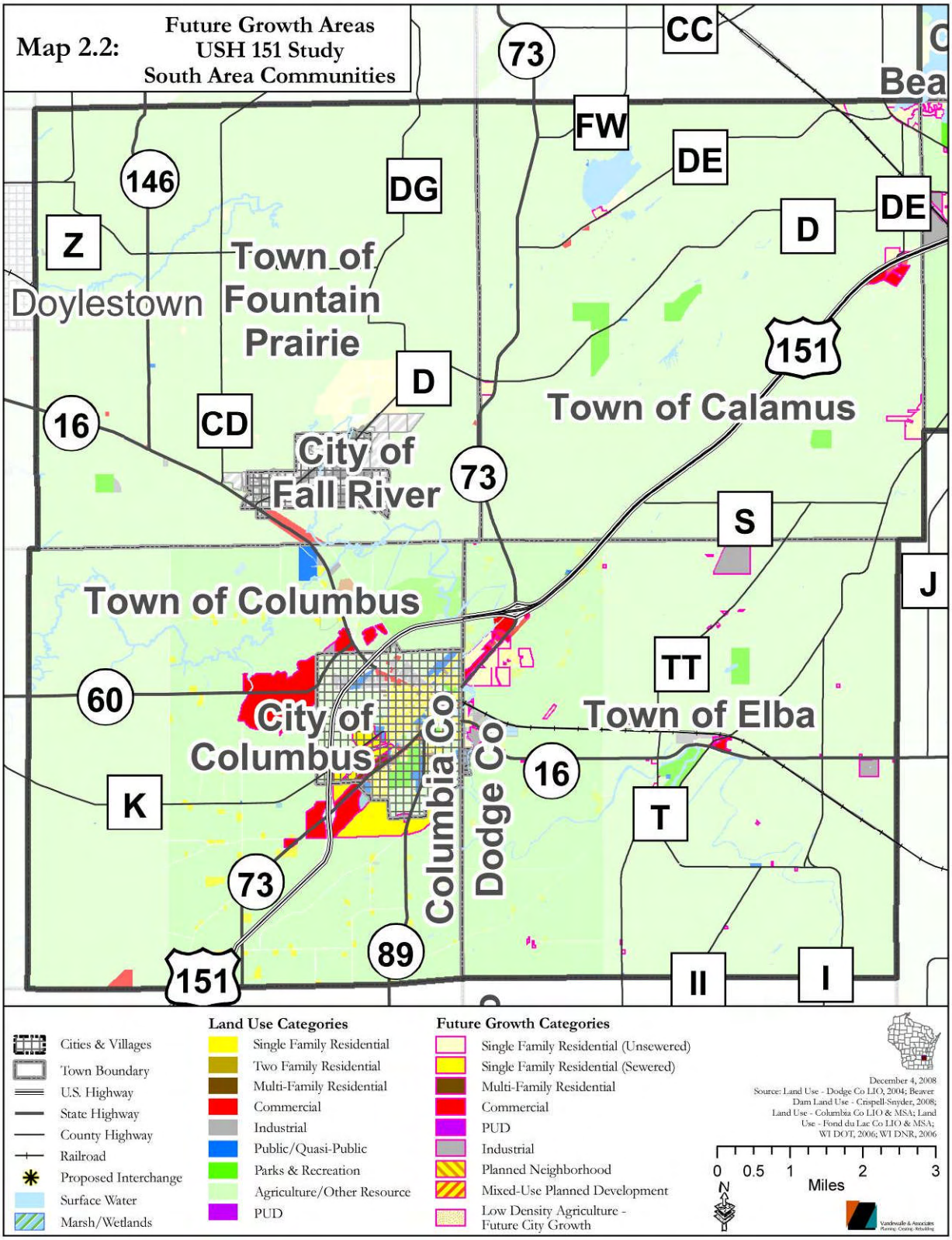


Figure 11. Future Growth Areas – Central Study Area Communities

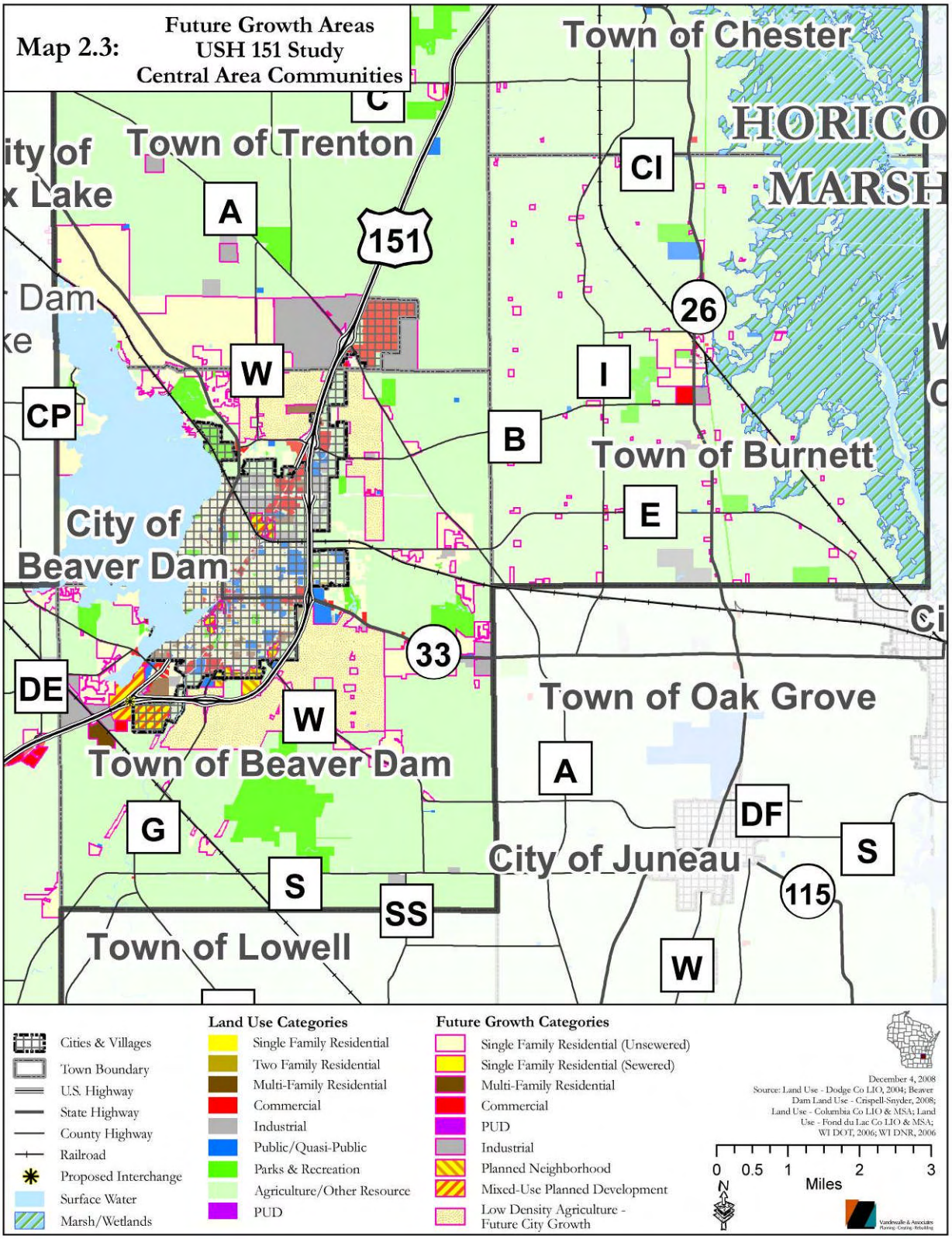
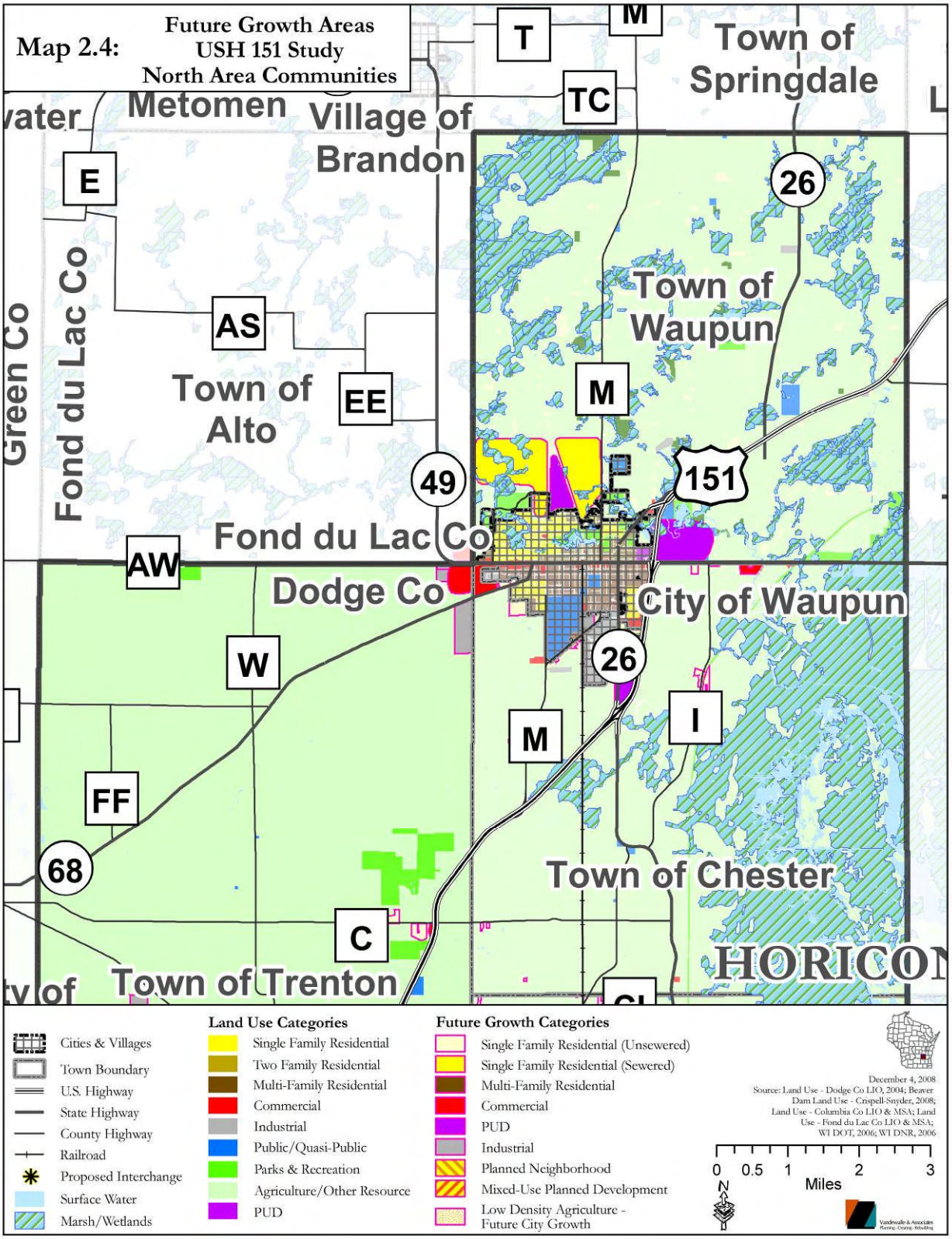


Figure 12. Future Growth Areas – Northern Study Area Communities



A comprehensive discussion of the major growth areas, policies, and recommendations for transportation issues is included in Appendix E. The following summarizes several of the key items identified from those plans that should be considered as part of the freeway conversion analysis.

- The city of Columbus is considering a bypass of WIS 16/60 around the north side of the city.

- The town of Calamus proposes to limit commercial development to the existing area adjacent to Klatt Road and Jackson Road south of US 151. Klatt Road currently provides an at-grade intersection with US 151 and connects to County DE via the intersection at US 151. Reconfiguration of US 151 to freeway standard will have a major effect on this area. The future industrial area will be limited to the County D/County DE intersection, located approximately one mile west of US 151. Truck traffic between this area and US 151 is a concern.

- The city of Beaver Dam recommends a new US 151 interchange at or near County DE southwest of the city to route truck and other traffic from the west side of Beaver Dam Lake away from the city. Currently, much of this traffic relies on the County D, County G, and WIS 33 interchanges to access US 151.

- Growth around the city of Beaver Dam will be permitted adjacent to the existing interchanges.

- The town of Beaver Dam's 2001 comprehensive plan identifies a number of areas for residential growth, including tracts of land east of US 151 between County E and WIS 33, between WIS 33 and Ollinger Road, and along County D southwest of the city. Additional low density residential growth would be allowed north/northwest of the city. Commercial development would be allowed at the north end of the town south of County A near US 151, and between WIS 33 and County W.

- The city of Waupun is considering working with WisDOT on a bypass of WIS 49. Its plan does not specify whether this bypass would be routed north of the city (and out of the study area) or south of the city. The city of Waupun would also like WisDOT to study the possibility of diverting WIS 26 to US 151. The city is looking into acquiring land from the Waupun Correctional Institute farm located in the southeast quadrant of the US 151/WIS 49 interchange. At the US 151/WIS 26 interchange, a commercial planned unit development is planned in the northeast quadrant and an industrial development planned in the northwest quadrant.

- Dodge County's plan addresses the following items:

    - Would allow for additional significant commercial development at County A and US 151. A Walmart Distribution Center is currently located there.
    - Emphasize preventing fragmentation of working farms by public improvements such as roads. This will be key consideration for freeway conversion plans, because US 151 currently provides direct field and driveway access to cultivated fields.
    - Emphasize limiting new driveways on arterial roads, which is consistent with goals of the US 151 freeway conversion project.
    - There is concern over truck traffic in vicinity of County D/County DE and the need for an alternative outlet onto US 151. Town and city of Beaver Dam residents wish to divert truck traffic away from city of Beaver Dam and provide direct access to US 151.
    - Low intensity residential infill is planned near County G and County W, with possible commercial development at County G.
    - Significant commercial and residential development would be allowed near the WIS 33 interchange. If developed, this area will add significantly to traffic demand.
    - The plan would allow enlargement of the existing commercial node at County B near US 151.
    - The plan recommends improvements to County A between WIS 26 and US 151, including the on- and off-ramps between County A and US 151 to serve as alternative north/south truck route to Waupun.
    - Dodge County also recommends working with WisDOT to investigate an interchange at County C.

4.11.4 Status of Local Plan Implementation

Two additional important indicators of potential land use development are (1) the degree to which the study area communities regulate land use via zoning and subdivision regulations and (2) what specific uses the various jurisdictions allow under their regulations. In order to implement and enforce the comprehensive plan, counties, villages, and cities are authorized by state statutes to enact zoning and subdivision regulations, as well as develop official maps to preserve areas necessary for public improvements. These same powers may be used to minimize or mitigate any negative impacts resulting from the US 151 freeway conversion.

Under Wisconsin Statutes, city and village plans and regulations take precedence over county and town plans and regulations, unless other power sharing arrangements (e.g., joint planning, joint zoning, boundary agreements) are made between the affected jurisdictions. Cities and villages choosing to exercise extraterritorial subdivision authority have even more authority over town and county land development. Therefore, the implementation of extraterritorial powers by the study area cities (Columbus, Beaver Dam, and Waupun) could follow the future growth pattern favored by the cities outside of their corporate limits.

Table 14. Summary of Local Land Use Regulations

Entity	Zoning Ordinance	Subdivision Regulations	Official Map	Extraterritorial Zoning Ordinance	Extraterritorial Subdivision Ordinance
Columbia County	Yes	Yes	No	NA	NA
City of Columbus	Yes	Yes	No	No	Yes
Town of Columbus	Yes*	Yes*	No	NA	NA
Town of Fountain Prairie	Yes*	Yes	No	NA	NA
Dodge County	Yes	Yes	No	NA	NA
City of Beaver Dam	Yes	Yes	Yes	No	Yes
Town of Elba	Yes*	Yes*	No	NA	NA
Town of Calamus	Yes*	Yes	No	NA	NA
Town of Beaver Dam			No	NA	NA
Town of Burnett	Yes*	Yes*	No	NA	NA
Town of Trenton	Yes*	Yes*	No	NA	NA
Town of Chester	Yes*	Yes	No	NA	NA
Fond du Lac County	No	Yes	No	NA	NA
Town of Waupun	Yes	No	No	NA	NA
City of Waupun	Yes	Yes	No	No	Yes

*Indicates that the municipality is regulated by the county's ordinance.

4.12 Traffic Generators

4.12.1 Existing Traffic Generators

Potential trip generators can be summarized into several categories: residences; employment centers that serve as the destination for work commutes; schools; freight (trucking); and other uses such as retail and service related activities.

In addition to trips related to these generators, roads also can serve cross-regional traffic, or trips in which both the origin and destination are outside of a given road segment but use a given roadway to complete trip.

As a “backbone” route in the federal and state highway system, the US 151 segment between Columbus and Waupun serves all of these trips. The following analysis attempts to identify key trip generators within the selected corridor study area and identify future growth areas that will likely affect – and potentially be affected by – conversion of US 151 to freeway standards. Some trip generators also depend on cross-corridor routes that may be affected by freeway conversion, and existing and projected cross-corridor traffic patterns should also be taken into account.

4.12.1.1 Work Related Commutes – US 151 Communities

Work related commuting accounts for a significant proportion of trips within the US 151 study area. All of the US 151 communities in the study area provide significant employment, with the highest concentrations in the incorporated municipalities of Columbus, Beaver Dam, and Waupun.

Table 15 shows the preferred mode of travel and median length (in minutes) of work related commutes at the time of the 2000 census, the most recent available source of such data.

Preferred modes of travel to work are useful in estimating future trip generation in the study area communities. Table 15 clearly indicates that commuting by auto was by far the dominant means of travel to work in 2000. Of auto commuters, car pooling represented a small percentage of these trips. Regular commuter transit for work purposes was almost nonexistent in the study area communities. The total of work generated trips relying on modes that require US 151 and other roads greatly exceeded work related trips by other modes. Recent environmentally conscious trends, the so called “Green Movement”, may cause minor shifts away from motorized commuting or at least solo occupant auto trips over the next 25 years. Other societal changes, such as changes in the energy and transportation sectors, may also serve to encourage more transit, walking, biking, and home occupations. However, distances between work and residence will likely continue to favor personalized motor vehicle commuting through 2035. Significant changes in the land use pattern that would facilitate alternative modes of travel are unlikely to occur by 2030 based on a review of comprehensive plans.

The mean travel time to work in 2000 indicated that most workers lived relatively close to their place of employment. This is consistent with a general preference (or necessity) to live within 30 minutes of one’s workplace, regardless of the mode of travel. This will likely remain the dominant pattern through 2030, but the mode of travel will be subject to the variables discussed in the preceding paragraph.

Table 15. Mode of Travel to Work (Workers 16 Years and Older) and Mean Travel Time to Work

Entity	Auto Single Occupant	Car Pool	Transit	Walk	Home	Other	Mean Travel Time to Work (minutes)
T. Columbus	268	22	3	9	64	0	21
T. Fountain Prairie	385	43	2	16	39	3	25
C. Columbus*	1,923	255	0	116	56	2	22
T. Calamus	438	61	0	19	49	2	22
T. Elba	482	65	0	10	68	1	24
T. Beaver Dam	1,671	174	6	38	89	0	21
C. Beaver Dam	6,013	931	118	247	136	61	17
T. Burnett	422	33	0	14	50	0	18
T. Trenton	543	46	0	30	133	8	19
T. Chester	328	19	2	17	26	0	20
T. Waupun	635	66	0	30	66	0	18
C. Waupun**	3,216	380	5	160	88	56	17
Total Project Area	**16,324**	**2,095**	**136**	**706**	**864**	**133**	**20**

Source: 2000 Census
* Includes Columbia County and Dodge County Portions
**Includes Dodge County and Fond du Lac County Portions

Because commuting distance (rather than commute time) can vary widely, depending on the mode of travel and the availability of roads, it is important to consider what the dominant commuting patterns are within the US 151 communities. To better analyze the specific origin and destination of work related trips, Table 16 shows the total amount of employment in most of the study area communities and also shows the number of workers commuting to these employment destinations from various locations. Some communities from outside of the study area (e.g., the cities of Sun Prairie and Madison to the south; the city of Fond du Lac to the north) were included to determine the number of trips that are being generated by commuters traveling the full length of the US 151 corridor segment for work purposes. Relatively few regular work commutes traverse the entire US 151 segment under consideration. The data reveals that the majority of workers are employed (relatively) locally – either within the same community as their job or in an adjacent community. Nevertheless, the data also indicates that there are significant numbers of workers commuting farther from their community of residence to work in more distant US 151 corridor communities.

Even though this data does not specifically reveal the relative importance of US 151 versus other roads linking area communities for work related trips, Table 16 does give some indication as to the importance of US 151 in facilitating work related trips and expanding commuting range (and by extension, the job/hiring opportunities) for workers and employers near US 151. This becomes more evident when contrasted with the relatively smaller number of workers crossing the US 151 study area from east to west for employment. (See Table 17 in next section).

Table 16. Work Related Trips between Select US 151 Communities (2000)

Select USH 151 communities

Communities listed in column on left are selected work destinations. Communities listed at top of columns are origin of workers.

		Place of Residence												
Work Place	Number of Employees	C. Fond du Lac	C. Waupun**	T. Waupun	T. Chester	T. Trenton	C. Beaver Dam	T. Beaver Dam	T. Calamus	T. Elba	C. Columbus *	T. Columbus	C. Sun Prairie	C. Madison
City of Fond du Lac					28	6	70	20	2	5	0	0	0	28
City of Waupun*	3630		1,941	23	105	80	208	27	5	1	0	0	7	0
Town of Waupun	245		73	115	2	0	3	0	0	0	0	0	0	0
Town of Chester	414	20	85	37	53	16	62	8	0	0	6	2	0	6
Town of Trenton	342	0	5	6	0	197	12	22	3	0	0	0	11	0
City of Beaver Dam	6683	19	267	50	41	181	3735	718	99	32	87	3	52	90
Town of Beaver Dam	1145	29	29	5	10	31	404	319	46	12	6	2	0	0
Town of Calamus	271	5	0	0	0	4	64	35	98	9	7	0	0	0
Town of Elba	242	0	6	0	0	0	33	17	4	122	26	6	0	0
City of Columbus **	2000	0	9	0	0	2	136	32	64	145	850	62	52	95
Town of Columbus	382	0	0	0	0	0	9	0	4	20	46	129	15	6
City of Sun Prairie		6	6	0	0	7	67	28	20	26				
City of Madison		23	52	0	6	15	250	81	48	107				

* Includes Populations in both Dodge and Fond du Lac Counties
** Includes Populations in both Columbus and Dodge Counties

= 20 - 99 employees
= 100 or more employees
= Work and Live in Same Community

= Study Area Community

Source: University of Wisconsin Cooperative Extension Center for Community and Economic Development
http://www.uwex.edu/CES/CCED/economies/communityindicators/Indicators_Links.cfm#workerflow

4.12.1.2 Work Related Commutes – Cross-corridor

Several state and county roadways in the US 151 study area play a vital role in carrying work related trips to and across US 151. This section looks at the potential impact of trip generators east and west of US 151 on its conversion to freeway standards and vice versa.

Many of the cross-corridor trips are local to the study area communities, and others are regional. Conversion of US 151 to a freeway could affect other state, county, and town roads that currently provide crossings of US 151. County and town roads in particular may require rerouting or new grade-separated crossings to serve their current function. In addition, as both regional and local traffic increases, improvements to existing cross-corridor access may be required and additional interchanges or crossings considered.

Owing to geography, settlement patterns, and the influence of the existing transportation network (including US 151), there are few arterial roadways traversing US 151 and relatively few employment centers within a convenient commute to the east or west of the US 151 study area communities.

The western part of Dodge County is largely oriented toward US 151 and the communities it connects. Consequently, these communities draw relatively few commuters from farther west than the communities of eastern Columbia County. The closest significant employment centers west and northwest of the study area communities are the cities of Portage and Wisconsin Dells. Although these areas serve as significant destinations for commuters from southeastern Wisconsin, they are relatively less important in terms of work related trips to and from US 151 communities and communities farther to the east. To the east, the Horicon Marsh occupies a large portion of central Dodge County and in some respects divides the county into several commuter sheds, with relatively few work commutes originating or ending east of Juneau or Horicon. The far eastern portion of Dodge County is largely rural, with commuting patterns that are oriented toward economic activity along US 41 and the employment centers it connects. To the southeast, the city of Watertown at the south end of the county is located along WIS 26 near I-94 and is more oriented to economic activity along that axis.

Table 17 shows general cross-corridor work flows. For example, of the city of Fox Lake's 479 reported jobs, 206 were drawn from communities in Columbia County or Dodge County that are west of the US 151 study area and therefore do not rely on crossing or traveling on US 151. An additional 150 workers lived in one of the US 151 study communities and may or may not use crossings of US 151 to reach their place of employment. Only 26 workers live in Dodge County communities east of the US 151 study area and therefore must cross US 151 to arrive at work. Workers from outside of the study area live outside both Columbia and Dodge counties. The data in Table 17 reveals that there are relatively few trips generated by workers living to either the east or west of the US 151

study area who must commute to the opposite side of the US 151 study area communities for employment. Even the number of workers within the study area communities that rely on employment to either the east or west of US 151 are markedly fewer than the number of workers who live and work on one side of US 151 or the other. Therefore, cross- corridor routes may be relatively less important for intercommunity work related trips than US 151 is to connecting the communities along the corridor (as revealed in Table 15).

However, it is important to remember that this data reveals nothing about the important local *intra-community* impacts of US 151 improvements on work related and other trips. For example, the data in Tables 15, 16, and 17 do not reveal the number of workers living and working within the same community that rely on US 151 or its crossings. This includes a number of farm dislocations and/or rerouting of driveway and local (town) road access to US 151 that freeway conversion may entail. Finally, even though cross-regional traffic to the east and west of the study area communities is relatively less pronounced, WIS 60, 16, 73, 33, and 26 and the various county highways serve important regional, as well as local, functions, especially with regard to truck based freight and tourist travel between southeast Wisconsin and the Wisconsin Dells area, northwest of the study area. As generators increase and trips to the east and west of US 151 grow, the importance of these routes is also likely to increase, even if not to the same extent or as rapidly as growth along the US 151 axis.

Table 17. Cross-Corridor Comparison of Work Related Trip Generation

Employment Centers West of US 151 Study Area (Select Communities)	Number of Workers	Employment Centers East of US 151 Study Area (Select Communities)	Number of Workers
City of Fox Lake	**479**	**Village of Mayville**	**3761**
Number of workers residing:		**Number of workers residing:**	
- east of US 151 study area	26	- east of US 151 study area	2926
- in US 151 study area	150	- in US 151 study area	529
- west of US 151 study area	206	- west of US 151 study area	68
- in other communities	97	- in other communities	238
Village of Randolph	**847**	**Village of Horicon**	**2627**
Number of workers residing:		**Number workers residing:**	
- east of US 151 study area	5	- east of US 151 study area	1,419
- in US 151 study area	110	- in US 151 study area	901
- west of US 151 study area	633	- west of US 151 study area	146
- other	99	- other	161
City of Fall River	**844**	**City of Juneau**	**1452**
Number of workers residing:		**Number of workers residing**:	
- east of US 151 study area	19	- east of US 151 study area	797
- in US 151 study area	217	- in of US 151 study area	590
- west of US 151 study area	451	- west of US 151 study area	37
- other	0	- other	28
		City of Watertown	**9229**
		Number of workers residing:	
		- east of US 151 study area	7,542
		- in US 151 study area	79
		- west of US 151 study area	0
		- other	1,608

Source: University of Wisconsin Cooperative Extension Center for Community and Economic Development

4.12.1.3 School/Education Related Trips and Other Traffic Generators

Transporting dependent children to/from schools and traffic generated by secondary (high school) students can be a significant generator of local traffic. The number of trips generated by such uses will depend on a number of factors, including school enrollment, number and distribution of households with students, the distribution of schools in relation to the households within a given school district, and availability of alternative modes of transportation (i.e., walking, bicycling, school busing, etc.).

The extent to which commuters rely on US 151, or crossing of US 151, to reach school destinations can be better understood by looking at the location of school districts and the schools within them in relation to US 151 and other roads intersecting the US 151 corridor. Most elementary and all public secondary school facilities are located within the three study area cities. The public school districts in the study area are centered around each of the three study area cities, limiting the potential radius of travel necessary for school generated trips. The distribution of schools in relation to school district boundaries and residential development indicates that reliance on US 151 for school generated trips will be relatively small and unlikely to increase. However, closure of town road access to US 151 associated with a freeway conversion could have significant localized impacts on school bus and individual commuting times unless adequate alternatives are provided.

Technical colleges, universities, and other institutions of higher learning are also significant generators of traffic but are not considered here, because they are generally considered and counted as work related trips.

Cross regional traffic or trips in which both the origin and destination are outside of the US 151 study area for purposes such as regional or state level tourism, freight, and other purposes have not been quantified in the report. As a state and federal “backbone” route, the use of US 151 is expected to increase through 2035.

4.12.2 Future Traffic Generators

4.12.2.1 Employment Growth

The location and size of future traffic generators will depend on a number of factors, including increases in population, the number and distribution of households, the number and distribution of jobs and other destinations within the commuter shed, and the available modes of transportation. While analyzing these factors both within the US 151 study area and the greater region connected by US 151 is important, this report concentrates on future generators within the US 151 study area communities. Projected increases in population and the number of households are found in Section 4.10.

Projections of local employment growth are not readily available at the community level, but Table 18 includes a projection of employment/job growth in the study area counties (Columbia, Dodge, Fond du Lac) through 2030.

Table 18. Projected Employment Totals – US 151 Study Area Counties

County	Projected Employment Totals (thousands)						
	2005	2010	2015	2020	2025	2030	% Change
Columbia	30.68	33.36	35.89	38.24	40.38	42.31	**37.9%**
Dodge	49.17	53.52	57.95	62.46	67.09	71.85	**46.1%**
Fond du Lac	60.90	64.58	68.34	72.20	76.18	80.31	**31.9%**

Source: Woods & Poole Economics Inc., 2006

To estimate the growth in local employment within the study area, this report assumes that the growth in study area employment increases proportionally to the surrounding counties. In 2005, total employment in the three counties that includes the study area was 140,750. The 2005 combined population of the study area communities totaled 18% of the combined population of the three counties. If the US 151 study area share of employment is reflective of its share of the population, total employment is 18% of the total, or 25,335. This value is in line with the 20,258 working age population at the time of the 2000 Census and may reflect job growth between 2000 and 2005.

The combined projected employment growth number in the three counties that encompass the study area communities is 53,720, or 38.16%. Assuming the study area share of the total employment of the three counties remains approximately 18%, it is estimated that employment growth in the study area will increase by 9,670 jobs for a total of 35,005 workers. As Table 15 indicates, 10% of this total will rely on motorized transit of some kind, barring an unlikely major shift in modes of commuting. It should be noted that this projected increase in employment exceeds the projected growth for the study area found in Table 7 (14%) and the increase in the working age population found in Table 9.

4.12.2.2 Location of Future Traffic Generators

Based on the future local comprehensive plans and land use plans, most of the new employment activity and much of the new residential growth will be concentrated in or near the cities of Columbus, Beaver Dam, and Waupun. These future growth areas are likely to be developed more intensely and generate more traffic than similar, unmapped new development in the unincorporated towns. Demographic trends support this assumption.

The future land use maps (Figures 10, 11, and 12) highlight the future growth areas identified in the locally developed comprehensive plans. These maps are a composite of future land use maps taken from the locally developed comprehensive plans. Because cities and villages in Wisconsin are granted authority exercise control over land divisions and extension of services at least 1.5 miles beyond their incorporated boundaries, these maps give precedence to city plans over county and town maps. Also, the growth areas shown focus mostly on more intensive land uses likely to generate significant traffic (i.e., residential, commercial, industrial, and institutional). Table 19 summarizes the total acreage of the future growth areas illustrated in Figures 10, 11, and 12 by intended general land use category (residential, commercial, industrial, and institutional).

The actual number of employee, customer, and freight related trips at a specific location will depend on the specific nature of the company or economic activity. It will also depend on how many acres of a given mapped location are actually developed for that use, which may be less than the total shown if parts of a given site prove undevelopable for unforeseen environmental reasons or are held in reserve for other reasons by the owner.

It is clear that the potential number of new dwelling units and jobs deduced from analysis of local land use plans and summarized in Table 18 greatly exceeds the likely number of new households indicated in Table 8 and the number of new workers projected in Table 19. The explanation for the large discrepancies exists in the fact that local land use plans typically provide somewhat more growth area than is likely to occur. For the purposes of this study, the projected increases in both households and employment are likely to be more realistic projections of actual growth. Still, the analysis found in Table 19 provides a “high growth” scenario of what local communities may be prepared to accept should growth trends accelerate.

Another unknown is the extent to which these growth areas will actually develop through 2030. Regardless of the magnitude of actual growth, the maps in Figures 10, 11, and 12 provide a good indication of the location, type, intensity, and modal choice of intensive future traffic generators.

It should be noted that most of the anticipated future growth in unincorporated towns is not highlighted in the land use maps. Local plans recommend that most future growth shown as agricultural or other open space is to remain in low density residential and nonresidential development. These areas are largely rural in character and lack municipal services capable of supporting intensive development. Furthermore, local land use plans and land use regulations prevent residential densities much greater than one dwelling unit per 40 acres in many of the areas planned for continued agricultural use. Large environmentally sensitive areas also preclude intensive development. Nonresidential uses in the rural towns are likely to be located near existing roads, with most nonresidential uses located adjacent to county,

state, or federal highways. Because most of this development will be relatively less intensive and more dispersed than that in the cities, the impacts on US 151 and other existing roads may be less significant than the more intensive areas of development.

Table 19. Summary of Potential Future Trip Generators in US 151 Study Area

(Areas reserved for new intensive development in local comprehensive plans.)

City of Columbus Area			
Planned Land Use	**Acres**	**New Dwelling Units**	**Workers**
Single family residential	472	1416	0
Multi-family residential	43	645	0
Commercial	729	0	6272
Industrial	52	0	11669
Sub Area Totals	**1296**	**2061**	**17941**
City of Beaver Dam Area			
Planned Land Use	**Acres**	**New Dwelling Units**	**Workers**
Low density agricultural – future growth area	3034	76	0
Planned unit development	320	1601	640
Planned neighborhood	107	535	214
Commercial	0	0	0
Industrial	0	0	0
Sub Area Totals	**3461**	**2211**	**854**
Dodge County Other			
Planned Land Use	**Acres**	**New Dwelling Units**	**Workers**
Single family residential – unsewered	5160	1517	0
Multi-family residential	80	1196	0
Commercial	293	0	2518
Industrial	1481	0	23702
Sub Area Totals	**7014**	**2713**	**26220**
City of Waupun Area			
Planned Land Use	**Acres**	**New Dwelling Units**	**Workers**
Single family – sewered	**766**	2298	0
PUD	428	2140	856
Commercial	187	0	1608
Industrial	0	0	0
Sub Area Totals	**1381**	**4438**	**2464**

US 151		Potential	Potential
Intensive Growth	Acres	New Dwelling Units	New Workers
TOTALS	12,638	11,424	47,480

- All growth areas derived from land use maps, which in turn are derived from latest comprehensive plans.
- Low density agricultural: assumes one dwelling unit per 40 acres.
- Single family density residential – unsewered: assumes one dwelling unit per 2 acres on private sanitary treatment systems (septic).
- Single family residential – sewered: assumes three dwelling units per acre on municipal sanitary sewer.
- Multi-family density residential: assumes 15 dwelling units per acre on municipal sanitary sewer.
- PUD and planned neighborhood: assumes residential density of 5.0 dwelling units per acre, plus two workers per acre.
- Commercial: assumes a mix of retail and service employment with average of 8.6 workers per acre (retail = 10.86 workers per acre; service uses = 6.38 workers per acre).
- Industrial: assumes mix of manufacturing and wholesale employment with average of 16 workers per acre (11.49 manufacturing workers per acre; 20.58 wholesale workers per acre).

4.12.2.3 Other Traffic Generators

Trips generated by increases in primary and secondary schools can be assumed to increase in an amount proportionate to the projected increase in the 18 or less population (See Table 9). School district boundaries and the concentration of most schools within their respective districts are unlikely to change significantly through 2030. Therefore, school related trip generation will have minimal impact on US 151, though design of the freeway conversion should work to ensure that efficient pedestrian, bicycle, school bus, and automobile routes are maintained between future residential areas and schools.

The preceding section does not provide insights into the number, location, and type of future traffic generators outside of the US 151 study area that may nonetheless increase travel demand on US 151 and major crossing routes. US 151 is a major carrier of traffic between two of the largest employment and population regions of the state: Dane County to the south and the Lake Winnebago/Fox River Valley region served by US 41 to the northeast. Increases in the population and employment of these areas may result in increases in truck/freight traffic between these regions, as well tourism/recreation related trips. All of these uses may have significant impacts on traffic demand in the US 151 corridor.

5.0 Agency and Public Input

5.1 Local Officials and General Public

Several meetings were held with local officials and the general public to present the scope of the study and to obtain input. The following meetings were held to introduce the project and discuss the general scope of the project.

- Local officials meeting February 25, 2008
- Public informational meeting April 16, 2008

After the initial set of meetings, preliminary concepts for the freeway conversion were developed and discussed at the following meetings with area officials. The purpose of these meetings was to allow local officials to review the preliminary concepts pertaining to areas covered by their respective jurisdictions prior to presenting them to the general public at the public informational meetings.

- City of Beaver Dam February 24, 2009
- Dodge County February 24, 2009
- City of Waupun March 2, 2009
- Town of Trenton March 3, 2009
- Town of Beaver Dam March 5, 2009
- Town of Calamus March 10, 2009
- United Co-op March 19, 2009
- Town of Chester March 11, 2009

After the meetings with the individual municipalities, revisions were made based on comments received and the following set of meetings were held to present the latest freeway conversion concepts to area officials and the general public. (See Appendix F for minutes from local official meetings.)

- Local officials meeting May 12, 2009
- Public informational meeting July 15, 2009

5.2 Agricultural Property Owners, Schools, and Emergency Services

As part of the data collection phase of the study, three brief surveys were developed in 2008 for distribution to three different stakeholder groups along the corridor. The surveys were designed to gather information concerning the existing travel patterns and key intersections along US 151 currently used by the agriculture sector, the emergency management services sector, and the public school transportation sector.

All three surveys consisted of a one page project introduction letter briefly describing the study and providing project contact information. A second enclosure included detailed instructions to complete a series of questions, six or seven of them, depending on the stakeholder group. The instructions also described how to identify important highway crossings and local roads on the

enclosed maps of the corridor. The agriculture sector was also asked to mark land parcels that were owned and/or leased, in addition to farm operation access points connected directly to US 151. Emergency management services and public school transportation providers were asked to mark important crossings essential to response time and destination along the corridor.

Surveys were mailed to 93 agricultural operators along the corridor, identified through the most recent tax assessment records available at the time. A total of 15 police, fire, and ambulance emergency service providers, including the county sheriff's office and the state patrol, were identified to be included in the emergency services survey mailing. Three school districts were identified with boundaries that overlapped the study area. The school bus surveys were mailed to the administrators of the three school districts and to a busing company contracted to transport students within each district.

The results from the survey data concluded the following. Additional information is provided with the full summary report in Appendix G:

- The majority of farm activity along the US 151 corridor is crop farming, generating traffic primarily to access fields and for the transport of goods; typically accessing the main farm less than five times daily.

- Over half of the farm operators responding indicated that US 151 was not the only access to their farm operation, with map returns indicating many individual agricultural driveways are located along US 151.

- With a total of 40 bus routes running per day for the two districts responding, and seven current routes crossing US 151, only five intersections with US 151 were marked as important highway intersections.

- EMS returns indicate that alternative routes to US 151 are available to access emergency scenes and to transport victims to hospitals. On a scale of one to ten (ten being very important), 66% of the responses stated that the ability to respond to emergency calls if access changes were made to US 151 was less than or equal to a four (i.e., not very important); however, 33% stated changes in access rated a 10 (i.e., very important).

To summarize: Access changes to US 151 would have the greatest effect on existing farm operations that rely on US 151 to access fields within the study area. Access changes should consider opportunities to reduce potential indirection for this group. Two-thirds of emergency service providers either use existing interchange locations or do not see access changes as having a significant impact on their ability to respond to emergency calls.

5.2 State and Federal Agency Input

Various agencies typically involved with the highway project development process were contacted for their input. Since the project is in the planning phase, with construction likely many years off, very few responses were received. A

more involved agency coordination process will be completed as part of the next phase of the study. Agencies contacted for input include the following:

- U.S. Fish & Wildlife Service (USF&WS)
- U.S. Army Corps of Engineers (USACE)
- Native Americans Wisconsin Department of Natural Resources (DNR)
- Department of Agriculture, Trade, & Consumer Protection (DATCP)

Responses were received from the DNR, DATCP, and USF&WS and are included in Appendix C. More comprehensive agency coordination efforts will be conducted during the environmental documentation phase to comply with the NEPA process.

6.0 Freeway Conversion

6.1 Design Criteria

The design criteria used to develop preliminary roadway concepts is summarized in a technical memorandum which is included in Appendix H.

6.1.1 Interchange Spacing

Section 11-5-5 of the WisDOT FDM contains criteria on the recommended spacing for access for various types of highways. For freeway facilities, the recommended spacing between access points is 2 miles for all levels of intersecting highways. Since no direct access is allowed to or from a freeway other than at an interchange, this implies that interchanges are to be spaced no closer than 2 miles apart. Several of the current interchanges are closer than this distance; therefore, this criterion will be utilized for the analysis of new interchange locations.

6.1.2 Grade Separations

In between interchange locations, the need for access to US 151 is being analyzed throughout the corridor. These crossings can help to connect the local road network, provide access to frontage roads on the opposite side of US 151, and allow access between farming operations located on each side of US 151. New crossings may consist of bridge overpasses of US 151 or underpasses, in which case two bridges along US 151 would be needed. Where crossings are recommended, applicable vertical clearance standards will be applied for the design.

6.1.3 Local Road Modifications

As part of the conversion to a freeway facility, existing side road access will be eliminated in several locations, requiring the reconstruction of sections of local roads to maintain continuity. Where this occurs, coordination with the applicable local agency will be conducted to ensure local design standards and applicable ordinances are followed.

6.1.4 Frontage Roads

The removal of side road connections and all existing commercial and private access along US 151 will require the addition of frontage roads to provide access to properties throughout the corridor. Depending on the access needs, frontage roads may be required along one or both sides of the highway. Where alternate access is available to an existing side road, the addition of frontage roads may not be needed.

New frontage roads will be designed based on the standards of the agency who will ultimately assume the responsibility for the maintenance of the roadway.

Past experience with the construction of new interchanges has indicated that uncontrolled development close to the interchange can adversely affect the operations of the system. Standards have been developed to institute access control measures along the side road to help control future development and allow the interchange to function as intended. Attachment 2 shown in FDM Section 11-5-5 indicates that the recommended distance between the ramp and the nearest public road access is 1,320 feet (1/4 mile). A shorter distance of 1,000 feet may be allowed if justified from the results of a traffic impact analysis.

6.1.5 Private Access

Freeway facilities are intended to focus on the operations of the mainline facility. Access to and from freeways is only permitted at on- and off-ramps where the traffic entering and exiting will be traveling at a speed similar to the traffic on the mainline. Therefore, at-grade intersections, including all private access points, are not allowed. All commercial entrances, private driveways, and agricultural access points would not be allowed along US 151 if the facility is converted to a full freeway. Access to those properties would be redirected to a nearby side road or frontage road.

6.1.6 Railroad Crossings

Conversion to a freeway facility involves not only removing side road intersections and private access points for vehicular traffic but also addresses all kinds of transportation modes. An at-grade crossing of a railroad facility would not meet the needs of maintaining the traffic operations of the freeway. Therefore, all existing at-grade crossings of railroad facilities would be removed with this concept. There are currently two at-grade crossings along the corridor where US 151 would likely be extended over the top of the railroad crossing. The grades of railroad tracks have stricter requirements than roadway facilities; therefore, any reconstruction of the railroad would have to comply with those specifications. Where US 151 is extended over the railroad, the minimum required vertical clearance of 23 feet will need to be maintained.

6.2 Preliminary Concepts

6.2.1 Concept Summary

The US 151 concepts propose to improve the corridor to freeway standards, thus meeting the long-term goals for the highway as stated in Connections 2030. Much of the existing corridor already achieves freeway standards; however, some segments are at expressway standards with at-grade intersections, field entrances, and driveways. In order to improve safety and increase travel speeds, the concepts propose to eliminate all at-grade crossings and most access points along the highway. This would involve adding up to three new interchanges, reconstructing one existing interchange, constructing seven new overpasses for local roads and two over railroad tracks, raising the grade

of a one-mile segment of the highway in Beaver Dam, constructing several miles of new frontage roads, and eliminating numerous at-grade public roads, driveway connections, and field entrances.

The preliminary concept layouts are shown in Appendix K. Some of the concepts have multiple options, which are shown with dashed lines on the layouts. Efforts were made to consider local access both to and from northbound and southbound US 151.

6.2.2 Level of Service

Analyses were performed to determine the long-term function of US 151 under the improved configurations depicted in the freeway concept alternatives. All segments were evaluated assuming the concept's proposed configuration and access conditions.

The analysis indicates that US 151 would operate at slightly higher levels of service with the concept's configuration over the existing configuration and would continue to do so for the foreseeable future. For existing traffic volumes, the concept would improve the LOS south of County D from LOS B to LOS A.

6.2.3 Columbus to Beaver Dam Segment

6.2.3.1 Interchange Modifications

As mentioned in Section 2.5.1, the majority of this study will focus on the two rural segments located between Columbus and Beaver Dam and between Beaver Dam and Waupun. The distance between the WIS 73 interchange north of Columbus and the County D interchange south of Beaver Dam is approximately 8.4 miles. The elimination of all access between those two locations would mean that a motorist in the center of this segment would need to drive 4.2 miles on a local road to gain access to US 151. Therefore, the feasibility of adding one or two more interchanges within this area is being investigated. Using the criterion that specifies interchanges not be closer than 2 miles to each other means there is a distance of approximately 4.4 miles in which additional interchanges could be added.

If only one new interchange were added in this segment, a possible location would be at a point approximately midway between the WIS 73 and County D interchanges. That would result in the interchange being placed near the existing crossing of Salem Road. Another potential location could be just south of Salem Road where Van Buren Road parallels US 151. Initial discussions with local agencies and the general public indicated a preference for an interchange at County S located approximately 2 miles south of Salem Road. An interchange at County S would preclude also adding an interchange near Salem Road.

Because the County S location is at the southern end of the 4.4-mile segment mentioned above, the possibility of a second new interchange at

the northern end of the 4.4-mile segment was investigated. Potential locations that were investigated were just south of Gunn Road and at County DE.

Concepts were developed for freeway conversion for this segment that included up to two new interchanges at County S and either Gunn Road or County DE. Separate layouts have been prepared that depict the local road modifications required for each of these options. The following is a list of the issues associated with adding a new interchange at each of these locations:

<u>County S</u>

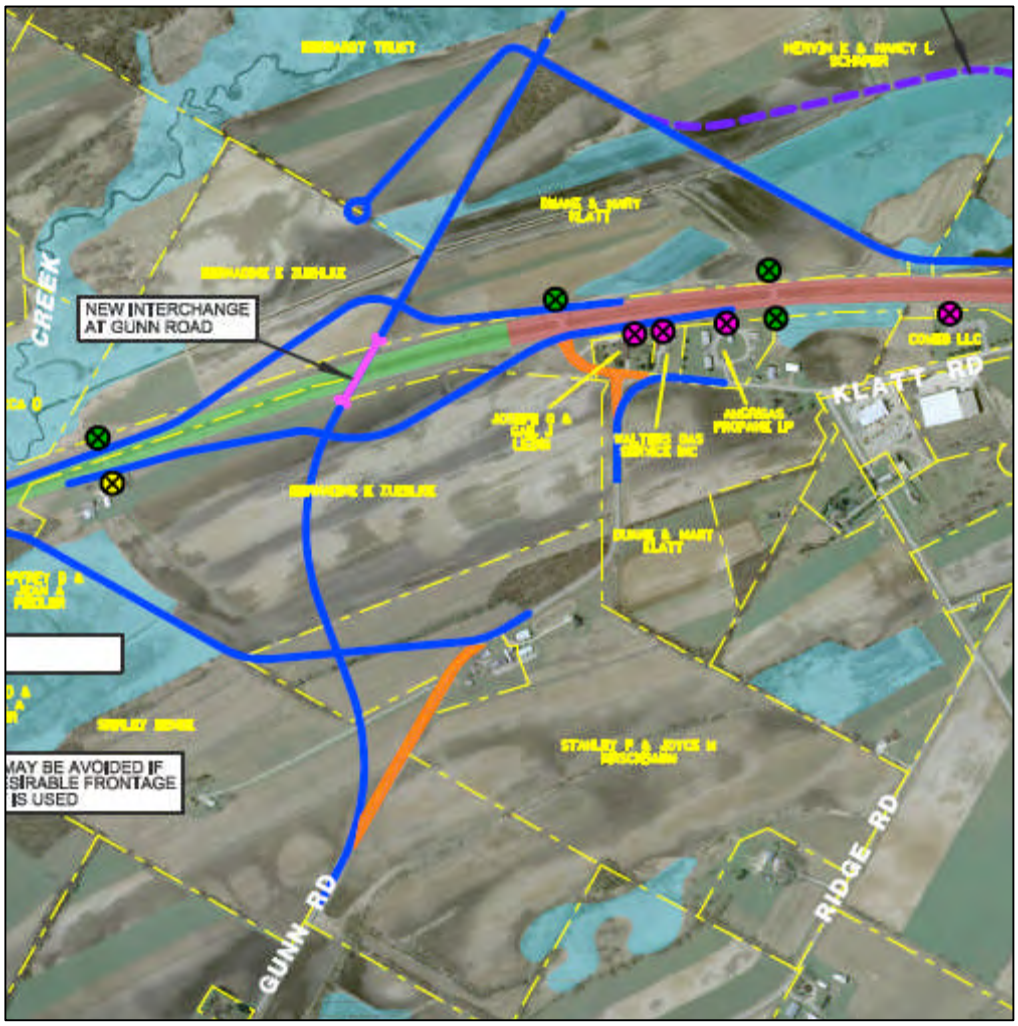
- Would tie into county highway
- Uses a high quality road
- Involves significant farmland impacts
- Involves wetland impacts
- Affects several property owners' access

Figure 13. County S Interchange Concept

Gunn Road

- May avoid relocations as opposed to County DE interchange option
- Minimal wetland impacts
- Involves significant farmland impacts
- Indirection for trucks accessing co-op
- Access to US 151 is located south of businesses on Klatt Road

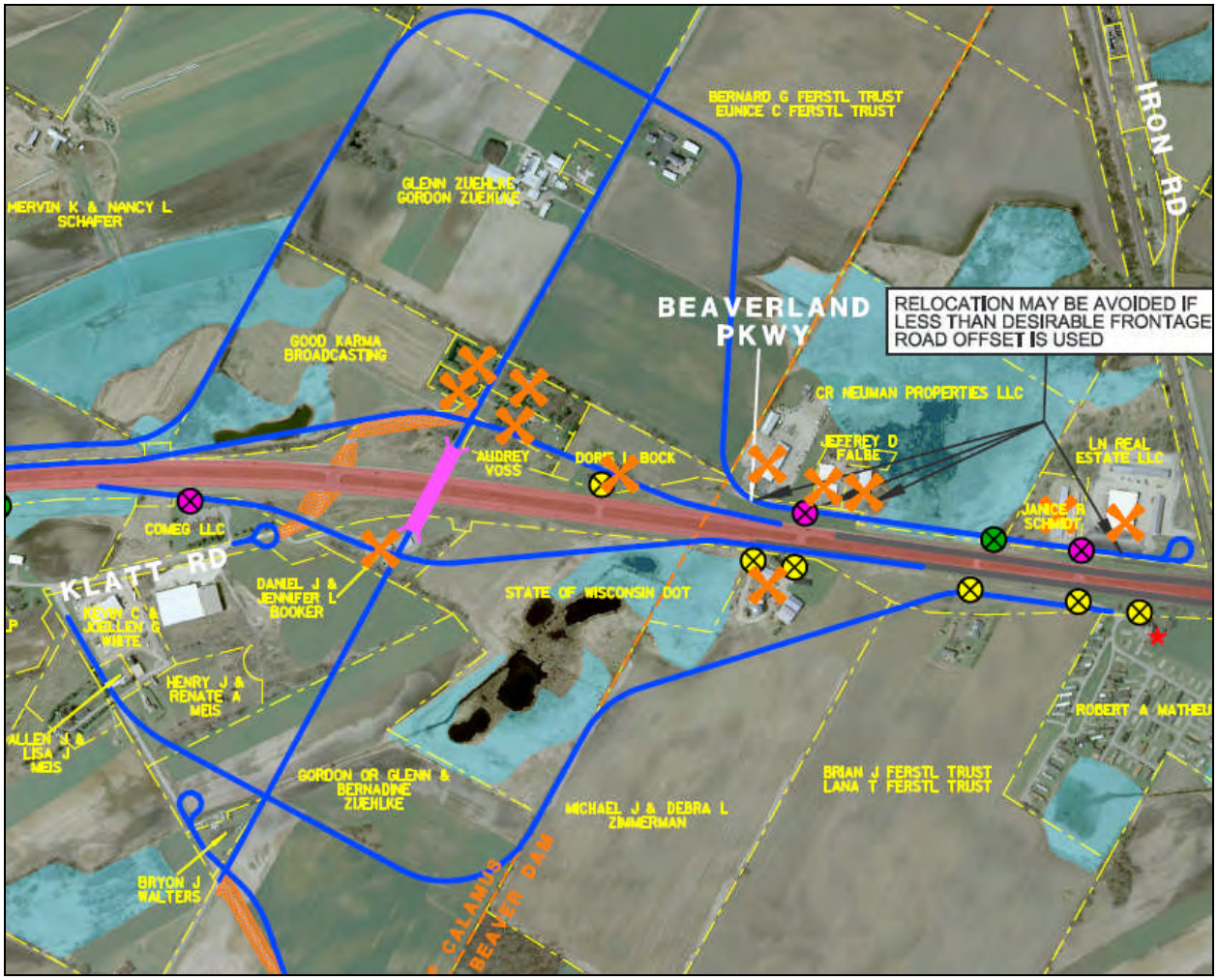
Figure 14. Gunn Road Interchange Concept



County DE

- Would tie into county highway
- Would require numerous relocations
- Less than desirable 2-mile distance from existing interchange
- Better access for co-op
- Access to US 151 is north of businesses on Klatt Road
- Less complex than Gunn Road option because fewer local road tie-ins, frontage road configurations, and overpasses are required

Figure 15. County DE Interchange Concept



6.2.3.2 Grade Separated Crossings

Locations for possible crossings of side roads were investigated in conjunction with the interchange options described above. Locations that were presented to local officials and the general public included:

- Moriah/Bethel Roads
- Salem Road
- Forest Road
- County DE (with Gunn Road interchange option)

6.2.3.3 Local Road Modifications and Frontage Roads

With the interchange and grade separated crossing locations mentioned above, modifications to the local road network would be required to provide access for existing property owners along the corridor. A total of 50 private access points will need to be removed throughout this 8.4-mile segment. These include 26 residential driveways, 16 agricultural entrances, seven commercial entrances, and one utility access. Frontage road options were presented along both sides of US 151 for the majority of this segment. Areas where frontage roads are likely not needed are between County S and East Salem Road along the east side of US 151, between Forest and Gunn Roads along the west side of US 151, and between Gunn Road and County DE along the east side of US 151, where Klatt Road could provide access as needed.

An area that has numerous existing businesses and access issues to address is the segment from County DE to County D. Previous studies have been completed for this segment, which didn't reveal any recommended solution. The interchange at County D is proposed to be reconstructed as a full-diamond interchange in 2011-2012, which would allow the opportunity for access at the south end of the new diamond configuration. However, complicating the access issue is the Union Pacific Railroad crossing to the south and the number of businesses that are located on the south side of those tracks, making a connection to the new County D interchange more difficult.

6.2.4 Beaver Dam Bypass Segment

6.2.4.1 Interchange Modifications

The Beaver Dam Bypass segment between County D and County A is approximately 7.0 miles long and contains four full and two partial interchanges. There has been a request to look at the feasibility of a new interchange at County W on the city of Beaver Dam's southeast side. However, with six full or partial interchanges in place around Beaver Dam, the addition of a new interchange is unlikely due to limited space and the potential effects on traffic operations.

6.2.4.2 Grade Separated Crossings

The only local road change that might warrant the addition of a new crossing of US 151 would be at Hemlock Road. However, given its proximity to the County A interchange to the north, County W to the west, and possible new development to the south, a new crossing may not be cost effective. The concepts developed with this study show cul-de-sacs at the location where Hemlock Road currently intersects US 151.

6.2.4.3 Local Road Modifications and Frontage Roads

There are two private access crossings south of the WIS 33 interchange, which were left in place when the US 151 reconstruction project was completed in the 1990s. The removal of those will be addressed with any future conversion to a freeway facility.

A frontage road connection along the west side of US 151 is being investigated between Kellom Road and County A.

The only other significant issue in this segment is the at-grade crossing of the Wisconsin and Southern Railroad on the east side of Beaver Dam. A likely scenario for that will be to lower County E just south of the railroad and reconstruct US 151 to carry the freeway over the top of both County E and the railroad.

6.2.5 Beaver Dam to Waupun Segment

6.2.5.1 Interchange Modifications

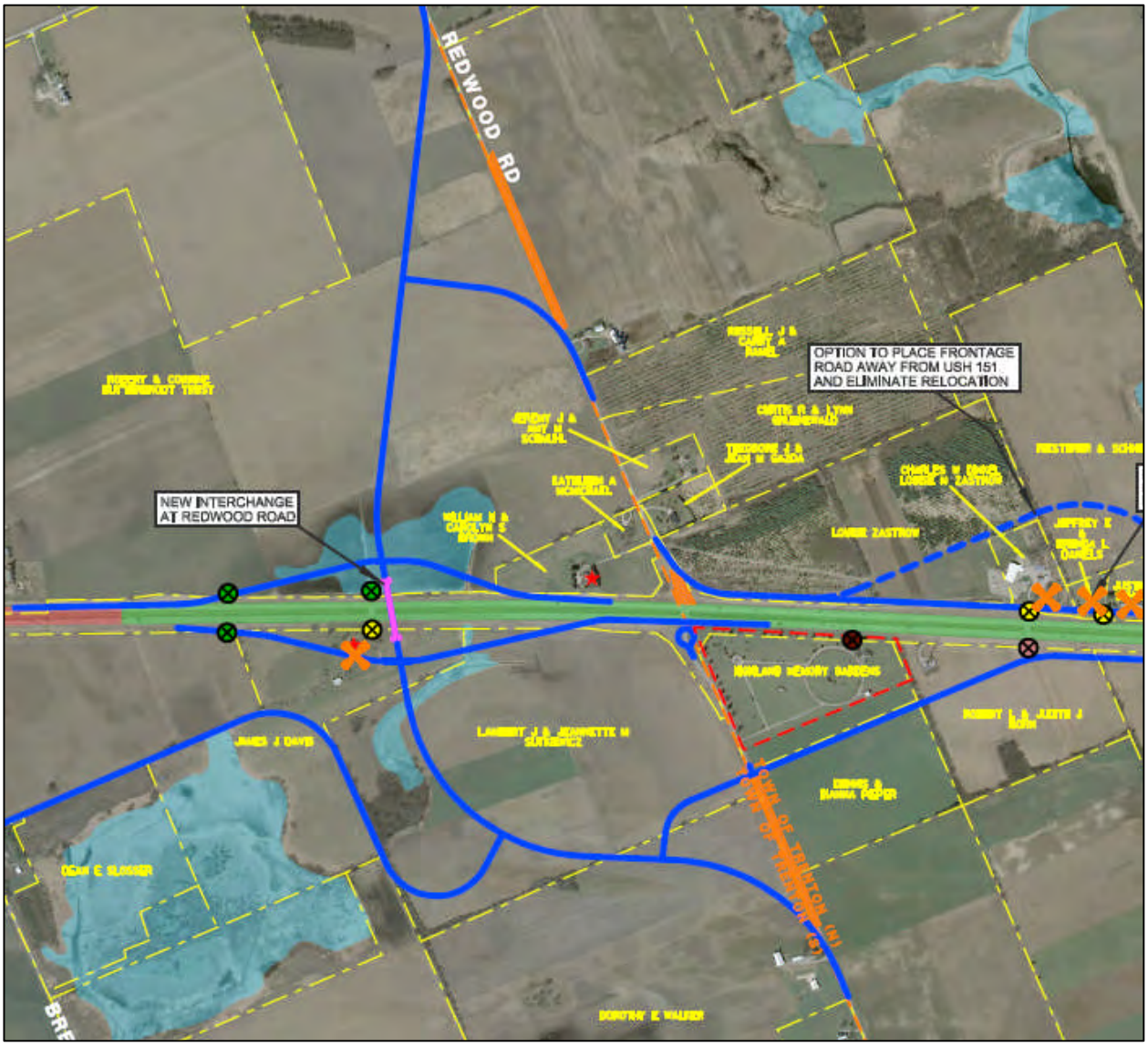
This is the second rural segment that is the focus of the freeway conversion study. The distance between the County A interchange north of Beaver Dam and the County M interchange south of Waupun is approximately 6.0 miles. Using the criterion that specifies interchanges not be closer than 2 miles to each other means there is a distance of approximately 2.0 miles where additional interchanges could be added. This is much shorter than the Columbus to Beaver Dam segment, and only one new interchange location is being considered for this segment. Two possible locations were investigated. One is near Redwood Road, which is a town road approximately halfway between County A and County M, and the other is at County C, located one mile to the north of Redwood Road. Separate layouts have been prepared that depict the local road modifications required for each of these options.

The following is a list of the issues associated with adding a new interchange at Redwood Road:

<u>Redwood Road</u>

- Distance is approximately midway between 2 existing interchanges
- Involves significant farmland impacts
- Minimal wetland impacts
- Cemetery requires shifting interchange to the south

Figure 16. Redwood Road Interchange Concept

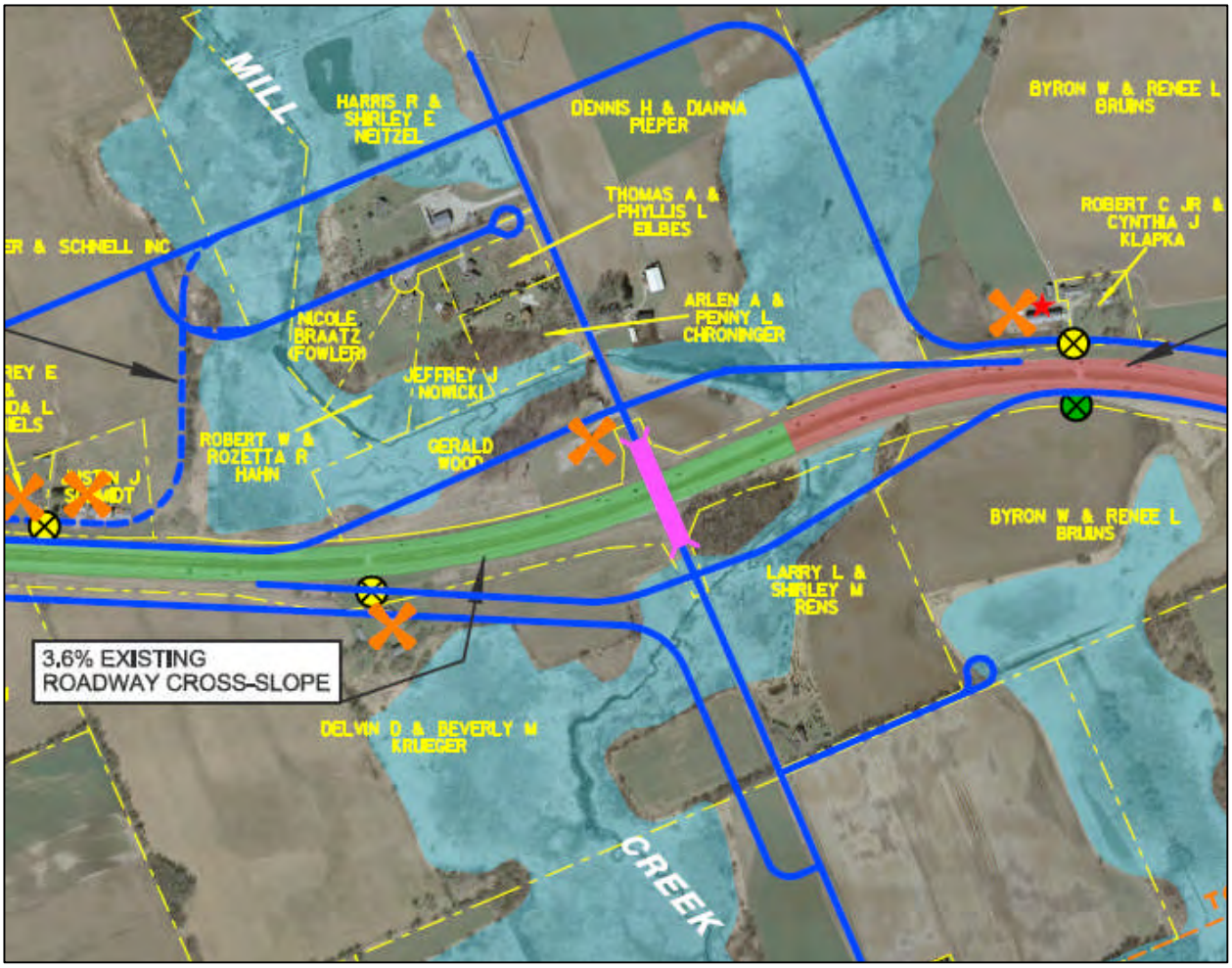


Issues associated with the addition of an interchange at County C include the following:

<u>County C</u>

- Would tie into county highway
- US 151 on a curve at this location which is not desirable
- Involves farmland impacts
- Involves significant wetland impacts
- Involves woodland impacts

Figure 17. County C Interchange Concept



Grade Separated Crossings

Locations for possible crossings of side roads were investigated in conjunction with the interchange options described above. Locations that were presented to local officials and the general public included:

- Breezy Point Road
- Redwood Road (with County C interchange option)
- County C (with Redwood Road interchange option)
- Oakwood Road

6.2.5.2 Local Road Modifications and Frontage Roads

Conversion to a freeway would include the removal of 29 existing private access points in this segment. These consist of 11 residential driveways, 16 agricultural entrances, one cemetery, and one utility access. Frontage road construction would likely be less frequent in this segment than in the Columbus to Beaver Dam segment. The only areas where frontage roads are currently being investigated are along the west side of US 151 between Redwood Road and Oakwood Road, and east of US 151 from Breezy Point Road to just south of County C.

6.2.6 Waupun Bypass Segment

6.2.6.1 Interchange Modifications

Within the limits of this study, there are three interchanges that currently provide access to the city of Waupun – County M, WIS 26, and WIS 49. All three of these will likely remain with the conversion of US 151 to a freeway. The County M interchange currently only accommodates movements to and from the south. The current proposed concepts for a freeway include modifying this interchange to a full diamond configuration, which will provide access to the properties in the area. This change will also allow County M to be connected to Oakwood Road to the south to provide a connection to the local road system. Other than upgrading the geometrics as necessary to meet current standards, no changes are proposed to the interchanges at WIS 26 and WIS 49.

6.2.6.2 Grade Separated Crossings

The major grade change in this segment will likely involve raising US 151 to provide adequate clearance over the Wisconsin and Southern Railroad crossing to eliminate the current at-grade configuration. This could also involve lowering the grade of the railroad in combination with an adjustment to the grade of US 151.

The addition of bridges over the railroad would also provide the opportunity to provide an access connection for the property owner who has land both north and south of US 151. This owner currently has an agricultural crossing with entrances on each side of US 151 that would be eliminated when a freeway facility is constructed.

6.2.6.3 Local Road Modifications and Frontage Roads

In addition to the two agricultural entrances mentioned above, there are three other agricultural crossings (i.e., six entrances) in this segment for a total of eight entrances that will be eliminated with the conversion to a freeway. Alternate access is available from nearby side roads and no frontage road construction is proposed with the current concepts.

6.3 Public Comments

For the initial public informational meeting held in April 2008, displays of the project corridor were presented and input was obtained by those in attendance. Comments were numbered which correspond to the numbers provided on those displays (See Appendix I for meeting displays and summary of public comments for Public Informational Meeting #1).

For the public informational meeting held in July 2009, alternatives for new interchanges and associated local road modifications for each segment listed above were presented to local officials and the general public (See Appendix J for meeting displays and summary of public comments from Public Informational Meeting #2). A summary of the general feedback is as follows:

- County S seems to be a desirable location for a new interchange.
- There isn't much support for a bridge over US 151 connecting Moriah and Bethel Roads.
- Numerous comments were received in opposition to bisecting agricultural properties and the impact to farmland.
- Frontage roads should be constructed close to US 151.
- Some businesses south of the Union Pacific Railroad on the south side of Beaver Dam would like a crossing of the railroad to provide access to Beaver Dam.
- Some comments were received asking for a new interchange at County W on the southeast side of Beaver Dam.
- The addition of the Wal-Mart Distribution Center has contributed to the drainage problems adjacent to the County A interchange.
- The ramps at the WIS 26 interchange are short and have poor angles

6.4 Issues of Concern

6.4.1 Farm Severances

The severing of land used for agricultural purposes would occur in two forms with conversion to a freeway. One is the effect to property owners with land on both sides of US 151 that will have their direct access removed, and the other is the severing of agricultural fields resulting from the modification of existing local roads, addition of new frontage roads, and altering of private access roads. Those with property on both sides of US 151 will need to travel to the nearest interchange or grade separated crossing to continue their farming operations. Efforts will be made to locate new local, frontage, and private access roads along existing

property lines or other natural features as much as possible to minimize the amount of farmland affected. This issue was identified as a concern at the public informational meetings.

6.4.2 Additional Travel Times

Due to the elimination of intersections and driveways, local residents, farmers, and businesses located near the highway will be redirected along other routes, increasing travel time and distance. Furthermore, emergency vehicles might experience increased travel times in order to reach specific locations near the corridor. Appendix G, *Agriculture, EMS, and School Bus Survey Report,* describes activities on the corridor and highlights pertinent issues related to these activities. Table 8 lists certain properties that will likely experience increased indirection due to access changes.

Table 20. Properties That Could Experience Indirection

Farm ID number*	Location	Owner	Existing condition	Effect of concept
10, 33	Just south of County S, parcels straddling US 151	Daniel & Gloria Rake; Robert Rake	Cross US 151 at field entrance and County S	1.4-mile increase in one-way travel using Bethel Road overpass
36,37	¼ mile northeast of County S	Merlin & Betty Thom	Field entrance directly across US 151 from farmstead	1.4-mile increase in one-way travel using County S overpass
21	½ mile northeast of County S	Hilda K. Lenz	Field entrance directly across US 151 from farmstead	1.6-mile increase in one-way travel County S overpass
Unknown	0.6 mile southwest of Salem Road	Jim & Kara Rake; Eugene Rake	Field entrance directly across US 151 from farmstead	1.9-mile increase in one-way travel using County S overpass
19	Just north of Salem Road	Donald & Nancy Lueptow	Field entrance directly across US 151 from farmstead	Possible 0.5-mile increase in one-way travel using Salem Road overpass
6	½ mile northeast of Salem Road	Virgil & Patricia Lauth; Stanley & Diane Kirschbaum	Driveways at Kirschbaum and Lueptow properties used to access farmland	1.4-mile increase in one-way travel using Salem Road overpass
Unknown	At Forest Road	Alfred Affeldt & Richard Affeldt	Driveway opposite Forest Road	0.8-mile increase in one-way travel using Forest Road overpass
Unknown	Between Forest & Gunn Roads	Several private residences	Driveways	Minor indirection depending on driver behavior. Frontage roads accommodate both directions.
25	½ mile southwest of Klatt Road	Bernadine Zuehlke	Field entrances directly across from each other	1.7-mile increase in one-way travel using Gunn Road overpass
36	¼ mile southwest of County DE	Mervin & Nancy Schaefer; unknown lessor	Cross US 151 at County DE/Klatt Road to reach leased parcel	Possible 1.4-mile increase in one-way travel using Gunn Road overpass

Farm ID number*	Location	Owner	Existing condition	Effect of concept
25	Farmstead on County DE	Unknown	Cross US 151 at County DE/Klatt Road to reach property on Jackson Road	1.6-mile increase in one-way travel using Gunn Road overpass
Unknown	Between County W & WIS 33	Lester & Phyllis Brooks	Cross at field entrance	Parcel east of US 151 would be landlocked
Unknown	Between County W & WIS 33	Cromheecke Trust	Cross at field entrance	Property would be landlocked under concept
Unknown	Between County W & WIS 33	HBM Properties LLC	Enter at field entrance	Property would be landlocked under concept
40	Between Walnut & Breezy Point Roads	Frederick Bird & Robert Bird; Rabata	Field entrance on Bird property	1-mile increase in one-way travel using Breezy Pt Road overpass
Unknown	Parcels straddle US 151 between Walnut & Breezy Point Roads	James & Maxine Ferron	Breezy Point Road	Unclear if there is an effect
30	Between Breezy Point and Redwood Roads	Robert & Corrine Butterbrodt Trust	Cross US 151 at Breezy Point and Redwood Roads and field entrance	Unclear if there would be an increase in travel
28, 41	On north side of Redwood Road	Dennis & Diana Pieper	Cross US 151 at Redwood Road	1.1-mile increase in one-way travel using new Redwood Road overpass
38	Between Redwood Road & County C	Louise Zastrow; Robert & Judith Born; Delvin & Beverly Krueger	Cross US 151 at field entrances and/or Redwood Road & County C	2.5-mile increase in one-way travel using new Redwood Road overpass
NA	West side of US 151, off County C	Numerous residences	Access US 151 from County C	0.5 to 3.5-mile increase depending on routes used.
Unknown	¼ mile north of County C	Byron & Renee Bruins	Driveway & field entrance	1.7-mile increase in travel using new County C overpass
31	North side of Oakwood Road	Philip & Mary Hofman	Cross at frontage road 0.5-mile northeast of Oakwood Road	1.6-mile increase in travel using new County M overpass
43	West of Buwalda Road & Railroad straddling US 151	Erwin & Evelyn Buwalda	Cross at field entrance	No impact with proposed road & overpass of RR.
NA	East of Buwalda Road & Railroad straddling US 151	Paul & Wendy Vandezande	Cross at field entrance	Precise impact unclear. Likely 0.8-mile increase if WIS 26 could be used, more if not.
13	South of WIS 49	State of Wisconsin (prison)	Field entrances	1-mile increase in travel using WIS 49 overpass

*Farm identification numbers are those used in the US 151 agricultural survey.

6.4.3 Effect on Local Roads – Closures and Cul-de-Sacs

The changes in the local road system will also result in the closing of segments of existing roads or conversion of those roads to private access facilities. Local county and town roads will be routed to tie into

interchange facilities where possible to provide the necessary access for the users of those facilities. Cul-de-sacs will be added to provide sufficient areas for maintenance vehicles to turn around. Decisions will need to be made to determine whether lengthy dead end roads with cul-de-sacs will become part of the local road system or become the responsibility of the private owners being served by that facility. Local ordinances will be reviewed for the applicable municipality to determine the maximum allowable lengths of cul-de-sacs and driveways.

6.4.4 Safety

As described in previous sections of this report, segment and intersection crash rates for the US 151 study corridor are high for WisDOT rural expressways. Certain intersections also rank high for the severity of the crashes. The elimination of at-grade road and railroad crossings and other access points should reduce the frequency and severity of crashes in the corridor.

The freeway concept calls for limiting or eliminating access to US 151 at several locations in which crash severity is higher, particularly at Jackson Road/County DE and Iron Road/Hammer Road. Reducing access per the proposed concept could reduce crash severity at these locations. However, the concept does not call for design changes at the WIS 33 interchange, where crash severity is 39% or at the WIS 49 interchange, where crash severity is 57%. Further analysis of crash data at these locations could identify the causes of crash severity. Improving roadway and access geometrics could reduce crashes in such locations.

6.4.5 Emergency Vehicles

Eliminating direct access to each property along the corridor will have an effect on the travel time required for fire trucks, ambulances, and area police vehicles. These agencies will need to identify their new routes based on the modified local road system that will be in place after US 151 is converted to a full freeway. Communication will also be important during construction activities to keep them informed of the changes that will occur when existing roads are being removed and replaced with temporary and permanent roads.

6.4.6 Recreational Trails

None of the off-road bicycle trails in the area should be affected by the freeway conversion. The only recreational trails impacted will be the snowmobile trails currently crossing US 151. State Statute 350 addresses the fact that snowmobiles are not allowed access along any part of a freeway facility. Fencing is typically constructed along the freeway right of way limits to further prevent access across the highway. WisDOT has established criteria for when a special crossing structure can be funded for construction, but it is unlikely any of the trails along this corridor will meet the necessary warrants. New crossings will likely be relocated to the

nearest grade separated structure constructed as part of the freeway conversion project.

6.4.7 Land Use Impacts

The addition of interchanges and frontage and access roads can result in significant land use impacts in their immediate and surrounding vicinity. The creation and location of interchanges can influence surrounding land uses primarily in two ways. First, the construction of frontage and property access roads and freeway ramps will render a certain amount of agricultural land unusable for such purposes – by using land for road right of way and by subdividing parcels into smaller ones that are often too small to be economically viable for agriculture. Constructing overpasses and associated frontage roads can also remove several acres of land from agricultural use. Even with the construction of new access roads, removing field entrances and driveways could reduce the value of affected farmland and other properties. Second, easy access to a freeway often creates a commercial value for the land adjacent to the interchanges that did not previously exist, spurring its conversion to commercial use in the absence of restrictive land use controls.

6.4.8 Loss of Developable Land

In conjunction with the effects to the land use mentioned above, the construction of the new road system will remove land that may have been designated for future development. Potentially developable land will likely be relocated to areas adjacent to interchanges where access to and from the freeway is provided.

6.5 Refining Alternatives

The concepts shown in Appendix J were presented to local officials and the general public during this study. None of the alternatives shown were eliminated based on comments received and therefore will be carried forward to the start of the next phase.

Slight modifications to those designs were incorporated after the meetings. Additionally, property relocation estimations were made for the layouts of the design alternatives. The displays used at the public informational meetings were revised to show these changes and the latest design concepts are included as Appendix K. A typical section that shows the assumptions made for the relocation determinations is also included in Appendix K. The assumptions used are based on WisDOT's requirements that the distance between the edge of the freeway and the edge of the rural frontage road be between 85 feet and 115 feet. Buildings present within 80 feet of the centerline of the frontage road were identified as relocations. Further analysis will be required in the next phases of the project to refine the design in those areas and determine potential relocations.

Additional engineering analysis and cost estimates will be completed to determine the feasibility of the options and variations of the options that

have been developed in this initial phase of the study. This analysis may result in the elimination of selected alternatives or portions of them. Refined designs will be further evaluated for environmental factors as part of the preparation of the environmental assessment (EA) document. Based on the results of that analysis, the concepts will be further refined with the purpose of identifying a preferred alternative to take into the final phase of the study for the mapping of the corridor.

7.0 Implementation

7.1 Currently Planned

7.1.1 Refine Design Concepts

Following the initial phase of the study, the concepts that were developed will be refined based on input from agencies and the general public. Existing terrain data will be obtained to allow for preliminary engineering to be completed at a higher level of detail. The current concepts are only based on two-dimensional data and visual inspections and have not been designed to any specific criteria. They are basically “lines on paper” used to convey preliminary concepts and initiate discussion. Additional analysis will be required to refine these concepts to ensure the road designs meet the applicable standards. Preliminary construction estimates will also be utilized to better differentiate the costs associated with the various design alternatives. The approximate limits of future construction will need to be identified to allow for an assessment of the impact to area resources. The next phase of this study will be to assess the environmental impacts associated with the various alternatives.

7.1.2 Assess and Document Environmental Impacts

The analysis of alternatives will be completed under the guidelines of the National Environmental Policy Act (NEPA). This activity is necessary to ensure the property WisDOT intends to preserve can be used for future roadway needs. The documentation required for this process will be an environmental assessment (EA), which identifies the purpose and need for a future project and documents the potential impact of the project on various environmental factors. This environmental document is made available to the public for review and comment, with an offer to request a public hearing. If no significant impacts are identified in this process, a finding of no significant impact (FONSI) is prepared and sent to the Federal Highway Administration for approval.

7.1.3 Map Corridor through State Statute 84.295

The third phase of the freeway conversion study is the mapping of the future freeway conversion under the state statute 84.295 process.

Wisconsin statute 84.295 provides for “the development of a well balanced and integrated state trunk system further modernized and improved to adequate standards to provide needed increased traffic capacity, relieve the congestion on over-taxed existing highways, and otherwise more adequately serve the present and anticipated future needs of highway travel, and toward that end to prevent conflicting costly economic development on areas on lands to be available as right of way when needed for future highway construction.”

This statute authorizes WisDOT to create and update an official map for future freeways and expressways. This map allows WisDOT to preserve,

protect, and set aside future right of way for US 151 where freeway design is being planned. It also informs and enables landowners, the public, and local agencies to plan their future in ways that won't conflict with the future highway improvements.

WisDOT will map and preserve land required to convert US 151 to a freeway under statute 84.295, including:

- Interchanges
- Grade separations (overpass/underpass)
- Alterations to existing public and private access points, including driveways
- Alterations, removals, or additions to the local road system

The mapping process allows WisDOT the right to purchase land from landowners who may want to make modifications to their property located within the limits identified on the official map. This can help avoid costly acquisitions in the future if the project reaches a point where construction is pending and acquisitions are required for the work.

It should be noted that statute 84.295 and the official mapping process does not include construction, and no funds are programmed for construction during this process. Construction may be program funded and constructed over several decades or phases.

7.2 Potential Short-term Improvements

Given that the construction associated with converting US 151 to a full freeway is likely more than 10 years into the future, WisDOT may decide to implement other interim improvements to meet the needs of the facility users. This could include safety improvements, intersection modifications, geometric upgrades, or access changes. A safety analysis is currently being conducted to identify areas where potential improvements may be warranted based on historical crash data.

Potential short-term improvements may also involve higher level type projects that include reconstruction of a segment within the corridor, such as modification to an interchange or reconstruction of a local road adjacent to US 151. The intent would be that any such project would be designed so that it is compatible with the future freeway conversion used to develop the map under the 84.295 process.

8.0 Conclusion

Analysis indicates that US 151 will continue to function in its current form through 2035. Conversion of all segments to freeway standards will maintain the highway's level of service and improve safety at several intersections. Crash rates along the corridor have been low by state standards, but crash severity rates have been higher than state averages. Conversion to a freeway will eliminate some of the identified hazardous crossings. Crash severity at other points, specifically at the WIS 33 and WIS 49 interchanges, could be addressed through closer investigation of conditions at these locations.

The proposed concept for US 151 will change numerous access points along the highway. All at-grade intersections and nearly all direct access points will be eliminated, removing many traffic conflicts, which should result in improved safety. Eliminating intersections and changing field entrances and driveway access will result in some indirection for local residents, farmers, and businesses. Emergency vehicles might experience increased travel times.

The addition of new interchanges, elimination of all at-grade access, modification of the local road network, and changes in private access will likely impact land use. Changes are expected at some locations near the highway and new development could also occur at new interchanges. All of these issues will be assessed in greater detail during the next phase of the study involving the preparation of an environmental document.

Appendix A

Traffic Forecast Report

Traffic Report
for
US 151 Freeway Study

Project ID 1110-00-09
(Columbus to Waupun – Columbia, Dodge, Fond du Lac Counties, WI)

TranSmart

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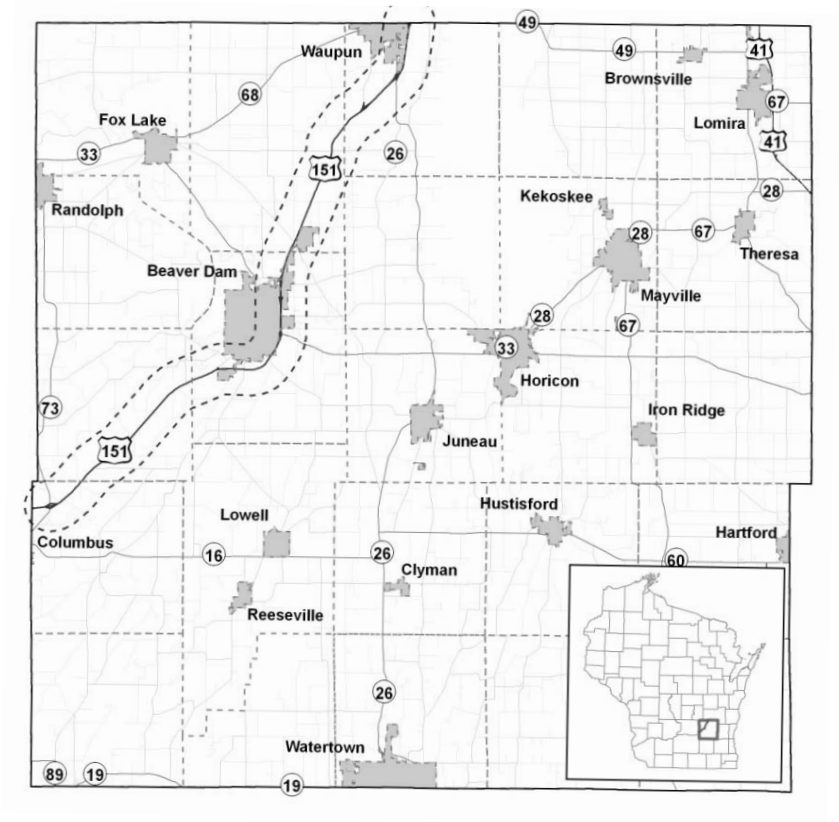
1.0 Introduction

Ayres Associates, Inc., has contracted with TranSmart Technologies to conduct a technical analysis of traffic conditions for the US 151 Freeway Study between WIS 73 and WIS 49. The goal of this memorandum is to analyze the potential effects of the conversion of US 151 to a freeway within the study limits.

1.1 Study Location

The US 151 corridor under study is located between the city of Columbus and the city of Waupun in Dodge County in east central Wisconsin. The precise limits of the study area are WIS 73 in southwestern Dodge County and WIS 49, which is at Dodge County's northern boundary. The total corridor length is approximately 27 miles. Figure 1 displays the study area. For study purposes, a corridor width of one mile on either side of US 151 (for a total width of two miles) was selected and analyzed to better understand the influences of adjacent land uses and local roadways on the corridor.

Figure 1 Study location in Dodge County



1.2 History and Background

Today's US 151 corridor began in 1928 as WIS 31 which stretched from Madison to Fond du Lac northeasterly through Columbus, Beaver Dam and Waupun. The highway's designation as US 151 debuted in 1926 when the U.S. Highway system was created. In 1934, US 151 was extended by approximately 55 miles from Fond du Lac northeasterly along the remainder of the route of WIS 31 through Chilton to a new terminus at Manitowoc. In 1937, a major 100-mile extension of US 151 occurred with the redesignation of US 118 to US 151 from Dodgeville to Dickeyville and US 18 between Dodgeville and Madison. Additionally, US 151 was extended from Dickeyville into Iowa at Dubuque.

Significant capacity improvements have been made to US 151 over the years, particularly the expansion in the past 20 years of several segments to four-lanes. The Columbus bypass was completed and opened to traffic in 1976 as a "Super 2" freeway with only two lanes of travel, but with interchanges at the major crossroads. Conversion from a two-lane highway to a four-lane expressway was completed in the fall of 1993 from the end of the Columbus bypass northeasterly to County D on the southern edge of Beaver Dam. The two-lane route of US 151 from Beaver Dam to Waupun was converted to a four-lane facility in November 1997. The Beaver Dam and Waupun bypasses, themselves already "Super-2" freeway facilities, became four-lane freeways, while the portion of US 151 between those cities was upgraded to a four-lane expressway with some at-grade intersections and private accesses remaining.

1.2.1 US 151 Highway Description

US 151 is classified as a National Highway System (NHS) route and a Backbone route in the WisDOT Corridors 2020 Plan, and is considered a primary transportation facility in Wisconsin. Within Wisconsin, US 151 extends 220 miles from the state line at Dubuque, Iowa, to its northern terminus at US 10 in Manitowoc. It was primarily a two-lane highway into the 1970s.

US 151 has been reconstructed within the past twenty years as a four-lane expressway with a posted speed limit of 65 mph. Portions of the highway, where it bypasses the cities of Columbus, Beaver Dam, and Waupun, were constructed similar to freeways with access limited mainly to interchanges. The remaining segments of US 151, primarily located in the rural areas between these communities, were constructed with at-grade access for public roads, private driveways, and field entrances.

1.2.2 Context of US 151 Corridor within the Study Area

The 27-mile long US 151 study area is located entirely within Dodge County, in its northwest third, and passes through the towns of Elba, Calamus, Beaver Dam, Trenton, and Chester, and skirts the cities of Beaver Dam and Waupun. Dodge County is located in the middle of the triangle formed by the metropolitan communities of Madison, Milwaukee, and the Fox Cities.

US 151 is a Backbone Route as determined by Corridors 2020, one of Wisconsin's primary interregional transportation facilities, and the most important highway between Madison and the Fox Cities. Dodge County communities utilize US 151 to commute to jobs, transport goods, access local and regional services, and as a direct link between these communities and metropolitan services. As the Madison, Milwaukee, and Fox Cities regions continue to grow, many people will be attracted to Dodge County because of its location and amenities.

The study area surrounding US 151 encompasses an area of prime agricultural value for Dodge County, in which agriculture is central to the culture, economy, and landscape. US 151 is adjacent to several working farms in the study area. The amount of land used for agriculture has declined slightly in recent years. However, agriculture is expected to remain an important component of the county's economy for the foreseeable future.

Development within the county and changes in commuting behavior have played major roles in increased traffic and related safety and operational issues for US 151. Dodge County had 87,633 residents according to a 2007 Census estimate, and is experiencing growth slightly higher than the state as a whole. According to the 2000 Census, 40 percent of the Dodge County labor force commuted to other counties for work; Jefferson, Washington, Waukesha, Fond du Lac, and Dane counties were the most popular work destinations outside Dodge County. Manufacturing is the most important industry sector in the county, comprising about 33 percent of all jobs. This indicates that transportation of goods to markets outside the county and region is critically important to the health of the local economy.

1.3 Study Purpose and Need

US 151 is important for the movement of goods and services within the state and other market areas outside the state. This study is intended to help create a safe travelling environment allowing business, industry, agriculture, and tourism to expand in the state. As traffic continues to increase and land development expands, it is important to protect the operations and safety of Corridors 2020 Backbone routes. The highest volumes in the corridor are near the city of Beaver Dam while the lowest are at the north end near Waupun. The volumes gradually decrease along US 151 north of Beaver Dam. US 151 in the study corridor is anticipated to provide sufficient capacity beyond

the year 2035. The highway is currently operating at an acceptable level of service and is anticipated to continue to do so. However, as traffic volumes increase, the length and frequency of gaps in US 151 traffic could decrease further, making crossing maneuvers of and access to US 151 from side roads and private driveways more difficult.

As part of this study, a crash analysis was completed that investigated crashes occurring between the years 2000 and 2006. The complete *Safety Analysis Report* for the study corridor can be found in appendix A. The analysis revealed that across the entire corridor, crash and injury rates exceeded average rates for similar types of facilities across the state. The report also indicated that most of those occurred in the rural expressway segments. Over half of all the intersections evaluated experienced significant crash severity (greater than 30 percent of crashes result in injury).

A major goal of this study is to develop preliminary concepts for converting this facility to a freeway and to identify the associated impacts. Conversion to a freeway will involve removal of all at-grade intersections, private access points, and railroad crossings. The second phase of this study will involve preservation of the corridor through the use of the provisions of Wisconsin State Statute 84.295. This statute is a long-term planning tool that allows WisDOT to designate and preserve expressway and freeway corridors through the creation of an official map that shows the location of future right-of-way boundaries.

2.0 Existing and Future Transportation Performance

2.1 Historic Traffic Counts and Forecasts

Traffic has grown considerably on US 151 since 1995. Table 1 shows traffic volumes from 1995 through 2008 for eleven segments of the study corridor. Exhibit 1 shows TRADAS traffic counts for US 151 and other regional highways. Traffic volumes on the US 151 corridor ranged from 12,600 to 21,200 in 2008. Volumes have been highest on the southern segments from WIS 73 through the city of Beaver Dam and lowest on the northernmost points in and around the city of Waupun. The segment in the vicinity of Burnett Street in the city of Beaver Dam had the highest average annual daily traffic volume (AADT) along the study corridor in 2008 with 21,200 vehicles per day. The segments experiencing the highest growth in traffic volume from 1995 to 2008 were in the vicinity of the WSOR crossing at 96.9 percent and Hemlock Road at 77 percent.

Table 1 Historic traffic volumes, 1995 – 2008

Segment	1995	1998	2001	2004	2008	% change 1995-2008	Avg annual % change
WIS 73 to County S	12,100	14,300	15,300	17,600	17,700	46.3	3.6
County S to County D	11,700	13,600	15,300	17,300	17,500	49.6	3.8
County D to County W	10,500	12,800	14,900	17,400	17,300	64.8	5.0
County W to WIS 33	11,900	12,600	14,900	17,600	18,500	55.5	4.3
WIS 33 to County B	13,800	13,300	16,100	18,600	21,200	53.6	4.1
County B to Hemlock Rd	11,300	10,000	11,300	14,900	20,000	77.0	5.9
Hemlock Rd to County A	12,700	13,200	15,600	16,600	16,400	29.1	2.2
County A to County C	11,600	13,000	14,400	15,600	15,700	35.3	2.7
County C to County M	11,300	12,600	14,200	14,900	17,600	55.8	4.3
County M to WIS 26	6,400	13,900	11,600	13,200	12,600	96.9	7.5
WIS 26 to WIS 49	10,100	11,200	11,800	12,500	12,600	24.8	1.9

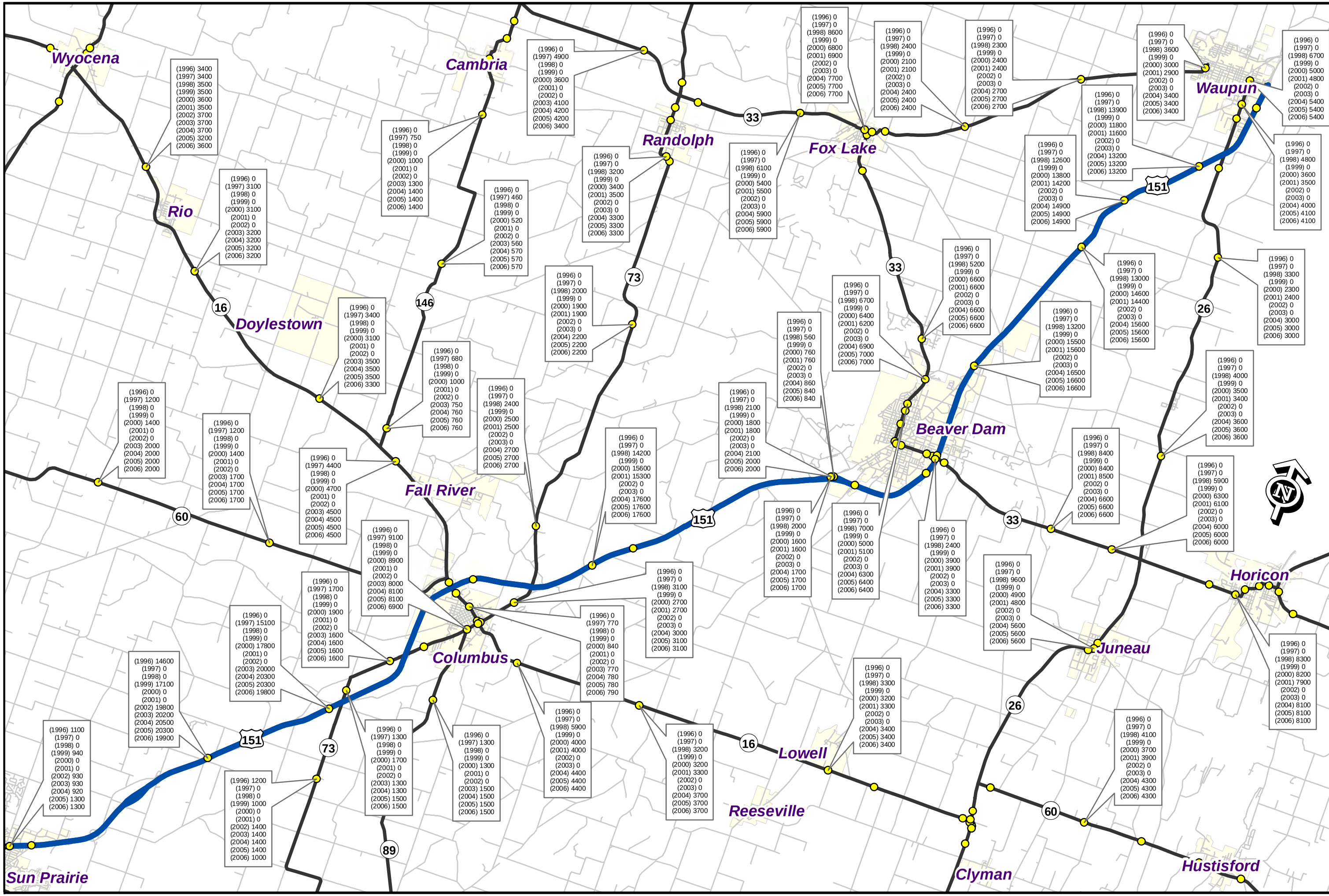


Exhibit 1

Traffic Counts

US 151 Freeway Study

Not to Scale

TranSmart

Table 2 shows traffic counts for 2008 and forecasts through 2035 at specific locations on the corridor using WisDOT Metamanager data. Exhibit 2 shows traffic counts and projections at five-year increments for US 151 and other regional highways. Volumes are projected to be highest on the southern segments from WIS 73 through the city of Beaver Dam and lowest on the northernmost points in and around the city of Waupun. By 2035, the segment in the vicinity of Burnett Street in the city of Beaver Dam is projected to have the highest volume of traffic along the study corridor with 26,375 vehicles per day. Metamanager data is "planning level" and does not replace a detailed forecast for roadway segments.

Table 2 WisDOT traffic counts and forecasts at selected locations along US 151

Segment	2008	2015	2025	2035	% change 2008-2035	Average annual % change
WIS 73 to County S	17,700	19,775	22,400	24,750	39.8	1.5
County S to County D	17,500	19,125	21,550	23,750	35.7	1.3
County D to County W	17,300	19,225	21,925	24,325	40.6	1.5
County W to WIS 33	18,500	19,350	22,000	24,400	31.9	1.2
WIS 33 to County B	21,200	20,875	23,775	26,375	24.4	0.9
County B to Hemlock Rd	20,000	18,600	22,100	25,575	27.9	1.0
Hemlock Rd to County A	16,400	19,900	22,750	25,275	54.1	2.0
County A to County C	15,700	19,100	21,875	24,350	55.1	2.0
County C to County M	17,600	17,125	19,300	21,275	20.9	0.8
County M to WIS 26	12,600	16,325	18,400	20,250	60.7	2.2
WIS 26 to WIS 49	12,600	14,825	16,725	18,450	46.4	1.7

Forecasts through 2025 and 2035 indicate that segment-specific traffic trends are expected to continue, albeit at slower than recent growth rates. By 2035, the southernmost segments of the study corridor through the city of Beaver Dam are expected to continue to have higher volumes than those segments in and near the city of Waupun. The Burnett Street segment is forecasted to have the highest traffic volume into the future; it is expected to have 26,375 vehicles per day by 2035.

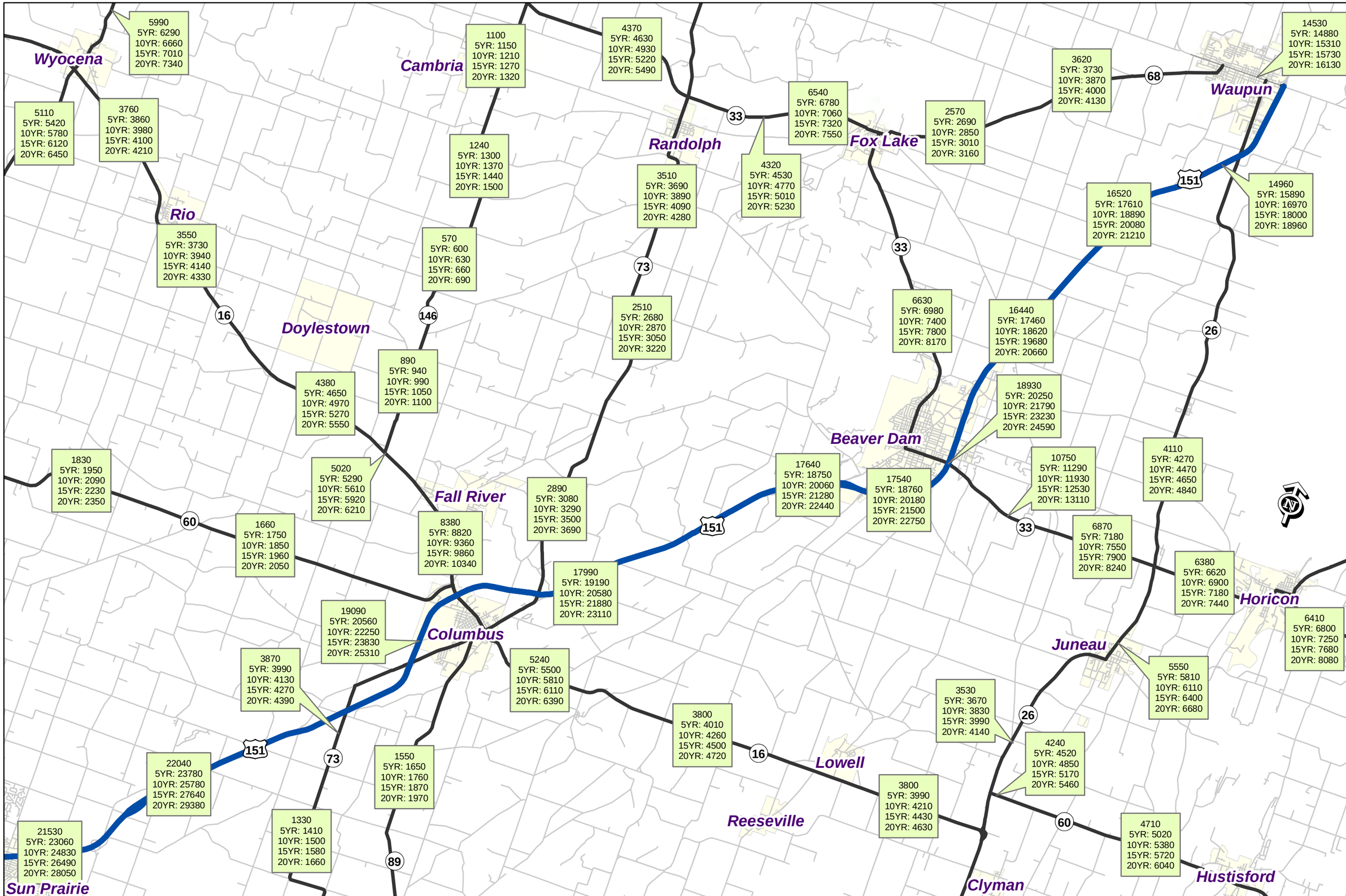


Exhibit 2

Traffic Forecasts

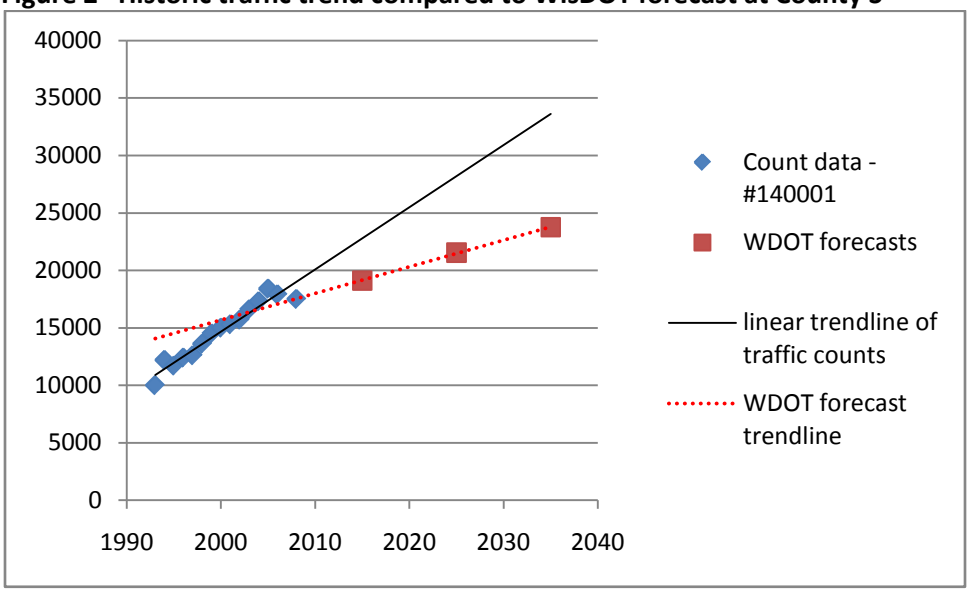
US 151 Freeway Study

Not to Scale

TranSmart

It is worth noting that historic AADT trends between 1995 and 2008, as shown in table 1, are much higher than average annual growth rates from WisDOT forecasts through 2035 (table 2). A typical example of this situation is shown in figure 2 which displays a graph comparing historic traffic trends projected out to 2035 and WisDOT traffic forecasts for the US 151 segment near County S. It is clear from this comparison that historic trends would project much higher traffic volumes on this segment than the WisDOT forecast. It is possible that actual future traffic volumes could fall somewhere between this trend projection and the WisDOT forecast if existing conditions remain the same in the future.

Figure 2 Historic traffic trend compared to WisDOT forecast at County S



2.2 Level of Service

Analyses were performed to determine the long-term function of US 151 in its existing configuration. All traffic capacity and operational analyses were performed using HCS Plus Software and the 2000 Highway Capacity Manual methodology in accordance with WisDOT standards as indicated in the Facilities Development Manual (FDM) Procedure 11-5-3. Each segment was evaluated by determining a Level of Service (LOS) from the analysis. LOS is a letter grade assigned to a transportation facility to designate the quality of operations or extent of delay. The grades range from A (best) to F (worst):

- LOS A – primarily free-flow operations at average travel speeds; unimpeded maneuvering; delay at intersections is minimal
- LOS B – reasonably unimpeded operations; average travel speeds; maneuvering is only slightly restricted; unsubstantial delay at intersections

- LOS C – stable operations; maneuvering and lane-changing is more restricted than at LOS B; lower travel speeds but good throughput
- LOS D – typical operations goal; generally stable operations; small increases in flow can cause larger increases in delay and decreases in speed
- LOS E congestions; unstable operations; significant delays; low travel speeds; commonly occurs when a facility is near capacity
- LOS F – extremely low speeds; significant congestion; extensive queuing; usually indicates an over-capacity condition

WisDOT has set standards for acceptable levels of service in FDM Procedure 11-5-3, table 1. For a Corridor 2030 Backbone Route like US 151, the acceptable LOS is C or better.

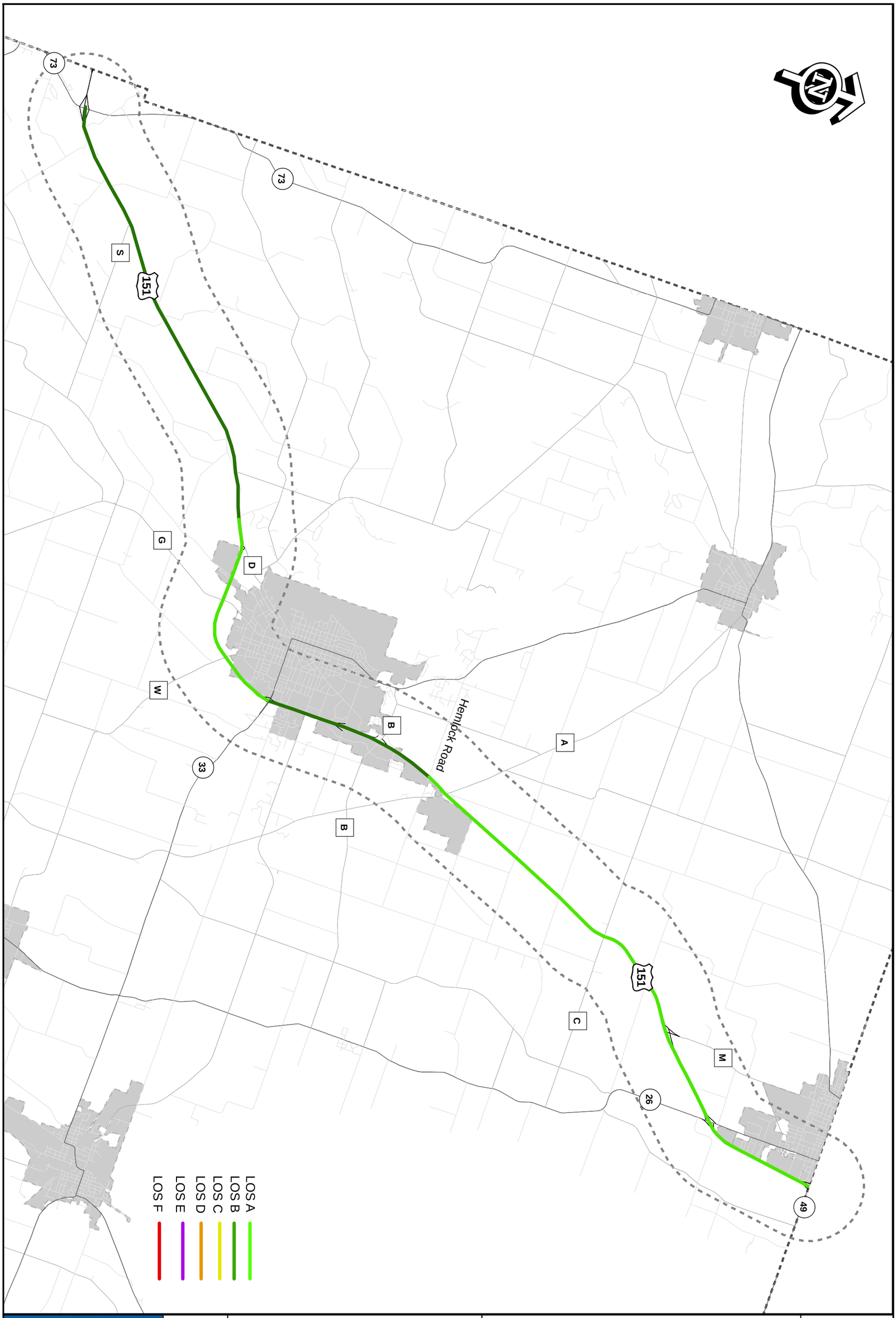
Levels of service for US 151 segments were determined using data shown in table 2 above. The 27-mile study corridor between WIS 49 in Columbus and WIS 73 in Waupun was analyzed as 11 sub-segments, one for each traffic counter location. WisDOT has counted average daily traffic (ADT) at these 11 locations periodically since 1993. Forecasts for 2015, 2025, and 2035 were based, in part, on the historical counts. All segments were evaluated with their present configuration and access conditions. Analyses indicate that US 151 is operating at high levels of service and will continue to do so for the foreseeable future with the existing facility. Table 3 details the current and forecast levels of service for the 11 segments. As the table shows, in 2008 US 151 was operating at LOS A on most of the study corridor, and LOS B on four segments. Exhibits 3 and 4 show the levels of service for 2008 and 2035 for the corridor under the existing configuration.

Table 3 Current and forecast levels of service along US 151 (existing highway facility)

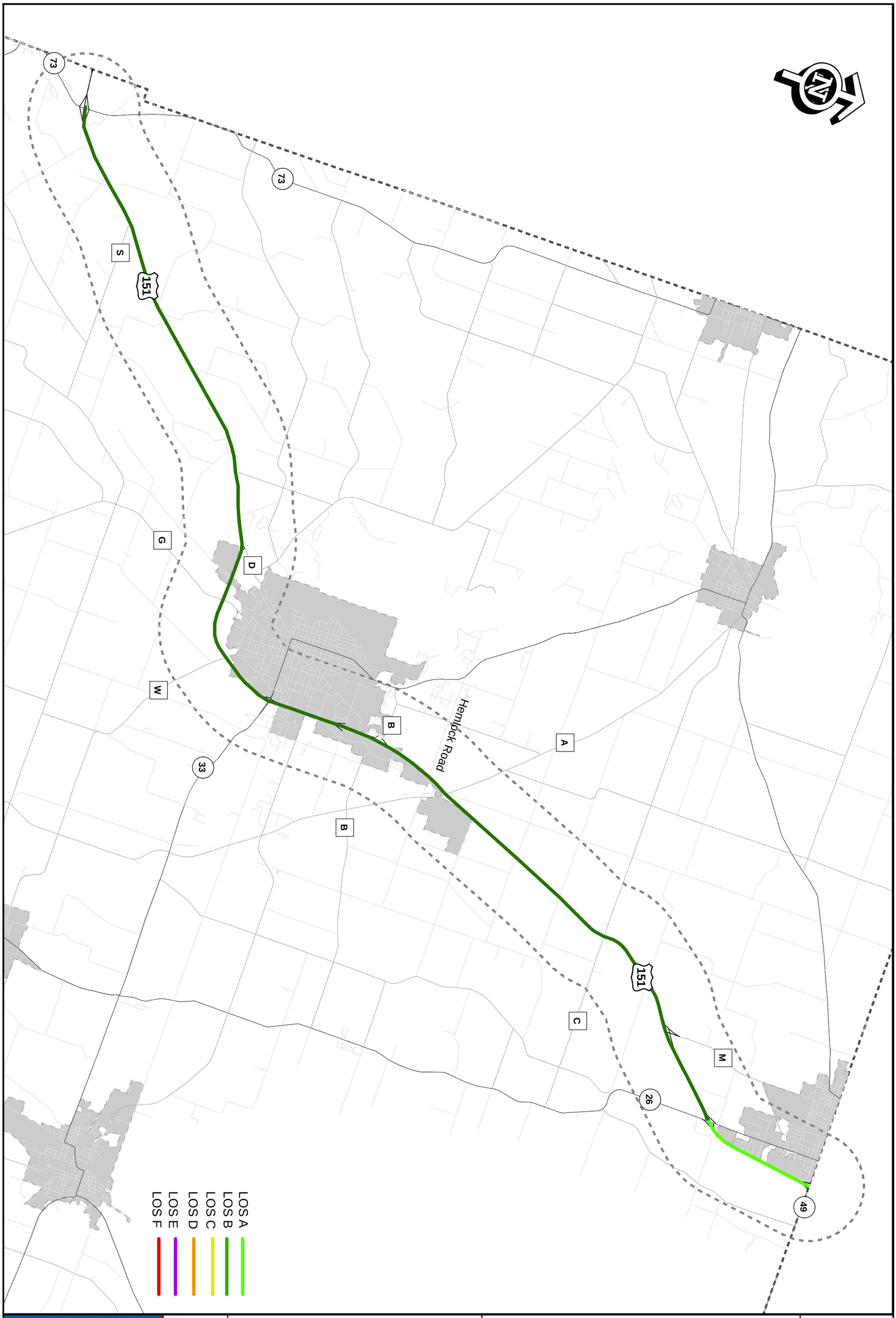
Segment	2008	2015	2025	2035
WIS 73 to County S*	B	B	B	B
County S to County D*	B	B	B	B
County D to County W+	A	B	B	B
County W to WIS 33+	A	B	B	B
WIS 33 to County B+	B	B	B	B
County B to Hemlock Rd+	B	B	B	B
Hemlock Rd to County A+	A	B	B	B
County A to County C *	A	B	B	B
County C to County M+	A	A	B	B
County M to WIS 26+	A	A	A	B
WIS 26 to WIS 49+	A	A	A	A

* Segment has significant at grade intersections or driveway connections that would be relocated or converted to grade-separated interchanges if converted to freeway.

+ Segment has few, if any, at-grade intersections or driveway connections that would be closed or converted to grade-separated interchanges if converted to freeway.



TranSmart	Not to Scale	US 151 Freeway Study	2008 Current Level of Service	Exhibit 3



TranSmart	Not to Scale	US 151 Freeway Study	2035 Forecast Level of Service	Exhibit 4

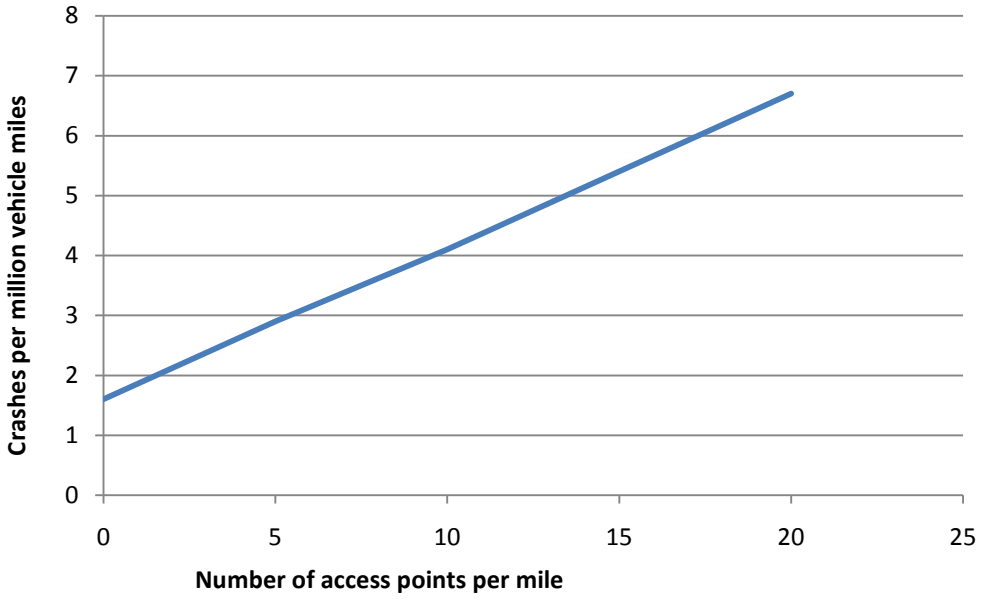
Analysis of forecast data indicates that levels of service remain favorable through 2035 for the entire corridor. All segments are expected to retain LOS A or B without any changes or improvements (HCS+: Multilane Highways or Basic Freeway Segments Release 5.4).

2.3 Access Inventory

Access management is planning and management of the number and location of driveway connections, field entrances, and public roadway intersections to help maintain safe, efficient movement of traffic. It also helps to prevent the roadway from becoming too congested while still providing adequate access to adjacent lands.

While growth and development are usually beneficial for area economies, they can result in too many access points located too close together if not properly managed. As a result, traffic congestion increases, conflicts between land uses and highway traffic grow, crashes increase, property owners become frustrated, and property values may fall as some owners move away. Figure 3 illustrates the relationship between crash rates and the number of access points per mile of rural expressways. If access is not controlled, speed limits may have to be lowered as a result of increasing conflicts and crashes.

Figure 3 Crash rate versus roadway access points for rural expressways



Source: Federal Highway Administration

Access management can be used to help reduce or better manage congestion problems and delay. Successful access management can also increase the capacity of the existing facility, thereby lessening the need for highway capacity expansion. According to WisDOT Facilities Development Manual Procedure 7-40-1, Wisconsin state statute 84.295 authorizes official mapping and access control of freeways and expressways "to more adequately serve the present and anticipated future needs of highway travel." On an existing highway alignment, reasonable provision of access to abutting property shall be provided by service roads.

Table 4 Access inventory

	WIS 73 to County D (8.74 miles)	County D to County B (5.52 miles)	County B to County M (7.74 miles)	County M to WIS 49 (4.03 miles)
Agricultural	16	4	8	8
Commercial/industrial	6	0	0	0
Residential	27	0	11	0
Utility	1 (joint)	0	1	0
Street intersection	8	0	6	0
Interchange	2	4	2	2
Cemetery	1 (joint)	0	1	0
Total access points	59	8	29	10
Access points/mile	**6.6**	**1.4**	**3.7**	**2.5**

Table 4 shows the numbers of access points by type along the US 151 study corridor. The southernmost segment, from WIS 73 to County D, has the highest number and greatest density of access points (58, or 6.6 per mile). This is due to the expressway character of this segment and the predominance of established agricultural operations in the area. The segment from County D to County B has the lowest concentration of access points in the study corridor at 1.4 per mile; this reflects the freeway character of this segment and its recent construction as a freeway bypass around the city of Beaver Dam.

2.4 Safety

A safety analysis report, examining safety data from 2002 to 2005, was produced as part of the larger US 151 study (the complete *Safety Analysis Report* can be found in appendix A). The report found that, in general, crash and injury rates on US 151 exceeded statewide averages for similar rural freeways across the state. Table 5 shows crash data collected for four US 151 segments.

Table 5 US 151 segment crash data

	Number of crashes	Crash rate	Number of injury crashes	Injury crash rate	Number of fatalities	Fatality crash rate
Entire corridor**	570/366*	77/50	137/133	19/18	5/4	0.7/0.5
Southern expressway	241/149	88/54	53/51	19/19	3/3	1.1/1.1
Beaver Dam bypass	103/88	55/47	35/35	19/19	0/0	0.0/0.0
Northern expressway	157/80	87/44	33/32	18/18	1/0	0.6/0.0
Waupun bypass	67/48	70/50	15/14	16/15	1/1	1.1/1.1
Statewide averages	-	*76*	-	*18*	-	*0.5*

**Deer/non-Deer; **Two crashes occurred on US 151 within the project limits at undetermined locations*

A few segments of the highway had fatality crash rates of 1.1 per million vehicle miles. All intersections studied had crash rates below 1.0 per million entering vehicles; however, a few were found to have crash severities higher than 30 percent, notably the WIS 33 interchange at 39 percent, the intersection at Iron and Hammer roads at 45 percent, and the County DE/Jackson Road intersection at 55 percent. Table 6 shows intersection crash and severity rates for the corridor. The locations where crash severity rates are particularly high, along with segment crash rates and the locations of fatal crashes, can be seen in exhibit 4.

Table 6 Intersection crash data

Intersection	Total Crashes	Estimated Entering Volumes	Intersection Crash Rate	Severity (%)
STH 73 (interchange)	4	5,150*	0.43	50
CTH S	3	17,500	0.09	100
Salem Road	1	17,000	0.03	0
Forest Road	2	17,000	0.06	0
CTH DE/Jackson Road	11	17,000	0.35	55
Beaverland Parkway	2	17,000	0.06	0
Iron Road/Hammer Road	11	17,200	0.35	45
CTH D (interchange)	8	19,300	0.23	25
CTH G (interchange)	4	4,970*	0.44	0
STH 33 (interchange)	31	17,675*	0.96	39
Industrial Drive (interchange)	1	7,150*	0.08	100
CTH B (interchange)	6	10,350*	0.32	33
Hemlock Road	2	15,600	0.07	50
CTH A (interchange)	2	5,070*	0.22	50
Walnut Road	1	15,600	0.04	0
Breezy Point Road	2	15,600	0.07	50
Redwood Road	1	15,600	0.04	100
CTH C	5	15,900	0.17	20
Oakwood Road	5	14,900	0.18	40
CTH M (interchange)	12	15,850	0.41	25
STH 26 (interchange)	7	5,000*	0.77	14
STH 49 (interchange)	7	15,500*	0.25	57

**Only includes ramp and intersecting highway entering volumes*

Deer and weather were factors in a large number of crashes occurring on the corridor. In addition, driver error included driving too fast for conditions, failure to bring vehicle under control, inattentive driving, and failure to yield in some cases.

The crash analysis report identifies the expressway segments of US 151 as priority locations for safety related enhancements. As traffic volumes increase over time, it is anticipated that the at-grade access points including driveways, local road connections, and field entrances should experience increased crashes. Even though crash numbers/rates at many intersections are relatively low, due to the high speeds on the corridor the majority could result in injury and/or fatalities. In addition, the WIS 33 interchange and the County D and County M interchanges could be examined to identify geometric improvements to enhance the safety of these interchanges, while the close proximity of the Iron Road/Hammer Road intersection to the County D interchange could also be investigated.

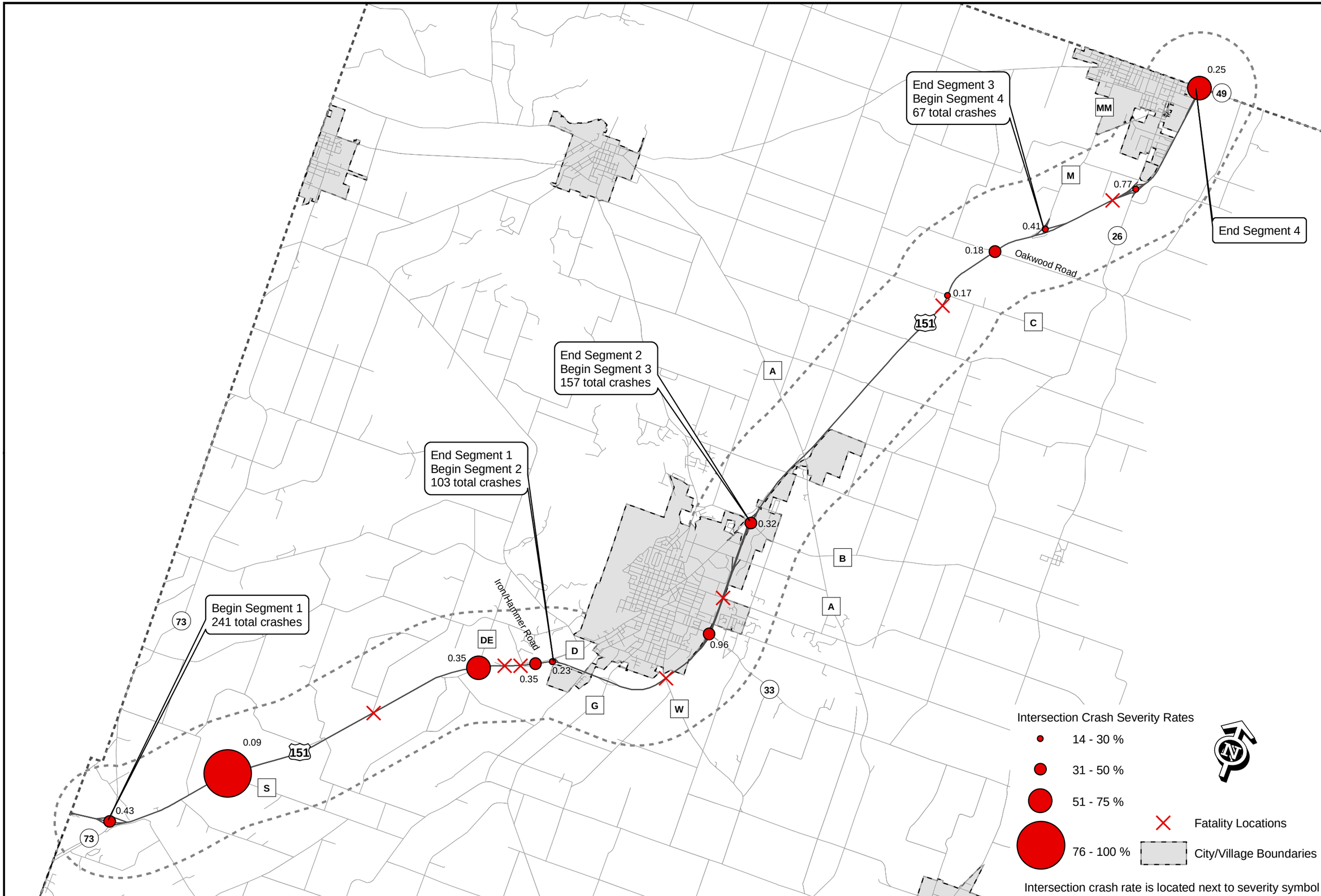


Exhibit 5

Crash Severity Rates By Location

US 151 Freeway Study

Not to Scale

TranSmart

2.5 Land Use Analysis

Comprehensive plans for communities immediately adjacent to the US 151 study corridor were analyzed for impacts on the future function of US 151. Additional information was gathered from newspaper articles and personal interviews with local officials. Future land use changes that could increase traffic and impact safety have been highlighted in comments pertaining to each community mentioned below.

Town of Elba

Additional commercial and residential development is foreseen south of the WIS 73 interchange along the WIS 73 corridor. Although recent crash rates at this intersection have been low, they could increase as commercial traffic grows.

Town of Calamus

The town does not have a comprehensive plan available for analysis; Dodge County's future land use plan was used to predict future land use patterns for the town. In the east central sector of the town, commercial uses are foreseen to continue where US 151 meets the Gunn, Klatt, and Jackson roads area, site of a future interchange. The town plan does not appear to cause a significant increase in traffic or to interfere with proposed alternatives.

Town of Beaver Dam

The town has not yet updated its comprehensive plan. Dodge County's future land use plan was used to predict future land use patterns for the town. New commercial uses, possibly big box retail, are planned for the area near the intersections of US 151 with County G and County B.

Town of Trenton

According to town and county plans, future commercial and industrial uses are vastly expanded at the intersection of US 151 and County A.

Town of Chester

According to town and county plans, new commercial development is foreseen in the northeast quad of the intersection of US 151 and WIS 26.

City of Waupun

A planned-unit development (PUD) is foreseen in the northeast quadrant of the US 151/WIS 49 intersection, about 250 acres in size, while it is expected that 40 acres of new commercial uses will be developed in the northwest quadrant (Gateway Center). The city is also very interested in acquiring roughly 260 acres of the

Waupun Correctional Institute farm located in the southeast quadrant of the US 151/WIS 49 intersection. At the intersection of US 151 and WIS 26, a commercial PUD of about 80 acres in the northeast quadrant (see Town of Chester) and 160 acres of industrial development in the northwest quadrant are planned.

3.0 Concept Evaluation

The US 151 concept proposes to improve the corridor to freeway standards, thus meeting the long-term goals for the highway as stated in Connections 2030. Much of the existing corridor already achieves freeway standards; however, some segments are at expressway standards with at-grade intersections, field entrances, and driveways. In order to improve safety and increase travel speeds, the concept proposes to eliminate all at-grade crossings and most access points along the highway. It would create three new interchanges, reconstruct one existing interchange, construct seven new overpasses for local roads and two over railroad tracks, raise the grade of a one-mile segment of the highway in Beaver Dam, construct several miles of new frontage roads, and eliminate numerous at-grade public roads, driveway connections, and field entrances.

3.1 Level of Service

Analyses were performed to determine the long-term function of US 151 under the improved configuration depicted in the concept using the evaluation standards described in part 1. Levels of service for the indicated segment locations were determined using data found in table 2. All segments were evaluated assuming the concept's configuration and access conditions.

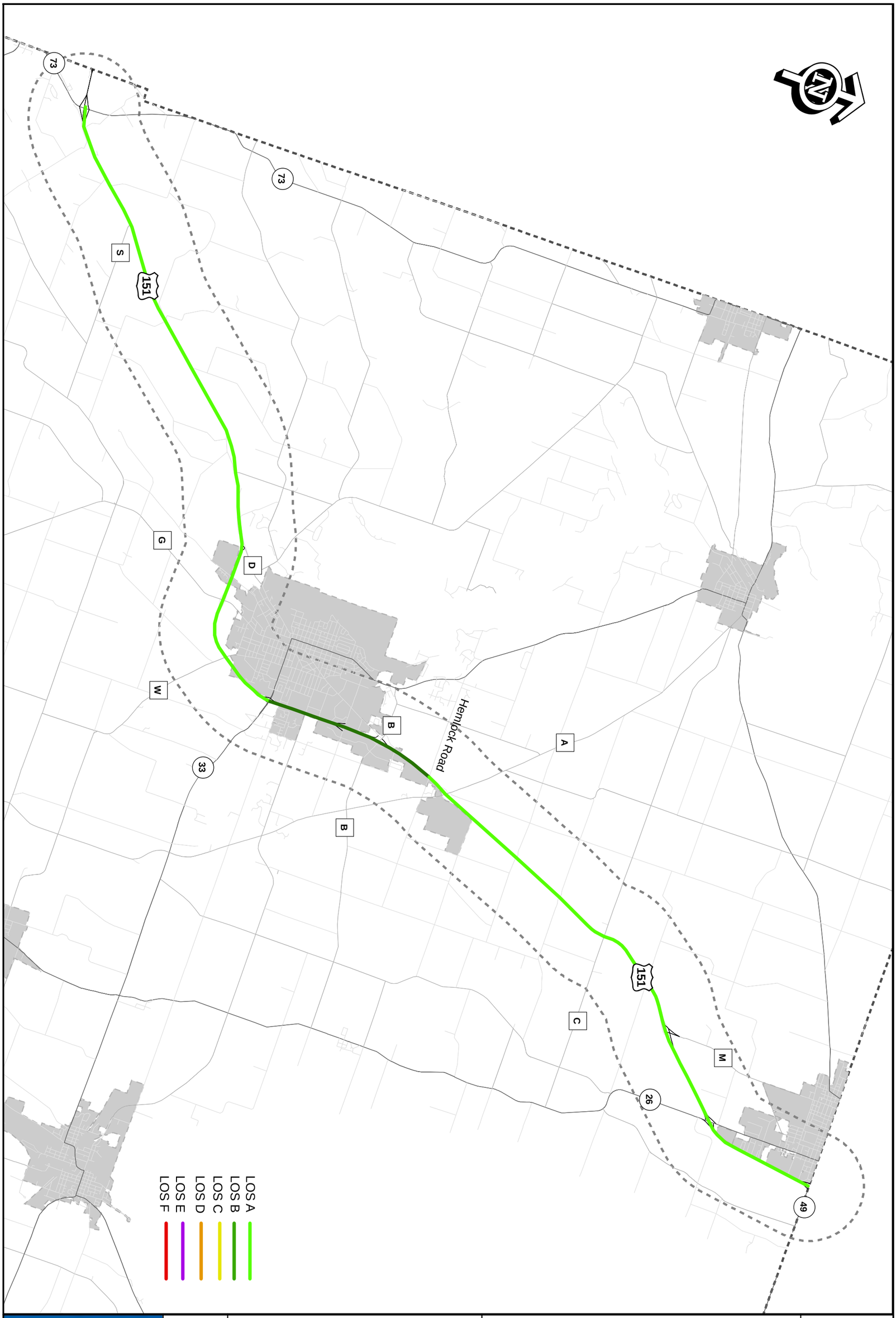
Analyses indicate that US 151 would operate at slightly higher levels of service with the concept's configuration over the existing configuration, and would continue to do so for the foreseeable future. Table 7 indicates the levels of service under the concept configuration for several selected locations. For existing traffic volumes, the concept would improve the level of service at Moriah Road and County S from LOS B to LOS A.

Table 7 Levels of service under concept configuration

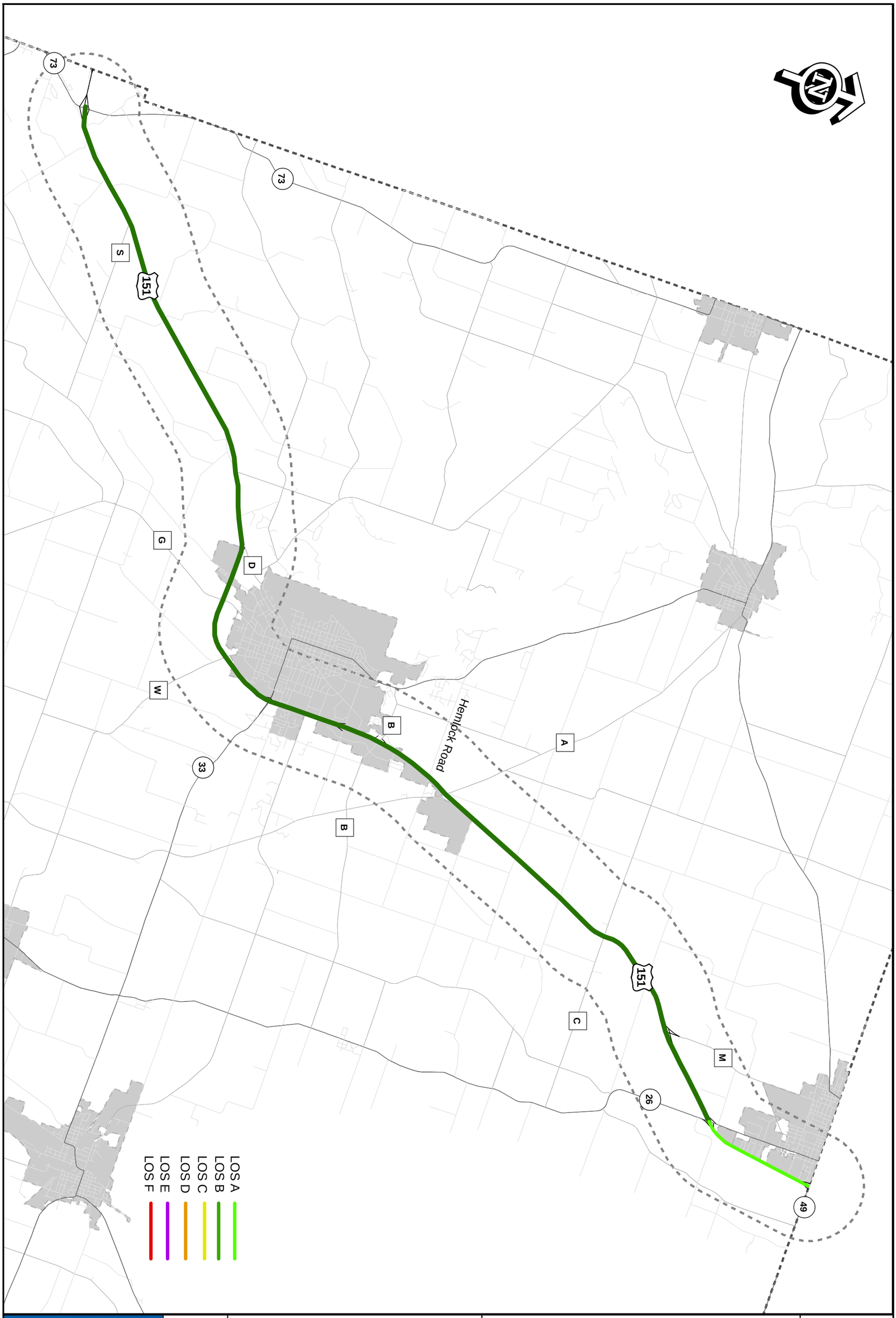
	2008	2015	2025	2035
WIS 73 to County S*	A#	B	B	B
County S to County D*	A#	B	B	B
County D to County W+	A	B	B	B
County W to WIS 33	A	B	B	B
WIS 33 to County B	B	B	B	B
County B to Hemlock Rd	B	B	B	B
Hemlock Rd to County A	A	B	B	B
County A to County C*	A	B	B	B
County C to County M	A	A	B	B
County M to WIS 26	A	A	A	B
WIS 26 to WIS 49	A	A	A	A

* Segment has significant at grade intersections or driveway connections that would be closed or converted to grade-separated interchanges if converted to freeway.
# Segment had LOS B when analyzed with existing access points.
+ Segment has few, if any, at-grade intersections or driveway connections that would be closed or converted to grade-separated interchanges if converted to freeway.

Analysis of forecast traffic data indicates that levels of service would remain high through 2035 for the entire corridor. When analyzed as a freeway-only highway (HCS+: Basic Freeway Segments Release 5.4), the LOS improved on two of the three upgraded sub-segments using 2008 volumes. Upgrading a segment, or converting to freeway standards, consists of limiting access to interchanges only. All segments are expected to retain service at LOS A or B. Exhibits 6 and 7 illustrate the levels of service for corridor segments for 2008 and 2035 under the concept configuration.



TranSmart	Not to Scale	US 151 Freeway Study	2008 Level of Service Under Concept	Exhibit 6



TranSmart	Not to Scale	US 151 Freeway Study	2035 Level of Service Under Concept	Exhibit 7

3.2 Access

The concept proposes to remove conflicts by converting the entire study corridor to freeway standards. It eliminates all at-grade intersections and nearly all access points; only one current access – a field entrance to the Rake farm located on the east side of US 151 between County S and Van Buren Road in the town of Calamus – is retained in the proposed concept.

Due to the elimination of intersections and driveways, the concept will cause some indirection and increase travel time and distance for local residents, farmers, and businesses located near the highway. Furthermore, emergency vehicles might experience increased travel times in order to reach specific locations near the corridor. Appendix B, *Agriculture, EMS, and School Bus Survey Report*, describes agricultural, emergency, and school bus activities on the corridor and highlights pertinent issues related to these activities. Table 8 lists certain properties that will likely experience increased indirection due to access changes.

Table 8 Properties that could experience indirection effects due to access closures

Farm ID number	Location	Owner	Existing condition	Effect of concept
10, 33	Just south of County S, parcels straddling US 151	Daniel & Gloria Rake; Robert Rake	Cross US 151 at field entrance and County S	1.4-mile increase in one-way travel using Bethel Rd overpass
36,37	¼-mile northeast of County S	Merlin & Betty Thom	Field entrance directly across US 151 from farmstead	1.4-mile increase in one-way travel using County S overpass
21	½-mile northeast of County S	Hilda K. Lenz	Field entrance directly across US 151 from farmstead	1.6-mile increase in one-way travel County S overpass
Unk	0.6-mile southwest of Salem Rd	Jim & Kara Rake; Eugene Rake	Field entrance directly across US 151 from farmstead*	1.9-mile increase in one-way travel using County S overpass
19	Just north of Salem Rd	Donald & Nancy Lueptow	Field entrance directly across US 151 from farmstead	Possible 0.5-mile increase in one-way travel using Salem Rd overpass
6	½-mile northeast of Salem Rd	Virgil & Patricia Lauth; Stanley & Diane Kirschbaum	Driveways at Kirschbaum and Lueptow properties used to access farmland	1.4-mile increase in one-way travel using Salem Rd overpass
Unk	At Forest Rd	Alfred Affeldt & Richard Affeldt	Driveway opposite Forest Rd	0.8-mile increase in one-way travel using Forest Rd overpass
Unk	Between Forest & Gunn rds	Several private residences	Driveways	Minor indirection depending on driver behavior. Frontage roads accommodate both directions.
25	½-mile southwest of Klatt Rd	Bernadine Zuehlke	Field entrances directly across from each other	1.7-mile increase in one-way travel using Gunn Rd overpass
36	1/4-mile southwest of County DE	Mervin & Nancy Schaefer; unknown lessor	Cross US 151 at County DE/Klatt Rd to reach leased parcel	Possible 1.4-mile increase in one-way travel using Gunn Rd overpass
25	Farmstead on County	Unknown	Cross US 151 at County	1.6-mile increase in one-way

	DE		DE/Klatt Rd to reach property on Jackson Rd	travel using Gunn Rd overpass
20	At Hammer Road	David Apple Trust	Cross US 151 at Hammer Rd	Unclear if there would be an increase in travel
40	Between Walnut & Breezy Pt rds	Frederick Bird & Robert Bird; Rabate?	Field entrance on Bird property	1-mile increase in one-way travel using Breezy Pt Rd overpass
Unk	Parcels straddle US 151 between Walnut & Breezy Pt rds	James & Maxine Ferron	Breezy Pt Rd	Unclear if there is an effect
30	Between Breezy Point and Redwood roads	Robert & Corrine Butterbrodt Trust	Cross US 151 at Breezy Pt and Redwood rds and field entrance	Unclear if there would be an increase in travel
28, 41	On north side of Redwood Rd	Dennis & Diana Pieper	Cross US 151 at Redwood Rd	1.1-mile increase in one-way travel using new Redwood Rd overpass
38	Between Redwood Rd & County C	Louise Zastrow; Robert & Judith Born; Delvin & Beverly Krueger	Cross US 151 at field entrances and/or Redwood Rd & County C	2.5-mile increase in one-way travel using new Redwood Rd overpass
NA	West side of US 151, off County C	Numerous residences	Access US 151 from County C	0.5 to 3.5-mile increase depending on routes used.
Unk	¼-mile north of County C	Byron & Renee Bruins	Driveway & field entrance	1.7-mile increase in travel using new County C overpass
31	North side of Oakwood Rd	Philip & Mary Hofman	Cross at frontage rd 0.5-mile northeast of Oakwood Rd	1.6-mile increase in travel using new County M overpass
43	West of Buwalda Rd & RR, straddling US 151	Erwin & Evelyn Buwalda	Cross at field entrance	No impact with proposed road & overpass of RR.
NA	East of Buwalda Rd & RR, straddling US 151	Paul & Wendy Vandezande	Cross at field entrance	Precise impact unclear. Likely 0.8-mile increase if WIS 28 could be used, more if not.
13	South of WIS 49	State of Wisconsin (prison)	Field entrances	1-mile increase in travel using WIS 49 overpass

*Map indicates that field entrance on east side of US 151 would remain open, but that farmstead driveway on west side would be closed.

3.3 Safety

This section is intended to evaluate the proposed concept with regards to highway safety, specifically historical crash data. As described in previous sections of this report, segment and intersection crash rates for the US 151 study corridor are high for WisDOT rural expressways; certain intersections are remarkable for the severity of crashes. The elimination of at-grade road and railroad crossings and other access points should reduce the frequency and severity of crashes in the corridor.

The concept calls for limiting or eliminating access to US 151 at several locations where crash severity is higher, particularly at Jackson Road/County DE and Iron Road/Hammer Road. Reducing access per the proposed concept could reduce crash severity at these locations. However, the concept does not call for design

changes at the WIS 33 interchange where crash severity is 39 percent, or at the WIS 49 interchange where crash severity is 57 percent. Further analysis of crash data at these locations could identify the causes of crash severity. Improving roadway and access geometrics could reduce crashes in such locations.

3.4 Land Use

This section analyzes the impacts that the concept could have on land use in corridor communities. Interchanges and frontage and access roads can have significant land use impacts in their immediate and surrounding vicinity.

The creation and location of interchanges can influence surrounding land uses, primarily in two ways. First, the construction of frontage and property access roads and freeway ramps will render a certain amount of agricultural land unusable for such purposes, by using land for road right of way and by subdividing parcels into smaller ones that are often too small to be economically viable for agriculture. Constructing overpasses and associated frontage roads can also remove several acres of land from agricultural use. Even with the construction of new access roads, removing field entrances and driveways could reduce the value of affected farmland and other properties. Second, easy access to a freeway often creates a commercial value for the land adjacent to the interchanges that did not previously exist, spurring its conversion to commercial use in the absence of restrictive land use controls.

Town of Elba

The concept proposes to construct an overpass and frontage roads at Bethel Road, and remove direct access to three field entrances and two residential driveways.

Town of Calamus

The concept proposes to construct interchanges at County S and Gunn Road and overpasses at Salem and Forest roads, and remove direct access to ten field entrances, eighteen residential driveways, and four commercial driveways. Creating interchanges at County S and Gunn Road will immediately remove several acres of privately-owned land from agricultural use.

Town of Beaver Dam

The concept proposes to extend County D further south, construct frontage roads for residential access, and connect County D to the frontage road on the south/east side of US 151. It also proposes to remove direct access to six field entrances, five residential driveways, and two commercial driveways. A design

alternative proposes to construct an overpass for County DE and roads for residential access.

City of Beaver Dam

The concept proposes to construct new overpasses at County E and a WSOR railroad track. It would have no discernable effect on land use in the city.

Town of Trenton

The concept proposes to construct a new interchange at Redwood Road, and overpasses at Breezy Point and Oakwood roads and County C. It also proposes to remove direct access to eight field entrances and eight residential driveways. Creating an interchange at County C would immediately remove several acres of privately-owned land from agricultural use.

Town of Chester

The concept proposes to improve the interchange at County M, construct new overpasses at Oakwood Road and the WSOR railroad track, and remove seven field entrances and two driveways. Improving the interchange at County M and constructing the overpass for Oakwood Road would immediately remove several acres of privately-owned land from agricultural use.

City of Waupun

The concept proposes to eliminate one field access in the city. It would have no discernable effect on land use in the city.

4.0 Conclusions

Analysis indicates that US 151 will continue to function in its current form through 2035. Conversion of all segments will maintain the highway's level of service and improve safety at several intersections. Crash rates along the corridor have been low by state standards, but crash severity rates have been higher than state averages. Conversion will eliminate some hazardous crossings. Crash severity at other points, specifically at the WIS 33 and WIS 49 interchanges, could be addressed through closer investigation of conditions at these locations.

The proposed concept for US 151 will change numerous access points along the highway. All at-grade intersections and nearly all direct access points will be eliminated, removing many traffic conflicts. Eliminating intersections and changing field entrances and driveway access will result in some indirection for local residents, farmers, and businesses. Emergency vehicles might experience increased travel times.

Land use changes are expected at some locations near the highway. Land use change could also occur at new interchanges. Planned commercial development is expected to occur at the WIS 49 interchange in the near future, possibly increasing traffic at this location on the corridor.

Appendix B

Safety Analysis Report

Safety Analysis Report
For
USH 151 Freeway Study

Project ID 1110-00-09
(Columbus to Waupun – Columbia, Dodge, Fond du Lac Counties, WI)

TranSmart

Introduction and Methodology

Ayres Associates, Inc. contracted with TranSmart Technologies to conduct a safety analysis for the USH 151 Freeway Study between STH 73 and STH 49. The ultimate goal of the study is to analyze the impact of the conversion of USH 151 to a freeway within the study limits. USH 151 was constructed within the past ten years as a four-lane expressway with a posted speed limit of 65 mph. Portions of the corridor, where it bypasses the cities of Columbus, Beaver Dam, and Waupun were constructed similar to freeways (access limited mainly to interchanges). The remaining segments of USH 151, primarily located in the rural areas between these communities, were constructed with at-grade access for public roads, private driveways, and field entrances.

Average Annual Daily Traffic (AADT) volumes along USH 151 range between 18,600 (near Beaver Dam) and 12,500 (near Waupun) with an average corridor wide AADT of 16,200 over the 25 miles studied. Intersections and interchanges along the corridor typically experience between 15,000 and 28,000 entering vehicles.

This report summarizes the project's crash analysis. The analysis includes the interchanges at the corridor termini. In addition, the corridor was divided into four logical segments based on the location of at-grade access along the corridor. The USH 151 corridor consists of two expressway segments in rural areas and two bypass (freeway) segments located near urban areas (see Appendix A):

- Southern Expressway Segment – Located between STH 73 and CTH D (Columbus to Beaver Dam) includes a portion of the Columbus bypass east of STH 73.
- Beaver Dam Bypass Segment – Located along the south and east side of the city of Beaver Dam between CTH D and CTH B/Gateway Drive. The majority of access is via interchanges.
- Northern Expressway Segment – Located between CTH B/Gateway Drive and CTH M/ Business USH 151 (Beaver Dam to Waupun).
- Waupun Bypass Segment – Located along the south and east side of the city of Waupun and includes the STH 26 interchange before ending at STH 49. The majority of access is via interchanges.

The crash analysis was initiated to determine where safety issues are emerging and included a review of crash records from the Wisconsin Department of Transportation (WisDOT). Intersection and segment crash rates were calculated along USH 151 between STH 73 (Columbus) and STH 49 (Waupun) in Dodge County as part of the study. A five year crash analysis was performed for crashes occurring between 2002 and 2006. The crash rates generated from the analysis were compared to statewide averages for similar highways over the same period of time. Further analysis included determining contributing factors, type, and crash severity in order to identify trends with the potential to be addressed through corridor improvements. Because of the rural character of the corridor, calculations consider both deer and non-deer collisions.

Corridor Crash Rates

A total of 570 crashes occurred within the study area between 2002 and 2006. Intersection crashes were also included in the corridor crash statistics as shown in Table 1, USH 151 Segment and Intersection Crashes.

Table 1, USH 151 Segment and Intersection Crashes

Segment Description	Total Crashes*	Non-Intersection Crashes*	Intersection Crashes
Southern Expressway Segment	241/149	199/107	42
Beaver Dam Bypass Segment	103/88	61/46	42
Northern Expressway Segment	157/80	127/50	30
Waupun Bypass Segment	67/48	53/34	14
Entire Corridor**	570/366	442/238	128

**Deer/non-Deer, **Two crashes occurred on USH 151 within the project limits at undetermined locations*

Of the crashes, 204 (36 %) involved collisions with deer. Another 207 crashes (36%) were single vehicle non-collision type crashes involving wet, snow, icy pavement conditions (29%), alcohol (9%), or other contributing factors such as driver error or objects/other animals in the roadway.

As shown in Table 2, USH 151 Segment Crash Statistics, the USH 151 crash rate of 77 per 100 Million Vehicle Miles travelled (MVM) is slightly higher than crash rates along similar rural freeway facilities across the state. WisDOT statewide averages for rural freeways were the closest available for comparison to USH 151 at the time the study was completed.

A total of 137 crashes (24%) involved injuries resulting in an injury crash rate of 19 per 100 MVM. Five fatalities (0.7 per 100MVM) were reported along the corridor over the years studied as well. Injury and fatality rates were slightly higher than the statewide average for similar rural freeway corridors over the same period of time.

Table 2, USH 151 Segment Crash Statistics

Segment Description	Number of Crashes	Crash Rate	Number of Injury Crashes	Injury Crash Rate	Number of Fatalities	Fatality Crash Rate
Entire Corridor**	570/366	77/50	137/133	19/18	5/4	0.7/0.5
Southern Expressway Segment	241/149	88/54	53/51	19/19	3/3	1.1/1.1
Beaver Dam Bypass Segment	103/88	55/47	35/35	19/19	0/0	0.0/0.0
Northern Expressway Segment	157/80	87/44	33/32	18/18	1/0	0.6/0.0
Waupun Bypass Segment	67/48	70/50	15/14	16/15	1/1	1.1/1.1
Statewide Averages	-	*76*	-	*18*	-	*0.5*

**Deer/non-Deer, **Two crashes occurred on USH 151 within the project limits at undetermined locations*

A. Expressway Segments

As can be seen in Table 2, even though the corridor as whole is only slightly higher than other state highways from a safety standpoint; both of the expressway segments are experiencing crash related issues above statewide averages. Of the crashes occurring on these two segments, deer (169) and single-vehicle, non-collision (132) types accounted for 76 percent of the crashes. Of the remaining 97 crashes, 33 percent included weather related contributing factors.

The largest concentration of crashes on the expressway segments occurred in the vicinity of CTH S and CTH C. Deer and single vehicle, non-collision crashes were, by far, the greatest crash type along the corridor as expected for rural highways. Four of the five fatalities along the corridor occurred on the expressway portions, with the southern expressway segment experiencing three fatalities occurring while vehicles were conducting turns onto side roads from USH 151.

B. Bypass (Freeway) Segments

As shown in Table 2, the bypass segments are experiencing crashes at lower rates than the statewide average for similar facilities. The primary crash type is single vehicle, non-collision type crashes followed by angle type crashes occurring near the interchange ramps. The bypass segments also had significantly lower numbers of crashes occurring in comparison to the expressway segments, even with the STH 33 interchange, which had a relatively high number of crashes compared to other intersections in the study (see Intersection Crash Rates). Injury crash rates were higher than the statewide average for the Beaver Dam Bypass segment. One fatality occurred at the at-grade railroad crossing located within the Waupun Bypass segment over the years studied.

Intersection Crash Rates

A total of 22 access points within the study area (ten interchanges and 12 at-grade intersections) experienced crashes over the years studied. The analysis of interchange crashes was considered preliminary because only the WisDOT database was reviewed. Because interchanges can consist of multiple intersections at the ramp terminals, it is often necessary to review individual crash reports to accurately determine locations and contributing factors. Consolidated crash rates at the ten interchanges were generally not significant enough to warrant individual review of crash reports (see Table 3, USH 151 Intersection Crash Statistics).

Intersection crash rates ranged between 0.3 per MEV (Million Entering Vehicles) and 0.96 per MEV. The average crash rate at intersections was 0.26 per MEV with the median crash rate of 0.22 per MEV. Crash rates were well below a typical crash rate threshold of 1.5 per MEV for further evaluation. However, crash severity and fatalities are additional considerations when evaluating intersection safety.

Along the USH 151 corridor, the majority of intersection crashes resulted in injury and two of the at-grade intersections experienced fatalities (Forest Road and Beaverland Parkway) over the period

studied. Over half of the intersections evaluated (62%) experienced significant crash severity (more than thirty percent of crashes at the intersection resulting in injury).

Table 3, USH 151 Intersection Crash Statistics

Intersection	Total Crashes	Estimated Entering Volumes	Intersection Crash Rate	Severity
STH 73 (interchange)	4	5,150*	0.43	50%
CTH S	3	17,500	0.09	100%
Salem Road	1	17,000	0.03	0%
Forest Road	2	17,000	0.06	0%
CTH DE/Jackson Road	11	17,000	0.35	55%
Beaverland Parkway	2	17,000	0.06	0%
Iron Road/Hammer Road	11	17,200	0.35	45%
CTH D (interchange)	8	19,300	0.23	25%
CTH G (interchange)	4	4,970*	0.44	0%
STH 33 (interchange)	31	17,675*	0.96	39%
Industrial Drive (interchange)	1	7,150*	0.08	100%
CTH B (interchange)	6	10,350*	0.32	33%
Hemlock Road	2	15,600	0.07	50%
CTH A (interchange)	2	5,070*	0.22	50%
Walnut Road	1	15,600	0.04	0%
Breezy Point Road	2	15,600	0.07	50%
Redwood Road	1	15,600	0.04	100%
CTH C	5	15,900	0.17	20%
Oakwood Road	5	14,900	0.18	40%
CTH M (interchange)	12	15,850	0.41	25%
STH 26 (interchange)	7	5,000*	0.77	14%
STH 49 (interchange)	7	15,500*	0.25	57%

**Only includes ramp and intersecting highway entering volumes*

The USH 151/STH 33 Interchange experienced the greatest number of crashes on the corridor (31) over the period of time studied. This interchange also had the highest volume of vehicles passing through it resulting in a crash rate of 0.96 per MEV. As a whole, crash severity at the interchange was also significant at 39 percent of crashes resulting in injury.

Both CTH D and CTH M/Business USH 151 interchanges experienced the next highest number of crashes on the corridor with the CTH D interchange having a significant amount of crashes resulting in injury (see Table 3). The CTH D interchange is an atypical design.

The at-grade intersections with the highest number of crashes were the USH 151/CTH DE/Jackson Road intersection and the USH 151/Iron Road/Hammer Road intersection. Roughly half of the crashes occurring at these intersections resulted in injury (55% at CTH DE and 45% at Iron Road). The dominant crash types at the intersections were angle and side swipe type crashes involving vehicles travelling in

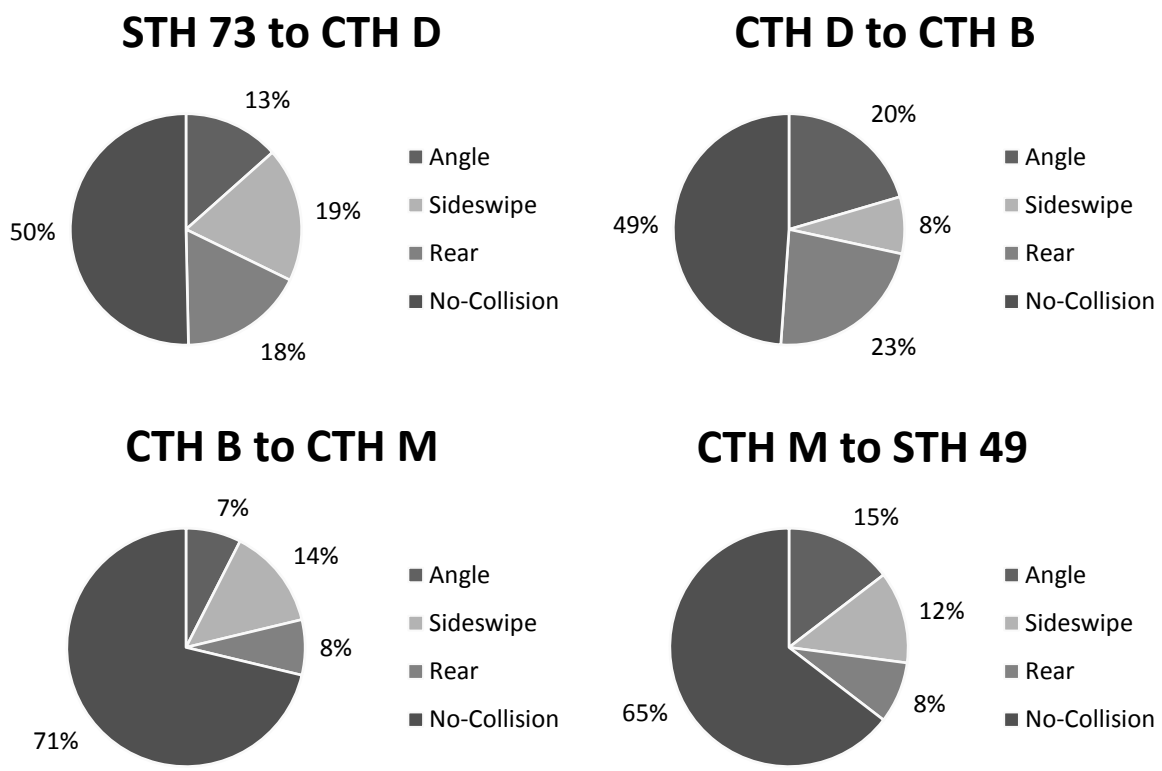
the USH 151 southbound lanes. In addition, the USH 151/Iron Road/Hammer Road intersection is located immediately downstream of the USH 151/CTH D interchange on-ramp.

Detailed information about the crashes at each intersection including the time, date, manner of collision, severity and contributing factors can be found in Appendix B, Detailed Intersection Crashes.

Crash Types

The types of crashes occurring on the USH 151 corridor are illustrated in Figure 1, USH 151 Manner of Collision. The most common type of crash occurring on all of the segments analyzed was single-vehicle, non-collision. Deer related crashes (not shown in the figure) accounted for 51 percent of the single-vehicle, non-collision type crashes on the corridor.

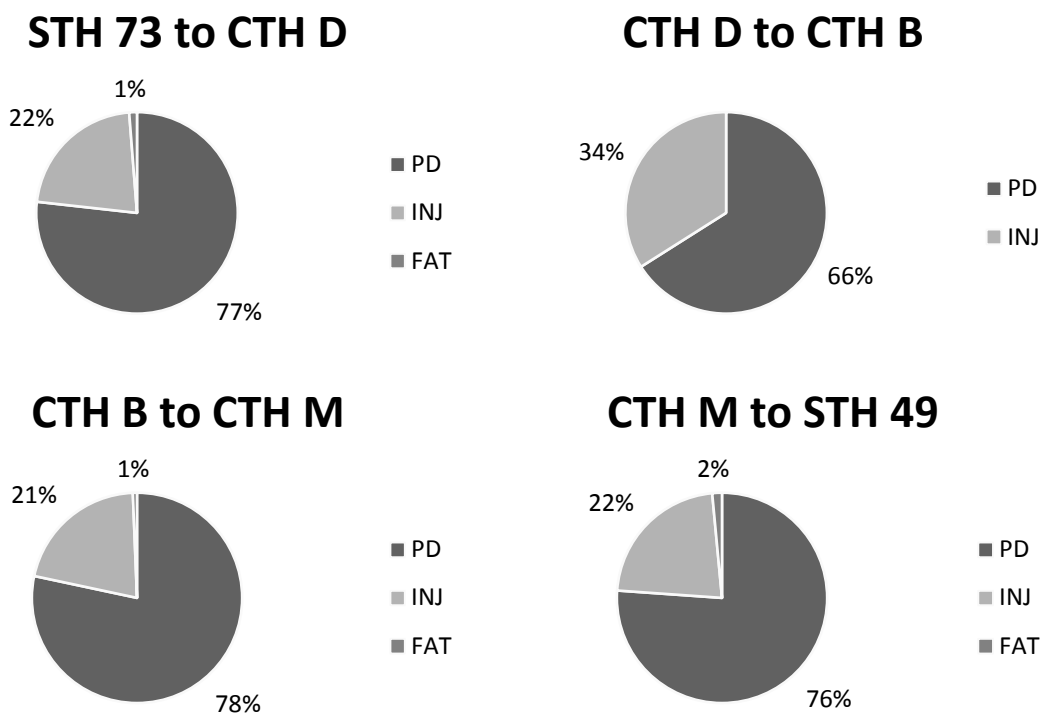
Figure 1, USH 151 Manner of Collision



Crash Severity

Even though the majority of crashes on USH 151 involved property damage only; a significant number of crashes involved injury for each of the segments. Of the four segments, the Beaver Dam bypass segment experienced the greatest percentage of injury crashes. Three of the four segments reviewed had fatalities. The three fatalities in the southern expressway segment occurred as vehicles were making turns at intersections with local roads. In the northern expressway segment, the fatality was a result of a collision involving a deer, and in the Waupun bypass segment, the fatality was the result of a collision with a train during foggy conditions.

Figure 2, USH 151 Crash Severity

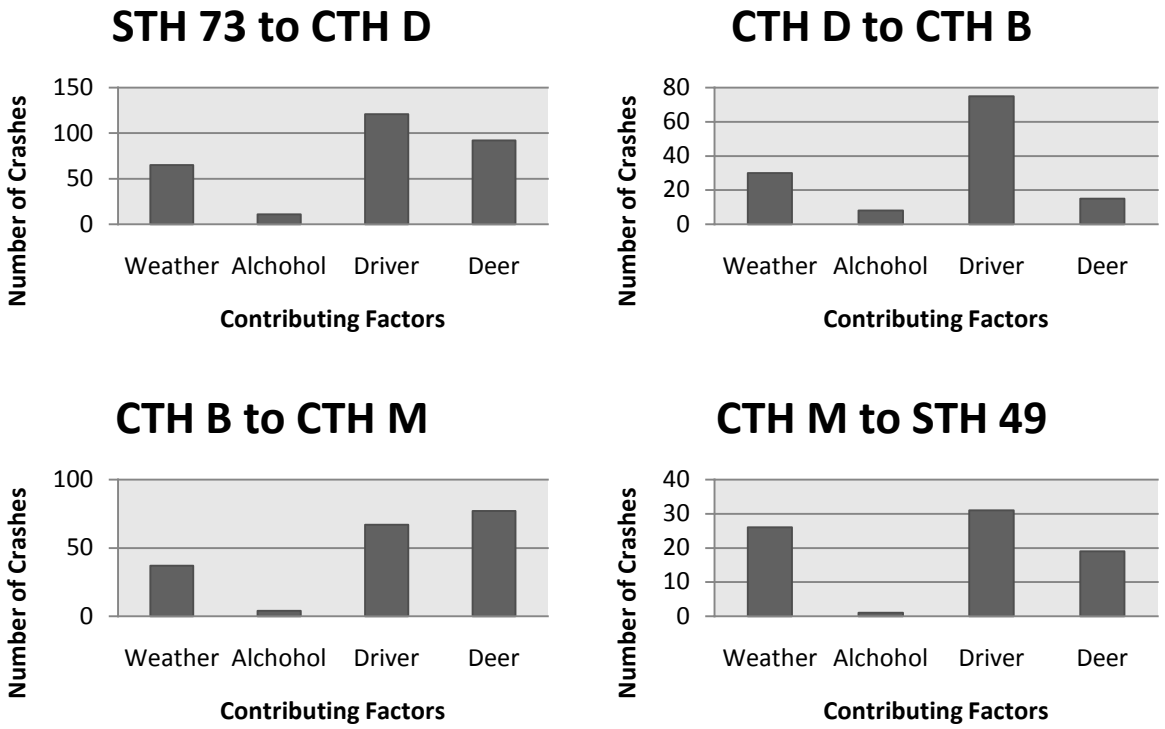


**PD = Property Damage Only, INJ = Injury, FAT = Fatality*

Contributing Factors

Factors that contributed to the crashes are illustrated in Figure 3, Contributing Factors. Deer and weather were factors in a large number of crashes occurring on the corridor. In addition, driver error included driving too fast for conditions, failure to bring vehicle under control, inattentive driving, and failure to yield in some cases. Some crashes included multiple factors and therefore, the tables are not cumulative.

Figure 3, USH 151 Contributing Factors



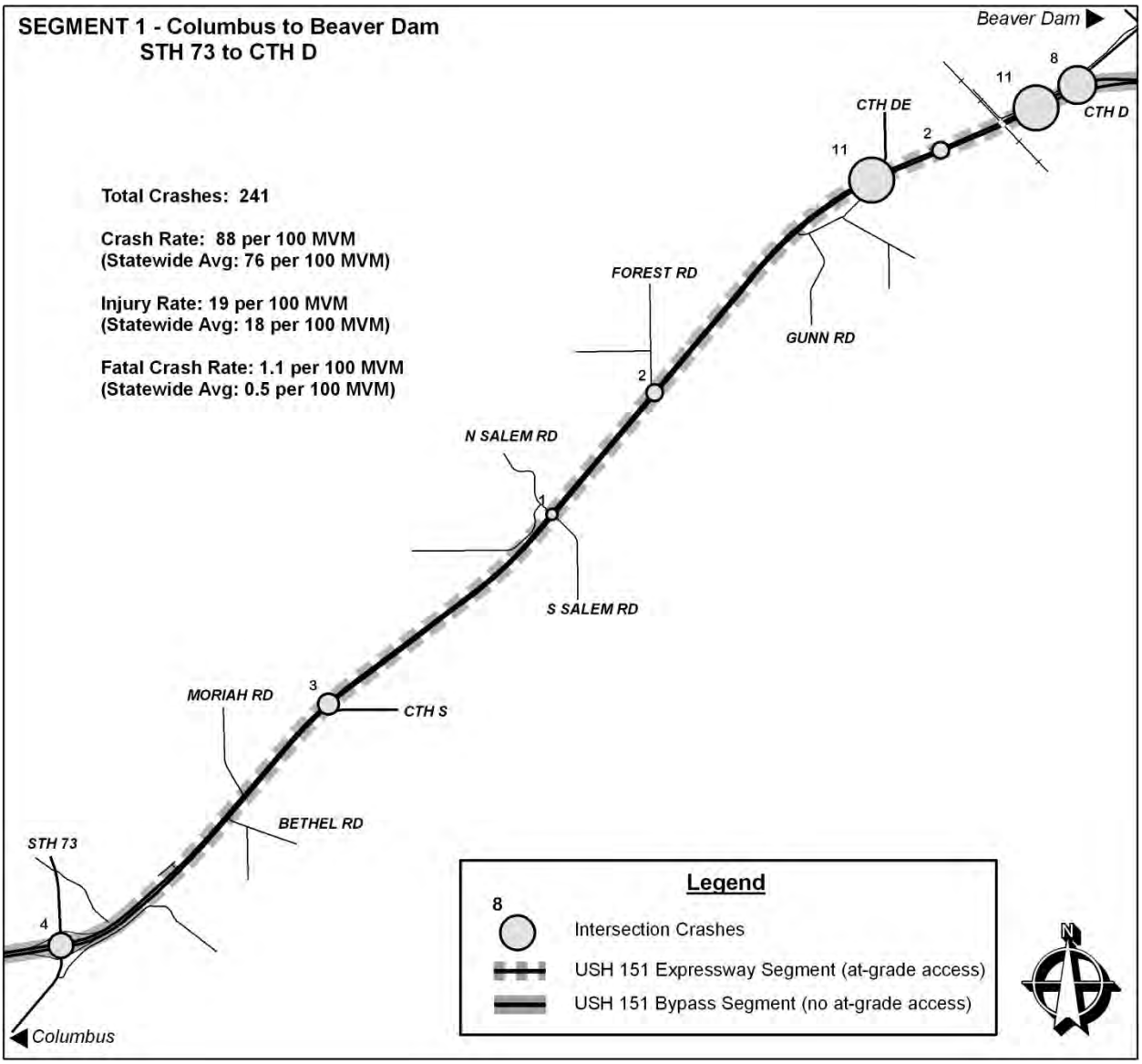
Conclusion

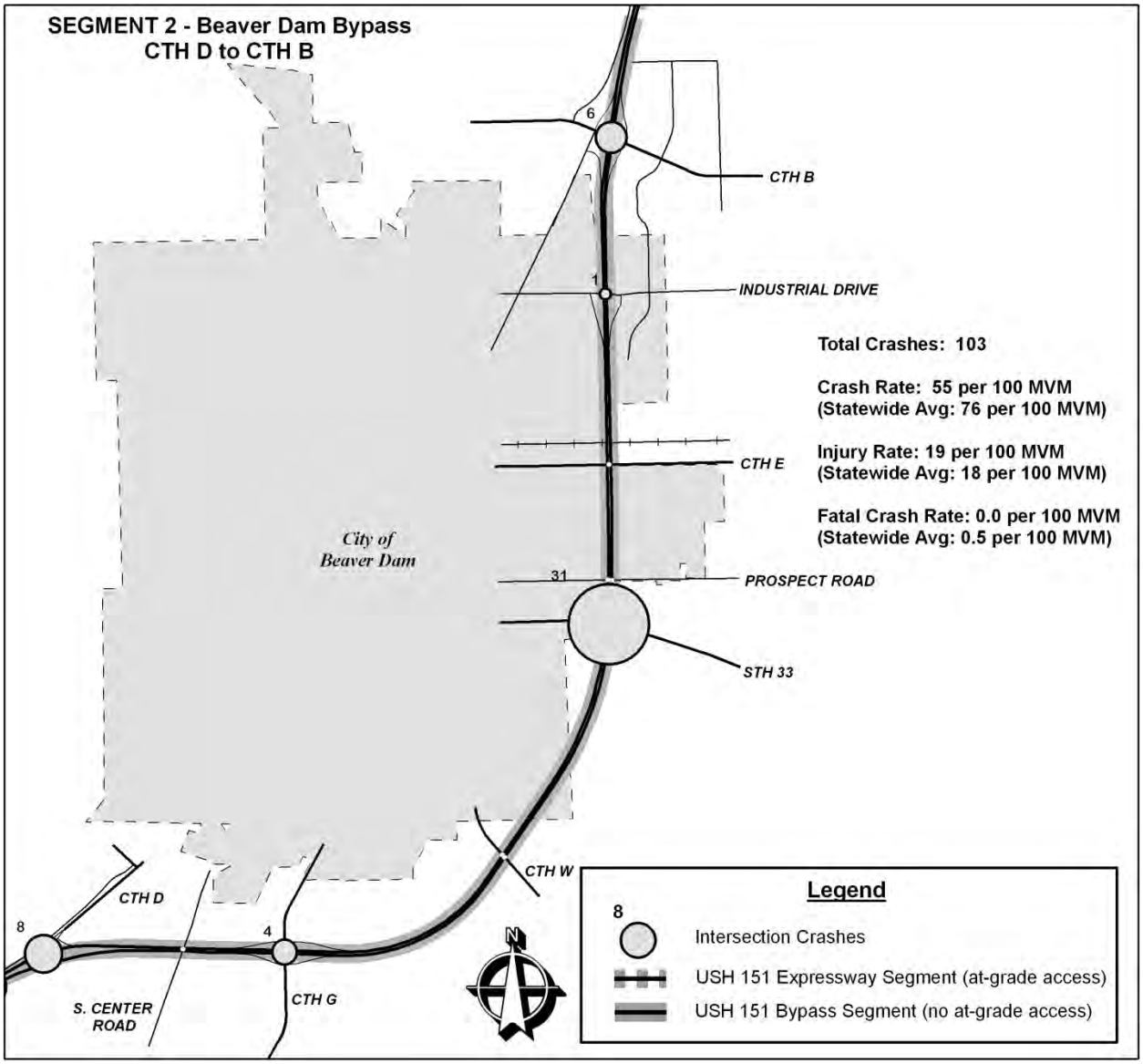
The crash analysis identified the expressway segments of USH 151 as priority locations for safety related enhancements. Crash rates and injury rates exceeded statewide averages for similar rural freeways across the state. As traffic volumes increase over time, it is anticipated that the at-grade access points including driveways, local road connections, and field entrances should experience increased crashes. Even though crash numbers/rates at many intersections are relatively low; due to the high speeds on the corridor, the majority could result in injury and/or fatalities.

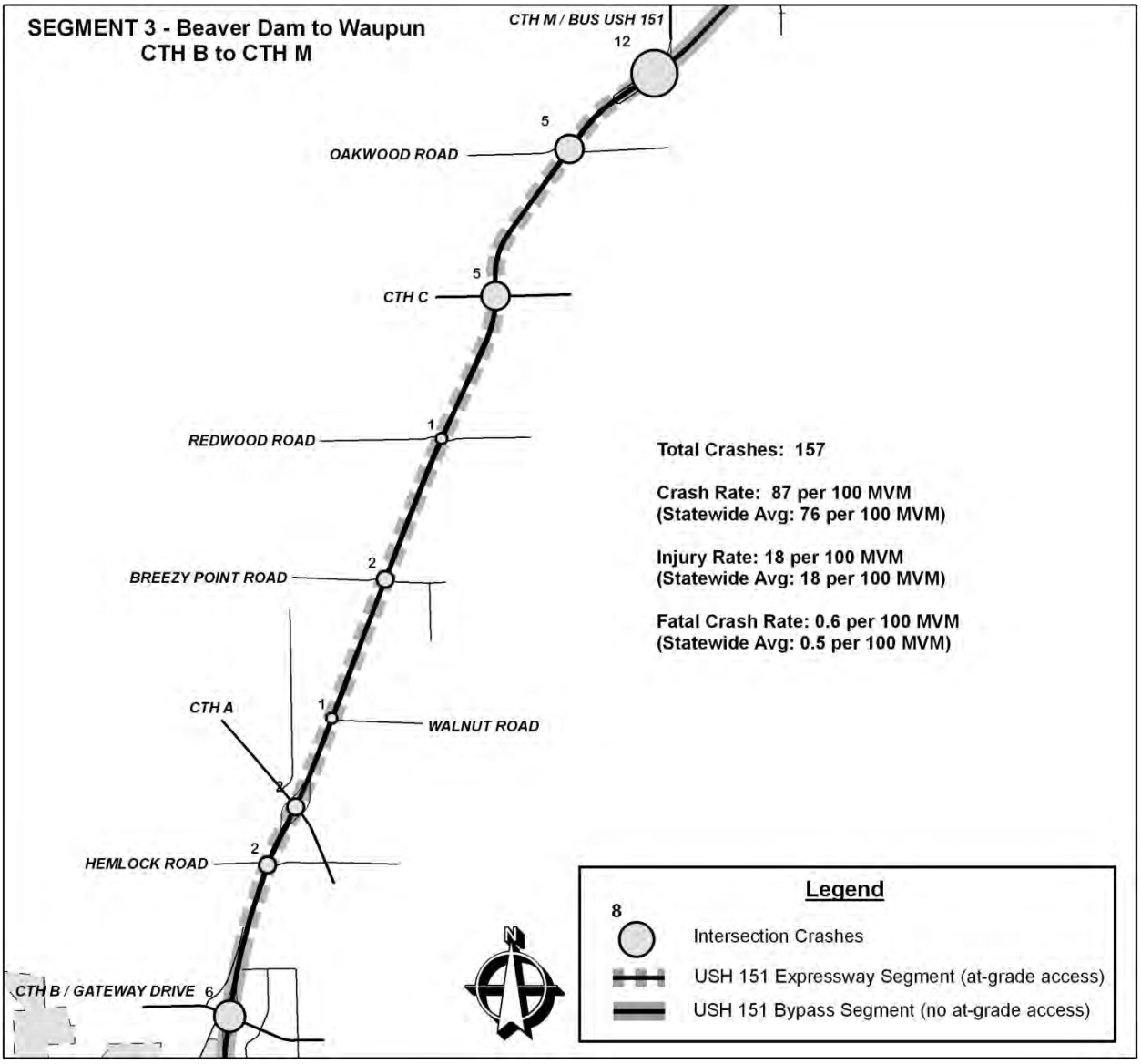
In addition, the STH 33 interchange and the CTH D and CTH M interchanges could be examined to identify geometric improvements to enhance the safety of these interchanges. In addition, the close proximity of the Iron Road/Hammer Road intersection to the CTH D interchange could be further examined.

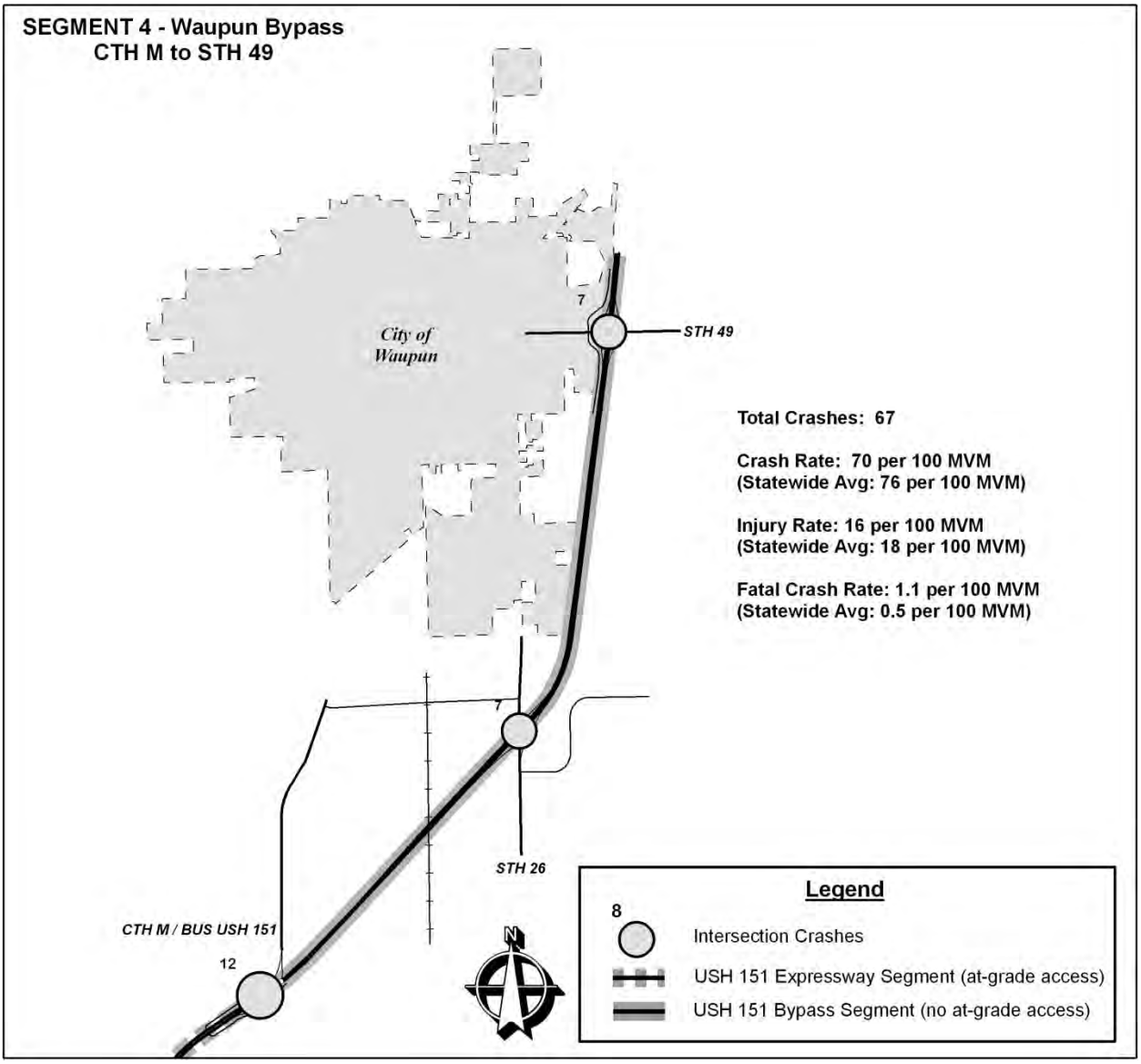
The at-grade railroad crossings are also locations that need to be addressed. A fatality at the northern crossing could be an indication that high speeds coupled with low visibility during inclement weather could create situations where drivers are not expecting a conflict with a train while travelling along USH 151. Similar crashes could be expected at these locations as traffic increases.

Appendix A – USH 151 Corridor Segments and Crashes




SEGMENT 2 - Beaver Dam Bypass
CTH D to CTH B
6
CTH B
1
INDUSTRIAL DRIVE
Total Crashes: 103
Crash Rate: 55 per 100 MVM
(Statewide Avg: 76 per 100 MVM)
Injury Rate: 19 per 100 MVM
(Statewide Avg: 18 per 100 MVM)
Fatal Crash Rate: 0.0 per 100 MVM
(Statewide Avg: 0.5 per 100 MVM)
CTH E
City of
Beaver Dam
31
PROSPECT ROAD
STH 33
CTH W
CTH D
8
4
S. CENTER
ROAD
CTH G
N
Legend
8
Intersection Crashes
USH 151 Expressway Segment (at-grade access)
USH 151 Bypass Segment (no at-grade access)


SEGMENT 3 - Beaver Dam to Waupun
CTH B to CTH M
CTH M / BUS USH 151
12
5
OAKWOOD ROAD
5
CTH C
1
REDWOOD ROAD
Total Crashes: 157
Crash Rate: 87 per 100 MVM
(Statewide Avg: 76 per 100 MVM)
Injury Rate: 18 per 100 MVM
(Statewide Avg: 18 per 100 MVM)
Fatal Crash Rate: 0.6 per 100 MVM
(Statewide Avg: 0.5 per 100 MVM)
2
BREEZY POINT ROAD
CTH A
1
WALNUT ROAD
2
2
HEMLOCK ROAD
CTH B / GATEWAY DRIVE
6
N
Legend
8
Intersection Crashes
USH 151 Expressway Segment (at-grade access)
USH 151 Bypass Segment (no at-grade access)


SEGMENT 4 - Waupun Bypass
CTH M to STH 49
City of Waupun
7
STH 49
Total Crashes: 67
Crash Rate: 70 per 100 MVM
(Statewide Avg: 76 per 100 MVM)
Injury Rate: 16 per 100 MVM
(Statewide Avg: 18 per 100 MVM)
Fatal Crash Rate: 1.1 per 100 MVM
(Statewide Avg: 0.5 per 100 MVM)
STH 26
CTH M / BUS USH 151
12
N
Legend
8
Intersection Crashes
USH 151 Expressway Segment (at-grade access)
USH 151 Bypass Segment (no at-grade access)

Appendix B, Detailed Intersection Crashes

Figure B-1, Intersection Crash Information, 2002 - 2006												
Information		Manner of Collision					Severity			Contributing Factors		
Date	Time	Angle	Sideswipe	Rear End	No Collision	Total	PD Only	Injury	Fatality	Weather	Alcohol	Driver
US 151 @ WIS 73 (Interchange)												
7/29/2003	7:00 p.m.	1	-	-	-	1	-	1	-	-	-	FTY
1/30/2004	7:00 p.m.	-	1	-	-	1	1	-		-	-	FTY
7/16/2005	9:00 p.m.	-	-	-	1	1	-	1	-	-	Y	TFC
10/7/2005	8:00 p.m.	1				1	1			-	-	FTY
Total		*2*	*1*	*0*	*1*	*4*	*2*	*2*	*0*	*0*	*1*	*4*
US 151 @ County S												
5/20/2003	6:00 p.m.	1	-	-	-	1	-	1	-	-	-	FTY
5/17/2004	8:00 a.m.	-	-	1	-	1	-	1	-	-	-	ID
5/26/2005	2:00 p.m.	1	-	-	-	1	-	1	-	-	Y	FTY
Total		*2*	*0*	*1*	*0*	*3*	*0*	*3*	*0*	*0*	*1*	*3*
US 151 @ Salem Road												
3/13/2004	2:00 p.m.	-	1	-	-	1	1	-	-	-	-	IT
Total		*0*	*1*	*0*	*0*	*1*	*1*	*0*	*0*	*0*	*0*	*1*
US 151 @ Forest Road												
5/3/2005	10:00 a.m.	-	-	1	-	1	-	-	1	-	-	ID
8/3/2005	1:00 p.m.	-	-	-	1	1	1	-	-	-	-	-
Total		*0*	*0*	*1*	*1*	*2*	*1*	*0*	*1*	*0*	*0*	*1*
US 151 @ County DE/Jackson Road												
1/14/2002	4:00 p.m.	1	-	-	-	1	1	-	-	Wet	-	FTY
4/1/2002	12:00 p.m.	1	-	-	-	1	-	1	-	-	-	FTY
5/24/2002	3:00 p.m.	1	-	-	-	1	1	-	-	-	-	ID
11/6/2002	2:00 p.m.	1	-	-	-	1	1	-	-	-	-	ID
10/18/2004	10:00 a.m.	1	-	-	-	1	-	1	-	-	-	FTY
11/8/2004	3:00 p.m.	-	-	-	1	1	-	1	-	-	-	FTY
3/2/2006	4:00 p.m.	1	-	-	-	1	-	1	-	-	-	FTY
3/2/2006	4:00 p.m.	-	-	1	-	1	1	-	-	-	-	ID
3/27/2006	8:00 p.m.	1	-	-	-	1	-	1	-	Wet	-	FTY
10/27/2006	3:00 p.m.	1	-	-	-	1	-	1	-	-	Y	FTY
11/26/2006	7:00 a.m.	1	-	-	-	1	1	-	-	-	-	FTY
Total		*9*	*0*	*1*	*1*	*11*	*5*	*6*	*0*	*2*	*1*	*11*
US 151 @ Beaverland Parkway												
10/2/2002	10:00 a.m.	1	-	-	-	1	-	-	1	Wet	-	FTY
8/23/2004	7:00 a.m.	1	-	-	-	1	1	-	-	-	-	IT
Total		*2*	*0*	*0*	*0*	*2*	*1*	*0*	*1*	*1*	*0*	*2*
US 151 @ Iron Road/Hammer Road												
1/13/2002	7:00 p.m.	1	-	-	-	1	-	1	-	Snow	Y	FTC
11/15/2002	3:00 a.m.	-	-	1	-	1	-	1	-	-	-	-

Figure B-1, Intersection Crash Information, 2002 - 2006												
Information		Manner of Collision					Severity			Contributing Factors		
Date	Time	Angle	Sideswipe	Rear End	No Collision	Total	PD Only	Injury	Fatality	Weather	Alcohol	Driver
4/4/2003	4:00 p.m.	-	-	-	1	1	1	-	-	Snow	-	FVC
5/28/2003	3:00 p.m.	-	-	-	1	1	1	-	-	Wet	-	FVC
11/4/2003	3:00 p.m.	-	-	1	-	1	1	-	-	Wet	-	FTY
12/9/2003	9:00 a.m.	-	1	-	-	1	-	1	-	-	-	-
12/17/2003	5:00 p.m.	-	1	-	-	1	1	-	-	-	-	FTY
8/19/2006	1:00 a.m.	-	-	-	1	1	1	-	-	-	-	SPD
7/17/2004	4:00 p.m.	-	1	-	-	1	-	1	-	-	-	IT
4/1/2006	7:00 p.m.	1	-	-	-	1	-	1	-	-	-	FTY
9/15/2006	8:00 p.m.	-	1	-	-	1	1	-	-	-	-	FTY
Total		*2*	*4*	*2*	*3*	*11*	*6*	*5*	*0*	*4*	*1*	*17*
US 151 @ County D (interchange)												
2/12/2005	7:00 p.m.	-		-	1	1	1	-	-	-	-	ID
1/23/2004	6:00 p.m.	-	-	-	1	1	1	-	-	Ice	-	TFC
7/23/2004	4:00 p.m.	-	-	-	1	1	1	-	-	-	-	ID
2/11/2005	6:00 a.m.	-	-	-	1	1	1	-	-	Snow	-	TFC
9/8/2005	12:00 p.m.	-	-	-	1	1	-	1	-	-	-	TFC
10/2/2005	10:00 p.m.	-	-	-	1	1	1	-	-	-	-	TFC
3/6/2006	6:00 a.m.	-	-	1	-	1	-	1	-	Wet	-	ID
3/26/2006	2:00 a.m.	-	-	-	1	1	1	-	-	-	-	ID
Total		*0*	*0*	*1*	*7*	*8*	*6*	*2*	*0*	*3*	*0*	*17*
US 151 @ County G (interchange)												
2/5/2002	12:00 p.m.	1	-	-	-	1	1	-	-	-	-	FTY
11/16/2005	6:00 a.m.	-	-	-	1	1	1	-	-	Ice	-	TFC
11/25/2005	2:00 p.m.	1	-	-	-	1	1	-	-	Snow	-	TFC
12/7/2005	7:00 a.m.	1	-	-	-	1	1	-	-	-	-	IT
Total		*3*	*0*	*0*	*1*	*4*	*4*	*0*	*0*	*2*	*0*	*4*
US 151 @ WIS 33/Park Avenue (interchange)												
3/9/2002	4:00 p.m.	1	-	-	-	1	1	-	-	Ice	-	-
5/14/2002	6:00 p.m.	-	-	-	1	1	1	-	-	-	-	FVC
5/14/2002	6:00 p.m.	-	-	1	-	1	-	1	-	-	-	ID
9/2/2002	12:00 p.m.	-	-	1	-	1	-	1	-	-	-	ID
11/27/2002	4:00 p.m.	-	-	-	1	1	-	1	-	-	-	DTC
3/9/2003	1:00 a.m.	-	-	-	1	1	-	1	-	Snow	Y	TFC
6/30/2003	9:00 a.m.	-	-	1	-	1	1	-	-	-	-	ID
7/17/2003	10:00 a.m.	-	1	-	-	1	1	-	-	-	-	ID
9/2/2003	3:00 p.m.	-	-	1	-	1	1	-	-	-	-	UB
9/18/2003	1:00 p.m.	1	-	-	-	1	1	-	-	-	-	FTY
10/16/2003	10:00 p.m.	-	-	-	1	1	1	-	-	-	Y	FVC

Figure B-1, Intersection Crash Information, 2002 - 2006												
Information		Manner of Collision					Severity			Contributing Factors		
Date	Time	Angle	Sideswipe	Rear End	No Collision	Total	PD Only	Injury	Fatality	Weather	Alcohol	Driver
11/11/2003	12:00 p.m.	1	-	-	-	1	-	1	-	-	-	FTY
3/2/2004	12:00 p.m.	-	-	1	-	1	1	-	-	-	-	ID
3/3/2004	8:00 a.m.	-	1	-	-	1	1	-	-	-	-	ID
3/11/2004	7:00 a.m.	1	-	-	-	1	-	1	-	Ice	-	-
6/3/2004	2:00 p.m.	1	-	-	-	1	1	-	-	-	-	FVC
9/28/2004	9:00 a.m.	-	-	-	1	1	1	-	-	-	-	-
10/4/2004	6:00 p.m.	-	-	1	-	1	1	-	-	-	-	ID
1/20/2005	6:00 p.m.	-	-	-	1	1	1	-	-	Snow	-	TFC
1/22/2005	11:00 a.m.	1	-	-	-	1	1	-	-	Snow	-	TFC
7/29/2005	6:00 a.m.	-	-	1	-	1	-	1	-	-	-	ID
10/15/2005	4:00 p.m.	1	-	-	-	1	1	-	-	-	-	FTY
11/10/2005	9:00 a.m.	1	-	-	-	1	1	-	-	-	-	ID
11/11/2005	4:00 p.m.	1	-	-	-	1	-	1	-	Ice	-	TFC
12/6/2005	10:00 a.m.	-	1	-	-	1	1	-	-	-	-	FTY
12/15/2005	4:00 p.m.	-	-	1	-	1	-	1	-	Ice	-	-
1/5/2006	11:00 a.m.	-	-	1	-	1	1	-	-	-	-	UB
3/22/2006	5:00 p.m.	-	-	1	-	1	-	1	-	-	-	ID
5/15/2006	10:00 a.m.	-	-	1	-	1	-	1	-	Wet	-	ID
6/29/2006	3:00 a.m.	-	-	-	1	1	-	1	-	-	Y	-
11/15/2006	2:00 p.m.	-	-	1	-	1	1	-	-	-	-	ID
Total		*9*	*3*	*12*	*7*	*31*	*19*	*12*	*0*	*8*	*3*	*26*
US 151 @ Industrial Drive (interchange)												
5/22/2005	2:00 p.m.	-	-	1	-	1	-	1	-	-	-	ID
Total		*0*	*0*	*1*	*0*	*1*	*0*	*1*	*0*	*0*	*0*	*1*
US 151 @ County B/Gateway Drive (interchange)												
4/4/2003	4:00 a.m.	-	-	-	1	1	1	-	-	Ice	-	-
8/8/2003	2:00 p.m.	-	-	1	-	1	-	1	-	-	-	ID
2/10/2005	10:00 a.m.	-	-	1	-	1	1	-	-	-	-	ID
5/1/2005	12:00 a.m.	-	-	-	1	1	-	1	-	-	Y	FVC
1/31/2006	12:00 p.m.	1	-	-	-	1	1	-	-	-	-	FTY
12/7/2006	6:00 p.m.	-	-	1	-	1	1	-	-	-	-	ID
Total		*1*	*0*	*3*	*2*	*6*	*4*	*2*	*0*	*1*	*1*	*5*
US 151 @ Hemlock Road												
2/20/2004	6:00 p.m.	-	-	-	1	1	1	-	-	Snow	-	FVC
6/28/2004	7:00 a.m.	1	-	-	-	1	-	1	-	-	-	FTY
Total		*1*	*0*	*0*	*1*	*2*	*1*	*1*	*0*	*1*	*0*	*2*
US 151 @ County A (interchange)												
5/6/2004	5:00 a.m.	-	-	-	1	1	1	-	-	-	Y	TFC

Figure B-1, Intersection Crash Information, 2002 - 2006												
Information		Manner of Collision					Severity			Contributing Factors		
Date	Time	Angle	Sideswipe	Rear End	No Collision	Total	PD Only	Injury	Fatality	Weather	Alcohol	Driver
11/26/2004	5:00 p.m.	-	1	-	-	1	-	1	-	Wet	-	TFC
Total		*0*	*1*	*0*	*1*	*2*	*1*	*1*	*0*	*1*	*1*	*2*
US 151 @ Walnut Road												
3/4/2003	4:00 p.m.				1	1	1			Snow		FVC
Total		*0*	*0*	*0*	*1*	*1*	*1*	*0*	*0*	*1*	*0*	*1*
US 151 @ Breezy Point Road												
4/16/2002	6:00 p.m.	-	-	-	1	1	1	-	-	-	Y	SPD
2/22/2005	8:00 p.m.	1	-	-	-	1	-	1	-	-	-	FTY
Total		*1*	*0*	*0*	*1*	*2*	*1*	*1*	*0*	*0*	*1*	*2*
US 151 @ Redwood Road												
5/10/2002	2:00 p.m.	-	-	-	1	1	-	1	-	-	-	-
Total		*0*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*0*	*0*
US 151 @ County C												
1/31/2002	9:00 p.m.	-	1	-	-	1	1	-	-	Snow	-	TFC
1/4/2004	11:00 a.m.	-	1	-	-	1	1	-	-	-	-	FTY
11/29/2004	3:00 p.m.	1	-	-	-	1	-	1	-		-	FTY
1/9/2005	9:00 a.m.	1	-	-	-	1	1	-	-	Snow	-	TFC
7/27/2006	12:00 p.m.	-	-	-	1	1	1	-	-	-	-	TFC
Total		*2*	*2*	*0*	*1*	*5*	*4*	*1*	*0*	*2*	*0*	*5*
US 151 @ Oakwood Road												
4/26/2002	9:00 p.m.	-	-	-	1	1	1	-	-	-	-	FVC
10/16/2002	1:00 a.m.	-	-	-	1	1	-	1	-	-	Y	DC
2/12/2005	8:00 p.m.	-	1	-	-	1	-	1	-	-	-	IT
7/30/2005	1:00 p.m.	-	1	-	-	1	1	-	-	-	-	ID
7/13/2005	10:00 p.m.	-	-	-	1	1	1	-	-	-	-	ID
Total		*0*	*2*	*0*	*3*	*5*	*3*	*2*	*0*	*0*	*1*	*5*
US 151 @ County M (interchange)												
1/5/2003	8:00 p.m.	-	-	-	1	1	1	-	-	Ice	-	TFC
4/3/2003	8:00 p.m.	-	-	-	1	1	1	-	-	Ice	-	-
4/3/2003	8:00 p.m.	-	-	-	1	1	1	-	-	Ice	-	-
4/3/2003	10:00 p.m.	-	-	-	1	1	1	-	-	Ice	-	FVC
2/18/2004	4:00 a.m.	-	-	-	1	1	-	1	-	-	-	-
2/25/2004	10:00 p.m.	-	-	-	1	1	1	-	-	-	-	FVC
12/27/2004	10:00 p.m.	-	-	-	1	1	1	-	-	-	-	TFC
12/14/2005	2:00 p.m.	1	-	-	-	1	1	-	-	Snow	-	TFC
12/16/2005	6:00 p.m.	-	-	-	1	1	-	1	-	Snow	-	TFC
1/30/2006	5:00 a.m.	-	-	-	1	1	1	-	-	Snow	-	TFC
3/5/2006	8:00 p.m.	-	-	-	1	1	-	1	-	Snow	-	TFC

Figure B-1, Intersection Crash Information, 2002 - 2006												
Information		Manner of Collision					Severity			Contributing Factors		
Date	Time	Angle	Sideswipe	Rear End	No Collision	Total	PD Only	Injury	Fatality	Weather	Alcohol	Driver
10/24/2006	9:00 a.m.	-	-	-	1	1	1	-	-	Ice	-	-
Total		*1*	*0*	*0*	*11*	*12*	*9*	*3*	*0*	*9*	*0*	*8*
US 151 @ WIS 26 (interchange)												
5/11/2004	9:00 a.m.	1	-	-	-	1	1	-	-	-	-	ID
3/12/2005	4:00 p.m.	1	-	-	-	1	-	1	-	-	-	OTR
4/1/2005	1:00 p.m.	-	-	-	1	1	1	-	-	-	-	-
11/25/2005	2:00 p.m.	1	-	-	-	1	1	-	-	Snow	-	TFC
12/15/2005	4:00 p.m.	-	-	-	1	1	1	-	-	Snow	-	FVC
2/5/2006	1:00 p.m.	-	-	-	1	1	1	-	-	-	-	-
12/1/2006	10:00 a.m.	-	-	1	-	1	1	-	-	Snow	-	TFC
Total		*3*	*0*	*1*	*3*	*7*	*6*	*1*	*0*	*3*	*0*	*5*
US 151 @ WIS 49 (interchange)												
10/12/2003	10:00 a.m.	1	-	-	-	1	-	1	-	-	-	LOC
4/20/2004	5:00 p.m.	-	-	1	-	1	-	1	-	Wet	-	ID
6/10/2004	5:00 p.m.	-	-	1	-	1	1	-	-	Wet	-	SPD
2/28/2005	7:00 p.m.	-	-	-	1	1	-	1	-	Snow	-	TFC
4/29/2005	11:00 p.m.	-	1	-	-	1	1	-	-	-	-	FTY
6/4/2005	3:00 p.m.	-	-	-	1	1	-	1	-	Wet	-	TFC
6/17/2005	2:00 p.m.	-	1	-	-	1	1	-	-	-	-	LOC
Total		*1*	*2*	*2*	*2*	*7*	*3*	*4*	*0*	*4*	*0*	*7*

Appendix C

Agency Coordination

City of Waupun

201 E. Main Street
WAUPUN, WISCONSIN 53963
Phone: 920-324-7900
Fax: 920-324-7939

"Wild Goose Center of Wisconsin"

RECEIVED
APR 11 2008
AYRES ASSOCIATES
MADISON, WI

April 10, 2008

Ayres Associates
Attn: Matthew Barr, P.E.
1802 Pankratz St.
Madison, WI 53704-4069

Dear Mr. Barr:

The City of Waupun is supportive of the WDOT upgrade of US Highway 151 to "Freeway" status.

We are aware that highway and access changes are required in or near Waupun that will include removal of at-grade access points and changes in the Wisconsin & Southern Railroad Co. crossing. The City also supports the planned changes to Milligan Road near the STH 26 and USH 151 interchange that may be part of this project.

DOT plans for movement of Milligan Road to approximately 1,000 feet north of the interchange. The realignment would be consistent with a recent WDOT approved access to STH 26 from the "Heritage Ridge" development.

If you have any questions or I may be of assistance, please advise.

Sincerely,

[redacted]

Gary Rogers
City Administrator

Ec: Mayor & City Council
DPW Director
FCEDC
Wisconsin & Southern Railroad

GR:mk

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229-9565
Telephone 920/866-1717
FAX 920/866-1710

MAY 19 2008

May 15, 2008

Matthew Barr
Ayres Associates
1802 Pankratz St.
Madison, Wisconsin 53704-4069

re: Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 – STH 49)
USH 151
Columbia and Dodge Counties, Wisconsin

Dear Mr. Barr:

The U.S. Fish and Wildlife Service (Service) has received your letter dated April 30, 2008, requesting our review of the subject project. Recent reductions in funding for the Service's Ecological Services programs have resulted in a greatly reduced staff at this office. Therefore, we are currently unable to provide the requested review of this project.

We have attached for your consideration general guidance for avoiding impacts to fish and wildlife resources from transportation projects.

If you are seeking information on potential project impacts to Federally-listed species, candidate species, or Critical Habitat, we encourage you to visit the Service's Region 3 Section 7 Technical Assistance web site at http://www.fws.gov/midwest/endangered/section7/s7process/. There, you will find guidance to assist you in fulfilling the requirements for consultation under Section 7 of the Endangered Species Act, including a step-by-step explanation of the section 7 process, species distribution lists, species life history information and conservation measures, and examples of typical letters. If your review of the above material suggests that your project may impact listed species or Critical Habitat, please contact this office for additional assistance.

If you have questions or need further information, you may contact us at 920-866-1717.

Sincerely,

[redacted]

Louise Clemency
Field Supervisor

Enclosure

General Guidance on Avoiding and Minimizing Project Impacts to Fish and Wildlife

Wetland Mitigation

In refining and selecting project alternatives, efforts should be made to select an alternative that does not adversely impact wetlands. If no other alternative is feasible and it is clearly demonstrated that project construction resulting in wetland disturbance or loss cannot be avoided, a wetland mitigation plan should be developed that identifies measures proposed to minimize adverse impacts and replace lost wetland habitat values and other wetland functions and values. Any project that has new impacts to wetlands or waterways, including seasonal ephemeral and intermittent streams, should include design features such as culverts to retain hydrological connection between areas fragmented by the project. If stream or wetland impacts will occur, state or federal permits may be needed.

Migratory Birds

Under the Migratory Bird Treaty Act of 1918, as amended, it is unlawful to take, capture, kill, or possess migratory birds, their nests, eggs, and young. If migratory birds are known to nest on any structures which may be disturbed by project construction, activities should begin before the initiation of the breeding season for those species or after breeding has concluded. Alternatively, the structures can be *tightly screened* before the breeding season to prevent nesting. Generally, we recommend that screening or any other habitat disturbance occur before May 1 or after August 30 to minimize potential impacts to migratory birds, but please be aware that some species may initiate nesting before May 1.

Bald and Golden Eagle Protection Act

Guidance on avoiding disturbance of bald eagles is available at the Service's "Bald Eagle Management Guidelines & Conservation Measures" web site at http://www.fws.gov/midwest/eagle/guidelines/index.html.

Other Fish and Wildlife

It has been well documented that wildlife often use riparian areas along streams and rivers as travel corridors, particularly as roads and highways have bisected the landscape. The Service supports and encourages the maintenance or creation of habitat connectivity wherever possible. As such, we recommend that you install culverts that do not impede the movement of water, sediments, or aquatic species along existing waterways. Culverts should be designed and constructed in such a way as to allow small to medium-sized terrestrial or amphibious species to safely follow the stream corridor without being forced to cross the road. This may be accomplished by enlarging culverts and including a continuous raised shelf along one or both sides of the culvert, connecting to stream banks on either side.

We recommend that bridges and abutments be designed and constructed in such a way as to allow terrestrial wildlife to pass under the bridge without entering the river during normal flow conditions. This may require lengthening the bridge, limitations on the use of exposed riprap, modifications to the surface of the riprap (e.g., grouting the surface or filling with soil or other natural materials), or modifications in the substrate and/or slope at the base of the abutments, as some wildlife species cannot or prefer not to traverse areas of riprap.

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
SIBLEY SQUARE AT MEARS PARK
190 FIFTH STREET EAST, SUITE 401
ST. PAUL MN 55101-1638

REPLY TO
ATTENTION OF

June 17, 2008

RECEIVED
JUN 19 2008
Ayres Associates
Madison, WI

Operations
Regulatory (2008-2184-RMG)

Mr. Matthew Barr
Ayres & Associates, Inc.
1802 Pankratz Street
Madison, Wisconsin 53704-4069

Dear Mr. Barr:

We have received a request for Corps comments regarding the reconstruction of approximately 27 miles of United States Highway 151 in Dodge County from State Trunk Highway (STII) 73 to STH 49 (Columbus to Waupun, Wisconsin).

Pursuant to Section 404 of the Clean Water Act, the Corps of Engineers has regulatory jurisdiction over the discharge of dredged and fill materials, including discharges associated with mechanical land clearing, in all waters of the United States, which may include wetlands.

Should further coordination regarding this proposal demonstrate the potential to result in a discharge of fill material into waters of the United States, the Corps regulatory review must determine whether the proposal complies with the guidelines of Section 404(b)(1) of the Clean Water Act (CWA). These guidelines require that when a project is not "water dependent," that is, it does not need to be located in or near wetlands to serve its basic purpose, it is presumed that there are alternative upland sites available and that the use of the upland sites would be less environmentally- damaging than would be the proposed alteration of the wetland.

Each proposal is judged on its own merits. Permits for the discharge of fill material into waters of the United States are issued only when projects comply with the guidelines of the CWA, and would provide public or private benefits that equal or outweigh project detriments. Our regulations require us to deny all other applications in order to protect the public interest in maintaining the integrity of the waters of the United States.

If you have any questions, please contact Rebecca Gruber at (262) 547-4171 in our Waukesha field office. Please refer to the Regulatory file number provided above.

Sincerely,

[redacted]

for Robert J. Whiting
Chief, Regulatory Branch

State of Wisconsin
Jim Doyle, Governor

Department of Agriculture, Trade and Consumer Protection
Rod Nilsestuen, Secretary

August 6, 2008

Matthew Barr, PE
Ayres Associates
1802 Pankratz Street
Madison, WI 53704

Re: Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 - STH 49)
USH 151
Dodge County

Dear Mr. Barr:

The Department is responding to your request for comments on the USH 151 study that involves the analysis and conceptual design for the conversion of USH 151 from an expressway to a freeway between Columbus and Waupun. You indicated that this conversion could require the addition of interchanges along the project corridor and removal of private access points.

The proposed conversion could result in the fragmentation of farms. Farm operations that currently have direct access across USH 151 to access fields on the opposite side of the highway would need to travel longer distances to reach these fields. Farm fragmentation would increase the cost of farming these parcels.

Where direct access to USH 151 is removed from driveways and field entrances, additional frontage roads and longer driveways would need to be constructed. This could remove additional farmland from production.

Farmland could also be removed from production in areas where interchanges are constructed. In addition, increased development pressure may occur near interchanges, thereby converting additional farmland to non-farm uses.

Farm buildings or residences may be displaced or relocated as a result of improvements to USH 151. This could have a significant impact on these farm operations. In addition, to the loss of these structures, the relocation of these buildings on the parcel could result in the additional conversion of farmland.

Because this project currently involves only the study of USH 151 and that any possible improvements are expected to be more than ten years into the future, an agricultural impact statement will not be prepared until nearer to the time of construction.

If you have any questions regarding this letter, please contact me at the above address or by calling me at 608.224.4650.

Sincerely,

[redacted]

Peter Nauth
Agricultural Impact Program

UNION PACIFIC RAILROAD COMPANY

301 W LAKE ST
NORTHLAKE, IL 60164

December 10, 2008

DEC 1 2 2008

Mr. Matthew Barr, P.E.
Supervisor – Transportation Engineering
Ayres Associates
1802 Pankratz Street
Madison, WI 53704-4069

RE: USH 151, Dodge County, Wisconsin preliminary phase engineering

Dear Mr. Barr,

I am writing to you in response to your letter dated November 24, 2008 in which you briefly outlined the proposal to convert USH 151 into a freeway, and you requested information about the Union Pacific Railroad.

In general, the train count and train speed information you have cited in your letter is correct. Please note that train counts can vary as business conditions change.

Also, please note that the Union Pacific Railroad is strongly opposed to establishing any new public at-grade crossings across its right of way. Our preference is that any new crossings of the Union Pacific Railroad which would required for your project be grade separated. Information concerning the proper specifications for grade separated structures is available free of charge on the Union Pacific Railroad's website, www.up.com. Of course any new crossings also require obtaining the proper easements across railroad right of way.

Thank you for your consideration.

Sincerely, [redacted]

John Venice
Manger Special Projects
Union Pacific Railroad
301 West Lake Street, Room 103
Northlake, IL 60164

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: Wis. & Southern Railroad
1890 E. Johnson St.

Date/Time: January 12, 2009; 10:00 a.m.

Notes By: Matt Barr

Attendees:
Ken Lucht & Ben Meighan – Wis. & Southern
Mark Westerveld & Tom Koprowski – WisDOT
Matt Barr & Bill Roth – Ayres Associates

Project No.: 45-0292.00

Re: RR crossings near Beaver Dam and Waupun

Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 – STH 49
USH 151
Columbia & Dodge Counties

This meeting was held for WisDOT and Ayres Associates to find out what Wis. & Southern has planned for their two railroad crossings within the project corridor. One is located in the City of Beaver Dam and the other is located just south of the STH 26 interchange south of Waupun. Both crossings are at-grade and will be costly to convert to grade separated crossings.

Matt provided some background information on the project, adding that it is a study in the preliminary phases with construction likely more than 10 years away. It involves converting USH 151 to a full freeway, which means the at-grade crossings for Wis. & Southern need to be replaced with grade-separated crossings. We asked if these lines are proposed to stay active and Ken and Ben said they are. The provided a handout that shows that the number of trains is anticipated to grow based on 2013 projections. These are both fairly low speed crossings with no more than one train per day making a round trip.

We asked about the existing speeds and Ben said they are both at 30 mph and they are working to increase that to 40 mph in the future. These trains run both during the day and at night.

Matt asked Mark and Tom if there are instances where at-grade crossings ever remain in place on freeway facilities. Mark and Tom said only if there were absolutely no other practical alternatives. This is similar to private entrances where the DOT tries to have them all removed unless there is no other feasible option. Tom emphasized the importance of eliminating these at-grade crossings.

Ken and Ben said there was a fatality at the Waupun crossing last year. It happened during foggy conditions. They've also had some close calls at the Beaver Dam crossing. They have an interest in making these crossings grade separated for safety purposes.

Ben thought that the most logical option for the Waupun crossing is to lower the tracks and put USH 151 over the top. That crossing is located on top of a hill now so lowering the tracks would fit the terrain better. However, that area is solid rock. A shoo-fly to accommodate train traffic temporarily would be needed. Bill asked if the railroad crossing at Milligan Road would need to be reconstructed along with this one at USH 151 or if it is far enough away that it wouldn't be affected. Ben replied that it probably wouldn't be impacted.

1802 Pankratz Street • Madison, WI 53704-4069 • 608.443.1200 • Fax: 608.443.1250 • www.AyresAssociates.com

Matt said there are two sets of driveways on each side of the Waupun crossing where property owners cross USH 151 to access their land. He asked Ben and Ken's thoughts on providing access under future bridges adjacent to the tracks. Ben said that is acceptable if it's far enough away from the tracks. That may necessitate an additional span on the bridges.

For the Beaver Dam crossing, Matt said the most logical option seems to be to lower CTH E and run USH 151 over the top of both CTH E and the railroad crossing. That would likely mean leaving the crossing at the same grade as it is now. CTH E wouldn't have to be lowered as far as the railroad tracks since the clearance over the roadway doesn't have to be 23 feet like it does over the railroad crossing.

Ben mentioned two other possibilities that we may want to investigate. One would be to run the track along the CTH E embankment over USH 151 and relocate CTH E to another road. He said the railroad could be realigned on each side of USH 151 to match the existing line. Their desirable maximum grade is 1% but they can allow up to 2%. This option would likely involve some property relocations as well as a lot of agency coordination and public involvement.

Another option Ben mentioned would be to eliminate the Beaver Dam crossing and re-route the Wis. & Southern Railroad south at Minnesota Junction east of Beaver Dam, down to the Union Pacific line. They could then access Cambria from that line. Agreements would need to be worked out with Union Pacific. However, that option would require using the old railroad corridor from Minnesota Junction to the south to Clyman. That old corridor is called the Wild Goose Trail and is currently used as a recreational trail for bicyclists and snowmobiles.

Matt mentioned the need for OCR hearings for any changes. Everyone agreed those likely wouldn't take place until the project is in the design phase.

Matt asked if any plans are available that contain railroad profiles and Ken said there are. He can send us that information.

Ken said they can probably accommodate closures of a couple days at a time for construction purposes, but they would like to get a train through periodically.

Ken said we could contact him for future correspondence.

Barr, Matthew

From: Ehlenbeck, Bill [behlenbeck@co.dodge.wi.us]
Sent: Thursday, January 22, 2009 10:11 AM
To: Barr, Matthew
Subject: RE: USH 151 freeway conversion project

Yes, those are the 4 County trail crossings.

Bill Ehlenbeck, CPRP
Manager: Parks & Trails Division
Dodge County Land Resources & Parks Dept.
127 E. Oak Street, Juneau, WI 53039
Phone: 920-386-3702 Fax: 920-386-3979

email: behlenbeck@co.dodge.wi.us
www.dodgeparks.com

We don't inherit the earth from our ancestors, we borrow it from our children.

-----Original Message-----
From: Barr, Matthew [mailto:barrm@AyresAssociates.com]
Sent: Wednesday, January 21, 2009 11:30 AM
To: Ehlenbeck, Bill
Subject: RE: USH 151 freeway conversion project

Bill,

We are looking at some conceptual designs and preparing updated maps for this project. I wanted to confirm the locations of the snowmobile crossings along USH 151 between Columbus and Waupun. In your message below, you say the ones at CTH C and the prison farm are club trails. Then you mention there are 4 other crossings considered County trails that should be maintained if possible. Are those the 4 listed below? These were identified in the letter we sent you last May.

- South of CTH S at the Rake property
- Just south of the railroad crossing south of Beaver Dam at the Ferstl property (through culvert)
- At Breezy Point Road
- South of STH 26 at the Vande Zande property

Let me know if you have any questions.

Matt

From: Ehlenbeck, Bill [mailto:behlenbeck@co.dodge.wi.us]
Sent: Wednesday, August 06, 2008 8:38 AM
To: Barr, Matthew
Subject: RE: USH 151 freeway conversion project

Matthew;

Yes, I can be the main contact for snowmobile issues as it relates to HWY 151 study. Although the individual club members that appeared at the public info meeting have more detailed knowledge of the crossings and the local landowner situation in terms of potential to move trail locations.

Your letter of May 2, 2008, identifies 6 trail crossings. The crossing at CTH C and East of Waupun (prison farm property) are club trails (not publicly funded) that provide access to businesses. My maps don't even show the CTH C trail. There are 4 trail crossings of the 151 corridor that are considered County Snowmobile Trails (publicly funded through the State). Three of those are considered State Corridor Trails. All 4 are important crossings that need to be maintained. It might be possible to adjust the crossing locations slightly if needed – depending on landowner sentiment. As you probably know, these trails rely on private landowners providing annual permission to cross their property.

If you have any questions or need something additional, let me know.

Thanks.

Bill Ehlenbeck, CPRP
Manager: Parks & Trails Division
Dodge County Land Resources & Parks Dept.
127 E. Oak Street, Juneau, WI 53039
Phone: 920-386-3702 Fax: 920-386-3979

email: behlenbeck@co.dodge.wi.us
www.dodgeparks.com

We don't inherit the earth from our ancestors, we borrow it from our children.

-----Original Message-----
From: Barr, Matthew [mailto:barrm@AyresAssociates.com]
Sent: Tuesday, August 05, 2008 3:12 PM
To: Land Resources & Parks
Subject: USH 151 freeway conversion project

I am writing to follow up a letter sent to Bill Ehlenbeck on May 2, 2008 regarding a highway study we are working on with the Department of Transportation. The letter was sent to obtain input on the potential impact to the existing snowmobile crossings along USH 151 between Columbus and Waupun (copy of the letter is attached). The study involves analyzing this corridor for conversion to a full freeway facility with the removal of all side road and private access points. We never received a response and are following up to see if the letter was received or if we should contact someone else on this issue. Please let us know on that. If you have any questions or would like additional information, you can contact me at (608) 443-1261.

Matthew Barr, PE
Supervisor - Design Services

Ayres Associates
1802 Pankratz Street
Madison, WI 53704
Phone (608) 443-1261
Fax (608) 443-1250
barrm@AyresAssociates.com
www.AyresAssociates.com

Barr, Matthew

From: Barr, Matthew
Sent: Tuesday, February 10, 2009 9:36 AM
To: Halsted, Michael S - DNR
Subject: RE: Project ID# 1110-00-09 - USH 151 - Columbus to Waupun road - Freeway Proposal

Mike,

We met with WisDOT SW Region staff to go over some preliminary concepts for converting USH 151 to a freeway between Columbus and Waupun. Those are shown on the attached file. The DOT is reviewing those and will be providing us some comments to address and then we plan to meet with the local agencies and eventually the public to obtain their feedback. The DOT indicated we could send to you for your review. The wetlands that are shown on the displays were identified from DNR wetland maps.

Please note that these are very preliminary and will likely be modified numerous times as we move through the planning and environmental phases of the study. The locations of proposed interchanges may likely be adjusted from those shown here. At the last public meeting, there were comments favoring interchanges at CTH DE and also CTH C. We have layouts prepared for those, however the impacts to residences and wetlands are more significant. We may present those to the public to illustrate the impacts associated with those options.

Let us know if you have any comments and also if you would still like to meet with us and the DOT project staff. You can contact me at 443-1261 if you would like to discuss.

-----Original Message-----
From: Barr, Matthew
Sent: Wednesday, January 21, 2009 10:22 AM
To: 'Halsted, Michael S - DNR'
Subject: RE: Project ID# 1110-00-09 - USH 151 - Columbus to Waupun road - Freeway Proposal

Mike,

All I sent to Russ in August was a follow up e-mail referring to the letter sent in April. That e-mail is attached. You should have everything we intended to send you.

We have done some data collection on environmental resources and can fill you in on some of the information we found.

The current phase of the project involves collecting data, developing preliminary freeway concepts, and meeting with the public and other agencies. We will prepare a report summarizing the results of that study. The second phase is anticipated to start later this year which will involve some additional preliminary design and the preparation of an EA. A third phase should start up around 2011 that will result in the completion of a map of the approximate anticipated right-of-way needs to be used for corridor preservation and planning purposes. Construction is not yet programmed.

The DOT indicated they are available to meet in the second week of February. The preferred dates are Tuesday the 10th from 8 to 10, or 1 to 3, or Wednesday the 11th at 3:00. If those don't work, we could also do Monday the 9th in the PM. The DOT would like to meet in their office in case the Project Development Supervisor wants to sit in. Please let me know on these dates and we will get it scheduled.

-----Original Message-----
From: Halsted, Michael S - DNR [mailto:Michael.Halsted@wisconsin.gov]

Sent: Tuesday, January 20, 2009 11:56 AM
To: Barr, Matthew
Subject: Project ID# 1110-00-09 - USH 151 - Columbus to Waupun road - Freeway Proposal

Matt,
Allow me to introduce myself as DNR contact for this project. Russ forwarded me your message regarding the expressway to freeway conversion - I have only looked at some potential for endangered species - found several mammals and a frog with potential impacts but need to investigate further. I really don't have a feel for the habitat and the project scope at this time. So this needs to be kept in mind as we proceed.

Please send me what you sent Russ in August. What I do have is a letter dated April 30, 2008. I can provide general information to guide the study at this stage but would like to look at the draft environmental study reports at some point in time before you finalize it. I promise to provide a quick turn around in return for the opportunity to review a rough draft. I will use the reports to provide a landscape level detailed review of the project.

Thanks,

* Mike Halsted
Environmental Analysis & Review Specialist Green, Rock, Jefferson & Dodge Counties Wisconsin Department of Natural Resources
(*) phone: (608) 275-3301
(*) fax: (608) 275-3338
(*) e-mail: michael.halsted@wisconsin.gov

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: Beaver Dam City Hall

Date/Time: February 24, 2009; 9:00 a.m.

Notes By: Matt Barr

Attendees:

WisDOT SW Region – Mark Westerveld
Ayres Associates – Matt Barr
City of Beaver Dam – Tom Kennedy (Mayor), Ritchie Piltz (Engineering Coordinator), and David Stoiser (Director of Facilities)

Project No.: 45-0292.00

Re: Meeting to discuss design concepts

Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 – STH 49
USH 151
Dodge County

Mark and Matt met with City officials to discuss the design concepts that have been developed over the last few months. Matt and Mark gave an overview of the project background, the status of the study, and the project schedule for the next few months.

We talked about the various access issues located south of town between the CTH DE intersection and CTH D interchange. Interchange options were presented for just south of Gunn Road and also at CTH DE. Several comments had been received at the meetings held last year for a new interchange at CTH DE. The comment was made that there are quite a few trucks utilizing CTH DE and an interchange there might make sense. Matt pointed out that the Gunn Road location was developed since it would require fewer relocations than an interchange at CTH DE. The City officials said quite a few trucks traveling to the area west of USH 151 south of town drive into town and use CTH D. They would like to divert that truck traffic to a new interchange south of town if possible.

Mark asked about the need to maintain CTH E into the City. If traffic could be re-routed to Industrial Drive, Prospect Avenue, and STH 33, it would eliminate the need to maintain the CTH E crossing of USH 151. The City officials said CTH E carries a lot of traffic and also provides access to a school east of USH 151. They didn't seem to favor eliminating this route into the City. They mentioned CTH E ends just west of USH 151 where it becomes a City street.

Matt said that the at-grade railroad crossing just north of CTH E will need to be eliminated and the likely option is to carry USH 151 over the railroad. This would include dropping the elevation of CTH E down so that USH 151 would also extend over the top of CTH E. Mark pointed out we haven't yet looked at how this would affect the nearby ramps at the Industrial Drive interchange. He asked the City their thoughts on whether that half diamond interchange is still necessary since the interchange at CTH B was converted to a full diamond interchange several years ago. The City officials thought it would be difficult to remove that. There is a new development being constructed along Industrial Drive west of USH 151 that would likely have vehicles using that interchange for access to USH 151.

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Matt said we met with representatives from Wisconsin & Southern Railroad and they mentioned some possible ideas for eliminating the need to carry USH 151 over the railroad. These options included using the CTH E to accommodate the railroad and re-routing the railroad south along the Wild Goose Bike Trail to tie into the Union Pacific Railroad and crossing under USH 151 south of town. The City officials agreed the CTH E option would involve a lot of impacts.

We addressed the two existing private crossings just south of STH 33. The City indicated that a new development is proposed just SW of the STH 33 interchange and that access will be provided to the north parcel tied into one of these crossings. There are plans to acquire one of the houses in that area to construct an access over the drainage ditch to the parcel. The City will also likely extend the street to the south by the apartments in that area.

Matt said the DOT has indicated the area between CTH D and Iron road just south of the CTH D intersection was identified as a location for a possible park and ride lot. City officials said the CTH D intersection is fairly busy.

Tom K. asked if the DOT would consider an interchange at CTH W. That would provide better access to the hospital. Mark told them another interchange around the City is unlikely.

We talked about not providing an overpass at Hemlock Road because the CTH A interchange is so close. They didn't seem to have an issue with that. They did think adding a frontage road from Kellom Road to Hemlock Road might not be a bad idea.

Matt asked if the road along the west side of the Wal-Mart distribution center is a City street and was told it is. He said it would be easy to tie that street into Walnut Road, but there doesn't seem to be much of a benefit in doing so since there aren't any residences along most of Walnut Road.

Matt and Mark said the City can send some comments to the concepts in writing if they want. Tom asked if we were available to present this information to their Operations Committee. They would like to do that on a night that doesn't also include a Council Meeting. Early to mid April was mentioned.

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: Dodge County Highway Department

Date/Time: February 24, 2009; 1:00 p.m.

Notes By: Matt Barr

Attendees:

WisDOT SW Region – Mark Westerveld & Tom Koprowski
Ayres Associates – Matt Barr
Dodge County – Brian Field (Highway Commissioner), Pete Thompson (Engineer), and a representative from their maintenance staff

Project No.: 45-0292.00

Re: Meeting to discuss design concepts

Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 – STH 49
USH 151
Dodge County

Mark and Matt met with County officials to discuss the design concepts that have been developed over the last few months. Matt and Mark gave an overview of the project background, the status of the study, and the project schedule for the next few months.

We talked about the current design standards for spacing interchanges at least 2 miles apart. The CTH S intersection falls just outside of those limits based on its distance from STH 73 north of Columbus and seems like a logical location for an interchange. The alternative presented has it shown north of the existing intersection to avoid relocating the farms located there. Brian mentioned CTH S was recently reconstructed and is a fairly good road.

Pete said they recently obtained a CSM for the area near the cemetery along Maier Road and provided a copy.

The fact that CTH D and CTH G tie into USH 151 on the south side of Beaver Dam and then are routed toward the south was mentioned. CTH G actually extends into Beaver Dam and back to the south. These directions seem somewhat unusual and the County officials agreed.

For the area north of Beaver Dam, we mentioned that the spacing would likely only allow adding one more interchange. Comments were received last year for an interchange at CTH C, therefore an option for this was presented. However this has several disadvantages including numerous nearby wetlands, the curvature of USH 151 at this location, and the fact it is fairly close to the CTH M interchange to the north. They seemed to agree. Redwood Road actually falls about midway between the interchanges at CTH A and CTH M and an alternative was presented for an interchange there. The major drawback is that it would involve substantial impact to agricultural land.

Pete asked if we had traffic count information and we said we did but we weren't sure how old the data was.

We told the County officials they can send any comments they have regarding these concepts.

1802 Pankratz Street • Madison, WI 53704-4069 • 608.443.1200 • Fax: 608.443.1250 • www.AyresAssociates.com

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: Trenton Town Hall

Date/Time: March 3, 2009; 1:00 p.m.

Notes By: Matt Barr

Attendees:

WisDOT SW Region – Mark Westerveld & Tom Koprowski
Ayres Associates – Matt Barr
Trenton Township – Russell Kottke (Town Chairman), Charles Schranz and Jill Reabe (Board Members)

Project No.: 45-0292.00

Re: Meeting to discuss design concepts

Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 – STH 49
USH 151
Dodge County

The meeting was held with Town officials to discuss the design concepts that have been developed over the last few months. Matt and Mark gave an overview of the project background, the status of the study, and the project schedule for the next few months.

Matt explained how the distance between the existing interchanges at CTH A and CTH M might allow for the addition of one new interchange in between. CTH C was looked at as an option since it is a county highway, but there are several problems associated with that location. It is fairly close to the CTH M interchange, it is in a location where USH 151 is on a curve causing some issues with geometrics, there are a lot of wetlands in that area, and an interchange there would require several relocations. An alternative for an interchange at Redwood Road was also presented since that road falls approximately halfway between the two existing interchanges. The drawback of that location is the nearby cemetery and the fact that avoiding it will involve more impact to agricultural land. Matt mentioned that perhaps the local property owners might not want any new interchange due to the impacts required.

Jill stated that one of the goals of their township is to preserve farmland. This freeway conversion project will involve farmland impacts due to the need for adding frontage roads and possibly an interchange to maintain local access. Jill asked how much farmland would be affected and was told we haven't yet computed the acreages. Matt said frontage roads may require a width of 80 to 100 feet.

The Town officials mentioned there are plans for a new development south of Hemlock Road on the Zieman property, therefore a frontage road connecting Kellom Road to Hemlock Road may be beneficial. They pointed this out even though that area is just outside the limits of Trenton Township.

Matt asked if the locals have mentioned a need for converting USH 151 to a freeway. They said this hasn't been mentioned specifically, but they do hear comments about traffic volumes continuing to increase. They specifically mentioned traffic being an issue on Packer and Badger football game days.

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A comment was made that James Davis owns an airplane and his landing area is just east of the buildings on his property. This is located in the southeast corner of the potential interchange shown at Redwood Road.

We left displays with them that cover the northern 2 sheets from CTH A to Waupun as well as sheets for the interchange alternative at CTH C and the overview map showing the entire County. We told them they can send some comments to the concepts in writing if they want. They asked if a special public meeting could be held just for Trenton Township and were told we would consider it. We may decide to hold one meeting for the entire project like was done for the first meeting or perhaps split it into two meetings for the north and south halves of the project. The public meeting will likely be held later this spring or in the summer.

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: Beaver Dam Town Hall	Project No.: 45-0292.00
Date/Time: March 5, 2009; 10:00 a.m.	Re: Meeting to discuss design concepts
Notes By: Matt Barr	Project I.D. 1110-00-09 Columbus – Waupun Road (STH 73 – STH 49 USH 151 Dodge County

Attendees:

WisDOT SW Region – Mark Westerveld & Tom Koprowski
Ayres Associates – Matt Barr
Beaver Dam Township – Neil Stippich (Town Chairman) and John Kuzniewicz (Board Member)

The meeting was held with Town officials to discuss the design concepts that have been developed over the last few months. Matt and Mark gave an overview of the project background, the status of the study, and the project schedule for the next few months.

Matt explained how the distance between the existing interchanges at STH 73 and CTH D near Beaver Dam might allow for the addition of one or two new interchanges. An interchange in the area of CTH DE was investigated and two options were presented. One is located just south of Gunn Road, which would minimize impacts to the properties in this area, and the other is at CTH DE which would require several relocations. The major concern they mentioned was the co-op business west on CTH DE, which draws quite a bit of truck traffic. They think most of the trucks come from the north, therefore an interchange at Gunn Road may be too far south for the trucks to use. They said that much of this truck traffic exits at CTH D and travels to the co-op along either CTH D or Iron Road. We said we would look into setting up a meeting with the co-op to find out more information about the number of trucks and which direction they travel to and from.

Matt pointed out that one issue we looked at was the need for an interchange to provide access to the businesses located along Klatt Road. The Town officials said only one of those businesses (Cheese House) is really affected by drive-by traffic and the others are more destination businesses. Matt said if an interchange isn't added in this area, anyone coming from the south wanting to get to properties in this area would have to exit at CTH S several miles to the south. That would only be true if an interchange would be added at that location.

They commented about the plans for the new interchange at CTH D proposed for 2012. Along with that project, an intersection with Iron Road is proposed similar to the existing intersection. They said it is a tight area for trucks to turn and weren't sure if the intersection was being designed for truck traffic.

The question was asked if the frontage roads shown crossing the railroad could be at-grade instead of bridge overpasses. Matt told them the crossing is too close to the USH 151 bridges and there isn't enough room to provide adequate sight distance.

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They said the property south of the CTH D interchange is likely planned for development.

An access concern in this area is the Cigelske property and the fact that the property owner has an access that uses Hammer Road and extends across the railroad tracks to the farm property to the south. Neil said he thinks that property may have been sold. Therefore that access problem may be resolved. Matt asked if there is a need for the Town to maintain Hammer Road if that access is no longer needed and they said probably not.

We informed them that the major issue around the City of Beaver Dam is the existing at-grade railroad crossing. The current option is to raise USH 151 over the railroad and lower CTH E. They didn't have any comments about this since this is more of an issue with the City of Beaver Dam.

Similar to what the officials from the Town of Trenton mentioned, they confirmed plans for development south of Hemlock Road, west of USH 151 on the Zieman property. They said those plans show an access road extending to the west behind the Frank property and tying into Hemlock Road. That road may be in place by the time this project occurs and could be used as a frontage road under the freeway concept.

On the east side of USH 151, there are plans to extend North Crystal Lake Road to tie into Hemlock Road. This shouldn't change any of the concepts for the freeway since there isn't any private access onto USH 151 in that area.

We left displays with them for sheets 2 and 3 extending from Forest Road to CTH A as well as sheets for the interchange alternative at CTH DE and the overview map showing the entire County. We told them they can send some comments to the concepts in writing if they want.

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: Calamus Town Hall

Date/Time: March 10, 2009; 10:00 a.m.

Notes By: Matt Barr

Attendees:

WisDOT SW Region – Mark Westerveld
Ayres Associates – Matt Barr
Calamus Township – John Kirchberg (Town Chairman)
Elba Township – Joe Roche (Town Chairman), Allen Link and Roger Parpart (Board Members)

Project No.: 45-0292.00

Re: Meeting to discuss design concepts

Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 – STH 49
USH 151
Dodge County

The meeting was held with officials from both Calamus and Elba Townships to discuss the design concepts that have been developed over the last few months. Matt and Mark gave an overview of the project background, the status of the study, and the project schedule for the next few months.

Matt explained how the distance between the existing interchanges at STH 73 and CTH D near Beaver Dam might allow for the addition of one or two new interchanges. The current concepts show an interchange tying into CTH S. They felt that CTH S is a fairly good road and would make sense for an interchange. We explained the need to maintain a quarter mile distance between ramp terminals and any new frontage road and they thought that seemed excessive. Mark told them this is a requirement that the FHWA wants to incorporate for new interchanges.

Matt mentioned that a bridge is shown tying Moriah Road into Bethel Road on each side of USH 151. If a bridge isn't seen as necessary, then additional frontage roads could be added on both sides of USH 151 to provide access the interchanges at STH 73 and CTH S. The Elba officials said they would prefer the bridge option. They mentioned quite a few people cross USH 151 between Moriah and Bethel Roads. That crossing is also used by people from Fall River to cross USH 151. They also said frontage roads wouldn't necessarily have to be added along both sides of USH 151 between STH 73 and CTH S.

The Elba officials said there are two areas where Rakes on property on both sides of USH 151. They may not necessarily be the same owners but probably do have some crossing maneuvers.

A concern they mentioned for a new interchange in the area of CTH DE is the truck traffic using he co-op business to the west. John said there are 600 trucks per day accessing that property during the peak season. Matt showed alternatives for a new interchange at CTH DE and located just south of Gunn Road. The one south of Gunn Road would minimize impacts to the properties in this area, and the other at CTH DE would require several relocations. They thought that the truck traffic comes from the north and south. During a previous meeting we had, it was mentioned that most of the truck traffic is from the north. We said we would look into setting up a meeting with the co-op to find out more information about the number of trucks and

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which direction they travel to and from. John provided a name of someone to contact from the co-op.

They talked about how a lot of the truck traffic uses Iron Road and asked about making that road CTH D. Matt said there would still be a problem with tying this into the new CTH D interchange since the intersection would have to be ¼ mile away from the northern ramp terminal.

John mentioned a concern with a new interchange south of Gunn Road. They have that area shown as agricultural in their 20-year plan.

Matt said he has received a couple calls from the Hemlings located at the south end of the project. Roger said they built that house a few years ago on a parcel where the entrance was originally for agricultural purposes.

We also reviewed the overview display and Matt pointed out that if there were interest for only one interchange between STH 73 and CTH D, maybe it would be placed near the Salem Road intersection. CTH S could then be re-routed to the north on East Salem Road which would need to be upgraded. CTH S is already located to the north further east so there wouldn't be any additional adverse travel if it were shifted to the north.

We left displays with them for sheets 1 and 1 extending from STH 73 to Beaver Dam as well as sheets for the interchange alternative at CTH DE and the overview map showing the entire County. We told them they can send some comments to the concepts in writing if they want.

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: United Co-op on STH 33

Date/Time: March 19, 2009; 10:00 a.m.

Notes By: Matt Barr

Attendees:

WisDOT SW Region – Mark Westerveld & Tom Koprowski
Ayres Associates – Matt Barr
Beaver Dam Co-op – David Cramer

Project No.: 45-0292.00

Re: Meeting to discuss design concepts

Project I.D. 1110-00-09
Columbus – Waupun Road
(STH 73 – STH 49
USH 151
Dodge County

We met with David to discuss the operations of the Co-op business located at the intersection of CTH DE and CTH D west of USH 151. This is one of the larger businesses near the project corridor with significant truck traffic, so the meeting was held to find out more information about the access needs and amount of truck traffic. David mentioned the following information:

- Their peak period is 2 months both during the spring and fall
- During the peak period, there are 200 to 250 trucks per day accessing the business
- During non-peak periods, there may be 75 to 80 trucks per day
- Trucks accessing the site include some semis and gravity wagons
- Vehicles come from all around the area. One of the major destinations is Horicon.
- Most traffic uses CTH DE to and from the business. The median is wide enough on USH 151 to allow vehicles to cross halfway and sit in the median.
- He mentioned concern with sight distance at the CTH DE intersection
- They have a verbal agreement with the Township to have trucks come in empty on Iron road and use CTH DE to leave when they are full.
- They have invested $20 million into this business over the last 7 years, so there are no plans to eliminate the business or move to a new location
- In reviewing the preliminary concepts, David said they likely prefer the option with a new interchange at CTH DE. Trucks from the north would likely not use an interchange located further south at Gunn Road and may instead use the CTH D interchange and either CTH D or Iron Road to access the business.

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Appendix D

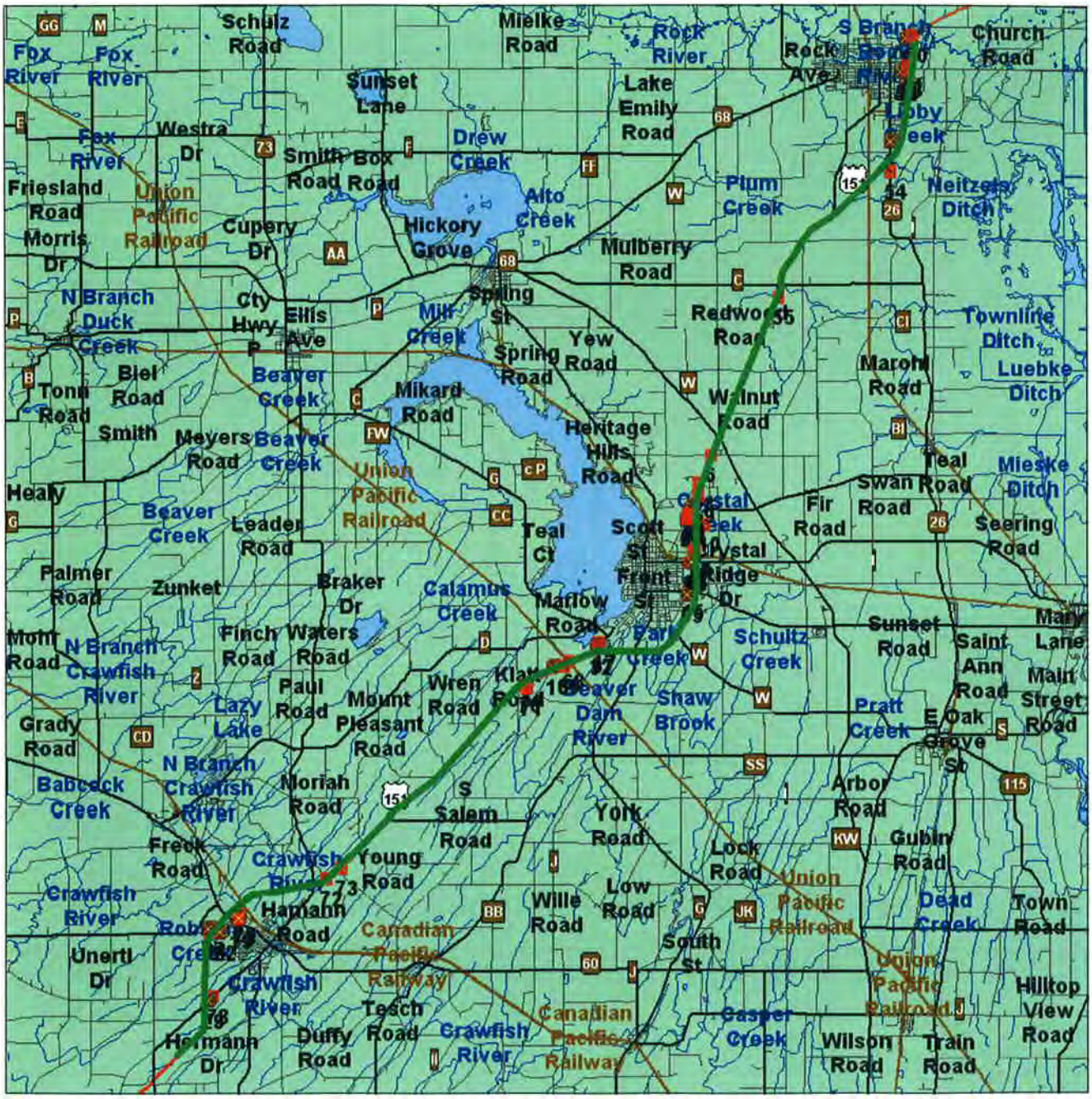
Potential Hazardous Materials Sites

Environmental FirstSearch

.25 Mile Radius from Line

ASTM Map: RCRAGEN, ERNS, UST

, WAUPUN WI 53963



Source: 2002 U.S. Census TIGER Files

Linear Search Line .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

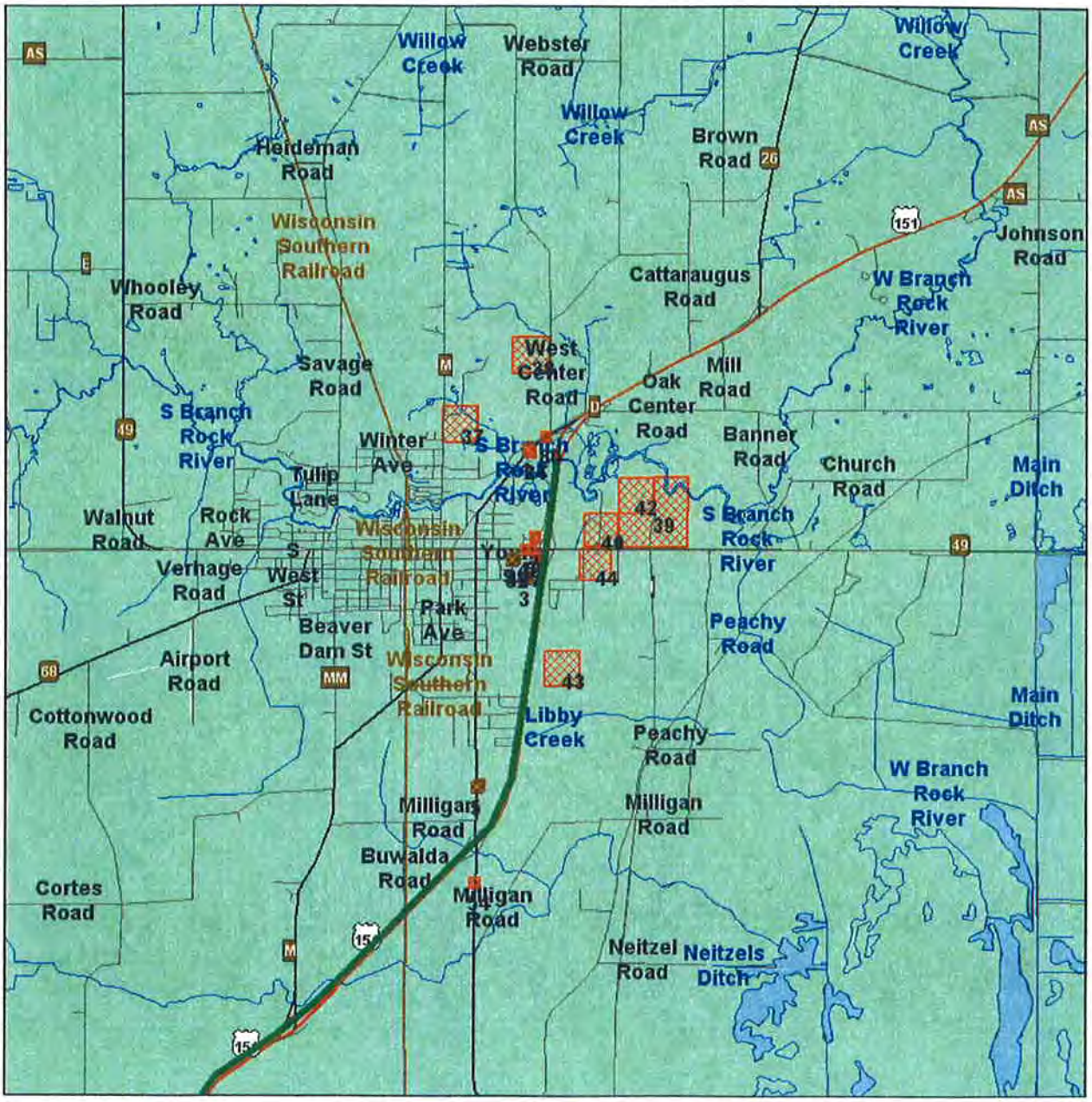
Railroads .....

Environmental FirstSearch

Map Width: 6.216 Mile(s)

Selected FEDERAL STATE LOCAL Sites

, WAUPUN WI 53963



Source: 2002 U.S. Census TIGER Files

Linear Search Line .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

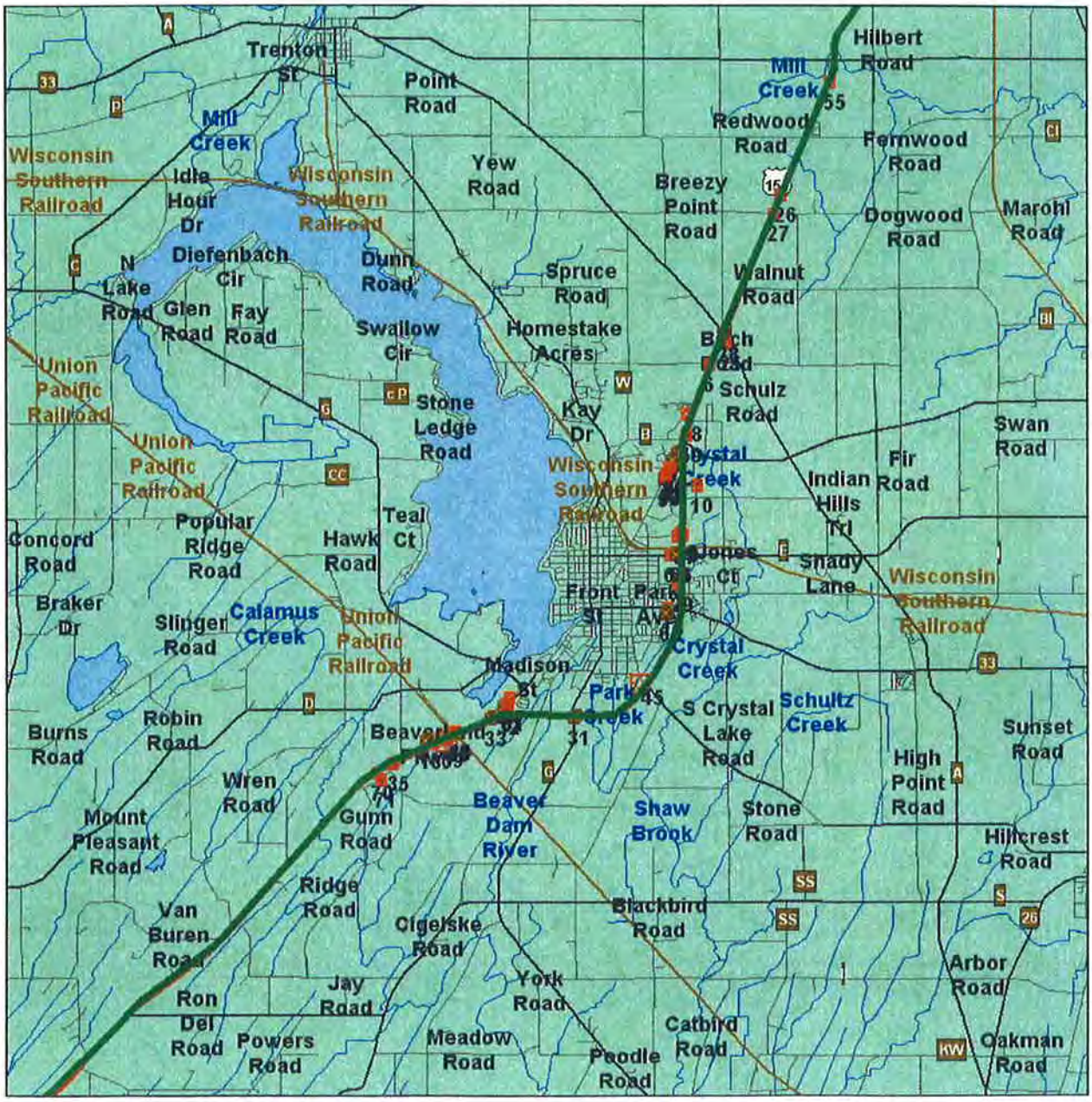
Railroads .....

Environmental FirstSearch

Map Width: 11.368 Mile(s)

Selected FEDERAL STATE LOCAL Sites

, WAUPUN WI 53963



Source: 2002 U.S. Census TIGER Files

Linear Search Line .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

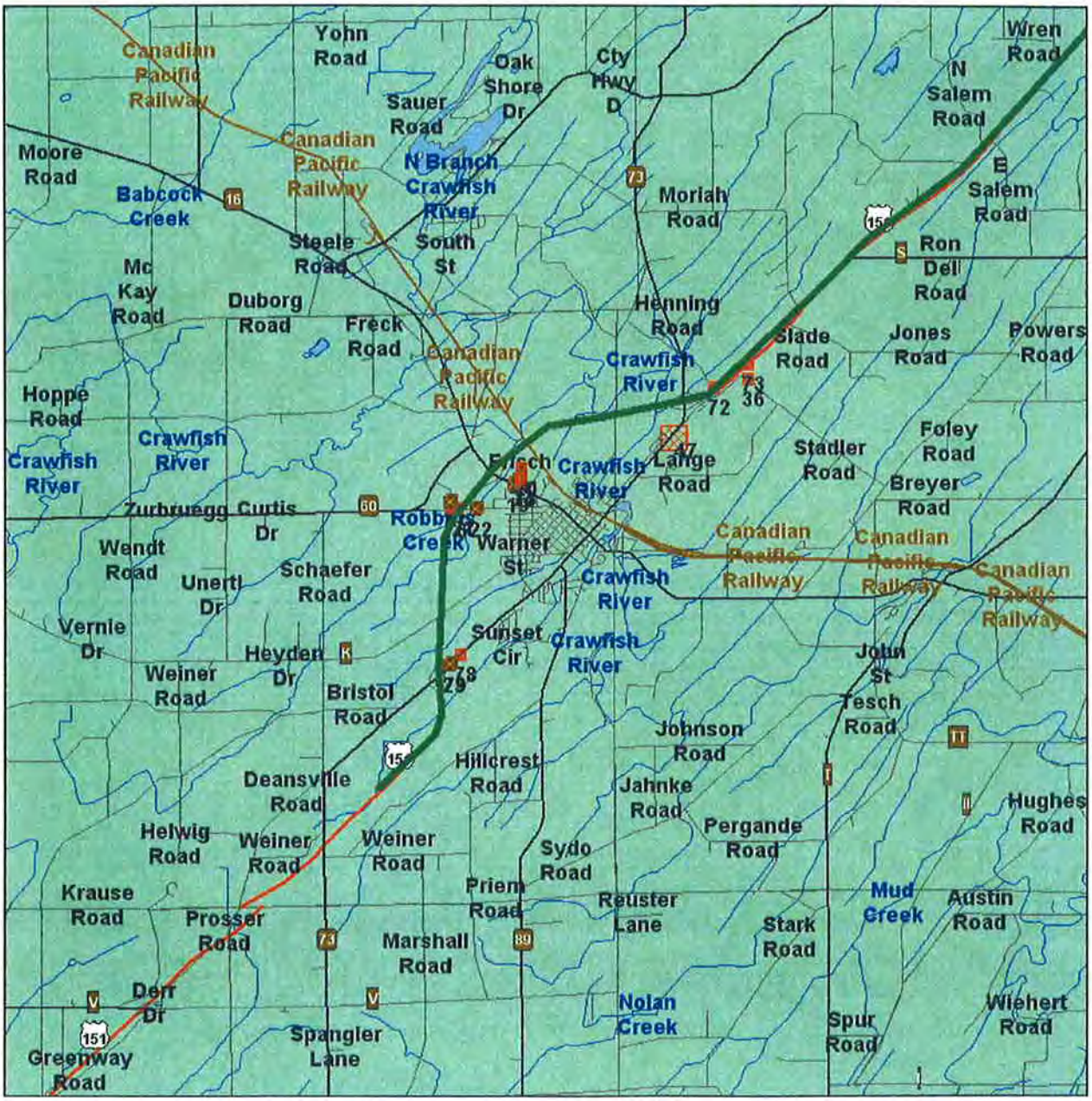
Railroads .....

Environmental FirstSearch

Map Width: 8.924 Mile(s)

Selected FEDERAL STATE LOCAL Sites

, WAUPUN WI 53963



Source: 2002 U.S. Census TIGER Files

Linear Search Line .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Railroads .....

Appendix E

Summary of Individual Community Future Growth Areas and Comprehensive Plan Recommendations

Summary of Individual Community Future Growth Areas and Comprehensive Plan recommendations

Each of the locally developed comprehensive plans also includes projections of future land use demand and maps indicating the desired types and location of future development.

It should be noted that local community comprehensive plans need not be compatible with those of neighboring or overlapping jurisdictions. Furthermore, under Wisconsin enabling statutes, incorporated municipalities (cities, villages) may opt to exercise extraterritorial powers over town and county units of government for a specified radius around the municipality (1.5 miles for cities and villages with less than 10,000 people; 3 miles for cities and villages with 10,000 people or more). These powers include extraterritorial planning, subdivision authority, and with cooperation of the affected Town, extraterritorial zoning.

Therefore, the future growth area maps are composite maps of individual local comprehensive plans that give priority to the recommendations found in the Cities of Columbus, Beaver Dam, and Waupun over surrounding communities wherever recommendations for future growth differ.

City of Columbus

The City of Columbus is expected to grow at a moderate pace through 2030. Almost all of this growth will occur in what is the Town of Columbus in Columbia County. Major residential and institutional areas are not planned immediately adjacent to USH 151, but potentially significant commercial/industrial areas are. In addition, the City of Columbus is located at the intersection of USH Highway 151 and several other major highways, notably STH 16/60, STH 73, and STH 89. This increases the likelihood of traffic generation from outside of the study area at the existing interchanges. The location and potential extent of future growth is illustrated in Map 2.2

Major Growth Areas:

- **STH 16/USH 151:** Business Park stretching from STH 60 to the railroad. If developed, will increase traffic generators for USH 151 Corridor.
- **South STH 73 and USH 151** Allows major commercial node at all corners of this junction. If developed, will increase traffic generators for USH 151 Corridor, but will likely cause largest impacts south of Columbus.
- **New industrial area** would be allowed **west of USH 151**. If developed, will increase traffic generators for USH 151 Corridor.

Major Transportation policies/recommendations:

- Columbus is seeking a **Southern bypass for STH 16/60**, but it will not have an immediate impact on USH 151. Largely for local use. Possible future desire for overpass of USH 151.
- **City of Columbus Northern bypass for STH 16/60** is proposed by City at or near existing USH 151/STH 73 interchange. This will require satisfactory intersection of STH 73 and eastern bypass south of existing USH 151 interchange. The City plans limited development planned for these areas.

Town of Columbus

Major Growth Areas:

The Town's comprehensive plan was prepared in cooperation with Columbia County. Both existing and planned future land use patterns are reflected in the Columbia County Comprehensive Plan.

The Town of Columbus is mostly rural. Population is expected to decrease as a result of demographic trends, land use policies favoring rural/ag land preservation, and loss of existing residential areas and territory through annexation by the City of Columbus.

Much of the Town's territory is enrolled in the State of Wisconsin Farmland Preservation Program. This program generally requires that development of enrolled lands be limited to 1 residence per 35 acres or less. Non-agriculturally related commercial and industrial activity is generally discouraged unless annexed by adjacent city (in this case, the City of Columbus).

The Town is regulated by Columbia County's zoning and subdivision regulations.

All areas shown as "Agricultural Preservation" on the Existing and Future Land Use Map are intended to remain primarily in agricultural or other open space use.

Major Transportation policies/recommendations:

Some growth in rural households may occur, but the Town Plan emphasizes limiting the creation of new local/town roads and limiting new driveways on arterial roads. The Town Plan recommends continued cooperation with Wisconsin, Columbia County, and neighboring jurisdictions on transportation matters.

Town of Fountain Prairie

Major Growth Areas:

The Town developed its Comprehensive Plan 2030 in cooperation with Columbia County.. The Town exercises its own subdivision authority, but Columbia County regulates land use through zoning.

The Town of Fountain Prairie is mostly rural, with some non-rural development near the Village of Fall River and a few other isolated locations near lakes and rivers where unsewered residential development has been allowed to occur.

Though Wisconsin Department of Administration population forecasts significant population growth (relative to existing population) as a result of demographic trends, and the Towns proximity to the City of Fall River, USH 151, and STH 16, land use policies favor farm land preservation for most of the Town's land area. The Town's policy in these "Agricultural Management Areas" is to limit residential density to a maximum of one dwelling unit per 40 acres or less. This policy is generally compatible with Columbia County's exclusive agricultural zoning.

A limited amount of rural residential development at higher densities would be allowed in specific areas, notably the Lazy Lake area north of the City of Fall River.

All areas shown as "Agricultural Preservation" on the Existing and Future Land Use Map are intended to remain primarily in agricultural or other open space use.

Major Transportation policies/recommendations:
The Town has adopted a driveway ordinance to reduce the number and control the configuration of new driveways. The current Town Plan does not include all of the required elements of a State of Wisconsin Comprehensive Plan, but land use recommendations would generally not be impacted by conversion of USH 151 to a freeway.

Town of Elba

Major Growth Areas and Land Use Recommendations:
Most areas will remain agricultural, open space, and low density residential in accordance with the Dodge County Comprehensive Plan (described later in this Section).

Major Transportation policies/recommendations
Town transportation plans and policies are in general agreement with the Dodge County Comprehensive Plan (described later in this Section).

Town of Calumus

Major Growth Areas and Land Use Recommendations:
The Town will limit extensive commercial development to the existing area adjacent to Klatt and Jackson Roads south of USH 151. Klatt Road currently provides an at-grade intersection with USH 151 and connects to CTH DE via the intersection at USH 151. Reconfiguration of USH 151 to freeway standard will have major effect on these areas.

The future industrial area will be limited to CTH D/DE intersection, located approximately 1 mile west of USH 151. Truck traffic from this facility to USH 151 is a concern.

Most of the Town is to remain in agricultural and open space uses, with most residential development limited to low density (i.e. one residence per 40 acres or so).

Major Transportation policies/recommendations
The Town's comprehensive plan makes no specific recommendations with regard to USH 151 or roads connecting to it.

Generally, the Town seeks to maximize use of existing roads and limit new public roads to those serving more than one property.

City of Beaver Dam

At the time this study was prepared, the City of Beaver Dam Comprehensive Plan had not yet been formally adopted. The City intends to adopt a final version of the plan in 2009. No major changes to the draft plan summarized below are anticipated, but all findings are subject to change.

The City and Town of Beaver Dam are expected to experience largest rates of growth in the study area in both percentage and real terms.

Major Growth Areas:
Map 2.3 indicates major residential, commercial, industrial, and institutional growth areas that the City would potentially allow to develop through 2030. Significant growth would be allowed near existing interchanges/crossings of USH 151.

Major Transportation policies/recommendations:
The City plan recommends a new USH 151 Interchange at or near CTH DE southwest of the City to route truck and other traffic from the west side of Beaver Dam Lake away from the City. Currently, much of this traffic relies on the CTH D, CTH G, and STH 33 interchanges to access USH 151.

The City's plan does not otherwise address USH151 specifically but references State and County transportation plans and the need for coordination with the Wisconsin Department of Transportation. No new interchanges or intersections with USH 151 are proposed, but the importance of CTH A and the possible designation of the CTH A/ USH 151 interchange as part of an alternate truck route to STH 26 between Juneau and Waupun is acknowledged.

The City's plan emphasizes pedestrian, bicycle, and recreation connections, including the provision of separate lanes or trails paralleling major roads within its planning area.

Town of Beaver Dam

Major Growth Areas and Land Use Recommendations:
The Town's 2001 Comprehensive Plan identifies a number of areas for non-agricultural residential growth including tracts of land east of USH 151 between CTH E and STH 33, between STH 33 and Ollinger Road and along CTH D southwest of the City. Additional low density residential growth would be allowed north/northwest of the City. Commercial development would be allowed at the north end of the Town south of CTH A near USH 151, and between STH 33 and CTH W. New industrial development would be located in areas generally compatible with the City of Beaver Dam's plan. Though the City and Town differ over the timing and long term jurisdiction, these matters have less importance in assessing the transportation impacts on USH 151.

Major Transportation policies/recommendations

The Town's transportation policies and recommendations as they pertain to USH 151 are generally similar to those of City of Beaver Dam and Dodge County.

Town of Burnett

Major Growth Areas and Land Use Recommendations:
Most areas of will remain agricultural, open space, and low density residential in accordance with the Dodge County Comprehensive Plan (described later in this Section).

Major Transportation policies/recommendations
Town transportation plans and policies are in general agreement with the Dodge County Comprehensive Plan (described later in this Section).

Town of Trenton

Major Growth Areas and Land Use Recommendations:
Most areas of will remain agricultural, open space, and low density residential in accordance with the Dodge County Comprehensive Plan (described later in this Section).

Major Transportation policies/recommendations
Town transportation plans and policies are in general agreement with the Dodge County Comprehensive Plan (described later in this Section).

Town of Chester

Major Growth Areas and Land Use Recommendations:
The Town of Chester developed its Comprehensive Plan in cooperation with the City of Waupun. Most of the intensive existing and future land uses (residential, commercial, industrial, and institutional) will occur near the City of Waupun (See Description of Major Growth Areas of the City of Waupun).

Major Transportation policies/recommendations
Major transportation improvements with direct impact on USH 151 are in accordance with those of the City of Waupun's Comprehensive Plan.

City of Waupun

The City of Waupun contains a range of land use and transportation recommendations and policies. Approximately 3,000 of the City's total population of 10,000+ is made up of prisoners at two correctional facilities within the City. Total population growth within the City is expected to be modest through 2030.

Recommendations for Planned Growth Areas:
Most growth would be directed west of USH 151, though there are also growth areas near USH 151 northeast of the City.

Extent of *potential* future growth through 2030 is indicated on Map 2.4

Most residential and large commercial planned for west end of the City (some distance from USH 151), which may disperse work related trips away from USH 151 but may also increase use at existing interchanges.

The City intends to direct economic development into existing commercial areas (such as the downtown), into the established business park, and existing tax incremental finance district. This will likely create additional traffic demand for existing interchanges located at the junction of USH 151 and STH 26 south of the City and the junction of USH 151 and STH 26 northeast of the City. An analysis of the total acreage of new non-residential development areas and the potential for new employment related trips is located in *Section 3: Summary of Existing Traffic Generators and Future Growth Areas.*

Major Transportation policies/recommendations:

- Work with Wisconsin DOT to develop long term studies for possible STH 49 Bypass. The plan does not specify whether this bypass would be routed north of the City (and out of the study area) or south of the City. Nor does the Plan indicate the proposed location of the necessary interchange/intersection with USH 151.
- Work with Wisconsin DOT to study possibility of diverting STH 26 to USH 151. This would divert cross-community traffic out of built up areas of City and would require new interchange north of City.
- Explore possibility of Greyhound Bus service/stop in City
- Work with Wisconsin DOT, counties, towns to coordinate improvements, funding.
- Develop comprehensive bicycle/pedestrian plan.

Town of Waupun

Major Growth Areas and Land Use Recommendations:
The Town of Waupun developed its Comprehensive Plan in cooperation with the City of Waupun. Most intensive existing and future land uses (residential, commercial, industrial, and institutional) will occur near the City of Waupun (See Description of Major Growth Areas of the City of Waupun above).

Major Transportation policies/recommendations
Major Transportation improvements with direct impact on USH 151 are in accordance with those of the City of Waupun's Comprehensive Plan.

Columbia County

Major Growth Areas (as they pertain to USH 151 communities):
The County adopted its Comprehensive Plan 2030 in 2007. The Plan does not recommend major growth and development areas in the Towns of Columbia or Fountain Prairie. The Plan recommends most land in these areas to remain in agricultural or other open space use. The Town exercises zoning authority over both towns and subdivision authority in the Town of Columbus.

Major Transportation policies/recommendations (as they pertain to USH 151):
Generally, the Transportation element of the Columbia County Comprehensive Plan is compatible with the goal of converting USH 151 to a freeway. The Plan emphasizes limiting new access to major highways, improving safety, and preserving cross corridor access where necessary.

Dodge County

The Dodge County Comprehensive Plan includes all unincorporated towns in the County, including those in the USH 151 Freeway Conversion Study area. Dodge County developed its comprehensive plan in conjunction with the Towns of Burnett and Elba. The other Dodge County towns developed their own comprehensive plan, but there are few differences that will significantly impact trip generation on USH 151. Dodge County seeks to coordinate with the Towns to make plans compatible over the long term.

Major Growth Areas (as they pertain to USH 151 communities):
Most Towns (other than Beaver Dam) in Study area plan to grow slowly or decline in population.

Most Towns in Study area plan to remain largely agricultural rural. The Town of Beaver Dam is a notable exception.

The Dodge County Plan recommends allowing only low density (one dwelling unit per 40 acres) for most agricultural areas and preservation of existing natural areas such as large woodlots, wetlands, and other sensitive habitats.

For the most part, new commercial and industrial development would be directed toward incorporated municipalities, except for low intensity and/or agriculturally related businesses.

The Dodge County Plan would allow for additional significant commercial development at CTH A and USH 151. A Walmart Distribution Center is currently located there.

The Dodge County plan and most Town plans recommend few new roads in the study area and emphasize improving functionality of existing roads and limiting the need for new roads and services.

The Dodge County and some town plans emphasize preventing the fragmentation of working farms by public improvements such as roads. This will be key consideration for freeway conversion plans because USH 151 currently provides direct field and driveway access to cultivated fields.

The Dodge County Plan also emphasizes limiting new driveways on arterial roads, which is consistent with goals of the USH 151 freeway conversion project.

The Dodge County Comprehensive Plan recommends special "overlay" zoning for all new development within 200 feet of an arterial road to ensure that functionality of arterial road is preserved. Special considerations may include stricter limits on driveways, requirements for shared driveways and/or frontage roads, etc.)

The Dodge County Plan expresses a general interest in preserving connectivity of formal and informal snow mobile trail network, to include at least some crossings of USH 151.

The Dodge County Plan recommends preservation of current railroad corridors whether in current railroad use or not. Alternate use is recreation trails

Major Transportation policies/recommendations (as they pertain to USH 151):

Railroad R.O.W. must be preserved at present. Dodge County Comprehensive Plan recommends preservation for alternative transportation uses even if abandoned by the railroad. Dodge County plan also calls for preservation of AMTRAK passenger rail service through Columbus.

CTH D/CTH DE: Concerns over truck traffic in vicinity of CTH D/CTH DE and need for alternative outlet onto USH 151. Town and City of Beaver Dam residents wish to divert truck traffic away from City of Beaver Dam and provide direct access to USH 151.

CTH G, CTH W: mostly low intensity residential infill planned. Location could experience pressure to develop this area more intensely than planned.

STH 33/USH 151 Interchange: Significant commercial and residential development would be allowed in this area. If developed, these areas will add significantly to traffic demand.

CTH B: The Dodge County Plan would allow enlargement of existing commercial node near USH 151..

CTH A: Dodge County Comprehensive Plan calls for improvements to CTH A between STH 26 and USH 151 including improvements to on and off ramps onto CTH A to serve as alternative north/south truck route to Waupun.

CTH C: Dodge County also recommends working with DOT to investigate interchange at this location.

Fond du Lac County

Major Growth Areas (as they pertain to USH 151 communities):
The County has yet to develop a comprehensive plan. Of primary concern for this study are the growth areas for the City of Waupun and Town of Waupun (see descriptions for those communities above.

Major Transportation policies/recommendations (as they pertain to USH 151):
Fond du Lac County is working with East Central Wisconsin Regional Planning Commission, the Wisconsin Department of Transportation, and local municipalities on studies for improving USH 151 to freeway status. Ongoing efforts include a study of additional improvements to the recently constructed USH 151 bypass of the City of Fond du Lac. Additional studies are being considered for improving the USH 151 segment between Waupun and the City of Fond du Lac.

Appendix F

Local Officials Meeting Minutes

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: City of Beaver Dam, Municipal Building, Council Chambers	Project No.: 45-0292.00
Date/Time: February 25, 2008, 2:00 pm	Re: Local Officials Meeting #1
Attendees: See sign-in sheet	Project I.D. 1110-00-09 USH 151 Freeway Conversion Study Columbus to Waupun Dodge County
Notes By: Nick Hoernke, Charles Wade	

I. Overview

The local officials meeting was held on Monday, February 25, 2008 at the city of Beaver Dam Municipal Building with several project exhibits on display for officials to review. An agenda was distributed as well as a frequently asked questions form. In addition, a brief presentation was given at 2:00 pm. Individuals attending from Ayres Associates, WisDOT, Transmart, & Vandewalle included:

Ayres Associates
Matt Barr – Project Manager
Nicholas Hoernke

WisDOT
Mark Westerveld – WisDOT Project Manager

Transmart
Charles Wade
Manfred Enburg

Vandewalle
Dan Moser

II. Presentation

Mark Westerveld from the Wisconsin Department of Transportation (WisDOT) welcomed everyone to the meeting. Mark provided some background about the project and introduced Matt Barr from Ayres Associates. Matt asked everyone to make sure that they signed in on the sign-in sheet. (It appears that everyone did.) After introductions were completed, he briefly discussed the items in the hand-out packet. (See attached hand-out packet and sign-in sheet.) Matt provided an overview of the project, and a summary of the current scope and schedule. After this, Dan Moser from Vandewalle & Associates provided a brief description of the demographics located in the area of the study as well as land use plans that he has obtained. Charles Wade from Transmart Technologies then gave an overview of the official mapping process that is the final step in the preliminary planning phase of the project. The meeting was then opened up to questions, and a variety of topics were discussed as noted below.

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How will the conversion of 151 affect recreational trails and bike paths?

This was not something that has been not been thoroughly investigated yet. There are issues near the city of Waupun where a bike path may be installed in the future connecting to state trails. Dodge County does have a stand-alone bike plan.

County S north of Columbus was recently reconstructed and the question was asked if an interchange is proposed there. A lot of local traffic uses the route to get to Juneau and it is important for agriculture and emergency services.

Mark Westerveld clarified that this is just a study, and all options will be considered. Matt said that because it is a county highway it is a candidate for an interchange.

Are there any plans to improve the intersection with County DE? There is a concern with the amount of trucks using a grain facility located to the west off of County DE.

A large discussion began with regards to the CO-OP facility located off of County DE. Officials estimated approximately 600 trucks per day using the facility during peak periods of the year. A lot of the trucks are also using the Iron Road intersection, however the access to USH 151 from this road will be closed off in the summer of 2008. The fire department estimates that County DE is the most dangerous intersection that they have in their jurisdiction. Mark Westerveld said that he would check with the maintenance department on the status of the intersection. More options will be looked at as how to connect Iron Road and County DE.

Does the DOT still own old USH 151 R/W south of Beaver Dam?

Mark said yes they still own land at various locations that was part of the old USH 151.

If this project is officially mapped, is there money to purchase land?

Mark explained that an official map must be created before land can be purchased by the DOT. If property owners along the corridor are planning improvements, they must notify the DOT once the map has been created. If any new entrances are planned on USH 151, they must go through the standard DOT permitting process. Mark said that it is likely that requests would be denied due to the study and the possibility of corridor improvement.

A study was conducted on the STH 26 corridor several years ago. Will that study be incorporated into this study?

Chuck said that he worked on that project when he worked at SEH and he is aware of the study. Some concepts included in that study that could be included with proposed work on USH 151 include the realignment of Milligan Road, bike accommodations, a snowmobile crossing, and the proposed development area. Chuck said he would get a copy of this study to Matt.

Multiple snowmobile clubs also have crossings of the highway. It is estimated that there may be four crossings and a multi-use crossing was discussed that could be combined with a new railway crossing near STH 26. The Dodge County Parks Department maintains the trails and probably has a contact person.

III. One-on-One Discussions

Other discussions occurred during the open house session that were not part of the formal question and answer period.

Matt Barr's Discussions

Matt talked to several officials about the area south of Beaver Dam. Some of them participated in meetings that were held as part of previous studies conducted by the DOT. They mentioned how the layout of the county roads in this area (DE, D, G) is rather confusing. There are still several access issues that need to be resolved in this area.

An official said there is some development proposed on the east side of USH 151 north of Columbus. No new access to USH 151 is proposed as part of that development which will tie into Behan Road that intersects with STH 73.

IV. Written Comments

Comment sheets were also available at the meeting, which could be filled out or mailed to Ayres staff. None were received as of the requested due date of March 14, 2008.

MEETING MINUTES

AYRES ASSOCIATES

Meeting Location: City of Beaver Dam, Municipal Building, Council Chambers	Project No.: 45-0292.00
Date/Time: May 12, 2009, 2:00 pm	Re: Local Officials Meeting #2
Attendees: See sign-in sheet	Project I.D. 1110-00-09 USH 151 Freeway Conversion Study Columbus to Waupun Dodge County
Notes By: Matt Barr	

I. Overview

The local officials meeting was held on Tuesday, May 12, 2009 at the City of Beaver Dam Municipal Building with several project exhibits on display for officials to review. An agenda was distributed along with comment forms. In addition, a brief presentation was given at 2:00 pm. The purpose of the meeting was to review the preliminary roadway concepts that have been developed and discuss those prior to holding the next public informational meeting. Individuals attending from the project study team included:

Ayres Associates
Matt Barr – Project Manager
Bill Roth – Design Engineer

WisDOT
Mark Westerveld – WisDOT Project Manager
Tom Koprowski – WisDOT Planner

Transmart Technologies
Charles Wade – Planner

II. Presentation

Mark Westerveld from the Wisconsin Department of Transportation (WisDOT) welcomed everyone to the meeting. Mark provided some background about the project and introduced Matt Barr from Ayres Associates. Matt asked everyone to make sure that they signed in on the sign-in sheet. (It appears that everyone did.) After introductions were completed, he briefly discussed the items in the hand-out packet. (See attached hand-out packet and sign-in sheet.) Matt provided a brief overview of the project and summarized the roadway concepts. Exhibits included displays of the concepts, additional alternatives for interchanges at CTH DE and CTH C and land use maps for existing and future conditions. Charles Wade gave an overview of the official mapping process that will be completed in the third phase of the project study.

III. Questions and Answers

The meeting was then opened up to questions, and a variety of topics were discussed as noted below.

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1. A representative from Dodge County Planning had question about how the public is notified when the mapping of the corridor is complete. Chuck replied that a public hearing is required which will include certified mailing to affected landowners. The mapping information is included with a property owner's deed and it is the responsibility of the property owner to be aware that their property is mapped.

2. A question was asked about the alternatives for the interchange just south of Beaver Dam (Gunn Road vs. CTH DE). Matt described the two alternatives.

3. Tom Kennedy, Beaver Dam Mayor, asked about schedule for freeway conversion. Mark said the project is a minimum of ten years out for construction, adding that the building of the freeway conversion could be completed in phases, rather than all at once. Tom also asked about the CTH D interchange project. Mark replied that the schedule is currently for 2012, and that the design provides for all four ramp movements. There is a possibility that work could get moved up to 2011. Tom then asked about replacing the bridges at Prospect Avenue, noting that the crossroad is in poor shape, and that the bridges should be raised. He recalled the DOT indicating that was a project scheduled for construction along USH 151. Mark wasn't aware of this project but said he would check with Jim Buschkopf on this. (Later, the design team speculated that the recent overlay and cable guard construction project may have been scaled back from an original project concept to not only replace the bridges at Prospect Ave. and STH 33, but also to replace the USH 151 pavement in areas of original concrete with an asphalt overlay.)

4. A question was asked by a representative from Dodge County Planning if the latest FEMA maps are represented on the displays. Matt answered that the wetland information shown is from DNR maps and the wetland areas are going to be updated in the next month or so based on conversations with Mike Halsted from the DNR. The Planning representative said the latest floodplain maps could be obtained from Joyce Fiacco who is the Land Information Office for Dodge County.

5. A question was asked whether the short term safety improvements would be included in the mapping of the corridor. Mark responded that these safety improvements would probably be built before the corridor is mapped, and that the work would likely occur within the existing highway right-of-way.

6. Tom Kennedy asked about the concepts for the Iron Road area, which Matt described. Matt explained this area between CTH DE and CTH D is probably the most complicated along the project corridor due to the number of existing business and C& NW Railroad line crossing USH 151. Further discussion followed about traffic in the general area. Comments were made about the increased traffic at the intersection with Kwik Trip that is going west of Beaver Dam to Randolph. Traffic has increased due to the recent removal of the median crossover at Iron and Hammer Roads. Also, some traffic that used to use that crossover to go north on USH 151 now uses the median crossover just south of the railroad bridges near the trailer park.

7. Matt mentioned that public meeting will be held within the next month or so, probably from about 5 to 7 pm, and asked for input about possible dates. Beaver Dam officials said to avoid the first and third Monday of the month if possible.

IV. One-on-One Discussions

Some other discussions occurred during the open house session that were not part of the formal question and answer period.

Matt Barr's Discussions

Pete Thompson from Dodge County Highway Dept. said he doesn't think the section of road between the Kwik Trip and the CTH D/CTH G intersections is signed as CTH D. This would involve a gap in CTH D between the segment connected to USH 151 and CTH D to the west. Pete also said there is a similar situation in Beaver Dam with CTH G. He doesn't think it is signed as CTH G between the CTH G interchange on USH 151 and CTH G west of the City.

Russell Kottke mentioned that property shown being owned by James Ferron west of USH 151 just south of Breezy Point Road is now owned by the DNR.

Ritchie Piltz asked about the possibility of adding an interchange at CTH W. The fire department has an interest in that and it would also provide better access to the hospital. Matt said this topic has been brought up before and a new interchange is unlikely given the number of interchanges that exist around Beaver Dam. It may have been an option before the CTH G interchange was added several years ago.

Chuck Wade's Discussions

There was a request to keep the snowmobile crossing just south of Waupun on the north of the railroad tracks and not along the south side where an access road is shown on the displays. The trail heads into Waupun and not to the south.

V. Written Comments

Comment sheets were also available at the meeting, which could be filled out or mailed to Ayres staff. None were received as of the requested due date of March 29, 2009.

Appendix G

Agricultural, EMS, School Bus Survey Report

Agriculture, EMS, School Bus Survey Report For USH 151 Freeway Study

Project ID 1110-00-09
(Columbus to Waupun – Dodge County WI)

TranSmart

Introduction

The Wisconsin Department of Transportation (WisDOT) is currently undertaking the US 151 Freeway Conversion Study, between WIS 73 north of the City of Columbus and WIS 49 in the City of Waupun. The corridor encompasses approximately 27 miles. The purpose of study is to determine the potential effects that access changes along US 151 could have on existing and future land uses, and the local transportation network. As a freeway, access to US 151 would be provided only at well spaced interchanges.

As part of the data collection phase of the study, three brief surveys were developed for distribution to three different stakeholder groups along the corridor. The surveys were designed to gather information concerning the existing travel patterns and key intersections along US 151 currently used by the agriculture sector, the emergency management services sector, and the public school transportation sector.

Methodology

All three surveys consisted of a one page project introduction letter briefly describing the study and providing project contact information. A second enclosure included detailed instructions to complete a series of questions - six or seven - depending on the stakeholder group. The instructions also described how to mark the enclosed maps of the corridor identifying important highway crossings and local roads. The agriculture sector was also asked to mark land parcels that were owned and/or leased, in addition to farm operation access points connected directly to US 151. Emergency management services and public school transportation providers were asked to mark important crossings essential to response time and destination along the corridor.

Surveys were mailed to 93 agricultural operators along the corridor identified through the most recent tax assessment records available at the time. A total of 15 police, fire, and ambulance emergency service providers, including the county sheriff's office and the state patrol, were identified to be included in the Emergency Services Survey mailing. Three school districts were identified with boundaries that overlapped the study area. The school bus surveys were mailed to the administrators of the three school districts and to a busing company contracted to transport students within each district.

The survey was mailed first class and included a return, first-class, postage-paid envelope for mailing directly to the WisDOT project manager. The survey contained a July 1, 2008 return request, allowing approximately three weeks from time of mailing for completion and return.

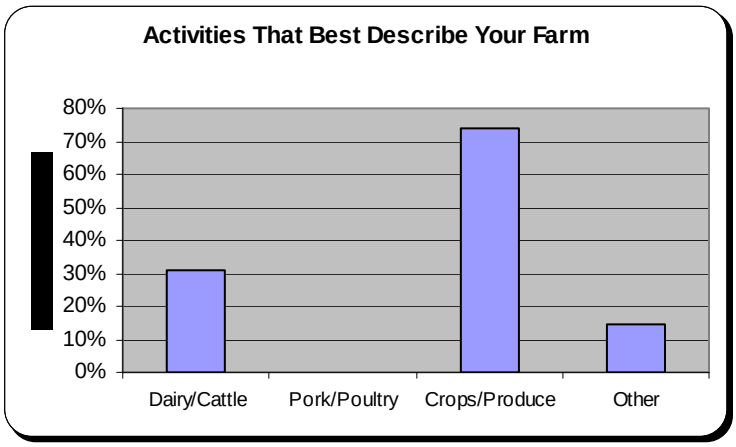
The cover letter, survey questionnaires, and maps are included in Appendix A - Surveys for reference.

Summary of Results

Agriculture Operations Survey

The agriculture survey, with the largest mailing numbers (93 posted) also had the largest return (a total of 42) for a 45 percent return rate. Of the surveys returned, all of the respondents answered the first question pertaining to the type of activity that best describes their farm. The majority of farms along the corridor appear to be primarily crop/produce (74% of responses), followed by dairy/cattle farming at 31 percent. Fourteen respondents indicated they engaged in "other" types of farming activities (Figure 1).

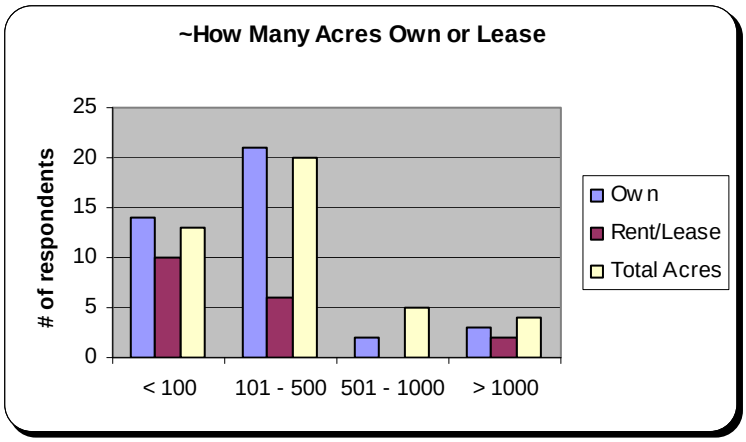
Figure 1



Because the spreading of animal waste from dairy operations is strictly regulated in the state to protect water resources, travel patterns for crop production and dairy types of farming activities can vary dramatically in travel needs. Local weight restrictions during certain portions of the year can limit the use of the local road system for heavy manure hauling vehicles causing a greater need for access to US 151 during those months. Crop production activities have local and regional distribution needs during harvest and planting seasons in addition to field access for agricultural equipment depending on the type of crop.

In an effort to identify the size and location of farms, the survey asked respondents to indicate the approximate number of acres their farm includes. Respondents were also instructed to indicate the location of farm operations on the enclosed maps to show where they were located (See Appendix B – Agriculture Operations Summary Maps). The majority of farmers responding, indicated they own or lease 500 acres or less, with a small percentage owning/leasing over 1,000 acres (Figure 2).

Figure 2



The location and size of farm was compiled on a set of maps to determine if one portion of the study area had a greater concentration of farm activities over another area. Because fuel costs are an important consideration in the profitability and logistics of a farm, indirection as a result of access changes can have an impact on farm viability. The distribution of farms from the survey revealed a mostly uniform distribution of farms along the entire rural portion of the study area (See Appendix B).

Another important consideration for farm activities within the study area involves the degree to which local farms need to interact with traffic on US 151 as part of their daily operations. Most of the farms responded to the questions pertaining to US 151 either splitting the farm (100% response rate), or as the sole access to the farm (95% response rate). Roughly half of the farms surveyed are divided by US 151 in some manner requiring farm machinery or vehicles to cross US 151. In addition, roughly 53 percent indicated that US 151 was not the sole access to their farms.

Figure 3

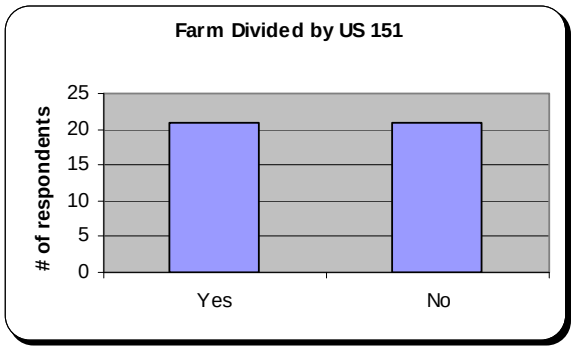
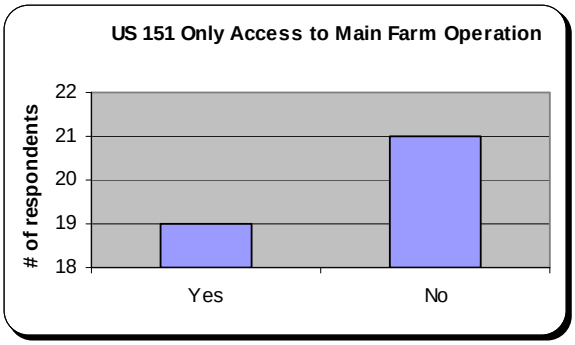


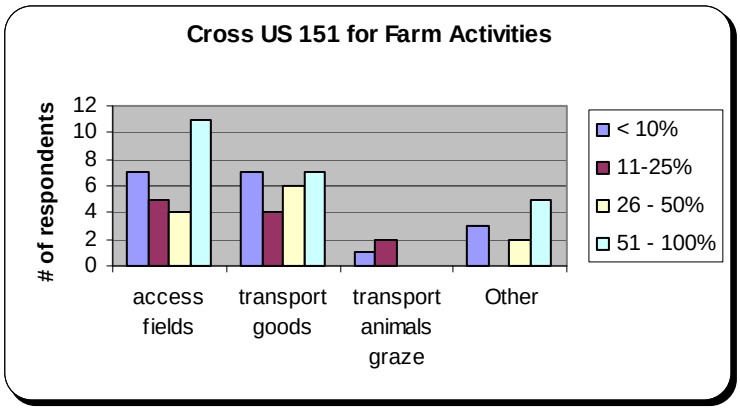
Figure 4



Farms that utilized US 151 as part of their activities were asked to indicate a distribution of what purposes they travel and/or cross US 151. Approximately 81 percent of respondents

indicated using US 151 on a regular basis either to access fields with agricultural equipment and/or to transport goods to/from markets (Figure 5).

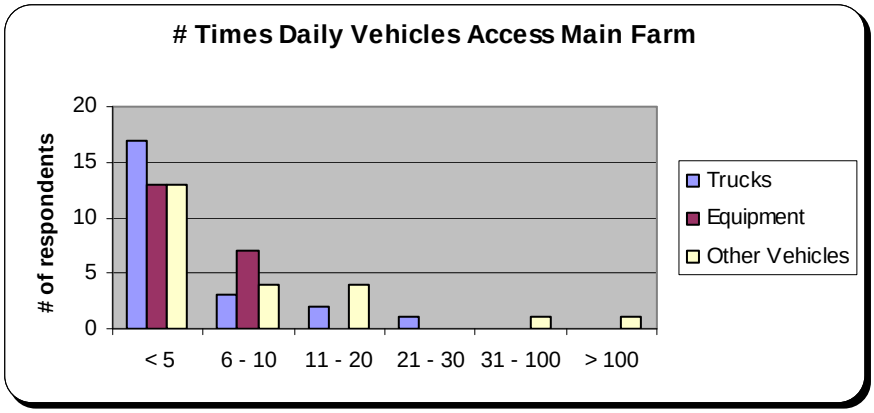
Figure 5



The types of trips being made can help determine the access and circulation needs of farm operations in the study area. With a majority of respondents indicating that they use US 151 to access fields or to transport goods, the types of conflict that can be expected include slow moving vehicles on the corridor, long vehicles in the median, and trucks trying to get to acceleration/deceleration speeds as they access farm driveways along the corridor. Alternatives access and routes could be planned to minimize these challenges.

When asked about how many times per day, farms were accessed by trucks, farm equipment, or other vehicles (such as employee vehicles, etc.), respondents indicated relatively lower than expected volumes of less than five times per day (Figure 6).

Figure 6



As stated earlier, maps were returned with the majority of the surveys and farm parcels were highlighted by the landowner, noting whether the land is owned or leased. A farm operation

can include both owned and leased lands that reflect the total size of the farm. Even though leasing agreements can change more readily over time, by looking at both, a better sense of the true travel patterns of the farm can be determined.

Farm operators were also asked to mark their usual routes along US 151 and alternative routes to get to/from their farm operations, and identify farm access points and important intersections along US 151 (See Appendix B). The results indicate that currently US 151 is widely used by farm operations within the study area for travel and access. This could be due to a disconnected local road system that does not offer parallel travel choices to US 151. In addition, the majority of access points for fields appear to be located along US 151. Currently, several farms have short closely spaced crossings of US 151. Changes in access along US 151 could have a significant influence on field access and travel patterns for agricultural equipment.

Emergency Management Services Survey

A total of 15 Emergency Services Surveys were mailed to agencies identified during the study process that provide services to the study area communities. A total of six surveys were returned (response rate of 40%) by police, fire, and ambulance providers.

When asked what the current response time between dispatch to scene was, the range was currently between two and 13 minutes, with most agencies indicating they need to access or cross US 151. Only two agencies indicated a need to cross or access US 151 greater than 40 percent of the time, with the majority of agencies crossing US 151 between one and 8 percent of the time.

Agencies were asked to identify important routes for access to accident locations as well as transport to local hospitals. Routes identified as important for this purpose included:

- North Spring Street
- Crystal Lake Road
- WIS 26 north and south of Waupun
- WIS 33
- WIS 49
- County A
- County B
- County G
- County S

When asked what the importance of access changes to US 151 would have on their ability to respond to emergency calls, only two of the agencies ranked the importance high (10) while the other four ranked the importance low (between 1 and 4).

Emergency Service Providers were also asked to mark the important roads and US 151 crossings on maps (See Appendix C – EMS Summary Maps). In many of the cases, the crossings identified were located in areas where US 151 is currently functioning as a freeway. As such many of the existing road configurations would likely see limited modifications.

Important local roads used most often to respond to emergency calls included:

- Old Highway 73 in Columbus (Police)
- STH 73 in Columbus (Police)
- County D (Madison Street) and County G in/near Beaver Dam (Police)
- County W south of Beaver Dam (Police)
- North Spring Street in Beaver Dam (EMS)
- North Crystal Lake Road via STH 33 (EMS)
- County A on both sides of US 151 near Beaver Dam (Police)
- STH 26 south of Waupun (Police)
- County M/MM, STH 49, and Business 151 in Waupun (EMS)

Important access locations for emergency service providers were identified as:

- STH 73 interchange in Columbus
- County B/Gateway Drive interchange in Beaver Dam
- County A interchange north of Beaver Dam
- County M interchange on the south side of Waupun
- STH 26 interchange on the south side of Waupun
- STH 49 interchange on the east side of Waupun

Each of the above access locations is in an area where US 151 is functioning as a freeway already and, as such, any modification to existing roadway configurations is unlikely.

Public School Transportation Survey

While five school transportation surveys were mailed, the corridor encompasses three public school districts. In addition to the district transportation company, duplicate surveys were sent to the district administrator. Two of the districts have contracts with the same transportation company. In total, two of the three school districts responded to the survey.

The school transportation survey and map returned indicates a set number of routes, identical throughout the day. One district anticipates a five percent decrease in ridership in the next three to five years. School survey returns indicate the following intersections as important:

- County S between Columbus and Beaver Dam

- Oakwood Road between Beaver Dam and Waupun
- Breezy Point Road between Beaver Dam and Waupun
- County C between Beaver Dam and Waupun
- Salem Road between Columbus and Beaver Dam

Conclusion

The initial phase of the US 151 Freeway Conversion Study consisted of data collection, preparing a conceptual roadway design, and obtaining input from local agencies and the general public. The surveys mailed to the agriculture, emergency management services, and public school transportation services companies were designed to gather data from local agencies and the farming community along the corridor. These same agencies and sectors were invited to attend an information meeting for the general public held a few months prior to the survey distribution. By conducting surveys to targeted population sectors after the public information meeting to announce the project, additional information about specific road use and access points is gained. This is particularly important to the study since the rural areas could see the majority of changes as existing at-grade and private driveways are replaced by interchanges and grade-separated crossings (over/underpass) of US 151. However, at this stage, there are no immediate construction plans on this section of US 151 and no funding allocations have been committed beyond the study phases.

The survey data concludes that:

- The majority of farm activity along the US 151 corridor is crop farming, generating traffic primarily to access fields and for the transport of goods; typically accessing the main farm less than five times daily.

- Over half of the farm operators responding indicated that US 151 was not the only access to their farm operation, with map returns indicating many individual agricultural driveways are located along US 151.

- With a total of 40 bus routes running per day for the two districts responding, and seven current routes crossing US 151, only five intersections with US 151 were marked as important highway intersections. (See Appendix D – School Summary Maps)

- EMS returns indicate that alternative routes to US 151 are available to access emergency scenes and to transport to hospitals. On a scale of one to ten (ten being very important), 66 percent of the responses stated that the ability to respond to emergency calls if access changes were made to US 151 was less than or equal to a four (i.e., not very important); however, 33 percent stated changes in access rated a 10 (i.e., very important).

To conclude, access changes to US 151 would have the greatest effect on existing farm operations that rely on US 151 to access fields within the study area. Access changes should consider opportunities to reduce potential indirection for this group. Two-thirds of emergency service providers either use existing interchange locations or do not see access changes as having a significant impact on their ability to respond to emergency calls.

APPENDIX A - SURVEYS

Division of Transportation
System Development
Southwest Region
2101 Wright Street
Madison, WI 53704-2583

Jim Doyle, Governor
Frank J. Busalacchi,
Secretary Internet:
www1.wisconsindot.gov
Telephone: 608-246-3800
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Facsimile(FAX): 608-246-3843
E-mail: mark.westerveld@dot.state.wi.us

June 1, 2008

Re: Agriculture Operations Survey
US 151 Freeway Study
Project I.D. 1110-00-09
WIS 73 – WIS 49
Dodge County

The Wisconsin Department of Transportation (WisDOT) has started a study of the possible future conversion of US 151 to a freeway facility. A public meeting was recently held in April 2008 for the study that you may have attended. As part of the study, a brief survey has been attached with this letter. Please take a moment to complete the survey so that the study team may consider your needs as related to farm operations. The survey responses will be used to aid in decisions related to access changes and local road connections along US 151. Please complete the attached survey and return it in the postage paid envelope no later than July 1, 2008.

The US 151 Freeway Study is approximately 27 miles in length and extends from the WIS 73 interchange north of Columbus to the WIS 49 interchange at Waupun. The initial phase of the project involves collecting data along the project corridor, preparing conceptual roadway design, and obtaining input from local agencies and the general public. There is no immediate construction planned on this section of US 151, and no funding allocations have been committed beyond the study phases. The purpose of study is to conceptualize the conversion of this segment of US 151 into a freeway taking into account impacts on existing and future land uses, and access to the local transportation network. As a freeway, access to US 151 would only be provided at interchanges.

Although the existing interchanges near the urbanized areas will likely remain, the rural areas could see the majority of changes as the existing at-grade intersections and private driveways are replaced by well spaced interchanges, grade-separated crossings of US 151 (over/underpass), or closed via cul-de-sacs. In addition, opportunities for local road connections may be identified to enhance local circulation around US 151 and to provide the most access possible at future interchange locations.

If you have any questions, or would like additional information, please either contact me at (608) 246-5355, or the consultant project manager Matt Barr, at (608) 443-1261.

WisDOT, Southwest Region

Mark Westerveld
WisDOT Project Manager

cc: Matt Barr, Consultant Project Manager

US 151 Freeway Conversion Study

Agriculture Operations Survey – Columbus, Dodge and Fond du Lac Counties

The Wisconsin Department of Transportation, WisDOT (Southwest Region) is conducting a study to determine alternatives for the future conversion of US 151 to a freeway between Columbus and Waupun. Early input from area farm operations is important to help determine the best locations for future interchanges, grade-separated crossings of US 151, and local road connections. **Please take a moment to answer a few brief questions and mark the attached corridor map according to the instructions on the bottom of each page.**

---

1. What activities best describe your farm?

   Dairy/Cattle Pork/Poultry Crops/Produce Other _____

2. Approximately how many acres do you _____ own and/or _____ rent/lease?

3. Is your farm operation divided by US 151? Yes No

4. Is US 151 the only access to your main farm operation? Yes No

5. If you cross/travel on US 151 for farm activities what percentage of the trips are:

   - To access fields with agricultural equipment ____%
   - To transport goods to/from market ____%
   - To transport animals between grazing locations ____%
   - Other activity _____ ____%

6. Approximately how many times per day do vehicles access your main farm?

   ____ Trucks ____ Equipment (tractors, etc.) ____ Other vehicles (employee cars, etc.)

Please turn to the attached map worksheets – Columbus, Beaver Dam, and Waupun – and make notations as instructed on the bottom of the maps. When you are finished, place the survey and map worksheets in the return, postage-paid envelope. Thank you for your input. Your answers will help the study team prioritize future access needs along US 151 as part of the freeway conversion process.

Project Contacts:

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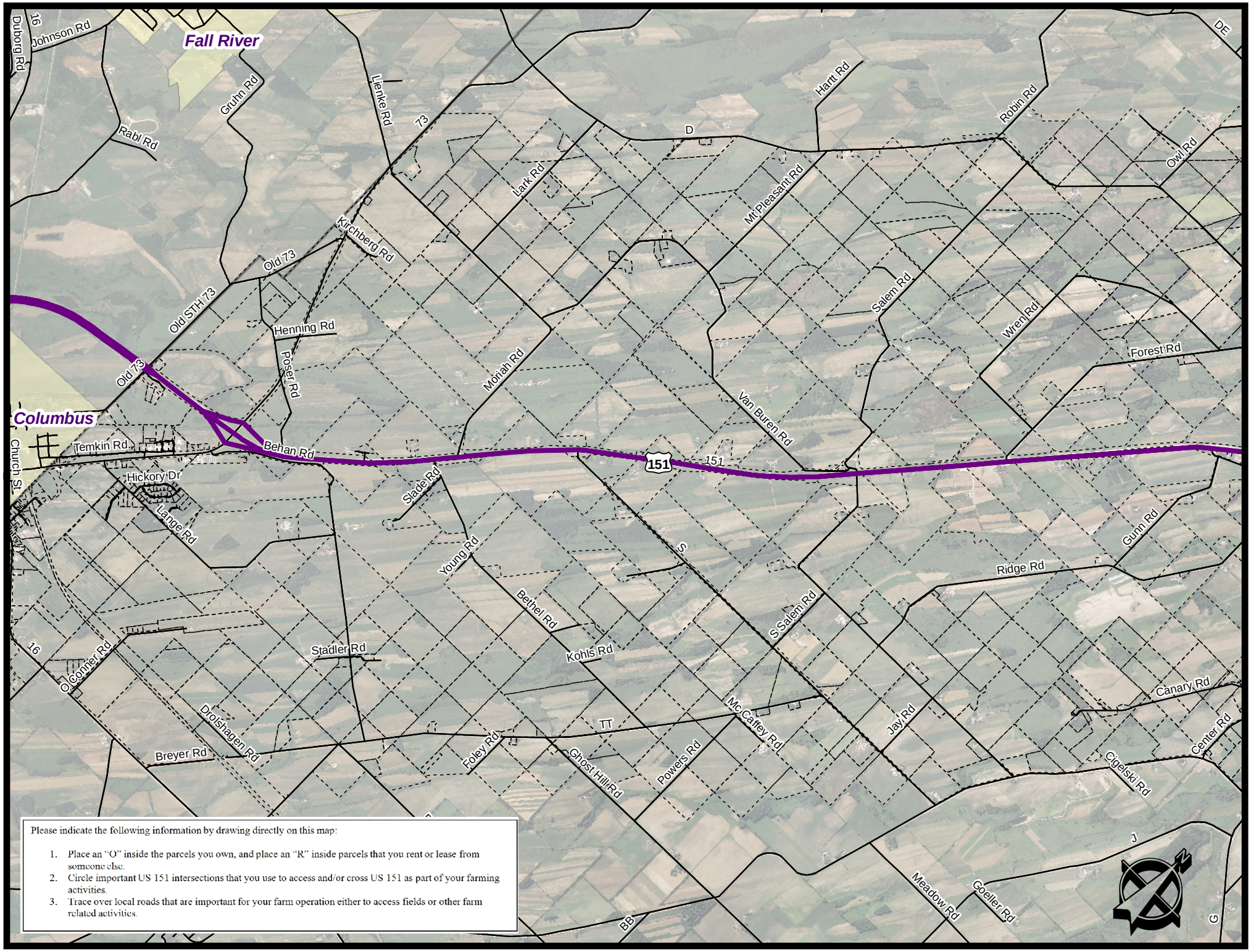
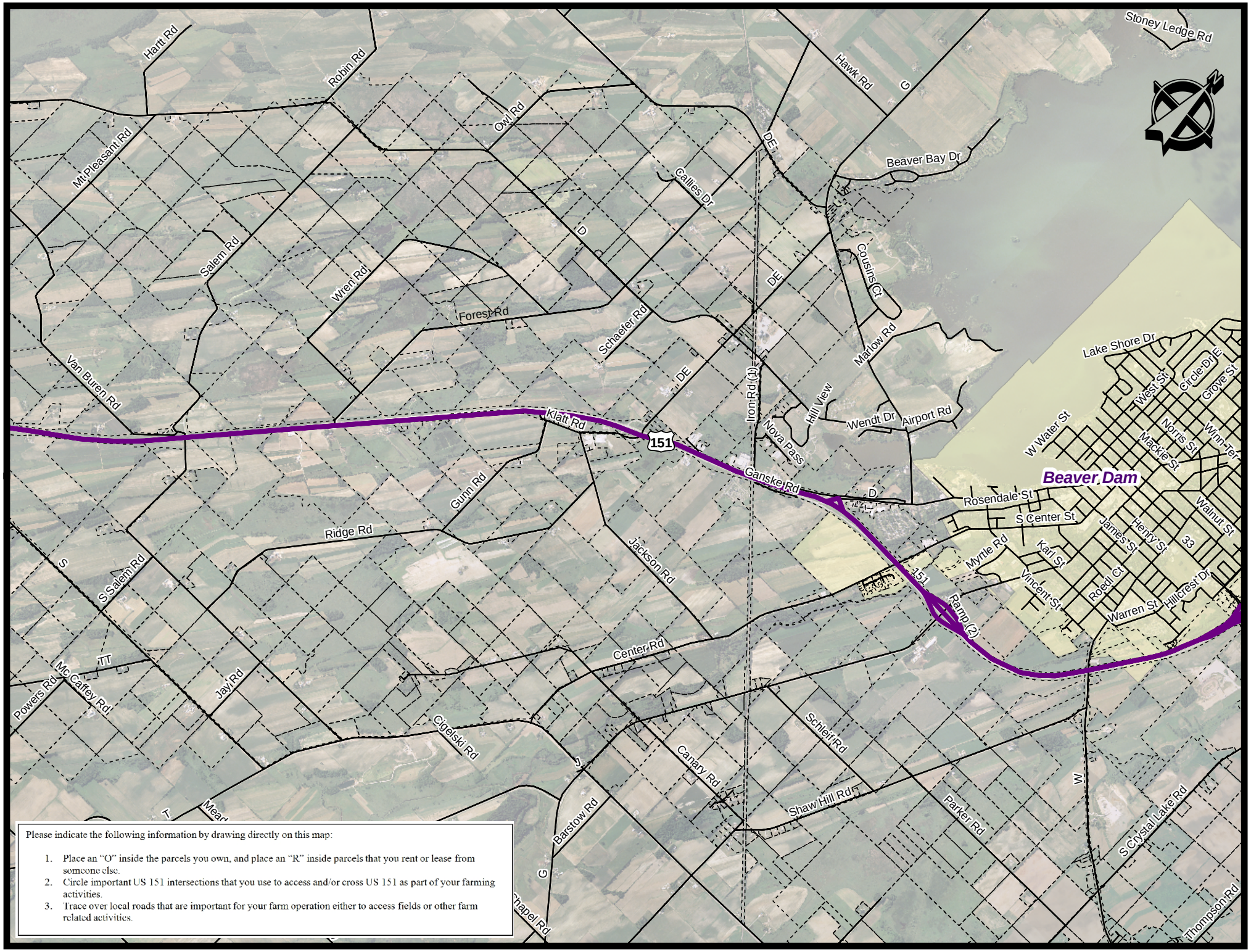


Please indicate the following information by drawing directly on this map:

1. Place an "O" inside the parcels you own, and place an "R" inside parcels that you rent or lease from someone else.
2. Circle important US 151 intersections that you use to access and/or cross US 151 as part of your farming activities.
3. Trace over local roads that are important for your farm operation either to access fields or other farm related activities.



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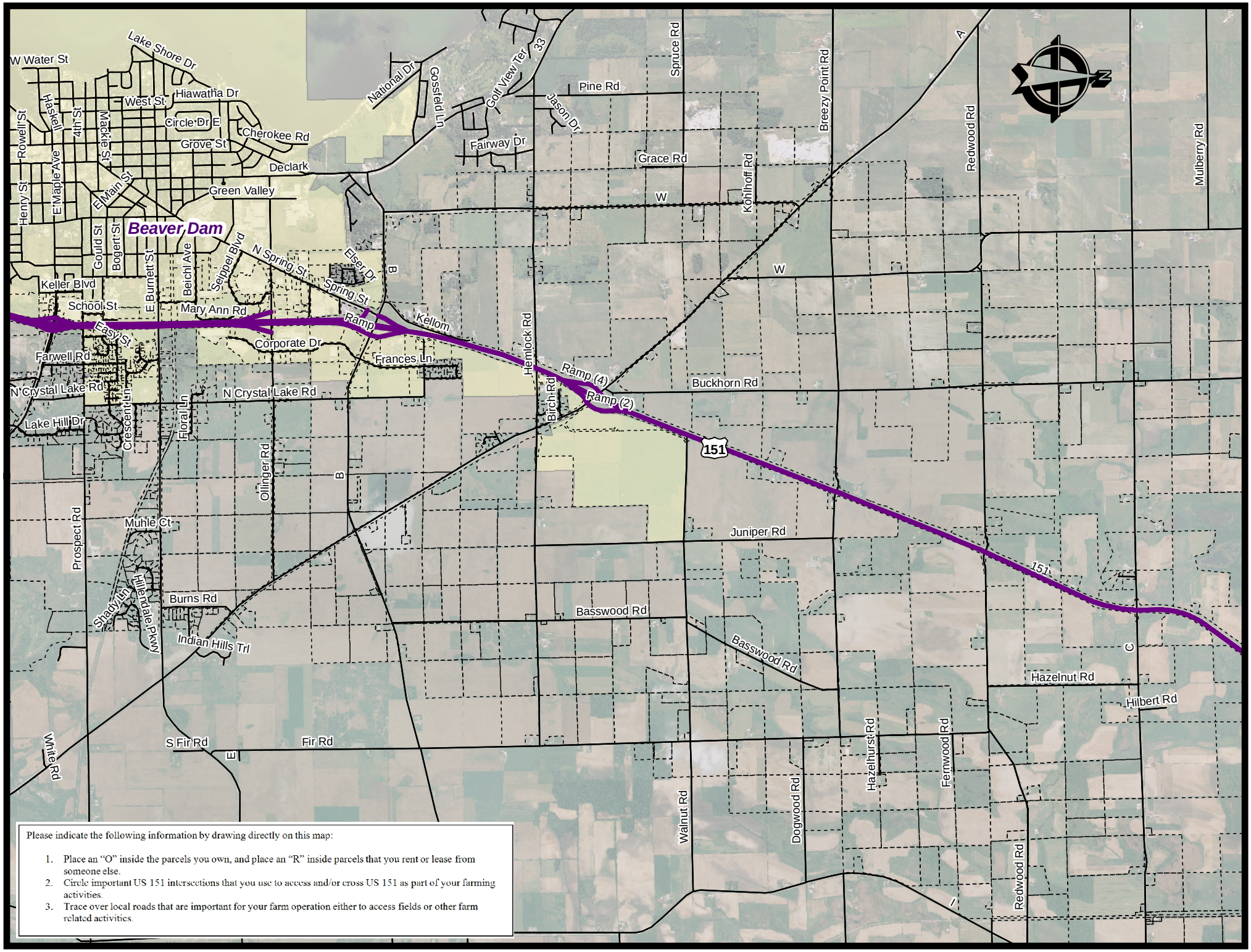

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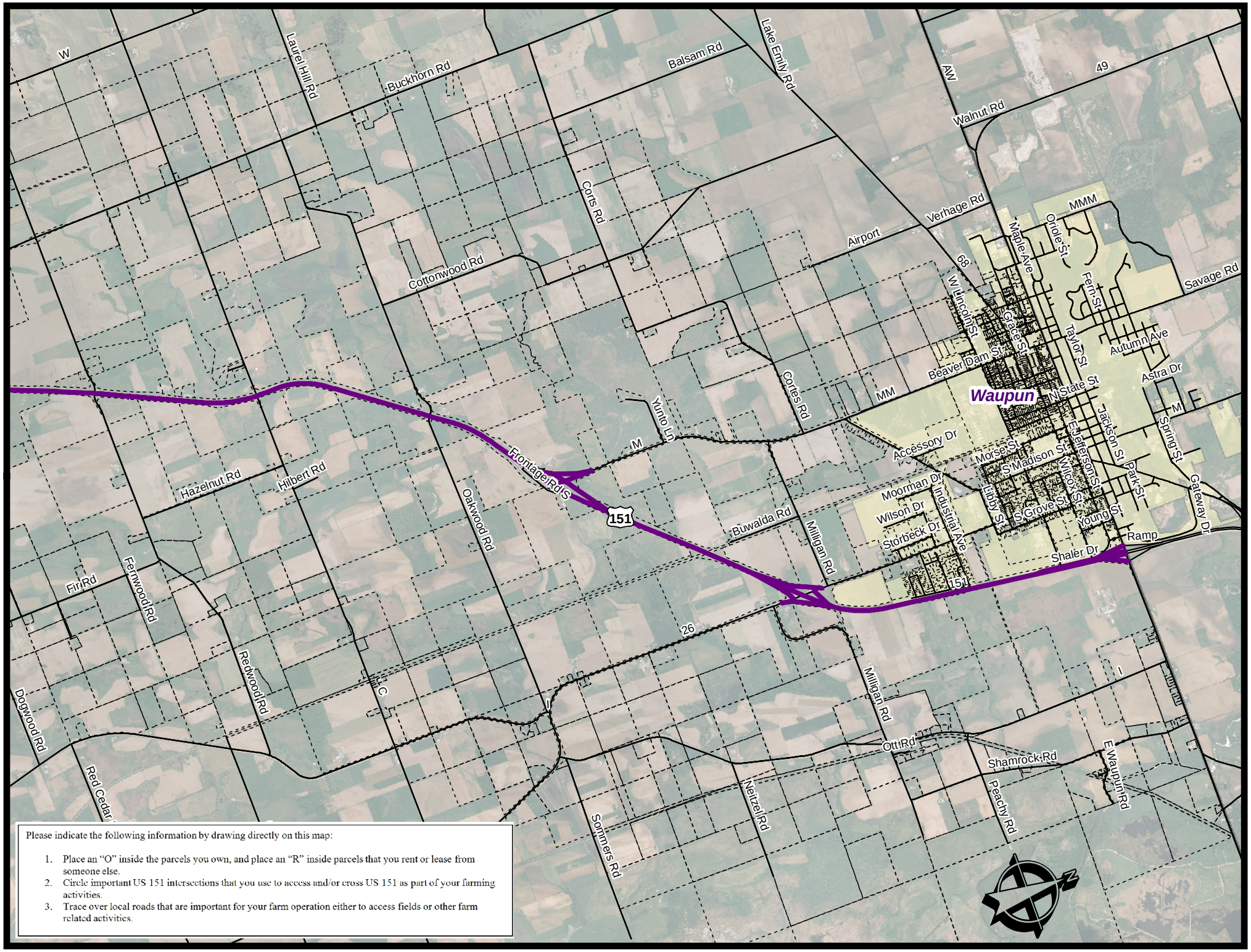

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Division of Transportation
System Development
Southwest Region
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E-mail: mark.westerveld@dot.state.wi.us

June 1, 2008

Re: Emergency Management Services Survey
US 151 Freeway Study
Project I.D. 1110-00-09
WIS 73 – WIS 49
Dodge County

The Wisconsin Department of Transportation (WisDOT) has started a study of the possible future conversion of US 151 to a freeway facility. As part of the study, a brief survey has been attached with this letter. Please take a moment to complete the survey so that the study team may consider your needs as related to providing emergency services. The survey responses will be used to aid in decisions related to access changes and local road connections along US 151. Please complete the attached survey and return it in the postage-paid envelope no later than July 1, 2008.

The US 151 Freeway Study is approximately 27 miles in length and extends from the WIS 73 interchange north of Columbus to the WIS 49 interchange at Waupun. The initial phase of the project involves collecting data along the project corridor, preparing conceptual roadway design, and obtaining input from local agencies and the general public. There is no immediate construction planned on this section of US 151, and no funding allocations have been committed beyond the study phases. The purpose of study is to conceptualize the conversion of this segment of US 151 into a freeway taking into account impacts on existing and future land uses, and access to the local transportation network. As a freeway, access to US 151 would only be provided at interchanges.

Although the existing interchanges near the urbanized areas will likely remain, the rural areas could see the majority of changes as the existing at-grade intersections and private driveways are replaced by well spaced interchanges, grade-separated crossings of US 151 (over/underpass), or closed via cul-de-sacs. In addition, opportunities for local road connections may be identified to enhance local circulation around US 151 and to provide the most access possible at future interchange locations.

If you have any questions, or would like additional information, please either contact me at (608) 246-5355, or the consultant project manager Matt Barr, at (608) 443-1261.

WisDOT, Southwest Region

Mark Westerveld
WisDOT Project Manager
cc: Matt Barr, Consultant Project Manager

US 151 Freeway Conversion Study

Emergency Management Services Survey – Columbia, Dodge, and Fond du Lac Counties

The Wisconsin Department of Transportation, WisDOT (Southwest Region) is conducting a study to determine alternatives for the future conversion of US 151 to a freeway between Columbus and Waupun. Early input from emergency service providers is important to help determine the best locations for future interchanges, grade-separated crossings of US 151, and local road connections. **Please take a moment to answer a few brief questions and mark the attached corridor maps according to the instructions on the bottom of each page.**

---

1. Our agency responds to emergency calls requiring (circle): Police Fire Ambulance

2. What is your average response time from dispatch to arrival on the scene? _____ min.

3. What percentage of calls require you to cross or access US 151 to arrive at the emergency location? ____%

4. What percentage of calls require you to cross or access US 151 to transport persons to area hospitals? ____%

5. What important alternative routes to US 151 does your agency use to access emergency scenes and transport persons?
   _____

6. On a scale between 1 and 10, how important would changes in access to US 151 be in your ability to respond to calls for emergency services (circle)?

1	2	3	4	5	6	7	8	9	10
Not Important									*Very Important*

Please turn to the attached map worksheets – Columbus, Beaver Dam, and Waupun – and make notations as instructed on the bottom of the maps. When you are finished, place the survey and map worksheets in the return, postage-paid envelope. Thank you for your input. Your answers will help the study team prioritize future access needs along US 151 as part of the freeway conversion process.

Project Contacts:

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WisDOT Project Manager
Wisconsin Department of Transportation
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(608) 246-5355
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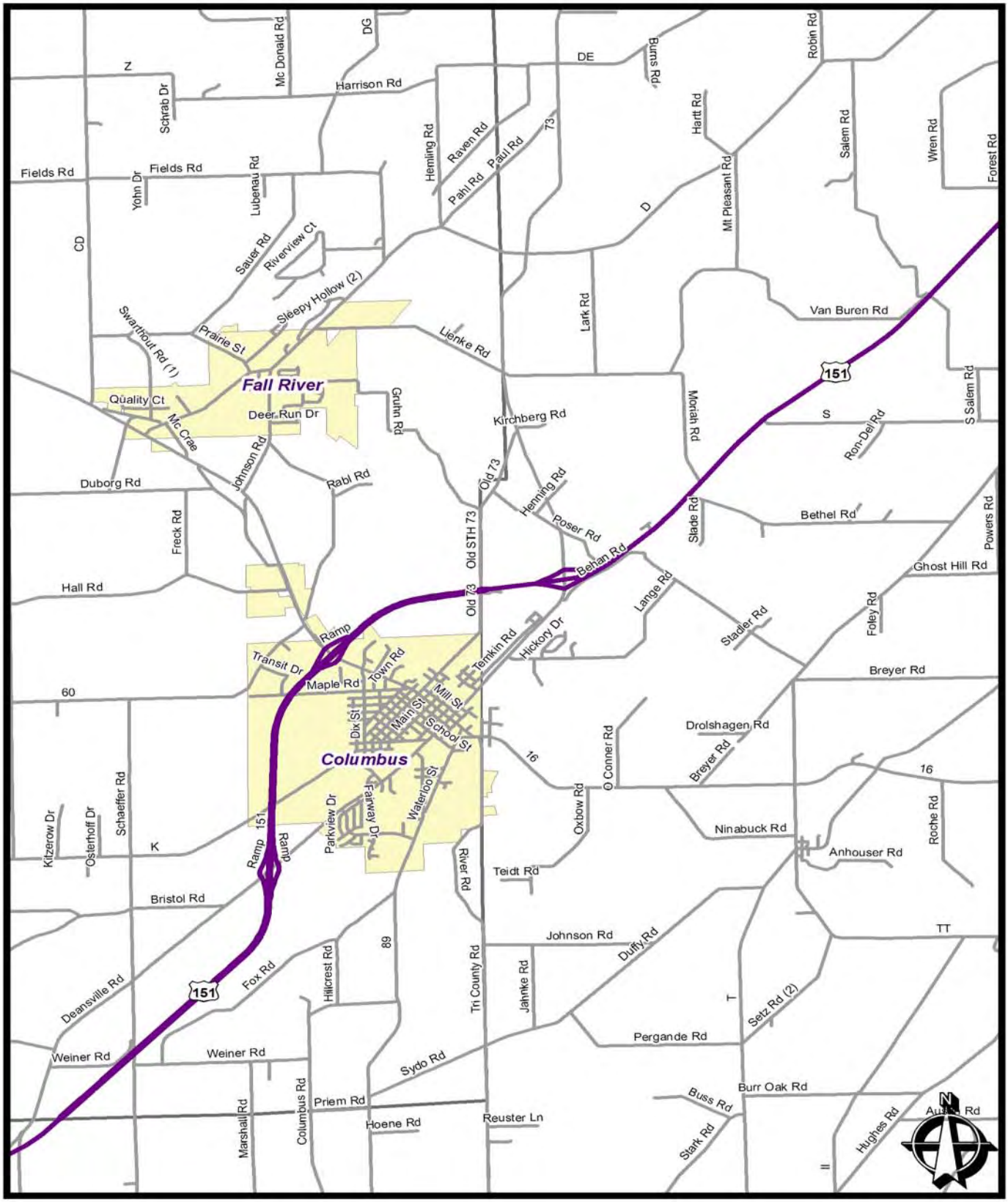
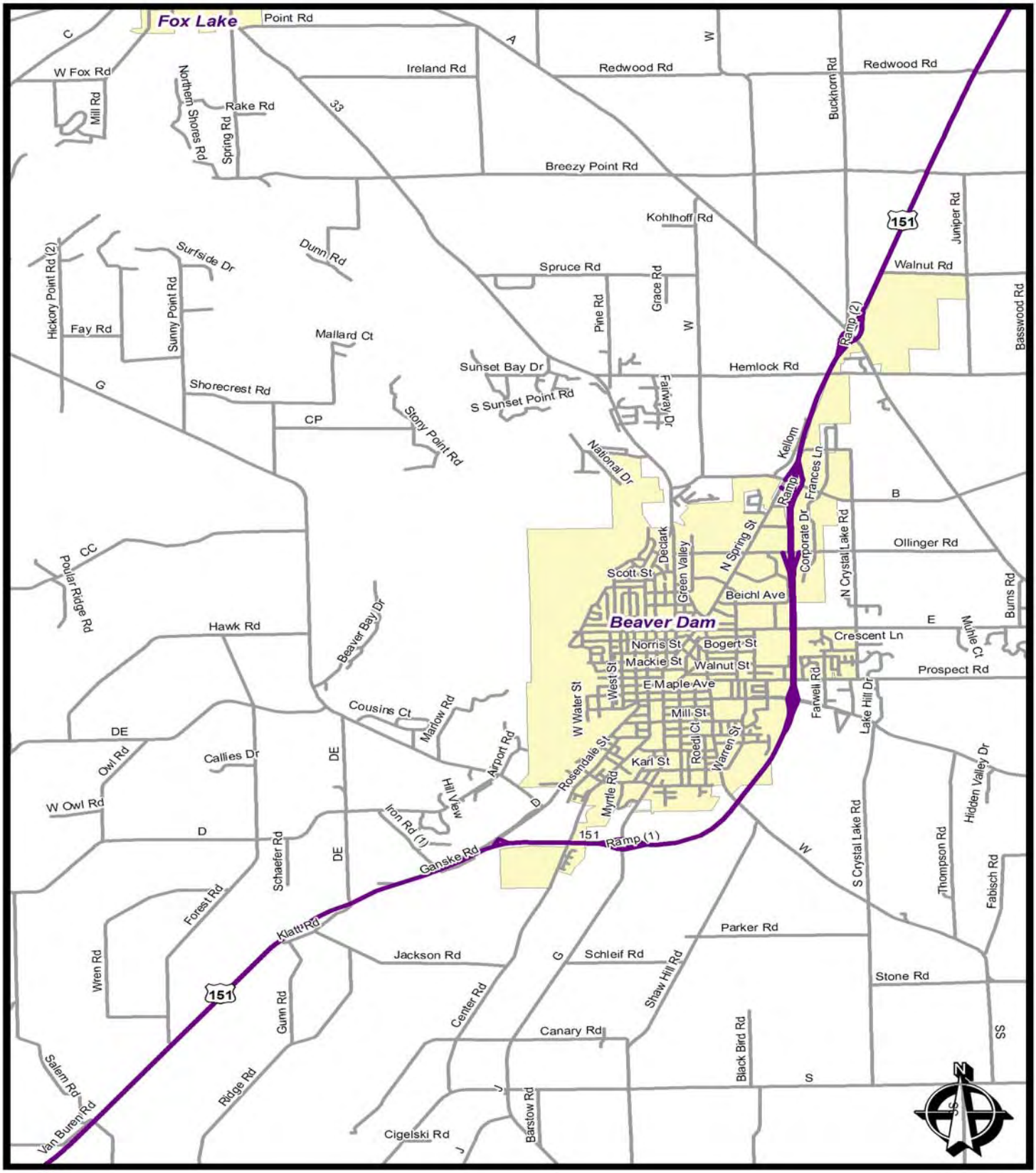


Instructions

Please mark the above map with the following information:

1. Place an asterisk (*) next to your Department Headquarters and print the physical address.
2. Circle important intersections with US 151 that are used for emergency response.
3. Trace important local roads that are used as alternatives to travel on US 151 when responding to emergency calls and/or transporting persons (if applicable).



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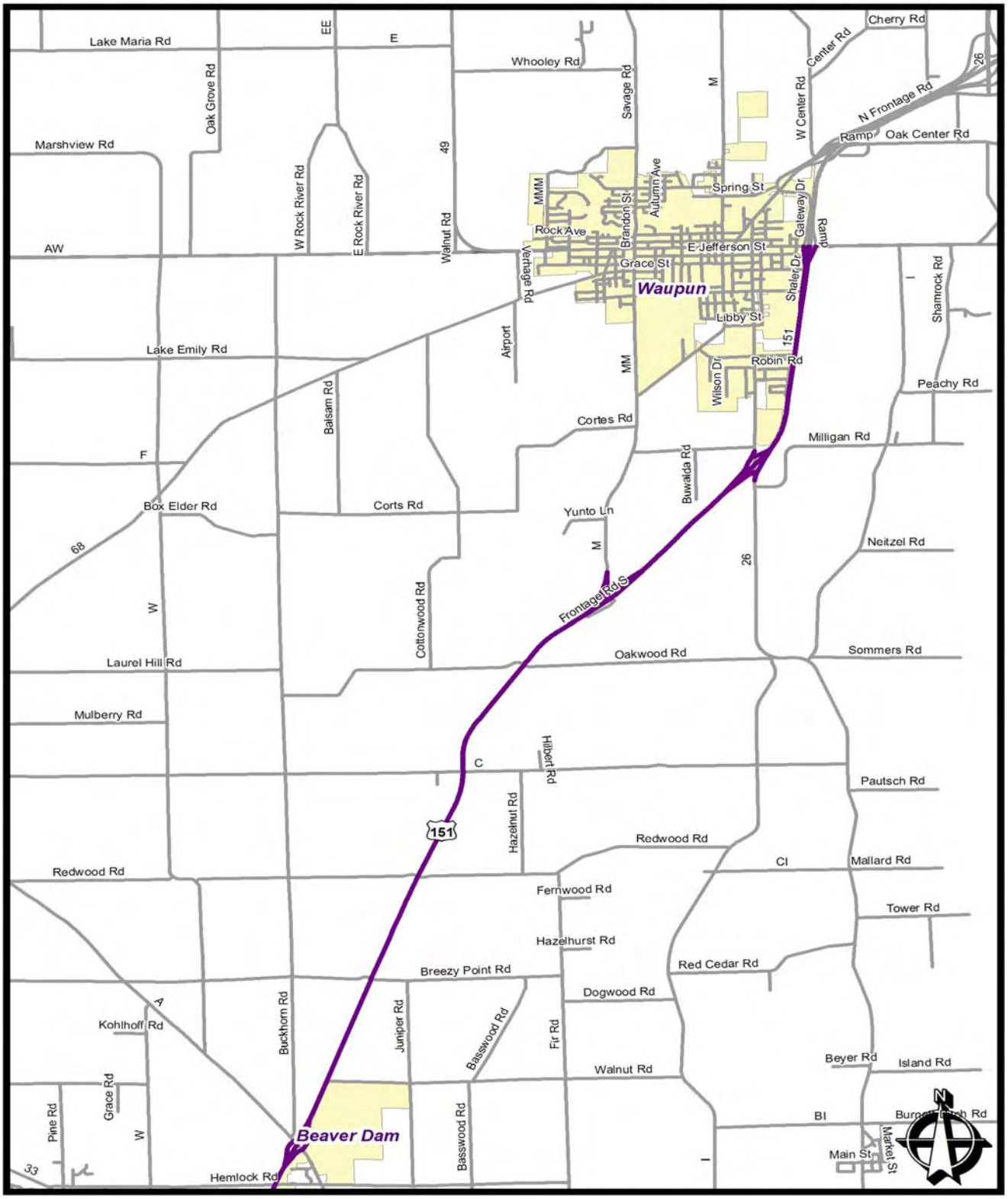

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June 1, 2008

Re: School Bus Transportation Survey
US 151 Freeway Study
Project I.D. 1110-00-09
WIS 73 – WIS 49
Dodge County

The Wisconsin Department of Transportation (WisDOT) has started a study of the possible future conversion of US 151 to a freeway facility. As part of the study, a brief survey has been attached with this letter. Please take a moment to complete the survey so that the study team may consider your needs as related to school bus routes. The survey responses will be used to aid in decisions related to access changes and local road connections along US 151. Please complete the attached survey and return it in the postage paid envelope no later than July 1, 2008.

The US 151 Freeway Study is approximately 27 miles in length and extends from the WIS 73 interchange north of Columbus to the WIS 49 interchange at Waupun. The initial phase of the project involves collecting data along the project corridor, preparing conceptual roadway design, and obtaining input from local agencies and the general public. There is no immediate construction planned on this section of US 151, and no funding allocations have been committed beyond the study phases. The purpose of study is to conceptualize the conversion of this segment of US 151 into a freeway taking into account impacts on existing and future land uses, and access to the local transportation network. As a freeway, access to US 151 would only be provided at interchanges.

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If you have any questions, or would like additional information, please either contact me at (608) 246-5355, or the consultant project manager Matt Barr, at (608) 443-1261.

WisDOT, Southwest Region

Mark Westerveld
WisDOT Project Manager

cc: Matt Barr, Consultant Project Manager

US 151 Freeway Conversion Study

School Bus Transportation Survey – Columbus, Beaver Dam, and Waupun Districts

The Wisconsin Department of Transportation, WisDOT (Southwest Region) is conducting a study to determine alternatives for the future conversion of US 151 to a freeway between Columbus and Waupun. Early input from public school district transportation services is important to help determine the best locations for future interchanges, grade-separated crossings of US 151, and local road connections. **Please take a moment to answer a few brief questions and mark the attached corridor maps according to the instructions on the bottom of each page.**

---

1. How many bus routes does the school district maintain per day? ____
2. How many bus routes must cross US 151 to reach a student pick-up point? ____
3. How many bus routes must cross US 151 to reach a school destination? ____
4. Are the bus routes before/after school identical? Yes No
5. If you answered no to question 4, what is the reason for alternate afternoon routes:

   _____

6. Has school bus ridership increased/decreased over the past 3-5 years? By how much? Decreased by ____% or Increased by ____% or Stayed the Same
7. Is school bus ridership anticipated to increase/decrease over the next 3-5 years?
   Yes by ____ % or No, decrease by ____% or Stay the Same

Please turn to the attached map worksheets – Columbus, Beaver Dam, and Waupun – and make notations as instructed on the bottom of the maps. When you are finished, place the survey and map worksheets in the return, postage-paid envelope. Thank you for your input. Your answers will help the study team prioritize future access needs along US 151 as part of the freeway conversion process.

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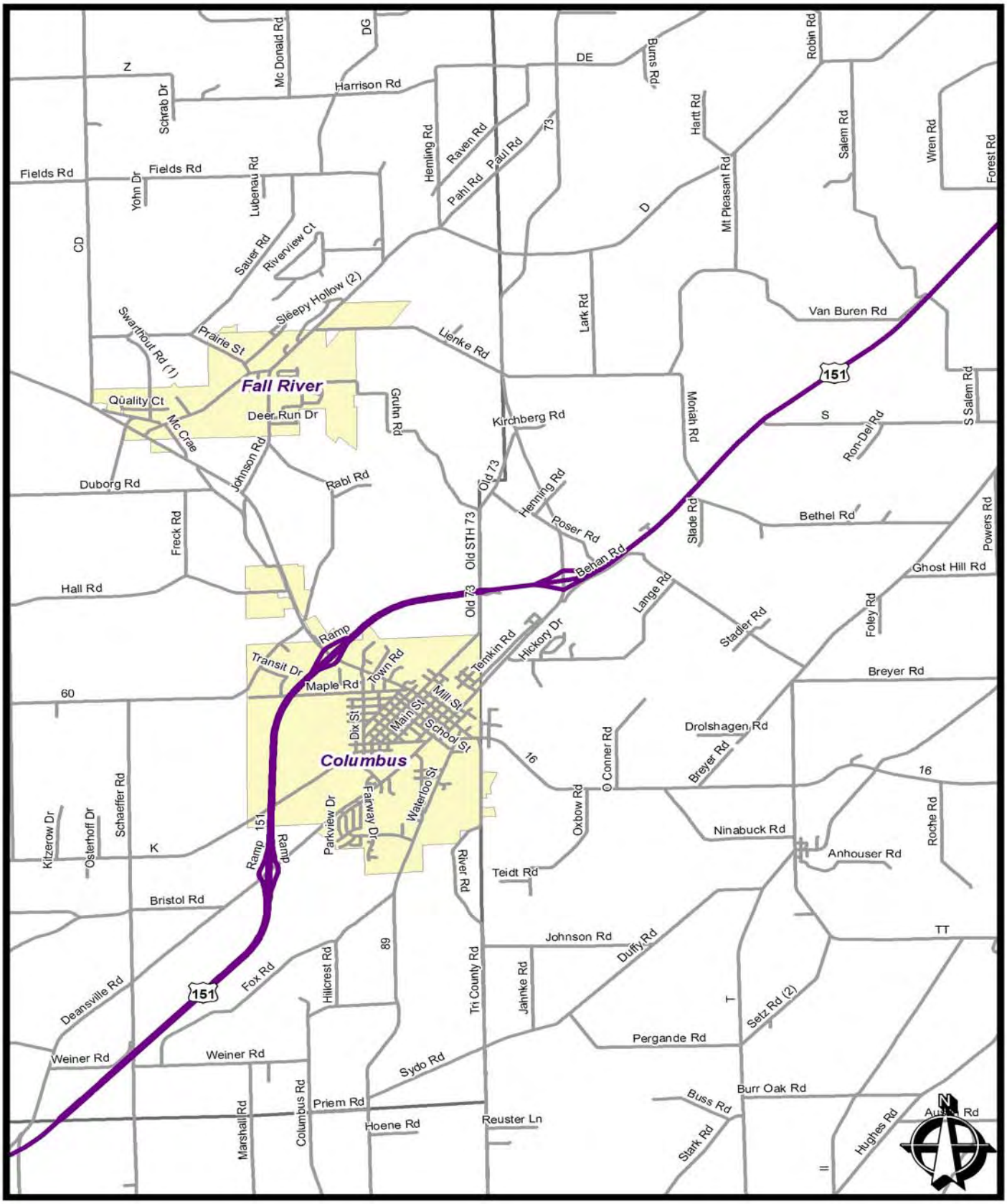
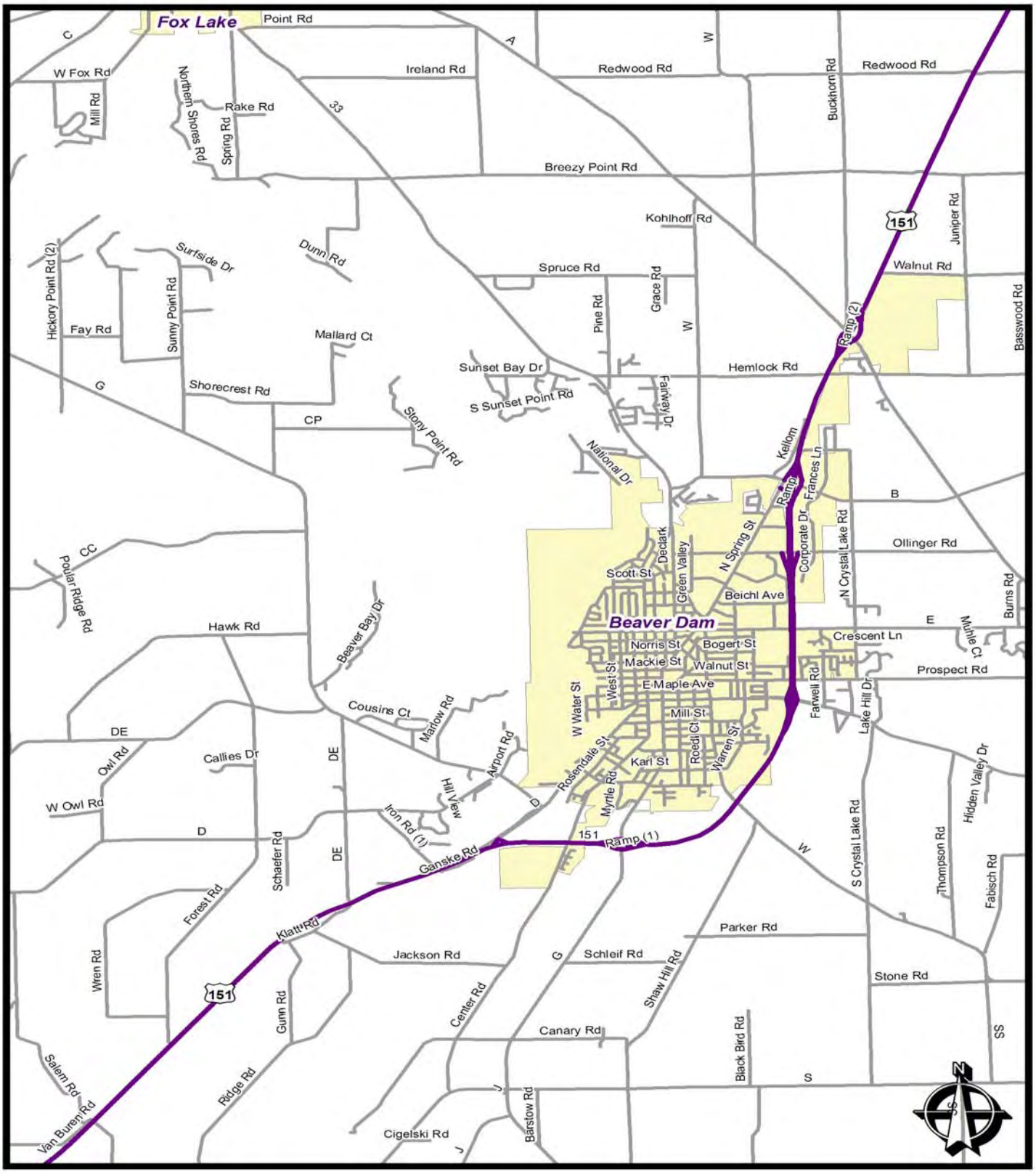


Instructions

Please mark the above map with the following information:

1. Place an asterisk (*) at the location of the School Bus Garage and print the physical address.
2. Indicate school locations with an "S" (S) on the map.
3. Trace important bus routes on the map that the study team should consider.
4. Circle important intersections where bus routes cross US 151.



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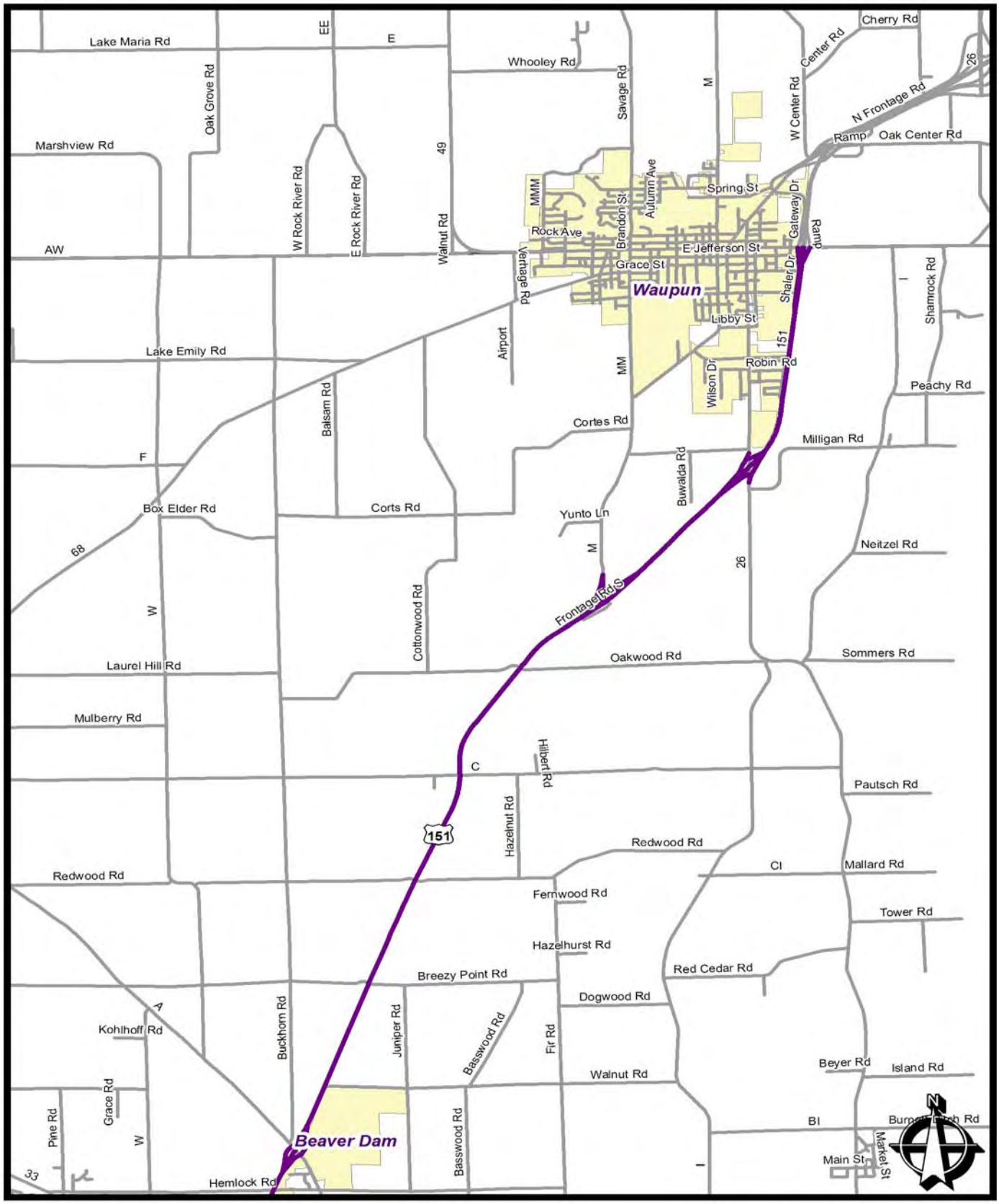

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APPENDIX B – AGRICULTURAL OPERATIONS SUMMARY MAPS

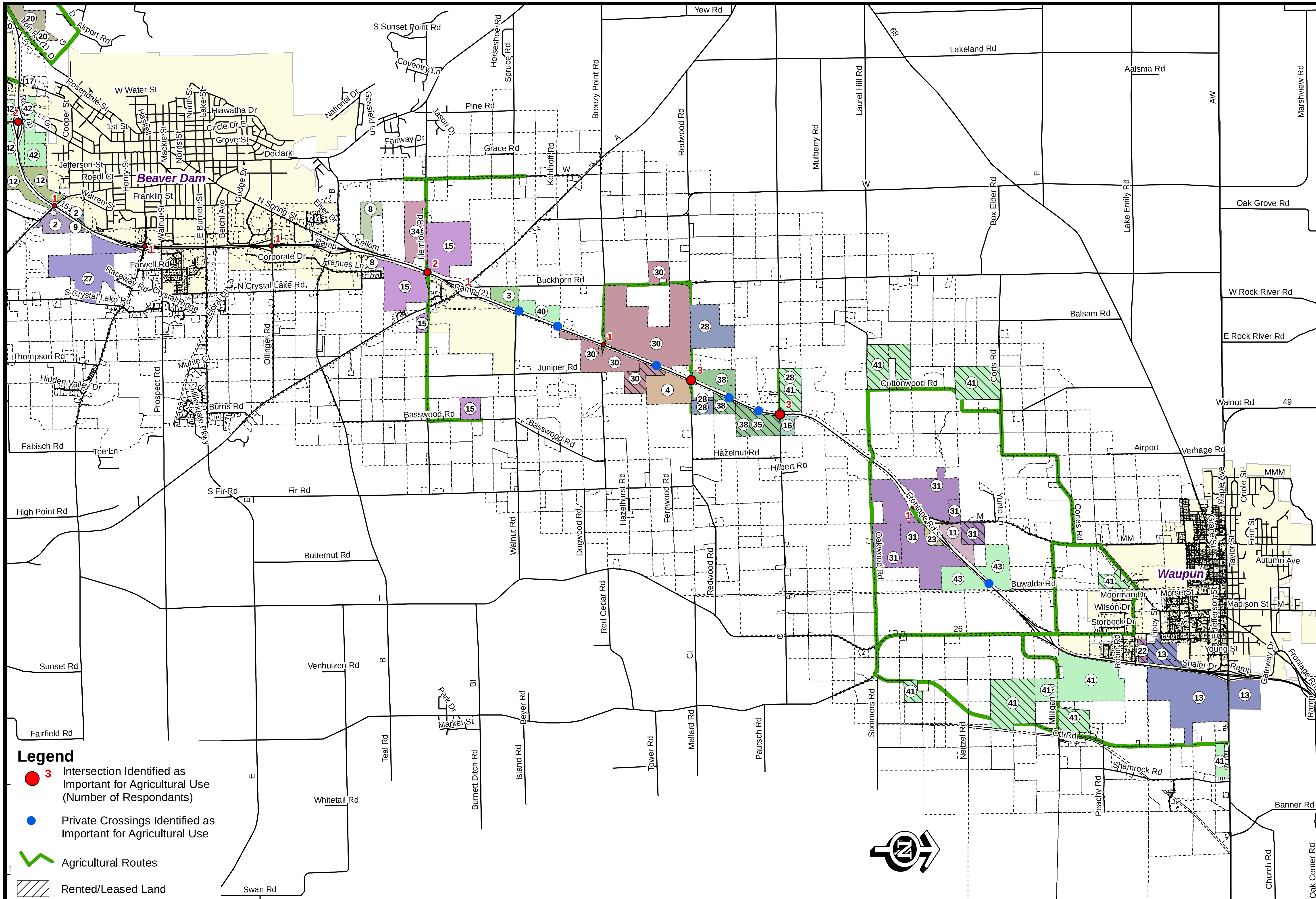
Appendix B

Agricultural Survey Results

US 151 Freeway Conversion Study

Not to Sacle

TranSmart



Appendix B

Agricultural Survey Results

US 151 Freeway Conversion Study

Not to Scale

TranSmart

APPENDIX C – EMS SUMMARY MAPS

Appendix C

EMS Survey Results

US 151 Freeway Conversion Study

Not to Scale

TranSmart

Legend

EMS-Crossings

Type

Crossings

Location

EMS-Routes

Type

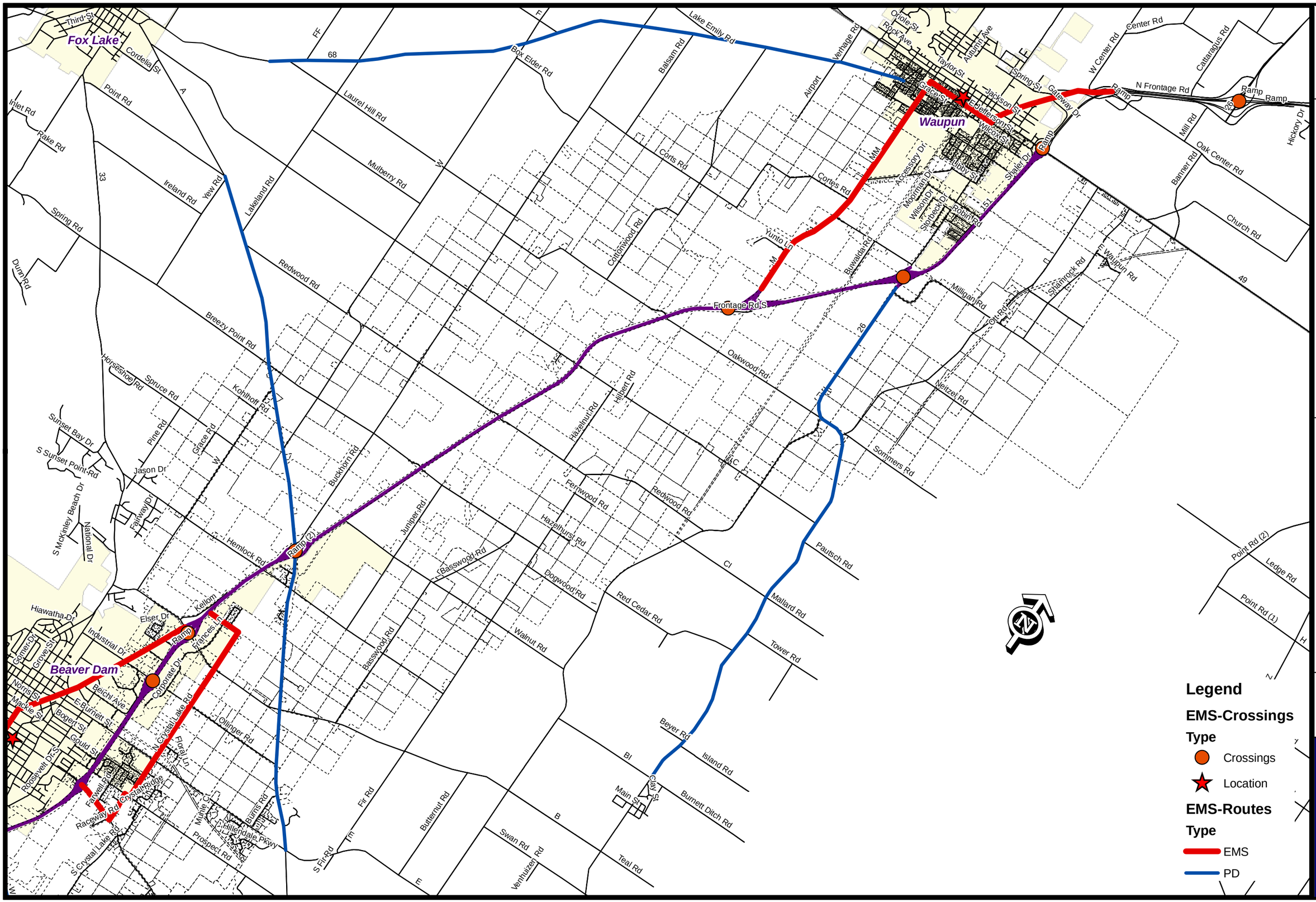
EMS

PD

Fall River

Columbus

Beaver Dam



Appendix C

EMS Survey Results

US 151 Freeway Conversion Study

Not to Scale

TranSmart

APPENDIX D – SCHOOL SUMMARY MAPS

Appendix D

School Survey Results

US 151 Freeway Conversion Study

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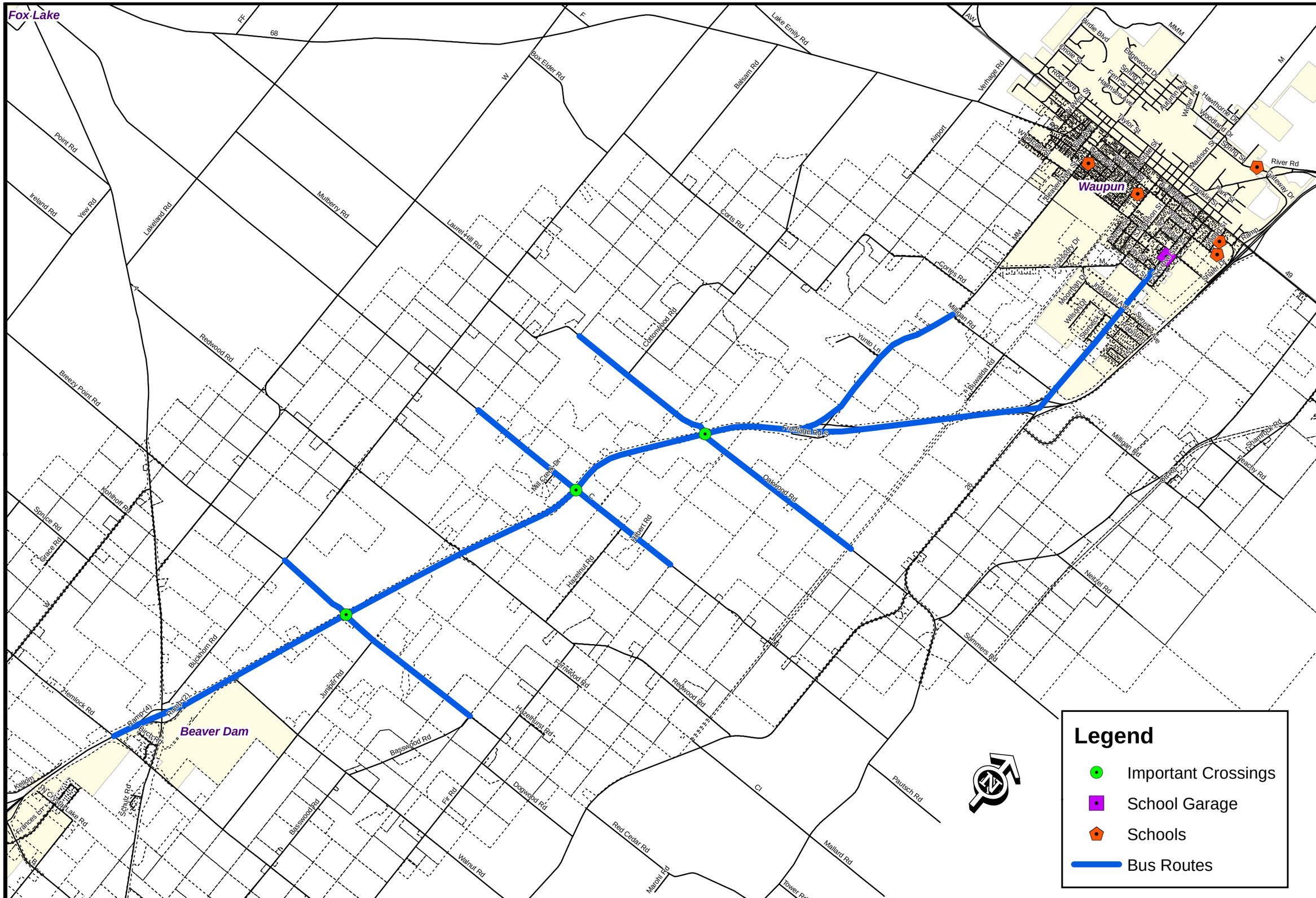


Appendix D

School Survey Results

US 151 Freeway Conversion Study

Not to Sacle

TranSmart

Appendix H

Technical Memorandum on Design Criteria

TECHNICAL MEMORANDUM

AYRES ASSOCIATES

To: Files for USH 151, WisDOT Project ID 1110-00-09

From: William C. Roth, PE

Date: March 9, 2010 Project No.: 45-0292.00 (Ayres)

Re: Design Criteria for Freeway Conversion Study
Project ID 1110-00-09
USH 151
STH 73 to STH 49
Dodge County

This technical memorandum documents the design criteria used for the Freeway Conversion Study for USH 151 in Dodge County. The criteria is based on standards provided in the Facilities Development Manual ("FDM"), published and maintained by the Wisconsin Department of Transportation ("WisDOT"). Over time, the FDM standards can change. The data provided in this memorandum reflects the FDM at the date noted above in the title block.

I. ACCESS CONTROL - APPLY FDM 11-5-5

A. Desirable distance between successive interchanges along USH 151 = 2 miles (between centerlines of crossroads)

B. Distance between ramp terminal & closest access point, along crossroad at interchange = 1/4 mi. desirable, 1000' minimum

C. Distance between successive public roadways, along minor public roadways = 500'

II. DESIGN SPEED - APPLY FDM 11-10-1

A. USH 151 = 70 mph

B. Interchange ramps = 60 mph (gore area); 40 mph (terminal area)

C. Crossroads at interchange and CTH's = 60 mph

D. Minor public roads (crossroads at grade separation without interchange; frontage roads; connections to local road system; cul-de-sacs)

1. Not at stop condition = 60 mph desirable, 40 mph minimum

2. Approaching stop condition = 40 mph desirable, 20 mph minimum

E. Private entrances = 20 mph

1802 Pankratz Street ● Madison, WI 53704-4069 ● 608.443.1200 ● Fax: 608.443.1250 ● www.AyresAssociates.com

III. GEOMETRIC ELEMENTS - APPLY FDM 11-10-5

A. Sight distance

1. Stopping/Decision Sight Distance (SSD/DSD) = match design speed

2. Clear sight window at intersection

   a. Intersection Sight Distance (ISD) - required

   b. Vision triangle – not required, but assume it will be applied at all locations to ensure that adequate R/W is preserved for the future freeway corridor. This will be especially important at locations potentially attractive for development – such as near interchanges.

   c. On crossroads at interchanges, conservatively provide ISD and vision triangles large enough to accommodate potential roundabouts at the ramp terminals, and at the intersections either side of USH 151 closest to the ramp terminals.

B. Horizontal Alignment

1. USH 151, interchange ramps, and interchange crossroads = match design speed

2. Minimum radius for frontage roads and other minor public roadways, not at stop condition = 300’

3. Minimum radius for frontage roads and other minor public roadways, at stop condition = 100’

4. Minimum radius for private entrance = 100’ desirable, 75’ minimum

5. Maximum deflection without horizontal curve = match design speed

C. Superelevation

1. Public roadways not at stop condition = 6% maximum

2. Cross roads at interchange = outside of ramp terminals, desirably transition out median with curves flat enough to maintain normal crown (2% adverse slope)

3. Minor roadways at cul-de-sac or stop condition = 2%, or match profile of major roadway (apply Attachment 10 – “Superelevation for Given Radius and Design Speed for Low-Speed Urban Street Design”)

D. Vertical Alignment

1. Stopping/Decision Sight Distance (SSD/DSD) = match design speed & apply appropriate category

2. Maximum, grade change without vertical curve = match design speed

3. Minimum gradient (structures and raised median) = 0.5%

4. Gradient at landing areas = varies, 1% to 3%

5. Maximum gradient

   a. USH 151 = 3%

   b. Ramp = 3% desirable, 5% maximum

   c. CTH and crossroad at interchange = 5%

   d. Minor public road = 5% desirable, 8% maximum

   e. Commercial, private, and field entrance = 6% desirable, 10% maximum

IV. INTERSECTIONS AT GRADE - APPLY FDM 11-25

A. For preliminary phase, assume stop control or signal control (not roundabouts (RAB)). However, for final design, need to provide Intersection Control Evaluation (ICE) to analyze whether a RAB is the optimal design.

B. Where warranted by traffic, provide a higher class of intersection - Type A or B. Provide bypass lanes where appropriate.

C. At the intersections with low traffic volumes, provide curb & gutter at turning radii (Type D intersection instead of Type C).

D. Use desirable lengths for turn lanes (100’ minimum), and desirable rates for tapers

V. INTERCHANGES - APPLY FDM 11-30

A. Diamond configuration assumed for new interchanges

B. Place terminals far enough from bridge to provide sufficient room for beam guard (300’ end of bridge to inside edge of ramp pavement)

C. Provide one left turn lane in each direction across the bridge (assume a 34’ median width)

VI. FRONTAGE ROAD OFFSET - APPLY FIGURE 1 OF FDM 11-25-45

A. For the offset between intersections, provide an “A” distance of 300’ if the crossroad design year AADT is less than 1000, or 600’ if the crossroad design year volume is greater than 1000

B. For the offset between the closest lane edges between existing USH 151 and a new frontage road, provide a “B” distance of 115’ desirable, 85’ minimum

VII. STRUCTURES - APPLY FDM 11-35-1

A. Vertical Clearance

1. Over USH 151 = 16’-9”

2. Over railroad = between 23’-0” and 23’-3 ½”

B. Structure Depth

1. Over USH 151 = 5.5’ (assume 54” girders)

2. Over railroad = 4’ (assume 36” girders)

C. Clear Width – apply FDM 11-35-1

D. Skew Angle – no sharper than 45-degrees

VIII. TRAFFIC BARRIERS - APPLY FDM 11-45-1

A. Minimize use by grading for adequate clear zones

B. Place ramp terminals far enough from bridges to accommodate beam guard

IX. BICYCLE FACILITIES - APPLY FDM 11-45-10 (only applies to cross roads and side roads and not USH 151)

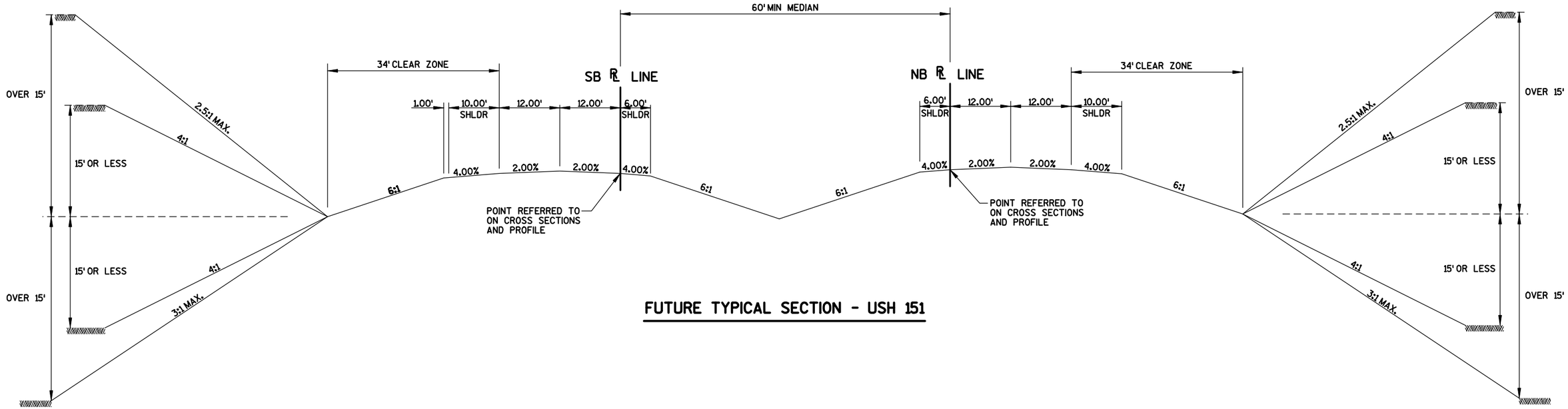
X. AT-GRADE RAILROAD CROSSINGS - APPLY FDM 17

A. Eliminate along USH 151

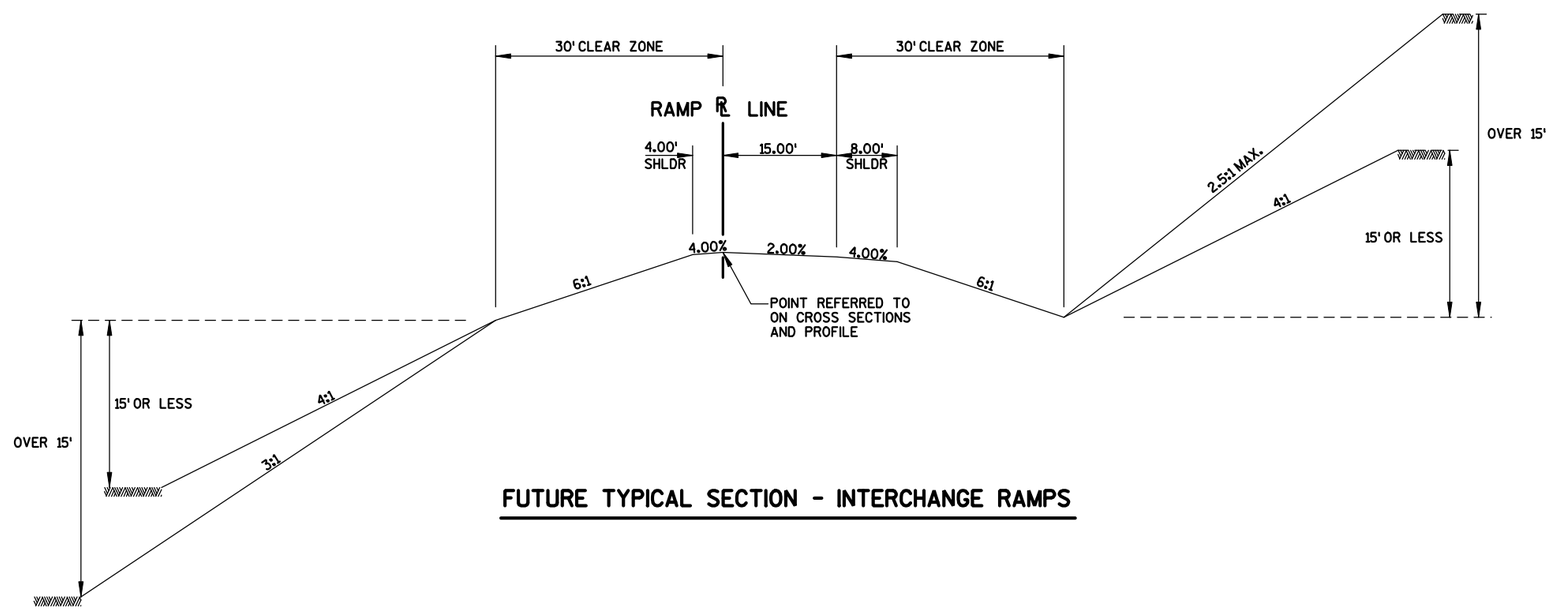
XI. CROSS SECTION DIMENSIONS & DESIGN CLASSES - APPLY FDM 11-15-1/20-1/30

A. See Attachment 1 for Future Typical Sections

2

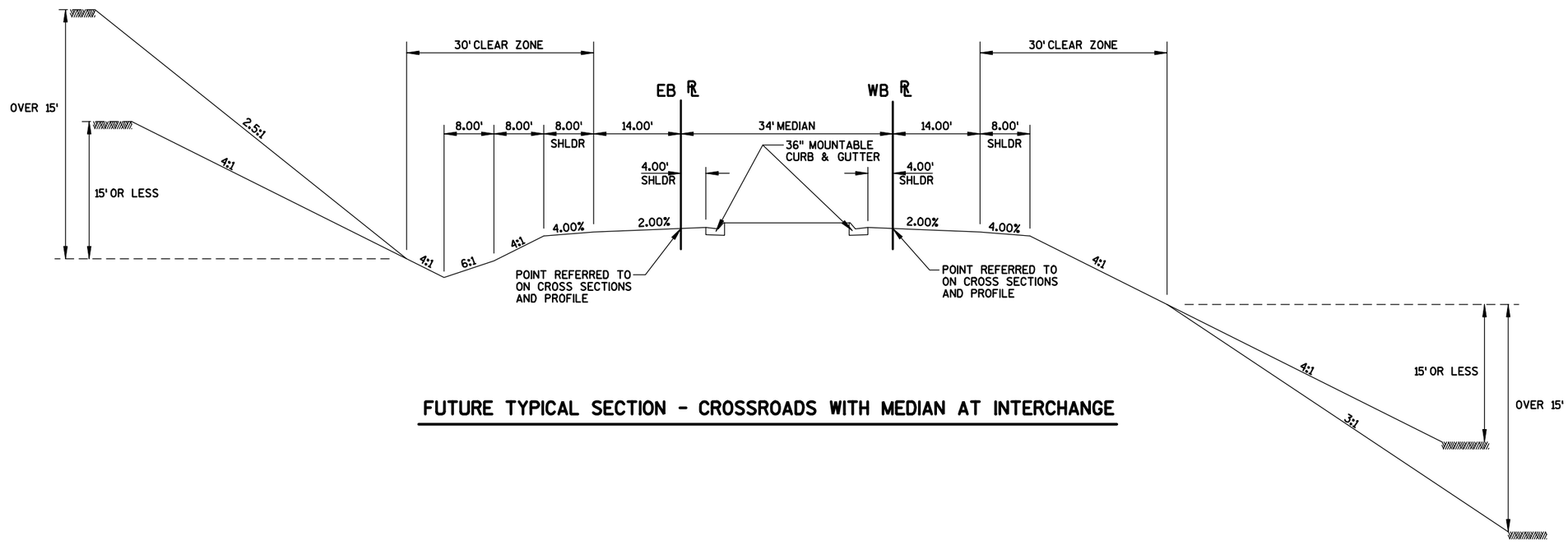


FUTURE TYPICAL SECTION - USH 151

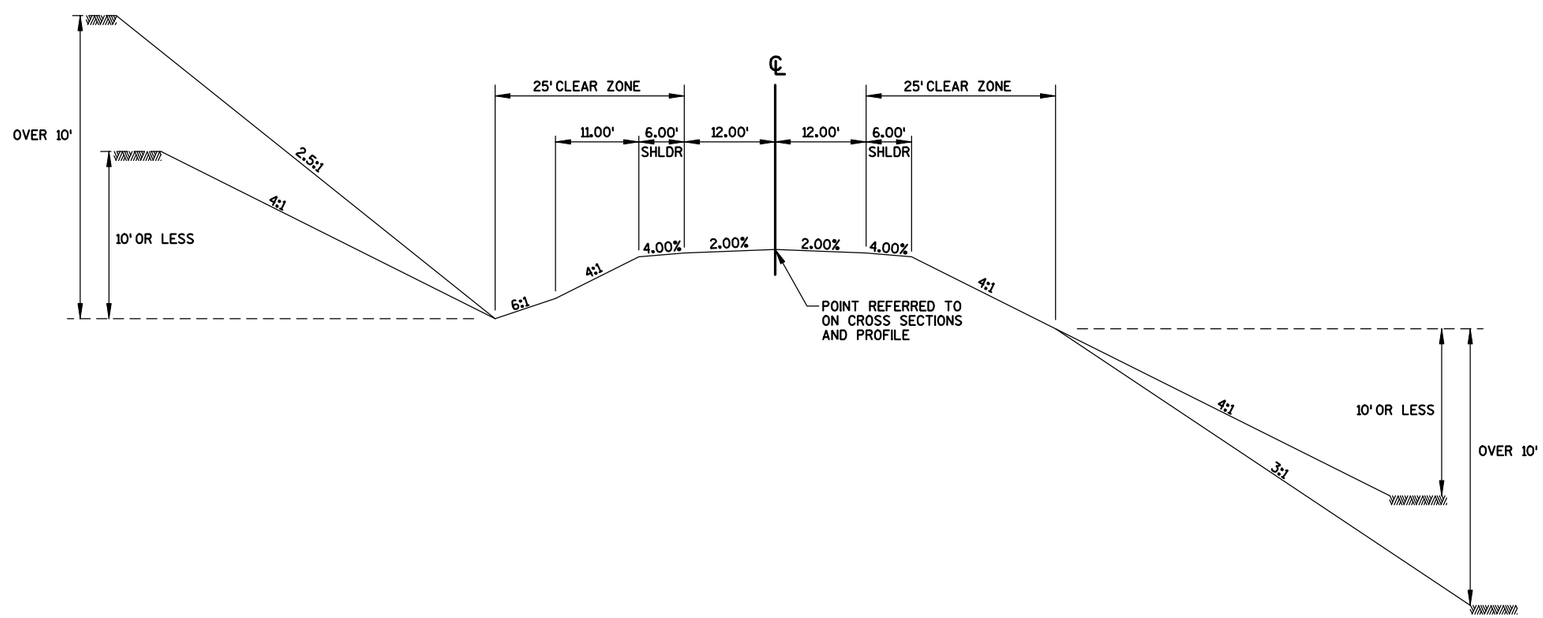


FUTURE TYPICAL SECTION - INTERCHANGE RAMPS

PROJECT NO: 1110-00-09	HWY: USH 151	COUNTY: DODGE	FUTURE TYPICAL SECTIONS	SHEET	E

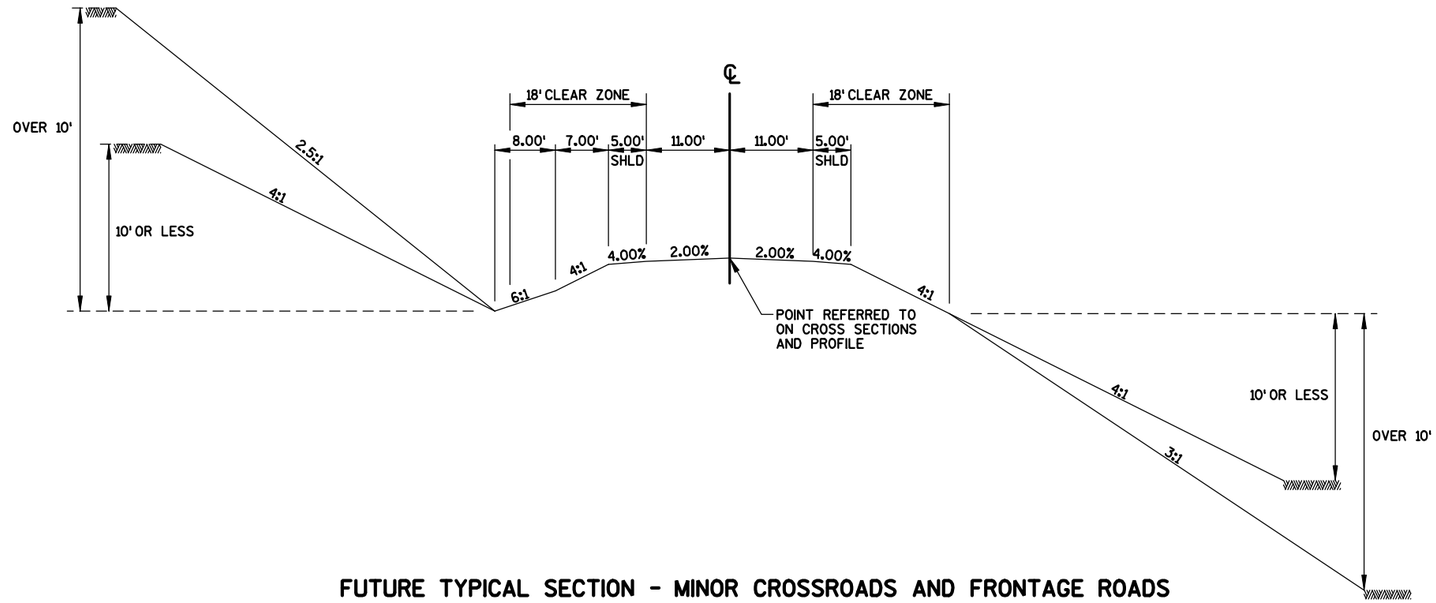


FUTURE TYPICAL SECTION - CROSSROADS WITH MEDIAN AT INTERCHANGE

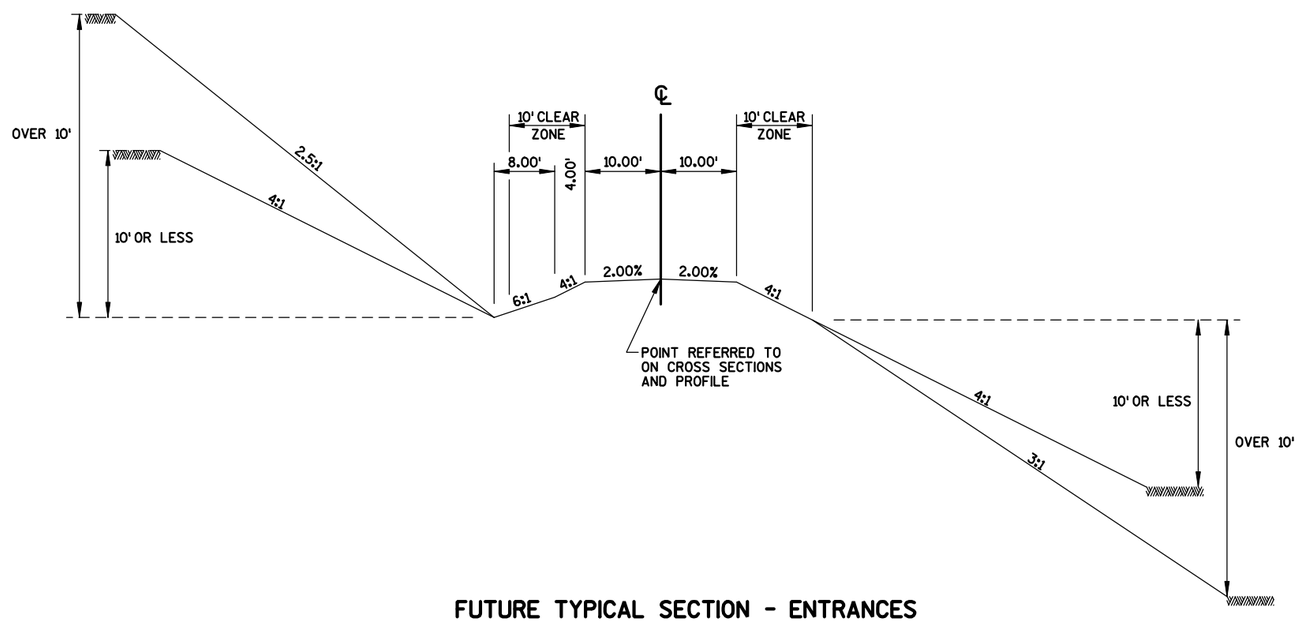


FUTURE TYPICAL SECTION - COUNTY TRUNK HIGHWAYS AND MAJOR CROSSROADS WITH INTERCHANGES

PROJECT NO: 1110-00-09	HWY: USH 151	COUNTY: DODGE	FUTURE TYPICAL SECTIONS	SHEET	E



FUTURE TYPICAL SECTION - MINOR CROSSROADS AND FRONTAGE ROADS



FUTURE TYPICAL SECTION - ENTRANCES

PROJECT NO: 1110-00-09	HWY: USH 151	COUNTY: DODGE	FUTURE TYPICAL SECTIONS	SHEET	E

Appendix I

Public Meeting #1

Displays and Comments

Public Informational Meeting #1 Comments
April 16, 2008
(Refer to displays for comment number locations)

Comment Number	Meeting	Sheet Number	Name	Comment	Response
4	PIM 1	1	[redacted]	We have snowmobile crossing at Daniel M. & Gloria E. Rake property. We cross at driveway & field road. This trail is a state funded trail that hooks up Astico & Lost Lake area, Fall River, Doyle's Town, Randolph, Cambria etc. We do need a crossing of some kind.	Could provide snowmobile crossing in area if interchange or overpass is added. WisDOT has standards on when grade-separated trail crossings are warranted.
19	PIM 1	4	[redacted]	Where would access be for Redwood or C?	If new interchange is added between Beaver Dam and Waupun, it could be at either of these locations. Otherwise, nearest interchange is at CTH A.
25	PIM 1	1	[redacted]	- If a full cloverleaf is put in on North Salem Road, will more of our agricultural land be needed? - Where will frontage road come from & go to, to service home on west side of 151? Will more of our agricultural land be needed for frontage road?	- If interchange is added at this location, it would likely require additional agricultural land. - If overpass or interchange is added here, frontage road may not be needed to provide access to home since they are close to North Salem Road.
26	PIM 1	1	[redacted]	- Where will frontage road come from & go to, to service home on east side of 151? Will more of our agricultural land be needed for frontage road? - Right at the fence line by my field access gate is a state CREP waterway for drainage of Hwy 151 water. There is a washed rock bed with 2 drain tile right next to the fence, that must be maintained because of the high erosion problem I've had since they built the divided Hwy. - This land is land locked & can only be accessed from Hwy 151 or a frontage road.	- If overpass or interchange is added here, frontage road would likely cross Neuman property. - Drainage information is noted. - Access will be investigated for this landlocked parcel.
28	PIM 1	1	Did not give name	Need daily access to 151 to work in Beaver Dam. Interchange on Salem Rd would be nice.	Locations of potential interchanges will be analyzed. Salem Road will be evaluated as an option.
31	PIM 1	2	[redacted]	Need to cross 151 from DE to Jackson Rd to farm 3 other farms. Need a full diamond interchange there.	Locations of potential interchanges will be analyzed. This location may be too close to existing interchange at CTH D.
32	PIM 1	2	[redacted]	Need access to farm, 30+ acres of land.	Unless a new overpass or interchange is constructed south of Jackson Road, there could be lengthy adverse travel to get from one parcel to other parcel across USH 151.

33	PIM 1	2	[redacted]	Need access to farm building & feed cattle.	Depending on whether new interchange is added, would likely require frontage road, which could possibly be extension of Klatt Road.
37	PIM 1	2	[redacted]	Cty Trk DE & 151 diamond interchange.	Locations of potential interchanges will be analyzed. CTH DE may be too close to existing interchange at CTH D. Access will likely be off Klatt Road. That may require alterations to some of the business accesses that currently face USH 151.
40	PIM 1	4	Did not Give Name	Will there be a bridge at Cty C & will there be access to US 151?	If new interchange is added between Beaver Dam and Waupun, CTH C is an option. Bridge across USH 151 may be needed at Redwood, CTH C, or Oakwood.
41	PIM 1	4	Did not Give Name	Will frontage roads be put in for access to driveways?	Frontage roads are likely in some locations. Access needs will be investigated for all parcels.
45	PIM 1	5	[redacted]	We would like more information on changes for this interchange & alleviate any more land loss.	(CTH M interchange) Potential option is to modify this interchange to provide access to adjacent parcels. Much of Henning property is wetland, so efforts would be made to minimize wetland impacts with potential design alternatives
55	PIM 1	2	[redacted]	Any frontage road should go towards the city & not towards Columbus. Most everyone goes to Beaver Dam. 87 families.	This is mobile home park just south of RR crossing. CTH D interchange is just to the north and will be reconstructed to allow access to east side of USH 151. Frontage road to this property would require new railroad crossing. Frontage road to south would likely involve wetland impacts.
58	PIM 1	2	[redacted]	We need access here now & in the future.	Whether new interchange is added in CTH DE area or not, access will likely be provided to the businesses from Klatt Road. That may require alterations to some of the business accesses that currently face USH 151.
63	PIM 1	2	[redacted]	From Hwy D we use DE to get to our other farm across Hwy 151. Use this road a lot.	Locations of potential interchanges and crossings of USH 151 will be analyzed. CTH DE may be too close to existing interchange at CTH D to add new interchange.

67	PIM 1	2	[redacted]	Snokats of Beaver Dam snowmobile club state funded trail crossing trail from Randolph & Columbia Ct to Wild Goose Trail south side of Beaver Dam lake.	This is a 60" culvert that may currently be used for snowmobiles. A new culvert may be added to provide a crossing. WisDOT has standards on when grade-separated trail crossings are warranted.
68	PIM 1	4	[redacted]	TT Riders of Burnett & Snowkats of Beaver Dam snowmobile club state funded trail crossing from Fox Lake to Wild Goose Trail north side of Beaver Dam lake.	Overpass may be an option at Breezy Point Road or Redwood Road which could be used for snowmobiles. WisDOT has standards on when grade-separated trail crossings are warranted.
70	PIM 1	3	[redacted]	No access or overhead	Access to USH 151 will likely be provided at nearby CTH A interchange. An overpass of Hemlock Road over USH 151 will be evaluated.
73/74/75/ 301/302/ 303	PIM 1	1	[redacted]	All used for our farm operation.	Except for #74, all these areas are on east side of USH 151 and can be accessed from either CTH S or Bethel Road. #74 ties into Moriah Road. If interchange is added at CTH S, access to USH 151 would likely be provided from there, which would also provide access across USH 151.
85/91	PIM 1	4	Did not Give Name	I live on 151 north of BD west side of Present Hwy. Where will access be?	Likely would be either from CTH A interchange to the south, or possible new interchange to the north if one is added south of Redwood Road.
88	PIM 1	4	Did not Give Name	How do we cross from Breezy Pt Rd across Hwy 151 with ag equipment to reach land across Hwy?	Could cross at Breezy Point Road if crossing is added there. Or at CTH A, or possible new interchange if one is added in this area near Redwood Road.
103	PIM 1	5	[redacted]	I'd like to suggest a full diamond/bridge across at the Phil Hofman farm.	Potential option is to modify this interchange (CTH M) to provide access to adjacent parcels. Hofman owns property near CTH M interchange on both sides of USH 151.
104	PIM 1	3	[redacted]	For our business south of BD – we'd like to see a frontage road from A to D to accommodate the large equipment we use. The highway where people are able to move around equipment is much SAFER than the back roads.	Changes to existing access around Beaver Dam will likely be minimal since this area is already functioning as a freeway.
108	PIM 1	1	[redacted]	My biggest specific concern is where the cost & resources are coming from.	Funding for construction has not been determined yet. Resources for construction will be determined by contractor.

109	PIM 1	5	Did not Give Name	Separation of RR crossings is possible at this crossing by lowering the rail 5-6' reducing the length of highway bridge required. The rail is lower east & west of this crossing. The current intersection with CTH S could use a deceleration lane for northbound traffic turning east. As a short term safety improvement.	- Option of lowering RR and having USH 151 over the top seems to fit existing terrain. However, there is indication that existing rock in this area may make that option costly. - Comment about CTH S will be passed on to DOT staff.
112	PIM 1	4	[redacted]	An interchange here would be a good fit.	CTH C is an option for a new interchange if one is added between Beaver Dam and Waupun.
117	PIM 1	2	[redacted]	Right-of-way to my land at west Hammer Road. Access off of Iron road now.	Access at Iron Road will be eliminated with upcoming CTH D interchange project. The access issue may be addressed with that project. One option is to cross at new CTH D interchange.
126	PIM 1	3	[redacted]	Future Interchange for Hospital access – patients, ambulances, staff	New interchange at CTH W is unlikely given proximity of nearby CTH G and STH 33 interchanges.
133	PIM 1	3	[redacted]	This property is zoned commercial. I have developed preliminary plans with MSA. The big question of potential developers is whether Kellom Rd will become a frontage road. Also, I would like to know preliminarily if it will be so I can include it in my plans.	Kellom Road already acts as a type of frontage road tying into CTH B interchange. That condition will likely remain. Depending on other access needs, extending it to the north to tie into a future crossing of Hemlock Road or CTH A interchange is an option.
139	PIM 1	1	[redacted]	How will this affect us & the cemetery for access to 151? Will there be a cul-de-sac on my property? Will this affect how long it will take rescue vehicles to get to property?	- STH 73 interchange is ½ mile away and is a likely option for access to this property. Possible new interchange at CTH S would be approximately 1.5 miles away. - Depending on frontage road layouts, a cul-de-sac could be added here. - If access is provided from STH 73 interchange, additional distance for emergency vehicles from Columbus would be minor. Vehicles from Beaver Dam would require more time to access this property from STH 73.
144	PIM 1	4	[redacted]	Certain years lots of water sits between farm & interchange.	This is a low area and no place else for water to drain to.
146	PIM 1	4	Did not Give Name	Commercial access to cell tower & extensive drainage system need to be addressed & preserved on Born property south of Cty Road C.	Access to this property would likely come from Redwood Road. If new interchange is added between Beaver Dam and Waupun, it may be at Redwood Road or CTH C to the north.

148	PIM 1	1	[redacted]	I'd like to know where the frontage roads would be placed and how it affects my property.	This property is located between Bethel Road and Behan Road. Access to this property will likely be from a frontage road that ties into one of those two local roads.
157	PIM 1	3	Did not Give Name	Dangerous intersection here. Concern is for access if overpass, frontage rd for buildings located next to 151 & Hemlock Rd.	Hemlock Road intersection with USH 151 will be removed. Access to USH 151 will likely be at CTH A interchange. An overpass of Hemlock Road over USH 151 will be evaluated.
158	PIM 1	3	Did not Give Name	Interchange & access (east hwy).	Comment shown on Bird property just south of Hemlock Road. Interchanges at nearby CTH B and CTH A will likely remain so a new interchange at Hemlock Road is unlikely.
184	PIM 1	1	[redacted]	Need 3-way interchange at S & 151 also takes care of Frey & other for access	One option for an interchange between Columbus and Beaver Dam is CTH S. Frey property is a small parcel at CTH S intersection. New interchange here would likely have significant impact to that property.
185	PIM 1	2	[redacted]	D & 151 access limited control being addressed by DOT District 1 in rebuilding D interchange. Endorse your plans to solve this problem.	The CTH D interchange project is scheduled for construction in 2012.
195	PIM 1	2	[redacted]	Schultz's Cheese Haus – If Gunn Rd across to store is closed & people go to DE (or overpass) I feel it would definitely have a major impact on business. People don't want to "go out of their way". Who would be responsible for signage, etc. If result of freeway is as damaging to us as I feel it would be – what options do we have? I believe it would be damaging to us, Kissaks, Walters Gas, Amer., etc. If there is a frontage Rd in this area – which side – north or south? Also a huge affect on us – both business & property portion. Even with the traffic projections I feel it is not necessary.	- Whether new interchange is added in CTH DE area or not, access will likely be provided to these businesses along Klatt Road. This area needs to be analyzed in depth. - WisDOT would be responsible for new highway signs. Special "blue" business signing could be considered. - Any frontage road would likely utilize Klatt Road. That may require alterations to some of the business accesses that currently face USH 151.
202	PIM 1	4	[redacted]	I live west of 151 on Redwood Rd & I own land on the east side of 151 on Redwood next to the cemetery. I need to cross 151 to get to my land (agricultural land).	If new interchange is added between Beaver Dam and Waupun, it may be at Redwood Road or CTH C to the north. An overpass at Redwood Road is also an option, but would likely be shifted south to avoid cemetery.

203	PIM 1	4	[redacted]	I own a farm at intersection of Co. C & 151 would like to know if there would be an interchange at C & 151 to access 151.	If new interchange is added between Beaver Dam and Waupun, it may be at Redwood Road or CTH C. New interchange at CTH C could have impacts to Pieper property.
205	PIM 1	5	Did not Give Name	I own land and farm buildings on both sides, with animals that need care daily. Lots of movement to each side of highway.	(CTH M interchange) Potential option is to modify this interchange to provide access to adjacent parcels. However, access to parcels directly across USH 151 will likely involve adverse travel. An overpass at Oakwood Road to the south is an option for traveling across USH 151.
206	PIM 1	5	Did not Give Name	400 cow dairy with lots of traffic in and out. Plans to expand in near future 08-09. This project will have impact on decision.	Comment from same person as #205 above. Decision on new interchange locations likely won't be made before this person's plans for expansion.
207	PIM 1	5	Did not Give Name	100 heifers housed here with daily attention and most of agricultural land is on east side.	Comment from same person as #205 and #206. Farm buildings appear to be on west side of USH 151, opposite of majority of agricultural land.
211	PIM 1	1	[redacted]	If frontage road is built on my property, work with township to straighten "hillside" curve on Behan Rd. Multiple accidents every year.	Frontage road on this property is a possibility. Comment noted.
214	PIM 1	4	[redacted]	Highland Memory Gardens needs Redwood Rd. access to get to cemetery.	Interchange and/or overpass at Redwood Road are possibilities. Redwood Road would likely be shifted south to avoid cemetery, which would help to alleviate change in grade required to build overpass of USH 151.
215	PIM 1	4	[redacted]	Funded snowmobile trail crossing. Needed as no other trail crossing exists till south of Beaver Dam or up by Waupun. Trail 34.	Overpass may be an option at Breezy Point Road or Redwood Road which could be used for snowmobiles. WisDOT has standards on when grade-separated trail crossings are warranted.
216	PIM 1	2	[redacted]	Funded snowmobile trail crossing needed as no other funded trail crosses until north of Columbus or north of Beaver Dam. Trail 13.	This is a 60" culvert that may currently be used for snowmobiles. A new culvert may be added to provide a crossing. WisDOT has standards on when grade-separated trail crossings are warranted.

220	PIM 1	2	[redacted]	I do not own the land where my name is, but do own the L-shaped parcel with the 100 sq ft building at the northeast intersection of 151 & county D. If a north side frontage road is proposed, is there enough room between the off ramp & my building?	Change to property made. Based on layout of proposed CTH D interchange, there would be room for a frontage road on north side. However, there would not be room to provide sufficient distance between ramp terminal and intersection of frontage road with CTH D. Therefore, frontage road just north of USH 151 in this location is unlikely.
221	PIM 1	2	[redacted]	My family owns land south of 151, east of Bob Matheus mobile home park. Current access is from Hammer Rd across Union Pacific RR right of way. Need to look at Hammer Rd. overpass or extending Iron Rd. under the 151 bridges toward the south of Hammer Rd. Would need frontage road crossing of RR (Hammer on the south, Iron on the north) at grade.	Access to this property as well as businesses and mobile home park south of railroad needs to be analyzed. A railroad crossing would be needed to provide access to the new CTH D interchange for these properties.
222	PIM 1	2	[redacted]	We live just west of South Beaver Dam on Forest Rd. Understandably, Forest Rd. will not intersect with 151 under future freeway status. In light of this, if an interchange at DE is not already planned, it needs to be. DE is a busy corridor for the town of Westford Lake residential areas, south Beaver Dam with United co-op trucks, La Grange Salvage trucks, a proposed new salvage yard, & south Beaver Dam school.	Locations of potential interchanges will be analyzed. CTH DE may be too close to existing interchange at CTH D to add new interchange.
223	PIM 1	4	[redacted], Waupun Drift Jumpers Snowmobile Club	Trail crosses close to R&R trucks at a farm crossing.	Not clear on where R & R trucks is located. Comment made at CTH C crossing. Interchange or overpass may be added at CTH C which could be used for snowmobile crossing. WisDOT has standards on when grade-separated trail crossings are warranted.
224	PIM 1	5	[redacted] Waupun Drift Jumpers Snowmobile Club	Trail crosses at Cty Hwy C.	This comment is shown just south of STH 26. Perhaps should be switched with comment #223? Investigate moving crossing to STH 26 interchange or perhaps at railroad crossing depending on proposed configuration of that crossing. WisDOT has standards on when grade-separated trail crossings are warranted.

225	PIM 1	5	[redacted], Waupun Drift Jumpers Snowmobile Club	Trail crosses at state owned land (farm crossing) ½ mile from Hwy 49.	Need to analyze all snowmobile crossings throughout project. WisDOT has standards on when grade-separated trail crossings are warranted.
307	PIM 1	3	Matt Barr in discussion with owner of HBM properties	Construct frontage roads for better access to hospital?	Access within Beaver Dam will likely not change.
308	PIM 1	3	Matt Barr in discussion with owner of HBM properties	Driveways off US 151 are not used now. Also owns land with racetrack.	Existing access to USH 151 in this area will be removed. Will look into providing access to HBM parcel from racetrack parcel to the east.

LEGEND

- POTENTIAL INTERCHANGE ALLOWED
- POTENTIAL INTERCHANGE NOT ALLOWED
- EXISTING INTERCHANGE
- EXISTING GRADE SEPARATION
- WETLAND
- ACCESS REMOVAL

TYPE
- Residential
- Agricultural
- Commercial
- Utility
- Cemetery

US 151 FREEWAY STUDY

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 1 OF 5)

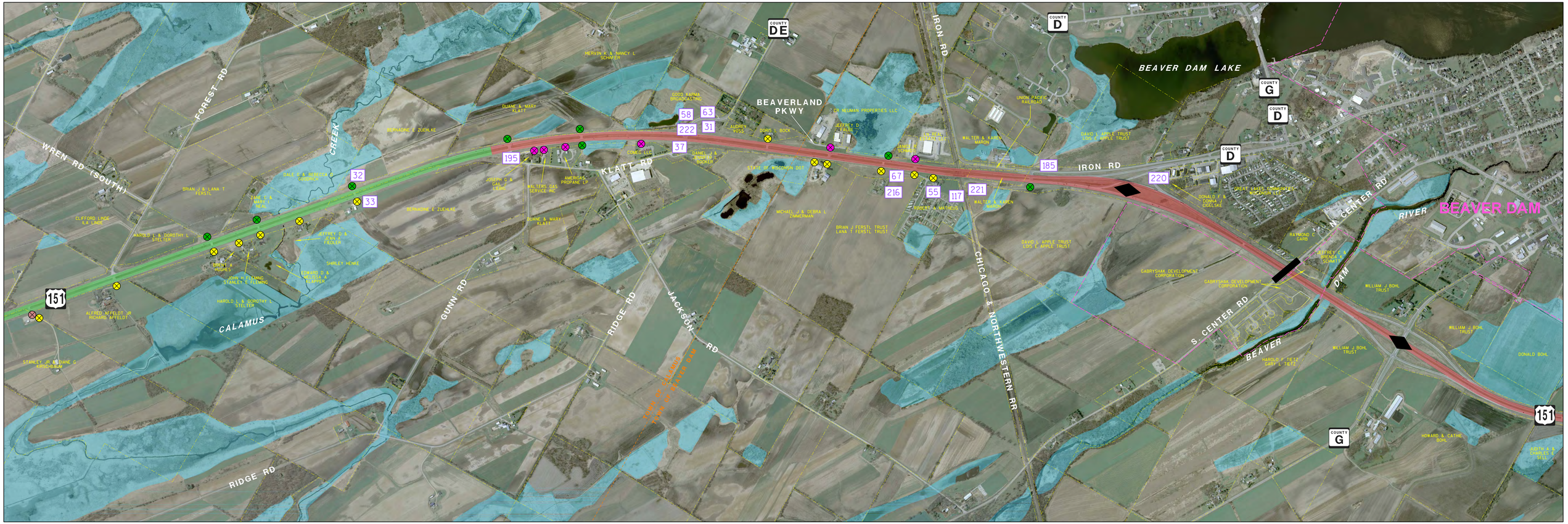
N

0 0.5 mi. 1.0 mi.

SCALE

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

AYRES ASSOCIATES



LEGEND

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US 151 FREEWAY STUDY

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 2 OF 5)

N

0 0.5 mi. 1.0 mi.

SCALE

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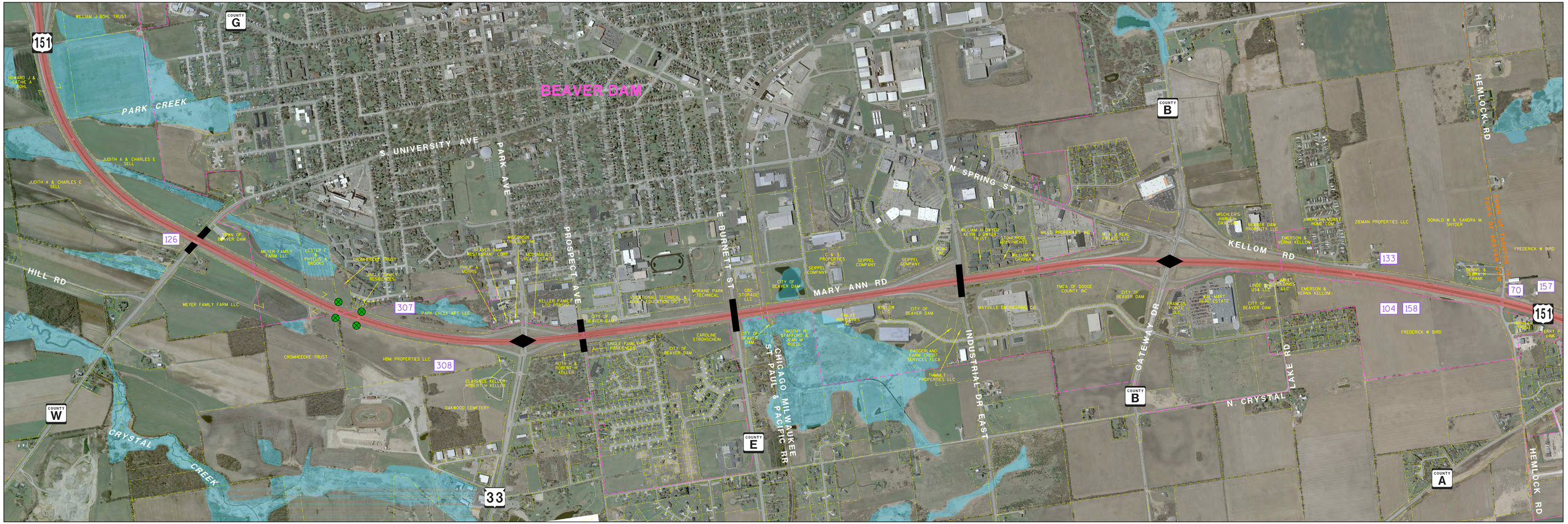

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US 151 FREEWAY STUDY

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 3 OF 5)

N

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SCALE

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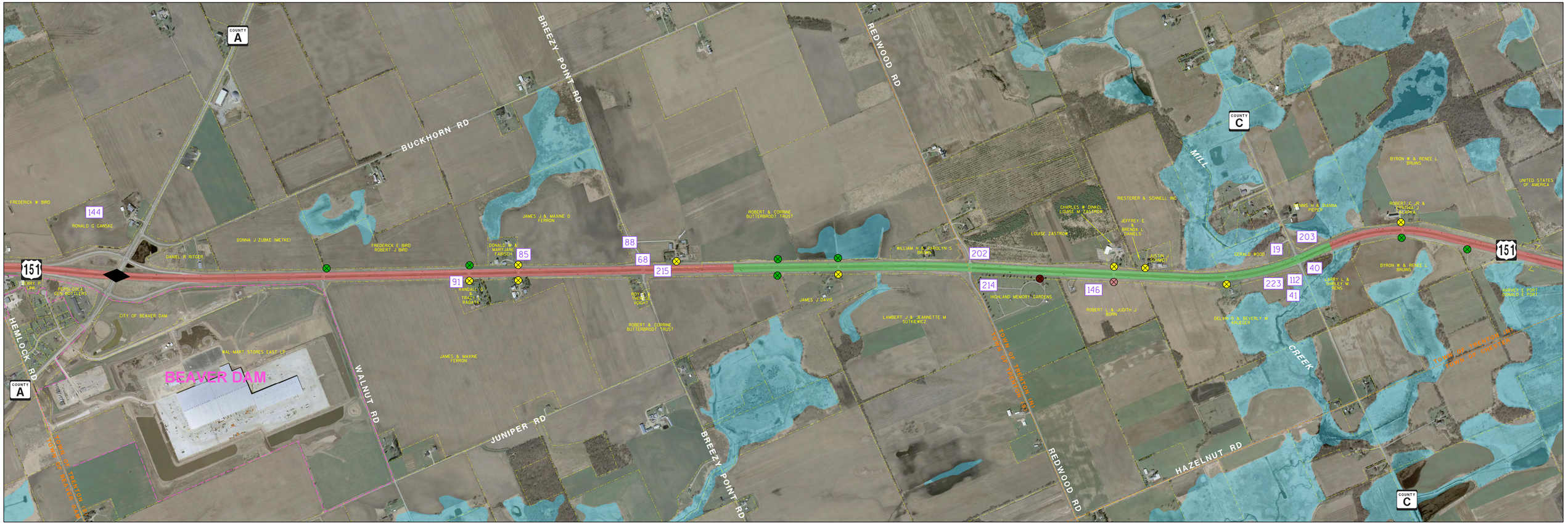

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US 151 FREEWAY STUDY

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 4 OF 5)

N

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SCALE

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US 151 FREEWAY STUDY

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(SHEET 5 OF 5)

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SCALE

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

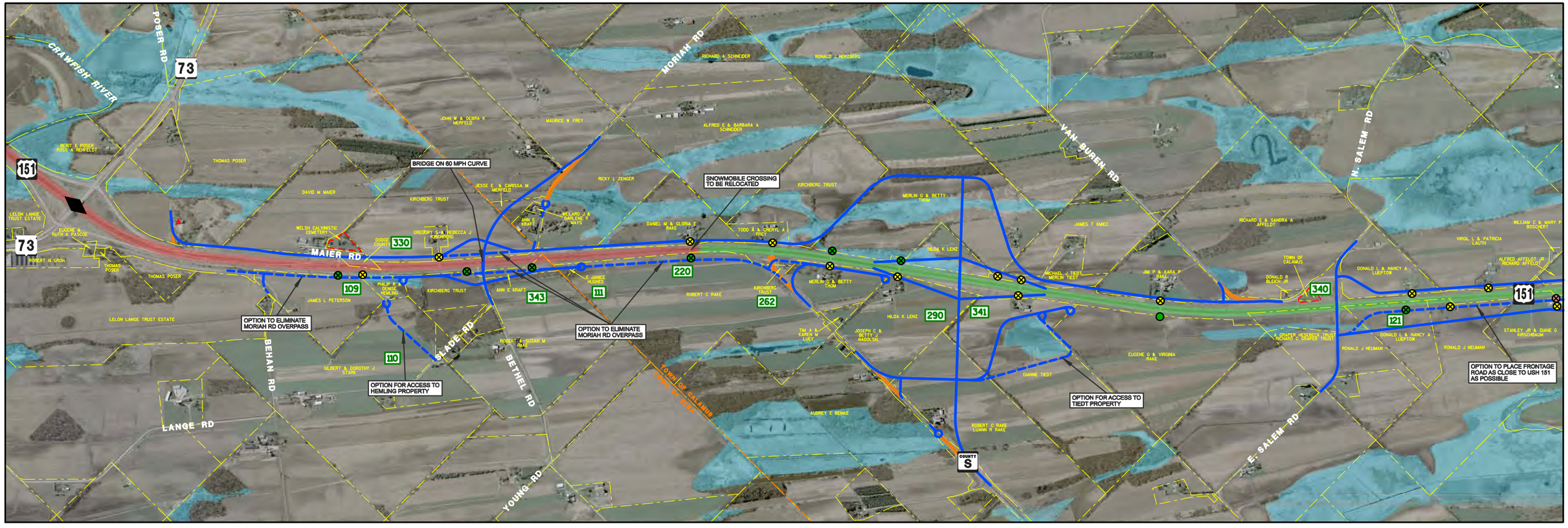
AYRES ASSOCIATES

Appendix J

Public Meeting #2

Displays for Conceptual Freeway Plans

and Comments



LEGEND

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- APPROXIMATE WETLAND BOUNDARY
- HISTORICAL BUILDING
- PROPOSED ROADWAY
- PROPOSED CUL-DE-SAC
- PROPOSED STRUCTURE
- DESIGN ALTERNATIVE
- OBLITERATE ROADWAY
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US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 1 OF 5)

0 — 0.5 mi. — 1.0 mi.
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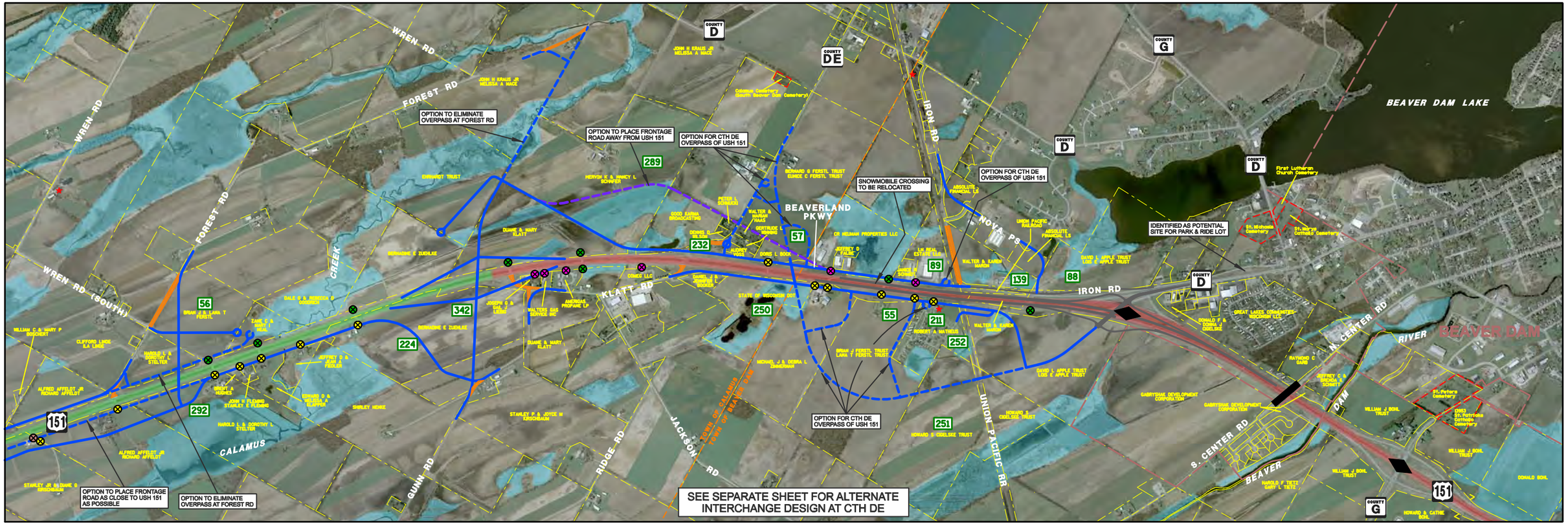

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US 151 FREEWAY STUDY
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(SHEET 2 OF 5)

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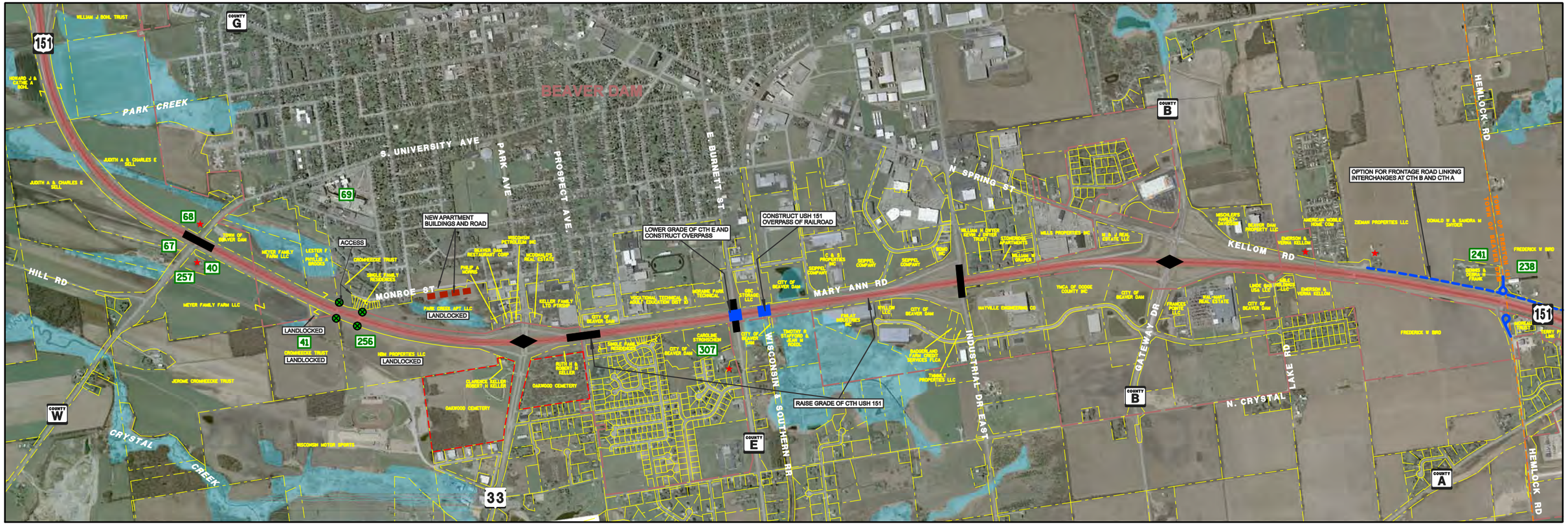

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US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

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(SHEET 3 OF 5)

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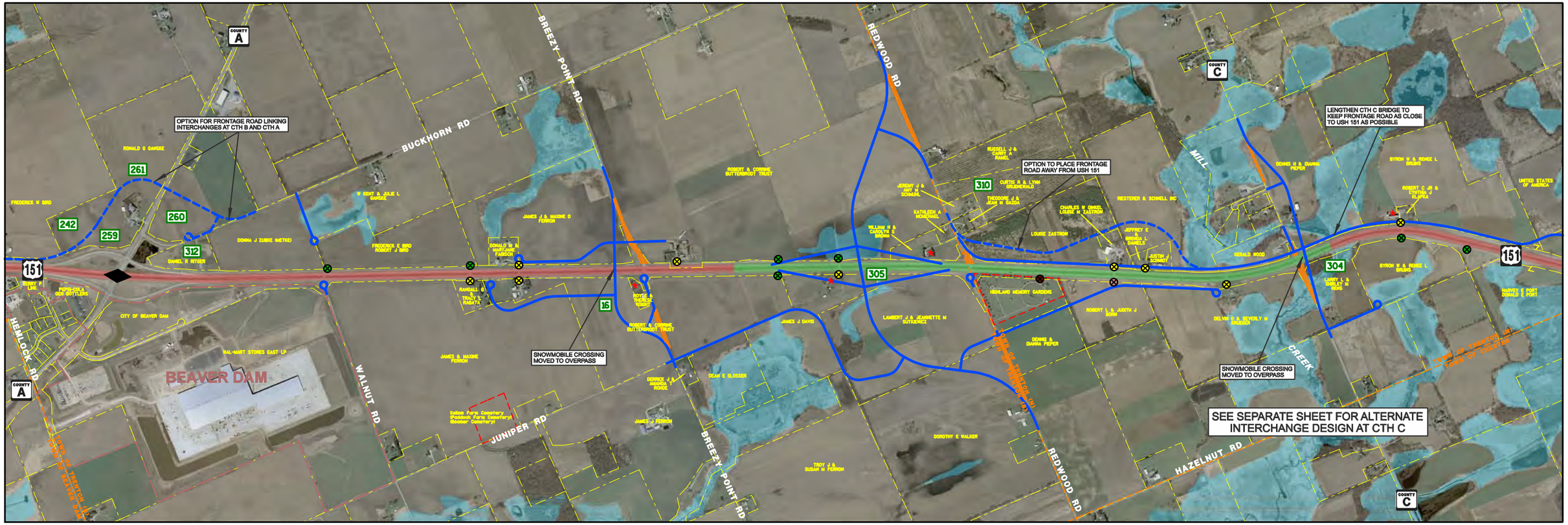

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US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

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(SHEET 4 OF 5)

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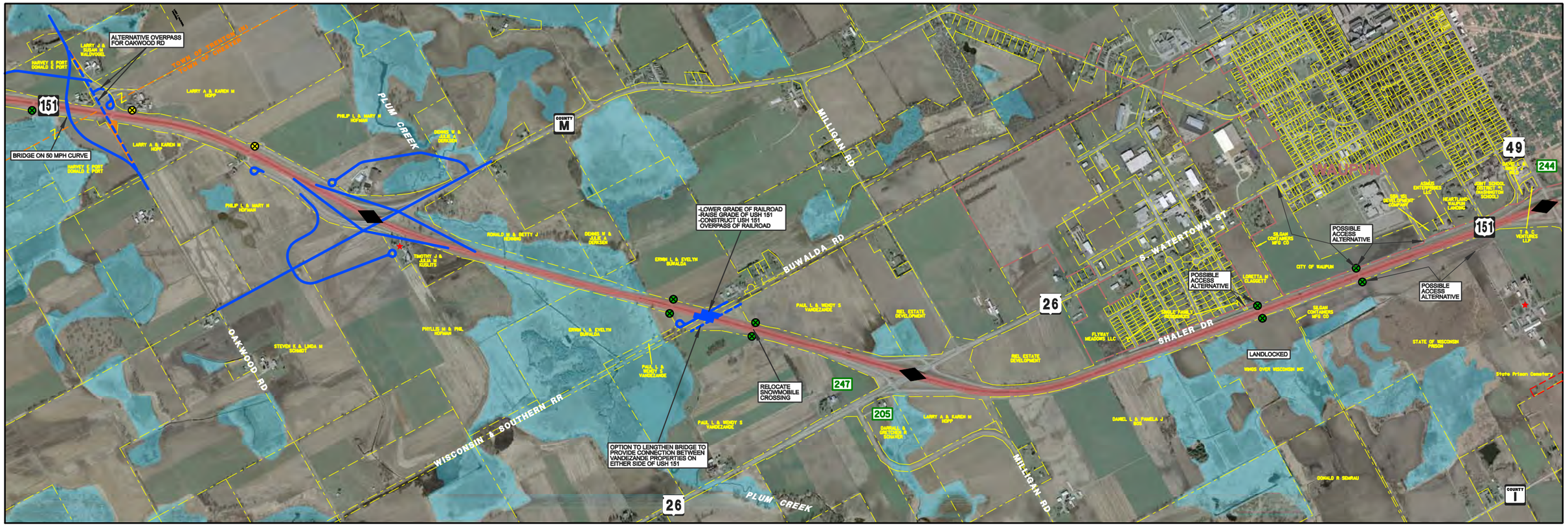

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US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

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(SHEET 5 OF 5)

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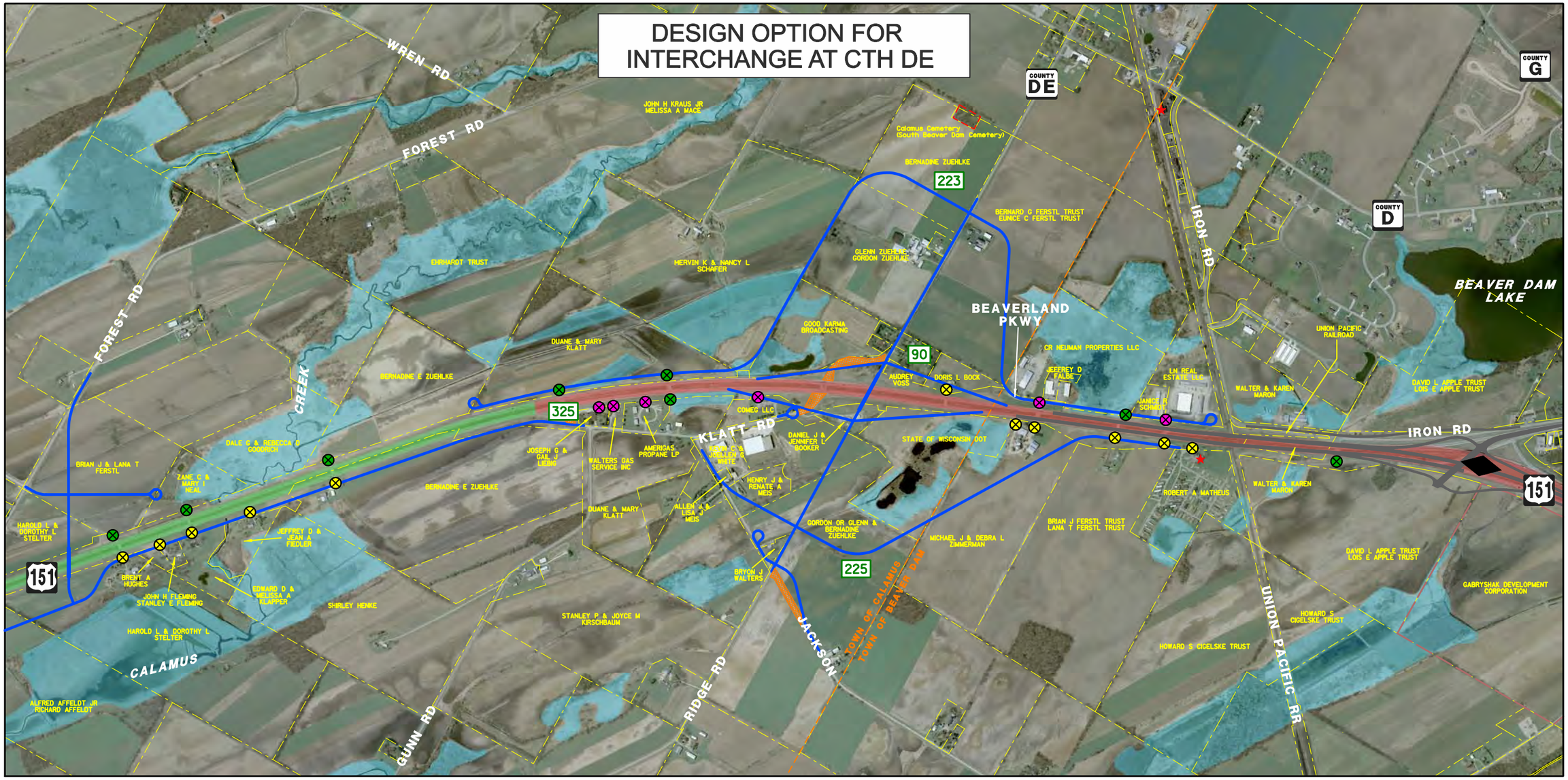

US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

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- PROPOSED ROADWAY
- PROPOSED CUL-DE-SAC
- PROPOSED STRUCTURE
- DESIGN ALTERNATIVE
- OBLITERATE ROADWAY
- ACCESS REMOVAL

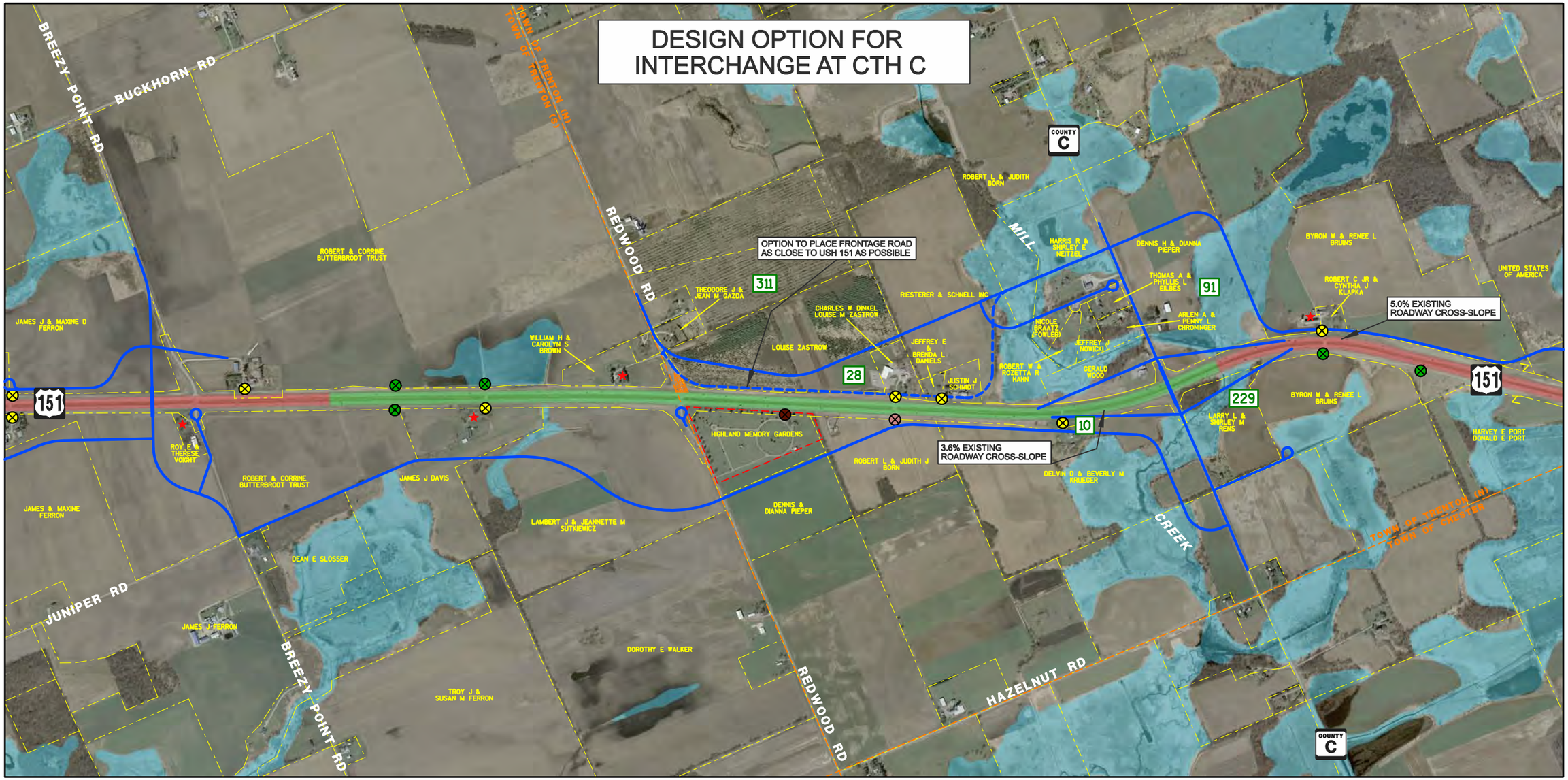
TYPE
- Residential
- Agricultural
- Commercial
- Utility
- Cemetery

N

0 0.25 mi. 0.5 mi.

SCALE

AVRES ASSOCIATES



US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY

LEGEND

- POTENTIAL INTERCHANGE ALLOWED
- POTENTIAL INTERCHANGE NOT ALLOWED
- EXISTING INTERCHANGE
- EXISTING GRADE SEPARATION
- APPROXIMATE WETLAND BOUNDARY
- HISTORICAL BUILDING
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N

0 0.25 mi. 0.5 mi.

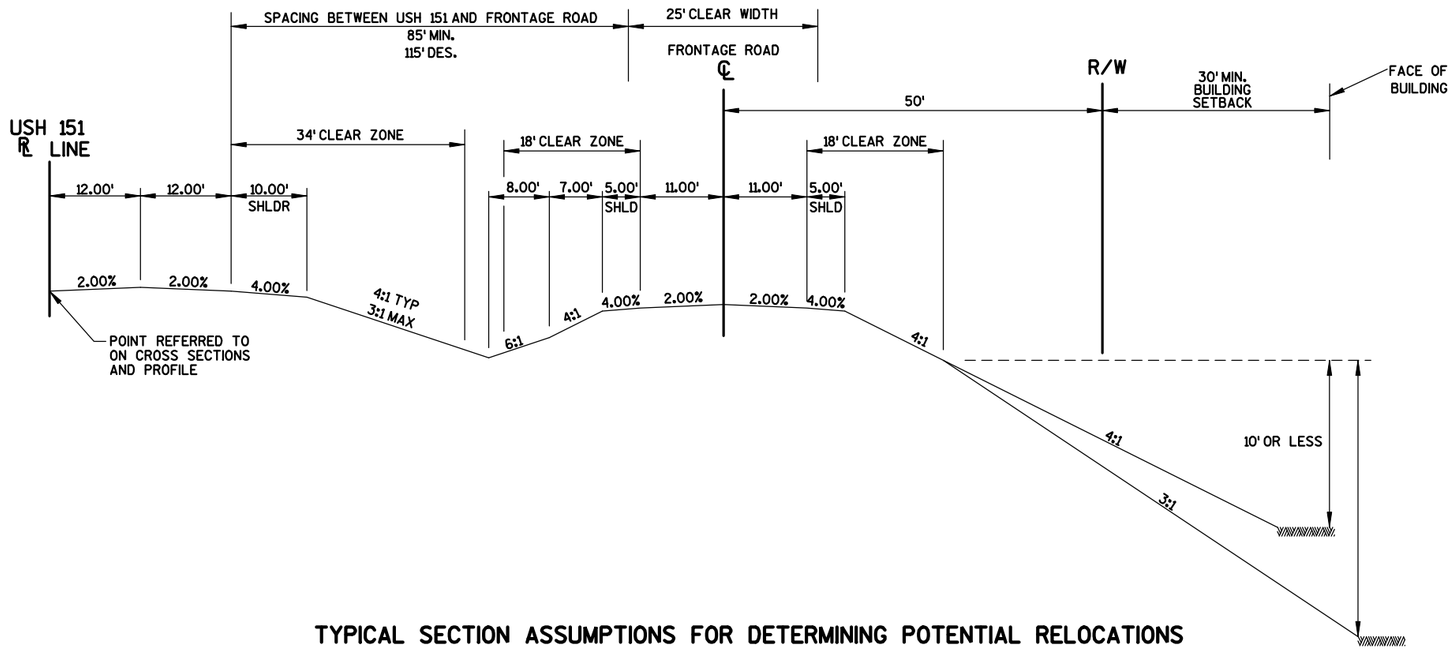
SCALE

AYRES ASSOCIATES

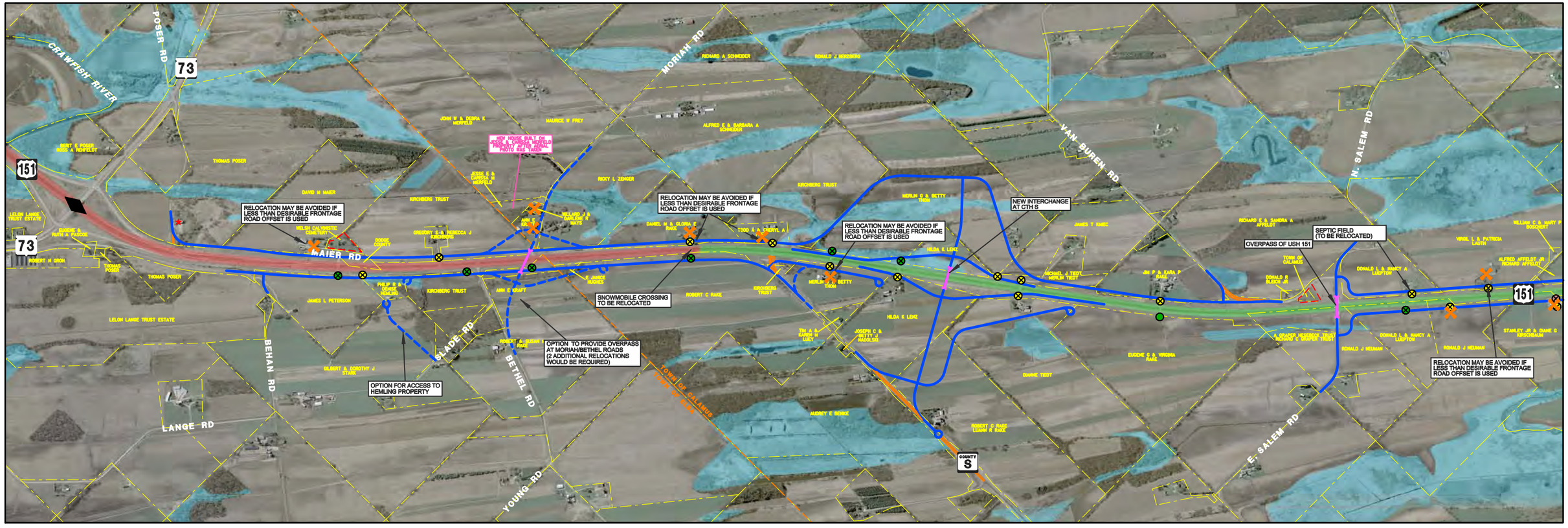
Appendix K

Refined US 151 Freeway Study

Preliminary Concepts



TYPICAL SECTION ASSUMPTIONS FOR DETERMINING POTENTIAL RELOCATIONS



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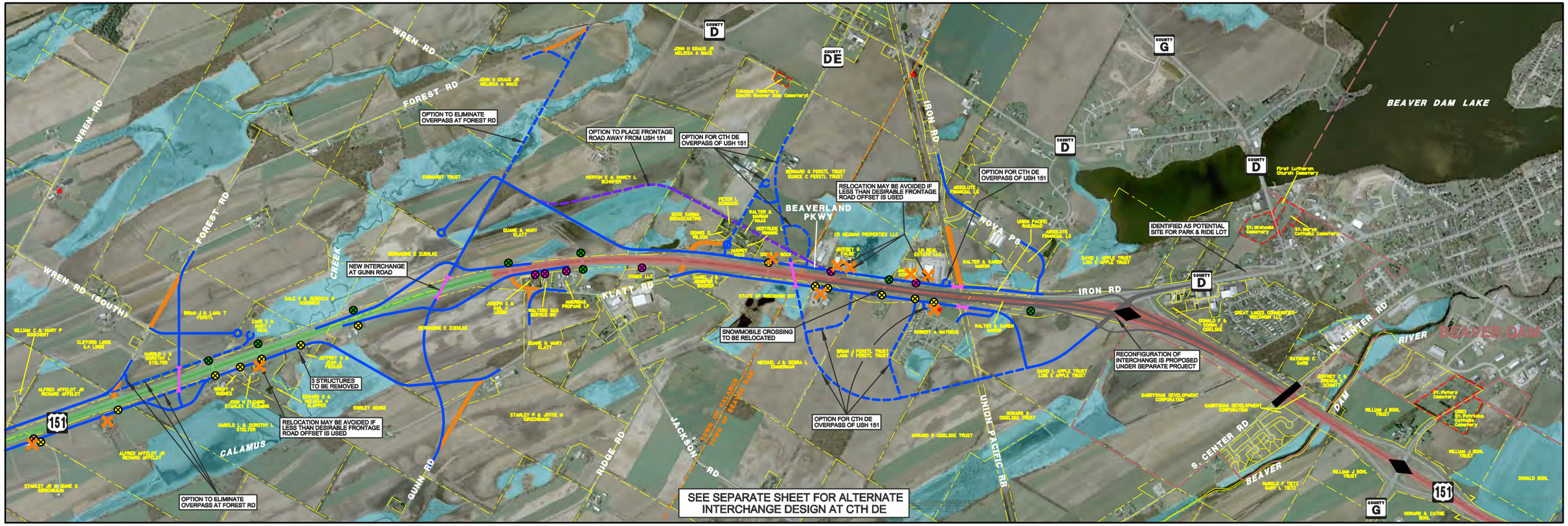
US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 1 OF 5)

0 — 0.5 mi. — 1.0 mi.
SCALE

AYRES ASSOCIATES



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US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 2 OF 5)

0 — 0.5 mi. — 1.0 mi.
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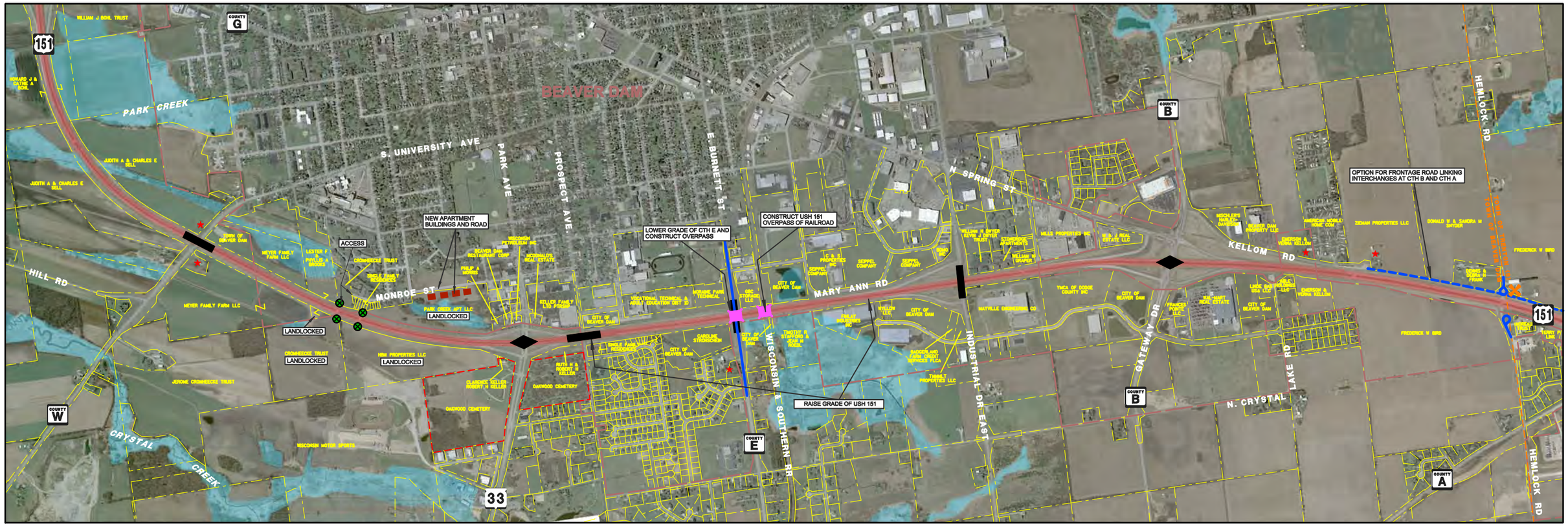
AYRES ASSOCIATES



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US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 3 OF 5)

0 — 0.5 mi. — 1.0 mi.
SCALE

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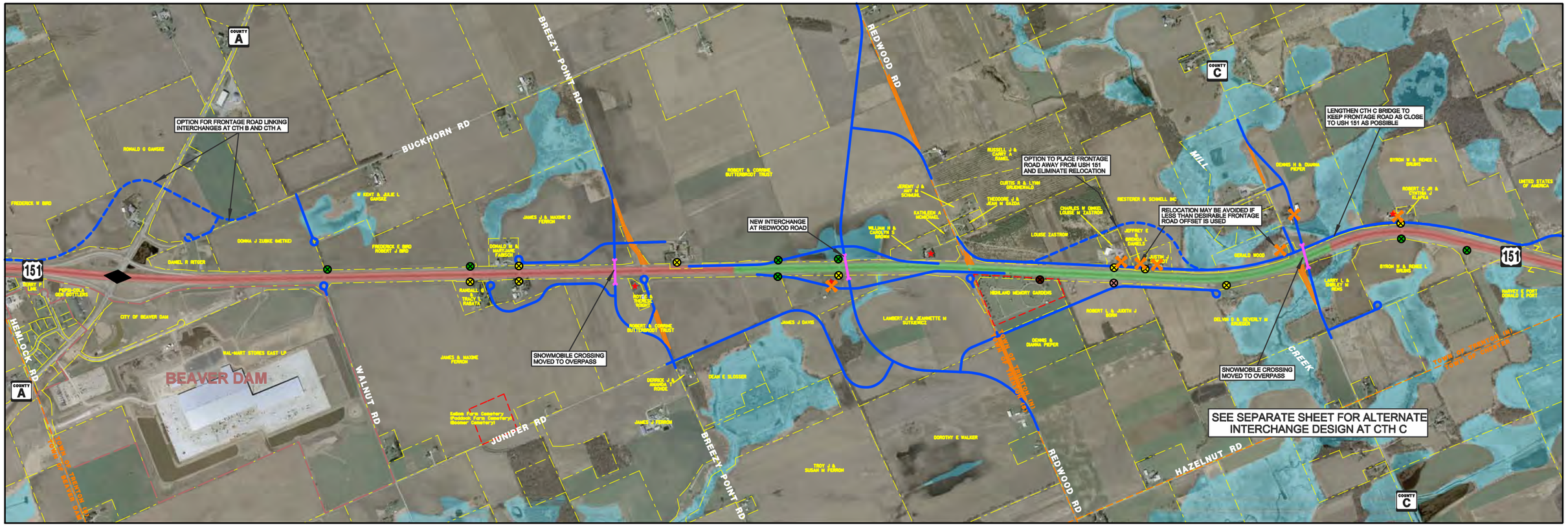

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US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 4 OF 5)

0 — 0.5 mi. — 1.0 mi.
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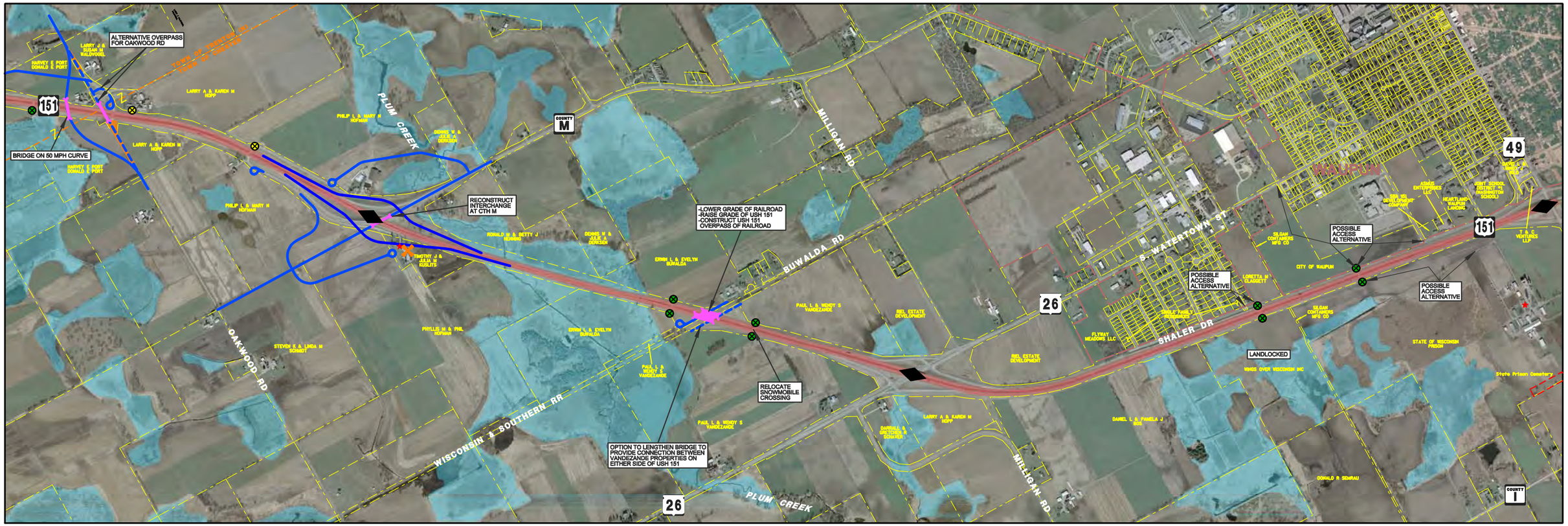
AYRES ASSOCIATES



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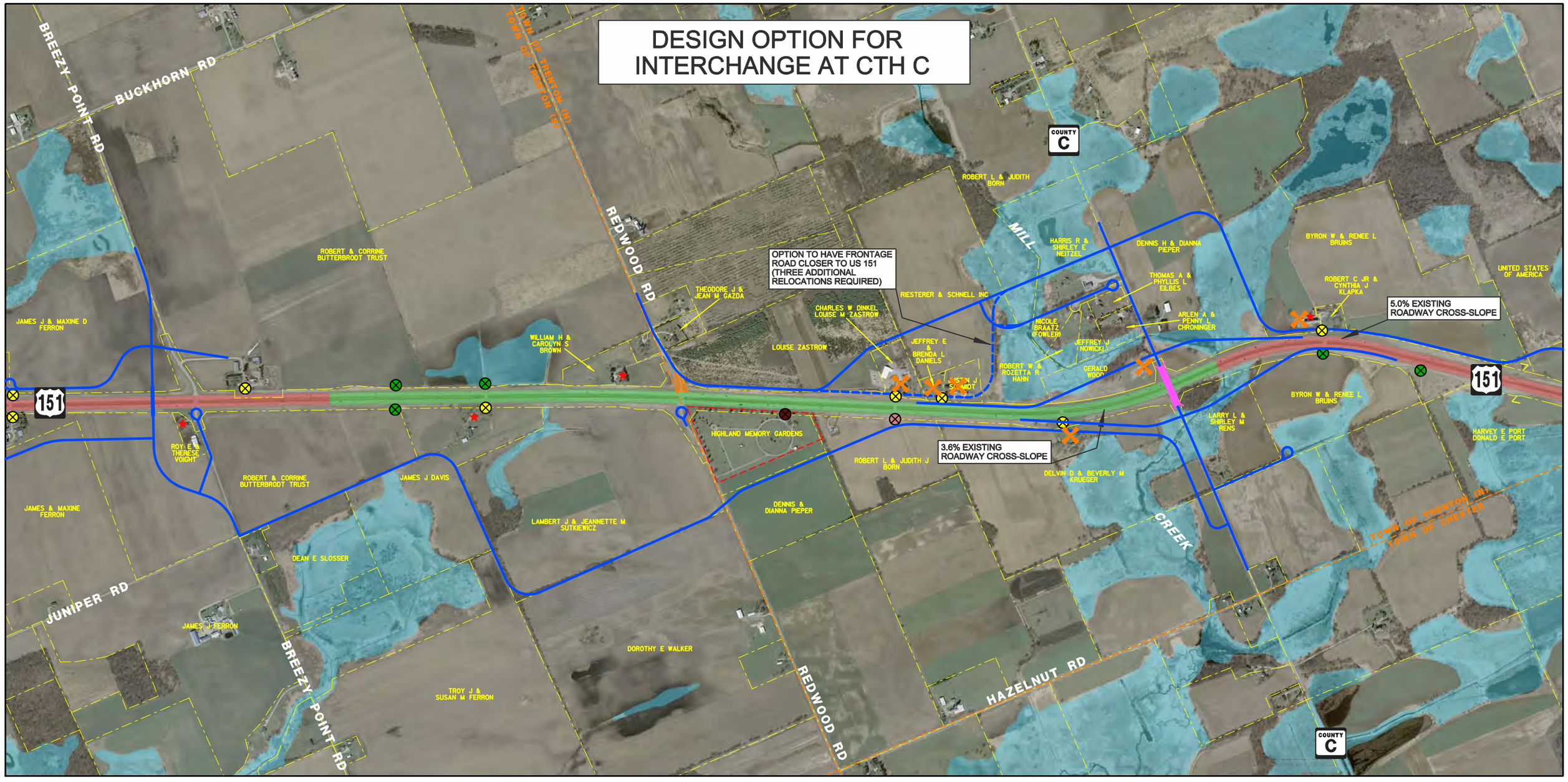
US 151 FREEWAY STUDY
PRELIMINARY CONCEPTS

PROJECT ID: 1110-00-09
COLUMBUS TO WAUPUN
DODGE COUNTY
(SHEET 5 OF 5)

0 — 0.5 mi. — 1.0 mi.
SCALE

AYRES ASSOCIATES

DESIGN OPTION FOR INTERCHANGE AT CTH C



US 151 FREEWAY STUDY PRELIMINARY CONCEPTS

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COLUMBUS TO WAUPUN
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SCALE

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

AYRES ASSOCIATES

DESIGN OPTION FOR INTERCHANGE AT CTH DE

WREN RD
FOREST RD
FOREST RD
CREEK
CALAMUS
COUNTY DE
COUNTY G
COUNTY D
IRON RD
BEAVER DAM LAKE
BEAVERLAND PKWY
KLATT RD
IRON RD
151
151
JACKSON
RIDGE RD
GUNN RD
UNION PACIFIC RR
TOWN OF CALAMUS
TOWN OF BEAVER DAM

RELOCATION MAY BE AVOIDED IF LESS THAN DESIRABLE FRONTAGE ROAD OFFSET IS USED

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JOHN H KRAUS JR
MELISSA A MACE
Calamus Cemetery
(South Beaver Dam Cemetery)
BERNADINE ZUEHLKE
BERNARD G FERSTL TRUST
EUNICE C FERSTL TRUST
EHRHARDT TRUST
MERVIN K & NANCY L SCHAFER
GLENN ZUEHLKE
GORDON ZUEHLKE
GOOD KARMA BROADCASTING
DUANE & MARY KLATT
BERNADINE E ZUEHLKE
AUDREY VOSS
DORIS L BOCK
CR NEUMAN PROPERTIES LLC
JEFFREY D FALBE
LN REAL ESTATE LLC
JANICE H SCHMIDT
WALTER & KAREN MARON
UNION PACIFIC RAILROAD
DAVID L APPLE TRUST
LOIS E APPLE TRUST
COMEG LLC
DALE C & REBECCA G GOODRICH
BRIAN J & LANA T FERSTL
ZANE C & MARY I NEAL
JOSEPH C & GAIL J LIEBIG
WALTERS GAS SERVICE INC
AMERIGAS PROPANE LP
DANIEL J & JENNIFER L BOOKER
STATE OF WISCONSIN DOT
HENRY J & RENATE A MEIS
ALLEN J & LISA J MEIS
DUANE & MARY KLATT
BERNADINE E ZUEHLKE
ROBERT A MATHEUS
WALTER & KAREN MARON
HAROLD L & DOROTHY L STELTER
JEFFREY D & JEAN A FIEDLER
GORDON OR GLENN & BERNADINE ZUEHLKE
MICHAEL J & DEBRA L ZIMMERMAN
BRIAN J FERSTL TRUST
LANA T FERSTL TRUST
BRENT A HUGHES
JOHN H FLEMING
STANLEY E FLEMING
EDWARD D & MELISSA A KLAPPER
SHIRLEY HENKE
BRYON J WALTERS
DAVID L APPLE TRUST
LOIS E APPLE TRUST
GABRYSHAK DEVELOPMENT CORPORATION
HAROLD L & DOROTHY L STELTER
STANLEY P & JOYCE M KIRSCHBAUM
HOWARD S CIGELSKE TRUST
HOWARD S CIGELSKE TRUST
ALFRED AFFELDT JR
RICHARD AFFELDT

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