

Bridges of Davison County

Davison County currently maintains 88 of the 124 bridges under inspection throughout the County. Heavy truck traffic has increased within Davison County resulting in weight restrictions to reduce impacts to aging bridges caused by heavier loads. Additionally, there are numerous culverts and smaller crossings on County and Township roadways that must be monitored and maintained.

The Davison County Master Transportation Plan will evaluate the current condition of these bridges to prioritize maintenance and improvements to ensure overall system connectivity, accessibility, and safety are maintained or improved.



← Weight limits have been implemented for aging bridges throughout Davison County that are experiencing increased truck traffic.

↓ The Davison County Master Transportation Plan will prioritize bridge improvements to ensure County roadways provide a safe and connected systems for all road users.

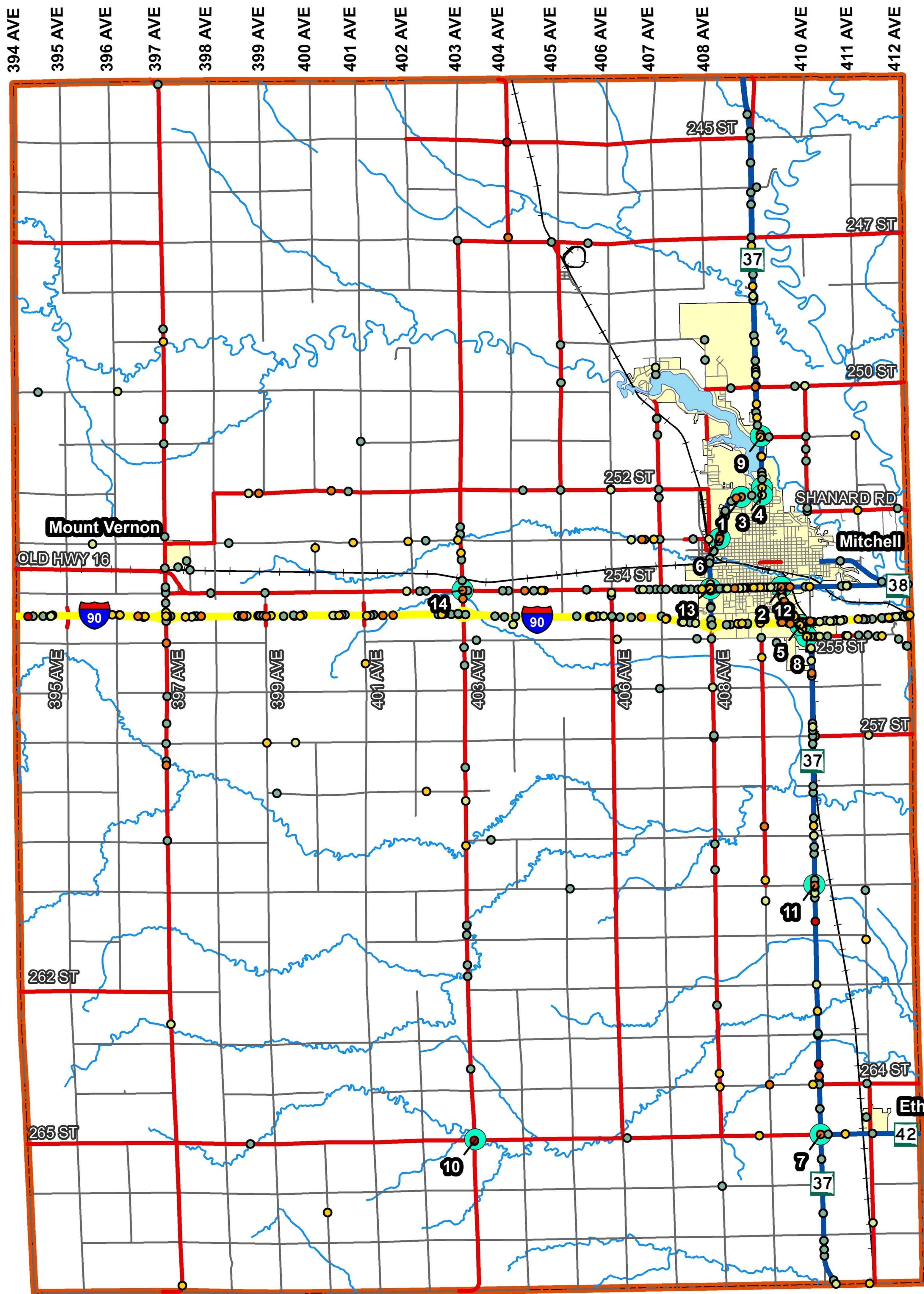


← As the map (left) shows, nearly all County roadways have at least one bridge crossing making maintenance of the County bridges essential to providing a connected and accessible system.

Legend

Bridges

- State
- County
- Other
- Interstate
- State Highways
- County Roads (paved)
- County & Township Roads (gravel)
- Rail Lines
- Rivers & Streams
- Cities
- Study Area (Davison County)



Transportation Safety

The safety of the transportation network is a primary concern for Federal, State, and Local transportation departments. Maintaining safe routes for all modes of travel improves overall system mobility.

In Davison County, locations where safety is a concern can be determined by identifying roadway segments and intersections with numerous crashes during a certain timeframe. Between 2009 and 2013, there were 1,444 crashes on roadways within Davison County—including five (5) fatal injury crashes.

One outcome of the Davison County Master Transportation Plan is to identify intersections and corridors on the County Road System where crashes occur frequently and determine appropriate countermeasures to improve the overall safety of roadway users in Davison County.

← Crashes on the State and County roadway network are shown based on accident severity. Crashes occur on the outskirts of the City of Mitchell and at intersections of county roads. (Note: Animal hits, 602 total, are not included on the map, but occur at locations throughout the County)

Intersections with the most frequent crashes on the State and County roadway network. The locations are primarily the intersection of a County Road and a State Route. Only those intersections in BOLD will be evaluated for counter measures. →

Legend

Accident Severity*

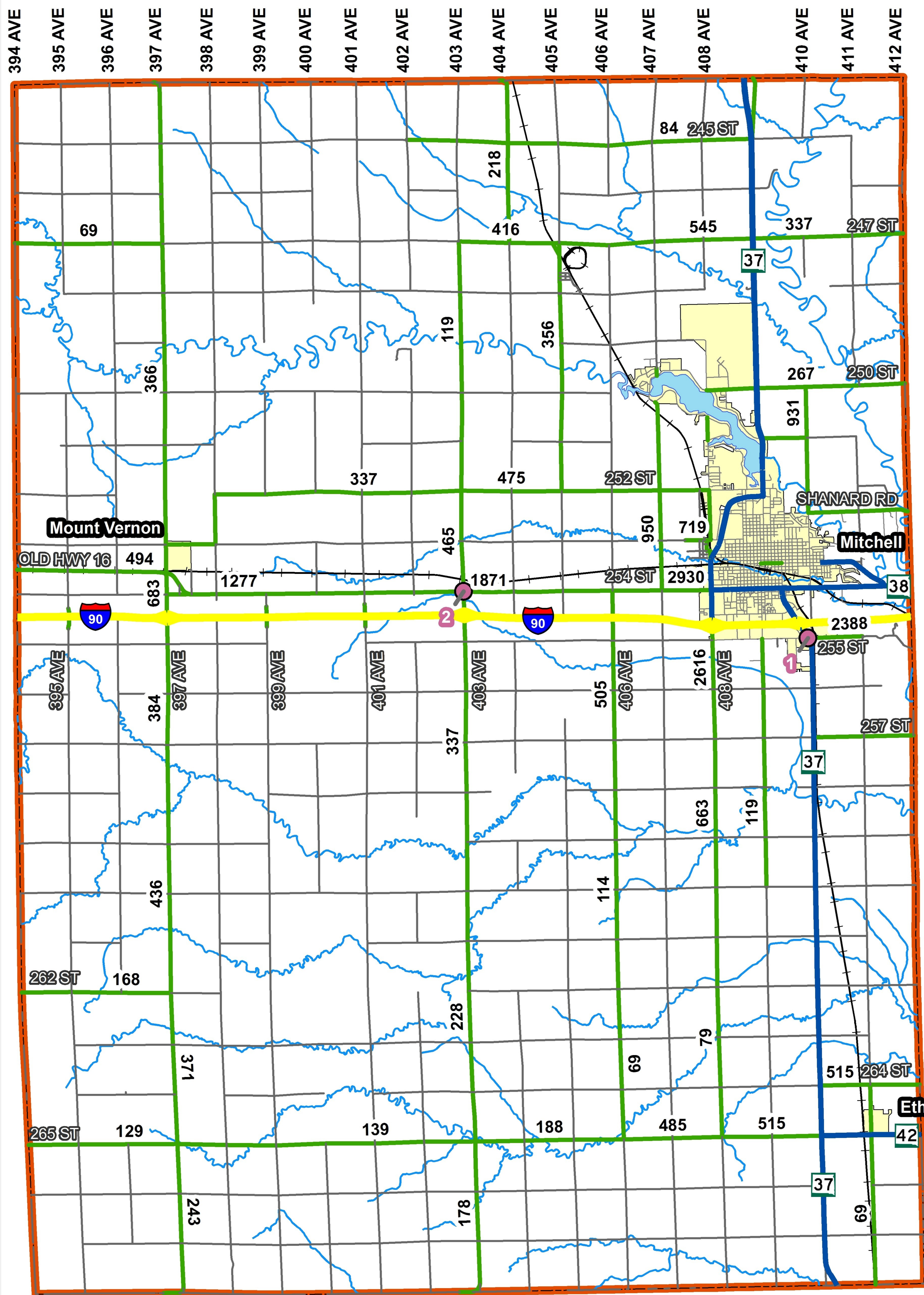
- Fatal Injury (5)
- Incapacitating (41)
- Non-incapacitating (86)
- Possible (121)
- No Injury (589)
- Top Intersections

* Excludes Animal Hits (602)

- Interstate
- State Highways
- County Roads (paved)
- County & Township Roads (gravel)
- Rail Lines
- Cities
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Intersections with Most Crashes (County/County Intersections in BOLD)

No.	North-South Road	East-West Road	Crashes
1	N Minnesota St	SD Hwy 37	18
2	S Burr St	SD Hwy 38	15
3	Main St	SD Hwy 37	11
4	SD Hwy 37	23rd Ave	11
5	SD Hwy 37	I-90 East Entrance Ramp	6
6	SD Hwy 37	W 8th Ave	6
7	SD Hwy 37	SD Hwy 42	4
8	SD Hwy 37	Spruce St	4
9	SD Hwy 37	251th St	4
10	403rd Ave	265th St	3
11	SD Hwy 37	260th St	3
12	SD Hwy 37	Highland Way	3
13	SD Hwy 37	254th St	3
14	403rd AVE	254th St	3



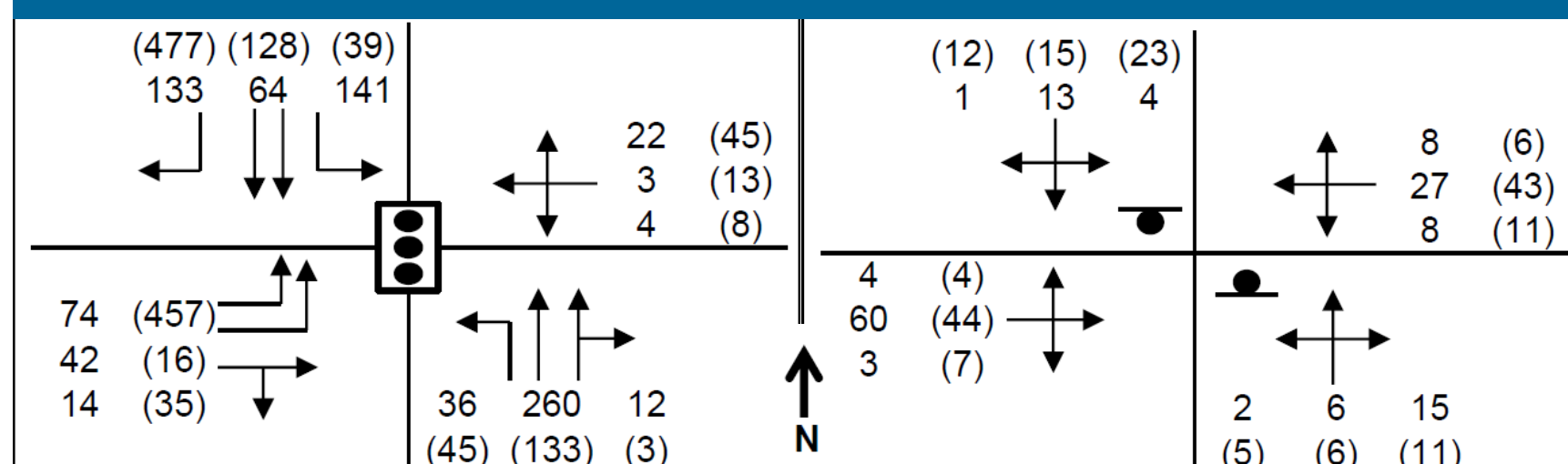
Existing Traffic Patterns

The Davison County Master Transportation Plan will evaluate the existing pattern of traffic on County Roadways to determine where traffic demand is greatest. The Plan will also forecast traffic demand out to 2035 to identify roadways that may need improvements to accommodate future traffic volumes.

Traffic demand will be measured using a volume/capacity ratio on roadway segments and a Level of Service (LOS) Analysis at intersections.

- Volume/capacity ratios measure congestion based on typical roadway capacity
- Level of Service (LOS) Analysis measures intersection operations based on delay and assigns a letter grade (A-F)
- LOS A - D are considered acceptable

Turning Movement Counts—AM(PM)—for Study Intersections



(1) SD 37 & Spruce Street (2) 403rd Ave & 254th St

← This map (left) shows the existing traffic congestion based on the most recent traffic count data (2009-2014) and estimated roadway capacity.

Legend

- Study Intersections
 - Interstate
 - State Highways
 - County & Township Roads (gravel)
 - Rail Lines
 - Rivers & Streams
 - Cities
 - Study Area (Davison County)
- Most Recent Count/Estimated Capacity**
- 0.0 - 0.6
 - 0.61 - 0.8
 - 0.81 - 1.0
 - Greater than 1.0
 - #### Most Recent ADT



↑ Heavy traffic from Spruce Street east of SD 37 arrives at the Spruce Street/SD 37 intersection. This intersection is one of two being studied as part of the Davison County master Transportation Plan. Additionally, other issues along Spruce Street will be evaluated to determine their impact on traffic congestion along the corridor.

Legend

- Interstate
- State Highways
- County Roads (paved)
- County & Township Roads (gravel)
- Cities
- Study Area (Davison County)

Regional Connectivity

The Davison County Master Transportation Plan will examine regional connectivity to determine roadway improvements that may be implemented to improve consistency between roadways beyond the Davison County line. This regional approach to connectivity enables the Study Team to evaluate roadway improvements that may impact residents in the six-county region that travel regularly to and from Davison County.

Davison County maintains several paved roadways to the county line that do not remain paved beyond Davison County.

The Davison County Master Transportation Plan will determine the feasibility of maintaining the surface material of these connections based on future traffic volumes, adjacent county roadway improvements, and funding availability.



As 264th Street crosses 412th Avenue into Hanson County (looking east), the roadway surface changes from paved to gravel.

Transportation Funding

Davison County is experiencing roadway funding constraints, similar to other counties, as federal and state funding sources continue to diminish. This creates challenges in the County to not only maintain roadways to levels that residents and motorists are accustomed to, but also maintain and improve roadway capacity, safety, mobility, and multimodal accessibility where needed.

The existing and future needs of the Davison County transportation network will be compared to existing and projected funding to compare gaps in the transportation program, reexamine funding structures, and prioritize projects through a Major Roads Plan.



Gravel



Blotter



Hot-Mixed Asphalt (HMA)

Cost Effectiveness of Gravel, Blotter, and HMA Based on Average Daily Traffic (ADT)**

Gravel Cost Effective to:

150 ADT

Blotter Cost Effective Between:

150 - 650 ADT

HMA Cost Effective Beyond:

650 ADT

** SDDOT, "Local Road Surfacing Criteria," Study SD2002-10, June 2004

The Davison County Master Transportation Plan will evaluate roadways to determine locations where each surface material type will be most cost effective to maintain based on future average daily traffic (ADT) and existing roadway connectivity. As funding is available and priorities are determined, roadways may need to have surface modifications over the course of the 20-year planning timeframe to ensure Davison County residents have access to a safe, accessible, and connected transportation network based on a financially sustainable roadway improvement plan.

Transportation financing is currently the top legislative issue in South Dakota. During Summer 2014, a 15-person bi-partisan committee was formed and conducted hearings on transportation needs and financing. This Study will continue to monitor the legislative outcome to incorporate in the Davison County Master Transportation Plan.

Cost of Roadway Construction*

Material	Width (Feet)	Cost Per Mile #
Gravel	20	\$12,540
	24	\$15,059
	26	\$40,700
Blotter	24	\$69,997
	26	\$75,807
Hot-Mixed Asphalt (HMA)	24 (2" depth)	\$121,500
	26 (2" depth)	\$131,625
	26 (3" depth)	\$197,250
County Bridge		\$230,000

* This table was developed using data and estimated costs presented in "The County Road System Looking Towards the Future" by the South Dakota Local Transportation Assistance Program to the SDACC, (June 17, 2014).

Gravel: \$11.00 per ton, Blotter: \$4.97 per sq. yard of surface, HMA: \$75.00 per ton in place, County Bridge: Average cost to replace