

Bridges of Davison County

Davison County currently maintains 88 of the 124 bridges under inspection throughout the County. Each bridge is rated on a scale of zero to 100 percent, with 100 percent representing an “entirely sufficient bridge.” Based on the level of bridge sufficiency, Davison County bridges are currently in good condition. The 2014 county-wide bridge sufficiency average is **78.5** percent.

The Davison County Master Transportation Plan uses a rating system to prioritize bridge repairs and replacement within the county based on the following bridge characteristics:

- Sufficiency Rating
- Estimated Average Daily Traffic
- Bypass, Detour Length, Out-of-Distance Travel
- Bridge Posting
- Bridge Width
- Bridge Length
- Located on Priority Route (Major Collectors or Minor Collectors)
- Key Industry/Traffic Generator Route

← The map (left) shows the age of bridges within Davison County with bridge deficiency type. There are **6** functionally obsolete and **13** structurally deficient bridges maintained by Davison County.

Three levels of bridge needs are identified in the Davison County Master Transportation Plan. The table below provides the need level, number of bridges, and total cost per level. ↓

Planning Level Assessment	Number of Bridges	Reconstruction Cost (2015 \$)
Replacement	7	1,850,000
Rehabilitation	8	2,310,000
Watch List	7	2,900,000

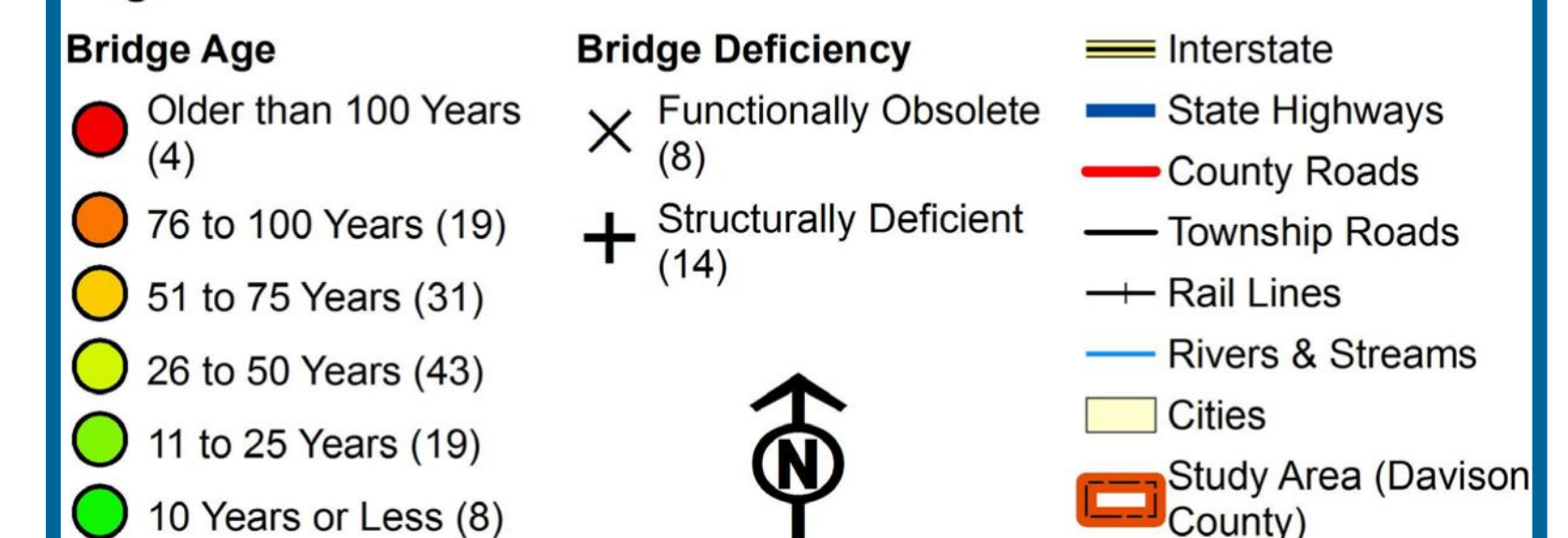
Functionally Obsolete

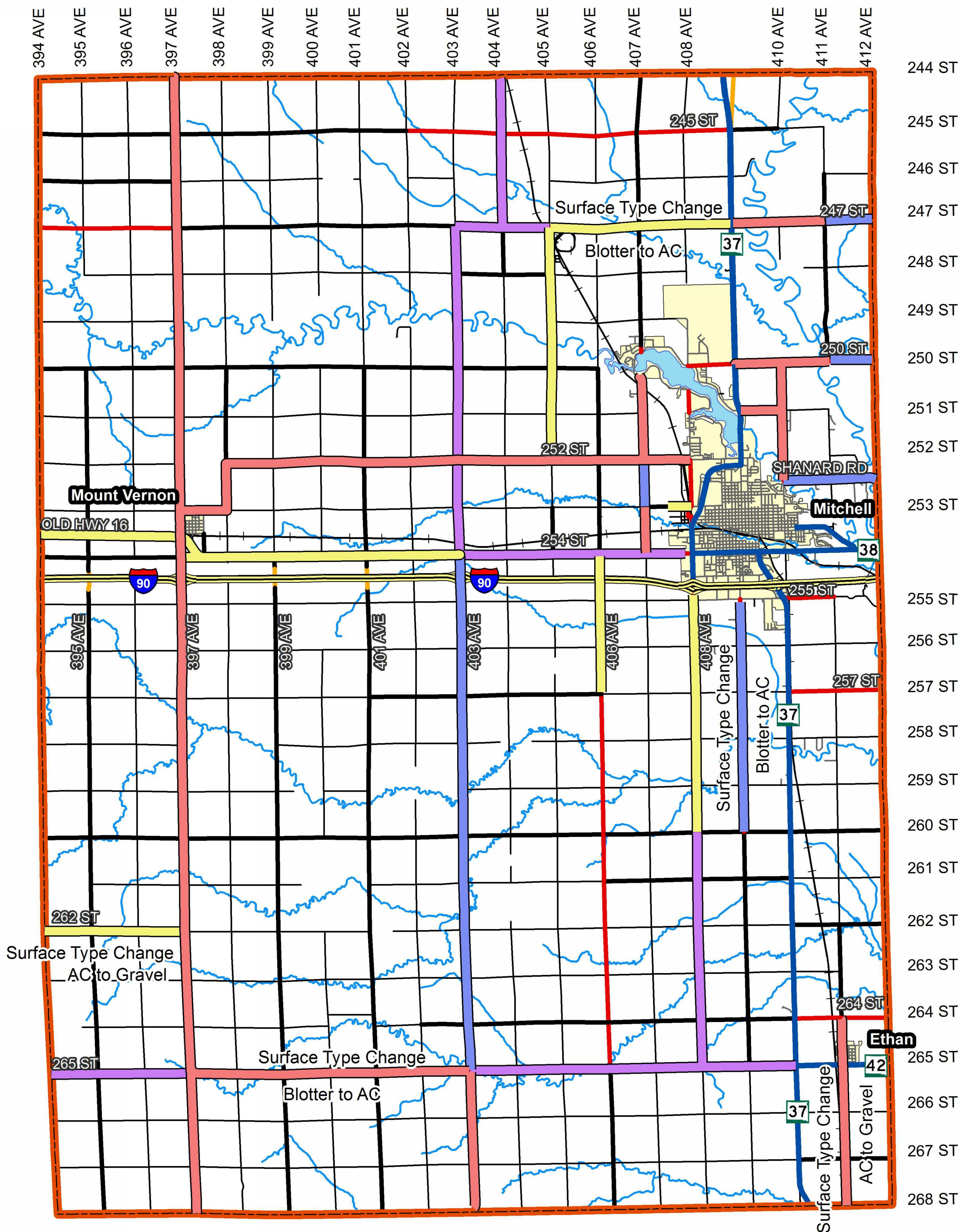
Bridges are considered functionally obsolete when the deck geometry, load carrying capacity (comparison of the original design load to the current State legal load), clearance, or approach roadway alignment no longer meet the usual criteria for the system of which it is an integral part. In general, functionally obsolete means that the bridge was built to standards that are not used today.

Structurally Deficient

Bridges are considered structurally deficient if significant load carrying elements are found to be in poor condition due to deterioration and/or damage, or the adequacy of the waterway opening provided by the bridge is determined to be extremely insufficient to the point of causing overtopping with intolerable traffic interruptions.

Legend





Preservation & Maintenance

The Preservation and Maintenance Plan looks at long-range aspects of incorporating new construction, reconstruction, preservation, and maintenance to extend the useful life of County infrastructure investments. The plan maps out the preservation and maintenance activities for each roadway investment, along with their respective frequency and estimated costs, through the anticipated design life of the asset.

The plan defines two scenarios for the estimation of roadway preservation and maintenance needs in Davison County over the next 20 years:

- Maintaining the system as it currently exists
- Maintaining existing system with potential changes
 - 1) Incorporate roadway segments identified for evaluation of surface modification
 - 2) Incorporate changes along proposed jurisdictional transfer segments

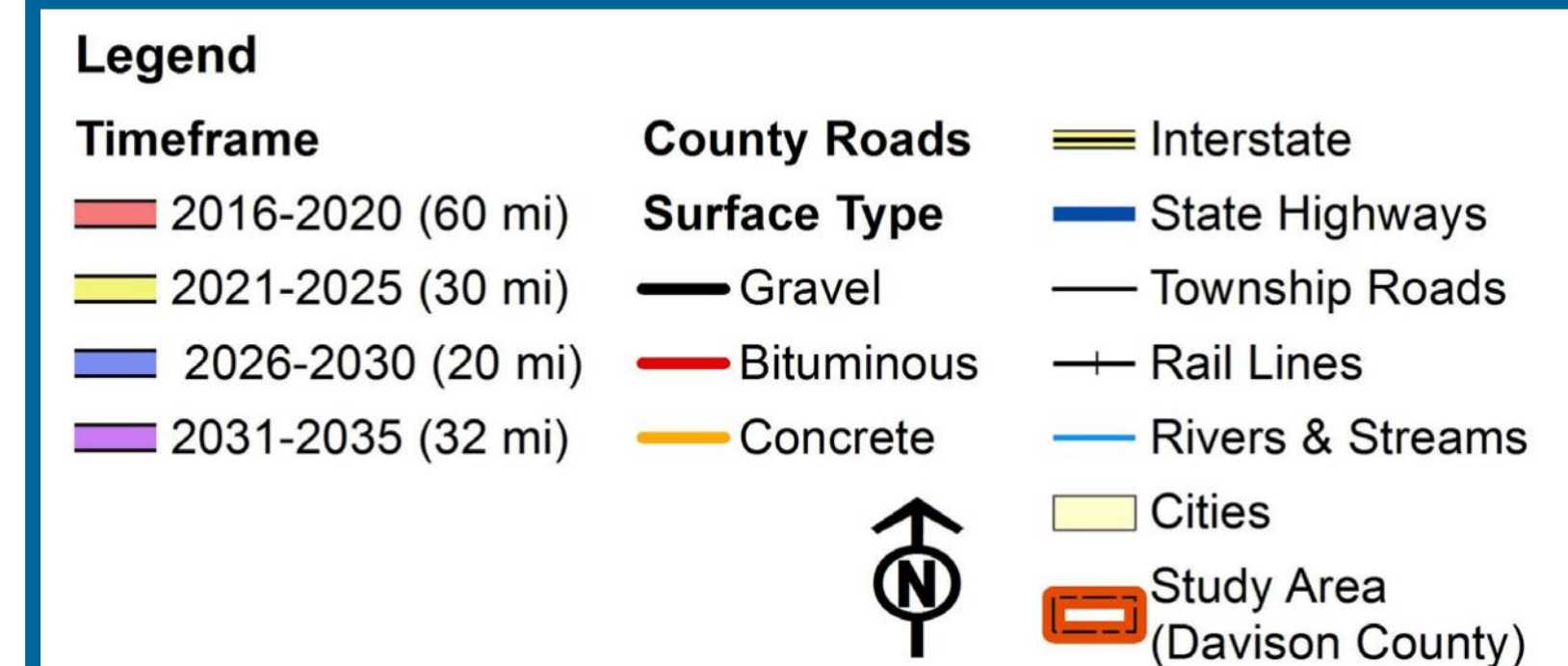
The following lists planning-level design lives for various roadway elements assuming appropriate preservation and maintenance activities:

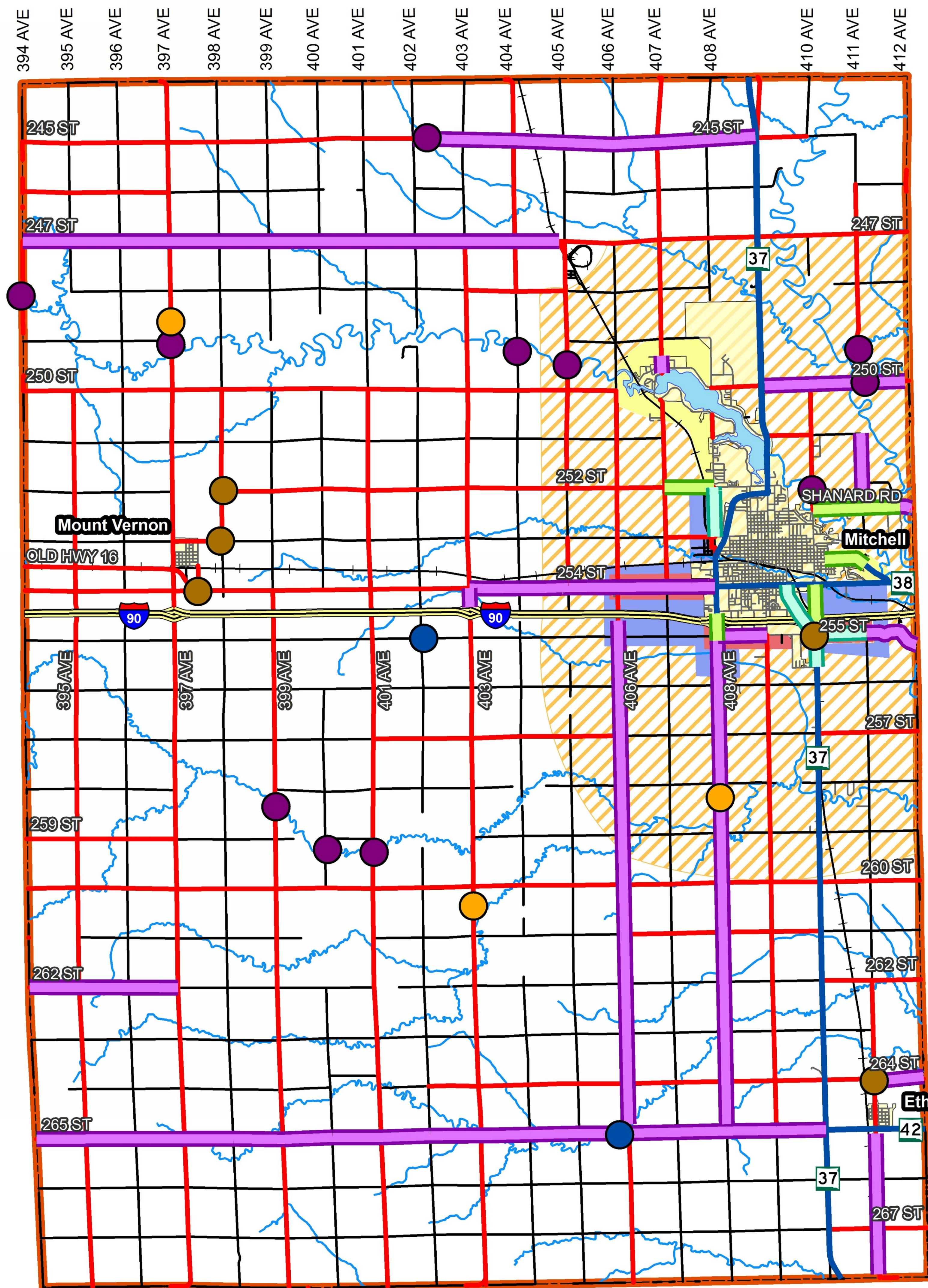
- Bridges and concrete culverts — 75 years
- Asphalt pavement — 20 years
- Concrete pavement — 40 to 50 years
- Gravel surfacing — 4 to 6 years
- Signs — 5 to 8 years
- Pavement markings — 1 to 7 years

Estimated Costs of
Preservation & Maintenance Scenarios
in Davison County

	Existing System (Costs, 2015 \$)	Modified System with Proposed Changes (Costs, 2015 \$)
Total 20-Yr Costs	\$110,970,900	\$110,247,300
Total Annualized Cost	\$5,548,545	\$5,512,365

← This map provides the estimated timeframe for the next major investment along county roadway corridors. Surface type changes (noted on map) will be analyzed during the identified timeframe.





Transportation Needs

Throughout the planning process for the Davison County Master Transportation Plan existing and future transportation needs were identified. Nine need types were identified for further evaluation. The nine need types include:

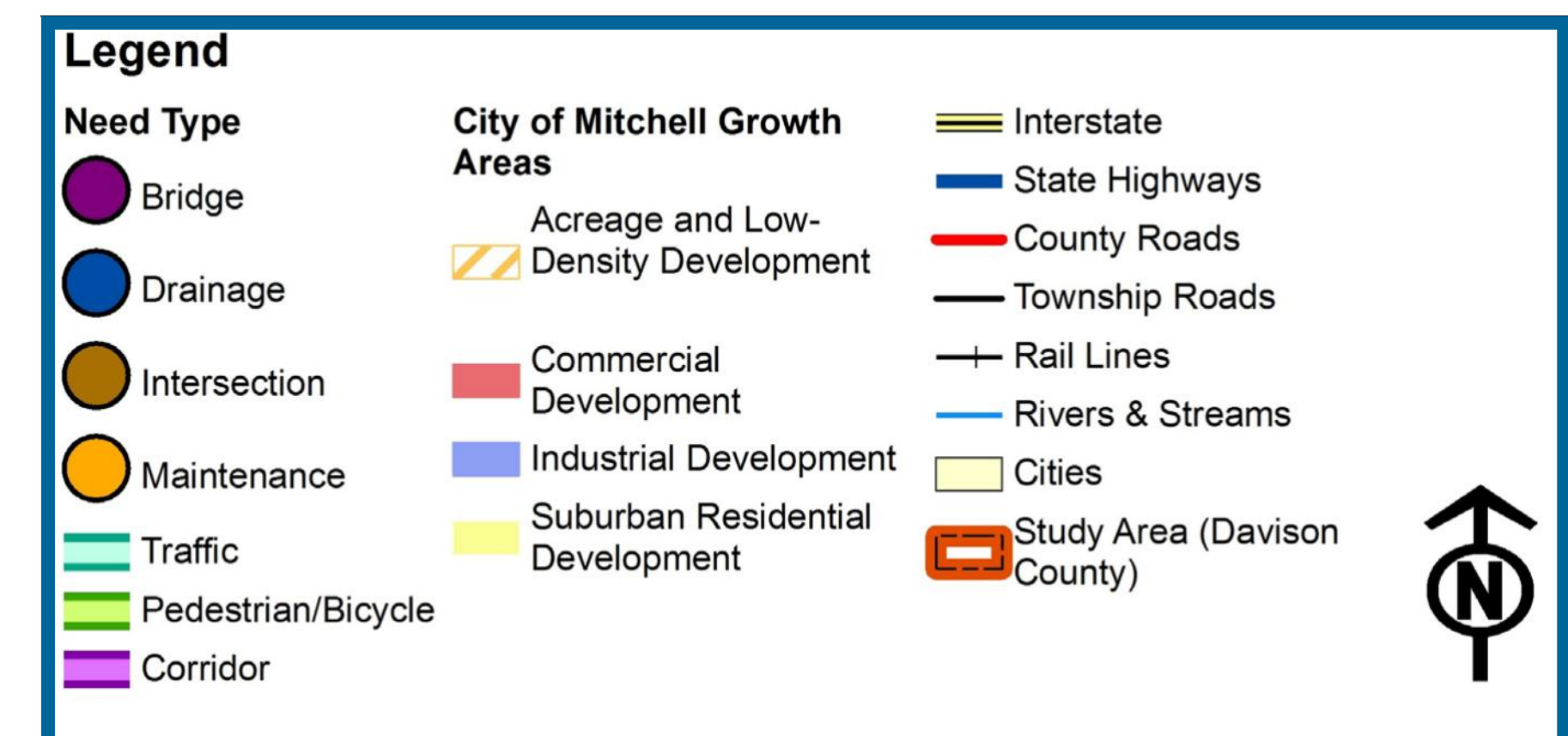
- Bridge
- Intersection
- Drainage
- Traffic
- Unofficial Bypass Routes
- Corridor
- Pedestrian/Bicycle
- Maintenance
- Urbanized Growth-related

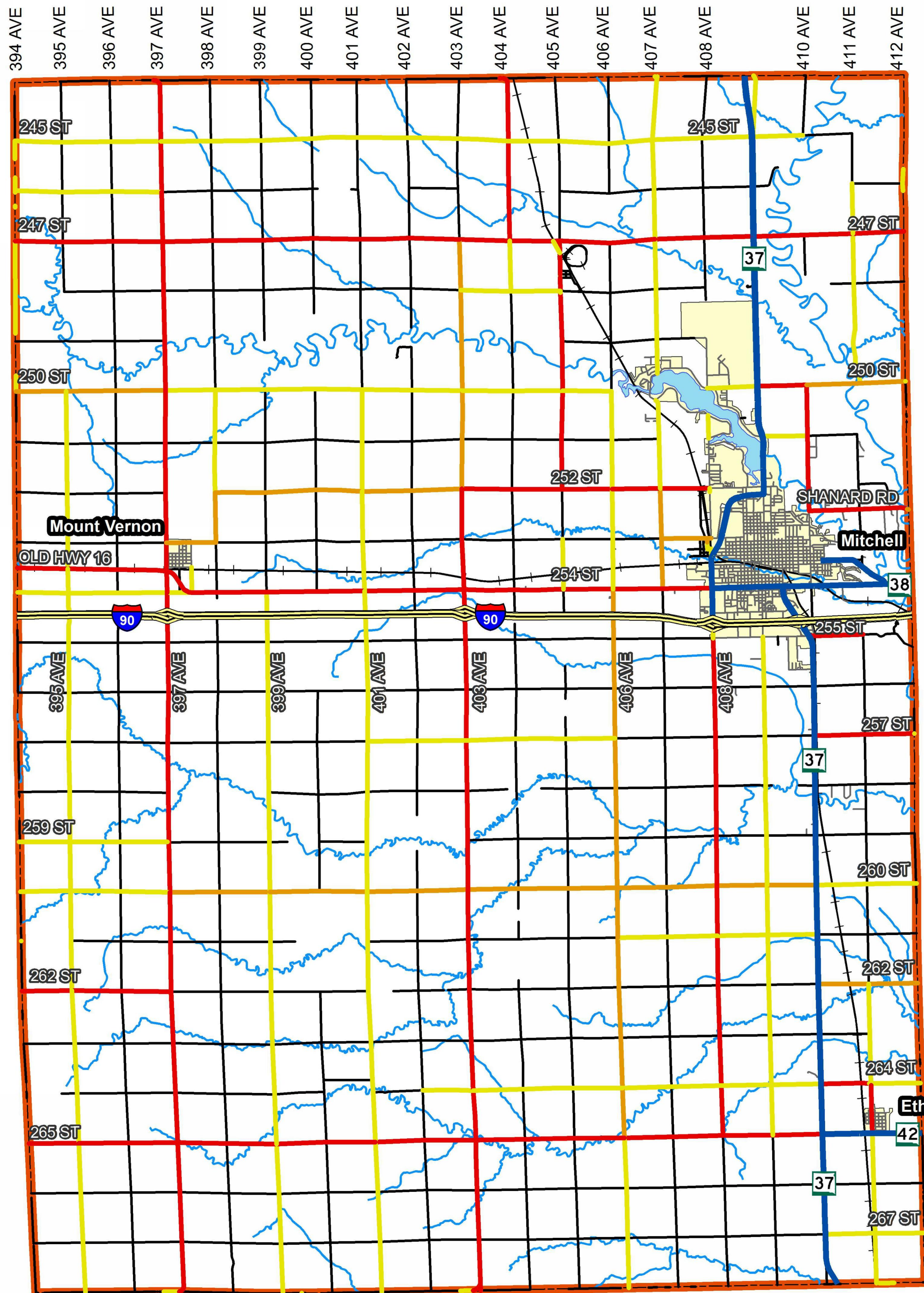
Overall, the Davison County transportation system provides roadway users a well-connected network of roads that are in good condition. Like any transportation network, there are issues that need to be addressed to maintain user mobility, safety, and an acceptable level of service.

Corridor issues impact numerous areas within the County and affect the mobility and safety of many roadway users. Recommendations are outlined in the plan to address both general and location specific issues noted. Standards and policies are identified that are transferable and adaptable as existing issues are addressed and future issues are identified.

As **Urbanized Growth** continues, the transportation network will continue to transition from rural to urban design standards. The Master Transportation Plan identifies areas around the City of Mitchell that may experience the transition during the planning horizon. Recommendations for design and policy of these roadways are included to insure consistency as the City of Mitchell expands.

← The location of transportation issues and needs within Davison County are shown on the map (left). The Davison County Master Transportation Plan identifies projects or county wide transportation standards and policies to address identified needs.





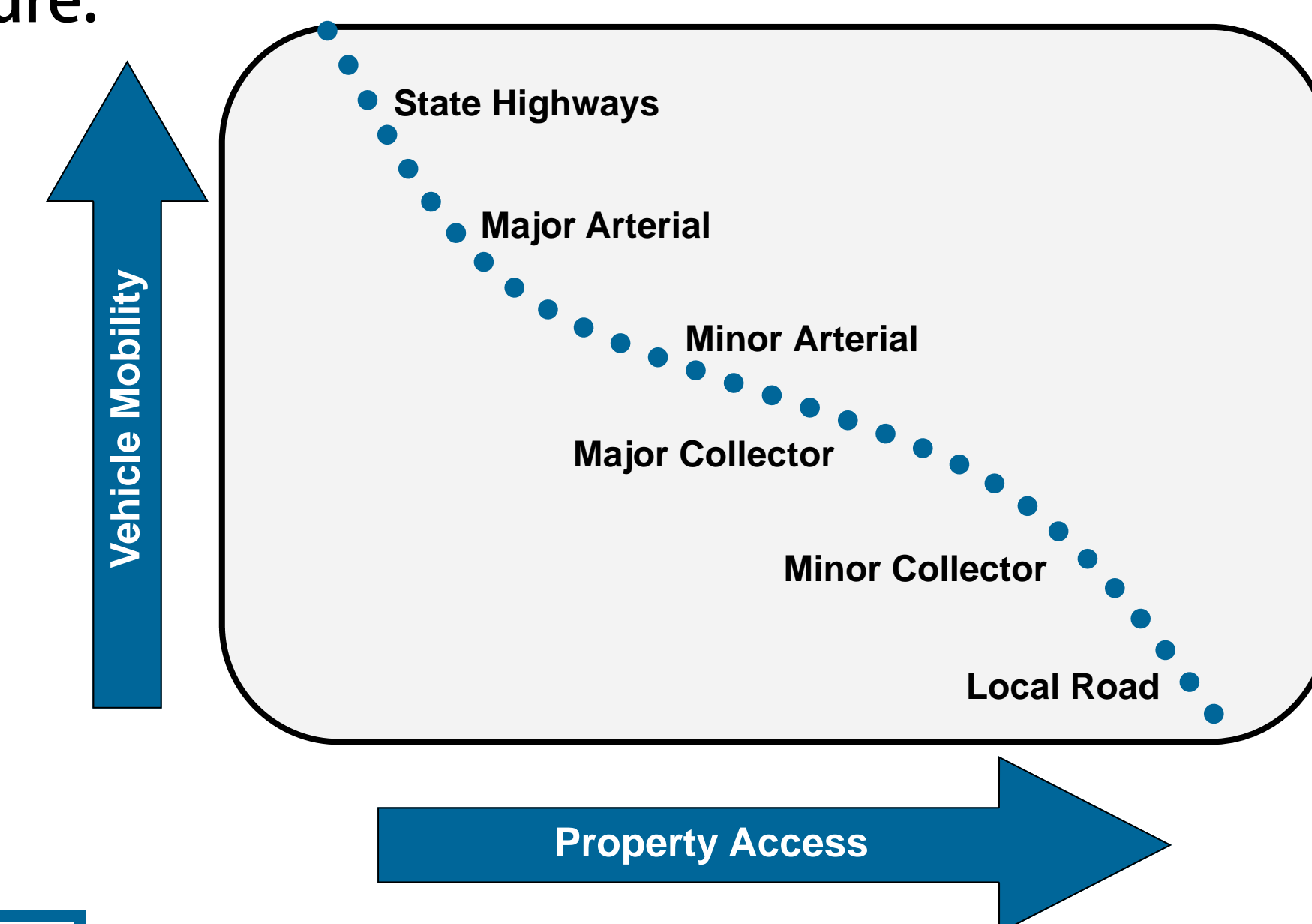
Major Roads Plan

The Davison County Master Transportation Plan proposes a Major Roads Plan developed in partnership with Davison County and SDDOT staff. The Major Roads Plan uses common terminology and classification characteristics to maintain consistent linkages between roadway type, establish design guidance and standards, and identify future funding opportunities.

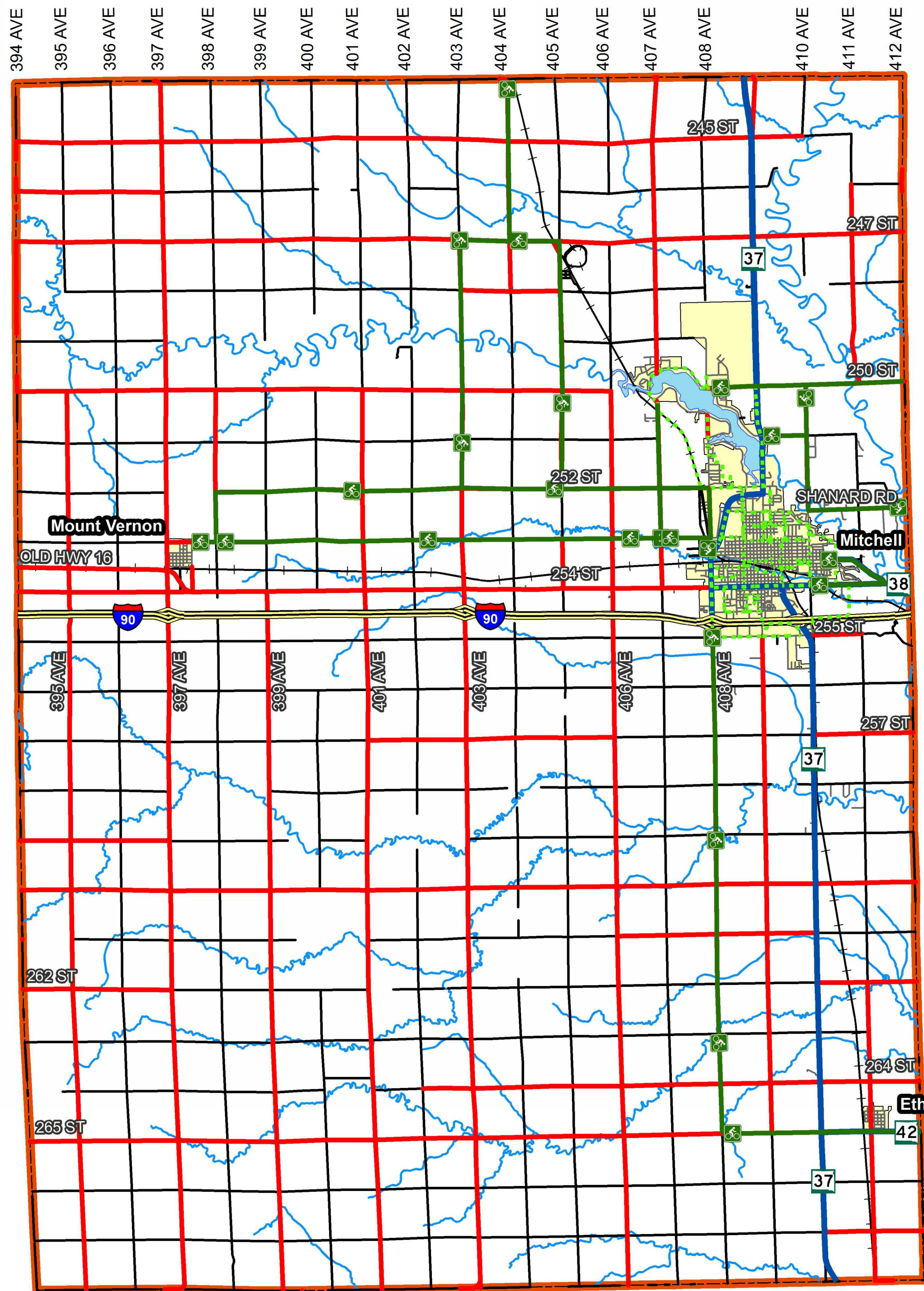
Priority routes within Davison County are primarily roadways identified as **Major Collectors** in the County Roadway Classification. These roadways support county-wide and regional trips and typically carry the greatest traffic volumes of County jurisdiction roadways. The priority routes also provide continuity along regional roadways for trips destined for counties surrounding Davison County.

As the primary traffic carriers within the County roadway system, the identified routes will have priority for improvements and maintenance as the County outlines projects and implementation for the future.

← The Major Roads Plan (left) categorizes roadways based on a County Roadway Classification System to establish design standards, provide consistent linkages, and prioritize transportation system needs.



↑ The mobility to access relationship shown in the figure (above) demonstrates that as vehicle mobility increases property access decreases and as mobility decreases property access increases.

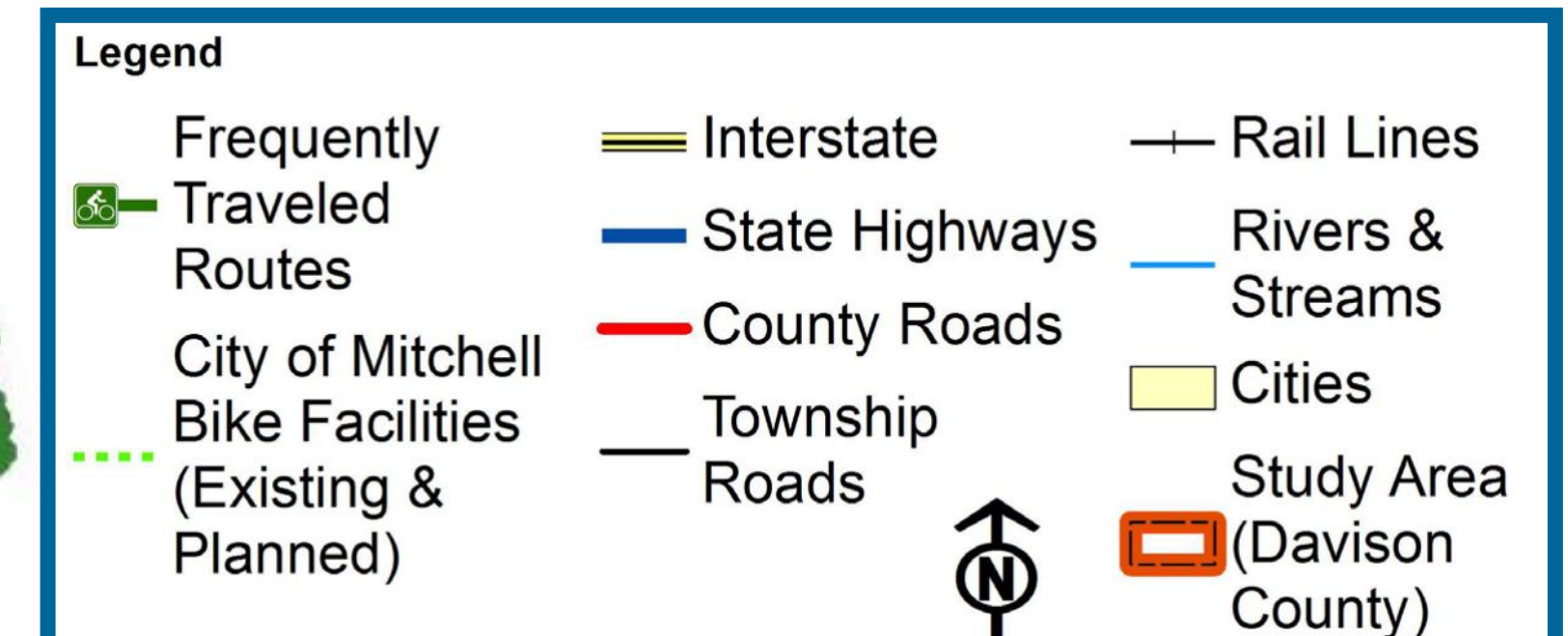
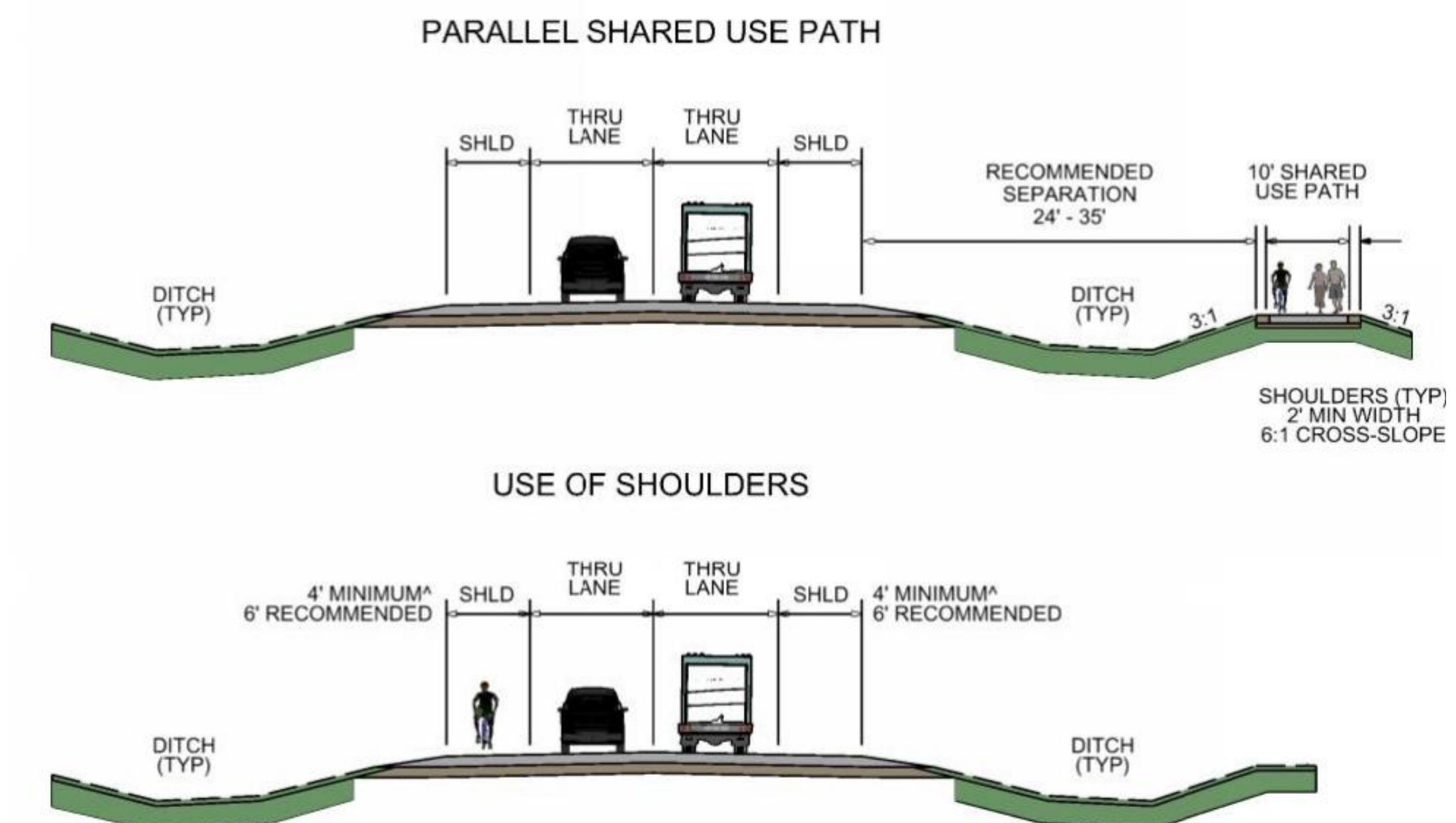


Pedestrian & Bicycle Routes

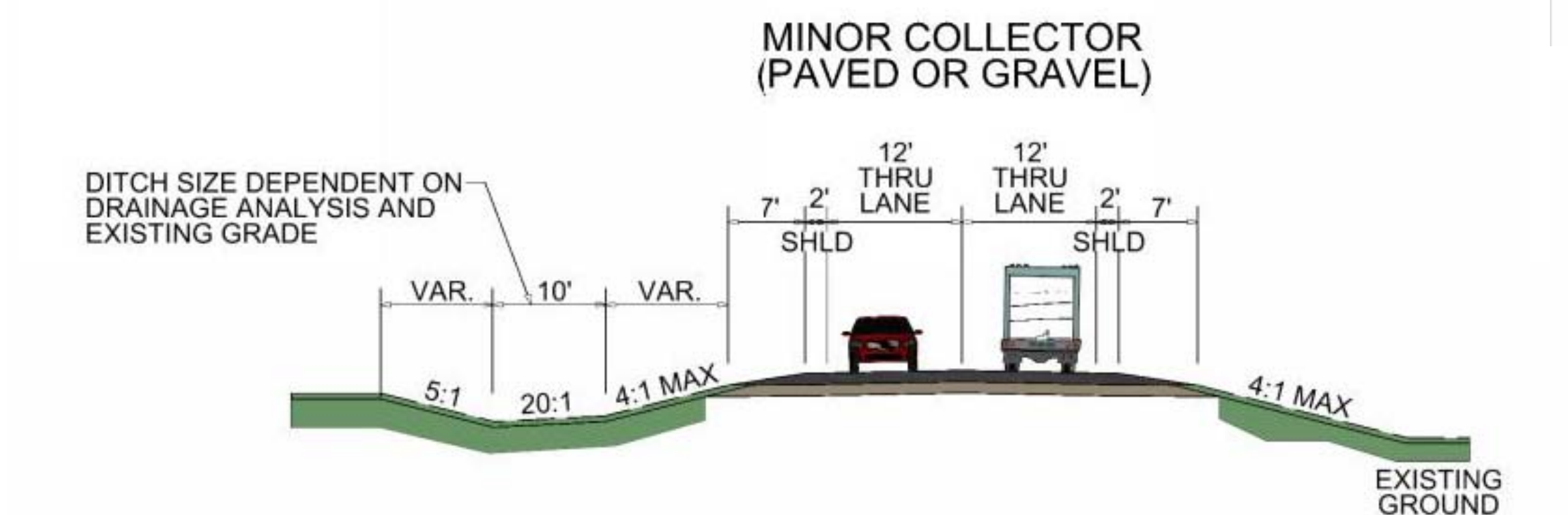
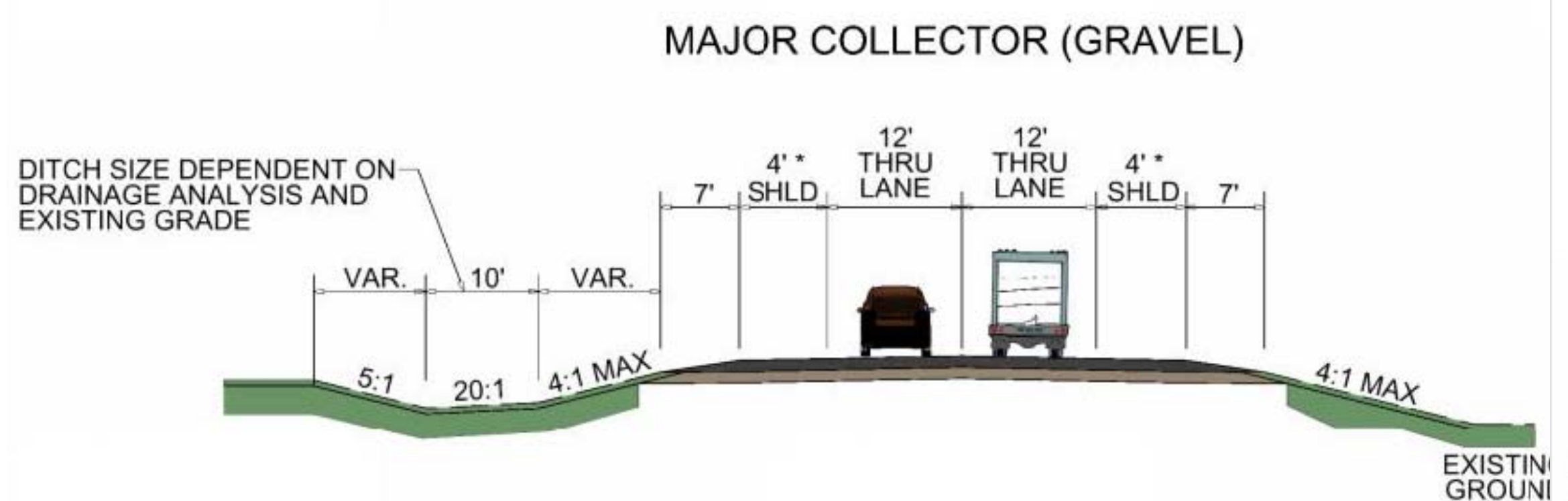
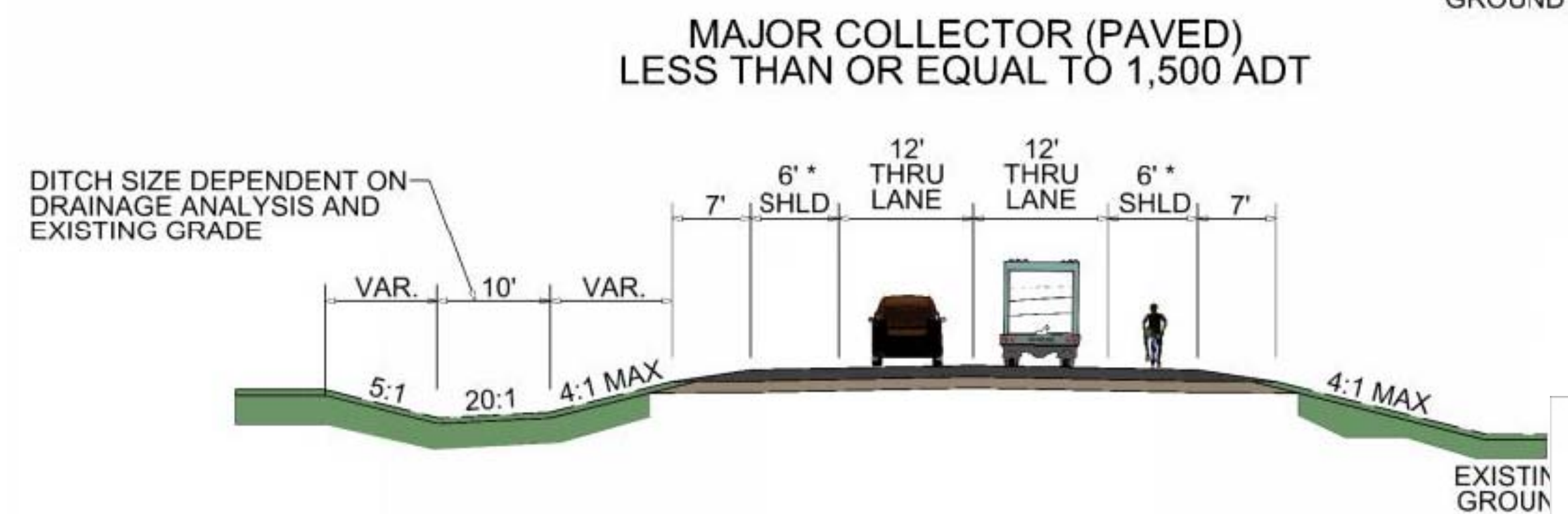
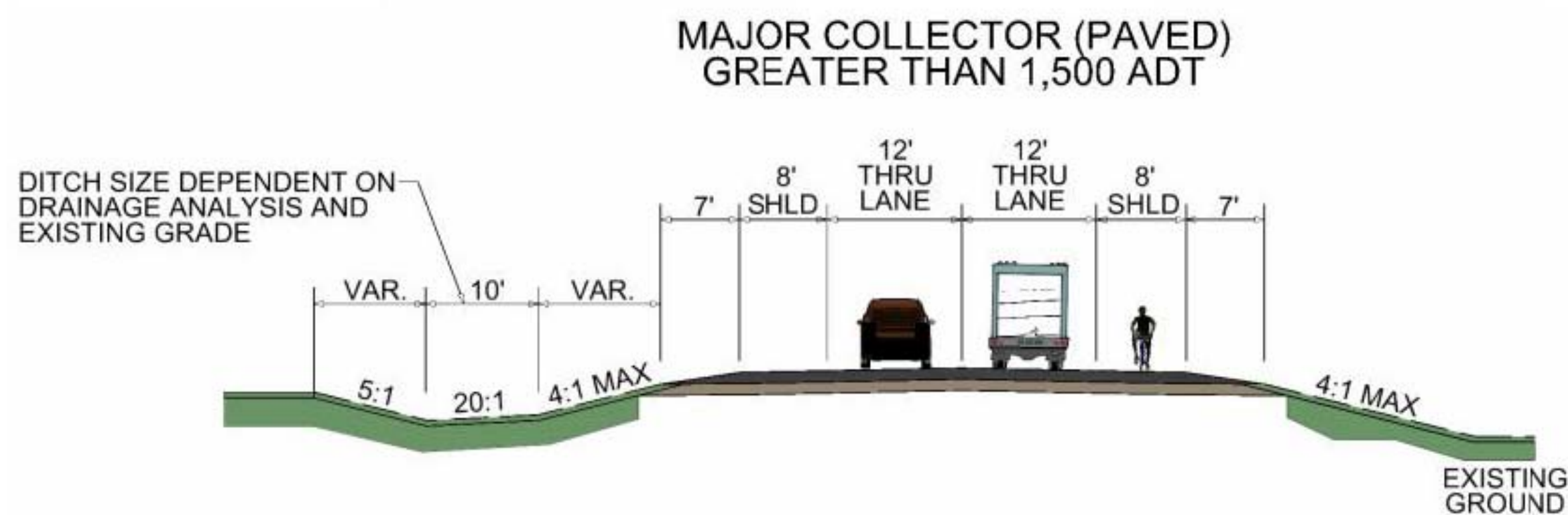
The Davison County Master Transportation Plan reviews existing and planned bicycle connections around the City of Mitchell and continuity with County roadways. Commonly traveled bicycle routes were identified through public participation. The recommended improvements in the plan seek to balance the needs of both recreational and non-recreational facility users .

The plan also outlines design standards and guidance for implementing two types of pedestrian and bicycle facilities throughout the County: **Shared Use Paths** and **Shoulder Bikeways**. Pedestrian and bicycle improvements along frequently traveled routes should be considered in conjunction with roadway improvements along identified segments.

← Frequently traveled bicycle routes connect the City of Mitchell to surrounding towns within Davison County and adjacent counties. The Davison County Master Transportation Plan prioritizes pedestrian and bicycle improvements along these routes.



Typical Roadway Sections



The Davison County Master Transportation Plan provides typical cross-sections for the four categories of roadways identified in the Major Road Plan. Typical cross-sections provide guidance for the development of new or reconstructed roadways to meet the needs of the community.

Typical cross-sections are shown for [Major Collector](#), [Minor Collector](#), [Local County or Township](#), and [Urban](#) roadways.

The Davison County Master Transportation Plan also provides typical cross-sections for shared use paths parallel to roadways and as stand alone routes. Cross-sections with shoulder space for non-motorized modes of transportation are also shown.

