

**WILLMAR**

**Highway 12 Corridor  
Vision Plan  
November 2014**

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# Willmar Highway 12 Corridor Vision Plan

Between County Road 5 (30<sup>th</sup> Street SW) and 45<sup>th</sup> Street SE

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## Final Study Report

Prepared for MnDOT, City of Willmar, and Kandiyohi County

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### 1.0 INTRODUCTION

Decisions about transportation and land use are inseparably linked. Poorly coordinated land use and transportation planning can lead to inefficient development patterns that can limit economic development opportunities and adversely affect highway mobility and safety. Well-coordinated planning, as demonstrated by the Highway 12 Corridor Vision Plan, helps multiple jurisdictions work together to identify transportation investments that support vibrant, healthy communities, and to make land use decisions that maximize transportation system performance.

In January 2014, the Minnesota Department of Transportation (MnDOT), City of Willmar, and Kandiyohi County, initiated a transportation and land use planning process focused on identifying the long-term “vision” for an approximate 5-mile stretch of Trunk Highway 12 through the City of Willmar.

The purpose of the Highway 12 Corridor Vision Plan is to provide a framework to make informed decisions, manage growth in an orderly fashion and guide development/ redevelopment of the physical environment. The plan is intended to provide the City of Willmar with a corridor vision plan map for Highway 12 that recommends the type of highway section needed in the future and where candidate access modifications should be considered as opportunities occur over time. In addition, this plan offers a vision for the study area’s future development patterns and streetscape opportunities to enhance corridor aesthetics and create a gateway identity.

Through the study process, the project partners (MnDOT, City of Willmar, and Kandiyohi County) identified a Corridor Vision Statement that was developed with the consideration of key findings related to the existing conditions along the corridor and by integrating public input generated as part of the public outreach from the corridor study. The Highway 12 Corridor Vision Statement is as follows:

***“Highway 12 through the City of Willmar will facilitate the efficient movement of citizens, visitors, and commerce within and through the city on a safe, well maintained, convenient, coordinated, and fiscally responsible route using a balanced approach of land use and transportation policies and investments.”***

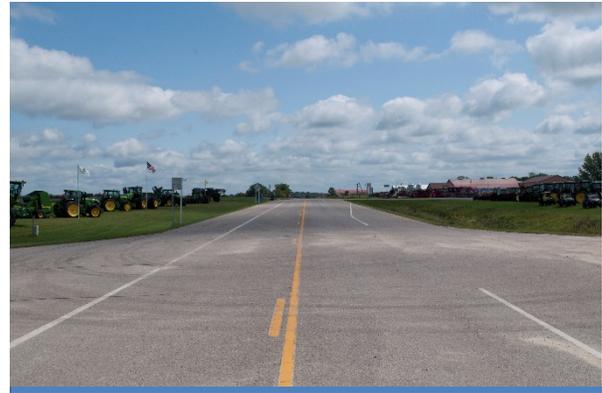




The Highway 12 Corridor Vision Plan is designed to complement the City of Willmar's Comprehensive Plan and support land use policies, standards, and regulations. This is a working document and can assist the study partners in prioritizing and coordinating the implementation of future land use and transportation improvement projects. The plan considers influences within the study area as well as surrounding factors. The full implementation of this vision is targeted over the next five, ten and even twenty years and will serve as a blueprint guide to help the City of Willmar continue to provide services in a planned and organized fashion and help to make the community's visions a reality.



*Highway 12 looking west toward Lakeland Drive intersection*



*Highway 12 east of TH 23/71 interchange*



*Downtown Willmar looking east along Highway 12*



*Highway 12 looking east at County Road 5 intersection*



## 2.0 STUDY PROCESS OVERVIEW

The Highway 12 Corridor Vision Plan planning process was kicked off in January 2014 and was conducted in four primary phases: Data Collection, Stakeholder Involvement, Conceptual Analysis, and Recommendation phases. The process was led by a Technical Advisory Team (TAT) consisting of staff from MnDOT, City of Willmar, Kandiyohi County, and their consultant. In addition, a Project Advisory Committee (PAC) was formed, which was made up of community leaders, area stakeholders, and local business owners. These advisory groups helped define the study area's existing conditions and future transportation and land use needs.

### Data Collection Phase

During the Data Collection Phase, the Highway 12 Existing Conditions and Corridor Issues Technical Memorandum and Highway 12 Corridor Study Goals & Objectives Technical Memorandum were prepared. This phase established a further understanding of the corridor study area. The TAT compiled data through existing ordinances, plans, maps, studies, and GIS datasets. Site visits along the corridor were also conducted to compile and confirm essential baseline information.

## Planning Phases

### Data Collection

- Gather Existing Conditions
- Review Past Plans/Studies
- Set Study Goals & Objectives
- Identify Stakeholders

### Stakeholder Involvement

- Focus Group Meetings
- Issues Identification
- Council/Board Updates
- PAC meetings

### Conceptual Analysis

- Capacity, Mobility, Safety
- Development Opportunities
- Property Access
- Connectivity
- Aesthetics

### Recommendations

- Vision Concept Layout/Map
- Overlay Zoning Ordinance
- Implementation Tools
- Plan Review & Adoption

Key Tasks Completed



*Picture taken during a focus group meeting for the Highway 12 Study.*

### Stakeholder Involvement Phase

The planning process engaged the study area property owners and business owners to build consent on the long-term vision plan. A series of focus group meetings were held in March 2014 to identify issues and seek public information for targeted areas along the corridor (East Business Group, Residential Group, Downtown District Group, West Business Group, and Emergency Service Providers). Participants in the focus group meetings were asked to share their issues, concerns, and desires for transportation and land use improvements within the corridor study area.





As mentioned above, a PAC was also formed that included stakeholders that represented community interests throughout the corridor study area. The PAC meetings were held to present ideas and gather feedback.

### **Conceptual Analysis Phase**

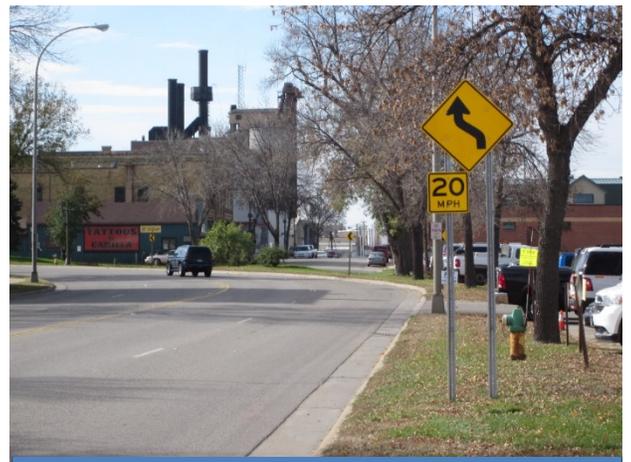
During the Conceptual Analysis Phase, the TAT gave thorough consideration to observations, existing conditions and data gathered from the previous phases. Issues were categorized and presented on an “Issues Map”. Potential recommendations were explored that included a corridor vision conceptual layout. The conceptual layout illustrated the recommended highway section, typical section(s), candidate access modification locations, and planned improvements near the Highway 12/Highway 71 interchange. The TAT team received feedback regarding critical issues and further refined the conceptual layout based on comments.

### **Recommendations Phase**

The information developed and refined during the Conceptual Analysis Phase was then blended into strategies. A clear vision with recommendations was developed and implementation tools were outlined. This final Highway 12 Corridor Vision Plan will be presented to the Willmar City Council and Kandiyohi County Board.



*Highway 12 supports Agri-Business and the movement of goods/products to market.*



*Looking west along Highway 12 near the 3<sup>rd</sup> Street intersection in the downtown district.*





### 3.0 STUDY BACKGROUND

Highway 12 is a critical east-west transportation corridor in west-central Minnesota that serves as a vital link between trade centers and employment nodes for local residents, commuters, and businesses. Not only does it carry local and regional traffic through the City of Willmar, the corridor plays an important role in the ultimate perception and identity for the community. Willmar is considered a Level 2 Regional Trade Center with a 2010 population of 19,610<sup>1</sup>. The community has seen large increases in Latino/Hispanic and Somali populations. As these new residents arrive, they bring their entrepreneurial spirit, and many have become business owners in the community.

Highway 12 supports agricultural commerce through the movement of goods/products, serves as an indirect link to Ridgewater Community College, and connects commercial, retail, and industrial businesses throughout the community including the downtown business district, technology campus, east business area (near the Willmar Convention Center), and other business districts located within Willmar. As part of the study process, the City expressed an interest in having the highway serve a greater role as a community and downtown “gateway corridor” that would promote Willmar’s image along with providing a vision for future growth and redevelopment.

The Highway 12 Corridor Vision Plan is in part a response to recent transportation improvements proposed along Highway 12 near the Highway 23/71 interchange. Furthermore, the City recognizes the opportunity for new development and/or redevelopment along the corridor with expected growth in the community over the next 5, 10, and even 20 years. The corridor study was initiated to build upon existing planning efforts including Willmar’s Comprehensive Plan, Downtown Plan, Trail & Pedestrian Plan, and supporting ordinances, and land use policies and regulations. The study recognizes recent and planned activities through invested public and private improvements. New activities have included roadway resurfacing, bridge rehabilitation, new commercial buildings, and professional offices/retail establishments. Following the data collection and issues identification tasks, it was evident that a planning study could help organize efforts and create further excitement about the long term vision of the Highway 12 corridor.

Although new development activity is positive for Willmar, the Highway 12 corridor has many challenges. Under-utilized commercial businesses, vacant parcels, empty and/or aging structures, and unattractive areas limit the area surrounding the corridor from reaching its full economic potential. In addition, there is a blend of architectural styles and older residential and commercial developments, resulting in lack of continuity. The community has expressed the importance and desire to blend new development but maintain Willmar’s historic character.

<sup>1</sup> United State Census Bureau, 2010 American Fact Finder.





As growth occurs in the City of Willmar, it's important to recognize Highway 12 will be competing with the Highway 23/71 bypass around the eastern and southern parts of the community for new businesses. Figure 1 depicts the Willmar Future Land Use Plan and highlights several predicted future growth areas. Like most areas of the country, Willmar has seen the level of new development substantially decline over the last few years. However, most recently Willmar has begun to see some limited growth.

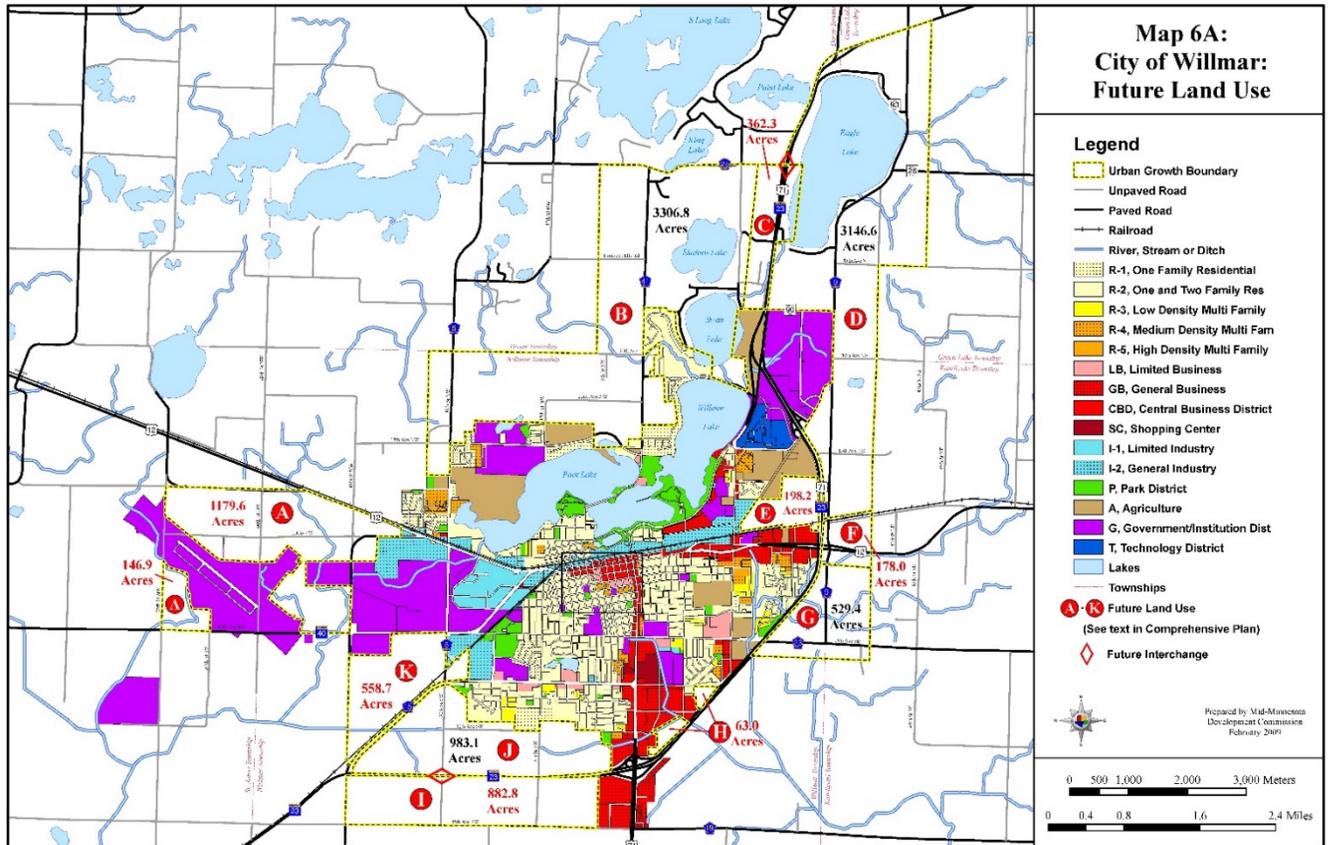


Figure 1 – Future Land Use Plan Map

#### 4.0 HIGHWAY 12 CORRIDOR STUDY AREA

The Highway 12 Corridor Vision Plan study area is located along Highway 12 from County Road 5/30<sup>th</sup> Street SW near the western city limits to 45<sup>th</sup> Street SE on the eastern side of the Highway 23/71 bypass (see Figure 2). The study area is approximately five miles in length. The study area should not be viewed as a hard boundary consisting only of the Highway 12 right of way and the immediately adjacent properties, but rather as a corridor that represents and serves a

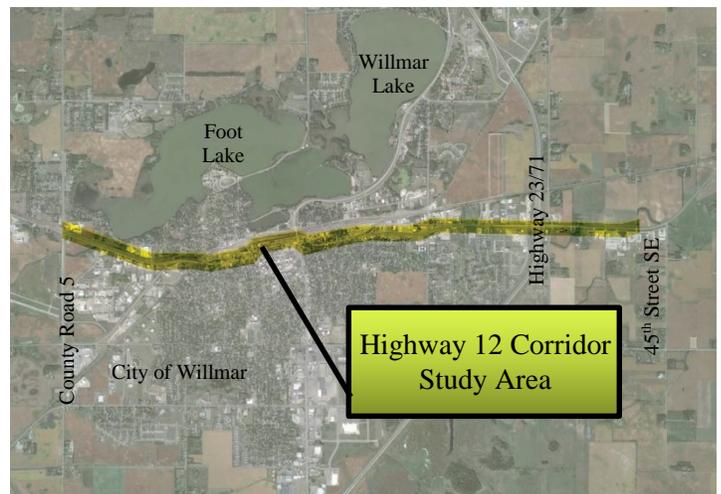


Figure 2 – Study Location Map





much larger area. Furthermore, this study boundary should not set a limitation on future transportation investments, financial resources, and comprehensive land use planning efforts or future developments.

West of the study area, Highway 12 provides links to the City of Benson, Highway 40, US Highway 59, Highway 119, US Highway 75, and the City of Ortonville. East of the study area, Highway 12 provides transportation connections to Litchfield, several state and county highways, and the western suburbs of the Twin Cities.

## 5.0 Existing Conditions

### Corridor Description

From the west, Highway 12 is a rural two-lane section that parallels the BNSF railroad corridor. The western limit of the study area is 30<sup>th</sup> Street SW (County Road 5), which is also a signalized intersection. Several commercial/industrial developments are present



*Highway 12 and 10<sup>th</sup> Street SW intersection.*

with direct access to Highway 12. Continuing east, left and right turn lanes are present at the Industrial Drive SW intersection. This segment also includes a short two lane divided section with a grass and concrete center median. Further east the highway rises to pass over a BNSF rail line. Beginning near 11<sup>th</sup> Street SW and extending into the downtown area, Highway 12 becomes a four-lane undivided section. Signalized intersections are present at 10<sup>th</sup> Street SW and 7<sup>th</sup> Street SW (County Road 41). Land uses adjacent to the highway are densely developed with frequent access to Highway 12.

Just east of the 7<sup>th</sup> Street SW intersection the highway swings north and continues around the historic downtown business district. An urban four-lane divided section is introduced near the 3<sup>rd</sup> Street SW intersection. Signalized intersections in the downtown area are present at 2<sup>nd</sup> Street SW and 3<sup>rd</sup> Street SW. After passing under 1<sup>st</sup> Street SW (also known as Business 23/71) the highway corridor swings to the south and transitions back to a four-lane undivided section near Benson Avenue. Between Benson Avenue and approximately 6<sup>th</sup> Street SE the land use is dominated by residential development. The highway section includes a short three lane section (two



*Looking west along Highway 12 near existing residential developments.*



lanes eastbound and one lane westbound) before becoming a two-lane section east of 6<sup>th</sup> Street SW. There is a high demand for access to Highway 12 in this segment due to each individual residence needing a private access (driveway). Continuing east the highway section is a combination of a rural and urban (curb and gutter) two-lane section. Parallel frontage roads on both the north and south sides of the highway are introduced near Ferring Street SE and continue to Lakeland Drive. These facilities reduce the frequency of direct access to Highway 12. Again a raised concrete center median is introduced at the Lakeland Drive intersection which serves to channelize and protect turning movements at the intersection. Continuing east, Highway 12 transitions back to a rural two-lane section. Adjacent developments primarily consist of commercial/light industrial uses with regular direct access to Highway 12. This east



*Frontage roads can be used to minimize travel demand on Highway 12 by placing local trips onto a supporting street network.*



*Historically, heavy commercial truck traffic accounts for approximately 8 to 10 percent of the annual average daily trips on Highway 12.*

business district includes several under-utilized and/or vacant parcels. At the time of this study (2014), the portion of the highway near the Highway 23/71 interchange was under construction by MnDOT. The improvements included bridge rehabilitation, extension of center medians, added and extended turn lanes, and intersection modifications at County Road 9. Through the interchange area, Highway 12 transitions to a divided section. East of the Highway 23/71 bypass, Highway 12 transitions back to a rural two-lane section that has low- to moderate density commercial, industrial, and residential developments adjacent to the corridor.

**Traffic Volumes**

Historical Average Daily Traffic (ADT) volumes for the Highway 12 corridor are shown in Table 1. The ADT information was obtained from the MnDOT Traffic Mapping Application that has historical traffic data as far back as 1994 on this corridor providing 18 years of historical reference. Traffic patterns along Highway 12 have changed throughout the years with some segments having reduced demand, some with stagnant growth and others a slight increase in volumes.





**Table 1 – Highway 12 Historical Traffic Volumes**

| Year | West of 30 <sup>th</sup> /CR 5 | 30 <sup>th</sup> /CR 5 to Industrial Dr. | Industrial Dr. to 11th St. | 11 <sup>th</sup> St. to 7 <sup>th</sup> St./CR 41 | 7 <sup>th</sup> /St.CR 41 to 1 <sup>st</sup> St. | 1 <sup>st</sup> St. to Lakeland Dr. | Lakeland Dr. to Hwy 23/71 | East of Hwy 23/71 |
|------|--------------------------------|--|----------------------------|---|--|-------------------------------------|---------------------------|-------------------|
| 1994 | 4,350                          | 10,200                                   | 10,500                     | 11,600  | 9,500  | 7,600                               |                           | 5,900             |
| 1996 | 4,500                          | 9,200                                    | 11,600                     | 10,900  | 8,100  | 7,100                               |                           | 5,700             |
| 1998 | 4,900                          | 10,100                                   | 11,700                     | 10,900  | 10,000   | 7,100                               |                           | 5,800             |
| 2000 | 4,450                          | 9,100                                    | 11,700                     | 9,700   | 10,000   | 7,100                               |                           | 5,300             |
| 2002 | 5,400                          | 10,900                                   | 11,900                     | 10,100  | 8,900  | 7,400                               |                           | 6,200             |
| 2004 | 5,200                          | 9,900                                    | 12,300                     | 10,400  | 10,200   | 7,600                               | 10,000                    | 6,500             |
| 2006 | 5,000                          | 10,800                                   | 12,600                     | 10,200  | 9,800  | 8,300                               | 11,200                    | 6,400             |
| 2008 | 4,900                          | 10,200                                   | 12,100                     | 10,600  | 9,300  | 7,500                               | 10,500                    | 6,200             |
| 2010 | 5,400                          | 8,000                                    | 10,900                     | 10,300  | 8,500  | 7,200                               | 10,000                    | 6,200             |
| 2012 | 6,100                          | 6,600                                    | 10,000                     | 9,900   | 8,000  | 7,600                               | 9,600                     | 6,300             |

**Estimated Traffic Forecast**

|      |       |       |        |        |       |       |        |       |
|------|-------|-------|--------|--------|-------|-------|--------|-------|
| 2040 | 7,700 | 7,300 | 11,000 | 10,900 | 8,800 | 8,400 | 10,500 | 7,500 |
|------|-------|-------|--------|--------|-------|-------|--------|-------|

The western end point of the study corridor, near 30<sup>th</sup> Street SW (County Road 5) has seen steady growth over the past 18 years; increasing from 4,350 up to 6,100. The segment between 30<sup>th</sup> Street SW (CR 5) and Industrial Drive has seen a substantial decrease in demand where volumes dropped from 10,900 in 2002 to 6,600 today, with the biggest drop occurring since 2008. The segment between Industrial Drive and 1<sup>st</sup> Street (Business 23/71) has fluctuated up and down over the past 18 years, but overall has seen a decrease in volumes since 2008. Between 1<sup>st</sup> Street and the eastern end of the corridor limits traffic has fluctuated but overall has remained generally stagnant. Heavy commercial truck traffic generally appears to account to approximately ten percent of the total AADT. This level is typical for regional corridors such as Highway 12.

Using a linear growth trend line, a 2040 forecast daily traffic volume showed some segments in the Highway 12 corridor having modest traffic increases while other segments continued to show declines. It is believed that traffic declines beginning in approximately 2002 and in some cases continuing through 2012 would not continue but rather a slight increase in traffic volumes for all segments of Highway 12 would occur over time. For this reason, a modest 20-year traffic growth factor was applied to highway segments that had experienced traffic declines over the past number of years. Table 1 shows the 2040 estimated traffic forecasts for several segments of the Highway 12 corridor. The forecast volumes show that on both ends of the study corridor, outside of the existing city limits will experience a slightly higher rate of increase in traffic





demands coming in and out of Willmar, while within the city limits the forecast traffic volumes indicate there will only be a slight amount of traffic growth.

**Highway Capacity Assessment**

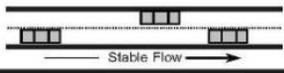
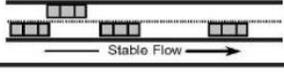
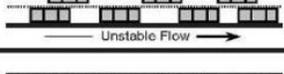
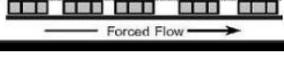
A review of potential capacity constraints along the Highway 12 corridor was completed using the existing and forecast traffic volumes shown in Table 1 above. Traffic operations data indicates that a roadway begins to experience noticeable operational problems once traffic approaches approximately 85% of a roadway's design capacity. For a two-lane that means operational problems begin to occur when traffic volumes exceed approximately 10,500 trips per day (see Table 2). A three-lane roadway can typically accommodate volumes between 14,000-17,000 trips per day, whereas a four-lane undivided roadway can accommodate over 17,000 trips.

**Table 2 – Average Daily Traffic (ADT) Planning Level Capacities**

| Roadway Type                       | Level of Service (LOS) Based on Average Daily Traffic (ADT) Volumes |               |               |               |               |         |
|------------------------------------|---|---------------|---------------|---------------|---------------|---------|
|                                    | A   | B             | C             | D*            | E             | F       |
| Two-lane                           | <8,000  | 8,000–9,500   | 9,250–10,750  | 10,500–12,000 | 11,750–13,250 | >13,250 |
| Three-lane (center left turn lane) | <9,000  | 9,000–12,000  | 11,500–14,500 | 14,000–17,000 | 16,500–19,500 | >19,500 |
| Four-lane undivided                | <12,000   | 12,000–15,000 | 14,500–17,500 | 17,000–20,000 | 19,500–22,500 | >22,500 |
| Four-lane divided (center median)  | <19,000   | 19,000-22,000 | 21,500–24,500 | 24,500–27,000 | 26,500–29,500 | >29,500 |

\* ADT associated with LOS D represent traffic volumes approaching 85-percent of a roadways design capacity.

Roadway level of service (LOS) is commonly used to assign a value to the level of congestion and efficiency of the roadway. LOS is a measure of delay and operating conditions defined by the Highway Capacity Manual using a grading scale from A to F.

| Level of Service | Volume/Capacity (V/C) Ratio | Traffic Flow  | Description  |
|------------------|-----------------------------|---|--|
| <b>A</b>         | 0.00 to 0.39                |  | <b>FREE FLOW</b><br>Low volumes and no delays.   |
| <b>B</b>         | 0.40 to 0.59                |  | <b>STABLE FLOW</b><br>Low volumes and speeds dictated by travel conditions.                                  |
| <b>C</b>         | 0.60 to 0.79                |  | <b>STABLE FLOW</b><br>Speeds and maneuverability closely controlled due to higher volumes.                   |
| <b>D</b>         | 0.80 to 0.99                |  | <b>RESTRICTED FLOW</b><br>Higher density traffic restricts maneuverability and volumes approaching capacity. |
| <b>E</b>         | 1.00 to 1.19                |  | <b>UNSTABLE FLOW</b><br>Low speeds, considerable delays, and volumes at or slightly over capacity.           |
| <b>F</b>         | 1.20 and above              |  | <b>FORCED FLOW</b><br>Very low speeds, volumes exceed capacity, and long delays with stop-and-go traffic.    |





According to existing traffic volumes (Table 1), Highway 12 has no roadway sections that currently experience capacity constraints or exceed the capacity threshold (see Table 2) of the existing highway sections. Spot locations (intersections) may experience moderate operational issues, however, continued intersection improvements (signal timing, turn lanes, etc.) could extend the capacity and improved operations at these locations.

**Crash Analysis**

During the data collection phase of the corridor study, a five-year (2009-2013) crash analysis was completed using the MnDOT Crash Mapping Analysis Tool (MnCMAT). Crash and Severity rates were calculated for all intersections and segment sections within the Highway 12 corridor study area. The rates were compared to the MnDOT District 8 average rates for similar intersections and highway sections. A critical crash and severity rate was also calculated for each intersection and segment; the critical rates are a statistical rate calculated for each individual intersection or segment based on amount of vehicle exposure. If an intersection or segment crash rate is at or above the critical rate, there is a sustained crash problem and these locations are considered to be unsafe.

Tables 3 through 5 show a total of 106 crashes between 2009 and 2013 occurred at the major intersections along the corridor, while an additional 101 crashes occurred along corridor segments. Based on the analysis (Tables 3 and 4), four intersections had a high number of crashes including the 30th Street/County Road 5 intersection, 10th Street intersection, 7th Street intersection, and Lakeland Drive intersection. However, the only intersection above the critical crash rate is the Highway 12/7th Street signalized intersection, which had a total of 28 crashes in the five-year analysis. The Highway 12 segments between the major intersections are all above both the District 8 averages and the calculated critical rates for each segment (see Table 5).

**Table 3 – Highway 12 Crash Severity and Crash Rates at Major Intersections**

| Highway 12 Intersections   | Fatal | A | B | C | N  | Total | Crash Rate            | Severity Rate | Critical Crash Rate | Critical Severity Rate |  |
|----------------------------|-------|---|---|---|----|-------|-----------------------|---------------|---------------------|------------------------|--|
| 30th St./CR 5**            | 0     | 0 | 1 | 6 | 12 | 19    | 0.87                  | 1.23          | 1.18                | 1.95                   |  |
| 10th Street SW**           | 0     | 1 | 0 | 4 | 12 | 17    | 0.82                  | 1.15          | 0.92                | 1.20                   |  |
| 7th Street SW**            | 0     | 0 | 2 | 7 | 19 | 28    | 1.17                  | 1.64          | 0.89                | 1.16                   |  |
| 3rd Street SW**            | 0     | 0 | 0 | 0 | 6  | 6     | 0.37                  | 0.37          | 0.98                | 1.26                   |  |
| 2nd Street SW**            | 0     | 0 | 0 | 1 | 2  | 3     | 0.19                  | 0.25          | 0.99                | 1.27                   |  |
| Lakeland Drive SE**        | 0     | 0 | 2 | 3 | 14 | 19    | 0.63                  | 0.86          | 1.36                | 1.61                   |  |
| West Ramp Hwy 23/71        | 0     | 0 | 0 | 0 | 4  | 4     | 0.21                  | 0.21          | 0.80                | 1.08                   |  |
| East Ramp Hwy 23/71        | 0     | 0 | 0 | 1 | 2  | 3     | 0.18                  | 0.24          | 0.83                | 1.12                   |  |
| Kandiyohi CR 9             | 0     | 0 | 0 | 2 | 5  | 7     | 0.49                  | 0.63          | 0.86                | 1.16                   |  |
| **Signalized Intersections |       |   |   |   |    |       | Above D8 Average Rate |               | Above Critical Rate |                        |  |





**Table 4 – Highway 12 Crash Type and Crash Rates at Major Intersections**

| Highway 12 Intersection        | Rear End | Left Turn | Right Angle | Side Swipe | Head On | Ran Off Road | Other | Total | Crash Rate | Severity Rate |
|--------------------------------|----------|-----------|-------------|------------|---------|--------------|-------|-------|------------|---------------|
| 30 <sup>th</sup> Street/CR 5** | 11       | 0         | 3           | 2          | 0       | 0            | 3     | 19    | 0.87       | 1.23          |
| 10 <sup>th</sup> Street SW**   | 7        | 0         | 4           | 5          | 0       | 0            | 1     | 17    | 0.82       | 1.15          |
| 7 <sup>th</sup> Street SW**    | 7        | 2         | 11          | 4          | 0       | 2            | 2     | 28    | 1.17       | 1.64          |
| 3 <sup>rd</sup> Street SW**    | 1        | 1         | 1           | 2          | 0       | 0            | 1     | 6     | 0.37       | 0.37          |
| 2 <sup>nd</sup> Street SW**    | 3        | 0         | 0           | 0          | 0       | 0            | 0     | 3     | 0.19       | 0.25          |
| Lakeland Drive SE**            | 3        | 1         | 9           | 1          | 0       | 1            | 4     | 19    | 0.63       | 0.86          |
| West Ramp at Hwy 23/71         | 1        | 0         | 2           | 0          | 0       | 0            | 1     | 4     | 0.21       | 0.21          |
| East Ramp at Hwy 23/71         | 2        | 0         | 0           | 0          | 0       | 1            | 0     | 3     | 0.18       | 0.18          |
| CR 9                           | 3        | 0         | 3           | 0          | 0       | 1            | 0     | 7     | 0.49       | 0.63          |
| <b>Totals</b>                  | 38       | 4         | 33          | 14         | 0       | 5            | 12    | 106   |            |               |

\*\* Signalized Intersections      36%    4%    31%    13%    0%    5%    11%

**Table 5 – Highway 12 Crash Severity and Crash Rates Between Intersections**

| From                              | To                              | Length (Miles) | Segment ADT | F | A | B | C | N  | Total | Crash Rate | Severity Rate         | Critical Crash Rate | Critical Severity Rate |
|-----------------------------------|---------------------------------|----------------|-------------|---|---|---|---|----|-------|------------|-----------------------|---------------------|------------------------|
| East of 30 <sup>th</sup> St./CR 5 | 10 <sup>th</sup> Street SW      | 1.36           | 6,600       | 0 | 0 | 3 | 1 | 16 | 20    | 1.22       | 1.65                  | 0.68                | 0.83                   |
| 10 <sup>th</sup> Street SW        | 7 <sup>th</sup> Street SW       | 0.21           | 10,000      | 0 | 0 | 1 | 0 | 10 | 11    | 2.88       | 3.41                  | 2.28                | 2.93                   |
| 7 <sup>th</sup> Street SW         | 3 <sup>rd</sup> Street SW       | 0.32           | 8,000       | 0 | 0 | 1 | 1 | 8  | 10    | 2.17       | 2.82                  | 2.15                | 2.78                   |
| 2 <sup>nd</sup> Street SW         | 6 <sup>th</sup> Street SE       | 0.36           | 7,600       | 0 | 0 | 0 | 1 | 13 | 14    | 2.83       | 3.04                  | 2.10                | 2.72                   |
| 6 <sup>th</sup> Street SE         | Lakeland Drive                  | 0.77           | 7,600       | 0 | 0 | 2 | 3 | 8  | 13    | 1.22       | 1.88                  | 0.78                | 0.95                   |
| Lakeland Drive                    | TH 23/71 West Ramp              | 0.87           | 9,600       | 0 | 0 | 2 | 4 | 15 | 21    | 1.37       | 1.89                  | 0.69                | 0.85                   |
| East of CR 9                      | East of 45 <sup>th</sup> Street | 0.97           | 6,300       | 0 | 0 | 0 | 6 | 6  | 12    | 1.07       | 1.61                  | 0.77                | 0.93                   |
|                                   |                                 |                |             |   |   |   |   |    |       |            | Above D8 Average Rate | Above Critical Rate |                        |





As shown in Table 5, the longest segment is between 30<sup>th</sup> Street SW/County Road 5 and 10<sup>th</sup> Street SW, which had a total of 20 crashes in this two-lane section. The calculated crash rate (1.22) for this segment is nearly double the critical rate (0.68). The short, four-lane undivided section between 10<sup>th</sup> Street SW and 7<sup>th</sup> Street SW had a total of 11 crashes and has the highest severity rate (3.41). Between Lakeland Drive and the Highway 23/71 interchange there were a total of 21 crashes in this segment. The crash rate (1.37) for this segment is double the critical crash rate (0.69). This segment also includes a high percentage of rear-end collisions on Highway 12 where traffic doesn't have to stop; this could indicate a higher percentage of turning traffic from Highway 12.

The irregularity and frequent changes in the highway section and the location and frequency of access points (public street intersections and private driveways) can affect driver expectations, create conflicts in traffic flows, and adversely impact safety conditions.

**Access Conditions**

According to MnDOT's Access Management Manual the study corridor is considered a Category 3-Regional Corridor. The access management manual states that access management practices will vary greatly due to the varying posted speeds and geographic location of the corridor (e.g. greater levels of access is allowed in urban core areas when compared to rural/undeveloped areas). Based on field reviews and aerial interpretation, Highway 12 currently has a total of 114 access points throughout the approximately 5.1 mile study area, correlating to



*Location and frequency of access to a roadway directly affects safety and mobility.*

approximately 22 access points per mile. Table 6 below shows a summary of the number of access points throughout the corridor. The high number of public and private accesses cumulatively degrades the performance and safety of the study corridor.

**Table 6 – Highway 12 Access Inventory**

| Highway 12 Segment                                       | Highway 12 Corridor Study Area Access Points |             |        |       |
|--|--|-------------|--------|-------|
|  | Driveway                                     |             | Street | Total |
|  | Business                                     | Residential |        |       |
| 30 <sup>th</sup> St./County Rd. 5 to Industrial Dr.      | 11   | 1           | 4      | 16    |
| Industrial Dr. to 3 <sup>rd</sup> Street SW              | 18   | 3           | 8      | 29    |
| 3 <sup>rd</sup> Street SW to 24 <sup>th</sup> Street SE  | 17   | 19          | 17     | 53    |
| 24 <sup>th</sup> Street SE to 45 <sup>th</sup> Street SE | 5  | 4           | 7      | 16    |
| <b>Totals</b>  | 51   | 27          | 36     | 114   |



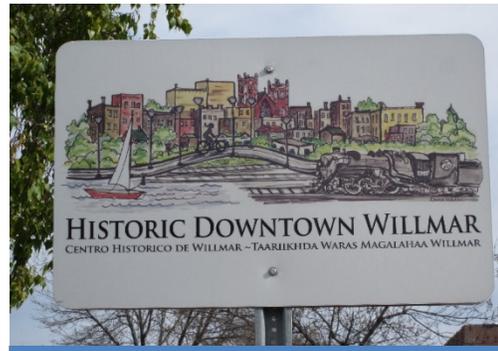


### Social, Economic, and Environmental Characteristics

A review of existing social, economic, and environmental conditions within the study area was also conducted during the data collection phase of the project. The information gathered help set the context for the corridor's past and future conditions. The "Existing Conditions and Issues Identification Technical Memorandum" provides details on such categories as: land use, zoning, business districts, right-of-way, BNSF Railroad, water resources/drainage, sensitive noise receptors, known contaminated properties, parks, and trails.



*Drainage and water resources issues.*



*Preserve the Historic Downtown District.*

## 6.0 STAKEHOLDER INVOLVEMENT

The Highway 12 Corridor Study planning process included a stakeholder involvement program that was initiated at the beginning of the study. There were several elements to the involvement program, which are detailed below.

### Technical Advisory Team (TAT)

The TAT was formed to provide input to the study and to review the technical work of the consultant team. TAT agencies included:

- MnDOT
- City of Willmar
- Kandiyohi County
- SEH, Inc. (Consultant Team)

The TAT met a total of seven times during the study planning process. The TAT members have guided the study process, reviewed technical products, and served as a conduit between the study team and the local residents, businesses, and the organizations they represent.

### Focus Group Issue Identification Meetings

A series of focus group meetings were held at the Willmar Convention Center on Wednesday, March 26, 2014. Four individual meetings were scheduled to focus on specific geographic areas of the corridor. The four focus groups included the following:



- East Business Focus Group
- Emergency Services/First Responders Focus Group
- Downtown and West Business Focus Group
- Residential/Neighborhood Focus Group

Over 50 people attended the focus group meetings. Stakeholders within each focus group area were asked to share their specific transportation and land use issues and concerns along the Highway 12 corridor. A number of issues and concerns were raised and some of the common themes identified at the focus group meetings included, but not limited to, the following:



*The Technical Advisory Team (TAT) met with area law enforcement and First Responders to gather their knowledge of existing issues and concerns along the Highway 12 corridor.*

- Aesthetic/streetscaping improvements needed along the corridor
- Create a “Gateway” to downtown Willmar
- Need to create a standard roadway section throughout the corridor
- Bike & pedestrian facilities/amenities needed in eastern segment of corridor
- Conflicts between turning traffic and through traffic creates safety concerns
- Intersection safety is a concern at several locations (7<sup>th</sup> Street, County Road 9)
- Speed transition areas have safety concerns
- High level of access (frequent driveways and intersections)
- At-grade crossing of BNSF RR tracks near the corridor creates long delays
- Need “way-finding” signage to downtown and other destination sites

Appendix A includes a more detailed summary of issues raised, comments received, and listing of attendees.

### **Project Advisory Committee (PAC)**

The PAC was formed to establish a communication link with the affected business community and land/economic development organizations. The committee represents local stakeholders that were identified as individuals/organizations that provide a broad representation of the community values. Many of the PAC members were also engaged



in the Focus Group Meetings discussed previously. Appendix A includes a list of the PAC members.

Although the PAC is an advisory group, the members provided direction and feedback on the Corridor Vision (proposed highway section and supporting infrastructure), participated in a visual preference survey that helped define possible aesthetic treatments for future transportation and land use improvements, and identified corridor issues.

A transportation related item raised by members of the PAC was the idea of a western community bypass that could have provided an alternate route for through traffic and heavy commercial traffic around the City. A western bypass alignment was considered back in the 1970s that would have resulted in a new corridor branching off Highway 12 to the south in the area of the Highway 12/45<sup>th</sup> Street SW intersection. The bypass corridor would have continued south along the western edge of the old airport runway and would have connected to Highway 23 in the area of County Road 15/45<sup>th</sup> Street SE. No improvements have been made along this corridor and MnDOT has instead focused available funds on enhancing the existing Highway 12 alignment. In addition, the County Road 5 alignment that had since been constructed serves the function of a western bypass of the city of Willmar, allowing traffic travelling from the west to the south side of Willmar access without having to travel through the city.

### Highway 12 Corridor Issues Map

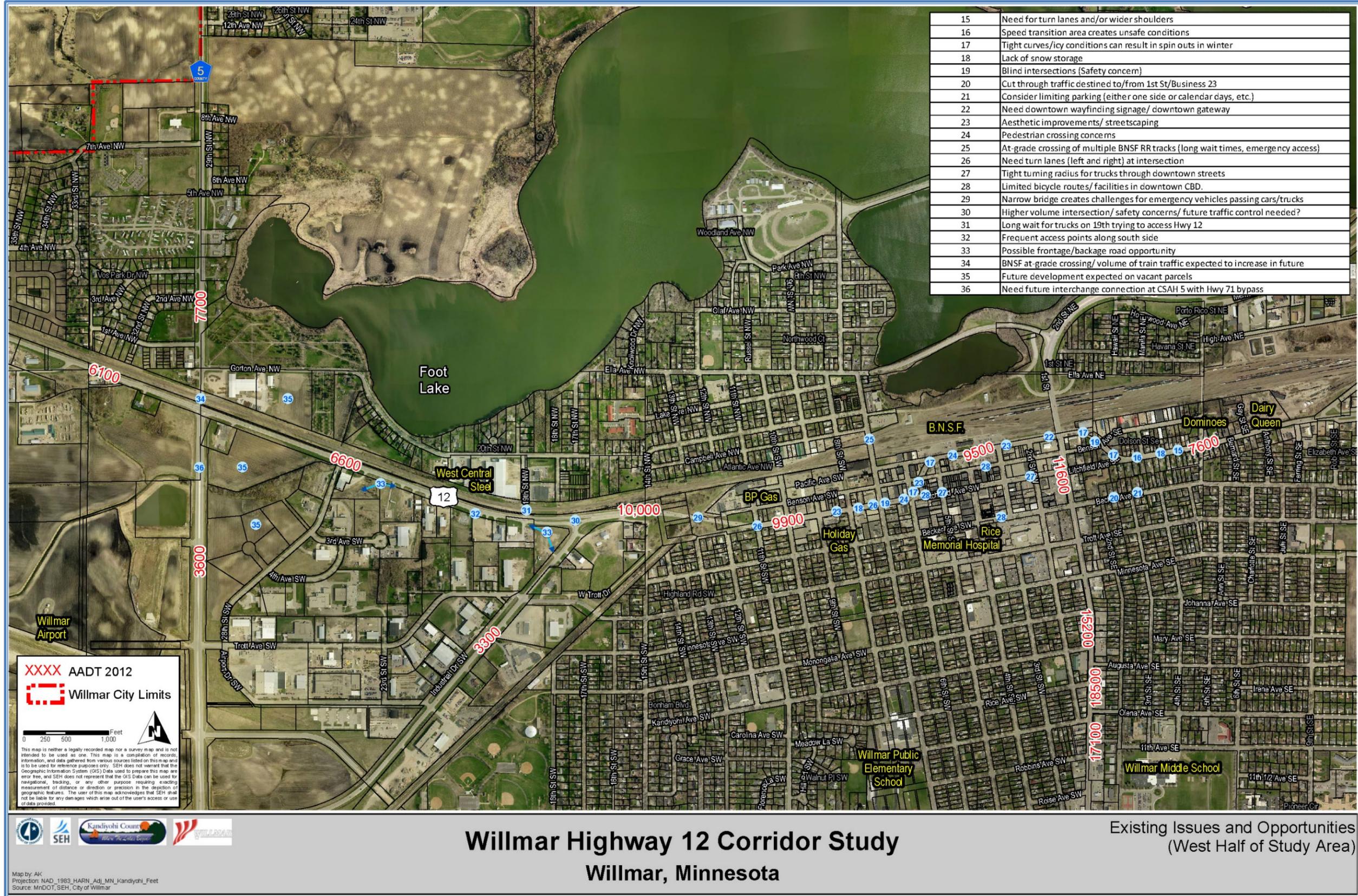
An outcome of the Data Collection and Stakeholder Involvement phases was the identification of a wide range of transportation and land use issues and concerns. A Highway 12 Corridor Issues Map was created to better understand and recognize these issues and concerns. The figures shown on the following page depict the corridor wide issues/concerns.

### City Council & County Board Updates

Periodic updates on the study progress were provided by TAT members to City Council and County Board members at regularly scheduled meetings and/or as part of council workshops. The purpose of these meetings was to inform the policy-makers of the study progress and to discuss potential items that could affect the community and county. The input gathered was then taken into consideration in the evaluation of study deliverables and the development of the Corridor Vision.



*Early in the study process, transportation and land use issues were identified and documented on a “Corridor Issues Map”.*



Willmar Highway 12 Corridor Study  
Willmar, Minnesota

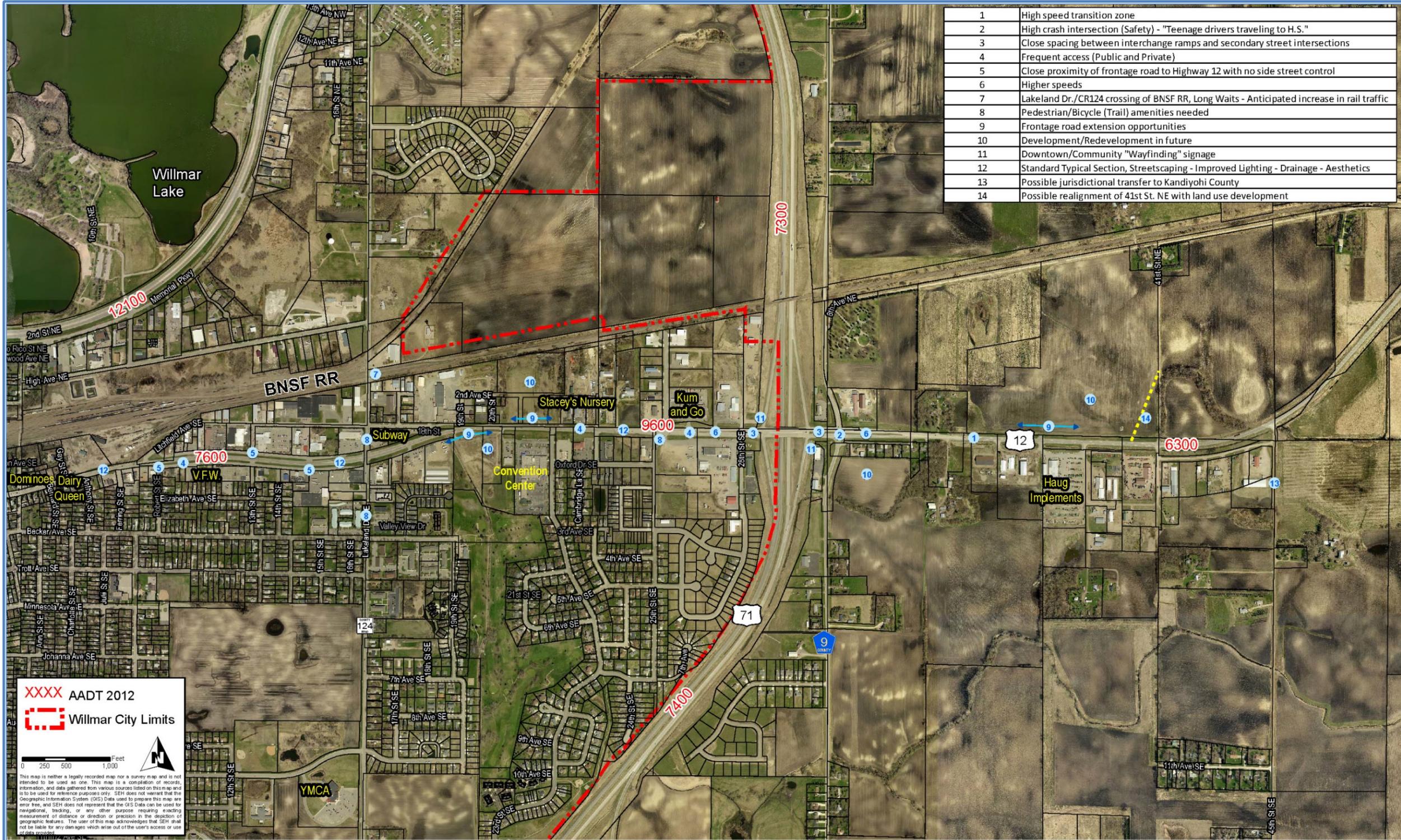
Existing Issues and Opportunities  
(West Half of Study Area)







|    |   |
|----|---|
| 1  | High speed transition zone  |
| 2  | High crash intersection (Safety) - "Teenage drivers traveling to H.S."                    |
| 3  | Close spacing between interchange ramps and secondary street intersections                |
| 4  | Frequent access (Public and Private)  |
| 5  | Close proximity of frontage road to Highway 12 with no side street control                |
| 6  | Higher speeds   |
| 7  | Lakeland Dr./CR124 crossing of BNSF RR, Long Waits - Anticipated increase in rail traffic |
| 8  | Pedestrian/Bicycle (Trail) amenities needed   |
| 9  | Frontage road extension opportunities   |
| 10 | Development/Redevelopment in future   |
| 11 | Downtown/Community "Wayfinding" signage   |
| 12 | Standard Typical Section, Streetscaping - Improved Lighting - Drainage - Aesthetics       |
| 13 | Possible jurisdictional transfer to Kandiyohi County                                      |
| 14 | Possible realignment of 41st St. NE with land use development                             |



**XXXX AADT 2012**

**Willmar City Limits**

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any claims which arise out of the user's access or use of data provided.



**Willmar Highway 12 Corridor Study**  
**Willmar, Minnesota**

Existing Issues and Opportunities  
(East Half of Study Area)

Map by AK  
Projection: NAD\_1983\_HARN\_Adj\_MN\_Kandiyohi\_Feet  
Source: MNDOT, SEH, City of Willmar







## 7.0 STUDY GOALS & OBJECTIVES

As previously stated, a Corridor Vision Statement was developed by the project partners to help guide the study process including the corridor goals and objectives.

A set of study goals and objectives were also prepared at the onset of the planning process. The “goals” indicate a policy direction and assist in organizing individual objectives and more defined policies. The “objectives” provide more detailed action plans that are necessary to prioritize and initiate a goal. Objectives may include the start up or continuation of a program or implementation of a specific project.

The study goals and objectives will help guide priorities for future investment by MnDOT, the City of Willmar, Kandiyohi County, and/or in partnership with other regional or state agencies.

The corridor study goals and objectives also provide a means to measure the performance of the transportation system over time, and as necessary, an opportunity to reassess, revise and/or supplement the desires of the community. The following goals and objectives are not ranked or presented in order of importance or need:

### Corridor Vision Statement

*“Highway 12 through the City of Willmar will facilitate the efficient movement of citizens, visitors, and commerce within and through the city on a safe, well maintained, convenient, coordinated, and fiscally responsible route using a balanced approach of land use and transportation policies and investments.”*

**Goal 1:** Preserve and enhance Highway 12 and intersecting roadways in a manner that improves safety and mobility.

#### *Objectives:*

1. As one of the region’s greatest investment priorities, the study and roadway partners shall preserve their existing transportation systems in the highest order of operating condition.
2. Continually monitor crash data and traffic volumes along the Highway 12 corridor for trends and performance levels and tailor improvements for targeted areas.
3. Conduct studies of reasonable traffic management techniques where documented safety issues exist and identify possible high-benefit/low-cost solutions.
4. Maintain the Highway 12 corridor by making adequate improvements to accommodate anticipated growth or to replace worn out or obsolete components of the highway.





5. Seek opportunities to improve existing intersections through land use changes or redevelopment opportunities and by coordinating improvements between roadway partners and their funding programs.
6. Evaluate current intersection control along frontage roads that parallel Highway 12 and determine if travel safety would benefit from modifications (adding stop signs, etc.)
7. Identify options for supplying alternative access to developments.
  - a. Understand how businesses, customers and suppliers use access on Highway 12.
  - b. Study the need for and the impact of access modifications (access relocation, consolidation, closure).
  - c. Evaluate frontage/backage road extensions along the highway corridor.
8. Further study the need and effectiveness of intersection traffic control at key intersections (30<sup>th</sup> Street SW/County Road 5, 10<sup>th</sup> Street SW, Industrial Drive, 7<sup>th</sup> Street SW, Lakeland Drive, County Road 9).
9. Ensure that future improvements consider special design and safety considerations for heavy truck operations/movements along the corridor.

**Goal 2:** Increase the connection between transportation considerations and the land development regulatory process.

*Objectives:*

1. Implement land use development and performance standards that will promote safe and efficient access to Highway 12 and the local transportation network including the adequacy of the following items:
  - a. Off-street parking for any new or expanding land use;
  - b. Internal traffic circulation and separation of parking maneuvering areas from driveways;
  - c. Stacking spaces for drive-thru related facilities;
  - d. Maneuvering space for delivery and service vehicles; and
  - e. Driveway widths and off site turn lanes.
2. Require the dedication or preservation of right-of-way consistent with adopted right-of-way standards when property is platted or subdivided, and work with landowners/developers during the site planning process to implement efficient internal circulation with access first being provided via a local roadway rather than directly from Highway 12.



3. Maintain a detailed land use plan (and supporting ordinances) that support the orderly and logical staging of infrastructure and public utilities in conjunction with development.
4. Encourage new industrial uses to locate in existing or future industrial parks within Willmar.

**Goal 3:** Plan, design, and construct transportation and land use improvements in the Highway 12 corridor that respect and reflect the aesthetic character, historical and cultural context, and values of the citizens of Willmar.

*Objectives:*

1. Coordinate with and between governmental agencies, departments, the Lakes Area Chamber of Commerce, and other groups/organizations when planning and designing future transportation improvements and land use developments to help ensure the design elements of future projects take into consideration and reflect the physical, cultural, social, environmental, and aesthetic values of the community.
2. Identify how transportation improvements along Highway 12 can support initiatives and strategic actions for enhancing the downtown area. Consult the finding and recommendations of the Willmar Downtown Plan (dated May 2010) when planning and designing improvements in the downtown area.
3. To the extent possible, maintain and enhance the “small-town” character of Willmar by providing context-sensitive design elements including lane widths, intersection curb radii, landscaping, lighting, pedestrian crossing facilities, and other aesthetic treatments.
4. The City shall periodically survey area residents and business owners along Highway 12 corridor to gauge their perception of the corridor including the transportation and land use strengths, areas of concern, and opportunities for improvement.



*The character of the Historic Downtown District should be maintained and enhanced as part of any land use and transportation improvements.*

**Goal 4:** Seek opportunities to encourage and facilitate the expansion of pedestrian and bicycle facilities

*Objectives:*



1. Where applicable, pedestrian/bicycle safety features will be integrated into transportation and land use improvements as part of applying complete streets principles.
2. Within and beyond the Highway 12 corridor, the project partners will strive to provide opportunities to support active living and healthy lifestyle activities such as establishing an interconnected local and regional trail system (e.g. Lakeland Drive and Highway 12 east, downtown interconnectivity).
3. In the eastern portion of the corridor study area, the City will ensure planned development/redevelopment and consider future accommodations for pedestrian/bicycle facilities.



*The corridor vision shall consider expanding pedestrian facilities throughout the area, but especially in the East Business District area where none currently exist.*

**Goal 5:** Implement the Corridor Vision Through Strategic Funding, and Objective and Definitive Decision Making, with the Collaboration of Jurisdictions (MnDOT, Kandiyohi County, and the City of Willmar).

*Objectives:*

1. Coordinate planning and preservation of future opportunities along Highway 12 for necessary transportation system improvements, including right-of-way and pedestrian/bicycle facilities.
2. Realize necessary transportation system improvements in a cost-effective and timely fashion.
3. Empower governmental agencies to pursue state and federal transportation funding and evaluate other non-traditional transportation funding mechanisms.
4. Utilize available funding programs such as the Municipal State Aid Street (MSAS), County State Aid Highway (CSAH), Trunk Highway funds, and other revenue sources to maximize and leverage funds for transportation improvements.
5. Encourage business owners, residents and community groups to be active participants in seeking funding by contacting local, state and federal decision makers in support of transportation funding.



## 8.0 VISUAL QUALITY & PLACEMAKING

In 2012 the City conducted a Downtown Plan that studied a variety of existing elements (e.g. access, parking, open/green space, building conditions, and aesthetics) that contribute to the existing conditions in the Willmar downtown area. The Downtown Plan also identified policies and recommendations for visual/aesthetic improvements throughout the downtown area. One particular topic recommended as part of the Downtown Plan was the creation of downtown gateways. Several gateway concepts were also developed as part of the Plan. Copies of these previously prepared concepts are included in Appendix B of this report. To date, no comprehensive visual/aesthetic improvements in the downtown area have occurred.

### Highway 12 Visual Preference Survey Background & Purpose

As part of the Highway 12 Corridor Vision development process, the Project Advisory Committee (PAC) participated in a Visual Preference Survey on July 22, 2014 to assemble stakeholder input, gauge general preferences, and develop informed high-level recommendations for streetscape and placemaking elements within the Highway 12 Corridor. This effort was intended to supplement the aesthetic/streetscape recommendations and gateway concepts from the Downtown Plan.

During the Visual Preference Survey, a series of 57 precedent images were shown from the following streetscaping and placemaking categories:

- Wayfinding, Banners, Gateways (21 Images)
- Lighting (12 Images)
- Street Furnishings (11 Images)
- Sidewalk Materials, Textures (8 Images)
- Screening, Fencing and Rails (5 Images)

The PAC was asked to view the images and then rate them with a thumbs up or down.

Participants also displayed a red or green placard to the group, which allowed the PAC and consultants to immediately gauge the collective reaction to each image. PAC members were also encouraged to provide verbal comments on their preferences and reactions to the images.





The exercise provided a visually rich way to see, imagine, and discuss streetscaping components by showing a range of precedent images and gauging participant preference for the examples. The end result is not a definitive prescription of exact furnishings and quantities, but rather gives general guidance and design direction to aid future decisions about streetscaping selection and placement. A total of 11 surveys were collected from the group and the results are summarized alongside select images in the following section.



Welcome monument on west side of Willmar.

### Summary Observations by Streetscape Category

#### Wayfinding, Banners, Gateways

Twenty-one (21) images were shown that represented a range of styles, sizes, and materials. The highest scoring images in this category included metal and natural stone materials, wayfinding with large fonts and minimal text, unified print and graphic styles for business identification.

Images that ranked poorly included styles and materials such as timber framed signs, steel

nautical-themed elements, cluttered and uncoordinated wayfinding, and overhead portals. The images presented below provide a representative collection of the highest and lowest scoring wayfinding and gateway examples.







*Lighting*

12 examples of lighting styles were shown. The highest scoring light was a traditional acorn lamp on a traditional black, steel pole.

The lowest scoring lights included very modern stainless steel or sculptural lighting and an ornate, art nouveau double lamp.





Street Furnishings

11 images with examples of street furnishings were shown. The highest scoring bench is very traditional with a steel frame and wooden slats followed by a still traditional but all steel bench.

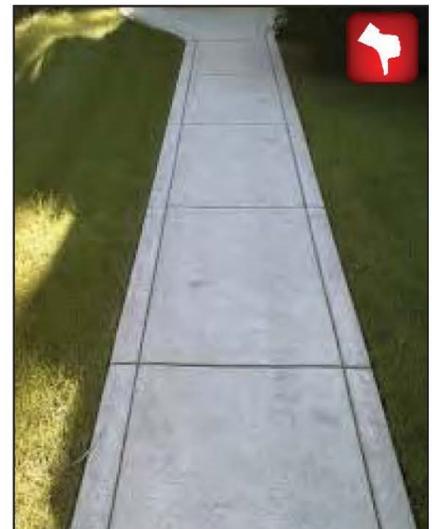
A modern, monolithic stone bench and a whimsical sculptural bench received low scores.





Sidewalk Materials, Textures

Eight images of sidewalk materials and patterns were shown. The highest scoring images include more custom and intensive patterns and borders created by a combination of concrete and multi-colored pavers. Images that scored low included those with plain concrete or simple, minimal paver borders and designs.





### Screening, Fencing and Rails

Five images of fencing and screening were shown. The highest scoring images were a traditional steel picket fence with twin top rails alongside hedges or landscaping and a custom brick, stone, and artistic relief retaining wall. Low scoring images included a tall, modern, angular patterned fence and an opaque concrete wall.



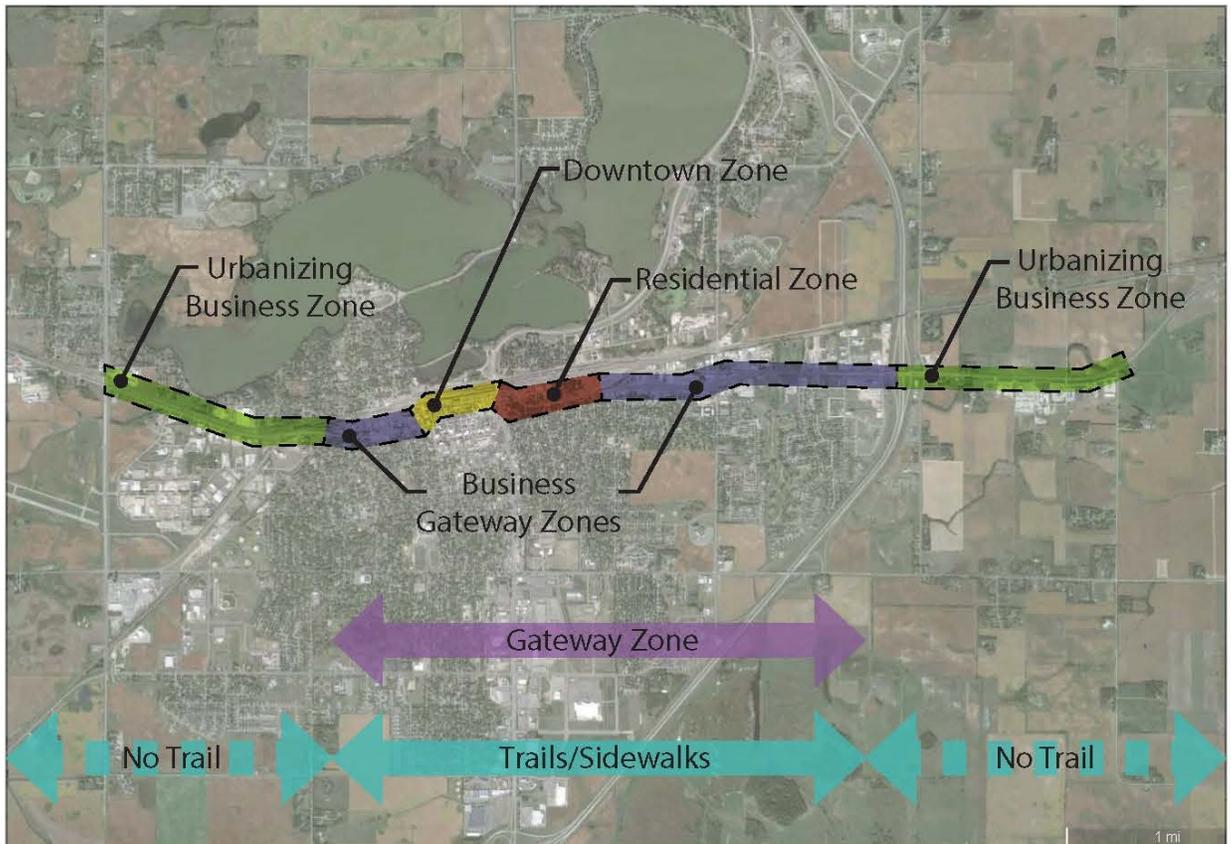


**Context Settings**

The Corridor Vision development process included a subjective, experiential analysis of the existing context along the approximately five mile long corridor. Based on roadway speeds, cross sections, surrounding land uses, intensity of development, multi-modal demand, and feedback received at the Focus Group, four distinct context settings were identified along the study corridor.

- Urbanizing Business Zone
- Business Gateway Zone
- Downtown Zone
- Residential Zone

**Context Setting Zones**



Urbanizing Business Zone

The Urbanizing Business Zones define the western and easternmost segments of the corridor where the surrounding context transitions from purely rural to one that is approaching a more urban condition. Businesses are present, but more broadly spaced than in the urban core. Uses and developments within this zone tend to be automobile-oriented.

Business Gateway Zone

The two business gateway zones mark a full transition from urbanizing to urban context. Business are present in a higher density, similar to that of the urban core. Uses and





developments within this zone tend to be primarily automobile-oriented, but multi-modal demand increases within this zone as the distances are more walkable and bikeable.

*Downtown Zone*

The Downtown Zone is an approximately seven block long spine along the north edge of downtown Willmar. The zone is characterized by a fully urban condition, with businesses concentrated on a traditional grid of city streets. Businesses serve a mix of both automobile and pedestrian traffic. The pedestrian realm is an important feature in the Downtown Zone.

*Residential Zone*

The Residential Zone stretches for approximately eight blocks of the Study Corridor. This urban residential area includes single-family and multi-family residences and serves both bicycles/pedestrians and automobiles. This zone in particular provides a challenge when balancing the mobility and speed of the traveling public with safety and access for residences.

**Placemaking and Streetscaping by Context Setting Zones**

Each of the five streetscaping and placemaking categories relate differently to each Context Setting. The following table identifies the relationship and applicability of streetscaping in each context setting:

| ZONES                  | Wayfinding/<br>Banners                                 | Lighting   | Street Furnishings   | Sidewalk<br>Materials/Textures   | Screening/<br>Fencing   |
|------------------------|--|--|--|--|---|
| Urbanizing<br>Business | Consider monument<br>sign or gateway<br>element        | Intro signature<br>lighting, greater<br>spacing      | None or minimal  | No sidewalk or trail<br>proposed. If conditions<br>change consider simple<br>design  | As appropriate  |
| Business<br>Gateway    | Introduce banners<br>and wayfinding,<br>gateway        | Continue<br>signature<br>lighting,<br>medium spacing | Introduce benches<br>and trash, etc. at<br>key locations     | Introduce simple,<br>continuous design,<br>enhance key locations<br>or intersections | As appropriate,<br>maintain<br>visibility to<br>businesses            |
| Downtown               | Continue banners<br>and wayfinding                     | Continue<br>signature<br>lighting, tight<br>spacing  | Introduce benches<br>and trash, etc. at<br>regular intervals | Continue design and<br>enhance key locations<br>or intersections                     | As appropriate,<br>maintain<br>visibility to<br>businesses            |
| Residential            | Continue banners<br>and wayfinding,<br>reduce quantity | Continue<br>signature<br>lighting,<br>medium spacing | Consider benches<br>and trash, etc. at<br>key locations      | Continue simple design,<br>consider enhancing key<br>locations                       | As appropriate,<br>limit height to<br>42 inches along<br>right-of-way |





## 9.0 HIGHWAY 12 CORRIDOR VISION

The Highway 12 corridor vision is intended to create a unique gateway to the community that includes a safe and efficient transportation route that attracts residents, visitors and workers to create a corridor of economic opportunity. It is envisioned that new businesses will be attracted to the corridor through safe and convenient access and improved aesthetics. A goal of the City is to ensure new developments blend with existing establishments in an orderly fashion that will increase economic activity in the community. Redevelopment opportunities will continue to be explored, benefitting community perceptions and businesses adjacent to vacant lots or dilapidated structures.

This Corridor Vision Plan represents a long-range “vision” for new development and redevelopment of Highway 12. The current form and function of Highway 12 did not occur overnight. Rather, for a variety of economic and social reasons, the conditions along the highway corridor have declined over a number of decades. With that knowledge comes the reality that positive change, which reflects the community’s vision, will also not happen with one “quick-fix” transportation project. However, there are many relatively low cost, near-term improvements that the project partners (MnDOT, Willmar, and Kandiyohi County) can undertake that will serve as catalysts to improving this important transportation and economic corridor. These will be further discussed in the recommendations section.

### Recommendations

***Recommendation #1: Establish a more uniform typical highway section that will enhance driver expectancy while achieving safety and mobility goals.***

The existing Highway 12 corridor has a highway section that changes often as the roadway passes through the community. The various highway sections present along the corridor include a two-lane rural section, a two-lane urban section, four-lane undivided section, and four-lane divided section. These relatively frequent design changes impact driver expectancy, which can adversely impact safety and mobility conditions along the highway. As part of the study process, the project partners considered several highway sections. In selecting the appropriate highway section elements and dimensions, the TAT members considered a number of transportation and land use factors and characteristics. These included, but were not limited to, the following:

- Traffic volume and composition (percent cars, trucks, and recreational vehicles) of the vehicular traffic expected to use the facility
- The likelihood that bicyclists and/or pedestrians will use the route
- Climatic conditions (e.g., the need to provide storage space for plowed snow)
- The presence of natural or human-made obstructions adjacent to the roadway (e.g., buildings, frontage roads, trees/plantings, drainage features, utilities, etc.)



- Type and intensity of existing and planned development along the highway
- Safety of the users

Taking these factors into consideration, the TAT developed both a conceptual three-lane (with a two-way continuous left turn lane) and four-lane divided section. The key evaluation criteria of both options is summarized below:

### Three-lane Section with two-way continuous left turn lane:

- 2040 forecast traffic volumes fall within the acceptable level of service range for the capacity of a three-lane section;
- Three-lane cross section width would range between 48-feet and 56-feet;
- No additional right-of-way would be needed unless specific intersection improvements identify the need to add safety and/or operation improvements;
- No relocations/acquisitions were identified;
- Pedestrians/bicyclists can be accommodated along the route with a minimum 6-foot shoulder;
- Public street intersections and private access points (driveways) to the highway would remain generally unchanged, but future consolidations and modifications should be pursued;
- Left turning traffic is removed from the flow of traffic thereby improving safety and mobility;
- The narrower cross section could potentially accommodate additional streetscape features (plantings, benches, etc.) and/or drainage and stormwater elements (wet/dry ponds or infiltration basins); and
- Considered to be a low-cost/high benefit improvement.

### Four-lane Divided Section:

- 2040 forecast traffic volumes fall within acceptable level of service range for the capacity of a four-lane section;
- Four-lane cross section width would range between 68-feet to 76-feet wide;
- Additional right-of-way would be needed in several developed areas adjacent to the corridor;
- High number of relocations/acquisitions would likely be required;
- Pedestrians/bicyclists can be accommodated along the route with a minimum 6-foot shoulder;



- The raised center median would limit access at many public street intersections and private access points (driveways) to right-in/right-out access only;
- Left turning traffic could be removed from the flow of traffic with the addition of channelized left turn lanes, which would expand the width of the cross section. Without a dedicated left turn lane the inside thru lane would serve as a “defacto left turn lane” that would create safety and mobility concerns;
- In developed areas the wider roadway width would limit opportunities for streetscape features and/or drainage and stormwater elements;
- Considered a long-term high investment improvement.

Other design options in the downtown area were also discussed including one-way pairs where westbound Highway 12 traffic would remain on the existing alignment and eastbound traffic would be routed along Litchfield Avenue. This would require opening both the east and west ends of Litchfield Avenue. This option was dismissed due to safety and mobility concerns for Highway 12 users and visitors to the downtown area. Such a condition would reintroduce higher traffic volumes and heavy commercial traffic to the retail/commercial downtown district, which would have substantially adverse impacts on traffic operations/mobility and safety.

Based on the knowledge and information gathered in the review of the above evaluation criteria, a three-lane conceptual corridor vision layout was created. The forecast traffic volumes along Highway 12, presented earlier in Table 1, the roadway planning level capacity table (see Table 2) information, and land use information were used to determine the three-lane highway cross section was appropriate. A three-lane highway section would best serve the existing and forecast traffic levels along Highway 12, while also allowing the corridor the opportunity to realize the land use and aesthetic goals established in the study area.

It is recommended that for the majority of Highway 12 through the study area, that an urban three-lane highway section be constructed that would include curb and gutter and a shared-center left turn lane (also known as a two-way left turn lane). The exceptions to this typical section would occur at the following locations:



*Example of urban three-lane cross section with two-way continuous left turn lane.*

- East of County Road 9: it is recommended that the vision include a rural three-lane section with grass side slopes and rural drainage ditches.



- Highway 12/71 Interchange Area: it is recommended that the existing four-lane divided section be maintained. This four-lane section provides extra capacity near the interchange and provides a short “passing” opportunity for vehicles to pass slower moving traffic.
- Downtown Willmar: it is recommended that the vision maintain the existing four-lane divided (raised median) section between approximately 2<sup>nd</sup> Street SE and 5<sup>th</sup> Street SW. This four-lane section also provides extra capacity in the downtown area and provides a short “passing” opportunity for vehicles to pass slower moving traffic.
- Industrial Drive Intersection: Maintain the existing two-lane divided section with channelized turn lanes at the Highway 12/Industrial Drive intersection.
- West of Industrial Drive: it is recommended that the vision include a rural three-lane section with grass side slopes and rural drainage ditches.

Appendix C includes a series of figures that illustrate the conceptual roadway layout for a three-lane highway section. The figures also show areas where frontage road extensions should be considered and where possible candidate access modifications could occur. Below is a summary of some of the key features and elements on the highway vision within various segments of the corridor.

### Western “Urbanizing” Segment (County Road 5/30<sup>th</sup> Street SW to 11<sup>th</sup> Street SW)

This segment is expected to receive low to moderate development pressure over the next 20 plus years. The presence of the BNSF rail line located north of the highway corridor substantially limits development on that side of the corridor. The corridor vision includes a rural three-lane highway section with rural drainage (road side ditches). A sidewalk or trail connection across Highway 12 is recommended along the east side of 30<sup>th</sup> Street SW/County Road 5. Currently there is a gap between Gorton Avenue and the south side of Highway 12. A comprehensive analysis of drainage in this segment is recommended to ensure adequate infrastructure (e.g. culvert sizes, ditch width/depth, etc.) is provided. A supporting frontage road on the south side of Highway 12 is also recommended between 28<sup>th</sup> Street SW and Industrial Drive. This would provide an opportunity to remove several direct access points from Highway 12. The specific location of a frontage/backage road would be determined at the time development proposals are being planned. In the absence of a frontage road, access modifications and consolidation opportunities shall be pursued as development or redevelopment proposal arise. Acceleration lanes near the Highway 12/Industrial Drive intersection should be planned to accommodate slower moving heavy commercial traffic from the industrial park that accesses Highway 12 at this location. A wider bridge over the BNSF rail line should be planned to allow for a wider roadway surface to accommodate outside shoulders. Lastly, wayfinding signage to the downtown area should also be added within this segment.



### West Downtown Business Segment (11<sup>th</sup> Street SW to 7<sup>th</sup> Street SW)

This segment is not expected to see much new development, however several sites may be redeveloped that would provide an opportunity to modify access conditions. Several parcels have multiple access points to Highway 12 that could be reduced and/or reconfigured to reduce the total number of access points. The corridor vision includes a three-lane highway section with urban drainage (curb and gutter). The eastern limit of this segment (approximately 7<sup>th</sup> Street) should serve as a “Gateway” to the downtown district. Further information on streetscape and placemaking elements is discussed in the next segment.

### Downtown Business District (7<sup>th</sup> Street SW to Benson Avenue)

The existing four-lane divided section within this segment is recommended to remain in place. Outside of the four-lane divided section the corridor vision includes an urban three-lane section. It is recommended that an advance traffic signal warning system be installed east of the 7<sup>th</sup> Street SW intersection to advise westbound traffic of the upcoming signalized intersection. This intersection has experienced safety concerns in the past due to limited sight distance to the west, which is a result of a commercial building that is located immediately adjacent to the highway and the sharper curvature of the highway in this location. A low cost/high benefit warning device can alert drivers of the forthcoming traffic signal and help alleviate the safety problem. The 2<sup>nd</sup> Street SW and 3<sup>rd</sup> Street SW signal systems shall be optimized and coordinated. Synchronizing the signal phases so that the two signals operate in tandem will improve traffic operations and safety by minimizing disruptions to thru traffic on Highway 12.



*Advanced Warning System*

As discussed in Chapter 8.0, in 2012 the City of Willmar conducted a Downtown Plan that included the creation of downtown gateway concepts along Highway 12 at the 2<sup>nd</sup> Street SW and 7<sup>th</sup> Street SW intersections. Appendix B contains copies of the gateway concepts. It is recommended that these concepts along with the findings from the Highway 12 visual preference and placemaking survey be incorporated into a formal Downtown Streetscape Plan or “Design Guide” by the City that will standardize visual quality elements such as plantings, pavement treatments (colored or stamped concrete), decorative lighting, fencing, street furnishings (benches, trash receptacles, bike racks, etc.), and wayfinding/signage. It is recognized that many of these improvements will likely be accomplished through a city-lead project(s) or by individual business owners investing in their properties.

### Residential Segment (Benson Avenue to approximately Ferring Street)

The City's Future Land Use Plan for this segment shows the area remaining as residential development. However, it is recognized that some land use changes may occur through redevelopment. If this occurs, it is recommended that a review of access conditions be conducted and that site design consider access modifications that would reduce the frequency of access to Highway 12. The close proximity of residential



buildings to the highway and sidewalk has created snow storage problems in the past. The recommended urban three-lane section may provide additional snow storage space and added green space over the existing condition. The three lane section with the two-way continuous center left turn lane will provide residents an opportunity to exit the thru lane and wait for a safe gap in traffic to make left turns into their property.

#### East Business Segment (Ferring Street to Highway 23/71 Interchange)

This segment of the Highway 12 corridor has the greatest potential for new development and/or redevelopment. Several developments have recently occurred (e.g. Willmar Convention Center/Hotel complex, Casey's Gas Station and Convenient Store) and the City has received inquiries about additional developments along the highway corridor. The corridor vision identifies an urban three-lane highway section and recommends maintaining the existing intersection geometry at the Lakeland Drive intersection. Other elements of the vision include the addition of parallel frontage roads on both the north and south sides of the highway. This supporting roadway network would preserve the capacity along Highway 12 by moving local trips onto a local street and would also improve safety by limiting the frequency of access to the highway. A new trail is recommended to be constructed on the south side of Highway 12 from Lakeland Drive to approximately 23<sup>rd</sup> Street SE. Because drainage has been identified as an issue in some areas within this segment, it is recommended that all site plan proposals be reviewed for stormwater retention/rate control and water quality/treatment to ensure compliance with the City's Stormwater Management Plan. Near the Highway 23/71 interchange, it is recommended that downtown wayfinding signage be added to guide visitors to the Willmar Downtown District. Various streetscape elements (lighting, banners, and plantings) should also be considered in this segment.

#### Eastern "Urbanizing" Segment (Highway 23/71 Interchange to 45<sup>th</sup> Street SE)

This segment is located outside the existing Willmar City limits. However, future development is expected to occur at moderate levels over the next 20 plus years. In the past, the County Road 9 intersection has been cited as a high crash location. Several factors have likely contributed to the crash history at this location including the close proximity to the Highway 23/71 interchange ramp intersection, higher speeds along Highway 12, and County Road 9 serving as a link to Willmar High School. The 2014 Highway 12 improvements being made by MnDOT include safety improvements at the County Road 9 intersection which should alleviate the problem. Outside of the interchange area, the corridor vision includes a rural three-lane highway section with rural drainage (road side ditches). Surface water generally drains from northeast to southwest in this area. The existing ditch system has been subject to seasonal flooding and flooding following heavy rainfall events. As a result, it is recommended that a comprehensive analysis of drainage in this segment be conducted as future development is proposed to ensure adequate infrastructure (e.g. culvert sizes, ditch width/depth, etc.) is provided. A supporting frontage road on both sides of Highway 12



is also recommended. The location of a local supporting roadway will be determined as part of site development. A frontage/backage road system would provide an opportunity to remove several direct access points from Highway 12.

#### *Corridor Vision Capacity Assessment*

Forecast traffic volumes were created using a moderate growth factor that took into account annual traffic growth patterns and foreseeable land use changes. As shown in Table 1, segments of Highway 12 have actually experienced a slight reduction in the number of daily trips over the past 20 years. This is primarily due to the expansion of the Highway 23/71 corridor along the eastern and southern parts of the community. The 2040 daily traffic projections did not assume a continued decline but rather a moderate annual increase. The future traffic volumes range between approximately 7,300 and 11,000 daily trips. According to the planning level capacity assessment, this amount of traffic can operate at a high efficiency level (level of service B or C) with a three-lane highway section (one through lane in each direction with a center-shared left turn lane). It is recommended that intersection operations continue to be monitored and appropriate improvements (e.g. additional right or left turn lanes) be added.

#### *Overall Safety Assessment*

Based on a review of historical crash data for the corridor it was determined that many existing safety concerns were associated with conflicts between faster moving through traffic and slower moving turning traffic. Many of the crashes were categorized as rear-end and side-swipe crashes. It was determined that high percentage of crashes, including higher severity (injury) crashes, could be corrected by isolating turning movements from through movements. National research has shown that a shared-center left turn lane (also known as two-way left turn lane) can reduce crashes along a corridor by 11 to 35 percent on an existing two-lane road and by 19 to 35 percent on a four-lane undivided road<sup>2</sup>. Therefore, the Highway 12 Corridor Vision should have a substantial benefit on overall safety conditions. It is recommended that crash data continue to be monitored so that areas of concern are identified early and safety improvements can be studied, designed, and funded before the condition worsens.

#### Highway 12 Conceptual Corridor Vision

Appendix C contains a conceptual layout of the Corridor Vision. Also, the following pages include visual renderings, typical sections, and downtown streetscape illustrations of a three-lane highway section. The purpose of these images is not to show how the corridor exactly appear in the future, but rather to provide a "before" and "after" comparison.

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<sup>2</sup> Harwood, D.W. *Multilane Design Alternatives for Improving Suburban Highways*. National Cooperative Highway Research Program 282. Transportation Research Board, National Research Council, Washington, DC, March 1986.



“Before” Condition



“After” Condition

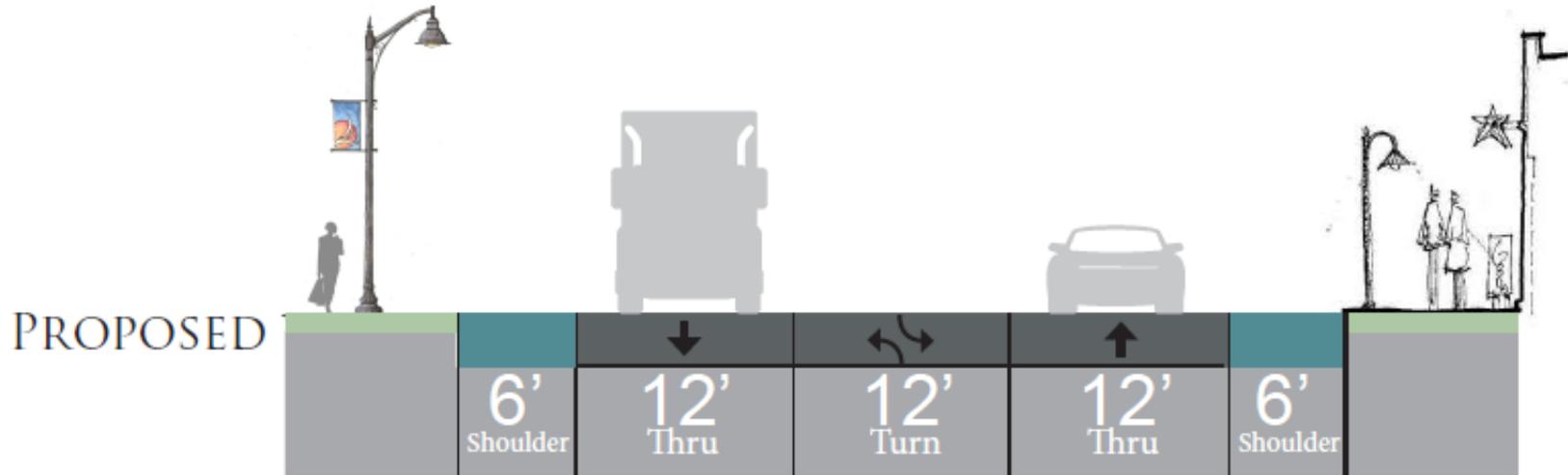
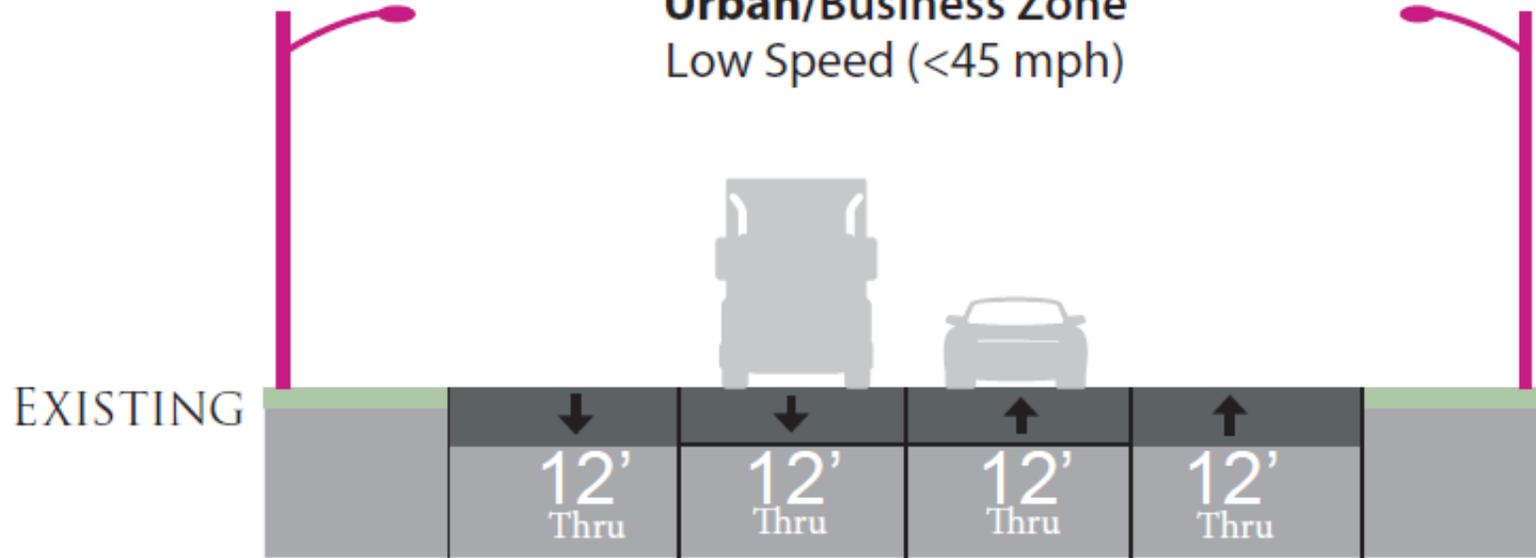




### Highway 12 Corridor Study

#### Urban/Business Zone

Low Speed (<45 mph)

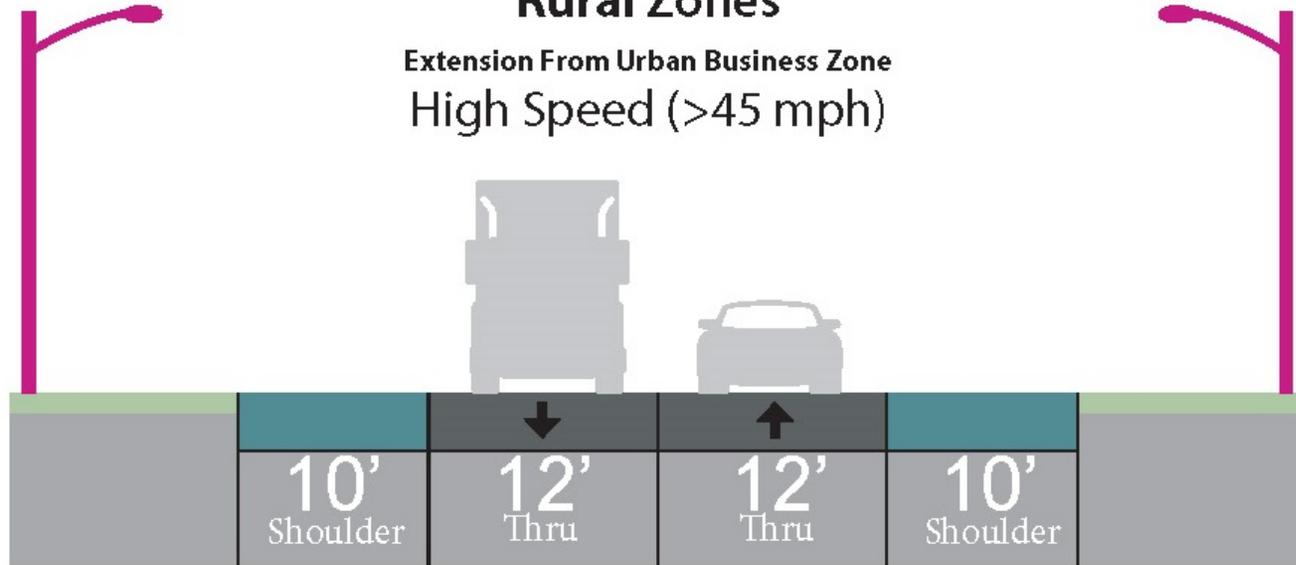




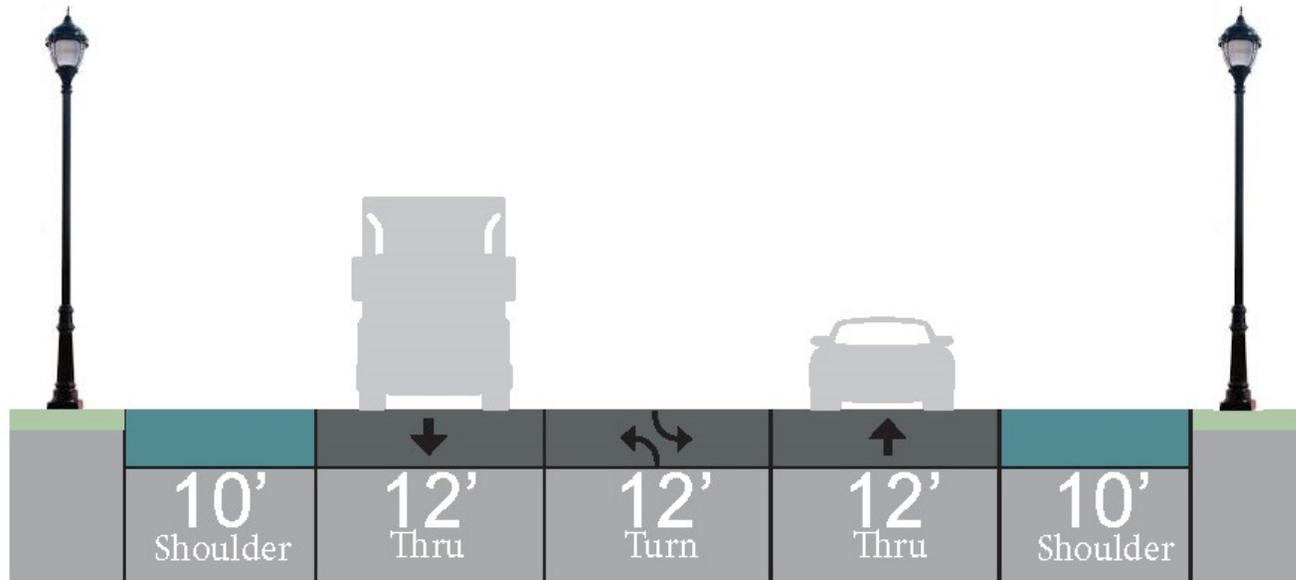
# Highway 12 Corridor Study Rural Zones

Extension From Urban Business Zone  
High Speed (>45 mph)

EXISTING



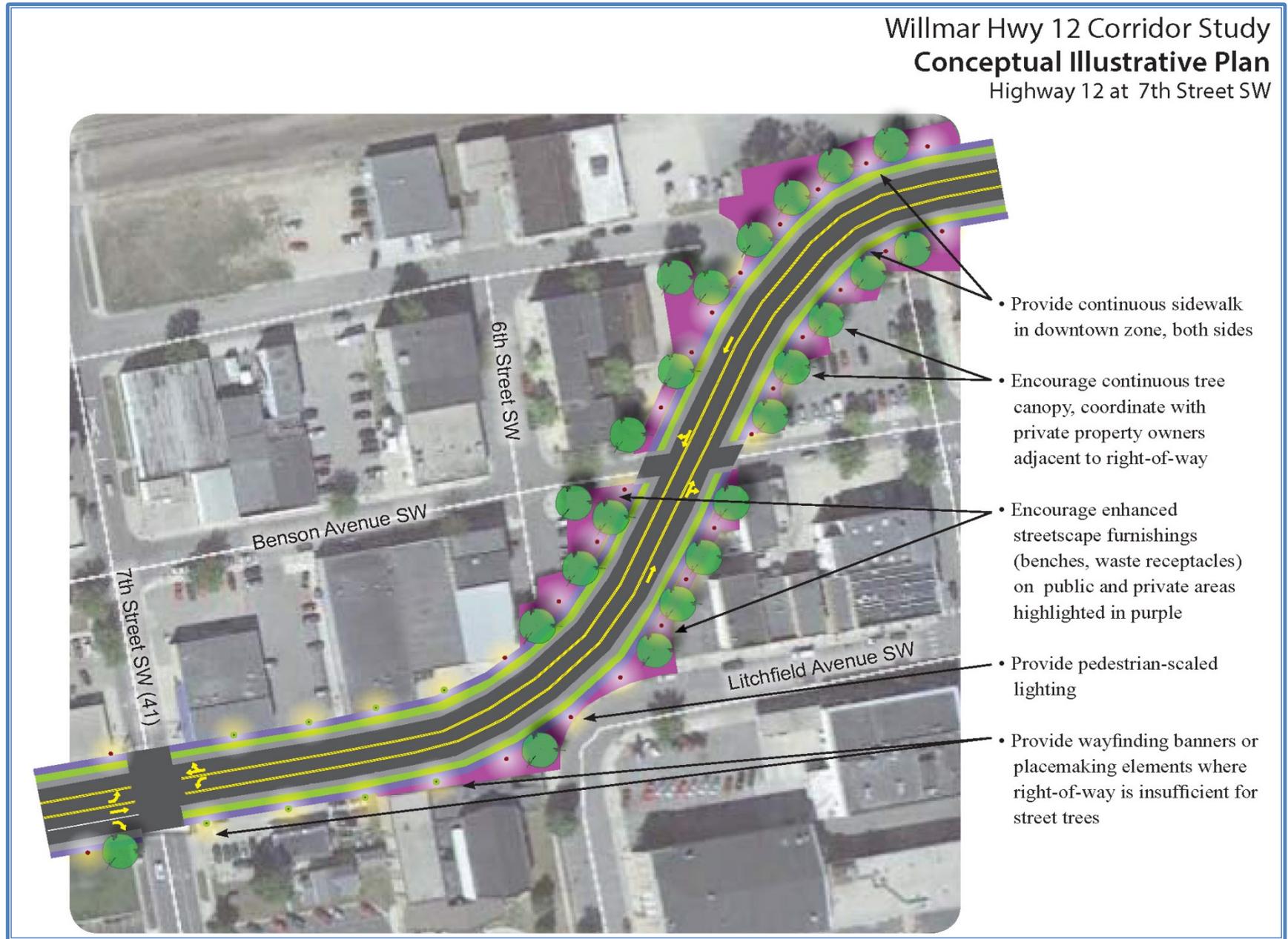
PROPOSED





Willmar Hwy 12 Corridor Study  
Conceptual Illustrative Plan

Highway 12 at 7th Street SW





Willmar Hwy 12 Corridor Study  
Conceptual Illustrative Plan

Highway 12 at 7th Street SW



- Provide continuous sidewalk in downtown zone, both sides
- Encourage continuous tree canopy, coordinate with private property owners adjacent to right-of-way
- Encourage enhanced streetscape furnishings (benches, waste receptacles) on public and private areas highlighted in purple
- Provide pedestrian-scaled lighting
- Provide wayfinding banners or placemaking elements where right-of-way is insufficient for street trees





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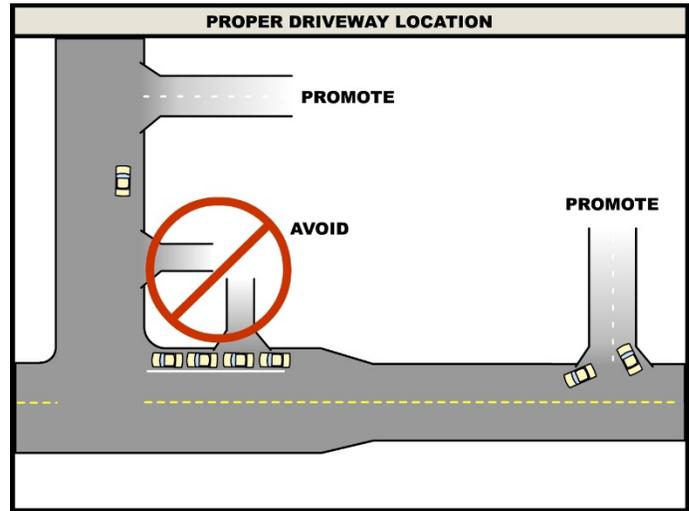
WILLMAR



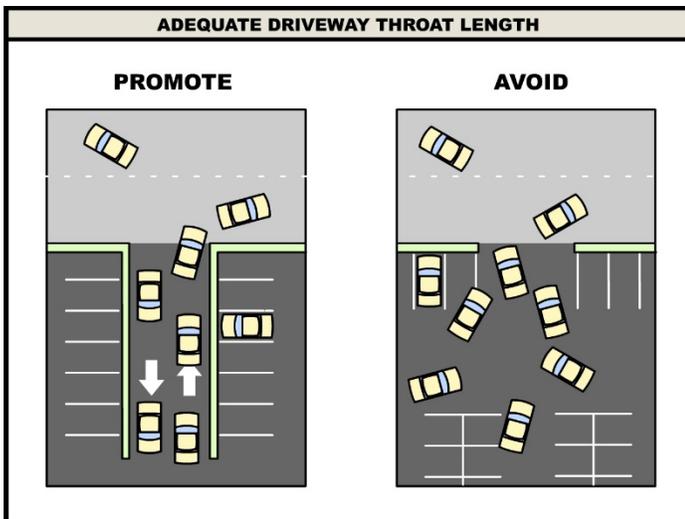


**Recommendation #2: Establish access management strategies and consider adoption of a Highway 12 Overlay Ordinance with specific access and land use policies that will promote the safe and efficient movement of traffic.**

Access management is a critical element of an efficient transportation system, and is supported by affected jurisdictions as a technique to promote continual traffic flow with improved safety conditions. The Highway 12 corridor vision includes the implementation of access management strategies that limit the number and location of access points along the highway corridor. These strategies include consolidation of driveways, creation of cross-access easements between parking lots, and expanding the system of frontage roads to minimize the number of access points to the highway. The conceptual roadway layout figures for the "Corridor Vision" (see Appendix C) depict several areas where frontage road extensions should be planned and where possible candidate access modifications could be considered.



A draft Highway 12 Overlay Zoning Ordinance was also established as part of the corridor vision plan process. It is recommended that the City of Willmar adopt an overlay ordinance for areas adjacent to Highway 12. The purpose of the overlay ordinance is to enhance the quality, functionality and compatibility of development and to establish



consistent access and design guidelines for new developments and redevelopments. The standards are intended to encourage the most appropriate use of adjacent lands of Highway 12 in the City of Willmar; to promote the safe and efficient movement of traffic; to provide preservation of the community's historical character; and to maintain property values along the Corridor.

Appendix D contains a copy of the draft Highway 12 Overlay Zoning Ordinance. It is recommended that the access and land use standards contained in the ordinance be





periodically reviewed and amended to address current conditions and address transportation and land use issues that may arise over time.

***Recommendation #3: Seek opportunities to provide streetscape features to enhance the overall aesthetic appearance of the corridor.***

A reoccurring desire expressed made by several project stakeholders was to enhance the visual character of the Highway 12 corridor. In response to this issue, a visual preference survey of streetscape elements (e.g. wayfinding, banners, gateway monuments, lighting, street furnishings, road/trail surface materials, fencing, railing, etc.) was conducted as part of this study with the Highway 12 Project Advisory Committee (PAC). The purpose of the visual preference survey was not to select specific features, themes, colors, etc., but rather to gain a better understanding of visual “likes” and “dislikes” that could be used to establish a palette of streetscape elements. This information is further discussed in the Visual Quality Preference section of this report.

Building upon the findings and recommendations of past studies such as the Willmar Downtown Plan, Comprehensive Plan, and the visual preference survey, it is recommended that the City consider the establishment of streetscape guidelines. These guidelines would provide the tools necessary to create a successful streetscape plan along Highway 12 that includes standardized elements that are not only aesthetically pleasing and functional, but also easy to repair and maintain. The objective of these streetscape guidelines would be to encourage the enhancement and revitalization of commercial areas in downtown Willmar and throughout the corridor.

***Other Recommendations***

Throughout the study process, several other transportation and land use recommendations were captured. In some instances these include site specific improvements, while others are long term vision related items that apply throughout the Highway 12 corridor.

- Limit the number of new traffic signals so that the corridor will continue to serve a higher mobility function.
- Maintain and add right turn lanes at key intersections (County Road 5, Industrial Drive, Lakeland Drive, County Road 9, and others as deemed necessary).
- Since drainage along the corridor has been an issue in the past, all new developments (including redevelopments) shall be designed with on-site stormwater management features. All development plans shall include a stormwater retention/rate control and water quality/treatment features that are in accordance with the City's Stormwater Management Plan.
- Continue to monitor crash data along the corridor so that areas of concern are identified early and safety improvements can be studied, designed, funded, and implemented before the condition worsens.
- Consider adding intersection control along parallel frontage roads where the access to Highway 12 is located close to the frontage road. Traffic exiting Highway 12 should be allowed free flow movement, but stop control conditions for traffic on the frontage road



- could be added to preserve safety conditions on both Highway 12 and the local street network.
- Future roadway and intersection improvements should be designed to accommodate north-south trail/sidewalk crossings throughout the corridor, but especially at County Road 5, 10<sup>th</sup> Street SW, 7<sup>th</sup> Street SW, and Lakeland Drive. As part of future development reviews, consider a continuous trail/sidewalk along the entire corridor should the City's Parks and Recreational Plan or Trails & Pedestrian Plan identify the need for a continuous east-west facility.
  - The transportation project development process shall be performed through collaboration and cooperation between agencies, jurisdictions, and project stakeholders. Identifying all interested project partners can be a complex task, but the collaboration will be a valuable tool for reinforcing and discovering the best solution for all involved.

### Phasing Strategies to Achieve the Highway 12 Corridor Vision

This Highway 12 Corridor Vision establishes an overall vision for the corridor that is ambitious yet realistic if incrementally implemented. An important consideration for construction phasing, however, is the interrelated nature of the recommendations. Further, phasing improvements requires continued coordination among the project partners and an agreed upon need for the improvements so that financial resources (e.g. recurring funding sources, competitive solicitations/grants. etc.) can be pursued and programmed in a timely fashion. It should be assumed that funding any particular project will require a partnership between agencies that could bring multiple sources of funding together.

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