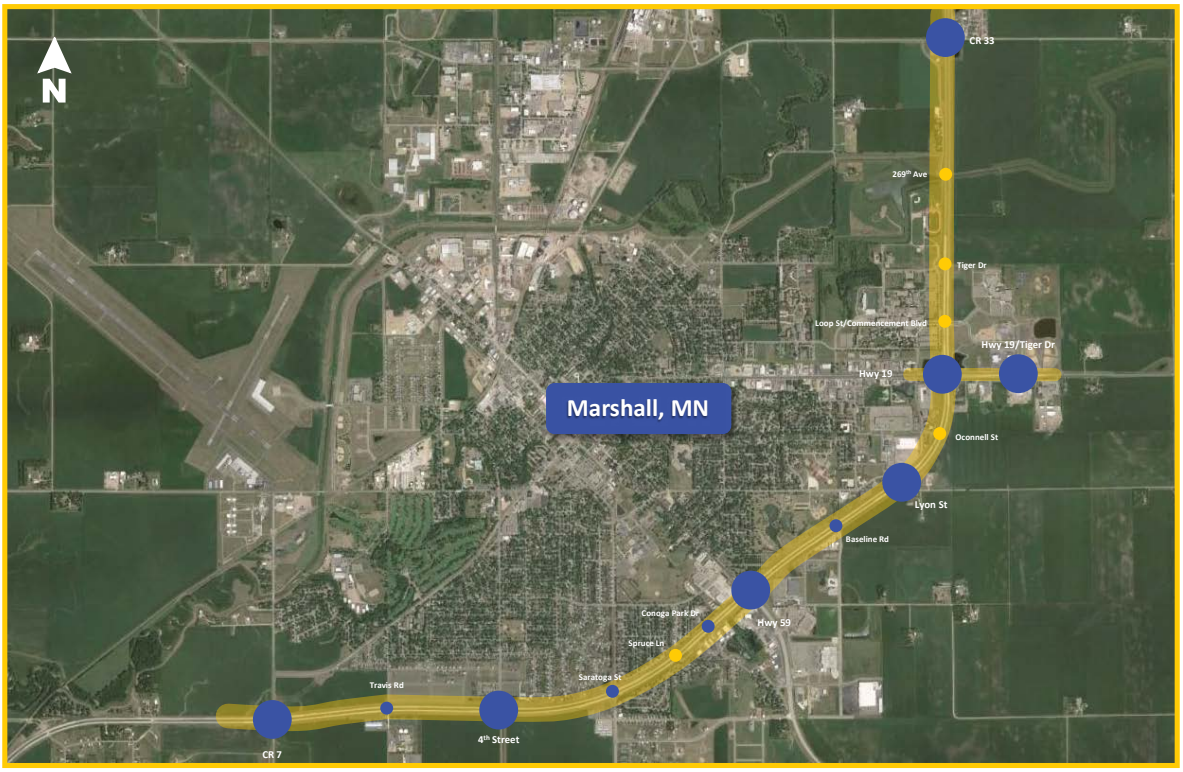
WELCOME

MARSHALL AREA

HWY 23

SAFETY ASSESSMENT

OVERVIEW



Safety Assessment:

- The Minnesota Department of Transportation (MnDOT) and its partners, the City of Marshall, Lyon County, and the Marshall Area Transportation Group, are conducting a safety assessment to evaluate the current and future performance of Highway 23 and develop short- and long-term strategies to manage the corridor now and into the future.
- The proposed strategies will create a joint vision for the corridor between stakeholders and the public to help identify and prioritize improvements to take advantage of funding as it becomes available.
- Initial activities for the assessment began in January 2016 and the overall assessment will be completed by August 2016. The assessment will be conducted in three phases:
  - **Phase 1:** Identify the purpose and need.
  - **Phase 2:** Develop and evaluate alternatives.
  - **Phase 3:** Identify recommended strategies and implementation plan.

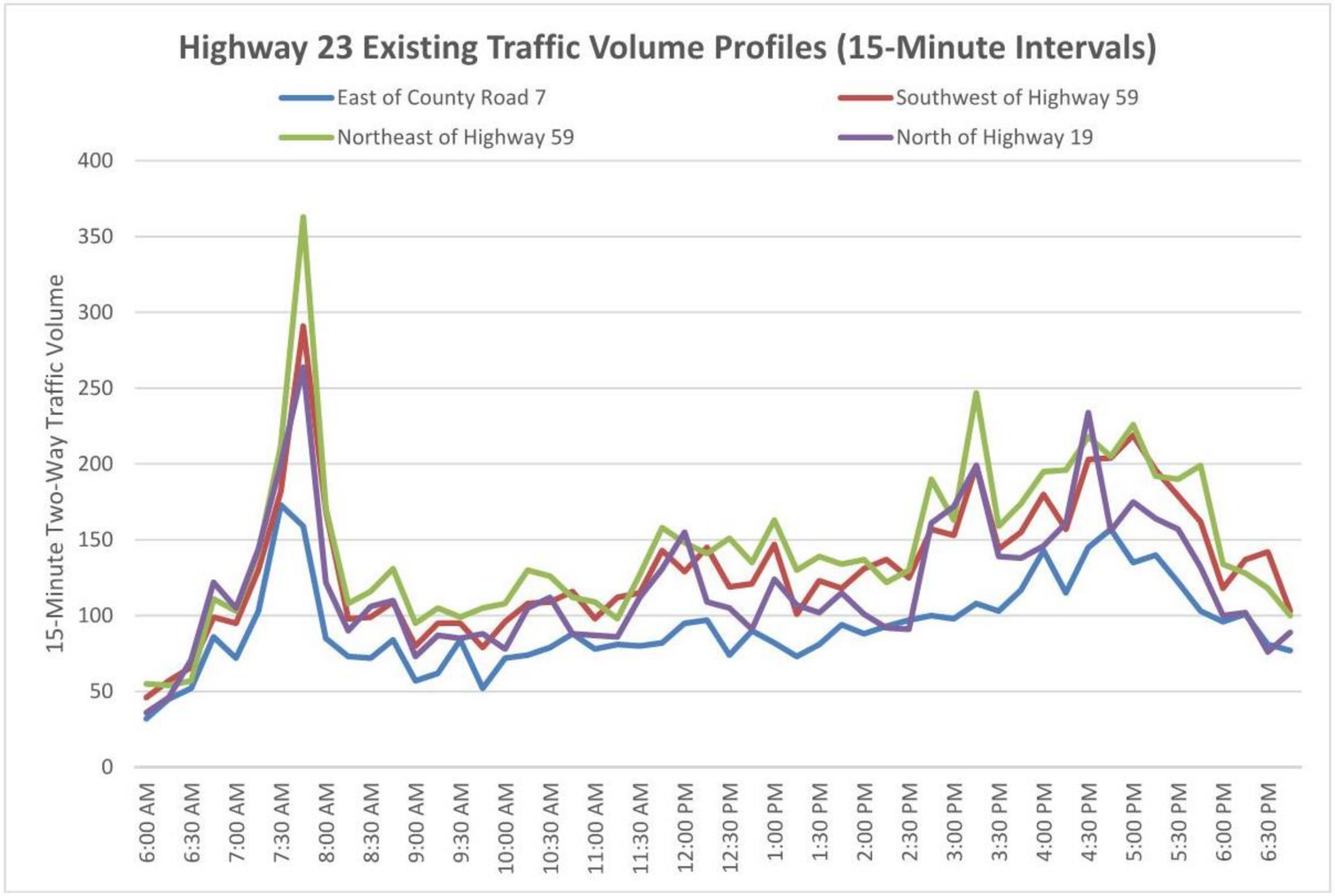
Assessment Purpose:

- Evaluate existing conditions.
- Facilitate discussion between local partners, stakeholders, and the public.
- Provide a list of opportunities and recommendations, and establish priorities.
- Develop a common vision to identify, prioritize, and design future safety improvements.

TRAFFIC ASSESSMENT

January 2016

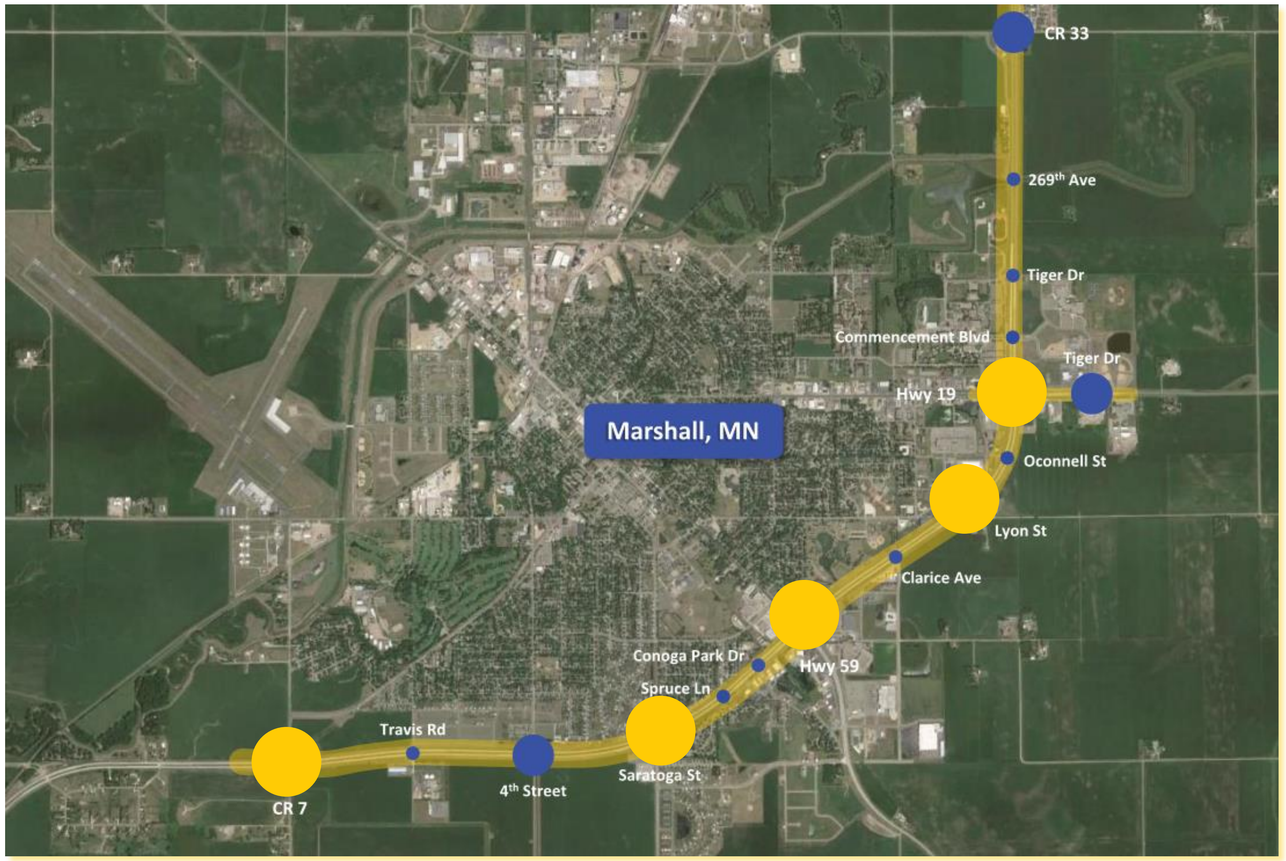
- ✓ There is a peak that occurs at 7:45 a.m., which coincides with shifts starting at 8:00 a.m. and school start times.
- ✓ Some intersections experience longer delays for a short time in the morning.



SAFETY ASSESSMENT

2010-2014*

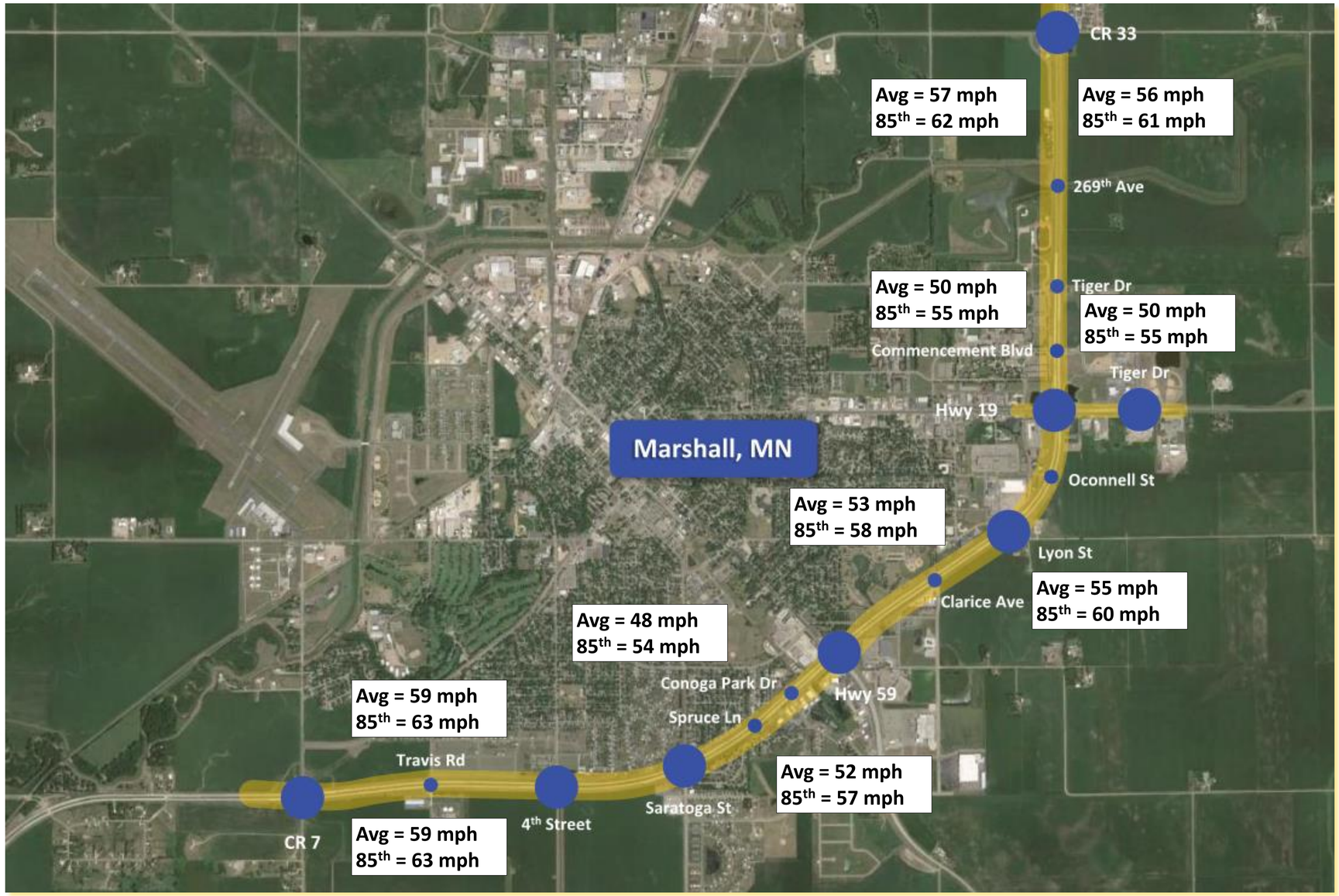
- ✓ Total intersection crashes = 137
  - ✓ Right-angle crashes = 41 (30%)
  - ✓ Rear-end crashes = 33 (24%)
  - ✓ Side-swipe/passing crashes = 20 (15%)
  - ✓ Other = 43 (31%)
- ✓ Higher crash locations:
  1. Hwy 23/CR 7
  2. Hwy 23/Saratoga Street*
  3. Hwy 23/Hwy 59
  4. Hwy 23/Hwy 19
  5. Hwy 23/Lyon St



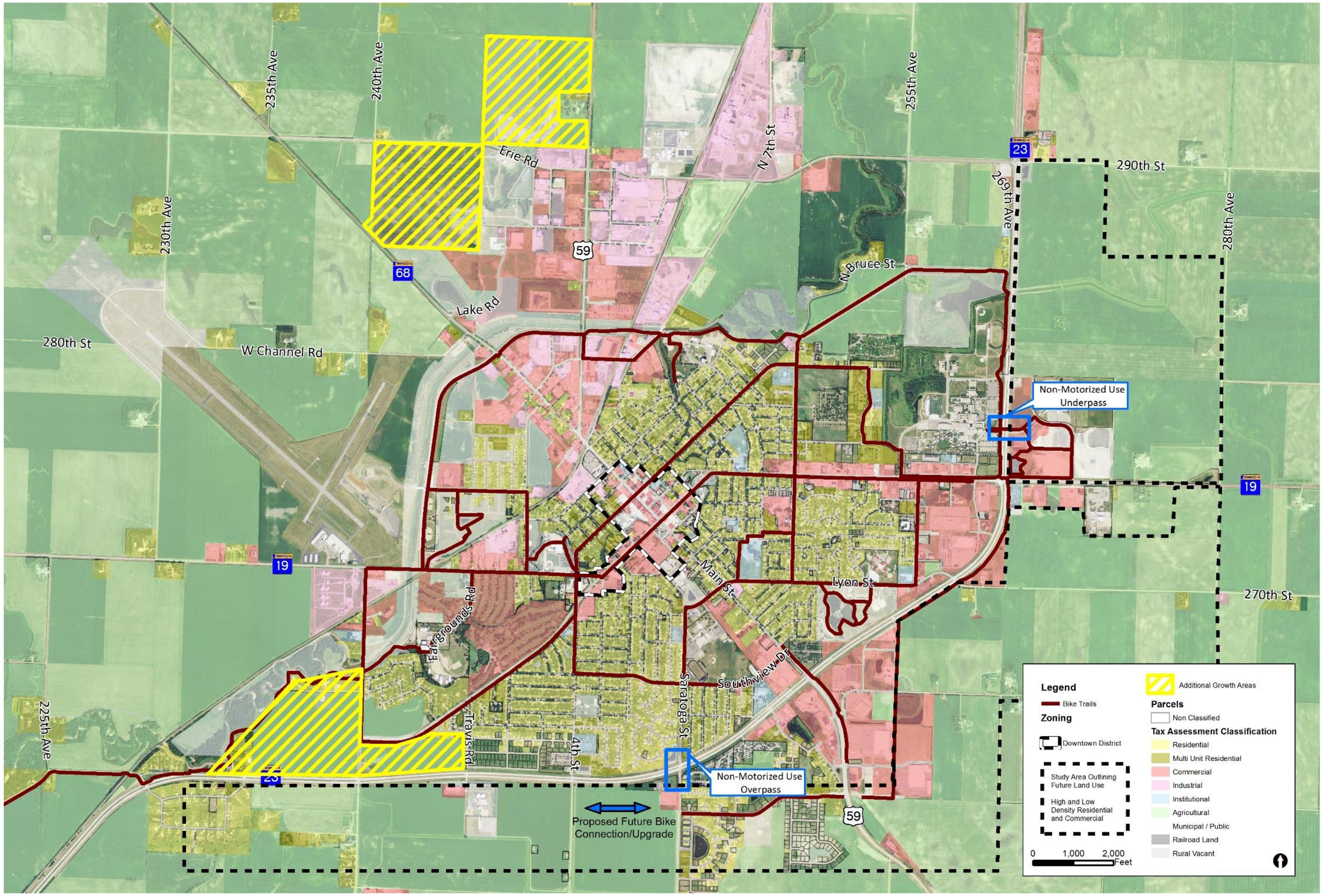
* Prior to J-Turn construction at Saratoga Street.

SPEED ASSESSMENT

- ✓ Posted speed limit is 55 mph.
- ✓ Average and 85th Percentile speeds were determined.
- ✓ Speed limits are generally set near the 85th Percentile of free-flow conditions.
- ✓ Data collected is consistent with prior speed studies.



LAND USE & FUTURE GROWTH

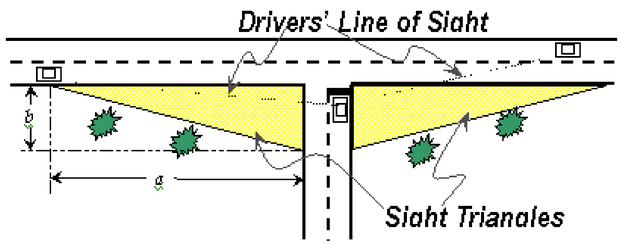


MARSHALL AREA
HWY 23
SAFETY ASSESSMENT

ROADWAY DESIGN

Purpose: Alter roadway features to improve safety by changing the character of the roadway.

Potential Strategies	Reduces travel speeds along Hwy 23?	Improves safety at intersections?	Improve safety of access to, from and across Hwy 23?	Improves safety for pedestrians and bicyclists?
Clear Sight Distance		✓	✓	✓
Channelization	✓	✓	✓	✓
Offset Turn Lanes		✓	✓	
Approach Design and Roadway Alignment	✓	✓	✓	✓
Acceleration Lanes		✓	✓	
Grade Separations (i.e. overpass, underpass, interchange)		✓	✓	✓



Clear Sight Distance

Channelization (Left-Turn Lane)

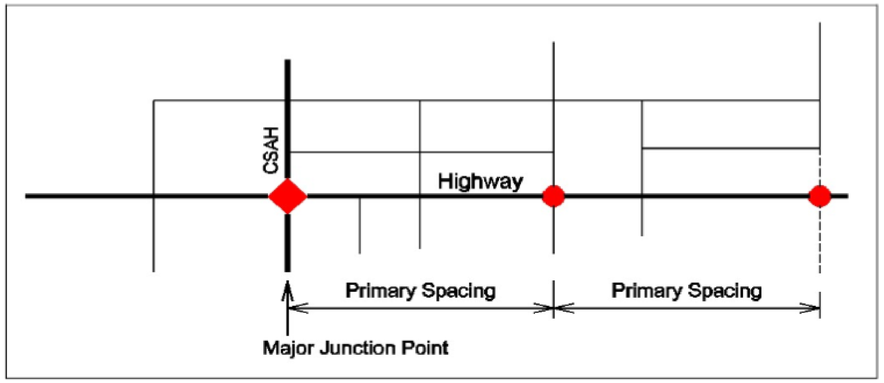
Offset Turn Lanes

ACCESS MANAGEMENT

Purpose: Maintain a safe flow of traffic while accommodating the access needs of adjacent development.

Potential Strategies	Reduces travel speeds along Hwy 23?	Improves safety at intersections?	Improve safety of access to, from and across Hwy 23?	Improves safety for pedestrians and bicyclists?
Access Density and Spacing		✓	✓	✓
Turn Restrictions		✓	✓	✓
Innovative Intersections (i.e. J-Turns)		✓	✓	
Frontage/Backage Roads		✓	✓	✓

Turn Restrictions with Frontage Road



Access Density and Spacing

INTERSECTION CONTROL

Purpose: Promotes safety and efficiency by providing the orderly movement of all users

Potential Strategies	Reduces travel speeds along Hwy 23?	Improves safety at intersections?	Improve safety of access to, from and across Hwy 23?	Improves safety for pedestrians and bicyclists?
Traffic Signal Phasing and Timing	✓	✓	✓	✓
Roundabout	✓	✓	✓	✓
Innovative Intersections (i.e. J-Turns)		✓	✓	
Rural Intersection Conflict Warning System (RICWS)		✓	✓	
Grade Separations (i.e. overpass, underpass, interchange)		✓	✓	✓

Roundabout

Rural Intersection Conflict Warning System (RICWS)

Traffic Signal Phasing (Flashing Yellow Arrow)

ROADSIDE ENVIRONMENT

Purpose: Alters roadway character conveying a change in environment to motorists.

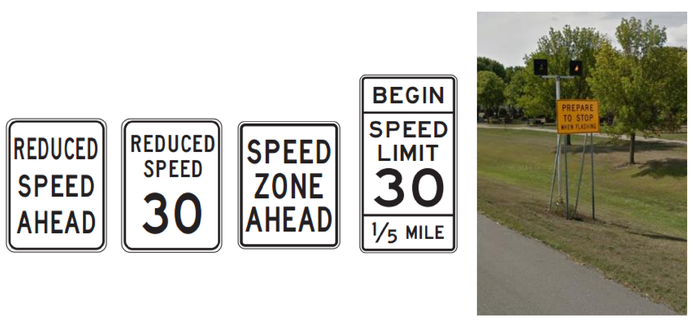
Potential Strategies	Reduces travel speeds along Hwy 23?	Improves safety at intersections?	Improve safety of access to, from and across Hwy 23?	Improves safety for pedestrians and bicyclists?
Gateway Treatments	✓			
Landscaping	✓			

Hwy 371
Baxter, Minnesota

SIGNING

Purpose: Provides additional information to motorists regarding environment.

Potential Strategies	Reduces travel speeds along Hwy 23?	Improves safety at intersections?	Improve safety of access to, from and across Hwy 23?	Improves safety for pedestrians and bicyclists?
Advanced Warning Signs and Flashers	✓			
Speed-activated Driver Feedback Signs	✓			
Trail Wayfinding				✓
Right-Turn-On-Red Restrictions		✓	✓	✓



Advanced Warning Signs and Flashers

Speed-activated Driver Feedback Signs

Trail Wayfinding

Right-Turn-On-Red Restrictions

PAVEMENT MARKINGS

Purpose: Markings used to convey a change in environment to motorists.

Potential Strategies	Reduces travel speeds along Hwy 23?	Improves safety at intersections?	Improve safety of access to, from and across Hwy 23?	Improves safety for pedestrians and bicyclists?
Transverse Pavement Markings	✓			
Pavement Messages	✓			
Marked Crosswalks and Advanced Stop Lines		✓		✓

Transverse Pavement Markings

Pavement Messages

Marked Crosswalks and Advanced Stop Lines

ENFORCEMENT & EDUCATION

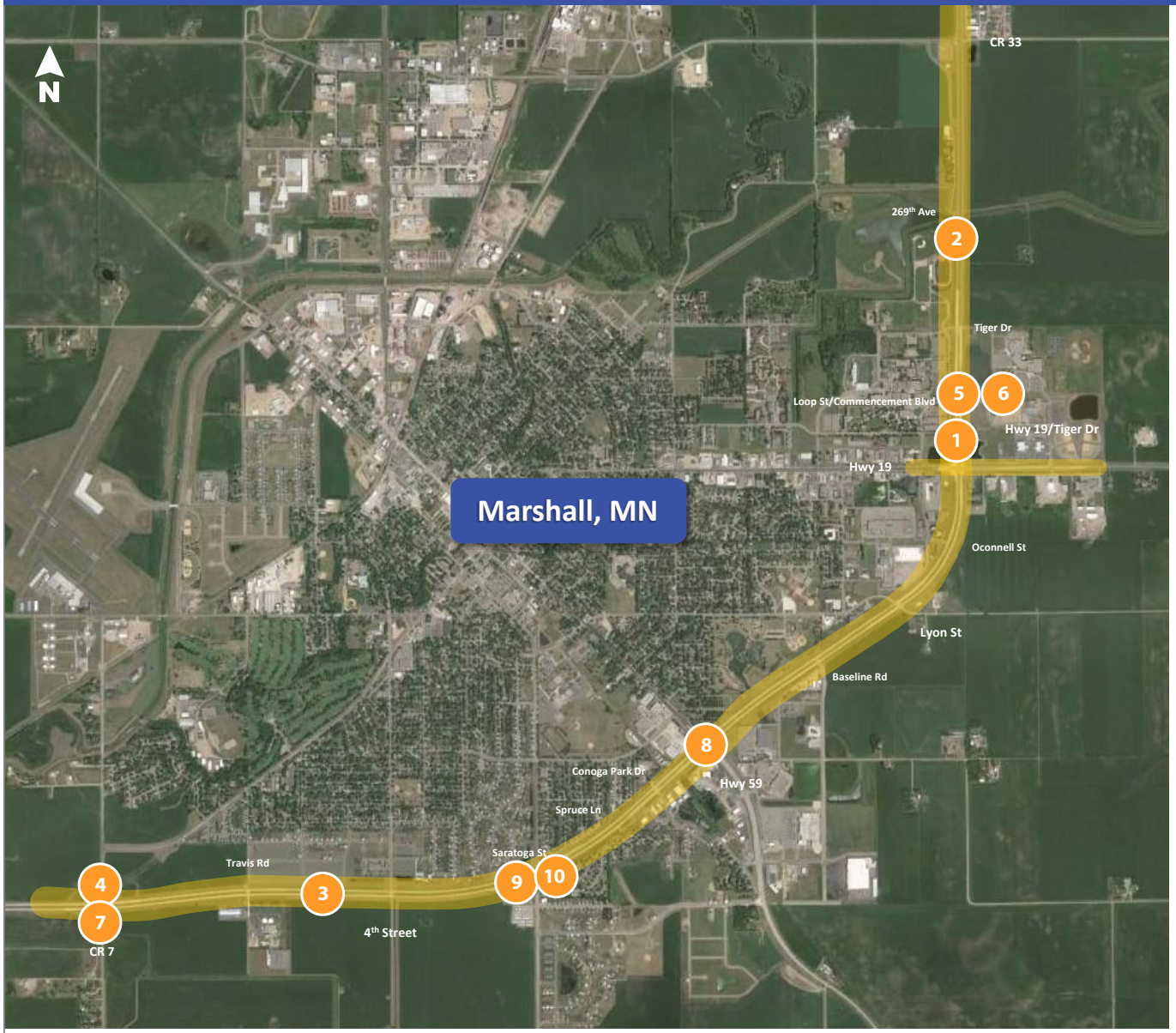
Purpose: Educate motorists on dangers of speeding and distracted driving.
Increase law enforcement exposure and enforcement of traffic laws.

Potential Strategies	Reduces travel speeds along Hwy 23?	Improves safety at intersections?	Improve safety of access to, from and across Hwy 23?	Improves safety for pedestrians and bicyclists?
Public Awareness Campaigns	✓	✓	✓	✓
Speed Enforcement	✓	✓	✓	✓

Speeding "greatly reduces a driver's ability to steer safely around another vehicle, a hazardous object, or an unexpected curve. Speeding drivers put themselves, their passengers and other drivers at tremendous risk." - NHTSA

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

RECENT CORRIDOR IMPROVEMENTS



Improvement Projects

1. School speed zone – **2006**
2. Extended 4-lane roadway beyond CR 33 – **2009**
3. Concrete resurfacing – **2010**
4. Cooperative Intersection Collision Avoidance System (CICAS) – **2010**
5. Pedestrian underpass – **2011**
6. Commencement Blvd connection – **2011**
7. Rural Intersection Conflict Warning System (RICWIS) – **2014**
8. Reconfigured lanes on Hwy 59 adjacent to Hwy 23 – **2015**
9. Pedestrian overpass – **2015**
10. Restricted Crossing U-turn Intersection (RCUT) – **2015**

MARSHALL AREA
HWY 23
SAFETY ASSESSMENT