ISSUES SUMMARY

The key issues identified in this document will be used to develop implementable solutions to improve the safety, operations, and multimodal connections of the Hwy 197 corridor between Gillett Drive and Bemidji Avenue.

EXISTING PHYSICAL CONDITIONS

Hwy 197 is currently divided into two typical sections. A divided 4-Lane rural section between Gillett Drive and Hannah Avenue and a 5-Lane urban section between Hannah Avenue and Bemidji Avenue. Both sections are classified as principal arterials which recommend mobility over access. The pavement conditions of the corridor are currently in fair conditions (3/5) with the section west of US 71 in good condition (4/5) estimated at 8-12 years of usable life.

Current ROW along the corridor from east to west is restricted to 80 feet from Bemidji Avenue to Delton Avenue, expands to 120 feet to Hannah Avenue, and is 250 feet until Gillett Avenue. Storm sewer lines run inside the Hwy 197 ROW from Irvine Avenue to Partnership Avenue with storm, sanitary, and/or water line crossings at 7 different intersections along the corridor. Lighting is only provided at public intersections along Hwy 197 and corridor lighting should be considered to increase the safety and mobility of multimodal users.

ENVIRONMENTAL CONDITIONS

The environmental conditions or affected environment are documented per the Planning and Environmental Linkages (PEL) process to assist in the development of the potential future NEPA documentation as well as to assist in identifying potential constraints when developing build alternatives. The environmental conditions will respond directly to the transportation, safety, and system linkage needs of the Hwy 197 corridor.

Affected Environment

Land use in the Hwy 197 corridor is characterized as mainly commercial development (i.e. restaurants, small businesses, etc.) Over 100 businesses are served by this corridor generating 70,000 trips each day. Other land uses along the corridor include the Greenwood Cemetery, First Baptist Church, Trek North Junior and Senior High School, and Paul Bunyan Mall. There is a wide use of snowmobile and bicycle use throughout the corridor.

Social and Environmental Justice

Within the two census blocks identified along the Hwy 197 corridor, low-income populations range from 27 percent to 65 percent and minority populations range from 14 percent to 33 percent. There are multi-family residential housing units as well as a mobile home park which offer low-income housing. For these housing communities, it is important to have pedestrian and bicycle facilities/public transportation to allow these residents to get safely to their places of employment, school, and businesses since they may not have access to a private vehicle.

MULTIMODAL FACILITIES

The Hwy 197 corridor has been identified as a physical barrier to active transportation opportunities for the population living in and around the Hwy 197 corridor. 35% of surveyed residents would walk or bike with improved facilities.

Pedestrian Facilities

Although signalized intersections have updated crossings that are ADA compliant to the east of Hannah Avenue, this segment of roadway includes the minimum width of sidewalk (5-6 feet) with no buffer between a 5-Lane section of traffic with no shoulder. Additional crossing locations and cross section improvements were identified as needs for alternative analysis.

Bicycle Facilities

Bemidji has been a strong proponent of bicycling infrastructure; however, with no dedicated bicycle facilities currently on or parallel to Hwy 197, high speeds, and high volume vehicular traffic, Hwy 197 does not support bicycle activity. Dedicated bicycle routes cross Hwy 197 at Ridgeway Avenue and Irvine Avenue but neither promotes bicycle specific usage as these are only unsigned shared roadways.

Using Streetlight data to distinguish users of Hwy 197, it was found that over 50 percent of trips using the corridor were less than 2 miles long. These short trips show the need for an expanded bicycle network on or parallel to the Hwy 197 corridor as an alternative to vehicular traffic.

Transit Facilities

Paul Bunyan Transit provides dial-a-ride public transportation for residents in the Greater Bemidji Area (10-mile radius from city hall) and Beltrami County. In 2017, Paul Bunyan Transit provided around 120,000 trips representing less than one percent of commuting traffic.

Traffic Conditions

Vehicular Traffic Trends

Traffic west of US 71 has shown an increase in traffic of 1.5 percent per year while traffic to the east of US 71 has decreased over the past 12 years at a -1.0 to -6.0 percent rate. Truck traffic along the corridor is minimal with under a 2 percent truck percentage. Recreational traffic peaks were identified with a 10-20 percent increase in traffic during the summer months and January due to an increase in outdoor winter activities. Future volumes included a base scenario assuming a one percent growth rate and a summer rec scenario that assumed an additional 15 percent increase in recreational volumes.

Existing and Future Traffic Operations

Existing Traffic operations identified that unsignalized minor approaches and accesses east of Hannah Avenue were starting to see unacceptable delays during peak hours. Queuing from Irvine Avenue, Hannah Avenue, and Middle School Avenue was also identified as blocking adjacent access points. Traffic signal delays on the corridor increase travel times by 15 to 30 percent over free flow.

Future operations results showed continued degradation of minor approach unsignalized movements in delay and queue lengths. Future network delay increased by 13 percent for 2040 No Build and 31 percent for the 2040 Summer Rec. Future corridor average travel time increases were minimal ranging from 30 to 40 percent over free flow.

Traffic Safety

Critical crash locations were identified at the US 71 intersection and segments between Bemidji Avenue to Park Avenue and Hannah Avenue to Gillett Drive. Historical crash data showed 45 crashes per year on the Hwy 197 corridor from 2011-2015 with a crash cost of over $1.6 million every year. The majority of crashes were either rear end or right-angle type crashes.

An existing conflict analysis was completed at Hannah Avenue and a retail segment to the east of Ash Avenue. This conflict analysis identified a high existing conflict potential in 5-lane retail segments of the corridor. Future total conflicts are expected to increase by 60 percent for 2040 No Build and 120 percent for the 2040 Summer Rec.

Access Control

MnDOT access spacing guidelines were used to identify access spacing deficiencies along the corridor and found that corridor segments from Gillett Drive to US 71 and Hannah Avenue to Bemidji Avenue exceeded recommendations by between 200 and 325 percent. Over 50 private access locations are currently along Hwy 197 which impact traffic flow and safety along the corridor. Consolidation of access points to increase corridor safety is a major project goal.

Traffic Control

Existing signalized intersections all meet existing signal warrants except at the Menards Access. Future warrants did not identify any additional unsignalized locations meeting signal warrants. It is expected with access consolidation around the Menards Access signal that it will meet signal warrants again.

Community Review Panel Value Profiles

A group of project stakeholders, community representatives, and business owners along the Hwy 197 corridor were used to create a Value Profile to assess potential alternatives. When presented with the key issues on the corridor, this panel prioritized the following existing issues and improvements in order of importance.

Existing Issues to Address

1. Safety
2. Access to Business
3. Ease of Travel
4. Walk-Ability
5. Bike-ability

Highest Ranked Improvements

1. Reduce # of Crashes
2. Improve Sidewalk Connectivity
3. Increase Boulevard Width
4. Simplify Driver Decisions
5. Improve Business Access

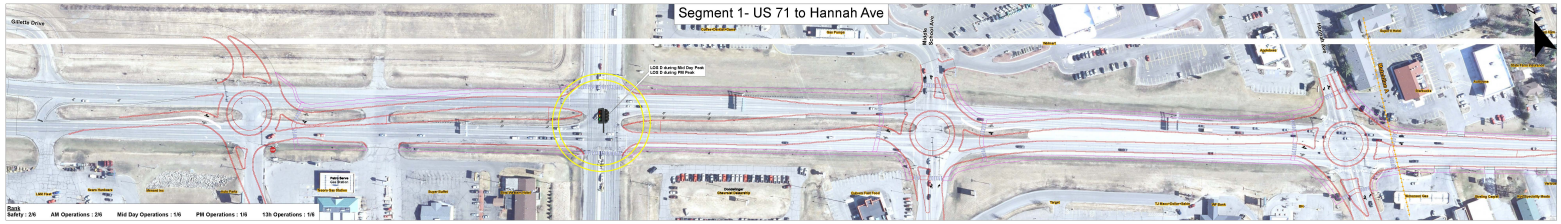
Improvements were also recommended to avoid future improvements that increased maintenance needs or increased driver confusion along the corridor.

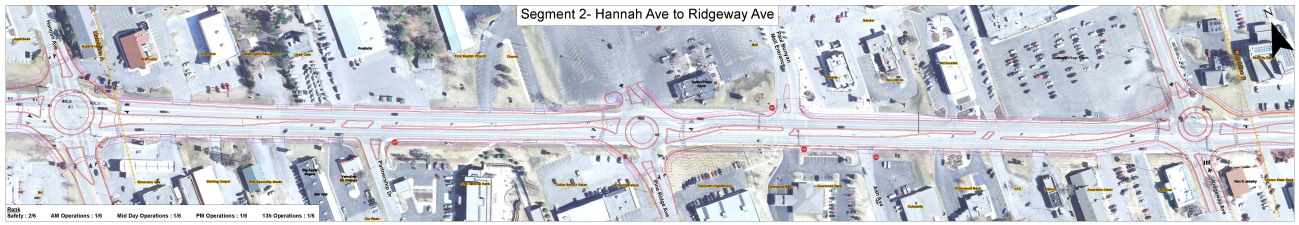
Alternative Analysis Summary

The preferred alternative (Alt #4) for the Highway 197 Corridor Study combined safety and operational improvements from preliminary modeling to maximize the safety and operations benefits to the Highway 197 corridor. This process was supported from the Community Review Panel throughout the process to identify community supported improvements, a vision for the completed corridor, and public outreach throughout the project. This report summarizes the technical process that supports a preferred alternative being selected by the CRP and approved by the City of Bemidji.

Key Takeaways

- 4 Alternatives and an access consolidation only alternative were analyzed as part of this project. These alternatives assumed:
  - Various intersection control improvements including roundabouts, signals, reduced conflict intersections (RCIs);
  - Access control improvements including 3/4 and right-in right-out concepts;
  - Cross sections improvements including 3-Lane, 4-Lane, 5-Lane, and various median designs.
- Alt #4 was chosen as the preferred alternative balancing 6 roundabout locations, wide medians that provide mid-block 3/4 accesses, and prioritizing the reduction of added travel time compared to other alternatives.
- The frequency of pedestrian and bicycle crossing locations and a multiuse space along the entire south side of the corridor were prioritized multimodal improvements.
- Average corridor delay will decrease over 30% during the weekday and over 22% during recreational peaks with the preferred alternative. Total travel times will remain on average the same.
- Only 3% of all traffic using Hwy 197 travels the entire corridor from Bemidji Ave to Gillett Ave and will see an increase of 60-90 seconds of travel time.
- An 88% to 89% percent severe crash reduction is expected with Alt #4 improvements even though the total crash rate is expected to increase between 0%-5% (like sideswipe non injury crashes at hybrid 2x1 roundabout locations).
- The benefit cost analysis (BCA) identified that Alt #4 would have a BCA ratio of 2.92 showing a very strong economic benefit compared to the high cost of the reconstruction.





Alternative 4
RAB Corridor with Improvements
Corridor Safety Rank: #1 / 6
Corridor Operations Rank: #1 / 6