

Attachment A

3. PROPOSED IMPROVEMENTS

3.1 Street Improvements: Area 1 – Snelling Avenue North

This study included an investigation of design alternatives for the roadway and potential addition of a pedestrian trail along Snelling Avenue North. While multiple roadway and trail layout alternatives were initially considered as part of the study, viable design options are governed by specific design requirements, which include the following standards.

- Minnesota Rules 8820.9920: Minimum Design Standards; Rural and Suburban undivided; New or Reconstruction Projects
- Minnesota Rules 8820.9926: Minimum Design Standards; Rural and Suburban undivided; Reconditioning Projects
- Minnesota Rules 8820.9936: Minimum Design Standards; Urban; New or Reconstruction Projects
- Minnesota Rules 8820.9995: Minimum Off-Road and Shared Use Path Standards
- Americans with Disabilities Act (ADA) Design Standards

It is important to note that some segments of the roadway corridor within Area 1 have extensive vertical relief with steep slopes extending east and west from the edge of pavement. Road improvements beyond full depth reclamation work is considered “reconstruction” by MnDOT and triggers MN Rules 8820.9920 design requirements. Maximum in-slope grades may be difficult to achieve and would require substantial clearing of trees and placement of fill to widen the roadway platform in some areas, particularly along the roadway between Skiles Lane and Lametti Lane. While there is sufficient right of way available along the corridor, separation of the trail alignment from the edge of the roadway pavement would also require substantial tree clearing and fill placement within areas having steep side slopes in order to comply with ADA requirements for maximum trail grades.

Due to the standards and challenges mentioned above, two primary alternatives were investigated as part of this study.

Alternative 1 - Full Reconstruction Plus Trail: This alternative includes the full reconstruction of the roadway and the addition of an 8 to 10 foot wide multiuse pedestrian/bicycle trail extending from County Road E to Highway 51. The potential trail was considered based on the City’s 2040 comprehensive plan which identifies a proposed regional bicycle transportation network trail extending along Snelling Avenue North from Hamline Avenue at Highway 51 to Lake Valentine Road.

A schematic layout of the proposed roadway and trail improvements for Alternative 1 is provided in **Appendix G**. The proposed road section and trail alignment were identified due to several terrain challenges along the corridor as noted above. While the road is located in a wide right of way, there are sections of steep grades along several sections, with side slopes adjacent to the road in excess of 1:3 and grade differentials of 25 feet or more at certain locations, in addition to delineated wetland boundaries along the corridor.

Alternative 1 proposes to narrow the roadway from 40 feet to a width of 28 to 34 feet within the center section, install curb and storm sewer, and placement of the trail alignment directly adjacent to the west curb line in an attempt to minimize substantial tree removal, minimize large volumes of cut and fill grading, and avoid impacts to delineated wetlands. A similar trail alignment was used along Snelling Avenue to the north of County Road E.

The advantages of Alternate 1 include completion of a segment of regional trail and providing a dedicated facility for pedestrian and bicycles along the road corridor currently posted at 40 mph. Pedestrians currently walk along the 8-foot wide paved shoulder. The disadvantages of Alternate 1 include a substantial increase in project costs, increased scope and construction timeline for installation of curb and storm sewer, increased risk of encountering areas of soil contamination during storm sewer installation, and use of limited city funds compared to higher priority trail segments to the north of County Road E.

Alternative 2 - FDR Pavement Replacement (no trail): This alternative consists of reclaiming the existing surface pavement by milling the bituminous pavement material and blending it with the upper portion of the underlying aggregate base, commonly referred to as full depth reclamation (FDR). Approximately 4-inches of reclaimed material would then be removed to maintain the existing vertical profile of the road, and a new 4-inch thick bituminous pavement section would be placed to the existing 40-foot road width, including two 12-foot travel lines and two 8-foot wide paved shoulders. Edge line pavement markings would be installed to delineate the pavement shoulders.

A schematic layout of the proposed roadway and trail improvements for Alternative 2 is provided in **Appendix H**. The advantages of Alternate 2 include a shorter construction timeline, lower project costs, focus of limited capital funds for trail segments north of County Road E, and reduced risk of encountering contaminated soil conditions. The disadvantages of Alternative 2 would include maintaining the current condition where bicyclists and pedestrians continue to use the 8-ft wide paved shoulders without the benefit of a dedicated multiuse trail facility south of County Road E.

Council Consideration: The City Council reviewed the two roadway alternatives described above during two work sessions on July 20, 2020 and December 21, 2020. The Council discussed the cost differential between the two alternatives in relation to the City's limited availability of capital improvement funds. The Council also discussed the higher priority currently placed on recreational trail segments along Snelling Avenue North from County Road E2 to Lake Valentine Road and the connection to Mounds View High School. While not ideal, the roadway south of County Road E does have 8-foot wide shoulders to provide some accommodation for pedestrians and bicyclist.

Based on these work session discussions, the City Council requested staff to consider additional measures that could be incorporated into the design for Alternative 2 to provide additional safety measures for pedestrians using the west shoulder area. The following six strategies should be further developed during the design process.

- A. Lane and Shoulder Configuration: In an effort to provide additional pedestrian space along the west side of the roadway, while maintaining the existing 40-ft total road width, the following road section is recommended for consideration during the design under Alternate No. 2: 8-ft wide paved east shoulder, 11-ft wide northbound lane, 11-ft wide southbound lane, and 10-ft wide paved west shoulder. A reduction of the east shoulder to 6-ft wide and additional widening of the west shoulder could be considered during the design process, but good engineering judgement should be used when considering a reduction of the east shoulder width between Skiles Lane and Lametti Lane due to the vertical relief and steeper side slopes along the roadway.
- B. Pavement Markings: Due to pedestrian use of the paved shoulder areas and the steep terrain along portions of the roadway, the proposed design for Alternate 2 includes the placement of White Edge Line Pavement Markings along the length of the roadway pursuant to section 3B.6 of the Minnesota Manual on Uniform Traffic Control Devices, including the option for “wide” solid edge line markings. Edge line markings would assist in minimizing unnecessary driving on paved shoulders.
- C. No Parking Designation: Parking restrictions along the west side of Snelling Avenue North should be considered to minimize the occurrence of parked vehicles that would require bicyclists and pedestrians to shift out of the shoulder and into the travel lane. The cost of No Parking sign installation is included in the project cost estimate.
- D. Shoulder Rumble Strips: Due to steeper in-slope grades along portions of the corridor and the need to minimize vehicle lane departures, the project design should include consideration of rectangular corrugated or sinusoidal shoulder rumble strips in accordance with MnDOT Technical Memorandum No. 17-08-T-02. Special attention should be given to the lateral placement and width of shoulder rumble strips during final design to minimize noise concerns. The cost of rumble strip installation is included in the project cost estimate for Alternative 2.
- E. Speed Limit Considerations: A traffic engineering study should be conducted along the corridor during the project design process to determine if a lower speed limit may be justified due to design constraints and limited sight distances for driveways and street intersections. It is possible that the results of the study could recommend a reduction in the current posted speed limit of 40 miles per hour.
- F. Speed Display Signs: The placement of speed display signs along the portion of Snelling Avenue/Old Highway 10 north of I-694 have shown some effectiveness with improving compliance with posted speed limits. While the installation of speed display signs should be limited to locations meeting specific criteria, this section of Snelling Avenue North is

a longer, uninterrupted roadway that tends to generate higher vehicle speeds compared to most other local roadways within the community. The design process should closely consider the installation of these signs. The cost of two permanently mounted speed display signs is included in the cost estimate for Alternative 2.

3.2 Street Improvements: Area 2 – Intersection of Snelling Ave and County Road E

Section 2.3 provides a summary of the Intersection Control Evaluation (ICE) study previously conducted for the intersection of Snelling Avenue North and County Road E. The ICE report provides a review of alternatives considered for the intersection and recommended construction of a single lane roundabout. A copy of the ICE report is provided in Appendix B.

Two schematic layouts were prepared for the proposed roundabout intersection improvements as provided in **Appendix I**. While both layouts are similar, there is variation in the intersection alignment to illustrate the ability to minimize potential right of way acquisition and the need to relocate overhead power and natural gas utilities near the intersection. For the purposes of this feasibility report, both layouts are assumed to have the same estimated costs as provided in Section 5.

Council Consideration: The City Council reviewed the ICE report and the proposed single lane roundabout intersection improvements during a work session on September 21, 2020. The Council discussed the significant changes in traffic volumes at the intersection of Snelling Avenue and County Road E due to the COVID-19 pandemic. The Council also discussed the potential changes to traffic volume from Bethel University, which is one of the primary trip generators for this intersection, and concerns expressed during the public open house meeting in October 2019 regarding the proposed roundabout. The consensus of the City Council was to separate the potential intersection improvements into an independent project from the Area 1 roadway improvements south of County Road E. The Council further directed staff to work with Ramsey County to conduct additional traffic study of the intersection after traffic patterns return to more stable condition in 2021 or 2022.

If the City proceeds with Alternative 2 for Snelling Avenue North (no trail), this study recommends that an 8-ft wide paved pedestrian trail is eventually constructed along the west side of Snelling Avenue between County Road E and Arden Place to provide separation of vehicle and pedestrian traffic where the shoulder width narrows within the approach to the County Road E intersection.

3.3 Street Improvements: Cummings Lane and Bussard Court

As mentioned in Section 2, Cummings Lane and the east 100-feet of Bussard Court are highly deteriorated and can no longer be cost-effectively maintained. Proposed improvements for Cummings Lane consist of reclaiming the existing pavement, shaping the generated aggregate material to raise the center crown to improve pavement drainage and repaving the roadway with 4-inches of bituminous pavement. The installation of curb and gutter is not proposed along Cummings Lane. Improvements also include replacement of the storm sewer