APPENDIX F

OTHER SUPPORTING TECHNICAL INFORMATION

MEMORANDUM

FREIGHT RAIL

Prepared by: Kimley-Horn and Associates, Inc.

Date: April 2021

Subject: Freight Rail

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

The study area for freight rail is defined as the potential area of disturbance for the Build Alternative. This evaluation identifies existing freight rail infrastructure within the study area and potential impacts that could occur as a result of the Rush Line BRT Project are discussed.

EXISTING CONDITIONS

Freight infrastructure crosses the study area in the following locations (see the concept plans in Appendix A of the EA):

- Phalen Boulevard between Olive Street and Cayuga Street (grade separated).
- Payne Avenue between Phalen Boulevard and Bush Avenue (grade separated).
- Buerkle Road between Fanum Road and Buerkle Circle (at grade).
- Highway 61 between Scheuneman Road and Cedar Avenue (grade separated).
- West of Highway 61 at Whitaker Street (at grade).
- 7th Street and Highway 61 (at grade).
- 8th Street and Highway 61 (at grade).

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The No Build Alternative would not impact freight rail infrastructure or operations within the study area.

Build Alternative

OPERATING PHASE IMPACTS

The Build Alterative would not impact freight rail infrastructure or operations at the three existing grade-separated crossings at Phalen Boulevard, Payne Avenue and Highway 61.

A new sidewalk would be constructed on the north side of Buerkle Road that would cross existing freight tracks and require an approximately 800-square foot permanent acquisition from BNSF Railway Company. Given the low volume of trains that use this segment of track, this new pedestrian crossing is not anticipated to impact freight rail operations.

The Build Alternative also includes reconstruction of the pedestrian crossing of the freight tracks west of Highway 61 by Whitaker Street. Because this is an existing crossing, impacts to freight operations are not anticipated.

BRT vehicles would cross the existing at-grade crossings at 7th and 8th Streets in mixed traffic. Given the low volume of trains that use this segment of track, the additional traffic volume that would result from project is not anticipated to impact freight operations.

CONSTRUCTION PHASE IMPACTS

Construction of the Build Alterative would require a temporary construction license from BNSF Railway Company for the following areas:

- Approximately 330 square feet on the north side of Buerkle Road to construct sidewalk.
- Approximately 0.57 acres on the west side of Highway 61 for grading and construction of pedestrian improvements.
- Approximately 80 square feet on the south side of 8th Street to construct sidewalk.

In these locations, the project would construct new concrete pedestrian crossing panels, which would temporarily impact freight operations. Construction activities would be coordinated with BNSF Railway Company.

MITIGATION MEASURES

The project would not result in long-term impacts to freight rail infrastructure or operations. Construction activities that would temporarily impact freight operations would be coordinated with BNSF Railway Company, and property impacted during construction would be restored to a condition that is comparable to its pre-construction use.

MEMORANDUM

PEDESTRIANS AND BICYCLES

Prepared by: Kimley-Horn and Associates, Inc.

Date: April 2021

Subject: Pedestrians and Bicycles

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

This section describes bicycle and pedestrian facilities and connections in the study area. It also summarizes potential impacts from the No Build and Build Alternatives on these facilities and the people who use them.

Non-motorized transportation facilities, including sidewalks, multi-use trails and bike lanes, are found throughout the study area. These facilities were identified by reviewing Ramsey County geographic information system data, trail and comprehensive plan maps, and aerial photography. Concept plans and the potential area of disturbance were used to determine the number and magnitude of any impacts. Operating phase (long-term) impacts were defined as any permanent closures of marked crossings, sidewalks, bike lanes or trails. Some areas would require realignment or reconstruction of existing sidewalks and trails, but since the facilities would be restored to have the same functionality as existing, these realignments were not considered long-term impacts. Construction phase (short-term) impacts were defined as any temporary impacts to marked crossings, sidewalks, bike lanes or trails.

Impacts to pedestrian and/or bicycle routes due to the intersection with the dedicated guideway and associated crossing restrictions were identified and evaluated. Measures to improve pedestrian and bicycle safety are also addressed. Location and type of existing and planned sidewalks, trails and bike lanes are also discussed relative to connectivity and non-motorized access to and from stations.

The study area used for evaluating impacts to pedestrians and bicyclists includes the following:

- The potential area of disturbance.
- Pedestrian and bicycle facilities adjacent to the route.
- Alternate pedestrian and bicycle routes within approximately one-half mile.
- Connections to the regional bicycle system.

EXISTING CONDITIONS

The extent and condition of existing pedestrian and bicycle facilities in the study area varies by location. A large segment of the study area from the Arcade Street station to the Buerkle Road station follows the Bruce Vento Regional Trail. Shorter trail systems are scattered throughout the study area in Saint Paul.

On-street bicycle lanes intersect the project at Broadway Street, Jackson Street, Como Avenue, Mississippi Street, University Avenue E and Payne Avenue in Saint Paul. Striped shoulders along roadways are scattered throughout the entire route. Downtown Saint Paul has a comprehensive sidewalk system along most roadways adjacent to the route. The following is a summary of all the existing pedestrian and bicycle facilities that intersect with the potential area of disturbance for the Build Alternative.[1]

- Pedestrian facilities:
  - One footpath.[2]
  - 100 sidewalks.[3]
- Bicycle facilities:
  - Three bike lanes.[4]
  - Four bike routes.[5]
  - 13 striped shoulders.[6]
- Pedestrian and bicycle facilities:
  - 21 trails.[7]

Table 1 lists the existing bicycle and trail facilities that intersect with the project's potential area of disturbance. Trails are multi-use and also allow for pedestrian use.

Table 1: Existing Bicycle Facilities within the Potential Area of Disturbance for the Build Alternative

Name	Type of Facility	Municipality
Broadway Street	Bike lane	Saint Paul
Capital City Bikeway	Trail	Saint Paul
Cayuga Street Trail	Trail	Saint Paul
Como Avenue	Bike route	Saint Paul

[1] The Build Alternative with and without the Highway 36 park-and-ride option are the same for this summary.
[2] A footpath is an earthen travel way that was created from repeated foot/bike traffic and continued use.
[3] A sidewalk was counted once for both sides of the street.
[4] A bike lane is a portion of the roadway that is designated by a physical barrier or striping and pavement markings for the preferential or exclusive use of bicycles.
[5] A bike route is a shared right-of-way located on roadways designated with appropriate signage to encourage bicycle use.
[6] A striped shoulder is a portion at the edge of a paved road surface that is contiguous with the road surface and separated by striping at least 4 feet wide.
[7] The Capital City Bikeway is the only trail that does not allow pedestrian use.

Name	Type of Facility	Municipality
Jackson Street	Bike lane	Saint Paul
Jackson Street	Bike route	Saint Paul
Mississippi Street	Bike route	Saint Paul
Payne Avenue Bike Lanes	Bike lane	Saint Paul
Phalen Boulevard	Striped shoulder	Saint Paul
Phalen Boulevard	Trail	Saint Paul
Phalen Boulevard - South	Striped shoulder	Saint Paul
Phalen Boulevard Trail	Trail	Saint Paul
Union Depot Trail	Trail	Saint Paul
University Avenue	Trail	Saint Paul
University Avenue E	Bike route	Saint Paul
Wheelock Parkway - Striped Shoulder	Striped shoulder	Saint Paul
Gateway Street Trail	Trail	Saint Paul, Maplewood
Bruce Vento Regional Trail	Trail	Saint Paul, Maplewood, White Bear Township
Barclay Street Bruce Vento Regional Trail Access	Trail	Maplewood
Beam Avenue	Striped shoulder	Maplewood
Beam Avenue	Trail	Maplewood
Beam Avenue Bruce Vento Regional Trail Access	Trail	Maplewood
Bruce Vento Regional Trail Connection	Trail	Maplewood
Bruce Vento Regional Trail-Hazelwood Street Access	Trail	Maplewood
County Road B E	Striped shoulder	Maplewood
County Road C E	Striped shoulder	Maplewood
English Street Bruce Vento Regional Trail Access	Trail	Maplewood
Fitch Road Bruce Vento Regional Trail Access	Trail	Maplewood
Frost Avenue	Striped shoulder	Maplewood
Gervais Avenue Trail	Trail	Maplewood
Harvest Park Trails	Trail	Maplewood
Larpenteur Avenue E	Striped shoulder	Maplewood
Weaver Elementary Bruce Vento Regional Trail Access	Trail	Maplewood

Name	Type of Facility	Municipality
Buerkle Road	Striped shoulder	White Bear Lake
Division Avenue	Striped shoulder	White Bear Lake
Hoffman Road - Gem Lake	Striped shoulder	White Bear Lake
White Bear Avenue - Goose Lake Trail	Trail	White Bear Lake
White Bear Avenue N	Trail	White Bear Lake
Highway 61	Striped shoulder	White Bear Lake, Vadnais Heights, Gem Lake
Buerkle Road	Striped shoulder	White Bear Township

There are several planned municipal and county trails and bike lanes that would provide connections to downtown Saint Paul and the Payne Avenue, Cook Avenue, Larpenteur Avenue, Buerkle Road, County Road E, Cedar Avenue and Whitaker Street stations.

Table 2 lists the planned (funded) and proposed (currently unfunded) facilities that intersect with the Build Alternative's potential area of disturbance.

Table 2: Planned and Proposed Bicycle Facilities within the Potential Area of Disturbance for the Build Alternative[8]

Name	Type of Facility	Municipality	Planned/Proposed
10th Street E	Bike lane	Saint Paul	Proposed
12th Street E	Bike lane	Saint Paul	Proposed
4th Street E	Bike lane	Saint Paul	Proposed
5th Street E - Odd	Bike lane	Saint Paul	Proposed
7th Street E	Bike lane	Saint Paul	Proposed
Arlington Avenue	Bike route	Saint Paul	Planned
Arlington Avenue E	Bike lane	Saint Paul	Proposed
Case Avenue	Trail	Saint Paul	Planned
Earl Street	Bike lane	Saint Paul	Planned
Edgerton Street	Bike lane	Saint Paul	Planned
Forest Street	Bike lane	Saint Paul	Planned
Idaho Avenue	Other bike facility	Saint Paul	Planned
Jackson Street	Bike lane	Saint Paul	Planned
Jackson Street	Trail	Saint Paul	Planned
Johnson Parkway	Bike lane	Saint Paul	Planned

[8] Source: Ramsey County geographic information system data (2018) and *Ramsey County Bicycle and Pedestrian Plan* (2015). Available at https://www.ramseycounty.us/residents/parks-recreation/active-living/countywide-bicycle-pedestrian-plan.

Name	Type of Facility	Municipality	Planned/Proposed
Kellogg Boulevard E	Bike lane	Saint Paul	Proposed
Larpenteur Avenue	Bike lane	Saint Paul	Planned
Mississippi Street	Bike lane	Saint Paul	Planned
Mt. Airy Street	Bike route	Saint Paul	Planned
Olive Street	Bike lane	Saint Paul	Proposed
Payne Avenue	Bike lane	Saint Paul	Proposed
Phalen Boulevard	Bike lane	Saint Paul	Planned
Pierce Butler Route	Bike lane	Saint Paul	Planned
Pierce Butler Route	Trail	Saint Paul	Planned
Proposed bike lane near Valley Street E and Jackson Street N	Bike lane	Saint Paul	Planned
Sibley Street	Bike lane	Saint Paul	Proposed
Trout Brook Regional Trail	Trail	Saint Paul	Planned
University Avenue	Bike route	Saint Paul	Planned
Wacouta Street	Bike lane	Saint Paul	Proposed
Wells Street	Bike route	Saint Paul	Planned
Proposed Bruce Vento Regional Trail	Trail	Saint Paul, Maplewood, White Bear Township	Planned
Proposed Bike Corridor County Road F	Bike lane	White Bear Lake	Proposed
Unnamed proposed trail on Buerkle Road near the intersection of Buerkle Circle	Trail	White Bear Lake	Planned

ENVIRONMENTAL CONSEQUENCES

Operating Phase (Long-Term) Impacts

NO BUILD ALTERNATIVE

The No Build Alternative is not expected to have any operating phase impacts on the pedestrian and bicycle facilities in the study area. Under the No Build Alternative, the planned municipal and county pedestrian and bicycle facilities would continue to be implemented and would improve bike and pedestrian connections in the area.

BUILD ALTERNATIVE

No permanent closures of marked crossings, sidewalks, bike lanes or trails would result as part of the Build Alternative or the Build Alternative option without the Highway 36 park-and-ride. Some areas would require reconstruction of existing sidewalks and trails, but since the facilities would be restored

in kind and to their existing functionality, these are not considered long-term impacts. Pedestrian and bicycle facilities that would be reconstructed include:

- The Bruce Vento Regional Trail from the intersection of Arcade Street and Phalen Boulevard to the existing trail at Beam Avenue.
- Segments of the Bruce Vento Regional Trail between County Road D and Buerkle Road.

Four of the proposed dedicated guideway bridges would provide grade separation between trail users and vehicles:

- A trail would cross over Johnson Parkway on a new dedicated guideway bridge.
- A new dedicated guideway bridge would cross over the intersection of the Bruce Vento Regional Trail and Gateway State Trail.
- A new dedicated guideway bridge would cross over the trail connection between English Street and Weaver Elementary School.
- A new dedicated guideway bridge would cross over the trail connection between Fitch Road and Barclay Street.

The dedicated guideway would be co-located with a reconstructed Bruce Vento Regional Trail through the portion of the route in Ramsey County rail right-of-way. The reconstructed trail would be located generally on the same alignment adjacent to the dedicated guideway but may differ in some places due to fewer trees, trail shifts and changes in topography.

The Build Alternative is expected to benefit pedestrians and bicyclists by providing new connections to existing sidewalks and trails and reconstruction of existing facilities. At intersections, reconstructed sidewalks and trails would include upgraded pedestrian ramps and all reconstructed signals would have accessible pedestrian signals. All BRT station platforms would include new sidewalk connections to adjacent pedestrian facilities. Additionally, bicycle racks would be provided at each station, and bicycles can be brought on the bus.

New sidewalks and trails are shown on the concept plans in Appendix A of the EA. The following local and regional connections to existing pedestrian and bicycle facilities would be added or modified as part of the Rush Line BRT Project:

- New sidewalk on the north side of Phalen Boulevard at the Payne Avenue station.
- New at-grade pedestrian crossing at the Cook Avenue station to connect to Hmong Village across Phalen Boulevard. The crossing would connect to a new sidewalk on the east side of Phalen Boulevard.
- New sidewalk connection from the Cook Avenue station to Cook Avenue.
- New sidewalk on both sides of Larpenteur Avenue at the Larpenteur Avenue station.
- New trail underpass for the Gateway State Trail.
- New trail underpass to connect to Weaver Elementary School.
- New trail connection into Harvest Park associated with the Highway 36 park-and-ride.
- New trail underpass to connect to Fitch Road.
- New sidewalk on both sides of Buerkle Road from the Buerkle Road station to Buerkle Circle.
- New sidewalk on the south side of Buerkle Road between the dedicated guideway and Fanum Road.

- New sidewalk at the southeast corner of the County Road E and Highway 61 intersection.
- New sidewalk on the north side of Cedar Avenue from the Cedar Avenue station to Hoffman Road.
- New sidewalk on the south side of Cedar Avenue between Hoffman Road and Linden Avenue.
- New trail on the east side of Highway 61 from Cedar Avenue to County Road F.[9]
- New sidewalk on both sides of Highway 61 between White Bear Avenue and Whitaker Street.
- New sidewalk on the east side of Washington Avenue between 7th and 8th Streets.
- New sidewalk on the south side of 8th Street between Washington Avenue and Highway 61.
- New sidewalk on the north side of 8th Street between Division Avenue and Highway 61.

The Build Alternative would preclude implementation of a planned bike lane on Phalen Boulevard in the project area. The existing off-road Bruce Vento Regional Trail on the north side of Phalen Boulevard would remain available to bicyclists.

Construction Phase (Short-Term) Impacts

NO BUILD ALTERNATIVE

The No Build Alternative is not expected to have any construction phase impacts on the non-motorized transportation environment in the study area.

BUILD ALTERNATIVE

Where temporary closures of bicycle and pedestrian facilities are required, detours would be defined in construction phasing plans. Special facilities (such as handrails, fences, barriers, ramps and walkways) may be required at some locations to maintain bicyclist and pedestrian safety. The project is anticipated to impact 29 intersections during construction due to construction of dedicated guideway, stations, traffic signals, medians, sidewalks or trails.

If crosswalks are temporarily closed, pedestrians would be directed to use alternate crossings nearby. Efforts would be made not to close adjacent crosswalks at the same time to allow for continued pedestrian movement across streets. All sidewalks and crosswalks would be required to meet minimum standards for accessibility and be free of slipping and tripping hazards.

There would no difference in construction phase impacts under the Build Alternative option without the Highway 36 park-and-ride.

AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Pedestrian and bicycle safety will be evaluated during preliminary engineering to identify design solutions that can be implemented with the project to improve safety, access and mobility at crossing locations.

Additionally, the *Ramsey County Rail Right-of-Way Design Guide* was created to develop a safe dedicated guideway and shared-use trail within the Ramsey County rail right-of-way that fits in with

[9] Ongoing coordination with project partners will be required to determine feasibility of this trail segment, identify potential sources for the non-federal funding share and develop a maintenance plan prior to including the trail segment in the project scope.

the surrounding landscape and reflects relevant user, stakeholder and public guidance.[10] As engineering advances, the guiding principles from the *Ramsey County Rail Right-of-Way Design Guide* will be used to inform the design work and ensure input received through the public engagement activities is incorporated. The recommendations will be used to develop both preliminary and final plans for the project.

[10] Available in the project library at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/project-library.

MEMORANDUM

ENERGY

Prepared by: SRF Consulting Group
Date: April 2021
Subject: Energy

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

Consideration of "energy requirements and conservation potential of various alternatives and mitigation measures" is required for federal projects that require an Environmental Impact Statement per 40 CFR § 1502.16(e). Although not required as part of an EA, this analysis was completed to inform the evaluation of project impacts.

This memorandum describes the estimated changes in regional energy consumption resulting from the Rush Line BRT Project. The analysis results are reported in British Thermal Units per mile. A British Thermal Unit is a commonly used unit of energy and represents the amount of heat energy needed to raise the temperature of one pint of water by 1 degree Fahrenheit. British Thermal Units per mile are calculated from the vehicle miles traveled total reported by the Twin Cities Regional Travel Demand Model for the Build Alternative.

The energy impacts of the Build Alternative were determined by comparing total energy consumption of the Build Alternative with the No Build Alternative. The amount of energy used per mile by each mode of transportation is presented in Table 1. By multiplying these energy-use factors by the total miles traveled, annual energy use for bus transit, medium- and heavy-duty vehicles and private vehicles can be estimated for the Twin Cities metropolitan area.

The study area for energy includes project-related changes in travel patterns and bus operations. The analysis focuses on direct energy use, which is the energy consumed by the operations of vehicles.

Table 1: Energy Consumption Factors[1]

Mode	Energy Consumption Factor (British Thermal Units per mile)
Bus	36,468
Single-unit and combination trucks[2]	21,132
Passenger vehicles[3]	5,195

EXISTING CONDITIONS

The study area is a mix of urban and suburban development, and its character shifts from urban to suburban along the route from south to north. The land use within the study area is characterized by urban and suburban residential, commercial and mixed-use development. The *Land Use and Economics Technical Report* in Appendix E of the EA describes existing land uses along the route.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The annual regional direct energy consumption for the No Build Alternative would be approximately 504.1 billion British Thermal Units annually.

Build Alternative

OPERATING PHASE IMPACTS

The Build Alternative would consume approximately 503.8 billion British Thermal Units of energy annually. Operating phase impacts to regional energy use are presented in Table 2.

Table 2: Estimated 2040 Annual Direct Energy Use

Vehicle Type	2040 Annual Vehicle Miles Traveled (in thousands)		2040 Annual Energy Consumption (billions of British Thermal Units)	
	No Build Alternative	Build Alternative	No Build Alternative	Build Alternative
Bus	200	203	7.3	7.4
Single-unit and combination trucks	2,650	2,650	56.0	56.0
Passenger vehicles	84,850	84,916	440.8	440.4
Total	**87,700**	**87,769**	**504.1**	**503.8**

[1] Source: US Department of Energy Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 38.2*, August 2020.
[2] This applies to medium- and heavy-duty vehicles, which have more than two axles (Classes 3-8), and excludes transit buses.
[3] This is a weighted average of passenger cars and light trucks (with two axles and four tires or fewer).

CONSTRUCTION PHASE IMPACTS

Construction of the Build Alternative and associated production of raw materials and operation of construction equipment would use energy. Energy use would be localized and temporary. Construction of the Build Alternative would not have a substantial impact on regional energy consumption compared with the energy consumption of the Twin Cities metropolitan area.

MITIGATION MEASURES

The Build Alternative would result in less annual energy consumption than the No Build Alternative; therefore, no avoidance, minimization or mitigation measures would be needed.

MEMORANDUM

VISUAL RESOURCES

Prepared by: SRF Consulting Group

Date: April 2021

Subject: Visual Resources

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

Regulatory Context

Visual and aesthetic resources are subject to US Department of Transportation regulation. The Federal Highway Administration published a guidance document [1] that presents an approach to identify visual resources and assess potential project impacts to these resources. Federal Highway Administration guidance, which is specific to highway projects, was selected as the foundation for this analysis because the project is also a linear transportation facility. Federal regulations require visual impacts to be addressed for resources and properties protected by Section 106 of the National Historic Preservation Act of 1966.[2] and Section 4(f) of the Department of Transportation Act of 1966.[3] There is no specific federal or state visual regulatory requirement that applies to parklands or to properties that are not listed or eligible for listing on the National Register of Historic Places. The National Environmental Policy Act and Minnesota Environmental Policy Act form the general basis for consideration of potential visual impacts to these other properties not protected under Section 106. The cultural resources section of the Environmental Assessment addresses project-related impacts to the visual quality of historic properties.

[1] Federal Highway Administration. *Guidelines for the Visual Impact Assessment of Highway Projects*. January 2015. Available at https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.aspx. Accessed May 2019.

[2] "Effect of Undertaking on Historic Property," 54 USC Section § 306108. 2014. Available at https://www.govinfo.gov/content/pkg/USCODE-2014-title54/html/USCODE-2014-title54-subtitleIII.htm/. Accessed May 2019.

[3] "Section 4(f) of the Department of Transportation Act of 1966," as amended, 49 USC Section § 303 et seq. Available at: https://www.gpo.gov/fdsys/pkg/USCODE-2009-title49/html/USCODE-2009-title49-subtitleI-chap3-subchapI-sec303.htm. Accessed May 2019.

Methodology

The visual impact assessment documents the area of visual effect (i.e., study area), describes existing visual quality or visual resources, characterizes typical viewing experiences from adjacent neighbors or travelers and qualitatively describes how the visual character of the study area would change as a result of the project. The right-of-way for project elements and the adjacent properties with a visual connection to the project comprise the study area. In select instances, the extent of analysis was expanded to account for specific features that were visible by field observation along the proposed route because of topography, physical scale, architectural distinction or other considerations. The study area was studied and inventoried using mapping and direct observation from field visits conducted in 2018 and 2019.

A description of the existing visual context is provided as a basis for understanding the affected environment in which this project would be introduced. The following includes specific features of visual quality that comprise the existing environment and are generally described without value or preference:

- **Natural environment** includes the land, water and vegetation that surround the project. Although natural features may have been altered by people, features that are primarily geological or biological in origin are considered natural.
- **Cultural environment** includes the buildings, structures, infrastructure and artifacts that compose the surrounding built environment. These are features that were constructed by people and are not considered natural.
- **Project environment** includes all structural and landscape features defined as part of the project. For the Rush Line BRT Project, the features include the dedicated guideway, stations and other infrastructure modified for BRT construction and operations. Landscape features may include trees and other vegetation that would be introduced as part of the project.

The concept plans (see Appendix A of the EA) and identified right-of-way impacts were considered in evaluating the potential visual change to the study area. Physical project elements that would change visual quality include:

- **Dedicated guideway:** The dedicated guideway is pavement area designed and dedicated for the exclusive use of BRT vehicles and, if needed, emergency vehicles. The dedicated guideway would look much like a typical roadway, with an asphalt, bituminous or concrete surface, as well as curbs and gutters.
- **Stations:** Typical Rush Line BRT stations would include a 60-foot to 90-foot long platform, shelter, vertical marker and other amenities. These stations would look similar to BRT stations already constructed elsewhere in the Twin Cities metropolitan area. At certain stations, including Union Depot, southbound 10th Street, 14th Street, Mt. Airy Street and Downtown White Bear Lake, BRT platforms would be combined with local bus stops, resulting in a total bus platform length of 130 feet.
- **Bridges:** Bridges or underpasses would be used in certain locations to avoid impacts to car and truck traffic, bypass major congestion or improve safety and pedestrian connections. Each bridge or underpass would be designed to fit into its neighborhood and corridor context.

- **Retaining walls:** Retaining walls may be used to accommodate a change in topography and stabilize slopes near the dedicated guideway or stations. They can be constructed of various materials such as concrete and brick.
- **Park-and-ride facilities:** Parking facilities would be located at specific Rush Line BRT stations to accommodate commuters. The County Road E park-and-ride would include dedicated parking within the existing surface parking lot at the TCO Sports Garden, and a parking structure is proposed to be constructed at the Highway 36 station. Rush Line BRT would also utilize an existing park-and-ride structure at the Maplewood Mall Transit Center. These facilities would look much like a typical parking lot or structure, with an asphalt or concrete surface, stall striping and signage to indicate transit use.

Project elements such as these can be designed to be visually attractive and compatible with surrounding features of the built and natural environment.

Figure 1: Visualization of Typical Station and Dedicated Guideway (Aerial View)

Figure 2: Visualization of Typical Station and Dedicated Guideway (Ground-Level View)

A rating system consistent with Federal Highway Administration guidance (high, moderate or low) was used to qualitatively assess the level of visual contrast that the project elements would have on visual resources. Visual contrast is defined as the degree of perceived change that occurs in the landscape due to alterations necessary for a project. The following definitions summarize each classification:

- **High:** Introduction of new elements that would result in a major visual contrast where elements may obstruct views or substantially alter the character of the existing visual context.
- **Moderate:** Introduction of new elements that would have a noticeable visual contrast where project elements may obstruct or alter views or character of the existing visual context.
- **Low:** Introduction of new elements that would have minor visual contrast and/or are consistent with the existing visual context.

EXISTING CONDITIONS

The following section documents existing visual features in each municipality in the Rush Line BRT Project area, with a focus on features of the visual context that are immediately adjacent to future Rush Line BRT stations, dedicated guideway or other project elements.

Saint Paul

In downtown Saint Paul, Rush Line BRT would operate using existing streets and transportation facilities, including Union Depot, Sibley and Wacouta Streets, 5th and 6th Streets, and Robert Street. Existing conditions in these areas are consistent with the urban downtown context and include significant transit infrastructure, including METRO Green Line stations and platforms, bus lanes and bus stops, as shown in Figure 3 through Figure 5.

Figure 3: Existing Conditions – Union Depot, Wacouta Street and Sibley Street

Union Depot Bus Deck (Facing Northwest)	

Wacouta Street (Facing Northwest)

Sibley Street (Facing North)

Figure 4: Existing Conditions – 5th and 6th Streets

5th Street at Robert Street (Facing Northwest)	
6th Street at Robert Street (Facing Northwest)	

Figure 5: Existing Conditions – Robert Street

Robert Street (Facing Northwest)	
Robert & 10th Streets (Facing Northwest)	

Robert & 10th Streets (Facing Northeast)

North of downtown Saint Paul, Rush Line BRT would travel via 14th Street, Jackson Street and Pennsylvania Avenue/Phalen Boulevard, entering the Ramsey County rail right-of-way at Arcade Street. Existing conditions along 14th Street and Jackson Street also include multimodal transportation infrastructure, including the METRO Green Line Robert Street Station, the Capital City Bikeway and existing bus stops, as shown in Figure 6 and Figure 7.

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Figure 6: Existing Conditions – 14th Street

14th & Robert Streets – METRO Green Line Station (Facing South)	
14th & Jackson Streets (Facing Northwest)	

14th & Jackson Streets (Facing South)

Figure 7: Existing Conditions – Jackson and Mt. Airy Streets

Jackson & Mt. Airy Streets (Facing South)	
Jackson & Mt. Airy Streets (Facing North)	

Along Phalen Boulevard, existing conditions generally consist of a four-lane roadway with bicycle lanes and wide, landscaped setbacks, as shown in Figure 8 and Figure 9. Along the north side of the roadway, the Bruce Vento Regional Trail runs as an asphalt multi-use path in the adjacent Ramsey County rail right-of way.

Figure 8: Existing Conditions – Phalen Boulevard

Phalen Boulevard & Olive Street (Facing Northwest)	
Phalen Boulevard & Cayuga Street (Facing Northeast)	

Phalen Boulevard & Payne Avenue (Facing West)

Figure 9: Existing Conditions – Phalen Boulevard/Neid Lane/Arcade Street

Neid Lane & Arcade Street (Facing Southeast)

Arcade Street & Phalen Boulevard (Facing Southeast)	
Phalen Boulevard & Arcade Street Bridge (Facing West)	

At Johnson Parkway, the Bruce Vento Regional Trail turns northwest, entering Phalen Regional Park on the east side of Johnson Parkway, as shown in Figure 10. Existing conditions on Johnson Parkway consist of a wide, tree-lined boulevard that serves as a gateway to Phalen Regional Park.

Figure 10: Existing Conditions – Phalen Boulevard & Johnson Parkway

Phalen Boulevard & Johnson Parkway (Facing Southwest)	
Johnson Parkway & Phalen Boulevard (Facing Northwest)	

Johnson Parkway & Phalen Boulevard (Facing Northwest)

In Phalen Regional Park, the Bruce Vento Regional Trail travels briefly along East Shore Drive before rejoining the Ramsey County rail right-of-way. The Ramsey County rail right-of-way within Phalen Regional Park is slightly raised and heavily wooded, offering high-quality views of Lake Phalen and landscaped features within the park, as shown in Figure 11.

Figure 11: Existing Conditions – Ramsey County Rail Right-of-Way in Saint Paul

Phalen Regional Park (Facing West)

Ramsey County Rail Right-of-Way at Phalen Regional Park (Facing South)

View of Phalen Regional Park from Ramsey County Rail Right-of-Way (Facing West)

Maplewood

In Maplewood, Rush Line BRT elements would be constructed within Ramsey County rail right-of-way, as well as along Beam Avenue, at the Maplewood Mall Transit Center and along Hazelwood Street. Existing conditions within the Ramsey County rail right-of-way include a paved trail, benches and bicycle service stations, as well as natural vegetation with an extensive tree canopy, as shown in Figure 12.

Figure 12: Existing Conditions – Ramsey County Rail Right-of-Way in Maplewood

Ramsey County Rail Right-of-Way at Larpenteur Avenue (Facing North)

Ramsey County Rail Right-of-Way Typical Section (Facing South)

Ramsey County Rail Right-of-Way at Frost Avenue (Facing North)

North of Frost Avenue, the Ramsey County rail right-of-way crosses the existing Gateway State Trail, another high-quality visual asset with natural landscaping and a dense tree canopy, as shown in Figure 13.

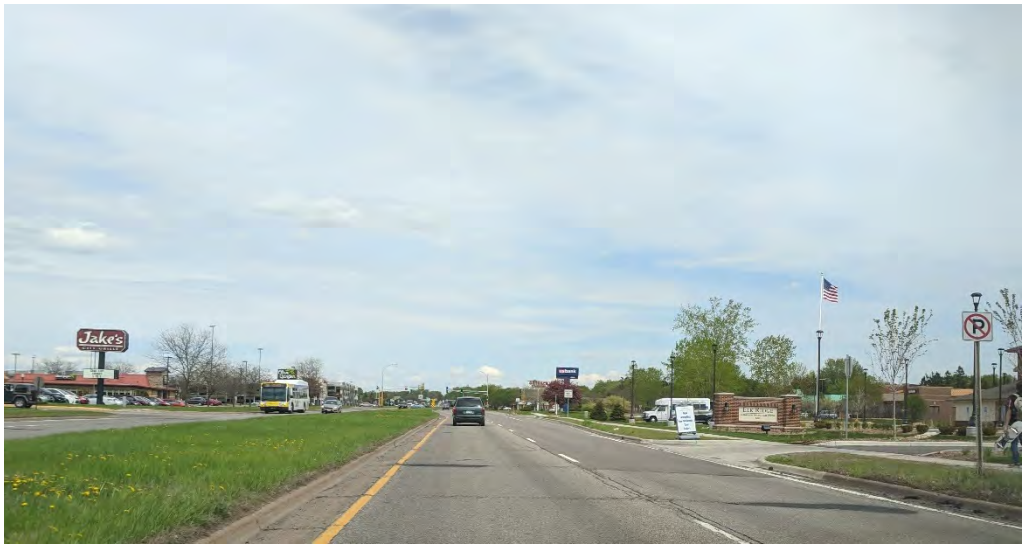
Figure 13: Existing Conditions – Gateway State Trail in Maplewood

Gateway State Trail at Ramsey County Rail Right-of-Way (Facing West)	
Gateway State Trail at Ramsey County Rail Right-of-Way (Facing Southwest)	

Farther north, Rush Line BRT would travel east along Beam Avenue toward the Maplewood Mall Transit Center, before turning and traveling north along Hazelwood Street to exit the city. Between the Ramsey County rail right-of-way and Maplewood Mall, Beam Avenue is generally a four-lane divided

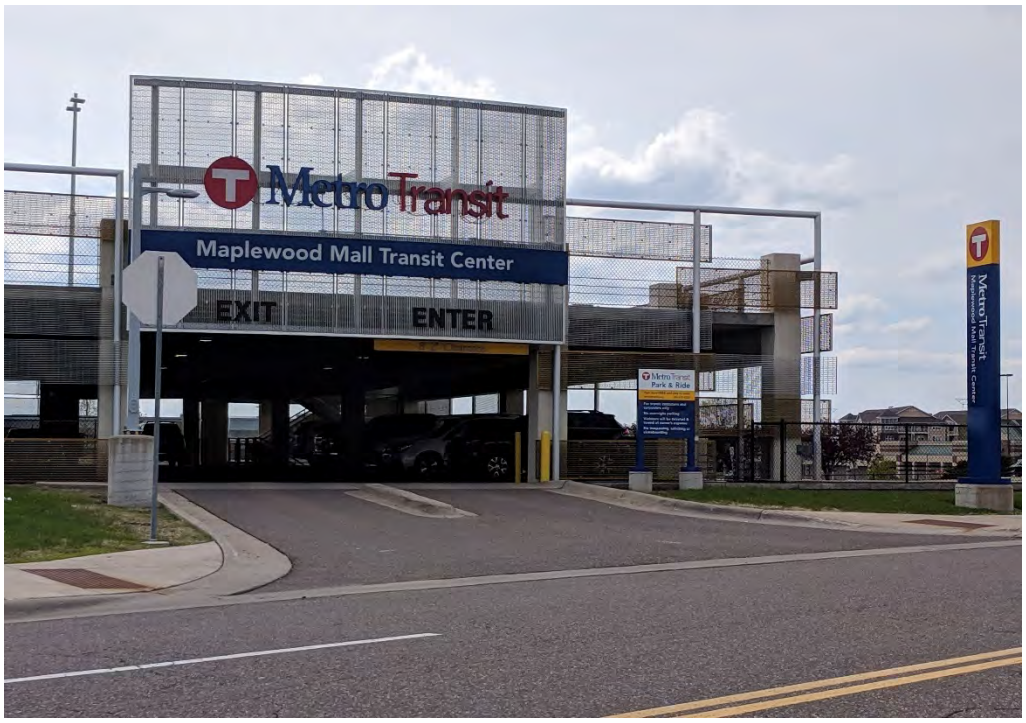
highway, with a shared-use bicycle and pedestrian path along the portions of the north side of the roadway (not shown) and sidewalk on the south side, as shown in Figure 14. Hazelwood Street is a low-traffic side street offering access to St. John's Hospital and the M Health Fairview Clinic – Maplewood (also shown in Figure 14).

Figure 14: Existing Conditions – Beam Avenue and Hazelwood Street

Beam Avenue (Facing East)	
Hazelwood Street (Facing Northwest)	

The Maplewood Mall Transit Center is an existing Metro Transit facility with multiple bus bays, a waiting shelter and a multi-story parking garage, as shown in Figure 15.

Figure 15: Existing Conditions – Maplewood Mall Transit Center

Maplewood Mall Transit Center Park-and-Ride (Facing West)	
Maplewood Mall Transit Center Bus Bays (Facing Southeast)	

Maplewood Mall Transit Center Waiting Area (Facing Northeast)

White Bear Township

In White Bear Township, Rush Line BRT would construct and utilize a southbound platform within existing Ramsey County rail right-of-way at Buerkle Road. The related northbound platform would be constructed nearby but would be located in Vadnais Heights. Currently, the Ramsey County rail right-of-way in this area consists of the Bruce Vento Regional Trail, separated from nearby industrial uses by vegetation, power lines and raised berms.

Figure 16: Existing Conditions – White Bear Township

Ramsey County Rail Right-of-Way at Buerkle Road (Facing Southwest)

Vadnais Heights

In Vadnais Heights, Rush Line BRT Project elements would be constructed along the Ramsey County rail right-of-way, Buerkle Road and Highway 61. Currently, the Ramsey County rail right-of-way includes the Bruce Vento Regional Trail, which passes over Interstate 694 (I-694) on its own dedicated trail bridge. Buerkle Road is currently a two-lane roadway at its intersection with the Ramsey County rail right-of-way, widening to four lanes at Highway 61. Visual characteristics of the Buerkle Road and Highway 61 corridors are typical of auto-oriented industrial and commercial areas and include car dealerships, gas stations and other retail destinations.

Figure 17: Existing Conditions – Vadnais Heights

Ramsey County Rail Right-of-Way at Buerkle Road (Facing South)	
Buerkle Road at Highway 61 (Facing Northwest)	

Highway 61 at County Road E (Facing Northwest)

Gem Lake

In Gem Lake, Rush Line BRT would construct a dedicated guideway along Highway 61. Existing conditions in this area consist of Highway 61 itself, a four-lane divided highway surrounded by auto-oriented retail and commercial uses, including multiple car dealerships.

Figure 18: Existing Conditions – Gem Lake

Highway 61 at County Road E (Facing Northwest)	
Highway 61 at County Road E (Facing North)	

White Bear Lake

In White Bear Lake, Rush Line BRT would travel in a newly constructed dedicated guideway along Highway 61 to Whitaker Street then in mixed traffic to the Downtown White Bear Lake station. Stations would be constructed along Highway 61 at Cedar Avenue and Whitaker Street, and a terminus station would be constructed at 7th Street and Washington Avenue in downtown White Bear Lake. Existing conditions in these areas consists of Highway 61 itself, a four-lane divided highway surrounded primarily by commercial land uses. In downtown White Bear Lake, Highway 61 is bordered to the west by active freight rail tracks owned by BNSF Railway and to the east by pedestrian-scale retail areas. At 7th Street and Washington Avenue, current conditions consist of surface parking adjacent to a commercial property, with neighboring residential properties screened by landscaping.

Figure 19: Existing Conditions – White Bear Lake

Highway 61 at Cedar Avenue (Facing North)

Highway 61 at Whitaker Street (Facing North)

7th Street at Washington Avenue (Facing Northeast)

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, construction and operation of the Rush Line BRT Project would not occur, and related visual impacts would not be observed. Visual context throughout the study area would reflect existing conditions.

Build Alternative

Under the Build Alternative, the Rush Line BRT Project would be constructed, and visual impacts would occur during the construction and operation of the project. Visual impacts to historic resources are discussed in the Section 106 assessment of effects (included in Appendix E of the EA).

OPERATING PHASE IMPACTS

During the operating phase, visual impacts would result from the presence of new BRT infrastructure and buses, with most impacts occurring proximate to the dedicated guideway and stations. Operating phase impacts related to specific project elements are listed by municipality in Table 1 through Table 6.

Table 1: Operating Phase Visual Impacts in Saint Paul[4]

Project Element	Impacted Area/Resource	Visual Contrast
Union Depot bus deck and charging facility	Union Depot	**Low:** Consistent with current visual context (core urban area; train and bus station)
10th Street station	Nearby commercial properties	**Low:** Consistent with current visual context (core urban area; existing bus stops)
14th Street station	Nearby institutional properties	**Low:** Consistent with current visual context (core urban area; existing bus stops, light rail station and bicycle infrastructure)
Mt. Airy Street station	Nearby residential properties	**Low:** Consistent with current visual context (existing bus stops)
Olive Street station	HealthPartners Neuroscience Center; nearby commercial properties	**Low:** Consistent with current visual context (multi-lane roadway corridor; existing bicycle infrastructure)
Cayuga Street station, dedicated guideway, retaining wall, stormwater treatment	Westminster Junction[5]	**Moderate:** Some change from existing visual context (railroad tracks, tunnels, retaining walls, culverts and a switching tower)

[4] Both platforms for the 5th/6th Street station and two of the platforms serving Union Depot (on Sibley and Wacouta Streets) are assumed to be constructed as part of the METRO Gold Line Project; therefore, they are considered part of the existing conditions and were not evaluated for visual impacts.
[5] State Historic Preservation Office inventory number RA-SPC-5618

Project Element	Impacted Area/Resource	Visual Contrast
Cayuga Street station	HealthPartners Specialty Center; nearby commercial properties	**Low:** Consistent with current visual context (multi-lane roadway corridor; existing bicycle infrastructure)
Cayuga Street station, Payne Street station, Arcade Street station, dedicated guideway, retaining walls, stormwater treatment located along Payne Avenue between existing railroad right-of-way and Phalen Boulevard	Saint Paul, Stillwater & Taylors Falls/Chicago, Saint Paul, Minneapolis & Omaha Railroad Corridor Historic District[6]	**Moderate:** Some change from existing visual context (railroad corridor)
Payne Avenue station	Phalen Senior Apartments; nearby commercial and residential properties	**Low:** Consistent with current visual context (multi-lane roadway corridor; existing bicycle infrastructure)
Payne Avenue station, Arcade Street station, dedicated guideway	Theodore Hamm Brewing Company Complex[7]	**Low:** Consistent with current visual context (multi-lane roadway corridor)
Arcade Street station	Saint Paul Eastside YMCA; nearby commercial properties	**Low:** Consistent with current visual context (multi-lane roadway corridor)
Dedicated guideway structure at Phalen Boulevard/Arcade Street	3M Administration Building[8]	**Low:** Consistent with current visual context (multi-lane roadway corridor)
	Ramsey County rail right-of-way; nearby commercial and residential properties	**Moderate:** Some change from existing visual context (multi-lane roadway corridor)
Dedicated guideway east of Phalen Boulevard/Arcade Street	Ramsey County rail right-of-way; nearby commercial and residential properties	**Low:** Consistent with current visual context (multi-lane roadway corridor)

[6] State Historic Preservation Office inventory number XX-RRD-CNW001
[7] State Historic Preservation Office inventory number RA-SPC-2926
[8] State Historic Preservation Office inventory number RA-SPC-0455

Project Element	Impacted Area/Resource	Visual Contrast
Cook Avenue station	Hmong Village; nearby residential properties	**Low:** Consistent with current visual context (multi-lane roadway corridor)
	Johnson Parkway[9]	**Low:** Consistent with current visual context (multi-lane roadway corridor)
Dedicated guideway bridge at Johnson Parkway	Johnson Parkway; Phalen Village Apartments; nearby commercial properties	**High:** Considerable change from existing visual context (existing at-grade intersection, adjacent parkway and open space).
	Phalen Park[10]	**Moderate:** Some change from existing visual context (multi-lane roadway corridor)
Maryland Avenue station	Phalen Regional Park; nearby residential and commercial properties	**Moderate:** Some change from existing visual context (undeveloped right-of-way)
	Phalen Park[11]	**Moderate:** Some change from existing visual context (undeveloped right-of-way)
Dedicated guideway in Ramsey County rail right-of-way (Johnson Parkway to Larpenteur Avenue)	Phalen Regional Park; Bruce Vento Regional Trail	**High:** Considerable change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*,[12] the dedicated guideway and reconstructed Bruce Vento Regional Trail will be designed to provide separation between the shared-use path and dedicated guideway, avoid disturbing existing vegetation where feasible and use native plants to reestablish the natural character of the right-of-way.
Dedicated guideway in Ramsey County rail right-of-way (Johnson Parkway to Larpenteur Avenue), Arcade Street station, stormwater treatment between Payne Avenue and Maryland Avenue	Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment[13]	**High:** Considerable change from existing visual context. Elements of the *Ramsey County Rail Right-of-Way Design Guide* will be used to preserve historic sense of linearity. Other specific mitigation is being coordinated with consulting parties as design advances and may include design reviews; minimizing the mass, scale and visibility of project elements from the historic property's viewshed; and reestablishing appropriate vegetative screening.

[9] State Historic Preservation Office inventory number RA-SPC-8497 and RA-SPC-5685
[10] State Historic Preservation Office inventory number RA-SPC-10850
[11] State Historic Preservation Office inventory number RA-SPC-10850
[12] Available in the project library at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/project-library.
[13] State Historic Preservation Office inventory number XX-RRD-NPR001

Table 2: Operating Phase Visual Impacts in Maplewood

Project Element	Impacted Area/Resource	Visual Contrast
Larpenteur Avenue station	Bruce Vento Regional Trail; nearby residential properties	**Moderate:** Some change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, station design, landscaping, screening and lighting will be implemented with consideration of the surrounding context.
Dedicated guideway in Ramsey County rail right-of-way (Larpenteur Avenue to Beam Avenue)	Phalen Regional Park; Bruce Vento Regional Trail	**High:** Considerable change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, the dedicated guideway and reconstructed Bruce Vento Regional Trail will be designed to provide separation between the shared-use path and dedicated guideway, avoid disturbing existing vegetation where feasible and use native plants to reestablish the natural character of the right-of-way.
Dedicated guideway in Ramsey County rail right-of-way (Larpenteur Avenue to Beam Avenue); bridge over I-694; stormwater treatment between Frost Avenue and I-694	Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment[14]	**High:** Considerable change from existing visual context. Elements of the *Ramsey County Rail Right-of-Way Design Guide* will be used to preserve historic sense of linearity. Other specific mitigation is being coordinated with consulting parties as design advances and may include design reviews; minimizing the mass, scale and visibility of project elements from the historic property's viewshed; and reestablishing appropriate vegetative screening.
Frost Avenue station	Bruce Vento Regional Trail; nearby commercial properties	**Moderate:** Some change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, station design, landscaping, screening and lighting will be implemented with consideration of the surrounding context.

[14] State Historic Preservation Office inventory number XX-RRD-NPR001

Project Element	Impacted Area/Resource	Visual Contrast
Grade-separated crossing at Gateway State Trail	Bruce Vento Regional Trail; Gateway State Trail	**Moderate:** Some change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, landscaping at grade-separated crossings will be designed to allow for visibility and access. The design of grade-separated crossings will be established through a visual quality inventory and design process.
Grade-separated trail crossing at Weaver Elementary School	Bruce Vento Regional Trail; existing trail access to Weaver Elementary School	**Moderate:** Some change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, landscaping at grade-separated crossings will be designed to allow for visibility and access. The design of grade-separated crossings will be established through a visual quality inventory and design process.
Grade-separated trail crossing at Weaver Elementary School, dedicated guideway, trail reconstruction, retaining walls, stormwater treatment	Madeline L. Weaver Elementary School[15]	**Moderate:** Some change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, landscaping at grade-separated crossings will be designed to allow for visibility and access. The design of grade-separated crossings will be established through a visual quality inventory and design process.
Dedicated guideway bridge over Highway 36	Bruce Vento Regional Trail; Highway 36	**Low:** Consistent with current visual context (freeway with other existing crossings)
Highway 36 station with park-and-ride (part of the Build Alternative)	Bruce Vento Regional Trail; Harvest Park; Minnesota Department of Transportation and nearby commercial properties	**Moderate:** Some change from existing visual context (open park field). The new park-and-ride would be a structure with approximately 300 spaces. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, station design, landscaping, screening and lighting will be implemented with consideration of the surrounding context.

[15] State Historic Preservation Office inventory number RA-MWC-0106

Project Element	Impacted Area/Resource	Visual Contrast
Highway 36 station without park-and-ride (part of the Build Alternative option without the Highway 36 park-and-ride)	Bruce Vento Regional Trail; Harvest Park; Minnesota Department of Transportation and nearby commercial properties	**Low:** Some change from existing visual context (open park field). Station platforms and a passenger pick-up and drop-off area would be constructed within existing right-of-way, with minimal visual changes to Harvest Park. Visual impacts to Harvest Park would be mitigated by station area landscaping as specified in the *Ramsey County Rail Right-of-Way Design Guide*.
Grade-separated trail crossing between Fitch Road and Barclay Street	Bruce Vento Regional Trail; existing trail access between Fitch Road and Barclay Street (north of County Road C)	**Moderate:** Some change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*, landscaping at grade-separated crossings will be designed to allow for visibility and access. The design of grade-separated crossings will be established through a visual quality inventory and design process.
Dedicated guideway along Beam Avenue	Nearby commercial properties	**Low:** Consistent with current visual context (multi-lane roadway; existing transit service)
Maplewood Mall Transit Center	Maplewood Mall Transit Center; Maplewood Mall	**Low:** Consistent with current visual context (transit station)
St. John's Boulevard station	St. John's Hospital	**Low:** Consistent with current visual context (multi-lane roadway)

Table 3: Operating Phase Visual Impacts in White Bear Township

Project Element	Impacted Area/Resource	Visual Contrast
Buerkle Road station (southbound platform)	Bruce Vento Regional Trail; nearby commercial properties	**Low:** Minimal change from existing visual context (open space and commercial/ industrial area). As noted in the *Ramsey County Rail Right-of-Way Design Guide*, station design, landscaping, screening and lighting will be implemented with consideration of the surrounding context.

Table 4: Operating Phase Visual Impacts in Vadnais Heights

Project Element	Impacted Area/Resource	Visual Contrast
Dedicated guideway bridge over I-694 adjacent to the Bruce Vento Regional Trail	Bruce Vento Regional Trail; I-694	**Low:** Consistent with existing visual context (freeway with other existing crossings)
Buerkle Road station (northbound platform)	Bruce Vento Regional Trail; nearby commercial properties	**Low:** Minimal change from existing visual context (open space and commercial/ industrial area). As noted in the *Ramsey County Rail Right-of-Way Design Guide*, station design, landscaping, screening and lighting will be implemented with consideration of the surrounding context.
Dedicated guideway along Buerkle Road	Buerkle Hyundai; nearby commercial properties	**Low:** Consistent with existing visual context (multi-lane roadway)
Dedicated guideway along Highway 61	TCO Sports Garden; nearby commercial properties	**Low:** Consistent with existing visual context (multi-lane roadway)
County Road E station	TCO Sports Garden; nearby commercial properties	**Low:** Consistent with existing visual context (multi-lane roadway)

Table 5: Operating Phase Visual Impacts in Gem Lake

Project Element	Impacted Area/Resource	Visual Contrast
Dedicated guideway along Highway 61	Nearby commercial properties	**Low:** Consistent with existing visual context (multi-lane roadway)

Table 6: Operating Phase Visual Impacts in White Bear Lake

Project Element	Impacted Area/Resource	Visual Contrast
Buerkle Road station; Whitaker Street station; stormwater treatment south of Buerkle Avenue, near Highway 61 bridge, and north of Goose Lake	Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment [16]	**Moderate:** Some change from existing visual context (multi-lane roadway right-of-way)
Dedicated guideway along Highway 61	Nearby commercial properties	**Low:** Consistent with existing visual context (multi-lane roadway)
Cedar Avenue station	Nearby commercial properties	**Low:** Consistent with existing visual context (multi-lane roadway)

[16] State Historic Preservation Office inventory number XX-RRD-NPR001

Project Element	Impacted Area/Resource	Visual Contrast
Whitaker Street station	Nearby commercial properties; existing rail corridor	**Low:** Consistent with existing visual context (multi-lane roadway)
Downtown White Bear Lake station	Nearby commercial and residential properties	**Low:** Consistent with existing visual context (off-street parking for businesses); nearby residential properties are well-screened by vegetation on private property

CONSTRUCTION PHASE IMPACTS

During the construction phase, visual impacts would occur along the project route, except for in limited sections where no dedicated guideway or stations would be constructed. Visual impacts of construction such as presence of heavy machinery, ground disturbance and artificial lighting are expected to be temporary in nature, though they may be greater in magnitude than operating phase visual impacts.

MITIGATION MEASURES

Design and construction best practices will be used to avoid, minimize and mitigate impacts of the project on neighboring properties and communities, including visual impacts. Table 7 includes a list of key project elements for which visual impacts have already been considered as part of the project definition or concept design phases, as well as project elements that will be included in future master planning projects for further public engagement and refinement.

Table 7: Specific Project Elements Where Visual Mitigation Has Been Incorporated Into Design

Project Element	Impacted Area/ Resource	Mitigation Incorporated Into Design
10th Street station	Nearby commercial properties; Pedro Park	Based on public engagement feedback from nearby residents, businesses and community organizations, an alternative location was selected for the southbound platform at 10th Street. The new near-side location would avoid visual impacts to Pedro Park.
Dedicated guideway bridge at Johnson Parkway	Realife Cooperative of Phalen Village	Public engagement was conducted with residents regarding the bridge dimensions, placement and materials. Based on feedback, the bridge was changed from a single span to a more visually open three-span design. Because Johnson Parkway is a historic property,[17] design considerations will also be discussed in continuing consulting party meetings. Design of the bridge will be reviewed in accordance with Secretary of Interior Standards.

[17] State Historic Preservation Office inventory number RA-SPC-8497 and RA-SPC-5685

Project Element	Impacted Area/ Resource	Mitigation Incorporated Into Design
Dedicated guideway in Ramsey County rail right-of-way (Saint Paul, Maplewood and Vadnais Heights)	Bruce Vento Regional Trail; Phalen Regional Park; nearby residential properties	Specific outreach to users of the Bruce Vento Regional Trail and residents of adjacent neighborhoods was conducted as part of the *Ramsey County Rail Right-of-Way Design Guide* process. As noted in the design guide, the Bruce Vento Regional Trail would be reconstructed as a 12-foot multi-use path. To the extent feasible, design and construction of the Rush Line BRT Project will seek to preserve existing vegetation and character, with specific attention given to specimen trees and areas of dense understory. Following construction, the disturbed right-of-way would be re-planted to reduce runoff, control erosion and reestablish wildlife habitat. At significant trail crossings, including at Weaver Elementary School and the Gateway State Trail, the dedicated guideway would be grade-separated to enhance safety and comfort in crossing the guideway.
Downtown White Bear Lake station	Nearby commercial and residential properties	Additional public engagement and design work was conducted to refine station location and configuration to minimize property impacts.[18]

[18] A summary of input received on the Downtown White Bear Lake station location is available at https://www.ramseycounty.us/sites/default/files/Projects%20and%20Initiatives/2019%2002%2021%20White%20Bear%20Lake%20Station%20Input%20Summary.pdf.

MEMORANDUM

SAFETY AND SECURITY

Prepared by: Kimley-Horn and Associates, Inc.

Date: April 2021

Subject: Safety and Security

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

Regulatory Context

Federal, state and local codes and standards would require the anticipated owner and operator of the project, Metro Transit, to comply with safety and security requirements for facilities. These requirements include applicable parts of the following guidance publications:

- National Fire Protection Association 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, 2017 edition.
- 2012 International Fire Code©, as amended.
- 2015 Minnesota State Building Code.
- National Fire Protection Association 101®, Life Safety Code®, 2015 edition, and Internal Organization for Standardization guidelines.
- American National Standards Institute and American Society for Testing and Materials standards.

The Federal Transit Administration provides safety and security oversight for major capital projects,[1] and it recommends that the proposed project design meet the following minimum objectives:

- Identify and eliminate hazards with appropriate safety design concepts and/or alternative designs.
- Use fixed, automatic or other protective safety devices to control hazards the project design cannot eliminate.

[1] "Safety and Security Guidance for Recipients with Major Capital Projects," covered under "Project Management Oversight," 49 CFR Part 633. Available at https://www.govregs.com/regulations/title49_chapterVI_part633_subpartB.

- Use warning signals and devices if neither designs nor safety devices can effectively eliminate or control an identified hazard.
- Provide procedures to control hazards that protective safety devices cannot minimize.

The project proposes using Crime Prevention Through Environmental Design principles for all passenger facilities, in accordance with the Metropolitan Council's *Regional Transitway Guidelines*[2] and *Station and Support Facility Design Guidelines User Guide*.[3]

Methodology

The safety analysis considers how project implementation could impact the safety of transit customers, pedestrians, bicyclists and motorists along the route and whether the project has adequate police, fire and emergency services to serve the BRT facilities and users. The security analysis considers measures to prevent crime.

The study area includes facilities within and adjacent to the Build Alternative's potential area of disturbance, and it considers the proximity of the proposed route to schools, playgrounds and other places with special safety or security concerns.

EXISTING CONDITIONS

The police and fire departments and emergency response units of the communities adjacent to the project provide public safety and security services along the route. Each community has a system for responding to emergencies such as weather, fire, rescue incidents, hazardous materials and homeland security issues. Metro Transit has a 24-hour police department, authorized by Minnesota Statutes, section 473.407, that provides security services for its transit customers and employees in vehicles and transit facilities.

The project would interact with existing multimodal transportation infrastructure including roadways and bicycle and pedestrian facilities that would be used by transit riders and the public. The following parks, trails and schools are also located adjacent to the proposed route:

- The Depot Tot Lot.
- Mears Park.
- Pedro Park.
- Valley Park.
- Eastside Heritage Park.
- Duluth & Case Recreation Center.
- Bruce Vento Regional Trail.
- Phalen Regional Park.

[2] Metropolitan Council. "Regional Transitway Guidelines – Twin Cities Region." Publication No. 35-12-006. Adopted February 22, 2012, amended February 2015 and March 2016. Available at http://www.metrocouncil.org/Transportation/Publications-And-Resources/RegionalTransitwayGuidelines-pdf.aspx.

[3] Metropolitan Council. "Station and Support Facility Design Guidelines User Guide – A Supplement to the Regional Transitway Guidelines." Available at http://www.metrocouncil.org/METC/files/ea/eaa8d03e-2d7a-4e61-b045-391dbe737999.pdf.

- Gateway State Trail.
- Weaver Elementary School.
- Kohlman Creek Preserve.
- Harvest Park.
- Veterans Park.
- Railroad Park.

These areas may have special safety or security concerns because they are used by children. Other parks, trails and schools near the project are farther from the route, reducing the likelihood of children being nearby.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

No positive or adverse impacts to safety and security are anticipated to result from the No Build Alternative.

Build Alternative

OPERATING PHASE IMPACTS

The project would introduce a new transit feature in the project area that could generate some initial safety concerns from residents and visitors as they become accustomed to the bus operations; however, the BRT service would be similar to other bus transit already operating in the project area municipalities. Therefore, the project is not anticipated to produce new safety hazards or security concerns. The same safety and security measures provided to the METRO system would apply to the project, including patrols by the Metro Transit Police Department. The project would maintain all existing pedestrian crossings and provide new pedestrian connections and sidewalks to access BRT stations where necessary. See the concept plans in Appendix A of the EA for the location of new pedestrian connections and sidewalks.

The dedicated guideway would accommodate emergency vehicle access. Where adjacent to general purpose lanes, it would also accommodate law enforcement stops and vehicle breakdowns. When this occurs, buses would merge from the dedicated guideway into mixed traffic and go around the stopped vehicle.

The project would include the following improvements to safely control movement of the BRT at intersections and to provide adequate infrastructure to accommodate buses, pedestrians and park-and-ride traffic near stations:

- New traffic signals at full-access intersections through which the dedicated guideway would run adjacent to an existing roadway to safely control movements of vehicles, pedestrians, bicycles and BRT.
- New traffic signals or stop signs at intersections where the dedicated guideway is located in the Ramsey County rail right-of-way and crosses local streets that are currently not signalized.
- Bridges for grade separation over Johnson Parkway, Highway 36 and Interstate 694 (I-694).

- Bridges for grade separation over three trail crossings of the dedicated guideway including the Gateway State Trail, near Weaver Elementary School and between Fitch Road and Barclay Street.
- Fencing, landscaping and buffer space between the dedicated guideway and the Bruce Vento Regional Trail to enhance the comfort and safety of trail users.
- Pavement markings or striping to delineate the dedicated guideway from general traffic lanes.

The project would include ramps to facilitate near-level boarding at stations that are raised 10 inches above pavement at the boarding edge. The station designs would include components essential for traveler safety and security including wheelchair ramps, lighting, security systems and information displays. Also, the level boarding platforms would have a 2-foot-long detectable warning strip at the edge of the platform to warn pedestrians about the grade change between the platform and the pavement. If stations have significant grade changes or retaining walls, station platforms would have fencing on the side not used to access the buses.

Stations would feature video monitoring and emergency telephones. A public-address system would convey information to people with impaired hearing, complying with federal Americans with Disabilities Act requirements.[4]

The project would include general lighting of station platforms and vehicular and pedestrian circulation lighting that is consistent with established guidelines. The project would provide emergency lighting in all public areas and on platforms, and it would provide pedestrian lighting along walkways, crosswalks, ramps, stairs and bicycle-storage areas. Illuminated areas near stations would include vehicular traffic areas, bus loading and unloading zones, and park-and-ride facilities.

The Metro Transit Police Department and local law enforcement authorities would be jointly responsible for the safety and security of the project's facilities and environs. These agencies already have in place policies to protect and secure transit-users and the public. Metro Transit's licensed police force enforces public safety on the transit system, and it would routinely patrol and secure the project's stations, dedicated guideway and BRT vehicles, as well as bus routes and stops.

All parks, trails and schools adjacent to the proposed route are located proximate to existing transit facilities, and the addition of BRT service would not result in additional safety or security impacts. As noted above, the project design includes improvements to safely control the movement of vehicles and pedestrians. Adverse impacts to safety and security are not anticipated to result from the project with the implementation of the above measures as part of the project's adherence to BRT design guidelines and inclusion of oversight from security agencies.

CONSTRUCTION PHASE IMPACTS

Construction activity associated with the Build Alternative may pose a safety risk to workers and the public. Short-term impacts to workers include potential personal-safety hazards such as worker-vehicle conflict in restricted spaces near traffic, working in deep and confined spaces during utility relocations and construction, exposure to hazardous utility pipe coatings or materials, and exposure to contaminants during soil excavation and drilling work.

[4] Americans With Disabilities Act of 1990, Public Law 101-336, 104 Stat. 327 (1990). Available at https://www.govinfo.gov/content/pkg/STATUTE-104/pdf/STATUTE-104-Pg327.pdf.

Public safety, particularly as it relates to people who encroach upon open excavation sites and other construction activity, is an issue that would be addressed by creating and implementing safety programs, public information efforts and selected protective measures. Construction equipment operation, materials delivery and other construction site activity may temporarily negatively impact safety on adjacent roadways and pedestrian areas. The Metropolitan Council and Metro Transit would coordinate with local law enforcement and emergency response personnel to develop a Safety and Security Management Plan and a Safety and Security Certification Plan, which would specify applicable safety and security precautions for the project.

Construction may require the temporary closure of portions of the Bruce Vento Regional Trail as well as lane closures and intersection closures of local streets. Short-term (weekend) closures of Highway 36 and I-694 would be required to facilitate bridge construction. In these locations, detour route(s) would be identified for pedestrian, bicycle and vehicular traffic as necessary to safely reroute users around the construction zone.

MITIGATION MEASURES

While no long-term impacts are identified for the Build Alternative, the Metropolitan Council, as the anticipated owner and operator, would implement measures to avoid impacts to safety and security within the project area. In addition to the components included in the design of the project, the Metropolitan Council would establish a Safety and Security Management Plan and a Safety and Security Certification Plan to guide safety and security policies for the project during design and construction. These plans would include requirements for design criteria, preliminary hazard analyses, threat and vulnerability analyses, construction safety and security, operational staff training and emergency response measures. The preliminary hazard analysis would assess hazards associated with the project and develop appropriate mitigation measures. These plans would also specify actions and requirements of Metro Transit and its police force to maintain safety and security during BRT operations. Project design features would also comply with National Fire Protection Association standards. The Metropolitan Council would develop these plans as engineering advances.

The Metro Transit Police Department and local law enforcement authorities would be jointly responsible for the safety and security of the project's facilities and environs. Metro Transit's licensed police force enforces public safety on and near the transit system, and it would routinely patrol and secure the project's stations, dedicated guideway and BRT vehicles, as well as nearby bus routes and stops.

The Metropolitan Council would coordinate with city, county and state law enforcement agencies to develop the safety and security plans for the project. Notifications and outreach to impacted communities could include mass media public-service announcements, roadway or trail closure signage, community meetings or public events. The Metropolitan Council would be responsible for communicating to the public information related to safety and security during project construction and operations.

During construction, the Metropolitan Council would secure construction sites with fencing and security gates to prevent access by individuals who do not have clearance. The Metropolitan Council would maintain federal Occupational Safety and Health Administration and Minnesota Occupational Safety and Health Administration standards for construction site personnel safety. The Metropolitan Council would also implement measures to avoid and mitigate risks associated with utility relocations, including implementing a confined space entry safety plan, remediating contaminated soils prior to

utility excavations, and remediating and disposing of hazardous pipe coatings and materials impacted by utility relocations.

MEMORANDUM

SECTION 6(F) RESOURCES

Prepared by: Kimley-Horn and Associates, Inc.

Date: April 2021

Subject: Section 6(f) Resources

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

The Land and Water Conservation Fund Act of 1965[1] established a conservation fund for planning, acquisition and development of land and water outdoor recreation facilities. Section 6(f)(3) of the Land and Water Conservation Fund Act requires that property acquired or developed with Land and Water Conservation Fund Act assistance be retained and used for public outdoor recreation in perpetuity. Any conversion of such property to uses other than public outdoor recreation must be approved by the National Park Service.

The Minnesota Department of Natural Resources maintains a list of parks and natural areas subject to permanent land use requirements, including properties that have received funding from the Land and Water Conservation Fund.[2] The list was reviewed to identify properties located within the study area, which is defined as the potential area of disturbance for the Build Alternative.

EXISTING CONDITIONS

Parks and recreation facilities located within the study area are listed in Table 1. None of these facilities have received funding from the Land and Water Conservation Fund.

[1] Public Law 88-578

[2] *Minnesota Parks and Natural Areas Subject to Permanent Land Use Requirements*. September 2019. Available at https://www.dnr.state.mn.us/aboutdnr/lawcon/index.html.

Table 1: Parks and Recreational Facilities Within the Study Area

Name	City	Received Land and Water Conservation Funds
Pedro Park	Saint Paul	No
Eastside Heritage Park	Saint Paul	No
Phalen Regional Park	Saint Paul	No
Phalen Park	Saint Paul	No
Harvest Park	Maplewood	No
TCO Sports Garden	Vadnais Heights	No

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The No Build Alternative would not impact any outdoor recreation facilities that received funding from the Land and Water Conservation Fund.

Build Alternative

OPERATING PHASE IMPACTS

There are no outdoor recreation facilities that received funding from the Land and Water Conservation Fund within the study area; therefore, the Build Alternative would not result in the conversion of any such property to uses other than public outdoor recreation.

CONSTRUCTION PHASE IMPACTS

There are no outdoor recreation facilities that received funding from the Land and Water Conservation Fund within the study area; therefore, the Build Alternative would not result in the conversion of any such property to uses other than public outdoor recreation.

MITIGATION MEASURES

The project would not result in the conversion of any Section 6(f) resources; therefore, no mitigation measures would be needed.

MEMORANDUM

UTILITIES

Prepared by: SRF Consulting Group
Date: April 2021
Subject: Utilities

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

The following is a representative summary of the laws, regulations and guidelines that are associated with utility relocation and accommodation.

Regulatory Context

FEDERAL

- "Highways," Title 23, United States Code, Section 123[1] and Section 109.[2]
- "Highways," Title 23, Code of Federal Regulations, Chapter I, Subchapter G, Part 645, Subparts A and B.[3]
- Federal Transit Administration's *Project and Construction Management Guidelines* (2016), Appendix F – "Utility Relocation Agreements."[4]

[1] "Relocation of Utility Facilities," 23 USC Section § 123, 2012. Available at https://www.gpo.gov/fdsys/granule/USCODE-2011-title23/USCODE-2011-title23-chap1-sec123. Accessed June 2019.
[2] "Standards," 23 USC Section § 109(l)(1), 2012. Available at https://www.gpo.gov/fdsys/granule/USCODE-2011-title23/USCODE-2011-title23-chap1-sec109. Accessed June 2019.
[3] "Highways," 23 CFR Part 645. Federal Highway Administration, 2011. Available at https://www.gpo.gov/fdsys/granule/CFR-2011-title23-vol1/CFR-2011-title23-vol1-part645. Accessed June 2019.
[4] US Department of Transportation. Federal Transit Administration. "Project and Construction Management Guidelines," as amended. 2016. Appendix F – "Utility Relocation Agreements." Available at https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Project_and_Construction_Mgmt_Guidelines_2016.pdf. Accessed June 2019.

STATE

Minnesota Department of Transportation

- Minnesota Department of Transportation's *Utility Accommodation on Highway Right-of-Way Policy and Procedures.*[5]
- Minnesota Department of Transportation's *Utility Accommodation and Coordination Manual.*[6]

Minnesota State Constitution

- The Constitution of the State of Minnesota[7] addresses just compensation associated with private property that public use takes, destroys or damages.

Minnesota Statutes

- Section 161.20, subdivision 1,[8] addresses the general powers of the Minnesota Department of Transportation commissioner to carry out the provisions of Article 14, section 2,[9] of the state constitution regarding the public highway system. Subdivision 2[10] addresses the commissioner's power regarding property acquisition.
- Section 161.45[11] addresses relocating utilities on highway rights-of-way. This section describes rule-making authority and utility owner interests when real property is conveyed.
- Section 161.46[12] addresses reimbursing utility owners for relocating facilities. The section includes definitions and reimbursement requirements, and it describes provisions associated with a lump sum settlement, acquiring a facility relocated for utility and relocation work by the state.
- Section 216B.36[13] addresses utilities located within rights-of-way that cities own. These utilities may be subject to an individual franchise agreement that provides the terms for which the utility companies may operate in the public right-of-way.

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[5] Minnesota Department of Transportation. "Utility Accommodation on Highway Right of Way." Available at http://www.dot.state.mn.us/policy/operations/op002.html. Accessed June 2019.
[6] Minnesota Department of Transportation. "Utility Accommodation and Coordination Manual." Available at https://www.dot.state.mn.us/utility/guidance.html. Accessed June 2019.
[7] "Private Property for Public Use," Minnesota Constitution, article 1, sec. 13, as amended. Available at https://www.revisor.mn.gov/constitution/#article_1. Accessed June 2019.
[8] "Provisions of constitution." Minnesota Statutes, section 161.20, subdivision 1. Available at https://www.revisor.mn.gov/statutes/cite/161.20. Accessed June 2019.
[9] "Public Highway System," Minnesota Constitution, article 14, sec. 2, as amended. Available at https://www.revisor.mn.gov/constitution/#article_14. Accessed June 2019.
[10] "Property acquisition; agreements and contracts." Minnesota Statutes, section 161.20, subdivision 2. Available at https://www.revisor.mn.gov/statutes/cite/161.20. Accessed June 2019.
[11] "Utility on Highway Right-of-Way; Relocation." Minnesota Statutes, section 161.45. Available at https://www.revisor.mn.gov/statutes/cite/161.45. Accessed June 2019.
[12] "Reimbursement of Utility." Minnesota Statutes, section 161.46. Available at https://www.revisor.mn.gov/statutes/cite/161.46. Accessed June 2019.
[13] "Public Utilities." Minnesota Statutes, section 216B.36. Available at https://www.revisor.mn.gov/statutes/cite/216B.36. Accessed June 2019.

- Section 216D.04[14] addresses the Minnesota Department of Public Safety's notice, plan and locating requirements for excavation projects involving underground facilities.
- Section 222.37, subdivision 2,[15] addresses pipeline relocations.

Minnesota Rules

- Minnesota Rules, parts 8810.3100 through 8810.3600[16] address the utility permit process, standards for work conducted under permit and aerial and underground lines.

Methodology

The utilities study area is defined as within or adjacent to the potential area of disturbance for the Build Alternative, defined as the estimated area where construction would occur.

Information about existing utilities near the project was obtained from Gopher State One Call,[17] a notification system established to inform all Minnesota underground facility operators of intended excavation.

The cities of Saint Paul, Maplewood, North Saint Paul, Vadnais Heights, Gem Lake and White Bear Lake; Ramsey County; Saint Paul Regional Water Services; Saint Paul Public Schools and White Bear Lake Area Schools; the Metropolitan Council; and the Minnesota Department of Transportation provided information on storm sewer, sanitary sewer, water main, fiber optic and communications utilities.

American Public Media, Arvig, AT&T, BP Pipeline, CenturyLink, Comcast, Consolidated Communications, District Energy Saint Paul, Exenet, Health Partners, Hiway Federal Credit Union, Magellan Midstream Partners, MasTec, Rogers Communications, Sprint, Xcel Energy, XO Communications and Zayo Bandwidth provided information about private utilities for facilities located within the study area.[18] Ramsey County will continue to gather information from additional private utilities as identified.

The analysis compared the provided information against the Build Alternative to identify potential conflicts with existing utilities, approximating the locations and magnitudes of impacts based on the project's concept plans (concept plans are included in Appendix A of the EA). The plans will continue to be refined as engineering advances.

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[14] "Excavation; Land Survey." Minnesota Statutes, section 216D.04. Available at https://www.revisor.mn.gov/statutes/cite/216D.04. Accessed June 2019.
[15] "Pipeline." Minnesota Statutes, section 222.37, subdivision 2. Available at https://www.revisor.mn.gov/statutes/cite/222.37. Accessed June 2019.
[16] "Utilities Equipment." Minnesota Rules, parts 8810.3100-8810.3600. Available at https://www.revisor.mn.gov/rules/8810/. Accessed June 2019.
[17] Gopher State One Call. Available at: http://www.gopherstateonecall.org/. Accessed June 2019.
[18] Entities identified as part of the Gopher State One Call as owning utilities near the potential area of disturbance but that did not respond to the data request include: 3M Company, Burlington Northern Railroad, Gillette Children's Hospital, MCI, Inc. (doing business as Verizon Business), Minnesota Commercial Railway, Regions Hospital and Securian Financial.

EXISTING CONDITIONS

The affected environment includes the following underground utilities within or adjacent to the potential area of disturbance: storm sewer, sanitary sewer, water main, oil, gas, telecommunications and electric utility lines. Electric and telecommunications lines comprise overhead utilities in the same area.

Storm and sanitary sewer services are owned and maintained by the public works divisions of the areas in which they are located, including the cities of Saint Paul, Maplewood, Vadnais Heights, Gem Lake and White Bear Lake; Ramsey County; Capitol Region Watershed District; and Metropolitan Council Environmental Services. Several publicly owned storm and sanitary sewer services run parallel to the study area or intersect it.

Active Metropolitan Council Environmental Services interceptor sewer lines are located near the intersection of Phalen Boulevard and Johnson Parkway; McAfee Street at Larpenteur Avenue; Bruce Vento Regional Trail at Buerkle Road; and portions of Highway 61 between Buerkle Road and Highway 96. The active sewer lines vary in size and depth underground.

Abandoned Metropolitan Council Environmental Services interceptor sewer lines are located parallel to the Bruce Vento Regional Trail between Larpenteur Avenue and Highway 36; at the Bruce Vento Regional Trail north of Gervais Avenue; parallel to the Bruce Vento Regional Trail between Kohlman Avenue and Beam Avenue and between County Road D and Buerkle Road; and at Highway 61 and Whitaker Street. The abandoned sewer lines vary in size and depth underground.

BP Pipeline owns a buried oil pipeline within the study area. The 10-inch pipeline crosses Hazelwood Street between County Road D and Legacy Parkway.

Magellan Midstream Partners owns underground gas line utilities that cross the study area in Maplewood. The gas lines range in size from 6 to 12 inches in diameter, running east to west across the Bruce Vento Regional Trail just north of Belmont Lane.

Arvig, AT&T, CenturyLink, Comcast, Consolidated Communications, Exenet, Hiway Federal Credit Union, MasTec, Rogers Communications, Sprint, XO Communications and Zayo Bandwidth provide telecommunications services in the study area using overhead and underground lines. These utilities intersect and/or run parallel with much of the study area.

Xcel Energy provides electrical service in the study area using overhead and underground distribution power lines. Xcel Energy has electric transmission lines that intersect and run parallel within the study area.

District Energy Saint Paul provides heating and cooling to many large properties in and around downtown Saint Paul. District Energy Saint Paul maintains underground water pipes within and adjacent to the study area, in downtown Saint Paul and near Pennsylvania Avenue and Phalen Boulevard.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

No impacts to utilities would occur under the No Build Alternative.

Build Alternative

OPERATING PHASE IMPACTS

Several long-term impacts from the Build Alternative are anticipated to existing underground and overhead utilities throughout the study area. As engineering advances, utilities will be evaluated on a case-by-case basis to determine if utilities must be adjusted to accommodate construction. If elements of the project conflict with existing utility lines, utility owners may need to modify, relocate or reconstruct the utilities. Coordination would occur with each utility owner regarding impacts to existing facilities as engineering advances.

Utilities will be evaluated for relocation under the following conditions:

- Utility is located beneath a footing of a proposed parking structure, retaining wall and/or station.
- Utility conflicts with proposed dedicated guideway, systems or communications elements.
- Water and sewer do not meet depth requirements for safe operation due to changes in project grading.
- A risk assessment dictates that utility owners must relocate utility outside of the dedicated guideway.

The project could require relocating the buried fiber optic cables and associated system infrastructure located within the study area due to guideway and other project infrastructure.

The project would avoid and/or minimize potential long-term impacts to maintenance of buried oil pipelines near Hazelwood Street and County Road D and to gas pipelines near Bruce Vento Regional Trail and Belmont Lane through coordination with pipeline owners and advancement of design. Project improvements in these areas include dedicated guideway and other project-related infrastructure. Where impacts cannot be avoided, coordination would continue with the utility owner to mitigate these impacts.

The project could impact active Metropolitan Council Environmental Services interceptor sewer lines near Phalen Boulevard and Johnson Parkway; McAfee Street at Larpenteur Avenue; near the Bruce Vento Regional Trail at Buerkle Road; along portions of Highway 61 between Buerkle Road and County Road E; and near the Whitaker Street station along Highway 61 north of White Bear Avenue. Moreover, the project could impact active city of Maplewood sanitary sewer force main located parallel to the Bruce Vento Regional Trail south of Beam Avenue. The project would avoid and/or minimize any potential impacts as engineering advances.

Electrical lines by the proposed dedicated guideway bridges over Highway 36 and I-694 would need to be relocated. The retaining walls for the proposed bridge over I-694 may require relocation of the Minnesota Department of Transportation's Regional Transportation Management Center Network. Impacts to the high voltage electrical line running between the proposed bridge over I-694 and the existing Bruce Vento Regional Trail bridge are not anticipated.

The project could require relocating underground water pipes maintained by District Energy Saint Paul near the intersection of Phalen Boulevard and Cayuga Street due to proximity to the proposed station platform.

Proposed station platforms would require connections to electrical power and a communication network to provide lighting, real-time messaging systems, security cameras and fare collection.

CONSTRUCTION PHASE IMPACTS

The project would produce short-term impacts to utilities during construction activities such as excavation and grading, placing structural foundations and using large-scale equipment. Utility relocations would result in service disruptions for limited durations throughout construction. These disruptions are anticipated to be minimal, and providers would establish temporary connections for customers before permanently relocating utilities facilities. Utility owners would decide whether and when to allow disruptions to service. Access to sanitary sewer lift stations located within the study area would be maintained during construction activities.

MITIGATION MEASURES

The locations of existing utilities in the project area will be confirmed as engineering advances so that the design can be refined to best avoid the utilities, where practicable. Where conflict is unavoidable, the Metropolitan Council will coordinate with utility owners to identify project-related impacts and potential mitigation measures such as relocations, replacements or other actions. If a legal agreement exists stating that a utility owner would pay to move the utility to accommodate a roadway improvement project, the Metropolitan Council will coordinate with that owner per the conditions of the agreement. Existing utility land rights will also be evaluated to determine their impact on relocation costs.

If project construction requires temporary service disruptions, the utility owners would notify affected property owners. Potential disruptions would be temporary, and owners would restore utility services to preconstruction levels in a timely manner. If construction activities reveal previously unidentified utilities, the Metropolitan Council would notify the owner of the utility and determine appropriate mitigation measures.

The Metropolitan Council would also implement measures to avoid and mitigate risks associated with utility relocations, including implementing a confined space entry safety plan, remediating contaminated soils prior to utility excavations and remediating and disposing of hazardous pipe coatings and materials impacted by utility relocations.

The Metropolitan Council would mitigate accessibility impacts at the station platforms by adjusting any existing utility vaults to match the new grade, including raising or lowering and resetting existing frames, covers and lids and adding or replacing riser collars.

MEMORANDUM

GEOLOGY, GROUNDWATER AND SOILS

Prepared by: Kimley-Horn and Associates, Inc.

Date: April 2021

Subject: Geology, Groundwater and Soils

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

In Minnesota, few regulations exist related to geologic resources, aside from groundwater dewatering. A water appropriation permit is required from the Minnesota Department of Natural Resources to dewater in excess of 1.0 million gallons per year or 10,000 gallons a day.

The discharge from dewatering is regulated under the National Pollutant Discharge Elimination System permit that is required for all construction activities that disturb more than 1.0 acre of land. If the water is contaminated, an individual National Pollutant Discharge Elimination System permit must be obtained from the Minnesota Pollution Control Agency or groundwater can be discharged to the sanitary sewer system if approved by the Environmental Services Division of the Metropolitan Council.

The Geologic Atlas of Ramsey County was reviewed for information regarding surface geology, bedrock geology and groundwater resources.[1]

The study area for geology, groundwater and soils is defined as the area within 500 feet of the potential area of disturbance for the Build Alternative.

EXISTING CONDITIONS

Geology

SURFICIAL GEOLOGY

According to the Phase I Environmental Site Assessment completed for the project (included in Appendix E of the EA), the study area consists of postglacial age stream sediment deposits, Pleistocene age stream sediment of glacial River Warren deposits, Pleistocene age Superior Lobe till deposits, Pleistocene age Grantsburg Sublobe till deposits, Pleistocene age Grantsburg Sublobe meltwater stream sediment deposits, postglacial age organic sediment deposits and Pleistocene age

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[1] Minnesota Geological Survey, Geologic Atlas of Ramsey County (1992), accessed May 14, 2019. Available at https://conservancy.umn.edu/handle/11299/58233.

Grantsburg Sublobe sandy lake sediment deposits. These unconsolidated sediments are generally encountered in a south to north direction within the study area and range from sand and gravel in various places to silt and clay near the terraces of the Mississippi River.

BEDROCK GEOLOGY

The uppermost bedrock units within the study area are the Middle Ordovician, Platteville and Glenwood Formations; the Middle Ordovician, St. Peter Sandstone; the Lower Ordovician, Prairie du Chien Group; and the Upper Cambrian, Jordan Sandstone.[2]

The depth to bedrock in the study area ranges from 50 feet to 300 feet below land surface.[2] The deepest area is located in a bedrock valley at Lake Phalen in the central portion of the study area.

KARST CONDITIONS

There are no known karst features present within or near the potential limits of disturbance.[3]

Groundwater

The depth to groundwater within the study area ranges from less than 10 feet to 50 feet below land surface. The regional groundwater flow direction within the unconsolidated deposits in the project area varies from northwest, west, southwest, south and southeast.[2] The general groundwater flow direction within the uppermost bedrock aquifer in the project area (Prairie du Chien-Jordan Aquifer) ranges from southwest to southeast.[2] The local direction of groundwater flow may be affected by nearby streams, lakes, wells and/or wetlands.

According to the geologic atlas for Ramsey County, susceptibility to groundwater pollution across the study area ranges from moderately susceptible to very highly susceptible. Areas very highly susceptible to groundwater pollution are located in the study area near downtown Saint Paul and in the vicinity of the stations at Maryland Avenue, Larpenteur Avenue, Frost Avenue, Highway 36, Maplewood Mall Transit Center, St. John's Boulevard, Whitaker Street and Downtown White Bear Lake.[2]

Soils

Soil data was obtained from digital surveys of Ramsey County produced by the Soil Survey Geographic dataset from the Natural Resources Conservation Service.[4] This dataset is considered the best available soil data in Minnesota. For details on the soil types within the study area, see Table 1 and Figure 1 through Figure 4.

[2] Minnesota Geological Survey, Geologic Atlas of Ramsey County (1992), accessed May 14, 2019. Available at https://conservancy.umn.edu/handle/11299/58233.
[3] Minnesota Department of Natural Resources, Karst Feature Inventory Points Shapefile (2019), accessed May 14, 2019.
[4] Natural Resources Conservation Service, Web Soil Survey, accessed August 19, 2020. Available at http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

Table 1: Summary of Soil Types within the Study Area

Name [5]	Acres Within Study Area	Percent of Study Area	Drainage Classification [6]	Erosion Hazard [7]
Bluffton loam	4.1	0.2	Very poorly drained	Slight
Webster loam	3.5	0.2	Poorly drained	Slight
Brill silt loam	1.0	<0.1	Moderately well drained	Slight
Dundas fine sandy loam	11.1	0.5	Poorly drained	Slight
Hayden fine sandy loam, 2 to 6 percent slopes	27.0	1.2	Well drained	Slight
Hayden fine sandy loam, 6 to 12 percent slopes	23.4	1.0	Well drained	Moderate
Hayden fine sandy loam, 12 to 25 percent slopes	4.9	0.2	Well drained	Severe
Chetek sandy loam, 0 to 6 percent slopes	79.8	3.6	Somewhat excessively drained	Slight
Chetek sandy loam, 6 to 12 percent slopes	99	4.5	Somewhat excessively drained	Moderate
Chetek sandy loam, 12 to 25 percent slopes	94.0	4.1	Somewhat excessively drained	Severe
Anoka loamy fine sand, 0 to 3 percent slopes	14.6	0.7	Well drained	Slight
Isanti loamy fine sand, depressional	0.3	<0.1	Very poorly drained	Slight

[5] Definitions for slope classes are available in the Natural Resources Conservation Service Soil Survey Manual, Chapter 3. Soils that range from 20 to 60 percent may be considered steep. Available at http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054253.

[6] Drainage classes are based on the frequency and duration in which a soil is in wet periods. Definitions for drainage classes are available in the Natural Resources Conservation Service Soil Survey Manual, Chapter 3. Available at http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054253.

[7] Erosion hazard refers to the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; a rating of "moderate" indicates some erosion is likely and that erosion-control measures may be needed. Urban land is not considered for erosion hazard because human activities, including grading and constructed impervious, have severely changed the characteristics of the soil parent material. NRCS Web Soil Survey. Available at http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

Name [5]	Acres Within Study Area	Percent of Study Area	Drainage Classification [6]	Erosion Hazard [7]
Lino loamy fine sand	7.0	0.3	Somewhat poorly drained	Slight
Ronneby fine sandy loam	3.8	0.2	Somewhat poorly drained	Slight
Auburndale silt loam, 0 to 2 percent slopes	0.1	<0.1	Poorly drained	Slight
Nessel fine sandy loam, 1 to 4 percent slopes	18.6	0.8	Moderately well drained	Slight
Freer silt loam	4.2	0.2	Somewhat poorly drained	Slight
Richwood silt loam, 2 to 6 percent slopes	2.4	0.1	Well drained	Moderate
Rosholt sandy loam, 2 to 6 percent slopes	14.6	0.7	Well drained	Slight
Prebish loam	2.4	0.1	Very poorly drained	Slight
Kingsley sandy loam, 2 to 6 percent slopes	28.2	1.3	Well drained	Slight
Kingsley sandy loam, 6 to 12 percent slopes	8.3	0.4	Well drained	Moderate
Kingsley sandy loam, 12 to 18 percent slopes	2.4	0.1	Well drained	Severe
Kingsley sandy loam, 18 to 30 percent slopes	9.4	0.4	Well drained	Severe
Mahtomedi loamy sand, 0 to 6 percent slopes	21.6	1.0	Excessively drained	Slight
Mahtomedi loamy sand, 6 to 12 percent slopes	4.3	0.2	Excessively drained	Slight
Mahtomedi loamy sand, 12 to 25 percent slopes	0.2	<0.1	Excessively drained	Moderate
Mahtomedi loamy sand, 25 to 40 percent slopes	9.4	0.4	Excessively drained	Severe
Barronett silt loam	8.8	0.4	Poorly drained	Slight
Seelyeville muck	42.2	1.9	Very poorly drained	Slight
Markey muck	0.8	<0.1	Very poorly drained	Slight

Name [5]	Acres Within Study Area	Percent of Study Area	Drainage Classification [6]	Erosion Hazard [7]
Urban land – Waukegan complex, 0 to 3 percent slopes	6.2	0.3	Not rated	Not rated
Urban land – Waukegan complex, 3 to 15 percent slopes	0.2	<0.1	Not rated	Not rated
Urban land – Chetek complex, 0 to 3 percent slopes	16.5	0.7	Not rated	Not rated
Urban land – Chetek complex, 3 to 15 percent slopes	365.8	16.1	Not rated	Not rated
Urban land – Zimmerman complex, 1 to 8 percent slopes	175.9	7.9	Not rated	Not rated
Urban land – Hayden-Kingsley complex, 3 to 15 percent slopes	16.1	0.7	Not rated	Not rated
Urban land – Kingsley complex, 3 to 15 percent slopes	135.5	6.1	Not rated	Not rated
Urban land – Kingsley complex, 15 to 25 percent slopes	16.8	0.7	Not rated	Not rated
Urban land – Lino complex, 0 to 3 percent slopes	32.1	1.4	Not rated	Not rated
Udorthents, wet substratum	182.2	8.1	Not rated	Not rated
Pits, gravel	71.5	3.2	Not rated	Not rated
Urban land	568.1	25.0	Not rated	Not rated
Aquolls and histosols, ponded	27.1	1.2	Very poorly drained	Slight
Lino variant loamy fine sand, 2 to 6 percent slopes	2.4	0.1	Moderately well drained	Slight
Dorerton – Rock outcrop complex, 25 to 65 percent slopes	<0.1	<0.1	Well drained	Very severe
Water	71.1	3.2	Not rated	Not rated
Total	**2,228.80**	**100**	-	-

Figure 1: Erodible Soils in the Study Area from Union Depot to Arcade Street

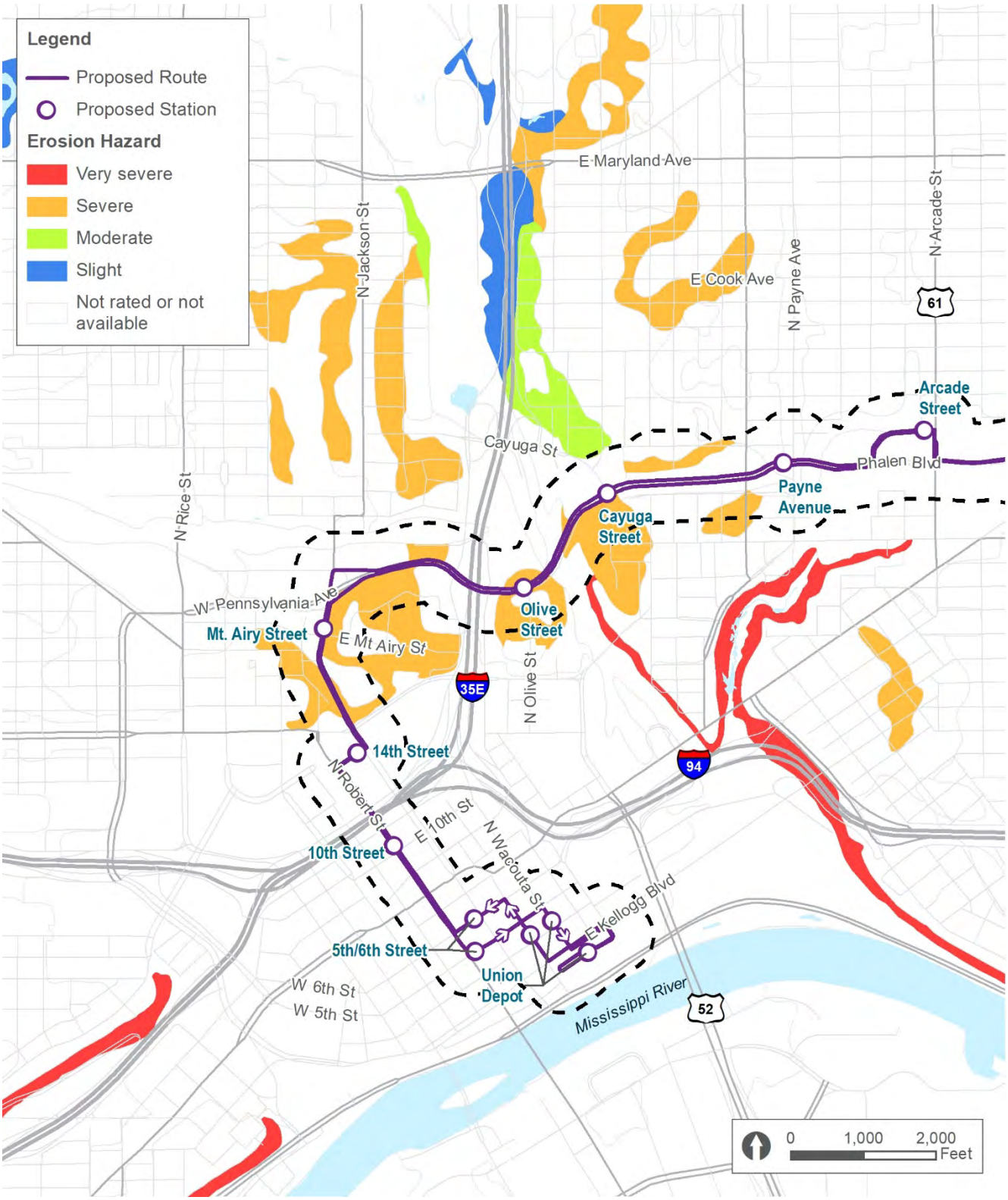


Figure 2: Erodible Soils in the Study Area from Arcade Street to County Road B

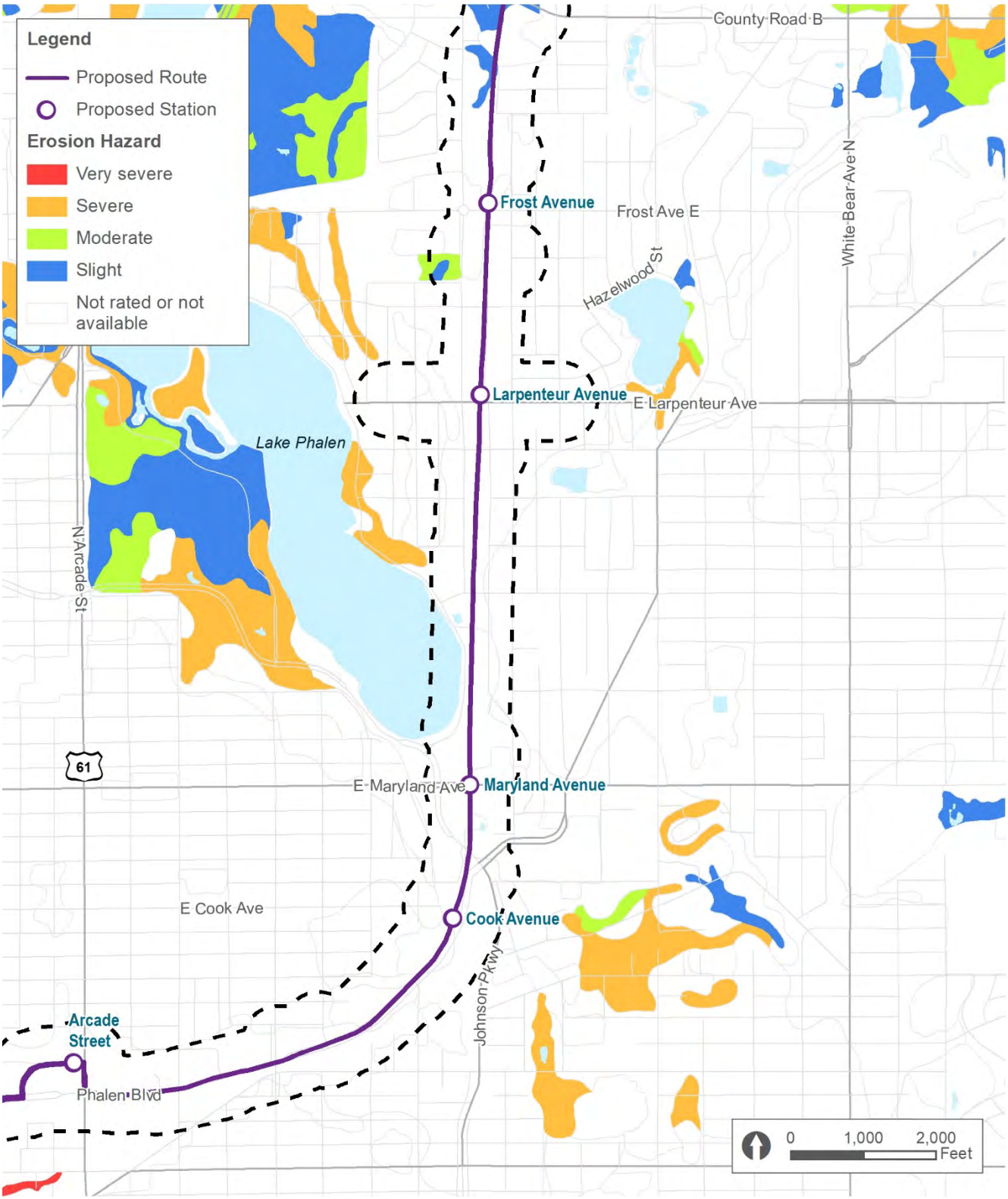


Figure 3: Erodible Soils in the Study Area from County Road B to County Road E

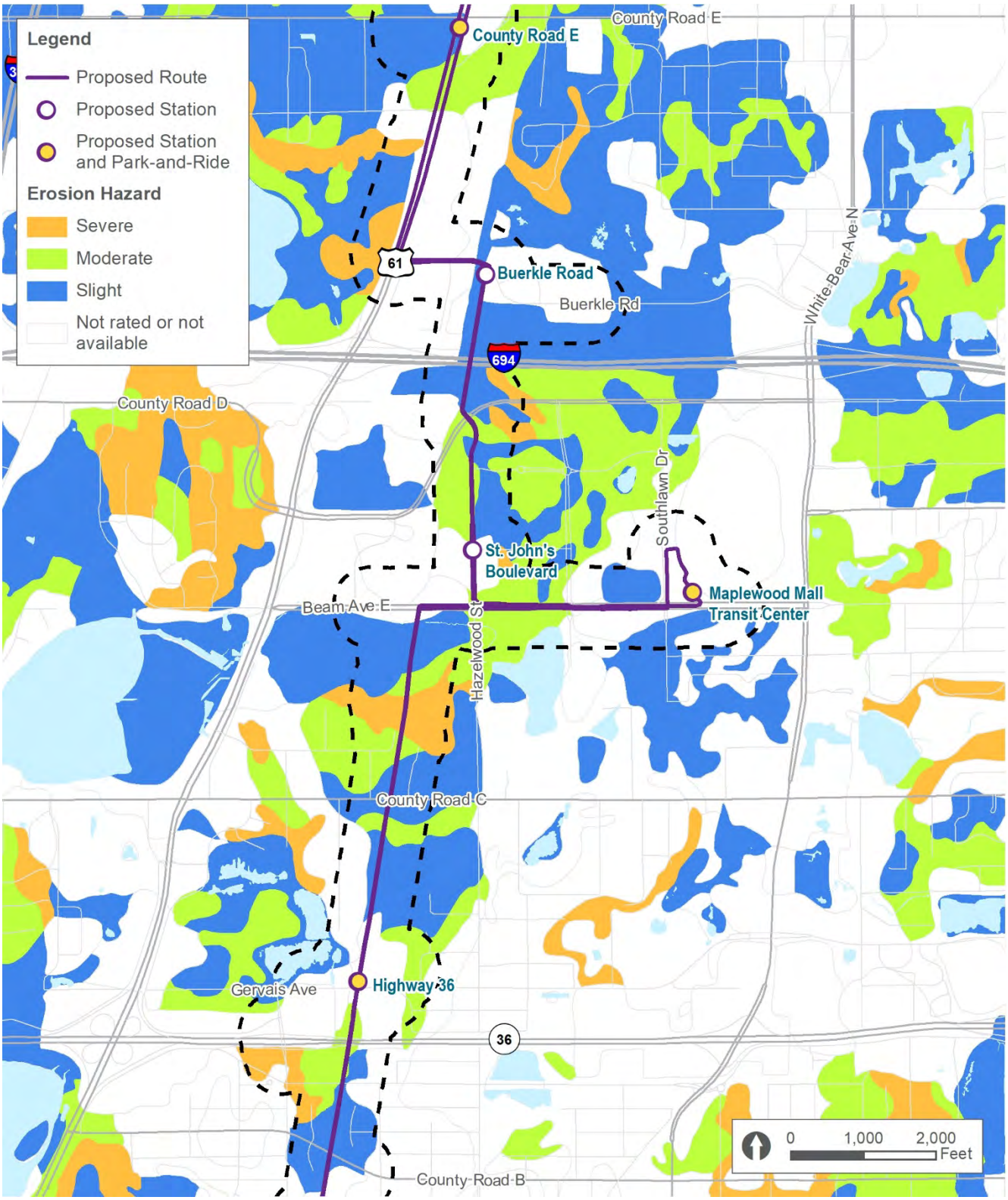
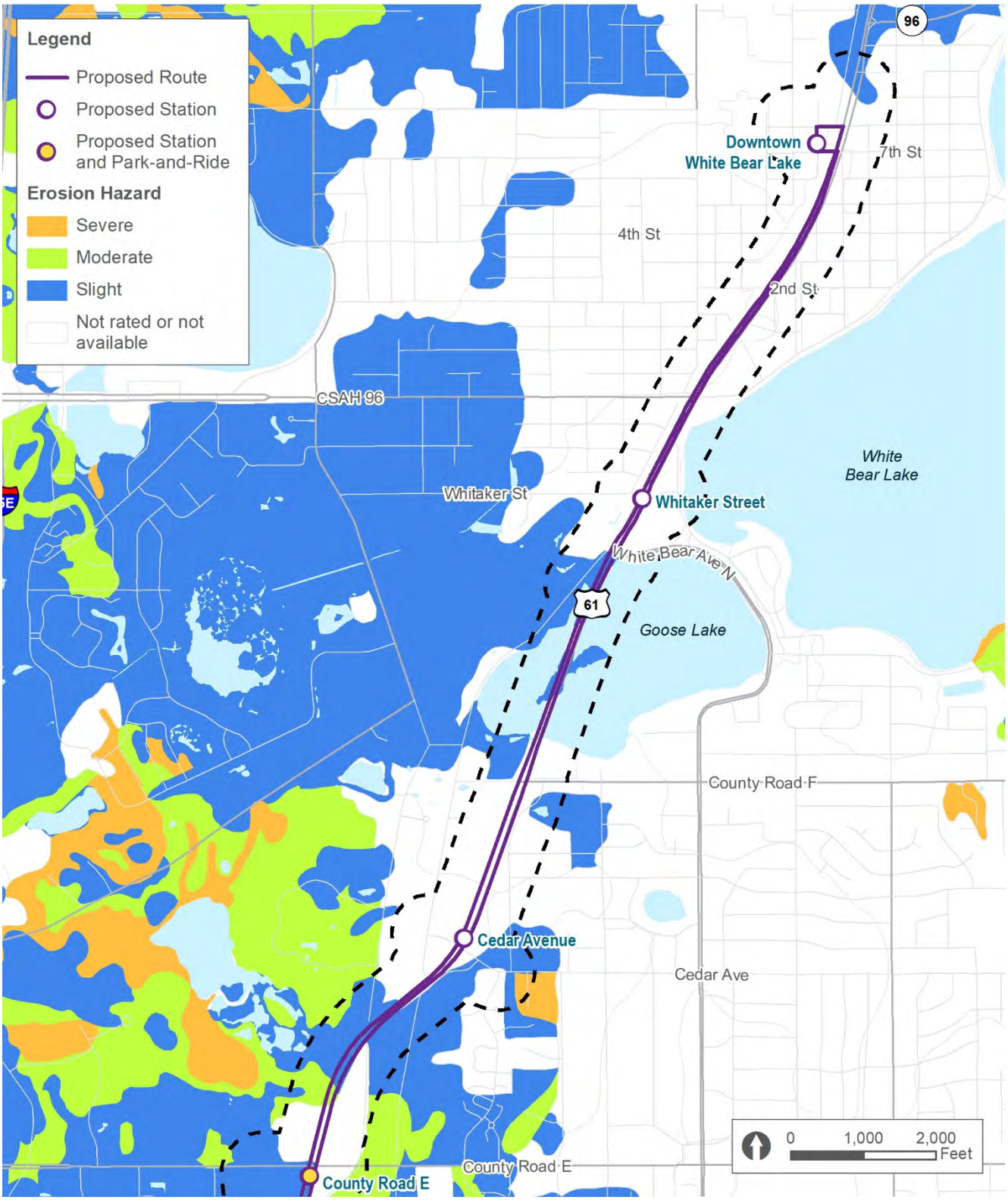


Figure 4: Erodible Soils in the Study Area from County Road E to Downtown White Bear Lake



ENVIRONMENTAL CONSEQUENCES

Operating Phase (Long-Term) Impacts

NO BUILD ALTERNATIVE

No impacts to geology, groundwater or soils would result from the No Build Alternative.

BUILD ALTERNATIVE

Impacts to geology and soils would occur solely during construction; therefore, no operating phase (long-term) impacts are anticipated as a result of the Build Alternative.

Construction Phase (Short-Term) Impacts

NO BUILD ALTERNATIVE

No short-term impacts to geology, groundwater or soils would result from the No Build Alternative.

BUILD ALTERNATIVE

No karst formations (geologic hazards) were identified in the study area; therefore, no impacts to geologic features or hazards are anticipated.

A water appropriation permit would be required from the Minnesota Department of Natural Resources to dewater in excess of 10,000 gallons a day if dewatering is needed during construction.

Soils with slight and moderate erosion hazard ratings are found within the potential area of disturbance for the Build Alternative. In areas with a slight erosion hazard rating, erosion is unlikely under ordinary climatic conditions. In areas with a moderate erosion hazard rating, some erosion is likely and erosion control measures, such as double rows of sediment controls or specifying shorter allowable timeframes for exposed soils, may be needed.

Poorly drained soils exist within the potential area of disturbance for the Build Alternative, which may require soil correction (i.e., removal or replacement with stable soils or treatment in-place) for construction of the dedicated guideway, pavement or other structures. If these soils are removed, the excavated soils would need to be disposed of off-site in accordance with local ordinances or reused in areas that do not require consolidated soils.

Since the majority of the project would follow either the existing roadway or trail network, substantial grading in areas with steep slopes or other constraints is not anticipated. There are some segments of the corridor that are near steep slopes; however, these areas are not within the potential limits of disturbance. Grading would be needed in the Ramsey County rail right-of-way between Maryland and Beam Avenues. If needed, soil stabilization treatments would be utilized at these locations to mitigate the potential for erosion.

AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

All project-related construction activities would, to the extent authorized or required by law, adhere to appropriate standards and applicable permitting requirements of the Minnesota Pollution Control Agency, Minnesota Department of Transportation, watershed districts and the project area cities for grading and erosion control.

MEMORANDUM

HAZARDOUS MATERIALS

Prepared by: Kimley-Horn and Associates, Inc.

Date: April 2021

Subject: Hazardous Materials

The Rush Line Bus Rapid Transit (BRT) Project (the Build Alternative) is a proposed 15-mile long BRT route connecting Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake. It would include 21 stations, and the route would generally run along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. The Build Alternative would serve the existing Maplewood Mall Transit Center and two proposed park-and-rides at Highway 36 and at County Road E. An option to the Build Alternative, the Build Alternative option without the Highway 36 park-and-ride, is also being evaluated. Differences between the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride are noted where applicable. Ramsey County, on behalf of the Ramsey County Regional Railroad Authority, is preparing an Environmental Assessment (EA) for the project, and this memorandum has been prepared in support of the EA.

REGULATORY CONTEXT AND METHODOLOGY

The Minnesota Pollution Control Agency oversees regulations pertaining to contaminated soil, groundwater and waste cleanup plan approvals; petroleum underground storage tank registration and removal; and National Pollutant Discharge Elimination System permitting. Additionally, the Minnesota Department of Health regulates asbestos abatement. Activities that encounter contaminated materials must follow state requirements for safe handling and disposal under the purview of the Minnesota Pollution Control Agency.

The study area for hazardous materials is defined as the area within 500 feet of the potential area of disturbance for the Build Alternative.[1]

EXISTING CONDITIONS

A Phase I Environmental Site Assessment was completed in 2019 (included in Appendix E of the EA).[2] The purpose of the Phase I Environmental Site Assessment was to serve as a screening tool to identify, to the extent possible, existing sources of contamination (based on present or former uses) and contamination at locations that could impact construction of the project.

During the Phase I Environmental Site Assessment, potentially contaminated properties were identified through a review of historical land use, regulatory databases, prior published reports, site reconnaissance and interviews. Sites identified by the Phase I Environmental Site Assessment have been classified into high, medium and low environmental risk levels using criteria established by the

[1] The Phase I Environmental Site Assessment did not reflect the Downtown White Bear Lake station location at 7th Street and Washington Avenue; however, this location was included in the study area, so additional review was not needed to reflect this project refinement.

[2] The Phase I Environmental Site Assessment was conducted in conformance with the United States Environmental Protection Agency's All Appropriate Inquiries Rule and American Society of Testing and Materials methodology 1527-13, as modified by the Minnesota Department of Transportation for transportation projects.

Minnesota Department of Transportation.[3] The review also identified 31 *de minimis* sites, meaning sites that do not qualify by definition as low, medium or high ranked potential for contamination sites and are unlikely to be considered contaminated. The environmental risk levels are defined as follows:

- **High risk** includes all active and inactive Voluntary Investigation and Cleanup Program sites, all active and inactive Minnesota Environmental Response and Liability Act/Superfund sites, all Resource Conservation and Recovery Act sites, all active and inactive dumpsites, all active leaking underground or aboveground storage tank sites, all dry cleaners (with on-site or unknown chemical processing), all bulk chemical/petroleum facilities, all active agricultural release sites, railroad facilities (fueling, yards or maintenance), clandestine chemical/drug laboratories and all historic industrial sites with likely chemical use on the premises.
- **Medium risk** includes sites with closed leaking underground or aboveground storage tanks, closed spill sites, all sites with underground or aboveground storage tanks, machine shops, all sites with historic or current vehicle and/or auto body repair activities and petroleum use or storage, all bulk grain/feed storage sites, all historical lumber yards, all closed agricultural release sites and graveyards.
- **Low risk** includes sites that are hazardous waste generators, railroad lines, current lumber yards, golf courses, commercial properties and possibly some farmsteads or residences where the site reconnaissance showed poor housekeeping.

Potentially contaminated properties are often found in previously developed industrial and commercial areas, which are land uses that are found throughout the study area. The Phase I Environmental Site Assessment also identified several sites that may contain demolition debris from former residential and/or commercial buildings. Buried materials from these sites may be present and could require solid or hazardous waste management if encountered during redevelopment activities. Additionally, areaways beneath sidewalks in the project area may include asbestos, petroleum or other contaminated/regulated materials from boilers, coal storage, fuel oil tanks and piping.

Table 1 provides the number of known hazardous/regulated materials sites identified within the study area based on the Phase I Environmental Site Assessment. The identified sites are shown on Figure 1 through Figure 4.

ENVIRONMENTAL CONSEQUENCES

Operating Phase (Long-Term) Impacts

NO BUILD ALTERNATIVE

No contamination from or production of hazardous or regulated materials would result under the No Build Alternative.

BUILD ALTERNATIVE

There would be no hazardous or regulated materials produced by the project during its operation. No permanent storage tanks would be installed for this project. The collection and disposal of oils, grease and other waste materials generated during vehicle maintenance and repair activities would be

[3] The Phase I Environmental Site Assessment followed Minnesota Department of Transportation guidelines for determining the risk level of sites using a modified version of the American Society of Testing and Materials methodology E1527-13.

performed in accordance with recognized industry best management practices for bus maintenance facilities.

Acquiring land that is contaminated or contains hazardous or regulated material creates risk in the form of costs and potential liability to the project and project proposer. The extent of that risk would be based on the type and extent of the contamination. Therefore, acquiring land with known contamination that cannot be easily remediated or contained would be avoided to the extent possible.

The number of potentially contaminated sites within the study area is listed in Table 1. This table separates the potentially contaminated sites both by their risk classification and their location (within the study area and within the potential area of disturbance). Based on the Phase I Environmental Site Assessment, 506 sites were identified within the study area as *de minimis* or having a low, medium or high potential for contamination. More specifically, 170 low potential, 161 medium potential and 144 high potential for contamination sites were identified within the study area. Of those, 42 low potential, 50 medium potential and 64 high potential for contamination sites were identified within the potential area of disturbance for both the Build Alternative and the Build Alternative option without the Highway 36 park-and-ride. The medium and high potential for contamination sites are generally located in areas of current and/or historical industrial use, railroad use and commercial use (including gasoline filling/service stations and several car dealerships).

Table 1: Contamination Risk Based on Classification[4]

High Risk Sites		Medium Risk Sites		Low Risk Sites	
Total Number in the Study Area	Number within the Potential Area of Disturbance	Total Number in the Study Area	Number within the Potential Area of Disturbance	Total Number in the Study Area	Number within the Potential Area of Disturbance
144	64	161	50	170	42

Table 2 summarizes the proposed acquisition of land needed for the project that is contaminated or contains hazardous or regulated material (low, medium and high risk sites).

Table 2: Potential Acquisition of Sites with Contamination Risk[4]

Site Ranking	Sites with Permanent Easements Only	Sites with Temporary Easements Only	Sites with Permanent and Temporary Easements	Total
Low	2	5	5	12
Medium	4	5	8	17
High	2	5	12	19
Total	**8**	**15**	**25**	**48**

A more detailed investigation through a Phase II Environmental Site Assessment was completed in 2020 to further identify potential for contamination in the study area (included in Appendix E of the EA). The Phase II Environmental Site Assessment focused on areas that were identified as areas of potential environmental concern in the Phase I Environmental Site Assessment and included soils screening and groundwater analysis. Debris, soil contamination or groundwater contamination was identified within 50 feet of 16 parcels with proposed permanent acquisitions or temporary easements.

[4] Source: Phase I Environmental Site Assessment, 2019.

The locations of soil borings where contamination impacts has been identified are shown on Figure 1 through Figure 4.

Construction Phase (Short-Term) Impacts

NO BUILD ALTERNATIVE

No contaminated or regulated materials would be encountered as a result of the No Build Alternative.

BUILD ALTERNATIVE

Areas with soil and groundwater impacts were identified along the route at locations that would likely be encountered during the construction of the project. Based on the Phase I Environmental Site Assessment, 20 low risk, 21 medium risk and 33 high risk sites were identified within the potential area of disturbance for the Build Alternative. Of the 137 soil borings completed as part of the Phase II Environmental Site Assessment, 49 within the potential area of disturbance identified debris, soil contamination or groundwater contamination. The potential for impacts during construction based on these soil borings is summarized below:

- In downtown Saint Paul, it is likely that shallow fill containing debris will be encountered during construction. Based on depth, it is unlikely that contaminated groundwater will be encountered.
- Along Phalen Boulevard, restrictive covenants[5] have been filed with Ramsey County in areas where contaminated soil was placed, so it is assumed that construction in these areas will encounter contaminated materials.
- Between Johnson Parkway and Buerkle Road, fill containing trace debris and/or other contaminants will be encountered within discreet areas. Based on the varying depth of groundwater in this portion of the corridor, it is likely that contaminated groundwater will be encountered during construction.
- Contaminated soil will be encountered during the construction of the Highway 36 park-and-ride. Based on the groundwater level observed in this area, it is likely that the discharge of contaminated groundwater will be required.
- Along Highway 61, fill containing debris and other contaminants will likely be encountered in discreet areas. Based on depth, it is unlikely that contaminated groundwater will be encountered during construction.

AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

According to the Phase II Environmental Site Assessment, most transportation and transit-related projects are considered to be of limited accessibility and are considered by the Minnesota Pollution Control Agency as “industrial.” Therefore, clean-up actions are generally limited to only those contaminated materials that are readily accessible, exceed an industrial standard or have the potential for traveling through the infiltration of stormwater. Additional investigation may be necessary if locations and/or project features change, access is obtained in those areas not investigated or if additional property is anticipated to be acquired for liability purposes.

The Metropolitan Council, as the future lead agency, will be responsible for performing site mitigation to achieve acceptable environmental conditions. If necessary, the Metropolitan Council would enroll in

[5] A restrictive covenant regulates the use of contaminated property when real estate is transferred from one owner to another.

the Minnesota Pollution Control Agency's Brownfield Program, which includes the Voluntary Investigation and Cleanup Program and Petroleum Brownfields Program, to obtain assurances that contaminated site cleanup work and/or contaminated site acquisition would not associate the agency with long-term environmental liability for contamination and to obtain approvals for any contamination management and cleanup plans.

Unknown materials that were not identified during the initial site investigations or Phase II Environmental Site Assessment may also be encountered during construction. A Response Action Plan and Construction Contingency Plan will be developed to outline the methods for identifying, segregating and handling contaminated soil and/or groundwater that may be encountered during construction. Such methods may include on-site hazard evaluation and sampling by a qualified field technician, implementation of exclusion zones and notification to applicable regulatory agencies. These plans will be submitted to the Minnesota Pollution Control Agency for review and approval prior to construction.

The Metropolitan Council will hire an environmental construction oversight contractor, if necessary, to help manage known and unknown contaminated and regulated materials and to make sure that these materials are handled in accordance with all appropriate federal, state and local regulations. Prior to the demolition of any structures, assessments for asbestos-containing materials, lead-based paint and other regulated materials/wastes would be performed. A demolition and disposal plan would be prepared for any identified contaminants that may be encountered during construction.

Figure 1: Contaminated Sites Within the Study Area from Union Depot to Arcade Street

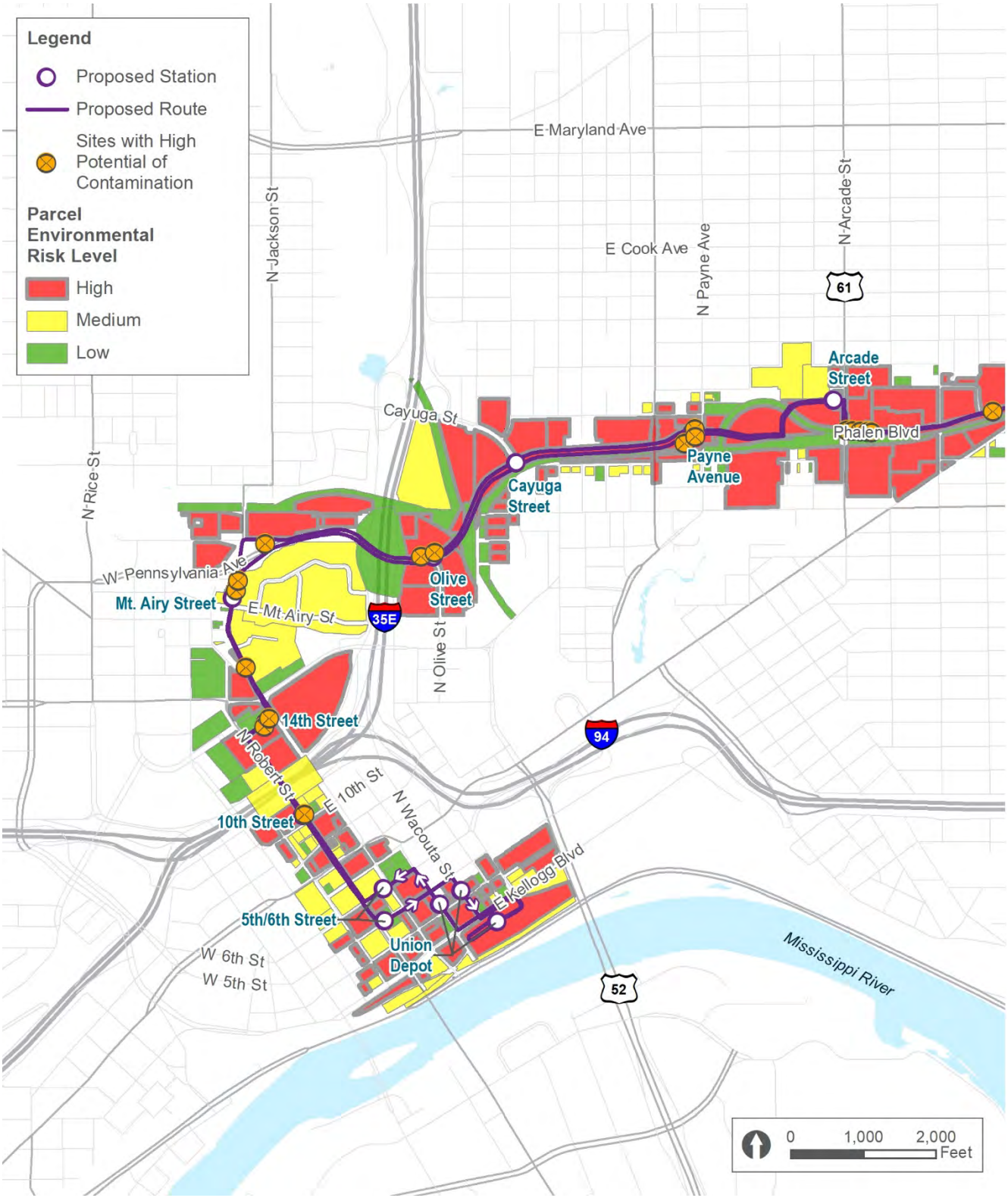


Figure 2: Contaminated Sites Within the Study Area from Arcade Street to County Road B

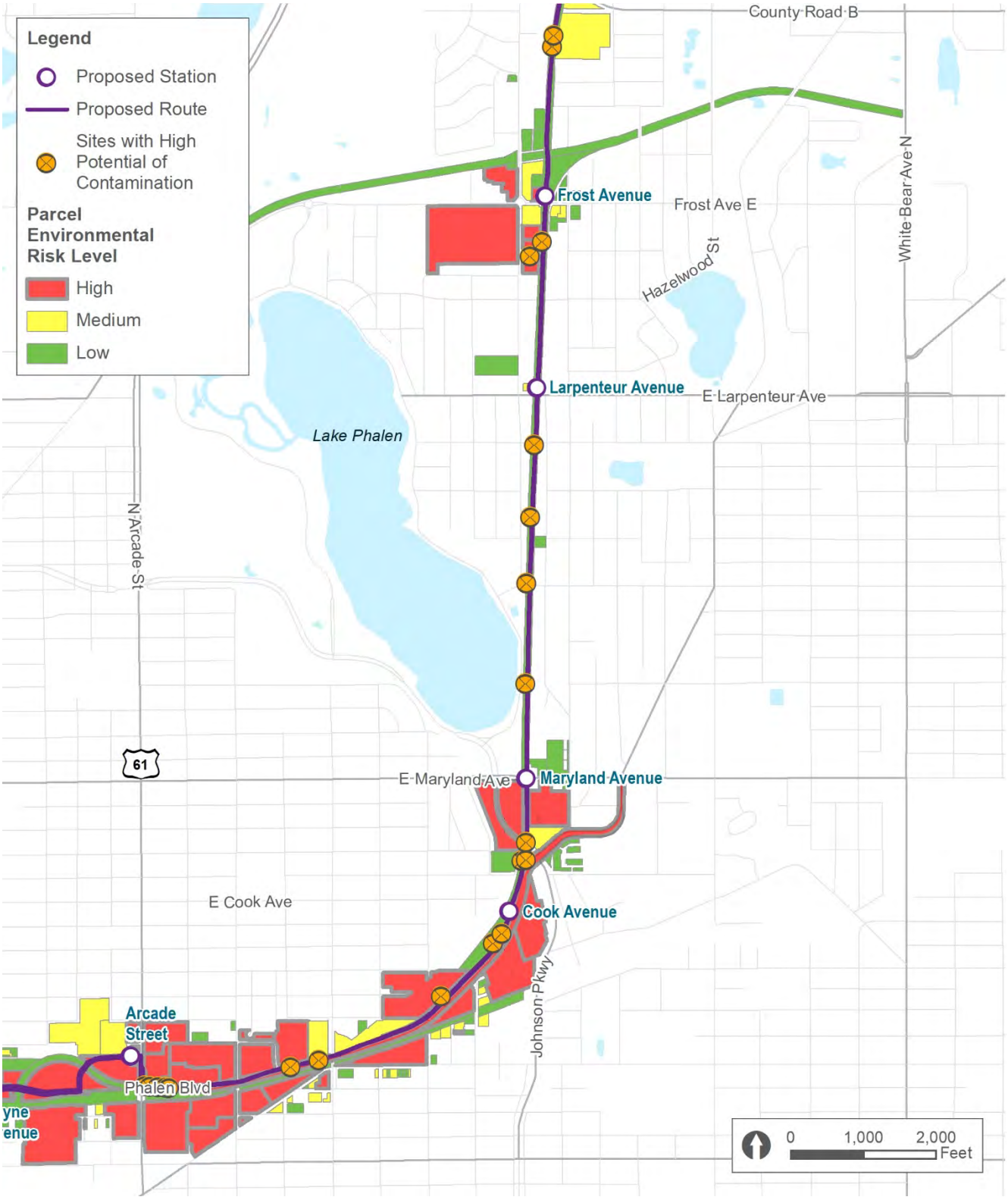


Figure 3: Contaminated Sites within the Study Area from County Road B to County Road E

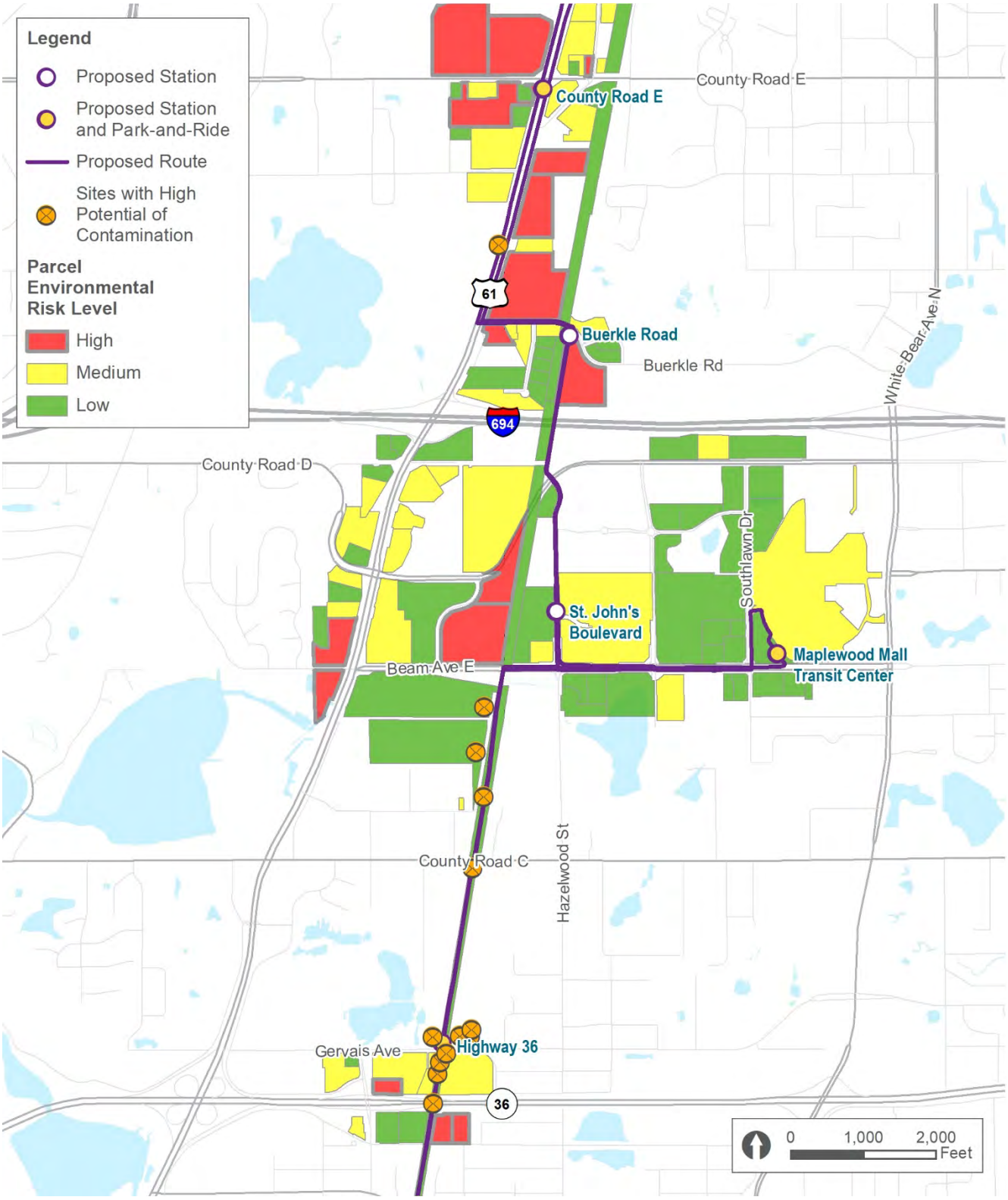


Figure 4: Contaminated Sites within the Study Area from County Road E to Downtown White Bear Lake