DEPARTMENT OF TRANSPORTATION

Rush Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Determination of Effect for Historic Properties

November 2020

U.S. Department of Transportation
Federal Transit Administration

RAMSEY COUNTY

Rush Line

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Summary

The Rush Line Bus Rapid Transit (BRT) Project (Project) is a proposed 15-mile-long BRT line located in Ramsey County, Minnesota. Operating in both mixed traffic and on a dedicated guideway, the proposed Project would connect the communities of Saint Paul, Maplewood, Vadnais Heights, White Bear Township, Gem Lake, and White Bear Lake. The proposed Project includes 21 stations, three (3) of which are connected to park-and-ride facilities.

The Ramsey County Regional Railroad Authority (RCRRA), in conjunction with the Metropolitan Council, is serving as the local Project lead. In addition to funding from the Federal Transit Administration (FTA), the proposed Project would require an Interstate right-of-way use agreement from the Federal Highway Administration (FHWA) acting through the Minnesota Department of Transportation (MnDOT), and permits from the United States Army Corps of Engineers (USACE). Therefore, the Project is a federal undertaking and must comply with Section 306108 (previously and hereinafter referred to as Section 106) of the National Historic Preservation Act of 1966, as amended (54 United States Code [USC] 300101 et seq.) and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800; Section 101(b)(4) of the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4331); and other applicable federal mandates. The Project intends to seek funding from the State of Minnesota and political subdivisions of the State, and permits for construction from several state agencies. Therefore, the Project must also comply with Minnesota laws, including the Minnesota Environmental Policy Act of 1973 [Minnesota Statute (MS) 116B.01–116B.13], the Minnesota Field Archaeology Act (MS 138.31–138.42), the Minnesota Historic Sites Act (MS 138.661–138.669), and the Minnesota Private Cemeteries Act (MS 307.08), as applicable. Pursuant to 36 CFR Part 800.2(a)(2), the USACE and FHWA have recognized FTA as the lead Federal agency responsible for fulfilling their collective Section 106 obligations for the Project. FTA has delegated the MnDOT Cultural Resources Unit (CRU) limited authority to aid FTA in aspects of the Section 106 process for the Project pursuant to 36 CFR Part 800.2(a)(3).

This report describes the proposed Project, its Area of Potential Effects (APE), efforts to identify and evaluate properties within the Project's APE to determine their eligibility for listing on the National Register of Historic Places (National Register), and the Project's potential effects on those properties. FTA has determined that the overall undertaking will have an Adverse Effect on historic properties in the Project's APE. In particular, based on the Assessment of Effects prepared by the MnDOT CRU, FTA has determined the Project will have an Adverse Effect on five (5) historic properties: the Lake Superior & Mississippi (LS&M) Railroad Historic District: Saint Paul to White Bear Lake Segment (XX-RRD-NPR001), three (3) individually eligible 1868 Alignments of the LS&M Railroad (XX-RRD-NPR002, XX-RRD-NPR003, and XX-RRD-NPR004), and the LS&M Railroad Historic District: White Bear Lake to Hugo Segment (XX-RRD-NPR005). In addition, the Project will have No Adverse Effect on 23 historic properties in the Project's APE with the implementation of conditions for eight (8) of these properties.

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
APE	Area of Potential Effects
BAT	Business Access and Transit
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe
BRT	Bus Rapid Transit
C	Contributing
CFR	Code of Federal Regulations
CPPHP	Construction Protection Plan for Historic Properties
CRU	Cultural Resources Unit
EA	Environmental Assessment
FTA	Federal Transit Administration
FHWA	Federal Highway Administration
HPC	Heritage Preservation Commission
I-	Interstate (i.e., I-35E, I-94, I-694)
LOD	Limits of Disturbance
LS&M	Lake Superior & Mississippi
MnDOT	Minnesota Department of Transportation
MnSHPO	Minnesota State Historic Preservation Office
MPDF	Multiple Property Documentation Form
MS	Minnesota Statute
National Register	National Register of Historic Places
NC	Noncontributing
NEPA	National Environmental Policy Act
Project	Rush Line Bus Rapid Transit Project
RCRRA	Ramsey County Regional Railroad Authority

Section 106	Section 306108 of the National Historic Preservation Act
SHPO	State Historic Preservation Officer
SOI	Secretary of the Interior
SOI Standards	Secretary of the Interior's Standards for the Treatment of Historic Properties
StP&D	St. Paul and Duluth
StPM&M	St. Paul, Minneapolis, and Manitoba
StPS&TF	Saint Paul, Stillwater & Taylors Falls
TH	Trunk Highway
THPO	Tribal Historic Preservation Officer
TOD	Transit Oriented Development
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
3M	Minnesota Mining and Manufacturing Company
%	Percent

Section 1: Introduction

The Rush Line Bus Rapid Transit (BRT) Project (Project) is a proposed 15-mile-long BRT line located in Ramsey County, Minnesota (Figure 1). Operating in both mixed traffic and on a dedicated guideway, the proposed Project would connect the communities of Saint Paul, Maplewood, Vadnais Heights, White Bear Township, Gem Lake, and White Bear Lake. The proposed Project includes 21 stations, three (3) of which are connected to park-and-ride facilities.

The Ramsey County Regional Railroad Authority (RCRRA), in conjunction with the Metropolitan Council, is serving as the local Project lead. In addition to funding from the Federal Transit Administration (FTA), the proposed Project would require an Interstate right-of-way use agreement from the Federal Highway Administration (FHWA) acting through the Minnesota Department of Transportation (MnDOT), and permits from the United States Army Corps of Engineers (USACE). Therefore, the Project is a federal undertaking and must comply with Section 306108 (previously and hereinafter referred to as Section 106) of the National Historic Preservation Act of 1966, as amended (54 United States Code [USC] 300101 et seq.) and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800; Section 101(b)(4) of the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4331); and other applicable federal mandates. The proposed Project intends to seek funding from the State of Minnesota and political subdivisions of the State, and permits for construction from several state agencies. Therefore, the Project must also comply with Minnesota laws, including the Minnesota Environmental Policy Act of 1973 [Minnesota Statute (MS) 116B.01–116B.13], the Minnesota Field Archaeology Act (MS 138.31–138.42), the Minnesota Historic Sites Act (MS 138.661–138.669), and the Minnesota Private Cemeteries Act (MS 307.08), as applicable. This assessment of effects report facilitates compliance with these legislative requirements.[1]

Pursuant to 36 CFR Part 800.2(a)(2), the USACE and FHWA have recognized FTA as the lead Federal agency responsible for fulfilling their collective Section 106 obligations for the Project. In 2018, FTA delegated the MnDOT Cultural Resources Unit (CRU) limited authority to aid FTA in aspects of the Section 106 process for the Project pursuant to 36 CFR Part 800.2(a)(3).[2] This report, prepared by MnDOT CRU staff, describes the Preferred Alternative for the Project; outlines the legal and regulatory requirements for Section 106; summarizes efforts to identify and evaluate historic properties that could be potentially affected by the Project, based on the Project's 15 Percent (%) Plans (Appendix A); presents an assessment of Project effects on historic properties located within the Project Area of Potential of Effects (APE), as delineated in February 2020 (Appendix B); and describes FTA's determination of effect on historic properties for the undertaking.

As Project design work advances, FTA will review the Project's 30%, 60%, 90%, and 100% Plans, and any modifications to the 100% Plans, and assess whether any Project design changes would result in changes to FTA's finding of effect included in this report. If FTA concludes that any previously made finding no longer remains valid, FTA will make a new finding of effect and consult with consulting parties as appropriate to consider the effect and ways to resolve any adverse effects.

[1] The Metropolitan Council, Ramsey County, and MnDOT may be able to use the studies prepared under the Rush Line BRT to help meet their responsibilities under Minnesota Statute.
[2] Jay Ciavarella, FTA, letter to Sarah J. Beimers, MnSHPO, September 5, 2018.

Figure 1. Overview of Rush Line BRT Project corridor and proposed stations

Section 2: Project Description

The proposed Project is a 15-mile-long BRT line located in Ramsey County, Minnesota. Operating in both mixed traffic and on a dedicated guideway, the BRT line extends along a northerly and easterly alignment, connecting downtown Saint Paul with the suburban cities of Maplewood, Vadnais Heights, Gem Lake, and White Bear Lake. The proposed Project includes 21 stations and three (3) park-and-rides, two (2) using existing surface lots and/or parking structures, and the other requiring the construction of a new parking structure. The proposed Project would also include pedestrian and bicycle access; roadway, streetscape, and landscape improvements; and restructured local bus route connections. Project development is at 15% design (see 15% Plans in Appendix A). A more detailed description of proposed Project elements is included below.

Route

Much of the proposed 15-mile-long BRT route would be on or parallel to existing city, county, and state roadways, either in mixed traffic or in a dedicated guideway as illustrated in Figure 1 above. According to Project documentation, the northbound direction would have 11.8 miles (78% of the route) in dedicated guideway and the southbound direction would have 11.2 miles (74% of the route) in dedicated guideway. Dedicated guideway is defined as the pavement area designed and designated for exclusive use by transit vehicles and, if needed, emergency vehicles.[3]

Approximately four (4) miles of the dedicated guideway is a dedicated BRT roadway separated from existing vehicular roadways. The dedicated BRT roadway would consist of a two (2)-lane concrete roadway with one (1) lane in each direction. Lanes would typically be 13 feet in width (26 feet wide total). The dedicated BRT roadway would be built in the Ramsey County rail right-of-way from Johnson Parkway to Beam Avenue and from County Road D to Buerkle Road. Ramsey County purchased the rail right-of-way, which was originally part of the Lake Superior & Mississippi (LS&M) Railroad Corridor and is identified as a historic property as part of this Project (XX-RRD-NPR001, see below), in the early 1990s to reserve it for future transit use. The location of Bruce Vento Regional Trail currently within this rail right-of-way would be shifted to accommodate the construction of the dedicated BRT roadway.

The remainder of the Project's dedicated guideway would consist of business access and transit (BAT) lanes running adjacent to existing vehicular roadways. Non-transit and non-emergency vehicles can only use BAT lanes at intersections and driveways to make right turns. These lanes would range from 11 to 15 feet in width. In a few instances, the number of traffic or parking lanes may be reduced or existing shoulders would be expanded to accommodate the Project.

For the purposes of this report, "dedicated BRT roadway" and "dedicated BAT lane" will be used to distinguish between the different types of dedicated guideways.

Stations

The proposed Project would include 21 stations, as depicted in Figure 1 above. However, four (4) platforms in downtown Saint Paul would be constructed under the METRO Gold Line Project. [4] The stations and associated platforms are as follows:

[3] *Environmental Assessment: Rush Line Bus Rapid Transit Project, DRAFT*, dated September 2020, Section 2.3.1.
[4] These serve the 5th/6th Street Station and the Union Depot Station. The METRO Gold Line is a proposed BRT project that will connect Saint Paul, Maplewood, Landfall, Oakdale, and Woodbury generally along I-94. It is

- Union Depot Station: This station includes the existing Union Depot Bus Deck Platform and new platforms on Sibley and Wacouta Streets (Sheets 4 and 32 of the 15% Plans). Although BRT elements at the Union Depot Bus Deck Platform would be constructed as part of the Rush Line BRT Project, the Sibley and Wacouta Street Platforms would be constructed as part of the METRO Gold Line Project.
- 5th/6th Street Station: This station includes new platforms on 5th and 6th Streets (Sheets 4 and 5 of the 15% Plans, respectively). Both platforms would be constructed as part of the METRO Gold Line Project.
- 10th Street Station: This station includes new, paired (i.e., directly across from each other) platforms on Robert Street north of 10th Street (Sheet 5 of the 15% Plans).
- 14th Street Station: This station includes new, paired platforms on East 14th Street west of Jackson Street (Sheet 5 of the 15% Plans).
- Mt. Airy Street Station: This station includes new, paired platforms on Jackson Street north of Mt. Airy/Winter Street (Sheet 6 of the 15% Plans).
- Olive Street Station: This station includes new, offset platforms on Phalen Boulevard. The northbound platform is east of Olive Street and the southbound platform is west of Olive Street (Sheet 7 of the 15% Plans).
- Cayuga Street Station: This station includes new, offset platforms on Phalen Boulevard. The northbound platform is east of Cayuga Street and the southbound platform is west of Cayuga Street (Sheet 7 of the 15% Plans).
- Payne Avenue Station: This station includes new, paired platforms on Phalen Boulevard west of Payne Avenue (Sheet 8 of the 15% Plans).
- Arcade Street Station: This station includes new, paired platforms on Neid Lane west of Arcade Street (Sheet 9 of the 15% Plans).
- Cook Avenue Station: This station includes new, offset platforms on either side of the dedicated BRT roadway (Sheet 11 of the 15% Plans). The northbound platform is north of a new sidewalk connection and the southbound platform is south of the sidewalk connection.
- Maryland Avenue Station: This station includes new, offset platforms on either side of the dedicated BRT roadway. The northbound platform is north of Maryland Avenue and the southbound platform is south of Maryland Avenue (Sheet 12 of the 15% Plans).
- Larpenteur Avenue Station: This station includes new, paired platforms on either side of the dedicated BRT roadway north of Larpenteur Avenue (Sheets 13 and 30 of the 15% Plans).
- Frost Avenue Station: This station includes new, paired platforms on either side of the dedicated BRT roadway north of Frost Avenue (Sheet 14 of the 15% Plans).
- Highway 36 Station: This station includes new, paired platforms on either side of the dedicated BRT roadway north of Gervais Avenue (Sheets 17 and 17A of the 15% Plans).
- Maplewood Mall Transit Center: This station includes improvements at exiting platforms at the Maplewood Mall Transit Center (Sheets 20 and 36 of the 15% Plans).
- St. John's Boulevard Station: This station includes new, offset platforms on either side of the Hazelwood Street. The northbound platform is north of St. John's Boulevard and the southbound platform is south of St. John's Boulevard (Sheet 19 of the 15% Plans).

expected to begin service in 2024 (before Rush Line BRT). More information on the METRO Gold Line is available at https://www.metrotransit.org/gold-line-project.

- Buerkle Road Station: This station includes new, paired platforms on either side of the dedicated BRT roadway south of Buerkle Road (Sheet 21 of the 15% Plans).
- County Road E Station: This station includes new, paired platforms on either side of TH 61 south of County Road E (Sheets 23 and 37 of the 15% Plans).
- Cedar Avenue Station: This station includes new, paired platforms on either side of TH 61 north of Cedar Avenue (Sheet 25 of the 15% Plans).
- Whitaker Street Station: This station includes new, offset platforms on either side of TH 61. The northbound platform is north of Whitaker Street and the southbound platform is south of Whitaker Street (Sheet 27 of the 15% Plans).
- Downtown White Bear Lake Station: This station includes a single new platform on the east side of Washington Avenue, between 7th and 8th Streets (Sheet 29 of the 15% Plans).

Station platforms would generally be 10 inches high, allowing both BRT and local buses to use the same platforms. Typical platforms would be 60 to 80 feet long (see typical plans on Sheets 80–83 of the 15% Plans). At some stations, including southbound 10th Street, 14th Street, Mt. Airy Street, Maplewood Mall Transit Center, and Downtown White Bear Lake, BRT platforms would be combined with local bus stops or extended to accommodate multiple buses, resulting in a total bus platform length of approximately 130 feet. The roof shape and architectural design of stations are unknown at 15% design and will be determined later. Stations would include ticket machines for off-board fare purchase, real-time bus schedule information, bicycle parking, on-demand heat, trash and recycling bins, emergency telephones, security cameras, energy-efficient station lighting, and information about the station, route, transit system and neighborhood.

Park-and-Rides

The Build Alternative would serve one (1) existing park-and-ride and two (2) proposed park-and-rides:

- Highway 36: This is a new parking structure with 300 parking spaces (see Sheets 17, 34, and 35 of the 15% Plans). The parking structure would also provide some parking for Harvest Park and Bruce Vento Regional Trail users.[5] A Build Alternative option without this park-and-ride is also being investigated (see Sheet 17A of the 15% Plans).
- Maplewood Mall Transit Center: This is an existing parking structure and surface lot with 1,000 parking spaces. Improvements would be made to the station platforms and customer waiting area. No new parking would be constructed (see Sheets 20 and 36 of the 15% Plans).
- County Road E: This is an existing surface parking lot for the TCO (Twin Cities Orthopedics) Sports Garden, owned by Ramsey County. A portion of the lot would be reconfigured to accommodate 70 parking spaces for transit use (see Sheets 23 and 37 of the 15% Plans).

Operations and Maintenance Facilities

The proposed Project would not construct a new operations and maintenance facility. The buses would be serviced at the East Metro Garage, an existing Metro Transit operations and maintenance facility in Saint Paul (see location on Sheet 34 of the 15% Plans). Electric charging stations would be added to the interior of the existing facility, which would not reduce the facility's current capacity of 214 buses. Some

[5] Metro Transit is not the planned owner or manager of the proposed Highway 36 park-and-ride, and an alternative ownership commitment has not been made at this time.

of the current buses assigned to this facility would be assigned to another facility to provide space for Rush Line BRT vehicles.

Bridges

The proposed Project includes seven (7) new bridges along the route to facilitate operations. Although the bridges have not been given formal names, for the purposes of this report they will be referred to as follows:

- Arcade Street Ramp: This bridge would transition BRT vehicles between the existing Arcade Street Bridge (MnDOT Bridge 62062) and the dedicated BRT roadway in the Ramsey County rail right-of-way north of Phalen Boulevard (see Sheets 9, 47, and 48 of the 15% Plans).
- Johnson Parkway Bridge: This bridge would carry the dedicated BRT roadway and Bruce Vento Regional Trail over Johnson Parkway (see Sheets 11 and 52 of the 15% Plans).
- Gateway Trail Underpass: This bridge would carry the dedicated BRT roadway over the Gateway State Trail. In addition, the new location of the Bruce Vento Regional Trail transitions between the east and west sides of the dedicated BRT roadway under this bridge (see Sheet 15 of the 15% Plans).
- Weaver Trail Underpass: This bridge would carry the dedicated BRT roadway over the trail connection between English Street and Weaver Elementary School (see Sheet 15 of the 15% Plans).
- Highway 36 Bridge: This bridge would carry the dedicated BRT roadway over Trunk Highway (TH) 36 (see Sheets 16 and 55 of the 15% Plans).
- Fitch/Barclay Trail Underpass: This bridge would carry the dedicated BRT roadway over the trail connection between Fitch Road and Barclay Street (see Sheet 18 of the 15% Plans).
- I-694 Bridge: This bridge would carry the dedicated BRT roadway over Interstate-694 (I-694, see Sheets 21 and 60 of the 15% Plans).

Roadway Improvements

The proposed Project includes long-term physical modifications to existing roadways and intersections affecting local circulation patterns. These changes would accommodate the introduction of the BRT alignment and related facilities, improve access, and improve connectivity. Roadway improvements include mill and overlay; turn lane additions; reconfiguration of lanes, widths, and parking; alignment shifts; and construction of new overpasses.

Noise Barriers

The proposed Project does not include the removal, relocation, or construction of noise barriers.

Retaining Walls and Stormwater Management Facilities

The proposed Project includes retaining walls and stormwater management facilities throughout the Project corridor. Although potential locations for these Project elements are delineated on the 15% Plans, the exact size and design will be determined at a later date. In some cases, the Project elements may be removed from consideration. Stormwater management facilities, including linear and stand-alone facilities, are illustrated on the 15% Plans as “Potential Stormwater Best Management Practice (BMP) Locations.” To facilitate references to the 15% Plans, this report refers to these facilities as BMPs.

Bicycle and Pedestrian Improvements

As noted in the description of the BRT route above, the location of Bruce Vento Regional Trail currently within the rail right-of-way would be shifted to accommodate the construction of the dedicated BRT roadway. The newly constructed trail within the right-of-way would typically be 12 feet wide. The Project intends to follow the guidance outlined in the *Ramsey County Rail Right-of-Way Design Guide*, produced as part of the Rush Line BRT Project, as part of design development within the rail right-of-way.[6]

The proposed Project also includes a variety of bicycle and pedestrian improvements to provide safe bicycle and pedestrian crossings of the proposed BRT alignment, to accommodate the proposed BRT and roadway improvements, and/or to provide bicycle and pedestrian connections to the proposed BRT stations. These improvements would affect several trails and sidewalks within the vicinity of the Project and include, but are not limited to, construction of curb ramps and detectable warnings compliant with the American with Disabilities Act (ADA) and relocations of regional and local trails and sidewalks along much of the alignment outside of downtown Saint Paul. It also includes a number of new trail and sidewalk connections to provide easy access to stations and fill gaps between existing facilities and station areas.

BRT Operations and Vehicles

The BRT vehicles would operate from 5 a.m. to midnight on weekdays and Saturdays and from 6 a.m. to 10 p.m. on Sundays. Table 1 provides the assumed operating frequencies during these hours.

Table 1. Hours of Operation and Frequency

Day of Week	Start Time	End Time	Frequency (minutes)
Weekdays	5 a.m.	6 a.m.	15
	6 a.m.	9 a.m.	10
	9 a.m.	3 p.m.	15
	3 p.m.	6:30 p.m.	10
	6:30 p.m.	12 a.m.	15
Saturdays	5 a.m.	12 a.m.	15
Sundays	6 a.m.	10 p.m.	15

The Build Alternative would use 60-foot articulated electric buses (Figure 2). A charging station would be constructed at the Union Depot Bus Deck Platform at the Union Depot Station, where buses would charge for about 10 minutes during layovers. Additional charging stations would also be installed at the East Metro Garage, as discussed in Operations and Maintenance above. Buses would operate at speeds ranging from five (5) miles per hour (mph) to 50 mph, depending on location and whether they are in mixed traffic, the dedicated BRT roadway, or a dedicated BAT lane. In downtown Saint Paul, buses would primarily operate up to 25 mph in mixed traffic and in dedicated BAT lanes. Outside of downtown Saint Paul, buses would operate at the posted speeds of between 25 and 45 mph in areas where they operate in mixed traffic and in dedicated BAT lanes. On the dedicated BRT roadway, buses would

[6] Ramsey County Regional Railroad Authority, *Ramsey County Rail Right-of-Way Design Guide*, 2020.

operate at speeds up to 45 mph. Finally, along TH 61, buses would operate in dedicated BAT lanes and mixed traffic up to the posted speeds of 30 to 50 mph.[7]

Figure 2. Typical Articulated BRT Bus

[7] Cross-Spectrum Acoustics Inc., "Noise and Vibration Technical Report, Draft," Table 9.

Section 3: Section 106 of the National Historic Preservation Act

Section 106 Legal and Regulatory Context

Prior to implementing an undertaking, Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of the undertaking on historic properties, which are properties listed in or eligible for inclusion in the National Register of Historic Places (National Register). Undertakings include projects a federal agency carries out, approves, licenses, or funds. Federal agencies must also provide the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking prior to the agency making a decision.

As described in 36 CFR Part 800, the Section 106 process includes the following steps:

- Initiation of the Section 106 process:
  - Establish the undertaking;
  - Notify the State Historic Preservation Officer (SHPO) and any Tribal Historic Preservation Officers (THPOs);
  - Plan to involve the public; and
  - Identify other consulting parties, including tribes.
- Identification of historic properties:
  - Determine the APE; and
  - Complete a survey of the APE to identify historic properties that are listed in or eligible for inclusion in the National Register.
- Assessment of adverse effects:
  - Apply criteria of adverse effect.
- Resolution of adverse effects:
  - Continue consultation to consider measures to avoid, minimize, or mitigate adverse effects;
  - Reach agreement with the SHPO, any THPOs, and the ACHP (if it chooses to participate in the consultation); and
  - Prepare a Section 106 agreement to document measures that will be implemented by the Federal agency to avoid, minimize, and/or mitigate adverse effects.

Section 106 Consultation

FTA initiated Section 106 consultation for the Project in 2018, and in accordance with 36 CFR Part 800.3, has regularly consulted with the Minnesota State Historic Preservation Office (MnSHPO), Indian tribes, local governments, and other parties with a demonstrated interest to consider effects of the Project on historic properties.

Tribal Consultation

In July 2018, the FTA sent letters to Indian tribes with an interest in the portion of the state where the Project would be built, requesting that they identify whether there were places of traditional religious or cultural importance to the tribe within the vicinity of the proposed Project, and inviting them to participate in further consultation. Letters were sent to the Lower Sioux Indian Community, Upper Sioux Community, Prairie Island Indian Community, Shakopee Mdewakanton Sioux Community, Turtle Mountain Band of Chippewa, Sisseton-Wahpeton Oyate, Santee Sioux Nation, and Fort Peck Assiniboine and Sioux Tribes. No responses were received.

To date, the FTA has not identified cultural resources with potential significance to tribes within the Project's APE. If such resources are identified in the future, consultation will proceed in accordance with Section 106 requirements.

Agency Coordination

In July 2018, the FTA sent letters to local governments within the Project area, requesting their involvement in Section 106 consultation for the Project. Letters were sent to Ramsey County; the Cities of Gem Lake, Maplewood, Saint Paul, Vadnais Heights, and White Bear Lake; White Bear Lake Township; and the Maplewood and Saint Paul Heritage Preservation Commissions (HPCs). All but the City of Gem Lake and the Maplewood HPC responded to the invitation. In addition to formal consultation under Section 106, representatives from local governments sit on three (3) committees providing guidance to the Project: the Policy Advisory Committee, Community Advisory Committee, and the Technical Advisory Committee, including its Issue Resolution Teams. MnDOT CRU attends committee meetings to address any questions or concerns that arise related to Section 106 activities.

In September 2018, the FTA sent a letter to MnSHPO initiating Section 106 consultation for the undertaking and authorizing MnDOT CRU and RCRRA "to prepare Section 106 documentation, analyses, and recommendations to inform the FTA determinations" and "to consult directly with the [MnSHPO] on technical matters related to Section 106 documentation and analysis as well as to disseminate information to, and coordinate and schedule meetings with, consulting parties in coordination with FTA."[8]

In April 2019, the FTA notified USACE that the Project requires a Clean Water Act Section 404 permit and invited the USACE to designate FTA as the lead Federal agency under 36 CFR 800.2(a)(2). In November 2019, USACE agreed that FTA should act as the lead Federal agency for the purposes of fulfilling their collective responsibilities under Section 106 and indicated that USACE would like to remain a Section 106 consulting party.[9]

On September 15, 2020, the FHWA notified the FTA that the Project requires the use of Interstate right-of-way and invited FTA to be the lead Federal agency under 36 CFR 800.2(a)(2). On September 25, 2020, FTA accepted lead Federal agency status for the purposes of fulfilling FTA's and FHWA's collective responsibilities under Section 106. FHWA remains a Section 106 consulting party and will be an invited signatory for any Section 106 agreements developed for the Project.[10]

[8] Jay Ciavarella, FTA, letter to Sarah J. Beimers, MnSHPO, September 5, 2018. This letter was resubmitted to MnSHPO on February 27, 2019, after MnDOT CRU determined that MnSHPO had not received the original submittal. On March 29, 2019, MnSHPO accepted the initiation of Section 106 consultation and assigned SHPO Number 2019-0985 to the Project. Sarah J. Beimers, MnSHPO, letter to Jay Ciavarella, FTA, March 29, 2019.
[9] Kelley Brookins, FTA, letter to Chad Konickson, USACE, April 5, 2019; Marissa Merriman, USACE, letter to Kelley Brookins, FTA, November 8, 2019.
[10] Joe Campbell, FHWA, letter to Kelley Brookins, FTA, September 15, 2030; Kelley Brookins, FTA, letter to Joe Campbell, FHWA, September 25, 2020.

Project Submittals and Consultation

To partially comply with Section 106 requirements, FTA made the following submittals to MnSHPO and other consulting parties for their review and comment:

- May 9, 2019: Phase I Architecture/History Survey, Batch 01
- June 28, 2019: Phase I Architecture/History Survey, Batch 02
- October 29, 2019: Draft APE
- December 13, 2019: Phase I Architecture/History Survey, Batch 03
- February 19, 2020: Final APE
- June 4, 2020: Phase IA, I, and II archaeological investigations and Phase II evaluation of the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment
- July 10, 2020: Phase I and II architecture/history investigations

A consulting party meeting was held on July 16, 2020, to discuss the results of the identification efforts. As a result of discussions at that meeting, the FTA added the Maplewood Area Historical Society and the White Bear Lake Area Historical Society to the list of Section 106 consulting parties. On October 6, 2020, the FTA invited the following entities to become consulting parties: Ramsey County Historical Society, LS&M Railroad, Minnesota Transportation Museum, and Northern Pacific Railway Historical Association. The Minnesota Transportation Museum declined to participate; none of the other entities responded.[11]

Additional consultation with MnSHPO and Section 106 consulting parties will continue to consider potential effects on historic properties as outlined in this report and to resolve adverse effects.

Public Involvement

In accordance with 36 CFR Part 800.8, Section 106 consultation efforts were coordinated with the NEPA process and related outreach activities and events. In particular, opportunities for the public to review information and provide comments related to steps in the Section 106 process were incorporated, as appropriate, into public meetings related to the NEPA and design and engineering processes. The opportunities included public meetings of the Policy Advisory Committee and the Community Advisory Committee and public engagement related to the *Ramsey County Rail Right-of-Way Design Guide*. Additional information will be provided to the public at open houses to be held for the EA and Section 106 document will be posted to the project website.

[11] Scott Hippert, Minnesota Transportation Museum, email to William Wheeler, FTA, November 3, 2020.

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Section 4: Identification of Historic Properties

Area of Potential Effects

An APE is "the geographical area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR Part 800.16[d]). An APE must account for both direct and indirect effects, including temporary, permanent, and cumulative effects.

The FTA, with the assistance of MnDOT CRU and in consultation with MnSHPO and other consulting parties, delineated an APE for the Project in February 2020 based on the Project's plans as of July 25, 2019 (see Appendix B).[12] The APE was reviewed when the 15% Plans were finalized on August 7, 2020, for the purposes of the draft EA and this assessment of effects and no changes are required. FTA will review the APE at each successive step in design development to ensure it remains appropriate throughout the course of the Project.

Identification and Evaluation of Historic Properties

Section 106 requires Federal agencies to consider the effects of their undertakings on historic properties, which are those that are listed in, or eligible for inclusion in, the National Register. The National Register is the nation's official list of historic places worthy of preservation. Historic property surveys of architecture/history and archaeological resources were undertaken to identify and evaluate historic properties located within the Project's APE.

National Register Criteria

In order to qualify for inclusion in the National Register, a property must possess significance under at least one (1) of four (4) criteria:

A. Association with events that have made significant contributions to broad patterns of history.
B. Association with the lives of persons significant in our past.
C. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction.
D. Has yielded, or may be likely to yield, information important in prehistory or history.[13]

In addition to possessing significance, to be eligible for the National Register a property must also retain sufficient historic integrity or "the ability of a property to convey its significance."[14] There are seven (7) aspects or qualities that must be considered when determining whether a property retains integrity:

- Location: the place where the property was constructed or the place where the significant event occurred;

[12] Barbara Howard, MnDOT CRU, memorandum to William Wheeler and Elizabeth Breiseth, FTA, September 27, 2019; Jay Ciavarella, FTA, letter to Sarah J. Beimers, MnSHPO, October 29, 2019; George Gause, Saint Paul Heritage Preservation Commission, to Maggie Jones, MnDOT CRU, November 20, 2019; Sarah J. Beimers, MnSHPO, letter to Jay Ciavarella, FTA, December 3, 2019; Jay Ciavarella, FTA, letter to Sarah Beimers, MnSHPO, February 19, 2020.
[13] National Park Service, 36 CFR Part 60.4 Criteria for Evaluation.
[14] National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, 44.

- Design: the combination of elements that create the form, plan, space, structure, and style of a property;
- Setting: the physical environment of a property;
- Materials: the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a property;
- Workmanship: the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
- Feeling: a property's expression of the aesthetic or historic sense of a particular period of time; and
- Association: the direct link between an important historic event or person and a historic property.

Historic Property Surveys

In order to streamline the identification process for the Project, architecture/history survey and archaeological investigations began prior to the finalization of the Project's APE. As a result, the architecture/history survey area extends beyond the APE in several locations. The archaeological investigations focused on locations of proposed ground disturbance (often described as the "limits of disturbance" or LOD) and, therefore, the archaeological survey area is smaller than the APE in several locations. FTA has identified all known historic properties in the APE based on the results of the following survey reports:

- *Phase IA Literature Review, Phase I Archaeological Investigations and Phase II Archaeological Investigations of 21RA82 for the Rush Line BRT Project, Ramsey County, Minnesota* (Mississippi Valley Archaeology Center, 2020): Archaeological investigations focused on areas where ground-disturbing activities have the potential to affect archaeological resources. Mississippi Valley Archaeology Center (MVAC) conducted archaeological investigations for the Project during the fall of 2018 and spring of 2019. The results of their investigations are summarized in a report submitted to consulting parties in June 2020. MnSHPO concurred with the results of archaeological investigation in a letter dated August 4, 2020.
- *Phase I Architecture/History Survey and Phase II Evaluation for the Rush Line Bus Rapid Transit Project Ramsey County, Minnesota* (Mead & Hunt, 2020): Architecture/history investigations included properties built prior to 1979, representing 45 years prior to the date Project construction is anticipated to begin (originally anticipated to be 2023). Mead & Hunt conducted architecture/history investigations for the Project beginning in June 2018 and continuing through May 2020. The results of their work was submitted to consulting parties over the course of 2019 and summarized in a report submitted to consulting parties in July 2020. In a letter dated September 15, 2020, MnSHPO concurred with the results of the architecture/history investigation, with three (3) exceptions. The FTA responded to the concerns in a letter dated October 2, 2020. MnSHPO concurred with the results of the architecture/history investigation in a letter dated October 30, 2020.[15]

[15] In their September 15, 2020 letter, MnSHPO disagreed with FTA's finding that the First Evangelical Lutheran Church (RA-WBC-0174) is National Register–eligible; the FTA deferred to MnSHPO's opinion and removed the property from consideration within this assessment of effects. MnSHPO also requested additional information on the Lions and Lioness Hall (RA-MWC-0136) and Mount Airy Homes Public Housing Complex (RA-SPC-5915). In their October 2, 2020 letter, FTA disagreed, noting additional research and evaluation would not be consistent with the

- *Phase II Evaluation Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment (SHPO Inventory Number: XX-RRD-NPR001), Rush Line Bus Rapid Transit Project, Ramsey County, Minnesota* (Mead & Hunt and Mississippi Valley Archaeology Center, 2020): A portion of the former mainline of the LS&M Railroad, previously determined eligible for inclusion in the National Register, is located within the APE. MnDOT CRU determined supplemental information would be need to adequately assess effects because the historic property is proposed to be directly and physically affected by the Project. The Phase II evaluation was prepared jointly by Mead & Hunt and MVAC and summarized in a report submitted to consulting parties in June 2020. MnSHPO concurred with the results of the evaluation in a letter dated August 4, 2020.

Results of Investigations

In total, 28 properties either listed in, or eligible for inclusion in, the National Register have been identified within the Project's APE (see Table 2 and Appendix B). This includes two (2) properties that are being treated as eligible for inclusion in the National Register for the purposes of the Rush Line BRT Project (Johnson Parkway and Site 21RA70). A description and summary of each property's National Register significance is included in Section 5. To inform the assessment of effects, each summary includes the National Register Criteria, area(s) of significance, and period(s) of significance identified for the property.

Table 2. Historic Properties Listed In or Determined Eligible for Inclusion in the National Register[16]

Inventory or Site Number	Property Name	Address	City	National Register Status[17]
RA-SPC-4580	Lowertown Historic District	Roughly bounded by Shepard Road, Kellogg Boulevard, Broadway Street, 7th Street, and Sibley Street	Saint Paul	Listed
RA-SPC-5225 RA-SPC-6907	Saint Paul Union Depot	214 East 4th Street	Saint Paul	Listed; Lowertown: C
RA-SPC-5462	Finch, Van Slyck and McConville Dry Goods Company	360–366 Wacouta Street	Saint Paul	Listed; Lowertown: C

magnitude and nature of Rush Line BRT undertaking. In their October 30, 2020 response, MnSHPO concurred that the Lions and Lioness Hall was not eligible for inclusion in the National Register and should be reevaluated when it reaches the 50-year age threshold for its association with the Hmong community. They also concurred that the Mount Airy Homes Public Housing Complex is not eligible for inclusion in the National Register.

[16] Historic properties are in the order they are presented in this report, which generally runs from south to north, except where properties are grouped, such as with the resources associated with the LS&M Railroad.

[17] Within the National Register Status column, "Listed" or "Eligible" refers to the status of the individual resource. For individually listed or eligible resources that are also located within historic districts, "C" means the property is contributing to the district and "NC" means the property is noncontributing to the district.

Inventory or Site Number	Property Name	Address	City	National Register Status[17]
RA-SPC-8364	Saint Paul Urban Renewal Historic District	Roughly between 6th Street, Kellogg Boulevard, Wabasha Street, and Jackson Street	Saint Paul	Eligible
RA-SPC-3168	First Farmers and Merchants National Bank Building	332 Minnesota Street	Saint Paul	Eligible; Urban Renewal: NC
RA-SPC-4645	First National Bank of Saint Paul	332 Minnesota Street	Saint Paul	Eligible; Urban Renewal: NC
RA-SPC-3167 RA-SPC-3169 RA-SPC-5223 RA-SPC-6903	Pioneer and Endicott Buildings	322–350 North Robert Street, 141 East 4th Street, 142 East 5th Street	Saint Paul	Listed (RA-SPC-3167, 3169, and 5223); Eligible (RA-SPC-6903)
RA-SPC-3170	Manhattan Building (aka Empire Building)	360 North Robert Street	Saint Paul	Listed
RA-SPC-3171	Golden Rule Department Store Building	85–95 7th Place	Saint Paul	Eligible
RA-SPC-3174	Foot, Schulze & Company Building	500 North Robert Street	Saint Paul	Eligible
RA-SPC-6330	Produce Exchange Building	523 Jackson Street	Saint Paul	Eligible
RA-SPC-5918	Great Northern Railroad Corridor Historic District	Saint Paul to Minneapolis	Saint Paul	Eligible
RA-SPC-4582	StPM&M Railway Company Shops Historic District	Jackson Street and Pennsylvania Avenue	Saint Paul	Listed; Great Northern Railroad Corridor: C
RA-SPC-5618	Westminster Junction	Roughly bounded by the Lafayette Road Bridge, I-35E, a line approximately 1,300 feet south of the Cayuga Street Bridge, and a line approximately 400 feet southwest of the Cayuga Street/Phalen Boulevard intersection	Saint Paul	Eligible; Great Northern Railroad Corridor: C

Inventory or Site Number	Property Name	Address	City	National Register Status[17]
XX-RRD-CNW001	StPS&TF/Omaha Road Railroad Corridor Historic District	Saint Paul to Stillwater Junction Segment	Saint Paul	Eligible
XX-RRD-NPR001	LS&M Railroad Corridor Historic District	Saint Paul to White Bear Lake Segment	Saint Paul, Maplewood, Vadnais Heights and White Bear Lake	Eligible
XX-RRD-NPR004	1868 Alignment of the LS&M Railroad	Between Eldridge Avenue East and County Road B East	Maplewood	Eligible LS&M Railroad Corridor Historic District: C
XX-RRD-NPR003	1868 Alignment of the LS&M Railroad	Between Gervais Avenue and County Road C	Maplewood	Eligible LS&M Railroad Corridor Historic District: C
XX-RRD-NPR002	1868 Alignment of the LS&M Railroad	Between Kohlman and Beam Avenues	Maplewood	Eligible LS&M Railroad Corridor Historic District: C
XX-RRD-NPR005	LS&M Railroad Corridor Historic District	White Bear Lake to Hugo Segment	White Bear Lake	Eligible
RA-SPC-2926	Theodore Hamm Brewing Company Complex	Minnehaha Avenue East between Payne Avenue & Stroh Drive	Saint Paul	Eligible
RA-SPC-0455	3M Administration Building (3M Main Plant, Building 21)	777 Forest Street	Saint Paul	Listed
RA-SPC-10850	Phalen Park	1600 Phalen Drive	Saint Paul	Eligible
RA-SPC-8497 RA-SPC-5685	Johnson Parkway	Johnson Parkway from Indian Mounds Park to Lake Phalen	Saint Paul	Treated as Eligible
Site 21RA70	Gladstone Shops (Gladstone Savanna Neighborhood Preserve)	Southwest corner of Frost Avenue and English Street	Maplewood	Treated as Eligible
RA-MWC-0134	Moose Lodge 963	1946 English Street North	Maplewood	Eligible
RA-MWC-0106	Madeline L. Weaver Elementary School	2135 Binghamton Street	Maplewood	Eligible
RA-WBC-0031	Polar Chevrolet Bear/Paul R. Bear	1801 County Road F East	White Bear Lake	Eligible

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Section 5: Assessment of Effects

Assessing Effects on Historic Properties

The criteria used to assess effects of Federal undertakings on historic properties are set forth in 36 CFR Part 800.5(a)(1):

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.*

An adverse effect can occur if any aspect of a historic property's integrity is diminished. Examples of adverse effects are identified in 36 CFR Part 800.5(a)(2) and include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (SOI Standards; 36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property that causes its deterioration; and
- Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

An undertaking may have an effect on a historic property, but this does not necessarily constitute an adverse effect. For example, Project elements may be visible from a historic property without the effect rising to the level of an adverse effect. In this example, factors to consider when assessing whether the visual effect is adverse include proximity of Project components to the historic property, the nature of the Project element being introduced to the setting, the significance of the views to and from the historic property, and the overall importance of integrity of setting to the historic property's ability to convey its significance and maintain its eligibility for inclusion in the National Register.

Project Documentation

The effects assessments below are based on the Project's 15% Plans dated August 7, 2020, and the most recent draft text prepared for the Environmental Assessment dated September 2020, including the following supporting technical materials[18]:

- "Air Quality Technical Report, Draft," prepared by SRF Consulting Group, Inc., September 2020
- "Alternatives Refinement Summary Report, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Environmental Justice Technical Report, Draft," prepared by SRF Consulting Group, Inc., September 2020
- "Freight Rail Memorandum, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Indirect and Cumulative Effects Technical Report, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Land Use and Economics Technical Report, Draft," prepared by SRF Consulting Group, Inc., September 2020
- "Natural Resources Technical Report, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Noise and Vibration Technical Report, Draft," prepared by Cross-Spectrum Acoustics, Inc., September 2020
- "Purpose and Need Technical Report, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Section 4(f) Evaluation, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Stormwater and Water Quality Technical Report, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Traffic Technical Report, Draft," prepared by Kimley-Horn and Associates, Inc., September 2020
- "Visual Resources Memorandum, Draft," prepared by SRF Consulting Group, Inc., September 2020

Effects Assessment

MnDOT CRU staff meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-44739) in archaeology, architectural history, historic architecture, and history reviewed the above-referenced Project documentation and prepared effects assessments for each historic property within the APE. Analysis considered physical; visual; atmospheric; noise and vibration; traffic, access, and parking; cumulative; and indirect effects. Through its analysis, MnDOT CRU identified potential effects that are common throughout the corridor and not particular to specific historic properties; these General Project Effects are presented first. Analysis also identified potential effects that are specific to individual historic properties based on Project elements in particular locations. The individual historic property assessments are organized generally from south to north along the Project corridor, with individual properties that are also in historic districts included within the assessment for the district. Please note that because the architectural design for individual shelters, bridges, and the Highway 36

[18] Because this assessment of effects is being prepared concurrently with the draft Environmental Assessment, page numbers, tables, and illustrations cited throughout this report may differ slightly from the final versions, which will be published in the coming months.

park-and-ride is not known, it is not accounted for in the effects assessments below. As design development progresses, FTA will assess the need to adjust the Project APE and/or the finding of effect for any historic properties.

General Project Effects

Physical

The proposed Project could physically affect several historic properties and unintentionally damage historic properties depending on where the proposed LOD for construction falls in relation to historic property boundaries. Due to the unique nature of these potential physical effects, individual property assessments, below, discuss potential physical effects. In some cases, construction protection measures are recommended to minimize or avoid unintended damage to historic properties during construction. These measures would be incorporated into a Construction Protection Plan for Historic Properties (CPPHP) as part of construction documents.

Visual

The proposed Project would visually affect several historic properties. Due to the unique nature of these visual effects, individual property assessments, below, discuss potential physical effects.

Atmospheric

New transportation systems have the potential to result in increased air pollutant emissions in proximity to historic properties. Project documentation, however, confirms BRT operations using all-electric, zero-emission buses would result in no exceedances of air pollutant concentrations.[19] Further, although exceedances of air pollutant concentrations from construction equipment or disturbed soils are not anticipated during Project construction, the Project is prepared to implement Environmental Protection Agency-recommended measures to avoid or reduce impacts on air quality where necessary. These avoidance and mitigation measures range from minimizing ground disturbance during construction to revegetating disturbed land following construction.[20] No adverse effects due to atmospheric changes are anticipated within the APE.

Noise & Vibration

The Project has identified several historic properties as having noise-sensitive land uses; these include the St. Paul, Minneapolis, and Manitoba (StPM&M) Railway Company Shops Historic District (occupied by the Minnesota Transportation Museum), the Urban Renewal Historic District (including Twin Cities PBS and residential buildings), and Lowertown Historic District (residential buildings).[21] Despite the identification of noise-sensitive land uses in historic properties, no adverse effects are anticipated from either noise or vibration during the operational phase of the BRT. Project documentation confirms that the Project would "add a negligible amount of noise" that would not exceed noise impact criteria.[22] The Project does not meet FTA guidelines for conducting vibration screening due to the use of rubber-tired vehicles, newly paved dedicated BRT guideways and dedicated BAT lanes, and the shared use of existing traffic lanes.[23]

[19] SRF Consulting Group, Inc., "Air Quality Technical Report, Draft," 10.
[20] SRF Consulting Group, Inc., "Air Quality Technical Report, Draft," 11.
[21] Cross-Spectrum Acoustics Inc., "Noise and Vibration Technical Report, Draft," 11.
[22] Cross-Spectrum Acoustics Inc., "Noise and Vibration Technical Report, Draft," 18.
[23] Cross-Spectrum Acoustics Inc., "Noise and Vibration Technical Report, Draft," 10.

Temporary noise and vibration during construction is anticipated and was considered as part of APE development. In addition to typical construction noise from equipment and construction activities, pile driving may be used for elevated structures and retaining walls. Project documentation notes that a "quantitative assessment of construction noise and vibration impacts will be conducted as engineering advances when detailed construction scenarios are available."[24] Project documentation also notes that in residential areas, the impact from construction noise can extend to 120 feet during the day and 380 feet at night, while impact pile driving has a noise impact of up to 250 feet. The potential for damage from construction vibration can extend to 25 feet from construction sites, with potential damage from impact pile driving extending to 55 feet. According to the Noise and Vibration Technical Report, there "are no [vibration] sensitive receivers within 25 feet of the project corridor in areas where construction would occur, and there are no receivers within 55 feet of locations where pile driving would occur."[25] Based on current Project documentation, no historic properties will be subject to construction noise or vibration in a manner that would constitute an adverse effect; however, as Project plans progress, FTA will continue to assess the need to adjust the finding of effect for any historic properties based on anticipated noise and vibration during construction. Any potential adverse effects due to construction noise and vibration can typically be avoided through the preparation and implementation of a CPPHP that includes a Noise Mitigation Plan and/or Vibration Management and Remediation Measures.

Traffic, Access, and Parking

In general, no adverse effects are anticipated from temporary or permanent changes in traffic, access, or parking. However, the proposed Project would have minor permanent effects, including land acquisition and changes to traffic, near historic properties. Due to the unique nature of these effects, individual property assessments will discuss potential permanent effects.

Traffic analysis included Project areas "impacted by changes to roadway geometry or traffic control." [26] Project documentation notes that for the majority of downtown Saint Paul, BRT buses running in mixed traffic would result in "only a 1 to 2 percent change in traffic volumes" and "traffic impacts are not expected."[27] For the remainder of the traffic analysis's study area, beginning with Robert Street in Saint Paul and extending to White Bear Lake, Project documents outline locations on Robert Street, Phalen Boulevard, Neid Lane, and Highway 61 where queuing issues have been identified. For intersections with queuing issues, the Project developed recommended mitigation measures, including diversion to alternative routes, extending or restriping turn lanes, and adjusting signal timing and priority parameters. These mitigation measures will be incorporated into the Project pending approval by the appropriate roadway authority.[28]

The Project is generally anticipated to "improve" or "enhance" access to community facilities, including historic properties like Phalen Park and Weaver Elementary School near stations in Saint Paul, Maplewood, Vadnais Heights, and White Bear Lake.[29] The Project is anticipated to have no impacts to community facilities near stations in White Bear Township and Gem Lake.

[24] Cross-Spectrum Acoustics Inc., "Noise and Vibration Technical Report, Draft," 21.
[25] Cross-Spectrum Acoustics Inc., "Noise and Vibration Technical Report, Draft," 21–22.
[26] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 4.
[27] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 4–5.
[28] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 32–34.
[29] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," Section 4.4.

Although parking spaces would be permanently lost in Saint Paul, Maplewood, and White Bear Lake, Project documentation indicates the losses would not have adverse impacts due to alternative parking options.[30] Parking options would increase in Vadnais Heights through the construction of an at-grade park-and-ride (a shared-use facility), serving the County Road E Station. Another park-and-ride is also an option being considered near Harvest Park in Maplewood and would increase parking options.

During construction, the Project would temporarily affect traffic, access, and parking. Temporary construction easements would also be needed for construction staging. Traffic impacts may include lane, intersection, and roadway closures and detours, possibly increasing congestion in local areas for short periods of time. In addition, construction may also require the temporary loss of some on-street parking. However, the Project is developing a detailed construction staging plan, including phasing, signage, detours, and communications with residents and business owners, to minimize construction impacts.[31] Therefore, no adverse effects are anticipated due to changes in traffic, access, and parking during construction.

Cumulative

The Project has identified a number of projects either underway or proposed by others that "could compound anticipated impacts and contribute to cumulative effects" and has concluded that "the combined project-related impacts are not anticipated to require avoidance, minimization or mitigation measures other than those identified in the EA."[32] Individual property assessments discuss any potential for cumulative effects to historic properties in relation to the particular type of effect (e.g., physical, visual, traffic, etc.). Each assessment pays particular attention to undertakings being coordinated with the Rush Line BRT Project. For example, with the exception of the 10th Street Station and Union Depot Station, construction in downtown Saint Paul is being completed under the METRO Gold Line BRT Project and, therefore, the potential for physical effects is handled under that project's assessment of effects. However, the increased and cumulative effects of bus traffic due to the Rush Line BRT is discussed in the individual assessments. No adverse effects are anticipated due to the cumulative bus traffic.

Indirect

The Project anticipates new transit-oriented development (TOD) near the station areas, which has the potential to cause indirect, visual effects to historic properties. Project-induced TOD can only occur in accordance with local planning efforts and is generally considered to benefit municipalities "by helping them achieve their long-range land use and transportation goals."[33] In-depth station area planning is proposed to begin in the coming months. In order to minimize the potential for adverse indirect effects due to TOD, station area planning for the following stations will consider nearby historic properties:

- 10th Street Station: Foot, Schulze & Company Building, Produce Exchange Building
- Olive Street Station: Great Northern Railroad Corridor, Westminster Junction

[30] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," Section 4.4. Project documents note differences in Maplewood depending on the option chosen for the parking facility at the Highway 36 Station; however, neither option is anticipated to result in adverse effects to community facilities, character, or cohesion.
[31] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," Sections 4.5 and 5.5; Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," Section 4.2.2.
[32] Kimley-Horn and Associates, Inc., "Indirect and Cumulative Effects Technical Report, Draft," 4, 16, Table 1.
[33] Kimley-Horn and Associates, Inc., "Indirect and Cumulative Effects Technical Report, Draft," 17.

- Cayuga Street Station: Great Northern Railroad Corridor, Westminster Junction, StPS&TF/Omaha Road Railroad Corridor Historic District
- Payne Avenue Station: StPS&TF/Omaha Road Railroad Corridor Historic District, Theodore Hamm Brewing Company Complex
- Arcade Street Station: StPS&TF/Omaha Road Railroad Corridor Historic District, Theodore Hamm Brewing Company Complex; 3M Administration Building
- Cook Avenue Station: Johnson Parkway, LS&M Railroad Corridor Historic District
- Maryland Avenue Station: Phalen Park, Johnson Parkway, LS&M Railroad Corridor Historic District
- Larpenteur Avenue Station: LS&M Railroad Corridor Historic District
- Frost Avenue Station: LS&M Railroad Corridor Historic District, Site 21RA70, Moose Lodge 963
- Highway 36 Station: LS&M Railroad Corridor Historic District
- Buerkle Road Station: LS&M Railroad Corridor Historic District
- Whitaker Street Station: LS&M Railroad Corridor Historic District

If any Station Area Plans are formally adopted by local municipalities, FTA will assess the need to adjust the Project APE and/or the finding of effect for any historic properties.

East Metro Garage Charging Stations

North of the project corridor in Saint Paul, electric charging stations are proposed to be added to the interior of the East Metro Garage, an existing Metro Transit operations and maintenance facility built in 2001 (see Sheets 7 and 33 of the 15% Plans).[34] The changes to the interior of this modern facility have no potential to affect any of the identified historic properties.

Properties Associated with the Lowertown Historic District

A number of resources associated with the Lowertown Historic District in downtown Saint Paul are located within the Project APE (see Table 3). Due to the close historical associations and physical proximity of the properties within the historic district, potential Project effects are assessed collectively.

Table 3. Lowertown Historic District Resources in the Project APE

Inventory No.	Property Name	Address	Status
RA-SPC-3351	Smith Park (Mears Park)	220 East 6th Street, Saint Paul	C
RA-SPC-3352	Gordon and Ferguson Building	331–341 Sibley Street, Saint Paul	C
RA-SPC-3353	John Wann Building	350–364 Sibley Street, Saint Paul	C
RA-SPC-4519	Commercial Building/Depot Bar	241 Kellogg Boulevard East, Saint Paul	NC
RA-SPC-4520	Weyerhauser-Denkman Building	255 Kellogg Boulevard East, Saint Paul	C
RA-SPC-4521	Wells Fargo Express Company Building	271 Kellogg Boulevard East, Saint Paul	C

[34] The construction of this facility resulted in No Adverse Effect to Westminster Junction; see SHPO No. 1999-1621.

Inventory No.	Property Name	Address	Status
RA-SPC-4522	James J. Hill Office Building	281–299 Kellogg Boulevard East, Saint Paul	C
RA-SPC-4523	Griggs and Foster's Farwell, Ozmun and Kirk Building	319 Kellogg Boulevard East, Saint Paul	C
RA-SPC-5224	Samco Sportswear Company	205–213 East 4th Street, Saint Paul	C
RA-SPC-5225, RA-SPC-6907	Saint Paul Union Depot	214 East 4th Street, Saint Paul	C
RA-SPC-5226	Michaud Brothers Building	249–253 East 4th Street, Saint Paul	C
RA-SPC-5227	Hackett Block	262–270 East 4th Street, Saint Paul	C
RA-SPC-5228	Chicago, St. Paul, Minneapolis and Omaha Railroad Office Building	275 East 4th Street, Saint Paul	C
RA-SPC-5246	Railroad and Bank Building (Burlington Northern)	176 East 5th Street, Saint Paul	C
RA-SPC-5248	Fairbanks-Morse Company	220 East 5th Street, Saint Paul	C
RA-SPC-5249	Powers Dry Goods Company	230–236 East 5th Street, Saint Paul	C
RA-SPC-5250	Conrad Gotzian Shoe Company Building	242–280 East 4th Street, Saint Paul	C
RA-SPC-5251	Mike and Vic's Café/Commercial Building/Carriage Warehouse	258–260 East 5th Street, Saint Paul	C
RA-SPC-5461	Paul Gotzian Building	352 Wacouta Street, Saint Paul	C
RA-SPC-5462	Finch, Van Slyck and McConville Dry Goods Company	360–366 Wacouta Street, Saint Paul	C

The following resources within the Lowertown Historic District and the Project APE are also individually listed in the National Register:

- Saint Paul Union Depot (RA-SPC-5225, RA-SPC-6907)
- Finch, Van Slyck and McConville Dry Goods Company (RA-SPC-5462)

Information specific to these historic properties is further discussed below.

Description & Historic Significance

Lowertown Historic District (RA-SPC-4580)

Roughly bounded by Shepard Road, Kellogg Boulevard, Broadway Street, 7th Street, and Sibley Street, Saint Paul

The Lowertown Historic District covers 16 blocks located on the eastern edge of downtown Saint Paul, north of the Mississippi River.[35] The district, which is roughly bounded by Shepard Road, Kellogg Boulevard, Broadway Street, 7th Place East, and Sibley Streets, contains primarily late 19th- and early 20th-century warehouses and wholesale buildings constructed for railroad-related businesses (Figure 3). The commercial buildings serve a utilitarian function, but were often designed by prominent architects to convey the prominent styles of the time, including Italianate, Queen Anne, Richardsonian Romanesque, Beaux Arts, and Classical Revival. Properties are built up to the right-of-way and abut adjacent buildings on the street-facing side, with gaps only for rear alley access.[36]

Figure 3. 6th Street to the north of Mears Park, showing a representative example of Lowertown Historic District's architectural character and streetscape.

The Lowertown Historic District was listed in the National Register in 1983 and is significant under Criterion A in the areas of Commerce, Industry, and Transportation for being the site of a major railroad hub and the location of Saint Paul's warehouse and wholesaling district during the late 19th and early 20th centuries. Lowertown is also significant under Criterion C in the areas of:

- Architecture, for its collection of commercial buildings, many designed by nationally recognized architects;

[35] Information on the Lowertown Historic District comes from Patricia Murphy and Susan Granger, "Lowertown Historic District," National Register of Historic Places Inventory-Nomination Form, 1981.
[36] Sanborn Map Company, Insurance Maps of St. Paul, Minnesota, Volume 1 (New York: Sanborn Map Company, 1926), Sheets 22–24, 29–31, 38–40.

- Community Planning, for the grid street platting and design and grade changes made to accommodate the needs of the growing warehousing area, and for the placement of Mears (formerly Smith) Park; and
- Landscape Architecture for Mears (Smith) Park which has been maintained since the block's conversion to a park in the 1870s.[37]

The historic district's period of significance extends from 1870 to 1923, the construction dates of the earliest and last contributing resources within the district, respectively. Overall, the Lowertown Historic District retains good integrity of workmanship, design, materials, location, association, and feeling. Character-defining features include the design of the contributing properties, which have simple block massing with a variety of applied styles; a grid street pattern; sloping topography toward the river; and Mears (formerly Smith) Park as the nucleus and visual center—all "dramatic street patterns and grade changes which were made in the 1870s."[38] While the roadways and sidewalks provide a physical framework for the historic district, they have been rebuilt or reconstructed numerous times since the end of the period of significance and no longer maintain integrity of material, design, or workmanship.

Lowertown was designated a City of St. Paul Local Heritage Preservation District in 1984; however, the Lowertown Heritage Preservation District has a different boundary than the National Register-listed Lowertown Historic District.[39]

Saint Paul Union Depot (RA-SPC-5225, RA-SPC-6907)

214 East 4th Street, Saint Paul

Constructed between 1917 and 1926 at the southern edge of downtown St. Paul and overlooking the Mississippi River, the Saint Paul Union Depot (Union Depot) is a five (5)-story, limestone-clad, Neoclassical style railroad depot that is now a multimodal facility (Figure 4).[40] The property includes a semi-circular front approach and lawn, headhouse, concourse, waiting room, stair tower, Kellogg entry addition (2012), train and bus deck, parking garage, and train yard (Figure 5). Union Depot was designed by architect Charles Sumner Frost, who was prolific in railroad station and depot design.

[37] A. Ruger and Chicago Lithographing Company, Saint Paul, Minnesota (map), (Chicago: Chicago Lithographing Company, 1867), https://www.loc.gov/item/73693464 (accessed April 3, 2020); A. T. Andreas, Plan of the City of St. Paul and vicinity with Capitol, Reform School and Post Office and Custom House (Chicago: A. T. Andreas, 1874), https://reflections.mndigital.org/catalog/mhs:1192 (accessed April 3, 2020).

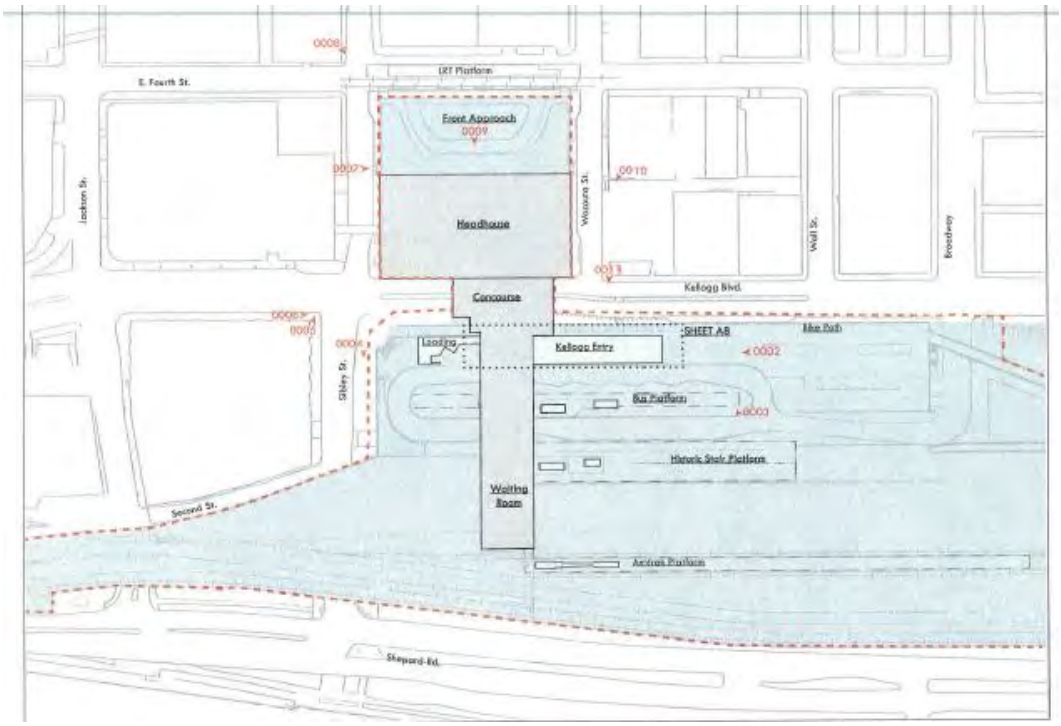
[38] Murphy and Granger, "Lowertown Historic District," Statement of Significance, paragraph 1.

[39] The Lowertown Heritage Preservation District has three (3) additional blocks on the west side of Sibley Street between 7th Place East and Kellogg Boulevard East, as seen in online mapping at the City of Saint Paul website https://www.stpaul.gov/departments/planning-economic-development/heritage-preservation/historic-districts-and-individual (accessed July 30, 2020).

[40] Information on the Saint Paul Union Depot comes from Thomas Lutz and Lynne VanBrocklin, "St. Paul Union Depot," National Register of Historic Places Inventory-Nomination Form, 1974, and Cleary Larkin, "St. Paul Union Depot [Boundary Increase]," National Register of Historic Places Registration Form, 2013.

Figure 4. Union Depot, facing east-northeast.

Figure 5. Union Depot components.[41]



Union Depot was originally listed in the National Register in 1974 and the boundary was increased in 2014. The property has statewide significance under Criterion A in the areas of Transportation, Commerce, and Industry and under Criterion C in the areas of Architecture and Engineering. In the areas of Transportation, Commerce and Industry, Union Depot characterizes St. Paul's early 20th-century

[41] Larkin, "St. Paul Union Depot [Boundary Increase]," 78.

buildings which reflected the importance of railroad transportation in the early growth, expansion, and prosperity of the quickly growing commercial center. In the area of Architecture, Union Depot is significant for its use of the Neoclassical style, which was prevalent in public and governmental buildings between the World Wars. In the area of Engineering, Union Depot is significant for the construction of the train deck and yards. The period of significance extends from 1917, the year construction began, to 1963 when Union Depot's use as a transportation hub and passenger depot declined. Union Depot retains good integrity of workmanship, design, materials, location, association, setting, and feeling.

Character-defining features of Union Depot include the Neoclassical design elements, vaulted interior passenger concourse, a semi-circular front approach, train deck, elevated rail yards, connection to the rail yards, and significant grading and placement on sloping topography toward the Mississippi River. Another character-defining feature is the setting and prominent placement of Union Depot within the Lowertown neighborhood, illustrating the relationship of Union Depot to St. Paul as a vibrant commercial center in the early 20th century. The 2014 boundary increase describes specific parts of the building, including those that are integral to assessing the Project's potential effects on the historic property:

- Train deck: The elevated train deck originally contained railroad tracks on the deck level with support operations below. It received numerous repairs and new features as part of its conversion to multimodal transit and transportation use in 2012.
- Historic stair tower: The lower level (deck) and canopy of the historic stair tower are original. The upper level, attached to the waiting room, was built in 2012 to closely resemble the original. This character-defining feature is used for historic interpretation of Union Depot's development.

Union Depot contributes to the Lowertown Historic District, discussed above. It is also located within the boundaries of the locally designated Lowertown Heritage Preservation District.

Finch, Van Slyck, and McConville Dry Goods Company (RA-SPC-5462)

360-366 Wacouta Street, Saint Paul

The Finch, VanSlyck, and McConville Dry Goods Company (Finch) Building is an eight (8)-story, Neoclassical style warehouse building with a C.A.P. Turner-designed internal structure of reinforced concrete (Figure 6).[42] The building is bounded by 5th and 6th Streets to the south and north respectively, and fronts on to Wacouta Street to the west. It is surrounded primarily by warehouse and commercial buildings of comparable size and massing, and faces Mears (originally Smith) Park. Constructed in 1911 following the design of James F. Denson, the historic property has exterior walls clad in buff-colored brick. An eight (8)-floor shipping annex extending between the Finch Building's rear (northeast) façade and Wall (originally Rosabel) Street was constructed by 1916.[43] In 1923, architect Clarence Johnston, Jr. designed two (2) bays for the northwest façade.

[42] Information on the Finch, Van Slyck and McConville Dry Goods Company comes from Charles W. Nelson, "Finch, VanSlyck and McConville Dry Goods Company Building," National Register of Historic Places Inventory-Nomination Form, 1981.

[43] *City of Saint Paul, Minnesota* (Philadelphia: G.M. Hopkin Co., 1916), Plate 1 (available at http://geo.lib.umn.edu/collections/digitizedplatbooks/stpaul1916index.htm).

Figure 6. Finch Building, facing northeast.

The Finch Building was listed in the National Register in 1982 and is significant under Criterion A in the area of Commerce for its association with its namesake company. It is also significant under Criterion C in the area of Engineering for Turner's cutting-edge use of reinforced concrete, flat slabs, and mushroom-capped columns to support the weight of the dry goods and protect them from fire and other damage. The period of significance starts with the building's construction in 1911 and ends in 1923 with the completion of the Johnston addition. Character-defining features include its exterior decorative Neoclassical elements and design, including the regular progression of bays, formal entries and pilaster arrangements on the Wacouta and 5th Street façades, segmental arches at the seventh story, and a projecting cornice; and its internal reinforced concrete structure. The building's adjacency to and orientation towards Mears Park is an important feature of its setting.

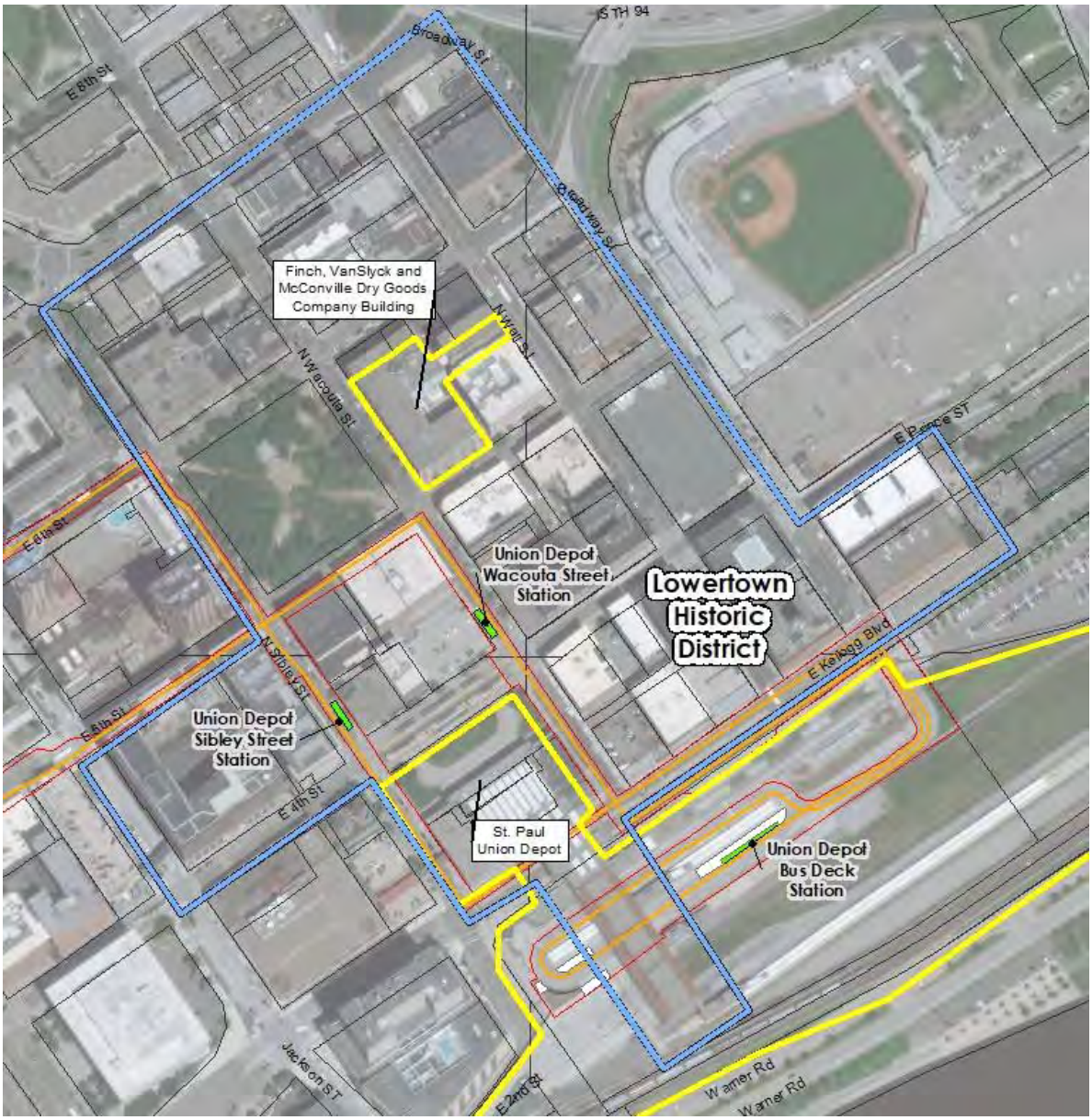
The Finch Building contributes to the Lowertown Historic District, discussed above. It is also within the boundaries of the locally designated Lowertown Heritage Preservation District.

Potential Effects

The proposed Rush Line BRT Project includes operation of BRT vehicles within the Lowertown Historic District and construction at the Union Depot Station / Union Depot Bus Deck Platform (see Sheets 4, 5, and 32 of the 15% Plans and Figure 7). From the north, BRT vehicles would enter the historic district along 5th Street at Jackson Street and then travel down Wacouta Street and Kellogg Boulevard East to the Union Depot bus deck. From the south, BRT vehicles would travel from the Union Depot bus deck along Kellogg Boulevard East and Sibley Street to exit the District's boundaries as buses turn onto 6th Street. As noted on the 15% Plans, other new BRT elements within the Lowertown Historic District and shared by the Rush Line BRT Project are proposed for construction under the METRO Gold Line BRT Project. These include the construction of the Union Depot Station / Sibley Street Platform at the northeast corner of East 4th and Sibley Streets and the Union Depot Station / Wacouta Street Platform at the northwest corner of East 4th and Wacouta Streets, as well as street reconstruction, curb and sidewalk removal, and the placement of new infrastructure such as signage and signaling. Temporary and permanent physical, visual, and other potential Project effects due to the construction of those BRT

elements are assessed under the Gold Line Project.[44] Therefore, in addition to the potential physical and visual effect to Union Depot and Lowertown Historic District due to the construction at Union Depot, potential Rush Line BRT Project effects include potential changes in traffic, access, and parking.

Figure 7. Proposed Project plans within the vicinity of historic resources associated with the Lowertown Historic District (the district is outlined in blue and the individual resources in yellow).



[44] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.

Assessment of Effects

Physical

The proposed Rush Line BRT Project would not physically affect the Finch Building; however, it would have a direct, physical effect to Union Depot and, by association, the Lowertown Historic District. The infrastructure proposed as part of the Rush Line BRT Project falls within areas of both Primary and Secondary significance and the Rehabilitation Zone, as defined within the *Union Depot Historic Structures Report*. That document recommends that any "[n]ew interventions respect the rhythm of the structural grid."[45] In addition to proposed modifications to the existing bus platform, a bus charging station consisting of an overhead charger, transformer, switchboard service cabinet, and ground cabinet would be built on the train deck. Because the Project elements are proposed for an area previously modified for use as a bus station, any potential physical or visual effects can be minimized and/or avoided through design development that ensures the new features blend with the design of the existing bus station infrastructure. In addition to considering the size, materials, and design character of the Project elements, design development should consider the design guidance found within the *Guidelines for Design Review* for the Lowertown Heritage Preservation District and the *Union Depot Historic Structures Report*.[46]

Visual

Project elements proposed under the Rush Line BRT Project would not be visible from the Finch Building. Depending on its size, the bus charging station might be minimally visible from the corner of Kellogg Boulevard East and Sibley Street, at the edge of the Lowertown Historic District. Both the platform and the bus charging station would be visible from the historic stair tower, an important feature located within the historic property boundaries of Union Depot. However, because the Project elements are proposed for an area previously modified for use as a bus station, any potential physical or visual effects can be minimized and/or avoided through design development that ensures the new features blend with the design of the existing bus station infrastructure.

Traffic, Access, and Parking

As noted in the "General Project Effects" section, in-depth traffic analysis was not performed in this area because BRT buses would run in mixed traffic and result in only a 1 to 2% change in traffic volumes. This increase is above those expected under the METRO Gold Line BRT Project, which identified just 1.1 and 1.3% increases on 6th and 5th Street, respectively.[47] These negligible increases in traffic would not impact important spatial relationships between contributing resources in the Lowertown Historic District and, because no changes would be made to street alignments, the historic rectilinear grid pattern, circulation patterns, and general access to historic properties would be preserved. The Project would not result in the loss of any on-street parking spaces within the Lowertown Historic District. Thus, the parking needs within the district or at contributing resources would not be impacted.

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[45] Ramsey County Regional Railroad Authority, *Union Depot, St. Paul, Minnesota: Historic Structures Report*, 150.
[46] See Lance M. Neckar, "Lowertown Heritage Preservation District: Guidelines for Design Review," available at https://www.rchs.com/wp-content/uploads/2017/09/Lowertown-Heritage-Preservation-District-Design-Guidelines_xxxx.pdf, and Ramsey County Regional Railroad Authority, *Union Depot, St. Paul, Minnesota: Historic Structures Report*, 2013.
[47] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.

Recommended Finding

Finch, Van Slyck and McConville Dry Goods Company Building: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect to the Finch, Van Slyck and McConville Dry Goods Company Building**. The historic property would not be physically affected by the Project, nor would any Project elements be visible from the historic property. The negligible increase in bus traffic proposed in the vicinity of the historic property due to the Rush Line BRT Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

Saint Paul Union Depot and Lowertown Historic District: No Adverse Effect with Conditions

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Saint Paul Union Depot and the Lowertown Historic District, if certain conditions are placed on the Project**. Although construction of the Project would physically and visually affect Union Depot, the proposed alterations would complement Union Depot's use as a multimodal facility. The proposed conditions ensure the Project would not alter any of the characteristics that qualify Saint Paul Union Depot or the Lowertown Historic District for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association. The recommended finding of No Adverse Effect is dependent upon the following conditions being placed on the Project:

- As part of design development, Project elements will be blended visually and materially into the existing modern bus station infrastructure within the portion of the train deck previously modified.

Properties Associated with the Urban Renewal Historic District

A number of resources associated with the Urban Renewal Historic District in downtown Saint Paul are located within the Project APE (see Table 4). Due to the close historical associations and physical proximity of the properties within the historic district, potential Project effects are assessed collectively.

Table 4. Urban Renewal Historic District Resources in the Project APE

Inventory No.	Property Name	Address	Status
n/a	Skyway Bridge 22/Bridge No. 95272	Robert Street, between 5th and 6th Streets, Saint Paul	NC
n/a	Skyway Bridge 48	On block bounded by 6th, Jackson, 5th, and Robert Streets, Saint Paul	NC
RA-SPC-3168	First Farmers and Merchants National Bank Building	339 North Robert Street, Saint Paul	NC
RA-SPC-4645	First National Bank of Saint Paul	332 Minnesota Street, Saint Paul	NC
RA-SPC-6901	Farm Credit Banks Building	375 Jackson Street, Saint Paul	C
RA-SPC-6902, RA-SPC-8105	Minnesota Dept. of Economic Security Building	390 North Robert Street, Saint Paul	C

Inventory No.	Property Name	Address	Status
RA-SPC-8103	American National Bank Building (U.S. Bank Center)	101 East 5th Street, Saint Paul	C
RA-SPC-8104	First National Bank Addition	332 Minnesota Street, Saint Paul	C
RA-SPC-8106	Block F Plaza	375 North Robert Street, Saint Paul	C
RA-SPC-8107	Twin City Federal Savings and Loan Building (The Buttery)	395 North Robert Street, Saint Paul	NC
RA-SPC-8109	Farm Credit Banks Building Addition (1979)	135 East 5th Street, Saint Paul	NC
RA-SPC-9043	Skyway Bridge 30/Bridge No. 92716	Robert Street, between 4th and 5th Streets, Saint Paul	C
RA-SPC-9045	Skyway Bridge 25/Bridge No. 91249	5th Street, between Minnesota and Robert Streets, Saint Paul	C

The following noncontributing resources within the Urban Renewal Historic District are eligible for inclusion in the National Register as individual resources:

- First National Bank of Saint Paul (RA-SPC-4645)
- First Farmers and Merchants National Bank Building (RA-SPC-3168)

Information specific to these historic properties is further discussed below.

Description & Historic Significance

Saint Paul Urban Renewal Historic District (RA-SPC-8364)

Roughly bounded by 6th Street, Kellogg Boulevard, Wabasha Street, and Jackson Street, Saint Paul

The Saint Paul Urban Renewal Historic District represents efforts to transform the city's downtown commercial core between 1955 and 1974 (Figure 8).[48] In Saint Paul, the first phase of the downtown urban renewal from 1955 to 1966 was driven by private businesses such as Dayton's Department Store and the Saint Paul Hilton Hotel. The second phase from 1967 to 1974 was driven by federal funds for the development of a 12-block Capital Centre. The district reflects the nationwide trend to redevelop and revitalize city central business districts in the years following World War II. Many contributing buildings are designed in the International Style with monolithic building units including "metal beams, glass curtainwalls, precast concrete systems, stone veneers forming large-scale, repetitive grids that reflect industrial production rather than individual craftsmanship."[49] The buildings have recessed ground-level floors that create protected walkways and public plazas incorporated within the building parcels.

[48] Information on the Saint Paul Urban Renewal Historic District comes from Charlene Roise, Jenna Rempfert, and Katie Goetz, *A Reevaluation of the Saint Paul Urban Renewal Historic District, Saint Paul, Ramsey County, Minnesota*, 2020.

[49] Roise, Rempfert, and Goetz, *A Reevaluation of the Saint Paul Urban Renewal Historic District, Ramsey County, Minnesota*, 67.

Figure 8. Representative example of the Urban Renewal Historic District's architecture and streetscape, facing southwest down 5th Street.

The Saint Paul Urban Renewal Historic District is eligible for inclusion in the National Register under Criterion A for its local significance in Community Planning and Development. The period of significance for the historic district extends from 1955 to 1974 and has two (2) phases, 1955–1966 (Early Urban Renewal Phase) and 1967–1974 (Capital Centre Phase). New building construction and the removal of all original benches, bus shelters, light standards, traffic signals, trash cans and concrete planters have diminished the District's integrity of materials, design, and workmanship. While the roadways and sidewalks provide a physical framework for the historic district, they have been rebuilt or reconstructed numerous times since the end of the period of significance and no longer maintain integrity of material, design, or workmanship.[50] Although the integrity of design, materials, and workmanship is intermittently compromised, sufficient integrity of the district remains to convey its historic significance. Character-defining features of the district include the buildings designed in the monolithic International Style, spatial organization, topography, vegetation, circulation features (streets and skyway bridges), and water features.

[50] Roise, Rempfert, and Goetz, *Reevaluation of Urban Renewal Historic District*, 72.

First Farmers and Merchants National Bank Building (RA-SPC-3168)

First National Bank of Saint Paul (RA-SPC-4645)

332 Minnesota Street, Saint Paul

The First Farmers and Merchants National Bank Building / First National Bank of Saint Paul (First National Bank) is comprised of three (3) buildings and one (1) structure that occupy the block bounded by 4th, Robert, 5th, and Minnesota Streets in downtown Saint Paul.[51] The First Farmers and Merchants Bank Building (RA-SPC-3168), commonly referred to as the East Tower, is a 16-story, Classical Revival style office building with a tripartite form designed by prominent Chicago architect Jarvis Hunt and constructed in 1916 on the western corner of the intersection of 4th and Robert Streets for the Merchants National Bank (Figure 9).[52] In 1929, Merchants National Bank merged with First National Bank, eventually leading to the construction of the neighboring building. The First National Bank Building of St. Paul (RA-SPC-4645), often referred to as the West Tower, is a 32-story office tower constructed in 1931 on the northern corner of the intersection of 4th and Minnesota Streets (Figure 9). Designed in the Art Deco style (also described as Modern Classicism) by the nationally known Chicago architecture firm of Graham, Anderson, Probst and White, the upper floors are stepped back from the lot line and the building is crowned by a three (3)-sided, 150-foot tall, illuminated "1st" sign (structure) that is a defining feature of the Saint Paul skyline. A third building, the First Bank Addition (RA-SPC-8104), occupies the northwestern half of the block, facing 5th Street (Figure 10). Designed by Haarstick, Lundgreen and Associates, this limestone-clad, International Style building was completed in 1969 and features retail space on the first and second stories with seven (7) levels of parking above.[53]

[51] Information on the First Farmers and Merchants National Bank Building and the First National Bank of Saint Paul comes from "First National Bank of Saint Paul" Historic Preservation Certification Application; Brita Bloomberg, MnSHPO, letter to Richard Rossi, August 25, 2006, available in First National Bank property file, State Historic Preservation Office, Saint Paul. While previous documentation on these three (3) resources confirm their historical association with each other and uses terminology reserved for historic districts, no determination of eligibility has been made for a historic district or for this block of buildings as a complex. Due to the minor scale and scope of this undertaking near the subject property, evaluating the buildings as a district or a complex was not warranted to assess effects.

[52] Previous documentation for this property also notes a construction date of 1915.

[53] Previous documentation for this property also notes a construction date of 1971.

Figure 9. First National Bank Building of St. Paul (West Tower, on left) and First Farmers and Merchants Bank Building (East Tower, on right), facing northeast.

Figure 10. First Bank Addition (on left) and First National Bank Building of St. Paul (West Tower, on right), facing east.

The First Farmers and Merchants Bank Building (East Tower) is individually eligible for inclusion in the National Register under Criterion A in the area of Commerce as one of Saint Paul's earliest and most important financial institutions. It is also eligible under Criterion C in the area of Architecture as a sophisticated example of a Beaux Arts office building.[54] The property's period of significance begins with its construction in 1916 and ends in 1968, when the bank relinquished its identity to its holding company. The First National Bank Building of St. Paul (West Tower) is individually eligible for inclusion in the National Register under Criterion A in the area of Commerce for its statewide significance as the headquarters of First National Bank, Saint Paul's oldest, largest, and leading bank for much of the 19th and 20th centuries. The historic property was the city's tallest building for over a half century. Both it and its "1st" sign remain an iconic part of downtown Saint Paul's skyline. The historic property is also individually eligible for inclusion in the National Register under Criterion C in the area of Architecture as an example of the Art Deco style and as the work of a master, the firm of Graham, Anderson, Probst and White. The property's period of significance begins in 1931 when the First National Bank Building was placed into service and ends in 1968, when the bank relinquished its identity to its holding company. Both properties retain sufficient integrity to convey their significance.[55] Character-defining features include the "1st" sign; the architectural designs of both buildings; near zero lot lines; the emphasis on verticality; tall, narrow, slightly recessed window bays that visually connect between floors; and a base of polished black granite topped with light-colored masonry (brick or limestone).

Due to the dates of their construction, the First Farmers and Merchants National Bank Building (East Tower) and the First National Bank of Saint Paul (West Tower) are noncontributing resources within the Saint Paul Urban Renewal Historic District. Although the First National Bank Addition is not individually eligible for inclusion in the National Register, it contributes to the Urban Renewal Historic District.

Potential Effects

The proposed Rush Line BRT Project includes operation of BRT vehicles within the district and reconstruction of a sidewalk at the northwest corner of Robert Street and 6th Street (see Sheets 4 and 5 of the 15% Plans and Figure 11). From the north, BRT vehicles would enter the district along Robert Street at 6th Street and then exit the District's boundaries as buses turn off of Robert Street onto 5th Street, near the block containing this historic property. From the south, BRT vehicles would enter the district along 6th Street at Jackson Street and exit the District's boundaries as buses turn onto North Robert Street. As noted on the 15% Plans, other new BRT elements within or immediately adjacent to the Saint Paul Urban Renewal Historic District and shared by the Rush Line BRT Project are proposed for construction under the METRO Gold Line BRT Project. These include the construction of both the 5th and 6th Street Platforms of the 5th/6th Street Station, as well as street reconstruction, curb and sidewalk removal, and the placement of new infrastructure such as signage and signaling. Temporary and permanent physical, visual, and other potential Project effects due to the construction of those BRT

[54] Information on First Farmers and Merchants Bank Building and the First National Bank Building of St. Paul comes from Streamline Associates, LLC., *Architecture-History Studies for the Robert Street (US 952A) Improvements Project, St. Paul, Ramsey County, Minnesota*, May 2018.

[55] "First National Bank of Saint Paul" Historic Preservation Certification Application; Brita Bloomberg, letter to Richard Rossi, August 25, 2006, available in First National Bank property file, State Historic Preservation Office, Saint Paul.

elements are assessed under the Gold Line Project.[56] Therefore, in addition to the potential physical and visual effect to the Saint Paul Urban Renewal Historic District due to the reconstruction of the sidewalk, potential Rush Line BRT Project effects include changes in traffic, access, and parking.

Figure 11. Proposed Project plans within the vicinity of historic resources associated with the Urban Renewal Historic District (the district is outlined in purple and the individual resources in yellow).

Assessment of Effects

Physical

Although the proposed Project would have a direct, physical effect to the Saint Paul Urban Renewal Historic District, the effect would be minor. Within the historic property boundaries, a sidewalk is proposed for reconstruction at the northeast corner of 6th Street and Robert Street. Sidewalks and

[56] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.

curbs have been altered and replaced throughout the historic district and the proposed construction would affect modern materials within the road right-of-way. The nearest contributing resource, the Minnesota Department of Economic Security Building (RA-SPC-6902, RA-SPC-8105) is 65 feet across 6th Street, removed from any potential unintended damage from construction activities. Therefore, the sidewalk construction is not anticipated to diminish the integrity of design, materials, or workmanship of the historic district or any associated contributing resources.

Visual

With the exception of the sidewalk at the corner of 6th Street and Robert Street, Project elements constructed under the Rush Line BRT Project would not be visible from the Saint Paul Urban Renewal Historic District. The 10th Street Station is approximately 1,400 feet north of the northern boundary of the district and construction at Union Depot is 500 feet east of the southeast corner of the district.

Traffic, Access, and Parking

As noted in the "General Project Effects" section, in-depth traffic analysis was not performed in most of downtown Saint Paul because BRT buses would run in mixed traffic and result in only a 1 to 2% change in traffic volumes. This increase is above those expected under the METRO Gold Line BRT Project, which identified just 1.1 and 1.3% increases on 6th and 5th Street, respectively.[57] Rush Line BRT traffic analysis did include Robert Street, beginning at 5th Street within the district boundaries. Potential queuing issues were identified along Robert Street at both 5th and 6th Streets, where northbound through and right-turn movements would result in blocked intersections and poor levels of service during peak traffic hours; these queuing issues can be minimized through diversion to alternative routes.[58] Furthermore, the increases in traffic would not impact important spatial relationships between contributing resources in the Saint Paul Urban Renewal Historic District and, because no changes would be made to street alignments, the rectilinear grid pattern, historic spatial organization, topography, and circulation features would be preserved. The Project would not result in the loss of any on-street parking spaces within the Saint Paul Urban Renewal Historic District. To the north of the historic district, Robert Street would have a net loss of 32 parking spaces. However, Project documentation confirms that there are many other on- and off-street parking options in this area and that the loss of parking would not negatively impact community facilities, character, or cohesion.[59] Thus, the parking needed for access to historic properties within the district would not be negatively impacted.

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect to the Saint Paul Urban Renewal Historic District, the First Farmers and Merchants National Bank, and the First National Bank of Saint Paul**. Although the Project would physically affect the historic district through the reconstruction of a small portion of a sidewalk, it would not alter any of the characteristics that qualify the historic district for inclusion in the National Register. No other Project elements would be visible from the historic properties. The negligible increase in bus traffic within and in the vicinity of the historic properties due to the Rush Line BRT Project would not alter any of the characteristics that

[57] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.
[58] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 25, 33.
[59] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 49, 50.

qualify them for inclusion in the National Register or diminish the historic properties' integrity of location, design, setting, materials, workmanship, feeling, or association.

Pioneer and Endicott Buildings (RA-SPC-3167, RA-SPC-3169, RA-SPC-5223, RA-SPC-6903)

322 North Robert Street, 141 East 4th Street, and 142 East 5th Street, Saint Paul

Description & Historic Significance

Three buildings occupy a T-shaped site on the block bounded by 4th, Jackson, 5th, and Robert Streets in downtown Saint Paul (Figure 12, Figure 13, and Figure 14).[60] The Pioneer Building and Endicott Buildings were built one (1) year apart from each other and are listed in the National Register as a single historic property (RA-SPC-5223). The Endicott Arcade Addition was built to connect to the Endicott Building, forming what is now considered a complex. Due to the close historical associations and physical proximity of the properties, potential Project effects are assessed collectively.

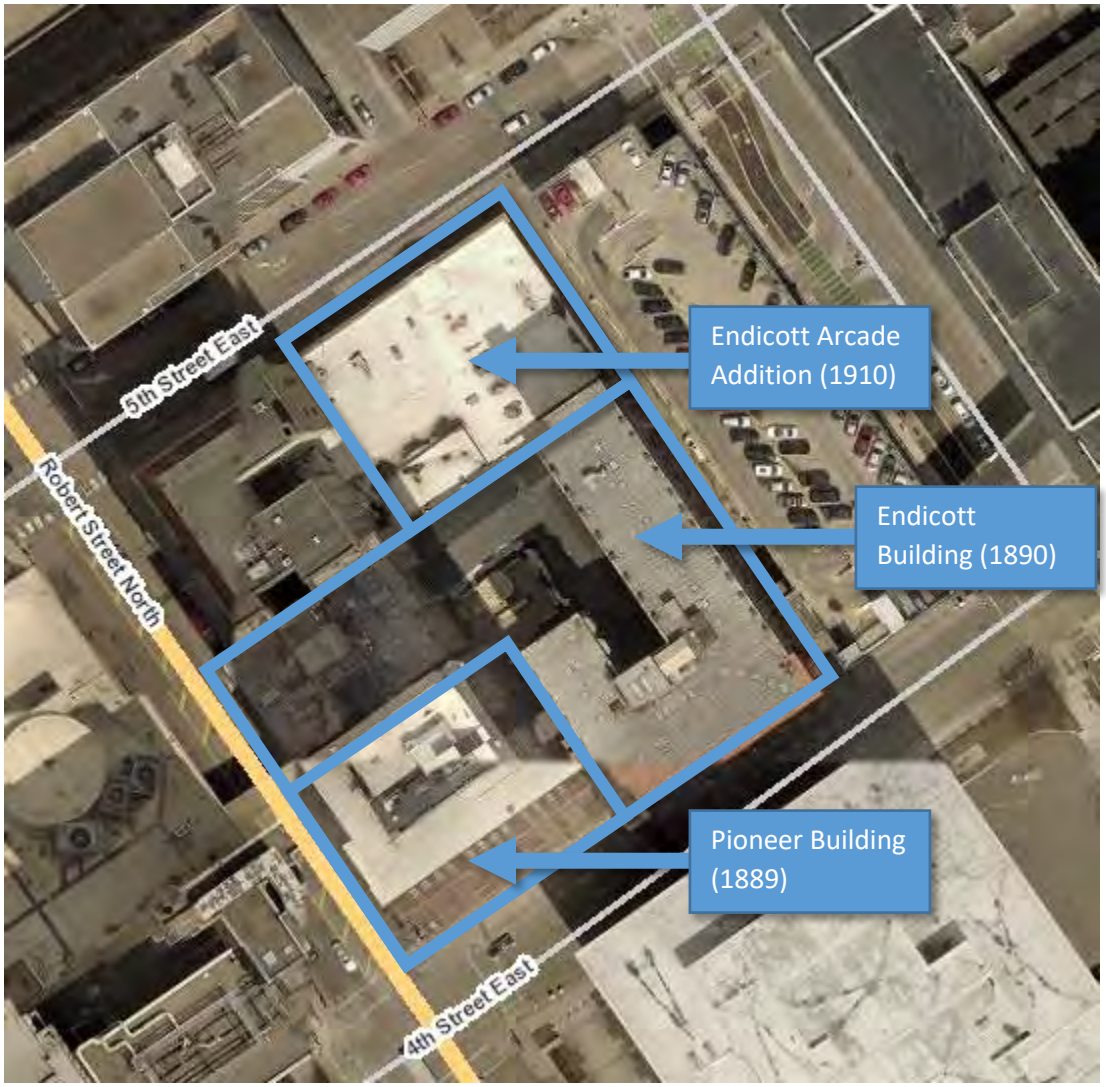
- The Pioneer Building (RA-SPC-3167) is a 16-story, Romanesque Revival style, masonry commercial building located on the northern corner of the intersection of 4th and Robert Streets (prior to 1909, it was known as the Pioneer Press Building). The original 12-story building was constructed in 1889 and designed by Chicago architect Solon Spencer Beman who employed a combination of the Richardsonian Romanesque and French Renaissance styles. The building has an iron structural system and the lower floors have 4.5-foot thick walls built from massive blocks of Rockville granite. The upper floors are faced with red pressed brick and red sandstone. Four (4) stories were added to the building in 1910. Also designed by Beman, the addition included a new decorative cornice with large scrolled brackets.
- The Endicott Building (RA-SPC-3169) is an L-shaped building constructed in 1890 that wraps around the Pioneer Building and faces onto both 4th and Robert Streets. The building is comprised of two (2) six (6)-story Italian Renaissance style towers, one (1) on each street, and linked by a one (1)-story arcade that extends through both towers.[61] Designed by Saint Paul architect Cass Gilbert, the design promoted simplicity and balanced proportions. The Endicott Building has a granite base and a first story of red sandstone. The main archway on the 4th Street façade is flanked by granite piers topped by Tennessee marble capitals. The upper floors are faced with red brick, and window openings are ornamented with red sandstone. The Robert Street façade is also faced in red brick, with Tuscan columns constructed of polished Saint Cloud granite at the first floor, and carved red sandstone friezes between the upper floors.
- A one (1)-story addition, known as the Endicott Arcade Addition (RA-SPC-6903), was constructed in 1910 and fronts onto 5th Street. This building was designed by George H. Carsley with input from Cass Gilbert and features a series of storefronts and a main entrance offset to the east side of the façade.[62]

[60] Information on the Pioneer and Endicott Building comes from Thom Lutz, "Pioneer and Endicott Buildings," National Register of Historic Places Inventory–Nomination Form, 1974; and Larry Millett, *Heart of St. Paul: A History of the Pioneer and Endicott Buildings*, 2016.

[61] The 4th Street tower was always known as the Endicott Building, but the Robert Street tower has also been referred to at various times as the Arcade Building, Endicott Arcade, the Endicott on Robert, and the Midwest Building.

[62] Larry Millett, *Heart of St. Paul: A History of the Pioneer and Endicott Buildings*, 31, 32, 50, 52, 61, 68.

Figure 12. Configuration of the Pioneer, Endicott, and Endicott Arcade Buildings. [63]



[63] Image based on an aerial photograph from Ramsey County, "Ramsey County Interactive Property Map," MapRamsey, 2018, https://maps.co.ramsey.mn.us/MapRamsey/ (accessed on August 19, 2020).

Figure 13. Pioneer and Endicott Buildings, facing north.

Figure 14. The one-story Endicott Arcade Addition, facing southwest.

In 1974, the Pioneer and Endicott Buildings were listed in the National Register as a single property, and the Endicott Arcade Addition is eligible for inclusion in the National Register.[64] Both the Pioneer and Endicott Buildings are significant under Criterion A in the area of Commerce for their role during the city's late 19th-century commercial boom. The Pioneer Building is also significant under Criterion A in the area of Communications for housing the Twin Cities' first documented commercial radio station in 1927.[65] The three (3) buildings comprising the complex are significant under Criterion C in the area of Architecture as examples of the period's changing commercial design and for their respective architectural styles. All of the buildings retain sufficient integrity to convey their significance. Character-defining features of the complex include the architectural design of the buildings, and tripartite forms of the towers, zero lot lines, prominent entrances, storefronts on the Robert Street elevation of the Endicott Building, and the 5th Street façade of the Endicott Arcade Addition.

Potential Effects

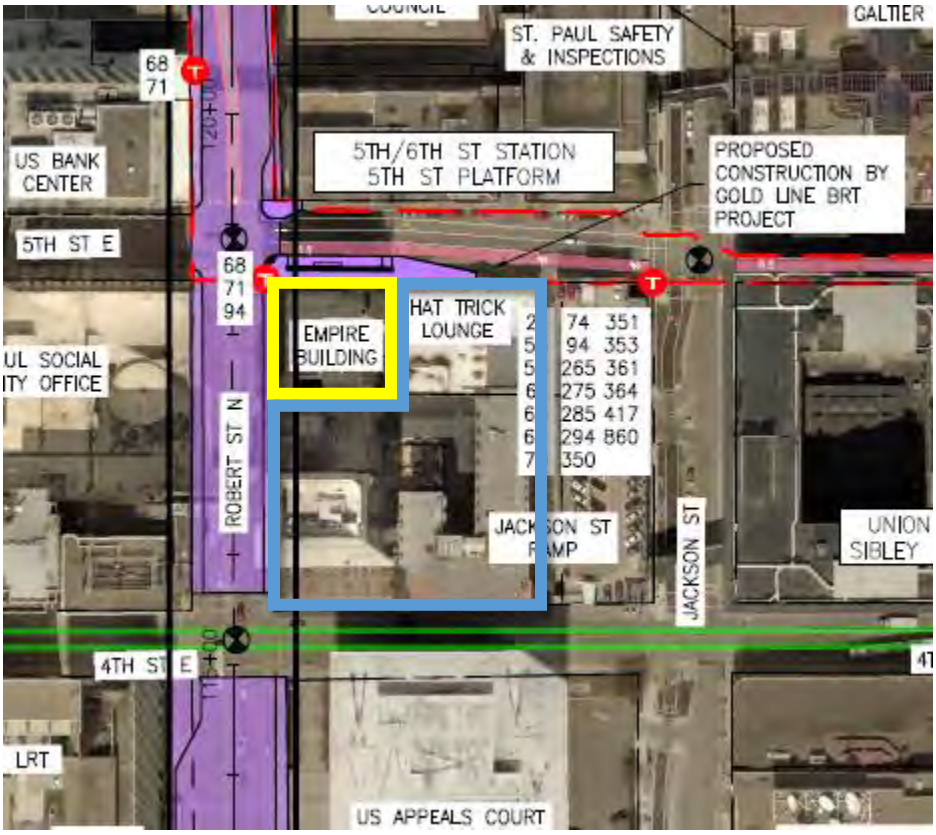
The proposed Rush Line BRT Project includes operation of BRT vehicles along 5th Street in front of the Endicott Arcade Addition (see Sheet 4 of the 15% Plans and Figure 15). The proposed 10th Street Station would be located 1950 feet north of the northern boundary of the property and construction at Union Depot would be located 580 feet east of the historic property. As noted on the 15% Plans, other new BRT elements within the historic property and shared by the Rush Line BRT Project are proposed for construction under the METRO Gold Line BRT Project. These include the construction of the 5th Street Platform, as well as street reconstruction, curb and sidewalk removal, and the placement of new infrastructure such as signage and signaling. Temporary and permanent physical, visual, and other potential Project effects due to the construction of those BRT elements are assessed under the Gold Line Project.[66] Therefore, the primary potential Rush Line BRT Project effects on the historic property include changes in traffic, access, and parking.

[64] The Pioneer Press and Endicott Buildings were built as separate properties and functioned as such for their first few decades of use. Since 1941, the buildings have been jointly operated and managed. Additionally, the wrap-around design of the Endicott Arcade as well as the city's skyway system provides a physical connection. Therefore, their National Register nomination in 1974 considered them "as one inter-related interoffice business complex" (Thomas Lutz, National Register of Historic Places Inventory–Nomination Form prepared by the Minnesota Historical Society [May 29, 1974], Description.

[65] Although this claim is made in the National Register nomination, other sources suggest KFOY was not the first commercial radio station in the Twin Cities; that claim might belong to WLAG, which started broadcasting in 1922 and later became WCCO. Millet, 81; "2,000 Crystal Set Owners Get Far Stations Through KFOY," *Minneapolis Sunday Tribune*, May 11, 1924; "KFOY to Open 500 Watt Radio Station Monday," *Minneapolis Sunday Tribune*, January 30, 1927; "Hotel's Giant Radio to Open With Concert," *Minneapolis Sunday Tribune*, September 3, 1922.

[66] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.

Figure 15. Proposed Project plans within the vicinity of the Pioneer and Endicott Buildings (outlined in blue) and the Manhattan Building (outlined in yellow).



Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect the Pioneer and Endicott Buildings. Therefore, the proposed Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

Neither the proposed 10th Street Station nor the proposed construction at Union Depot would be visible from the Pioneer and Endicott Buildings.

Traffic, Access, and Parking

As noted in the "General Project Effects" section, in-depth traffic analysis was not performed in most of downtown Saint Paul because BRT buses would run in mixed traffic and result in only a 1 to 2% change in traffic volumes. This increase is above those expected under the METRO Gold Line BRT Project, which identified just 1.1 and 1.3% increases on 6th and 5th Street, respectively.[67] Rush Line BRT traffic analysis did include Robert Street, beginning at 5th Street. The Project proposes to operate six (6) additional buses per hour at peak times along the shared BAT lane on 5th Street and at the 5th Street Platform. The historic property is within a busy downtown setting that currently has buses operating along

[67] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.

adjacent streets, and the operation of six (6) additional buses per hour would be a minor change. The operation of Rush Line BRT Project buses would not affect the integrity of the Pioneer, Endicott, and Endicott Arcade buildings.

Potential queuing issues were identified along Robert at both 5th and 6th Streets East, where northbound through and right-turn movements would result in blocked intersections and poor levels of service during peak traffic hours; these queuing issues can be minimized through diversion to alternative routes.[68]. Despite the queuing issues identified at two (2) intersections with Robert, the increases in traffic would not impact the historic property and the relationship between the Pioneer, Endicott and Endicott Arcade buildings. The Project would not result in the loss of any on-street parking spaces in the vicinity of the property.

Recommended Finding: No Adverse Effect

Based on the 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Pioneer and Endicott Buildings.** The historic property would not be physically affected by the Project, nor would any Project elements be visible from the historic property. The negligible increase in bus traffic proposed in the vicinity of the historic property due to the Rush Line BRT Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

Manhattan Building (aka Empire Building) (RA-SPC-3170)

360 North Robert Street, Saint Paul

Description & Historic Significance

Constructed in 1890, the Manhattan Building is a seven (7)-story, Second Renaissance Revival Style office building with a raised basement located on the eastern corner of the 5th and Robert Street intersection in downtown Saint Paul (Figure 16).[69] Designed by Saint Paul architect Clarence H. Johnston, Sr., the masonry building has a tripartite form with a steel beam framing system and vaults extending out under the sidewalks in front of the building. The first-story base is faced with bands of polished dark red granite and smooth limestone, which are part of a 1950s remodeled of the first floor by Toltz, King, and Day, likely as part of the city's modernization efforts. The unaltered upper floors are faced with red brick, and include a four (4)-story shaft with quoining at the corners surmounted by an entablature, and a two (2)-story capital with an elaborate metal cornice with lions head scuppers. Windows are arranged in vertical columns with round-arched openings on the top floor.

[68] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 25, 33.

[69] Information on the Manhattan Building comes from Norene A. Roberts, "Manhattan Building," National Register of Historic Places Registration Nomination, prepared by Historical Research, Inc., 1987.

Figure 16. Manhattan Building, facing east.

The Manhattan Building was listed in the National Register in 1988. It is significant under Criterion A in the area of Commerce for its role as an example of the "palace of commerce" banks constructed in the late 19th century. It is also a significant example of the construction in Saint Paul during a building boom from the late 1880s to the early 1890s, when the city was an important Midwestern financial center. The building is significant under Criterion B for its association with Clarence H. Johnston, Sr., whose office was in the building during his entire tenure as State Architect. It is significant under Criterion C in the area of Architecture as an example of a 19th-century, Renaissance Revival style bank building. The period of significance begins with the building's construction in 1890 and ends with Johnston's death in 1936. Overall, the Manhattan Building retains sufficient integrity to convey its significance, although the first floor does not retain integrity from the period of significance. In the 1950s, pink and grey polished marble were laid horizontally along the first floor, covering the original rusticated block facing, and the main entrance was altered. While the building was listed in the National Register with these modifications in place, their presence does render the first floor of the building incongruous with the upper floors. [70] Character-defining features of the building include its architectural design: boxy, cubical massing with vaults extending out under the sidewalk; and classically inspired stylistic features on its exterior. These stylistic features include window surrounds, decorative sandstone friezes with brackets or dentils, pilasters, and cornice.

Potential Effects

The proposed Rush Line BRT Project includes operation of BRT vehicles along 5th Street in front of the Manhattan Building (see Sheet 5 of the 15% Plans and Figure 15). The proposed 10th Street Station would be located 1850 feet north of the northern boundary of the property and construction at the Union Depot would be located 700 feet east of the historic property. As noted on the 15% Plans, other

[70] This first-floor applied cladding was on the Manhattan Building at the time of its National Register listing and may be considered a character-defining feature.

new BRT elements within the historic property and shared by the Rush Line BRT Project are proposed for construction under the METRO Gold Line BRT Project. These include the construction of the 5th Street Platform, as well as street reconstruction, curb and sidewalk removal, and the placement of new infrastructure such as signage and signaling. Temporary and permanent physical, visual, and other potential Project effects due to the construction of those BRT elements are assessed under the Gold Line Project.[71] Therefore, the primary potential Rush Line BRT Project effects on the historic property include changes in traffic, access, and parking.

Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect the Manhattan Building. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

Neither the proposed 10th Street Station nor the proposed construction at Union Depot would be visible from the Manhattan Building.

Traffic, Access, and Parking

As noted in the "General Project Effects" section, in-depth traffic analysis was not performed in most of downtown Saint Paul because BRT buses would run in mixed traffic and result in only a 1 to 2% change in traffic volumes. This increase is above those expected under the METRO Gold Line BRT Project, which identified just 1.1 and 1.3% increases on 6th and 5th Street, respectively.[72] Rush Line BRT traffic analysis did include Robert Street, beginning at 5th Street. The Project proposes to operate six (6) additional buses per hour at peak times along the shared BAT lane on 5th Street and at the 5th Street Platform. The historic property is within a busy downtown setting that currently has buses operating along adjacent streets, and the operation of six (6) additional buses per hour would be a minor change. The operation of Rush Line BRT Project buses would not affect the integrity of the Manhattan Building.

Potential queuing issues were identified along Robert at both 5th and 6th Streets East, where northbound through and right-turn movements would result in blocked intersections and poor levels of service during peak traffic hours; these queuing issues can be minimized through diversion to alternative routes.[73] Despite the queuing issues identified at two (2) intersections with Robert, the increases in traffic would not impact the historic property. The Project would not result in the loss of any on-street parking spaces in the vicinity of the property.

Recommended Finding: No Adverse Effect

Based on the 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Manhattan Building**. The historic property would not be physically affected by the Project, nor would any Project elements be visible from the historic property. The negligible increase in bus traffic proposed in the vicinity of the historic property due to the Rush Line BRT Project would not alter any of the

[71] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.
[72] Minnesota Department of Transportation, *METRO Gold Line Bus Rapid Transit Project: Section 106 Assessment of Effects and Final Determination of Effect for Historic Properties*, draft text as of September 2020.
[73] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 24, 33.

characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

Golden Rule Department Store Building (RA-SPC-3171)

85–95 7th Place, Saint Paul

Description & Historic Significance

The Golden Rule Department Store Building (RA-SPC-3171) is a six (6)-story, flat-roofed commercial building that has been converted into office use (Figure 17).[74] Golden Rule Fancy Goods and Toys was a general dry goods store operated by the firm W.H. Elsinger & Co., established by brothers William and Joseph Elsinger in 1886. The company moved to a three (3)-story commercial building on East 7th Street in 1891 and was known as the Golden Rule beginning in 1897. The store followed national retail trends and grew into a modern department store with many urban amenities, including a post office, playground, and infirmary. In 1902, Minnesota master architect Clarence Johnston, Sr., gave the East 7th Street building a classical façade. In additional phases of construction, Johnston expanded and remodeled the building until its unified Neoclassical design occupied three-quarters of the city block. The primary street elevations on 7th Place and Robert Street are stone and terra cotta and the secondary elevations on 7th and Minnesota Streets are brick with a cementitious parge coat. In addition to tall storefronts that feature anodized aluminum window frames with polished marble panels, the building has tripartite groupings of windows separated by pilasters that extend from the second through the sixth stories. The projecting cornice of green marble and terra cotta is on top of a wide frieze

Figure 17. Golden Rule Department Store Building, facing northwest.[75]

The Golden Rule Department Store Building is eligible for inclusion in the National Register under Criterion A in the area of Commerce for its association with national retail trends resulting in local retailers constructing new buildings and expanding existing stores and as one of the best Downtown

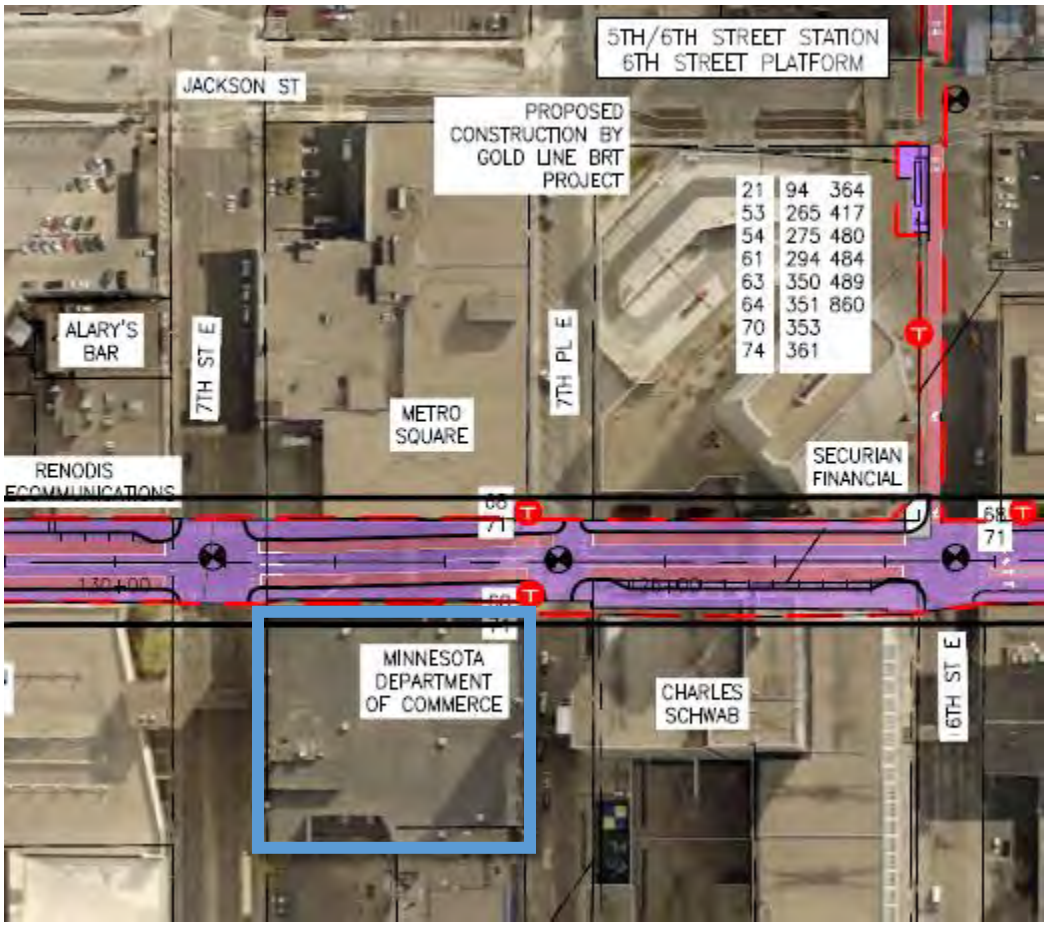
[74] Information on the Golden Rule Department Store Building comes from Andrew Schmidt, "Golden Rule Department Store (RA-SPC-3171)," Minnesota Individual Property Inventory Form, 2018.
[75] Image from "Golden Rule Department Store (RA-SPC-3171)," Minnesota Individual Property Inventory Form, 8.

Saint Paul examples of an early 20th-century department store for a major local retailer. It is also eligible under National Register Criterion C in the area of Architecture, for its association with master architect Clarence Johnston, Sr., and as a distinctive example of his use of the Neoclassical style in commercial design. The period of significance begins in 1915 when the last expansion of the building was completed and ends in 1961 when Golden Rule merged with Donaldson's Department Store. The setting has been altered with new building construction, the conversion of 7th Street to 7th Place, but the overall downtown setting remains. The building's alterations include the addition of the skyways and the removal of ornamentation for Modernist finishes to the first story elevation on 7th Place. The property retains enough historic materials and workmanship to convey the Golden Rule Department Store Building's significance under Criteria A and C. The character-defining features include the Neoclassical design, pilaster columns, wide frieze, projecting modillioned cornice, large-scale commercial building, and centralized location in downtown St. Paul.

Potential Effects

The proposed Rush Line BRT Project includes operation of BRT vehicles along Robert Street east of the property (see Sheet 5 of the 15% Plans and Figure 18). As noted on the 15% Plans, the only proposed construction under Rush Line BRT in the vicinity of the historic property includes the proposed 10th Street Station located 840 feet north of the property and a sidewalk reconstruction at the northeast corner of 6th Street and Robert Street 350 feet south of the building. Additional reconstruction of Robert Street is proposed under the Robert Street Reconstruction project. Temporary and permanent physical, visual, and other potential Project effects due to the street reconstruction will be assessed under that Federal undertaking. The only other change near the historic property proposed under the Rush Line BRT Project includes removal of left-turn lanes and the conversion of outside lanes on Robert Street into BAT lanes. The roadway dimension would not be altered; however, the change includes removal of 11 time-restricted parking spaces between 7th Street and 7th Place. Therefore, in addition to the potential visual effect to the Golden Rule Department Store Building due to the construction of the 10th Street Station and the reconstruction of the sidewalk, potential Rush Line BRT Project effects include changes in traffic, access, and parking.

Figure 18. Proposed Project plans within the vicinity of the Golden Rule Department Store Building (outlined in blue).



Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect the Golden Rule Department Store Building. Therefore, the proposed Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

Neither the proposed 10th Street Station nor the proposed reconstruction of the sidewalk would affect viewsheds to or from the Golden Rule Department Store Building; therefore, they would not diminish the property's integrity of setting, association, or feeling. The introduction of the proposed BAT lane along Robert Street is a minor change to a previously altered setting.

Traffic, Access, and Parking

Rush Line BRT traffic analysis included Robert Street. Potential queuing issues were identified along Robert at both 7th Place and 7th Street, where northbound and southbound movements would result in blocked intersections and poor levels of service during peak traffic hours; these queuing issues can be

minimized through diversion to alternative routes.[76] Despite the queuing issues identified along Robert Street, the increases in traffic would not impact the Golden Rule Department Store's location or relationship with its downtown setting. The Project proposes to remove parking spaces between 7th Street and 7th Place, immediately adjacent to the historic property. However, Project documentation confirms that there are many other on-street and off-street parking options in this area and that the loss of parking would not negatively impact community facilities, character, or cohesion.[77] Thus, the parking needed for access to the historic property would not be negatively impacted.

Recommended Finding: No Adverse Effect

Based on the 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Golden Rule Department Store Building.** The historic property would not be physically affected by the Project, nor would any Project elements be visible from the historic property. The negligible increase in bus traffic proposed in the vicinity of the historic property due to the Rush Line BRT Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

Foot, Schulze & Company Building (RA-SPC-3174)

500 North Robert Street, Saint Paul

Description & Historic Significance

The Foot, Schulze & Company Building (RA-SPC-3174) is a seven (7)-story, flat-roofed manufacturing building that has been converted into residential and commercial uses.[78] Minneapolis architecture firm Kees and Colburn designed the U-shaped building, which was built in 1917 and occupies half of a city block in a prominent location. Established in 1884, Foot, Schulze and Company had become one of the largest shoe manufacturers in Saint Paul during the early 20th century. Kees and Colburn incorporated technological advancements in the design, including concrete framing, concrete foundation, flat-slab reinforced concrete floors, and large windows into the Robert Street facility, doubling the company's production volume during the decade it occupied the building. Street elevations are red brick with terra cotta ornament, a stone watertable, and stone bands above the second, third, and seventh floors (Figure 19). Along the Robert Street elevation, the building contains 12 large bays and glass-and-aluminum storefronts separated by brick pilasters.

[76] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 25, 33.
[77] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 49, 50.
[78] Information on the Foot, Schulze & Company Building comes from Andrew Schmidt, "Foot, Schulze and Co (RA-SPC-3174)," Minnesota Individual Property Inventory Form, 2018.

Figure 19. Foot, Schulze & Company Building, looking east.[79]

The Foot, Schulze & Company Building is eligible for inclusion in the National Register under Criterion A in the area of Industry for its association with the shoe manufacturing industry in Saint Paul. It is also eligible under Criterion C in the area of Architecture, for its association with Kees and Colburn and as a good example of the urban vertical factory type. The period of significance begins in 1917 when the building was completed and the factory opened and ends in 1927 when Foot, Schulze and Company left the building. The building is no longer used as a factory and warehouse, which diminishes the integrity of association. The setting has been altered since the period of significance, including the construction of several new buildings nearby. Overall, the Foot, Schulze & Company Building retains integrity of location, design, materials, setting, workmanship, and feeling to convey its significance under Criteria A and C. Character-defining features include the overall massing and architectural design, the concrete flat-slab construction system, and large window openings.

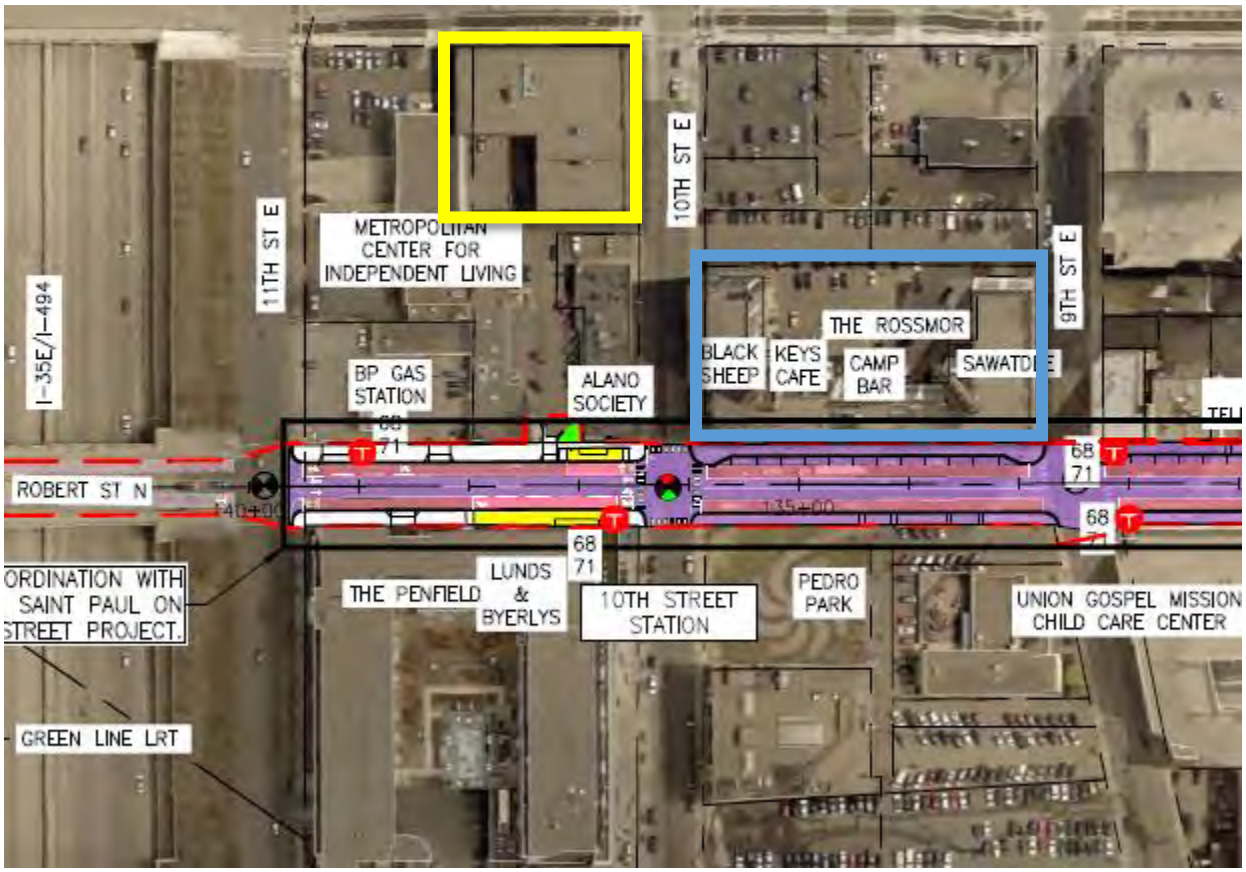
Potential Effects

The proposed Rush Line BRT Project includes operation of BRT vehicles along Robert Street in front of the property (see Sheet 5 of the 15% Plans and Figure 20). As noted on the 15% Plans, the proposed construction under Rush Line BRT in the vicinity of the historic property includes the proposed 10th Street Station located 100 feet from the property; the historic property is not in the LOD for construction of the station. Additional reconstruction of Robert Street is included under the proposed Robert Street Reconstruction project. Temporary and permanent physical, visual, and other potential Project effects due to the street reconstruction will be assessed under that Federal undertaking. The only other change near the historic property proposed under the Rush Line BRT Project includes removal of left-turn lanes and the conversion of outside lanes on Robert Street into BAT lanes. The roadway dimension would not be altered; however, the proposed change includes the removal of on-street parking spaces along Robert Street.[80] Therefore, in addition to the potential visual effect to the Foot,

[79] Image from Andrew Schmidt, "Foot, Schulze and Co (RA-SPC-3174)," Minnesota Individual Property Inventory Form, 10.
[80] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 49.

Schulze & Company Building due to the construction of the 10th Street Station, potential Rush Line BRT Project effects include changes in traffic, access, and parking.

Figure 20. Proposed Project plans within the vicinity of the Foot, Schulze & Company Building (outlined in blue) and the Produce Exchange Building (outlined in yellow).



Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect the Foot, Schulze & Company Building. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

Although the proposed 10th Street Station platforms are located across 10th Street, they would be visible from the Foot, Schulze & Company Building. However, the addition of the station shelters and associated infrastructure would be a minor change to the historic property's setting, which has already been altered by new construction. Views to the historic property's primary façades on Robert and 10th Streets would remain unobscured and the proposed station would not directly alter or further detract from the character-defining features of the building. Therefore, the station would not diminish the historic property's integrity of setting, feeling, or association any further.

Traffic, Access, and Parking

Rush Line BRT traffic analysis included Robert Street. Potential queuing issues were identified along Robert at both 9th and 10th Street, where northbound and southbound movements would result in blocked intersections and poor levels of service during peak traffic hours; these queuing issues can be minimized through diversion to alternative routes.[81] Despite the queuing issues identified along Robert Street, the increases in traffic would not impact access to the Foot, Schulze & Company Building. Robert Street would have a net loss of 32 on-street parking spaces, including 13 parking spaces between 9th and 10th Streets, immediately adjacent to the historic property. Business owners within the historic building have expressed concern about this potential loss of parking.[82] However, Project documentation confirms that there are many other on-street and off-street parking options in this area and that the loss of parking would not negatively impact community facilities, character, or cohesion.[83] Thus, the parking needed for access to the historic property would not be negatively impacted.

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect to the Foot, Schulze & Company Building**. The historic property would not be physically affected by the Project. Although the 10th Street Station is anticipated to be visible from the historic property, any alterations to the viewshed would be minor and the views to and from the historic property's primary façade would not be changed. Therefore, the Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

Produce Exchange Building (RA-SPC-6330)

523 Jackson Street, Saint Paul

Description & Historic Significance

Constructed in 1915, the Produce Exchange Building is a three (3)-story, brick, Commercial-style building in downtown Saint Paul (Figure 21).[84] With the expansion of railroads by the early 20th century, Saint Paul emerged as a major produce market and distribution city in the Upper Midwest. Produce was sold in produce exchanges and commission houses that were in downtown Saint Paul around Jackson and 11th Streets with connections to the railroad network and nearby freight depots. The Produce Exchange Building was a prominent commission house that supported the Saint Paul produce district and contributed to the overall produce industry in the area. The utilitarian design reflected the property's use with its ground-level bays that housed vendors, stalls, and storefronts, upper level warehouse space, and drive-through entrance for the loading of goods.

[81] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 25, 33.
[82] Carol Hunn-Gregory, et al., letter to the Rush Line Policy [Advisory] Committee, September 18, 2020.
[83] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 49, 50.
[84] Information on the Produce Exchange Building comes from Katie Ohland, "Produce Exchange Building (RA-SPC-6330)," Minnesota Individual Property Inventory Form, 2020; and Landscape Research LLC, "Evaluation of Historical Significance: Produce Exchange Building," 2002.

Figure 21. Produce Exchange Building, facing west.[85]

The Produce Exchange Building is eligible for inclusion in the National Register under Criterion A in the area of Commerce for its prominent association with Saint Paul's produce industry during the early 20th century. It may also be eligible under Criterion C in area of Architecture as an example of an early 20th century commission house.[86] The period of significance begins in 1915 when the building was completed and ends in 1949, when the building began to house other industries. Overall, the Produce Exchange Building retains good integrity of location, materials, design, workmanship, and feeling to convey its significance. Character-defining features include the three (3)-story utilitarian design with first story commercial storefronts and warehouse space in upper stories, brick exterior cladding, multiple distinct bays on the Jackson and 10th Street elevations, simple one-over-one window configurations on the upper stories, painted signs on the brick, and a drive-through on the 10th Street elevation that allows access to the interior parking lot. The integrity of setting and association have been diminished by the loss of the adjacent markets and commission houses, and the property no longer houses the businesses associated with the produce industry.

Potential Effects

The proposed Project includes operation of BRT vehicles along Robert Street, approximately 210 feet from the Produce Exchange Building (see Sheet 5 of the 15% Plans and in Figure 20). As noted on the 15% Plans, proposed construction under Rush Line BRT in the vicinity of the historic property is limited to the proposed 10th Street Station on Robert Street, approximately 200 feet from the historic property. Additional reconstruction of Robert Street is included under the proposed Robert Street Reconstruction project. Temporary and permanent physical, visual, and other potential Project effects due to the street reconstruction will be assessed under that Federal undertaking. The only other change near the historic property proposed under the Project includes removal of left-turn lanes and the conversion of outside lanes on Robert Street into BAT lanes. The roadway dimension would not be altered; however, the

[85] Image from Katie Ohland, "Produce Exchange Building (RA-SPC-6330)," Minnesota Individual Property Inventory Form, Figure 2.

[86] In their comments on the architecture/history investigations, MnSHPO noted that "more information on the interior of the building and the character defining features of commission houses would be needed to justify significance under Criterion C in the area of Architecture." Sarah Beimers, MnSHPO, letter to Jay Ciavarella, FTA, September 15, 2020.

proposed change includes the removal of on-street parking spaces along Robert Street.[87] Therefore, in addition to the potential visual effect to the Produce Exchange Building from the construction of the 10th Street Station, potential Project effects include changes in traffic, access, and parking.

Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect the Produce Exchange Building. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

The proposed 10th Street Station platforms are located on 10th Street, and would be minimally visible from the rear of the Produce Exchange Building due to intervening buildings. The addition of the station shelters and associated infrastructure would be a minor change to the historic property's setting, which has already been altered. Views to the historic property's primary façades on 10th and Jackson Streets would remain unobscured and the proposed station would not directly alter or further detract from the character-defining features of the building. Therefore, the station would not diminish the historic property's integrity of setting, feeling, or association any further.

Traffic, Access, and Parking

Rush Line BRT traffic analysis identified potential queuing issues along Robert at both 10th and 11th Street, where northbound and southbound movements would result in blocked intersections and poor levels of service during peak traffic hours; these queuing issues can be minimized through diversion to alternative routes.[88] Despite the queuing issues identified along Robert Street, the increases in traffic would not impact access to the historic property. The Project would not result in the loss of any on-street parking spaces immediately adjacent to the Produce Exchange Building. To the west of the historic property, Robert Street would have a net loss of 32 on-street parking spaces. However, Project documentation confirms that there are many other on-street and off-street parking options in this area and that the loss of parking would not negatively impact community facilities, character, or cohesion.[89] Thus, the parking needed for access to historic properties within the district would not be negatively impacted.

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Produce Exchange Building**. The historic property would not be physically affected by the Project and, because of its location and intervening visual obstructions, the 10th Street Station is anticipated to be minimally visible from the rear of the Produce Exchange Building. Any alterations to the viewshed would be minor and the primary views to and from the property would not be changed. Therefore, the Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

[87] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 49.
[88] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 25, 33.
[89] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 49, 50.

Resources Associated with the Great Northern Railroad

Three historic resources associated with the Great Northern Railroad are located in close proximity to each other within the Project APE (see Page 2 of the APE map in Appendix B):

- Great Northern Saint Paul to Minneapolis Railroad Corridor Historic District (RA-SPC-5918)
- StPM&M Railway Company Shops Historic District (RA-SPC-4582)
- Westminster Junction (RA-SPC-5618)

Potential Project effects on these three (3) resources are assessed collectively due to their historical association and close proximity.

Description & Historic Significance

Great Northern Railroad Corridor Historic District (RA-SPC-5918)

Saint Paul to Minneapolis Segment, Saint Paul

The Great Northern Railroad Corridor between Saint Paul and St. Anthony Falls in Minneapolis was completed in 1862 by the St. Paul and Pacific Railroad Company (see Figure 22).[90] Acquired by the Manitoba Railroad in 1978 and by the Great Northern in 1907, the line later became the Burlington Northern Santa Fe (BNSF). The corridor, documented as the earliest railroad corridor in Minnesota, established a rail connection between the Minneapolis milling operations at St. Anthony Falls and an important Mississippi River transfer point at Lowertown in Saint Paul. The corridor would eventually serve an important role within the Great Northern's transcontinental railroad corridor. The active double-track roadway is a graded ground surface featuring one (1) to two (2) feet of crushed granite ballast supporting wooden ties and steel rails (see Figure 23).

Figure 22. Great Northern Corridor, in blue.

[90] Information on the Great Northern Railroad Corridor comes from Andrew J. Schmidt, "Great Northern St. Paul to Minneapolis Railroad Corridor (RA-SPC-5918)," Minnesota Architectural History Inventory Form, 2009 and Andrew J. Schmidt, Andrea C. Vermeer, Betsy H. Bradley, and Daniel R. Pratt. "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 2013.

Figure 23. Great Northern Corridor, crossing under I-35E, facing west.[91]

In 2009, the Great Northern Railroad Corridor Historic District was recommended eligible for inclusion in the National Register under Criterion A in the area of Transportation. The historic property meets the registration requirements for a railroad corridor historic district as outlined in the National Register Multiple Property Documentation Form (MPDF), "Railroads in Minnesota, 1862–1956" (Railroad MPDF). The period of significance begins in 1862, when the corridor was completed, and ends in 1956 based on the registration requirements for railroad corridor historic districts as described in the Railroad MPDF. Both the StPM&M Railway Company Shops Historic District and Westminster Junction are contributing resources to the Great Northern Railroad Corridor Historic District. The district retains integrity of location, design, feeling, association, and setting, including its urban setting and many buildings and structures from the period of significance. Character-defining features include the railroad roadway and overall right-of-way width.

StPM&M Railway Company Shops Historic District (RA-SPC-4582)

Jackson Street and Pennsylvania Avenue, Saint Paul

The StPM&M Railway Company Shops Historic District was built between 1882 and 1944 and is commonly and historically known as the Jackson Street Shops (see Figure 24).[92] The contributing resources include a roundhouse (RA-SPC-5555), power house (no inventory number), machine shop (RA-SPC-8072), pattern shop (RA-SPC-8073), storehouse (RA-SPC-8074), and three (3) spur tracks. Of these, only the roundhouse is partially within in the Project APE.

[91] Image from Schmidt and Kampinen, *Phases I and II Architectural History Studies for the Reconstruction of I-35E from University Avenue to Maryland Avenue, St. Paul, Ramsey County, Minnesota*, 2010, 35.

[92] Information on the StPM&M Railway Company Shops Historic District comes from John D. Mecum, "St. Paul Minneapolis and Manitoba Railway Company Shops Historic District," National Register of Historic Places Inventory—Nomination Form, 1986; and Andrea C. Pizza, "St. Paul Minneapolis and Manitoba Railway Company Shops Historic District [revised boundary]," National Register of Historic Places Registration Form, 2016.

Figure 24. StPM&M Railway Company Shops Historic District[93]

Originally listed in the National Register in 1987, the National Register nomination was amended in 2017 to address the registration requirements in the Railroad MPDF. At that time, the historic property's original boundary was also expanded. The StPM&M Railway Shops Historic District is significant at the state level under Criterion A in the area of Transportation as a railroad yard associated with the historically significant StPM&M/Great Northern Railroad Corridor, which was recommended eligible for inclusion in the National Register in 2009 (see above). The period of significance for the StPM&M Railway Company Shops Historic District begins in 1882, when the first buildings were completed and ends in 1956 based on the registration requirements for railroad yard historic districts as described in the Railroad MPDF. The historic property maintains integrity of location, design, materials, workmanship, setting, feeling, and association. Character-defining features include the individual resources themselves, their spatial relationship to each other and to the Great Northern mainline, and the light industrial setting that feels isolated due to vegetation and topography.

Westminster Junction (RA-SPC-5618)

Roughly bounded by the Lafayette Road Bridge, I-35E, a line approximately 1,300 feet south of the Cayuga Street Bridge, and a line approximately 400 feet southwest of the Cayuga Street/Phalen Boulevard intersection, Saint Paul

Westminster Junction is a limestone grade separation structure built to accommodate several railroad lines within the narrow Trout Brook ravine, one of the few routes out of downtown Saint Paul through the Mississippi Valley bluffs.[94] The distinctive construction—essentially two (2) wye junctions placed on top of one another—consists of railroad tracks, tunnels, retaining walls, culverts, sewer drains, and a

[93] Image from Andrea C. Pizza, "St. Paul Minneapolis and Manitoba Railway Company Shops Historic District [revised boundary]," National Register of Historic Places Registration Form, 37.

[94] Information on Westminster Junction comes from Chris Hommerding, "Westminster Junction (RA-SPC-5618)," Minnesota Individual Property Inventory Form, 2019; and Andrew J. Schmidt, *Supplementary Report on Westminster Junction for the Williams Hill Redevelopment, St. Paul, Minnesota*, 1997.

switching tower (Figure 25). The structure was built over several decades by the following railroad companies:

- Saint Paul & Pacific/StPM&M/Great Northern/Burlington Northern/BNSF
- Northern Pacific/Burlington Northern/BNSF
- Saint Paul, Stillwater & Taylors Falls/Saint Paul & Sioux City/Chicago, Saint Paul, Minneapolis & Omaha/Chicago & Northwestern/Union Pacific
- Minnesota, Saint Croix, and Wisconsin/Saint Paul & Saint Croix/Wisconsin Central/Soo Line

Figure 25. Westminster Junction from the Lafayette Road Bridge. The red arrow points to the Omaha Road veering to the east (right). The Great Northern Railroad Corridor is immediately to its left, veering west. A freight train on the Northern Pacific Railroad is in the East Side Line Tunnel. Above Westminster Junction, a prestressed concrete beam bridge from 2004 carries Phalen Boulevard; Rush Line BRT vehicles would pass over the Junction on this bridge.[95]

Westminster Junction is individually eligible for inclusion in the National Register under Criterion A in the area of Transportation and under Criterion C in the area of Engineering. Under Criterion A, Westminster Junction meets the Railroad MPDF registration requirements for a contributing resource within two (2) National Register-eligible railroad corridor historic districts: Saint Paul, Stillwater & Taylors Falls/Chicago, Saint Paul, Minneapolis & Omaha Railroad Corridor Historic District (StPS&TF/Omaha Road) (XX-RRD-CNW001, see below) and the Great Northern Railroad Corridor, St. Paul to Minneapolis Segment (RA-SPC-5918).[96] Under Criterion C, Westminster Junction meets the Railroad

[95] Image from Chris Hommerding, "Westminster Junction (RA-SPC-5618)," Minnesota Individual Property Inventory Form, Figure 3.

[96] The corridors for the Northern Pacific (RA-SPC-5936) and the St. Paul & St. Croix Falls/Wisconsin Central/Soo Line Railway Segment (RA-SPC-8215) have previously been determined not eligible for individual listing on the National Register. Extant portions of the structure built by the Northern Pacific are included in the list of Westminster Junction's character-defining features.

MPDF registration requirements for a grade separation structure as an engineering solution to the unusual problem of the convergence of multiple rail lines in the narrow Trout Brook ravine. The period of significance begins in 1885 and ends in 1945, reflecting the most significant years of Westminster Junction's use. Westminster Junction retains its general configuration and four (4) of its tunnels from that period of significance. The Soo Line Tunnel, which was not part of the two (2) original wye junctions, is nonextant. Despite this loss and the construction of the Phalen Avenue Bridge over the northern portion of Westminster Junction in 2004, the historic property retains integrity of location, setting, design, materials, workmanship, feeling, and association. Character-defining features include the two (2) grade-separated wye junctions and the stone and concrete structure, retaining walls, and culverts dating prior to 1945. Modern vegetation along the edges of the historic property screens modern development from view.

Potential Effects

The Project APE overlaps the Great Northern Railroad Corridor Historic District at the StPM&M Railway Company Shops Historic District and at Westminster Junction (see Sheets 6 and 7 of the 15% Plans and Page 2 of the Project APE in Appendix B). The BRT vehicles would operate within existing paved roadways near the StPM&M Railway Company Shops Historic District (where it would run in a dedicated BAT lane along Pennsylvania Avenue and in mixed traffic on the ramp between Pennsylvania Avenue and Jackson Street) and over the Great Northern Railroad roadway (where it would run in a dedicated BAT lane over the western portion of Westminster Junction). The Project would not have any direct, physical effects to any of the resources associated with the Great Northern Railroad. However, proposed physical changes in the vicinity of these historic properties include construction of the Mt. Airy Street, Olive Street, and Cayuga Street Stations, retaining walls, and BMPs, as well as conversion of existing pavement along Pennsylvania Avenue East and Phalen Boulevard into BAT lanes. Small partial property acquisitions would occur near all three (3) stations. Therefore, potential Project effects include visual effects of the proposed stations and potential changes in traffic, access, and parking.

Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect any of the historic resources associated with the Great Northern Railroad. Therefore, the Project would not diminish the historic properties' integrity of location, design, materials, or workmanship. The proposed LOD for a BMP abuts the historic boundary of Westminster Junction (see Sheet 7 of the 15% Plans). The size, depth, and design of the BMP will be informed by stormwater analysis currently underway. Any potential adverse physical effects caused by unintended damage from construction activities can be avoided with construction protection measures incorporated into contract documents.

Visual

The proposed Mt. Airy Street Station is located approximately 900 feet south of the StPM&M Railway Company Shops Historic District and includes construction of retaining walls and a potential stormwater BMP; none of this would be visible from the historic property due to the change in elevation. Two (2) potential stormwater BMP locations are proposed within the existing intersection between Pennsylvania Avenue East and Jackson Street, directly adjacent to the south boundary of the StPM&M Railway Company Shops Historic District (this intersection is visible in Figure 24). However, any construction within this intersection would not be visible from the historic property due to the change in elevation.

Therefore, although the potential stormwater BMPs are within close proximity to the StPM&M Railway Company Shops Historic District, they would not diminish the historic property's integrity of setting, feeling, or association any further. These Project elements would not be visible from either the Great Northern Railroad Corridor Historic District or Westminster Junction.

The proposed Olive Street Station is located approximately 205 feet west of Westminster Junction's western boundary and the proposed Cayuga Street Station is located immediately adjacent to Westminster Junction's northern boundary. Neither the Olive Street Station nor the Cayuga Street Station would be visible from the StPM&M Railway Company Shops Historic District. The Olive Street Station would also not be visible from the Great Northern Railroad Corridor Historic District or Westminster Junction due to the change in elevation. The proposed Cayuga Street Station includes construction of dedicated BAT lanes and a retaining wall, in addition to the station platforms and amenities. It would also require minor partial property acquisition and widening of Phalen Boulevard to accommodate the approach to the northbound bus platform. In addition, a potential stormwater BMP is located adjacent to the northeastern edge of Westminster Junction's boundary, between the existing railroad right-of-way and Phalen Boulevard. The removal and reintroduction of vegetation, the grading of the landscape, the construction of Project elements, and the operation of the BRT service along Phalen Boulevard all have the potential to have a permanent visual effect on Westminster Junction's setting. However, reestablishing vegetation as part of design development for the BMP and reviewing the design of the Cayuga Street Station in accordance with the SOI Standards may minimize and/or avoid potential adverse effects.

Traffic, Access, and Parking

None of the existing access points to the resources associated with the Great Northern Railroad would be modified under the Project. The railroad roadways themselves would not be physically affected. Southbound BRT traffic would pass in front of the entry to the StPM&M Railway Company Shops in a dedicated BAT lane, and a new traffic signal would be introduced south of the property at the Mt. Airy Street Station; however, none of this would impede access to the historic properties. The Project is not expected to impact parking near this historic property.[97]

Recommended Finding

StPM&M Railway Company Shops Historic District: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the StPM&M Railway Company Shops Historic District**. The historic property would not be physically affected. The negligible increase in bus traffic in the vicinity of the historic property and the introduction of stormwater BMPs within the existing intersection of Pennsylvania Avenue East and Jackson Street would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

[97] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 50, and Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft."

Great Northern Railroad Corridor Historic District & Westminster Junction: No Adverse Effect with Conditions

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Great Northern Railroad Corridor Historic District and Westminster Junction if certain conditions are placed on the Project**. Construction of the Project would not physically affect any of the historic properties associated with the Great Northern Railroad Corridor and, therefore, would not diminish their integrity of location, design, materials, or workmanship. Although construction of the Project would introduce temporary and permanent visual effects within the viewshed of the Great Northern Railroad Corridor Historic District and Westminster Junction, the proposed conditions ensure the Project would not alter any of the characteristics that qualify the historic properties for inclusion in the National Register or diminish their integrity of setting, feeling, or association. The recommended finding of No Adverse Effect is therefore dependent upon the following conditions being placed on the Project:

- As part of design development along the northeastern edge of the historic property, vegetative screening will be reestablished between Westminster Junction and the BMP west of the Cayuga Street Station.
- To minimize visual impact and maximize compatibility with Westminster Junction while still meeting the Project's Purpose and Need, the design of the Cayuga Street Station and BMP will be reviewed according to the SOI Standards at the Project's 30%, 60%, 90%, and 100% Plans, with a consultation meeting prior to finalization of 60% design. The consultation meeting will also determine whether a CPPHP is necessary to ensure Westminster Junction is physically protected during construction of the Project.

Saint Paul, Stillwater & Taylors Falls/Chicago, Saint Paul, Minneapolis & Omaha Railroad Corridor Historic District (XX-RRD-CNW001)

Saint Paul to Stillwater Junction Segment, Saint Paul

Description & Historic Significance

The StPS&TF/Omaha Road Railroad Corridor Historic District is an approximately 15-mile-long railroad corridor running roughly northeast-southwest between the Saint Paul Union Depot (RA-SPC-5225, RA-SPC-6907) and Stillwater Junction, southwest of Stillwater (see Figure 26).[98] Although the majority of the corridor is a single track, a portion of its length contains double track. There are a number of abandoned sidings associated with former industrial properties along the route. The StPS&TF Railroad constructed the corridor in 1871 to connect Saint Paul to lumber mills in Stillwater and Taylors Falls. In 1880, the Saint Paul and Sioux City Railroad acquired the corridor and then sold it to the Omaha Road later that same year. Although it would be acquired by the Chicago & Northwestern Railroad in 1882, the corridor continued to operate as the Omaha Road until 1957. As part of Chicago & Northwestern, this railroad segment became part of a broad railroad corridor connecting lumber and agriculture areas between Chicago, Saint Paul, and Omaha and providing important links to eastern and western markets. The

[98] Information on the StPS&TF/Omaha Road Railroad Corridor Historic District comes from Chris Hommerding, "Saint Paul, Stillwater & Taylors Falls/Chicago, Saint Paul, Minneapolis & Omaha Railroad Corridor Historic District (XX-RRD-CNW001)," Minnesota Individual Property Inventory Form, 2019; and Andrew J. Schmidt, Andrea C. Vermeer, Betsy H. Bradley, and Daniel R. Pratt. "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 2013.

Chicago & Northwestern, including the portion operated as the Omaha Road, is one (1) of three (3) important Granger railroads in the state.[99] The StPS&TF/Omaha Road Historic District includes a number of contributing and noncontributing resources; those located within the Rush Line BRT APE are included in Table 5.

Figure 26. StPS&TF/Omaha Road Railroad Corridor (in blue).

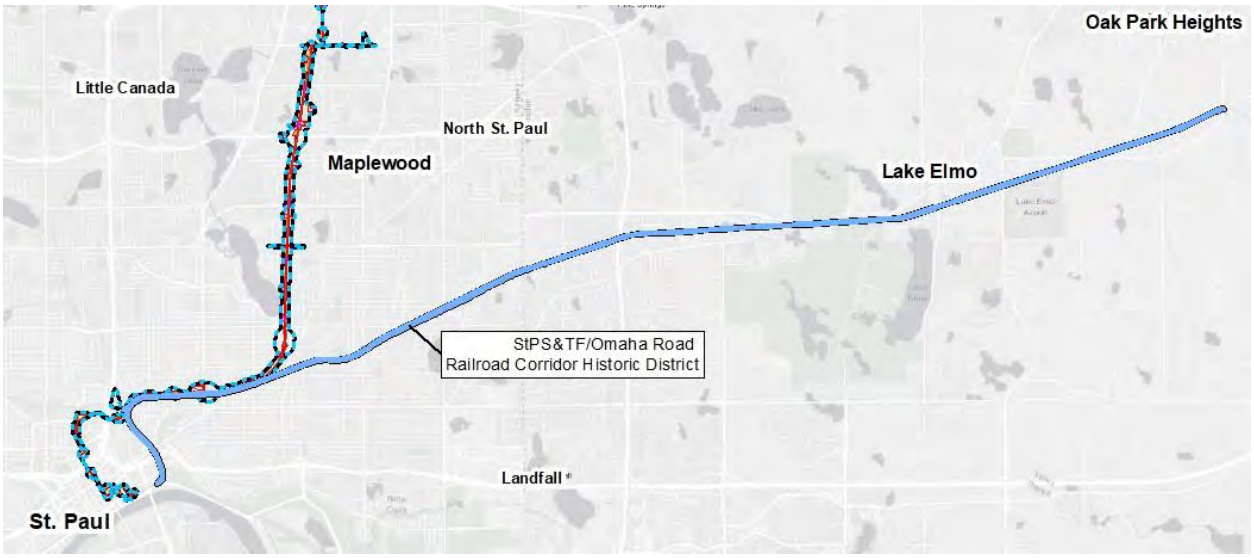


Table 5. StPS&TF/Omaha Road Resources in the Project APE

Inventory No.	Property Name	Address	Status
XX-RRD-CNW001	Extant roadway (including sidings within the corridor)	Throughout corridor	C
RA-SPC-5618	Westminster Junction	Roughly bounded by the Lafayette Road Bridge, I-35E, a line approximately 1,300 feet south of the Cayuga Street Bridge, and a line approximately 400 feet southwest of the Cayuga Street/Phalen Boulevard intersection, Saint Paul	C
N/A	Phalen Boulevard Bridge (MnDOT Bridge 62598) over Corridor	Omaha Road at Phalen Boulevard, Saint Paul	NC
N/A	Edgerton Street Bridge (MnDOT Bridge 62567) over Corridor	Omaha Road at Edgerton Street, Saint Paul	NC
N/A	Payne Avenue Bridge (MnDOT Bridge 62544) over Corridor	Omaha Road at Payne Avenue, Saint Paul	NC

[99] Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, E-12.

Inventory No.	Property Name	Address	Status
RA-SPC-11130	Phalen Creek Valley Bridge (no MnDOT information available) carrying Corridor	Omaha Road, 250 feet east of Payne Avenue, Saint Paul	C
N/A	Arcade Street Bridge (MnDOT Bridge 62062) over Corridor	Omaha Road at Arcade Street, Saint Paul	NC
RA-SPC-1294	Forest Street Bridge (MnDOT Bridge 5962) over Corridor	Omaha Road at Forest Street, Saint Paul	C
N/A	Earl Street Bridge (MnDOT Bridge 62545) over Corridor	Omaha Road at Earl Street, Saint Paul	NC

The StPS&TF/Omaha Road Historic District is eligible for inclusion in the National Register under Criterion A in the area of Transportation. It meets the Railroad MPDF registration requirements for a railroad corridor historic district as a railroad that made an early connection between Saint Paul and Chicago and as a Granger Railroad, providing transportation for agricultural products from southern Minnesota to terminal markets in Saint Paul, Chicago, and Omaha. The period of significance begins in 1871, when the railroad was completed between Union Depot and Stillwater Junction, and extends to 1957 when the Omaha Road ceased to operate independently and formally merged with the Chicago & Northwestern. Despite the loss of the roundhouse and switching yards and the construction of Phalen Boulevard between Westminster Junction and Johnson Parkway, the StPS&TF/Omaha Road Historic District retains sufficient integrity of location, design, materials, feeling, and association to convey its historic significance. Character-defining features include the extant roadway (railroad bed, cuts, fills, and ditches) and grade-separation structures at Westminster Junction, Phalen Creek Valley, Johnson Parkway, and Stillwater Boulevard.

Potential Effects

The Project APE overlaps the StPS&TF/Omaha Road Railroad Corridor Historic District beginning at Westminster Junction on the west and continuing eastward until Phalen Boulevard veers away from the railroad corridor near North Duluth Street on the east (see Pages 2, 3, and 4 of the Project APE in Appendix B). For the vast majority of the overlapping area, BRT vehicles would operate within existing paved roadways, dedicated BAT lanes, or the newly constructed dedicated BRT roadway without the potential to have direct, physical effects to the historic property. However, there are a number of exceptions, which are noted below. Proposed physical changes in the vicinity of the historic property include construction of the Olive Street, Cayuga Street, Payne Avenue, and Arcade Street Stations, retaining walls, and BMPs, as well as conversion of existing pavement along Phalen Boulevard into dedicated BAT lanes and construction of a dedicated BRT roadway east of Arcade Avenue. The transition to the dedicated BRT roadway would also include construction of the Arcade Street Ramp immediately adjacent to the historic property. Small property acquisitions would occur near all stations and along the dedicated BRT roadway. Additional property acquisitions are proposed near the Arcade Street Station and between Earl and Frank Streets to accommodate potential stormwater BMPs. Therefore, in addition to the potential physical effects, potential Project effects include visual effects of the proposed stations and the Arcade Street Ramp and potential changes in traffic, access, and parking.

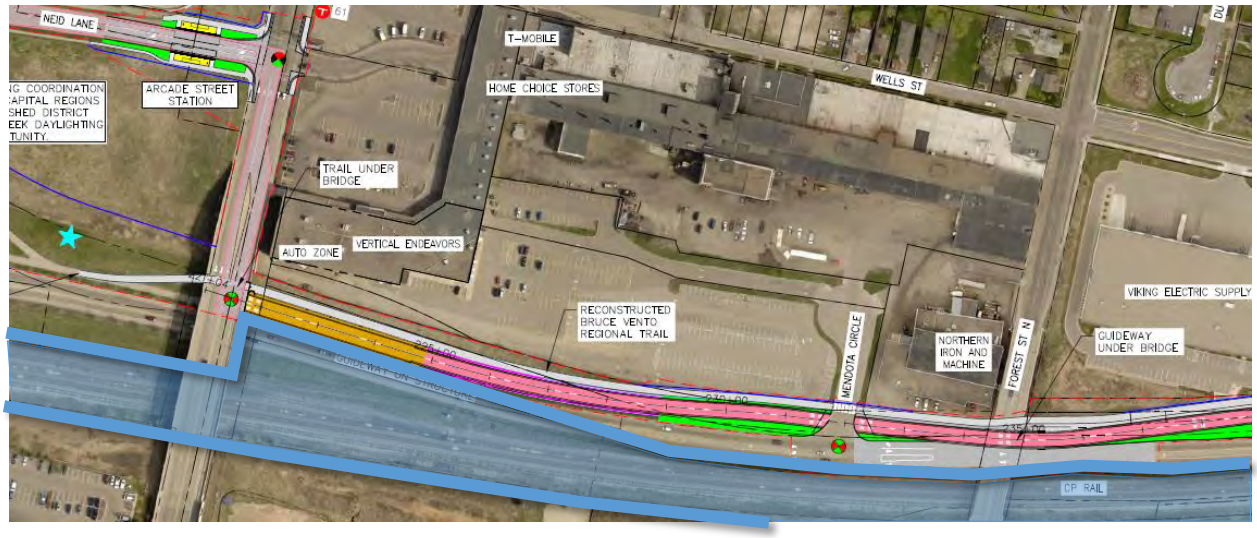
Assessment of Effects

Physical

In addition to BRT vehicles operating in a dedicated BAT lane over the western portion of Westminster Junction, the proposed Project intersects with the StPS&TF/Omaha Road Railroad Corridor Historic District in the following ways:

- BRT vehicles are proposed to operate under the Forest Street Bridge (MnDOT Bridge 5962), which is a contributing resource within the StPS&TF/Omaha Road Railroad Corridor Historic District. The location of the Bruce Vento Regional Trail would also be shifted under this historic resource (see Figure 27). No physical improvements are proposed for the actual bridge.
- Improvements are proposed for two (2) noncontributing bridges that also cross over the StPS&TF/Omaha Road Railroad Corridor Historic District. At the Payne Avenue Bridge (MnDOT Bridge 62544), improvements would be made to accommodate sidewalk connections to the Payne Avenue Station. At the Arcade Street Bridge (MnDOT Bridge 62062), improvements would be made to accommodate sidewalk connections to the Arcade Street Station and to construct the Arcade Street Ramp from Arcade Street to the dedicated BRT roadway north of Phalen Boulevard. The Arcade Street Ramp is immediately adjacent to the StPS&TF/Omaha Road Railroad Corridor Historic District property boundary, which extends across Phalen Boulevard at this location (see Figure 27).
- BRT vehicles would also operate on or under noncontributing bridges that also cross over the StPS&TF/Omaha Road Railroad Corridor Historic District. These bridges include the Phalen Boulevard Bridge (MnDOT Bridge 62598), Edgerton Street Bridge (MnDOT Bridge 62567), and the Earl Street Bridge (MnDOT Bridge 62545). The location of the Bruce Vento Regional Trail would also be shifted under the Earl Street Bridge. No physical improvements are proposed for these bridges.

Figure 27. Boundary of StPS&TF/Omaha Road Railroad Corridor Historic District near the Arcade Street Ramp.



Because the only physical improvements that could impact the StPS&TF/Omaha Road Railroad Corridor Historic District are minor improvements proposed to noncontributing resources, the Project would not diminish the integrity of design, materials, or workmanship of the historic property.

The proposed LOD for construction abuts the historic boundary of the StPS&TF/Omaha Road Railroad Corridor Historic District in several locations. However, any potential adverse physical effects caused by unintended damage from construction activities can be avoided with construction protection measures incorporated into contract documents.

Visual

The proposed Cayuga Street Station is located immediately adjacent to the northern boundary of Westminster Junction and the StPS&TF/Omaha Road Railroad Corridor Historic District. The proposed Payne Avenue Station would be located approximately 160 feet north of the StPS&TF/Omaha Road Railroad Corridor Historic District's northern boundary and the Arcade Street Station would be approximately 500 feet north of the boundary, on the opposite side of Phalen Boulevard (see Sheets 7, 8, and 9 of the 15% Plans). Construction of these station areas would include dedicated BRT lanes, medians, retaining walls, and station platforms and amenities. The construction of these Project elements has the potential to have a permanent visual effect on the historic property's setting. The Arcade Street Ramp, which is located immediately adjacent to the historic property's northern boundary, would also be visible from the StPS&TF/Omaha Road Railroad Corridor Historic District.

Three potential stormwater BMP locations would be located adjacent to the northern edge of the historic property boundaries at Payne Avenue, between the existing railroad roadway and Phalen Boulevard (see Sheet 8 of the 15% Plans). Other stormwater BMPs are proposed on the opposite side of Phalen Boulevard from the historic district's boundaries and are less likely to be visible from the historic property. These proposed BMPs would be located at Burr Street, between Neid Lane and Arcade Street, between Earl Street and Frank Street, and east of Frank Street (see Sheets 8, 9, and 10 of the 15% Plans).

The removal and reintroduction of vegetation, the grading of the landscape, the construction of Project elements, and the operation of the BRT service along Phalen Boulevard all have the potential to have a permanent visual effect on the StPS&TF/Omaha Road Railroad Corridor Historic District. However, most proposed Project elements are located across Phalen Boulevard from the historic property. The construction of Phalen Boulevard and the removal of industrial properties between Westminster Junction and Johnson Parkway have already diminished the property's integrity of setting. The property evaluation notes the historic district retains a "high degree of integrity of location, design, and materials" in this area and remains "sufficiently wide to maintain the feeling and association of the corridor and, as such, this segment retains integrity of setting." No change is proposed to the width of the historic property's right-of-way and the introduction of most Project elements on the opposite side of Phalen Boulevard would not further impact the property's setting.

Three Project elements abut the historic property boundary. Near the Arcade Street Ramp, the boundary overlaps with the modern construction of Phalen Boulevard. Because the historic property was altered severely by the construction of Phalen Boulevard in this area, the construction of the Arcade Street Ramp will not diminish the historic property's integrity of setting, feeling, or association any further. However, both the Cayuga Street Station and the safety barriers under the historic Forest Street Bridge have the potential to diminish the property's historic setting. In these areas, reviewing Project

design in accordance with the SOI Standards may minimize and/or avoid potential adverse effects due to visual changes.

Traffic, Access, and Parking

The proposed Project would not physically affect the railroad roadways of the StPS&TF/Omaha Road Railroad Corridor Historic District or any of the existing access points to contributing resources. Although traffic queuing concerns have been identified along Phalen Boulevard at Olive Street and at the intersection of Neid Lane and Arcade Street, the Project incorporates improvements and the queuing issues can be minimized through extended turning lanes and adjusting signal timing.[100] There would be minimal to no changes to traffic signals at Phalen Boulevard's intersections with Olive Street, Cayuga Street, Payne Avenue, and Johnson Parkway. New traffic signals are proposed at Phalen Boulevard's intersections with Neid Lane, Arcade Street, Mendota Circle, Wells Street, and Frank Street. In addition, a new pedestrian signal would be provided to facilitate crossing the dedicated BRT roadway near Atlantic Street. None of these signal modifications would impede access to the historic property. The Project is not expected to impact parking near this historic property.[101]

Recommended Finding: No Adverse Effect with Conditions

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect to the StPS&TF/Omaha Road Railroad Corridor Historic District if certain conditions are placed on the Project**. No Project elements would physically affect the historic property or its contributing resources; however, the proximity of the LOD to the historic property may necessitate construction protection measures to ensure that no historic properties are unintentionally damaged in a way that would diminish the historic property's integrity of location, design, materials, or workmanship. Although construction of the Project would introduce temporary and permanent visual effects within the viewshed of the StPS&TF/Omaha Road Railroad Corridor Historic District, the proposed conditions also ensure the Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish its integrity of setting, feeling, or association. The recommended finding of No Adverse Effect is dependent upon the following conditions being placed on the Project:

- As part of design development along the northern edge of the historic property, vegetative screening will be reestablished wherever possible between Project elements and the StPS&TF/Omaha Road Railroad Corridor Historic District.
- To minimize visual impact and maximize compatibility with the StPS&TF/Omaha Road Railroad Corridor Historic District while still meeting the Project's Purpose and Need, the design of the Cayuga Street Station and any physical barriers needed in proximity to the Forest Street Bridge (MnDOT Bridge 5962) will be reviewed according to the SOI Standards at the Project's 30%, 60%, 90%, and 100% Plans, with a consultation meeting prior to finalization of 60% design. The consultation meeting prior to the finalization of the 60% design will also determine whether a CPPHP is necessary to ensure the StPS&TF/Omaha Road Railroad Corridor Historic District is physically protected during construction of the Project. Consideration will be given to areas where the LOD abuts the historic property boundary (e.g., near Westminster Junction, Cayuga Street, east of Payne Avenue, and other areas) and for the Forest Street Bridge (MnDOT Bridge

[100] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 27, 34.
[101] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 50.

5962) where the dedicated BRT roadway and Bruce Vento Regional Trail are being built under the historic resource.

Resources Associated with the Lake Superior & Mississippi Railroad

A number of resources associated with the LS&M Railroad are located within the Project APE. Due to the close historical associations of the properties, potential Project effects are assessed collectively. The Project APE overlaps two (2) segments of the LS&M Railroad:

- Saint Paul to White Bear Lake Segment (XX-RRD-NPR001)
- White Bear Lake to Hugo Segment (XX-RRD-NPR005)

The White Bear Lake to Hugo Segment has only one (1) contributing resource in the Project APE: the railroad roadway. However, the Saint Paul to White Bear Lake Segment has numerous contributing and noncontributing resources. The contributing and noncontributing resources located within the Project APE are outlined in Table 6 and the corridor is shown in Figure 28.

Table 6. LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Resources in the Project APE

Inventory or Site No.	Property Name	Address	Status
RA-SPC-11130	Omaha Road Bridge (no bridge number) over roadway	260 feet east of Payne Avenue, Saint Paul	C
n/a	Phalen Boulevard Bridge (Bridge 62616) over roadway	Phalen Boulevard, Saint Paul	NC
n/a	Neid Lane Bridge (Bridge 62617) over roadway	Neid Lane, Saint Paul	NC
n/a	Arcade Street Bridge (Bridge 62062) over roadway	Arcade Street, Saint Paul	NC
RA-SPC-1294	Forest Street Bridge (Bridge 5962) over roadway	Forest Street, Saint Paul	C
n/a	Earl Street Bridge (Bridge 62545) over roadway	Earl Street, Saint Paul	NC
RA-SPC-11140	Bridge R0438 carrying railroad over former local road (now pedestrian path connecting McAfee Street to East Shore Drive) which travels through tunnel	750 feet south of Arlington Avenue, Saint Paul	C
21RA0082	Privy site 21RA0082	North of Frost Avenue, Maplewood	NC
XX-RRD-NPR004	1868 Alignment of the LS&M Railroad	Between Eldridge Avenue East and County Road B East, Maplewood	C
n/a	Bridge 62004 carrying roadway over TH 36	TH 36, Maplewood	NC
XX-RRD-NPR003	1868 Alignment of the LS&M Railroad	Between County Road C and Gervais Avenue, Maplewood	C
n/a	County Road C Bridge (Bridge 62563) over roadway	County Road C, Maplewood	NC

Inventory or Site No.	Property Name	Address	Status
XX-RRD-NPR002	1868 Alignment of the LS&M Railroad	Between Kohlman Avenue and Beam Avenue, Maplewood	C
RA-MWC-0248	Railroad Bridge (Bridge 62529) over Beam Avenue	Beam Avenue, Maplewood	NC
RA-WBT-004	StP&D Bridge No.7 (no MnDOT Bridge Number)	600 feet south of I-694 at original alignment of County Road D, Maplewood	NC
RA-WBC-0156	Railroad Bridge (Bridge 62822) over I-694	I-694, Vadnais Heights and White Bear Lake	C
n/a	TH 61 Bridge (Bridge 62092) over roadway	TH 61, Gem Lake and White Bear Lake	NC
n/a	1880s Roadway Realignment	Throughout Corridor	C
n/a	1868 Railroad Roadway under later fill embankment realignment	Johnson Parkway to Maryland Avenue East and Arlington Avenue East to Gervais Avenue	C
n/a	Bruce Vento Regional Trail	Portions of Corridor from Bruce Vento Nature Sanctuary to Buerkle Road	NC

Figure 28. LS&M Mainline Railroad Corridor. At the bottom of the image, the Saint Paul to White Bear Lake Segment is in green and the White Bear Lake to Hugo Segment is in blue.[102]

[102] Mead & Hunt, *Phase I Architecture/History Survey and Phase II Evaluation for the Rush Line Bus Rapid Transit Project*, Figure 6.

The following resources within the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment and the Project APE are also individually eligible for inclusion in the National Register:

- 1868 Alignment of the LS&M Railroad between Kohlman Avenue and Beam Avenue (XX-RRD-NPR002)
- 1868 Alignment of LS&M Railroad between County Road C and Gervais Avenue (XX-RRD-NPR003)
- 1868 Alignment of the LS&M Railroad between Eldridge Avenue East and County Road B East (XX-RRD-NPR004)

Information specific to these historic properties is further discussed below.

Description & Historic Significance

LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment (XX-RRD-NPR001)

1868 Alignment of the LS&M Railroad between Eldridge Avenue East and County Road B East (XX-RRD-NPR004)

1868 Alignment of LS&M Railroad between County Road C and Gervais Avenue (XX-RRD-NPR003)

1868 Alignment of the LS&M Railroad between Kohlman Avenue and Beam Avenue (XX-RRD-NPR002)

The LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment (XX-RRD-NPR001) extends from a wye junction just east of Union Depot (RA-SPC-5225, RA-SPC-6907) in downtown Saint Paul to the 1935 White Bear Lake Depot (RA-WBC-0121).[103] The historic property, originally built by the LS&M Railroad in 1868, is an approximately 11-mile segment of a 155-mile-long railroad corridor that ran from Saint Paul to Duluth's port on Lake Superior in 1870. The Saint Paul & Duluth Railroad acquired the LS&M in 1877. In the 1880s, it made a number of improvements to the corridor, including constructing a new railroad roadway over portions of the original 1868 roadway. The Northern Pacific Railroad acquired the property in 1900 and operated it until the company merged with a number of other railroads to form the Burlington Northern in 1970. The Northern Pacific began removing tracks within the corridor in 1987 and RCRRA purchased approximately two-thirds of the segment in 1992 for future light rail transit use, converting much of the trackless railroad roadway into the Bruce Vento Regional Trail. Despite the presence of the trail and removal of metal rails, wooden ties, and ballast, approximately 84% of the segment retains the historic railroad roadway, ditches, and associated structures.

The LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment is eligible for inclusion in the National Register under Criterion A in the area of Transportation as an early segment of what became the primary rail connection between the navigable waterways of the Mississippi River and Lake Superior and as an important railroad connection between downtown Saint Paul and the summer tourism industry of White Bear Lake. The groups of visible remnants of the 1868 LS&M railroad roadway (XX-RRD-NPR002, XX-RRD-NPR003, and XX-RRD-NPR004) and the buried portions of the 1868 LS&M

[103] Information on the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment comes from Mead & Hunt and Midwest Valley Archaeology Center, *Phase II Evaluation: Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment*, 2020; Andrew J. Schmidt, Andrea C. Vermeer, Betsy H. Bradley, and Daniel R. Pratt. "Railroads in Minnesota, 1862-1956," National Register of Historic Places Multiple Property Documentation Form, 2013; and Sigrid Arnott and Andrea Pizza, "Supplement to Railroads in Minnesota: 1862–1956 (Draft)," National Register of Historic Places Multiple Property Documentation Form, 2017.

railroad roadway are also eligible for inclusion in the National Register under Criteria C and D as examples of early railroad engineering in Minnesota from the mid-1860s to 1870 and for their potential to contribute to the following research areas: Pre-Industrial Transportation Landscapes and Railroad Spaces: 1858–1910; Initial, Pioneering, and Expansion Railroads: Engineering, Construction, and Ruination: 1858–1910; and Machines in the Garden: Railroads and Evidence of Environmental Change in Minnesota: 1858–1945.

The period of significance for the visible remnants of the 1868 LS&M railroad roadway begins in 1864 with the initial grading and construction and ends in 1868 with the completion of the Saint Paul and White Bear Lake Segment. However, the effective period of significance for the entire district ends in 1970 when the Burlington Northern was formed. These historic properties meet the registration requirements in the Railroad MPDF and the draft registration requirements in *Supplement to Railroads in Minnesota, 1862–1956 (DRAFT)*. Although the rails and ties are no longer extant and two (2) noncontiguous portions of the historic corridor were destroyed after the period of significance, the evaluation demonstrates that 84% of the district maintains sufficient integrity to convey its significance. According to the evaluation, character-defining features include "the railroad roadway, grade separation structures, retaining walls, depots, exposed and buried portions of the 1868 railroad roadbed, and the overall sense of linearity emphasized by the setting, comprised of the adjacent land uses and [vegetation along] the edge of the railroad [right-of-way]."[104]

LS&M Railroad Corridor Historic District: White Bear Lake to Hugo Segment (XX-RRD-NPR005)

The LS&M Railroad Corridor Historic District: White Bear Lake to Hugo Segment (XX-RRD-NPR005) extends from the White Bear Lake Depot (RA-WBC-0121) to downtown Hugo in Washington County. Similar to the Saint Paul to White Bear Lake segment immediately to its south, this historic property was built in 1868 and is an approximately 5.3-mile-long segment of a longer railroad corridor that reached Duluth's port on Lake Superior in 1870.[105] Beginning in 1887, the route between White Bear Lake and Duluth was regraded by the Saint Paul & Duluth Railroad. The corridor contains active rail line from White Bear Lake to south of 140th Street (approximately 4.5 miles). North of that point, the railroad roadway and ditches continue, but without metal rails, wooden ties, or ballast. Similar to the Saint Paul to White Bear Lake segment, the portion of the roadway without tracks serves as a recreational trail. The Hardwood Creek Regional Trail extends approximately 10 miles to the northern boundary of Washington County and is entirely within the LS&M railroad corridor.

The LS&M Railroad Corridor Historic District: White Bear Lake to Hugo Segment is eligible for inclusion in the National Register under Criterion A in the area of Transportation as an early segment of what would become the primary rail connection between the navigable waterways of the Mississippi River and Lake Superior. The period of significance begins in 1868 with the completion of the segment between White Bear Lake and Hugo and ends in 1970 when the Burlington Northern was formed. The historic property meets the registration requirements in the Railroad MPDF. Although the rails and ties are no longer

[104] Mead & Hunt and Midwest Valley Archaeology Center, *Phase II Evaluation: Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment*, 168.

[105] Information on the LS&M Railroad Corridor Historic District: White Bear Lake to Hugo Segment comes from Chris Hommerding, "Lake Superior & Mississippi Railroad Corridor Historic District: White Bear Lake to Hugo Segment (XX-RRD-NPR005)," Minnesota Individual Property Inventory Form, 2020; and Andrew J. Schmidt, Andrea C. Vermeer, Betsy H. Bradley, and Daniel R. Pratt. "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 2013.

extant for a portion of the corridor, it retains sufficient integrity of location, design, materials, setting, feeling, and association to convey its historic significance. According to the evaluation, character-defining features include "the railroad roadway, depots [*sic*], at-grade signalized crossings, culvert, and the overall sense of linearity emphasized by the setting, comprised of the adjacent land uses and lack of vegetation between the railroad roadway and the edge of [the right-of-way]."[106]

Potential Effects

The Project APE overlaps with the LS&M Railroad Corridor Historic District beginning 150 feet east of Payne Avenue in Saint Paul and continuing eastward and then northward through to the end of the BRT corridor in White Bear Lake. The dedicated BRT roadway would be located within the boundary of the LS&M: Saint Paul to White Bear Lake segment beginning at Arcade Street in Saint Paul and continuing until Beam Avenue in Maplewood; it would also be within the historic property boundary between County Road D and Buerkle Road in Maplewood.

Proposed physical changes within the LS&M Railroad Corridor Historic District boundary include construction of the dedicated BRT roadway, Bruce Vento Regional Trail, retaining walls, stormwater BMPs, linear stormwater BMPs, five (5) BRT stations, six (6) bridges, and one (1) park-and-ride facility. Proposed physical changes within the vicinity of both historic LS&M segments include construction of additional retaining walls, sidewalk and trail connections, stormwater BMPs, linear stormwater BMPs, three (3) BRT stations, one (1) bridge, and one (1) park-and-ride facility. Although changes outside the historic district boundary would not physically affect the district, the LOD may extend into the historic property boundary and above-ground structures may be visible from the historic property or otherwise impact traffic, access, and parking.

When not located within the LS&M Railroad Corridor Historic District, the BRT vehicles would operate within paved roadways either in mixed traffic or in dedicated BAT lanes. The proposed BRT corridor crosses under the Saint Paul to White Bear Lake Segment on Beam Avenue in Maplewood and over the Saint Paul to White Bear Lake Segment on Neid Lane in Saint Paul and on TH 61 on the border of Gem Lake and White Bear Lake. In White Bear Lake, north of the Whitaker Street Station, the proposed BRT corridor travels alongside both segments in mixed traffic and intersects with the White Bear Lake to Hugo Segment at grade. Although in most cases the BRT vehicles would operate in either mixed traffic or in dedicated BAT lanes on existing paving, in limited areas paving would be repaired using mill and overlay or widened to accommodate the dedicated BAT lanes.

Small property acquisitions would occur near several BRT stations and in limited areas along the dedicated BRT roadway. Larger property acquisitions are proposed to accommodate potential stormwater BMPs, including near the Arcade Street and Maryland Avenue Stations, between Earl and Frank Streets, and near Gervais Avenue, Weaver Elementary School, and Beam Avenue. Therefore, in addition to the physical effects within the boundaries of the Saint Paul to White Bear Lake Segment, potential Project effects to both LS&M segments include visual effects of the proposed stations; and potential changes in traffic, access, and parking during Project construction.

[106] Chris Hommerding, "Lake Superior & Mississippi Railroad Corridor Historic District: White Bear Lake to Hugo Segment (XX-RRD-NPR005)," 38. Because the Hugo depot is nonextant, the White Bear Lake Depot is the only depot that can contribute to the White Bear Lake to Hugo Segment; the depot also contributes to the Saint Paul to White Bear Lake Segment and is located outside the APE.

Assessment of Effects

Physical

The proposed construction of the dedicated BRT roadway, BRT stations, bridges, park-and-rides, stormwater BMPs, and other Project elements, as described below, would have a permanent physical effect on the integrity of location (horizontal and vertical alignment), design, and materials of the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment and, therefore, would also impact the segment's integrity of feeling and association. Because railroad tracks and railroad support buildings have been removed from the majority of the segment, continued integrity of design, materials, and setting is critical to maintaining the resource's eligibility for listing on the National Register.[107]

Construction of the Project would not physically affect the White Bear Lake to Hugo Segment or diminish the segment's integrity of location, design, materials, or workmanship.

Dedicated BRT Roadway

Two Project documents describe the proposed physical changes that the dedicated BRT roadway would create within the historic property boundary, currently occupied by the Bruce Vento Regional Trail. The Visual Resource Memorandum describes the appearance of the proposed dedicated BRT roadway as "much like a typical roadway, with an asphalt, bituminous or concrete surface, as well as curbs and gutters."[108] The memorandum further notes that the visual contrast compared to existing conditions would be mostly "moderate" or "high" beginning at Arcade Street in Saint Paul and continuing through to Beam Avenue in Maplewood.[109] To help mitigate the environmental effect of the dedicated BRT roadway, the memorandum notes that public input was sought to develop the *Ramsey County Rail Right-of-Way Design Guide*. That document presents five (5) guiding principles, including: "Consider impacts to the historic character of the former rail corridor, minimize impacts to existing landscape and enhance the Ramsey County rail right-of-way with ecologically beneficial, resilient, seasonally diverse and low maintenance vegetation."[110] As it is incorporated into design development, the *Ramsey County Rail Right-of-Way Design Guide* may help preserve the historic property's sense of linearity. However, the railroad roadway as it appeared at the end of its period of significance would be dramatically changed.

The railroad roadway has been modified throughout its history, including substantial modifications in the 1880s when it was increased to a double-track, minor modifications when it was reduced to a single track after 1961, when the tracks were removed in beginning in 1987, and additional minor modifications after 1992 when Ramsey County converted it to trail use.[111] Throughout the period of significance, users have experienced the railroad roadway as a single, linear corridor with one (1) or two (2) railroad tracks. Today, it is a paved trail on the railroad roadbed (see Figure 29).

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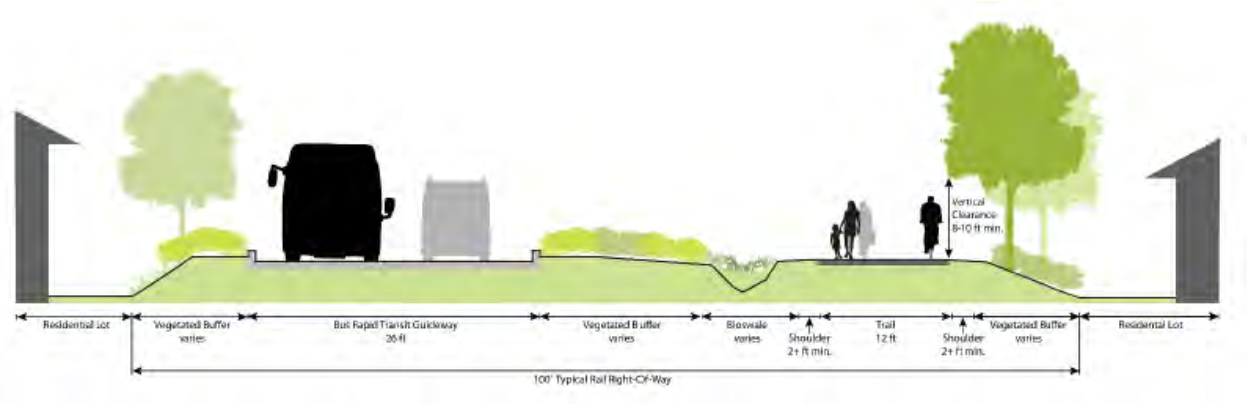
[107] Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 198. See the section on Visual Effects, for more information on the Project's potential impact on the historic property's setting.
[108] SRF Consulting Group, Inc., "Visual Resources Memorandum, Draft," 2.
[109] SRF Consulting Group, Inc., "Visual Resources Memorandum, Draft," 31–35
[110] Ramsey County Regional Railroad Authority, *Ramsey County Rail Right-of-Way Design Guide*, 2.
[111] Mead & Hunt and Midwest Valley Archaeology Center, *Phase II Evaluation: Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment*, 126–127, 136, 143.

Figure 29. Typical view along the Bruce Vento Regional Trail in Maplewood, facing south.[112]

Proposed construction within the right-of-way between Johnson Parkway and Beam Avenue would alter the railroad roadway, increasing the existing roadbed's width and the appearance of existing fills, cuts, and ditches (see Sheets 53, 54, and 56 of the 15% Plans). The new 12-foot-wide trail (a shared-use path) would have a different horizontal alignment than the existing trail and would be separated from the 26-foot-wide dedicated BRT roadway with a vegetated buffer (see Figure 30).

Figure 30. Typical buffer and screening treatment illustrating vegetative buffers on either edge of the right-of-way and between the dedicated BRT roadway and the trail.[113]

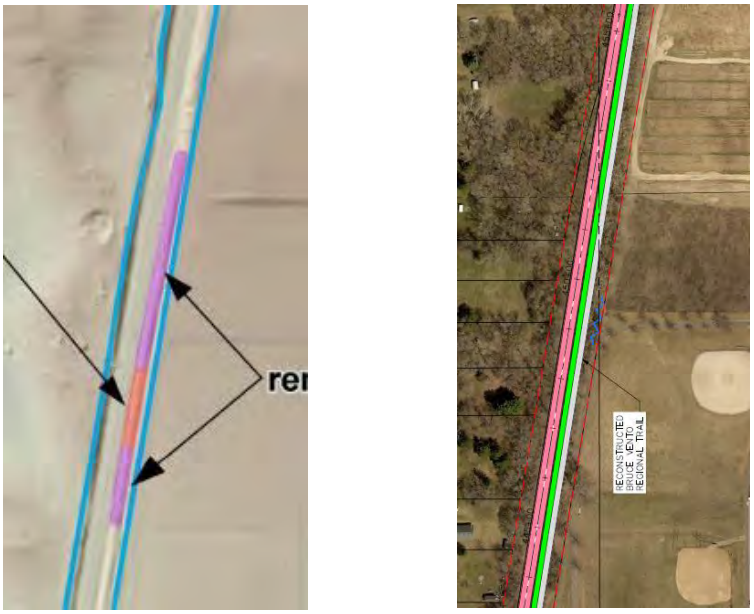


As noted in the Railroad MPDF, "[a]t minimum, a railroad corridor historic district includes a railroad roadway" and "must retain integrity of *location*, *design* and *materials*."[114] The location of the railroad roadway overall would not change under the Project, as it would still be within the historic district's

[112] Image is taken from SRF Consulting Group, Inc., "Visual Resources Memorandum, Draft," Figure 12.
[113] Image is taken from Ramsey County Regional Railroad Authority. *Ramsey County Rail Right-of-Way Design Guide*, Figure 42.
[114] Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 183, 198.

boundary. However, the horizontal and vertical alignment of the roadbed would be modified. Because the tracks have already been removed from the majority of the Saint Paul to White Bear Lake Segment, the Railroad MPDF places emphasis on the design and material integrity of the railroad roadway as defined by the modified ground, including the railroad bed, fills or cuts, and ditches. Substantial ground disturbance is proposed that would affect the railroad roadway's remaining integrity of design and materials to such an extent that users may no longer recognize it as a railroad corridor despite its continued linear nature. Design review is not likely to avoid or significantly minimize adverse effects due to the width needed to accommodate both the BRT guideway and the new trail. Construction within the corridor would create physical impacts to historic materials, features, and spatial relationships that would not be reversible. In addition, although it might be possible to design the Project to avoid physical effects to two (2) of the 1868 roadway remnants (XX-RRD-NPR002 and XX-RRD-NPR003; see Figure 31 and Figure 32), modifications to the roadway to accommodate the Weaver Trail Underpass would likely physically impact the 1868 roadway remnant there (XX-RRD-NPR004; see Figure 33).

Figure 31. Proposed Project Plans in the vicinity of the 1868 Alignment of LS&M Railroad between County Road C and Gervais Avenue (XX-RRD-NPR003).[115]



[115] Images are approximately aligned for illustrative purposes. The image on the left is from Vicki Twinde-Javner, "1868 Alignment of Lake Superior & Mississippi Railroad between County Road C and Gervais Avenue (XX-RRD-NPR003)," Minnesota Individual Property Inventory Form.

Figure 32. Proposed Project Plans in the vicinity of the 1868 Alignment of the LS&M Railroad between Kohlman Avenue and Beam Avenue (XX-RRD-NPR002).[116]

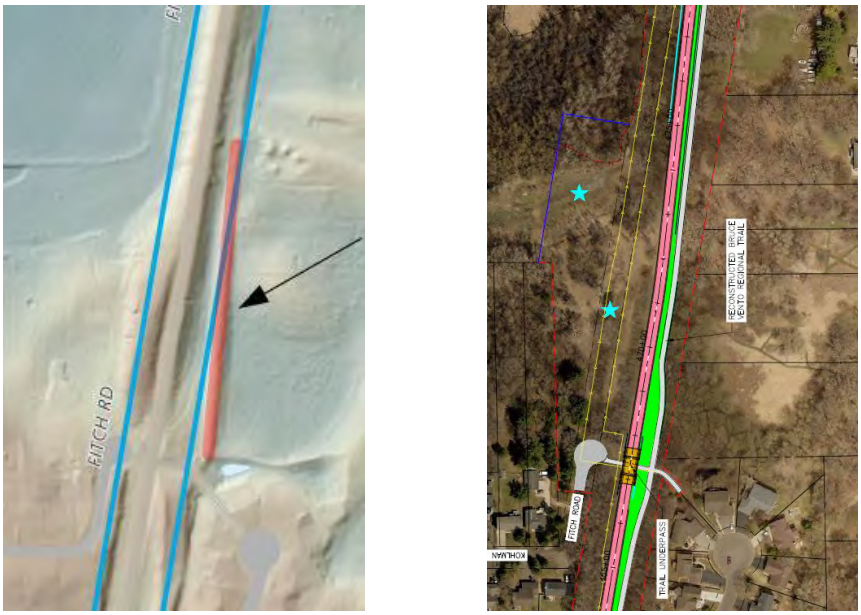


Figure 33. Proposed Project Plans in the vicinity of the 1868 Alignment of the LS&M Railroad between Eldridge Avenue East and County Road B East (XX-RRD-NPR004).[117]

[116] Images are approximately aligned for illustrative purposes. The image on the left is from Vicki Twinde-Javner, "1868 Alignment of the Lake Superior & Mississippi Railroad between Kohlman Avenue and Beam Avenue (XX-RRD-NPR002)," Minnesota Individual Property Inventory Form.

[117] Images are approximately aligned for illustrative purposes. The image on the left is from Vicki Twinde-Javner, "1868 Alignment of the Lake Superior & Mississippi Railroad between Eldridge Avenue E and County Road B E (XX-RRD-NPR004)," Minnesota Individual Property Inventory Form.

BRT Stations

The following five (5) proposed BRT stations, including all or portions of associated station platforms and amenities, retaining walls, and sidewalk or trail connections, are within the historic boundary of the Saint Paul to White Bear Lake Segment:

- Cook Avenue Station (see Sheet 11 of the 15% Plans)
- Maryland Avenue Station (see Sheet 12 of the 15% Plans)
- Larpenteur Avenue Station (see Sheet 13 of the 15% Plans)
- Frost Avenue Station (see Sheet 14 of the 15% Plans)
- Highway 36 Station (see Sheets 17, 17A, 34, and 35 of the 15% Plans)

Platform and station design development is currently limited to the general location, layout, and size of the platform (see Sheet 80 of the 15% Plans for station platform layout within the historic district, Sheet 83 for a section of a typical platform, and Figure 34). The Cook Avenue Station is proposed in a portion of the historic district where the railroad roadway has already been destroyed and it would not impact the historic property's integrity. The Maryland Avenue, Larpenteur Avenue, Frost Avenue, and Highway 36 Stations, however, are proposed at locations fully within the historic district boundary in areas where the historic property has good integrity.

Figure 34. Visualization of typical station, trail, and dedicated BRT roadway.[118]

[118] Image is taken from SRF Consulting Group, Inc., "Visual Resources Memorandum, Draft," Figure 1.

Although the platforms for the Buerkle Road and Whitaker Street Stations would be outside the district boundaries, the LOD for those stations would be immediately adjacent to or partially within the historic district boundary in areas where the historic property's integrity has already been compromised.

While the Railroad MPDF does not discuss how the construction of new buildings, structures, and objects within a railroad corridor historic district's boundaries affects integrity, the introduction of BRT stations would affect the property's integrity of feeling. Depending on the placement and design of individual stations, the construction could also affect the historic property's integrity of design and materials. While reviewing individual stations for design in accordance with the SOI Standards and developing construction protection measures to avoid unintended damage from construction activities may minimize impacts to the historic properties, these conditions would be unlikely to entirely avoid adverse effects.

Bridges

The following six (6) bridges, including associated retaining walls and sidewalk or trail connections, are proposed within the historic boundary of the Saint Paul to White Bear Lake Segment:

- Arcade Street Ramp (see Sheets 9, 47, and 48 of the 15% Plans)
- Johnson Parkway Bridge (see Sheets 11 and 52 of the 15% Plans)
- Gateway Trail Underpass (see Sheet 15 of the 15% Plans)
- Weaver Trail Underpass (see Sheet 15 of the 15% Plans)
- Highway 36 Bridge (see Sheets 16 and 55 of the 15% Plans)
- Fitch/Barclay Trail Underpass (see Sheet 18 of the 15% Plans)

Bridge design development is currently limited to location and general size. The Arcade Street Ramp is proposed in a portion of the historic district where the railroad roadway has already been destroyed and it would not impact the historic property's integrity. The Johnson Parkway Bridge and the Highway 36 Bridge are both proposed in locations where bridges previously existed. Bridges did not previously exist at the Gateway State Trail or at the trails at Weaver Elementary School and Fitch Road/Barclay Street.

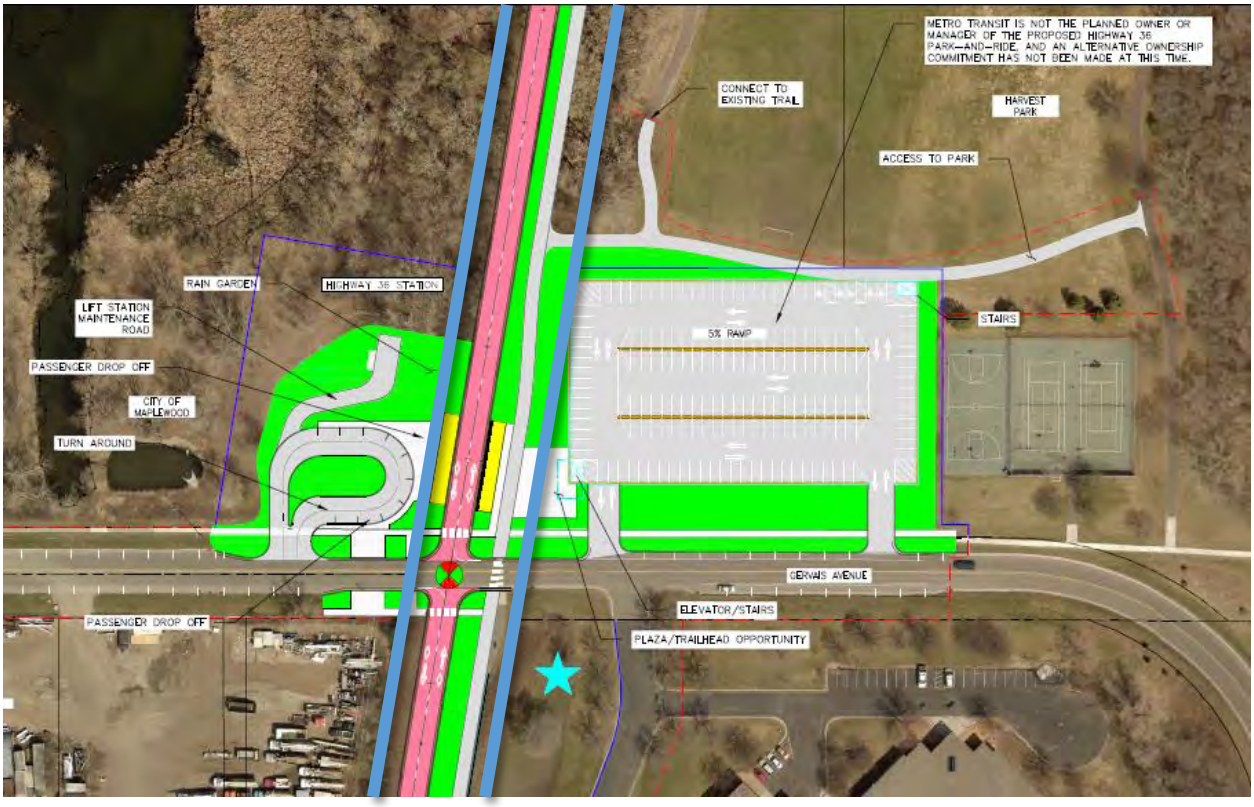
Although the I-694 Bridge would be outside the historic district and is discussed as a visual effect, below, the LOD is within the historic property boundary (see Sheets 21 and 60 of the 15% Plans).

While the Railroad MPDF does not discuss how the construction of new grade-separation structures within a railroad corridor historic district's boundaries affects integrity, construction of the three (3) trail underpasses and the I-694 Bridge would affect the historic property's integrity of location (vertical and horizontal alignment of the roadbed), design, materials, and feeling. In addition, the Weaver Trail Underpass would physically impact the 1868 roadway remnant there (XX-RRD-NPR004). If appropriately designed, the Johnson Parkway Bridge and the Highway 36 Bridge may have minimal effect on the overall integrity of the historic district; however, construction would impact intact historic roadways in these areas and change the vertical alignment of the roadbed. Reviewing all of the proposed bridges for design in accordance with the SOI Standards and developing construction protection measures to avoid unintended damage from construction activities may minimize impacts to historic properties. However, these conditions would be unlikely to avoid adverse effects entirely.

Park-and-Ride Facility

The proposed Highway 36 park-and-ride would be located adjacent to the Saint Paul to White Bear Lake Segment near Harvest Park (see Figure 35 and Sheets 17, 18, 34, and 35 of the 15% Plans).[119] The 300-space structure would serve transit riders and provide some additional parking for users of Harvest Park and the Bruce Vento Regional Trail. Although design development has not progressed sufficiently to determine how much of the structure would ultimately be within the historic district boundaries, ground disturbance for construction and connections to the Highway 36 Station would extend into the historic property. The proposed location is approximately 950 feet south of an 1868 roadway remnant (XX-RRD-NPR003) and would not physically impact it.

Figure 35. Proposed Project Plans in the vicinity of the Highway 36 Park-and-Ride Facility. LS&M Railroad Corridor Historic District boundaries outlined in blue.



Maplewood's first comprehensive plan was developed in 1972 and identified a portion of what is now known as Harvest Park (RA-MWC-0263) as public space to be set aside for open space and recreation. The land appears to have been in agricultural use prior to the park's establishment, and no structures are visible in available aerial photographs (see Figure 36). Construction in this open space would therefore introduce a structure where there was none during the period of significance.

[119] The Rush Line BRT Project is considering a Build Alternative with the park-and-ride structure and a Build Alternative option without the park-and-ride. See Section 2.3.3 of the *Environmental Assessment: Rush Line Bus Rapid Transit Project, DRAFT*, dated September 2020.

Figure 36. Harvest Park. The land that became Harvest Park is shown in aerial photographs from (left to right) 1940, 1974 (just after the period of significance for the LS&M Railroad Corridor Historic District), and 2018. The blue arrow in the 2018 image points to the location of the proposed Highway 36 park-and-ride.[120]

While the Railroad MPDF does not discuss how the construction of new buildings, structures, and objects within or adjacent to a railroad corridor historic district's boundaries affects integrity, the introduction of a structured park-and-ride in this location would impact the historic property's integrity of design, materials, and setting through the physical impact of construction. While reviewing the design in accordance with the SOI Standards may minimize this impact, it is unlikely to avoid adverse effects entirely due to the introduction of a building in a previously open setting.

Stormwater BMPs

Two areas within the historic property boundaries include proposed stormwater BMPs:

- Near Arcade Street (see Sheet 9 of the 15% Plans)
- Near Nebraska Avenue (see Sheet 13 of the 15% Plans)

Project plans currently depict potential stormwater BMP locations as blue stars in approximate locations. The size, depth, and design of the BMPs will be informed by stormwater analysis currently underway. In some cases, the stormwater BMP locations may be removed from consideration.

[120] Ramsey County, "Ramsey County Interactive Map," MapRamsey, 1940, 1974, and 2018 https://maps.co.ramsey.mn.us/Html5Viewer/index.html?configBase=https://maps.co.ramsey.mn.us/Geocortex/Essentials/REST/sites/MapRamsey/viewers/MapRamsey/virtualdirectory/Resources/Config/Default (accessed on July 30, 2020).

Depending on the placement and design of the stormwater BMP, construction could affect the historic property's integrity of design, materials, and feeling. However, because the area between the railroad roadway and the edge of the railroad right-of-way historically was overgrown with vegetation, reestablishing vegetation as part of design development and/or reviewing the stormwater BMP design in accordance with the SOI Standards may minimize or avoid potential adverse effects due to this Project element.[121]

Visual

The construction of BRT stations, a bridge, and stormwater BMPs, as described below, has the potential to have a permanent visual effect on the historic setting of the LS&M Railroad Corridor Historic District segments.[122] Because the majority of the Saint Paul to White Bear Lake Segment has already lost railroad tracks and railroad support buildings, continued integrity of setting (in addition to integrity of design and material) is critical to maintaining eligibility for listing on the National Register.[123]

Three (3) BRT stations, including dedicated BRT lanes, medians, retaining walls, and station platforms and amenities, would be visible from the LS&M railroad Corridor Historic District: Saint Paul to White Bear Lake Segment:

- Arcade Street Station: approximately 330 feet north
- Buerkle Road Station: approximately four (4) feet east
- Whitaker Street Station: approximately six (6) feet east

The I-694 Bridge would be built immediately adjacent to the historic property boundary. The bridge is located near Bridge 62822 (RA-WBC-0156, contributing), an existing railroad bridge carrying the Bruce Vento Regional Trail over the Interstate (see Sheets 29 and 60 of the 15% Plans). Bridge 62822 and the current Bruce Vento Regional Trail in this area are both proposed to remain in place as part of the Project. However, the new I-694 Bridge would be visible from the historic district, including from the contributing bridge.

No BMPs are located near or adjacent to the White Bear Lake to Hugo Segment. The following potential BMP locations are immediately adjacent to or within view of the Saint Paul to White Bear Lake Segment:

- Near Payne Avenue on either side of the historic property (see Sheet 8 of the 15% Plans)
- Between Earl Street and the Cook Avenue Station, in a portion of the historic property that no longer has integrity (see Sheets 10 and 11 of the 15% Plans)
- North of Maryland Avenue Station, east of the historic property (see Sheet 12 of the 15% Plans)
- South of Frost Avenue, east and west of the historic property (see Sheet 14 of the 15% Plans)
- Near the Weaver Trail Underpass, west of the historic property (see Sheet 15 of the 15% Plans)
- South of County Road B East, east of the historic property (see Sheet 16 of the 15% Plans)
- North of TH 36, west of the historic property (see Sheet 16 of the 15% Plans)

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[121] Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 186.

[122] The County Road E park-and-ride facility and the Payne Avenue, St. John's Boulevard, County Road E, Cedar Avenue, and Downtown White Bear Lake Stations would not be visible from the historic property, or would be minimally visible due to distance and intervening buildings and vegetation.

[123] Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 198.

- Near the Highway 36 Station, west of the historic property (see Sheets 17 and 17A of the 15% Plans)
- South of Beam Avenue, west of the historic property (see Sheet 18 of the 15% Plans)
- Between County Road D and I-694, east of the historic property (see Sheet 21 of the 15% Plans)
- South of Buerkle Avenue, east of the historic property (see Sheet 21 of the 15% Plans)
- Near the TH 61 bridge over the historic property, east of the historic property (see Sheet 24 of the 15% Plans)
- North of Goose Lake, east of the historic property (see Sheet 26 of the 15% Plans)

Although these potential stormwater BMPs are outside the historic district's boundaries, the removal and reintroduction of vegetation, and the grading of the landscape all have the potential to have a permanent visual effect on the historic property. As noted above, the size, depth, and design of the BMPs will be informed by stormwater analysis that is currently underway; in some cases, the stormwater BMP locations may be removed from consideration.

Introduction of the Arcade Street, Buerkle Road, and Whitaker Street Stations, the I-694 Bridge, and the above-referenced potential stormwater BMPs has the potential to diminish the Saint Paul to White Bear Lake Segment's integrity of setting. Through design development, screening could be established or reestablished between some Project elements and the historic property. For example, vegetative screening could be incorporated into BMP design, where appropriate. Reviewing the design of Project elements in accordance with the SOI Standards may also minimize and/or avoid potential adverse effects. This review, most appropriate for the BRT stations and the I-694 Bridge, would need to include minimizing the mass, scale, and visibility of Project elements from the historic property's viewshed and the establishment or reestablishment of appropriate screening as design development continues.

Traffic, Access, and Parking

The Bruce Vento Regional Trail is located within the historic boundary of the Saint Paul to White Bear Lake Segment between approximately Arcade Street in Saint Paul and I-694; for the majority of the route, the trail is located on top of the railroad roadbed.[124] The Project would shift the location of the new trail within the historic district boundaries (see Dedicated BRT Roadway). The trail would be available for recreational use as it has been since its creation after 1992. North of I-694, the two (2) historic district segments serve as an active railroad corridor to just south of 140th Street in Hugo, Minnesota.

Although there are numerous proposed property acquisitions adjacent to the historic property boundary, the only permanent acquisition proposed within the historic property boundary is approximately 800 square feet for construction of a new sidewalk north of Buerkle Road. There are also temporary easements for construction of pedestrian improvements at Buerkle Road, along the west side of TH 61, and on the south side of 8th Street in White Bear Lake. Although construction may temporarily impact freight operations in the historic corridor, activities would be coordinated with the BNSF Railway Company. The new pedestrian crossing at Buerkle Road is not anticipated to affect freight rail

[124] Small portions of the trail near Phalen Park in Saint Paul and near County Road D in Maplewood extend outside the historic boundary of the LS&M Railroad Corridor Historic District. Additionally, some portions of the trail are located elsewhere within the historic property boundary and not directly on top of the railroad roadbed.

operations due to the low volume of trains that use the track. Any properties impacted by temporary easements would "be restored to a condition that is comparable to its pre-construction use."[125]

New traffic signals would be introduced where the dedicated BRT roadway intersects Maryland Avenue, Larpenteur Avenue East, Frost Avenue, County Road B East, Cope Avenue East, Gervais Avenue, Beam Avenue East, County Road D, and Buerkle Road. Stop signs would be introduced where the dedicated BRT roadway intersects Arlington Avenue East, Idaho Avenue East, and Ripley Avenue. None of these signal modifications would impede access to the historic property.

Rush Line BRT traffic analysis identified queuing issues along TH 61 at County Road E, County Road 96, and 4th Street in White Bear Lake. However, the queuing issues can be minimized by extending turn lanes or adjusting transit signal priority parameters. None of the queuing issues would impair access to the historic property.[126]

The Project would result in the loss of some on-street parking spaces near the Bruce Vento Regional Trail [including eight (8) spaces near the Larpenteur Avenue Station and 13 spaces near the Highway 36 Station under the Build Alternative option without the park-and-ride]. This loss of parking spaces is "not expected to adversely impact community facilities" or "affect community character and cohesion" in those areas.[127] The proposed park-and-ride near the Highway 36 Station would improve access to the recreational trail.

Potential Project Effects to Overall Integrity and National Register-Eligibility

The Railroad MPDF indicates a railroad corridor historic district must include, at a minimum, a railroad roadway with integrity. It also notes that the district as a whole must retain, at a minimum, integrity of location, design, and materials.[128] The *Guidelines for Inventory and Evaluation of Railroads in Minnesota* note that if a portion of a railroad corridor "has completely lost its integrity, such that there is no visible expression on the landscape, the railroad corridor has lost its ability to convey the operation of the railroad as a single transportation corridor."[129]

According to the historic property evaluation, the LS&M railroad roadway retains its alignment in approximately 9.25 miles of the 11-mile Saint Paul to White Bear Lake Segment (84%).[130] Upon completion of the Project as proposed, the railroad roadway will retain approximately 5.2 miles of its alignment (47%). This includes approximately 1.1 miles between I-94 and Arcade Street at the southern end of the segment, approximately 0.5 miles between Beam Avenue and County Road D, and

[125] Kimley-Horn and Associates, Inc., "Freight Rail Memorandum, Draft," 2.
[126] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 29–30, 34.
[127] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 50, 61–62.
[128] Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862-1956," National Register of Historic Places Multiple Property Documentation Form, 198-201. Although the Railroad MPDF discusses seven (7) aspects of integrity for railroad corridor historic districts, it focuses the attention on location, design, and materials. It also notes that integrity of feeling and association is highly dependent on the other aspects of integrity and that workmanship is typically only present in individual railroad elements, such as stonework in a bridge abutment. The evaluations for the visible remnants of the 1868 LS&M railroad roadway note that they retain integrity of workmanship.
[129] MnSHPO and MnDOT, *Guidelines for Inventory and Evaluation of Railroads in Minnesota,* 16.
[130] Mead & Hunt and Midwest Valley Archaeology Center, *Phase II Evaluation: Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment*, 150. The evaluation provided this percentage as 85; the number is corrected in this report.

approximately 3.6 miles between I-694 and the White Bear Lake Depot at the northern end of the segment (See Figure 37). Although these distances will likely change as design development progresses, construction of the dedicated BRT guideway and paved trail will result in the remainder of the historic district no longer reading as a railroad corridor, leaving a substantial gap between the southern segment and the northern segments. As noted in the *Guidelines for Inventory and Evaluation of Railroads in Minnesota*, a railroad corridor historic district "cannot jump over this type of missing gap to connect railroad segments retaining integrity any more than a train traveling along a railroad corridor could jump such a gap."[131]

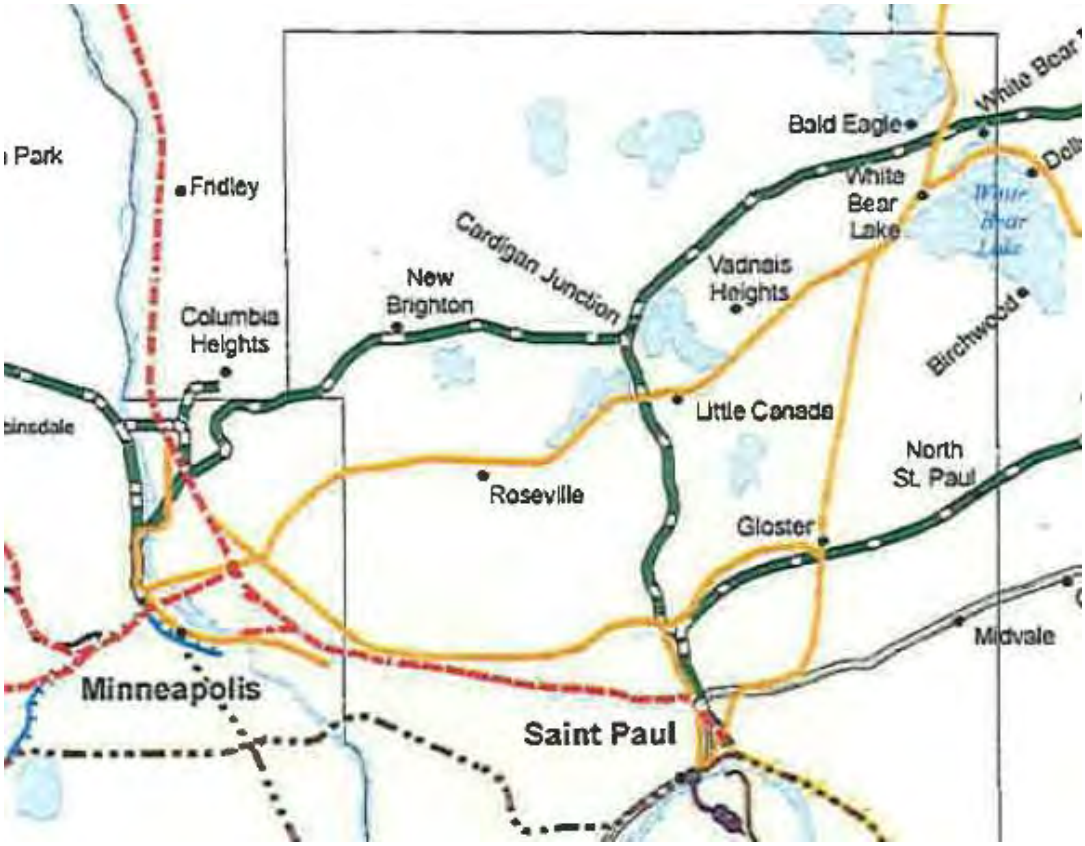
The diminishment of the Saint Paul to White Bear Lake Segment's integrity of location, design, materials, setting, feeling, and association, along with the diminishment of integrity of workmanship at the visible remnants of the 1868 LS&M railroad roadway, could possibly render the Saint Paul to White Bear Lake Segment no longer eligible for inclusion in the National Register. The loss of integrity on this terminal segment will also diminish integrity of the entire LS&M mainline between Saint Paul and Duluth, resulting in the diminishment of the White Bear Lake to Hugo Segment's integrity of association with the larger whole.

Because the LS&M Railroad is significant as the primary rail connection between the navigable waterways of the Mississippi River (at the port in Saint Paul) and Lake Superior (at the port in Duluth), the loss of the terminal segment's integrity may also render the LS&M mainline no longer eligible for inclusion in the National Register. For railroads with significant connections between terminals, the Railroad MPDF emphasizes the importance of a railroad corridor's integrity being intact "at least to the metropolitan area or urban center where the connection was made."[132] The *Guidelines for Inventory and Evaluation of Railroads in Minnesota* note that "a railroad corridor significant for the connections it once made does not retain historic integrity if the railroad segment providing connection to its significant terminal, transfer, or resource procurement area lacks historic integrity and if the portion lacking historic integrity is of sufficient length that the railroad corridor no longer approaches the area of significant connection."[133] Although White Bear Lake is considered part of the Twin Cities metropolitan area, rail lines reaching White Bear Lake could extend into either Minneapolis or Saint Paul (see Figure 38). The Project as proposed would substantially alter the LS&M's significant approach to the port at the Mississippi River in Saint Paul.

[131] MnSHPO and MnDOT, *Guidelines for Inventory and Evaluation of Railroads in Minnesota,* 16.
[132] Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862-1956," National Register of Historic Places Multiple Property Documentation Form, 202.
[133] MnSHPO and MnDOT, *Guidelines for Inventory and Evaluation of Railroads in Minnesota,* 15-16.

Figure 37. Intact portions of the railroad roadway (in blue) following completion of project

Figure 38. Railroads in Minneapolis-Saint Paul Area. The rail lines that would eventually become the Northern Pacific are depicted in yellow. The LS&M Railroad Corridor Historic District is significant for its connection from Duluth to Saint Paul; the proposed Project would substantially alter the terminal connection between White Bear Lake and Saint Paul.[134]



Recommended Finding: Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have an **Adverse Effect to the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment and the individually eligible 1868 Alignments of the LS&M Railroad (XX-RRD-NPR002, XX-RRD-NPR003, and XX-RRD-NPR004)**. Because the Saint Paul to White Bear Lake Segment also serves as the terminal segment for the entire LS&M Railroad Corridor from Saint Paul to Duluth, the **Adverse Effect also applies to the White Bear Lake to Hugo Segment and the larger historic railroad corridor to Duluth**. Construction of the Project would directly and physically alter the characteristics that qualify the Saint Paul to White Bear Lake Segment for inclusion in the National Register by diminishing its integrity of design and materials. The Project would extensively alter the railroad bed's width and the appearance of existing fills, cuts, and ditches through regrading and widening of the roadbed and the introduction of a paved roadway, stations, bridges, and other Project elements. Minimization of this adverse effect is unlikely to be accomplished through design review in a way that also meets the Project's purpose and need. In addition, the construction of some Project elements within the viewshed of the corridor could diminish integrity of setting, feeling, and association. Although conditions could be placed on the design of

[134] Image from Schmidt, Vermeer, Bradley, and Pratt, "Railroads in Minnesota, 1862-1956," National Register of Historic Places Multiple Property Documentation Form, Maps.

various Project elements to minimize visual effects, the entire BRT Corridor beginning at the Arcade Street Station and continuing through the Whitaker Street Station would be subject to design review. It may not be possible to avoid physical effects to each of the 1868 Alignments of the LS&M Railroad. Due to the substantial physical changes proposed in the corridor and the extensive review required to minimize visual effects, resolution of all Adverse Effects to resources associated with the LS&M Railroad will be most effectively accomplished through continued consultation under Section 106 of the National Historic Preservation Act.

Theodore Hamm Brewing Company Complex (RA-SPC-2926)

Minnehaha Avenue East between Payne Avenue & Stroh Drive, Saint Paul

Description & Historic Significance

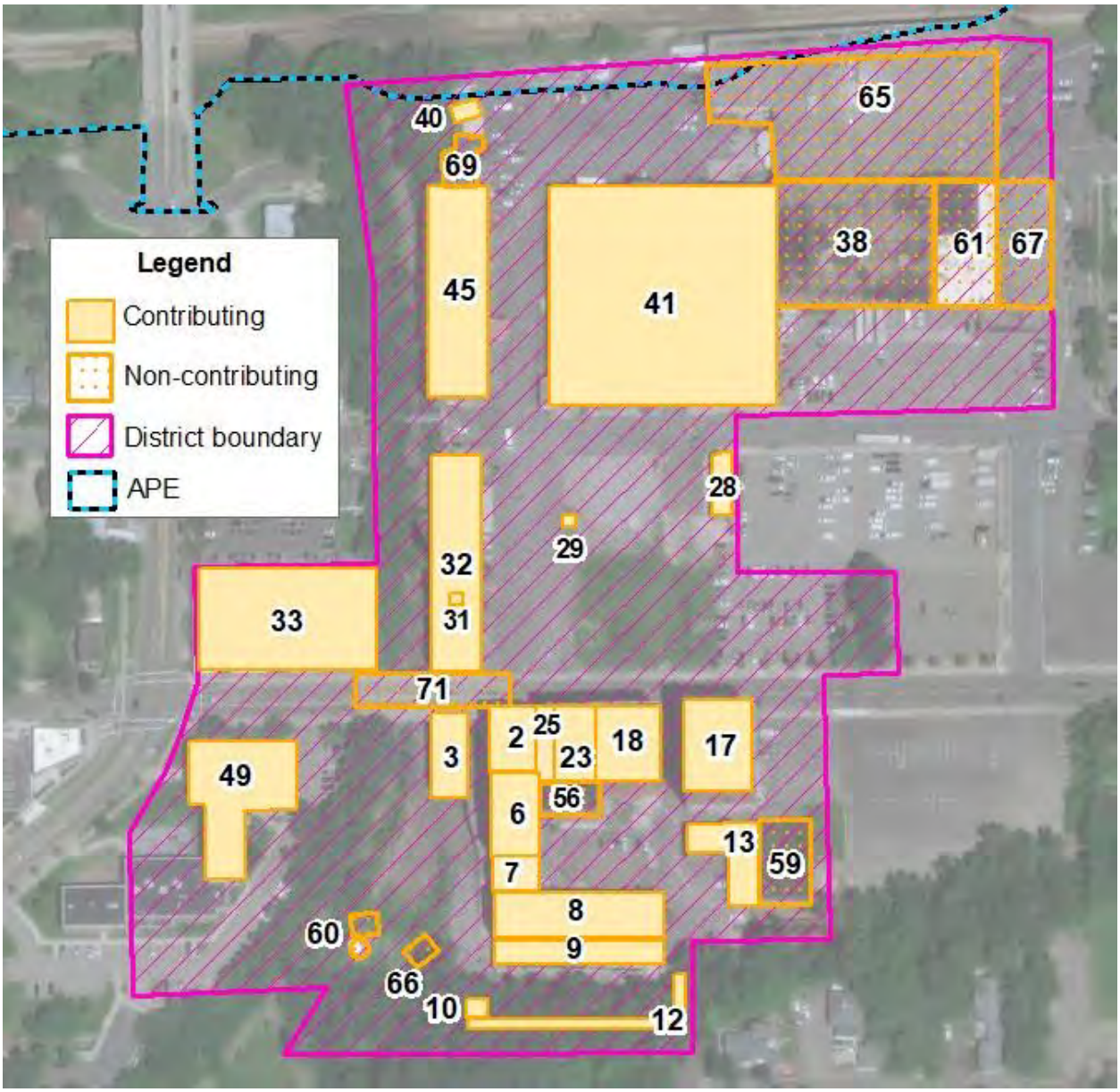
The Theodore Hamm Brewing Company (Hamm's Brewing Company) Complex was constructed from circa 1865 to 1978.[135] The buildings are generally clad in brick and range from one (1) to eight (8) stories in height. Associated structures include a pump house, tunnels, skyways, a silo, a shavings vault, a retaining wall, and a bridge. The brewery was established in 1865 and grew to become the largest brewery in Minnesota. The brewery expanded and modernized several times since its initial construction to successfully incorporate scientific and technological advancements within the brewing industry. For three (3) successive generations, the brewery was passed down from father to son, with leadership remaining in the Hamm family. The brewing complex consists of 28 contributing resources and 10 noncontributing resources (see Figure 39).[136] However, only one (1) noncontributing resource is partially located within the Rush Line BRT APE: Rail Shipping and Storage, Building No. 65, built in 1965.

The Hamm's Brewing Company Complex is eligible for inclusion in the National Register under Criteria A in the area of Industry and under Criteria B for association with Theodore Hamm, William Hamm Sr., and William Hamm Jr. The period of significance begins in 1865, representing the earliest construction, and ends in 1952, when leadership shifted outside of the Hamm family and the company expanded outside of the St. Paul plant. Overall, the Hamm's Brewing Company Complex retains sufficient integrity of materials, design, workmanship, location, and feeling to convey its historic significance. Since the period of significance, there have been changes to the land use north of the Complex. During the period of significance, the area was a railroad corridor lined with industrial properties. However, portions of the LS&M Railroad were removed in the 1990s, and Phalen Boulevard was completed in 2001, diminishing the setting and association of Hamm's Brewing Company with the railroad industry and industry. The Hamm's Brewing Company Complex's relationship to the topography and the surrounding properties is intact at the southwest corner of the property near Swede Hollow. Character-defining features include the brick cladding that visually links the complex's resources, the melding of old and new buildings within the complex for modernization purposes, topography, and relationship to nearby fresh water sources.

[135] Information on the Theodore Hamm Brewing Company Complex comes from Katie Ohland, "Theodore Hamm Brewing Company Complex (RA-SPC-2926)," Minnesota Multiple Property Inventory Form, 2019; and Diane Trout-Oertel, "Theodore Hamm Brewing Company," National Register of Historic Places Registration Form, 2005.

[136] Underground tunnels and pipe systems have not been separately inventoried. If future ground disturbance is proposed within the complex boundaries, additional survey and evaluation of these underground resources may be necessary.

Figure 39. Contributing and noncontributing resources of the Hamm's Brewing Company Complex[137]



Potential Effects

The proposed Project includes operation of BRT vehicles within existing paved roadways along Phalen Boulevard and Neid Lane, north of Hamm's Brewing Company Complex (see Sheets 8 and 9 of the 15% Plans and Figure 40). The Project would not have any direct physical effects to any of the contributing resources. However, as noted on the 15% Plans, the proposed physical changes in the vicinity of the historic property include the proposed Payne Avenue and Arcade Street Stations, sidewalk connections, and proposed BMPs, all of which are on the opposite side of Phalen Boulevard from the historic

[137] Based on analysis of aerial photographs and Google Street View, resources numbered 1, 11, 20, 26, 27, and 39 are nonextant and are not depicted on this map. These were outside the survey area for the Rush Line BRT Project.

property. Small partial property acquisitions would occur near both stations and, in limited areas, existing paving would be repaired using mill and overlay. Therefore, potential Project effects include visual effects of the proposed stations and potential changes in traffic, access, and parking.

Figure 40. Proposed Project plans within the vicinity of Hamm's Brewing Company Complex (approximate historic property boundary outlined in blue).[138]

Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect any of the historic resources associated with the Hamm's Brewing Company Complex. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

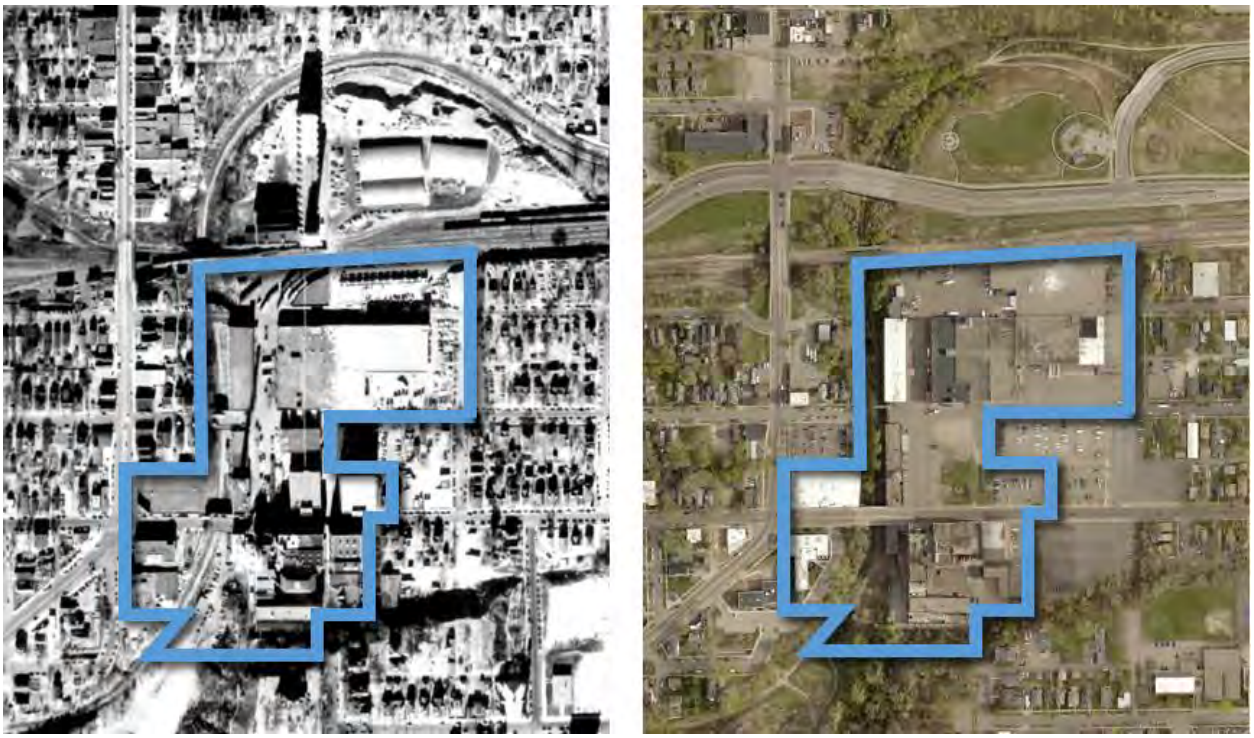
Visual

The proposed Payne Avenue Station would be located 360 feet northwest of the Hamm's Brewing Company Complex's northern boundary, and the Arcade Street Station would be 925 feet northeast. Both stations would be on the opposite side of the StPS&TF/Omaha Road Railroad Corridor Historic District (XX-RRD-CNW001) and Phalen Boulevard. Construction of these two (2) station areas would

[138] Image based on 15% Plans combined with an aerial photograph from Ramsey County, "Ramsey County Interactive Property Map," MapRamsey, 2018, https://maps.co.ramsey.mn.us/MapRamsey/ (accessed on August 20, 2020).

include dedicated BRT lanes, station platforms, and amenities. Proposed BMPs are located within the Eastside Heritage Park and between Phalen Boulevard and the StPS&TF/Omaha Road Railroad Corridor Historic District. The construction of these Project elements has the potential to have a permanent visual effect on the historic property's setting. However, the addition of Project elements would be largely consistent with the current visual context of the historic property, which has changed since the end of the historic property's period of significance (see Figure 41). Historically, this corridor was filled with railroad infrastructure and industrial buildings. The removal of a portion of the LS&M Railroad Corridor and industrial properties and the introduction of Phalen Boulevard (a multi-lane roadway) has already diminished the Hamm's Brewing Company Complex's integrity of setting and association. The construction of BAT lanes and BRT stations would be a minor addition to this altered setting and would not diminish the historic property's integrity of setting, feeling, or association any further.

Figure 41. Hamm's Brewing Company Complex. The approximate boundary of the Hamm's Brewing Company Complex in 1953 (left) immediately following the end of its period of significance (1952) and in 2018 (right) following extensive modifications north of the Complex due to the removal of the LS&M Railroad Corridor and introduction of both Phalen Boulevard and the Eastside Heritage Park.[139]



Traffic, Access, and Parking

The proposed Project would not physically affect access to the Hamm's Brewing Company Complex. Although traffic queuing concerns have been identified at Neid Lane and Arcade Street, the Project incorporates improvements and the queuing issues can be minimized through adjustments in signal

[139] Ramsey County, "Ramsey County Interactive Property Map," MapRamsey, 1953 and 2018, https://maps.co.ramsey.mn.us/MapRamsey/ (accessed on August 19, 2020).

timing.[140] There would be minimal to no changes to traffic signals at the Phalen Boulevard intersection with Payne Avenue. New traffic signals are proposed at Phalen Boulevard's intersections with Neid Lane and Arcade Street. None of these signal modifications would impede access to the historic property. The Project is not expected to impact parking near this historic property.[141]

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Theodore Hamm Brewing Company Complex**. The historic property would not be physically affected by the Project. Although a few Project elements may be visible from the northern edge of the historic boundary, any alterations to the viewshed would be minor and the views to and from the historic property would not be changed. The setting has been altered previously with the construction of Phalen Boulevard and the proposed Project elements would not diminish this altered setting any further. Therefore, the Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

3M Administration Building (RA-SPC-0455)

777 Forest Street, Saint Paul[142]

Description & Historic Significance

The 3M Administration Building (also known as Building 21; Headquarters Building) was the corporate headquarters building of the Minnesota Mining and Manufacturing Company (3M) Main Plant in Saint Paul.[143] The 3M Administration Building is a two (2)-story Moderne style office building constructed in 1940 (Figure 42). The building is associated with the rise of 3M into a national and international leader in the development, manufacture, marketing, and distribution of abrasive and adhesive products, which have had a lasting impact on the development of the United States. The building was designed by renowned industrial architect Albert Kahn with local architects Toltz, King, and Day.

[140] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 27, 34.
[141] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 50.
[142] Please note: the address of the 3M Administration Building was erroneously noted as 900 Bush Avenue in correspondence from FTA to MnSHPO and consulting parties dated July 10, 2020. That address is the overall address of the 3M Main Plant Historic District (RA-SPC-0449).
[143] Information on the 3M Main Plant, Building 21 comes from Katie Ohland, "3M Administration Building (RA-SPC-0455)," Minnesota Multiple Property Inventory Form, 2019; and Andrew J. Schmidt, Marjorie Pearson, and Renee L. Hutter, "3M Administration Building," National Register of Historic Places Registration Form, 2014.

Figure 42. 3M Administration Building, facing southwest.[144]

The 3M Administration Building was listed in the National Register in 2015. It is significant at the national level under Criterion A for its association with the history and development of the 3M Company during its rise to international prominence in the areas of Commerce, Industry, and Invention. It is also locally significant under Criterion C in the area of Architecture, as it is a distinctive example of the Moderne style of the 1930s and 1940s. The building was once a contributing resource within the 3M Main Plant Historic District (RA-SPC-0449), but the district is no longer eligible for inclusion in the National Register due to large-scale demolitions and lack of integrity. The period of significance for the 3M Administration Building spans from its construction in 1940 to 1962, when the 3M corporate headquarters were relocated. Overall, the 3M Administration Building retains sufficient integrity of location, materials, design, workmanship, and feeling to convey its significance. Since the period of significance, there have been changes to the land use north of the historic property and other buildings associated with 3M have been demolished, both impacting its integrity of setting and association. Character-defining features include features of the Moderne style, including the rectangular plan, multiple stories, flat roof, symmetrical wings, recessed window openings that are grouped vertically, and the juxtaposition of limestone and granite materials.

Potential Effects

The proposed Project includes operation of BRT vehicles on a newly constructed dedicated BRT roadway approximately 425 feet north of the historic property (see Sheet 9 of the 15% Plans and Figure 43). The Project would not have any direct physical effects to the historic property. However, as noted on the 15% Plans, the proposed physical changes in the vicinity of the historic property include construction of the Arcade Street Station, Bruce Vento Regional Trail, sidewalk connections, and the Arcade Street Ramp. All of these proposed Project elements are on the opposite side of Phalen Boulevard from the historic property. In limited areas, existing paving on Phalen Boulevard would be repaired using mill and overlay. Therefore, potential Project effects include visual effects of the proposed station and Arcade Street Ramp, and potential changes in traffic, access, and parking.

[144] Image from Schmidt, Pearson, and Hutter, "3M Administration Building," National Register of Historic Places Registration Form.

Figure 43. Proposed Project plans within the vicinity of the 3M Administration Building (approximate historic property boundary outlined in blue).[145]

Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect the 3M Administration Building. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

The proposed Arcade Street Ramp and dedicated BRT roadway would be approximately 425 feet from the 3M Administration Building, on the opposite side of the StPS&TF/Omaha Road Railroad Corridor District (XX-RRD-CNW001) and Phalen Boulevard (see Sheet 9 of the 15% Plans). The Arcade Street Station is farther north, on the opposite side of Arcade Street. Construction of the Arcade Street Ramp, Bruce Vento Regional Trail, and dedicated BRT roadway have the potential to have a permanent visual effect on the historic property's setting. However, the addition of Project elements would be largely consistent with the current visual context of the historic property, which has changed since the end of the historic property's period of significance. Historically, the space north of the historic property was filled with 3M Main Plant buildings. The removal of those buildings and the construction of Phalen Boulevard has already diminished the 3M Administration Building's integrity of setting and association. Due to the distance and visual obstructions between the Arcade Street Station and the historic property, the BRT station would have no visual effect on the 3M Administration Building. The construction of the

[145] Image based on 15% Plans combined with an aerial photograph from Ramsey County, "Ramsey County Interactive Property Map," MapRamsey, 2018, https://maps.co.ramsey.mn.us/MapRamsey/ (accessed on August 20, 2020).

Arcade Street Ramp and dedicated BRT roadway would be minor additions to the already altered setting and would not diminish the historic property's integrity of setting, feeling, or association any further.

Traffic, Access, and Parking

The proposed Project would not physically affect access to the 3M Administration Building. Although traffic queuing concerns have been identified along at Neid Lane and Arcade Street, the Project incorporates improvements and the queuing issues can be minimized through adjustments in signal timing.[146] New traffic signals are proposed at Phalen Boulevard's intersections with Arcade Street and Mendota Circle. None of these signal modifications would impede access to the historic property. The Project is not expected to impact parking near this historic property.[147]

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the 3M Administration Building**. The historic property would not be physically affected by the Project. Although a few Project elements may be visible from the northern edge of the historic boundary, any alterations to the viewshed would be minor and the views to and from the historic property would not be changed. The setting has been altered previously with the construction of Phalen Boulevard and the proposed Project elements would not diminish this altered setting any further. Therefore, the Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

Phalen Park (RA-SPC-10850)

1600 Phalen Drive, Saint Paul

Description & Historic Significance

Phalen Park (now known as Phalen Regional Park) consists of 278 acres of parkland with Lake Phalen as its centerpiece.[148] Although it is largely located within the city of Saint Paul, a portion of the park extends north of Larpenteur Avenue East into the adjacent city of Maplewood. Phalen Park was developed beginning in 1892 and refurbished in 1906, 1935, and 1969, each refurbishment representing different philosophies in recreation and park design. Amenities now include a golf course, recreation center, playing fields, beach house, activity center, and a picnic pavilion. The National Register evaluation identified numerous contributing and noncontributing resources throughout the park; however, only four (4) are located within the Rush Line BRT APE (see Figure 44):

- Bruce Vento Regional Trail (RA-SPC-11121, noncontributing)
- Phalen Park Pedestrian and Bicycle Trails (RA-SPC-11122, contributing)
- East Shore Drive (RA-XXX-001, contributing)
- Johnson Parkway (RA-SPC-8497 & RA-SPC-5685, contributing)

Phalen Park is also an integral component of Saint Paul's Grand Round (RA-SPC-11142) park system. Proposed by landscape architect Horace William Shaler Cleveland in the late 19th century, the Grand

[146] Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 27, 34.
[147] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 50.
[148] Information on Phalen Park comes from Katie Ohland and Chris Hommerding, "Phalen Park (RA-WBC-10850)," Minnesota Multiple Property Inventory Form, 2020.

Round is comprised of a series of large parks connected by parkways. Phalen Park is connected to Como Park to the west via Wheelock Parkway (RA-SPC-5679) and to Indian Mounds Park to the south via Johnson Parkway (RA-SPC-8497 & RA-SPC-5685).[149]

Figure 44. From left to right, East Shore Drive (RA-XXX-001) and the Bruce Vento Regional Trail (RA-SPC-11121) east of Phalen Park, view looking northeast.[150]

Phalen Park is eligible for individual inclusion in the National Register under Criterion A in the areas of Entertainment/Recreation and Community Planning and Development and under Criterion C in the area of Landscape Architecture. Phalen Park is significant for its association with Saint Paul's attempts to create and provide parks and recreation for citizens. Additionally, it represents the historical evolution of landscape architecture and park design. The effective period of significance spans from the first acquisitions of land in 1892 to the end of the last major wave of construction in 1978.[151] Despite some modifications since the end of the period of significance, including a wetland restoration project, restoration of Lake Phalen's shoreline, construction of a pavilion, and installation of the Hmong Heritage Wall and the *Meditation* sculpture, the historic property retains all seven (7) aspects of integrity.

[149] Saint Paul's Grand Round has never been fully evaluated for inclusion in the National Register. Because the Project APE overlaps only with Phalen Park and Johnson Parkway, which have both been fully evaluated in recent years, FTA determined that an evaluation of the entire park system was not necessary to adequately consider Project effects on historic properties. This assessment of effects considers Project effects on both Johnson Parkway and Phalen Park within the context of their historical association to the larger Saint Paul Grand Round.

[150] Image from Ohland, Katie, and Chris Hommerding, "Phalen Park (RA-WBC-10850)," Minnesota Multiple Property Inventory Form, Figure 2.

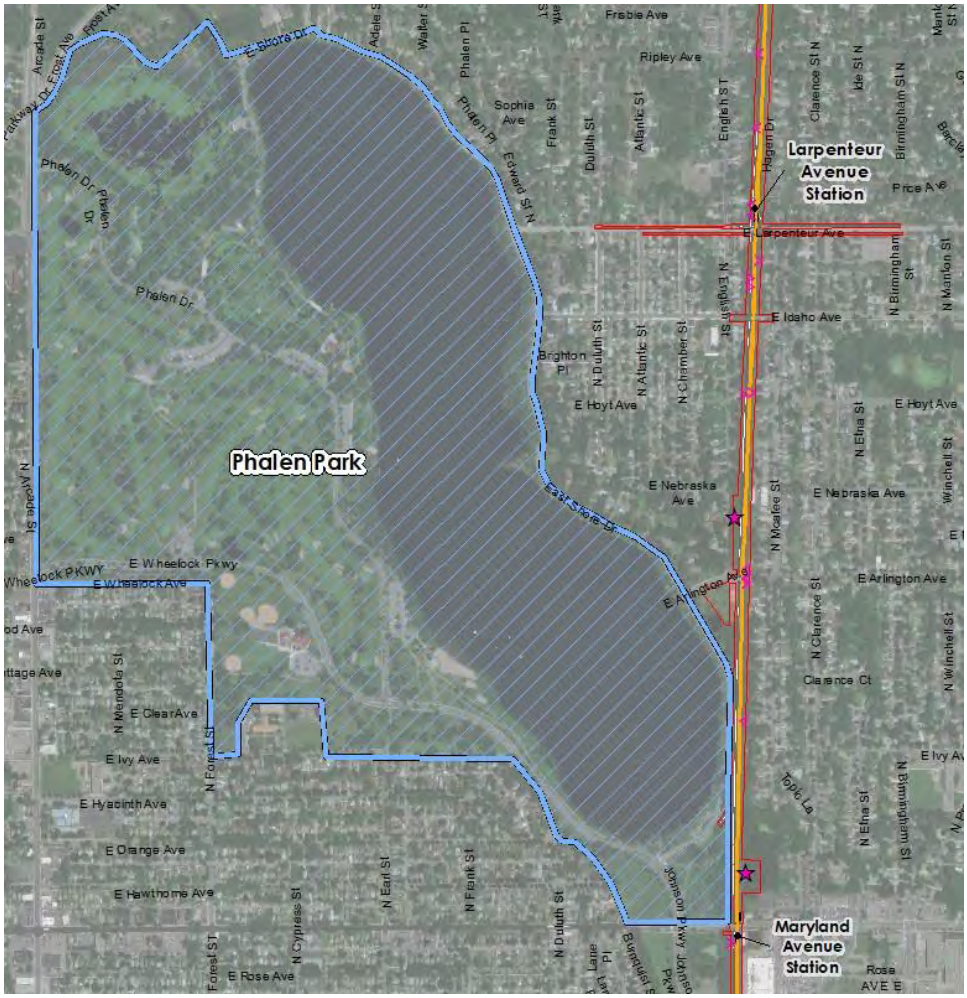
[151] Although Criteria Consideration G for properties under 50 years of age would typically apply to this period of significance, it is anticipated the majority of the resources associated with the historic property will reach 50 years of age by the time the Rush Line BRT Project is completed. Given current academic analysis, it is likely the third refurbishment of the Park will be considered significant once it reaches 50 years of age without needing to make a case for exceptional significance. Therefore, FTA is treating Phalen Park's period of significance as ending in 1978 for the purposes of the Project. Should a National Register nomination proceed prior to 2028, additional comparative analysis may be necessary pursuant to Criteria Consideration G.

Character-defining features near the Project area include the naturally forested lakeshore and pedestrian and automobile paths and roadways.

Potential Effects

Phalen Park is located within the Project APE and within the LOD (see Figure 45). The proposed dedicated BRT roadway is adjacent to Phalen Park's southeast boundary. Proposed physical changes within the historic property are limited to a trail connection to the noncontributing Bruce Vento Regional Trail (RA-SPC-11121). Proposed physical changes in the vicinity of the historic property include construction of the dedicated BRT roadway, Bruce Vento Regional Trail, retaining walls, linear stormwater BMPs, and the Maryland Avenue Station. In addition, land would be acquired for a potential stormwater BMP location north of the Maryland Avenue Station. The Project proposes visual changes to the property's southern entrance through the construction of the Johnson Parkway Bridge. Therefore, in addition to the potential physical effect to Phalen Park, potential Project effects include visual effects of the proposed station, bridge, and dedicated BRT roadway in the vicinity of the historic property and potential changes in traffic, access, and parking.

Figure 45. Proposed Project plans within the vicinity of Phalen Park (approximate historic boundary outlined in blue).



Assessment of Effects

Physical

Although the proposed Project would have a direct, physical effect to the historic property, the effect would be minor. Within the historic property boundaries, a trail connection would be reconstructed between the noncontributing Bruce Vento Regional Trail and the shifted location of the existing Bruce Vento Trail within the Ramsey County rail right-of-way (LS&M Railroad Corridor Historic District). Any potential physical or visual effects of this connection can be minimized and/or avoided through design development that ensures the new trail construction blends into the existing trail visually and materially. The LOD for this construction extends to East Shore Drive (RA-XXX-001), a contributing historic resource. Any potential adverse physical effects caused by unintended damage from construction activities can be avoided with construction protection measures incorporated into contract documents.

Visual

Directly adjacent to the southeast edge of the historic property boundaries, construction would include the dedicated BRT roadway, Bruce Vento Regional Trail, retaining walls, linear stormwater BMPs, and the Maryland Avenue Station. In addition, land would be acquired for a potential stormwater BMP location on the opposite side of the dedicated BRT roadway just north of Maryland Avenue East. Although all of these Project elements are outside Phalen Park's historic property boundaries, the removal and reintroduction of vegetation, the grading of the landscape, the construction of Project elements, and the operation of the BRT service all have the potential to have a permanent visual effect on the historic property. However, these visual effects can be minimized and/or avoided through reestablishment of appropriate vegetative screening as design development continues.

Approximately 740 feet south of Phalen Park's southern boundary, the proposed Johnson Parkway Bridge would carry the dedicated BRT roadway and the Bruce Vento Regional Trail over the historic Johnson Parkway (RA-SPC-8497 & RA-SPC-5685) and Saint Paul's Grand Round (RA-SPC-11142). This bridge's location coincides with a railroad bridge removed between 1991 and 2002. Park users who are traveling Saint Paul's Grand Round or who otherwise enter or exit Phalen Park from the south would pass under this bridge. The Johnson Parkway Bridge would also be visible from Phalen Park. Because a bridge was in this location throughout much of the historic property's period of significance, reviewing the design of the Johnson Parkway Bridge in accordance with the SOI Standards may minimize and/or avoid potential adverse effects. The review would need to include minimizing the structure's mass, scale, and visibility from Phalen Park's viewshed, and design development should incorporate plantings in keeping with the park-like setting of Saint Paul's Grand Round.

Traffic, Access, and Parking

The proposed Project would not dramatically modify any of the existing access points to Phalen Park. No changes would be made to traffic signals at Johnson Parkway's intersections with Phalen Boulevard and Maryland Avenue East. New traffic signals would be introduced where the dedicated BRT roadway intersects Maryland Avenue, Larpenteur Avenue East, and Frost Avenue. Stop signs would be introduced where the dedicated BRT roadway intersects Arlington Avenue East, Idaho Avenue East, and Ripley Avenue. None of these signal modifications would impede access to the historic property. An underpass for a pedestrian trail from McAfee Street to East Shore Drive is proposed to use an existing bridge (RA-SPC-11140) that contributes to the LS&M Railroad Corridor Historic District. A permanent acquisition totaling 0.83 acres is proposed for a stormwater BMP outside the historic property boundary, north of

the Maryland Avenue Station. The Project also proposes temporary easements totaling 0.31 acres for reconstruction of existing sidewalks and trails. Project documents indicate these acquisitions and temporary easements would not result in permanent physical impacts or interfere with the activities of the park.[152] The Project would not result in the loss of any on-street parking spaces within or adjacent to Phalen Park. Although the Johnson Parkway Bridge would have a visual effect on access to Phalen Park from the south, any potential adverse effects to Phalen Park and Johnson Parkway can be avoided and/or minimized through reviewing the design of the Johnson Parkway Bridge in accordance with the SOI Standards.

Recommended Finding of Effect: No Adverse Effect with Conditions

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on Phalen Park if certain conditions are placed on the Project**. Although construction of the Project would physically affect a noncontributing resource within Phalen Park and introduce temporary and permanent visual effects within the park's viewshed, the proposed conditions ensure the Project would not alter any of the characteristics that qualify Phalen Park for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association. The recommended finding of No Adverse Effect is dependent upon the following conditions being placed on the Project:

- As part of design development, the trail connection to the noncontributing Bruce Vento Regional Trail will be blended visually and materially by mimicking the profile and appearance of the existing trail. In addition, vegetative screening will be reestablished between Phalen Park and built Project elements within adjacent to the historic property boundary.
- A CPPHP will be prepared to ensure East Shore Drive is physically protected during construction of the Project.
- To minimize visual impact and maximize compatibility with Phalen Park, Johnson Parkway, and Saint Paul's Grand Round while still meeting the Project's Purpose and Need, the design of the Johnson Parkway Bridge will be reviewed according to the SOI Standards at the Project's 30%, 60%, 90% and 100% Plans, with a consultation meeting prior to finalization of 60% design.

Johnson Parkway (RA-SPC-8497 & RA-SPC-5685)

Johnson Parkway from Indian Mounds Park to Lake Phalen, Saint Paul

Description & Historic Significance

Johnson Parkway, built between 1914 and 1945, extends from its southern terminus at Burns Avenue near Indian Mounds Park to its northern terminus at Wheelock Parkway and East Shore Drive in Phalen Park (RA-SPC-10850, see Figure 46).[153] Johnson Parkway is considered an integral component of Saint Paul's Grand Round (RA-SPC-11142), a park system proposed by Horace William Shaler Cleveland in the late 19th century and comprised of a series of large parks connected by parkways.[154] For the majority of

[152] Kimley-Horn and Associates, Inc., "Section 4(f) Evaluation, Draft," 21, 60.
[153] Information on Johnson Parkway comes from K. Kellerhals, K. Scott, E. Que, and S. Miller, "Johnson Parkway (RA-SPC-5685, -8497)," Minnesota Architecture – History Inventory Form prepared 106 Group, 2015; Mead & Hunt, Inc., "Integrity Assessment: Johnson Parkway, St. Paul, Minnesota," technical memorandum prepared by Mead & Hunt, Inc., 2017.
[154] See footnote 149 in the Phalen Park assessment for additional information about identification efforts involving Saint Paul's Grand Round.

the Johnson Parkway's length, it is a two (2)-lane, asphalt-paved road lined with trees and planting strips. However, a portion of the road in the Project APE has four (4) lanes. Various sections of the road include bike lanes, turn lanes, and adjacent single-lane service roads.

Figure 46. Johnson Parkway (in blue).

Johnson Parkway is being treated as eligible for inclusion in the National Register under Criterion A in the areas of Entertainment/Recreation and Community Planning and Development for its association with the development of the north portion of Saint Paul's parkway system.[155] It is also being treated as eligible under Criterion C, in the area of Architecture as a designed historic landscape for its historical association with the City Beautiful movement. The period of significance begins circa 1914, when land acquisition and construction began, and extends to 1945, when most construction activity had ended.

Although Johnson Parkway overall retains sufficient integrity to convey its historic significance, the portion of the parkway within the Project area has compromised integrity. Changes in this area since the period of significance include the addition of traffic lanes, alteration of the road alignment between Wheelock and Maryland, construction of Johnson Parkway's intersection with Phalen Boulevard, the removal of the railroad bridge over Johnson Parkway, the introduction of a grassy median to the Parkway, changes to vegetation and lighting, modern development in the immediate setting, and reconstruction of the intersections at Wheelock Parkway, Maryland Avenue and Ames Avenue East (See Figure 47). The predominant character-defining features include "its function as a connection between parks, the absence of 'added ornamentation,' its ability the make the park system more widely accessible, and its continuation of park-like scenery through adjacent planting strips and plantings."[156]

Potential Effects

A portion of Johnson Parkway is located within the Project APE and within the LOD (see Figure 48). The dedicated BRT roadway and Bruce Vento Regional Trail would pass over the historic property on the proposed Johnson Parkway Bridge, incorporating retaining walls, sidewalk connections, and greenspace within the boundary of the historic property. In addition to the bridge over the historic property, proposed physical changes in the vicinity of the historic property include construction of the dedicated BRT roadway, Bruce Vento Regional Trail, retaining walls, linear stormwater BMPs, and the Cook Avenue and Maryland Avenue Stations. In addition, a small partial property acquisition would accommodate a sidewalk connection near the Cook Avenue Station. Therefore, in addition to the potential physical effect to Johnson Parkway, potential Project effects include visual effects of the proposed stations and dedicated BRT roadway in the vicinity of the historic property and potential changes in traffic, access, and parking.

[155] METRO Gold Line BRT submitted results of architecture/history investigations to MnSHPO on February 22, 2018. Although consultants found Johnson Parkway eligible for inclusion in the National Register, FTA determined that the property possessed significance under National Register Criteria A and C, but no longer retained sufficient historic integrity to convey that significance. In a response dated April 3, 2018, MnSHPO stated it did not concur with FTA's determination. As noted in the METRO Gold Line BRT Environmental Assessment and in a letter to MnSHPO for the Rush Line BRT Project dated July 10, 2020, for the purposes of Section 106, FTA will treat Johnson Parkway as eligible for inclusion in the National Register under Criteria A and C.

[156] Kellerhals, Scott, Que, and Miller, "Johnson Parkway (RA-SPC-5685, -8497)," 6.

Figure 47. Johnson Parkway. Johnson Parkway near Phalen Park is shown in aerial photographs from 1945, 1985, and 2018 (left to right). The 1945 image shows Johnson parkway at the end of its period of significance. The arrow in the 1985 image points to extensive modifications where Johnson Parkway meets Maryland Avenue East and the arrow in the 2018 image points to extensive modifications from the removal of the railroad bridge and construction of Johnson Parkway's intersection with Phalen Boulevard.[157]

[157] Agricultural Stabilization and Conservation Service, "1945_A-12-018" (U.S. Department of Agriculture, 1945), Minnesota Historical Aerial Photographs Online, John R. Borchert Map Library, University of Minnesota, http://www.lib.umn.edu/; Ramsey County, "Ramsey County Interactive Map," MapRamsey, 1985 and 2018, https://maps.co.ramsey.mn.us/Html5Viewer/index.html?configBase=https://maps.co.ramsey.mn.us/Geocortex/Essentials/REST/sites/MapRamsey/viewers/MapRamsey/virtualdirectory/Resources/Config/Default (accessed on July 30, 2020).

Figure 48. Proposed Project plans within the vicinity of Johnson Parkway (approximate boundary outlined in blue).

Assessment of Effects

Physical

The proposed Project would have a direct, physical effect to Johnson Parkway, which is also part of Saint Paul's Grand Round. The Johnson Parkway Bridge would be constructed to carry the dedicated BRT roadway and Bruce Vento Regional Trail over the historic property. The location of the new bridge coincides with the former location of a railroad bridge removed between 1991 and 2002. Individuals traveling the Grand Round or who otherwise use Johnson Parkway between Phalen Boulevard and Maryland Avenue would pass under the new bridge. Additional Project elements are also proposed within the historic property boundary, including retaining walls, a connection between the Bruce Vento Regional Trail and the sidewalks alongside Johnson Parkway, and a linear BMP within the greenspace at the intersection of Phalen Boulevard and Johnson Parkway.

The Johnson Parkway Bridge would not impact the property's ability to serve as connection between Indian Mounds Park and Phalen Park. Because the proposed bridge is located where a bridge formerly existed and within a portion of Johnson Parkway that has already been substantially altered, reviewing the design of the Johnson Parkway Bridge in accordance with the SOI Standards may minimize and/or avoid potential adverse effects. The review would need to consider the mass, scale, and design of the bridge, and design development should incorporate plantings in keeping with the park-like setting of the historic parkway and Saint Paul's Grand Round. Because there are no historic features or materials remaining within the LOD other than the general route of Johnson Parkway, construction protection measures are not necessary for this historic property.

Visual

The Cook Avenue Station would be located approximately 375 feet west of Johnson Parkway's western boundary, and the Maryland Avenue Station would be located approximately 30 feet east of Johnson

Parkway's eastern boundary. The removal and reintroduction of vegetation, the grading of the landscape, the construction of Project elements, and the operation of the BRT service all have the potential to have a permanent visual effect on Johnson Parkway. The viewshed from Johnson Parkway toward the location of the proposed Cook Avenue Station, however, was altered severely by the construction of Phalen Boulevard. Therefore, the insertion of a BRT station into that viewshed would not diminish Johnson Parkway's integrity of setting, feeling, or association. Due to Maryland Avenue Station's distance from Johnson Parkway, potential visual effects would be minimal and can be avoided through reestablishment of appropriate park-like vegetative screening as design development continues.

Traffic, Access, and Parking

None of the existing access points to Johnson Parkway would be modified by the Project, and Johnson Parkway would continue to link Indian Mounds Park and Phalen Park. No changes would be made to traffic signals at Johnson Parkway's intersections with Phalen Boulevard and Maryland Avenue East. At the Cook Avenue Station, a pedestrian crossing sign with rectangular rapid flash beacons would be installed to facilitate crossing of Phalen Boulevard. None of these signal modifications would impede access to the Johnson Parkway or diminish the historic property's integrity of setting, feeling, or association. The Project would not result in the loss of any on-street parking spaces near Johnson Parkway. Therefore, the Project would have no effect on traffic, access, or parking associated with Johnson Parkway.

Recommended Finding: No Adverse Effect with Conditions

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on Johnson Parkway if certain conditions are placed on the Project**. Although construction of the Project would physically affect the historic property and impact the historic property's viewshed, only a small segment of the entire length of the Parkway would be affected by the Project and construction would occur in an area of poor integrity for the property. Even when considering the cumulative effects of the Rush Line BRT and Gold Line BRT Projects, the overall integrity of the Parkway would continue to sufficiently convey its significance upon completion of both projects. The proposed conditions ensure the Project would not alter any of the characteristics that qualify Johnson Parkway for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association. The recommended finding of No Adverse Effect is dependent upon the following conditions being placed on the Project:

- To minimize visual impact and maximize compatibility with Phalen Park, Johnson Parkway, and Saint Paul's Grand Round while still meeting the Project's Purpose and Need, the design of the Johnson Parkway Bridge will be reviewed according to the SOI Standards at the Project's 30%, 60%, 90% and 100% Plans, with a consultation meeting prior to finalization of 60% design.
- As part of Project design, vegetative screening will be reestablished between Johnson Parkway and built Project elements at the Maryland Avenue Station.

Gladstone Shops (Site 21RA70)

Southwest corner of Frost Avenue and English Street, Maplewood

Description & Historic Significance

Gladstone Shops (Site 21RA70) is currently known as the Gladstone Savanna Neighborhood Preserve, a 24-acre park managed by the City of Maplewood's Parks and Recreation Department.[158] No above-ground structures are extant on the property.[159] An archaeological site on the parcel contains the remnants of the former Gladstone Shops, constructed beginning in 1887 by the St. Paul and Duluth (StP&D) Railroad (see Figure 49).[160] The shops included numerous buildings and structures associated with the repair and maintenance of railroad rolling stock. After the StP&D was purchased by Northern Pacific in 1900, the Gladstone Shops were closed. By 1915, some of the sidings had been removed and the property was leased to railroad contractors. During the 1940s, several primary buildings were removed from the property and by 1980, the remaining shops and structures had been demolished.

During archaeological monitoring and visual reconnaissance conducted in 2012, 37 archaeological features were identified. Site 21RA70 was designated as a City of Maplewood historic site in 2017, at which time it was recommended as individually eligible for inclusion in the National Register under Criterion D for its potential to provide important information under the research themes of technological change and adaptation and social group identity, behavior, and interaction. The local designation notes that with full evaluation of the site, it may also contribute to the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment (XX-RRD-NPR001) under Criterion A and Criterion D. However, the site is not connected to the district boundary and, therefore, National Register evaluation would need to consider the possibility of a discontiguous historic district. The period of significance of Site 21RA70 begins in 1887, when construction of the shops began and ends circa 1900, when Northern Pacific closed the shops. The Minnesota Archaeological Site Form indicates that "[b]ased on the limited scope of site disturbance and localized damage to the roundhouse foundation, the integrity of the site does not appear to have been significantly affected."[161] The local designation highlights the archaeological features (including buried foundations and limestone/concrete slabs), the flat landscape, and extant vegetation as being character-defining features with integrity of location,

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[158] Information on Site 21RA70 comes from "Gladstone Savana Neighborhood Preserve," a Maplewood Local Designation Nomination Form prepared for the January 12, 2017, meeting of the Maplewood Heritage Preservation Commission, available at https://docs.maplewoodmn.gov/WebLinkPublic/0/doc/336846/Page1.aspx (accessed August 12, 2020); Laurie Ollila, "Gladstone Shops (Site #21RA70)," Minnesota Archaeological Site Form, 2013; and Andrew J. Schmidt, Andrea C. Vermeer, Betsy H. Bradley, and Daniel R. Pratt. "Railroads in Minnesota, 1862–1956," National Register of Historic Places Multiple Property Documentation Form, 2013.

[159] This location was previously recorded as Minnesota Architecture/History property RA-MWC-002 and recommended not eligible for inclusion in the National Register from an architecture/history perspective. The description and significance information is adapted from a Minnesota Archaeological Site Form completed in 2012 by Laurie Ollila, M.A., RPA of Summit Envirosolutions, Inc. as part of the local historic site designation process and the Phase II evaluation of the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment (XX-RRD-NPR001). Additional information is from Mead & Hunt and Midwest Valley Archaeology Center, *Phase II Evaluation: Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment*, 2020.

[160] The StP&D Railroad was organized in May 1877 by a group of LS&M inventors who had purchased the LS&M. The period of significance of the LS&M Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment (XX-RRD-NPR001) includes the time during which the corridor was used by the StP&D.

[161] Laurie Ollila, "Gladstone Shops (Site #21RA70)," Minnesota Archaeological Site Form, 7.

design, setting, materials and workmanship. It also notes that integrity of feeling and association as being diminished due to the loss of buildings.

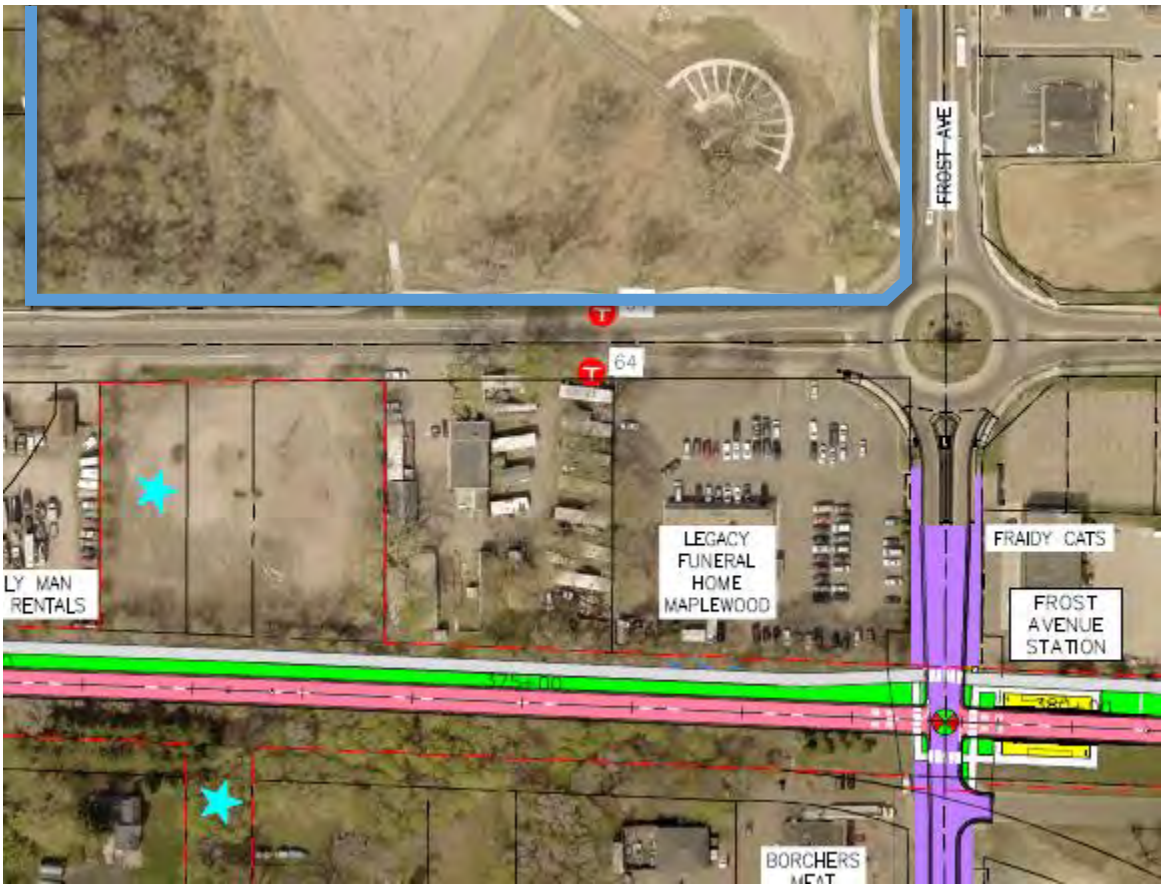
Figure 49. Site 21RA70 (approximate boundary outlined in blue).[162]

Potential Effects

Site 21RA70 is located within the Project APE but outside the LOD (see Sheet 14 of the 15% Plans and Figure 50). The Project would not have any direct, physical effects to the historic property. However, proposed physical changes in the vicinity of the historic property include construction of the dedicated BRT roadway, the Bruce Vento Regional Trail, the Frost Avenue Station, and potential stormwater BMPs, including one (1) that might become a trailhead. Therefore, potential Project effects include visual effects of the proposed station, stormwater BMP, and dedicated BRT roadway and potential changes in traffic, access, and parking.

[162] Image based on an aerial photograph from Ramsey County, "Ramsey County Interactive Property Map," MapRamsey, 2018, https://maps.co.ramsey.mn.us/MapRamsey/ (accessed on August 19, 2020).

Figure 50. Proposed Project plans within the vicinity of the Gladstone Shops (eastern property boundary outlined in blue).



Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect Site 21RA70. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

The proposed dedicated BRT roadway would be approximately 300 feet east of Site 21RA70's eastern boundary and the Frost Avenue Station would be approximately 345 feet from the historic property's northeast corner. There are two (2) potential stormwater BMP locations located directly east of the historic property. One (1) would be located between the dedicated BRT roadway and English Street, which is adjacent to the historic property's eastern boundary. This BMP location may also be integrated into a possible trailhead for the Bruce Vento Regional Trail. The other potential stormwater BMP location would be located directly east this potential trailhead, on the other side of the dedicated BRT roadway. All of these proposed Project elements are outside the historic property boundaries. Furthermore, due to existing vegetation within the historic property boundaries, the Project elements would be minimally visible from the historic property.

Traffic, Access, and Parking

The Rush Line BRT Project is coordinating with the City of Maplewood for a project involving partial street reconstruction of Frost Avenue between English Street and White Bear Avenue, anticipated for construction in 2022 (see purple shaded area on Sheet 15 of the 15% Plans). None of the existing access points to Site 21RA70 would be dramatically modified by the Project. A new traffic signal would be introduced east of the Frost Avenue and English Street roundabout, where the dedicated BRT roadway intersects Frost Avenue. In addition, a stop sign would be introduced where the dedicated BRT roadway intersects Ripley Avenue. None of these signal modifications would impede access to the historic property. If a trailhead is built in conjunction with the proposed stormwater BMP, it would improve access to the historic property by providing an easy transition from the Bruce Vento Regional Trail to the city park. The Project would not result in the loss of any on-street parking spaces near Site 21RA70.[163] Therefore, the Project is anticipated to have no impact on traffic, access, or parking associated with Site 21RA70.

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect to Site 21RA70**. Construction of the Project would not physically, visually, or otherwise affect the historic property and, therefore, would not alter any of the characteristics that qualify Site 21RA70 for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association.

Moose Lodge 963 (RA-MWC-0134)

1946 English Street North, Maplewood

Description & Historic Significance

Moose Lodge 963 is a one (1)-story, concrete block and brick clad, Commercial-style building in Maplewood.[164] The Moose Lodge is comprised of two (2) parts, the original 1964 building clad in rusticated brick and concrete block and the circa 1980 addition to the north elevation (Figure 51). On the south façade, there is an entry vestibule from the 1970s or circa 1980. It is framed in aluminum and enclosed with aluminum panels and one-over-one aluminum windows, which covers over the original entrance to the building. A freestanding metal sign, which may date to the 1960s, is located near the driveway entrance on English Street.[165] The interior of the building retains gathering spaces and bar and kitchen areas, though portions were likely renovated at the time of the circa 1980 addition. The property is associated with the activities of Maplewood's Human Rights Commission, formed in 1967. Moose Lodge 963 did not permit non-whites to join as members, a policy that followed the national Order's policies but violated Minnesota's anti-discrimination laws. In 1971, after the Human Rights Commission filed a case against the Moose Lodge, the Lodge changed its white-only membership requirements. The Human Rights Commission's targeting of the Moose Order's discriminatory policies of restricted membership was an emerging trend in the Twin Cities that approached combatting

[163] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 51–52.
[164] Information on Moose Lodge 963 comes from Sebastian Renfield, "Moose Lodge 963 (RA-WBC-0134)," Minnesota Individual Property Inventory Form, 2019.
[165] The evaluation notes this sign as a character-defining feature on the property. However, no date of construction is given and, if it dates to the 1960s, the sign may have been moved to this location when the circa 1980 addition was constructed.

discrimination through local and municipal ordinance rather than relying on state-level action and enforcement. The success of the Maplewood ordinance to combat local discrimination influenced other Twin Cities suburbs.

Figure 51. Moose Lodge 963, facing northwest.[166]

Moose Lodge 963 is eligible for inclusion in the National Register under Criterion A in the area of Social History for its role in Maplewood's civil rights movement.[167] The period of significance is 1970 to 1971, which corresponds to when the lodge was the focus of Maplewood Human Rights Commission's efforts to combat discrimination and with the passage of a village ordinance that forbade public and private clubs that practiced discrimination from obtaining a liquor license, a move that set a precedent for local governing bodies to work toward racial equality. Overall, the historic property has sufficient integrity to convey its historic function and significance. However, the circa 1980 addition and enclosure of the building's south entrance have diminished its integrity of design, materials, and workmanship and a modern apartment complex across English Street has altered its setting. Character-defining features include the property's location in Maplewood, the simple midcentury design of the lodge building and the freestanding sign, and the lodge building's interior layout with large gathering spaces, bars, and stage, all of which convey the property's historic function as a mid-20th century building for the fraternal order.

Potential Effects

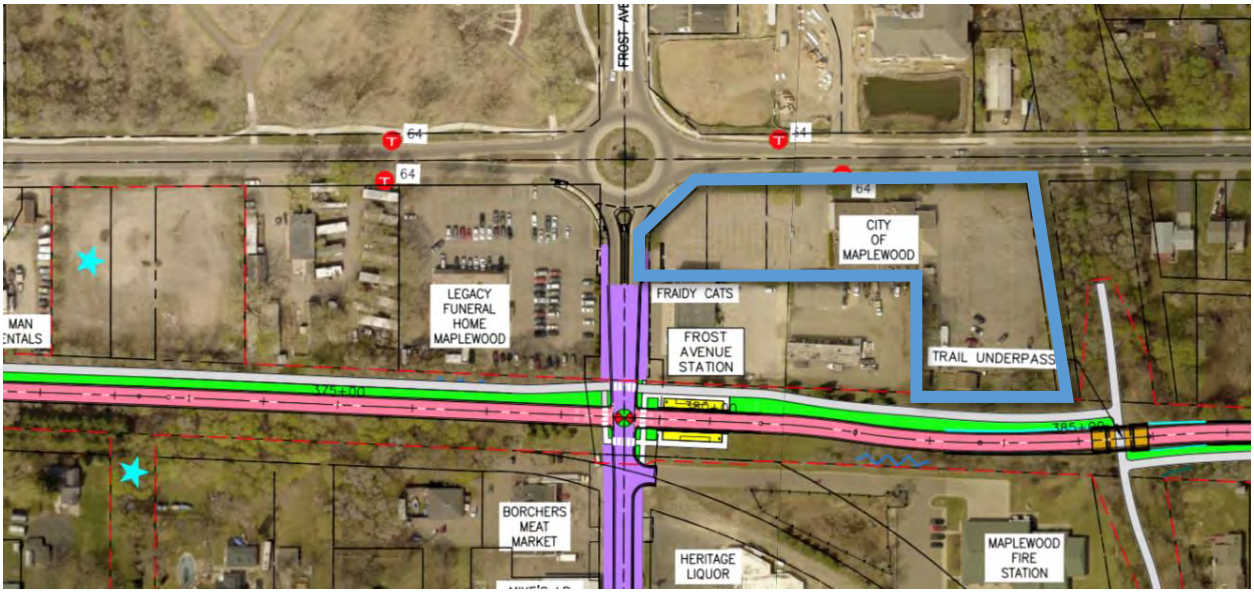
The proposed Project includes operation of BRT vehicles in a dedicated BRT roadway adjacent to Moose Lodge 963; no physical changes are proposed within the historic boundary (see Sheets 14 and 15 of the 15% Plans and Figure 52). Proposed visual changes in the vicinity of the Moose Lodge include

[166] Images from Sebastian Renfield, "Moose Lodge 963 (RA-WBC-0134)," Figure 7.

[167] In its comments on the architecture/history investigations, MnSHPO noted that "a considerable amount of additional research and documentation, particularly as it relates to the building modifications which occurred in the 1980s, would be needed to actually nominate this property to the [National Register]." Sarah Beimers, MnSHPO, letter to Jay Ciavarella, FTA, September 15, 2020.

construction of the dedicated BRT roadway, the Bruce Vento Regional Trail, the Gateway Trail Underpass, the Gateway Trail/Bruce Vento Regional Trail intersection adjacent to the north edge of the historic property, and two (2) proposed stormwater BMPs approximately 500 feet south of the historic property. Therefore, potential Project effects would include visual effects of the proposed station, underpass, stormwater BMPs, and dedicated BRT roadway and potential changes in traffic, access, and parking.

Figure 52. Proposed Project plans within the vicinity of Moose Lodge 963 (outlined in blue).



Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect Moose Lodge 963. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

Proposed visual changes along the eastern edge of Moose Lodge 963 include construction of the dedicated BRT roadway, Bruce Vento Regional Trail, Gateway Trail Underpass, Gateway Trail/Bruce Vento Regional Trail interchange, and BMP site. However, the historic property's setting has already been altered since the period of significance with the introduction of new construction and paving of the Bruce Vento Regional Trail and the Gateway Trail within the viewshed of Moose Lodge 963. In addition, the design of the dedicated BRT roadway would follow the *Ramsey County Rail Right-of-Way Design Guide*, which recommends reestablishment of vegetative screening along the edges of the corridor.[168] None of the proposed Project elements would diminish the historic property's integrity of setting, feeling, or association any further.

[168] Ramsey County Regional Railroad Authority, *Ramsey County Rail Right-of-Way Design Guide*, 43.

Traffic, Access, and Parking

The Rush Line BRT Project is coordinating with the City of Maplewood for a project involving partial street reconstruction of Frost Avenue between English Street and White Bear Avenue, anticipated for construction in 2022 (see purple shaded area on Sheet 15 of the 15% Plans). None of the existing access points to Moose Lodge 963 would be dramatically modified by the Project. A new traffic signal would be introduced east of the Frost Avenue and English Street roundabout, where the dedicated BRT roadway intersects Frost Avenue. However, this would not impede access to the historic property. The Project would not result in the loss of any on-street parking spaces near Moose Lodge.[169] Therefore, the Project is anticipated to have no impact on traffic, access, or parking associated with the historic property.

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on Moose Lodge 963**. The historic property would not be physically affected by the Project. Although Project elements will be constructed near the historic property, any alterations to the viewshed would be minor and views to and from the historic building and sign would not be changed. Furthermore, the setting has been altered previously and is not a character-defining feature.

Madeline L. Weaver Elementary School (RA-MWC-0106)

2135 Binghamton Street, Maplewood

Description & Historic Significance

Madeline L Weaver Elementary School (Weaver Elementary School) is a one (1)-story, brick, Midcentury Modern style building in Maplewood (Figure 53).[170] The building has a cross-plan with four (4) nearly identical wings; however, the west wing is a planned 1967–68 addition to the original 1966 building. Both the original building and the addition were designed by Corwin, Seppanen, & Associates, Inc., a Saint Paul-based architecture firm. The main entrance, at the junction of the east and north wings, consists of a walkway sheltered by an extension of the east wing's roof gable supported by four (4) brick screens. Weaver Elementary School was constructed with key features of 1960s and 1970s education design by using modern building methods and emphasizing functionality over aesthetics by having a simple geometric form and an open-space interior plan. During the 1960s and 1970s, education philosophy was influenced by social issues such as "desegregation, conservation, and emphasis on freedom of expression and the individual."[171] School design was influenced by education philosophy and new technology leading to open-space school design for teaching flexibility as well as energy-conserving lighting and ventilation systems.

[169] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 51–52.
[170] Information on Madeline L. Weaver Elementary School comes from Katie Ohland, "Madeline L. Weaver School (RA-MWC-0106)," Minnesota Individual Property Inventory Form, 2019.
[171] Ohland, Katie, "Madeline L. Weaver School (RA-MWC-0106)," 17.

Figure 53. Eastern wing of Weaver Elementary School with Midcentury Modern brick screens on the entrance walkway, facing southwest.[172]

Weaver Elementary School is eligible for inclusion in the National Register under Criterion C in the area of Architecture as an example of a 1960s elementary school within Maplewood and Independent School District 622. The property may also be eligible under Criterion A in the area of Education.[173] The period of significance is from 1966 to 1968, from the initial construction to the completion of the west classroom wing. The boundary corresponds to the building parcel, including the school building and associated play fields; however, only the school building contributes to the property's significance. Weaver Elementary School retains a high degree of integrity with only minor changes to the landscape. Weaver Elementary School retains sufficient integrity of setting, location, materials, design, workmanship, association, and feeling to convey its significance under Criterion C as an excellent example of a mid-20th century school. Character-defining features of the property include a low sprawling, one (1)-story design, a cross-shaped plan with classroom wings and common areas, interior spaces that allowed for flexible teaching methods, a brick exterior, brick screens, and window units and slatted metal grate panels at each classroom.

Potential Effects

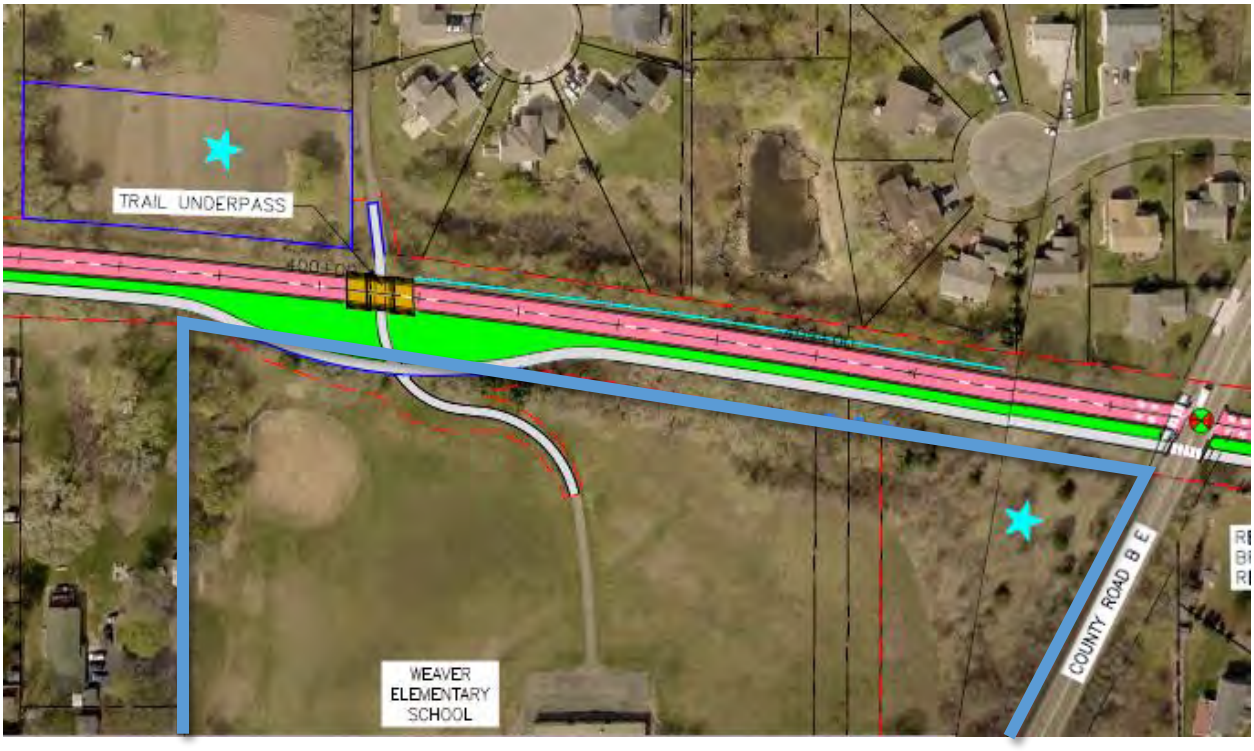
Weaver Elementary School is located within the Rush Line Project APE; the LOD is approximately 160 feet from the school building (see Sheet 15 of the 15% Plans and Figure 54). The proposed dedicated BRT roadway would be adjacent to the property's western boundary. Proposed physical changes within the historic property boundary includes construction of a trail connections from Weaver Elementary School to the Bruce Vento Regional Trail and to English Street. Proposed physical changes in the vicinity of the historic property include construction of the dedicated BRT roadway, Bruce Vento Regional Trail and Weaver Elementary School trail connections, the Weaver Trail Underpass, and stormwater BMP

[172] Image from Ohland, Katie, "Madeline L. Weaver School (RA-MWC-0106)," Minnesota Individual Property Inventory Form, Figure 7.

[173] Although the evaluation noted that Weaver Elementary School did not play a significant role in the expansion of Independent School District 622 or in the educational philosophies of the 1960s, MnSHPO noted in their comments on the evaluation that the office "remains unconvinced the property is not also eligible under Criterion A in the area of education with a period of significance 1966–1968." Sarah Beimers, MnSHPO, letter to Jay Ciavarella, FTA, September 15, 2020. This assessment of effects considers the significance and character-defining features of the property in light of MnSHPO's comments.

sites, some of which would require permanent property acquisition. Therefore, in addition to the potential physical effect to Weaver Elementary School, potential Project effects would include visual effects of the Weaver Trail Underpass, dedicated BRT roadway, trail and trail connections, and stormwater BMP sites; and potential changes in traffic, access, and parking.

Figure 54. Proposed Project plans within the vicinity of Madeline L. Weaver Elementary School (western boundary outlined in blue).



Assessment of Effects

Physical

Although the proposed Project would have a direct, physical effect to Weaver Elementary School, the effect would be minor and the school building would not be physically affected. On the western edge of the property, 0.11 acres of the historic property would be permanently acquired and 0.45 acres would be placed under a temporary easement to reconfigure a trail connection to English Street and connections to the Bruce Vento Regional Trail. In addition, on the northern edge of the historic property, 1.45 acres would be permanently acquired to construct a stormwater BMP.[174] Because these acquisitions and proposed construction would not physically impact the school building, none of the changes would diminish the historic property's integrity of design, materials, workmanship, feeling, or association, though they could somewhat diminish integrity of setting. The size, depth, and design of the BMP will be informed by stormwater analysis currently underway. In some cases, the stormwater BMP locations may be removed from consideration. Any potential adverse physical effects to the building

[174] Kimley-Horn and Associates, Inc., "Section 4(f) Evaluation, Draft," 32, 63.

caused by unintended damage from construction activities can be avoided with construction protection measures incorporated into contract documents.

Visual

Directly adjacent to the western edge of the historic boundaries of Weaver Elementary School, construction would include the dedicated BRT roadway, the Weaver Trail Underpass, Bruce Vento Regional Trail, retaining walls, and linear stormwater BMPs. In addition, a stormwater BMP on the opposite side of the dedicated BRT roadway would require property acquisition. Although all of these Project elements are outside of Weaver Elementary School's historic property boundaries, the removal and reintroduction of vegetation, the grading of the landscape, and the construction of Project elements all have the potential to have a permanent visual effect on the historic property. However, these visual effects can be minimized and/or avoided through reestablishment of appropriate vegetative screening as design development continues. Project documentation notes the "moderate visual impacts" would be "mitigated by landscaping as specified in the *Ramsey County Rail Right-of-Way Design Guide,*" which recommends reestablishment of vegetative screening along the edges of the corridor .[175] Reviewing the design of the Weaver Trail Underpass in accordance with the SOI Standards may also minimize and/or avoid potential adverse effects. The review would need to include minimizing the structure's mass, scale, and visibility within the historic property's viewshed.

Traffic, Access, and Parking

The Project is not expected to intensify or alter land use patterns adjacent to Weaver Elementary School. Although a new traffic signal would be installed where the dedicated BRT roadway intersects County Road B East, the Project would not impact access to or parking at the historic property. Although motorized vehicles do not typically operate on the Bruce Vento Regional Trail today, the rail corridor was active during the property's period of significance, so the introduction of BRT vehicles to this former rail corridor would not impact the historic property's integrity of setting, feeling, or association.[176]

Recommended Finding: No Adverse Effect with Conditions

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on Madeline L. Weaver Elementary School if certain conditions are placed on the Project**. Although construction of the Project would physically affect a portion of the historic property and introduce temporary and permanent visual changes within the viewshed, the proposed condition ensures the Project would not alter any of the characteristics that qualify Weaver Elementary School for inclusion in the National Register or diminish the historic property's integrity of location, design, setting, materials, workmanship, feeling, or association. The recommended finding of No Adverse Effect is dependent upon the following conditions being placed on the Project:

- As part of design development along the western edge of the historic property, vegetative screening will be reestablished between Weaver Elementary School and built Project elements.
- To minimize the visual impact and maximize compatibility with Weaver Elementary School while still meeting the Project's Purpose and Need, the design of Project elements, including the Weaver Trail Underpass, trails, and stormwater BMP, will be reviewed according to the SOI

[175] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 51–52; and Ramsey County Regional Railroad Authority, *Ramsey County Rail Right-of-Way Design Guide*, 43.
[176] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 51–52 and Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 28.

Standards at the Project's 30%, 60%, 90% and 100% Plans, with a consultation meeting prior to finalization of the 60% design. The consultation meeting will also determine whether a CPPHP is necessary to ensure the Weaver Elementary School building is physically protected during construction of the Project.

Polar Chevrolet Bear/Paul R. Bear (RA-WBC-0031)

1801 County Road F East, White Bear Lake

Description & Historic Significance

The Polar Chevrolet Bear, also known as Paul R. Bear, is a fiberglass polar bear sculpture erected in 1964 by Minnesota artist Gordon Schumaker.[177] The 30-foot-tall bear was built as a roadside sign for Polar Chevrolet automobile dealership in White Bear Lake at the intersection of TH 61 and County Road F East. The bear is mounted on a 20-foot-tall pedestal, dating from between 1980 and 1991, and holds a lighted Chevrolet sign (Figure 55). Between 1972 and 1980, the bear was moved twice. Its original location was close to TH 61, and it was moved to the roof of the dealership before being placed in its current location approximately 10 feet from the dealership's front entrance.

Figure 55. Polar Chevrolet Bear on its original pedestal in 1976 (left), and in its current location (right).[178]

In Minnesota, many roadside colossi were built to encourage automobile tourism during the mid-20th century. Fiberglass became a popular material for roadside sculptures after World War II. The bear was designed and built by Schumaker, an accomplished designer and craftsman of parade floats and roadside colossi in Minnesota. The Polar Chevrolet Bear is an example of Schumaker's body of work and is the only known sculpture the craftsman created for a private business. The sculpture is a postwar,

[177] Information on Polar Chevrolet Bear/Paul R. Bear comes from Chris Hommerding, "Polar Chevrolet Bear (RA-WBC-0031)," Minnesota Individual Property Inventory Form, 2019.

[178] Steven W. Plattner, *Ralph Thomas Chevrolet, Highway 61 and East County Road F, White Bear Lake, Negative #01611-20a*, Photograph, 1976, MR2.9 WB3.1 p13, Minnesota Historical Society, Saint Paul, MN; Current image is from Hommerding, Chris, "Polar Chevrolet Bear (RA-WBC-0031)," Figure 1.

automobile dealership advertisement and was built to be highly visible to passing motorists. Although the sculpture was designed for a private business, the bear quickly became a symbol of the city of White Bear Lake.

The Polar Chevrolet Bear/Paul R. Bear is an object that is eligible for inclusion in the National Register under Criterion C for Art and meets the requirements for Criteria Consideration B (moved properties).[179] The property's period of significance is 1964. Overall, the historic property retains sufficient integrity to convey its historic significance as a roadside colossus, including integrity of design, materials, workmanship, setting, feeling, and association. The Polar Chevrolet Bear does not retain integrity of location, but the object does meet the requirements for Criteria Consideration B as it "remains in a prominent highly visible location on a pedestal near its original site and still on the overall dealership property."[180] Character-defining features include the fiberglass shell, original Chevrolet sign, relationship to the automobile industry illustrated by its location on automobile dealership property, and its high visibility with prominent placement visible from the TH 61 corridor.

Potential Effects

The proposed Project includes operation of BRT vehicles in a dedicated BAT lane on TH 61, approximately 170 feet from the Polar Chevrolet Bear (see Sheets 26 and 71 of the 15% Plans and Figure 56). As noted in the 15% Plans, the only proposed construction in the vicinity of the historic property is to extend the existing roadway shoulder to accommodate the BAT lane and replace the existing guardrail. Therefore, potential effects of the Project on the Polar Chevrolet Bear would include the visual effects of BAT lane construction in the vicinity of the historic property and potential changes in traffic, access, and parking.

[179] The evaluation identified the resource type as a Structure and the area of significance as Architecture. In their comments, MnSHPO noted the "appropriate area of significance under Criteria C is Art (not architecture) and the appropriate property type is Object (not Structure)." Sarah Beimers, MnSHPO, letter to Jay Ciavarella, FTA, September 15, 2020. This assessment of effects considers the resource type and significance of the property in light of MnSHPO's comments.

[180] Hommerding, Chris, "Polar Chevrolet Bear (RA-WBC-0031)," 22.

Figure 56. Proposed Project plans within the vicinity of the Polar Chevrolet Bear (the property boundary is outlined in blue, the star pinpoints the position of the Polar Chevrolet Bear).

Assessment of Effects

Physical

As currently designed, the proposed Project would not directly, physically affect the Polar Chevrolet Bear. Therefore, the Project would not diminish the historic property's integrity of location, design, materials, or workmanship.

Visual

The introduction of the proposed BAT lanes within the viewshed of the Polar Chevrolet Bear would be a minor change to the historic property's setting, which has already been altered through the expansion of TH 61 into a four (4)-lane highway. Views to the historic property from TH 61 would remain unobscured. Therefore, the Project would not diminish the historic property's integrity of setting, feeling, or association any further.

Traffic, Access, and Parking

The Project is not expected to intensify or alter land use patterns adjacent to the Polar Chevrolet Bear. Although the traffic signal at TH 61 intersection with County Road F would be modified, the Project

would not impact access, traffic, or parking at the historic property. The introduction of BRT vehicles to this roadway would not impact the historic property's integrity of setting, feeling, or association.[181]

Recommended Finding: No Adverse Effect

Based on the Project's 15% Plans and the draft EA, the Project is anticipated to have **No Adverse Effect on the Polar Chevrolet Bear**. The historic property would not be physically affected by the Project. Although dedicated BAT lanes would be inserted between TH 61 and the historic property, any alterations to the viewshed would be minor and the views to and from the historic property would not be changed. The setting has been altered previously by the expansion of TH 61 into a four (4)-lane divided highway and the proposed Project elements would not diminish this altered setting any further. Therefore, the Project would not alter any of the characteristics that qualify the historic property for inclusion in the National Register or diminish the historic property's integrity of design, materials, workmanship, setting, feeling, or association.

[181] SRF Consulting Group, Inc., "Land Use and Economics Technical Report, Draft," 56 and Kimley-Horn and Associates, Inc., "Traffic Technical Report, Draft," 29–30.

Section 6: Project Determination of Effect

Based on the results of the assessment of effect analysis conducted by MnDOT CRU under delegation from FTA, summarized in Table 7, FTA has found that the Project will result in:

- An Adverse Effect on five (5) historic properties;
- No Adverse Effect on 15 historic properties; and
- No Adverse Effects with conditions on eight (8) properties.

Therefore, FTA has determined, based on the Project's 15% Plans, that the undertaking will have an Adverse Effect on historic properties. Pursuant to 36 CFR 800.6, consultation under Section 106 will continue in order to resolve the Adverse Effect. Suggested measures for minimizing and avoiding adverse effects, outlined in the individual property assessments above, will be discussed with Section 106 consulting parties and documented, along with appropriate mitigation measures for any adverse effects that cannot be avoided or minimized, in a memorandum of agreement.

Table 7. Summary of Effects Findings[182]

Inventory or Site No.	Property Name	Address	City	Effect Finding
RA-SPC-4580	Lowertown Historic District	Roughly bounded by Shepard Road, Kellogg Boulevard, Broadway Street, 7th Street, and Sibley Street	Saint Paul	No Adverse Effect with Conditions
RA-SPC-5225 RA-SPC-6907	Saint Paul Union Depot	214 East 4th Street	Saint Paul	No Adverse Effect with Conditions
RA-SPC-5462	Finch, Van Slyck and McConville Dry Goods Company	360–366 Wacouta Street	Saint Paul	No Adverse Effect
RA-SPC-8364	Saint Paul Urban Renewal Historic District	Roughly between 6th Street, Kellogg Boulevard, Wabasha Street, and Jackson Street	Saint Paul	No Adverse Effect
RA-SPC-3168	First Farmers and Merchants National Bank Building	332 Minnesota Street	Saint Paul	No Adverse Effect
RA-SPC-4645	First National Bank of Saint Paul	332 Minnesota Street	Saint Paul	No Adverse Effect
RA-SPC-3167 RA-SPC-3169 RA-SPC-5223 RA-SPC-6903	Pioneer and Endicott Buildings	322–350 North Robert Street, 141 East 4th Street, 142 East 5th Street	Saint Paul	No Adverse Effect

[182] Historic properties are in the order they are presented in this report, which generally runs from south to north, except where properties are grouped, such as with the resources associated with the LS&M Railroad.

Inventory or Site No.	Property Name	Address	City	Effect Finding
RA-SPC-3170	Manhattan Building (aka Empire Building)	360 North Robert Street	Saint Paul	No Adverse Effect
RA-SPC-3171	Golden Rule Department Store Building	85–95 7th Place	Saint Paul	No Adverse Effect
RA-SPC-3174	Foot, Schulze & Company Building	500 North Robert Street	Saint Paul	No Adverse Effect
RA-SPC-6330	Produce Exchange Building	523 Jackson Street	Saint Paul	No Adverse Effect
RA-SPC-5918	Great Northern Railroad Corridor Historic District	Saint Paul to Minneapolis	Saint Paul	No Adverse Effect with Conditions
RA-SPC-4582	StPM&M Railway Company Shops Historic District	Jackson Street and Pennsylvania Avenue	Saint Paul	No Adverse Effect
RA-SPC-5618	Westminster Junction	Roughly bounded by the Lafayette Road Bridge, I-35E, a line approximately 1,300 feet south of the Cayuga Street Bridge, and a line approximately 400 feet southwest of the Cayuga Street/Phalen Boulevard intersection	Saint Paul	No Adverse Effect with Conditions
XX-RRD-CNW001	StPS&TF/Omaha Road Railroad Corridor Historic District	Saint Paul to Stillwater Junction Segment	Saint Paul	No Adverse Effect with Conditions
XX-RRD-NPR001	LS&M Railroad Corridor Historic District	Saint Paul to White Bear Lake Segment	Saint Paul, Maplewood, Vadnais Heights and White Bear Lake	Adverse Effect
XX-RRD-NPR004	1868 Alignment of the LS&M Railroad	Between Eldridge Avenue East and County Road B East	Maplewood	Adverse Effect
XX-RRD-NPR003	1868 Alignment of the LS&M Railroad	Between Gervais Avenue and County Road C	Maplewood	Adverse Effect
XX-RRD-NPR002	1868 Alignment of the LS&M Railroad	Between Kohlman and Beam Avenues	Maplewood	Adverse Effect

Inventory or Site No.	Property Name	Address	City	Effect Finding
XX-RRD-NPR005	LS&M Railroad Corridor Historic District	White Bear Lake to Hugo Segment	White Bear Lake	Adverse Effect
RA-SPC-2926	Theodore Hamm Brewing Company Complex	Minnehaha Avenue East between Payne Avenue & Stroh Drive	Saint Paul	No Adverse Effect
RA-SPC-0455	3M Administration Building (3M Main Plant, Building 21)	777 Forest Street	Saint Paul	No Adverse Effect
RA-SPC-10850	Phalen Park	1600 Phalen Drive	Saint Paul	No Adverse Effect with Conditions
RA-SPC-8497 RA-SPC-5685	Johnson Parkway	Johnson Parkway from Indian Mounds Park to Lake Phalen	Saint Paul	No Adverse Effect with Conditions
Site 21RA70	Gladstone Shops (Gladstone Savanna Neighborhood Preserve)	Southwest corner of Frost Avenue and English Street	Maplewood	No Adverse Effect
RA-MWC-0134	Moose Lodge 963	1946 English Street North	Maplewood	No Adverse Effect
RA-MWC-0106	Madeline L. Weaver Elementary School	2135 Binghamton Street	Maplewood	No Adverse Effect with Conditions
RA-WBC-0031	Polar Chevrolet Bear/Paul R. Bear	1801 County Road F East	White Bear Lake	No Adverse Effect

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Appendices

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Appendix A: 15% Plans, Dated August 7, 2020

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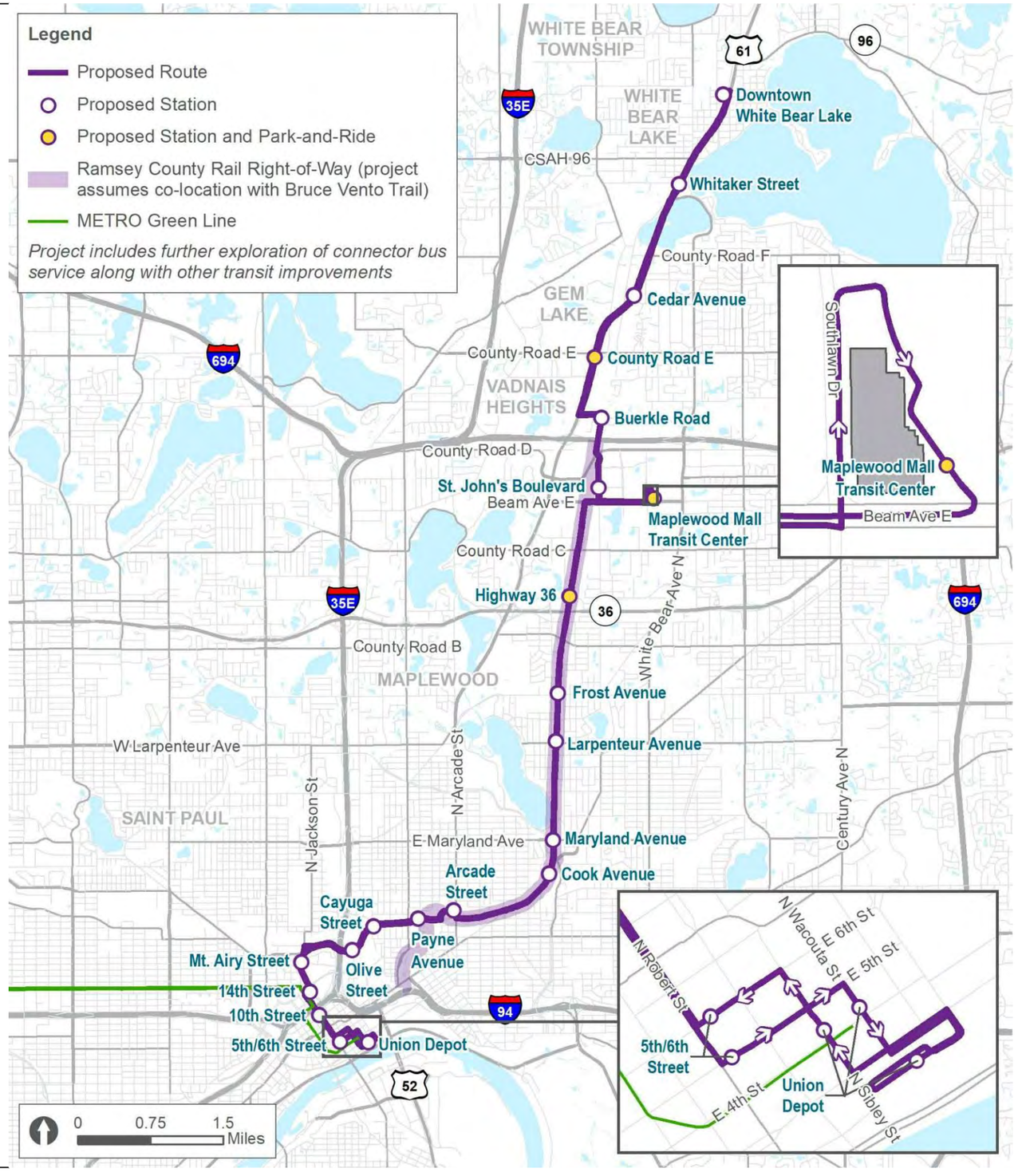
Rush Line

RAMSEY COUNTY

Kimley»Horn

SRF

AUGUST 07, 2020
15% PLANS - FINAL DRAFT



LEGEND

	DEDICATED GUIDEWAY		PARK AND RIDE
	BRT IN MIXED TRAFFIC		ROADWAY
	STATION PLATFORM		BRIDGE/UNDERPASS
	SIDEWALK OR MULTI-USE TRAIL OR DRIVEWAY APRON		MEDIAN
	CONSTRUCTION BY OTHERS		PROPOSED GREEN SPACE
	SHOULDER		LIMITS OF DISTURBANCE
	RETAINING WALL		EXISTING WETLAND DELINEATION
	EXISTING PROPERTY LINE		PARTIAL PROPERTY ACQUISITION
	EXISTING RIGHT OF WAY		POTENTIAL STORMWATER BMP LOCATION
	EXISTING SIGNAL SYSTEM TO REMAIN INPLACE		POTENTIAL LINEAR STORMWATER BMP LOCATIONS WITHIN RCRRA RIGHT OF WAY
	MODIFY EXISTING SIGNAL SYSTEM		PROPOSED DIRECTIONAL LANE USE
	PROPOSED SIGNAL SYSTEM		LOCAL BUS ROUTE

ABBREVIATIONS

ADA	AMERICANS WITH DISABILITIES ACT	NTS	NOT TO SCALE
AVE	AVENUE	NWL	NORMAL WATER LINE
BAT	BUSINESS ACCESS AND TRANSIT	PC	POINT OF CURVE
BGN	BEGIN	PE	PERMANENT EASEMENT
BVC	BEGINNING VERTICAL CURVE	PGL	PROFILE GRADE LINE
BLVD	BOULEVARD	PI	POINT OF INTERSECTION
BRT	BUS RAPID TRANSIT	PKWY	PARKWAY
BP	BEGIN POINT	POT	POINT ON TANGENT
C&G	CURB AND GUTTER	PRC	POINT OF REVERSE CURVATURE
℄	CENTERLINE	PROP	PROPOSED
CLR	CLEAR	PT	POINT OF TANGENT
CONC	CONCRETE	PVI	POINT OF VERTICAL INTERSECTION
CR	COUNTY ROAD	R	RADIUS (FEET)
CSAH	COUNTY STATE AID HIGHWAY	RD	ROAD
CT	COURT	ROW	RIGHT OF WAY
DR	DRIVE	S	SOUTH
EB	EAST BOUND	SAN	SANITARY
EL	ELEVATION	SB	SOUTHBOUND
EP	END POINT	ST	STREET
EVC	ENDING VERTICAL CURVE	STA	STATION
EX	EXISTING	STM	STORM
HP	HIGHPOINT	TBD	TO BE DETERMINED
HWL	HIGH WATER LINE	TE	TEMPORARY EASEMENT
LN	LANE	TERR	TERRACE
LP	LOW POINT	TH	TRUNK HIGHWAY
MAX	MAXIMUM	TYP	TYPICAL
ME	MATCH EXISTING	UG	UNDERGROUND
MID	MIDPOINT OF CURVE	VAR	VARIES
MIN	MINIMUM	VC	VERTICAL CURVE
N	NORTH	Vd	DESIGN VELOCITY (MPH)
NB	NORTHBOUND	WB	WEST BOUND
NIC	NOT IN CONTRACT	WM	WATERMAIN

INDEX

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

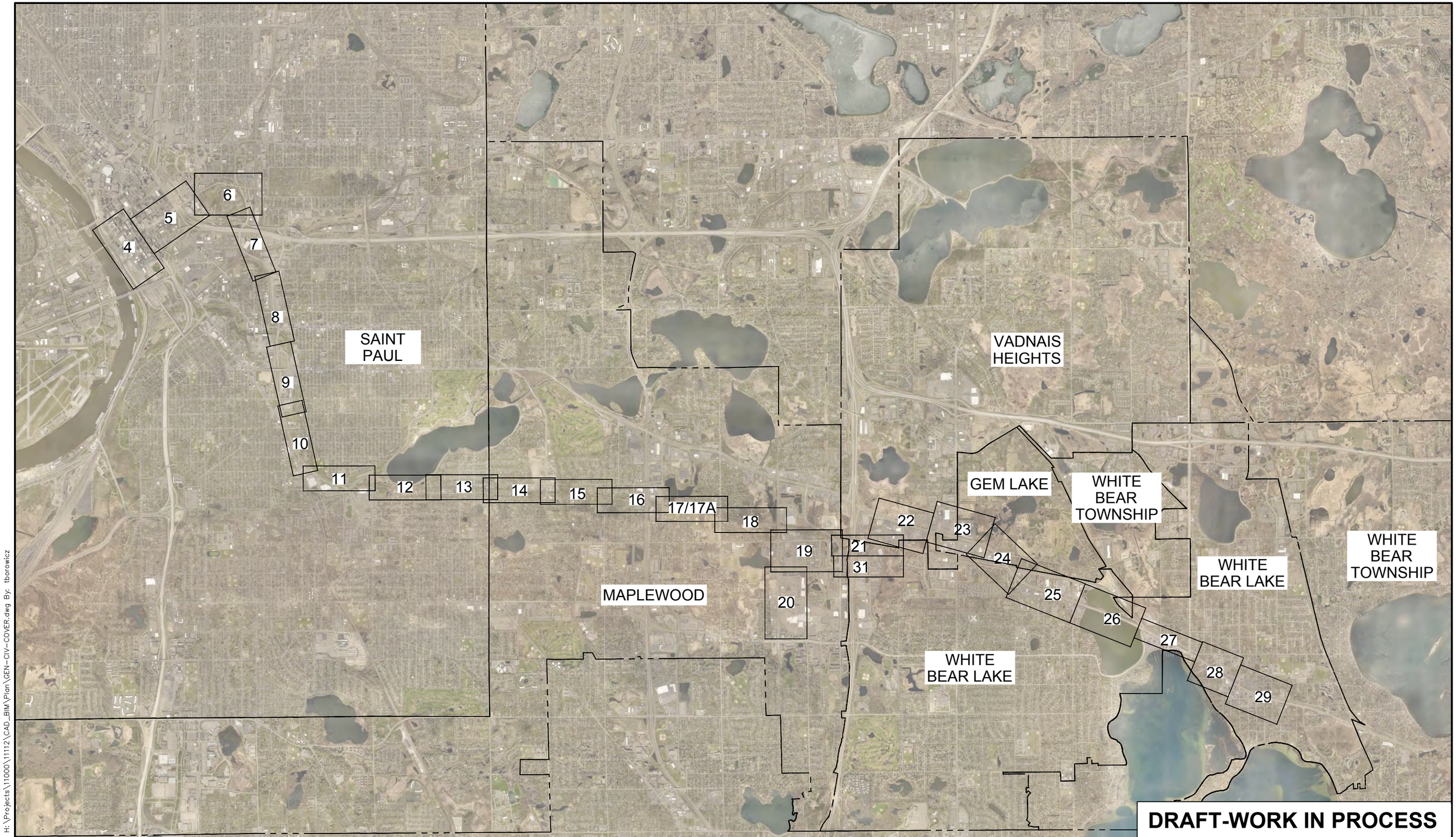
15% PLANS - 08/07/2020

LEGEND, ABBREVIATIONS AND INDEX

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.



DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
KEYMAP

NORTH

0 1000 2000 4000

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
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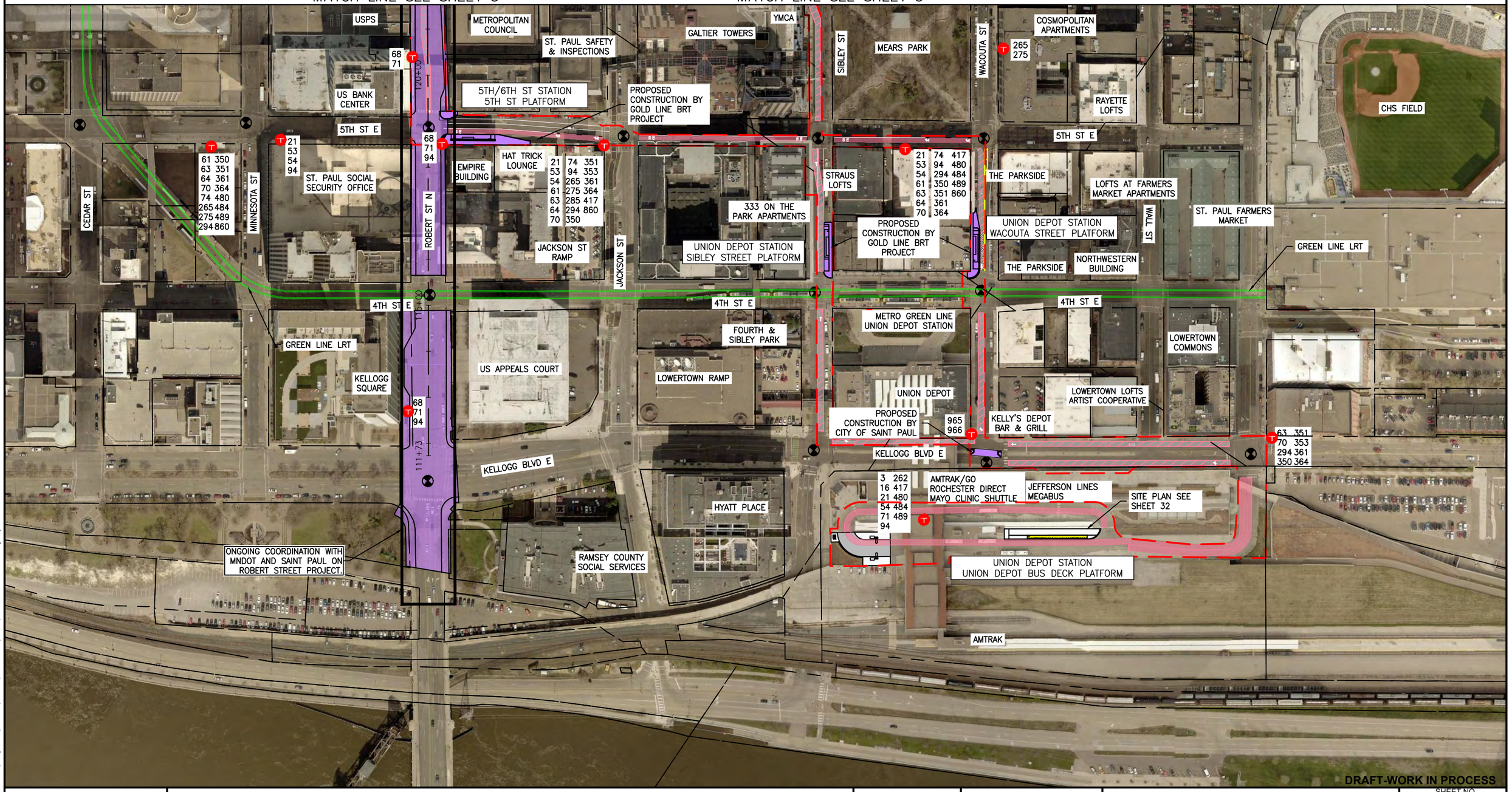
OF
83

Aug, 04 2020 09:04 am H:\Projects\11000\11112\CAD_BIM\Plan\GEN-CIV-COVER.dwg By: tborowicz

MATCH LINE SEE SHEET 5

MATCH LINE SEE SHEET 5



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Aug, 04 2020 09:08 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 4 OF 83

MATCH LINE SEE SHEET 6

MATCH LINE SEE SHEET 4

GILLETTE CHILDREN'S HOSPITAL

REGIONS HOSPITAL

EX. 68 71

PROP. 68 71

14TH STREET STATION

E 14TH ST

JACKSON ST

ROBERT ST N

MINNESOTA DEPARTMENT OF REVENUE

OFFICE OF ADMINISTRATIVE HEARINGS

12TH ST E

I-35E/I-494

11TH ST E

METROPOLITAN CENTER FOR INDEPENDENT LIVING

10TH ST E

9TH ST E

7TH ST E

7TH PL E

6TH ST E

SIBLEY ST

MEARS PARK PLACE

5TH/6TH STREET STATION
6TH STREET PLATFORM

PROPOSED CONSTRUCTION BY GOLD LINE BRT PROJECT

ALARY'S BAR

METRO SQUARE

SECURIAN FINANCIAL

BP GAS STATION

ALANO SOCIETY

BLACK SHEEP

KEYS CAFE

CAMP BAR

THE ROSSMOR

SAWATDEE

RENODIS TELECOMMUNICATIONS

METRO GREEN LINE ROBERT ST STATION

MINNESOTA DEPARTMENT OF HEALTH

MINNESOTA DEPARTMENT OF AGRICULTURE

ONGOING COORDINATION WITH MNDOT AND SAINT PAUL ON ROBERT STREET PROJECT.

GREEN LINE LRT

THE PENFIELD

LUNDS & BYERLYS

10TH STREET STATION

PEDRO PARK

UNION GOSPEL MISSION CHILD CARE CENTER

MINNESOTA DEPARTMENT OF COMMERCE

CHARLES SCHWAB

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

0 50 100 200
HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 5 OF 83

Aug, 04 2020 09:09 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz

MATCH LINE SEE SHEET 7

MATCH LINE SEE SHEET 5

ARCH ST

LINDEN ST

VALLEY APARTMENTS

MINNESOTA TRANSPORTATION MUSEUM

GILLETTE CHILDREN'S SPECIALTY HEALTHCARE

UNIVERSITY AVE E

MT. AIRY COMMUNITY CENTER

WALES ST

PENNSYLVANIA AVE E

MT AIRY ST

BOYS & GIRLS CLUB

68

303+00

JACKSON ST

326+37

325+00

MT. AIRY STREET STATION

320+00

310+00

REGIONS HOSPITAL STAFF PARKING

H & S FOOD STORE

315+00

EMPIRE DR

ONGOING COORDINATION WITH CITY OF SAINT PAUL ON JACKSON STREET PROJECT.

ROBERT ST N

WINTER ST

VALLEY ST

CAPITOL HEIGHTS

GREEN LINE LRT

UNIVERSITY AVE W

DRAFT-WORK IN PROCESS

Aug, 04 2020 09:09 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

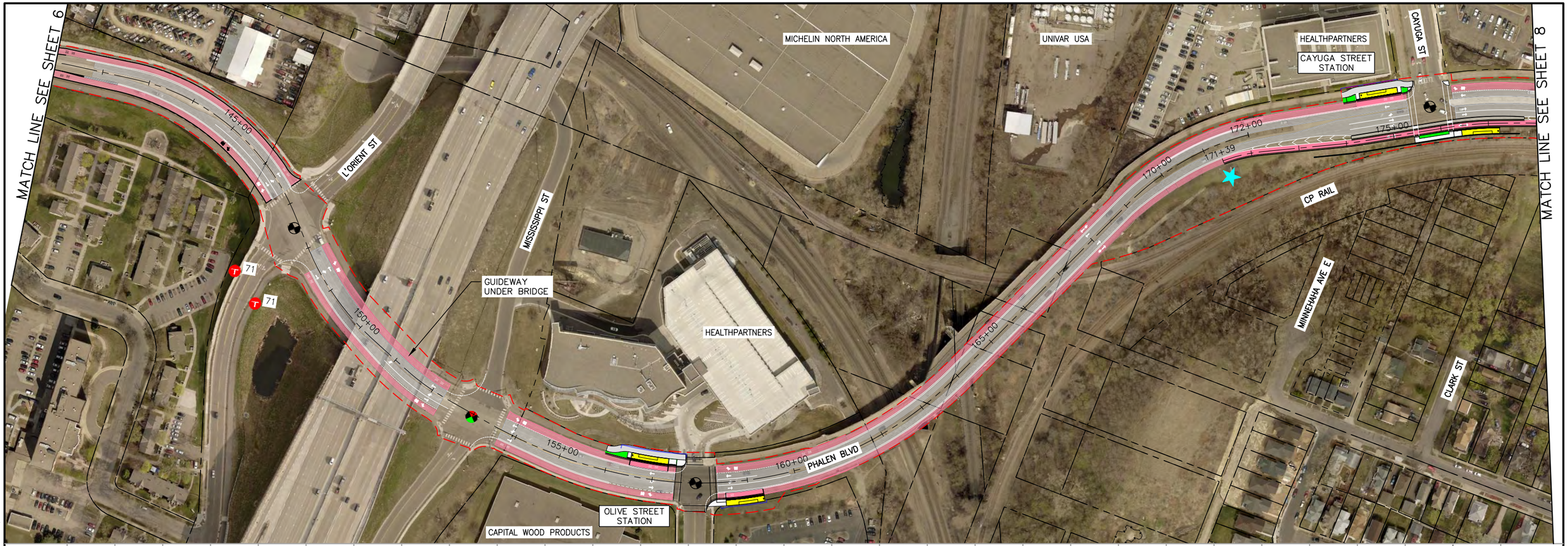
SRF Consulting Group, Inc.

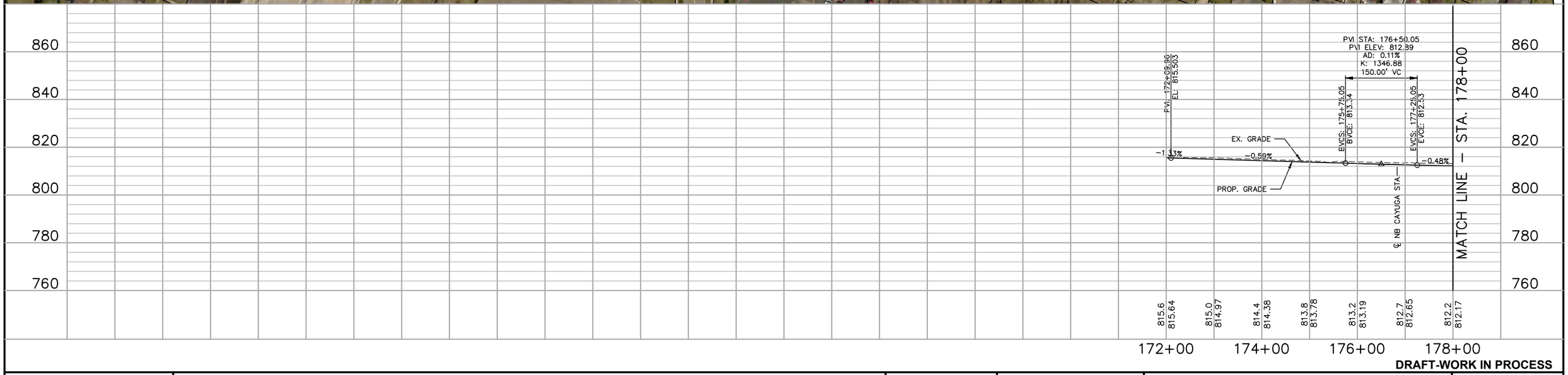
SHEET NO.

6

OF

83





DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL
0 10 20 40
VERTICAL

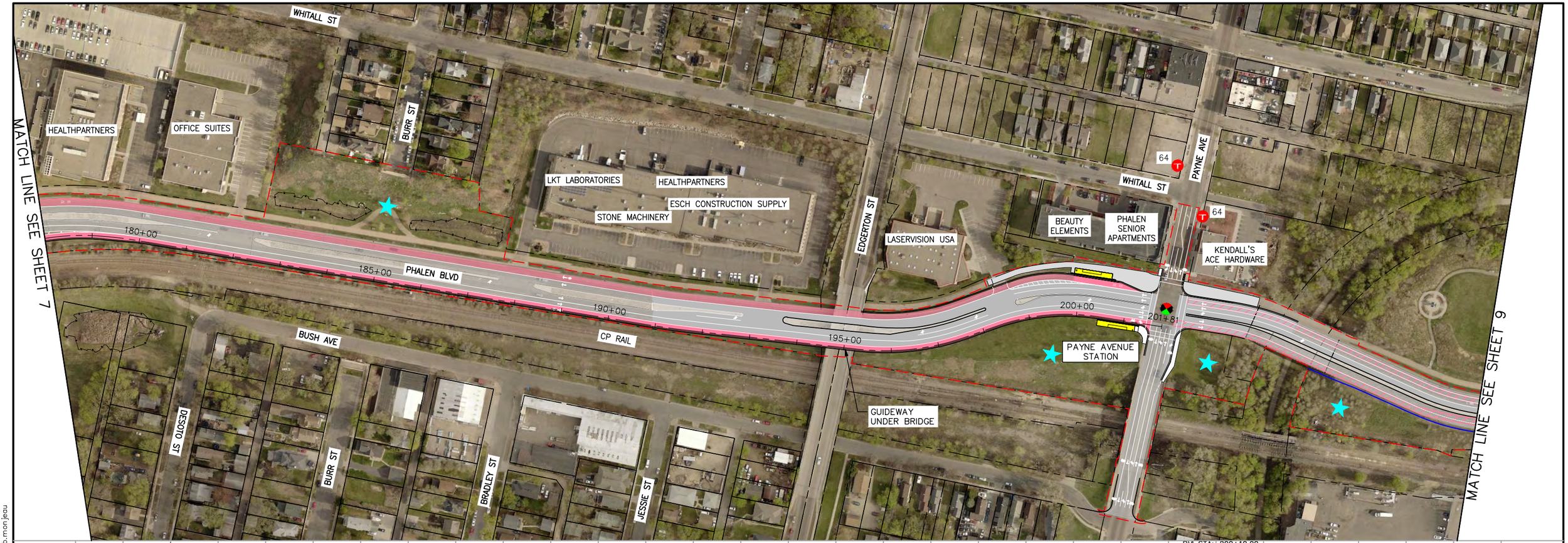
RAMSEY COUNTY

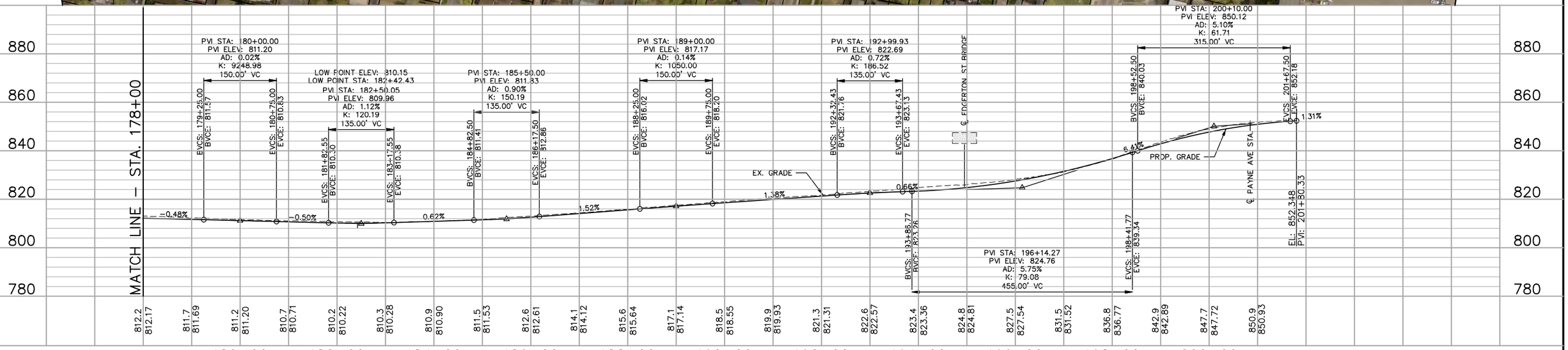
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
7
OF
83

Aug, 04 2020 07:52 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan_Prof 04.dwg By: bob.monjeau





DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
8
OF
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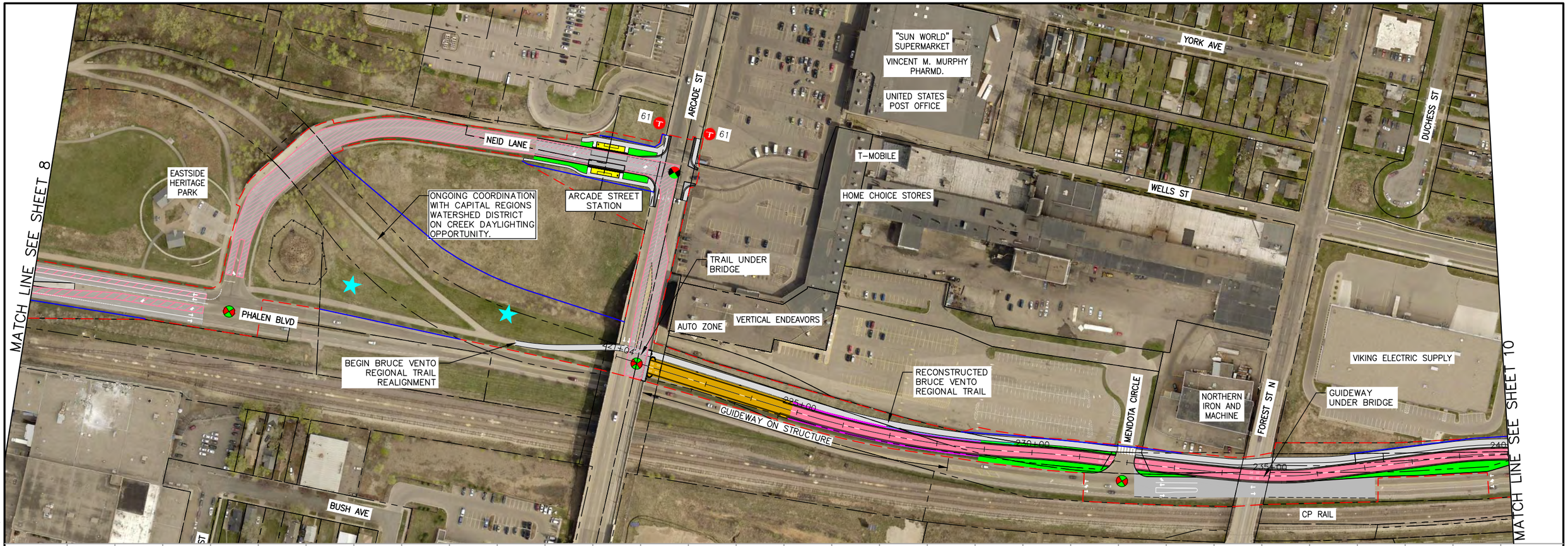
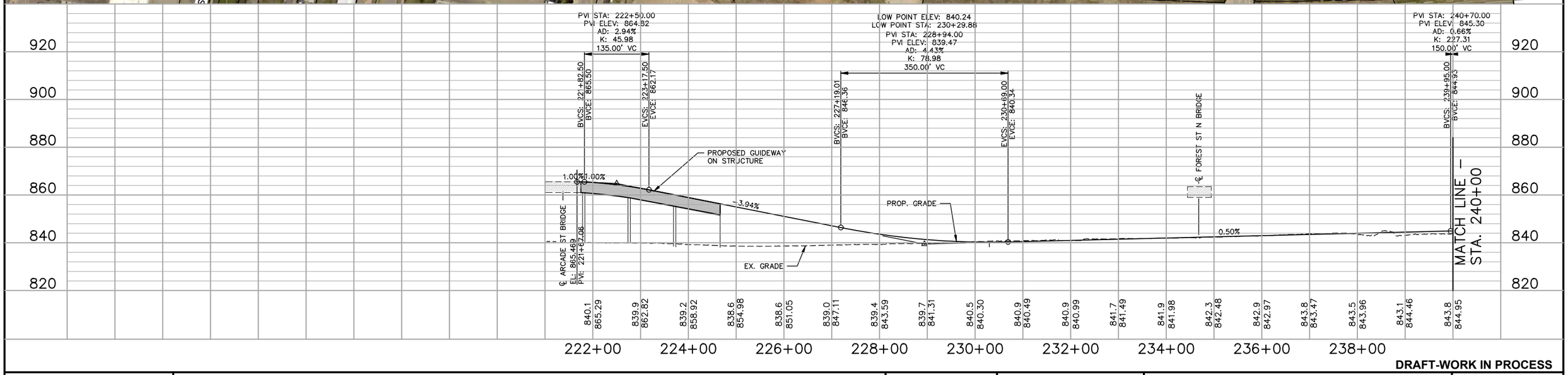




DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

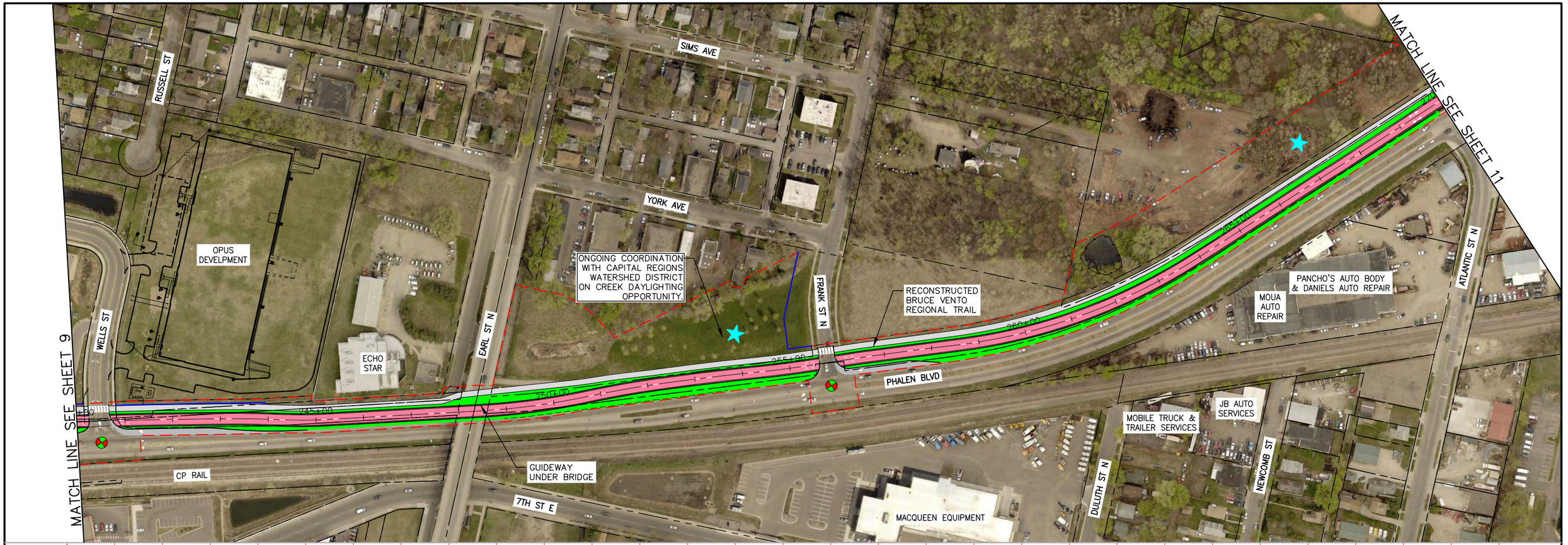
0 10 20 40
VERTICAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
9
OF
83



DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL
0 10 20 40
VERTICAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
10
OF
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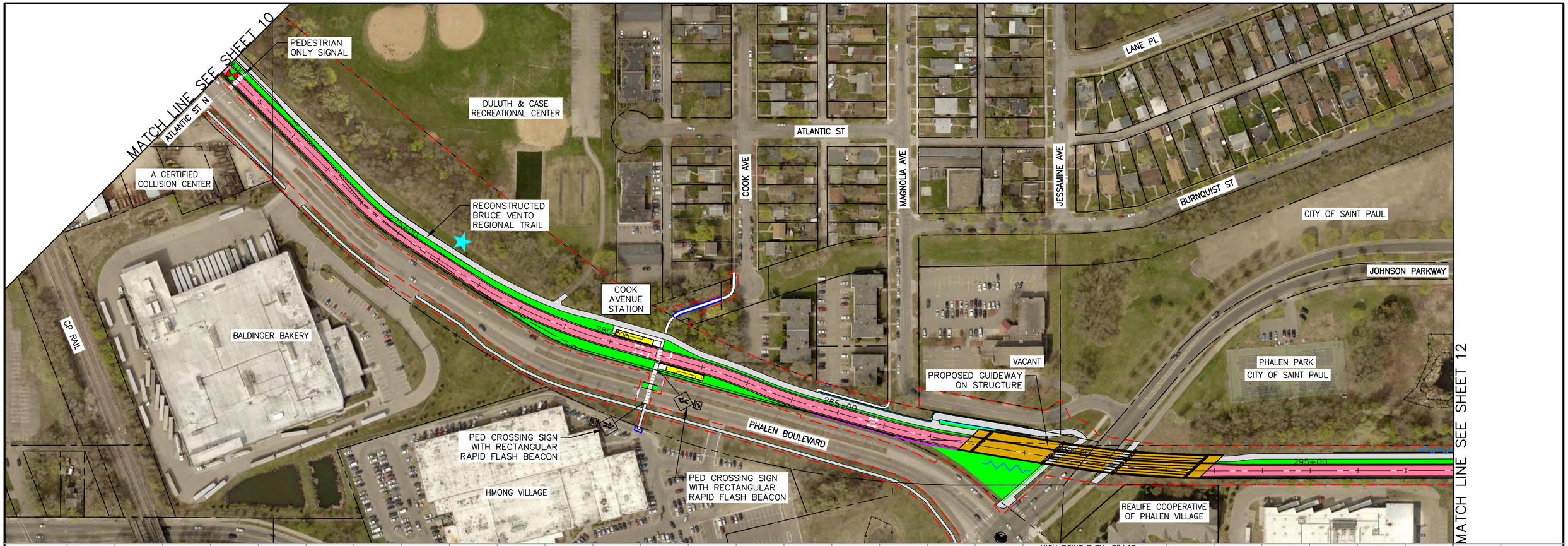
Aug, 04 2020 08:00 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan_Prof 07.dwg By: bob.monjeau



DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL
0 10 20 40
VERTICAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
11
OF
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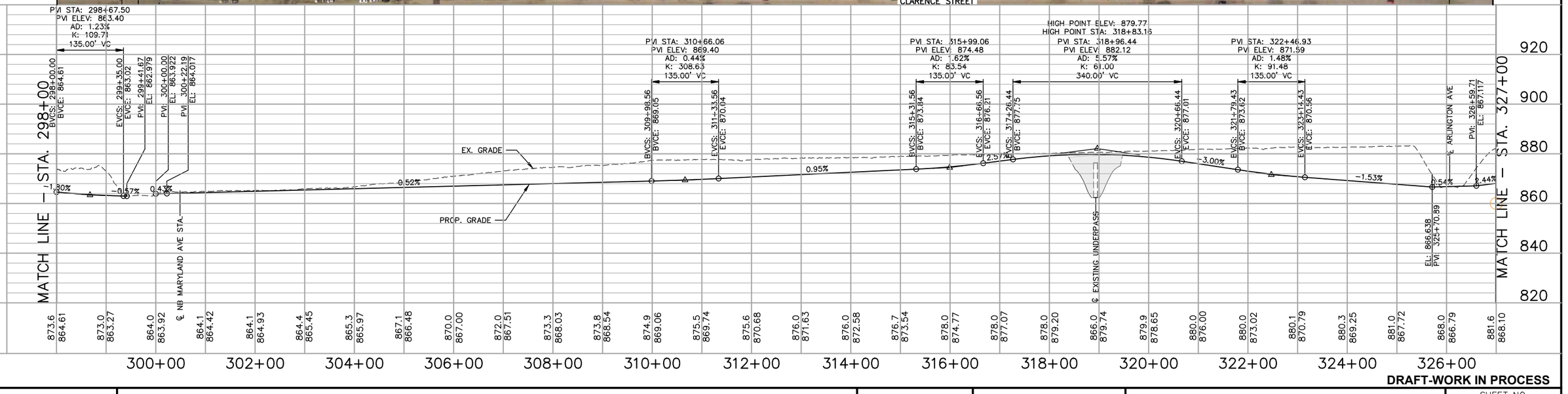

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL
SCALE IN FEET

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
12
OF
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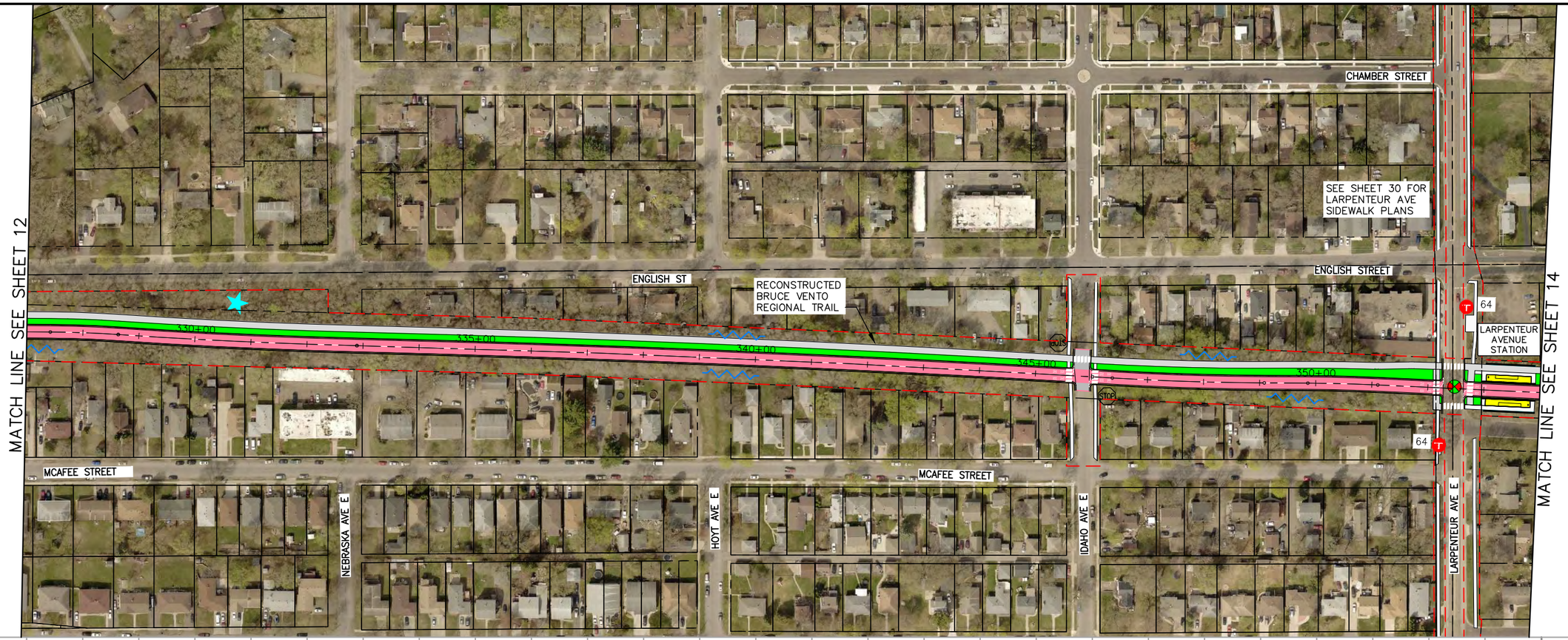
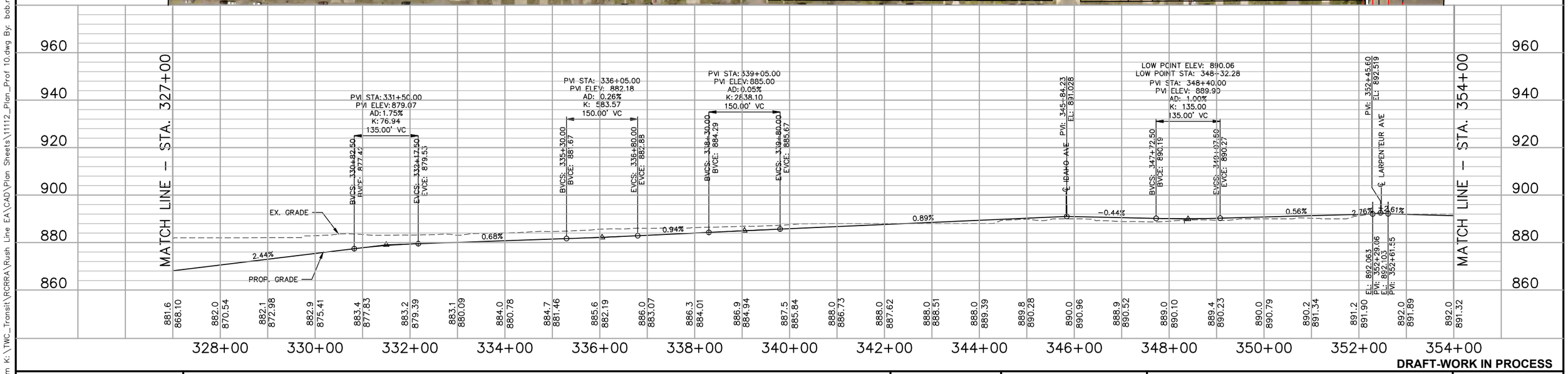




DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL
SCALE IN FEET

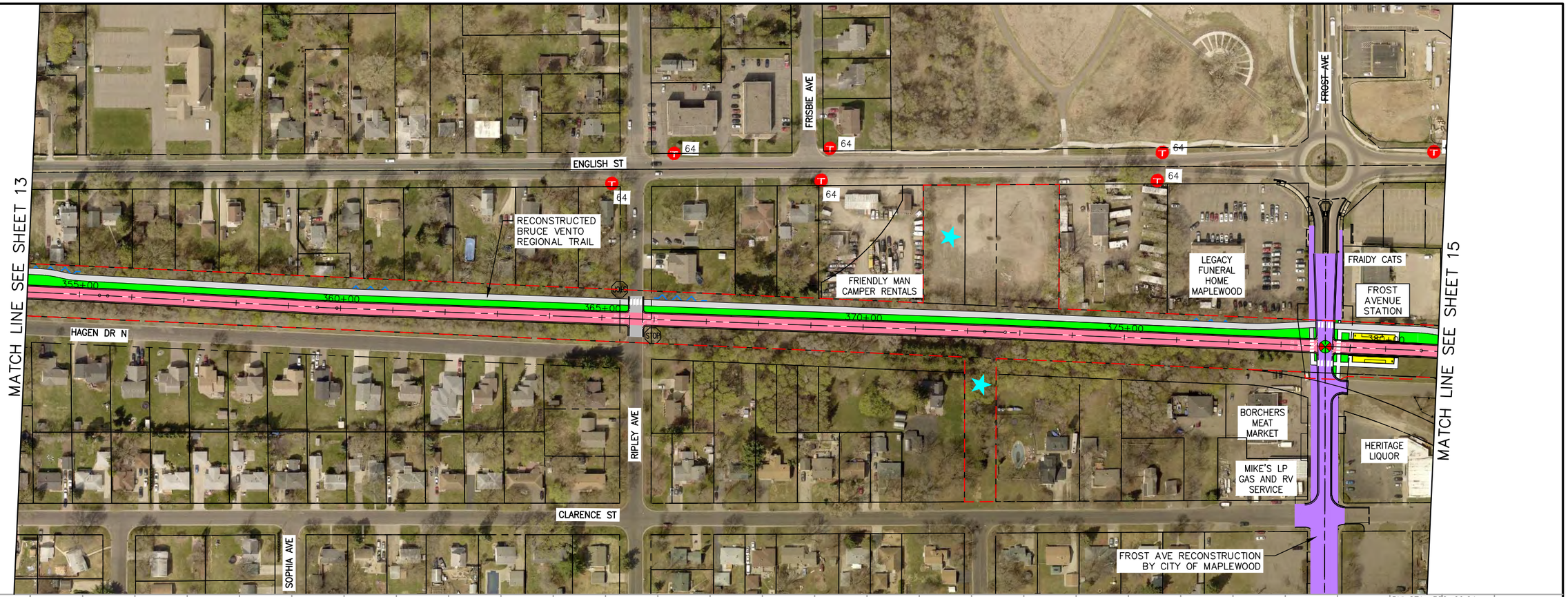
RAMSEY COUNTY

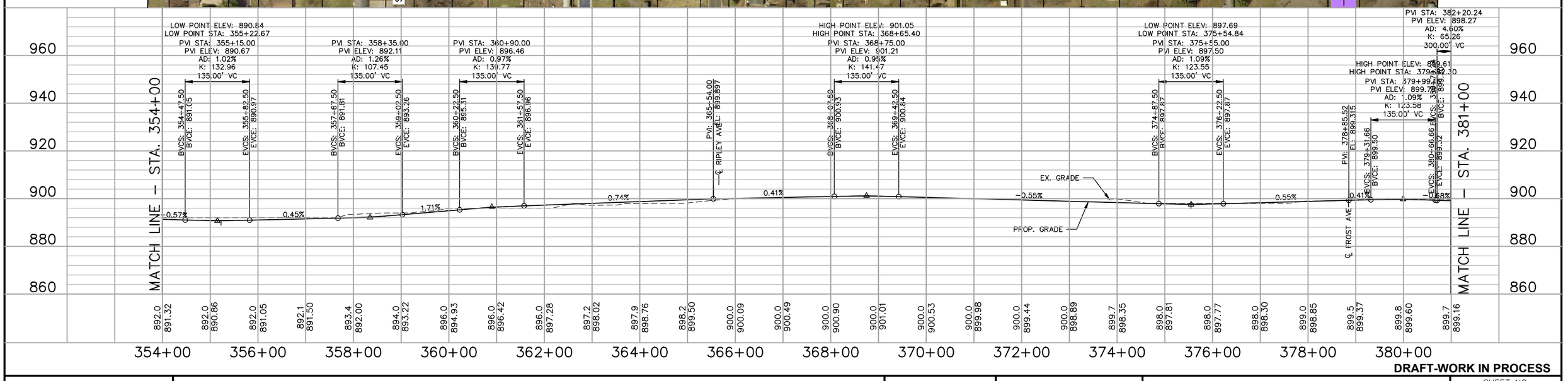
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
13
OF
83

Aug, 04 2020 08:05 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan_Prof 10.dwg By: bob.monjeau





DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

HORIZONTAL: 0 50 100 200

VERTICAL: 0 10 20 40

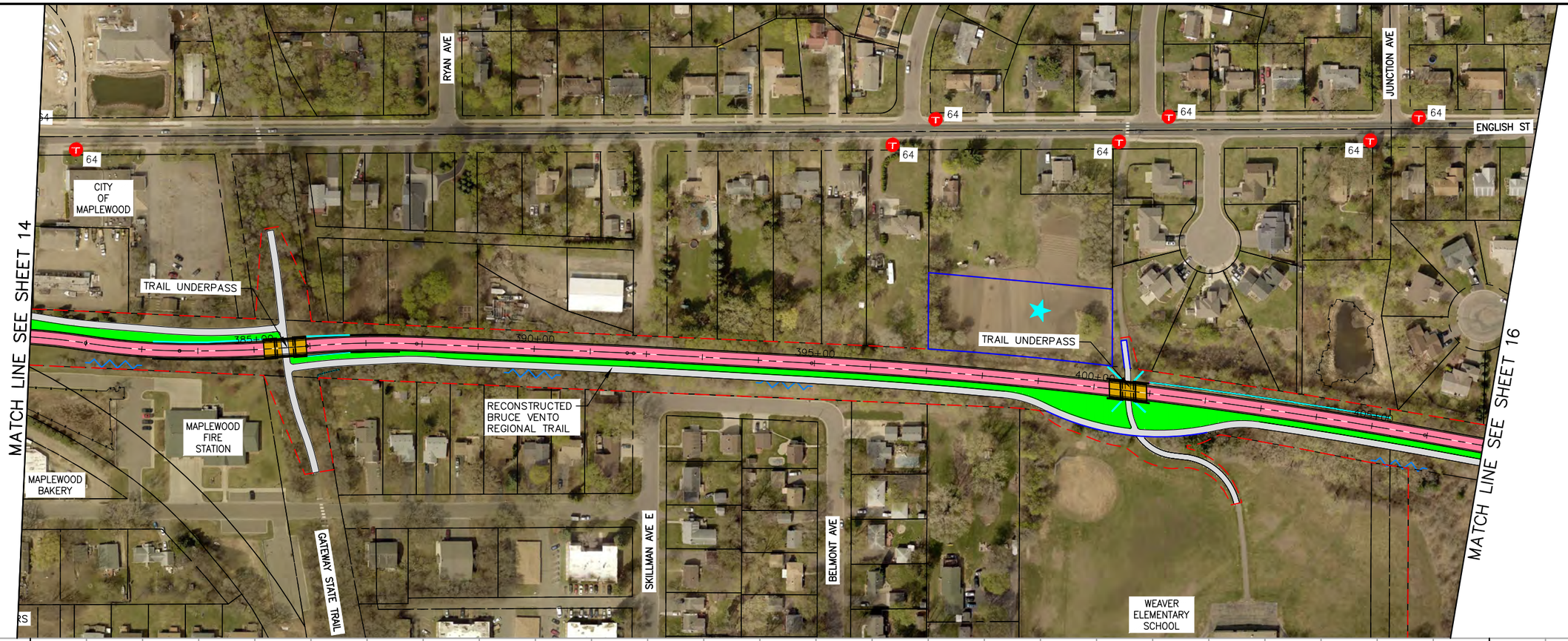
SCALE IN FEET

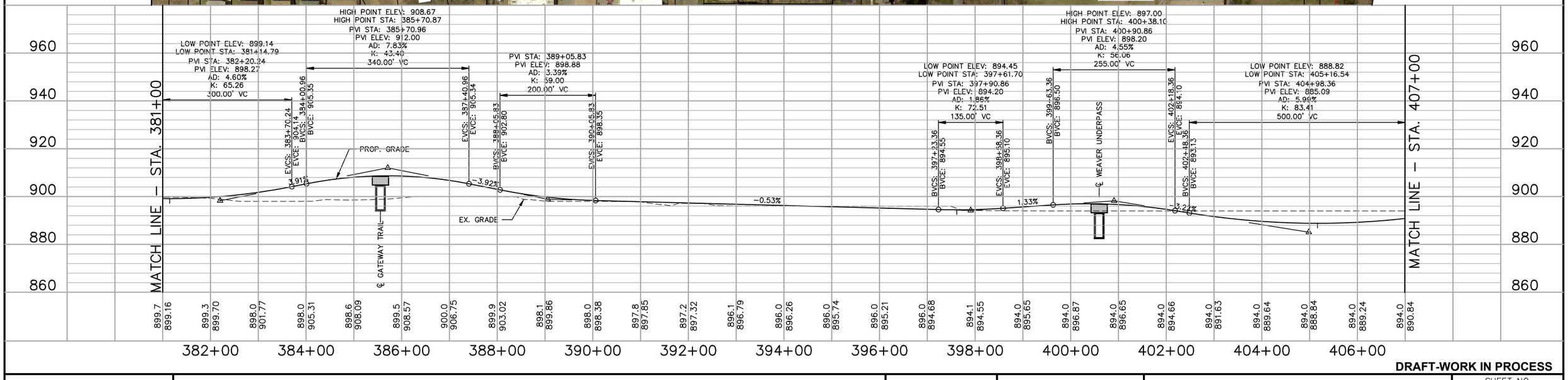
RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 14 OF 83





DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL
SCALE IN FEET

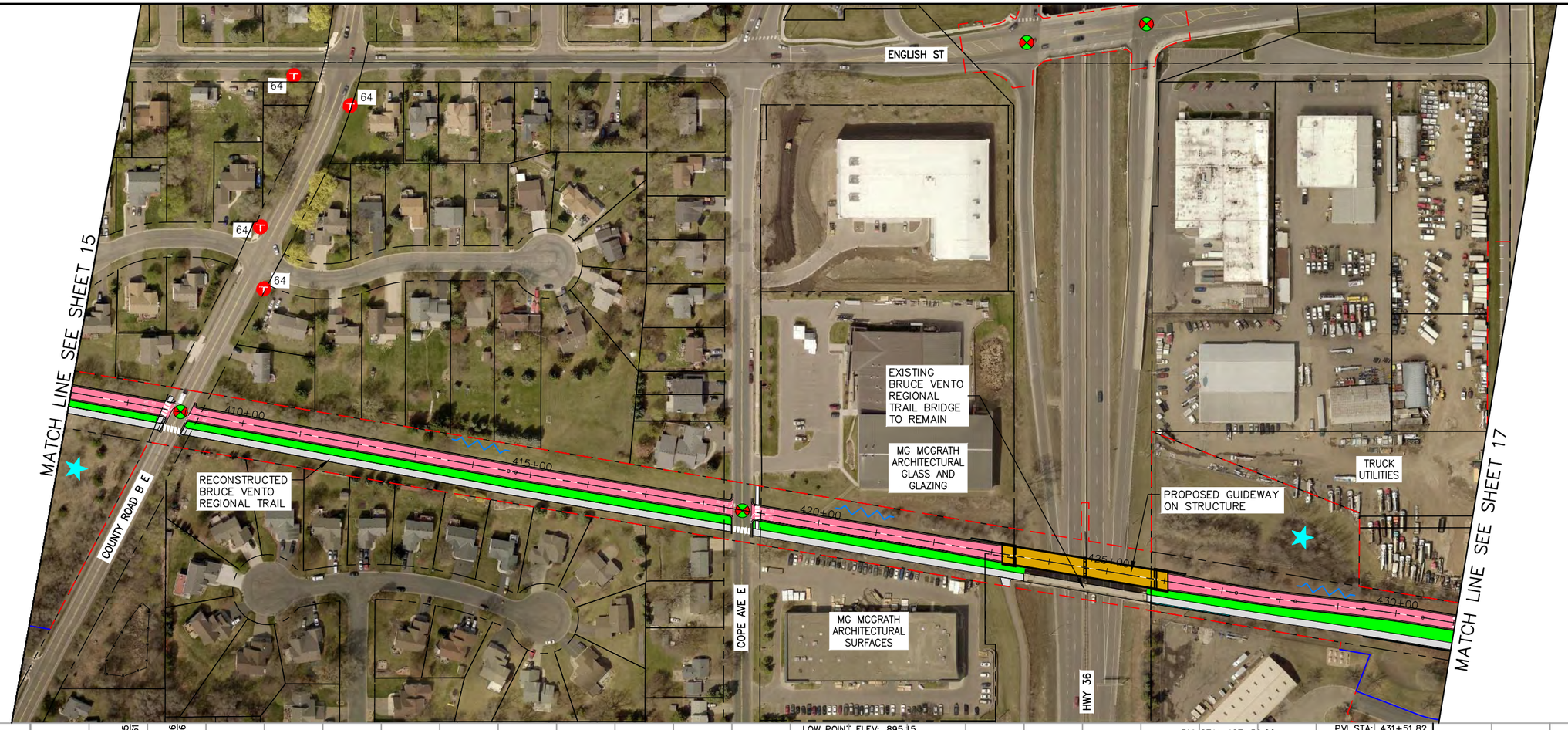
RAMSEY COUNTY

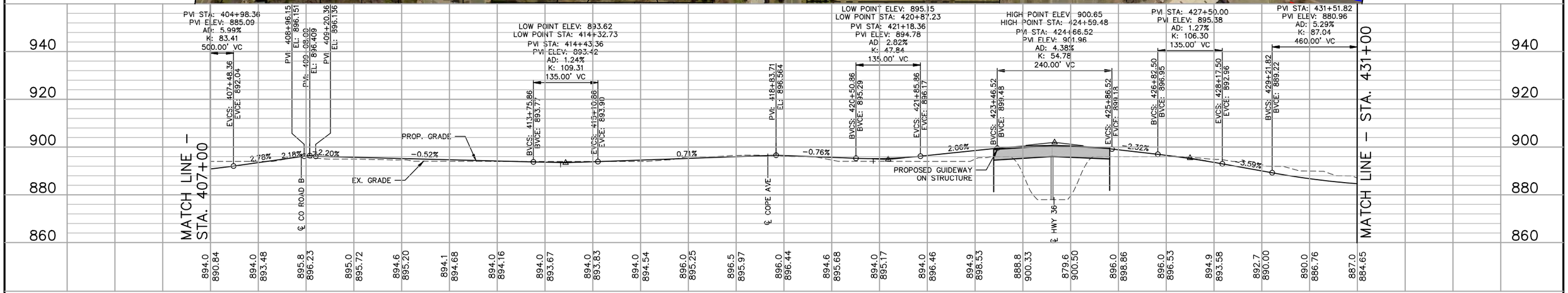
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
15
OF
83

Aug, 05 2020 02:13 pm K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan_Prof 12.dwg By: bob.monjeau





DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL
SCALE IN FEET

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
16
OF
83

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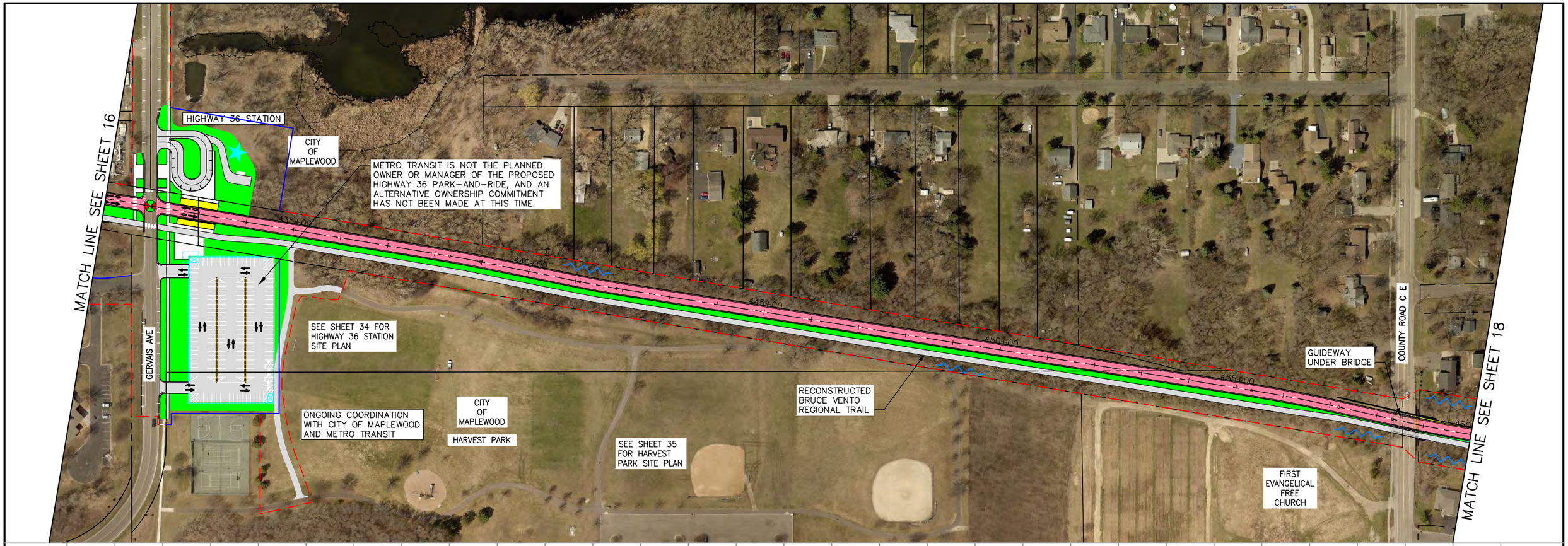

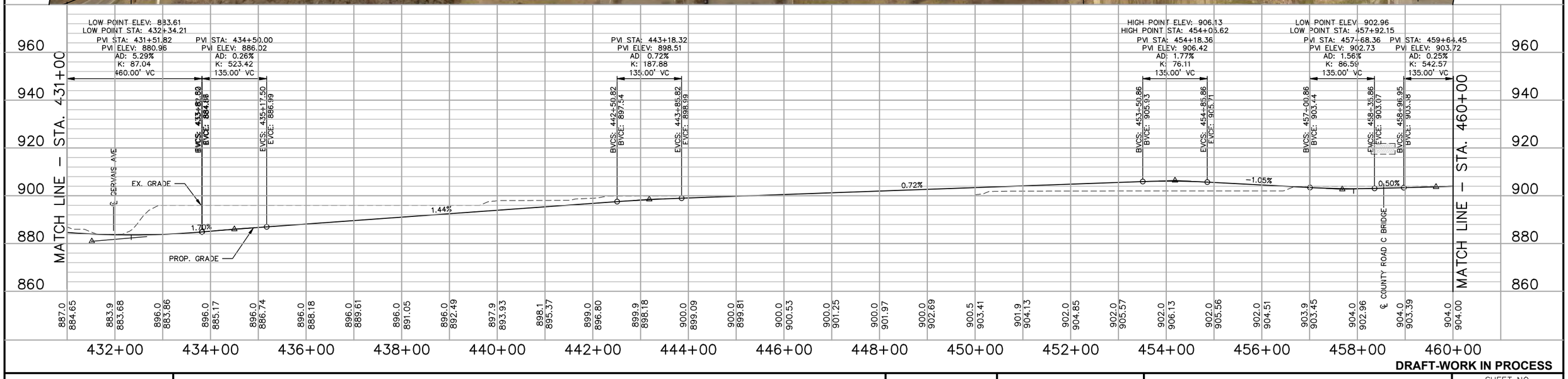

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL
SCALE IN FEET

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
17
OF
83

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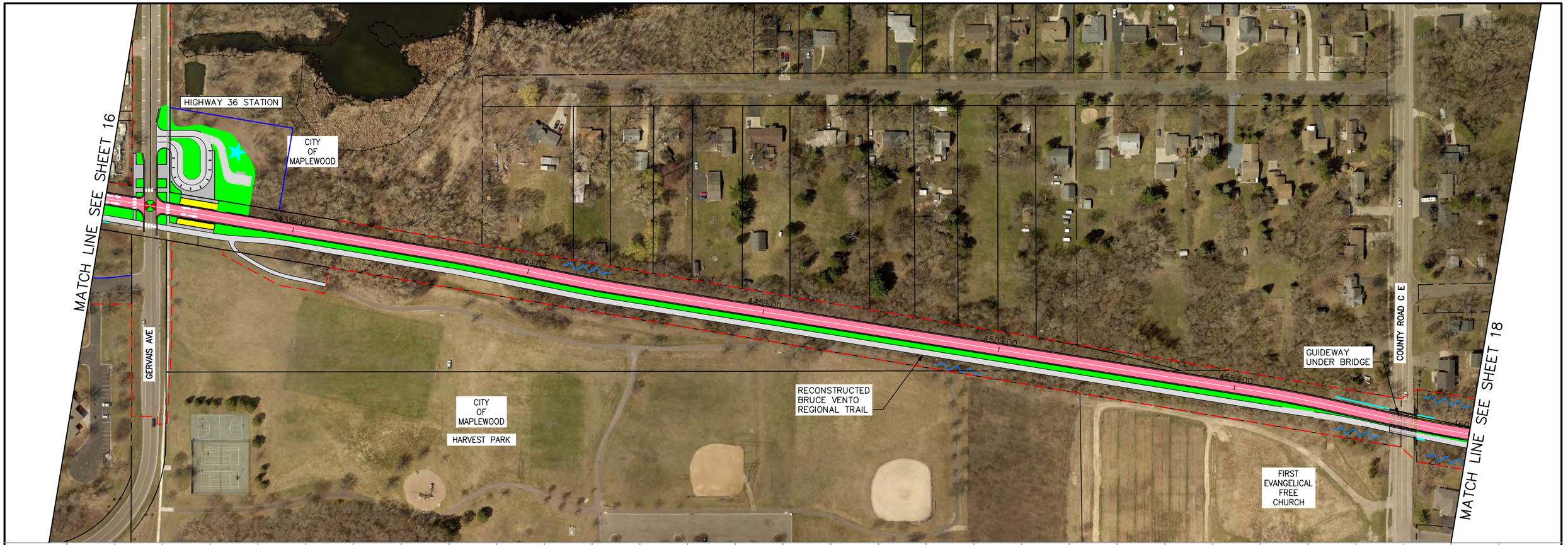

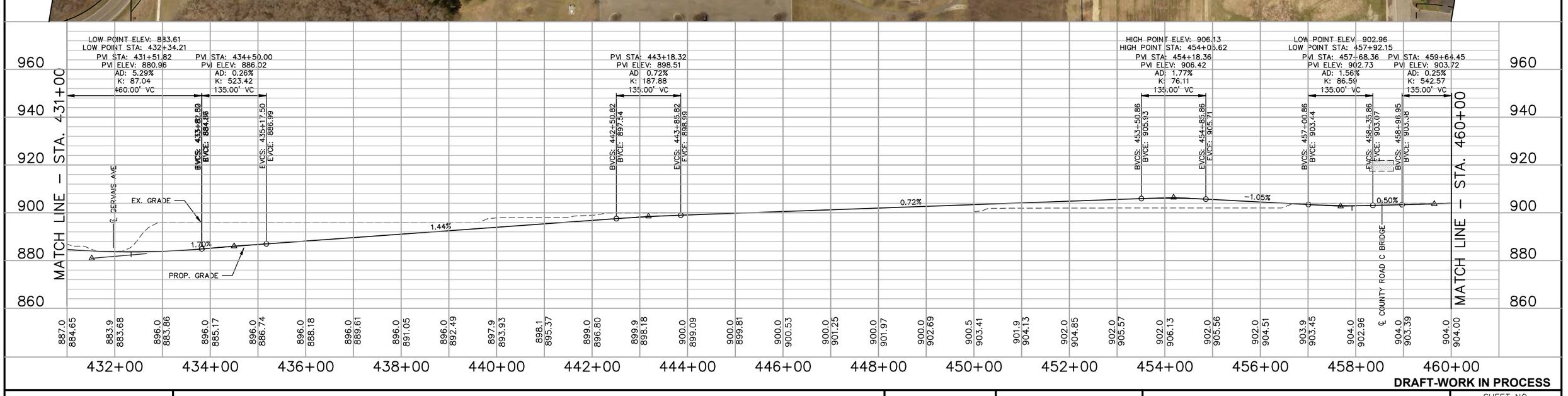

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL
SCALE IN FEET

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
17A
OF
83

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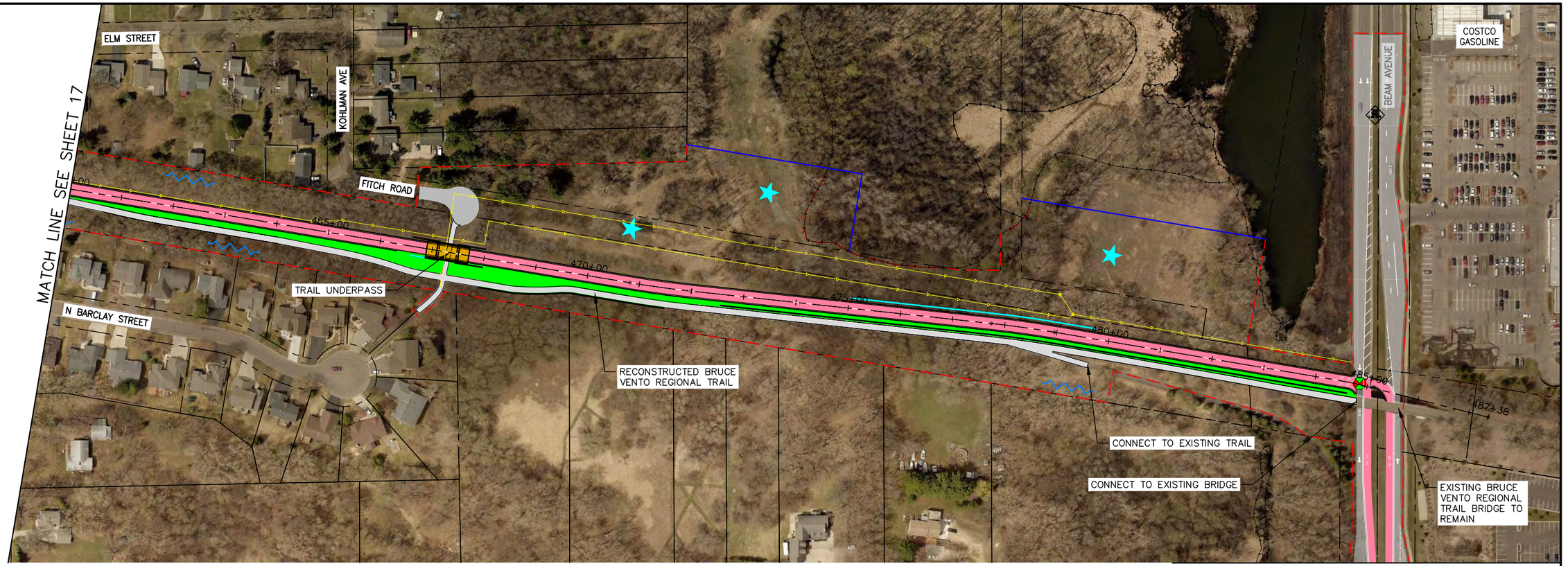
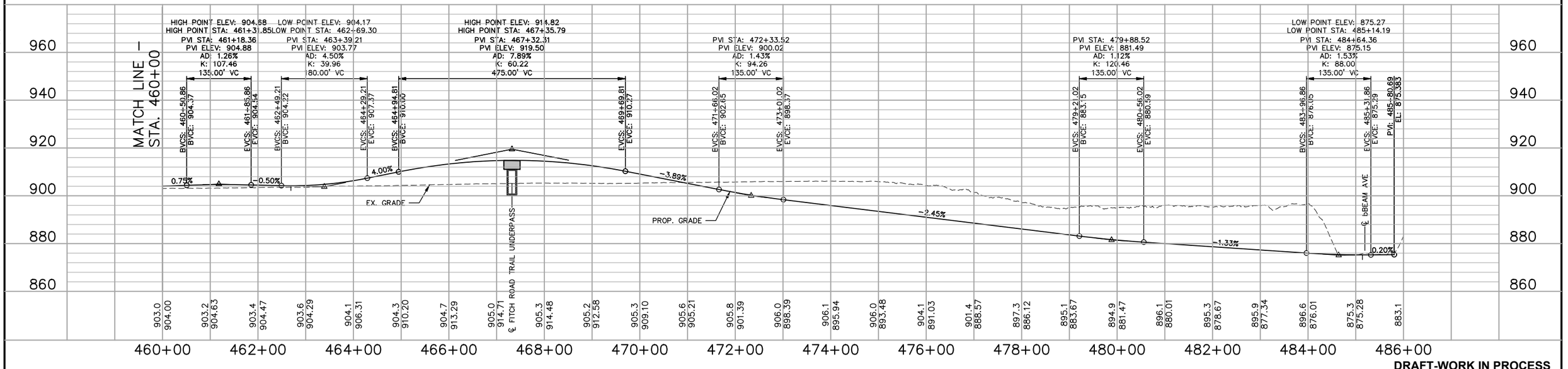




DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

0 10 20 40
VERTICAL
SCALE IN FEET

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
18
OF
83

MATCH LINE SEE SHEET 18

MATCH LINE SEE SHEET 21

MATCH LINE SEE SHEET 20

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 19 OF 83

Aug, 04 2020 08:20 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan_Prof 16.dwg By: bob.monjeau

MATCH LINE SEE SHEET 19

223

KENNARD ST

MARSHALLS

CATHERINES

McDONALD'S

JAKES CITY GRILL

OLIVE GARDEN ITALIAN

SOUTHLAWN DRIVE

METRO TRANSIT

MAPLEWOOD MALL TRANSIT CENTER

MAPLEWOOD MALL

54
64
80
219
223
265
270
272

SEE SHEET 36 FOR SITE PLAN

265
272

265
272

PROPOSED BUS GUIDEWAY

BEAM AVE

54
64
80
219
265
272

CHILI'S GRILL & BAR

ALLINA HEALTH URGENT CARE

PDR MAPLEWOOD INC.

ROCKLER WOODWORKING AND HARDWARE

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200

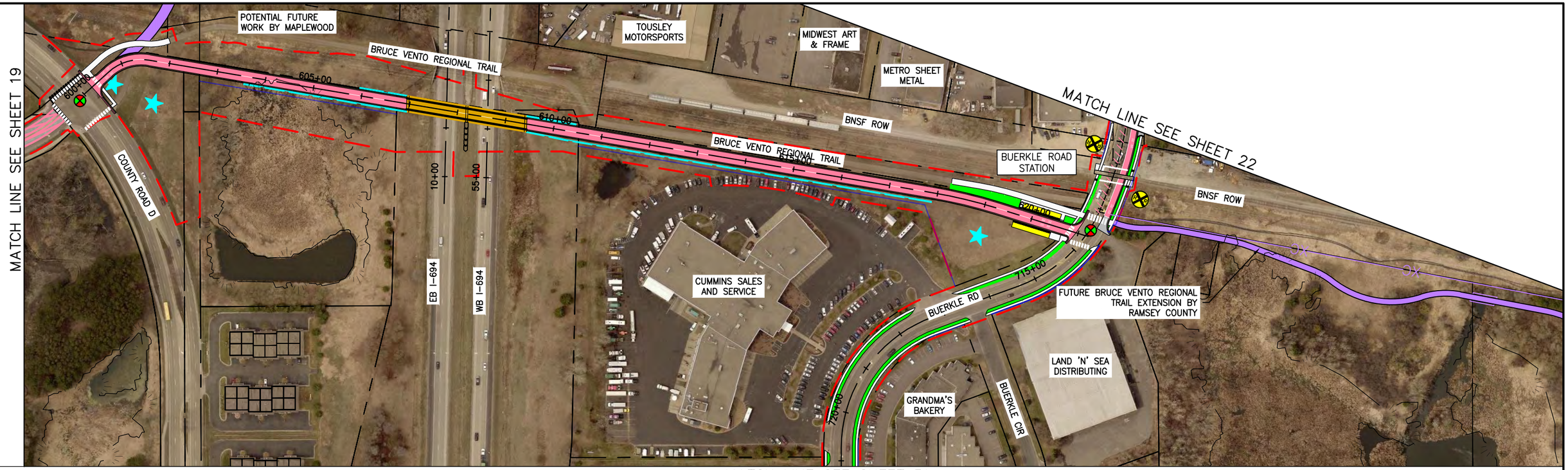
RAMSEY COUNTY

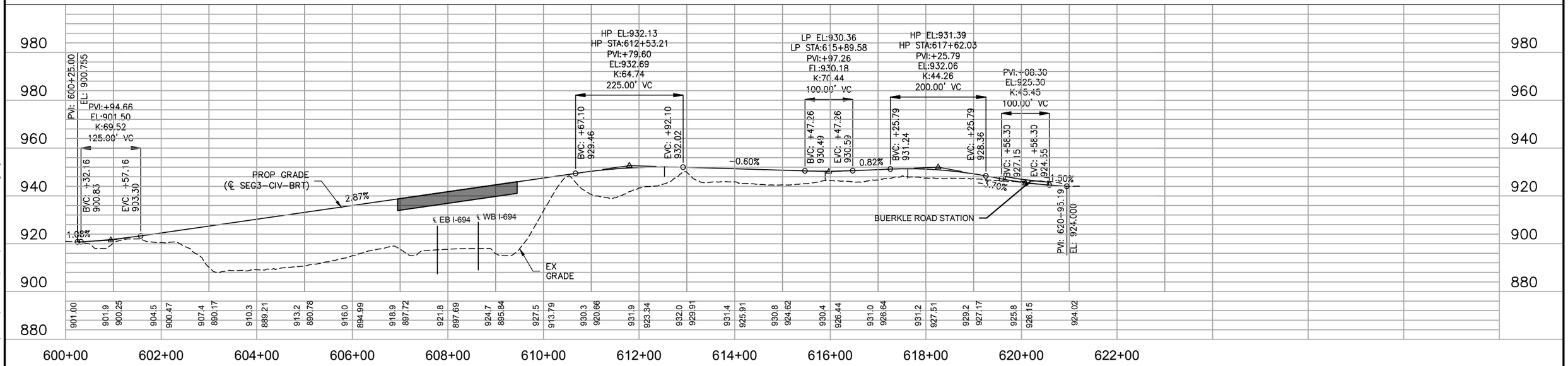
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
20
OF
83

Aug, 04 2020 08:22 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan_Prof 17.dwg By: bob.monjeau





DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL
0 10 20 40
VERTICAL
SCALE IN FEET

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
21
OF
83

Aug, 05 2020 01:38 pm H:\Projects\11000\11112\CAD_BIM\Plan\SEG3-CIV-PRF.dwg By: tborowicz

Aug. 04 2020 09:27 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

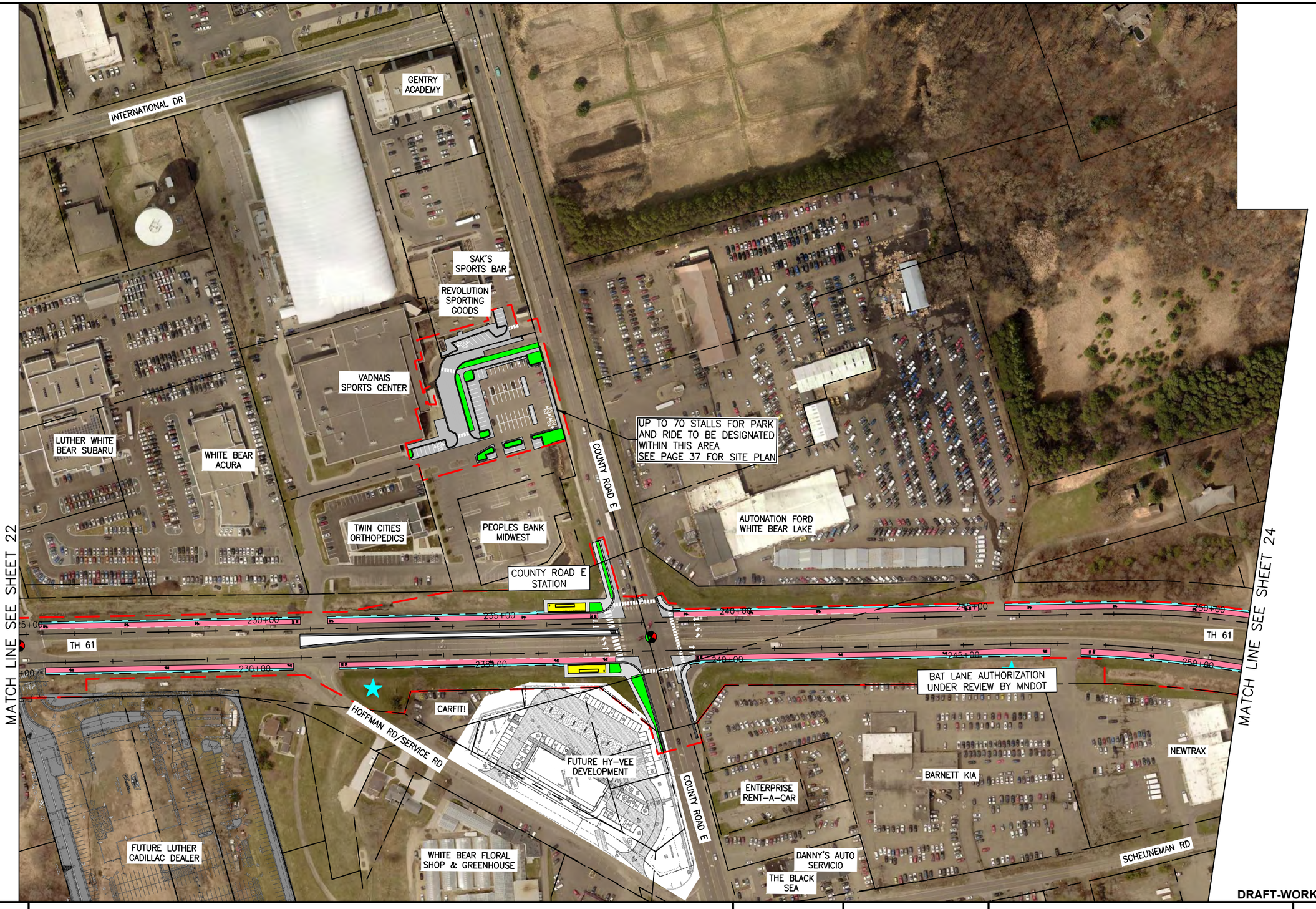
0 50 100 200
HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
22
OF
83



DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200

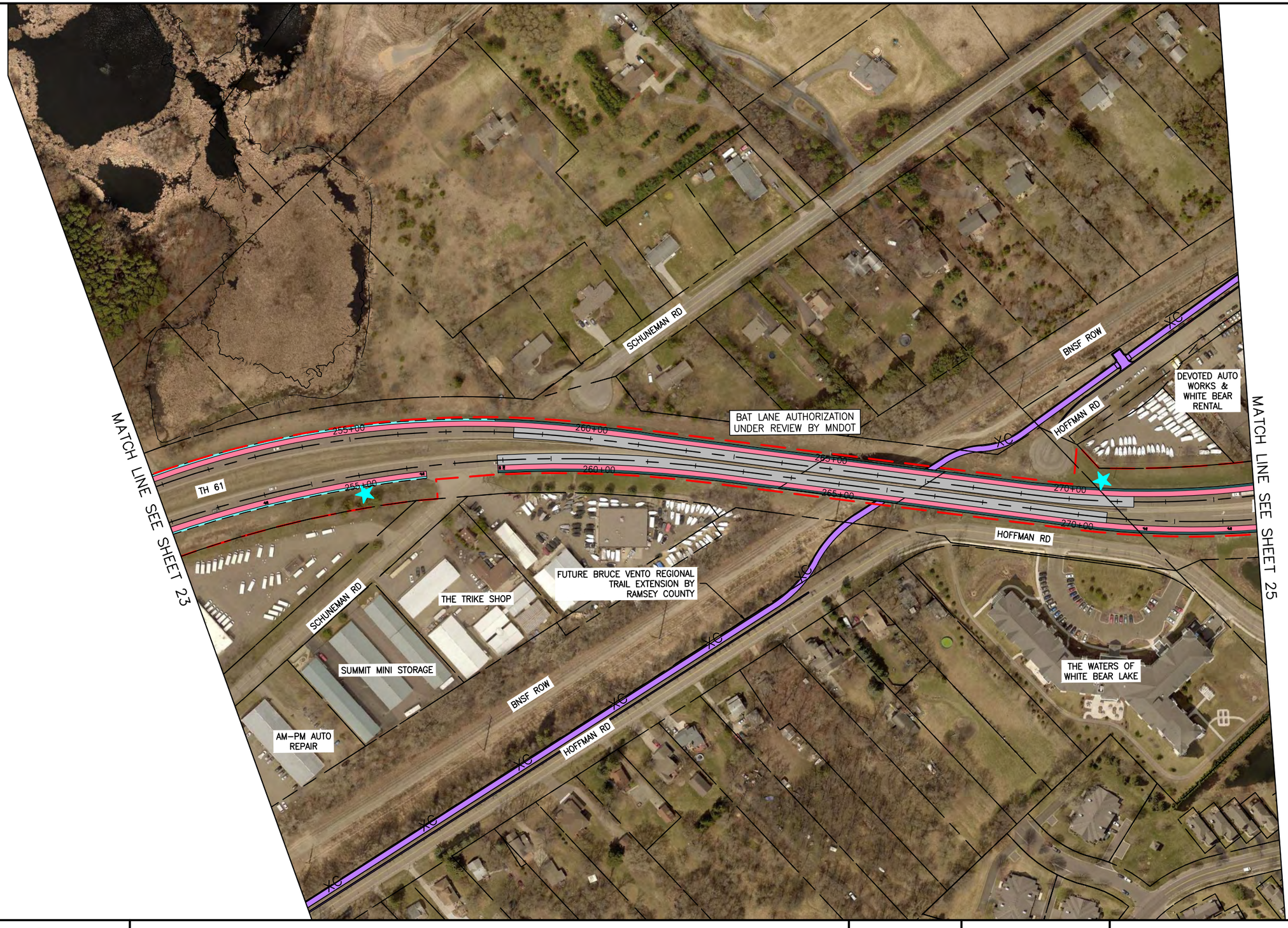
HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 23 OF 83



DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
24
OF
83

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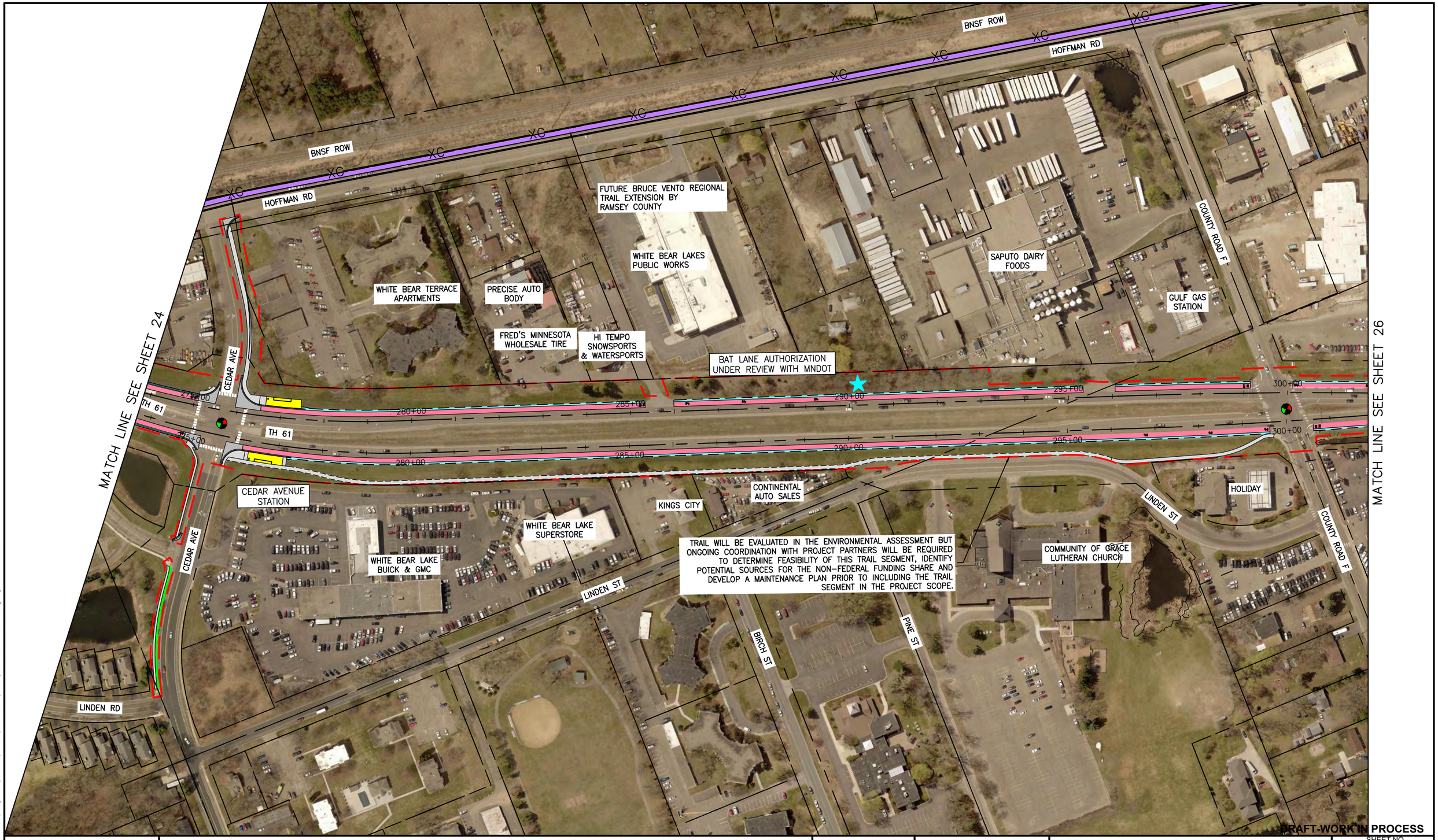


DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
25
OF
83

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200
HORIZONTAL

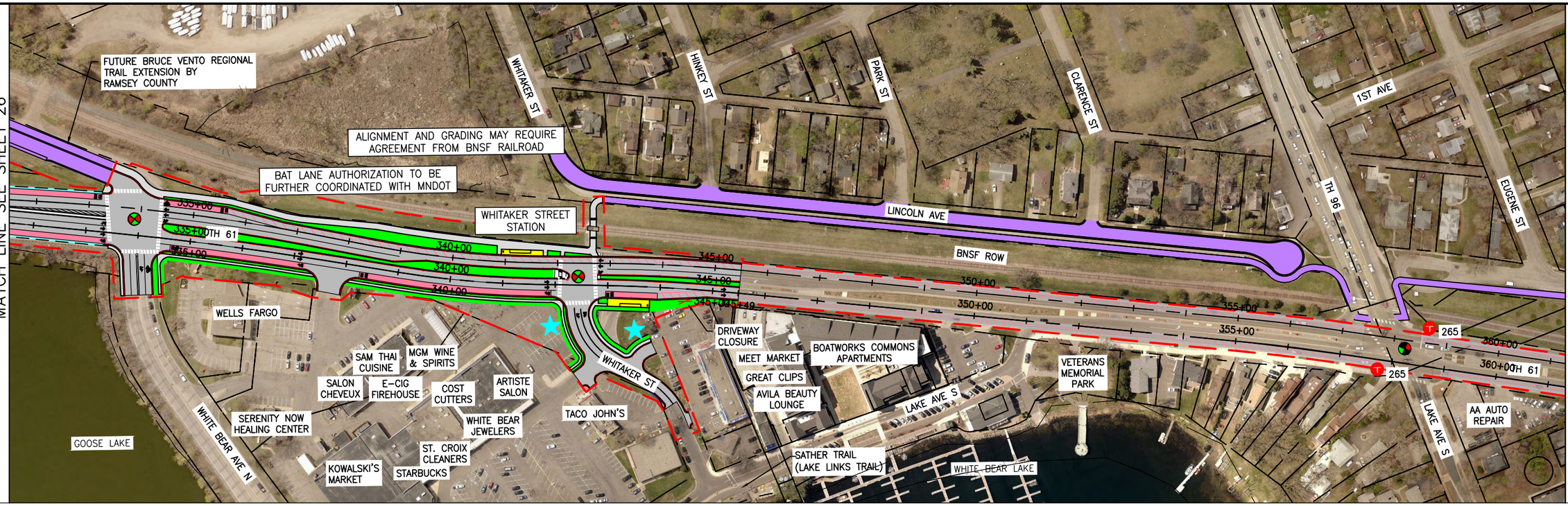
RAMSEY COUNTY

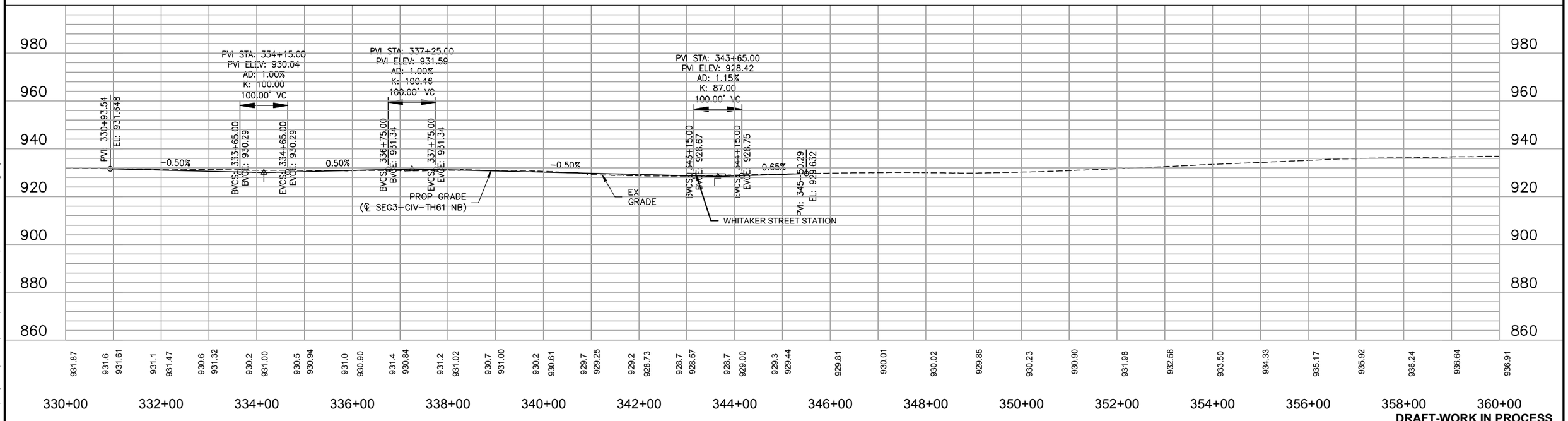
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
26
OF
83

Aug, 04 2020 09:31 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz





DRAFT-WORK IN PROCESS

Aug, 05 2020 03:04 pm H:\Projects\11000\11112\CAD_BIM\Plan\SEG3-CIV-PRF.dwg By: tborowicz

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200 HORIZONTAL

0 20 40 80 VERTICAL

SCALE IN FEET

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 27 OF 83

MATCH LINE SEE SHEET 27

MATCH LINE SEE SHEET 29

DRAFT-WORK IN PROCESS

Aug, 04 2020 10:07 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

0 50 100 200

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
28
OF
83

MATCH LINE SEE SHEET 28

BLOOM AVE
6TH ST
7TH ST
8TH ST
5TH ST
DIVISION AVE
4TH ST
WASHINGTON AVE
BNSF ROW
TH 61
BANNING AVE
COOK AVE
LONG AVE
REDIENTS CAFE
COFFEE & BAGELS
WHITE BEAR BAR
PIZZERIA PEZZO
COLDWELL BANKER BURNET
ARBORS OF WHITE BEAR
DOWNTOWN WHITE BEAR LAKE STATION
DRIVER FACILITY
HOG WASH
BEAR TOWN BAR & GRILL
LAKESHORE PLAYERS INC
POTENTIAL TRAFFIC SIGNAL
ORTHODONTIC CARE SPECIALISTS
RUDY'S REDEYE GRILL
FREEDOM
CVS
MANITOU GRILL & EVENT CENTER
FRATTALLONE'S ACE HARDWARE
RAILROAD PARK
PREMIER BANKS
265
385+00
390+00
395+00
400+00
405+00

DRAFT-WORK IN PROCESS

Aug, 04 2020 10:08 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

NORTH

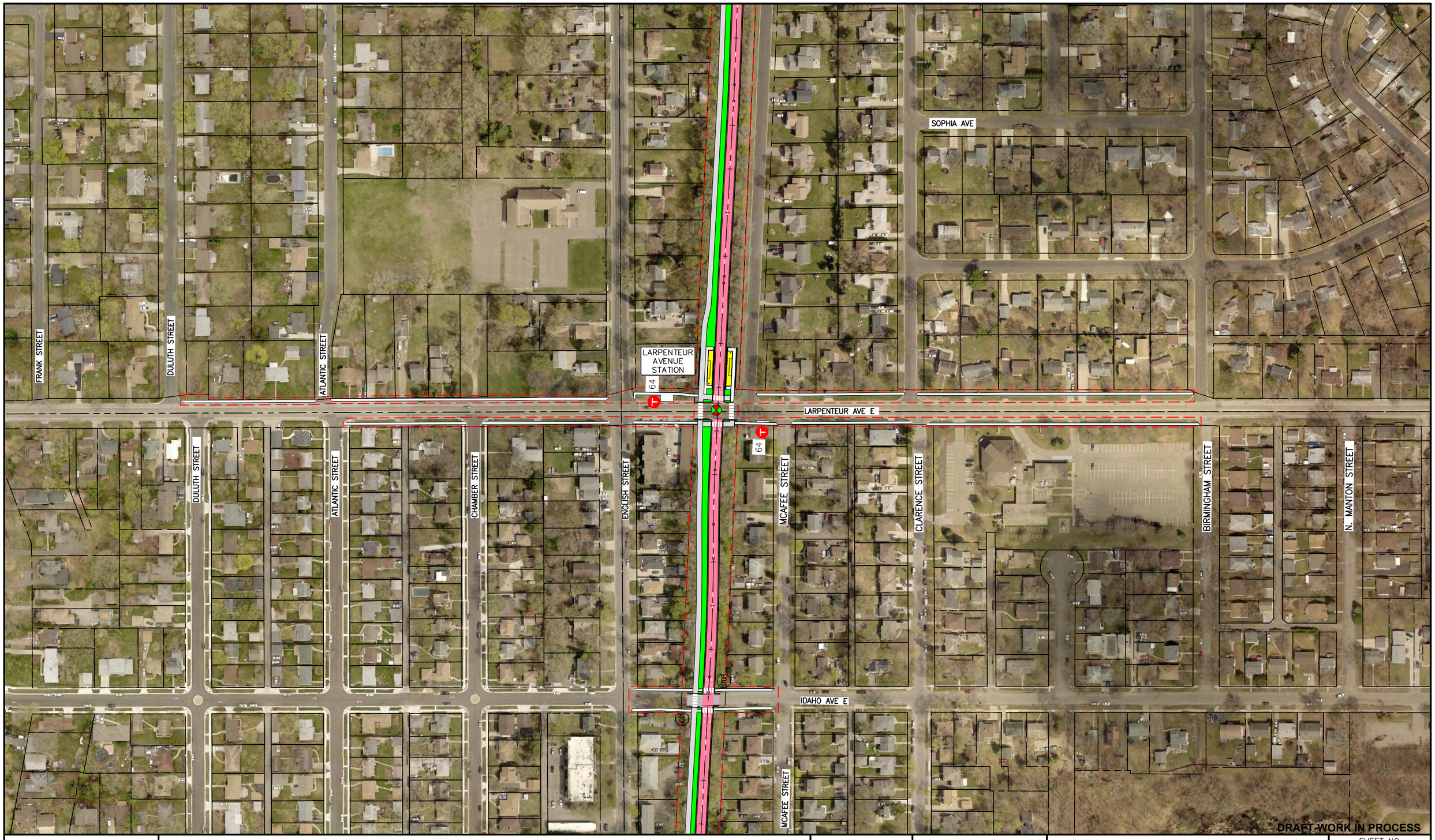
0 50 100 200
HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
29
OF
83



Aug, 04 2020 08:34 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan01.dwg By: bob.monjeau

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

LARPENTEUR AVENUE SIDEWALK IMPROVEMENTS

NORTH

0 50 100 200

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

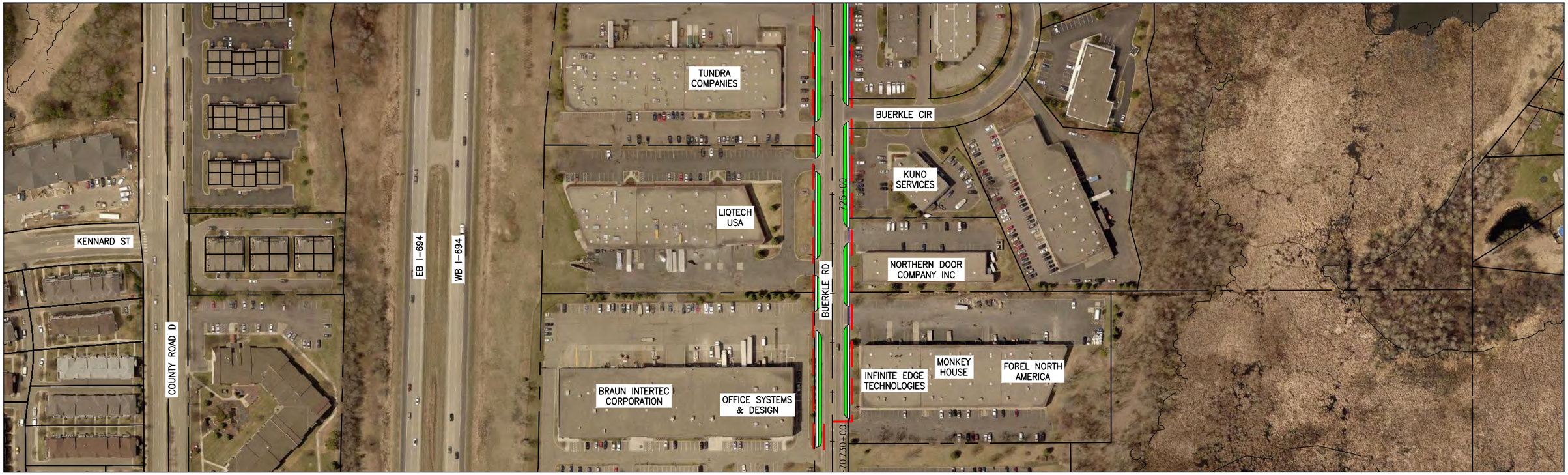
SHEET NO.

30

OF

83

MATCH LINE SEE SHEET 21



DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

BUERKLE ROAD SIDEWALK IMPROVEMENTS

NORTH

0 50 100 200

HORIZONTAL

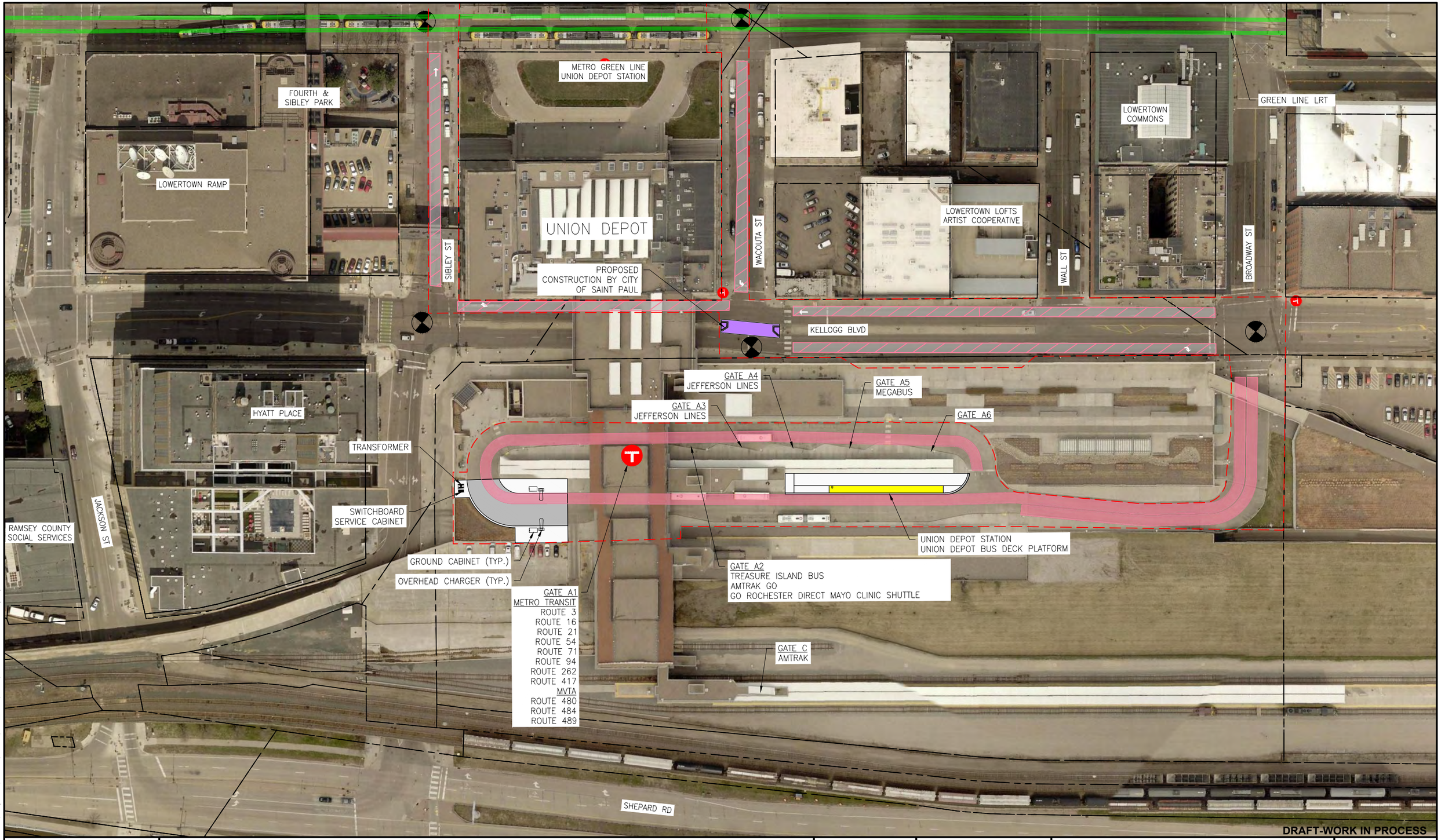
RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 31 OF 83

Aug. 04 2020 10:09 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-PLAN.dwg By: tborowicz



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Aug, 05 2020 01:33 pm H:\Projects\11000\11112\CAD_BIM\Plan\SEG1-OMF-PLAN.dwg By: tborowicz

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

SITE PLAN - UNION DEPOT

NORTH

0 25 50 100

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 32 OF 83

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

SITE PLAN - EAST METRO GARAGE

NORTH

0 25 50 100

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO. 33 OF 83

METRO TRANSIT IS NOT THE PLANNED OWNER OR MANAGER OF THE PROPOSED HIGHWAY 36 PARK-AND-RIDE, AND AN ALTERNATIVE OWNERSHIP COMMITMENT HAS NOT BEEN MADE AT THIS TIME.

CONNECT TO EXISTING TRAIL

HARVEST PARK

ACCESS TO PARK

RAIN GARDEN

HIGHWAY 36 STATION

LIFT STATION MAINTENANCE ROAD

PASSENGER DROP OFF

CITY OF MAPLEWOOD

TURN AROUND

5% RAMP

STAIRS

GERVAIS AVENUE

ELEVATOR/STAIRS

PLAZA/TRAILHEAD OPPORTUNITY

PASSENGER DROP OFF

TRUCK UTILITIES

MNDOT REMNANT PARCEL

BRUCE VENTO TRAIL

MNDOT MATERIALS TESTING LABORATORY

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

SITE PLAN - HIGHWAY 36 STATION

NORTH

0 25 50 100

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

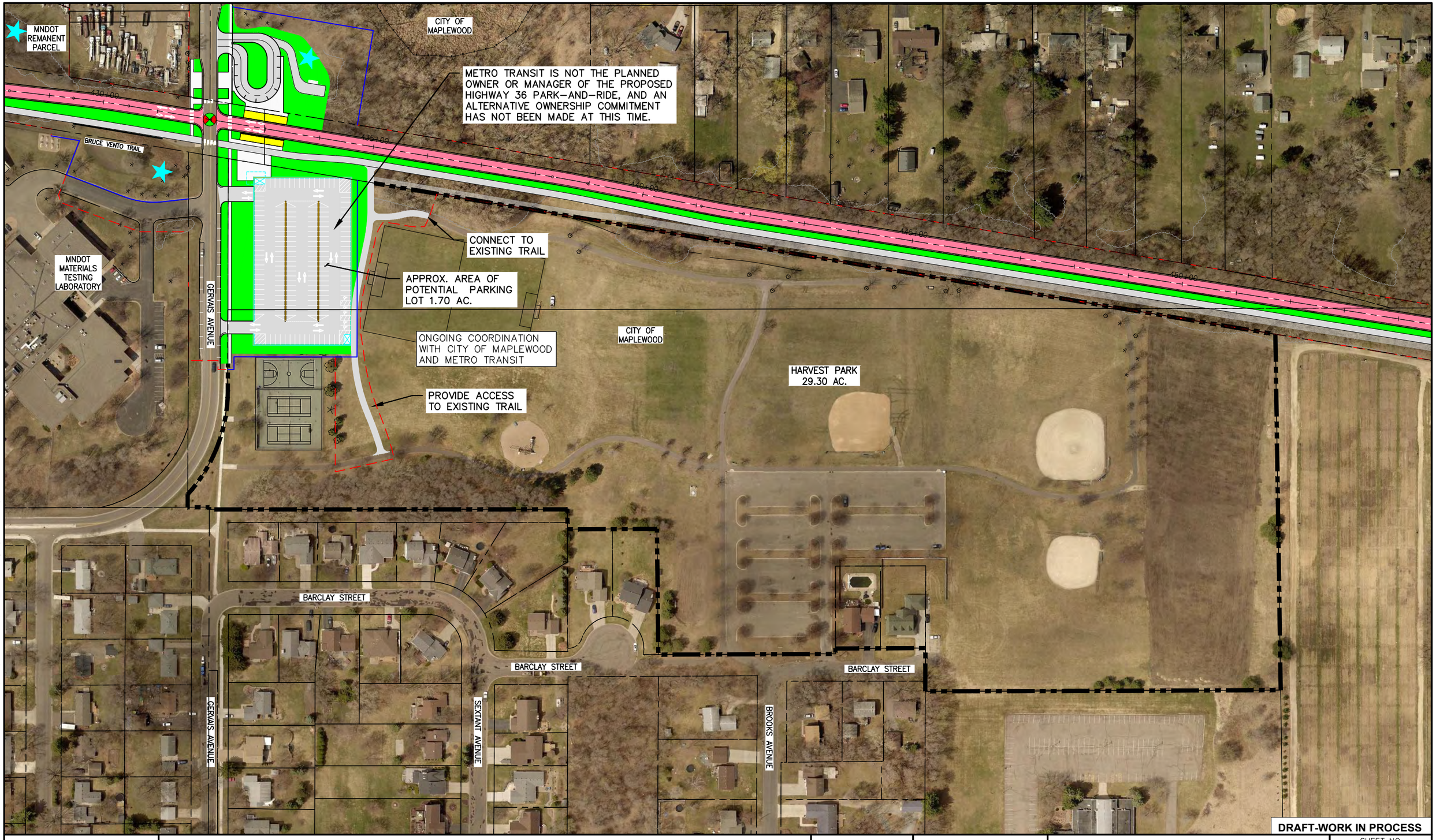
SHEET NO.

34

OF

83

Aug, 04 2020 08:44 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan03.dwg By: bob.monjeau



DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

HIGHWAY 36 STATION CONCEPT - HARVEST PARK CONTEXT PLAN

NORTH

0 40 80 160

SCALE

RAMSEY COUNTY

Kimley»Horn

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SHEET NO. 35 OF 83

Aug, 04 2020 08:46 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan06.dwg By: bob.monjeau

METRO TRANSIT

ONGOING COORDINATION WITH METRO TRANSIT

ACCESS AISLE

PASSENGER DROP OFF

OPERATORS AND CUSTOMER WAITING

CLOSE SOUTH ACCESS, BUT RETAIN FUNCTIONALITY FOR USE IN SPECIAL CIRCUMSTANCES

7 STALLS METRO TRANSIT PARKING

BUS 40 SHELTER (Eg)

NORTHBOUND STATION PLATFORM (Eg)

4'
57'
4'
26'
24'
40'
35'
40'
25'
75'
24'
7
10'
7
90'
7
10'
5'
11'
10'
190'
190'
15'
24'
4'
4'
4'
30'
20'

A
B
C
D
E
F
G

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

SITE PLAN - MAPLEWOOD MALL TRANSIT STATION

NORTH

0 10 20 40

HORIZONTAL

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
36
OF
83

Aug, 04 2020 08:47 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Plan05.dwg By: bob.manjeau

AUTONATION

COUNTY RD E

UP TO 70 STALLS FOR PARK AND RIDE TO BE DESIGNATED WITHIN THIS AREA

GENTRY ACADEMY

SAK'S SPORTS BAR

REVOLUTION SPORTS

PEOPLES BANK MIDWEST

VADNAIS SPORTS CENTER

TWIN CITIES ORTHOPEDICS

TH 61

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

SITE PLAN - COUNTY ROAD E PARK AND RIDE

NORTH

0 25 50 100

HORIZONTAL

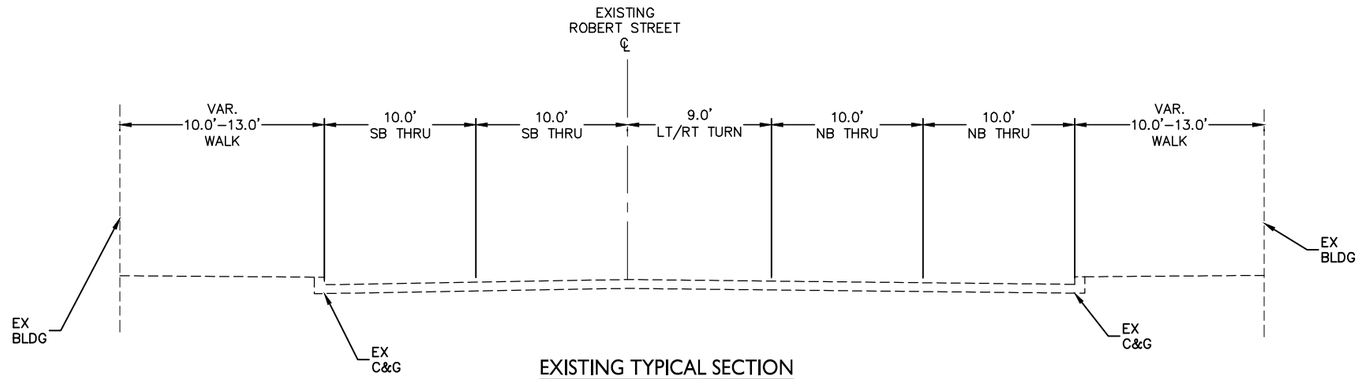
RAMSEY COUNTY

Kimley»Horn

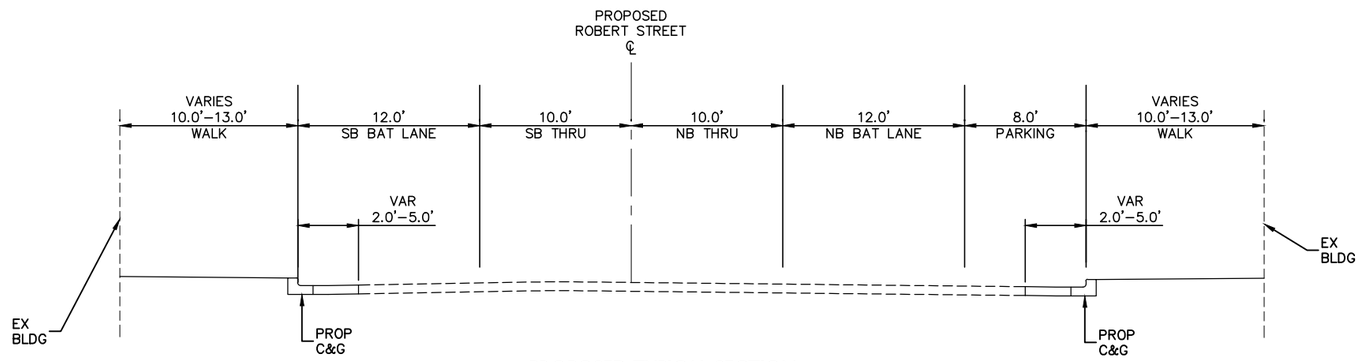
SRF Consulting Group, Inc.

SHEET NO. 37 OF 83

Aug, 05 2020 01:36 pm H:\Projects\11000\11112\CAD_BIM\Plan\SEG1-OMF-PLAN.dwg By: tborowicz



EXISTING TYPICAL SECTION
ROBERT STREET - 7TH STREET TO 9TH STREET



PROPOSED TYPICAL SECTION
ROBERT STREET - 7TH STREET TO 9TH STREET

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

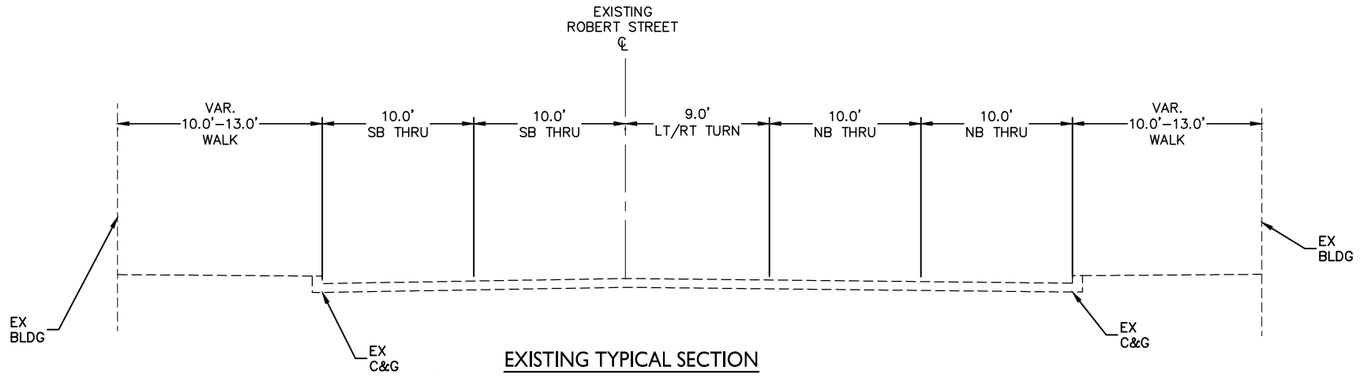
15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

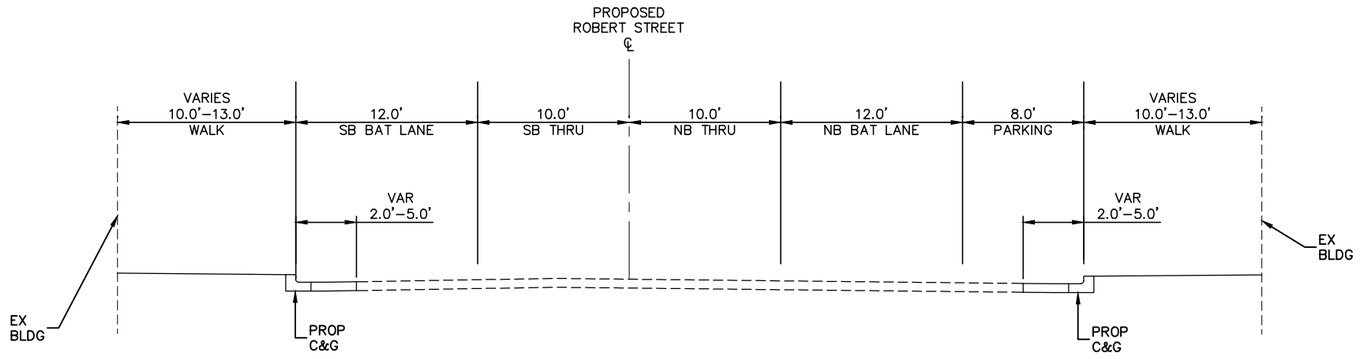
RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.



EXISTING TYPICAL SECTION
ROBERT STREET - 9TH STREET TO 11TH STREET



PROPOSED TYPICAL SECTION
ROBERT STREET - 9TH STREET TO 11TH STREET

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

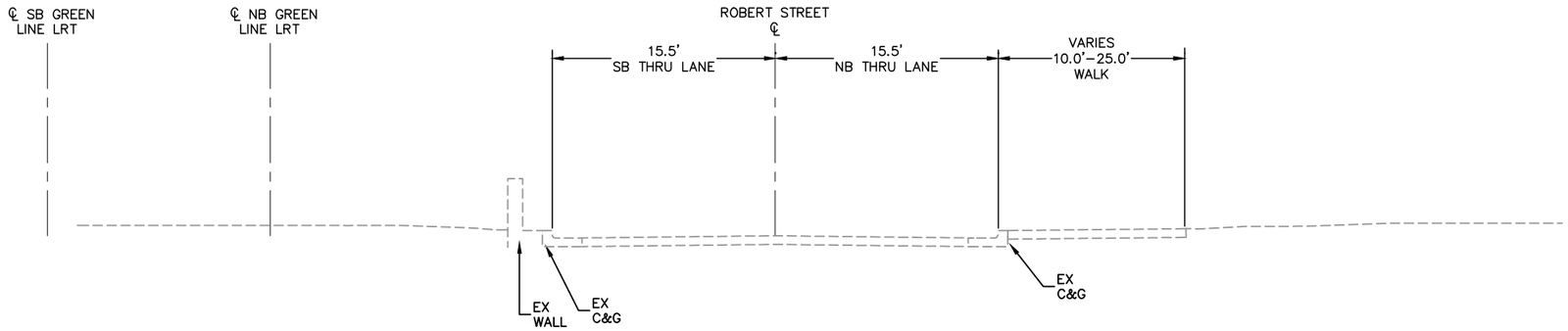
0 2.5 5 10
SCALE

RAMSEY COUNTY

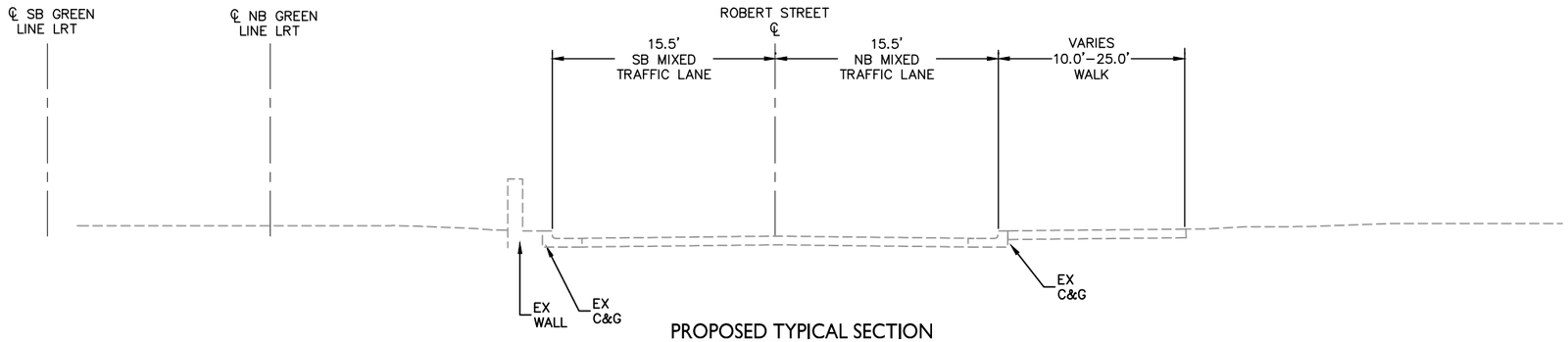
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
39
OF
83



EXISTING TYPICAL SECTION
ROBERT STREET - 12TH STREET TO 14TH STREET



PROPOSED TYPICAL SECTION
ROBERT STREET - 12TH STREET TO 14TH STREET

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

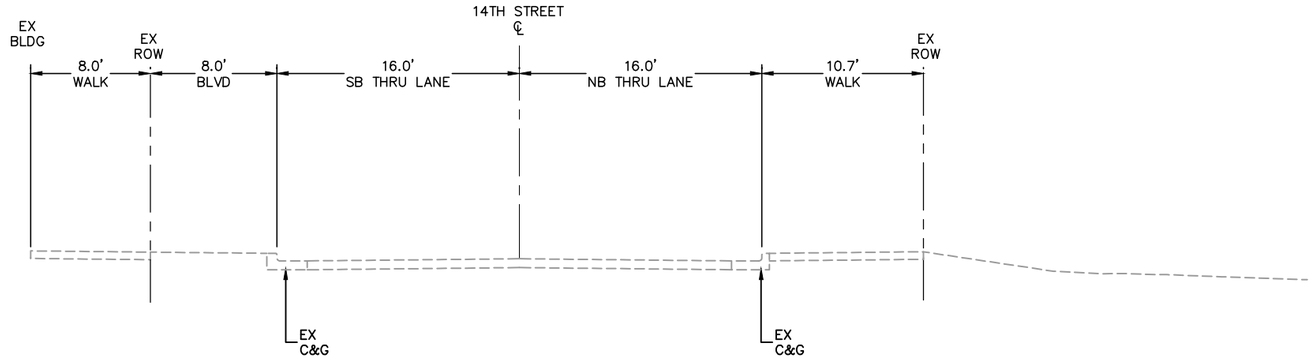
15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

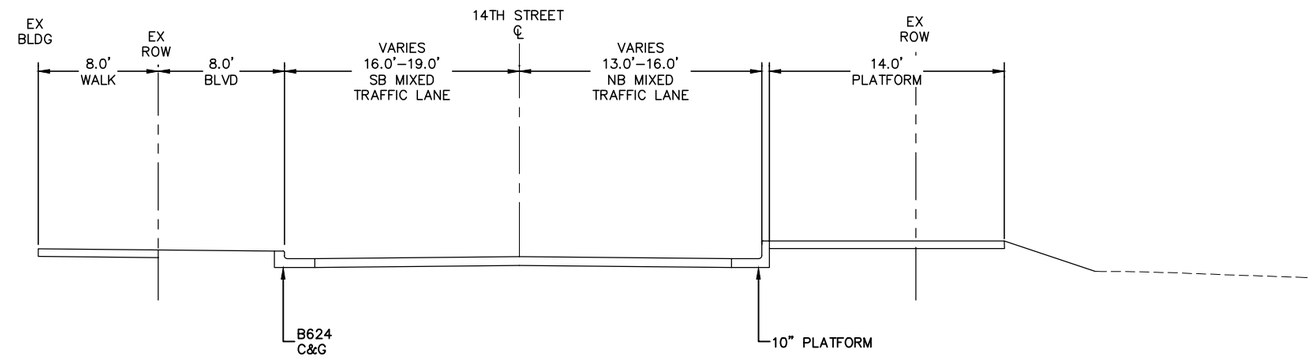
RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.



EXISTING TYPICAL SECTION
14TH STREET - ROBERT STREET TO JACKSON STREET



PROPOSED TYPICAL SECTION
14TH STREET - ROBERT STREET TO JACKSON STREET

DRAFT-WORK IN PROCESS

Aug, 04 2020 10:59 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-TYP.dwg By: tborowicz

RUSH LINE BRT PROJECT
15% PLANS - 08/07/2020
TYPICAL SECTIONS

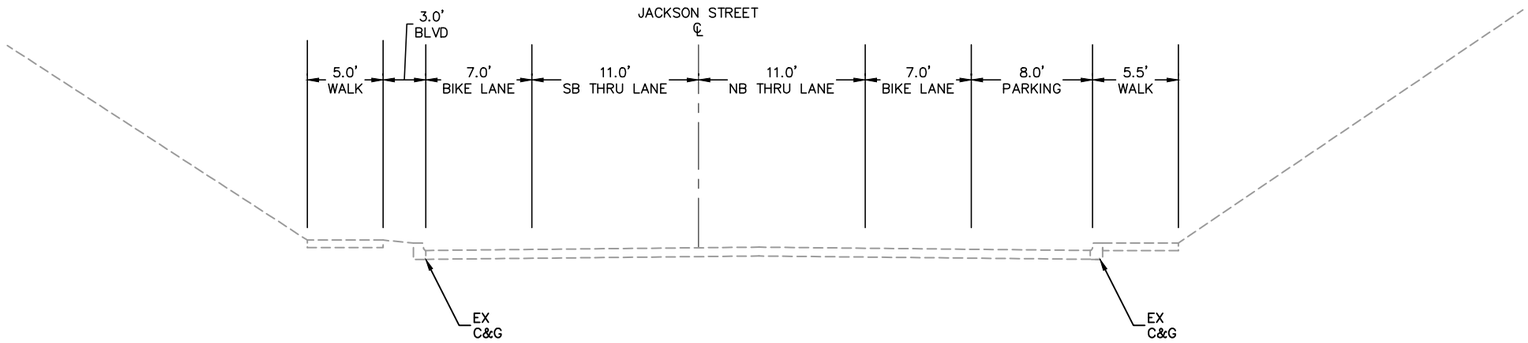
0 2.5 5 10
SCALE

RAMSEY COUNTY

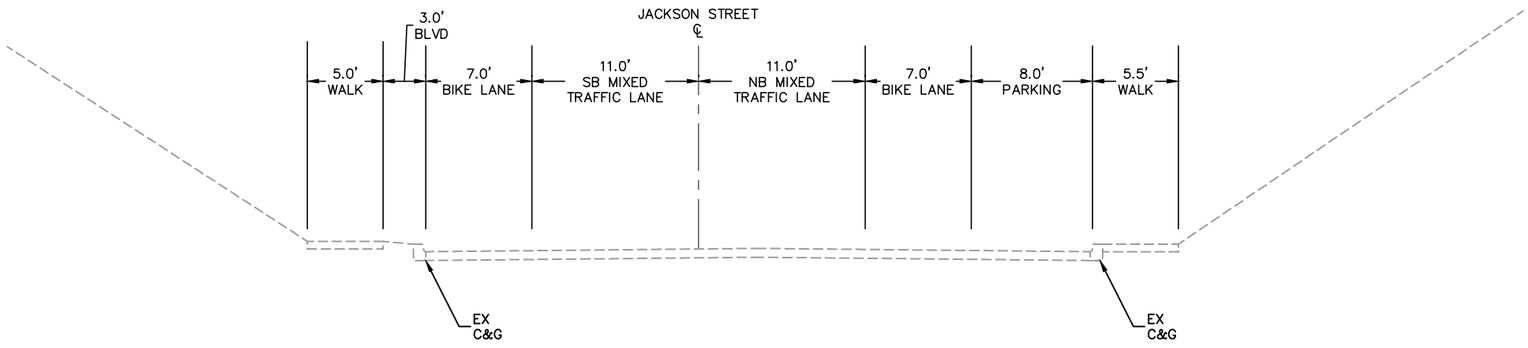
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
41
OF
83



EXISTING TYPICAL SECTION
JACKSON STREET - UNIVERSITY AVENUE TO MT. AIRY STREET STATION



PROPOSED TYPICAL SECTION
JACKSON STREET - UNIVERSITY AVENUE TO MT. AIRY STREET STATION

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

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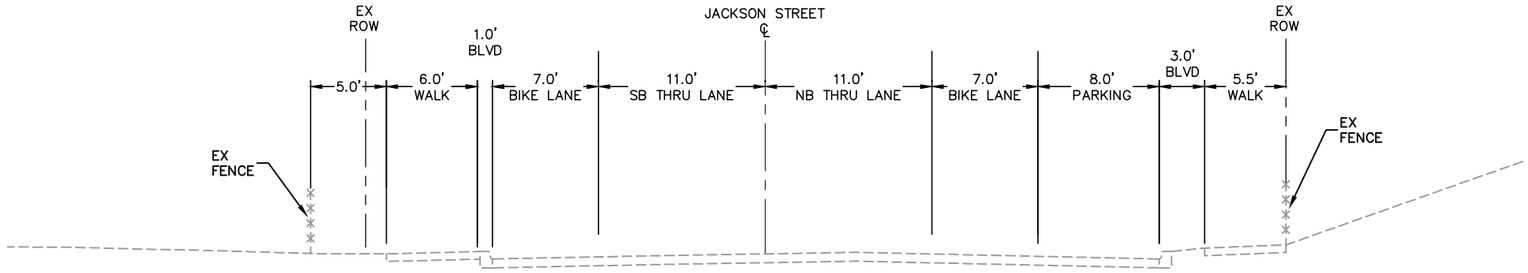
SHEET NO.
42
OF
83



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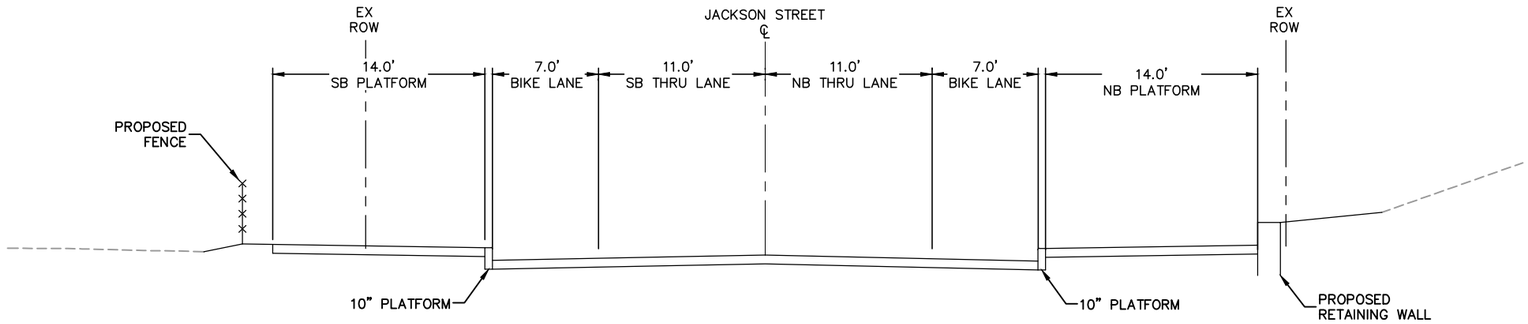
JACKSON STREET - MT. AIRY STREET STATION



PROPOSED TYPICAL SECTION
JACKSON STREET - MT. AIRY STREET STATION

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT
15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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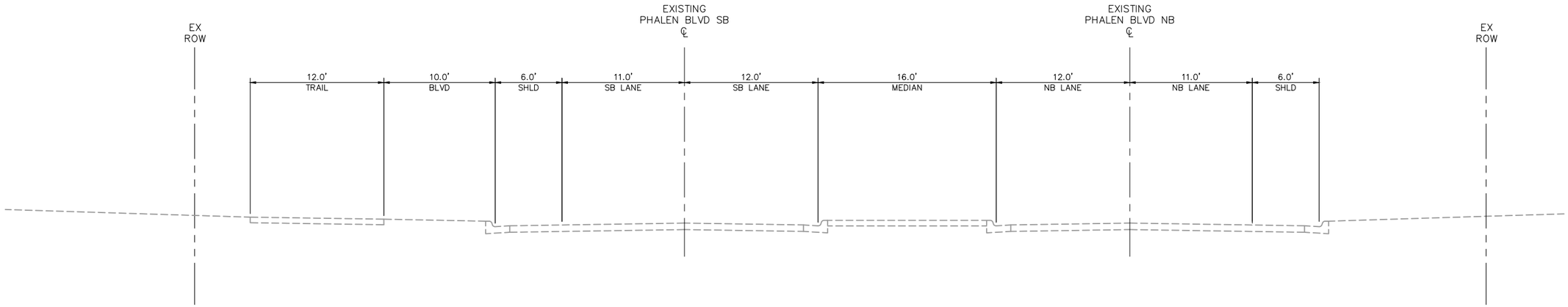
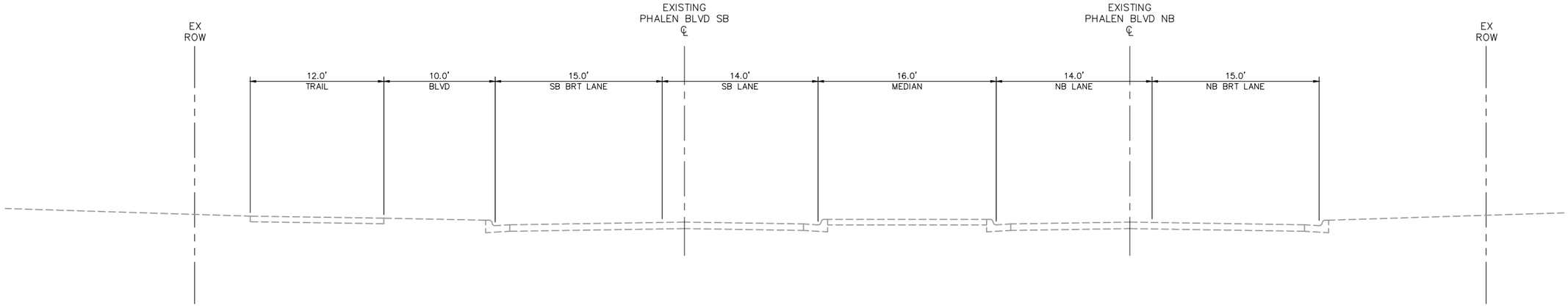
SHEET NO.
43
OF
83



EXISTING TYPICAL SECTION
PHALEN BOULEVARD - OLIVE STREET TO CAYUGA STREET



PROPOSED TYPICAL SECTION
PHALEN BOULEVARD - OLIVE STREET TO CAYUGA STREET

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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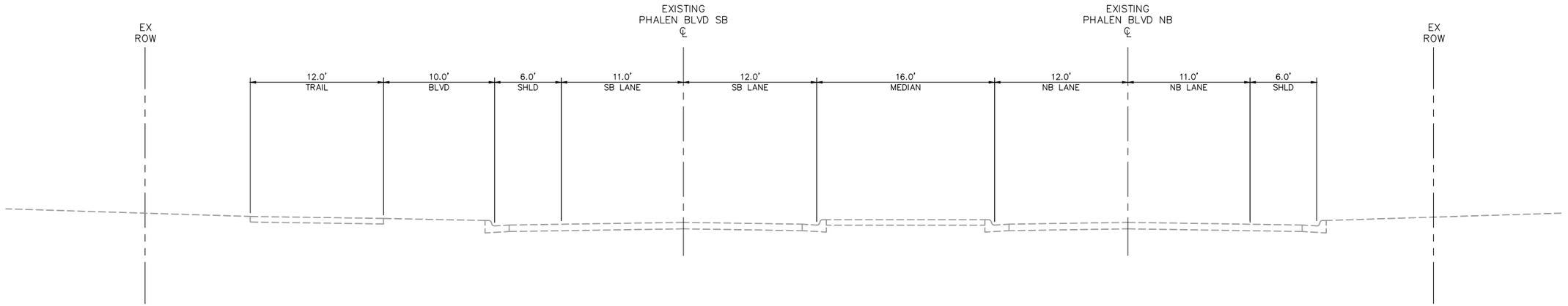
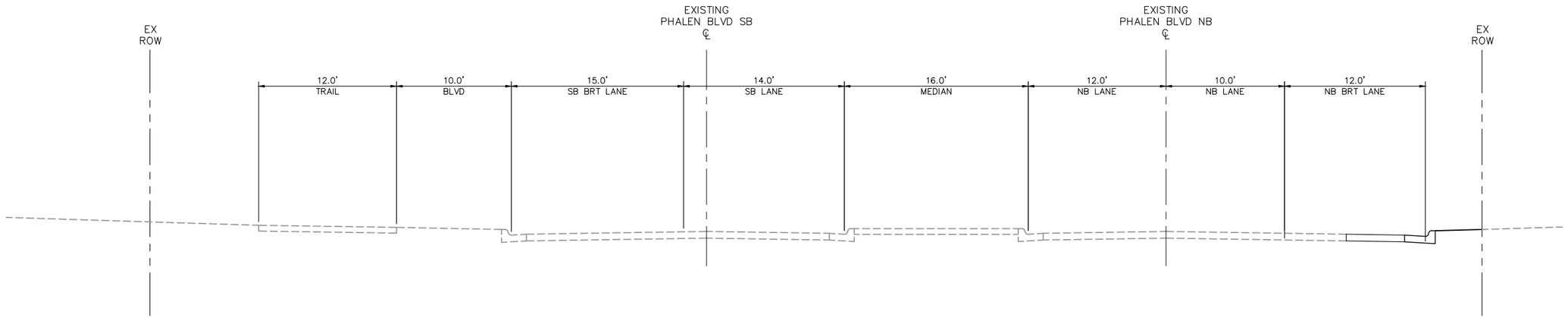
SHEET NO.
44
OF
83



EXISTING TYPICAL SECTION
PHALEN BOULEVARD - CAYUGA STREET TO PAYNE AVENUE



PROPOSED TYPICAL SECTION
PHALEN BOULEVARD - CAYUGA STREET TO PAYNE AVENUE

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

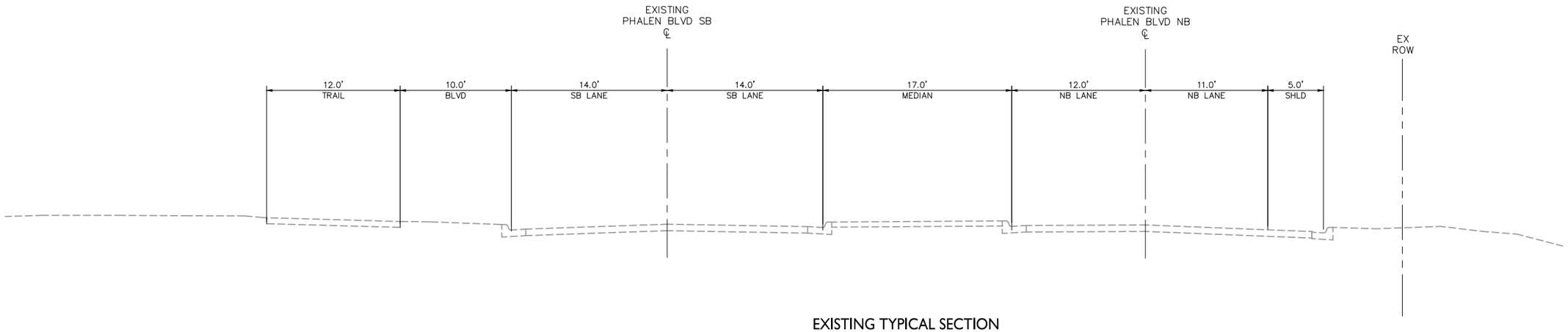
15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

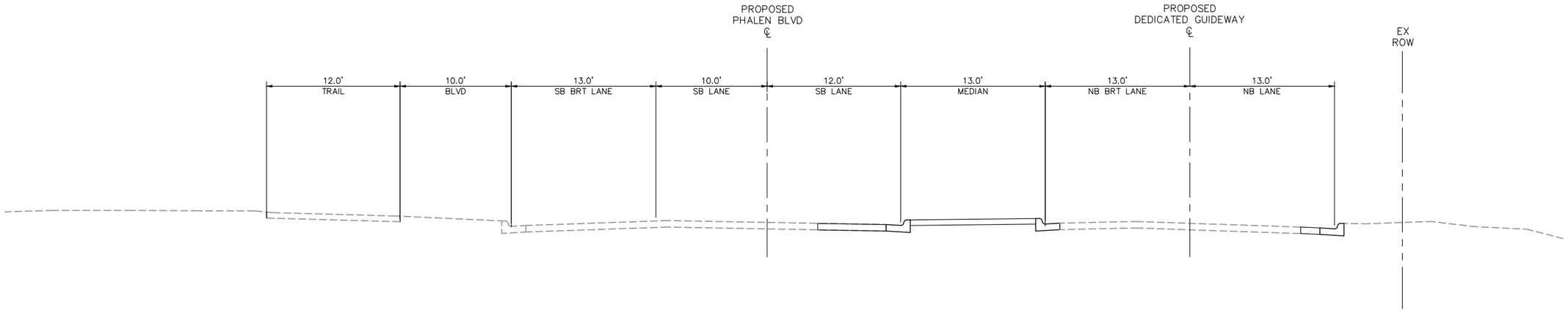
RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.



EXISTING TYPICAL SECTION
PHALEN BOULEVARD - PAYNE AVENUE TO NEID LANE



PROPOSED TYPICAL SECTION
PHALEN BOULEVARD - PAYNE AVENUE TO NEID LANE

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

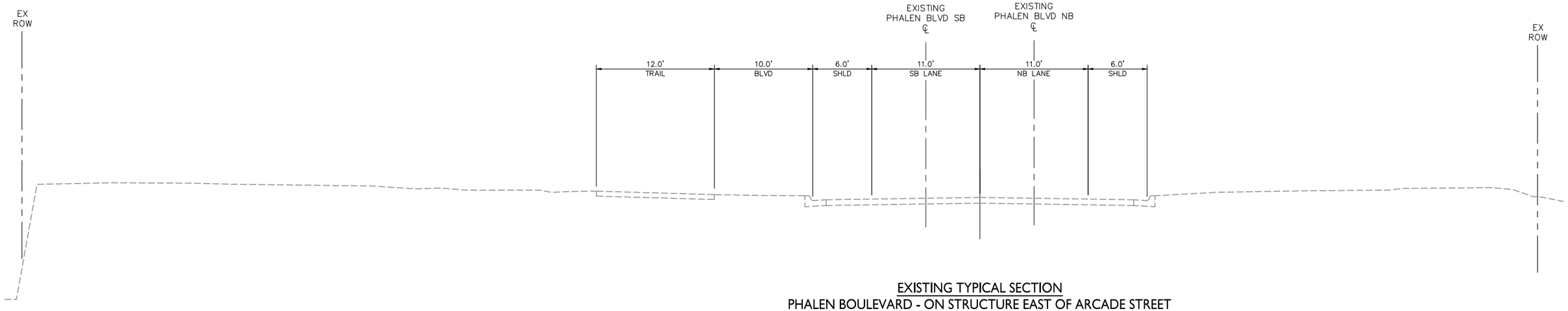
RAMSEY COUNTY

Kimley»Horn

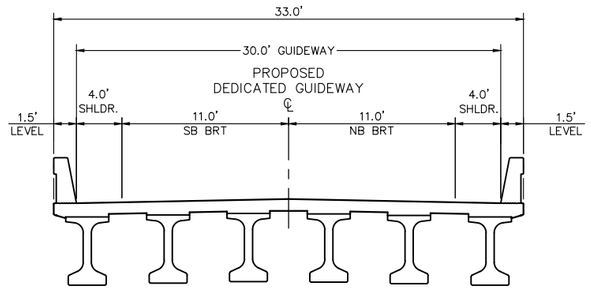
SRF Consulting Group, Inc.

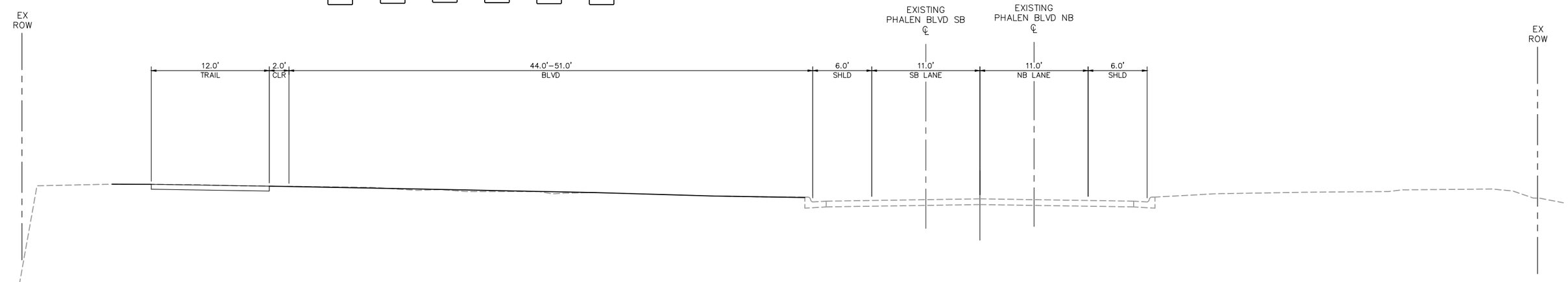
SHEET NO.
46
OF
83

Aug. 04 2020 08:50 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Typ 03.dwg By: bob.monjeau



EXISTING TYPICAL SECTION
PHALEN BOULEVARD - ON STRUCTURE EAST OF ARCADE STREET





PROPOSED TYPICAL SECTION
PHALEN BOULEVARD - ON STRUCTURE EAST OF ARCADE STREET

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

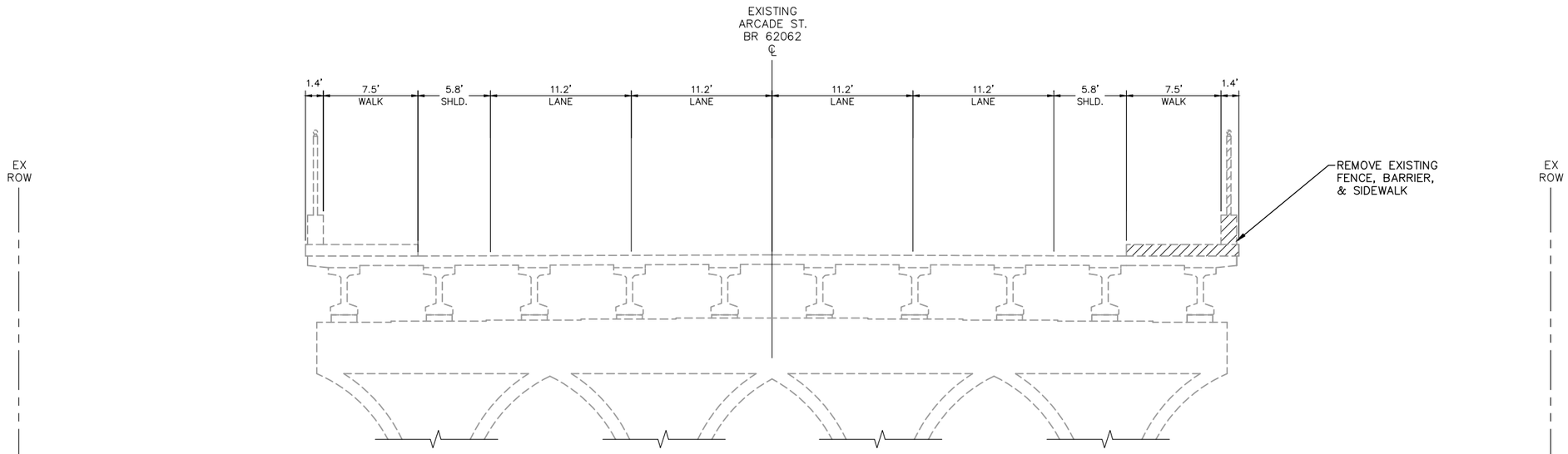
0 3 5 10
SCALE

RAMSEY COUNTY

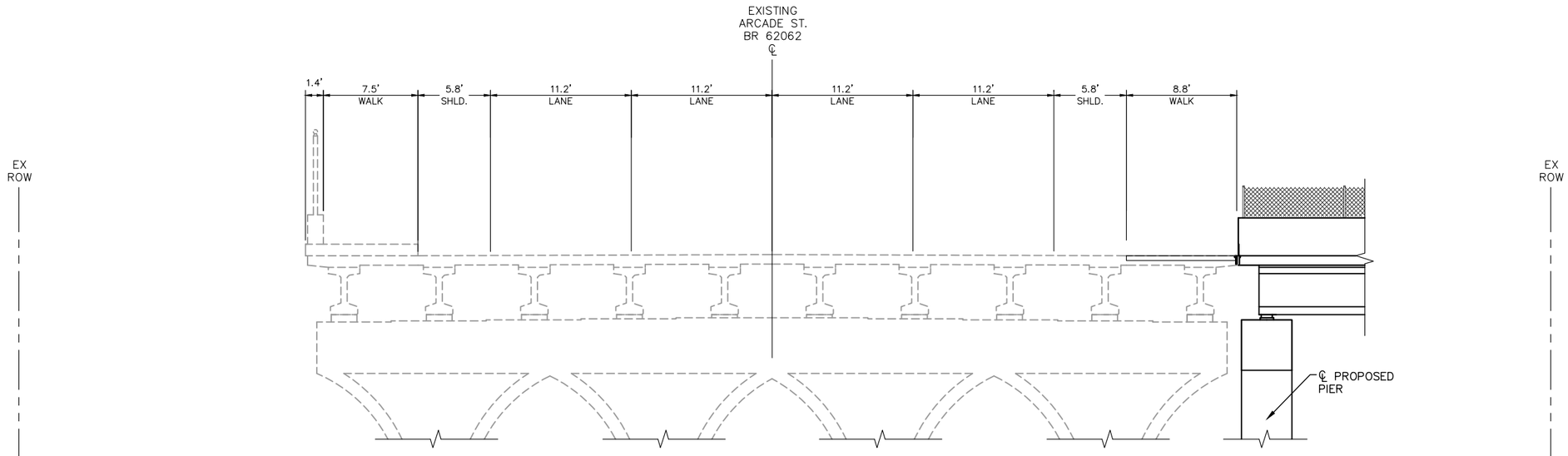
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
47
OF
83



EXISTING TYPICAL SECTION
ARCADE STREET - ON STRUCTURE



PROPOSED TYPICAL SECTION
ARCADE STREET - ON STRUCTURE
CONNECTION TO PHALEN BOULEVARD DEDICATED GUIDEWAY

DRAFT-WORK IN PROCESS

Aug, 04 2020 08:50 am K:\TWC_Transit\RCRRA\Rush Line EA\CAD\Plan Sheets\11112_Typ 04A.dwg By: bob.monjeau

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

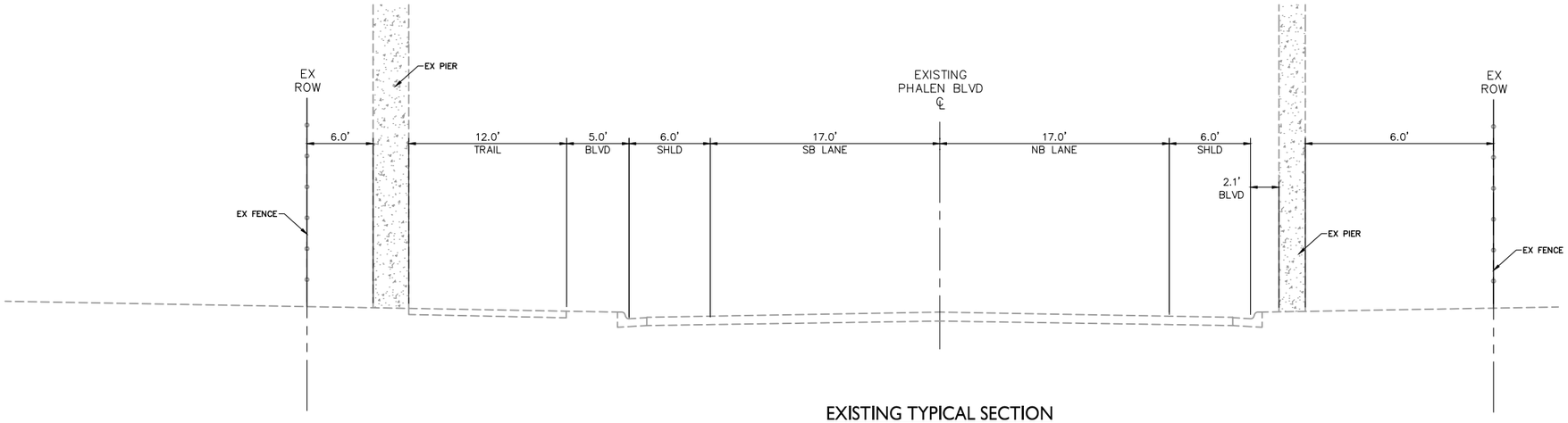
0 3 5 10
SCALE

RAMSEY COUNTY

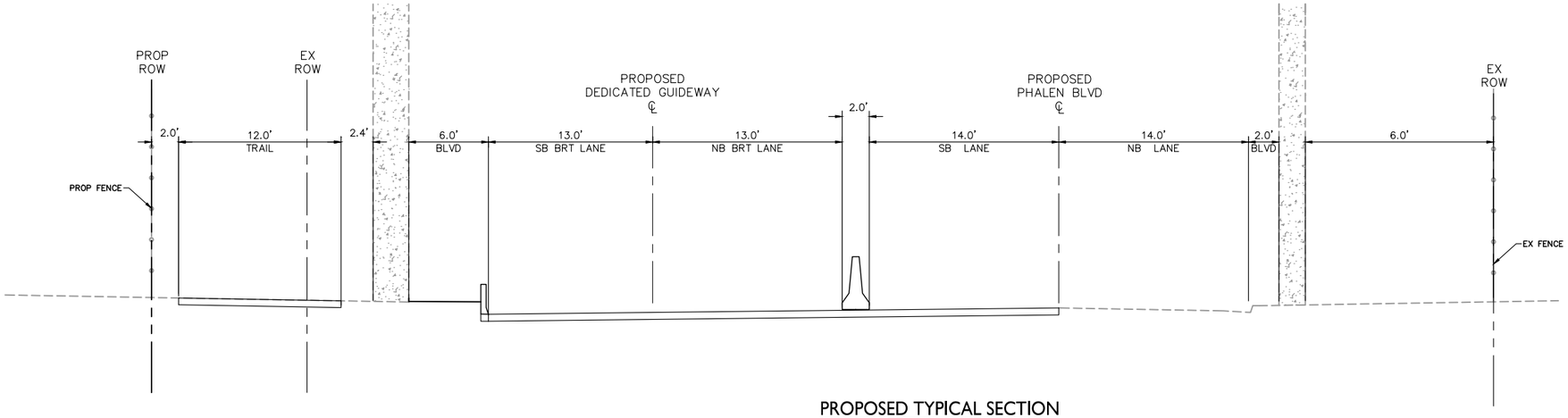
Kimley»Horn

SRF Consulting Group, Inc.

SHEET NO.
48
OF
83



EXISTING TYPICAL SECTION
PHALEN BOULEVARD - FOREST STREET UNDERPASS



PROPOSED TYPICAL SECTION
PHALEN BOULEVARD - FOREST STREET UNDERPASS

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

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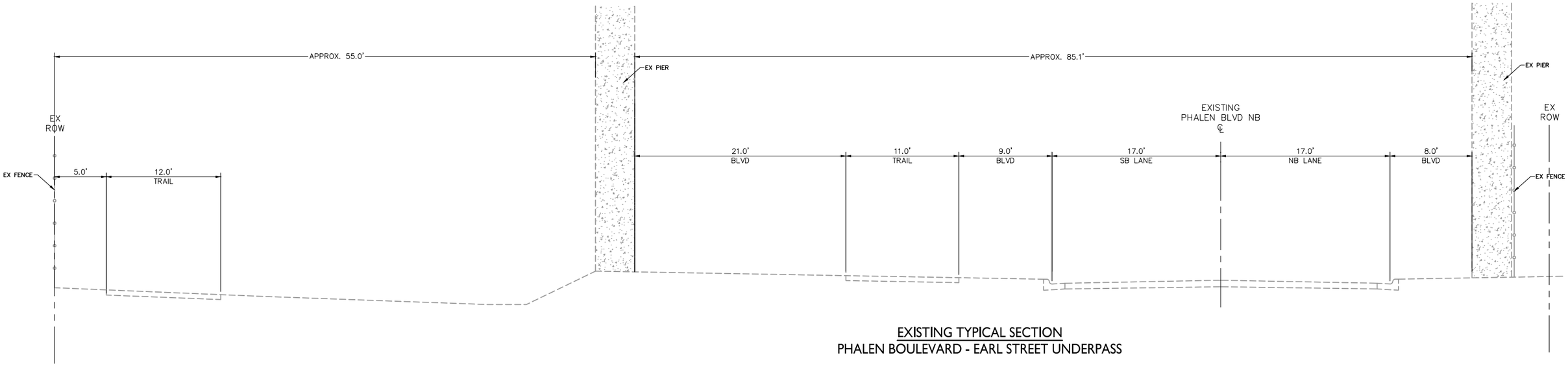

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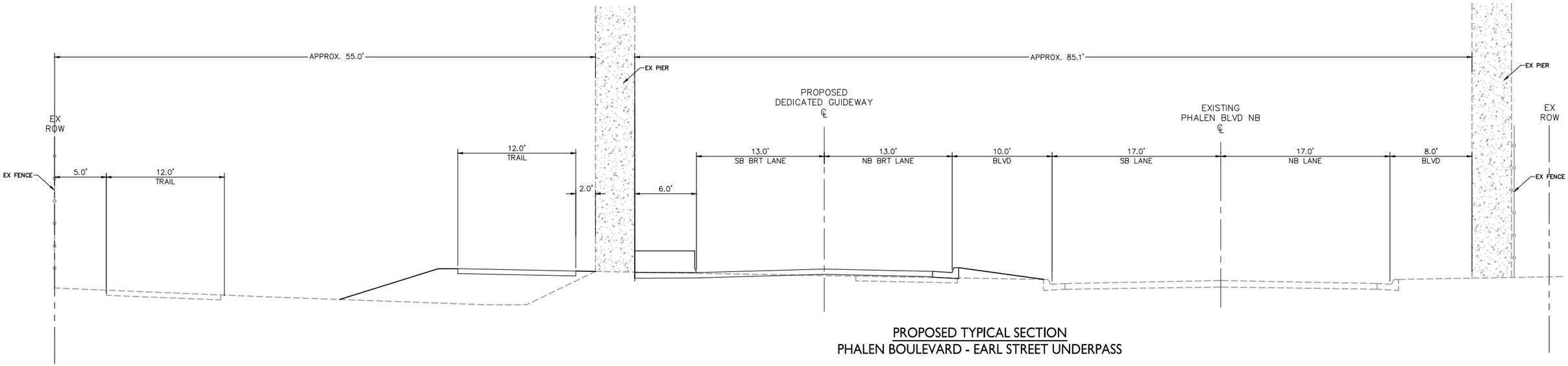
PHALEN BOULEVARD - EARL STREET UNDERPASS



PROPOSED TYPICAL SECTION
PHALEN BOULEVARD - EARL STREET UNDERPASS

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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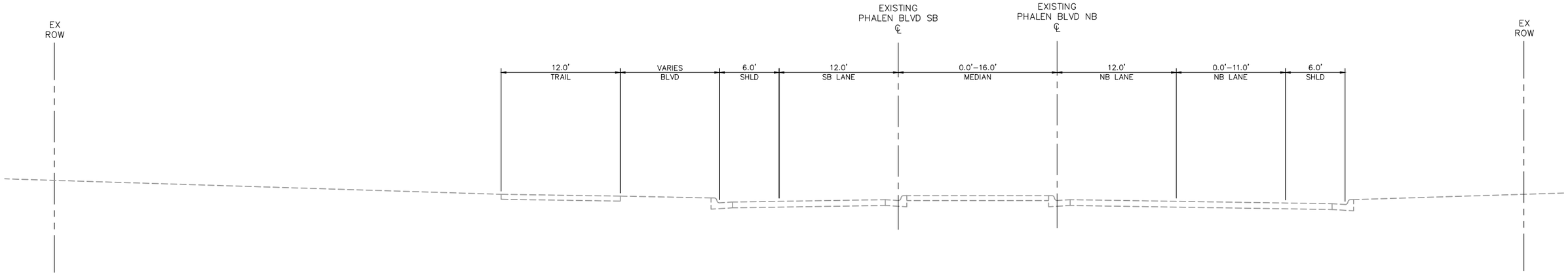
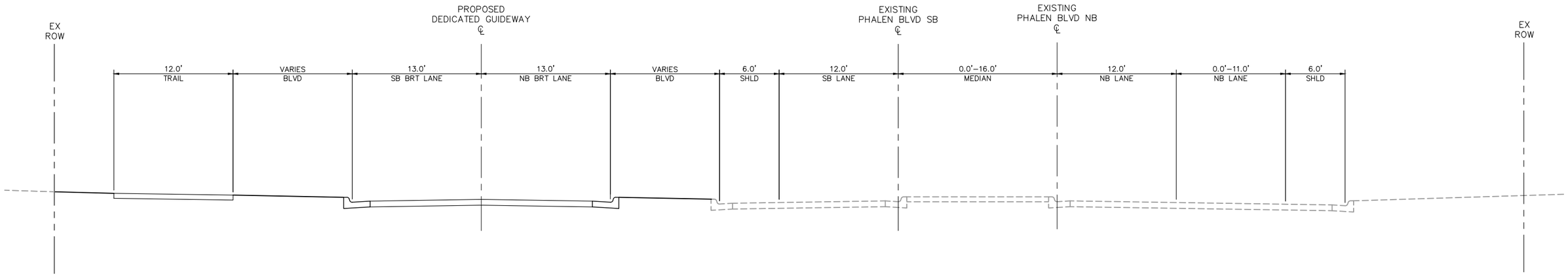


EXISTING TYPICAL SECTION
PHALEN BOULEVARD - ARCADE STREET TO JOHNSON PARKWAY



PROPOSED TYPICAL SECTION
PHALEN BOULEVARD - ARCADE STREET TO JOHNSON PARKWAY

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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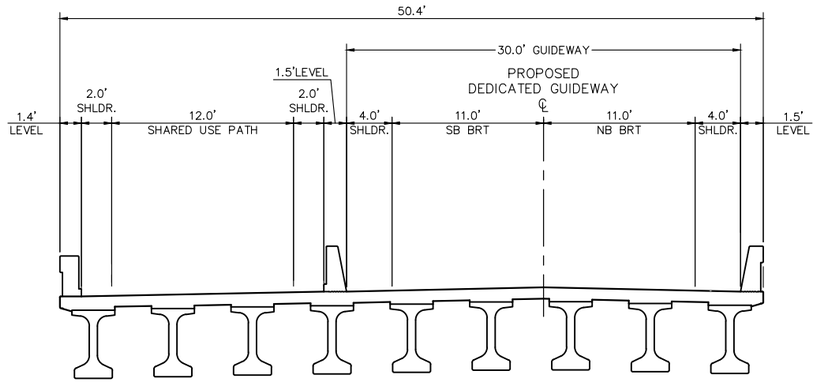

PROPOSED TYPICAL SECTION
PHALEN BOULEVARD/BRUCE VENTO REGIONAL TRAIL - JOHNSON PARKWAY BRIDGE

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT
15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

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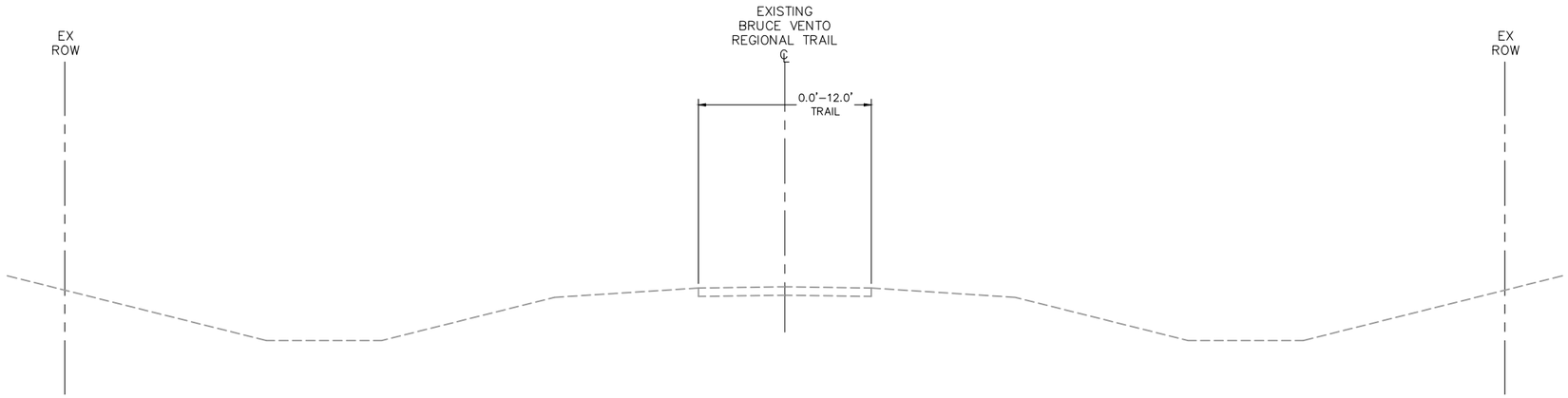

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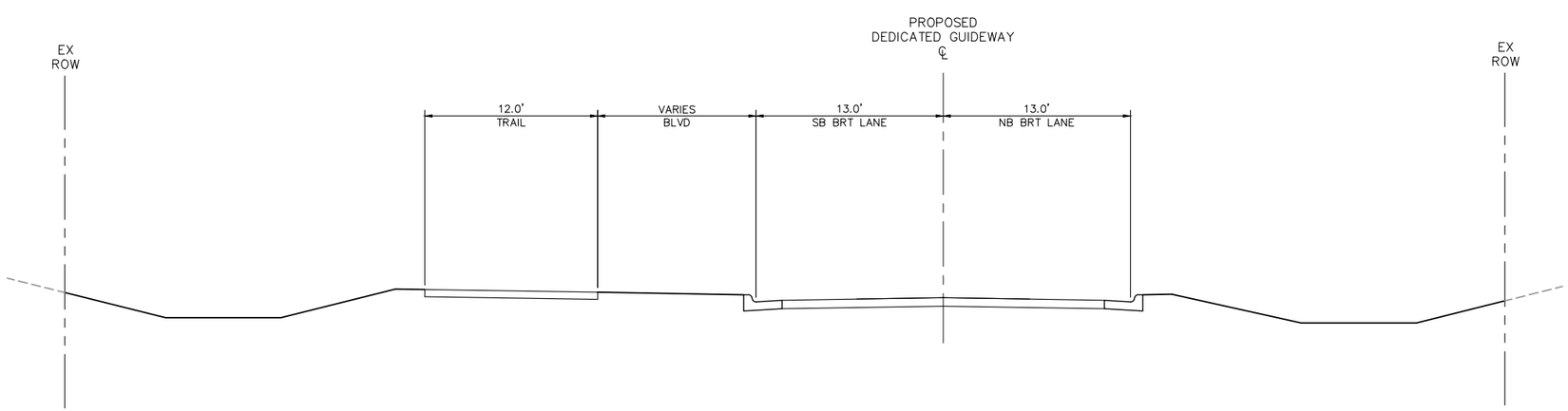
BRUCE VENTO REGIONAL TRAIL - JOHNSON PARKWAY TO LARPENTEUR AVENUE



PROPOSED TYPICAL SECTION
BRUCE VENTO REGIONAL TRAIL - JOHNSON PARKWAY TO LARPENTEUR AVENUE

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

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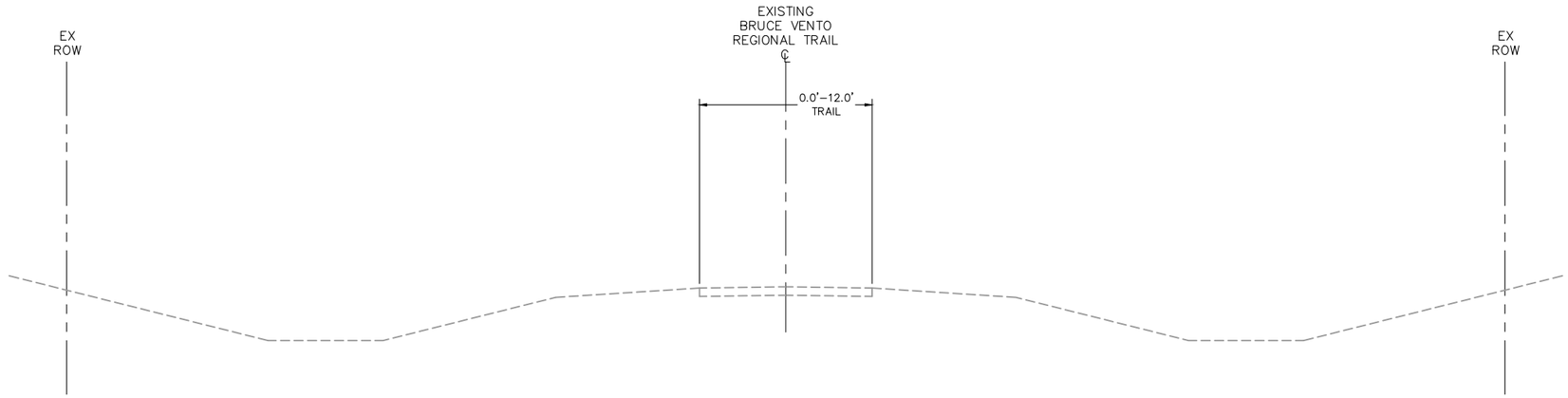

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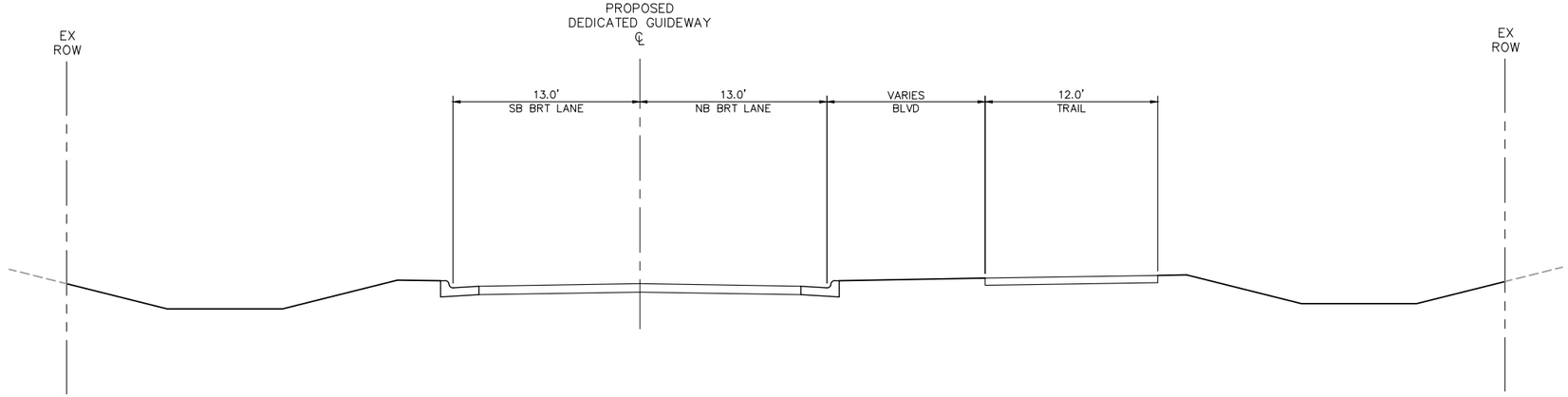

PROPOSED TYPICAL SECTION
BRUCE VENTO REGIONAL TRAIL - LARPENTEUR AVENUE TO TH 36

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

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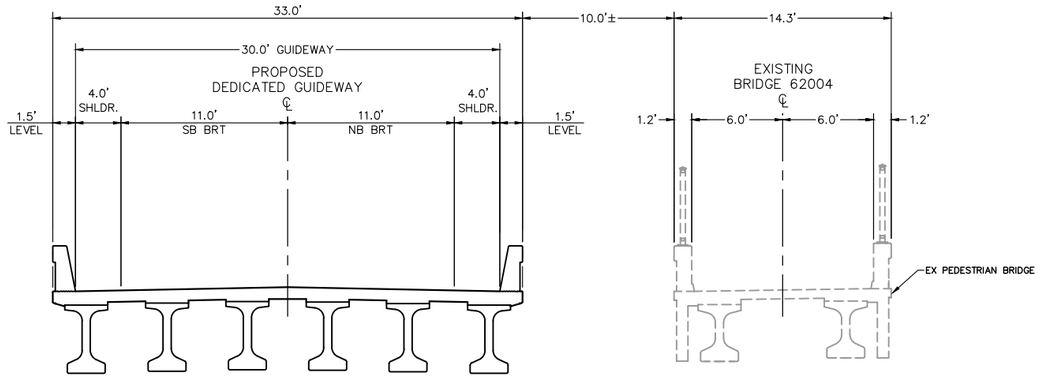

PROPOSED TYPICAL SECTION
BRUCE VENTO REGIONAL TRAIL - TH 36 BRIDGE

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

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OF
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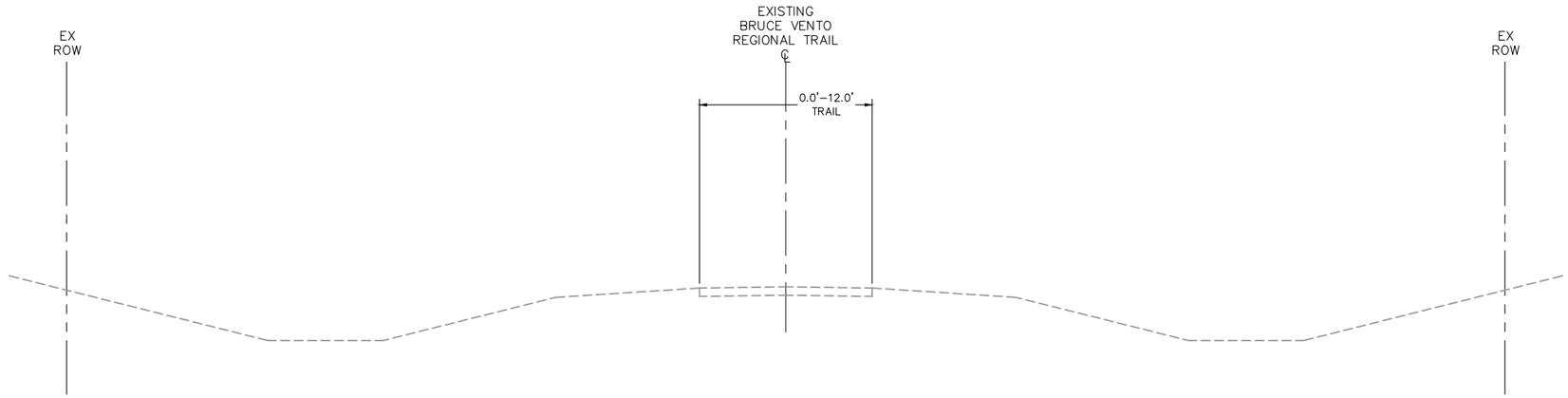
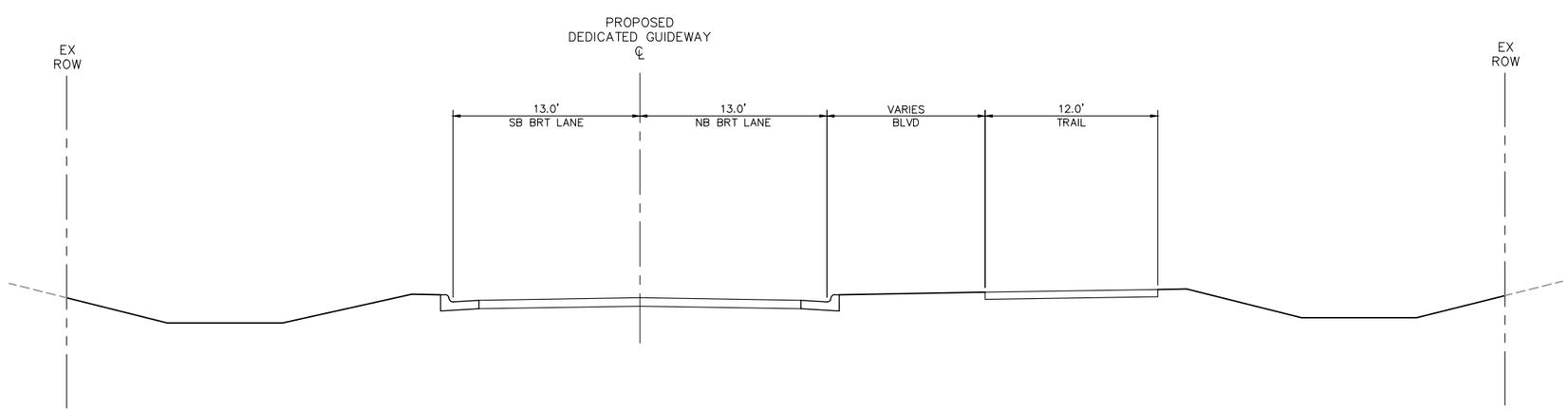


EXISTING TYPICAL SECTION
BRUCE VENTO REGIONAL TRAIL - TH 36 AVENUE TO BEAM AVENUE



PROPOSED TYPICAL SECTION
BRUCE VENTO REGIONAL TRAIL - TH 36 TO BEAM AVENUE

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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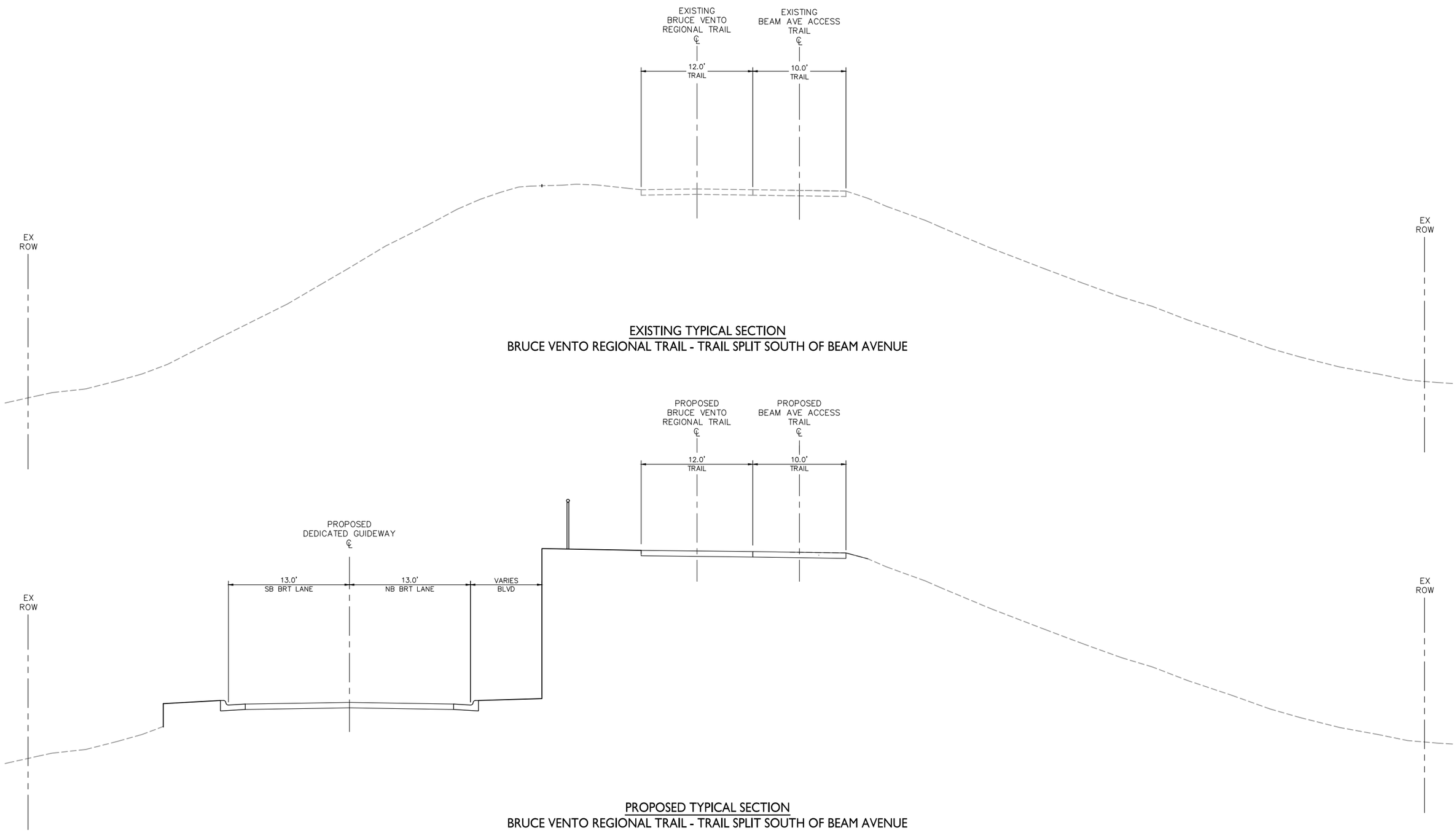

EXISTING TYPICAL SECTION
BRUCE VENTO REGIONAL TRAIL - TRAIL SPLIT SOUTH OF BEAM AVENUE

PROPOSED TYPICAL SECTION
BRUCE VENTO REGIONAL TRAIL - TRAIL SPLIT SOUTH OF BEAM AVENUE

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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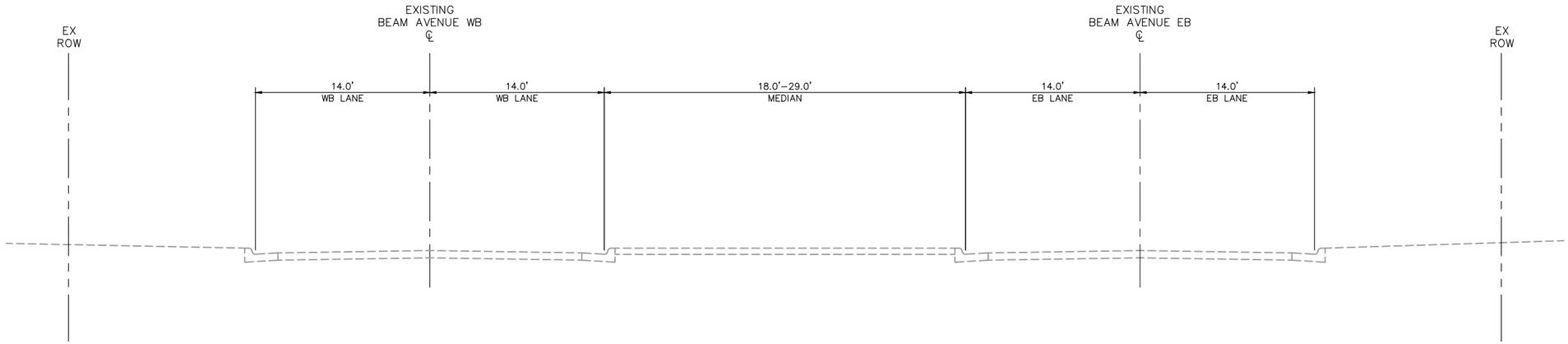
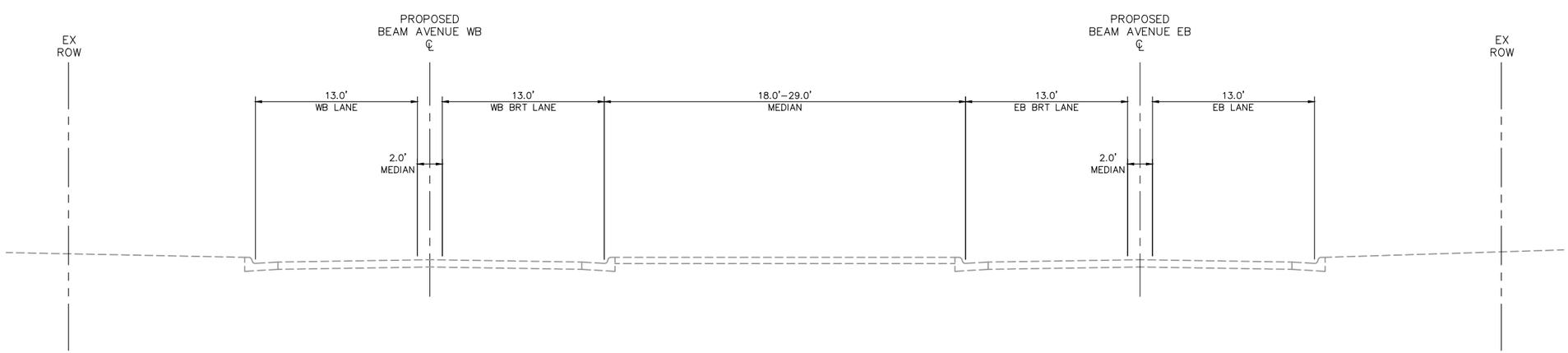


EXISTING TYPICAL SECTION
BEAM AVENUE



PROPOSED TYPICAL SECTION
BEAM AVENUE

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 3 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

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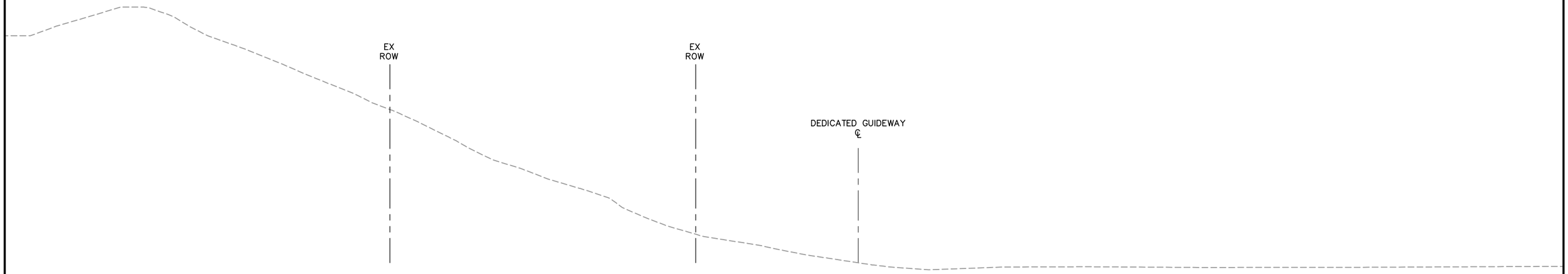
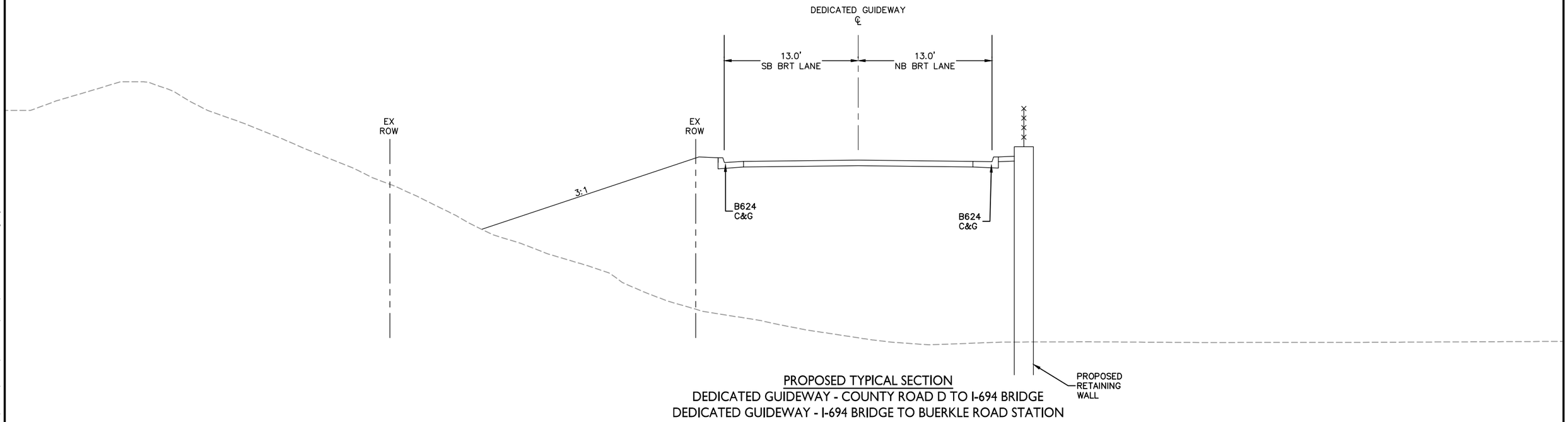


EXISTING TYPICAL SECTION
DEDICATED GUIDEWAY - COUNTY ROAD D TO I-694 BRIDGE
DEDICATED GUIDEWAY - I-694 BRIDGE TO BUERKLE ROAD STATION



PROPOSED TYPICAL SECTION
DEDICATED GUIDEWAY - COUNTY ROAD D TO I-694 BRIDGE
DEDICATED GUIDEWAY - I-694 BRIDGE TO BUERKLE ROAD STATION

DRAFT-WORK IN PROCESS

Aug. 04 2020 11:00 am H:\Projects\11000\11112\CAD_BIM\Plan\SEGX-CIV-TYP.dwg By: tborowicz

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

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OF
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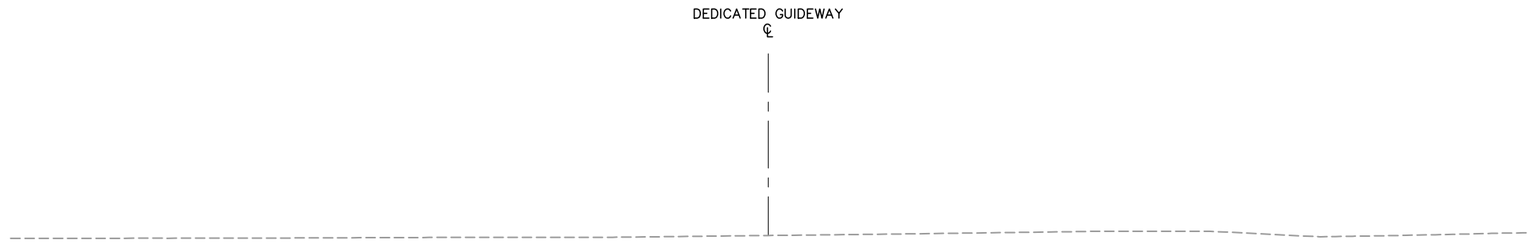
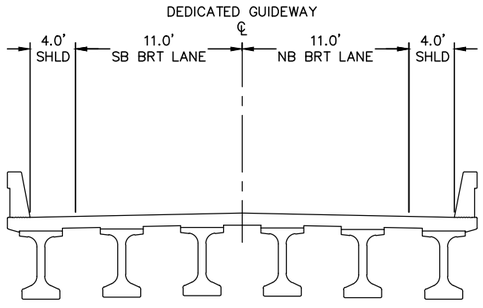
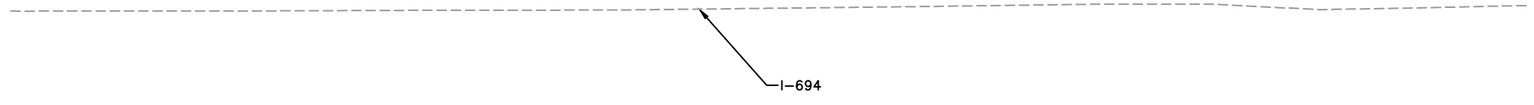


EXISTING TYPICAL SECTION
DEDICATED GUIDEWAY - BRIDGE OVER I-694





PROPOSED TYPICAL SECTION
DEDICATED GUIDEWAY - BRIDGE OVER I-694

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

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83

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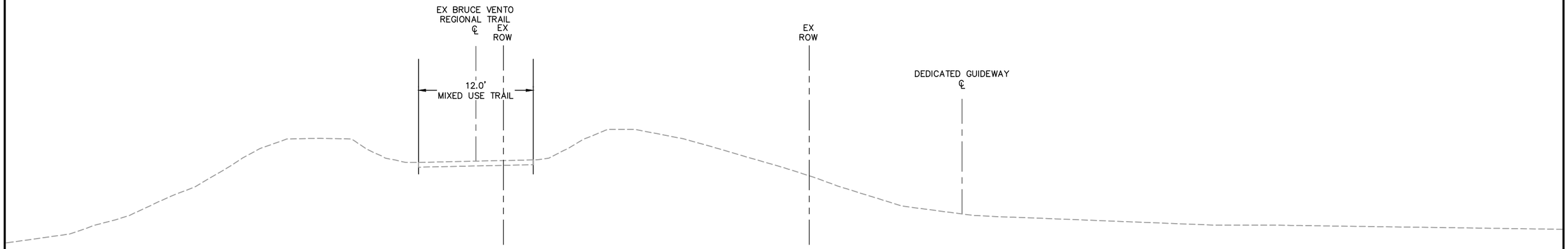
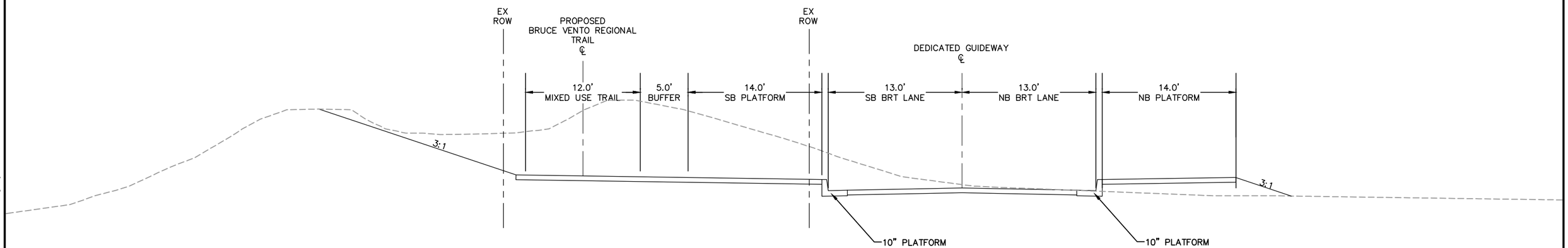


EXISTING TYPICAL SECTION
DEDICATED GUIDEWAY - BUERKLE ROAD STATION



PROPOSED TYPICAL SECTION
DEDICATED GUIDEWAY - BUERKLE ROAD STATION

DRAFT-WORK IN PROCESS

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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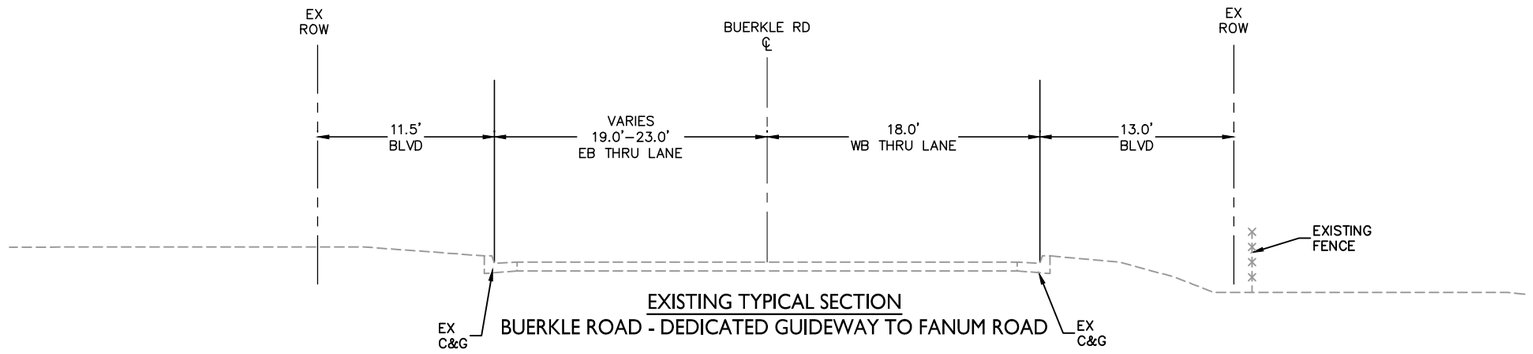
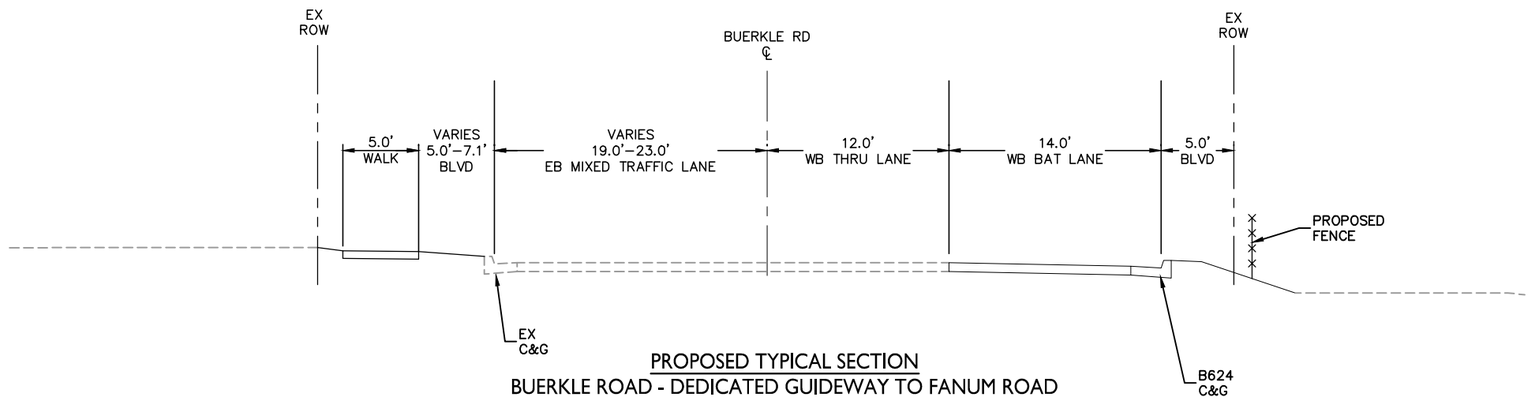


EXISTING TYPICAL SECTION
BUERKLE ROAD - DEDICATED GUIDEWAY TO FANUM ROAD



PROPOSED TYPICAL SECTION
BUERKLE ROAD - DEDICATED GUIDEWAY TO FANUM ROAD

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

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83

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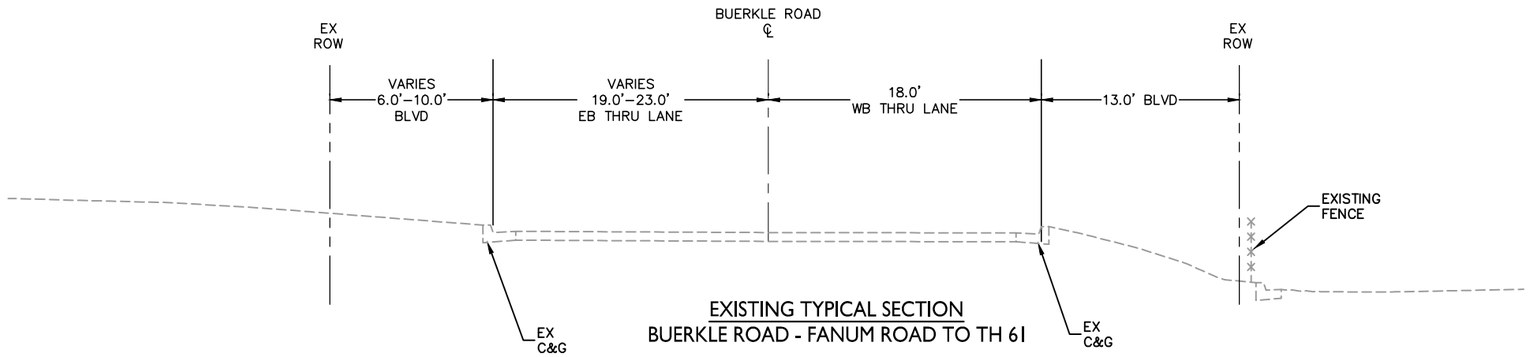
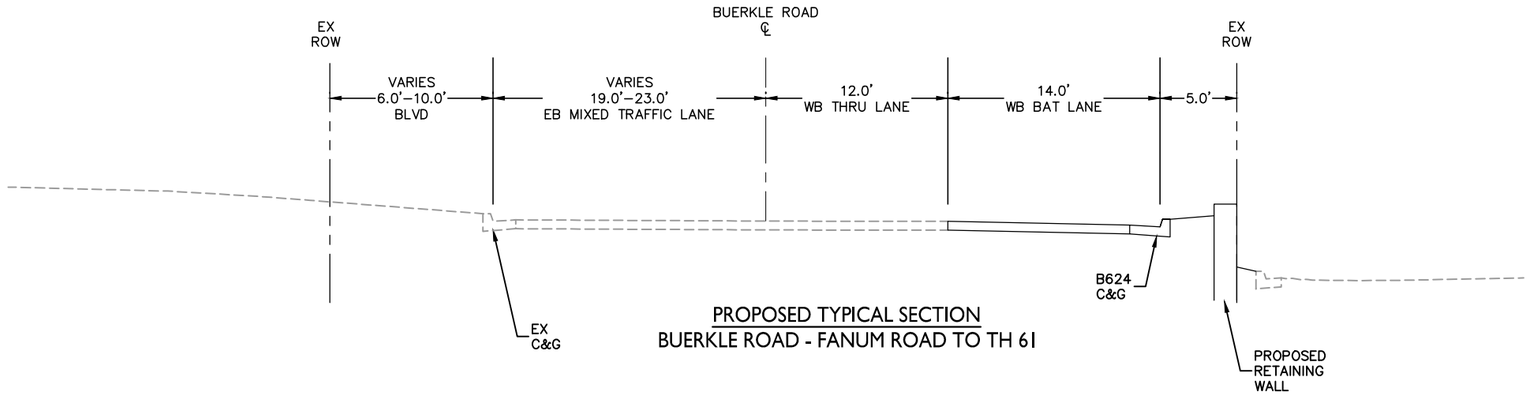


EXISTING TYPICAL SECTION
BUERKLE ROAD - FANUM ROAD TO TH 61



PROPOSED TYPICAL SECTION
BUERKLE ROAD - FANUM ROAD TO TH 61

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT
15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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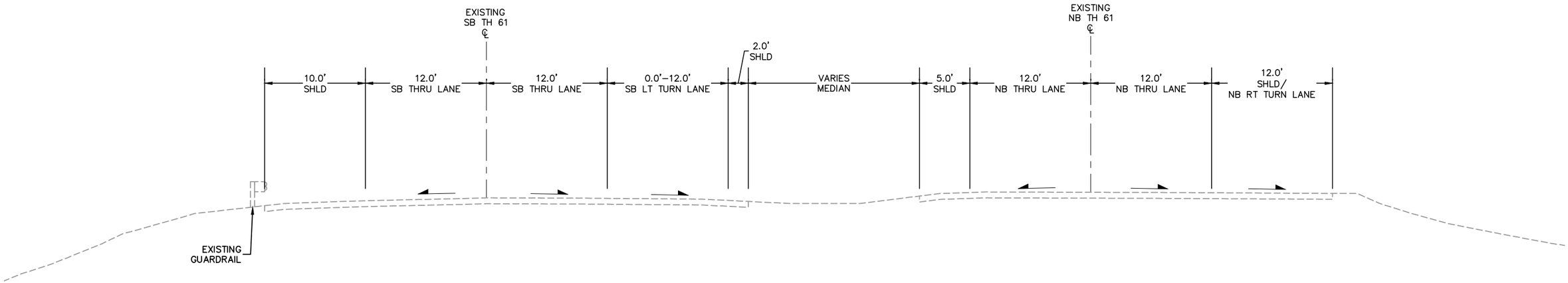
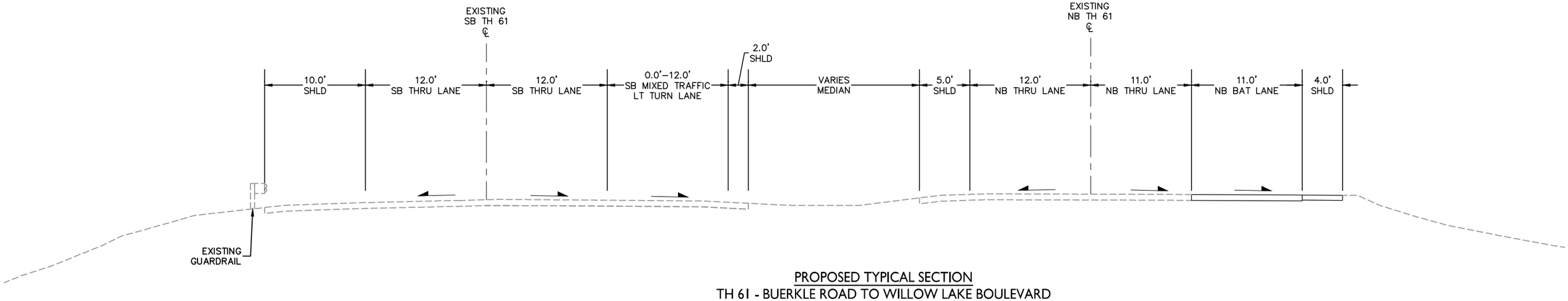


EXISTING TYPICAL SECTION
TH 61 - BUERKLE ROAD TO WILLOW LAKE BOULEVARD



PROPOSED TYPICAL SECTION
TH 61 - BUERKLE ROAD TO WILLOW LAKE BOULEVARD

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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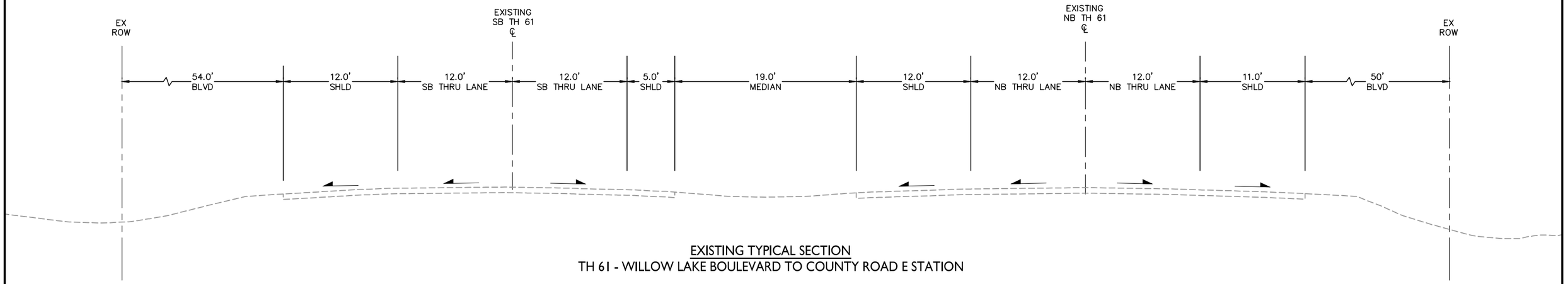
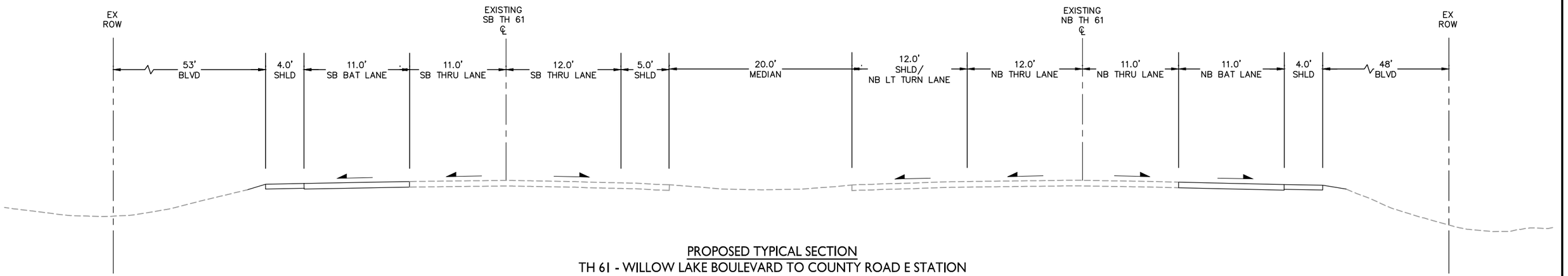


EXISTING TYPICAL SECTION
TH 61 - WILLOW LAKE BOULEVARD TO COUNTY ROAD E STATION



PROPOSED TYPICAL SECTION
TH 61 - WILLOW LAKE BOULEVARD TO COUNTY ROAD E STATION

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

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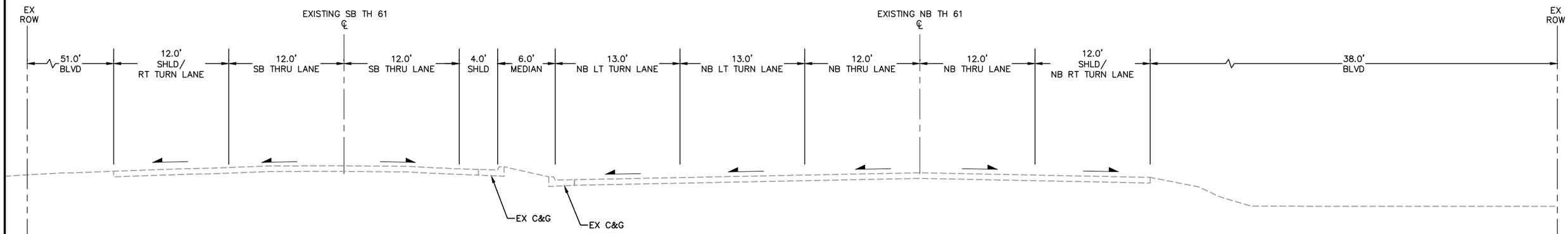
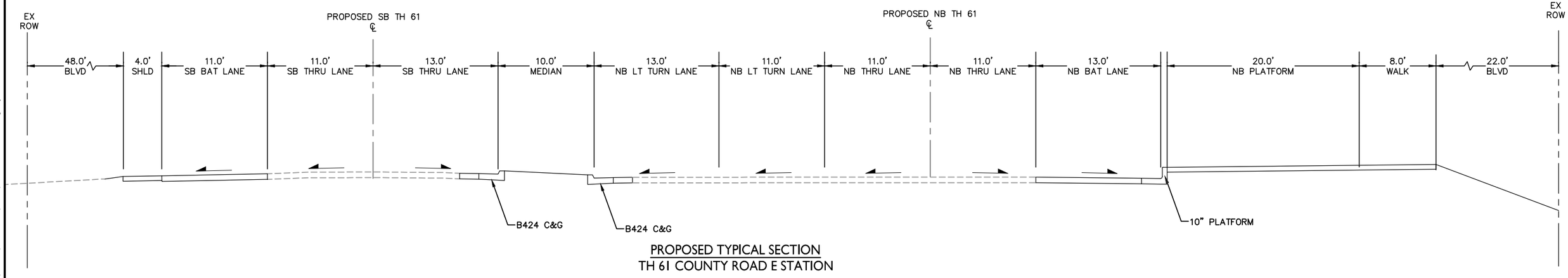


EXISTING TYPICAL SECTION
TH 61 - COUNTY ROAD E STATION



PROPOSED TYPICAL SECTION
TH 61 COUNTY ROAD E STATION

DRAFT-WORK IN PROCESS

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

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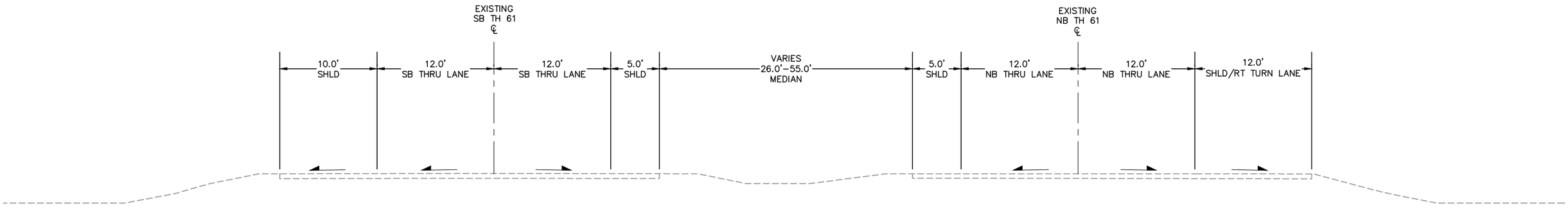
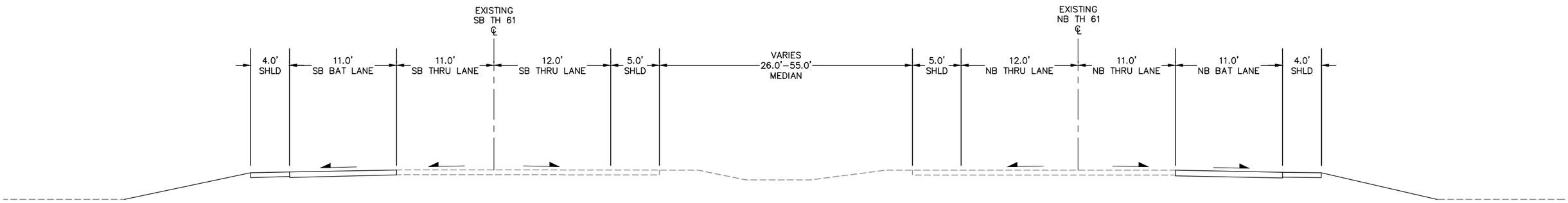
OF
83



EXISTING TYPICAL SECTION

TH 61 - COUNTY ROAD E STATION TO BRIDGE OVER BNSF RAILWAY



PROPOSED TYPICAL SECTION

TH 61 - COUNTY ROAD E STATION TO BRIDGE OVER BNSF RAILWAY

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020

TYPICAL SECTIONS

0 2.5 5 10

SCALE

RAMSEY COUNTY

Kimley»Horn

SRF Consulting Group, Inc.

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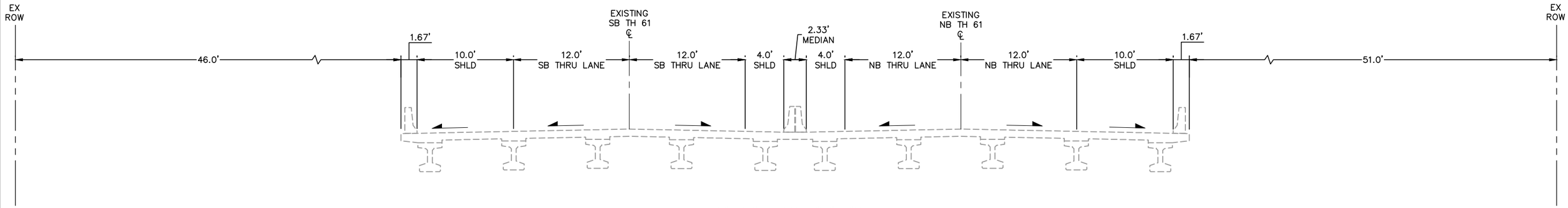
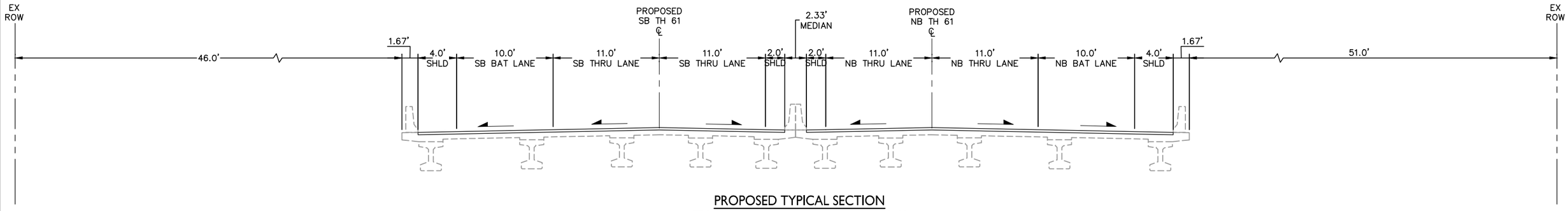


EXISTING TYPICAL SECTION
TH 61 - BRIDGE OVER BNSF RAILWAY



PROPOSED TYPICAL SECTION
TH 61 - BRIDGE OVER BNSF RAILWAY

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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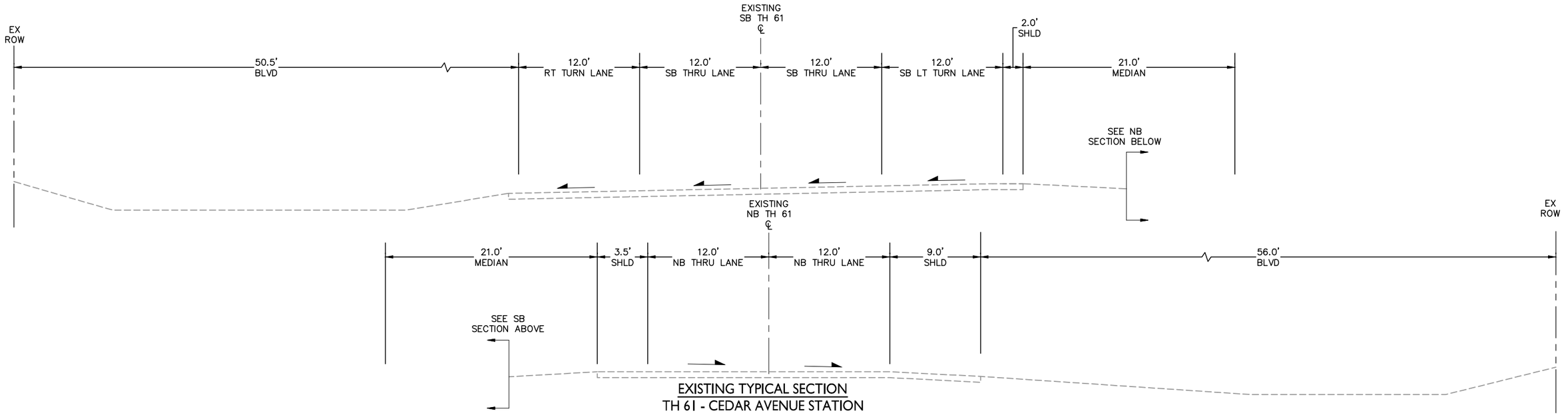
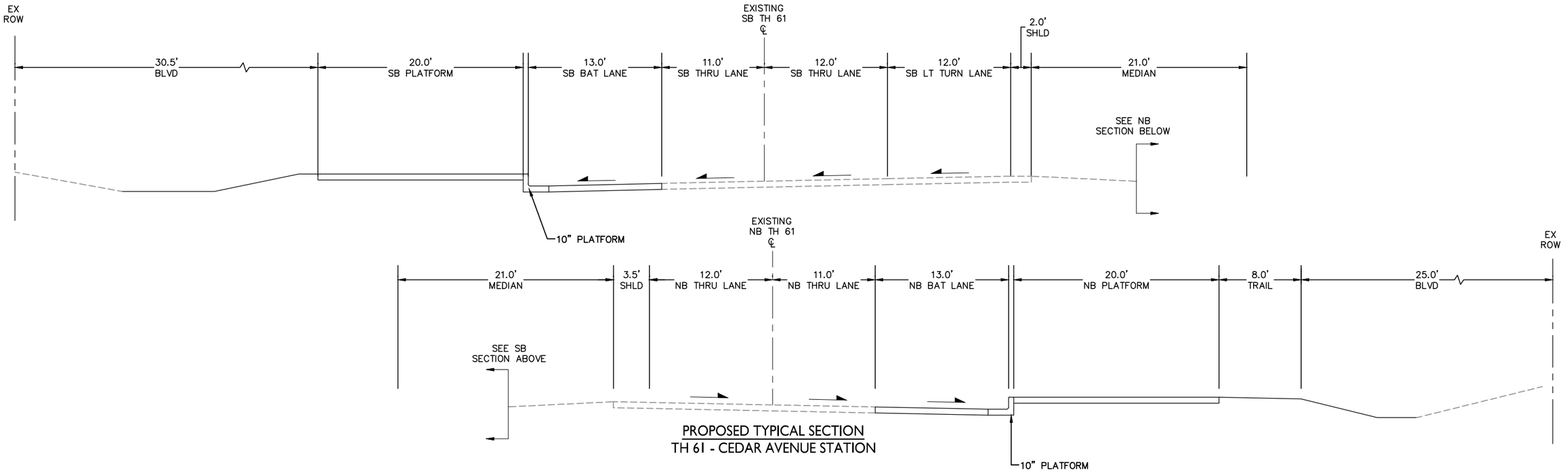


EXISTING TYPICAL SECTION
TH 61 - CEDAR AVENUE STATION



PROPOSED TYPICAL SECTION
TH 61 - CEDAR AVENUE STATION

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

Kimley»Horn

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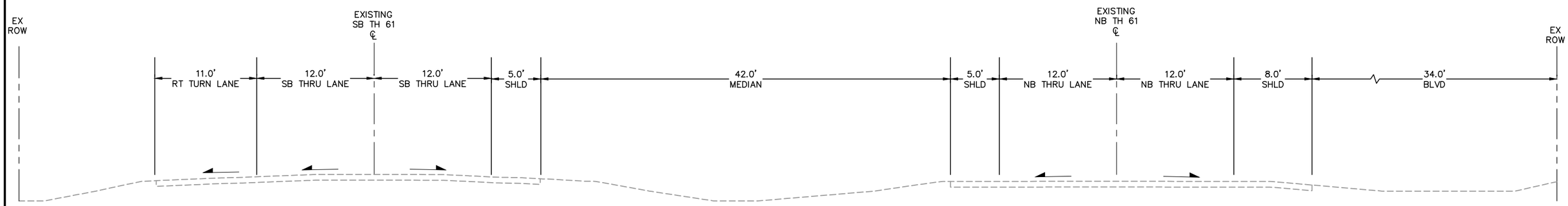
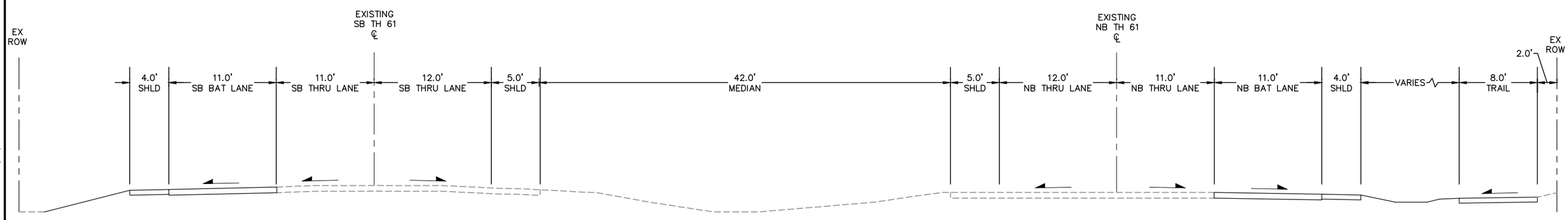


EXISTING TYPICAL SECTION
TH 61 - CEDAR AVENUE STATION TO COUNTY ROAD F



PROPOSED TYPICAL SECTION
CEDAR AVENUE STATION TO COUNTY ROAD F

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Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

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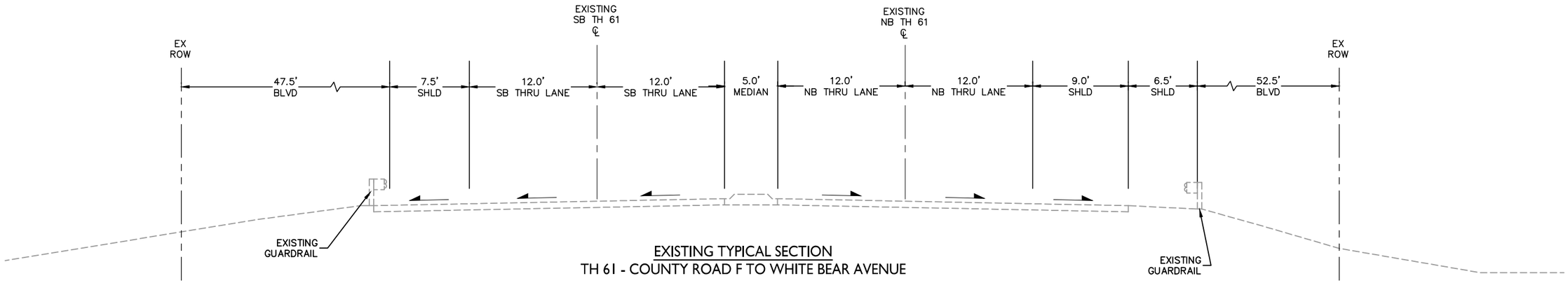
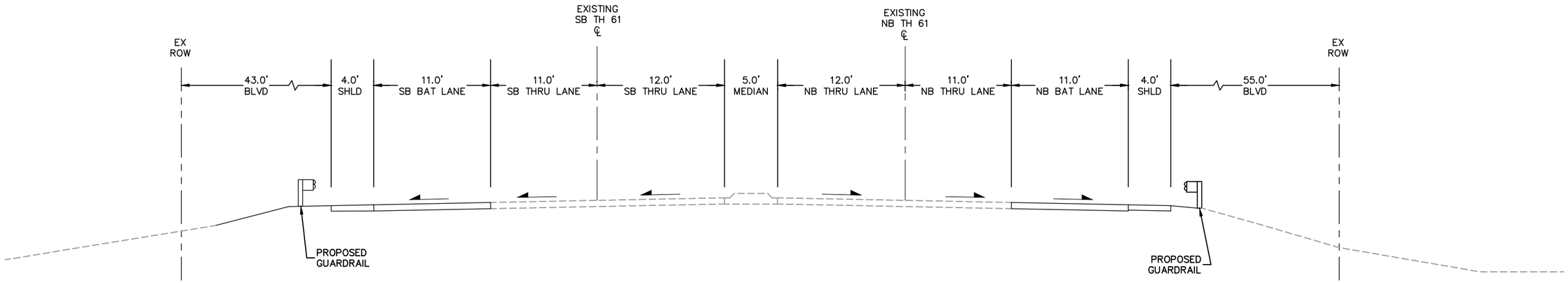
OF
83



EXISTING TYPICAL SECTION
TH 61 - COUNTY ROAD F TO WHITE BEAR AVENUE



PROPOSED TYPICAL SECTION
TH 61 - COUNTY ROAD F TO WHITE BEAR AVENUE

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

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SCALE

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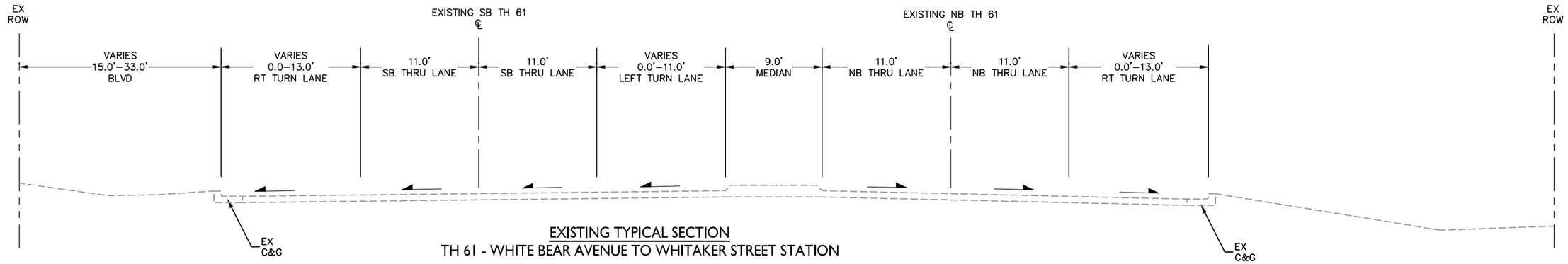
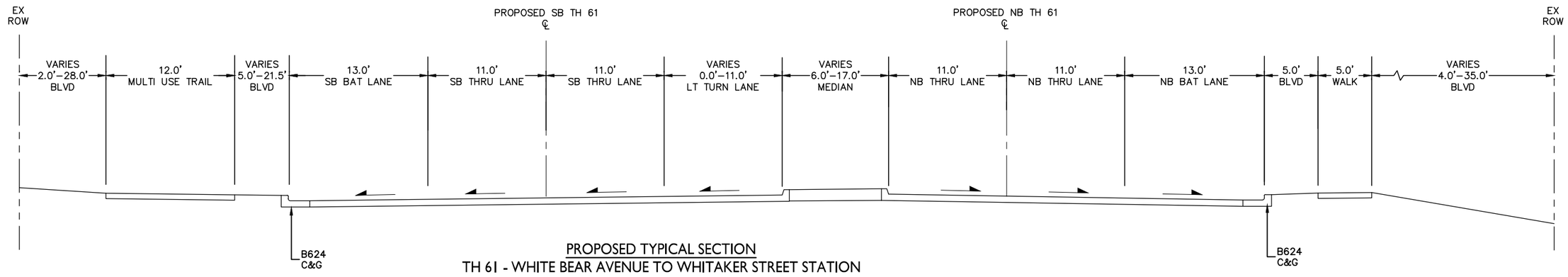


EXISTING TYPICAL SECTION
TH 61 - WHITE BEAR AVENUE TO WHITAKER STREET STATION



PROPOSED TYPICAL SECTION
TH 61 - WHITE BEAR AVENUE TO WHITAKER STREET STATION

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

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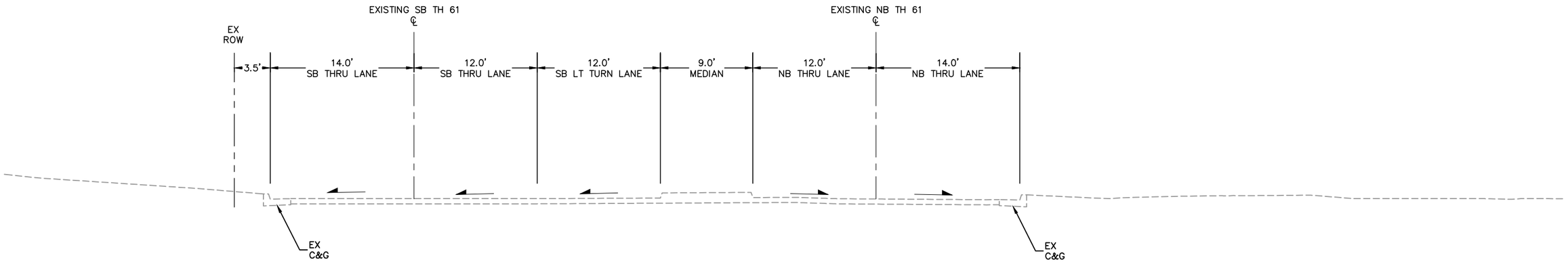
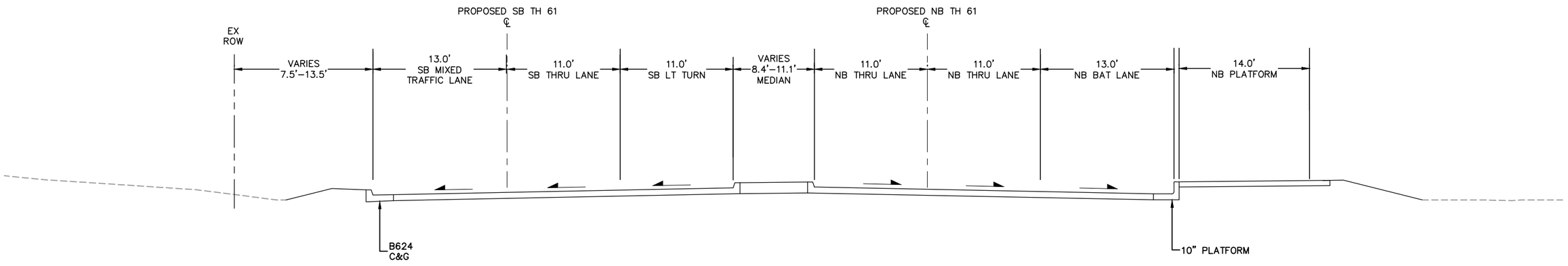


EXISTING TYPICAL SECTION
TH 61 - WHITAKER STREET STATION



PROPOSED TYPICAL SECTION
TH 61 - WHITAKER STREET STATION

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Rush Line

RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

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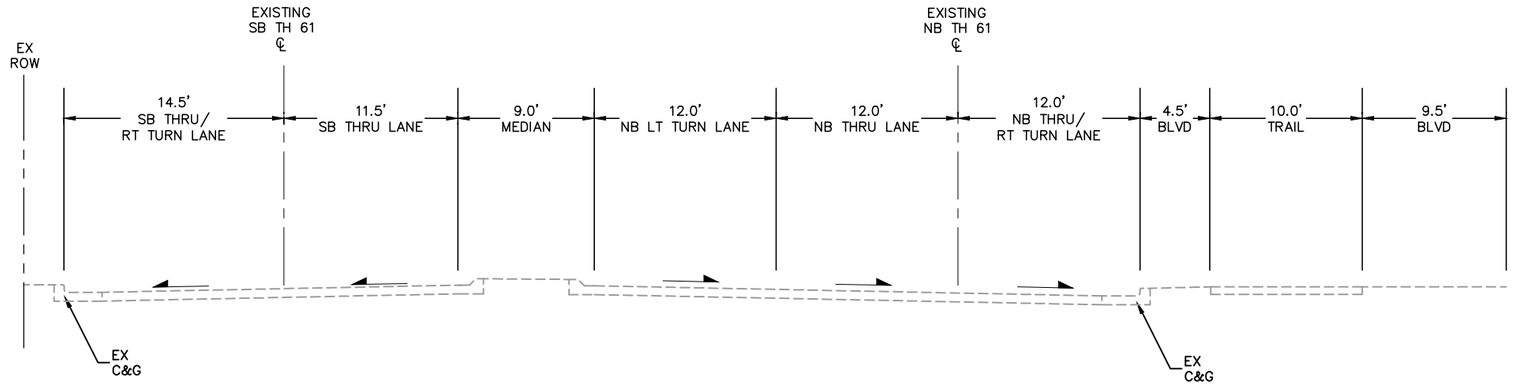
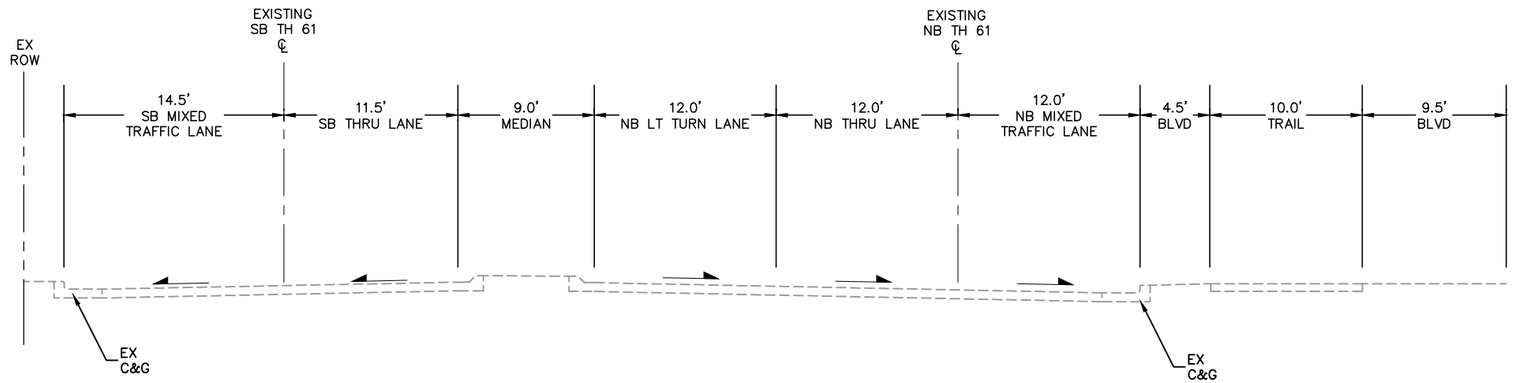


EXISTING TYPICAL SECTION
TH 61 - WHITAKER STREET STATION TO TH 96



PROPOSED TYPICAL SECTION
TH 61 - WHITAKER STREET STATION TO TH 96

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

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SCALE

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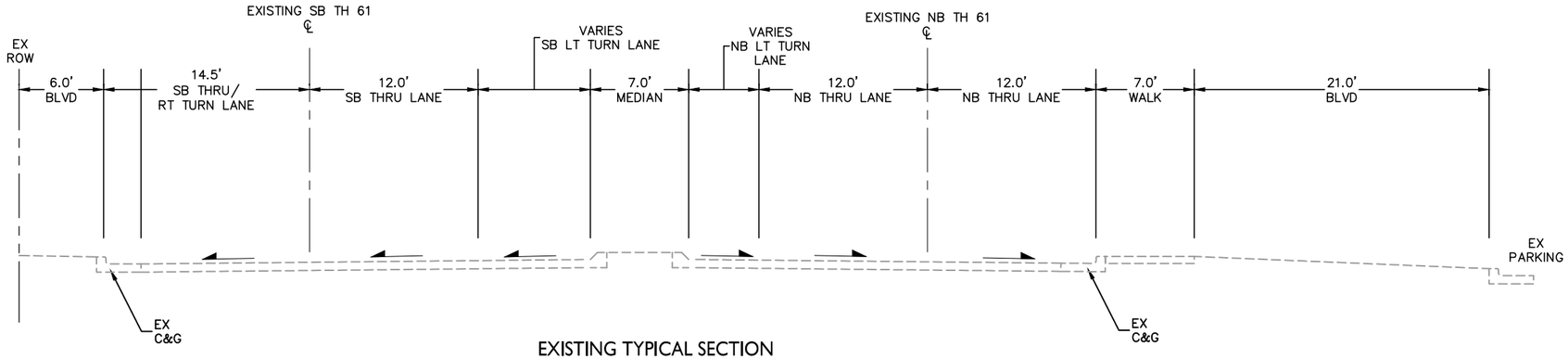
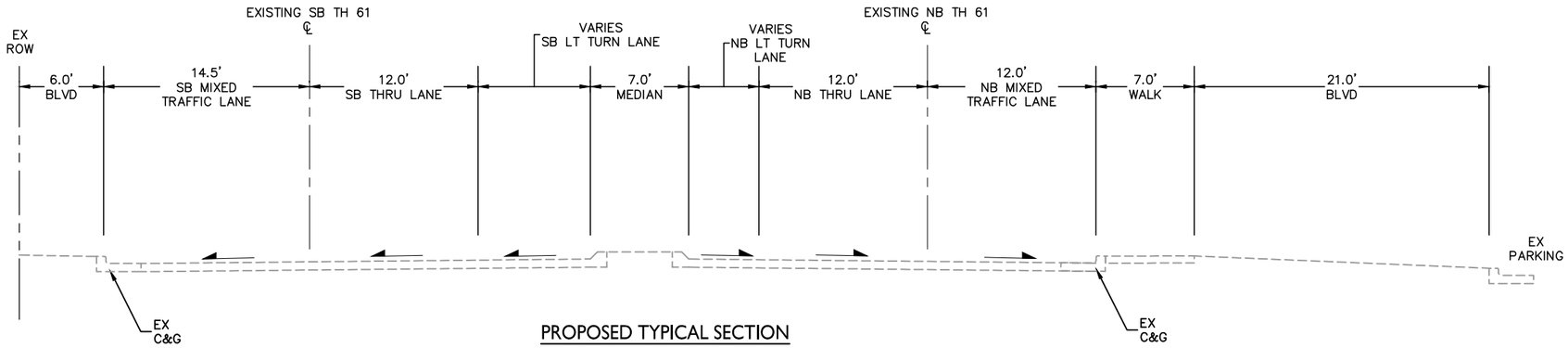


EXISTING TYPICAL SECTION
TH 61 - TH 96 TO 2ND STREET



PROPOSED TYPICAL SECTION
TH 61 - TH 96 TO 2ND STREET

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

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OF
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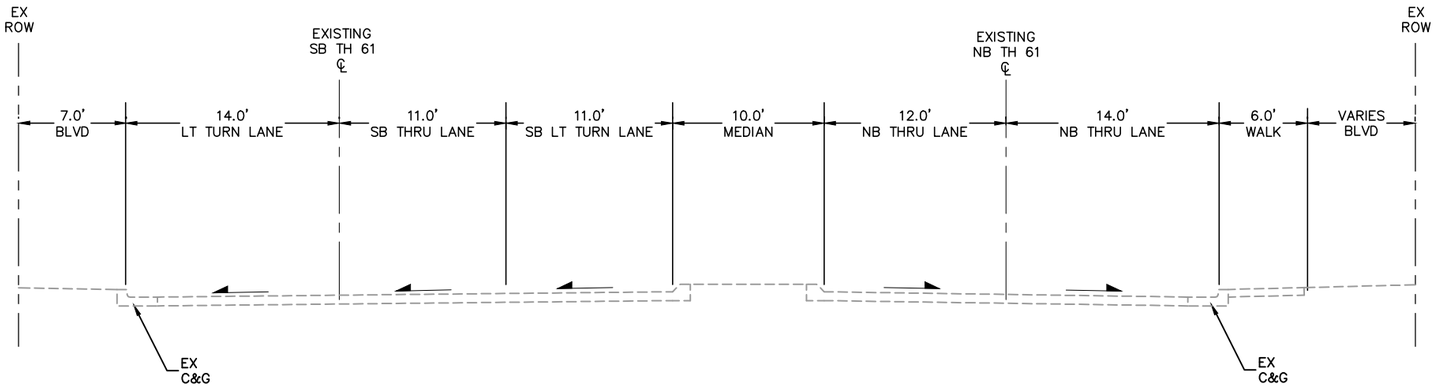
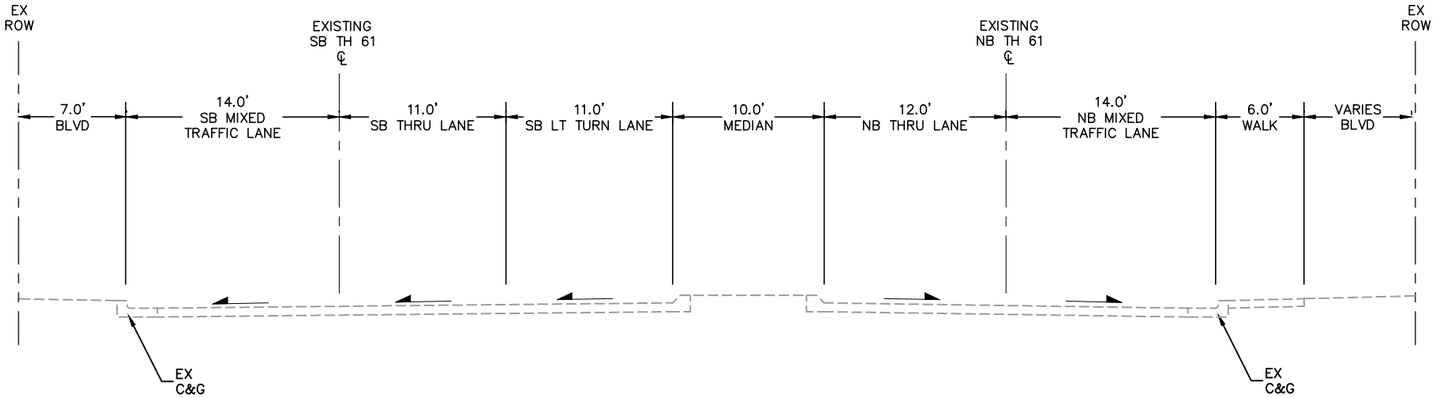


EXISTING TYPICAL SECTION
TH 61- 2ND STREET TO 5TH STREET



PROPOSED TYPICAL SECTION
TH 61 - 2ND STREET TO 5TH STREET

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RUSH LINE BRT PROJECT
15% PLANS - 08/07/2020
TYPICAL SECTIONS

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SCALE

RAMSEY COUNTY

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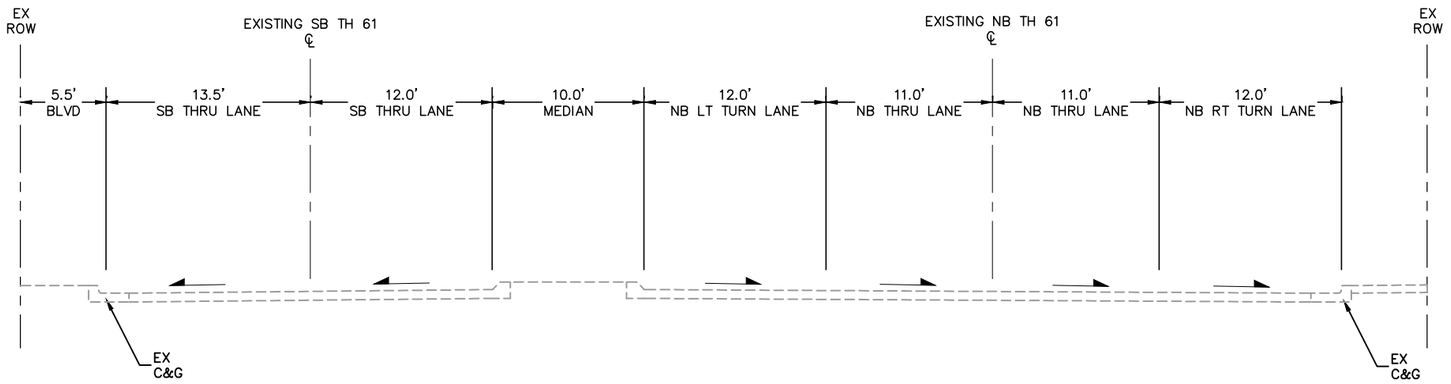
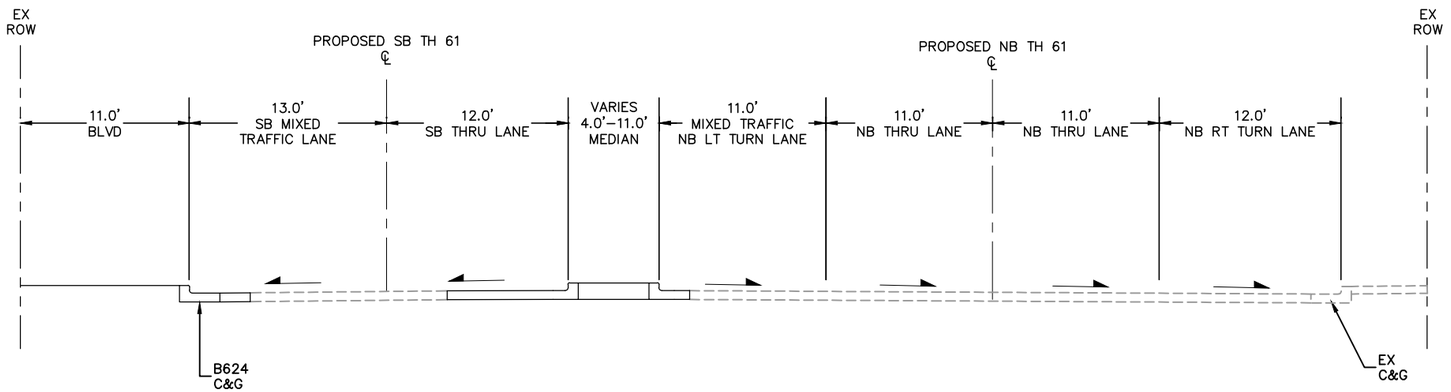
OF
83



EXISTING TYPICAL SECTION
TH 61 - 5TH STREET TO 10TH STREET



PROPOSED TYPICAL SECTION
TH 61 - 5TH STREET TO 10TH STREET

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

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SCALE

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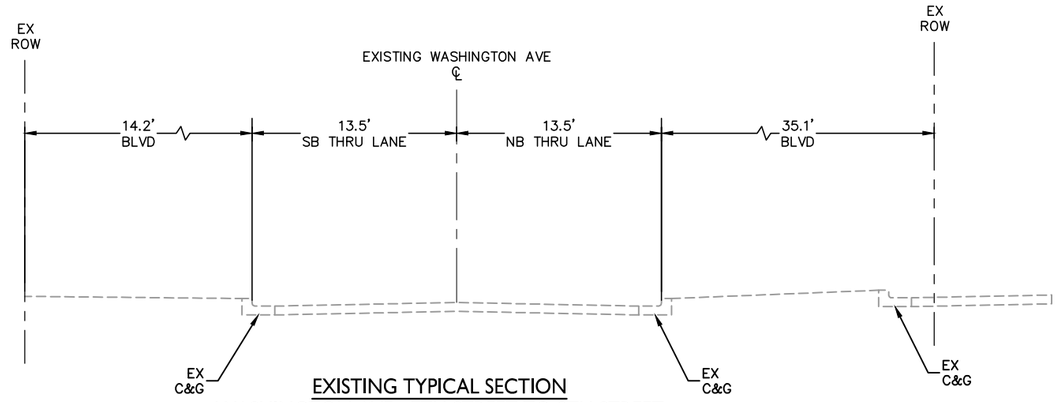
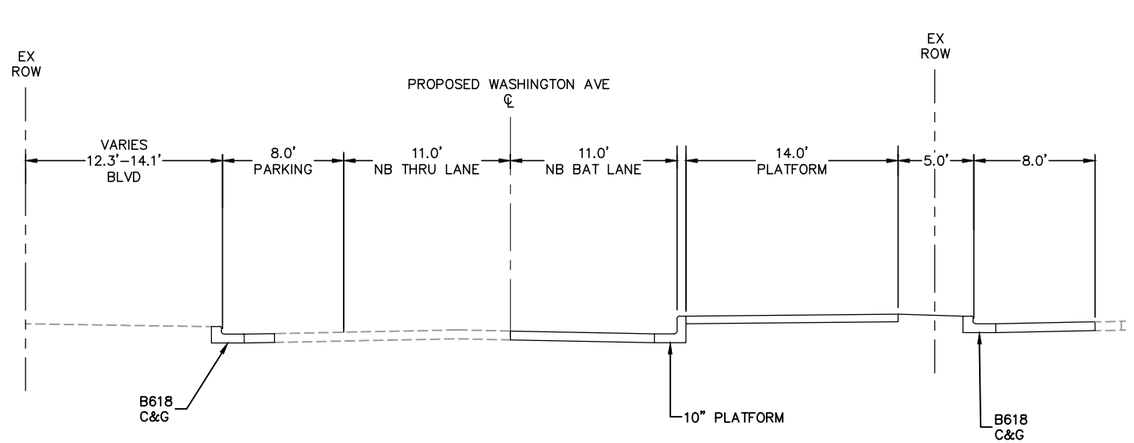


EXISTING TYPICAL SECTION
WASHINGTON AVE - 7TH STREET TO 8TH STREET



PROPOSED TYPICAL SECTION
WASHINGTON AVE - 7TH STREET TO 8TH STREET

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RUSH LINE BRT PROJECT
15% PLANS - 08/07/2020
TYPICAL SECTIONS

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SCALE

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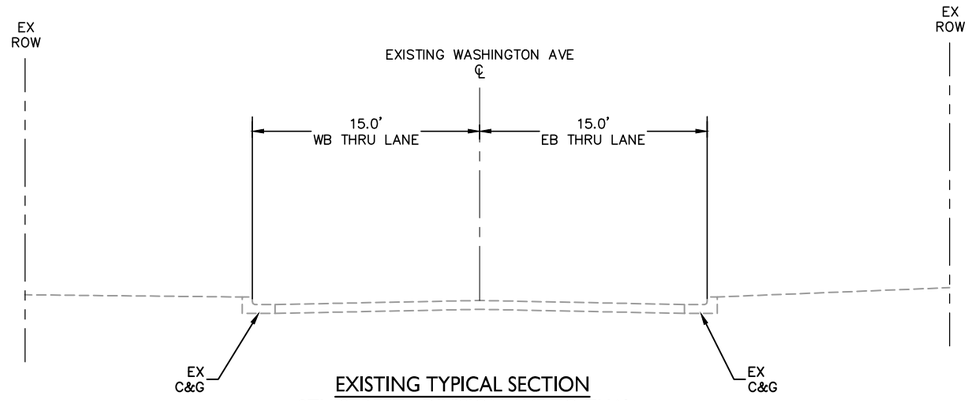
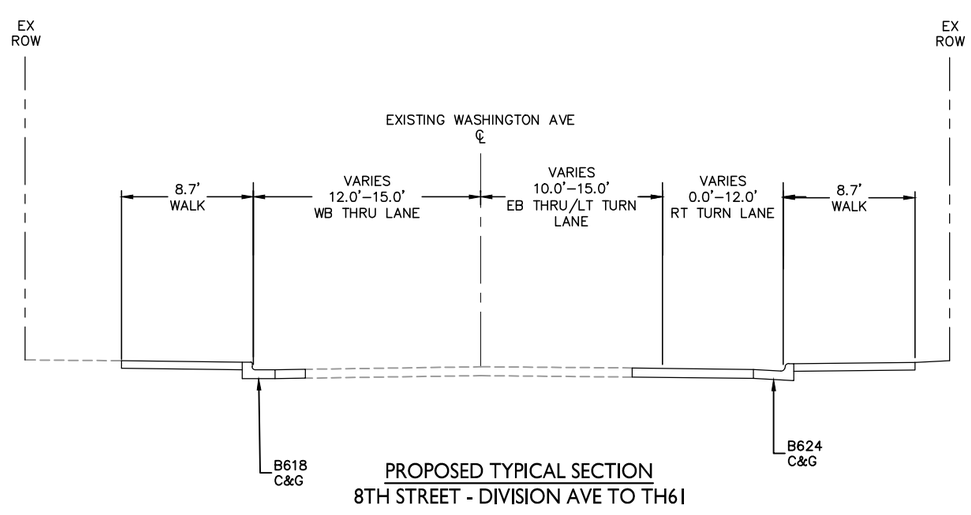


EXISTING TYPICAL SECTION
8TH STREET - DIVISION AVE TO TH61



PROPOSED TYPICAL SECTION
8TH STREET - DIVISION AVE TO TH61

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RUSH LINE BRT PROJECT

15% PLANS - 08/07/2020
TYPICAL SECTIONS

0 2.5 5 10
SCALE

RAMSEY COUNTY

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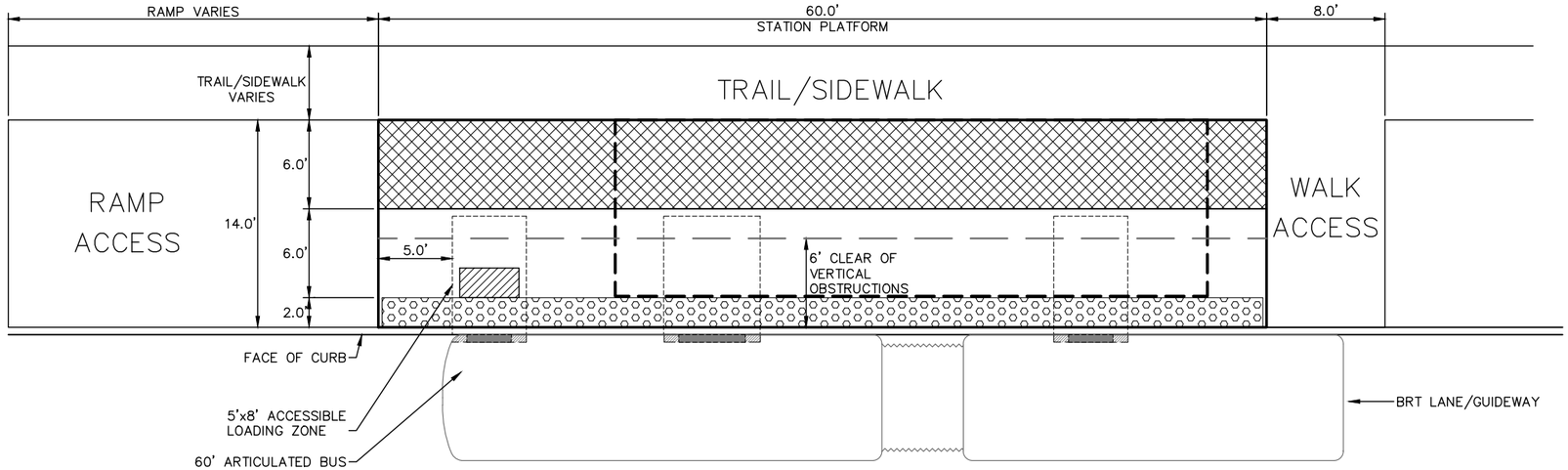


14' X 60' STATION PLATFORM LAYOUT – PLAN

ARCADE STREET – WALK ACCESS AT BOTH ENDS, BOTH PLATFORMS
MARYLAND AVENUE – SOUTHBOUND WALK ACCESS WITH ADDITIONAL 5' BUFFER SIDEWALK BETWEEN PARALLEL TRAIL/SIDEWALK AND PLATFORM EDGE, NORTHBOUND RAMP ACCESS

STATION PLATFORM ELEMENTS:

PATRON CIRCULATION ZONE
- CLEAR OF OBSTRUCTIONS
- WIDE ENOUGH TO ALLOW COMFORTABLE PASSAGE OF TWO PEOPLE

BUS LOADING AND UNLOADING ZONE
- AREAS WHERE VEHICLE DOORS ARE LOCATED WHEN BUS IS AT STATION PLATFORM
- 5'x8' AT FIRST AND THIRD DOORS
- 6.5'x8' AT SECOND DOOR

PATRON WAITING AREA AND STRUCTURE ZONE
- FARE COLLECTION EQUIPMENT
- COMMUNICATIONS AND ELECTRICAL EQUIPMENT
- BENCHES, WASTE AND RECYCLING RECEPTACLES
- SIGNAGE

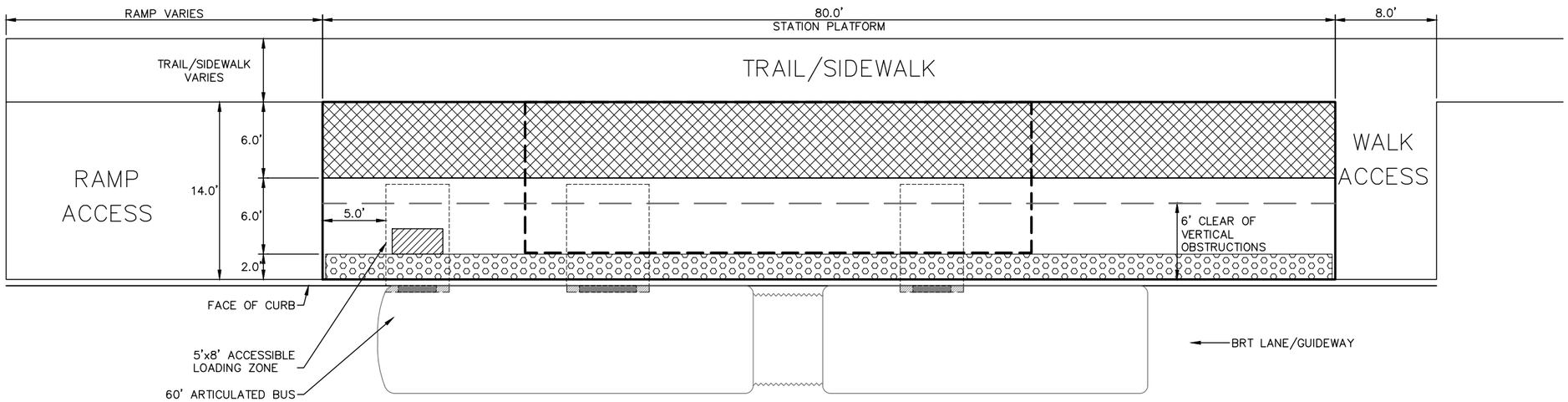
POTENTIAL SHELTER AND CANOPY STRUCTURE
- COVERED WINDSCREEN/SHELTER AREAS

BOARDING EDGE
- ADA DETECTABLE WARNING AT EDGE OF PLATFORM

ADA DOOR MAT POSITIONING INDICATOR
- (2) 2'X2' DETECTABLE WARNING TILES

GENERAL PLATFORM NOTE:

- PLATFORM PLANS ILLUSTRATE VARIOUS SIZE AND ACCESS CONFIGURATIONS. COMBINATIONS VARY DUE TO RIDERSHIP, CONTEXT AND SITE CONDITIONS.
- PLATFORM RAMPS ARE LESS THAN 5%



14' X 80' STATION PLATFORM LAYOUT – PLAN

OLIVE STREET – SOUTHBOUND WALK ACCESS, NORTHBOUND RAMP ACCESS
CAYUGA STREET – SOUTHBOUND WALK ACCESS, NORTHBOUND RAMP ACCESS
PAYNE AVENUE – SOUTHBOUND WALK ACCESS, NORTHBOUND RAMP ACCESS
COOK AVENUE – SOUTHBOUND WALK ACCESS WITH ADDITIONAL 5' BUFFER SIDEWALK BETWEEN PARALLEL TRAIL/SIDEWALK AND BACK OF PLATFORM, NORTHBOUND RAMP ACCESS
LARPENTEUR AVENUE – NORTHBOUND WALK ACCESS AT BOTH ENDS, SOUTHBOUND WALK ACCESS AT BOTH ENDS WITH ADDITIONAL 5' BUFFER SIDEWALK BETWEEN PARALLEL TRAIL/SIDEWALK AND BACK OF PLATFORM
FROST AVENUE – NORTHBOUND WALK ACCESS AT BOTH ENDS, SOUTHBOUND WALK ACCESS AT BOTH ENDS WITH ADDITIONAL 5' BUFFER SIDEWALK BETWEEN PARALLEL TRAIL/SIDEWALK AND BACK OF PLATFORM
HIGHWAY 36 – WALK ACCESS AT BOTH ENDS WITH ADDITIONAL 5' BUFFER SIDEWALK BETWEEN PARALLEL TRAIL/SIDEWALK AND BACK OF PLATFORM, BOTH PLATFORMS
ST. JOHNS BOULEVARD – RAMP ACCESS AT BOTH ENDS, BOTH PLATFORMS
BUERKLE ROAD – SOUTHBOUND WALK ACCESS WITH AN ADDITIONAL 5' BUFFER SIDEWALK BETWEEN PARALLEL TRAIL/SIDEWALK AND BACK OF PLATFORM, NORTHBOUND RAMP ACCESS
WHITAKER STREET – NORTHBOUND, RAMP ACCESS AT SOUTH SIDE.

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

PLATFORM PLANS

15% PLANS - 08/07/2020

0 2.5 5 10

RAMSEY COUNTY

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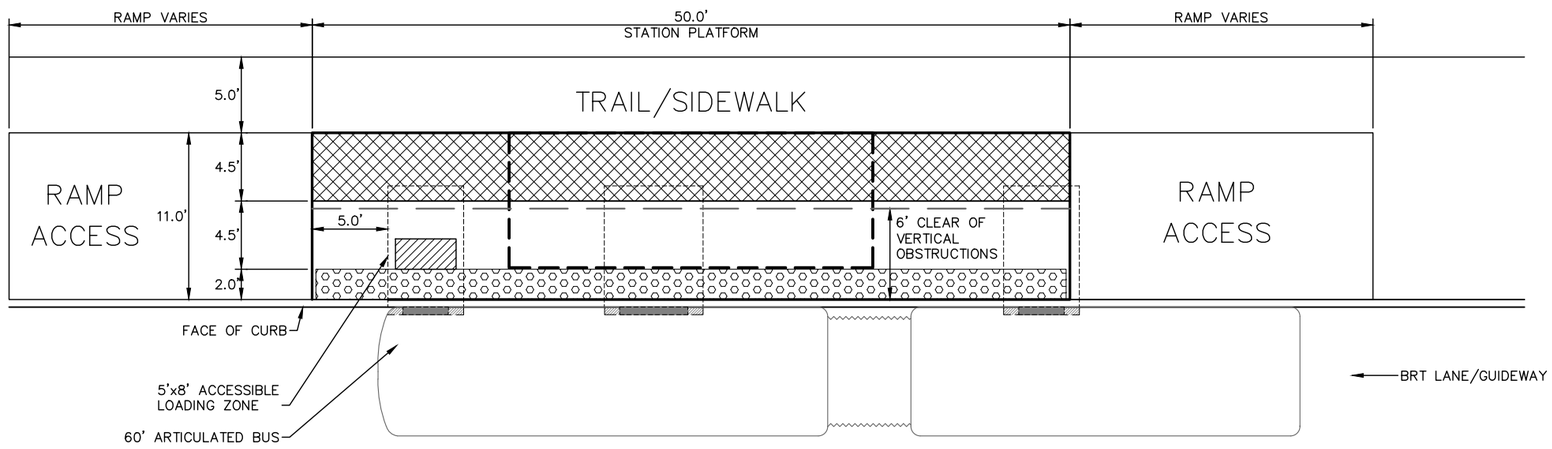


11' X 50' STATION PLATFORM LAYOUT – PLAN
10TH STREET – NORTHBOUND RAMP ACCESS AT BOTH ENDS

STATION PLATFORM ELEMENTS:

PATRON CIRCULATION ZONE
- CLEAR OF OBSTRUCTIONS
- WIDE ENOUGH TO ALLOW COMFORTABLE PASSAGE OF TWO PEOPLE

BUS LOADING AND UNLOADING ZONE
- AREAS WHERE VEHICLE DOORS ARE LOCATED WHEN BUS IS AT STATION PLATFORM
- 5'x8' AT FIRST AND THIRD DOORS
- 6.5'x8' AT SECOND DOOR

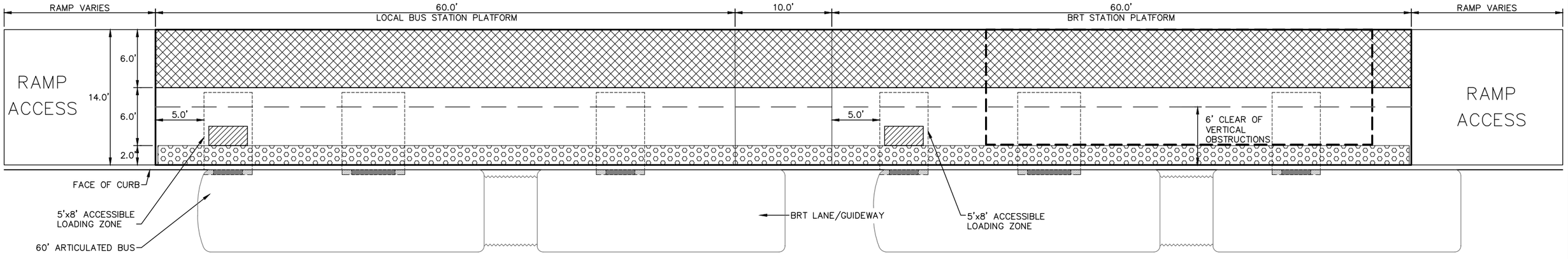
PATRON WAITING AREA AND STRUCTURE ZONE
- FARE COLLECTION EQUIPMENT
- COMMUNICATIONS AND ELECTRICAL EQUIPMENT
- BENCHES, WASTE AND RECYCLING RECEPTACLES
- SIGNAGE

POTENTIAL SHELTER AND CANOPY STRUCTURE
- COVERED WINDSCREEN/SHELTER AREAS

BOARDING EDGE
- ADA DETECTABLE WARNING AT EDGE OF PLATFORM

ADA DOOR MAT POSITIONING INDICATOR
- (2) 2'X2' DETECTABLE WARNING TILES

GENERAL PLATFORM NOTE:
- PLATFORM PLANS ILLUSTRATE VARIOUS SIZE AND ACCESS CONFIGURATIONS. COMBINATIONS VARY DUE TO RIDERSHIP, CONTEXT AND SITE CONDITIONS.
- PLATFORM RAMPS ARE LESS THAN 5%



14' X 130' STATION PLATFORM LAYOUT – PLAN
10TH STREET – SOUTHBOUND RAMP ACCESS AT BOTH ENDS
14TH STREET – RAMP ACCESS AT BOTH ENDS, BOTH PLATFORMS
MT AIRY STREET – SOUTHBOUND RAMP ACCESS, NORTHBOUND WALK ACCESS
DOWNTOWN WHITE BEAR LAKE – RAMP ACCESS AT BOTH ENDS
MAPLEWOOD MALL TRANSIT CENTER – WALK ACCESS AT ONE END

DRAFT-WORK IN PROCESS

RUSH LINE BRT PROJECT

PLATFORM PLANS

15% PLANS - 08/07/2020

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RAMSEY COUNTY

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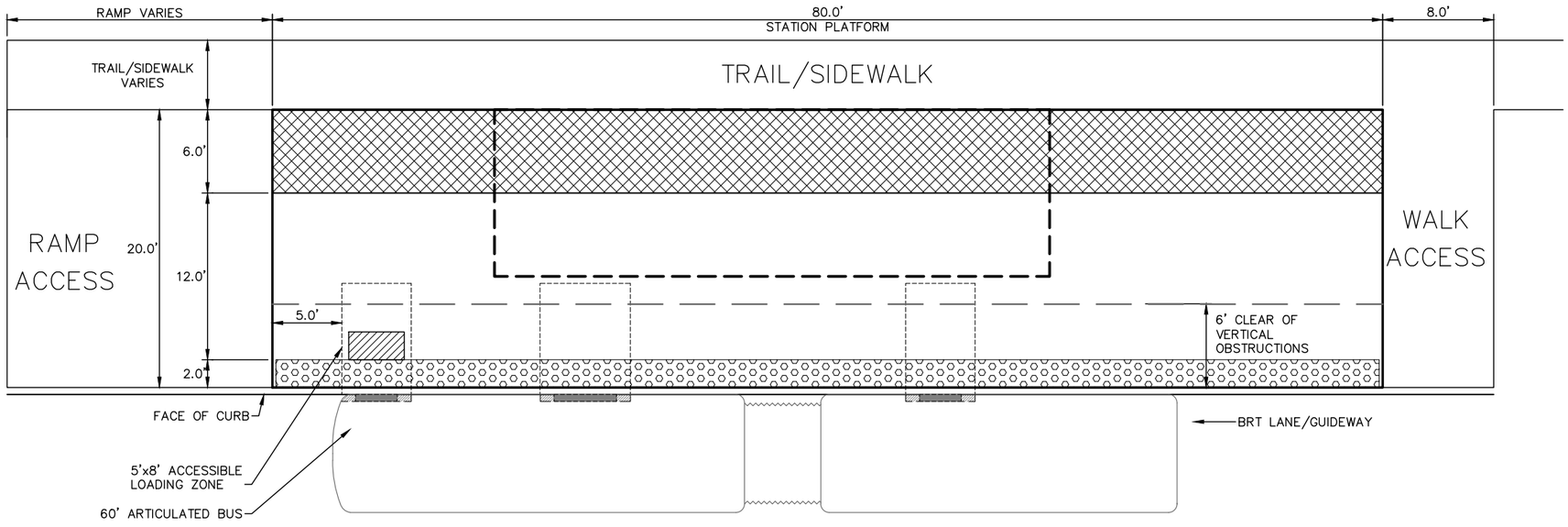


20' X 80' STATION PLATFORM LAYOUT – PLAN
COUNTY ROAD E. – WALK ACCESS AT BOTH ENDS
CEDAR AVENUE – RAMP ACCESS AT BOTH ENDS

STATION PLATFORM ELEMENTS:

PATRON CIRCULATION ZONE
- CLEAR OF OBSTRUCTIONS
- WIDE ENOUGH TO ALLOW COMFORTABLE PASSAGE OF TWO PEOPLE

BUS LOADING AND UNLOADING ZONE
- AREAS WHERE VEHICLE DOORS ARE LOCATED WHEN BUS IS AT STATION PLATFORM
- 5'x8' AT FIRST AND THIRD DOORS
- 6.5'x8' AT SECOND DOOR

PATRON WAITING AREA AND STRUCTURE ZONE
- FARE COLLECTION EQUIPMENT
- COMMUNICATIONS AND ELECTRICAL EQUIPMENT
- BENCHES, WASTE AND RECYCLING RECEPTACLES
- SIGNAGE

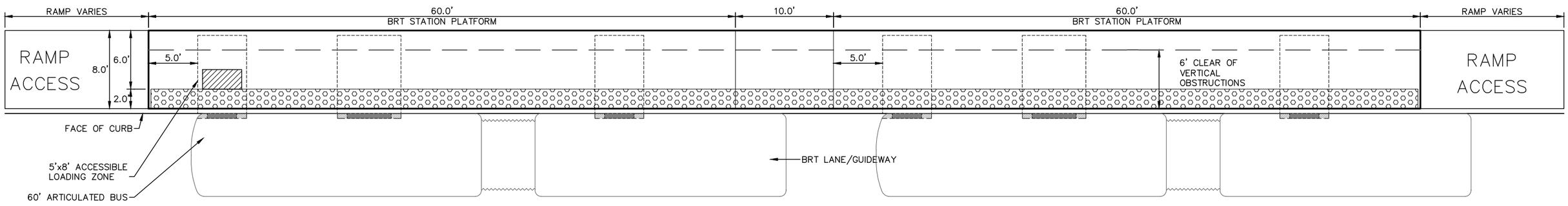
POTENTIAL SHELTER AND CANOPY STRUCTURE
- COVERED WINDSCREEN/SHELTER AREAS

BOARDING EDGE
- ADA DETECTABLE WARNING AT EDGE OF PLATFORM

ADA DOOR MAT POSITIONING INDICATOR
- (2) 2'X2' DETECTABLE WARNING TILES

GENERAL PLATFORM NOTE:

- PLATFORM PLANS ILLUSTRATE VARIOUS SIZE AND ACCESS CONFIGURATIONS. COMBINATIONS VARY DUE TO RIDERSHIP, CONTEXT AND SITE CONDITIONS.
- PLATFORM RAMPS ARE LESS THAN 5%



8' X 130' STATION PLATFORM LAYOUT – PLAN
UNION DEPOT – RAMP ACCESS AT BOTH ENDS

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

PLATFORM PLANS
15% PLANS - 08/07/2020

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RAMSEY COUNTY

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OF
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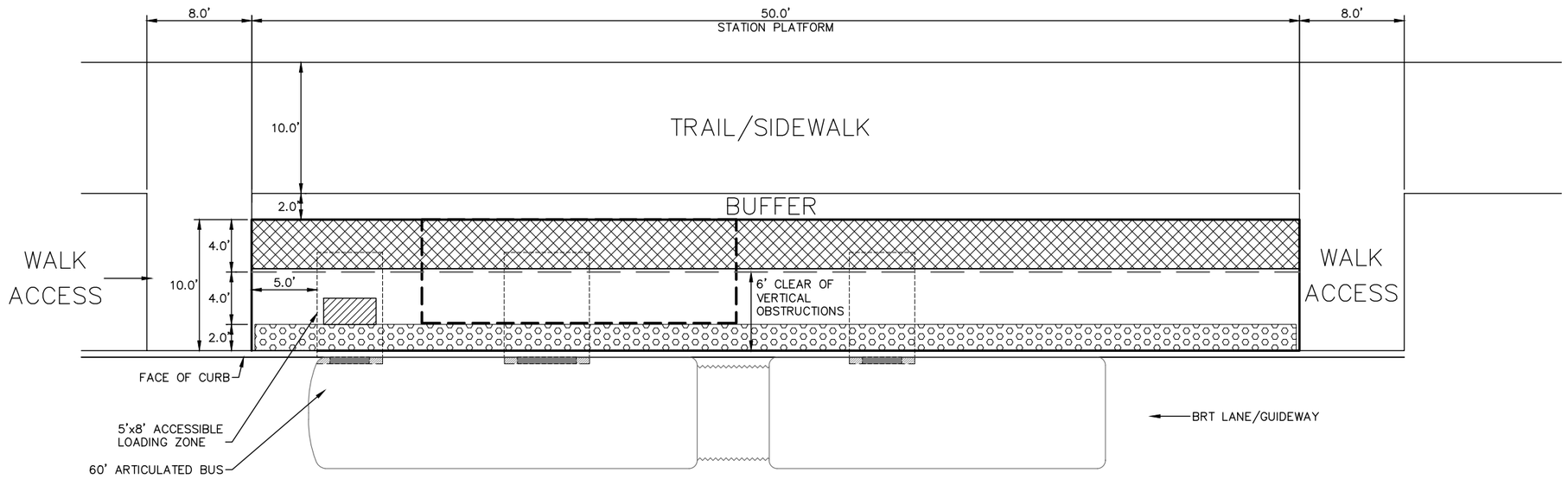

10' X 80' STATION PLATFORM LAYOUT – PLAN

WHITAKER STREET – SOUTHBOUND WALK ACCESS AT BOTH ENDS

STATION PLATFORM ELEMENTS:

PATRON CIRCULATION ZONE
- CLEAR OF OBSTRUCTIONS
- WIDE ENOUGH TO ALLOW COMFORTABLE PASSAGE OF TWO PEOPLE

BUS LOADING AND UNLOADING ZONE
- AREAS WHERE VEHICLE DOORS ARE LOCATED WHEN BUS IS AT STATION PLATFORM
- 5'x8' AT FIRST AND THIRD DOORS
- 6.5'x8' AT SECOND DOOR

PATRON WAITING AREA AND STRUCTURE ZONE
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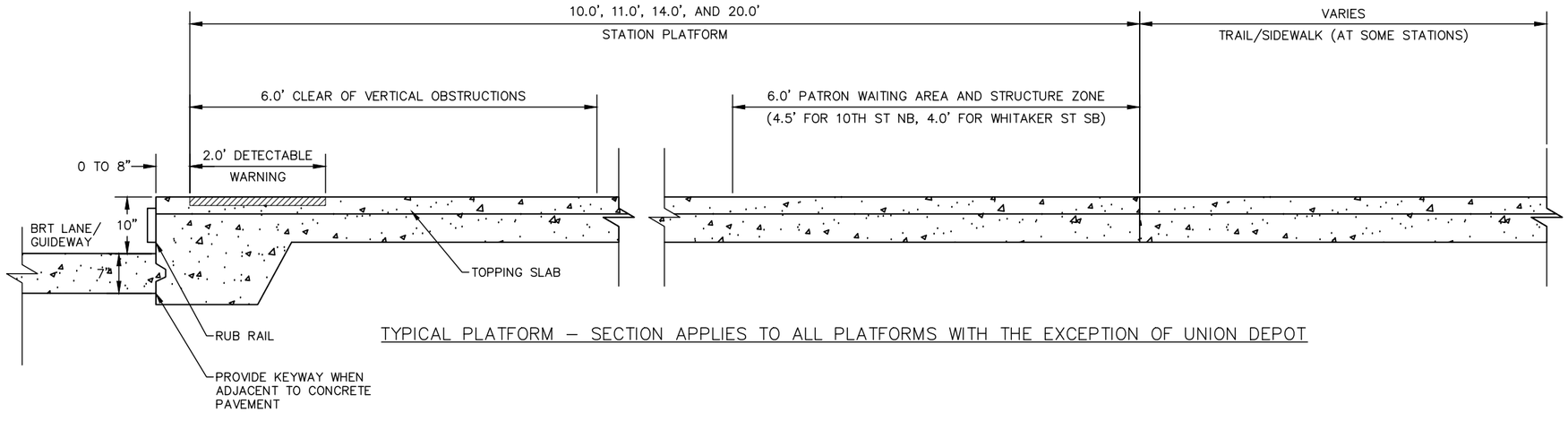
POTENTIAL SHELTER AND CANOPY STRUCTURE
- COVERED WINDSCREEN/SHELTER AREAS

BOARDING EDGE
- ADA DETECTABLE WARNING AT EDGE OF PLATFORM

ADA DOOR MAT POSITIONING INDICATOR
- (2) 2'X2' DETECTABLE WARNING TILES

GENERAL PLATFORM NOTE:

- PLATFORM PLANS ILLUSTRATE VARIOUS SIZE AND ACCESS CONFIGURATIONS. COMBINATIONS VARY DUE TO RIDERSHIP, CONTEXT AND SITE CONDITIONS.
- PLATFORM RAMPS ARE LESS THAN 5%



TYPICAL PLATFORM – SECTION APPLIES TO ALL PLATFORMS WITH THE EXCEPTION OF UNION DEPOT

DRAFT-WORK IN PROCESS

Rush Line

RUSH LINE BRT PROJECT

PLATFORM PLAN AND SECTION

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RAMSEY COUNTY

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SRF Consulting Group, Inc.

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Appendix B: Area of Potential Effects, dated February 3, 2020

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Rush Line BRT

Ramsey County, Minnesota

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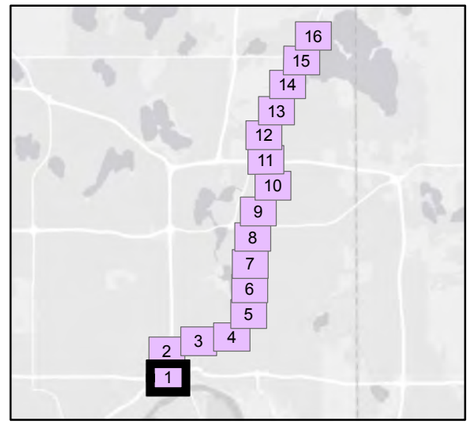

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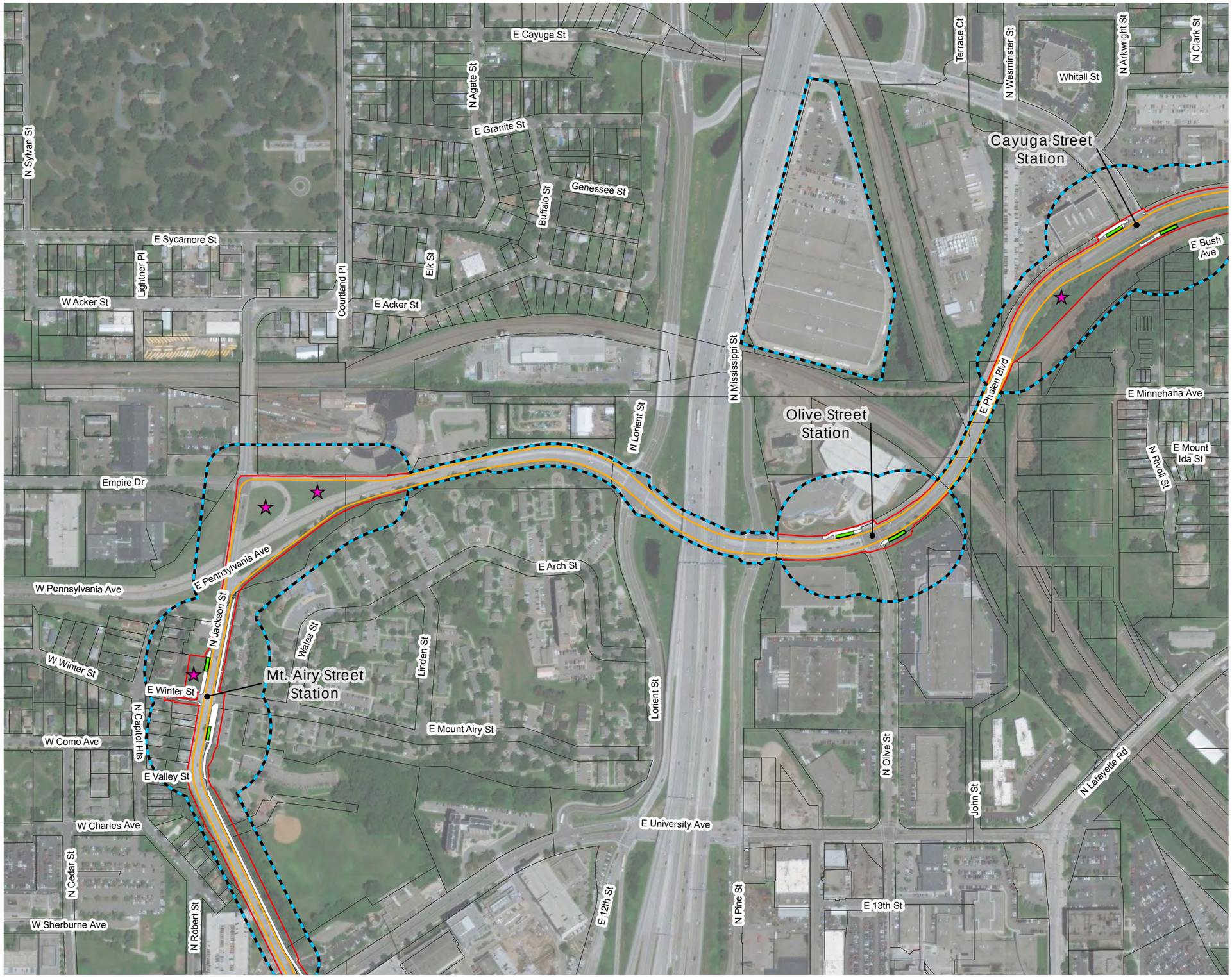
DEPARTMENT OF TRANSPORTATION

Area of Potential Effect

As Revised on 2/3/2020

Rush Line BRT

Ramsey County, Minnesota



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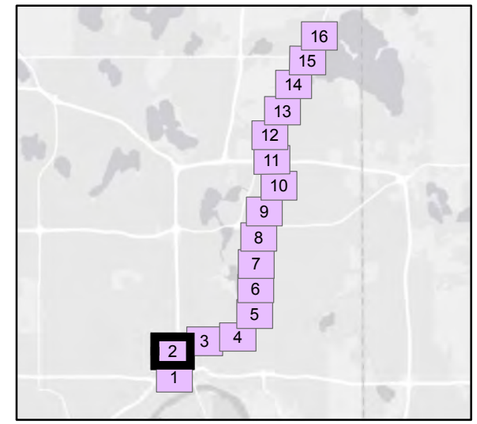

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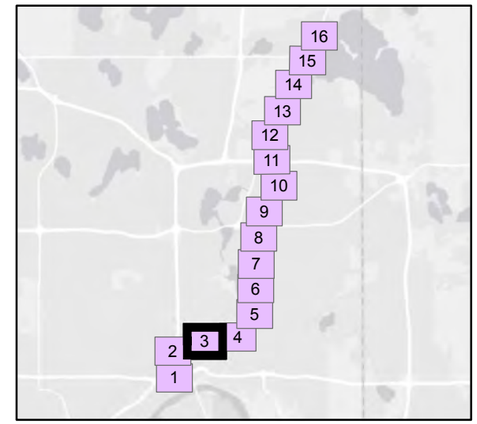

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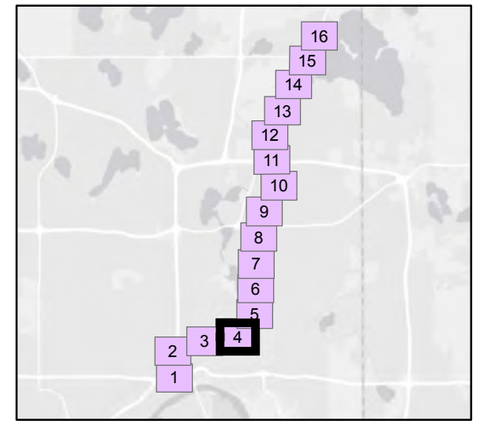

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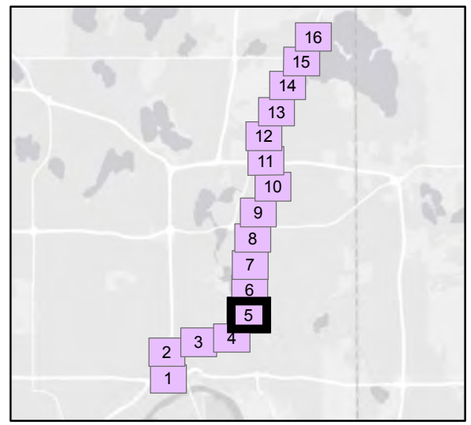

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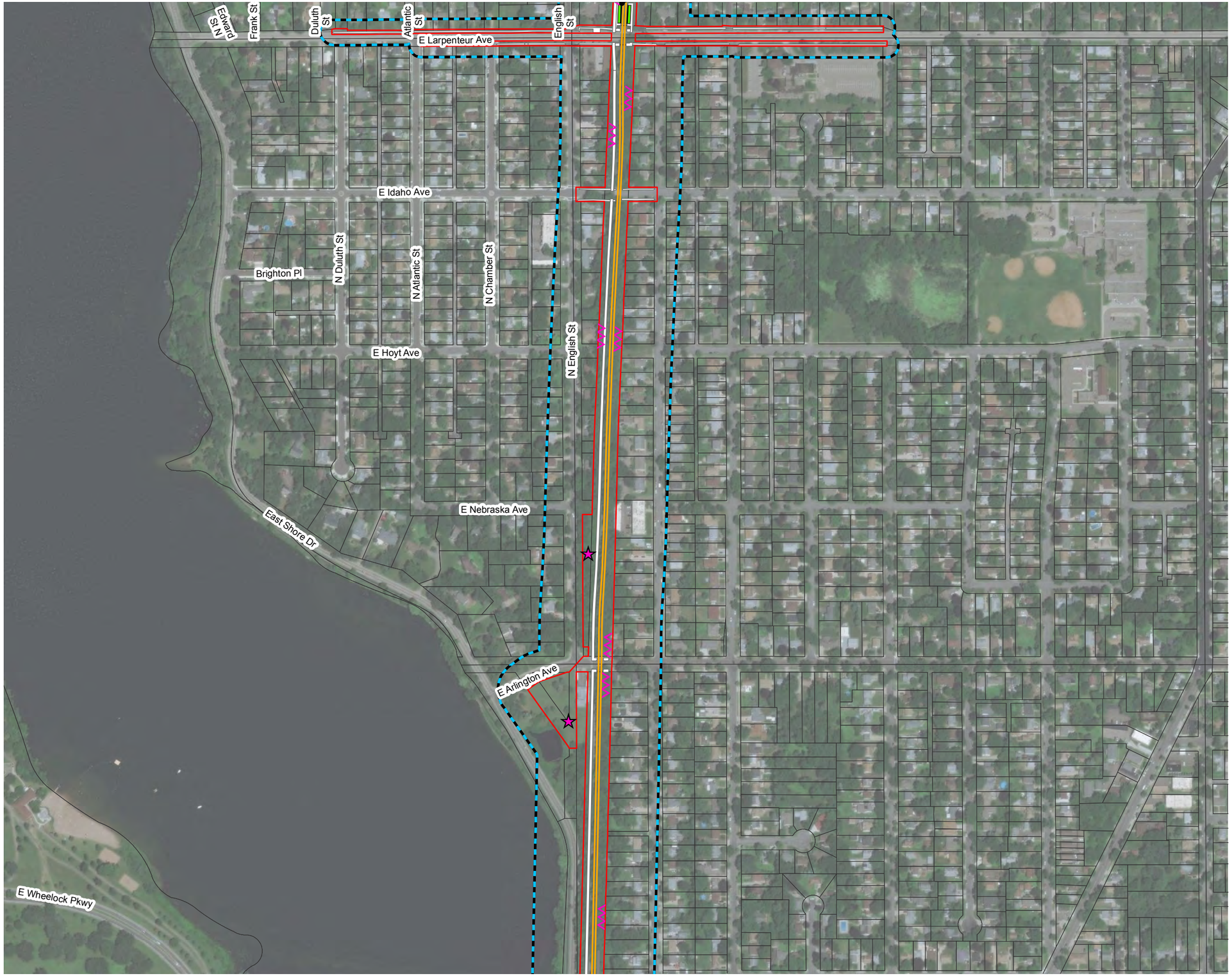

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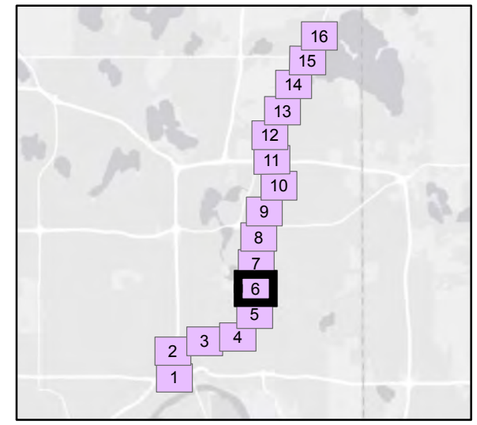

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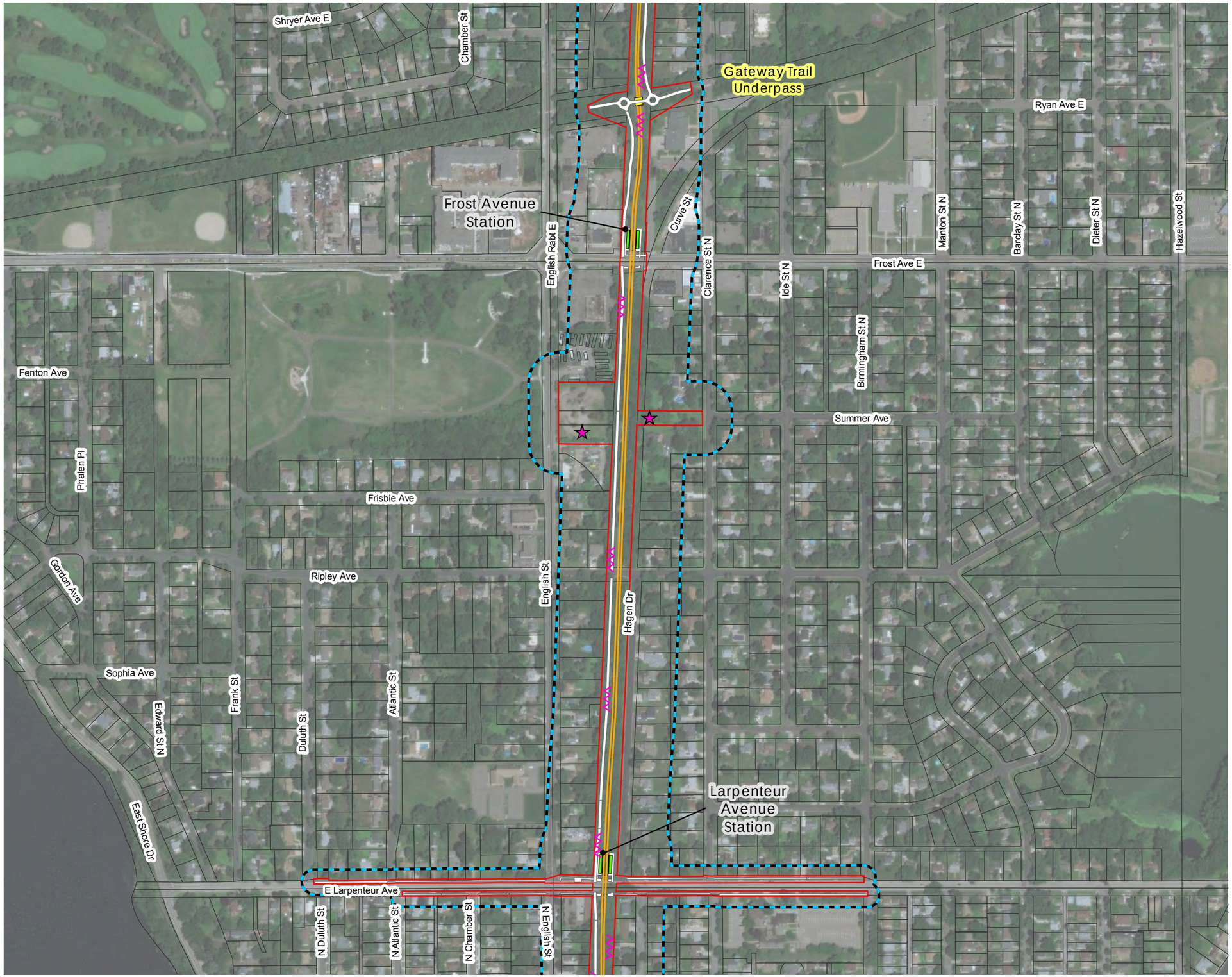

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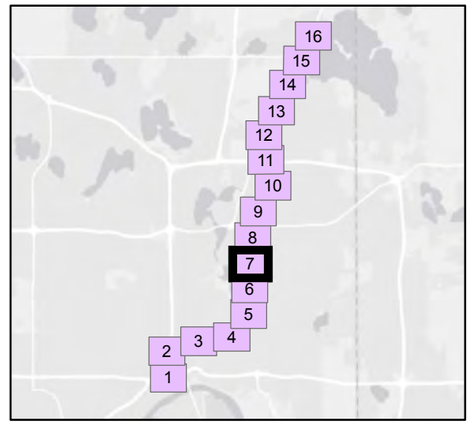

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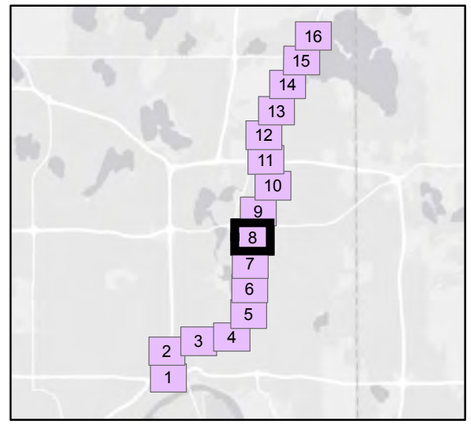

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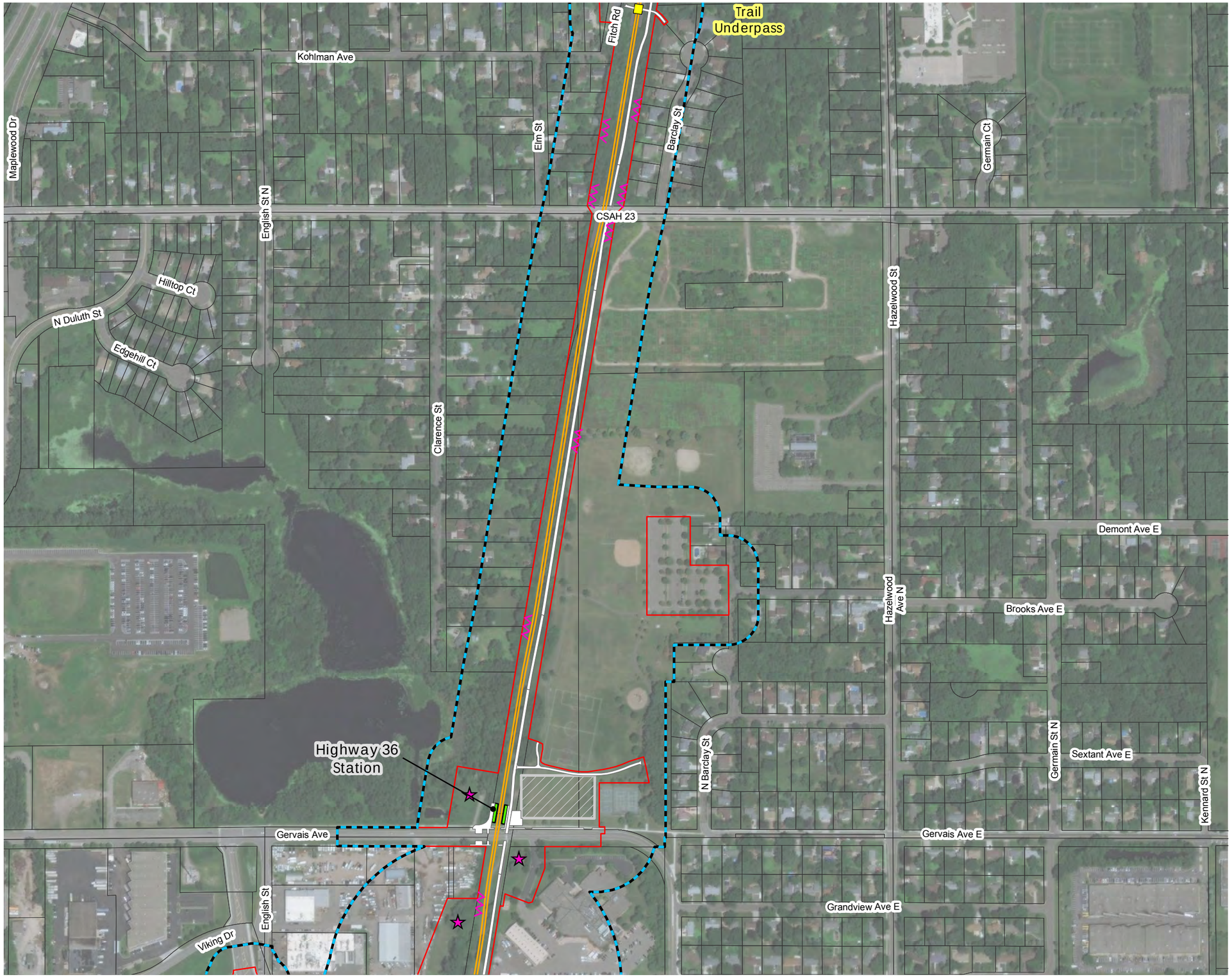

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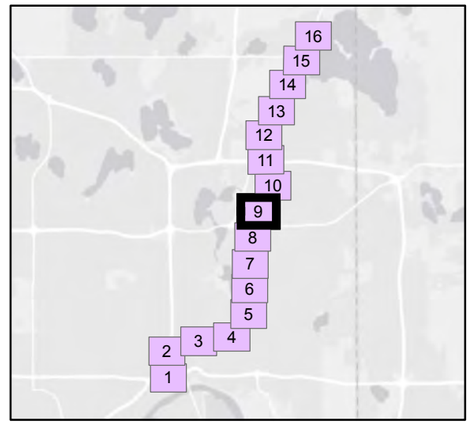

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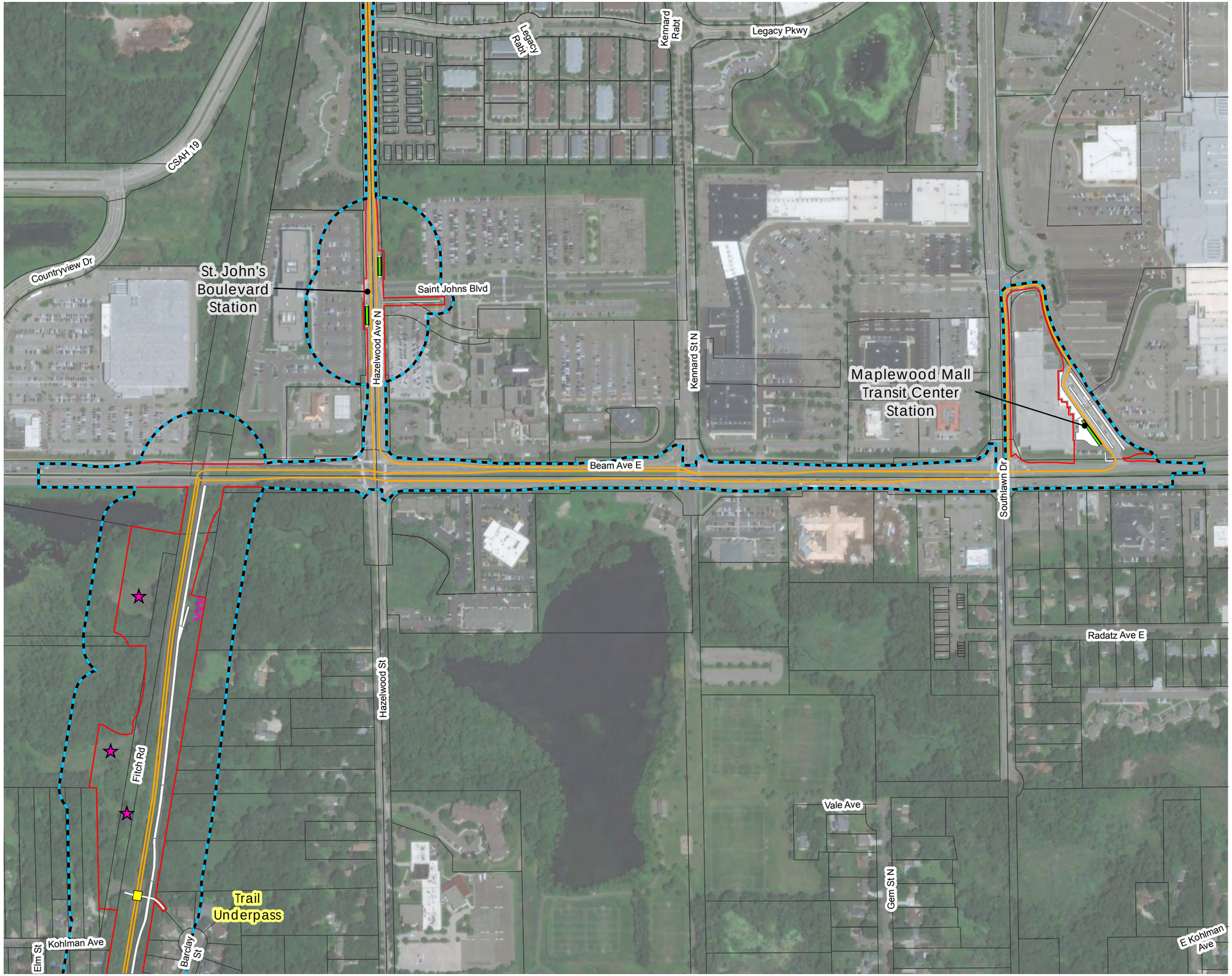

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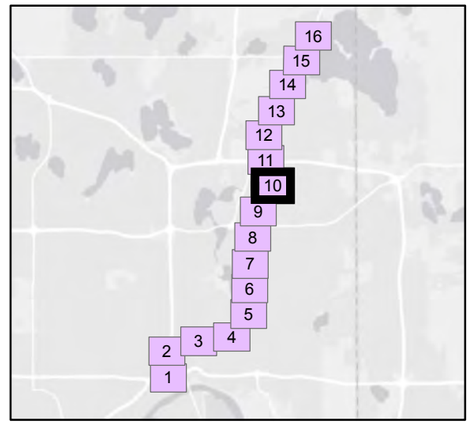

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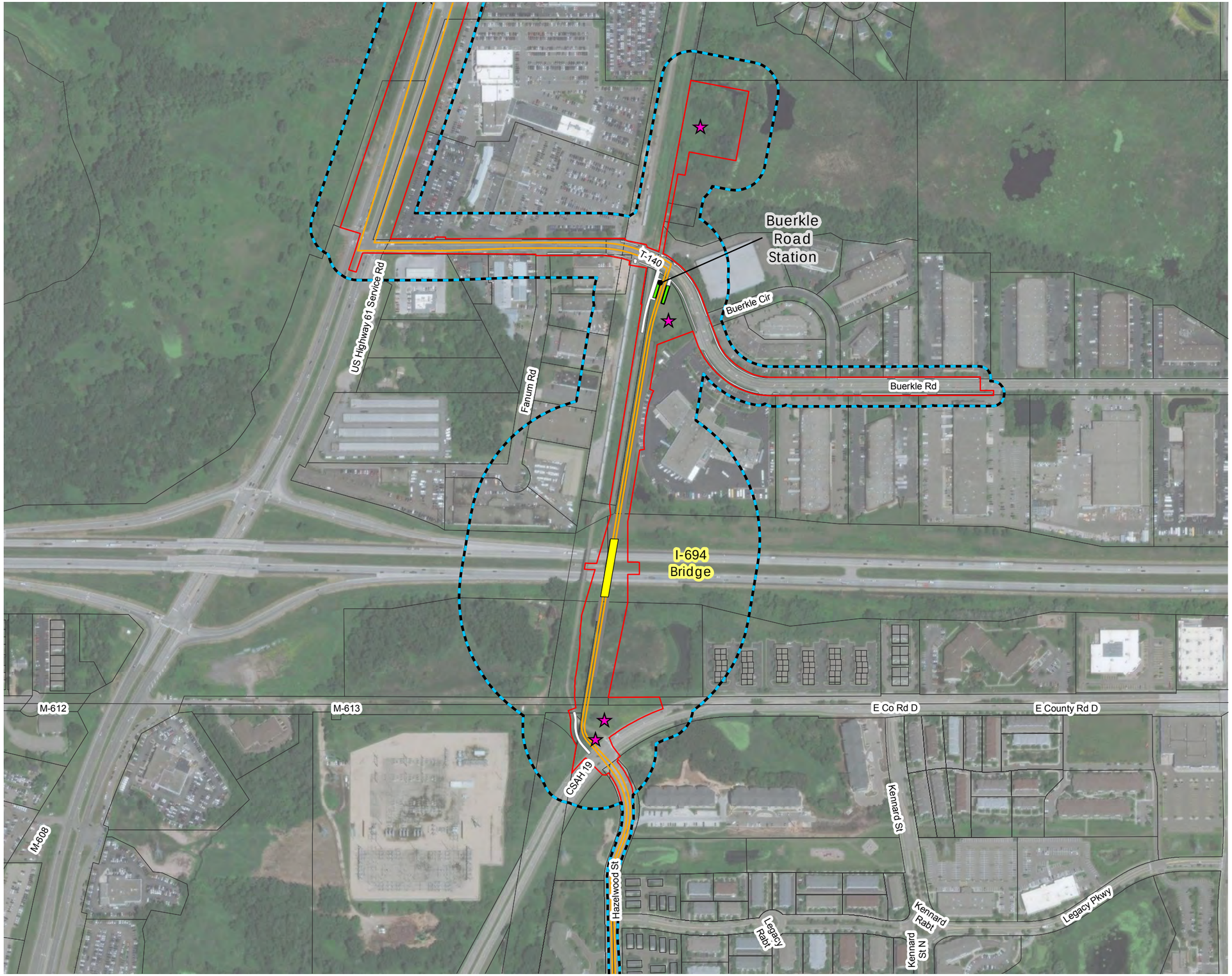

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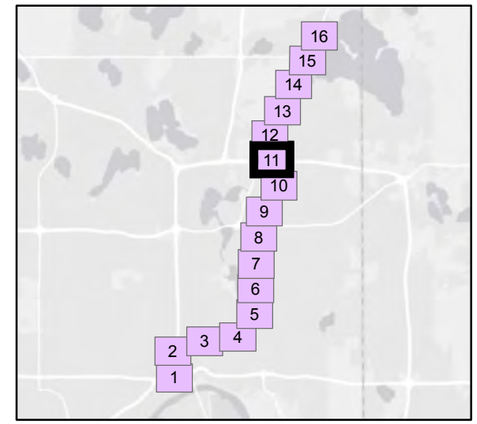

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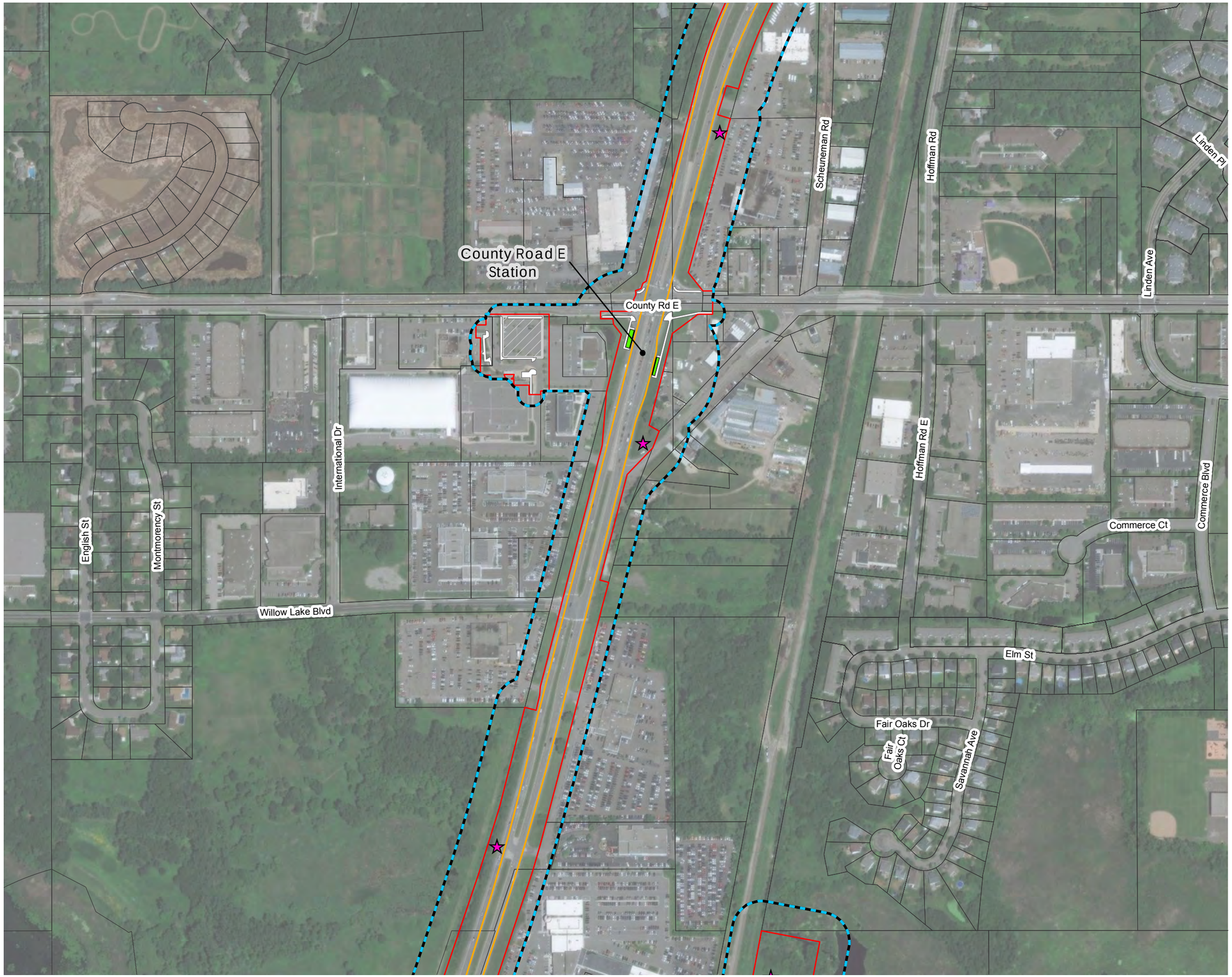

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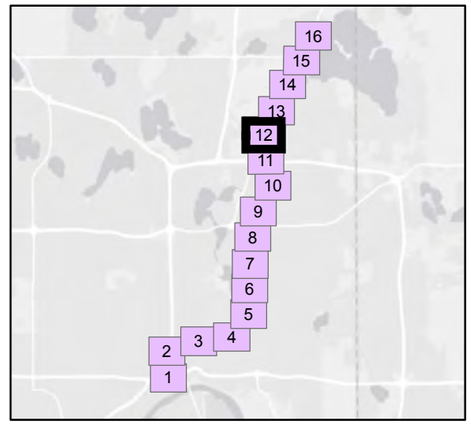

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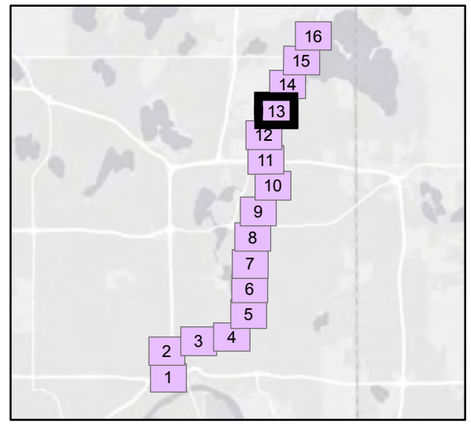

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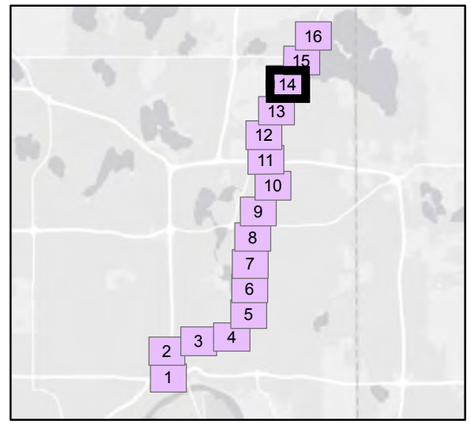

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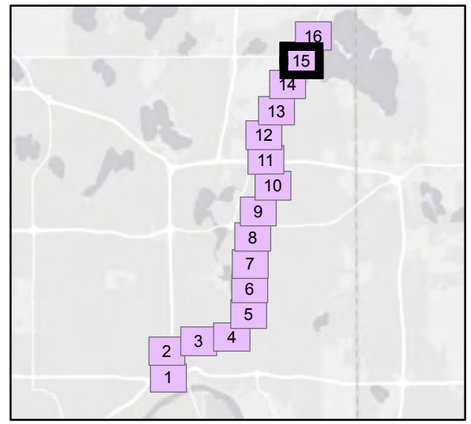

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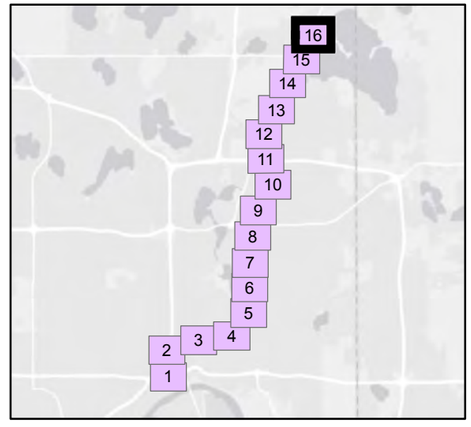

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ENVIRONMENTAL JUSTICE TECHNICAL REPORT

APRIL 2021

Prepared by:

SRF

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

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 technical report has been prepared in support of the EA.

This report documents the results of the environmental justice analysis for the Rush Line BRT Project, including an assessment of whether there are disproportionately high and adverse impacts on minority and low-income populations resulting from the project within the study area. This analysis includes both operating phase (long-term) impacts and construction phase (short-term) impacts, as well as proposed mitigation measures to address these impacts where necessary.

Throughout this report, the Rush Line BRT Project is also referred to as "the project" and "Rush Line BRT." Rush Line BRT Project staff, also referred to as "project staff," include employees of Ramsey County as well as members of the consultant team preparing the EA.

2. REGULATORY CONTEXT AND METHODOLOGY

2.1. REGULATORY CONTEXT

Pursuant to Executive Order 12898 of 1994, federal agencies are directed to incorporate environmental justice into their mission by developing strategies to analyze and mitigate negative impacts on minority and low-income populations. The US Department of Transportation and Federal Transit Administration have provided a framework for integrating environmental justice into transportation decision-making. The following environmental justice analysis of the Rush Line BRT Project addresses the requirements of all available federal guidance, including the following:

- **Executive Order 12898:** *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994).[1]
    - Executive Order 12898 serves as the basis for the implementation of environmental justice strategies in all federal agencies within the executive branch. Each agency is required to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations," and to include environmental justice analysis in the National Environmental Policy Act process.

[1] Available at https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf.

- **US Department of Transportation Order 5610.2(a):** *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1997; updated in 2012).[2]
    - This order outlines the US Department of Transportation's strategy for integrating environmental justice into transportation decision-making. It specifies that "Planning and programming activities for policies, programs, and activities that have the potential to have a disproportionately high and adverse effect on human health or the environment shall include explicit consideration of the effects on minority populations and low-income populations." The order also clarifies the process for identifying disproportionately high and adverse effects, as well as the mitigation steps that are required.
- **Federal Transit Administration Circular 4703.1:** *Environmental Justice Policy Guidance for Federal Transit Administration Recipients* (2012).[3]
    - Federal Transit Administration Circular 4703.1 provides guidance to Federal Transit Administration grantees on incorporating environmental justice into activities that receive Federal Transit Administration funding. It includes instructions on developing an environmental justice analysis, conducting meaningful public outreach and adapting the environmental justice analysis to the National Environmental Policy Act process. Federal Transit Administration Circular 4703.1 serves as the primary policy guidance for applying environmental justice to grant-funded transit projects.

2.2. METHODOLOGY

Based on the guidance in Federal Transit Administration Circular 4703.1, this environmental justice analysis for the Rush Line BRT Project:

1. **Provides a description of minority and low-income populations along the Rush Line BRT Project route**. These populations are identified using data from the US Census Bureau's 2014-2018 American Community Survey 5-year estimates, the most recent data available.
    a. **Minority populations** are identified in census block groups based on the percentage of the population that self-identifies as a racial or ethnic minority (American Indian/Alaska Native, Asian, Black or African American, Hispanic or Latino, and/or Native Hawaiian/Pacific Islander).
    b. **Low-income populations** are identified in census block groups based on the percentage of the population below the US Census Bureau's 2018 poverty thresholds, which vary by household size, number of children and age of householder.[4]
    c. **The study area** is defined as the area within one-half mile of the Rush Line BRT Project route. For the purposes of this environmental justice analysis, the study area

[2] Available at https://www.transportation.gov/transportation-policy/environmental-justice/department-transportation-order-56102a.
[3] Available at https://www.transit.dot.gov/regulations-and-guidance/fta-circulars/environmental-justice-policy-guidance-federal-transit.
[4] US Census Bureau. "Poverty Thresholds." Available at: https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html. Accessed March 2020.

includes data for all census block groups that intersect or lie completely within the one-half mile area.

2. **Discusses and documents public engagement efforts**, including specific outreach to minority and low-income populations along the route.
3. **Discusses adverse effects of the project** that would impact the minority and low-income populations identified in the study area. These effects include adverse impacts during construction and operation of Rush Line BRT. The following process is used to identify adverse effects:
    a. **Identify impact categories** with the potential for disproportionately high and adverse effects to minority and low-income populations. These tend to be categories where there are opportunities for localized impacts that would not be experienced by everyone living in the study area.
    b. Using the results from those impact analyses, **identify the categories where the project has impacts**. This analysis is based on the information contained in the EA and supporting technical reports. For example, if the project would not have right-of-way impacts, it would not have right-of-way impacts on minority and low-income populations. But if the project would have traffic impacts, further analysis would be completed to determine if impacts on minority and low-income populations are disproportionate.
    c. **Evaluate the project impacts by category** to determine whether those impacts are disproportionately high and adverse to minority and low-income populations. As stated in Federal Transit Administration Circular 4703.1, a "disproportionately high and adverse effect" is defined as an adverse impact that:
        i. Is predominantly borne by a minority population and/or low-income population, or
        ii. Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population.
4. **Discusses positive effects of the project** that would benefit the minority and low-income populations identified in the study area. These effects may include improved transit service, mobility or accessibility.
5. **Describe mitigation elements incorporated into the project** to address impacts identified.
6. **Describe any remaining impacts** and why further mitigation is not proposed.
7. **Compare the adverse impacts and mitigation strategies proposed** in minority areas and low-income areas with those proposed elsewhere within the study area.
8. **Summarize whether the project would result in disproportionately high and adverse effects** on the minority or low-income populations identified.

3. EXISTING CONDITIONS

This section summarizes the current demographic characteristics of the study area with respect to minority and low-income populations.

3.1. MINORITY POPULATIONS

Table 1 and Figure 1 show the percentage of minority populations in the study area. For reference, the study area was compared to data for each municipality in the project area (Saint Paul, Maplewood, White Bear Township, Vadnais Heights, Gem Lake and White Bear Lake), as well as Ramsey County. With minority populations making up 51.5 percent of the total population, the study area has a higher percentage of minority residents than any municipality in the project area, in addition to Ramsey County (37.6 percent), the Twin Cities metropolitan area (23.9 percent) and the state of Minnesota (19.7 percent).

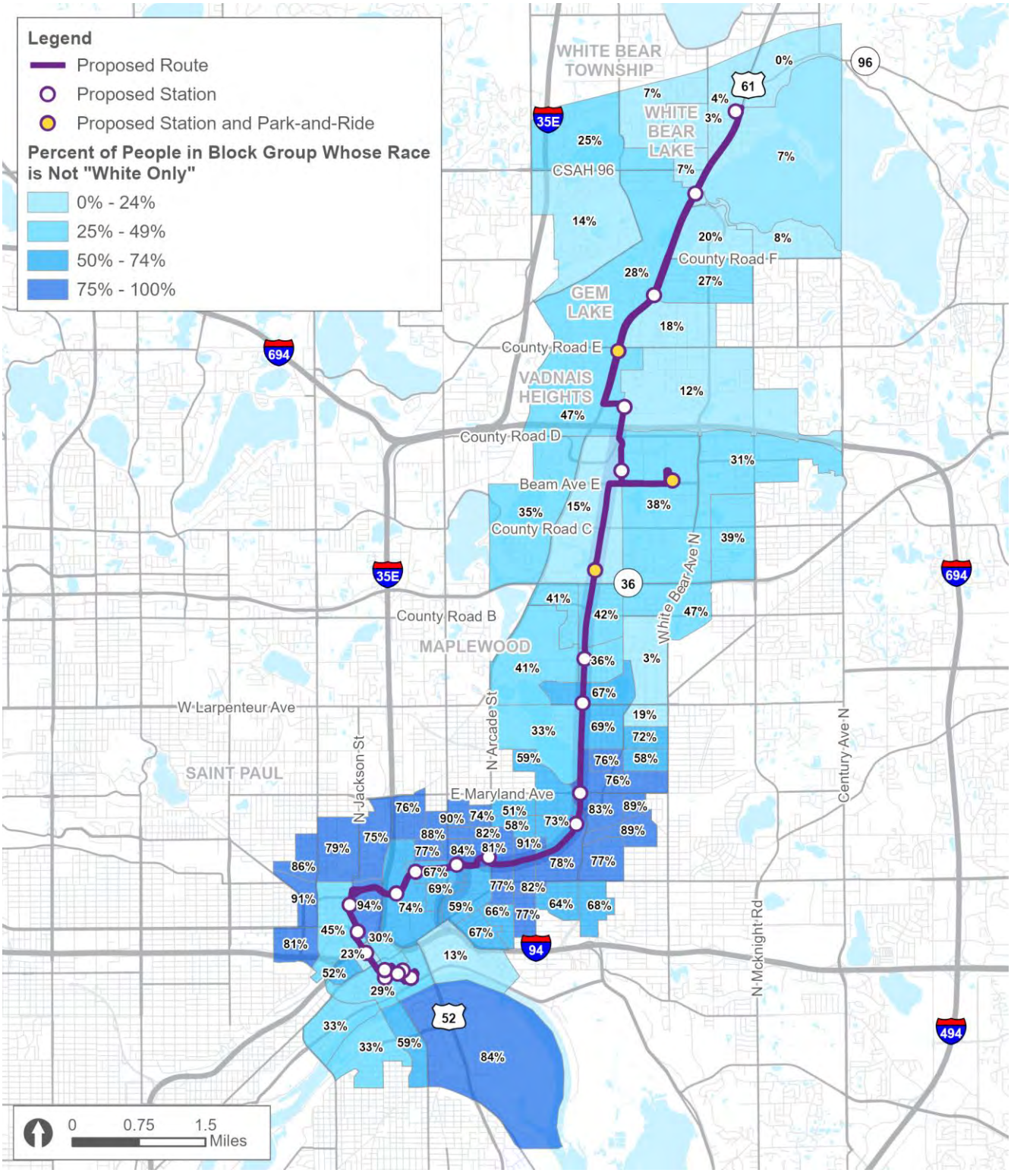
Table 1: Minority Populations in the Study Area and Project Area Communities[5]

Geographic Area	Total Population	Minority Population	Percent Minority
Study area	111,310	54,037	51.5%
Saint Paul	302,760	147,284	48.6%
Maplewood	40,387	14,707	36.4%
White Bear Township	13,376	2,395	17.9%
Vadnais Heights	489	26	5.3%
Gem Lake	11,717	682	5.8%
White Bear Lake	25,601	3,447	13.5%
Ramsey County	541,493	203,520	37.6%
Twin Cities metropolitan area	3,557,528	851,775	23.9%
Minnesota	5,527,358	1,089,287	19.7%

As shown in Figure 1, portions of the study area with the highest percentage of minority residents are primarily located along the downtown and Phalen Boulevard sections in Saint Paul. Specific outreach to minority communities in these areas is discussed in Section 5.

[5] Source: 2014-2018 American Community Survey 5-Year Estimates

Figure 1: Percent Minority Population by Census Block Group in the Study Area[6]



[6] Source: 2014-2018 American Community Survey 5-Year Estimates

3.2. LOW-INCOME POPULATIONS

Table 2 shows the percentage of low-income individuals in the study area, as well as Ramsey County and municipalities in the project area. Low-income individuals are defined as individuals in households with total household income below the 2018 US Census poverty threshold, which varies by household size, number of children and age of householder.[7] With 19.8 percent of residents identified as low-income individuals, the study area has a higher percentage of low-income individuals than any municipality served except Saint Paul (19.9 percent), as well as a higher percentage than Ramsey County (14.7 percent), the Twin Cities metropolitan area (9.0 percent) and the state of Minnesota (10.1 percent).

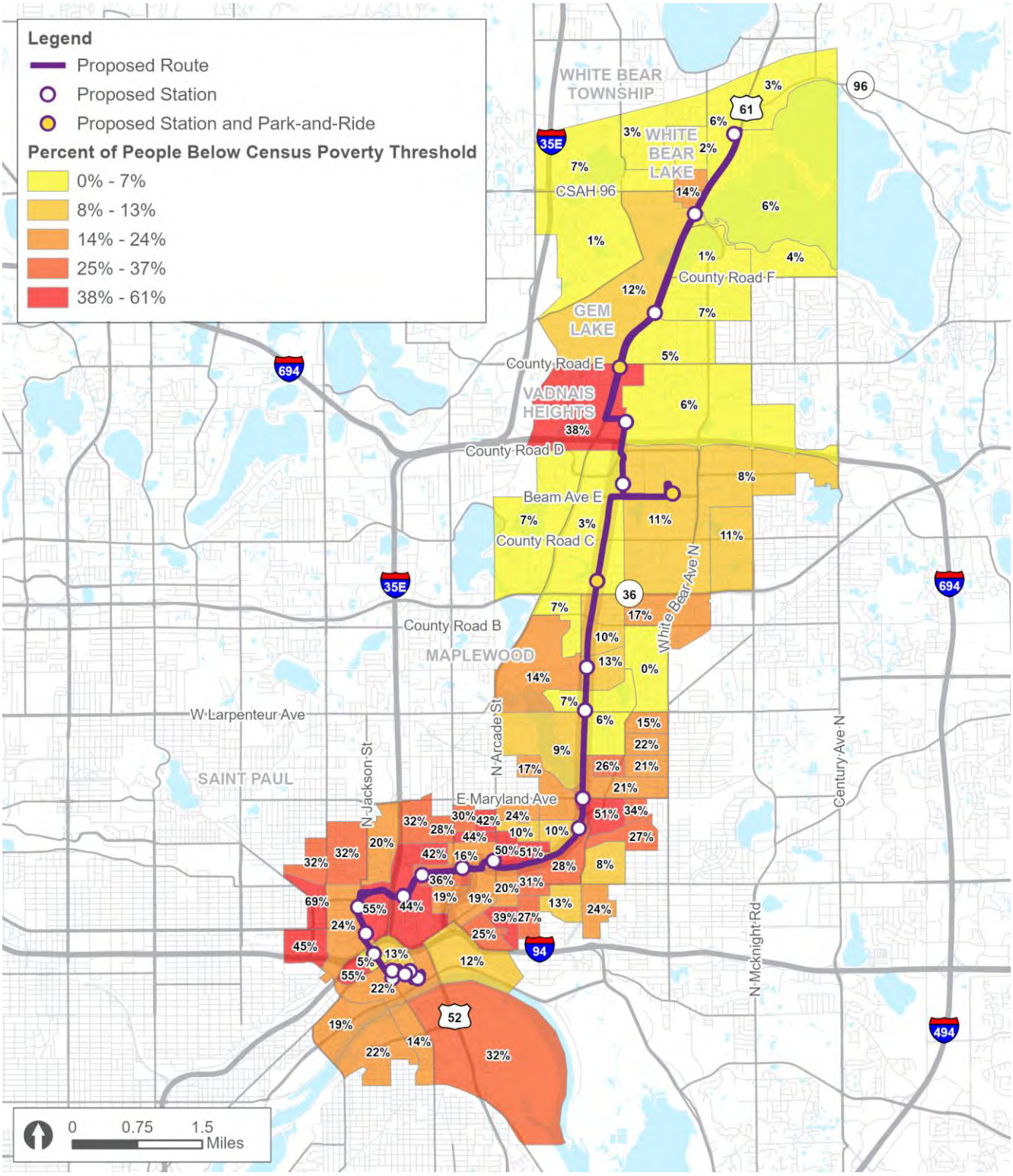
Table 2: Low-Income Populations in the Study Area and Project Area Communities[8]

Geographic Area	Total Population[9]	Population Below Census Poverty Threshold	Percent of Population Below Census Poverty Threshold
Study area	109,701	21,673	19.8%
Saint Paul	302,760	60,249	19.9%
Maplewood	40,387	3,958	9.8%
White Bear Township	11,717	363	3.1%
Vadnais Heights	13,376	829	6.2%
Gem Lake	489	11	2.3%
White Bear Lake	25,601	1,485	5.8%
Ramsey County	541,493	79,599	14.7%
Twin Cities metropolitan area	3,557,528	320,178	9.0%
Minnesota	5,527,358	558,263	10.1%

Figure 2 shows the percentage of the population identified as low-income for each census block group in the study area. The downtown and north central neighborhoods of Saint Paul have the highest proportion of low-income individuals in the study area, with the poverty rate in certain block groups exceeding 50 percent.

[7] US Census Bureau. "Poverty Thresholds." Available at: https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html. Accessed March 2020.
[8] Source: 2014-2018 American Community Survey 5-Year Estimates.
[9] Population for which poverty status is determined. May differ from other estimates of total population.

Figure 2: Poverty Rate by Census Block Group in the Study Area[10]



[10] Source: 2014-2018 American Community Survey 5-Year Estimates

4. ENVIRONMENTAL CONSEQUENCES

4.1. NO BUILD ALTERNATIVE

Under the No Build Alternative, the Rush Line BRT Project would not be constructed, and the impacts and benefits of the project would not occur.

Travel options within the study area would continue to consist of existing transportation networks, including peak-hour express buses, local buses and personal vehicles. Local bus service south of Maplewood Mall would continue to be provided by Routes 54 and 64, with service to downtown Saint Paul. Bus service north of Maplewood Mall would continue to consist primarily of Route 219, which provides service to much of Maplewood, and Route 265, which provides express service to downtown White Bear Lake.

No service improvements would be extended to Vadnais Heights, Gem Lake or White Bear Township, and there would continue to be no east-west bus service along Phalen Boulevard. No bus stop improvements or dedicated guideway would be constructed.

Benefits to users, including improved transit access for existing minority and low-income populations, would not be realized.

4.2. BUILD ALTERNATIVE

4.2.1. Project Benefits

INCREASED TRANSIT SERVICE

Affordable, accessible and equitable transportation can improve low-income and minority residents' access to employment opportunities, educational opportunities and health services, which community members have identified as a key benefit of the Rush Line BRT Project. According to 2014-2018 data from the American Community Survey, the municipalities served by the Rush Line BRT Project are home to more than 17,800 households without a vehicle, or 81 percent of all zero-car households located in Ramsey County. Reliable, accessible public transportation would enhance mobility for zero-car households and could enable households with one or more cars to decrease their reliance on automobiles and reduce overall transportation costs.

The Rush Line BRT Project would improve the availability of safe, reliable and efficient transportation options for minority and low-income populations located within the study area. A 2010 study by the University of Minnesota Center for Transportation Studies investigated the role of transitways in improving job accessibility for socioeconomically disadvantaged workers, finding that low-income workers use transit more often than other groups and that transitway investments improved employment accessibility for low-wage workers.[11] The same study found that after implementation, both low-wage workers and low-wage employers relocated closer to light rail. To some degree, these benefits are expected to accrue to Rush Line BRT users as well, as BRT is intended to deliver many of the same service characteristics as light rail. Low-income workers were also found to commute more often during midday and late-night hours when traditional transit routes operate less frequently.

[11] "Impact of Twin Cities Transitways on Regional Labor Market Accessibility: A Transportation Equity Perspective." Dr. Yingling Fan, Andrew Guthrie, and Rose Teng, Center for Transportation Studies, University of Minnesota, 2010. Available at http://conservancy.umn.edu/handle/11299/150603. Accessed January 2020.

Rush Line BRT would provide frequent trips throughout the day, reducing waiting and transfer time for off-peak commuters.

Based on the existing demographics of the study area, the addition of fast, frequent transit service would improve accessibility for minority and low-income populations, providing better access to employment, healthcare, shopping, parks and recreational amenities. Additionally, Rush Line BRT would provide better connections to other elements of the regional transit network, including local bus routes, the METRO Green Line, the proposed METRO Gold Line and other proposed transitways.

ECONOMIC BENEFITS

Rush Line BRT is expected to create economic benefits during both its operating phase and construction phase. These anticipated benefits are described below.

Operating Phase

During the operating phase, Rush Line BRT would create jobs and additional earnings as a result of operations and maintenance expenditures. Additional transit operators would be hired to drive Rush Line BRT vehicles, and additional support staff would likely be needed for daily vehicle servicing and occasional maintenance. Although these operations and maintenance expenses would be locally funded, they represent spending that would not take place except for the implementation of this service. Additionally, spending by newly hired employees would result in additional indirect economic benefits as income circulates throughout the regional economy.

Station area planning conducted by Ramsey County has identified sites that could potentially be used for transit-oriented development, which would bring new housing and commercial development to the Rush Line BRT study area. This station area planning process will be further advanced through the project's recently awarded Federal Transit Administration Transit-Oriented Development Planning Grant, which will support, among other activities, the development of policies that support the creation and preservation of affordable housing within the Rush Line BRT study area. Additionally, the Rush Line BRT Project includes improvements to nearby bicycle and pedestrian networks that would enhance residents' ability to safely navigate their neighborhoods, potentially improving the viability of local retail activity and improving property values.

This project would improve transit accessibility and travel times within the study area, which would result in positive economic impacts by enabling residents to travel more quickly and easily without a car. Reducing the amount that local residents need to spend solely on owning and maintaining a vehicle can encourage household spending on other items, improve the ability of older residents to age in place and enhance the long-term economic resilience of the community. Improved transit access would also allow some individuals to access employment opportunities (and for businesses to access potential employees) that were previously inaccessible, delivering sustained economic benefits as these workers play a role in the regional economy.

Construction Phase

During the construction phase, Rush Line BRT would create direct economic benefits by employing construction workers, surveyors and ancillary staff, as well as indirect economic benefits resulting from materials purchases and spending by construction employees. These additional earnings would benefit the broader Twin Cities metropolitan area and would not occur but for the construction of the Rush Line BRT Project. Federal grant funding for capital expenditures would bring new transit dollars to the region, generating a greater overall economic impact than could be achieved with local funds alone.

4.2.2. Operating Phase (Long-Term) Impacts

A multi-step process was used to identify the potential for disproportionately high and adverse effects on minority and low-income populations. First, the following impact categories were selected because the impacts in these categories tend to be localized and have the potential for disproportionately high and adverse effects on minority and low-income populations:

- Transit.
- Traffic.
- Parking, driveways and loading zones.
- Pedestrians and bicycles.
- Land use.
- Neighborhoods and community resources.
- Land acquisitions and relocations.
- Economics.
- Visual resources.
- Cultural resources.
- Safety and security.
- Noise and vibration.
- Air quality.

The Build Alternative was evaluated in each of these categories, as shown in Table 3. Other categories evaluated in the EA were not considered because they either presented no impacts or because their effects would be experienced by all populations living in the study area, regardless of race, ethnicity or socioeconomic status. The omitted categories include the following:

- Section 4(f) resources.
- Section 6(f) resources.
- Utilities.
- Surface waters.
- Water quality and stormwater.
- Geology, groundwater and soils.
- Hazardous materials.
- Endangered species.
- Indirect and cumulative effects.

Categories with potential effects were then analyzed to determine whether the impacts were disproportionately high and adverse on minority or low-income populations. Determinations of disproportionate impacts during the operating phase of the project are discussed below.

Table 3: Potential Operating Phase Impacts by Category

Impact Categories	Analyzed for Potential Environmental Justice Impacts
Transit	No
Traffic	No
Pedestrians and bicycles	No
Parking, driveways and loading zones	Yes
Land use	No
Neighborhoods and community resources	Yes
Land acquisitions and relocations	Yes
Economics	Yes
Visual resources	Yes
Cultural resources	Yes
Safety and security	No
Noise and vibration	No
Air quality	No

As summarized in Table 3, the following categories were not carried forward for further analysis:

- **Transit:** The long-term impacts to the transit system are expected to be positive throughout the study area. In addition to Rush Line BRT itself, recommended changes to nearby bus routes would create a connecting bus network that can help leverage the transportation improvements associated with the project. Since there are no adverse transit impacts identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Traffic:** Rush Line BRT would impact vehicle queueing in 2040 at intersections along Robert Street, Phalen Boulevard, Neid Lane and Highway 61. Recommended mitigation measures to alleviate queueing impacts have been identified and no adverse traffic impacts are identified. Therefore, there would be no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Pedestrians and bicycles:** The Rush Line BRT Project would not result in the permanent closures of any marked crossings, sidewalks, bike lanes or trails. Some areas would require reconstruction of existing sidewalks and trails, including the Bruce Vento Regional Trail. However, the facilities would be restored to existing functionality and, therefore, there are no operating-phase impacts anticipated. Since no operating-phase adverse impacts to pedestrians and bicycles have been identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Land use:** Rush Line BRT is compatible with current land use plans in the project area. Since no adverse impacts resulting from the project were identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Safety and security:** Safety and security measures would be implemented for all stations and along the entire route. Adherence to design guidelines as well as appropriate lighting, fencing

and other measures would maintain the safety of all residents and transit users. No adverse effects on minority and low-income populations are anticipated because a similar level of safety and security would be provided along the entire route. Since no adverse impacts resulting from the project were identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.

- **Noise and vibration:** The Rush Line BRT Project would not produce long-term noise impacts based on Federal Transit Administration noise impact criteria. Noise from the project would typically be limited to the roadway right-of-way. Due to the low noise level of electric bus operations and minimal proposed service during sensitive overnight hours, a significant increase beyond existing noise levels is not anticipated. The Rush Line BRT Project would use rubber-tired vehicles, there are no land uses within 100 feet of the route that are highly sensitive to vibration and the project would use existing traffic lanes and newly paved dedicated guideway with no irregularities. Therefore, the project meets none of the guidelines for conducting a vibration screening, and there are no locations with the potential for vibration impacts as a result of the project. Since no impacts were identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Air quality:** The Minneapolis-Saint Paul Intrastate Air Quality Control Region #131 is currently in attainment for all criteria pollutants, with the exception of a defined maintenance area for particulate matter (PM_{10}) that is outside the study area. Per Federal Transit Administration guidance, air quality is not considered a concern for this project as it relates to criteria pollutants. Furthermore, a qualitative analysis of mobile source air toxics emissions found no anticipated impacts due to the implementation of the Rush Line BRT Project, in part because electric buses do not produce combustion-related emissions. Since no adverse impacts were identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.

ANALYSIS OF POTENTIAL FOR DISPROPORTIONATELY HIGH AND ADVERSE EFFECTS

The following section summarizes the environmental justice impacts associated with project-related activities during the operating phase. Each impact category is addressed individually; the results for each impact area are then summarized in Table 10.

Parking, Driveways and Loading Zones

Long-term parking impacts and access changes are expected during the operating phase in several locations, including in the cities of Saint Paul, Maplewood and White Bear Lake. Impacts in each municipality are shown in Table 4 and discussed below.

Table 4: Parking Impacts and Access Changes by Municipality

Municipality	Net Change in Parking Spaces	Number of Access Changes
Saint Paul	-69	0
Maplewood	+258	0
Option without the Highway 36 park-and-ride	-37	0
White Bear Township	0	0
Vadnais Heights	+26	0
Gem Lake	0	0
White Bear Lake	-40	1

Saint Paul

- In Saint Paul, implementation of the Rush Line BRT Project would lead to a loss of 69 total parking spaces after mitigation. Downtown parking changes include a net loss of 32 on-street parking spaces that are currently available only during off-peak times; this total reflects the loss of 57 on-street spaces, mitigated by the addition of 25 on-street parking spaces nearby. This net loss of 32 on-street parking spaces would occur in a census block group with a minority population of 29 percent (lower than average for the study area) and a low-income population of 22 percent (slightly higher than average for the study area).
- Near the Arcade Street station, 20 off-street parking spaces at 827 Forest Street would be removed along with three off-street parking spaces at 833 Forest Street. Additionally, 14 off-street parking spaces serving residences would be lost, including two at 1267 Cook Avenue, two at 1286 Magnolia Avenue, eight at 1676 English Street and two at 1298 Arlington Avenue. These parking impacts are located in census block groups home to minority populations ranging from 23 to 94 percent and low-income populations of 5 to 55 percent.

Maplewood

- Rush Line BRT would operate in Ramsey County rail right-of-way throughout most of Maplewood, leading to minimal impacts to parking. Under the Build Alternative, 18 on-street parking spaces and a parking structure with approximately 300 parking stalls would be constructed. Under the Build Alternative option without the Highway 36 park-and-ride, 13 on-street parking spaces on Gervais Avenue would be removed. These changes would occur in a census block group with a minority population of 15 percent and a low-income population of 3 percent, both lower than average for the study area.
- At the Maplewood Mall Transit Center, 24 off-street parking spaces would be removed as part of the Rush Line BRT Project. This change would occur in a census block group with a minority population of 38 percent and a low-income population of 11 percent (both lower than average for the study area), though the population of visitors utilizing parking at the Maplewood Mall Transit Center may differ in composition from the surrounding neighborhoods.

White Bear Lake

- Construction of the guideway would result in the loss of 40 off-street parking spaces in White Bear Lake. At the White Bear Shopping Center (4422 Highway 61), approximately 24 off-street parking spaces would be removed, all of which are located in or partially in the public right-of-way. This impact would occur in a census block group with a minority population of 8 percent and a low-income population of 4 percent (both lower than average for the study area).
- The Lakeside Shops, located at 1971 Whitaker Street, would lose eight off-street parking spaces as well as driveway access to Highway 61. This loss of access is not anticipated to have an impact on the businesses as there is another driveway immediately south that provides similar access to the shops. These impacts would occur in a census block group with a minority population of 7 percent and a low-income population of 6 percent (both lower than average for the study area).
- Beartown Bar and Grill, located at 4875 Highway 61, would lose eight off-street parking spaces located in the public right-of-way. An additional eight on-street parking spaces would be removed on Washington Avenue. These impacts would occur in a census block group with a minority population of 4 percent and a low-income population of 6 percent (both lower than average for the study area).

Finding

Parking impacts in downtown Saint Paul are not expected to result in adverse effects for area residents or businesses. Nearby on-street and off-street parking is available, and the moderate net loss of parking along Robert Street is not expected to negatively impact minority and low-income populations or the general public.

During the project's environmental analysis phase, project staff arranged stakeholder meetings and drop-in discussions with businesses along the route and near proposed station locations. In downtown Saint Paul, staff conducted stakeholder meetings with the businesses and residential properties located proximate to proposed stations, as well as drop-in discussions with businesses along the affected sections of Robert Street. Particular care was taken to meet with stakeholders at properties that are minority-owned or that serve primarily minority or low-income populations. Additionally, project staff met with businesses throughout the corridor that would experience a reduction in parking.

In Maplewood, parking changes at Harvest Park are not expected to adversely impact area residents or users of the park as overall parking levels are expected to remain sufficient. The elimination of 24 parking spaces at the Maplewood Mall Transit Center is not expected to adversely impact transit riders, as the facility currently operates with 1,007 spaces and had a utilization rate of 48 percent in 2019.[12] While the Rush Line BRT Project would generate additional demand for parking at the Maplewood Mall Transit Center, some of this increase in demand would be offset by customers switching from existing local or express bus routes to Rush Line BRT. Additionally, improvements to the Maplewood Mall Transit Center that are included in the Rush Line BRT Project would provide enhanced waiting areas, improved security and more efficient bus operations that would benefit all transit riders who use the facility.

[12] Metro Transit. *2019 Annual Regional Park & Ride System Report*. January 2020. Available at https://metrocouncil.org/Transportation/Publications-And-Resources/Transit/2019-Park-and-Ride-Report.aspx.

In White Bear Lake, reductions in parking at White Bear Shopping Center and both parking and access at the Lakeside Shops are not expected to adversely impact area residents as improved transit access would at least partially offset the moderate reduction in parking availability. Additionally, the loss of eight off-street parking spaces at Beartown Bar and Grill (4875 Highway 61) is not considered an adverse impact as the remaining 74 parking spaces would continue to exceed the city's minimum parking requirements.

Based on these factors, no disproportionately high and adverse effects on minority and low-income populations are anticipated for the project's effects on parking, driveways and loading zones.

Neighborhoods and Community Resources

As noted in the *Land Use and Economics Technical Report* (included in Appendix E of the EA), the community resources impact analysis is based on the geographic location of community facilities such as schools, colleges, libraries, community centers, parks, medical facilities, places of worship, police and fire departments and community service organizations in relation to the proposed route. Within that technical report, the neighborhood cohesion analysis assesses whether the project would create barriers within or between neighborhoods. Overall, minimal impacts to neighborhood cohesion and community facilities are anticipated as part of the Rush Line BRT Project. Long-term (operating phase) impacts are shown by municipality in Table 5 and are discussed below.

Table 5: Neighborhood and Community Resource Impacts by Municipality

Municipality	Neighborhood Cohesion Impacts	Community Facilities Impacts
Saint Paul	0	1[13]
Maplewood	0	2[13]
White Bear Township	0	0
Vadnais Heights	0	0
Gem Lake	0	0
White Bear Lake	0	0

Potential visual impacts to community facilities, including the Bruce Vento Regional Trail north of Johnson Parkway in Saint Paul and Maplewood and Weaver Elementary School in Maplewood, have been identified. 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*[14] process. 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 Weaver Elementary School, the dedicated guideway would be grade-separated to enhance safety and comfort in crossing the guideway. The design of grade-separated crossing will be established through a visual quality inventory and design process. With these mitigation measures incorporated into the design, no adverse impacts to neighborhood cohesion or community facilities were identified.

[13] Impacts to the Bruce Vento Regional Trail occur in both Saint Paul and Maplewood.
[14] Available in the project library at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/project-library.

Finding

Impacts to the Bruce Vento Regional Trail in Saint Paul and Maplewood are located in census block groups with minority populations of 15 to 76 percent and low-income populations of 3 percent to 21 percent. Since trail impacts would not be localized and would be mitigated by landscaping and design improvements as specified in the *Ramsey County Rail Right-of-Way Design Guide*,[15] no disproportionately high and adverse effects on minority and low-income populations are expected.

Impacts to the current trail access at Weaver Elementary School in Maplewood would be mitigated by the construction of a trail underpass for pedestrians and bicyclists. This element was included in the project based on public engagement conducted with Weaver Elementary School staff, students, parents and members of the surrounding community. With mitigation, there is no adverse impact expected to Weaver Elementary School, and therefore no disproportionately high and adverse effect on minority and low-income populations.

Land Acquisitions and Relocations

The Rush Line BRT Project would require the partial acquisition of certain parcels of land for project operations. No full acquisitions would be needed, and no existing residents or businesses would be displaced as a direct result of the project. A summary of permanent partial acquisitions required for the project is shown in Table 6.

Table 6: Type and Acreage of Property That May Be Impacted by Partial Acquisitions During the Operating Phase

Municipality	Residential Properties	Commercial Properties	Institutional Properties	Park Properties	Total Properties	Acres
Saint Paul	3	8	9	2	22	6.53
Maplewood	1	1	4	2	8	11.24
Option without the Highway 36 park-and-ride	*1*	*1*	*4*	*0*	*6*	*9.43*
White Bear Township	0	2	0	0	2	0.03
Vadnais Heights	0	1	0	0	1	0.01
Gem Lake	0	2	0	0	2	0.02
White Bear Lake	1	10	1	0	12	2.33
Total	**5**	**24**	**14**	**4**	**47**	**20.16**
Option without the Highway 36 park-and-ride	*5*	*24*	*14*	*2*	*45*	*18.35*

Finding

These partial acquisitions are distributed throughout the study area. Despite the fact that the largest number of parcels to be acquired are located in the city of Saint Paul, the majority of acquisitions in

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

the study area are located in census block groups with lower proportions of minority and low-income populations than average for the study area.

During the project's environmental analysis phase, project staff contacted all businesses that would be impacted by partial land acquisitions. Project staff met with businesses that were interested in talking with project staff, which was the majority of these businesses and included all of the businesses along Phalen Boulevard and in downtown White Bear Lake that would be impacted by a reduction in parking. The Metropolitan Center for Independent Living, which is located adjacent to the 10th Street station in Saint Paul and serves individuals with disabilities, was engaged during the environmental assessment phase to discuss potential impacts to its property and associated mitigation. While initial plans would have resulted in a reduction in vehicular access points and in the number of parking spaces at the Metropolitan Center for Independent Living site, the proposed project design has been refined to avoid these impacts. Moreover, Metropolitan Center for Independent Living staff recognize that the Rush Line BRT Project would provide increased transit access to its location, which could benefit the populations that the organization serves.

Owners would be paid just compensation for property acquired for the project consistent with Minnesota Statutes, chapter 117, and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Public Law 91-646; 49 CFR Part 24).

After consideration of mitigation, as well as the distribution of parcel acquisitions throughout the study area, the Rush Line BRT Project would not result in a disproportionately high and adverse effect on minority and low-income populations.

Visual Resources

The Rush Line BRT Project is largely consistent with the surrounding visual context, and most project elements have a low or moderate visual contrast with nearby features of the urban environment. However, certain project elements, including the new dedicated guideway and trail bridge over Johnson Parkway and changes to the Bruce Vento Regional Trail within the Ramsey County rail right-of-way, would contribute to high visual contrast with current surrounding features, including contributing elements to the underlying Lake Superior & Mississippi Railroad Corridor Historic District. Visual impacts (those areas where high visual contrast is anticipated) are shown in Table 7 and Table 8.

Table 7: Operating Phase Visual Impacts in Saint Paul[16]

Project Element	Impacted Area/Resource	Visual Contrast	Percent Minority	Percent Low-Income
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).	59% - 83%	9% - 51%
Dedicated guideway in Ramsey County rail right-of-way (Johnson Parkway to Larpenteur Avenue)	Phalen Regional Park; Saint Paul segment of the Bruce Vento Regional Trail	**High:** Considerable change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*,[17] 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.	33% - 76%	6% - 21%
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[18]	**High:** Considerable change from existing visual context. Elements of the *Ramsey County Rail Right-of-Way Design Guide*[17] 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.	33% - 91%	6% - 51%

[16] Project elements that cross block group boundaries are noted with a range that includes the minimum and maximum proportion of minority and low-income populations in the block groups they intersect.
[17] Available in the project library at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/project-library.
[18] State Historic Preservation Office inventory number XX-RRD-NPR001

Table 8: Operating Phase Visual Impacts in Maplewood

Project Element	Impacted Area/Resource	Visual Contrast	Percent Minority	Percent Low-Income
Dedicated guideway in Ramsey County rail right-of-way (Larpenteur Avenue to Beam Avenue)	Phalen Regional Park; Maplewood segment of the Bruce Vento Regional Trail	**High:** Considerable change from existing visual context. As noted in the *Ramsey County Rail Right-of-Way Design Guide*,[19] 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.	15% - 67%	3% - 13%
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[20]	**High:** Considerable change from existing visual context. Elements of the *Ramsey County Rail Right-of-Way Design Guide*[19] 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.	15% - 67%	7% - 13%

Finding

Three project elements would create a high visual contrast with the existing surroundings: the dedicated guideway bridge over Johnson Parkway in Saint Paul, the portion of the Ramsey County rail right-of-way north of Johnson Parkway in Saint Paul and the portion of the Ramsey County Rail right-of-way between Larpenteur Avenue and Beam Avenue in Maplewood. Mitigation for these features has been explored and incorporated into the project design as follows:

- The dedicated guideway bridge over Johnson Parkway in Saint Paul was redesigned as a three-span structure to create a more open visual appearance and reduce the impact on views

[19] Available in the project library at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/project-library.
[20] State Historic Preservation Office inventory number XX-RRD-NPR001

from adjacent properties and views from bicycle and pedestrian paths along Johnson Parkway near Phalen Regional Park. Further mitigation may include additional aesthetic treatments (screening, vegetation, etc.).

- The design of the dedicated guideway and Bruce Vento Regional Trail in the Ramsey County rail right-of-way in Saint Paul and Maplewood was subject to extensive public input throughout 2019, a process that resulted in the *Ramsey County Rail Right-of-Way Design Guide*.[21] The design guide synthesizes the preferences of project stakeholders and members of the public regarding design priorities for the implementation of Rush Line BRT and the reconstructed Bruce Vento Regional Trail within the Ramsey County rail right-of-way and establishes principles for BRT and trail design, landscaping, safety and amenities. Detailed design and construction plans will incorporate these principles to the extent feasible.
- In addition to the *Ramsey County Rail Right-of-Way Design Guide,*[21] additional measures to mitigate visual effects to the Lake Superior & Mississippi Railroad Corridor Historic District are being developed through coordination with Section 106 consulting parties. These measures are documented in a draft Memorandum of Agreement found in Appendix C of the EA.

Project elements (guideway, stations and adjacent pedestrian and bicycle facilities), as well as proposed mitigation for elements of high visual contrast, are similar across areas with both high and low proportions of minority and low-income populations. No disproportionately high and adverse effects on minority or low-income populations are anticipated.

Cultural Resources

The Federal Transit Administration has determined that the project would have an adverse effect on five historic properties: the Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment,[22] the Lake Superior & Mississippi Railroad Corridor Historic District: White Bear Lake to Hugo Segment,[23] and three segments of the 1868 Alignment of the Lake Superior & Mississippi Railroad.[24]

The proposed construction of the dedicated guideway, BRT stations, bridges, park-and-rides, stormwater management features and other project elements would have a permanent physical effect on the integrity of location (horizontal and vertical alignment), design and materials of the Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment and, therefore, would also impact the segment's integrity of feeling and association.

It might be possible to design the project to avoid physical effects to two segments of the 1868 Alignment of the Lake Superior & Mississippi Railroad (between County Road C and Gervais Avenue and between Kohlman and Beam Avenues). However, construction of the grade-separated crossing of the dedicated guideway and trail access between English Street and Weaver Elementary School

[21] Available in the project library at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/project-library.
[22] State Historic Preservation Office inventory number XX-RRD-NPR001
[23] State Historic Preservation Office inventory number XX-RRD-NPR005
[24] Between Eldridge Avenue East and County Road B East (State Historic Preservation Office inventory number XX-RRD-NPR004), between Gervais Avenue and County Road C (State Historic Preservation Office inventory number XX-RRD-NPR003) and between Kohlman and Beam Avenues (State Historic Preservation Office inventory number XX-RRD-NPR002)

would likely physically impact the third segment between Eldridge Avenue East and County Road B East.

Construction of the project would not physically affect the White Bear Lake to Hugo Segment or diminish the segment's integrity of location, design, materials or workmanship. However, the substantial physical effects to the Saint Paul to White Bear Lake Segment (i.e., the terminal segment of the Lake Superior & Mississippi Railroad) could render the corridor no longer eligible for inclusion in the National Register of Historic Places and, therefore, also diminish integrity of association for the White Bear Lake to Hugo Segment.

Finding

The project would have an adverse effect on the Lake Superior & Mississippi Railroad Corridor Historic District: Saint Paul to White Bear Lake Segment, the Lake Superior & Mississippi Railroad Corridor Historic District: White Bear Lake to Hugo Segment and three segments of the 1868 Alignment of the Lake Superior & Mississippi Railroad. The project would physically affect the Saint Paul to White Bear Lake Segment and the 1868 Alignment of the Lake Superior & Mississippi Railroad.

In addition to the *Ramsey County Rail Right-of-Way Design Guide,* [25] additional measures to minimize and/or mitigate effects to the Lake Superior & Mississippi Railroad Corridor Historic District are being developed through coordination with Section 106 consulting parties. These measures are documented in a draft Memorandum of Agreement found in Appendix C of the EA.

Project elements (dedicated guideway, stations and adjacent pedestrian and bicycle facilities) and proposed minimization or mitigation of potential adverse effects to the historic district segments are similar across areas with both high and low proportions of minority and low-income populations. No disproportionately high and adverse effects on minority or low-income populations are anticipated.

Economics

The Rush Line BRT Project is anticipated to have largely positive business impacts. Increased transit access would help businesses recruit and retain workers as well as attract more customers. However, it may also have incidental negative impacts related to the loss of parking spaces, partial acquisitions of commercial properties and access changes. These impacts are also discussed in the previous section on changes to parking, driveways and loading zones, as well as land acquisitions (see Table 4 and Table 6). Specific impacts to commercial properties by municipality are listed in Table 9.

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

Table 9: Direct Impacts to Commercial Properties by Municipality

Municipality	Parking Spaces Lost at Commercial Properties		Acquisitions of Commercial Properties		Access Changes
	On-Street	Off-Street	Partial	Full	
Saint Paul	32	23	8	0	0
Maplewood	18	24	1	0	0
Option without the Highway 36 park-and-ride	13	24	1	0	0
White Bear Township	0	0	2	0	0
Vadnais Heights	0	0	1	0	0
Gem Lake	0	0	2	0	0
White Bear Lake	8	40	10	0	1

Finding

As noted in the Parking, Driveways and Loading Zones section, the loss of parking along Robert Street due to the Rush Line BRT is not expected to result in negative impacts on nearby businesses due to the availability of parking on nearby streets and in nearby off-street parking structures. Additionally, improved transit access and increases in ridership compared to current conditions could bring additional customers to businesses in downtown Saint Paul.

Parking changes to commercial properties would also occur in White Bear Lake, where the project would remove 24 off-street spaces from White Bear Shopping Center (4422 Highway 61), eight off-street spaces from the Lakeside Shops (1971 Whitaker Street) and eight off-street and eight on-street parking spaces at Beartown Bar and Grill (4875 Highway 61). As noted in the Parking, Driveways and Loading Zones section, these are not considered to be adverse impacts because the remaining off-street parking spaces available at each location would continue to exceed local minimum parking requirements as outlined in White Bear Lake's zoning code.

While partial acquisitions of commercial properties would be required, it is not anticipated that the acquisitions would result in the displacement of a business. Owners would be paid just compensation for property acquired for the project consistent with Minnesota Statutes, chapter 117, and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Public Law 91-646; 49 CFR Part 24).

Similarly, the access change to the Lakeside Shops in White Bear Lake is not expected to contribute to adverse impacts due to the availability of alternative auto access to the property.

Based on the availability of parking and access alternatives for affected commercial properties, as well as the just compensation of all commercial property owners in the event of partial acquisitions, no long-term adverse effects on commercial businesses are anticipated as part of the Rush Line BRT Project, and therefore no disproportionately high and adverse impacts on minority and low-income populations are expected to occur.

SUMMARY OF OPERATING PHASE IMPACTS

Table 10 summarizes the results of the environmental justice analysis for the operating phase. There would be no disproportionately high and adverse effects on minority and low-income populations in any municipality in the study area.

Table 10: Summary of Operating Phase Environmental Justice Impacts by Category

Municipality	Potential for Disproportionately High and Adverse Effects on Minority and Low-Income Populations					
	Parking, Driveways and Loading Zones	Neighborhoods and Community Resources	Land Acquisitions and Relocations	Visual Resources	Cultural Resources	Economics
Saint Paul	No	No	No	No	No	No
Maplewood	No	No	No	No	No	No
White Bear Township	No	No	No	No	No	No
Vadnais Heights	No	No	No	No	No	No
Gem Lake	No	No	No	No	No	No
White Bear Lake	No	No	No	No	No	No

4.2.3. Construction Phase (Short-Term) Impacts

As in the operating phase, a multi-step process was used to identify the potential for disproportionately high and adverse effects on minority and low-income populations. The same impact categories were selected because the impacts in these categories tend to be localized and have the potential for disproportionately high and adverse effects on minority and low-income populations, including:

- Transit.
- Traffic.
- Parking, driveways and loading zones.
- Pedestrians and bicycles.
- Land use.
- Neighborhoods and community resources.
- Land acquisitions and relocations.
- Economics.
- Visual resources.
- Cultural resources.
- Safety and security.
- Noise and vibration.
- Air quality.

The Build Alternative was evaluated in each category, as shown in Table 11. Other categories evaluated in the EA were not considered because they either presented no impacts or be cause their effects would be experienced by all populations living in the study area, regardless of race, ethnicity or socioeconomic status. These omitted categories include the following:

- Section 4(f) resources.
- Section 6(f) resources.
- Utilities.
- Surface waters.
- Water quality and stormwater.
- Geology, groundwater and soils.
- Hazardous materials.
- Endangered species.
- Indirect and cumulative effects.

Categories with potential effects were then analyzed to determine whether the impacts were disproportionately high and adverse on minority or low-income populations. Determinations of disproportionate impacts during the construction phase of the project are discussed below.

Table 11: Potential Construction Phase Impacts by Category

Impact Categories	Analyzed for Potential Environmental Justice Impacts
Transit	No
Traffic	No
Pedestrians and bicycles	No
Parking, driveways and loading zones	Yes
Land use	No
Neighborhoods and community resources	Yes
Land acquisitions and relocations	Yes
Economics	Yes
Visual resources	Yes
Cultural resources	Yes
Safety and security	No
Noise and vibration	Yes
Air quality	No

As summarized in Table 11, the following categories were not carried forward for further analysis:

- **Transit:** During the construction phase, the Rush Line BRT Project is expected to result in intermittent impacts to bus operations. These may include temporary stop relocations or closures or route detours that would be mitigated by alternative stop locations and service as determined by Metro Transit. Because these impacts, with likely mitigation measures, were not determined to be adverse, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Traffic:** During the construction phase, the Rush Line BRT Project is expected to result in temporary impacts to traffic operations, including lane closures, short-term intersection and roadway closures and detours that would cause localized increases in congestion. As engineering advances, a Maintenance of Traffic plan will be developed to address construction

phasing, traffic signal operations, road closures, detours and access through the work zone. With the maintenance of traffic plan serving as mitigation, adverse traffic impacts are not anticipated, and there is no potential for disproportionately high and adverse effects on minority and low-income populations.

- **Pedestrians and bicycles:** During the construction phase, moderate impacts to pedestrian and bicycle travel are expected along the Bruce Vento Regional Trail, with minor impacts in downtown Saint Paul, Maplewood and White Bear Lake. In order to mitigate impacts to pedestrians and bicyclists, a Maintenance of Traffic plan will identify temporary or alternative bicycle and pedestrian accommodations, including detour routings and/or special facilities such as handrails, fences, barriers, ramps, walkways and bridges. Because these impacts, with mitigation measures, were not determined to be adverse, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Land use:** No short-term impacts to compliance with local land use policies have been identified. Since no impacts were identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Safety and security:** Worker safety measures and public safety measures would be implemented during construction of the Rush Line BRT Project. Because safety and security would be addressed equally along the entire project, and because no adverse impacts were identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.
- **Air quality:** The construction of the project would affect traffic volumes and operations along roadways in and around the study area. During construction, some intersections may need to temporarily operate with reduced capacities or be temporarily closed. Under these conditions, traffic would be expected to detour to parallel roadway facilities near the study area. This increased traffic may result in increased emissions and higher concentrations of air pollutants near homes and businesses. These emissions levels are not expected to result in localized concentrations that would exceed any state or federal air quality standards. In addition to traffic-related emissions increases, construction activities can also result in higher concentrations of air pollutants, as well as dust and other particulate matter. However, no impacts are anticipated as traffic emissions levels and construction-related air pollutants are not expected to exceed state or federal air quality standards. Since no impacts were identified, there is no potential for disproportionately high and adverse effects on minority and low-income populations.

ANALYSIS OF POTENTIAL FOR DISPROPORTIONATELY HIGH AND ADVERSE EFFECTS

The following section summarizes the environmental justice impacts associated with project-related activities during the construction phase. Each impact category is addressed individually; the results for each impact area are then summarized in Table 15.

Parking, Driveways and Loading Zones

Under the Build Alternative, the long-term operating phase parking impacts and access changes would take place starting during the construction phase. In addition, as shown in Table 12, further parking impacts are expected during construction to accommodate staging and laydown areas in two locations: on 10th Street in downtown Saint Paul (25 on-street spaces temporarily unavailable) and at

Cummins Sales and Service located at 1600 Buerkle Road in White Bear Lake (28 off-street spaces temporarily unavailable). Many of the spaces would be restored after construction is concluded and Rush Line BRT operations begin.

Revenue for businesses in downtown Saint Paul may be negatively affected by temporary loss of on-street parking during the construction phase, though this impact would be mitigated by available off-street parking, temporary access and signage where necessary and proactive communication with businesses in the surrounding area. Project staff met with Robert Street businesses to inform them of the temporary impacts and to discuss parking alternatives during construction and the long-term transit accessibility benefits of Rush Line BRT. These businesses, which included minority-owned businesses such as Sawatdee Thai Restaurant, as well as other restaurant and nightlife businesses, were generally concerned about parking impacts during and after construction but were appreciative of efforts to find alternative parking locations.

Table 12: Construction Phase Parking Impacts

Municipality	On-Street Parking Spaces Impacted During Construction	Off-Street Parking Spaces Impacted During Construction
Saint Paul	25	0
Maplewood	0	0
White Bear Township	0	0
Vadnais Heights	0	0
Gem Lake	0	0
White Bear Lake	0	28
Total	**25**	**28**

Finding

As in the operating phase, parking impacts in downtown Saint Paul are not expected to result in an adverse effect for area residents or businesses during construction. On all affected segments, nearby on-street and off-street parking is available, and therefore the loss of parking would not negatively impact minority and low-income populations or the general public.

The temporary loss of parking at Cummins Sales and Service may have some negative impact on the business as its parking lot operates near capacity. However, this business is not owned or known to be patronized by minority or low-income populations, and it is located in a census block group with a minority population of 12 percent and a low-income population of only 6 percent (both less than average for the study area). Based on these factors, project-related impacts on parking, driveways and loading zones are not anticipated to have disproportionately high and adverse effects on minority and low-income populations.

Neighborhoods and Community Resources

Although temporary in nature, construction phase impacts may affect community facilities and neighborhood cohesion. The community resources impact analysis is based on the geographic location of community facilities such as schools, colleges, libraries, community centers, parks, medical facilities, places of worship, police and fire departments and community service organizations in relation to the proposed route. The neighborhood cohesion impact analysis (included in the *Land Use and Economics Technical Report* included in Appendix E of the EA) assesses whether the project would create barriers within or between neighborhoods.

Traffic detours may increase traffic through residential neighborhoods or change access to community facilities. Similarly, sidewalk closures and detours may affect pedestrian traffic patterns. Construction impacts such as increased levels of noise and dust may temporarily affect neighborhood cohesion, primarily in areas that are relatively quiet. The presence of large construction equipment may be perceived as visually disruptive, resulting in temporary effects to community character, particularly in residential settings.

Community facilities anticipated to be affected include the Bruce Vento Regional Trail in Saint Paul and Maplewood, Harvest Park in Maplewood and Weaver Elementary School in Maplewood, none of which are located in predominantly minority or low-income areas.

Measures to mitigate these temporary impacts would include installing signage and signal controls, providing alternate access when needed, providing adequate public notice about detours and closures and complying with local noise and dust ordinances.

Finding

With the planned mitigation measures, there is no adverse impact on community facilities or neighborhood cohesion expected and, therefore, no potential disproportionately high and adverse impact on minority and low-income populations.

Land Acquisitions and Relocations

In addition to the partial acquisitions required for the operating phase, project construction would result in short-term impacts requiring temporary easements. The estimated number and magnitude of temporary easements that would be required in each municipality during the construction phase are shown in Table 13.

Table 13: Temporary Easements During the Construction Phase by Municipality and Type

Municipality	Residential Properties	Commercial Properties	Institutional Properties	Park Properties	Total Properties	Acres
Saint Paul	9	10	10	2	31	1.31
Maplewood	10	4	4	3	23	3.19
Option without the Highway 36 park-and-ride	*10*	*4*	*4*	*3*	*21*	*2.72*
White Bear Township	0	2	0	0	2	0.02
Vadnais Heights	0	3	0	0	3	0.40
Gem Lake	0	0	0	0	0	0
White Bear Lake	3	20	0	0	23	1.50
Total	**2**	**39**	**14**	**5**	**80**	**6.41**
Option without the Highway 36 park-and-ride	*22*	*39*	*14*	*5*	*80*	*5.93*

Finding

While temporary easements from residential, commercial and institutional properties would be required, no residents or businesses would be displaced during the construction phase. Temporary access modifications or closures that impact residents, businesses or institutional properties would be mitigated by the development of the project's Maintenance of Traffic Plan, as well as restoration of any areas disturbed by construction. After mitigation, there is no adverse impact expected due to temporary construction easements, and, therefore, there is no potential for disproportionately high and adverse effects on minority and low-income populations during the construction phase.

Visual Resources

During the construction phase, visual impacts would occur along the length of the Rush Line BRT Project route, except for limited sections where no dedicated guideway or stations are to be constructed. Construction-related visual impacts from 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.

Finding

Due to the consistent level of visual impact associated with construction across areas with high and low proportions of minority and low-income populations, no disproportionately high and adverse visual impacts are expected during the construction phase.

Cultural Resources

Construction activities would produce noise, visual and traffic impacts near historic properties. Short-term impacts from the project will be addressed per the terms of the executed Section 106 Memorandum of Agreement (see the draft Memorandum of Agreement in Appendix C of the EA).

Finding

Due to the consistent level of visual impact, lack of exceedance of federal noise thresholds and limited traffic impacts associated with construction across areas with high and low proportions of minority and low-income populations, no disproportionately high and adverse cultural resource impacts are expected during the construction phase.

Economics

Under the Build Alternative, changes to business parking and access would occur during the project's construction phase as well as its operating phase.

Anticipated construction-phase parking impacts may negatively affect area businesses, though potential impacts would be mitigated by available on- and off-street parking in the area. Many of the spaces would be restored after construction is complete and Rush Line BRT operations begin. Temporary removal would be limited to on-street parking on 10th Street in Saint Paul and at Cummins Sales and Service (located at 1600 Buerkle Road in White Bear Lake), as previously shown in Table 12. The Cummins Sales and Service parking lot currently operates near capacity and loss of parking may affect customer access to the business; however, this business is not owned or known to be patronized by minority or low-income populations, and it is located in a census block group with a minority population of 12 percent and a low-income population of only 6 percent (both less than average for the study area).

A summary of commercial properties impacted by temporary easements is shown in Table 14. Under the Build Alternative, changes in customer access, on-street parking availability, service access, traffic

flow and congestion could temporarily affect businesses during construction activities. Depending on the intensity and duration of construction activities, businesses relying on ease of customer access may experience a loss of revenue during this time. Businesses with outdoor activities, such as outdoor dining or outdoor storage of products or materials, could also experience negative impacts due to noise, dust or other nuisance conditions caused by nearby construction activities. Businesses that rely on providing customers with quiet may also be impacted during nearby construction activities. Businesses may experience short-term disruptions of utility services during construction activities if utilities need to be moved or replaced.

Table 14: Commercial Properties Impacted by Temporary Easements

Municipality	Number of Commercial Properties Impacted by Temporary Easements
Saint Paul	10
Maplewood	4
White Bear Township	2
Vadnais Heights	3
Gem Lake	0
White Bear Lake	20
Total	**39**

Finding

Since no negatively impacted businesses are known to be owned or patronized by minority or low-income populations, no disproportionately high and adverse impacts on minority and low-income populations are anticipated.

Noise and Vibration

Construction of the Rush Line BRT Project could result in temporary noise impacts to communities along the route. Various construction activities, including the construction of new stations, utility relocation, grading, excavation and installation of systems components, may result in noise impacts in residential areas and other noise-sensitive land uses within several hundred feet of the dedicated guideway and station locations. The potential for noise impact would be greatest at locations near pavement breaking and at locations close to any nighttime construction work. The potential for vibration impact would be greatest at locations close to vibratory compaction and/or pile driving operations, if utilized during construction.

For most construction equipment, diesel engines are typically the dominant noise source. For other activities, such as impact pile driving and jackhammering, noise generated by the actual process dominates. Short-term noise during construction of the project can be intrusive to residents near the construction sites. Most of the construction would consist of site preparation and paving, which would primarily involve diesel engine noise. At some locations, more extensive and higher-noise work may occur, such as pile driving for elevated structures and retaining walls.

A quantitative assessment of construction noise and vibration impacts will be conducted as engineering advances when detailed construction scenarios are available.

The primary means of mitigating short-term noise and vibration resulting from construction activities is to require contractors to prepare a detailed noise and vibration control plan. A noise control engineer or acoustician would work with the contractor to prepare a noise and vibration control plan in

conjunction with the contractor's specific equipment and methods of construction. Key elements of a plan include:

- The contractor's specific equipment types.
- Schedule and methods of construction.
- Maximum noise and vibration limits and certification testing for each piece of equipment.
- Prohibitions on certain types of equipment and processes during nighttime hours without variances.
- Identification of specific sensitive sites near construction sites.
- Methods for projecting construction noise and vibration levels.
- Implementation of noise and vibration control measures where appropriate.
- Acoustic shielding requirements for jackhammers, chainsaws and pavement breakers.
- Methods for responding to community complaints.

Finding

After consideration of mitigation for construction phase noise and vibration impacts, the Rush Line BRT Project would result in temporary impacts that are spread relatively evenly across the study area and include impacts in both minority and low-income areas as well as non-minority and non-low-income areas. To the extent authorized or required by law, construction activities would comply with all applicable local regulations and would not result in a disproportionately high and adverse effect on minority and low-income populations.

SUMMARY OF CONSTRUCTION PHASE IMPACTS

As shown in Table 15, disproportionately high and adverse effects on minority and low-income populations during the construction phase would not occur in the study area.

Table 15: Summary of Construction Phase Environmental Justice Impacts by Category

Municipality	Parking, Driveways and Loading Zones	Potential for Disproportionately High and Adverse Effects on Minority and Low-Income Populations					
		Neighborhoods and Community Resources	Land Acquisitions and Relocations	Visual Resources	Cultural Resources	Noise and Vibration	Economics
Saint Paul	No	No	No	No	No	No	No
Maplewood	No	No	No	No	No	No	No
White Bear Township	No	No	No	No	No	No	No
Vadnais Heights	No	No	No	No	No	No	No
Gem Lake	No	No	No	No	No	No	No
White Bear Lake	No	No	No	No	No	No	No

5. PUBLIC ENGAGEMENT

In early 2018 the Rush Line BRT Project entered the environmental analysis phase. Rush Line BRT Project staff created a *Communication and Public Engagement Plan* to guide and prioritize public engagement that describes the diverse communities throughout the project area, identifies methods for engaging with these communities and establishes goals for public engagement during this phase.[26] The three goals are to inform a diverse public, collect input from the diverse public and use this public input to shape the project.

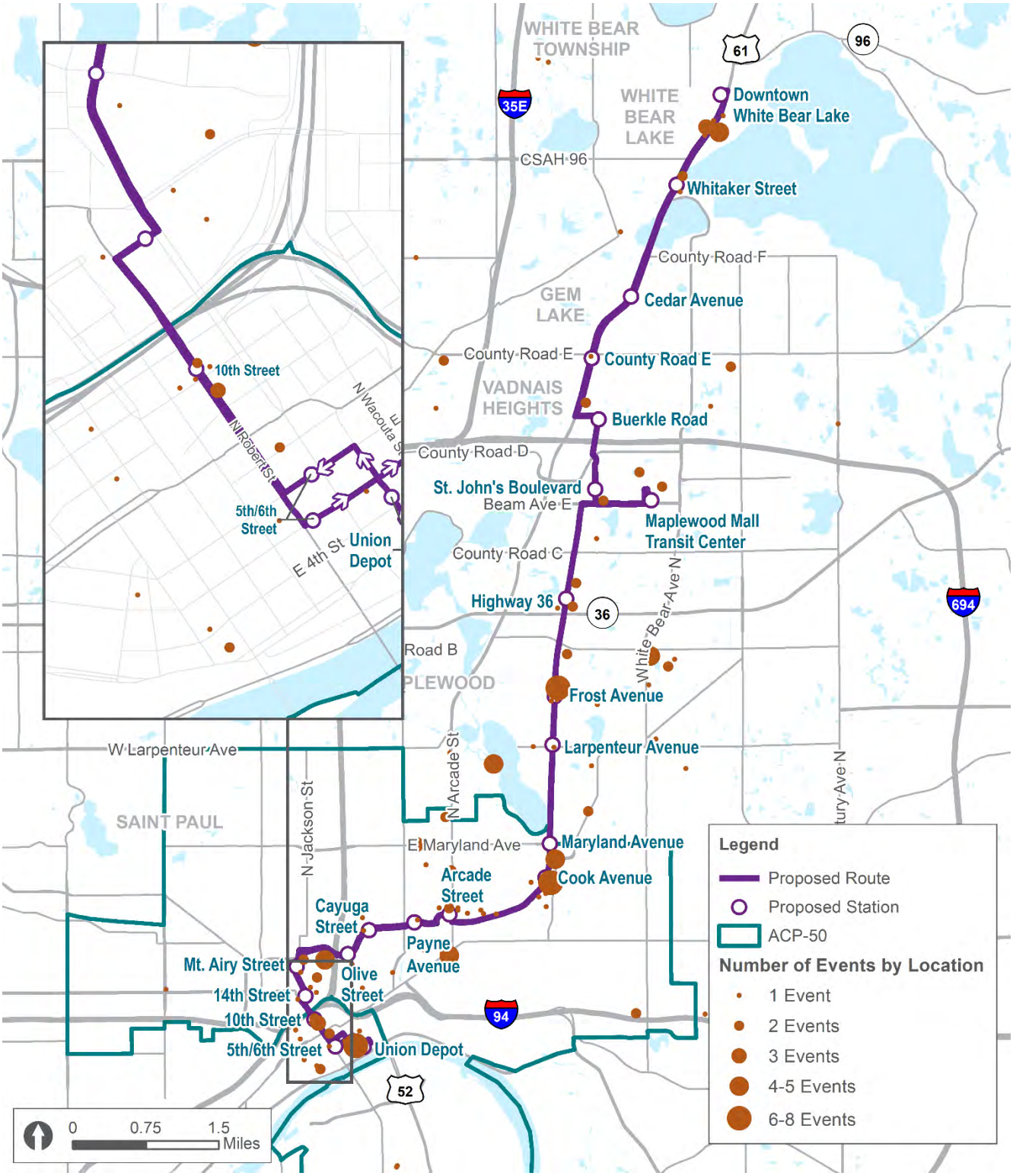
From the start of public engagement activities in March 2018 through March 2021, Rush Line BRT Project staff conducted or staffed 197 events in a variety of locations throughout the project area, as shown in Figure 3. These events included pop-up meetings, drop-in discussions, presentations to stakeholders and attendance at community festivals, many of which took place in areas predominated by communities of color and people with low incomes (see Figure 3 for areas of concentrated poverty where 50 percent or more of residents are people of color, referred to as ACP-50). Through these efforts, staff engaged more than 3,400 people, including low-income and minority populations, and recorded more than 2,600 comments from interested residents and other stakeholders.

This work included both general engagement efforts aimed at raising area residents, employees and other stakeholders' awareness of the Rush Line BRT Project and targeted engagement efforts focused on informing stakeholders and gathering input about specific aspects of the project. Targeted engagement efforts sought out diverse input on transit needs and project details by focusing outreach with the following relevant populations in mind:

- Hmong people living in Saint Paul and in Maplewood.
- Latino people living in Saint Paul.
- Karen people.
- People of color.
- Public housing residents.
- Transit users.
- People with disabilities.
- Seniors.
- Residents of each community along the route.
- Employees in each community along the route.

[26] The *Communication and Public Engagement Plan* is available at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/public-engagement.

Figure 3: Location of Public Engagement Events, March 2018 – March 2021



Project staff engaged stakeholders using methods designed to reach the general public, as well as culturally specific methods tailored to each unique group listed above. Project staff sought to attend in-person activities and events that presented opportunities to connect with underrepresented communities living and working along the route, such as cultural festivals, community meetings and information tables at culturally-specific retail venues including:

- Hmong Village, an indoor shopping market with more than 200 Hmong vendors who offer goods and services including groceries, clothing, jewelry and accounting services.
- Cinco de Mayo, an annual festival hosted in Saint Paul's West Side neighborhood, which is an area with a significant Latin American population.
- Hmong American Partnership, a nonprofit organization that provides a variety of support services to Hmong residents in the Twin Cities metropolitan area.
- Public housing resident council meetings.

Input gathered through these events and other stakeholder meetings informed several project decisions. For example, in response to feedback from the Hmong community, project staff recommended addition of the Cook Avenue station to provide access to Hmong Village. Additionally, project staff conducted outreach with East Side Saint Paul residents to gather feedback regarding the location of the Arcade Street station. Based on meetings and events with residents, including a presentation to a diverse group of students at a high school in the project area, project staff recommended locating the Arcade Street station on Neid Lane. The Policy Advisory Committee adopted these changes in September 2018.

As part of the environmental analysis phase, project staff conducted the Rush Line Health Impact Assessment in 2018 to provide additional opportunities for residents and businesses to learn more about the project. Committee meetings, questionnaires, workshops and data gathered as part of the Health Impact Assessment provided additional information to Ramsey County, the Metropolitan Council and the Federal Transit Administration regarding low-income and minority populations in the study area.

In addition, Ramsey County has engaged communities in developing priorities and plans for specific project elements. Extensive engagement, including targeted engagement with minority and low-income populations, around landscaping and transit design elements for the Ramsey County rail right-of-way resulted in the creation of the *Ramsey County Rail Right-of-Way Design Guide.*[27] This document specifies the types of landscaping, lighting, safety and design features that will be included in the project in part to mitigate impacts to the Bruce Vento Regional Trail. Throughout the public engagement process, project staff tracked the number and nature of comments at each event and directed future public engagement efforts toward reaching underrepresented groups. Project staff has aimed to reach targeted audiences in formats and venues that enable participants to engage in discussions, learn about the project and provide input in a comfortable and accessible setting, using cultural and linguistic ambassadors as needed.

Future public outreach efforts will continue to engage diverse populations in order to inform stakeholders of anticipated project benefits, impacts and opportunities to provide input.

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

6. MITIGATION MEASURES

As described in Section 4, after mitigation the Rush Line BRT Project is not expected to result in disproportionately high and adverse impacts on minority and low-income populations. Elements of the project that have mitigated impacts on minority and low-income populations include the following:

- A design change to reduce parking and access impacts at the Metropolitan Center for Independent Living (adjacent to the 10th Street station in downtown Saint Paul).
- A design change to reduce the visual impact of the Johnson Parkway bridge near Phalen Regional Park.
- Design changes to reduce parking impacts along both Robert Street and Jackson Street in downtown Saint Paul.
- Extensive engagement to incorporate community priorities (including the priorities of minority and low-income populations) in the landscaping and transit design features specified by the *Ramsey County Rail Right-of-Way Design Guide*.[28]

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

NATURAL RESOURCES TECHNICAL REPORT

APRIL 2021

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LIST OF APPENDICES

1. INTRODUCTION

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 technical report has been prepared in support of the EA.

This report summarizes the potential impacts of the Rush Line BRT Project on floodplains, aquatic resources (waterbodies, waterways and wetlands) and protected species and wildlife habitat. For each resource, this report describes the regulatory context, the methodology used in the analysis and the existing conditions within the study area. Potential permanent and temporary impacts were evaluated and potential mitigation measures to address these impacts are described. This analysis is based primarily on desktop resources using publicly available data sources including local, state and federal agency databases and is supplemented by limited field observations.

2. FLOODPLAINS

2.1. REGULATORY CONTEXT AND METHODOLOGY

2.1.1. Regulatory Context

The following agencies regulate floodplains and floodways in the project area, which includes the cities and township adjacent to the Rush Line BRT route:

- Federal Emergency Management Agency.
- Minnesota Department of Natural Resources.
- Watershed organizations:
    - Capitol Region Watershed District.
    - Ramsey-Washington Metro Watershed District.
    - Rice Creek Watershed District.
    - Vadnais Lake Area Watershed Management Organization.

FEDERAL EMERGENCY MANAGEMENT AGENCY

Executive Order 11988: Floodplain Management,[1] signed on May 24, 1977, requires all federal agencies to evaluate and, to the extent possible, avoid adverse impacts to floodplain areas[2] that may

[1] Executive Order 11988: Floodplain Management. Available at https://www.archives.gov/federal-register/codification/executive-order/11988.html (accessed October 2018).
[2] Floodplains are defined by Executive Order 11988 as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including, at a minimum, that area subject to a

result from actions they administer, regulate or fund. A floodplain impact is a significant encroachment[3] within a 100-year floodplain boundary, resulting in a compensatory floodplain storage loss. Executive Order 11988 requires floodplain encroachment to be considered in the preparation of National Environmental Policy Act documents for major federal actions. The Federal Emergency Management Agency, under the National Flood Insurance Program as authorized according to the National Flood Insurance Act of 1968 (as amended),[4] has the authority to regulate floodplains and floodways.

Rivers and streams for which the Federal Emergency Management Agency has prepared detailed engineering studies may have designated floodways. For most waterways, the floodway is defined as the area where floodwaters are likely to run deepest and fastest. It is the area of the floodplain that should be reserved (kept free of obstructions) to allow floodwaters to move downstream. Placing fill or buildings in the floodway may block the flow of water and increase flood elevations. Such activities in the floodway are generally restricted and require mitigation in the form of replaced storage volume to offset the lost floodway storage. Similarly, activities in the floodplain that reduce flood storage capacity are also restricted and would require replacement of lost storage volume.

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

On behalf of the Federal Emergency Management Agency, the Minnesota Department of Natural Resources regulates activities that may impact floodplains, including activities such as construction, excavation or deposition of materials over or under waters that may affect flood stage or floodplain or floodway boundaries. The Minnesota Department of Natural Resources regulates floodplain management through its State Floodplain Management Program and provides guidance to local governments such as cities, counties and watershed districts. The program oversees the National Flood Insurance Program for Minnesota.

LOCAL GOVERNMENTS

Cities, counties and townships are floodplain administrators within the state of Minnesota. Using guidance from the Minnesota Department of Natural Resources and the Federal Emergency Management Agency, each city within the project area has adopted ordinances that prevent alterations within the 100-year floodplain, as identified in the Ramsey County Flood Insurance Study, without conducting a floodplain analysis ensuring no adverse impacts occur.

WATERSHED ORGANIZATIONS

Watershed organizations also regulate activities that may impact floodplains, including activities such as construction, excavation or deposition of materials over or under waters that may affect flood stage or floodplain or floodway boundaries. The project is within the jurisdiction of three watershed districts and one watershed management organization (see Figure 1).

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one percent or greater chance of flooding in any given year." Available at http://www.fema.gov (accessed October 2018).

[3] Significant encroachment is defined per US Department of Transportation Order 5650.2: Floodplain Management and Protection (April 23, 1979) as an encroachment resulting in one or more of the following construction or flood-related impacts: a considerable probability of loss of human life; likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility; or a notable adverse impact on "natural and beneficial floodplain values."

[4] 42 USC Section § 4001 *et seq.*

Capitol Region Watershed District

The Capitol Region Watershed District prohibits any permanent fill within the 100-year floodplain unless compensatory storage is provided within the project development or immediately adjacent to the development within the affected floodplain.[5] In addition, the Capitol Regional Watershed District requires projects to comply with flood control and freeboard requirements for public roadways. Freeboard requirements add protection for structures by requiring development to be a certain elevation higher than the floodplain (often one foot higher); this distance compensates for unknown factors that could contribute to flood heights greater than the height calculated for a flood, such as wave action, bridge openings and urbanization within a watershed. The freeboard requirements for the Capitol Regional Watershed District include the following:

- The roadway shall not flood when adjacent to stormwater storage basins designed to store a 100-year flood event.
- The project must abide by the freeboard requirement set by the road authority (i.e., cities, Ramsey County or Minnesota Department of Transportation).

Ramsey-Washington Metro Watershed District

The Ramsey-Washington Metro Watershed District requirements are the same as those listed for the Capitol Region Watershed District.[6]

Rice Creek Watershed District

The Rice Creek Watershed District requirements are the same as those listed for the Capitol Region Watershed District.[7]

Vadnais Lake Area Water Management Organization

The Vadnais Lake Area Water Management Organization has policies relating to floodplains but delegates permitting authority to Local Water Planning Authorities (cities and townships).[8]

ATLAS 14 PRECIPITATION

In 2013, the National Weather Service released National Oceanic and Atmospheric Administration Atlas 14, Volume 8, which updated the 1961 TP-40 precipitation frequency estimates for the Midwestern states. The new estimates are based on improvements with denser datasets, longer term datasets to include more recent precipitation trends, and advanced statistical methodologies. Because of the updated rainfall frequency estimates, several local governments and watershed organizations updated their current design standards and ordinances to be consistent with the Atlas 14 data.

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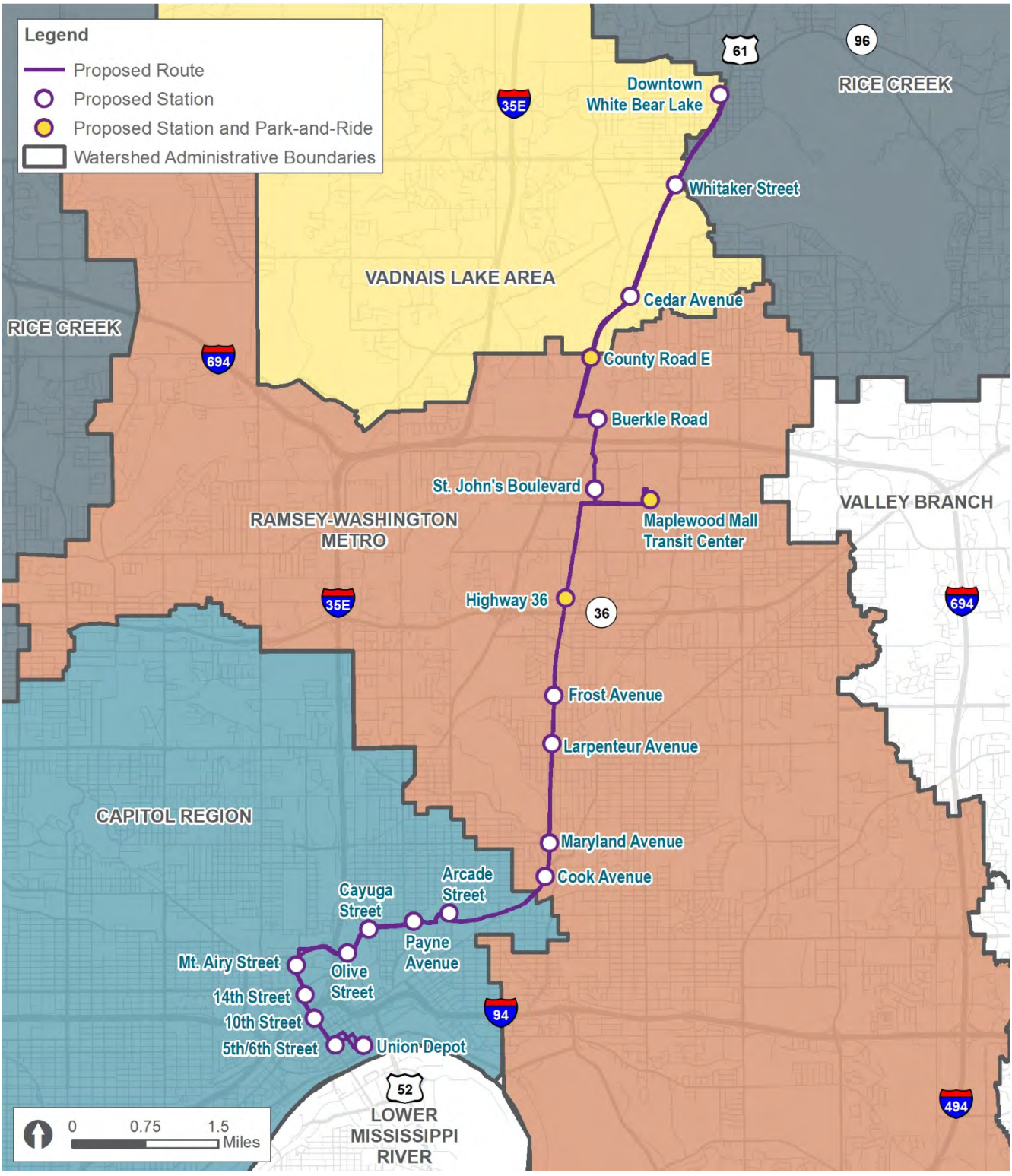
[5] More information regarding the Capitol Region Watershed District floodplain ordinance is available at https://www.capitolregionwd.org/wp-content/uploads/2019/07/06-05-19-CRWD-Amended-Signed-Rule.pdf (accessed November 2020).
[6] More information regarding the Ramsey-Washington Metro Watershed District floodplain ordinance is available at https://www.rwmwd.org/wp-content/uploads/District-Rule_Adopted-6-5-19.pdf (accessed November 2020).
[7] More information regarding the Rice Creek Watershed District floodplain ordinance is available at https://www.ricecreek.org/vertical/Sites/%7BF68A5205-A996-4208-96B5-2C7263C03AA9%7D/uploads/E.pdf (accessed November 2018).
[8] More information regarding the Vadnais Lake Area Water Management Organization floodplain ordinance is available at http://www.vlawmo.org/files/4914/9884/8493/Water_Management_Policy_Final_2016.pdf (accessed November 2018).

Generally, the updated data reflects higher precipitation amounts for the less frequent, higher depth storm events which, in turn, results in higher modeled 100-year floodplain elevations. Watershed organizations require projects to be designed to Atlas 14 precipitation amounts. The models are subject to frequent changes, so for the purposes of this analysis, water management plans for each watershed organization were referenced for floodplain elevation information. As the Rush Line BRT Project enters final design and permitting with watershed organizations commences, models will be requested, and 100-year floodplain elevations established by the watersheds will be updated if different than what was used in this analysis.

Figure 1: Watershed Administrative Boundaries



2.1.2. Methodology

The study area for floodplain impacts was defined as the area within one-fourth mile of the potential area of disturbance for the Build Alternative (see Appendix B). This distance captures floodplains and streams that could potentially be affected by the project.

Federal Emergency Management Agency 100-year floodplains[9] and floodways[10] were reviewed as part of the analysis. The floodplains and floodways are derived from the Ramsey County Flood Insurance Study (June 2010), which is the Federal Emergency Management Agency regulatory floodplain.[11] In addition to Federal Emergency Management Agency mapped floodplain boundaries, watershed organizations have separate floodplain regulatory requirements, which are described in Section 2.1.1.

Impacts to floodplains are defined as an encroachment within a 100-year floodplain boundary that results in a compensatory floodplain storage loss. Floodplain impacts require permitting from various agencies and regulatory bodies. The required permits vary depending on the feature, size of impact, location of impact and other factors. Floodplain impacts were determined by identifying Federal Emergency Management Agency regulatory floodplains located within the potential area of disturbance and evaluating if disturbance is anticipated.

2.2. EXISTING CONDITIONS

Floodplain areas within the study area are shown on Figure 2 through Figure 5 (see Appendix B for more detailed maps). The land use within the study area is characterized by urban and suburban residential, commercial and mixed-use development. Floodplains and floodways within the study area are associated with the Mississippi River, Markham Pond, White Bear Lake, Lake Phalen, Gem Lake, Goose Lake and other smaller waterbodies and their tributaries. Table 1 details the floodplains associated with each waterway in the study area. The aquatic resource ID assigned to each waterway is included in Table 1 along with their Geographic Name Information System[12] names.

[9] According to 44 CFR § 9.4, 100-year floodplain (also known as base floodplain) means the floodplain "for the flood which has a one percent chance of being equaled or exceeded in any given year." Available at http://www.fema.gov (accessed October 2018).

[10] According to 44 CFR § 9.4, "floodway means that portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where the flood hazard is generally highest, i.e., where water depths and velocities are the greatest. It is that area which provides for the discharge of the base flood so the cumulative increase in water surface elevation is no more than one foot." Available at https://www.fema.gov/glossary/floodway (accessed November 2020).

[11] Ramsey County Flood Insurance Study (Federal Emergency Management Agency, 2010). Available at https://www.dnr.state.mn.us/waters/watermgmt_section/floodplain/fema_firms.html (accessed October 2018).

[12] The Geographic Name Information System contains information about the official names for places, features and areas of the United States.

Table 1: Floodplains and Floodways Within the Study Area

River, Stream or Basin with Associated 100-Year Floodplain (aquatic resource ID)	100-Year Flood Elevation (feet above mean sea level)
Mississippi River (W-1)	708.0[11]
Lake Phalen (W-29)	861.8[13]
Unnamed wetland (W-38)	876.0[13]
Unnamed wetland (W-40)	871.2[13]
Unnamed wetland (W-45)	880.1[13]
Markham Pond (W-47)	886.3[13]
Unnamed wetlands (W-48 and W-49)	890.0[13]
Unnamed wetlands (W-51 and W-52)	947.3[13]
Unnamed wetland (W-58)	873.3[13]
Unnamed wetland (W-62)	886.3[13]
Unnamed wetland south of TCO Sports Garden	949.2[11]
Unnamed wetland east of TCO Sports Garden	949.2[11]
Gem Lake (W-78)	Not established[14]
Goose Lake West (W-92) and unnamed wetlands (W-90 and W-91)	Not established[14]
Goose Lake East (W-94)	Not established[14]
Unnamed wetlands (W-95 and W-100)	Not established[14]
White Bear Lake (W-101)	Not established[14]

[13] Source: Ramsey-Washington Metro Watershed District 2017-2026 Watershed Management Plan.
[14] These areas are identified in the Ramsey County Flood Insurance Study as 100-year floodplain but do not have base flood elevations established. To establish a flood elevation in these locations, a floodplain model, consistent with hydrological and hydraulic engineering standards, would need to be developed.

Figure 2: Surface Waters and Floodplains Within the Study Area from Union Depot to Arcade Street

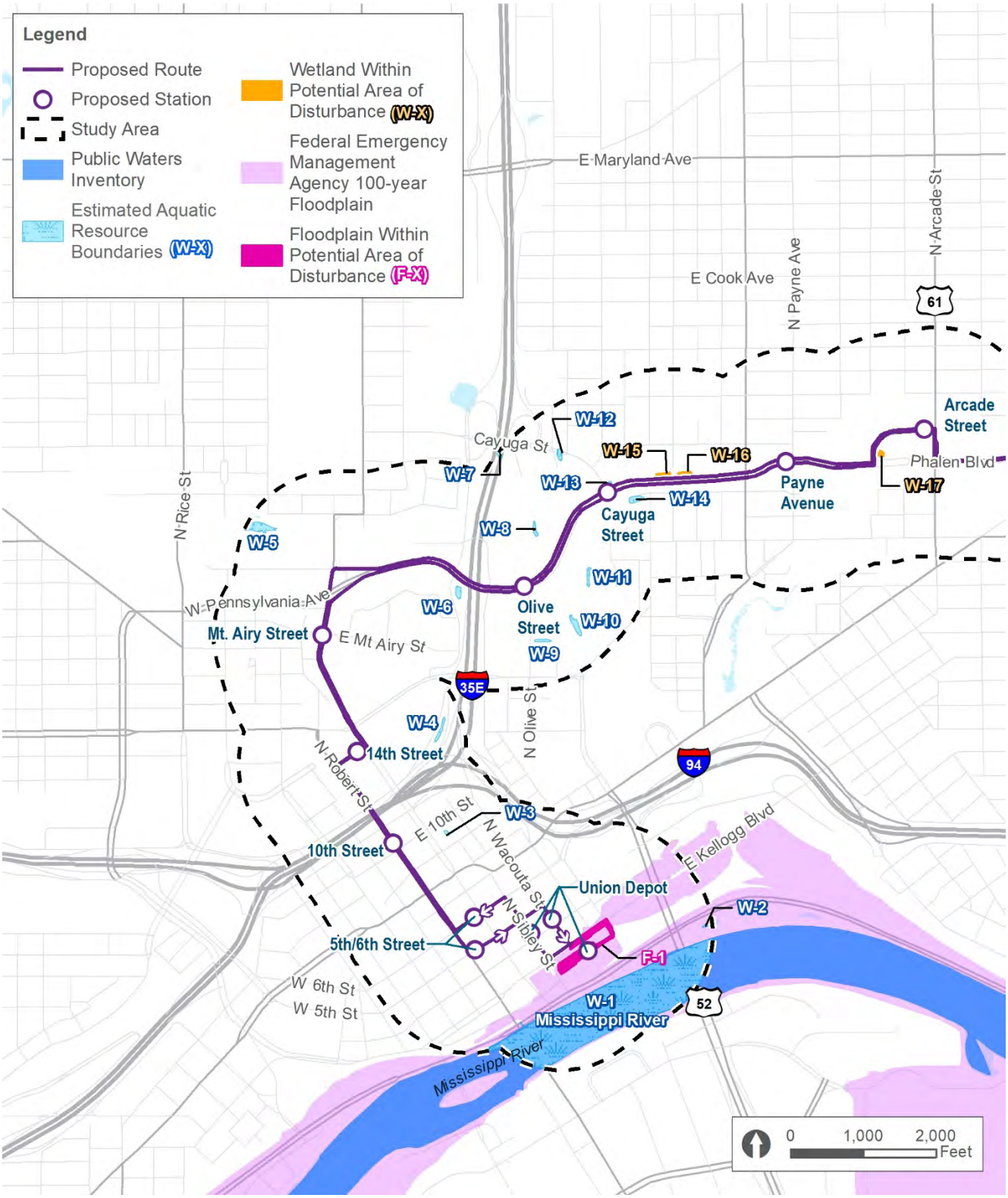


Figure 3: Surface Waters and Floodplains Within the Study Area from Arcade Street to County Road B

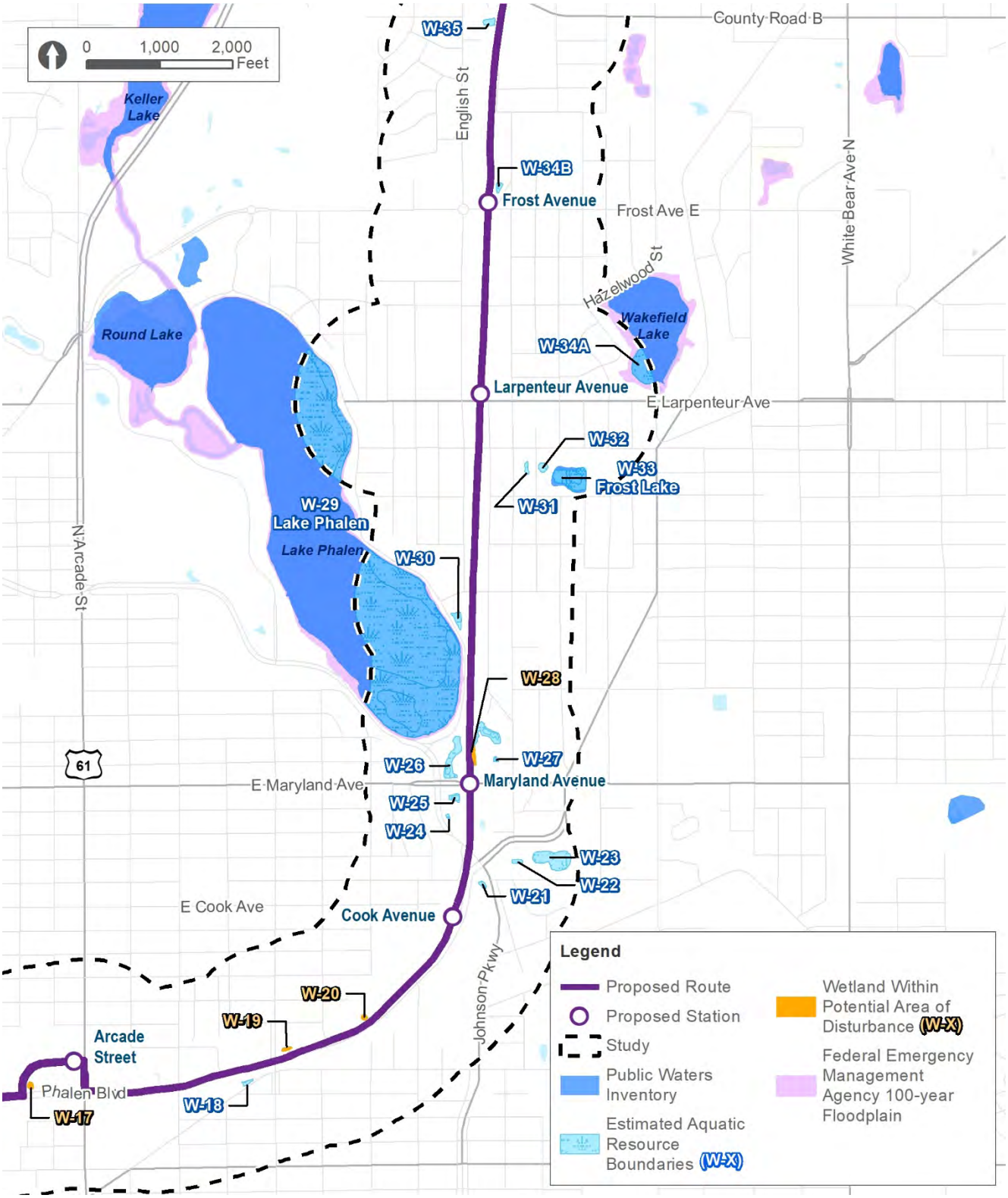


Figure 4: Surface Waters and Floodplains Within the Study Area from County Road B to County Road E

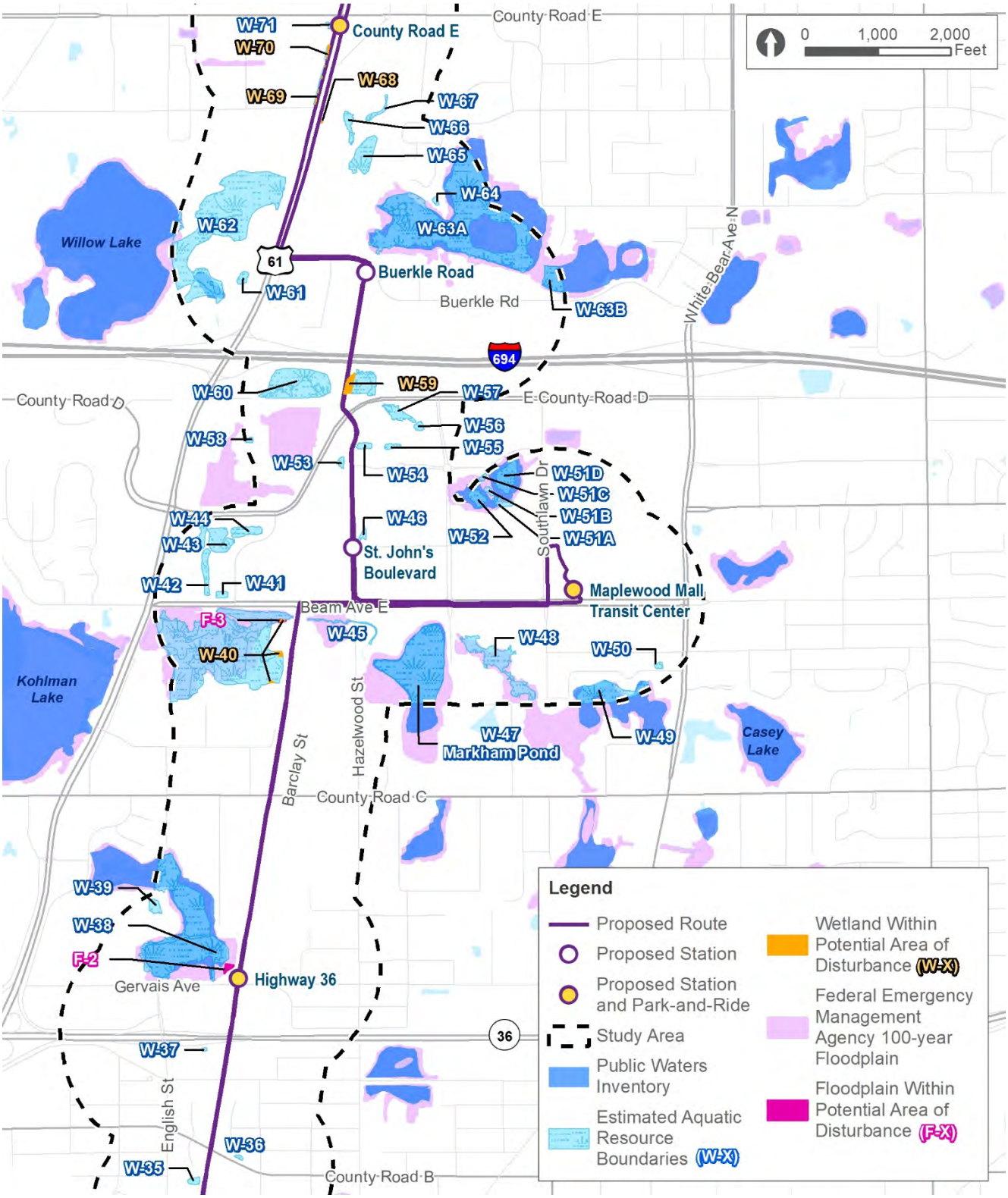
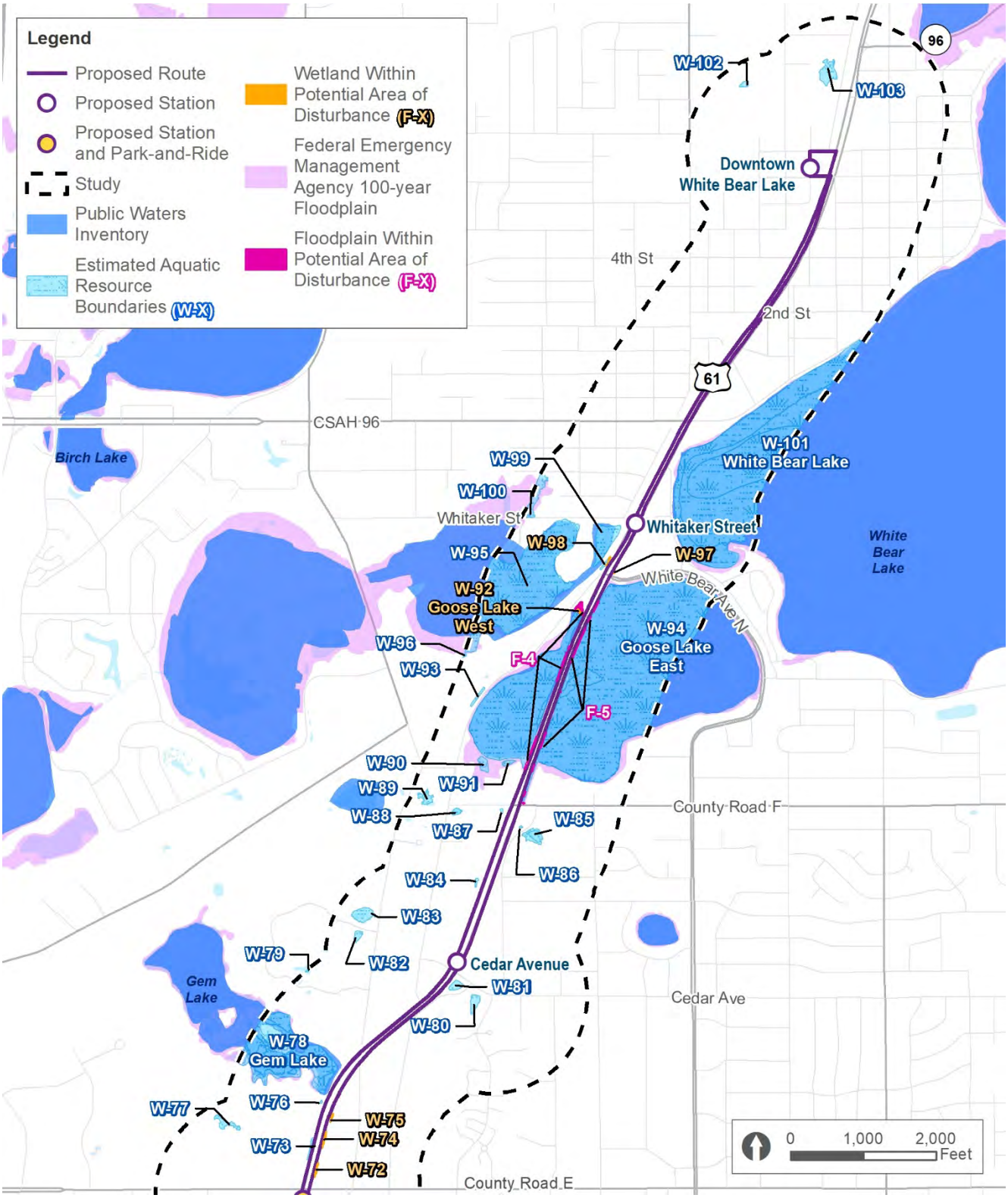


Figure 5: Surface Waters and Floodplains Within the Study Area from County Road E to Downtown White Bear Lake



2.3. ENVIRONMENTAL CONSEQUENCES

2.3.1. No Build Alternative

Under the No Build Alternative, no project-related construction would occur; therefore, there would be no impacts to floodplains or floodways.

2.3.2. Build Alternative

PERMANENT IMPACTS

Floodplains located within the potential area of disturbance (the estimated area where construction would occur for the proposed project at this stage of design) are shown on Figure 2 through Figure 5 (see more detailed maps in Appendix B) and summarized in Table 2. The potential area of disturbance crosses 100-year floodplains in five locations. As stated in Section 2.1.2, impacts to floodplains are defined as an encroachment within a Federal Emergency Management Agency 100-year floodplain boundary that results in a compensatory floodplain storage loss. At this stage of design, floodplain within the potential area of disturbance has been identified; however, encroachment (i.e., fill) cannot be determined. Therefore, Table 2 does not reflect impact amounts; instead, it represents areas that will need to be evaluated further as design progresses and provides an initial assessment as to whether or not floodplain encroachment can be avoided.

Table 2: Summary of Floodplains within the Potential Area of Disturbance

River, Stream or Basin with Associated 100-Year Floodplain	Floodplain Map ID	Acres of Floodplain within the Potential Area of Disturbance	Impact Anticipated
Mississippi River (W-1)	F-1	3.1	No, the potential area of disturbance in this location follows existing roadways
Unnamed wetland (W-38)	F-2	0.2	Not anticipated; to be confirmed as design advances
Unnamed wetland (W-40)	F-3	0.04	Not anticipated; to be confirmed as design advances
Goose Lake West (W-92)	F-4	0.3	Not anticipated; to be confirmed as design advances
Goose Lake East (W-94)	F-5	0.04	Not anticipated; to be confirmed as design advances

Floodplain area F-1 (shown on Figure 2 and page 1 of Appendix B) is associated with the Mississippi River. This portion of the potential area of disturbance follows existing roadways in mixed traffic; therefore, no impacts to floodplain area F-1 are anticipated.

Floodplain area F-2 (shown on Figure 4 and page 12 of Appendix B) is associated with a large wetland complex northeast of the intersection of the Bruce Vento Regional Trail and Gervais Avenue. This portion of the potential area of disturbance is near the Highway 36 station and an associated potential stormwater best management practice and is adjacent to the proposed park-and-ride facility.

Floodplain area F-3 (shown on Figure 4 and page 13 of Appendix B) is associated with a wetland complex southwest of the existing intersection of Bruce Vento Regional Trail and Beam Avenue. This portion of the potential area of disturbance includes a potential stormwater best management practice.

Floodplain areas F-4 and F-5 (shown on Figure 5 and page 19 of Appendix B) are associated with Goose Lake and are located on either side of Highway 61. This portion of the potential area of disturbance includes the proposed dedicated guideway and a potential stormwater best management practice area. Construction would mostly take place within the existing shoulder of the existing roadway.

TEMPORARY IMPACTS

No temporary construction phase impacts to 100-year floodplains or floodways are anticipated. All anticipated floodplain impacts are considered permanent at this stage of design.

2.4. MITIGATION MEASURES

As engineering advances, efforts to avoid floodplain fill will be made, particularly in locations of potential stormwater best management practices. If, after final design is completed, the project results in fill within identified floodplains, an analysis of the corresponding change in base flood elevation would be completed to determine if the fill results in adverse impacts that require additional mitigation. If mitigation is required, compensatory storage at a 1:1 replacement ratio within the same floodplain reach would be provided.

3. AQUATIC RESOURCES

3.1. REGULATORY CONTEXT AND METHODOLOGY

3.1.1. Regulatory Context

Aquatic resources are defined as all wetlands, waterbodies (lakes and ponds) and waterways (streams, rivers, public ditches and drainage ways). The following agencies regulate aquatic resources within the project area:

- US Environmental Protection Agency.
- US Army Corps of Engineers.
- Federal Transit Administration.
- Minnesota Pollution Control Agency.
- Minnesota Department of Natural Resources.
- Local government units.
- Watershed organizations (see boundaries on Figure 1).

These agencies are responsible for the review and permitting of water resource related issues resulting from construction of the project. The regulatory authority of each is described below.

US ENVIRONMENTAL PROTECTION AGENCY

The Clean Water Act of 1972[15] established the basic structure for regulating discharges of pollutants into the waters of the United States[16] and for regulating quality standards for surface waters. The US

[15] 33 USC Section § 1251 *et seq.*
[16] "Waters of the United States" are waters that are under the jurisdiction of the Clean Water Act and include traditional navigable waters, interstate waters, the territorial seas, impoundments of jurisdictional waters and

Environmental Protection Agency oversees state implementation of the Clean Water Act, reviews and comments on individual permit applications, and can elevate specific permitting cases.

US ARMY CORPS OF ENGINEERS

Navigable waters are regulated under Section 10 of the Rivers and Harbors Act of 1899.[17] and Section 404 of the Clean Water Act.[18] Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged or fill material into waters of the United States.

Section 404 of the Clean Water Act is under the purview of the US Army Corps of Engineers Saint Paul District and requires a federal permit to be issued prior to the placement of any dredged or fill material into any resources identified as a water of the United States. The US Army Corps of Engineers is responsible for administering the Section 404 and Section 10 permitting program (including individual and general permit decisions), conducting Approved or Preliminary Jurisdictional Determinations, developing policy and guidance, and enforcing all other Section 404 provisions.

New construction of a linear transportation project would be authorized under the Transportation Regional General Permit if activities cause less than 0.5 acres of impacts to regulated waters of the United States. New construction falls under Category 3 of the permit, which generally only authorizes the linear components of projects (i.e., new roads, trails or associated linear infrastructure). Category 3 authorizations can be separated into single and complete linear projects and authorized under the Transportation Regional General Permit as long as the single and complete linear project does not exceed 0.5 acres. A single and complete linear project is defined as a portion of the overall linear project that include all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing one or more waterbodies several times at separate and distant locations, each crossing is considered a single and complete project. Non-linear impacts (e.g., stormwater best management practices) are authorized under Category 4 and cannot be broken into single and complete linear projects. Impacts that exceed 5 acres total would require a Standard Individual Permit.

FEDERAL TRANSIT ADMINISTRATION

The Federal Transit Administration, as the lead federal agency, implements Executive Order 11990: Protection of Wetlands (dated May 24, 1977) through US Department of Transportation Order 5660.1A. Together, these orders establish a national policy to "avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practical alternative."[19]

MINNESOTA POLLUTION CONTROL AGENCY

The Minnesota Pollution Control Agency establishes state water quality standards and conducts periodic water quality and biological monitoring. Water quality standards are implemented primarily through National Pollution Discharge Elimination System permits issued to dischargers.[20]

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tributaries and adjacent wetlands of aforementioned waters. More information is available at https://www.epa.gov/nwpr/about-waters-united-states.

[17] 33 USC Section § 403

[18] 33 USC Section § 1344

[19] Executive Order 11990: Protection of Wetlands. Published May 24, 1977. Available at https://www.archives.gov/federal-register/codification/executive-order/11990.html.

[20] Minnesota Statutes, section 115; Minnesota Rules, part 7050

Section 401 of the Clean Water Act[21] requires the affected state to issue a water quality certification, or a waiver, for each Section 404 permit. The Minnesota Pollution Control Agency reviews US Army Corps of Engineers permits and is responsible for issuing the Section 401 water quality certification.

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Lakes, rivers, streams and wetlands identified by the Minnesota Department of Natural Resources as state public waters or public waters wetlands are regulated under Minnesota Statutes, section 103G.005, subdivision 15. The basins regulated by the Minnesota Department of Natural Resources are identified on Public Waters Inventory maps.[22] Changes in the course, current or cross section of public waters (including streams) and public waters wetlands would require a permit from the Minnesota Department of Natural Resources.

MINNESOTA WETLAND CONSERVATION ACT

The Minnesota Wetland Conservation Act of 1991, as amended, under the purview of the Minnesota Board of Water and Soil Resources and local government units, establishes the goal of no net loss of wetlands.[23] The Wetland Conservation Act requires that anyone proposing to drain or fill a wetland must try to avoid disturbing the wetland. If avoidance cannot be achieved, the Wetland Conservation Act requires that impacts be minimized to the extent practicable and any impacted areas be replaced in kind (meaning they have comparable function and value).

Local Government Units

Local government units in the project area include watershed organizations and cities that enforce Wetland Conservation Act regulations. Each entity regulates surface water management through their respective policies and rules. As of April 2019,[24] the following local government units assume Wetland Conservation Act regulations within their respective jurisdiction:

- The city of Saint Paul regulates all wetlands within its jurisdiction. This includes the entirety of the Capitol Region Watershed District and a portion of the Ramsey-Washington Metro Watershed District.
- Ramsey-Washington Metro Watershed District regulates waters within its jurisdiction, which includes parts of Saint Paul, Maplewood and Gem Lake.
- Vadnais Lake Area Water Management Organization regulates all waters within its jurisdiction, which includes parts of Gem Lake, Vadnais Heights, White Bear Lake and White Bear Township.
- Rice Creek Watershed District regulates all waters within its jurisdiction, which includes parts of White Bear Lake and White Bear Township.
- The Minnesota Department of Transportation regulates all waters within their right-of-way, which includes interstates, United States highways and Minnesota state highways.

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[21] 33 USC Section § 1341
[22] Minnesota Statutes 103G.201 Public Waters Inventory. Available as digital geospatial data from the Minnesota Geospatial Commons at https://gisdata.mn.gov/dataset/water-mn-public-waters.
[23] Minnesota Rules, part 8420
[24] The current Local Government Unit list is available at https://bwsr.state.mn.us/sites/default/files/2019-02/Wetlands_WCA_LGU_Directory_2_5_19.pdf

All watershed organization rules and policies are intended to meet the aquatic resource protection requirements under Minnesota Statues, section 103A through 103G in conformance with Minnesota Rules, part 8410 and 8420.

REGULATORY CONTEXT SUMMARY

Impacts to wetlands require permitting from various agencies and regulatory bodies. The required permits vary depending on the feature, size and location of the wetland, along with other factors. Other permits related to stormwater management, erosion control or stream crossings may be required.

3.1.2. Methodology

The study area for aquatic resources was defined as the area within one-fourth mile of the potential area of disturbance for the Build Alternative (see Appendix B). This distance captures the wetlands, waterbodies and waterways near the potential area of disturbance that could potentially be affected by the proposed project. Resources located within the potential area of disturbance were identified as potential impacts and tabulated by total acreages or, for waterways, linear feet. Wetland boundaries were identified through existing mapping (Level 1 Wetland Delineation) and field observation (October 24, 2018).[25] The estimated boundaries were used for potential impact analysis. A detailed delineation of wetland boundaries will be required during project development to provide the required detail necessary for the permit review process. Other aquatic resource boundaries, including lakes, rivers and streams, were identified using existing geospatial data.

Aquatic resource impacts are defined as excavation or placement of fill within an aquatic resource boundary that results in loss of function of the resource. All aquatic resources within the potential area of disturbance were considered to have anticipated impacts.

3.2. EXISTING CONDITIONS

Table 3 lists aquatic resources that have been identified within the study area. These resources are shown on Figure 2 through Figure 5.

Table 3: Aquatic Resources Within the Study Area

Aquatic Resource ID (Name)	Resource Type	Circular 39 Type [26]	Plant Community (if applicable) [27]	Acres Within Study Area
W-1 (Mississippi River)	River	Not applicable	Non-vegetated aquatic community	42.2
W-2	Wetland	1	Seasonally flooded basin	0.1
W-3	Wetland	5	Shallow open water community	0.06

[25] A Level 1 Wetland Delineation uses existing background information to determine estimated boundaries. Background information included National Wetland Inventory for Minnesota, the Minnesota Public Waters Inventory, the United States Geologic Survey National Hydrography Dataset and aerial photography from spring 2018.
[26] *United States Fish and Wildlife Service Circular 39* (1971). Samuel Shaw and Gordon Fredine.
[27] *Wetland Plants and Plant Community Types of Minnesota and Wisconsin*. Version 3.1 (May 2014). Steve Eggers and Donald Reed.

Aquatic Resource ID (Name)	Resource Type	Circular 39 Type [26]	Plant Community (if applicable) [27]	Acres Within Study Area
W-4	Wetland	1	Seasonally flooded basin	0.2
W-5	Wetland	3	Shallow marsh	0.8
W-6	Stormwater pond	5	Shallow open water community	0.3
W-7	Wetland	3	Shallow marsh	0.07
		5	Shallow open water community	0.05
W-8	Wetland	5	Shallow open water community	0.2
W-9	Wetland	3	Shallow marsh	0.2
W-10	Wetland	1	Seasonally flooded basin	0.4
W-11	Wetland	5	Shallow open water community	0.2
W-12	Wetland	1	Seasonally flooded basin	0.2
W-13	Wetland	3	Shallow marsh	0.02
W-14	Wetland	3	Shallow marsh	0.3
W-15	Wetland	1	Seasonally flooded basin	0.1
W-16	Wetland	3	Shallow marsh	0.1
W-17	Wetland	3	Shallow marsh	0.1
W-18	Stormwater pond	4	Deep marsh	0.1
W-19	Wetland	2	Fresh (wet) meadow	0.1
W-20	Wetland	4	Deep marsh	0.1
W-21	Stormwater pond	3	Shallow marsh	0.2
W-22	Stormwater pond	5	Shallow open water community	0.2
W-23	Wetland	4	Deep marsh	2.3
W-24	Wetland	1	Seasonally flooded basin	0.05
W-25	Wetland	3	Shallow marsh	0.2
		5	Shallow open water community	0.1
W-26	Wetland	3	Shallow marsh	1.2
		5	Shallow open water community	0.2
W-27	Stormwater pond	5	Shallow open water community	0.08
W-28	Wetland	5	Shallow open water community	0.3
		1	Seasonally flooded basin	1.0
W-29 (Lake Phalen)	Wetland	5	Shallow open water community	27.6
		5	Non-vegetated aquatic community	51.5
W-30	Stormwater pond	3	Shallow marsh	0.1
		5	Shallow open water community	0.3
W-31	Wetland	1	Seasonally flooded basin	0.2

Aquatic Resource ID (Name)	Resource Type	Circular 39 Type [26]	Plant Community (if applicable) [27]	Acres Within Study Area
W-32	Wetland	1	Hardwood wetland	0.3
W-33	Wetland	1	Seasonally flooded basin	0.8
		3	Shallow marsh	1.1
		4	Deep marsh	0.6
W-34A (Wakefield Lake)	Wetland	5	Shallow open water community	2.2
W-34B	Stormwater pond	3	Shallow marsh	0.2
W-35	Stormwater pond	4	Deep marsh	0.3
W-36	Stormwater pond	5	Shallow open water community	0.1
W-37	Stormwater pond	3	Shallow marsh	0.07
W-38	Wetland	3	Shallow marsh	5.1
		4	Deep marsh	0.2
		5	Shallow open water community	13.7
W-39	Wetland	5	Shallow open water community	0.6
W-40	Wetland	1	Seasonally flooded basin	7.4
		3	Shallow marsh	11.4
		4	Deep marsh	1.6
		5	Shallow open water community	4.8
		6	Shrub carr	8.5
W-41	Stormwater pond	5	Shallow open water community	0.3
W-42	Wetland	5	Shallow open water community	1.1
W-43	Wetland	5	Shallow open water community	2.6
W-44	Wetland	5	Shallow open water community	1.1
W-45	Wetland	5	Shallow open water community	0.5
W-46	Stormwater pond	2	Fresh (wet) meadow	0.3
W-47 (Markham Pond)	Wetland	1	Seasonally flooded basin	0.2
		5	Shallow open water community	13.3
W-48	Wetland	1	Seasonally flooded basin	4.5
W-49	Wetland	3	Shallow marsh	4.1
W-50	Wetland	3	Shallow marsh	0.2
W-51A	Stormwater pond	5	Shallow open water community	0.6
W-51B	Stormwater pond	3	Shallow marsh	0.2

Aquatic Resource ID (Name)	Resource Type	Circular 39 Type [26]	Plant Community (if applicable) [27]	Acres Within Study Area
W-51C	Stormwater pond	3	Shallow marsh	0.2
W-51D	Stormwater pond	3	Shallow marsh	2.0
W-52	Wetland	3	Shallow marsh	0.1
W-53	Stormwater filtration area	1	Seasonally flooded basin	0.2
W-54	Stormwater pond	4	Deep marsh	0.4
W-55	Stormwater pond	5	Shallow open water community	0.3
W-56	Stormwater pond	5	Shallow open water community	0.3
W-57	Wetland	1	Seasonally flooded basin	1.0
		3	Shallow marsh	0.1
W-58	Wetland	1	Seasonally flooded basin	0.2
W-59	Wetland	3	Shallow marsh	2.2
		5	Shallow open water community	0.5
W-60	Wetland	1	Hardwood wetland	4.8
		3	Shallow marsh	2.3
W-61	Wetland	1	Seasonally flooded basin	0.4
W-62	Wetland	1	Hardwood wetland	7.9
		1	Seasonally flooded basin	1.4
		3	Shallow marsh	15.3
		4	Deep marsh	0.3
W-63A	Wetland	1	Hardwood wetland	0.2
		2	Fresh (wet) meadow	0.1
		3	Shallow marsh	29.4
		5	Shallow open water community	0.7
W-63B	Wetland	3	Shallow marsh	1.8
W-64	Stormwater pond	5	Shallow open water community	0.2
W-65	Wetland	1	Seasonally flooded basin	2.6
W-66	Wetland	3	Shallow marsh	0.6
		4	Deep marsh	0.2
W-67	Wetland	1	Seasonally flooded basin	0.4
W-68	Wetland ditch	2	Fresh (wet) meadow	0.01
W-69	Wetland ditch	2	Fresh (wet) meadow	0.2
W-70	Stormwater filtration area	1	Seasonally flooded basin	0.1

Aquatic Resource ID (Name)	Resource Type	Circular 39 Type [26]	Plant Community (if applicable) [27]	Acres Within Study Area
W-71	Stormwater pond	4	Deep marsh	0.08
W-72	Wetland ditch	1	Seasonally flooded basin	0.08
W-73	Wetland ditch	1	Seasonally flooded basin	0.1
W-74	Wetland ditch	2	Fresh (wet) meadow	0.1
W-75	Wetland ditch	1	Seasonally flooded basin	0.06
W-76	Wetland	3	Shallow marsh	0.02
W-77	Wetland	1	Seasonally flooded basin	0.5
W-78 (Gem Lake)	Wetland	1	Hardwood wetland	2.5
		3	Shallow marsh	9.1
		4	Deep Marsh	1.5
		5	Shallow open water community	3.5
		6	Shrub carr	0.5
W-79	Wetland	5	Shallow open water community	0.03
W-80	Wetland	5	Shallow open water community	0.5
W-81	Stormwater pond	4	Deep marsh	0.4
W-82	Wetland	5	Shallow open water community	0.3
W-83	Wetland	3	Shallow marsh	1.0
W-84	Wetland	2	Fresh (wet) meadow	0.07
W-85	Wetland	1	Seasonally flooded basin	0.4
		3	Shallow marsh	0.5
W-86	Wetland	1	Seasonally flooded basin	0.02
W-87	Wetland	2	Fresh (wet) meadow	0.04
W-88	Wetland	5	Shallow open water community	0.2
W-89	Wetland	1	Seasonally flooded basin	0.5
W-90	Wetland	3	Shallow marsh	0.2
		4	Deep marsh	0.3
W-91	Wetland	5	Shallow open water community	0.2
W-92 (Goose Lake West)	Wetland	3	Shallow marsh	0.3
		5	Shallow open water community	25.9
W-93	Wetland	4	Deep marsh	0.2
W-94 (Goose Lake East)	Lake	3	Shallow marsh	1.9
		5	Shallow open water community	82.9

Aquatic Resource ID (Name)	Resource Type	Circular 39 Type [26]	Plant Community (if applicable) [27]	Acres Within Study Area
W-95	Wetland	1	Hardwood wetland	1.3
		3	Shallow marsh	26.1
W-96	Wetland	3	Shallow marsh	0.04
W-97	Wetland	1	Seasonally flooded basin	0.01
W-98	Wetland	2	Fresh (wet) meadow	0.1
W-99	Wetland	3	Shallow marsh	2.4
W-100	Wetland	1	Hardwood wetland	1.4
W-101 (White Bear Lake)	Wetland	N/A	Non-vegetated aquatic community	17.0
		5	Shallow open water community	44.3
W-102	Wetland	3	Shallow marsh	0.2
W-103	Wetland	3	Shallow marsh	1.2
			TOTAL	**523.8**

3.3. ENVIRONMENTAL CONSEQUENCES

3.3.1. No Build Alternative

Under the No Build Alternative, no project-related construction would occur; therefore, there would be no impacts to waterbodies, waterways or wetlands.

3.3.2. Build Alternative

PERMANENT IMPACTS

Aquatic resources located within the potential area of disturbance are summarized in Table 4. There is no difference in impacts to aquatic resources under the Build Alternative option without the Highway 36 park-and-ride. The US Army Corps of Engineers reviewed the resources within the potential area of disturbance for jurisdiction under Section 404 of the Clean Water Act (33 USC Section § 1251, *et seq*.). In a letter dated February 11, 2021, the US Army Corps of Engineers determined that three of the 17 resources (W-40, W-92 and W-98) are jurisdictional (see correspondence in Appendix A). There are 1.02 acres of wetland within the potential area of disturbance, 0.25 acres of which are jurisdictional wetlands. Table 4 also notes which impacted jurisdictional wetlands could be authorized by the Section 404 Transportation Regional General Permit. In total, there are 0.04 acres of wetland within the potential area of disturbance that could be authorized under Category 3 of the permit, and 0.21 acres of wetland within the potential area of disturbance that could be authorized by Category 4 of the permit (see Section 3.1.1 for a description of the permit categories). Based on these impact totals, the project is anticipated to qualify for a Section 404 Transportation Regional General Permit.

Table 4: Aquatic Resources Within the Potential Area of Disturbance by Jurisdictional Status

Local Government Unit	Aquatic Resource ID	Acres within the Potential Area of Disturbance	Jurisdictional Status	Section 404 Transportation Regional General Permit Category
City of Saint Paul	W-15	0.12	Not jurisdictional (constructed stormwater feature)	Not applicable
	W-16	0.11	Not jurisdictional (constructed stormwater feature)	Not applicable
	W-17	0.14	Not jurisdictional (constructed stormwater feature)	Not applicable
	W-19	0.10	Not jurisdictional (constructed stormwater feature)	Not applicable
	W-20	0.11	Not jurisdictional (constructed stormwater feature)	Not applicable
Ramsey-Washington Metro Watershed District	W-28	0.22	Jurisdictional	Category 4
	W-40	0.16	Not jurisdictional (non-adjacent wetland)	Not applicable
	W-59	0.55	Not jurisdictional (non-adjacent wetland)	Not applicable
Minnesota Department of Transportation	W-68	0.01	Not jurisdictional (constructed roadside ditch)	Not applicable
	W-69	0.01	Not jurisdictional (constructed roadside ditch)	Not applicable
	W-70	0.06	Not jurisdictional (constructed roadside ditch)	Not applicable
	W-72	0.08	Not jurisdictional (constructed roadside ditch)	Not applicable
	W-74	0.09	Not jurisdictional (constructed roadside ditch)	Not applicable
	W-75	0.06	Not jurisdictional (constructed roadside ditch)	Not applicable
	W-92	0.05	Jurisdictional	Category 4
	W-97	0.01	Not jurisdictional (constructed roadside ditch)	Not applicable
Vadnais Lake Area Watershed Management Organization	W-98	0.04	Jurisdictional	Category 3
TOTAL		**1.92**	0.25 acres anticipated to be jurisdictional (0.04 acres of Category 3 and 0.21 acres of Category 4)	

The Minnesota Wetland Conservation Act (Minnesota Rules, chapter 8420) differs from federal wetland regulations. Of the 17 aquatic resources within the potential area of disturbance, 12 are constructed features (either roadside ditches or stormwater features) that are not anticipated to be regulated under the Minnesota Wetland Conservation Act. The project would impact 1.02 acres of five wetlands that are anticipated to be regulated (W-28, W-40, W-59, W-92 and W-98). Impacts to these wetlands are summarized in Table 5.

Table 5: Impacts to Wetlands Within the Potential Area of Disturbance Anticipated to be Regulated Under the Minnesota Wetland Conservation Act

Aquatic Resource ID	Resource Type	Acres within the Potential Area of Disturbance
W-28	Wetland	0.22
W-40	Wetland	0.16
W-59	Wetland	0.55
W-92 (Goose Lake West)[28]	Wetland	0.05
W-98	Wetland	0.04
TOTAL		**1.02**

TEMPORARY IMPACTS

No temporary construction phase impacts to aquatic resources are anticipated. All anticipated aquatic resource impacts are considered permanent at this stage of design. If construction activities require temporary aquatic resource impacts, the areas would be restored in accordance with the Section 404 Transportation Regional General Permit.

3.4. MITIGATION MEASURES

Based on the acreage of wetland within the potential area of disturbance, wetland permits from the US Army Corps of Engineers (Section 404) and Minnesota Pollution Control Agency (Section 401 certification) would be required; however, total project impacts may be reduced as the design of the project progresses. The city of Saint Paul, Ramsey-Washington Metro Watershed District, Vadnais Lake Area Watershed Management Organization and the Minnesota Department of Transportation are the local government units for anticipated wetland impacts and would require a Wetland Conservation Act wetland replacement plan, which would be completed during final design of the project. Any impacts to aquatic resources on the Public Waters Inventory would require a public waters work permit from the Minnesota Department of Natural Resources. The Capitol Region Watershed District and the Ramsey-Washington Metro Watershed District require all impacts to be replaced at a minimum of a 1:1 replacement ratio within the same sub-watershed. The remaining required mitigation could be provided through the purchase of wetland mitigation bank credits based on the Minnesota Wetland Conservation Act Replacement Standards. The Wetland Conservation Act and the US Army Corps of Engineers' current replacement ratio for wetland credits in this portion of Minnesota is 2.5:1; however, under certain conditions, including providing replacement within the

[28] This aquatic resource is on the Minnesota Department of Natural Resources Public Waters Inventory. Any construction below the Ordinary High Water Level would be under the jurisdiction of the Minnesota Department of Natural Resources.

same watershed or in advance of construction, the ratio may be reduced to 2:1.[29] The final amount, type and location of wetland replacement or bank credits will be determined during the permit review process, which will occur during final design.

Areas for construction of on-site or project-specific wetland replacement would be investigated as needed when the project moves into project development. Areas to be considered would include public land adjacent to the project and/or lands acquired for the project.

4. PROTECTED SPECIES AND WILDLIFE HABITAT

4.1. REGULATORY CONTEXT AND METHODOLOGY

4.1.1. Regulatory Context

PROTECTED SPECIES

Federally-Listed Species

Section 7 of the Endangered Species Act of 1973[30] requires that all federal agencies consider and avoid, if possible, adverse impacts to federally-listed threatened or endangered species or their critical habitats that may result from their direct, regulatory or funding actions. The US Fish and Wildlife Service is responsible for compiling and maintaining the federal list of threatened and endangered species. Section 7 of the Endangered Species Act also prohibits the taking of any federally-listed species by any person without prior authorization. The term "taking" is broadly defined at the federal level and explicitly extends to any habitat modification that may significantly impair the ability of that species to feed, reproduce or otherwise survive.

Other Federally-Protected Species

The US Fish and Wildlife Service is the responsible agency for two other acts related to protected species. The Bald and Golden Eagle Protection Act of 1940[31] protects bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) by prohibiting the taking, possession and commerce of such birds, except under certain specified conditions. The Migratory Bird Treaty Act of 1918[32] and Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds require the protection of migratory birds and their habitats.

[29] More information regarding the US Army Corps of Engineers' wetland compensation policy can be found at https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/MN-Special/Final%20St.%20Paul%20District%20Policy%20for%20Wetland%20Compensatory%20Mitigation%20in%20MNs.pdf.
[30] 16 USC Section § 1531-1544
[31] 16 USC Section § 668-668c
[32] 16 USC Section § 703–712

State-Listed Species

Minnesota's endangered species law[33] and associated rules[34] regulate the taking, importation, transportation and sale of state endangered or threatened species. The Minnesota Department of Natural Resources administers the state law and manages the listing of species that are designated as endangered, threatened or of special concern within the state of Minnesota.

WILDLIFE HABITAT

Invasive Species

Invasive species are regulated by federal and state laws. Executive Order 13112: Invasive Species established the National Invasive Species Council to ensure that federal programs and activities to prevent and control invasive species are coordinated, effective and efficient. An invasive species is defined as "…an alien (or non-native) species whose introduction does or is likely to cause economic or environmental harm or harm to human health." As required in Executive Order 13112, the National Invasive Species Council produces National Management Plans for invasive species. The current plan, the 2016-2018 National Invasive Species Council Management Plan, provides information and the framework for identifying actions for the federal government and its partners to take to prevent, eradicate and control invasive species, as well as restore ecosystems and other assets adversely impacted by invasive species.[35] Invasive species are of concern because they are known to quickly colonize and dominate disturbed areas, crowding out native species. Once established, invasive species tend to persist, and effective eradication may not be feasible.

Minnesota has several state laws intended to minimize the introduction and spread of invasive species in the state. The Minnesota Department of Natural Resources has regulatory authority over aquatic plants and animals and terrestrial vertebrates. The Minnesota Department of Agriculture has regulatory authority over terrestrial plants (noxious weeds) and plant pests.

Noxious Weeds

The Federal Noxious Weed Act[36] regulates federally-listed noxious weeds through the US Department of Agriculture. Under this rule, the sale, purchase, exchange or receipt of federal noxious weeds is illegal.

The Minnesota Noxious Weed Law[37] defines a noxious weed as an annual, biennial or perennial plant that the Commissioner of Agriculture designates to be injurious to public health, the environment, public roads, crops, livestock or other property. Prohibited noxious weeds must be controlled or eradicated as required in Minnesota Statutes, section 18.78.

Trees

Urban forests provide wildlife habitat in addition to community aesthetic. Agencies throughout the project area have tree preservation ordinances and specifications that regulate tree removal activities, including the following:

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[33] Minnesota Statutes, section 84.0895
[34] Minnesota Rules, parts 6212.1800-6212.2300
[35] Available at https://www.doi.gov/sites/doi.gov/files/uploads/pre-release_copy_niscmanagement_plan_adopted11july2016.pdf
[36] 7 USC Section § 2801 *et seq.*
[37] Minnesota Statutes, sections 18.75 to 18.91

- The city of Saint Paul has a Tree Preservation Overlay District that includes all parts of Saint Paul located south of Lower Afton Road. This area would not be affected by the Rush Line BRT Project.[38]
- The city of Maplewood protects trees through the Maplewood Tree Standards Code.[39] The code requires a Tree Preservation Plan from all non-exempt applications. Public infrastructure projects are considered exempt; thus, this ordinance is not applicable to the Rush Line BRT Project.
- The city of White Bear Lake protects trees of significance, generally defined as healthy trees of a certain size or with a notable historic association or other extraordinary value.[40]
- White Bear Township does not have specific tree preservation ordinances but does require that proposed landscaping plans show all existing trees over six inches in diameter at breast height.[41]
- The city of Gem Lake protects trees through the Tree and Natural Barrier Protection Ordinance.[42] If land alteration results in greater than 50 percent tree loss within the construction easement, or a natural barrier is to be altered or removed, a reforestation plan is required.
- The city of Vadnais Heights does not have specific tree preservation ordinances but does reserve the right to decline approvals if due regard is not shown for the preservation of all natural features.
- The Minnesota Department of Transportation requires the use of approved tree preservation/protection methods during construction activities taking place on its right-of-way and managed lands.[43]

4.1.2. Methodology

PROTECTED SPECIES

The US Fish and Wildlife Service's *County Distribution of Federally-Listed Threatened, Endangered, Proposed and Candidate Species* list[44] was reviewed to determine if any federally-listed threatened or

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[38] City of Saint Paul Tree Preservation Overlay District (amended March 28, 2007). Available at https://library.municode.com/mn/st._paul/codes/code_of_ordinances?nodeId=PTIILECO_TITVIIIZOCO_CH67ZOCOVEDI_ARTII67.200.TPTRPROVDI.

[39] Maplewood Tree Standards (revised January 3, 2017). Available at https://maplewoodmn.gov/DocumentCenter/View/15925/Tree-Standards-12-21-151-3-17?bidId.

[40] City of White Bear Lake Tree Preservation Ordinance (§1302.075) (amended January 12, 2010). Available at https://www.whitebearlake.org/sites/default/files/fileattachments/administration/page/1781/chapter_1302_final.pdf.

[41] White Bear Township Zoning Ordinances (amended October 14, 1998). Available at http://www.ci.white-bear-township.mn.us/DocumentCenter/View/145/35---Zoning-PDF.

[42] City of Gem Lake Tree and Natural Barrier Protection Ordinance (adopted October 16, 1995). Available at http://www.gemlakemn.com/wp-content/uploads/2014/07/66-Tree-Preservation.pdf

[43] Information related to tree removals on Minnesota Department of Transportation right-of-way and managed lands is available at http://www.dot.state.mn.us/roadsides/vegetation/trees.html.

[44] *County Distribution of Federally-Listed Threatened, Endangered, Proposed and Candidate Species* (revised January 10, 2018). Available at https://www.fws.gov/midwest/endangered/lists/minnesot-cty.html (accessed December 2018).

endangered species or critical habitat have been identified within Ramsey County. The *Rusty Patched Bumble Bee Map* was also reviewed to determine if any high potential zones for the bee were located within the potential area of disturbance.[45]

Information from the Minnesota Department of Natural Resources and US Fish and Wildlife Service was reviewed to determine if any known northern long-eared bat hibernaculum or maternity roost trees were located in the vicinity of the potential area of disturbance.[46]

The Natural Heritage Information System database, maintained by the Minnesota Department of Natural Resources, was used to identify state-listed species. The review area for this analysis is defined as the area within 1 mile of the Build Alternative route, referred to as the "review area."[47] The Natural Heritage Information System database is comprised of locational records of rare plants, rare animals and other rare sensitive natural resource features, including native plant communities, geologic features and animal aggregations (such as nesting colonies). The dataset also lists known locations of bald eagles and golden eagles. Per stipulations of the Natural Heritage Information System program, known locations of state-listed species cannot be made publicly available.

The potential area of disturbance was evaluated for preferred habitats of the identified rare species in coordination with state and local agencies and in accordance with Minnesota's endangered species law.[48]

WILDLIFE HABITAT

Given the largely developed/disturbed nature of the project area, wildlife habitat was generally classified into two categories: aquatic habitat and terrestrial habitat. Aquatic habitat includes plant communities that are dominated by water, such as wetlands, lakes and streams, and supports water-dependent species, such as fish, frogs and turtles. Terrestrial habitat includes all other plant communities, excluding frequently disturbed areas such as mowed/landscaped areas and right-of-way, and supports species such as white-tailed deer, squirrels, rabbits and birds. Aquatic habitat is protected by wetland and public waters regulations, as described in Section 3. There are no specific regulations that provide protection of terrestrial habitats other than US Fish and Wildlife Service critical habitat designations and applicable local tree preservation ordinances. No critical habitat has been designated within the project area.

The wildlife habitat study area is defined as the area within one-fourth mile of the potential area of disturbance for the Build Alternative. To identify habitat types in the study area, aerial photography from spring 2018 was reviewed to identify undeveloped areas with potentially natural cover (excluding landscaped areas and right-of-way). A field review was conducted in October 2018 to refine the aquatic habitats identified by the aerial photography review and eliminate disturbed or developed areas not reflected in the aerial photography or other aquatic resource mapping resources. Using the aquatic and terrestrial habitat types defined through the aerial photography and field reviews, common

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[45] *Rusty Patched Bumble Bee Map* (February 10, 2020). Available at https://www.fws.gov/midwest/endangered/insects/rpbb/rpbbmap.html.

[46] *Townships Containing Documented Northern Long-Eared Bat Maternity Roost Trees and/or Hibernacula Entrances in Minnesota* (April 1, 2019). Available at https://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf.

[47] Data used in this analysis was provided by the Minnesota Department of Natural Resources Division of Ecological and Water Resources and was current as of July 2017 per license agreement LA-843. This data is not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that significant features are not present.

[48] Minnesota Statutes, section 84.0895

habitat/wildlife associations were identified based on references from the Minnesota Department of Natural Resources.[49]

Habitat Quality

The quality of habitat within the study area was determined using three different habitat rating and classification systems, including the Minnesota Land Cover Classification System, Regionally Significant Ecological Areas from the Minnesota Department of Natural Resources and the Minnesota County Biological Survey Sites of Biodiversity Significance.

Minnesota Land Cover Classification System

Minnesota Land Cover Classification System data for Ramsey County was reviewed to determine the quality of habitat located within the study area. The Minnesota Land Cover Classification System provides a general assessment of the quality of native habitat present within each identified natural community using letter grades A (highest quality natural community) through D (poor condition natural community).[50] This letter grade is only given to native habitats. Non-native, altered or disturbed communities are given a non-native ranking (NN or NA). Within Ramsey County and the wildlife habitat study area, this data is only partially complete with a large portion of Saint Paul and portions north of Maplewood excluded.

Regionally Significant Ecological Areas

The Minnesota Department of Natural Resources maintains a database of ecologically significant terrestrial and wetland areas in the seven-county metropolitan area. This database, last updated in 2012, ranks ecological areas based on attributes such as size, shape, cover type diversity and adjacent land use. Regionally significant ecological areas are given a ranking of 1, 2 or 3 based on their size, diversity in vegetation and biodiversity significance. A ranking of 3 indicates a larger, more diverse area, while a ranking of 1 is smaller and less diverse. The analysis is based on land cover data from 2006.

Minnesota County Biological Survey Sites of Biodiversity Significance

The Minnesota County Biological Survey assigns a biodiversity significance rank to each site it surveys based on its statewide native biological diversity significance. These rankings help guide conservation and management in the state.

A site's biodiversity significance is based on the presence of rare species populations, the size and condition of native plant communities within the site, and the landscape context of the site (e.g., whether the site is isolated in a landscape dominated by cropland or developed land, or whether it is connected or close to other areas with intact native plant communities). There are four biodiversity significance ranks: outstanding, high, moderate and below.

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[49] Rare Species Guide, 2018. Available at http://www.dnr.state.mn.us/rsg/index.html. Accessed October 2019.
[50] Minnesota Department of Natural Resources Central Region, 2004, Minnesota Land Cover Classification System User Manual, Version 5.4. Available at http://files.dnr.state.mn.us/assistance/nrplanning/community/mlccs/mlccs_manual_v5_4.pdf.

Invasive Species and Noxious Weeds

The Minnesota Department of Natural Resources Infested Waters Map[51] was reviewed to determine if there are any infested waters within 1 mile of the Build Alternative route.

The Early Detection and Distribution Mapping System[52] was reviewed to determine if there are any known sites of invasive or noxious terrestrial or aquatic plant species within the potential area of disturbance. While this is not an exhaustive list nor is consistently verified by professionals, it provides a basis for known occurrences within the project area.

Trees

A tree inventory was conducted for the portion of the Ramsey County rail right-of-way from the intersection of Johnson Parkway and Phalen Boulevard to Buerkle Road during the summer of 2018 as part of the *Ramsey County Rail Right-of-Way Design Guide*.[53] Tree aerial coverage was estimated using tree inventory data, aerial photography and Minnesota Land Cover Classification data within the wildlife habitat study area. The potential acreage of tree removal was estimated by calculating the tree aerial coverage within the potential area of disturbance.

4.2. EXISTING CONDITIONS

4.2.1. Protected Species

FEDERALLY-LISTED SPECIES

There is one threatened mammal species (the northern long-eared bat), one endangered insect species (the rusty patched bumble bee) and three endangered clam species (snuffbox, Higgins eye pearlymussel and winged mapleleaf) within Ramsey County. A summary of these species is provided in Table 6.

[51] Minnesota Department of Natural Resources Infested Waters Map. Available at http://www.eddmaps.org/midwest/tools/infestedwaters/ (accessed December 2018).
[52] Early Detection and Distribution Mapping System. Available at http://www.eddmaps.org/midwest/ (accessed December 2018).
[53] Available in the project library at https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project/project-library.

Table 6: Federally-Listed Species in Ramsey County[54]

Group	Scientific Name	Common Name	Status	Habitat
Mammals	*Myotis septentrionalis*	Northern long-eared bat	Threatened	• Hibernates in caves and mines, swarming in surrounding wooded areas in autumn. • Roosts and forages in upland forests during spring and summer.
Insects	*Bombus affinis*	Rusty patched bumble bee	Endangered	• Grasslands with flowering plants from April through October. • Underground and abandoned rodent cavities or clumps of grasses aboveground as nesting sites. • Undisturbed soil for hibernating queens to overwinter.
Clams	*Epioblasma triquetra*	Snuffbox	Endangered	Mississippi River
Clams	*Lampsilis higginsii*	Higgins eye pearlymussel	Endangered	Mississippi River
Clams	*Quadrula fragosa*	Winged mapleleaf	Endangered	St. Croix River[55]

Northern Long-Eared Bat

The northern long-eared bat has the largest distribution range of any federally-protected species in Minnesota. According to the US Fish and Wildlife Service, the northern long-eared bat's distribution range covers the entire state, but there is no designated critical habitat in the state. There are no documented hibernacula within one-fourth mile of the potential area of disturbance and no maternity roost trees within 150 feet of the potential area of disturbance.

Bridges and other man-made structures can serve as summer roosting habitat for several bat species, including the northern long-eared bat. However, considering the highly developed nature of the project area, it is not anticipated that northern long-eared bats are using bridges in the project area as summer roosting habitat.

Rusty Patched Bumble Bee

Known populations of the rusty patched bumble bee exist within the Twin Cities metropolitan area, and records of the species are located within Ramsey County. See Figure 10 for mapped high potential zones within the project area.

[54] This table includes federally-listed species in Ramsey County as of March 2020.
[55] The winged mapleleaf is included on the list of federally-listed species in Ramsey County; however, the St. Croix River is not located within Ramsey County.

Snuffbox, Higgins Eye Pearlymussel and Winged Mapleleaf

The snuffbox, Higgins eye pearlymussel and winged mapleleaf are all freshwater mussel species known to exist within the Mississippi and St. Croix Rivers and some of their tributaries.

Monarch Butterfly

In December 2020, the US Fish and Wildlife Service determined that the monarch butterfly is a candidate species for listing as endangered or threatened under the Endangered Species Act. The US Fish and Wildlife Service will continue reviewing its status each year until a listing decision is made. Monarch butterfly prefer grassland habitats where milkweed and flowers are present.

OTHER FEDERALLY-PROTECTED SPECIES

There are no known occurrences of bald eagles or golden eagles' nests within the Natural Heritage Information System review area. There is potential for migratory birds to be present within the potential area of disturbance; however, these are generalist species adapted to highly-urbanized conditions. Potential habitat for migratory birds includes undeveloped areas, urban trees, wetlands and urban structures.

STATE-LISTED SPECIES

There are five endangered species, six threatened species and seven species of special concern within the Natural Heritage Information System review area (see Table 7).

Table 7: State-Listed Species Within the Natural Heritage Information System Review Area

Scientific Name	Common Name	Group	Status	Habitat
Arcidens confragosus	Rock Pocketbook	Clams	Endangered	Medium to large rivers; may be found in fine substrates such as silt or sand in slow current areas
Elliptio crassidens	Elephant-ear	Clams	Endangered	Large rivers in mud, sand or fine gravel
Fusconaia ebena	Ebonyshell	Clams	Endangered	Large rivers in sand or gravel
Juncus articulatus	Jointed Rush	Plants	Endangered	Prefer wet sandy or calcareous soil in locations with both shade and sun; found along shores, banks, ditches and wet meadows
Plethobasus cyphyus	Sheepnose	Clams	Endangered	Large rivers, such as the Mississippi River
Actinonaias ligamentina	Mucket	Clams	Threatened	Medium to large rivers; substrates that are most preferred include coarse sand and gravel
Emydoidea blandingii	Blanding's Turtle	Reptiles	Threatened	Wetland complexes and adjacent sandy uplands in calm, shallow waters, including wetlands associated with rivers and streams, with rich, aquatic vegetation

Scientific Name	Common Name	Group	Status	Habitat
Lasmigona costata	Fluted-shell	Clams	Threatened	Medium to large rivers
Quadrula metanevra	Monkeyface	Clams	Threatened	River habitats dominated by stable substrates in water over 2 meters (6.6 feet) deep
Quadrula nodulata	Wartyback	Clams	Threatened	Large rivers; can be found in fine or coarse substrates in areas of slow or moderate current
Truncilla donaciformis	Fawnsfoot	Clams	Threatened	Large rivers or the lower reaches of medium-sized streams; most commonly found in sand or gravel
Anguilla rostrata	American Eel	Fish	Special Concern	Streams with continuous flow or in muddy, silt bottomed lakes
Baptisia lactea var. lactea	White Wild Indigo	Plants	Special Concern	Dry to average moisture, prairies, savannas, open woods in sunny conditions
Eleocharis quinqueflora	Few-flowered Spikerush	Plants	Special Concern	Wet sandy, marly or peaty soil in sunny conditions; located in calcareous fens, seeps, floating mats, sedge meadows, shores
Etheostoma microperca	Least Darter	Fish	Special Concern	Weedy portions of vegetated lakes and clear streams with sluggish flow
Falco peregrinus	Peregrine Falcon	Bird	Special Concern	Previously nested on cliff ledges along rivers or lakes; presently nesting primarily on buildings and bridges in urban settings and use historic eyries on cliffs
Lepomis peltastes	Northern Sunfish	Fish	Special Concern	Clear lakes with emergent vegetation and extensive shallows
Ligumia recta	Black Sandshell	Clams	Special Concern	Riffle and run areas of medium to large rivers in areas dominated by sand or gravel

4.2.2. Wildlife Habitat

TERRESTRIAL HABITAT

The terrestrial habitat in the wildlife habitat study area consists of two community types: deciduous trees/forested habitat and grassland habitat.

Species that can be found in deciduous trees/forested habitat include grey squirrels, white-tailed deer, common songbirds, foxes, raccoons and bats, among others. Tree cover in the wildlife habitat study area primarily consists of urban boulevard trees with some scattered woodlots and, within the Ramsey County rail right-of-way, tree-lined areas adjacent to the Bruce Vento Regional Trail. Common trees

include aspen, cottonwood, box elder, walnut, maple, locust, various coniferous trees and some oak trees.

For this analysis, grassland habitat is defined as unmanicured, non-native grasslands located in upland areas. Species that can be found in this habitat include grey squirrels, raccoons, rabbits, field mice, voles, moles, Canada geese, white tailed deer, songbirds and red foxes, among others. Much of the potential area of disturbance is within or adjacent to right-of-way for vehicular traffic and, as a result, is developed, manicured and maintained.

AQUATIC HABITAT

The aquatic habitat in the wildlife habitat study area consists of two community types: wetlands and waterbodies. Wildlife associated with this habitat includes bald eagles, common reptile and amphibian species, fish species, white-tailed deer and songbirds. Aquatic habitat within the study area is identified in Table 3.

HABITAT QUALITY

The quality of the terrestrial and aquatic habitats within the study area was determined using three different habitat rating and classification systems: the Minnesota Land Cover Classification System, the Minnesota Department of Natural Resources Regionally Significant Ecological Areas and the Minnesota County Biological Survey sites of biodiversity significance (described in Section 4.1.2).

Minnesota Land Cover Classification System

Within the wildlife habitat study area, the only habitat ranked by the Minnesota Land Cover Classification System is located between Larpenteur Avenue and Interstate 694 (I-694) in Maplewood. Most of the undeveloped land (over 99 percent) is ranked as D, indicating a poor condition of a natural community, or C, indicating moderate condition of a natural community. One location has a ranking of B/C, indicating slightly better than moderate conditions of a natural community. This area is located around a wetland complex northwest of Gervais Avenue and the Ramsey County rail right-of-way (see wetland W-38 on Figure 4).

Regionally Significant Ecological Areas

There is one regionally significant ecological area within the wildlife habitat study area (see Figure 8), which is associated with a large wetland located north of Buerkle Road (wetland W-63A shown on Figure 4). The area is ranked as a 2, indicating an area of moderate size that may be at risk due to adjacent land uses or is an isolated site with some biodiversity significance.

Minnesota County Biological Survey Sites of Biodiversity Significance

There are three sites of biodiversity significance within the study area. Of these sites, two received a biodiversity significance rating of moderate and one received a ranking of below. One site with a moderate rating (see Figure 8) is associated with a large wetland located north of Buerkle Road (wetland W-63A shown on Figure 4). The second site with a moderate rating (see Figure 9) is associated with a large unnamed wetland complex (wetland W-95 shown on Figure 5). The site with a below ranking (see Figure 8) is associated with Willow Lake (wetland W-62 shown on Figure 4).

INVASIVE SPECIES AND NOXIOUS WEEDS

Given the urban landscape and disturbed nature of the study area, invasive species are common. According to the Minnesota Department of Natural Resources Infested Waters Map, there are three waters within the wildlife habitat study area that are infested. The Mississippi River is infested with

flowering rush, grass carp, Eurasian water-milfoil, bighead carp, silver carp and zebra mussels; Lake Phalen is infested with Eurasian water-milfoil; and White Bear Lake is infested with zebra mussels and Eurasian water-milfoil.

The Early Detection and Distribution Mapping System showed some terrestrial invasive plant species that might be expected within the potential area of disturbance including European buckthorn, garlic mustard, oriental bittersweet, wild parsnip, Canada Thistle and leafy spurge.

TREES

The tree inventory completed for the *Ramsey County Rail Right-of-Way Design Guide*[56] identified Siberian elm, boxelder, American elm, green ash and cottonwood as the most common species. Total aerial tree coverage within the wildlife habitat study area is approximately 414 acres (see Figure 6 through Figure 9 and Appendix C).

4.3. ENVIRONMENTAL CONSEQUENCES

4.3.1. No Build Alternative

Under the No Build Alternative, no project-related construction would occur. Therefore, there would be no impacts to protected species or wildlife habitat, including the spread of invasive species and noxious weeds.

4.3.2. Build Alternative

PERMANENT IMPACTS

Permanent impacts that would result from the Build Alternative are summarized below. There is no difference in impacts to protected species or wildlife habitat under the Build Alternative option without the Highway 36 park-and-ride.

Federally-Protected Species

Consultation under Section 7 of the Endangered Species Act was completed for the project and is summarized below. Correspondence between the Federal Transit Administration and the US Fish and Wildlife Service is included in Appendix A.

Northern Long-Eared Bat

The project is not within one-fourth mile of known hibernacula or 150 feet from known maternity roost trees. Potential disturbance to other hardwood trees may affect the northern long-eared bat during the roosting season, and the project has the potential to affect approximately 50 acres of trees that are located within the potential area of disturbance. Adverse impacts to the northern long-eared bat are not anticipated as noted in correspondence with the US Fish and Wildlife Service included in Appendix A.

Rusty Patched Bumble Bee

A total of 7.3 acres of grassland habitat within the potential area of disturbance intersects high potential zones for the rusty patched bumble bee, specifically from Cayuga Street to County Road B in Saint Paul and Maplewood and from Cedar Avenue to Goose Lake in White Bear Lake (see Figure

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

10). Considering the project falls within the high potential zone for the rusty patched bumble bee, there is potential for the species to be present within the project area; however, according to the US Fish and Wildlife Service (see correspondence in Appendix A), the project is unlikely to contain high value floral resources and would be considered sub-optimal habitat. Disturbed areas within the high potential zone would be reseeded with pollinator friendly native seed mixes that would benefit the species in the area.

Snuffbox Mussel

Since the project would not disturb the Mississippi River or its tributaries, it has been determined that the project would have no adverse impacts to the snuffbox mussel.

Higgins Eye Pearlymussel

Since the project would not disturb the Mississippi River or its tributaries, it has been determined that the project would have no adverse impacts to the Higgins eye pearlymussel.

Winged Mapleleaf Mussel

Since the project would not disturb the Mississippi River or its tributaries, it has been determined that the project would have no adverse impacts to the winged mapleleaf mussel.

Bald and Golden Eagles

Because there are no known occurrences of bald eagles or golden eagles' nests within the Natural Heritage Information System review area, no adverse impacts to bald or golden eagles are anticipated.

Monarch Butterfly

The project may affect suitable monarch habitat, but disturbances are anticipated to be temporary in nature and/or insignificant given available foraging and breeding habitat in the surrounding landscape. Disturbed areas within the high potential zone for the rusty patched bumble bee would be reseeded with pollinator friendly native seed mixes that would benefit species in the area, including the monarch butterfly.

State-Listed Species

Of the 18 state-listed species identified, 11 have a completely aquatic life cycle and are associated with the Mississippi River. Since the project would not disturb the Mississippi River or its tributaries, no impacts to these species are anticipated. The seven other species identified within 1 mile of the project are discussed below. Correspondence with the Minnesota Department of Natural Resources is included in Appendix A.

Jointed Rush

Jointed rush is a plant species listed as endangered that was observed along the shores of White Bear Lake in 1926. The project would not affect the shoreline of White Bear Lake; therefore, impacts to jointed rush are not anticipated.

Blanding's Turtle

There are 11 occurrences of Blanding's turtles within the Natural Heritage Information System review area, two of which are also within the potential area of disturbance. One occurrence was in a backyard in Maplewood between Larpenteur Avenue and Frost Avenue, and the other was near the

interchange of Highway 61 and I-694 in White Bear Lake. The number of occurrences suggest that Blanding's turtles have the potential to be present within the potential area of disturbance. To avoid incidental impacts, mitigation measures required by the Minnesota Department of Natural Resources would be implemented during construction (see Section 4.4.2 for more information).

White Wild Indigo

White wild indigo is a plant species listed as a special concern that was most recently observed in the Natural Heritage Information System review area in 1986. Due to the lack of potential habitat and recorded observations within the potential area of disturbance, impacts to white wild indigo are not anticipated.

Few-Flowered Spikerush

Few-flowered spikerush is a plant species listed as a special concern that was observed along the shores of White Bear Lake in 2013. The project would not affect the shoreline of White Bear Lake; therefore, impacts to few-flowered spikerush are not anticipated.

Least Darter

The least darter was observed in 2013 in Lake Phalen, which would not be impacted by this project. Therefore, impacts to this species are not anticipated.

Peregrine Falcon

The Natural Heritage Information System review area included two occurrences of peregrine falcon, and there are several records of falcons nesting on buildings and structures around Saint Paul near the Mississippi River. Based on this information, peregrine falcons have the potential to be present within the potential area of disturbance. However, the project would not impact cliffs or involve the demolition of any buildings near the Mississippi River; therefore, it is unlikely that the species would be impacted by the project.

Northern Sunfish

Northern sunfish were observation in 1978 in Keller Lake, which would not be impacted by this project. Therefore, no impacts to this species are anticipated.

Wildlife Habitat

Wildlife habitat impacts are expected to result from the Build Alternative. Wildlife habitat is illustrated in Figure 6 through Figure 9 and Appendix C. Table 8 lists habitat within the potential area of disturbance.

Table 8: Wildlife Habitat Within the Potential Area of Disturbance

Habitat Type	Acres Within the Wildlife Habitat Study Area	Acres Within the Potential Area of Disturbance
Aquatic habitat	523.6	1.94
Terrestrial habitat: grassland	159.8	13.3
Terrestrial habitat: trees	414.4	49.0
TOTAL	**1,097.8**	**64.24**

Regionally Significant Ecological Areas

The regionally significant ecological area in the wildlife habitat study area is not located within the potential area of disturbance; therefore, no impacts to the area is anticipated.

Minnesota County Biological Survey Sites of Biodiversity Significance

None of the three identified sites of biodiversity significance within the wildlife habitat study area are located within the potential area of disturbance; therefore, no impacts to these areas are anticipated.

Invasive Species and Noxious Weeds

Given the urban landscape and disturbed nature of the study area, invasive species and noxious weeds are common. The Build Alternative would not further contribute to the presence of invasive species or noxious weeds in the study area. Native seed mixes would be used in all disturbed locations not proposed for mowing.

Summary of Wildlife Habitat Impacts

The Build Alternative would result in a loss of mostly low quality habitat. Due to the urban setting and the low quality of existing habitat within the potential area of disturbance, the wildlife that inhabit these areas are generalist species adapted to highly-urbanized conditions. These species are generally more tolerant of human presence and activities, including traffic (pedestrian, bus and vehicular), and have demonstrated by their presence that they adapt readily to the human environment. The habitat in these areas is generally located in existing right-of-way or within roadway medians. Based on the minimal extent of higher quality habitat within the potential limits of disturbance, significant adverse impacts to wildlife habitat are not anticipated.

Figure 6: Habitat Within the Study Area from Union Depot to Arcade Street

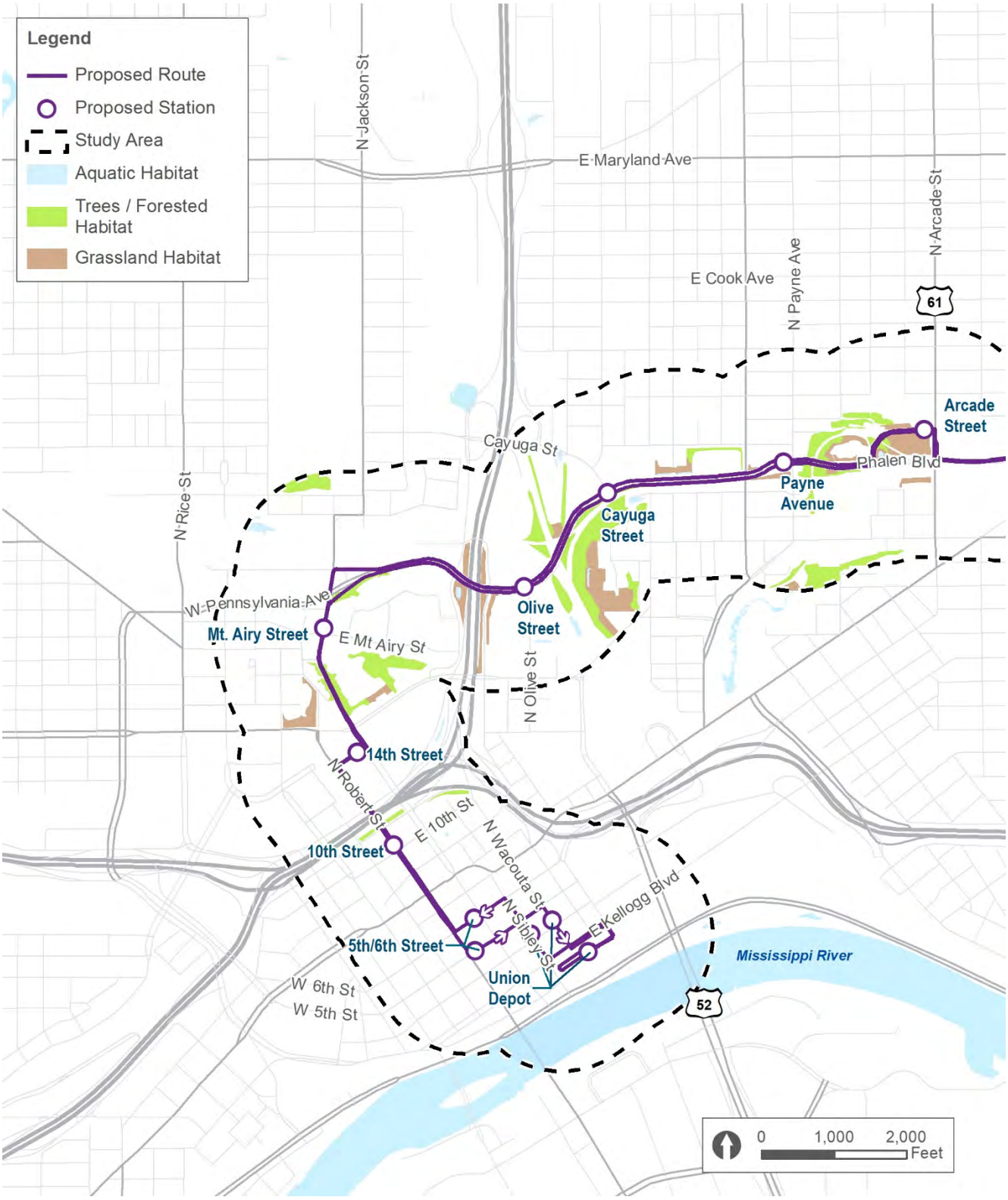


Figure 7: Habitat Within the Study Area from Arcade Street to County Road B

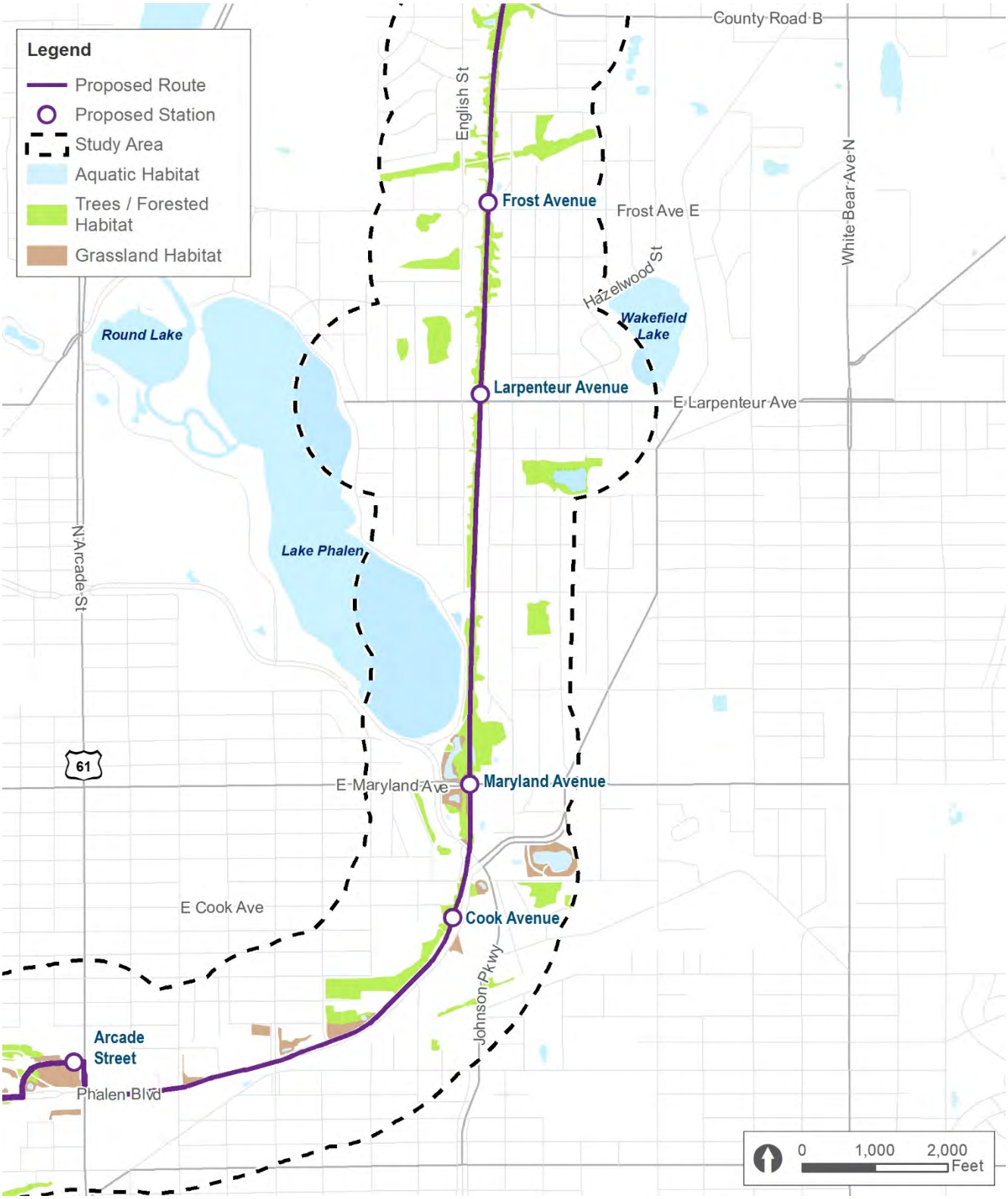


Figure 8: Habitat Within the Study Area from County Road B to County Road E

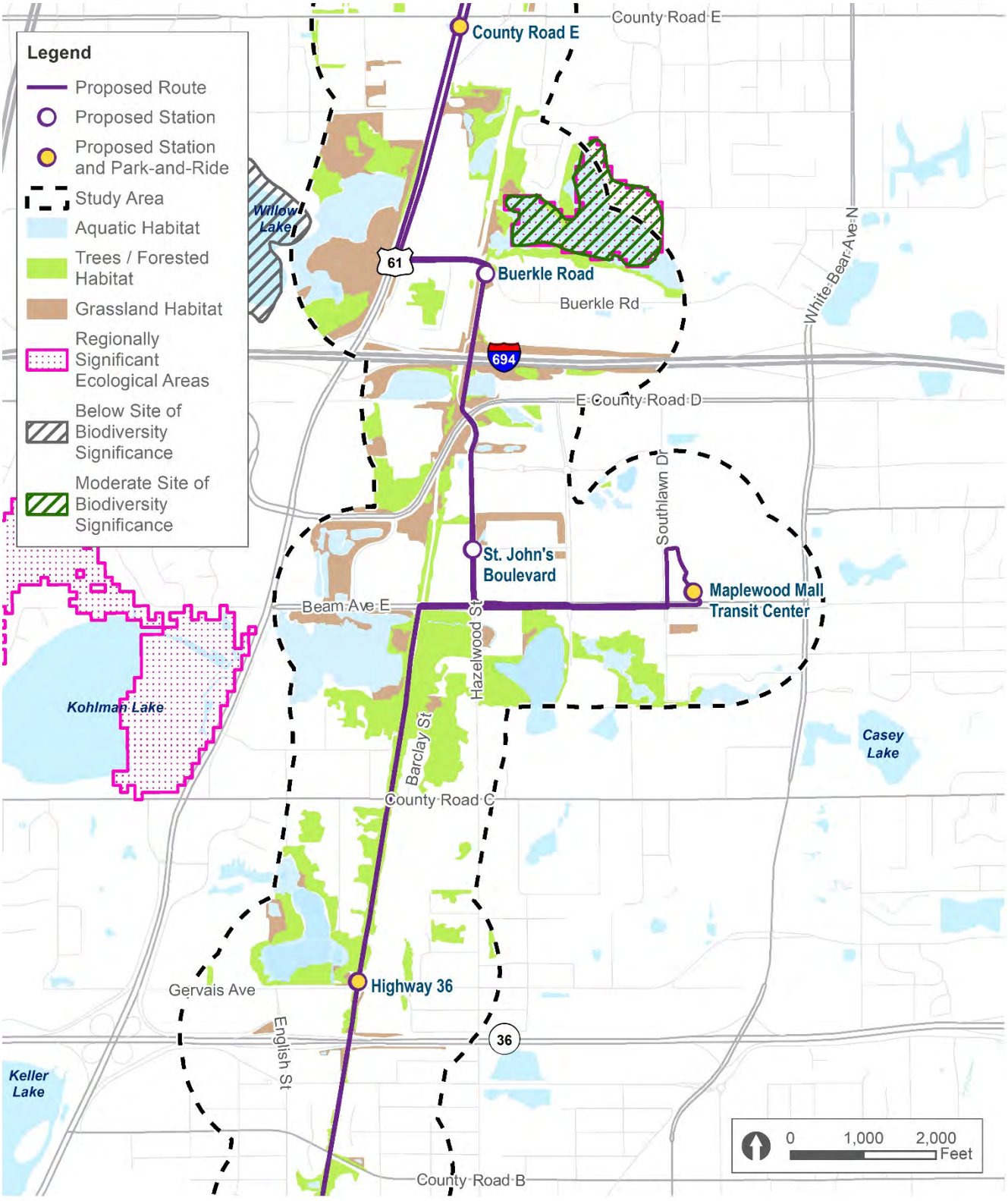


Figure 9: Habitat Within the Study Area from County Road E to Downtown White Bear Lake

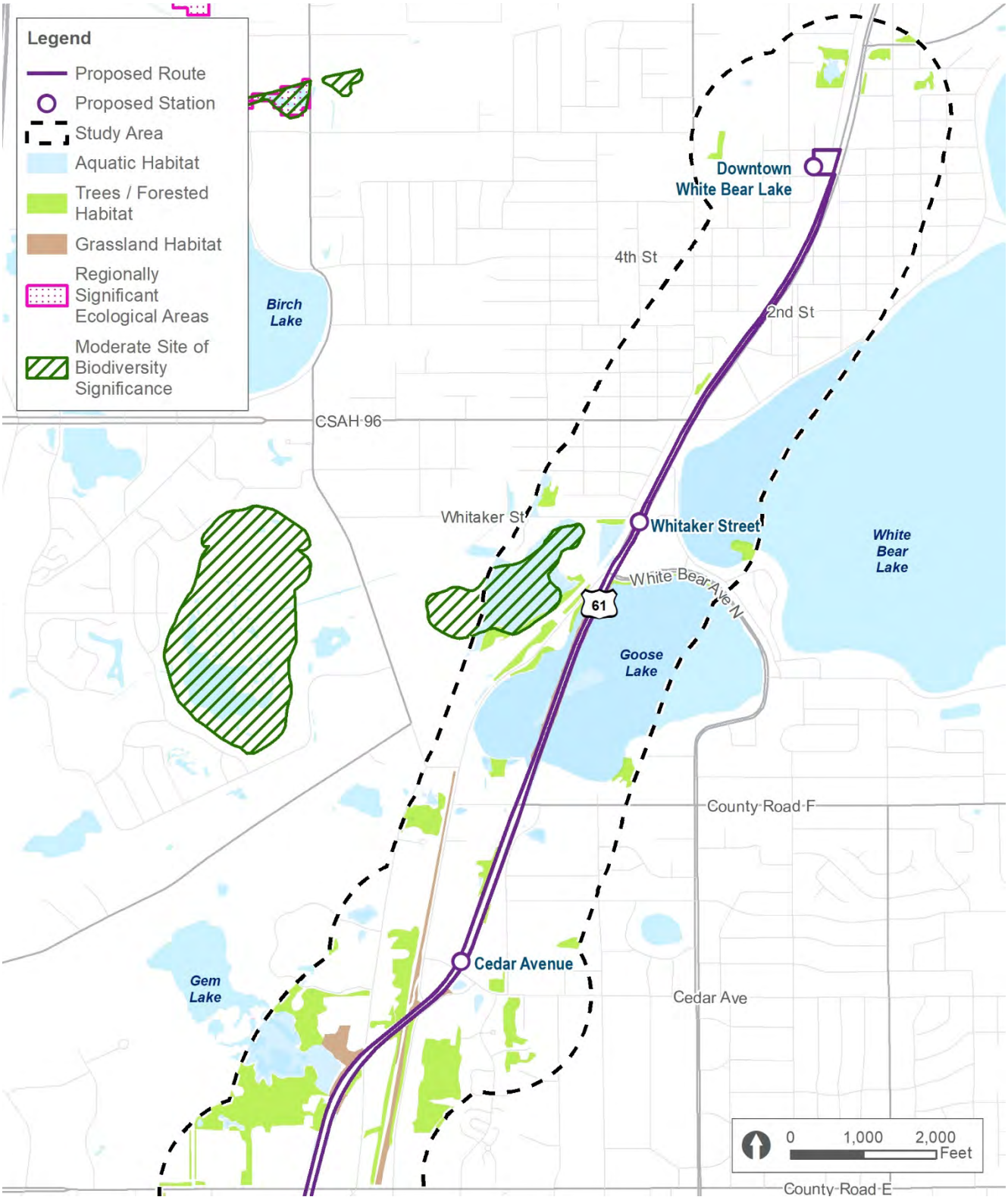


Figure 10: Rusty Patched Bumble Bee High Potential Zones

TEMPORARY IMPACTS

Construction phase impacts are generally those that would be above and beyond the impacts described in the previous section and would occur for a short period of time coincident with the installation/construction of the project.

Short-term impacts to wildlife would occur due to construction activities, including use of heavy equipment and silt fence/construction barriers. Wildlife friendly erosion control methods would be used to minimize adverse impacts to wildlife, such as the Blanding's turtle. These impacts still may cause temporary disruptions to wildlife; however, they would be temporary and limited to active construction areas. Additionally, areas disturbed by construction would be stabilized with interim and final erosion and sediment control measures that include the utilization of construction activity best management practices (e.g., cleaning all equipment before moving to another site) as well as seeding plans that would inhibit the spread of invasive species or noxious weeds. The number of active construction areas would be the minimum number needed to construct the project, and inactive disturbed areas would be stabilized with seeding and other forms of erosion control best management practices.

4.4. MITIGATION MEASURES

4.4.1. No Build Alternative

No adverse impacts to protected species or wildlife habitat would result from the No Build Alternative. Therefore, no mitigation would be needed.

4.4.2. Build Alternative

PROTECTED SPECIES

During or prior to construction, there are measures that can be taken to avoid or minimize and mitigate potential impacts to the northern long-eared bat, such as minimizing mature tree impact in densely forested areas and limiting tree removal to winter (between November 1 and March 31).

Activities to minimize the potential impacts to the rusty patched bumble bee include minimizing the initial disturbance of potential habitat areas within the high potential zones to timeframes outside of the active season for the rusty patched bumble bee (April to October) and reseeding disturbed areas with native seed mixes.

Although impacts to the Blanding's turtle are not anticipated, the Minnesota Department of Natural Resources has established standard best management practices for construction that would be required for this project, including:

- Avoiding filling or dewatering wetlands from October 15 to April 15 when turtles may be hibernating.
- Stringent erosion control methods such as using bio-netting or natural netting types.
- Providing identification information to the contractor to facilitate avoidance of turtles if observed in the construction zone.
- Monitoring for turtles during construction and reporting any sightings to the Minnesota Department of Natural Resources.

Additional best management practices related to the Blanding's turtle would be considered but are not required. These include measures such as using overlapping silt fence that allows turtles to bypass the fencing while still capturing the sediment and removing silt fence after stabilization of the site to

remove barriers to turtle movements. Correspondence with the Minnesota Department of Natural Resources is included in Appendix A.

Additionally, best management practices and permanent stormwater controls would reduce sedimentation to a level that is acceptable for a National Pollutant Discharge Elimination System permit and, therefore, the project would have no adverse impact on aquatic habitat and associated aquatic wildlife.

WILDLIFE HABITAT

Construction best management practices, as outlined in federal, state and local regulations, would be confirmed as part of project development and implemented during construction. These best management practices would serve to minimize impacts to both terrestrial and aquatic habitats. Some examples of construction best management practices include avoidance and/or minimization of site disturbance to the extent possible and additional sediment erosion and control procedures to minimize construction disturbance.

Although existing habitat does not formally require replacement, Ramsey County acknowledges the importance that citizens place on existing vegetation, particularly along the Ramsey County rail right-of-way and existing Bruce Vento Regional Trail corridor. The *Ramsey County Rail Right-of-Way Design Guide* includes provisions to preserve existing quality landscapes and enhance the corridor with ecologically beneficial, resilient and low-maintenance habitat.[57]

Prior to construction, measures to reduce the spread of invasive species and seeds (e.g., cleaning equipment prior to bringing it onsite or leaving the site) would be done in accordance with the standards in Minnesota Rules, part 6216.0265 to minimize the spread of invasive species within the potential area of disturbance.

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

APPENDIX A

CORRESPONDENCE

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

February 11, 2021

Regulatory File No. MVP-2019-00363-BBY

Ramsey County
c/o Andrew Gitzlaff
15 West Kellogg Boulevard, Suite 210
St. Paul, Minnesota 55102

Dear Mr. Gitzlaff:

This letter regards an approved jurisdictional determination for the Rush Line Bus Rapid Transit Project in Ramsey County. The project site is in Sections 14, 23, 26, 27, and 34, Township 30 North, Range 22 West, Sections 2, 3, 10, 15, 22, 27, 28, 29, 31, and 32, Township 29 North, Range 22 West, Sections 5 and 6, Township 28 North, Range 22 West, Ramsey County, Minnesota. The review area for our jurisdictional determination is limited to the wetlands labeled W-15, W-16, W-17, W-19, W-20, W-28, W-59, W-68, W-69, W-70, W-72, W-74, W-75, and W-97 on the enclosed figures labeled MVP-2019-00363-BBY Page 1 of 9 through 9 of 9.

The review area consists of wetlands W-15, W-16, W-17, W-19, W-20, W-28, W-59, W-68, W-69, W-70, W-72, W-74, W-75, and W-97, which are not waters of the United States subject to Corps of Engineers (Corps) jurisdiction. Therefore, you are not required to obtain Department of the Army authorization to discharge dredged or fill material within this area. The rationale for this determination is provided in the enclosed Approved Jurisdictional Determination form. This determination is only valid for the review area described.

If you object to this approved jurisdictional determination, you may request an administrative appeal under Corps regulations at 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination, you must submit a completed RFA form to the Mississippi Valley Division Office at the address shown on the form.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR 331.5, and that it has been received by the Division Office within 60 days of the date of the enclosed NAP. It is not necessary to submit an RFA form to the division office if you do not object to the determination in this letter

This approved jurisdictional determination may be relied upon for five years from the date of this letter. However, the Corps reserves the right to review and revise the boundary in response to changing site conditions, information that was not considered during our initial review, or off-site activities that could indirectly alter the extent of wetlands and other resources on-site. This determination may be renewed at the end of the five year period provided you submit a written request and our staff are able to verify that the limits established during the original determination are still accurate.

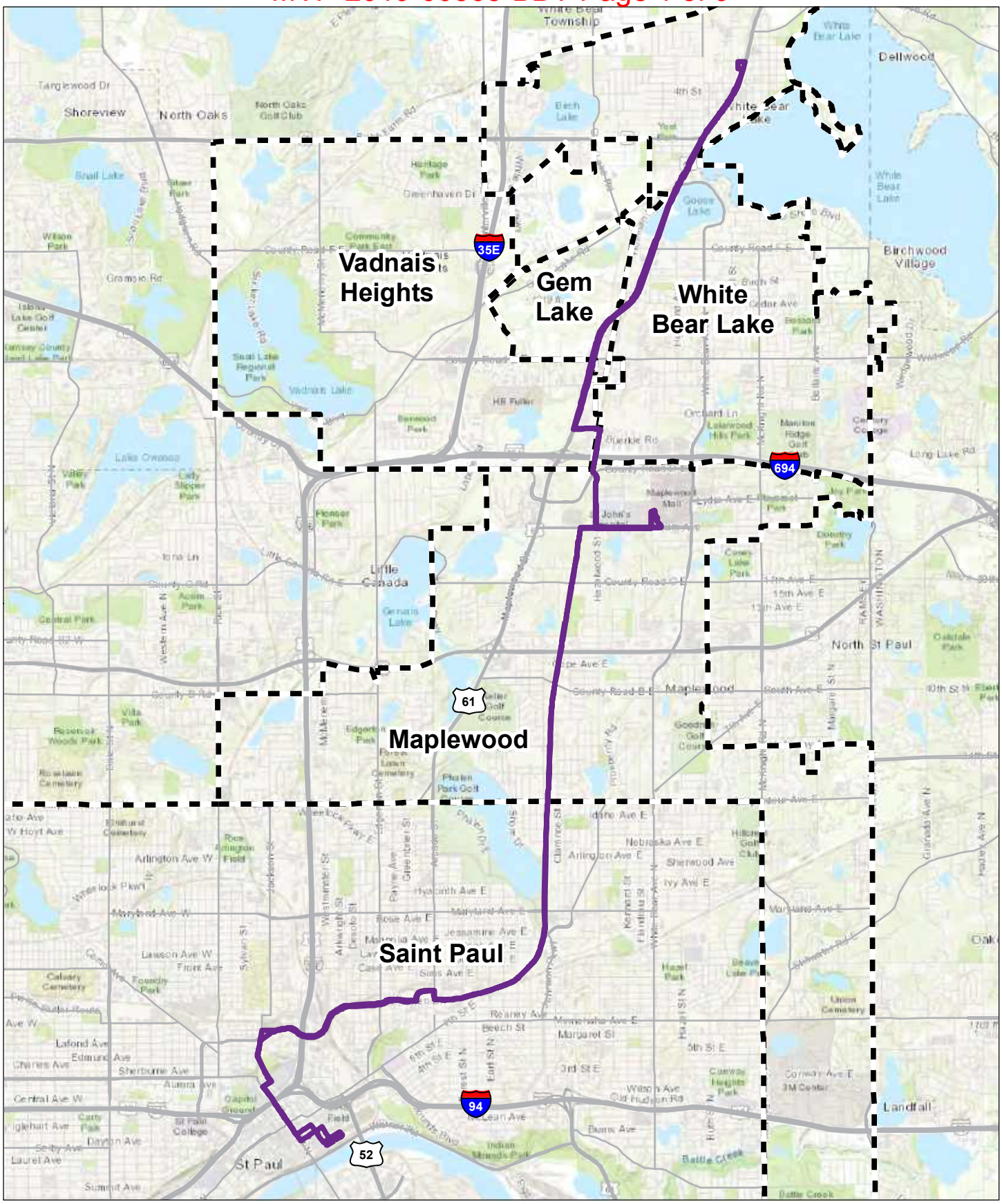
If you have any questions, please contact me in our St. Paul office at (651) 290-5975 or Brian.B.Yagle@usace.army.mil. In any correspondence or inquiries, please refer to the Regulatory file number shown above.

Sincerely,

Brian Yagle
Lead Project Manager

Enclosures

cc:
Aaron Stolte – Agent
Jeanne Witzig – Agent
Ashley Payne – Agent
Frank Alarcon – Ramsey County
Rachel Haase – Agent
Amy Waters – BWSR
Ben Meyer – BWSR



Legend

Proposed Route

City Boundaries

Figure 1. Project Location

0 1 2 Miles

Study Area
Potential Area of Disturbance
Proposed Route
Proposed Platforms
Estimated Wetland Boundaries
Wetland Within Potential Area of Disturbance
Federal Emergency Management Agency 100-year Floodplain
Floodplain Within Potential Area of Disturbance

Figure 2. Surface Water and Floodplains Within the Potential Area of Disturbance

0 200 400 Feet

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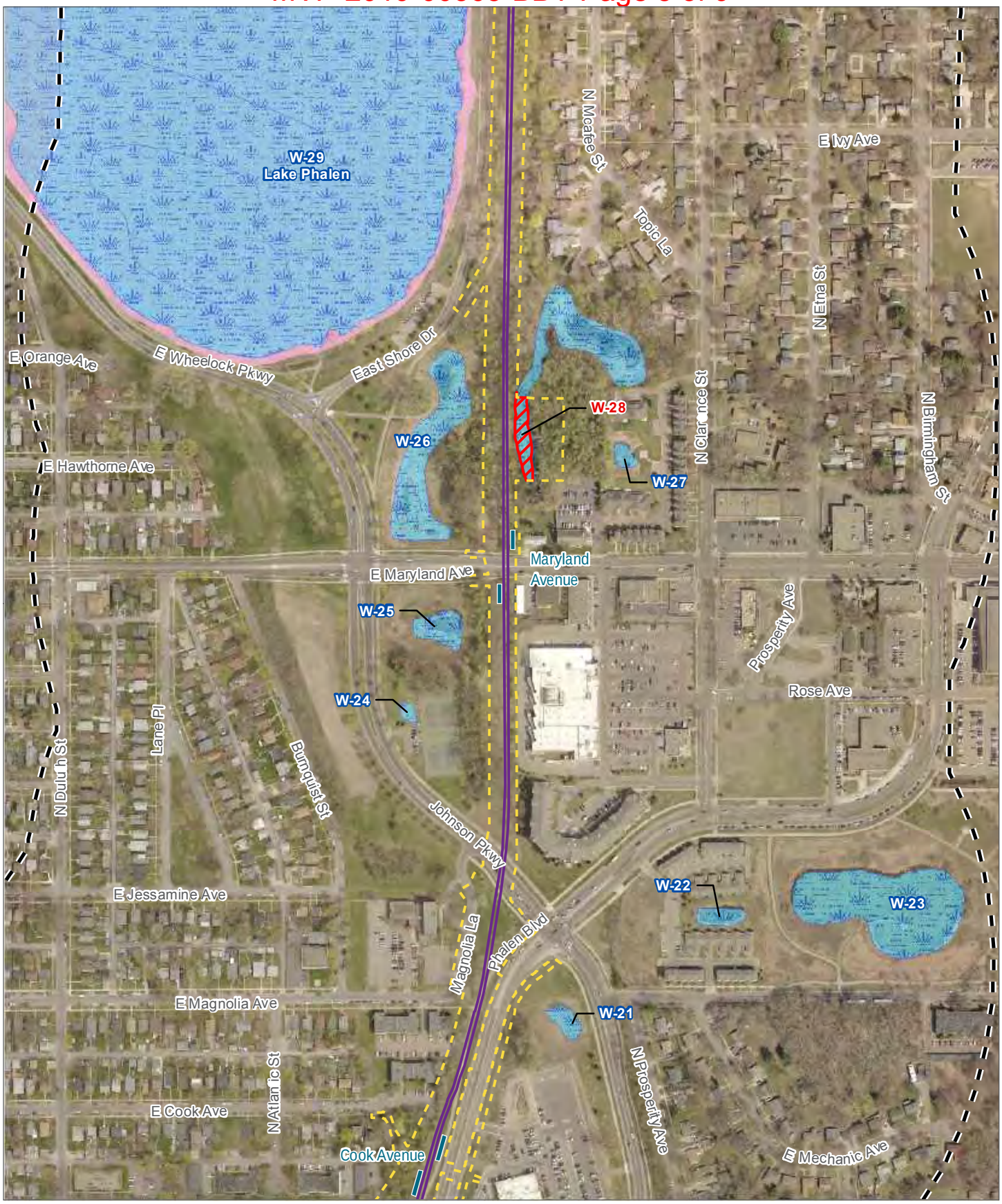

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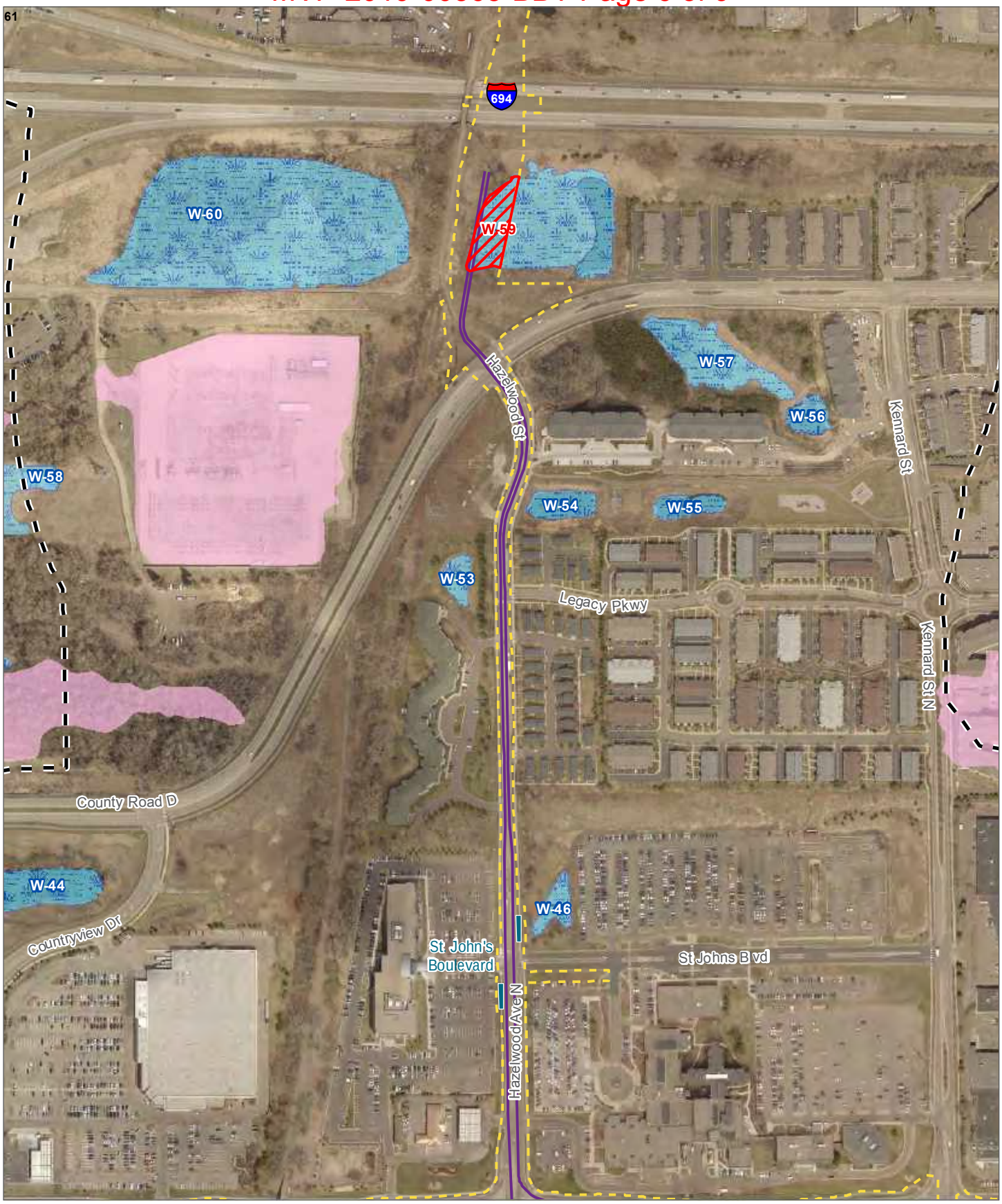

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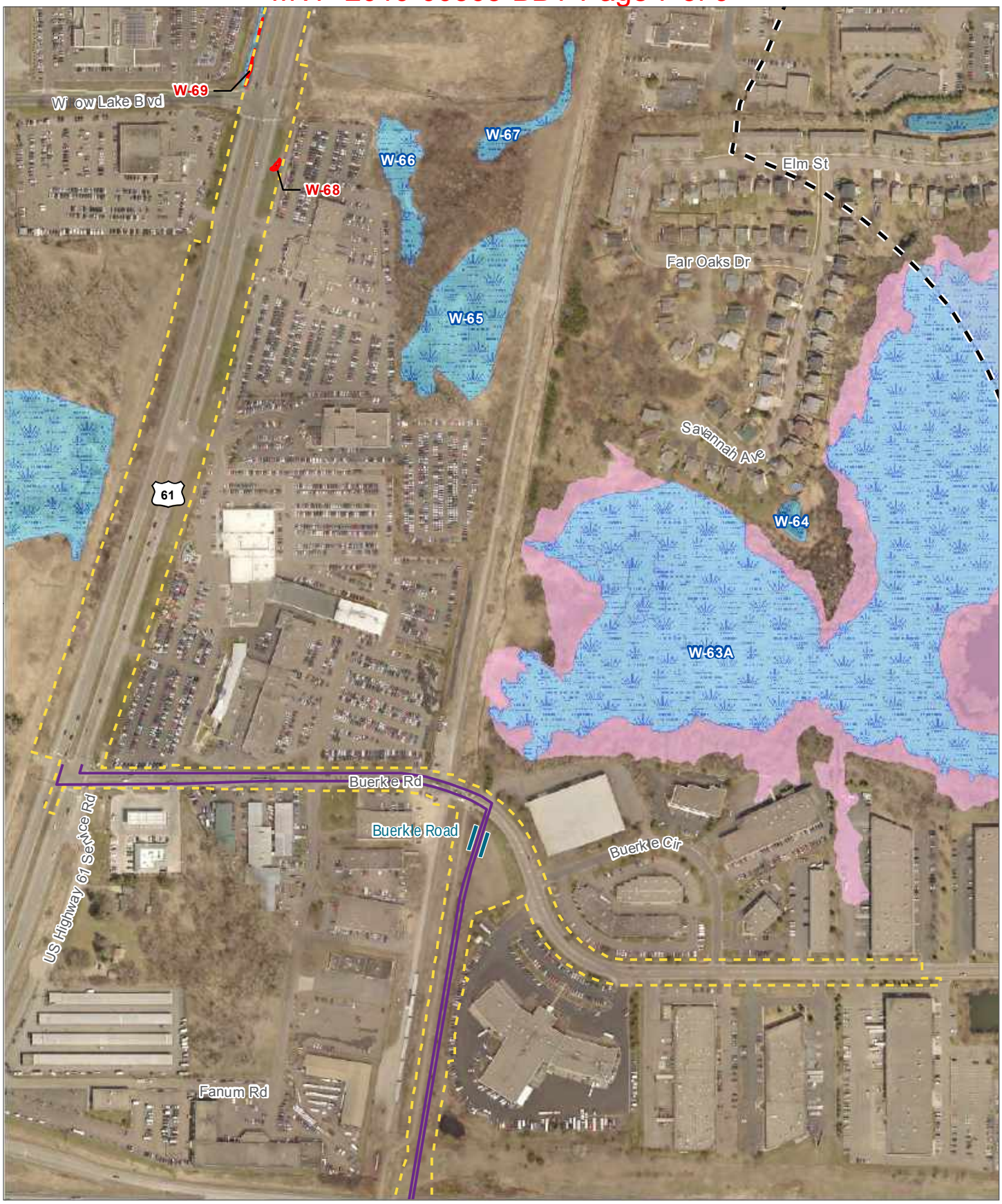

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Figure 2. Surface Water and Floodplains Within the Potential Area of Disturbance

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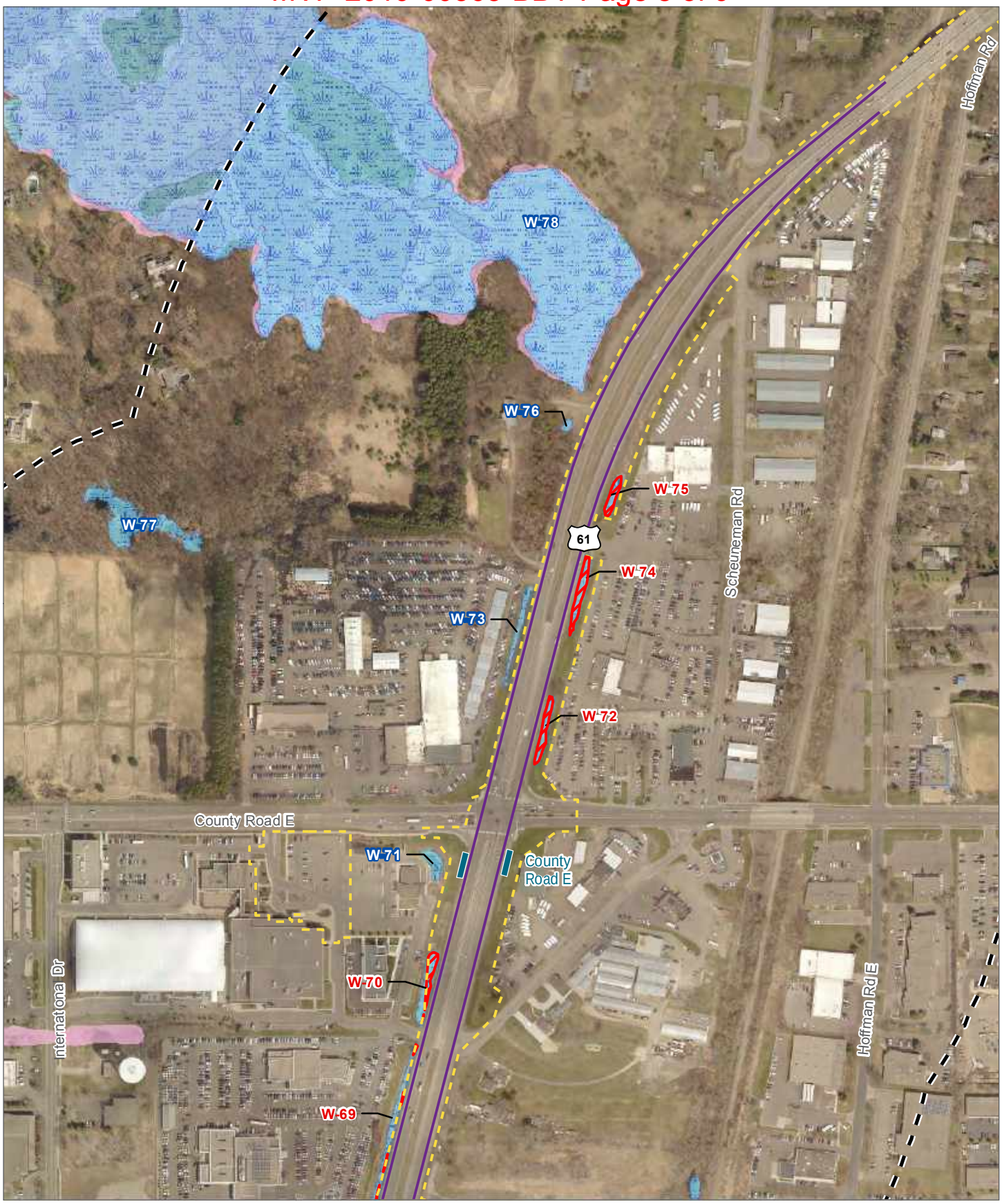

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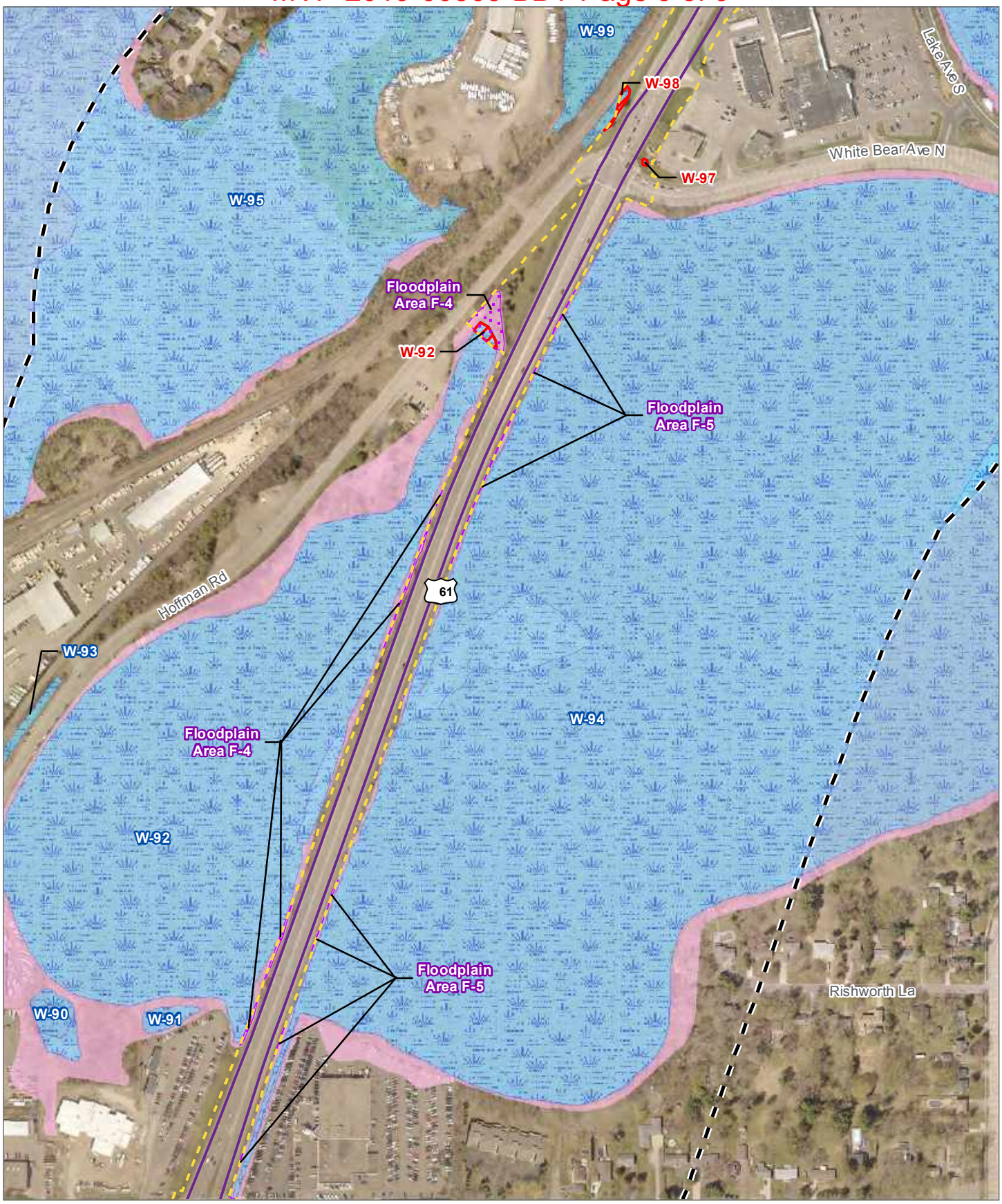


Figure 2. Surface Water and Floodplains Within the Potential Area of Disturbance

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 2/11/2021
ORM Number: MVP-2019-00363-BBY
Associated JDs: N/A
Review Area Location[1]: State/Territory: Minnesota City: St. Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Lake, and White Bear Township County/Parish/Borough: Ramsey
Center Coordinates of Review Area: Latitude 45.007813 Longitude -93.044130

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).
- ☐ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in Section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size		§ 10 Criteria	Rationale for § 10 Determination
N/A.	N/A.	N/A	N/A.	N/A.

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters):[3]				
(a)(1) Name	(a)(1) Size		(a)(1) Criteria	Rationale for (a)(1) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Tributaries ((a)(2) waters):				
(a)(2) Name	(a)(2) Size		(a)(2) Criteria	Rationale for (a)(2) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):				
(a)(3) Name	(a)(3) Size		(a)(3) Criteria	Rationale for (a)(3) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

Adjacent wetlands ((a)(4) waters):				
(a)(4) Name	(a)(4) Size		(a)(4) Criteria	Rationale for (a)(4) Determination
N/A.	N/A.	N/A.	N/A.	N/A.

[1] Map(s)/figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
W-28 and W-59	4.0	acre(s)	(b)(1) Non-adjacent wetland.	The joint application states that that review of NHD, LiDAR, and aerial mapping indicates wetlands W-28 and W-59 are isolated wetland basins that do not share a surface water connection to Waters of the U.S. Corps review of LiDAR shows that wetlands W-28 and W-59 are depressional basins, surrounded by upland. Neither wetland is adjacent to an a(1)-a(3) water. The application also states that the National Map NHD Viewer only identifies storm sewer connections between wetlands W-28 and W-59 and any surrounding water. Corps review of the submitted NHD map confirms these findings. W-28 shares a storm sewer connection with W-26 which is not an a(1)-a(3) water and is not adjacent to an a(1)-a(3) water. W-59 shares a storm sewer connection with W-57 which is not an a(1)-a(3) water and is not adjacent to an a(1)-a(3) water. Neither W-28 or W-59 share a surface water connection with an a(1)-a(3) water. Therefore, wetlands W-28 and W-59 are not considered waters of the U.S. under the Navigable Waters Protection Rule.
W-68, W-69, W-70, W-72, W-74, W-75, and W-97	0.56	acre(s)	(b)(5) Ditch that is not an (a)(1) or (a)(2) water, and those portions of a ditch constructed in an (a)(4) water that do not satisfy the conditions of (c)(1).	The joint application states that wetlands W-68, W-69, W-70, W-72, W-74, W-75, and W-97 are roadside ditches that were constructed in upland and completely dependent on the roadway for hydrology. Review of 1940 historic aerial imagery indicates that these wetlands were constructed in uplands. These ditches that meet the definition of “ditch” under paragraph c(2) of the Navigable Waters Protection Rule. The ditches listed are therefore not jurisdictional because they meet the requirements of the exclusion for ditches in paragraph b(5).
W-15, W-16, W-17, W-19 and W-20	0.5	acre(s)	(b)(10) Stormwater control feature constructed or excavated in upland or in a non-jurisdictional	The application states that wetlands W-15, W-16, W-17, W-19 and W-20 were excavated in uplands for the purpose of stormwater treatment. The applicant submitted historic aerial imagery (1940) and stated that the imagery indicated that wetlands W-15 and W-16 appear to be located in an old railroad corridor, W-17 appears to be

[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

Excluded waters ((b)(1) – (b)(12)):[4]				
Exclusion Name	Exclusion Size		Exclusion[5]	Rationale for Exclusion Determination
			water to convey, treat, infiltrate, or store stormwater runoff.	located in an old railroad yard, W-19 appears to be located in an old parking lot, and W-20 appears to be located in an old rail corridor. Google Earth aerial imagery confirmed the applicant's findings. Google Earth imagery indicated that W-15 and W-16 were likely constructed in uplands between 2003-2006, W-17 between 2004-2005, W-19 between 2004-2006, and W-20 between 1991-2002. Based on this information, W-15, W-16, W-17, W-19 and W-20 are not waters of the U.S. under the Navigable Waters Protection Rule.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

☒ Information submitted by, or on behalf of, the applicant/consultant: The Approve Jurisdictional Determination Joint Application request dated December 23, 2020 and submitted by Kimley- Horn on January 8, 2021.

This information is and is not sufficient for purposes of this AJD.

Rationale: Additional Google Earth aerial imagery was needed to determine if the stormwater features were constructed in uplands.

☐ Data sheets prepared by the Corps: Title(s) and/or date(s).

☒ Photographs: Aerial: Google Earth 1991, 2002-2006, 2008-2020; Historic Aerials 1940

☐ Corps site visit(s) conducted on: Date(s).

☐ Previous Jurisdictional Determinations (AJDs or PJDs):

☐ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B*.

☐ USDA NRCS Soil Survey: Title(s) and/or date(s).

☐ USFWS NWI maps: Title(s) and/or date(s).

☐ USGS topographic maps: Title(s) and/or date(s).

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A.
Other Sources	NHD map submitted in the application.

B. Typical year assessment(s): N/A or provide typical year assessment for each relevant data source used to support the conclusions in the AJD.

C. **Additional comments to support AJD:** The review area for our jurisdictional determination is limited to wetlands labeled W-15, W-16, W-17, W-19, W-20, W-28, W-59, W-68, W-69, W-70, W-72, W-74, W-75, and W-97. During the review process for this AJD, a possible connection from Lake Phalen to W-28 via W-26 was examined. It was determined by reviewing the submitted LiDAR and the NHD maps that the only hydrologic connection that existed between Lake Phalen and these wetlands was a storm sewer connection, no surface water connection was evident.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ramsey County (Andrew Gitzlaff)	**File No.: MVP-2019-00363-BBY**	**Date:** February 11, 2021

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact the Division Engineer through:
Brian Yagle Regulatory Project Manager U.S. Army Corps of Engineers, St. Paul District 180 5th Street East, Suite 700 St. Paul, MN 55101 651-290-5975	Administrative Appeals Review Officer Mississippi Valley Division P.O. Box 80 (1400 Walnut Street) Vicksburg, MS 39181-0080 601-634-5820 FAX: 601-634-5816

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

From: Horton, Andrew <andrew_horton@fws.gov>
Sent: Thursday, April 25, 2019 9:20 AM
To: Payne, Ashley
Cc: andrew.gitzlaff@CO.RAMSEY.MN.US; William.Wheeler@dot.gov; elizabeth.breiseth@dot.gov; Laabs, Jessica; Dammel, Rachel
Subject: Re: [EXTERNAL] Rush Line BRT project, Ramsey County, MN Section 7 Consultation

Categories: External

Ashley,

I have reviewed the information provided and we concur that this project may affect, but is not likely to adversely affect the rusty patched bumble bee (*Bombus affinis*; RPBB). Based on the information provided, the action area is unlikely to have high value floral resources for much of the proposed route and where potential RPBB habitat inside the action area insects with the High Potential Zones, seasonal avoidance will limit impacts to RPBB. If this species was present in the area, we do not anticipated the temporary loss of this sub-optimal habitat to have a significant impact to the species. You have proposed a conservation measure to revegetate disturbed natural areas with a pollinator friendly seed mix that would benefit the species in the area.

This concludes consultation under Section 7 of the Endangered Species Act, as amended. Please contact our office if this project changes or new information reveals effects of the action to proposed or listed species or critical habitat to an extent not covered in your original request.

- Andrew

Andrew Horton
U.S. Fish and Wildlife Service
Minnesota-Wisconsin Field Office
4101 American Blvd East
Bloomington, MN 55425-1665
(952) 252-0092, ext. 208

On Wed, Mar 27, 2019 at 2:07 PM Payne, Ashley <Ashley.Payne@kimley-horn.com> wrote:

> Hi Andrew,
>
> Kimley-Horn is preparing an EA for the Rush Line BRT project located in Ramsey County, MN. The Rush Line BRT Project is a proposed 14-mile transit route led by Ramsey County with stations between Union Depot in Saint Paul and downtown White Bear Lake. The proposed project would include 21 stops during the peak periods and three park-and-rides. See the attached flier for a more information and a map depicting the proposed project alignment. On behalf of FTA, we would like to initiate consultation with USFWS for the Rush Line BRT Project.

Kimley-Horn reviewed the Federal T&E species list to determine if any species would be potentially impacted as a result of project construction. Below is a summary of our analysis:

Federally Listed Species

Higgins Eye Pearlymussel

Since the project would not involve work within the Mississippi River or its tributaries, it has been determined that the project would have no adverse impacts to the Higgins eye pearly mussel.

Snuffbox Mussel

Since the project would not involve work within the Mississippi River or its tributaries, it has been determined that the project would have no adverse impacts to the snuffbox mussel.

Winged Mapleleaf Mussel

Since the project would not involve work within the St. Croix River or its tributaries, it has been determined that the project would have no adverse impacts to the winged mapleleaf mussel.

Northern Long-Eared Bat

The project does not appear to be within ¼ mile of known hibernacula or 150 feet from known maternity roost trees. Potential disturbance to other hardwood trees may affect the northern long-eared bat during the roosting season; therefore, the total amount of tree removal for the project was evaluated. About 10 percent of the total potential area of disturbance for the project is forested areas. All tree removal would be completed outside of the roosting season (winter months). Therefore, no adverse impacts to the northern long-eared bat are anticipated.

Rusty Patched Bumble Bee (RPBB)

Portions of the project area are located within the RPBB high potential zone. Minimal RPBB suitable habitat is located within the potential limits of disturbance and most of that habitat is high disturbed by mowing and human activity. Only a few of the areas within the high potential zone are undisturbed grassland with flowering species or undisturbed wooded areas that could be used for overwintering areas for the queens. Activities to minimize the potential impacts to the RPBB include minimizing the initial disturbance of potential habitat areas within the high potential zones to timeframes outside of the active season for the RPBB (April to October) and reseeding disturbed areas within native seed mixes. No significant adverse impacts are anticipated for the rusty patched bumble bee.

Kimley-Horn, on behalf of FTA, requests confirmation of the statements above regarding adverse impacts to the federally listed species identified above. Please let me know if you have any questions or would like to discuss in further detail.

Thank you!

Ashley

Ashley Payne, CWD
Kimley-Horn | 767 Eustis Street, Suite 100, Saint Paul, MN 55114
Direct: 507-216-0763 | Mobile: 507-251-6096

From: Bump, Samantha (DNR) <samantha.bump@state.mn.us>
Sent: Tuesday, September 3, 2019 7:06 PM
To: Stolte, Aaron
Cc: Hoaglund, Erica (DNR); Horton, Becky (DNR); Parris, Leslie (DNR)
Subject: RE: Rush Line BRT project, Ramsey County - NHIS Review
Attachments: 2019 04 EAP Flyer English.pdf

Categories: External

Hi Aaron,

I have reviewed your assessment regarding the above project. I concur with your assessment and have the additional comments:

- As Blanding's turtles have been documented in the vicinity and the project has the potential to impact wetlands, to avoid any incidental take, the following are required:
    - Avoid filling or dewatering wetlands from October 15th to April 15th when turtles may be hibernating;
    - The Blanding's turtle flyer should be given to all contractors working in the area;
    - Implement stringent sediment and erosion control methods. Use of erosion control blanket shall be limited to 'bio-netting' or 'naturalnetting' types, and specifically not products containing plastic mesh netting or other plastic components. Also be aware that hydro-mulch products may contain small synthetic (plastic) fibers to aid in its matrix strength. These loose fibers could potentially re-suspend and make their way into Public Waters. As such, please review mulch products and not allow any materials with synthetic (plastic) fiber additives in areas that drain to Public Waters;
    - Monitor for turtles during construction and report any sightings to the DNR Regional Nongame Specialist, Erica Hoaglund at 651-259-5772 or Erica.Hoaglund@state.mn.us;

  For specific recommendations pertaining to transportation projects, please refer to Curb Design and Small Animals, Preventing Entanglement, & Reducing Wildlife Vehicle Collisions in Chapter One of the Minnesota Department of Transportation's Best Practices Manual. If Blanding's turtles are encountered on site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they must be moved by hand out of harm's way, otherwise they are to be left undisturbed. For further assistance regarding the Blanding's turtle, please contact the DNR Regional Nongame Specialist.
- The rusty patched bumble bee (*Bombus affinis*), a federally-listed endangered species, was documented in the vicinity of the proposed project. The rusty patched bumble bee typically occurs in grasslands and urban gardens with flowering plants from April through October. This species nests underground in abandoned rodent cavities or in clumps of grasses. Please reference the guidance at the USFWS rusty patched bumble bee website to determine if the project has the potential to impact this protected species.

The reference number for this correspondence is ERDB #20200032. Thank you for notifying us of this project, and for the opportunity to provide comments. Please let me know if you have any questions.

Have a great day,
Samantha Bump
NHIS Review Specialist | Ecological & Water Resources
Minnesota Department of Natural Resources

500 Lafayette Road
St. Paul, MN 55155
Phone: 651-259-5091
Samantha.Bump@state.mn.us

DEPARTMENT OF NATURAL RESOURCES

From: Stolte, Aaron <Aaron.Stolte@kimley-horn.com>
Sent: Friday, April 26, 2019 2:12 PM
To: MN_NHIS, Review (DNR) <Review.NHIS@state.mn.us>
Cc: Payne, Ashley <Ashley.Payne@kimley-horn.com>; Dammel, Rachel <Rachel.Dammel@kimley-horn.com>; Laabs, Jessica <jessica.laabs@kimley-horn.com>
Subject: Rush Line BRT project, Ramsey County - NHIS Review

Hello,

Ramsey County is preparing an EA for the Rush Line Bus Rapid Transit (BRT) Project. The Rush Line BRT Project is a 14-mile long BRT corridor connecting Saint Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Township and White Bear Lake. It would include 21 stations, and the route would generally run in dedicated guideway along Robert Street, Jackson Street, Phalen Boulevard, Ramsey County rail right-of-way and Highway 61. See the attached flier for a more information and a map depicting the proposed project alignment.

A review of the DNR Natural Heritage Inventory System database was conducted (LA-843) for the project. The review area for this analysis is defined as the area within one mile of the Build Alternative alignment, referred to as the "review area."

Species
There are five endangered species, six threatened species and seven species of special concern within the Natural Heritage Information System review area, shown in the table below.

Scientific Name	Common Name	Group	Status
Arcidens confragosus	Rock Pocketbook	Clams	Endangered
Elliptio crassidens	Elephant-ear	Clams	Endangered
Fusconaia ebena	Ebonyshell	Clams	Endangered
Juncus articulatus	Jointed Rush	Plants	Endangered
Plethobasus cyphyus	Sheepnose	Clams	Endangered
Actinonaias ligamentina	Mucket	Clams	Threatened
Emydoidea blandingii	Blanding's Turtle	Reptiles	Threatened
Lasmigona costata	Fluted-shell	Clams	Threatened
Quadrula metanevra	Monkeyface	Clams	Threatened
Quadrula nodulata	Wartyback	Clams	Threatened
Truncilla donaciformis	Fawnsfoot	Clams	Threatened
Anguilla rostrata	American Eel	Fish	Special Concern
Baptisia lactea var. lactea	White Wild Indigo	Plants	Special Concern
Eleocharis quinqueflora	Few-flowered Spikerush	Plants	Special Concern
Etheostoma microperca	Least Darter	Fish	Special Concern

Falco peregrinus	Peregrine Falcon	Bird	Special Concern
Lepomis peltastes	Northern Sunfish	Fish	Special Concern
Ligumia recta	Black Sandshell	Clams	Special Concern

Of the 18 state-listed species identified, 11 have a completely aquatic life cycle and are associated with the Mississippi River. Since the project would not result in impacts to the Mississippi River or its tributaries, no impacts to these species are anticipated. The seven other species identified within 1 mile of the project are discussed below.

Jointed Rush
Jointed rush is a plant species listed as endangered that was observed along the shores of White Bear Lake in 1926. The project would not affect the shoreline of White Bear Lake; therefore, impacts to jointed rush are not anticipated.

Blanding's Turtle
There are 11 occurrences of Blanding's turtles within the NHIS review area, two of which are also within the potential area of disturbance. One occurrence was in a backyard in Maplewood between Larpenteur Avenue and Frost Avenue, and the other was near the interchange of Highway 61 and I-694 in White Bear Lake. The number of occurrences suggest that Blanding's turtles have the potential to be present within the potential area of disturbance; however, due to the urbanized nature of the project area and the habitat needs of the Blanding's turtle, it is unlikely that the species would be impacted by the project. To minimize any potential impacts, measures identified in the Blanding's turtle fact sheet will be evaluated and wildlife friendly erosion control methods will be used during construction.

White Wild Indigo
White wild indigo is a plant species listed as a special concern that was most recently observed in the NHIS review area in 1986. Due to the lack of potential habitat and recorded observations within the potential area of disturbance, impacts to white wild indigo are not anticipated.

Few-Flowered Spikerush
Few-flowered spikerush is a plant species listed as a special concern that was observed along the shores of White Bear Lake in 2013. The project would not affect the shoreline of White Bear Lake; therefore, impacts to few-flowered spikerush are not anticipated.

Least Darter
The least darter was observed in 2013 in Lake Phalen, which will not be impacted by this project. Therefore, impacts to this species are not anticipated.

Peregrine Falcon
The NHIS review area included two occurrences of peregrine falcon, and there are several records of falcons nesting on buildings and structures around Saint Paul near the Mississippi River. Based on this information, peregrine falcons have the potential to be present within the potential area of disturbance. However, the project would not impact cliffs or involve the demolition of any buildings near the Mississippi River; therefore, it is unlikely that the species would be impacted by the project.

Northern Sunfish
Northern sunfish were observation in 1978 in Keller Lake, which will not be impacted by this project. Therefore, no impacts to this species are anticipated.

Habitat Quality
RSEA
There is one regionally significant ecological area within 1/4 mile of the project, which is associated with a large wetland located north of Buerkle Road. The area is ranked as a 2, indicating an area of moderate size that may be at risk due to adjacent land uses or is an isolated site with some biodiversity significance. The area is not located within the potential area of disturbance; therefore, no impacts to the area is anticipated.

MCBS Sites of Biodiversity Significance
There are three sites of biodiversity significance within 1/4 mile of the project. Of these sites, two received a biodiversity significance rating of moderate and one received a ranking of below. One site with a moderate rating is associated with a large wetland located north of Buerkle Road. The second site with a moderate rating is associated with a large

unnamed wetland complex north of Goose Lake. The site with a below ranking is associated with Willow Lake. None of the three identified sites are located within the potential area of disturbance; therefore, no impacts to these areas are anticipated.

DNR Public Waters
Several DNR Waters and Waterways are located within one mile of the project. None of these resources are located within the potential area of disturbance and would not be directly impacted by the project. Additionally, best management practices and permanent stormwater controls would reduce sedimentation to a level that is acceptable for an NPDES permit and other local requirements, therefore, no indirect adverse impacts on aquatic habitat and associated aquatic wildlife of these resources area anticipated.

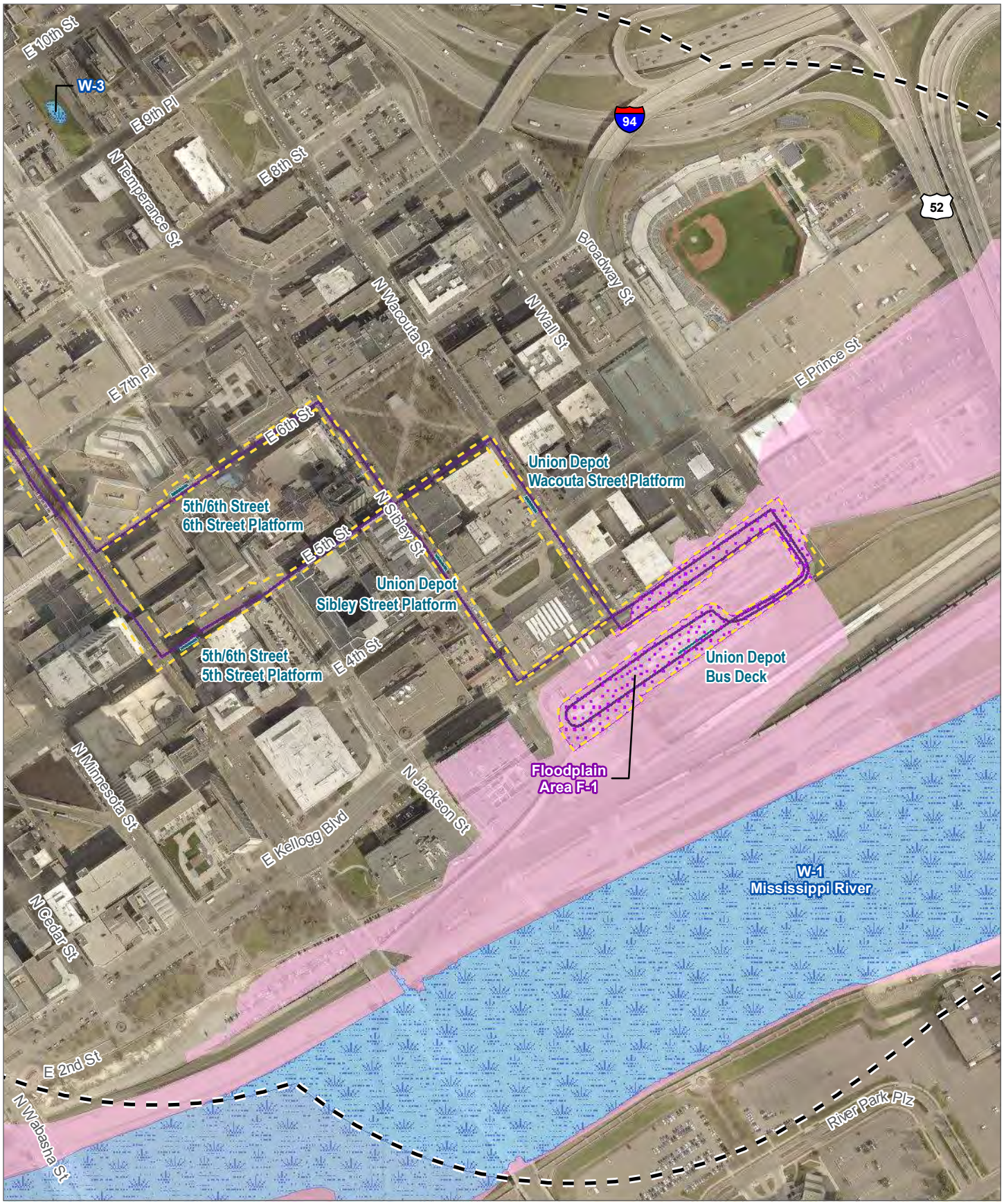
Based on the information listed above, no adverse impacts are anticipated to the species identified through the NHIS search or to nearby RSEAs, MCBS Sites of Biodiversity Significance, and DNR Public Waters. We request confirmation of these conclusions. Please let us know if you have any questions.

Thank you,

Aaron Stolte
Kimley-Horn | 767 Eustis Street, Suite 100, St. Paul, MN 55114
Direct: 612 326 9510 | Mobile: 651 491 4798 | www.kimley-horn.com

APPENDIX B

SURFACE WATERS AND FLOODPLAINS WITHIN THE POTENTIAL AREA OF DISTURBANCE



Study Area
Potential Area of Disturbance
Proposed Route
Proposed Platforms
Estimated Wetland Boundaries
Wetland Within Potential Area of Disturbance
Federal Emergency Management Agency 100-year Floodplain
Floodplain Within Potential Area of Disturbance

Appendix B
Surface Water and Floodplains Within the Potential Area of Disturbance

0 200 400 Feet

Study Area
Potential Area of Disturbance
Proposed Route
Proposed Platforms
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Floodplain Within Potential Area of Disturbance

Appendix B
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0 200 400 Feet

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0 200 400 Feet

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0 200 400 Feet

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Floodplain Within Potential Area of Disturbance

Appendix B
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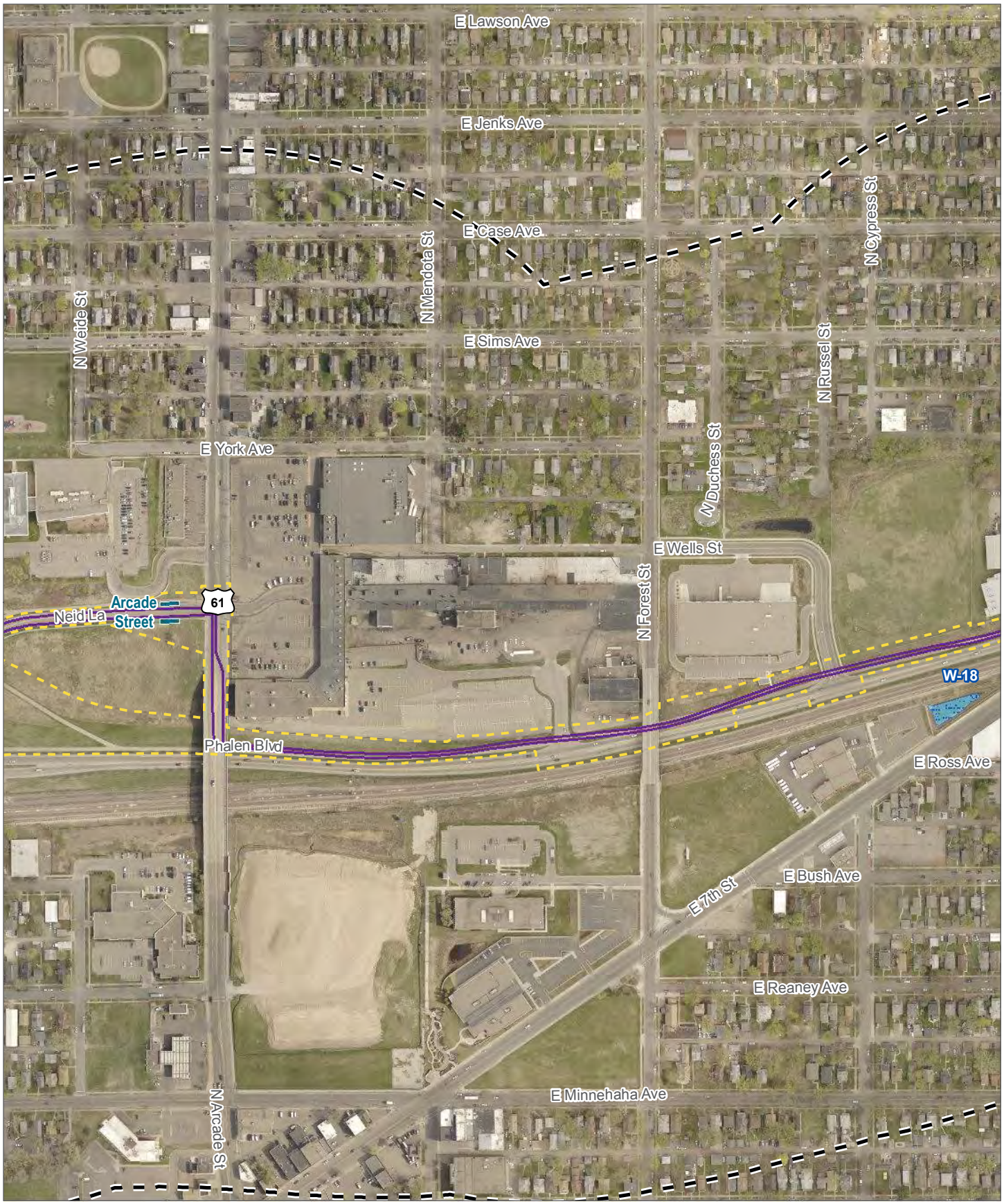
0 200 400 Feet



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Floodplain Within Potential Area of Disturbance

Appendix B
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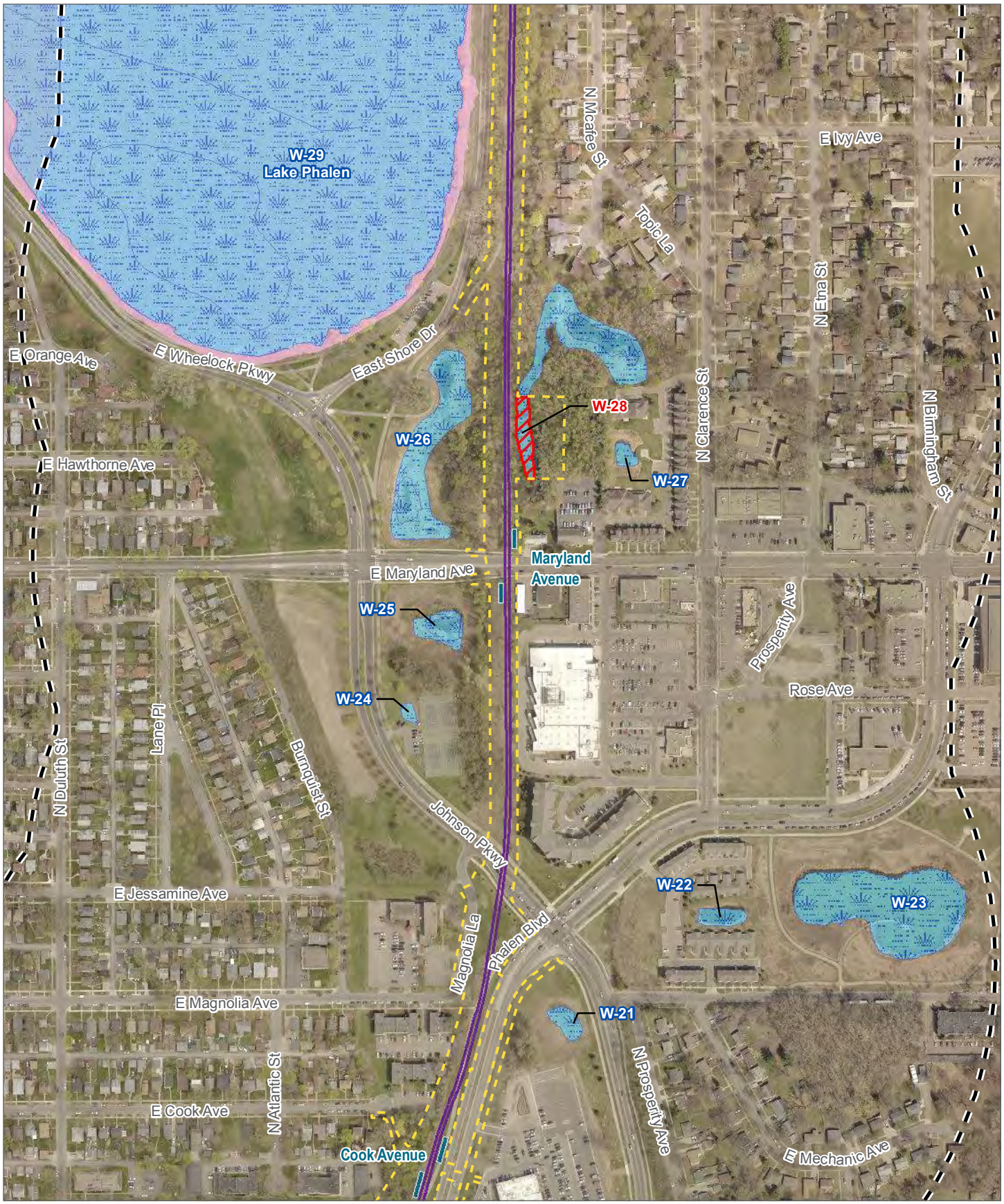

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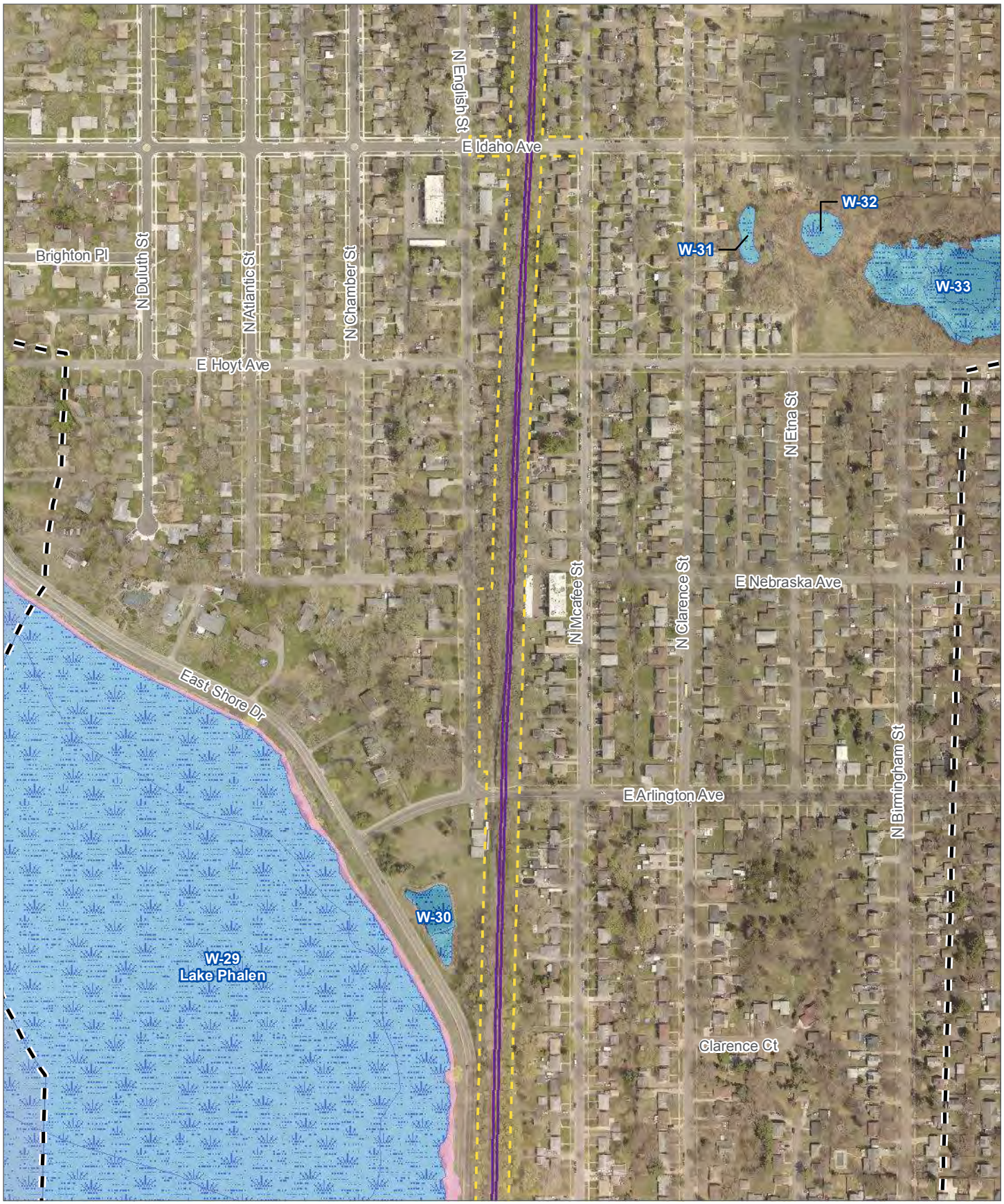

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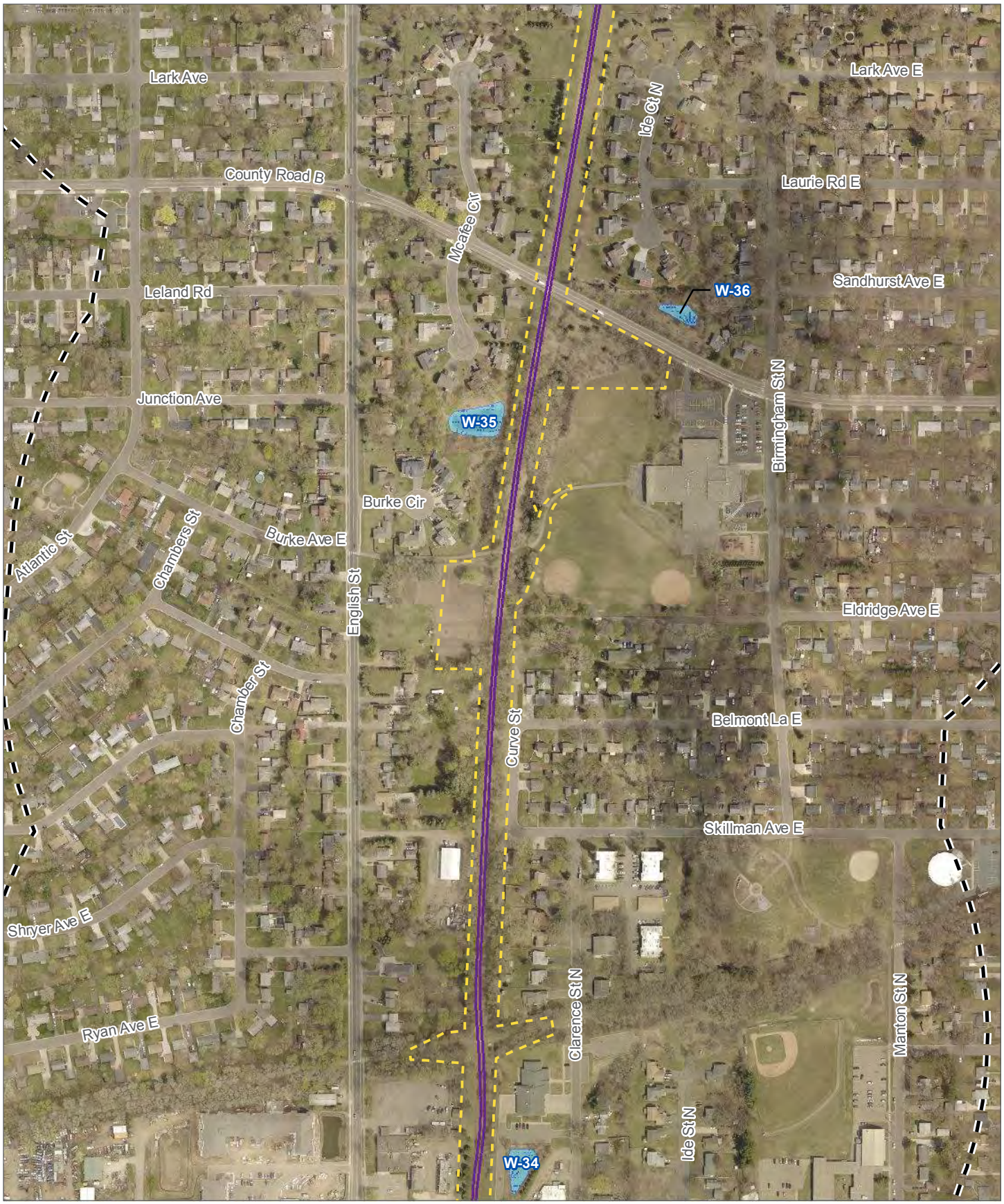

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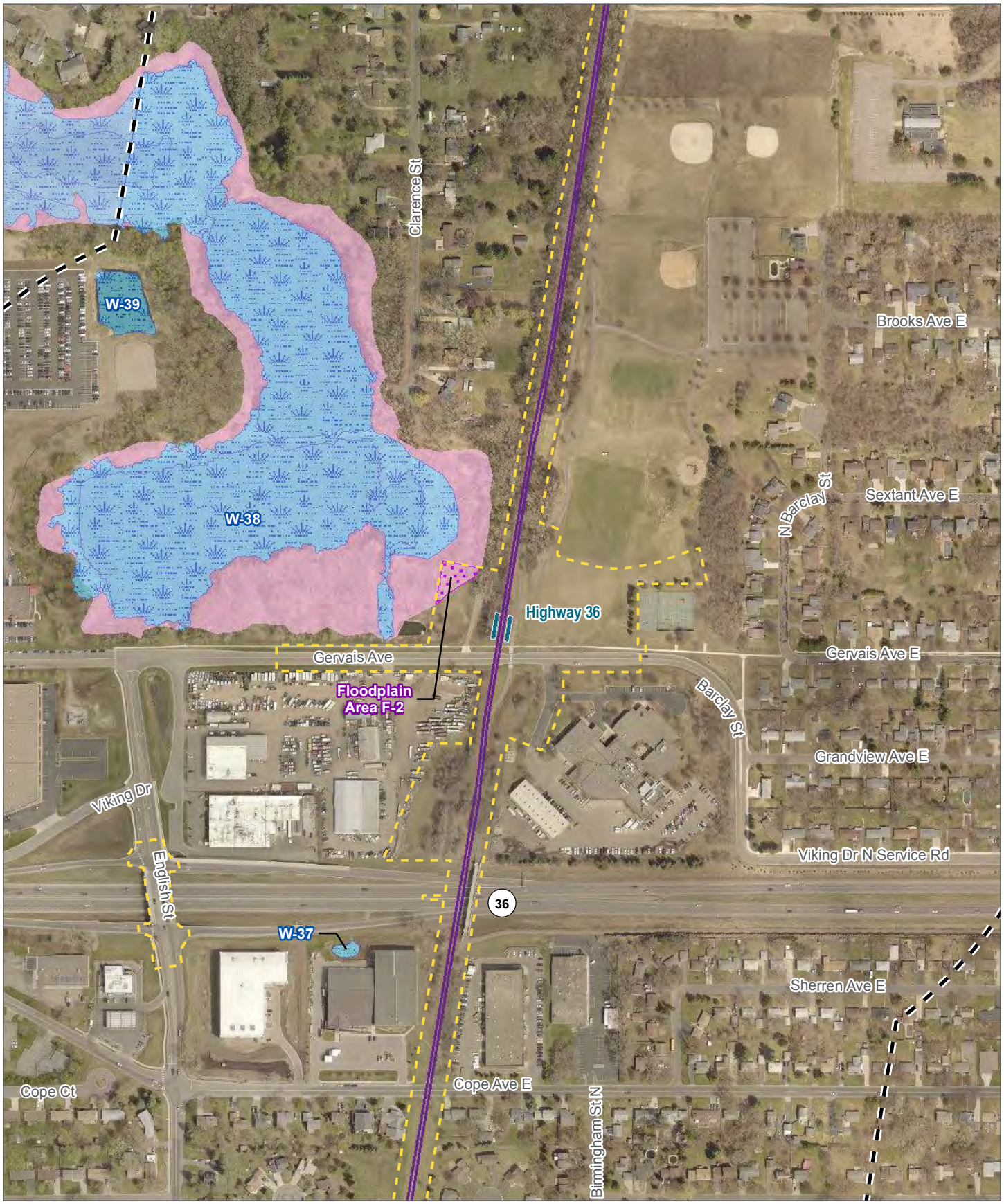

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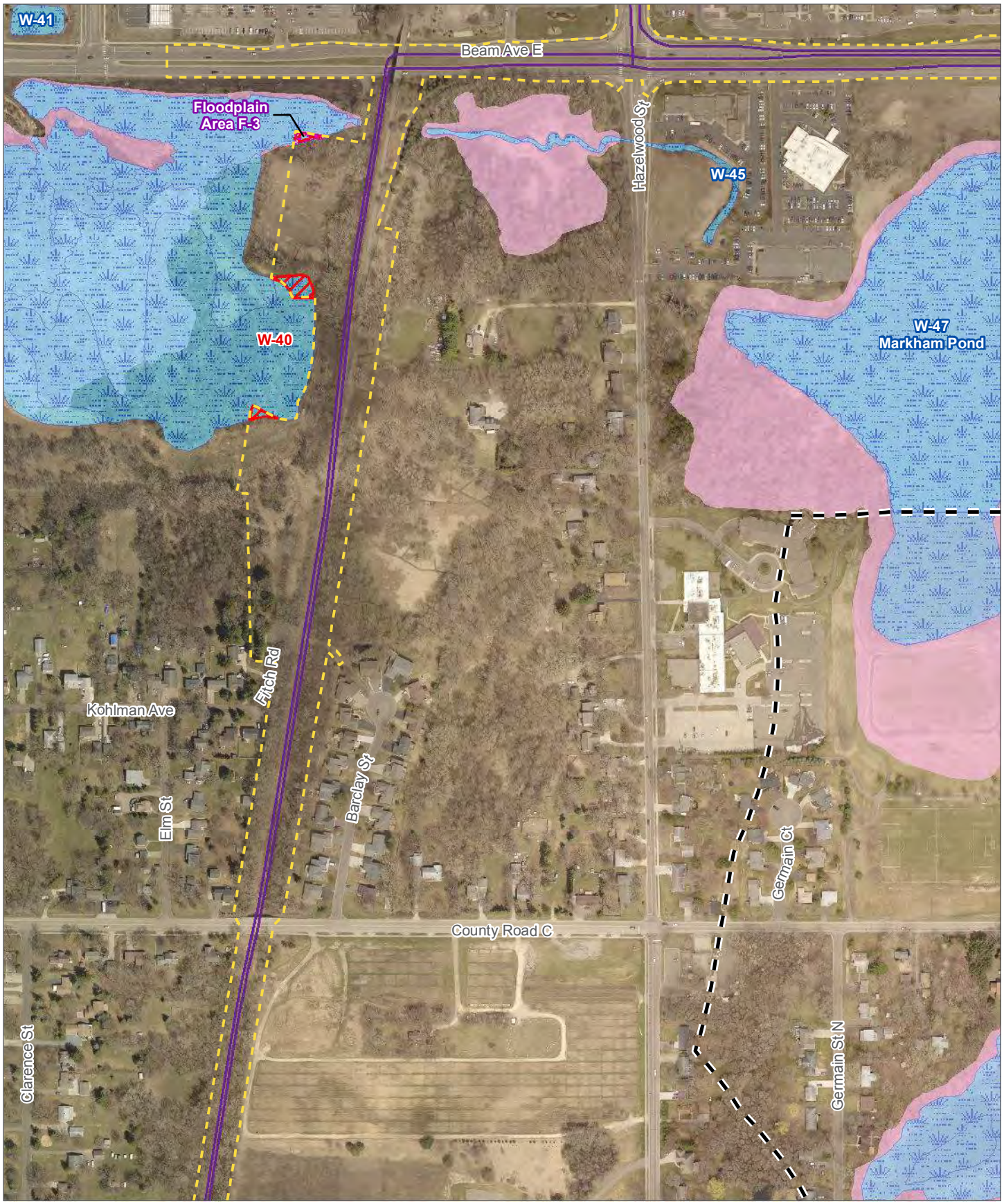

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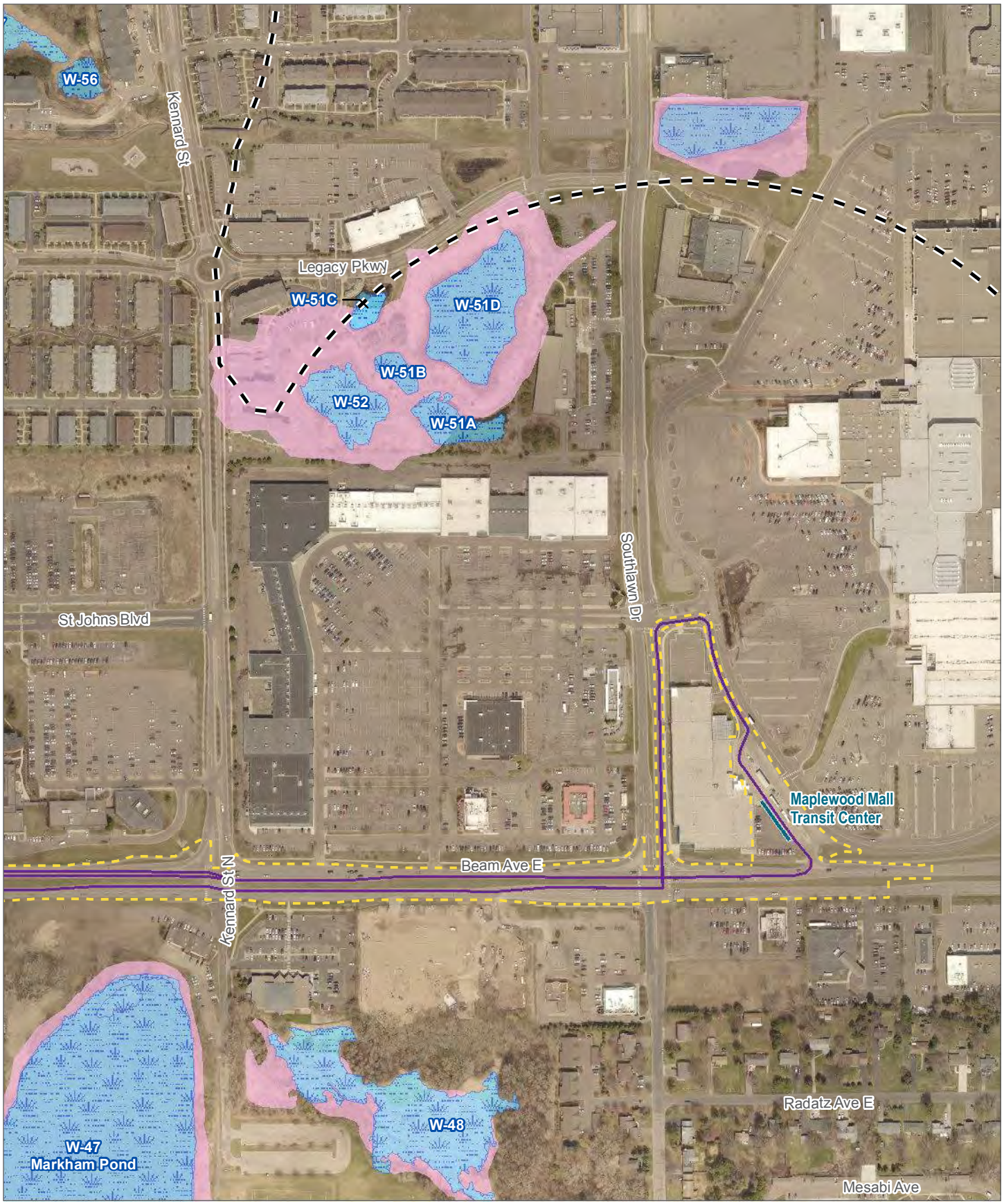

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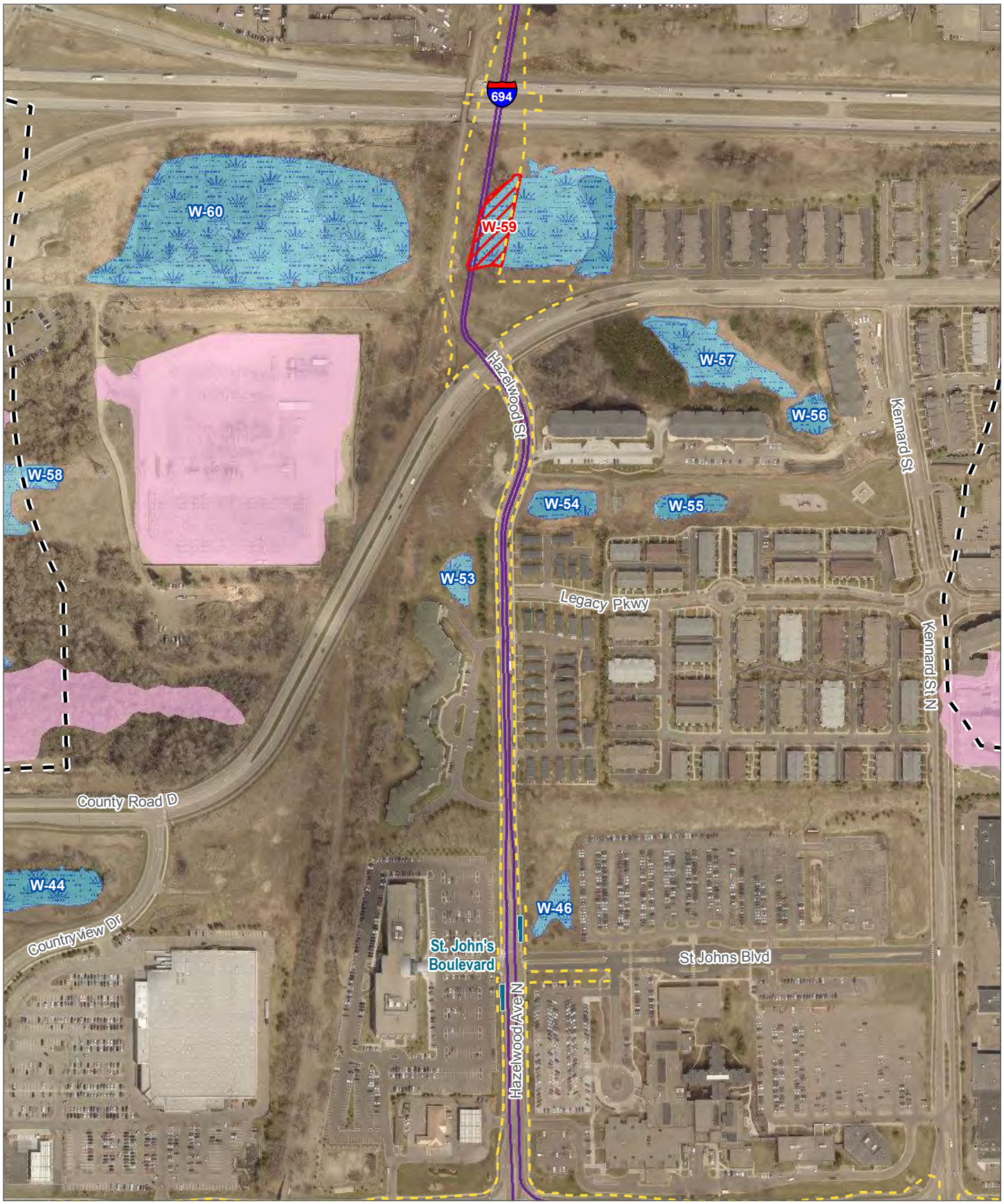

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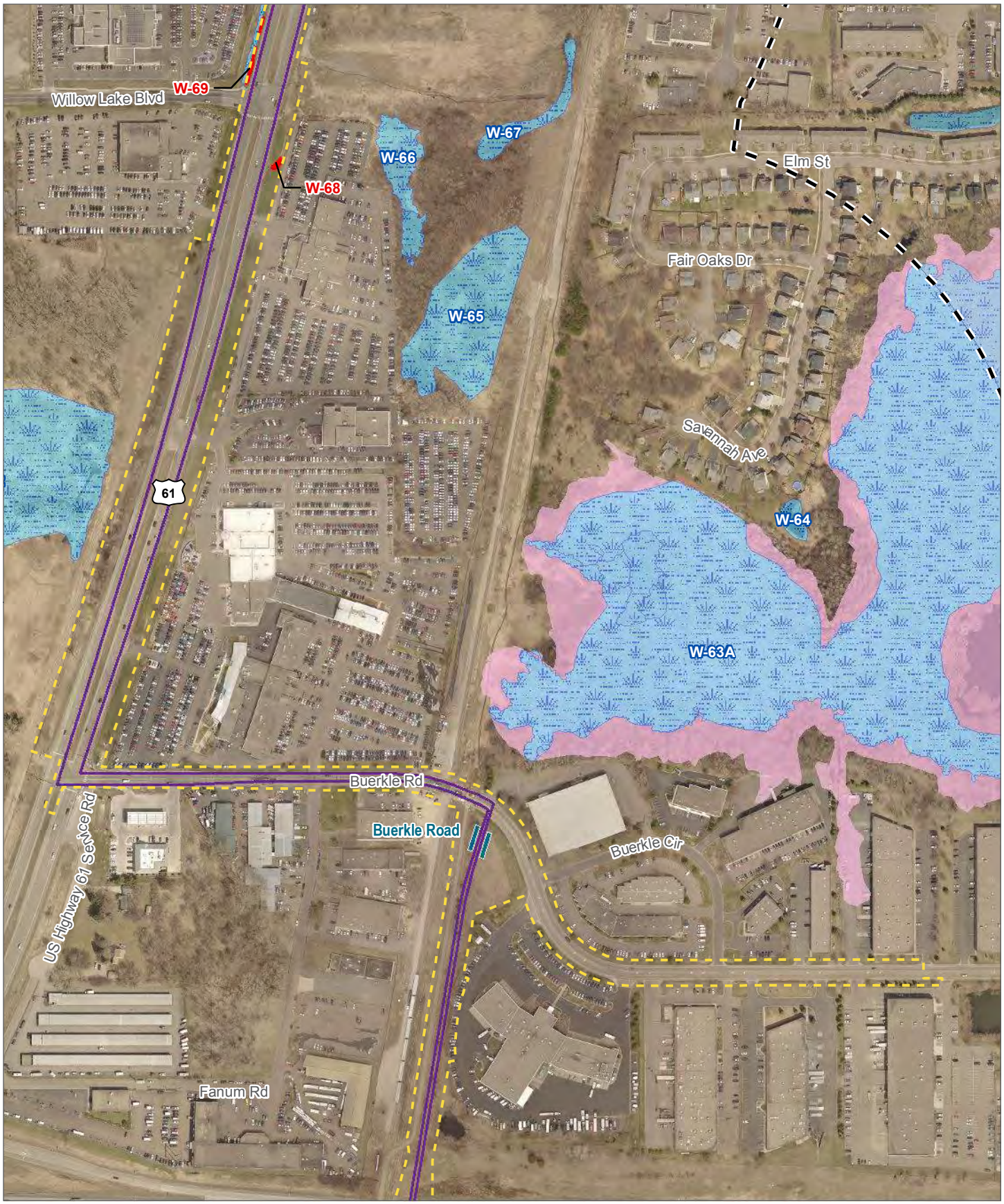

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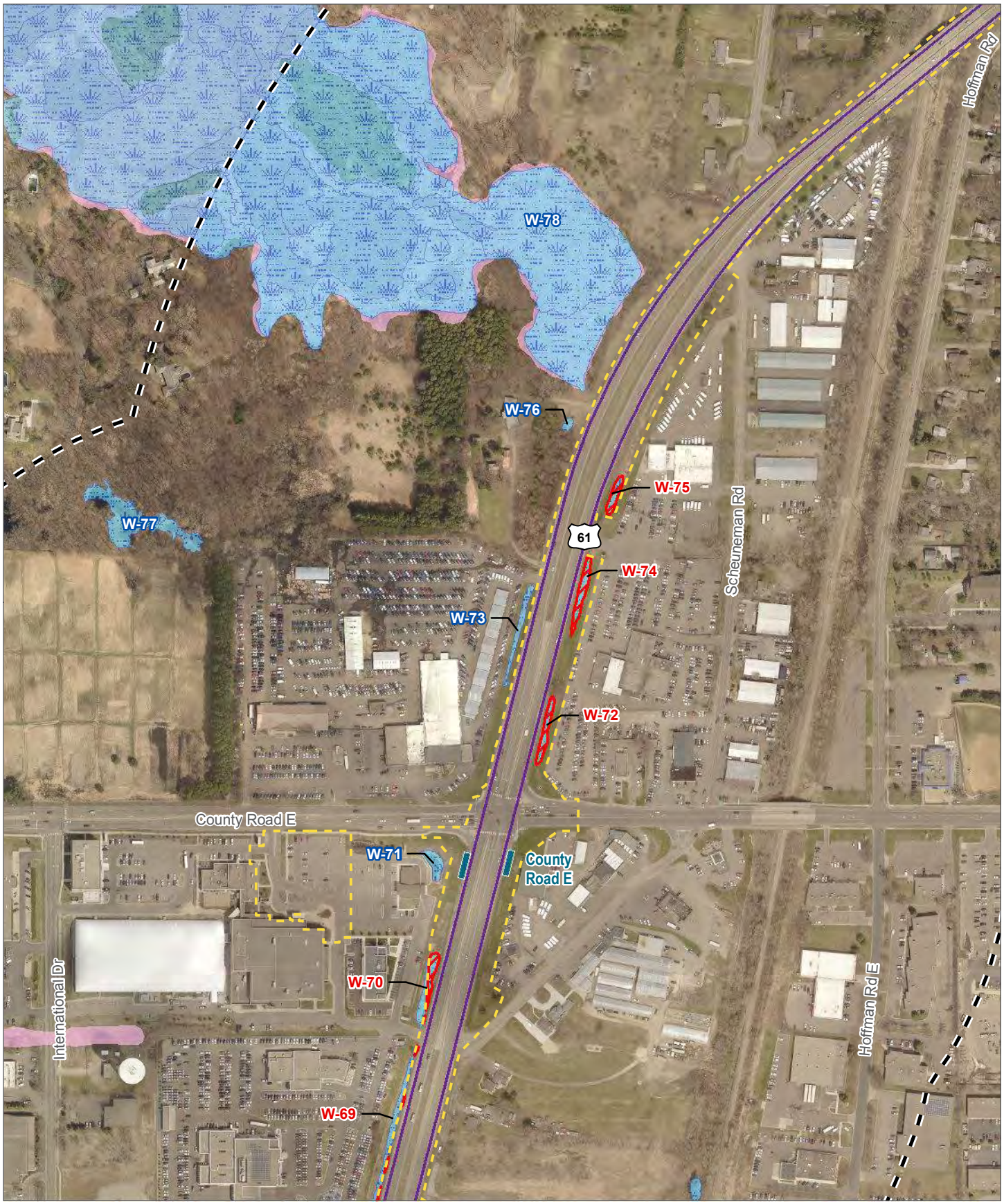

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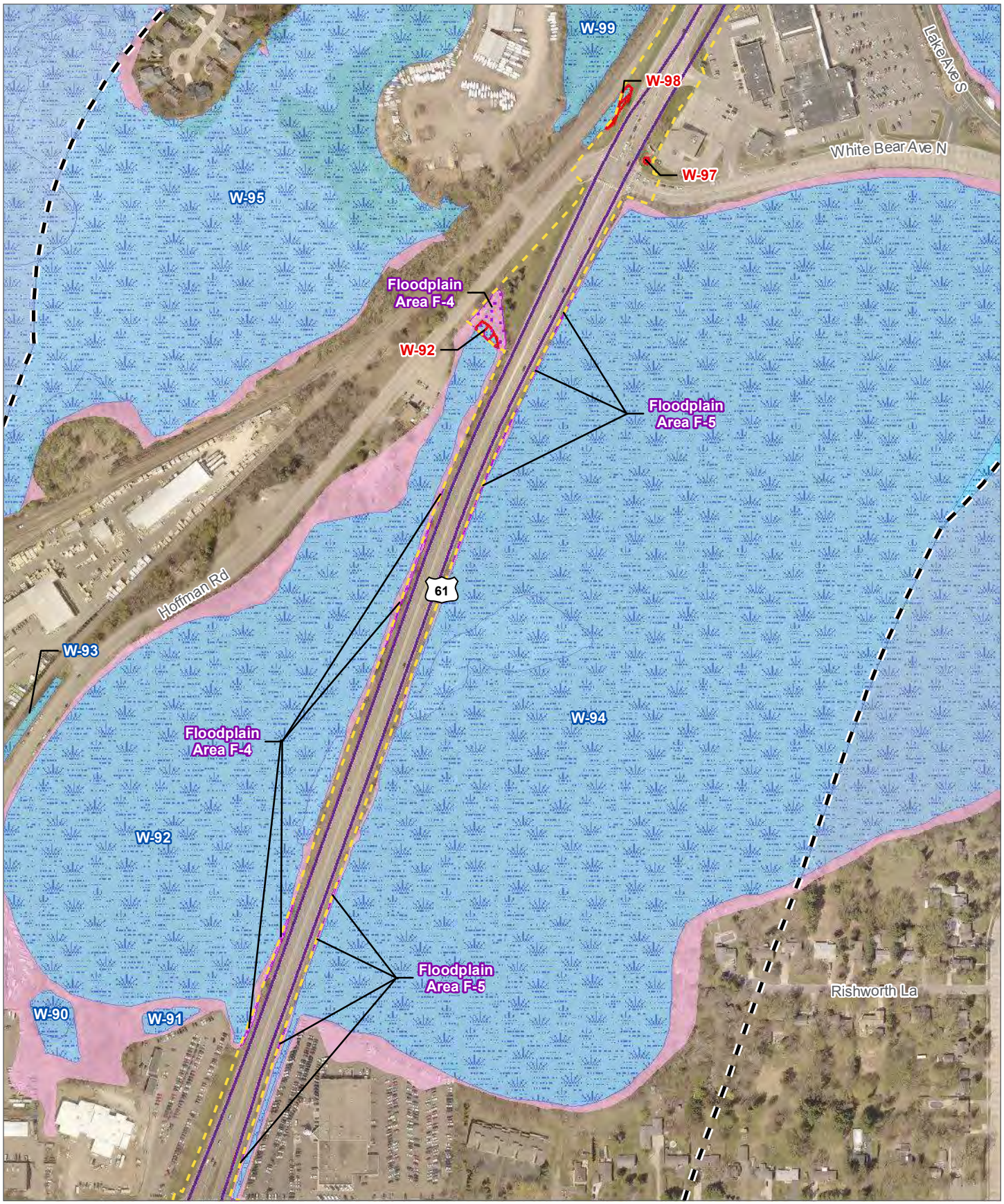

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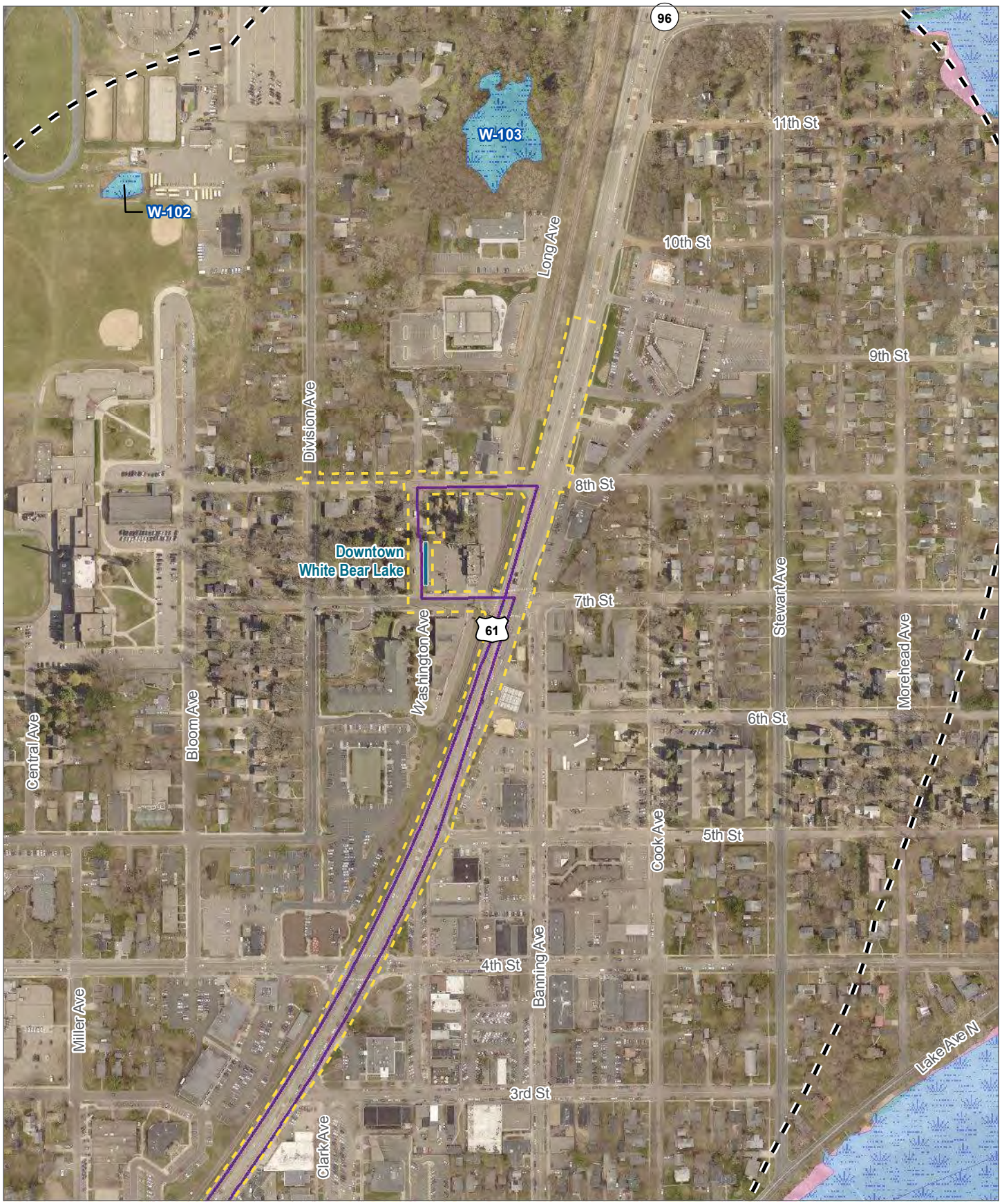

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Aquatic Habitat
Trees / Forested Habitat
Grassland Habitat

Habitat within the Potential Area of Disturbance
Aquatic
Trees
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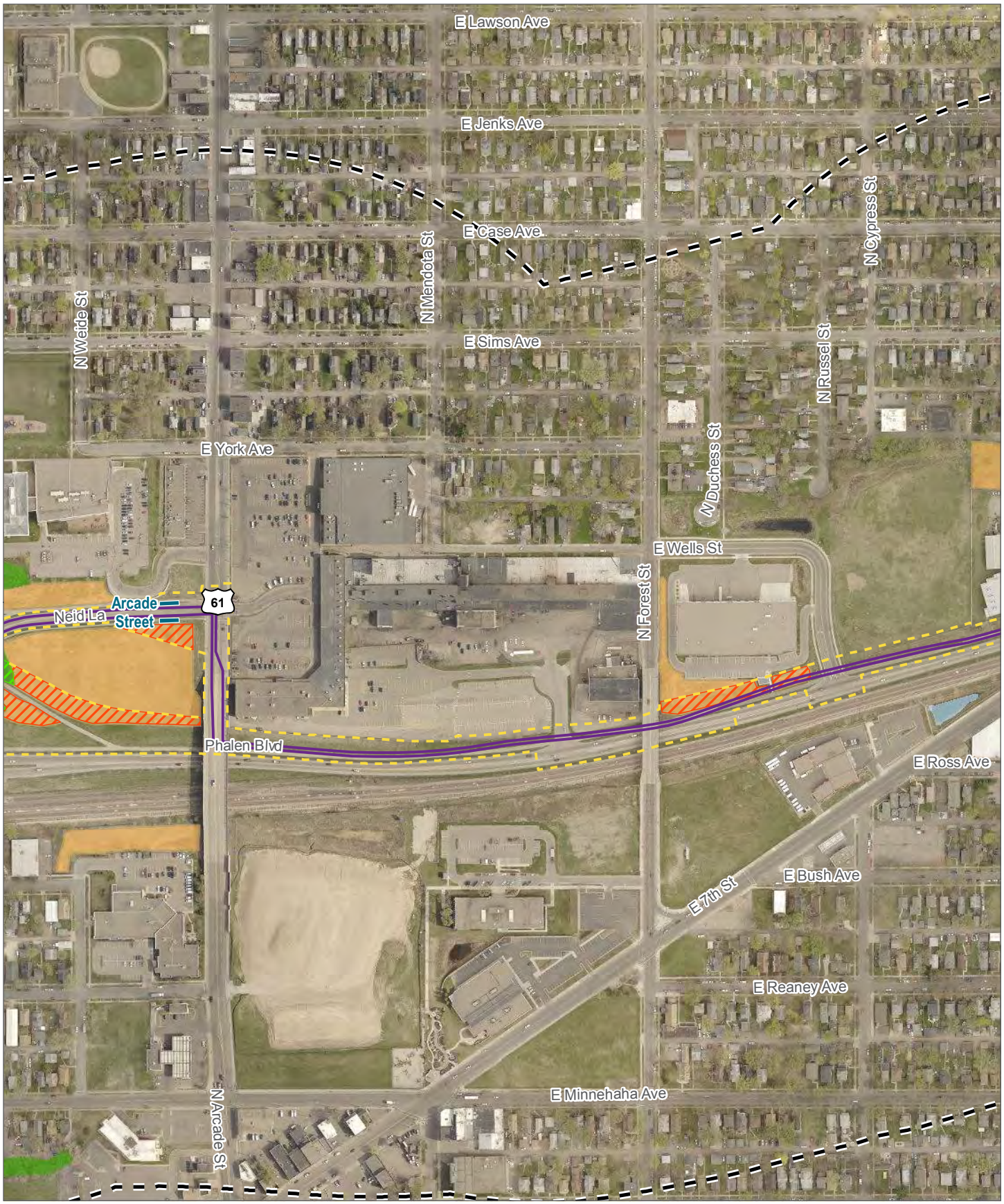

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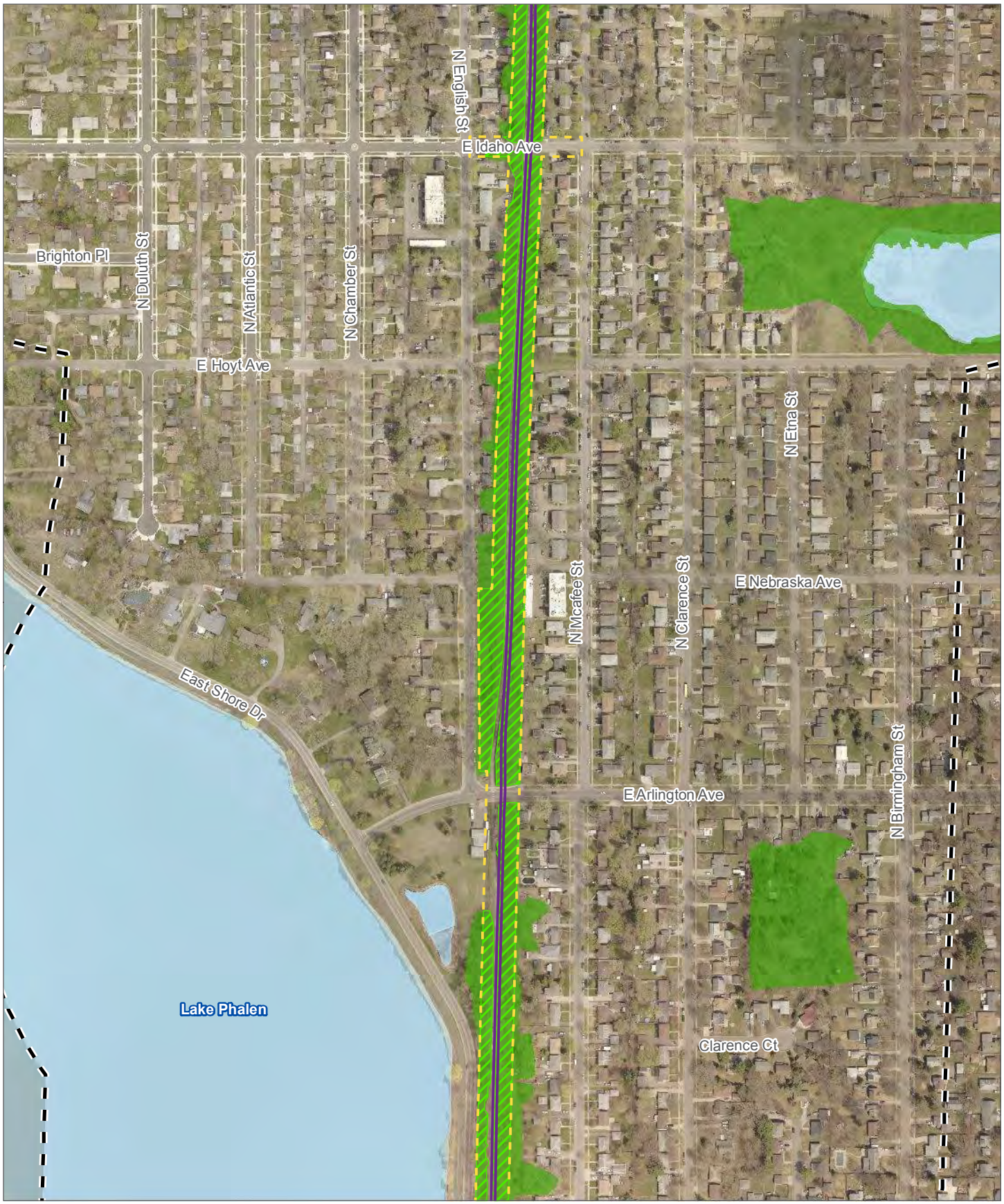

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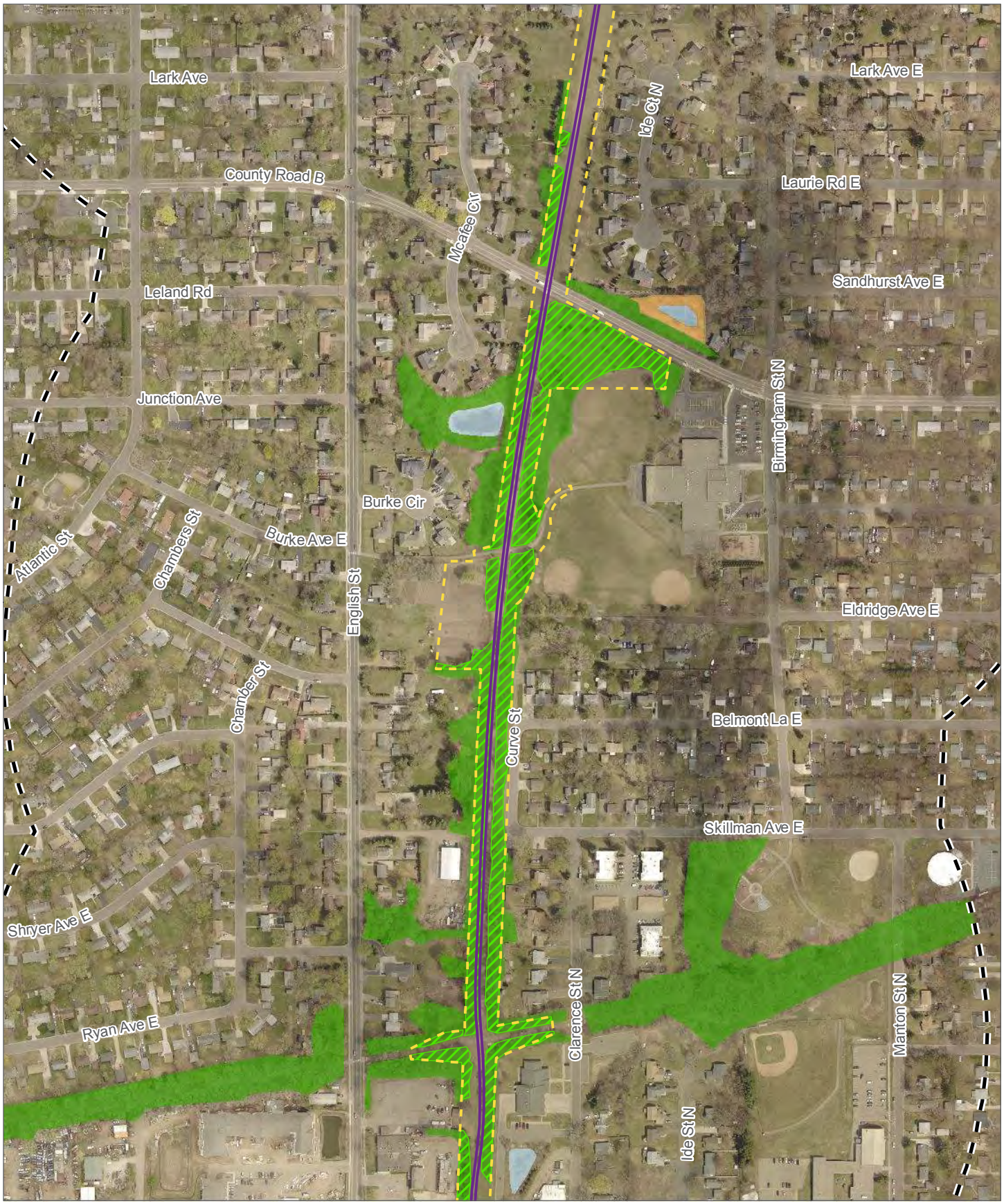

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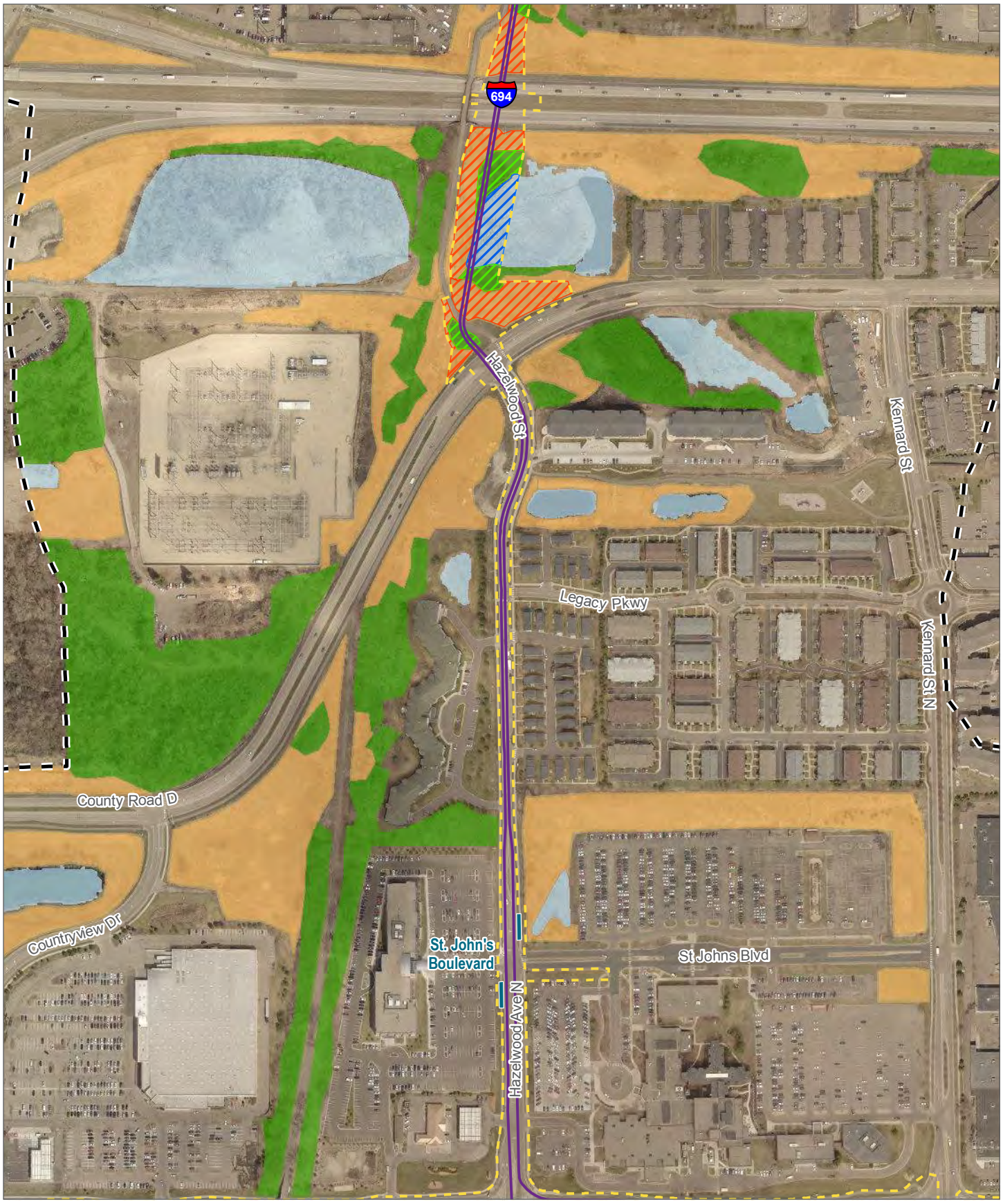

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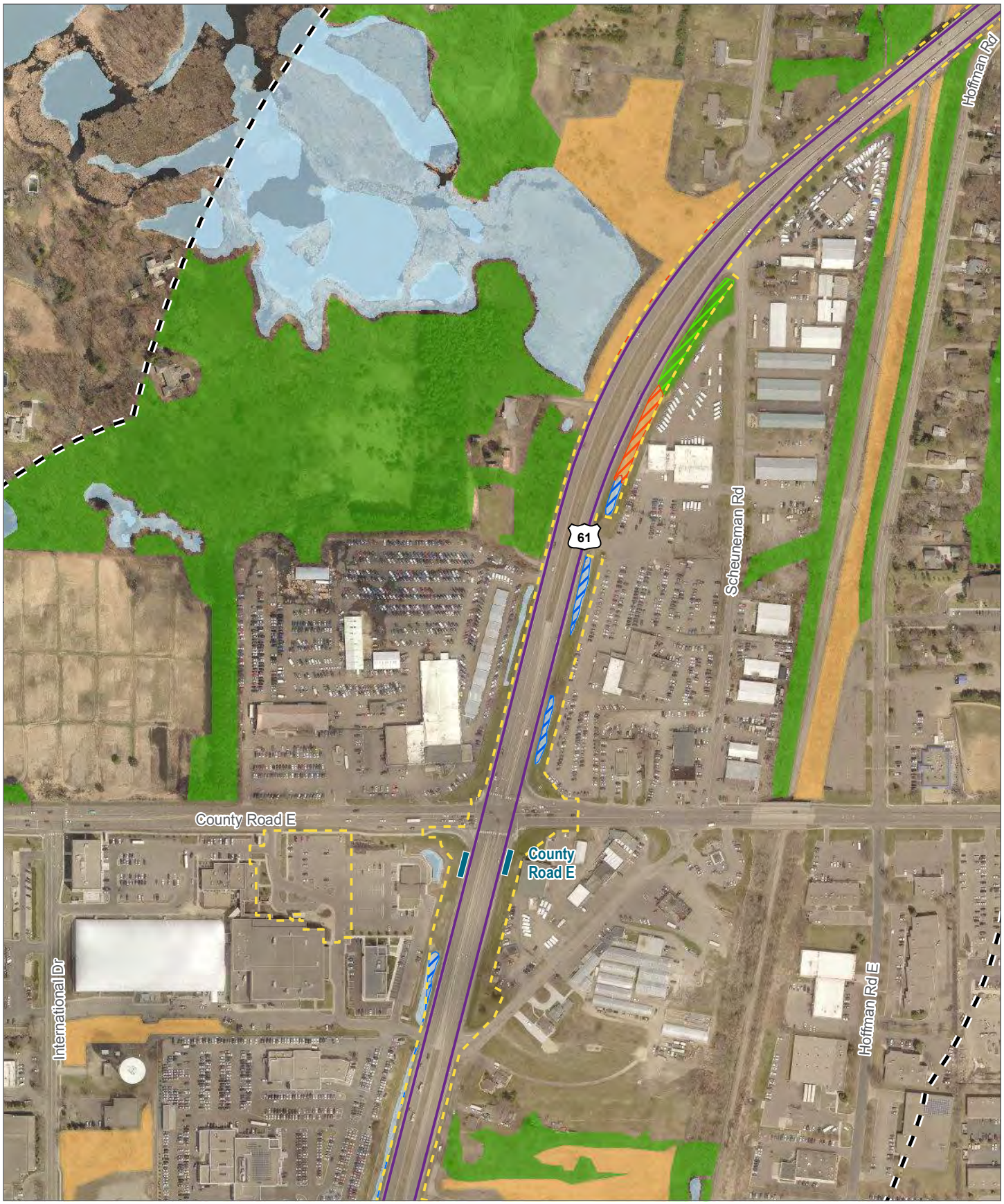

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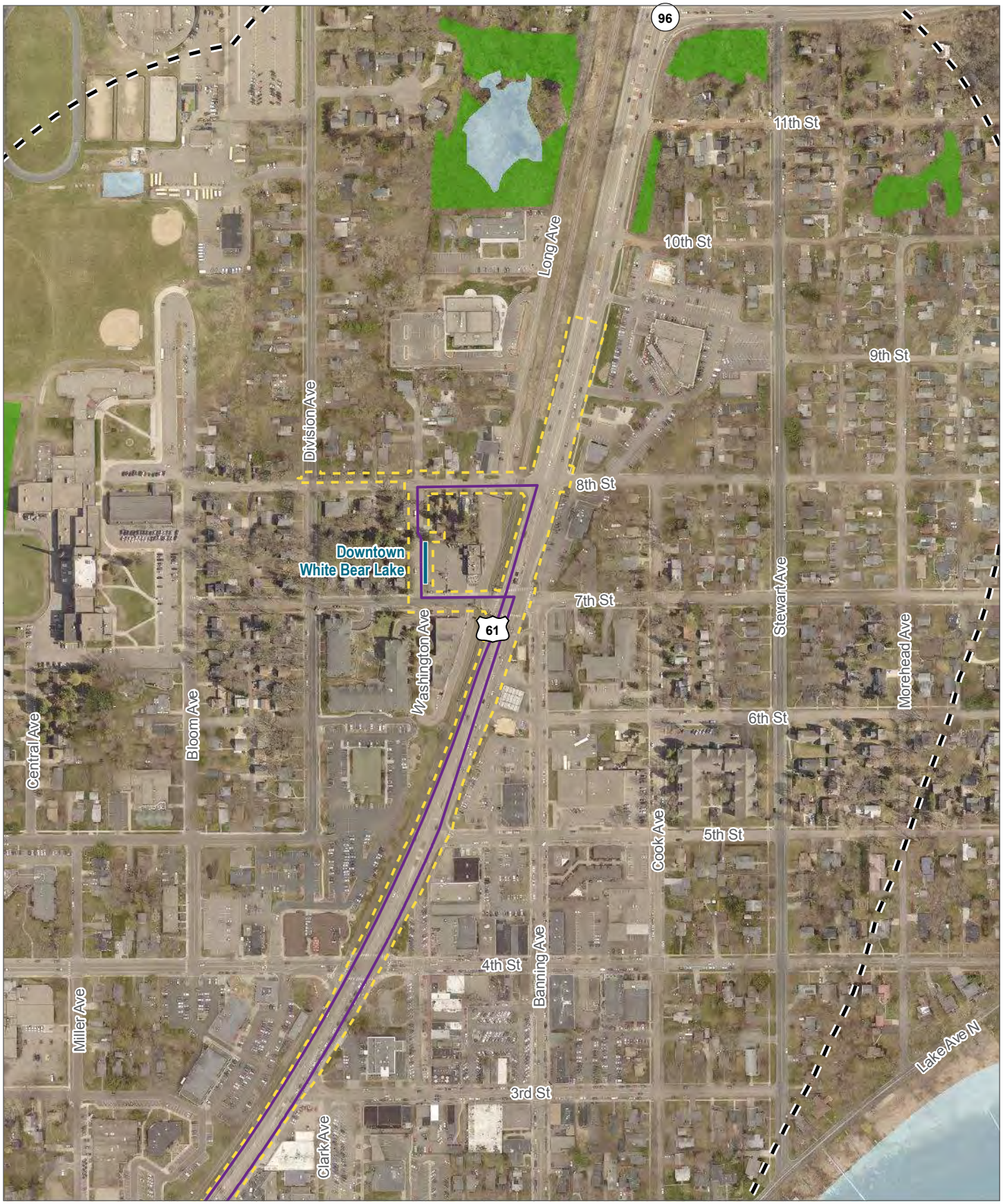

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STORMWATER AND WATER QUALITY TECHNICAL REPORT

APRIL 2021

Prepared by:

Kimley»Horn

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1. INTRODUCTION

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 technical report has been prepared in support of the EA.

This technical report evaluates potential impacts to the stormwater drainage system and resulting impacts on surface water quality from the Build Alternative. The objective of this report is to summarize the project's anticipated stormwater and water quality impacts within the study area and to identify measures that are planned to avoid, minimize and/or mitigate these potential impacts. This report includes:

- A summary of the critical regulatory requirements that govern stormwater management mitigation standards.
- A description on how the proposed project improvements would likely affect existing drainage systems and water quality within the project area, which includes the cities and township adjacent to the Rush Line BRT route.
- Identification of a combination of specific types and potential locations of stormwater best management practices[1] and more general categories of best management practices that may be used to satisfy regulatory requirements relating to stormwater.
- Qualitative and quantitative design recommendations for the Build Alternative to provide the Rush Line BRT Project staff and regulatory agencies with information on how the project would meet various regulatory requirements.

2. REGULATORY CONTEXT AND METHODOLOGY

2.1. REGULATORY CONTEXT

The following agencies have roles concerning stormwater management within the study area (defined in Section 2.2):

- Watershed organizations:
    - Capitol Region Watershed District.

[1] Best management practices are defined in Minnesota Statutes, section 103F.711 as practices, techniques and measures that prevent or reduce water pollution from nonpoint sources by using the most effective and practicable means of achieving water quality goals.

    - Ramsey-Washington Metro Watershed District.
    - Vadnais Lake Area Watershed Management Organization.
    - Rice Creek Watershed District.
- State agencies:
    - Minnesota Pollution Control Agency.
    - Minnesota Department of Transportation.
- County and municipalities:
    - Ramsey County.
    - Saint Paul.
    - Maplewood.
    - White Bear Township.
    - Gem Lake.
    - Vadnais Heights.
    - White Bear Lake.

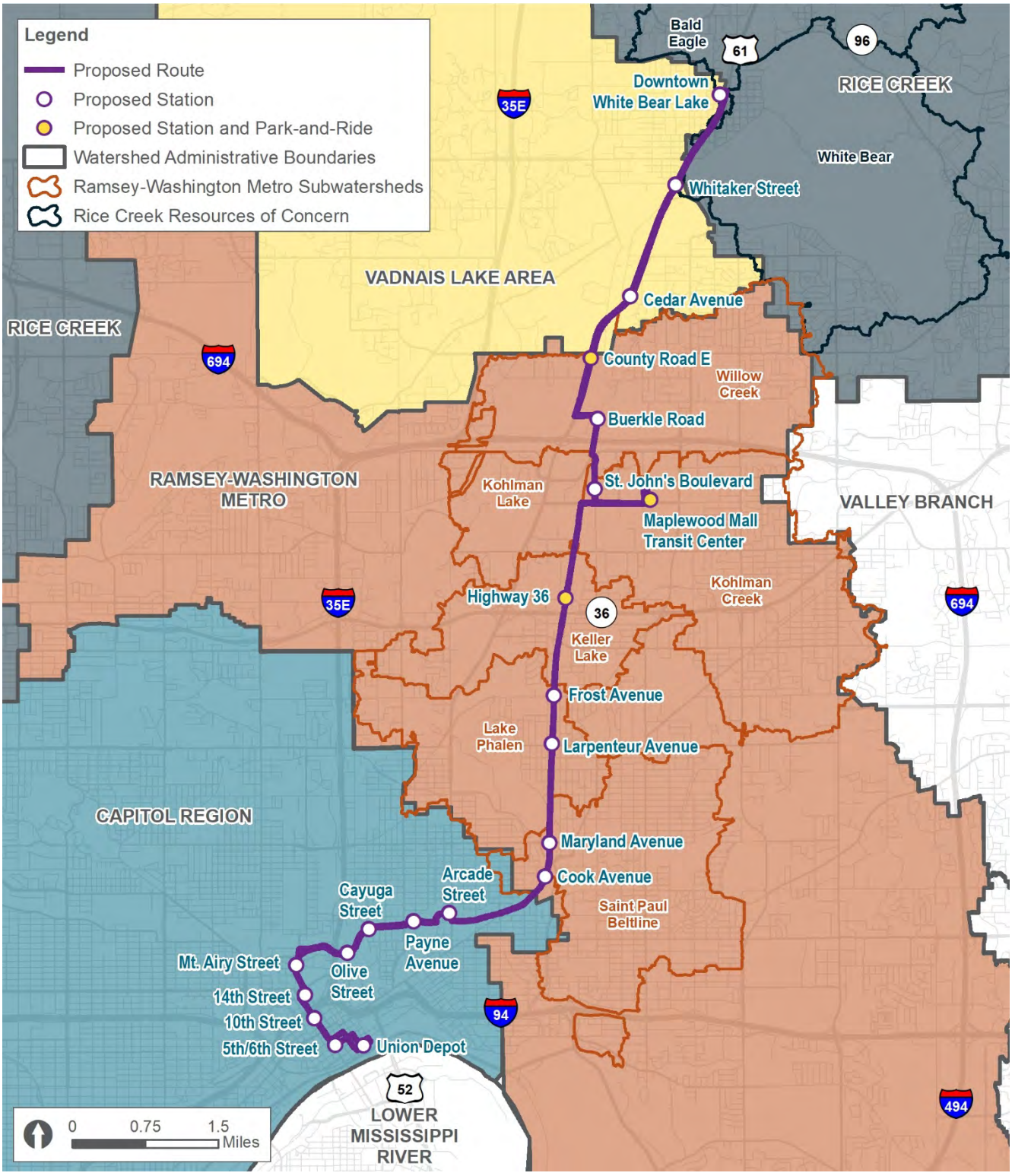
The three watershed districts and the Minnesota Pollution Control Agency primarily share regulatory and permitting authority for stormwater management and water quality treatment within the study area. The member cities of the Vadnais Lake Area Watershed Management Organization are the permitting authorities for the portions of the project within that watershed. Each agency has its own rules that include specific design standards and permitting requirements as summarized below. Figure 1 shows the watershed administrative boundaries in the project area. Rush Line BRT Project staff met individually with each of the watershed districts in October 2018 to review the project layout and potential impacts; confirm regulatory standards; document known flooding, water quality issues or priority areas; and collect available models and related stormwater system data.

In Minnesota, the Minnesota Pollution Control Agency administers the National Pollutant Discharge Elimination System construction stormwater permitting program, which authorizes stormwater runoff from construction sites that disturb 1 or more acres. Minnesota adopted its current permit in August 2018.

The cities, township, county and Minnesota Department of Transportation may have additional design considerations regarding stormwater conveyance system design and water quality treatment for locations within their rights-of-way or that connect to their system. Rush Line BRT Project staff coordinated stormwater issues with these agencies through regularly scheduled issue resolution team meetings in January and February 2019. These meetings included an overview of the watershed district meetings, review of potential stormwater management locations and a review of the study area to identify known flooding or water quality issues within each agency's jurisdiction.

The project would be subject to regulations when it is submitted to the permitting authorities for approval. Permitting will be completed during the project's engineering phase so that the design accurately addresses anticipated impacts.

Figure 1: Watershed Administrative Boundaries and Relevant Subwatersheds



2.1.1. Capitol Region Watershed District

Projects that result in 1 acre or more of land disturbance are required to retain on-site a volume equal to 1.1 inches of runoff over the new and reconstructed impervious surfaces. If a project cannot retain stormwater volume on site through the use of infiltration and/or reuse practices, the Capitol Region Watershed District's alternative volume-reduction methods allow a permit applicant to build filtration or iron-enhanced filtration practices on-site at a reduced level of volume reduction credit, followed by using volume-reduction best management practices in an off-site location, preferably within the same subwatershed, or to utilize banked credits. A project that cannot achieve this must pay into the District Stormwater Impact Fund, which covers the cost to construct volume-reduction best management practices within the watershed. Capitol Region Watershed District's board annually sets the District Stormwater Impact Fund's unit cost for construction. The applicant shall incorporate effective nonpoint source pollution reduction best management practices on-site to achieve 90 percent removal of total suspended solids from runoff generated by a 2.5-inch rainfall.

2.1.2. Ramsey-Washington Metro Watershed District

Ramsey-Washington Metro Watershed District has the same requirements as Capitol Region Watershed District regarding volume reduction best management practices and water quality goals for reducing total suspended solids.

2.1.3. Vadnais Lake Area Watershed Management Organization

The Vadnais Lake Area Watershed Management Organization requires projects that result in 10,000 square feet or more of new or reconstructed impervious surfaces to provide best management practices that retain on-site 1.1 inches of runoff volume from the new and reconstructed impervious surfaces. Projects are reviewed by the Vadnais Lake Area Watershed Management Organization but are permitted by the member cities.

2.1.4. Rice Creek Watershed District

Rice Creek Watershed District requires a permit for public linear projects that create or reconstruct 10,000 square feet or more of impervious surface within any "resource of concern" area. A resource of concern area is essentially a subwatershed boundary that drains to a major receiving water, such as Bald Eagle Lake or White Bear Lake. Projects are required to provide a water quality treatment volume of 0.75 inches of runoff from the impervious surfaces for a roadway or linear project and 1.0 inches of runoff from parking lots. Treatment practices must be provided within each resource of concern where the project exceeds the 10,000 square foot impervious threshold.

2.1.5. Minnesota Pollution Control Agency

The Minnesota Pollution Control Agency administers the National Pollutant Discharge Elimination System construction stormwater permit program, which requires that permit applicants have a Stormwater Pollution Prevention Plan that details temporary and permanent erosion prevention and sediment control best management practices that a project would use during construction. The National Pollutant Discharge Elimination System construction stormwater permit also requires permanent treatment of stormwater runoff at sites where construction activity results in a net increase of 1 acre or more of impervious surface area.

The Minnesota Pollution Control Agency also administers the National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System permit program, which requires that municipal permit applicants develop and implement a program to reduce the discharge of pollutants from their storm sewer system to the maximum extent practicable. The Minnesota Pollution Control Agency

initiated an update to this permit in 2019. One of the proposed changes would require that permittees update their local stormwater standards, specifically related to the water quality volume requirements. If changes are subsequently made at the local level, it is likely that only small changes in the required water quality volumes would be realized. In addition, because the Capitol Region Watershed District, Ramsey-Washington Metro Watershed District and the Vadnais Lake Area Watershed Management Organization standards are already at a level consistent with that being proposed by the Minnesota Pollution Control Agency, the changes would be limited to the portions of the project within the Rice Creek Watershed District.

The Clean Water Act of 1972 [2] requires states to develop lists of impaired waters, defined as waters that do not meet quality standards set by states despite the use of technology-based regulations and other required controls. The law requires that states rank their impaired waters by priority and calculate these waters' total maximum daily loads, which is the maximum amount of a pollutant that can be present in a waterbody for it to still meet water quality standards.

The Minnesota Pollution Control Agency maintains and updates biennially the list of Minnesota's impaired waters. Project areas with stormwater discharge points within 1 mile of impaired waters must use additional best management practices that include more stringent stormwater treatment.

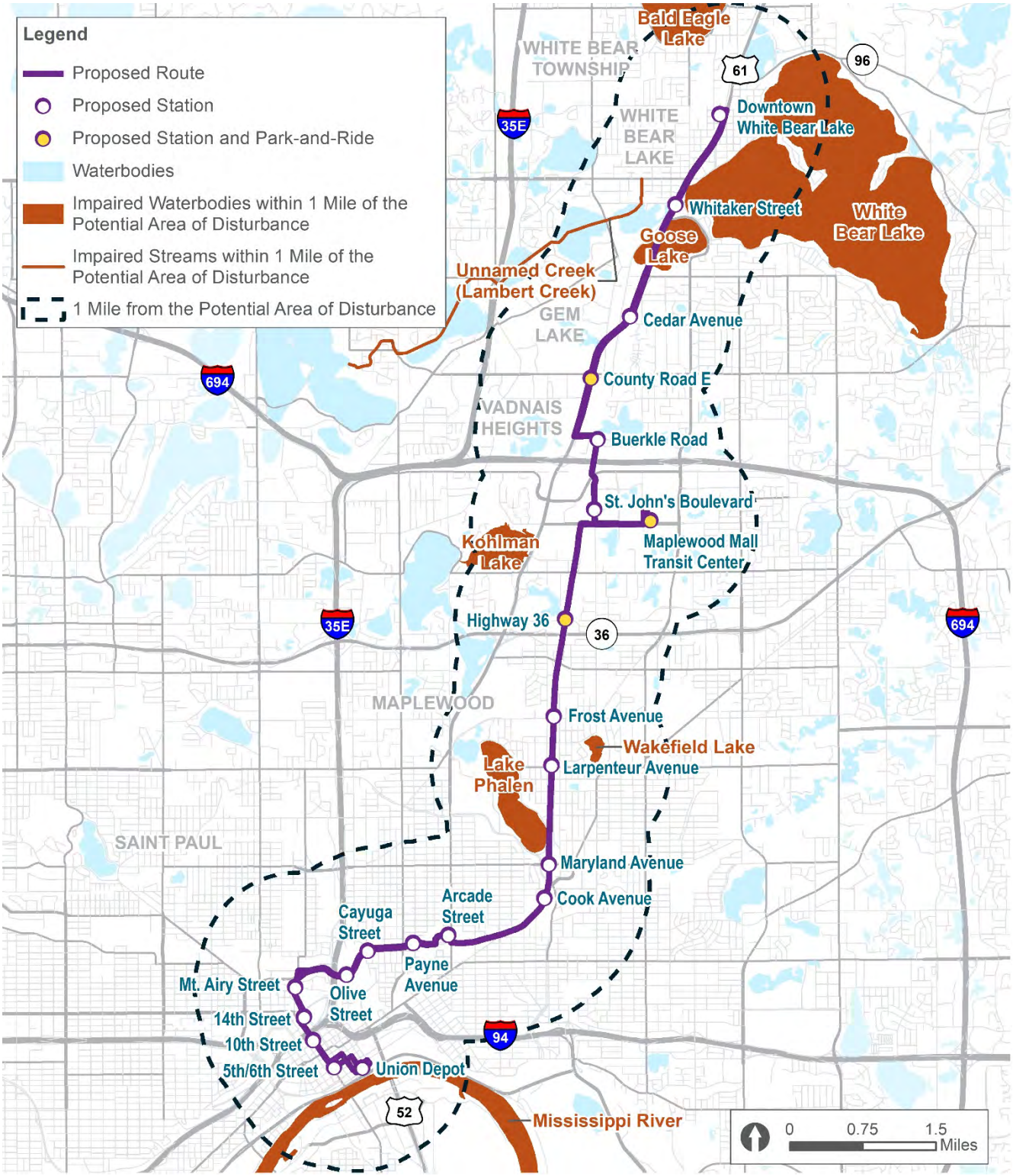
Table 1 lists the impaired waters that fall within 1 mile of the Build Alternative's potential area of disturbance (the estimated area where construction would occur for the proposed project at this stage of design), including the types of impairments and their respective total maximum daily load status according to the US Environmental Protection Agency. All of the waters except Wakefield Lake would receive direct runoff from the project or indirect runoff that has been treated and/or has passed through other waterbodies. Figure 2 shows the locations of the impaired waters.

Table 1: Impaired Waters Within 1 Mile of the Potential Area of Disturbance

Name	Impairments	Impairments with Approved Total Maximum Daily Load Plans [3]
Mississippi River (Upper St. Anthony Falls to St. Croix River)	Mercury, fecal coliform, polychlorinated biphenyl, perfluorooctane sulfonate, nutrients, total suspended solids	Mercury and total suspended solids
Lake Phalen	Mercury	Mercury
Wakefield Lake	Nutrients	Nutrients
Kohlman Lake	Nutrients and chloride	Nutrients and chloride
Goose Lake	Nutrients	Nutrients
White Bear Lake	Mercury	Mercury
Unnamed Creek (Lambert Creek)	Fecal coliform	Fecal coliform
Bald Eagle Lake	Mercury and nutrients	Mercury and nutrients

[2] Federal Water Pollution Control Act. 33 USC Section § 1251(a) *et seq*. (1972). Available at: https://www.epa.gov/sites/production/files/2017-08/documents/federal-water-pollution-control-act-508full.pdf. Accessed October 2018.
[3] Approved by the US Environmental Protection Agency as of December 2018.

Figure 2: Impaired Waters Within 1 Mile of the Potential Area of Disturbance



2.1.6. Minnesota Department of Transportation

The Minnesota Department of Transportation has drainage standards for design of drainage systems on state highways and local roads that are designated state aid routes. Standards applicable to this project include storm drainage systems (catch basins, storm sewer, roadside ditches, etc.), stormwater storage facilities or treatment basins and culverts. These standards are defined in the Minnesota Department of Transportation Drainage Manual and related technical memos.[4]

In addition, where stormwater volume control or rate control practices would be located within Minnesota Department of Transportation right-of-way, the Minnesota Department of Transportation prefers the use of surface practices. To the extent practicable, the use of underground systems (and related systems such as tree trenches) will be avoided in Minnesota Department of Transportation right-of-way.

2.1.7. County and Municipalities

The project area municipalities and Ramsey County have specific standards related to design of stormwater conveyance systems and treatment practices. These standards are consistent with those established by the watershed agencies, Minnesota Pollution Control Agency and Minnesota Department of Transportation and are not anticipated to impact the stormwater system design approach at the 15 percent design level. The Minnesota Pollution Control Agency initiated an update to the National Pollutant Discharge Elimination System Municipally Separate Storm Sewer System permit in 2019. Ramsey County and each of the project area municipalities are currently Municipally Separate Storm Sewer System permit holders and will be required to update their programs in accordance with the revised permit requirements.

2.1.8. Regulatory Requirements Summary

Table 2 summarizes the major stormwater design requirements within the study area.

2.1.9. Coordination Meetings

A series of initial coordination meetings were held with the watershed organizations and the project's issue resolution teams to review regulatory standards, identify known and potential issue areas and review preliminary best management practice location options. These initial meeting were held on the following dates:

- Rice Creek Watershed District: October 22, 2018.
- Vadnais Lake Area Watershed Management Organization: October 23, 2018.
- Capitol Region Watershed District: October 24, 2018.
- Ramsey-Washington Metro Watershed District: October 24, 2018.
- Highway 61 Issue Resolution Team: January 11, 2019.
- Saint Paul Issue Resolution Team: February 4, 2019.
- Maplewood Issue Resolution Team: February 11, 2019.

[4] Available at https://www.dot.state.mn.us/bridge/hydraulics/drainagemanual.html.

Table 2: Agency Stormwater Requirements Summary[5]

Agency	Project Threshold	Volume Control Requirements[6]	Discharge Rate Control Criteria	Drainage System Design
Capitol Region Watershed District	1 acre or more of land disturbance	1.1 inch of runoff from new and reconstructed impervious surfaces	No increase for 2-, 10- and 100-year storm peak discharge rate	Specific criteria for best management practice design and maintenance
Ramsey-Washington Metro Watershed District	1 acre or more of land disturbance	1.1 inch of runoff from new or reconstructed impervious surfaces	No increase for 2-, 10- and 100-year storm peak discharge rate	Specific criteria for best management practice design and maintenance
Rice Creek Watershed District	10,000 square feet or more of new or reconstructed impervious in any resource of concern	0.75 inch of runoff for linear projects; 1.0 inch of runoff for site projects (parking lots)	No increase for 2-, 10- and 100-year storm peak discharge rate	Specific criteria for best management practice design and maintenance
Vadnais Lake Area Watershed Management Organization	10,000 square feet or more of new or reconstructed impervious	1.1 inch of runoff from new or reconstructed impervious surfaces	No increase for 1-, 2, 10- and 100-year storm peak discharge rate	Specific criteria for best management practice design and maintenance
Minnesota Pollution Control Agency (National Pollutant Discharge Elimination System construction stormwater permit)	1 acre or more of land disturbance or 1 acre or more of new impervious	1.0 inch of runoff from new impervious surfaces	Not applicable	Specific criteria for best management practice design and maintenance
Minnesota Department of Transportation	Work within state highway or local state aid route right-of-way	Prefers surface best management practices over underground	No increase in offsite discharges to right-of-way	Standards for catch basin spacing, storm sewers, ditches and treatment best management practices

[5] Watershed district and state agency requirements as of May 2019.
[6] Volume control is the preferred treatment method. All agencies have alternative criteria if volume control standards are not feasible within a specific portion of the project area.

2.2. METHODOLOGY

The study area for stormwater and water quality is the potential area of disturbance for the Build Alternative, the areas outside the potential area of disturbance that contribute runoff into the project or receive runoff from the project, and impaired waters within 1 mile of the potential area of disturbance that may receive stormwater discharge from the project. This distance complies with the National Pollutant Discharge Elimination System requirements for identifying impaired waters or sensitive resources.

The quality and quantity of stormwater runoff is directly related to the extent of impervious surface present in each drainage area, and the stormwater design requirements described in Section 2.1 are all based on the extent of new or reconstructed impervious surface. Therefore, potential impacts to stormwater and water quality were quantified by calculating project-related changes to impervious surfaces throughout the study area.

Data available for the preliminary assessment of stormwater management best management practices is considered the best available data for the project area at this phase. Because the project is at a concept plan design level, the exact extent of new and reconstructed impervious surfaces is anticipated to change as engineering advances. The resulting locations and types of best management practices will also change as more detailed information becomes available for elements such as dedicated guideway layout, park-and-ride locations and layouts, soil types, infiltration potential and contamination, and storm sewer elevations and pipe sizes. A more detailed discussion of the approach to identifying potential locations for stormwater practices and the types of practices considered at this preliminary stage is provided in Section 5.2.

3. EXISTING CONDITIONS

The following sections describe existing drainage conditions within each of the four watershed jurisdictional areas from south to north along the BRT route. The Build Alternative is located in the Mississippi River major watershed, meaning all drainage from the project would eventually flow into the Mississippi River.

3.1. CAPITOL REGION WATERSHED DISTRICT

The portion of the project within the Capitol Region Watershed District extends from Union Depot to Atlantic Street south of the Cook Avenue station. Between Union Depot and University Avenue, the area is largely impervious. Between University Avenue and Earl Street, impervious surfaces continue to dominate the area around the route with pervious lawn and other green areas scattered on one or both sides. Between Earl Street and Atlantic Street, there is open green space and a partially wooded compost site on the north side of the BRT route.

Stormwater within this portion of the study area is managed by urban systems including curb and gutter that are directed to storm sewer and large trunk sewer systems that discharge to the Mississippi River. Existing stormwater best management practices are scattered throughout the downtown area with a few additional best management practices in areas adjacent to Phalen Boulevard.

3.2. RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

The portion of the project within Ramsey-Washington Metro Watershed District extends from Atlantic Street to County Road E and is split between several subwatersheds, including the Lake Phalen,

Keller Lake, Kohlman Lake, Kohlman Creek, Saint Paul Beltline and Willow Creek subwatersheds as shown on Figure 1. Impervious surfaces dominate the area around this portion of the BRT route, with pervious lawn and other green areas scattered on one or both sides of the route. North of Johnson Parkway, the route would be co-located in Ramsey County rail right-of-way with the existing Bruce Vento Regional Trail to a point just south of Beam Avenue. This portion of the route consists of a mix of mowed turf areas adjacent to the existing trail and patches of mixed woods.

Along Beam Avenue, Hazelwood Street and Buerkle Road, the existing storm drainage systems consist of curb and gutter routing to the storm sewer systems. Near the Interstate 694 (I-694) crossing and along Highway 61 to County Road E, stormwater runoff drains to adjacent vegetated ditches.

Existing stormwater runoff within the portion of the project located in the Ramsey-Washington Metro Watershed District, including the Ramsey County rail right-of-way, is managed by mowed turf and green areas adjacent to the Bruce Vento Regional Trail before entering localized low spots within the right-of-way or sheet flowing to local storm sewer drainage systems within adjacent local streets or at cross streets along the corridor. Local storm sewer systems generally convey the runoff to existing best management practices or to receiving waters. A number of existing small scale and regional stormwater best management practices are located in areas adjacent to the Bruce Vento Regional Trail corridor and along Highway 61.

3.3. VADNAIS LAKE AREA WATERSHED MANAGEMENT ORGANIZATION

The portion of the project within the Vadnais Lake Area Watershed Management Organization extends from County Road E to just north of the intersection of Highways 61 and 96. The majority of this portion of Highway 61 is rural highway with vegetated ditches on both sides and a vegetated center median. North of County Road F, Highway 61 passes through Goose Lake and continues as a rural section until White Bear Avenue. North of White Bear Avenue and into downtown White Bear Lake, Highway 61 is an urban section[7] with storm sewer and raised and planted medians.

Existing stormwater runoff from the rural sections of Highway 61 drains to mowed turf and vegetated ditches within the right-of-way. Runoff from the urban sections drains to storm sewer systems within Highway 61. Recent improvements to Highway 61 north of County Road E have included installation of stormwater treatment facilities that treat runoff prior to discharge to the west into Gem Lake.

3.4. RICE CREEK WATERSHED DISTRICT

The portion of the project within Rice Creek Watershed District begins at the intersection of Highway 61 and Whitaker Street and extends along Highway 61 to 8th Street. The majority of Highway 61 in this area is an urban roadway section with a landscaped center median.

Existing stormwater runoff is managed by storm sewer drainage systems within Highway 61 that are routed to stormwater treatment facilities that treat runoff prior to discharge to the east into White Bear Lake.

[7] Roads with an urban cross section have curb and gutter that define the edge of the road and that collect and convey runoff, and roads with a rural cross section have a paved and/or gravel shoulder with ditches adjacent to the roadway that collect and convey runoff.

4. ENVIRONMENTAL CONSEQUENCES

4.1. NO BUILD ALTERNATIVE

Under the No Build Alternative, no project-related construction would occur. Therefore, no operating phase or construction phase impacts to stormwater or water quality would occur.

4.2. BUILD ALTERNATIVE

4.2.1. Operating Phase (Long-Term) Impacts

The Build Alternative would include new and reconstructed impervious surfaces including roadways, sidewalks, trails, parking facilities and station platforms and structures. Table 3 summarizes existing impervious areas, reconstructed impervious areas and new impervious areas for each watershed district. For the Ramsey-Washington Metro and Rice Creek Watershed Districts, the impervious areas are further split into subwatershed or resource of concern areas. Rice Creek Watershed District rules require quantifying impacts and treatment requirements by resource of concern. Ramsey-Washington Metro Watershed District prefers to provide treatment within the same subwatershed as the impacts are created, although it is not required.

The significance of these impervious areas relates directly to the standards summarized in Table 2. The required treatment volume and mitigation measures are presented in Table 4.

Table 3: Estimated Impervious Area Impacts[8]

Watershed	Subwatershed or Resource of Concern	Existing Impervious Area (acres)	New Impervious Area (acres)	Reconstructed Impervious Area (acres)
Capitol Region Watershed District	All	16.3	3.8	4.4
Ramsey-Washington Metro Watershed District	Lake Phalen	2.2	5.2	1.8
	Keller Lake[9]	2.7	7.2	2.3
	Kohlman Lake	1.2	0.8	0.2
	Kohlman Creek	8.9	0.6	0.7
	Saint Paul Beltline	1.0	4.2	0.7
	Willow Creek	3.8	2.9	2.3
Vadnais Lake Area Water Management Organization	All	10.5	2.2	8.0
Rice Creek Watershed District	White Bear Lake	1.4	0.0	0.0
	Bald Eagle	1.6	0.0	0.7
Total		**49.5**	**26.9**	**26.1**

[8] These calculations are for the proposed project footprint, which includes the proposed dedicated guideway, platforms, reconstructed roadway, sidewalk and trails, and other related infrastructure.
[9] Includes an estimated 2.0 acres of new impervious that would be constructed for the Highway 36 park-and-ride.

4.2.2. Construction Phase (Short-Term) Impacts

Construction activities associated with the Build Alternative include installation of utilities, dedicated guideway pavement and bridges, pedestrian structures, park-and-ride facilities, and project-specific roadway and sidewalk improvements. These activities would disturb existing paved and vegetated areas and expose underlying soils to precipitation and runoff. Runoff from these disturbed soils could potentially leave the construction site and create sediment deposits in adjacent waterways and waterbodies. Without temporary best management practices (required through the permitting process), these activities could also result in an increase in runoff volume and discharge rates from the construction site that could erode or destabilize slopes and deliver additional sediment to receiving waters.

Construction impacts would also occur in small, isolated areas in which temporary retaining walls or soil berms would be located to minimize wetland fill, for example. Some construction staging areas would be located on temporary impervious pavement, which may increase stormwater runoff in some locations. Short-term impacts to specific locations would be further evaluated as engineering advances. Construction activities for the Build Alternative would also likely require temporary dewatering to install bridge abutments and walls and complete grading activities in select areas. Additional protection measures would be installed in accordance with the National Pollutant Discharge Elimination System construction stormwater permit for activities including vehicle and material staging areas and concrete washout activities, for example.

5. MITIGATION MEASURES

5.1. MITIGATION REQUIREMENTS

To mitigate anticipated impacts of the Build Alternative, the project must meet the applicable standards and requirements summarized in Table 2. The standard that establishes the extent and sizes of stormwater management treatment facilities (or best management practices) that will be needed is based on the area of new and reconstructed impervious surfaces created by the project within each watershed's jurisdictional boundaries. Discharge rate requirements can also impact the sizes and extent of stormwater facilities needed for the project. In general, these standards apply on a project-wide basis, meaning that if one or more best management practice location achieves excess rate control or water quality volume credit than what is needed for that drainage area, the project can apply that credit elsewhere. However, as discussed previously, mitigation for impacts within each resource of concern in Rice Creek Watershed District must be created within the same resource of concern. Also, Ramsey-Washington Metro Watershed District prefers that mitigation be completed within the same subwatershed, to the extent practicable.

Table 4 summarizes the water quality volume required for the Build Alternative in each subwatershed/resource of concern area. The water quality volume estimates in Table 4 are based on multiplying the required runoff volume standard by the new plus reconstructed impervious surfaces. The total new plus reconstructed impervious is the sum of the two far right columns in Table 3. Values for the Keller Lake subwatershed include an estimated 2.0 acres of new impervious that would be constructed for the proposed Highway 36 park-and-ride as part of the Build Alternative. Under the Build Alternative option without the Highway 36 park-and-ride, the resulting net impervious increase and associated water quality volume for treatment would be reduced.

Peak discharge rates must not exceed existing discharge rates for the 2-year, 10-year and 100-year storm events. Rate control capacity would be incorporated into all water quality volume practices. If needed in selected locations, rate control capacity would be created as stand-alone facilities.

Table 4: Water Quality Volume Requirements

Watershed	Subwatershed or Resource of Concern	New + Reconstructed Impervious (acres)	Runoff Volume Standard (inches)	Required Water Quality Volume (acre-feet)
Capitol Region Watershed District	All	8.1	1.1	0.7
Ramsey-Washington Metro Watershed District	Lake Phalen	7.1	1.1	0.6
	Keller Lake	9.5	1.1	0.9
	Kohlman Lake	1.0	1.1	0.1
	Kohlman Creek	1.3	1.1	0.1
	Saint Paul Beltline	4.9	1.1	0.5
	Willow Creek	5.2	1.1	0.5
Vadnais Lake Area Water Management Organization	All	10.2	1.1	0.9
Rice Creek Watershed District	White Bear Lake	0.0	0.75	0.0
	Bald Eagle	0.7	0.75	0.05
Total		**48.1**	**-**	**4.4**

5.2. MITIGATION APPROACH

The approach to implementing stormwater management for the Rush Line BRT Project is based on identifying feasible locations within, or immediately adjacent to, the route or stations. Due to the linear nature of the project, existing right-of-way constraints may not allow the entire mitigation requirement to be met within the available right-of-way. Therefore, Ramsey County has identified an approach to implementing the mitigation needs through a process of evaluating the potential opportunities on a prioritized basis. Selection will be based on the following considerations and the cost-effectiveness of the available options in a specific subwatershed or drainage area:

- Locations within the Ramsey County rail right-of-way are preferred over locations outside the Ramsey County rail right-of-way. Stormwater management features along this portion of the route may consist of small scale or linear features in narrow portions of the right-of-way that remain outside the dedicated guideway or larger site type features where larger sections of right-of-way are available.
- Locations within other public right-of-way adjacent to the project are preferred over locations on privately owned parcels.
- For locations within Minnesota Department of Transportation right-of-way, the approach will be to use surface practices and to avoid the use of underground systems or tree trenches. Any proposed locations within Minnesota Department of Transportation right-of-way will be further discussed with the Minnesota Department of Transportation as the design advances.

- Where construction impacts are limited to new stations in areas isolated from other new or reconstructed pavement areas, the use of small-scale best management practices specific to station needs is preferred.
- Surface best management practices such as infiltration, filtration, iron-enhanced filtration, vegetative swales and others are preferred over underground systems, in part because surface best management practices are generally easier to inspect and maintain.
- Lower Phalen Creek Project, a community organization based in East Saint Paul, completed a feasibility study to explore the potential to daylight portions of Phalen Creek from the outlet at Lake Phalen to the Mississippi River. Where runoff and best management practices from the Rush Line BRT Project may contribute flow to the proposed Phalen Creek daylighting system and/or where there is potential for a combined conveyance system, consideration of options will be coordinated with representatives of the Lower Phalen Creek Project and the Capitol Region Watershed District. In late 2019, the Capitol Region Watershed District initiated a more detailed feasibility study intended to develop more detailed design recommendations for the areas of the creek daylighting project that are adjacent to the Rush Line BRT Project. Project staff have been, and will continue to be, involved in this more detailed study in a technical advisory capacity to ensure compatibility with the Rush Line BRT Project.

In addition to the potential for linear features within the Ramsey County rail right-of-way and the anticipated small-scale best management practices to be used at station-specific locations, the initial screening of best management practice opportunities identified more than 50 potential sites for best management practices outside the Ramsey County rail right-of-way. These locations were reviewed with the watershed districts and the project's issue resolution teams during the initial meetings discussed in Section 2.1.9.

Based on input and discussions with the watershed districts and issue resolution teams, many of the initial locations outside the Ramsey County rail right-of-way were discarded due to several factors ranging from physical challenges with elevations to properties that are no longer available due to recent development. This initial review also resulted in some new locations for potential stormwater treatment. In addition, some of the original primary (highest priority) locations were shifted to secondary locations. Secondary locations are considered feasible locations that could be used if the primary location is ultimately not available or does not provide sufficient treatment capacity to meet the requirements for that portion of the project.

The best management practice opportunity locations outside the Ramsey County rail right-of-way currently being considered are shown in Appendix A. The opportunity locations are identified as either primary or secondary locations. At this preliminary phase, sizes and types of location-specific best management practices have not been quantified. As engineering advances, specific best management practice types will be selected for available locations, sizes will be determined and water quality volume credits will be quantified. Possible best management practices include, but are not limited to, the following:

- Bioretention basins/vegetated swales.
- Filtration/infiltration basins.
- Wet stormwater detention ponds.
- Dry stormwater detention basin.
- Pond retrofits.

- Enhanced filtration practices.
- Underground storage or filtration/infiltration.
- Tree trenches.
- Permeable pavements.
- Stormwater pollution-control devices.
- Stormwater harvesting and reuse.
- Creek channel creation.

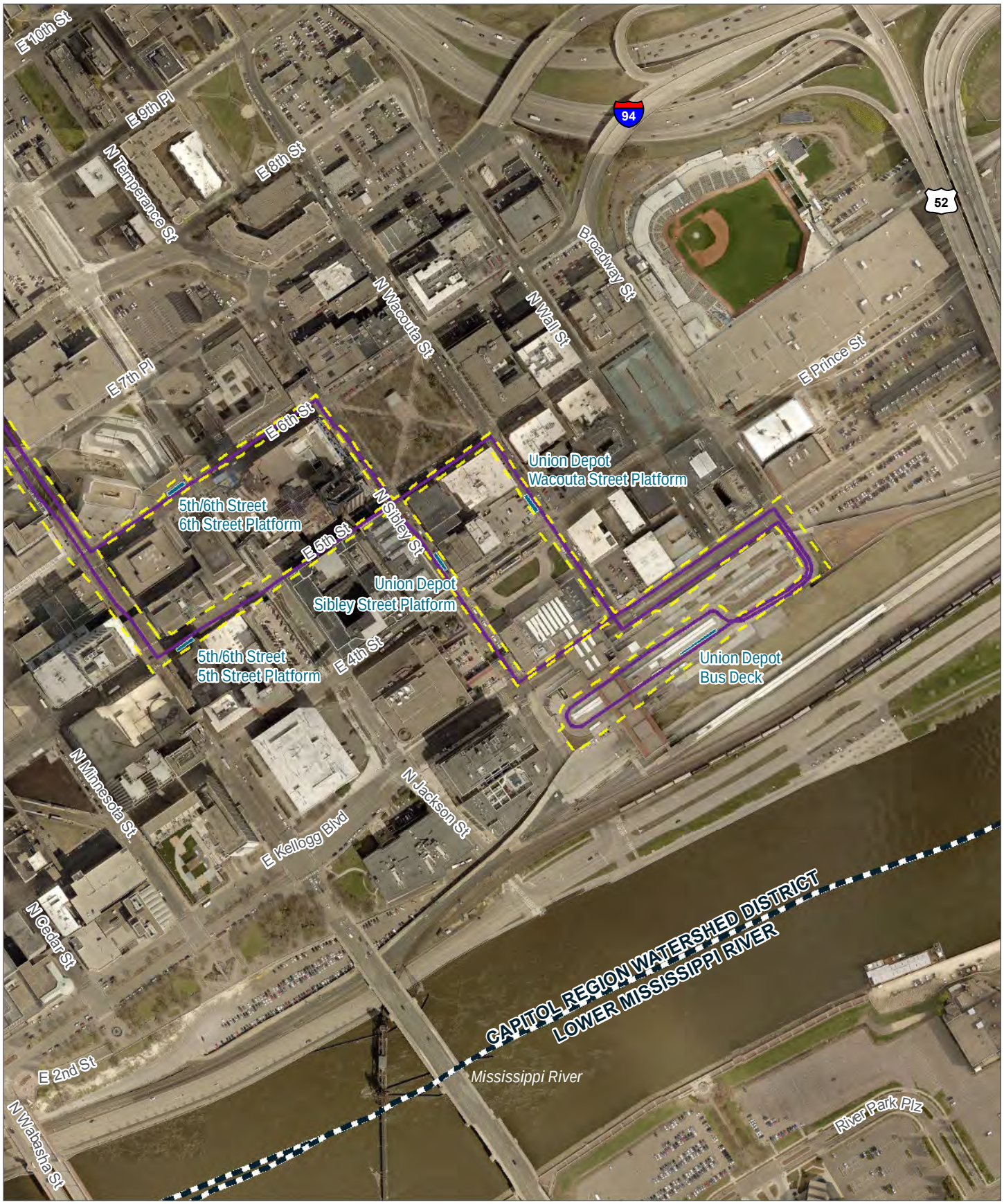
Based on very preliminary estimates and depending on the type and extent of practices feasible at each location, the combined primary and secondary locations would provide between 3.5 and 7.0 acre-feet of water quality volume treatment credit. The upper end of this estimate assumes infiltration would be feasible at all locations. The lower end assumes filtration practices would be necessary due to a variety of physical site constraints and recognizing that filtration practices receive credit for only 55 percent of the volume credit they create. The actual credit for each location will be refined as grading plans are developed and soils investigation results become available in subsequent design stages.

As engineering advances, hydrologic modeling of the current and proposed conditions will more accurately assess the extent of rate control mitigation that the planned best management practices would provide and what measures, if any, would be needed beyond the rate attenuation that would be achieved in water quality best management practices.

In addition to the permanent stormwater practices needed for the project, there are several agencies involved with protecting water resources during the construction phase of the project. Construction documents would include plans and specifications to address erosion control measures, dewatering plans and special considerations to environmentally sensitive areas. Construction phase protection measures would be installed in accordance with the National Pollutant Discharge Elimination System construction stormwater permit and, to the extent authorized or required by law, watershed district and municipality requirements.

APPENDIX A

POTENTIAL STORMWATER BEST MANAGEMENT PRACTICE LOCATIONS



Legend

- Proposed Route
- Proposed Platforms
- Potential Area of Disturbance
- Watershed Administrative

Potential Stormwater Best Management Practices Outside Ramsey County Rail Right-of-Way

- Primary Locations
- Secondary Locations

Potential Stormwater Best Management Practice Locations

0 200 400 Feet

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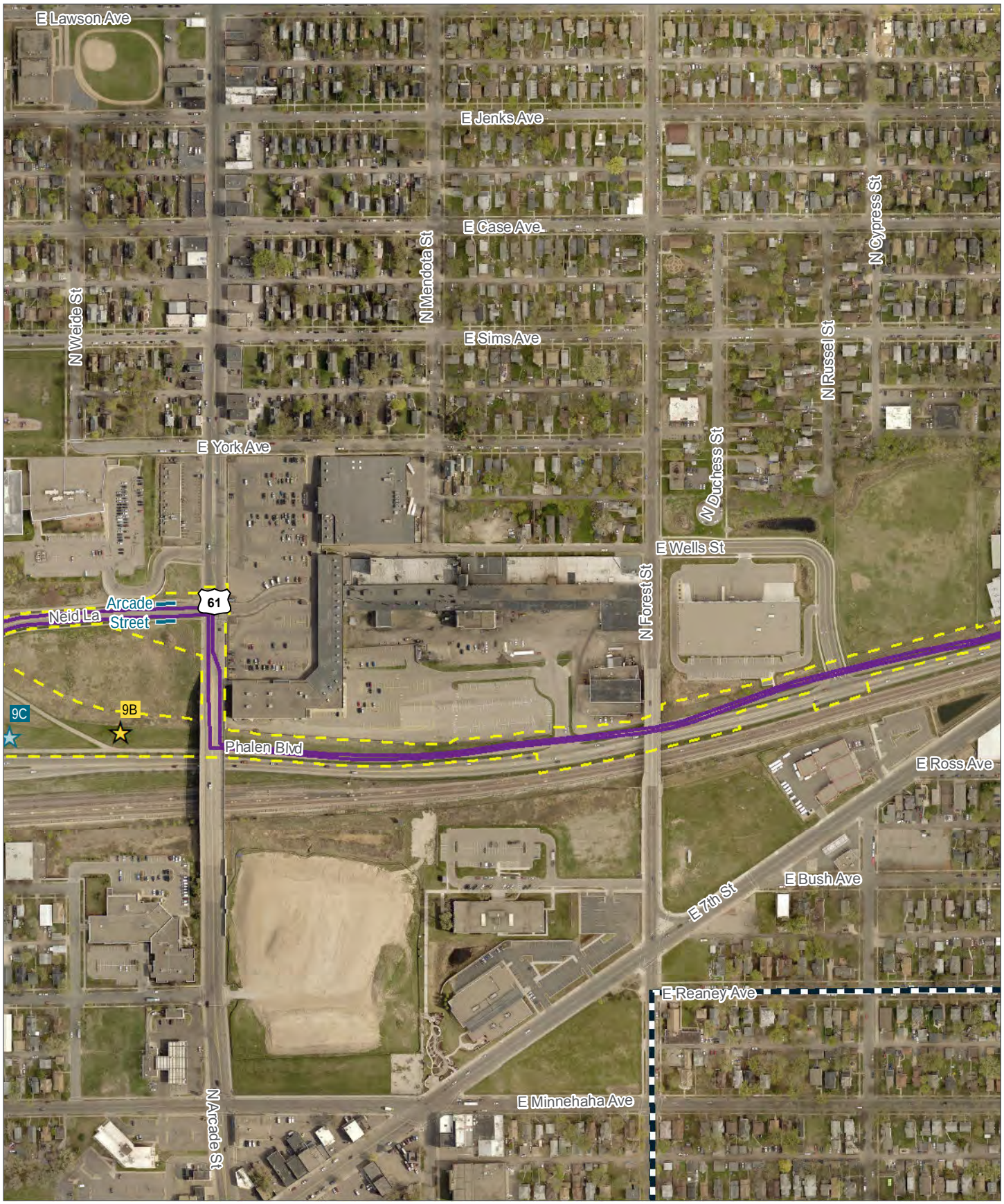

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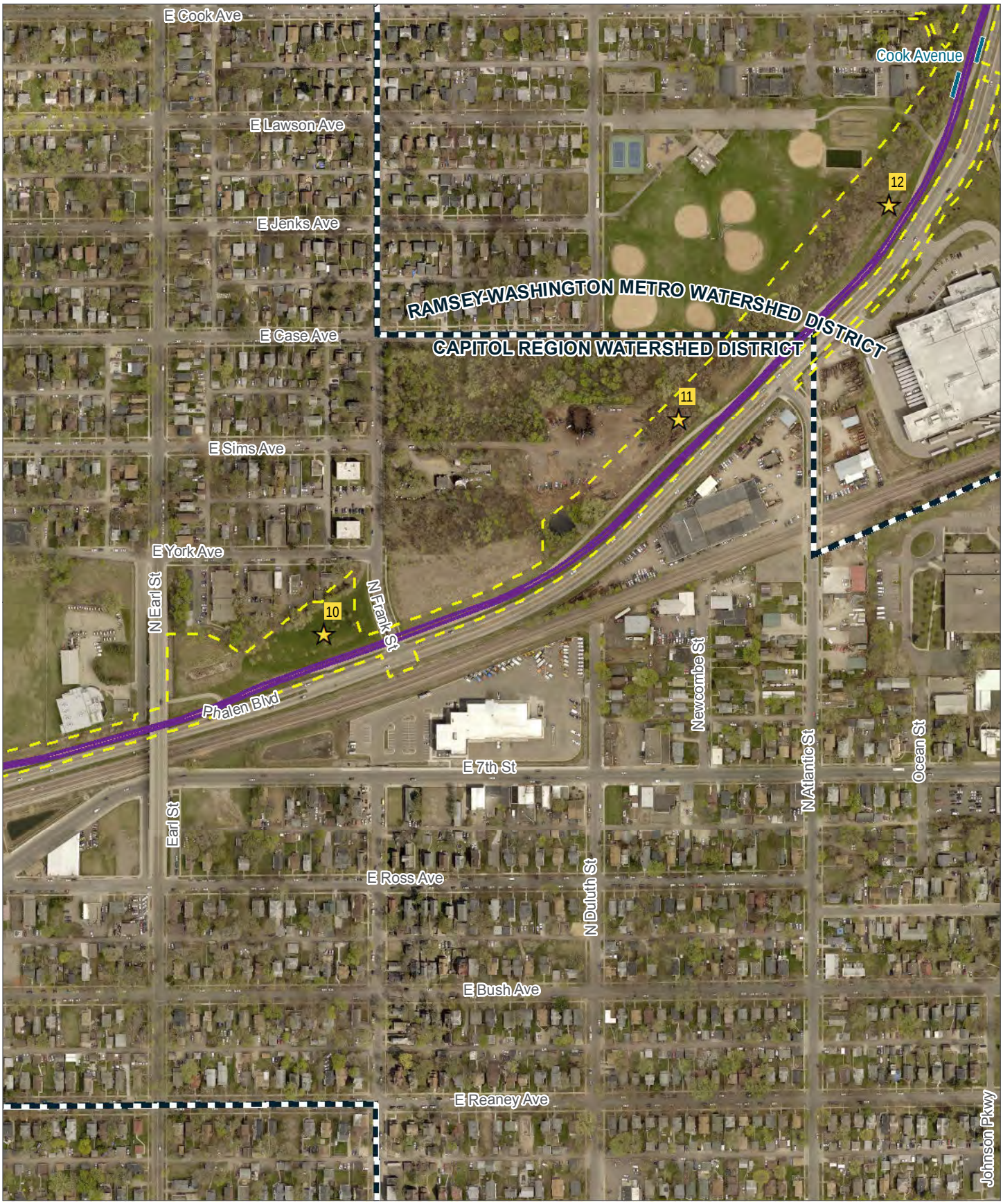

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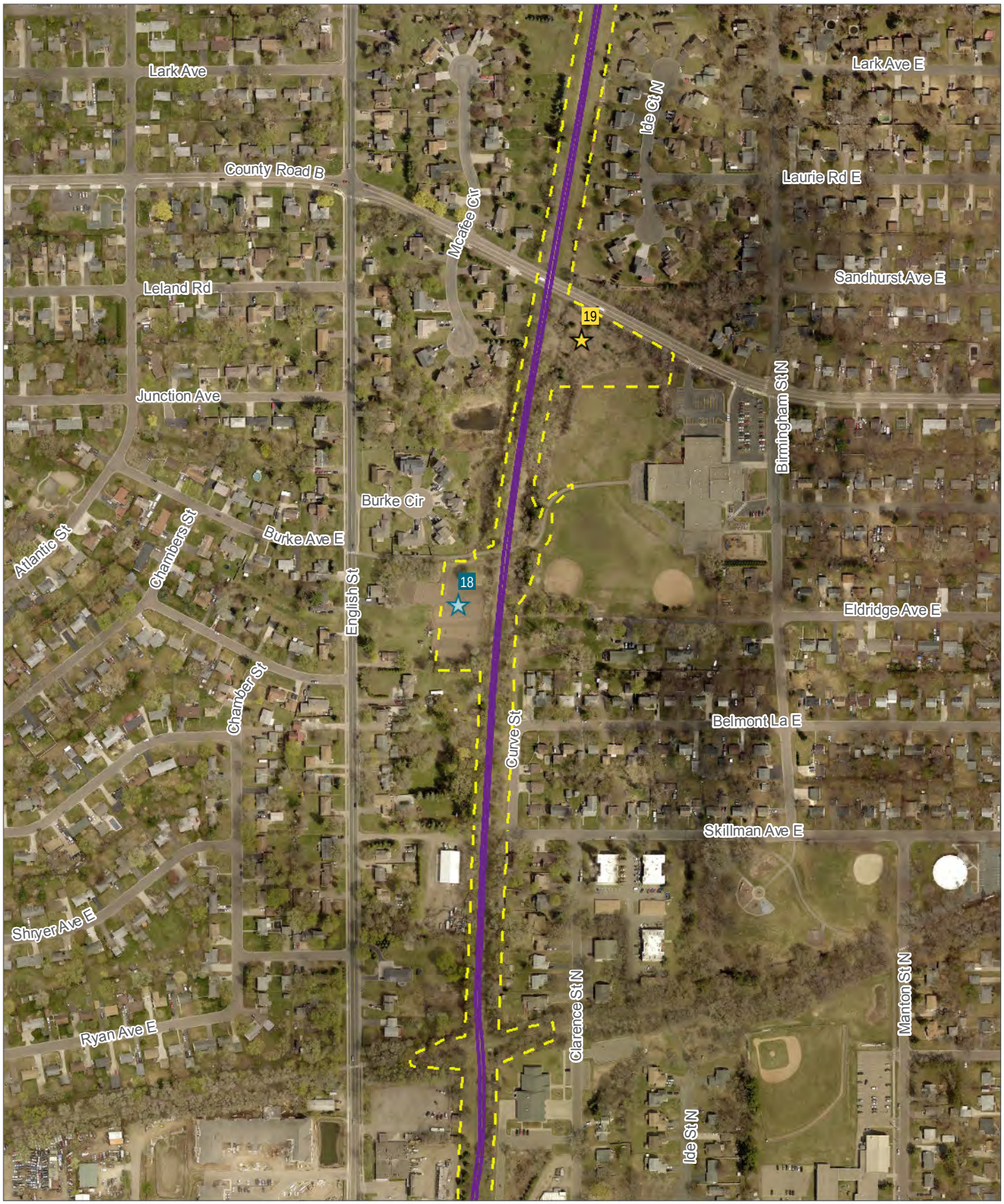

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MODIFIED PHASE I ENVIRONMENTAL SITE ASSESSMENT

RUSH LINE BUS RAPID TRANSIT (BRT) PROJECT
ST. PAUL, MAPLEWOOD, VADNAIS HEIGHTS, GEM LAKE, AND WHITE BEAR LAKE, MINNESOTA

PREPARED FOR

KIMLEY-HORN ASSOCIATES, INC.

RAMSEY COUNTY REGIONAL RAILROAD AUTHORITY

METROPOLITAN COUNCIL

MINNESOTA DEPARTMENT OF TRANSPORTATION

Project B1801478

July 30, 2019

Braun Intertec Corporation

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Note: Appendices are available upon request.

EXECUTIVE SUMMARY

Braun Intertec Corporation received authorization from the Kimley-Horn and Associates, Inc. (Kimley-Horn) and the Ramsey County Regional Railroad Authority (RCRRA) to conduct a Modified Phase I Environmental Site Assessment (ESA) for the planned Rush Line Bus Rapid Transit (BRT) Project along the locally preferred alternative (LPA) from Union Depot located in St. Paul to White Bear Lake, Minnesota. The proposed Rush Line BRT alignment is generally along Robert Street, Phalen Boulevard, RCRRA right-of-way (Bruce Vento Trail), and Highway 61. For the purposes of this report, the area of study, hereafter referred to as the Corridor, includes the LPA, the area within 500 feet of the LPA, and additional areas included in survey extents provided by Kimley-Horn. As we understand, the additional areas included in the survey extents may include future modifications to traffic intersections to accommodate the BRT. The Corridor is located in the cities of St. Paul, Maplewood, Vadnais Heights, Gem Lake, and White Bear Lake, in Ramsey County, Minnesota, and spans a total distance of approximately 14 miles.

This Modified Phase I ESA was prepared in conjunction with the overall environmental analysis phase for the Rush Line BRT Project being led by RCRRA. Key components of this phase of the project include completing an Environmental Assessment, up to 15 percent conceptual engineering and station area planning, and undertaking ongoing public engagement.

The objective of the Modified Phase I ESA was to serve as a screening tool to identify, to the extent possible, existing sources of contamination (based on present or former uses) and contaminant distribution at locations that could impact future construction in the Corridor and to potentially obtain liability protections. Braun Intertec followed Minnesota Department of Transportation (MnDOT) guidelines for completion of the Modified Phase I ESA using a modified version of the American Society of Testing and Materials (ASTM) methodology E1527-13.

The Rush Line BRT starts in St. Paul and generally follows Robert Street, Phalen Boulevard, RCRRA right-of-way (Bruce Vento Trail), and Highway 61 to end in White Bear Lake. The Corridor is located in the cities of St. Paul, Maplewood, Vadnais Heights, Gem Lake, and White Bear Lake, in Ramsey County, Minnesota. The length of the Corridor is approximately 14 miles. The Corridor generally consists of a paved, at-grade, roadway with two to four lanes or a paved bicycle trail (RCRRA right-of-way/Bruce Vento Trail). The Corridor Location Map, attached as Figure 1 in Appendix B, depicts the proposed BRT alignment, existing stations, and proposed stations.

At the time of this assessment, the Corridor along Robert Street runs through the downtown district of St. Paul and consisted of commercial development and state offices. The Corridor along Phalen Boulevard in St. Paul consisted largely of industrial development, with some commercial and residential development. The Corridor along the RCRRA right-of-way (Bruce Vento Trail) north until Beam Avenue in St. Paul and Maplewood was primarily residential with some commercial development. The Corridor along the RCRRA right-of-way (Bruce Vento Trail) north until Buerkle Road in Maplewood and Vadnais Heights was a densely developed commercial area with the Maplewood Mall, St. John's Hospital, and several car dealerships. The Corridor along Highway 61 in Vadnais Heights, Gem Lake, and White Bear Lake consisted of commercial (including several car dealerships), residential, and few industrial developments.

Based on a review of historical files, buildings in the Corridor have been developed for residential, commercial (including gasoline filling/service stations), and industrial uses since at least 1885. The Robert Street portion of the Corridor has been present in its current configuration since at least 1885. The Phalen Boulevard portion of the Corridor has been present in its current configuration since at least 2009; previously, this portion was occupied primarily by railroad property including tracks, spurs,

and storage/maintenance yards along with vacant land and portions of large industrial properties dating back to at least 1887. The RCRRA right-of-way (Bruce Vento Trail) portion of the Corridor has been present in its current configuration since at least 2009; previously, this portion was occupied by railroad tracks dating back to at least 1887. The Highway 61 portion of the Corridor has been present in its general alignment since at least 1902; it has been present in its current configuration as a divided highway since at least 1953.

Braun Intertec evaluated all parcels in the Corridor to determine if they met the ranking criteria established by MnDOT as *de minimis* or having a low, medium, or high potential for contamination. Site summaries were prepared for parcels determined to have a low, medium, or high potential for contamination. Site summary tables of these ranked parcels and the corresponding site summaries are included in Appendices A and C, respectively. The Corridor *De Minimis* Map and the Corridor Site Ranking Map, attached as Figures 2 and 3, respectively, in Appendix B, depict the individual sites within the Corridor. The site summaries provide an overview of the regulatory and historical review information attached as Appendices D through J.

CORRIDOR-WIDE CONCERNS/ADDITIONAL CONSIDERATIONS

Based on a review of historical information, many properties within the Corridor were residential or formerly residential. Fuel oil tanks or other hazardous materials may be present within these residential properties. In those cases where historical and/or regulatory information confirmed the presence of tanks or other contaminants, the property was assigned a site number and was ranked in accordance with the MnDOT definitions of having a low, medium, or high potential for contamination. For those properties where historical and/or regulatory information or site reconnaissance did not confirm tanks or hazardous materials were present, the properties were grouped into areas that were assigned a site number and were ranked as having a *de minimis* potential for contamination.

Historically, residential and/or commercial buildings were previously located on several of the sites within the Corridor. It is unknown if the demolition debris associated with these buildings was buried on the sites or hauled away for disposal. The potential exists that buried materials are present that may require management as solid or hazardous waste if encountered during redevelopment activities. If fill soils, which could include demolition debris and other wastes, are encountered during construction, then additional evaluation of the fill soils might be required for management and disposal purposes.

Review of the Minnesota Department of Health (MDH) Minnesota Well Index (MWI) records indicate the presence of water wells at multiple properties throughout the Corridor. The locations of many of these wells were confirmed based on review of regulatory agencies files.

The Corridor is located within the Vadnais Heights 2 Wellhead Protection Area (WHPA), White Bear Township NW WHPA, Mahtomedi WHPA, and White Bear Lake WHPA. Future construction in the Corridor will need to take into account minimizing effects to the hydrology based on the WHPA status, the presence of municipal wells, and locations of contaminant sources.

Additionally, environmental data generated as part of the Central Corridor Light Rail Transit Line (CCLRT) project (now known as the METRO Green Line) indicated that urban fill is prevalent in many areas of downtown St. Paul, including areas immediately adjacent to the Robert Street portion of the Corridor. The urban fill was characterized by the presence of debris, as well as concentrations of polycyclic aromatic hydrocarbons (PAHs), diesel range organics (DRO), and metals. In many areas, the urban fill was identified to be present below the roadways and immediately above shallow bedrock (less than 20 feet). Construction activities along the CCLRT project in downtown St. Paul also

encountered numerous areaways immediately beneath the sidewalks. Areaways were historically used to house heating systems and related equipment; including boilers, coal storage, fuel oil tanks, and piping. As such, there is the potential to encounter asbestos, petroleum, or other contaminated/regulated materials in areaways that will be impacted for the future project. Areaways, like bridges and other structures, should be assessed for the presence of asbestos and other regulated materials prior to significant renovation and/or demolition.

CONCLUSIONS

Based on Braun Intertec's assessment, 506 sites were identified within the Corridor as *de minimis* or having a low, medium, or high potential for contamination. More specifically, 31 *De Minimis* Sites, 170 Low Potential for Contamination Sites, 161 Medium Potential for Contamination Sites, and 144 High Potential for Contamination Sites were identified.

Generally, there is a significant number of High Potential for Contamination Sites and Medium Potential for Contamination Sites in the downtown St. Paul, the Phalen Boulevard, and the east/west trending RCRRA right-of-way (Bruce Vento Trail) portions of the Corridor and to a slightly lesser extent along the Highway 61 and the downtown White Bear Lake portions of the Corridor. These properties are located in areas of current and/or historical industrial use, railroad use, and commercial use (including gasoline filling/service stations and several car dealerships).

1. INTRODUCTION

1.1. PURPOSE

Braun Intertec Corporation received authorization from the Kimley-Horn and Associates, Inc. (Kimley-Horn) and the Ramsey County Regional Railroad Authority (RCRRA) to conduct a Modified Phase I Environmental Site Assessment (ESA) for the planned Rush Line Bus Rapid Transit (BRT) Project along the locally preferred alternative (LPA) from Union Depot located in St. Paul to White Bear Lake, Minnesota. The proposed Rush Line BRT alignment is generally along Robert Street, Phalen Boulevard, RCRRA right-of-way (Bruce Vento Trail), and Highway 61. For the purposes of this report, the area of study, hereafter referred to as the Corridor, includes the LPA, the area within 500 feet of the LPA, and additional areas included in survey extents provided by Kimley-Horn. As we understand, the additional areas included in the survey extents may include future modifications to traffic intersections to accommodate the BRT. The Corridor is located in the cities of St. Paul, Maplewood, Vadnais Heights, Gem Lake, and White Bear Lake, in Ramsey County, Minnesota, and spans a total distance of approximately 14 miles.

This Modified Phase I ESA was prepared in conjunction with the overall environmental analysis phase for the Rush Line BRT Project being led by RCRRA. Key components of this phase of the project include completing an Environmental Assessment, up to 15 percent conceptual engineering and station area planning, and undertaking ongoing public engagement.

The objective of the Modified Phase I ESA was to serve as a screening tool to identify, to the extent possible, existing sources of contamination (based on present or former uses) and contaminant distribution at locations that could impact future construction in the Corridor and to potentially obtain liability protections. Braun Intertec followed Minnesota Department of Transportation (MnDOT) guidelines for completion of the Modified Phase I ESA using a modified version of the American Society of Testing and Materials (ASTM) methodology E1527-13.

The Modified Phase I ESA was prepared on behalf of and for the use by Kimley-Horn (User), RCRRA (User), the Metropolitan Council (Council; Future User), and MnDOT (Future User) in accordance with the contract between Kimley-Horn and Braun Intertec. No other party has a right to rely on the contents of the Modified Phase I ESA without written authorization by Braun Intertec. All authorized parties are entitled to rely on the attached report according to Braun Intertec's contract with Kimley-Horn, and under the same terms, conditions and circumstances.

1.2. SCOPE OF SERVICES

A general overview of Braun Intertec's scope of services for this assessment is listed below. Specific details regarding each task performed follows in the remaining sections of this report.

- Complete a Modified Phase I ESA of the Corridor to identify potential sources of contamination that could impact the Corridor. The Corridor includes property within 500 feet of the Rush Line BRT project centerline and additional areas included in survey extents, as requested by Kimley-Horn.
- Review historical and current topographical maps and geological and hydrogeological publications in order to understand geological and hydrogeological conditions in the Corridor.

- Search and review regulatory agency files (including, but not limited to, Minnesota Pollution Control Agency [MPCA] files regarding leaks and spills, Leaking Underground Storage Tank [LUST] sites, Underground Storage Tank [UST] sites, Aboveground Storage Tank [AST] sites, Voluntary Investigation and Cleanup [VIC] sites, Minnesota Department of Agriculture [MDA] Voluntary Investigation and Cleanup [AgVIC] sites, Resource Conservation and Recovery Act [RCRA] sites, Minnesota Environmental Response and Liability Act [MERLA] sites, and United States Environmental Protection Agency Superfund sites.
- Search and review records including, but not limited to: fire insurance maps; city and county files; Minnesota Geological Survey [MGS] files and/or Minnesota Well Index [MWI] files; historical maps; and aerial photographs.
- Interview city and county staff; State project personnel; and possibly neighbors, tenants, and owners of properties within the Corridor.
- Review State information pertaining to locations of wellhead protection areas within the Corridor.
- Complete a reconnaissance of the Corridor including drive- and walk-by reviews and, where feasible (e.g., at properties with public access, such as retail businesses), on-site reviews.
- Conduct a review of MPCA files pertaining to reported contaminated site to obtain additional detailed information about the magnitude and extent of contamination and the status of each site for inclusion in the Phase I ESA report.
- Rank/classify identified sites within the Corridor as *de minimis* or having a low, medium, or high potential for the presence of contamination and document how and why the types of sites identified on the Corridor are given these rankings/classifications. These rankings are based solely on the sites' potential for the presence of contamination and not on the sites' locations with respect to the proposed project alignment. Site summaries were prepared for sites determined to have a low, medium, or high potential for contamination.
- Prepare this report discussing the findings of the Modified Phase I ESA with supporting documentation provided as appendices.

1.3. GENERAL DEFINITIONS

The following are definitions of terms used in this report:

- Corridor: The area and parcels within 500 feet of the Rush Line BRT project centerline and additional areas included in survey extents. This includes parcels that are only partially located within 500 feet of the proposed boundaries.
- Bus Rapid Transit (BRT): The proposed bus rapid transit line alignment subject to this Modified Phase I ESA.
- Parcel: A property, or portion of a property, based on a review of the county property information web page located within the Corridor that has been evaluated.
- Site: A parcel/facility or group of parcels/facilities that were collectively investigated or documented within a regulatory listing.
- Facility: A building, business, or land use located on the parcel.

- Right-of-Way: The land adjacent to the BRT, which may be acquired by RCRRA to facilitate project construction. Public right-of-way land is land adjacent to currently publicly owned roadways.
- Recognized Environmental Condition: Defined by ASTM Practice E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment, 2) under conditions indicative of a release to the environment, or 3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not recognized environmental conditions."

1.4. CORRIDOR RANKING DEFINITIONS

As indicated, identified parcels within the Corridor were ranked as *de minimis* or having a low, medium, and high potential for contamination to the project area using criteria established by MnDOT. The rankings, defined by MnDOT, are as follows:

De Minimis Sites include sites that do not qualify by definition as low, medium, or high ranked potential for contamination sites and are unlikely to be considered contaminated.

Low Potential for Contamination Sites include 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.

Medium Potential for Contamination Sites include sites with closed leaking underground or aboveground storage tanks (LUSTs/LASTs), closed spill sites, all sites with underground or aboveground storage tanks (USTs/ASTs), 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.

High Potential for Contamination Sites include all active and inactive Voluntary Investigation and Cleanup Program (VIC) sites, all active and inactive Minnesota Environmental Response and Liability Act (MERLA)/Superfund sites, Resource Conservation and Recovery Act (RCRA) sites, all active and inactive dumpsites, all active LUST/LAST 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 laboratory, and all historic industrial sites with likely chemical use on the premises.

A Site Summary Table for sites that were identified within the Corridor as *de minimis* or having a low, medium, or high potential for contamination is located in Appendix A and the site locations are noted on Figures 2 and 3, Appendix B. Parcels within the Corridor that did not meet the criteria for low, medium, or high potential for contamination were grouped into areas that were assigned a site number and were ranked as having as *de minimis*. Site summaries were prepared for sites determined only to have a low, medium, or high potential for contamination.

1.5. ASSUMPTIONS/DATA GAPS/LIMITATIONS/METHODOLOGIES

This assessment was conducted in conformance with MnDOT guidelines using a modified version of the ASTM methodology E1527-13. The conclusions presented in this report are based on inquiries with public officials, available literature cited in this report, conditions noted at the time of the

reconnaissance, and Braun Intertec's interpretation of the information obtained as part of this Modified Phase I ESA. Braun Intertec's conclusions are limited to the specific project and properties described in this report and by the accuracy and completeness of information provided by others.

An environmental site assessment cannot wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property within reasonable limits of time and cost.

Braun Intertec's visual observations of portions of the Corridor were limited to public road right-of-ways, parking lots, and other publicly accessible properties. Interiors of buildings on the Corridor were not inspected by Braun Intertec, as it was not within the scope of this Modified Phase I ESA. Contaminant sources and/or hazardous materials and substances may exist within the buildings in the Corridor or on areas of the parcels that were not visible from public areas.

Braun Intertec's review of historical sources was limited to those which were reasonably ascertainable and which were likely to be useful, accurate, or complete in terms of identifying obvious past uses and activities in the Corridor. In addition, Braun Intertec reviewed only as many historical sources as needed to meet this objective.

No data gaps were identified during the Modified Phase I ESA process, with the exception that Braun Intertec did not interview specific property owners located within the Corridor.

The identified limitations and data gaps did not affect the environmental professional's ability to render opinions regarding conditions indicative of a release or threatened release.

Any information requested during the Modified Phase I ESA and received after issuance of the report will be forwarded to all parties relying on this report. An addendum will be provided if the information received alters the findings of the report.

2. CORRIDOR DESCRIPTION AND LOCATION

2.1. LOCATION AND LEGAL DESCRIPTION

The Rush Line BRT starts in St. Paul and generally follows Robert Street, Phalen Boulevard, RCRRA right-of-way (Bruce Vento Trail), and Highway 61 to end in White Bear Lake. The Corridor is located in the cities of St. Paul, Maplewood, Vadnais Heights, Gem Lake, and White Bear Lake, in Ramsey County, Minnesota. The length of the Corridor is approximately 14 miles. The Corridor generally consists of a paved, at-grade, roadway with two to four lanes or a paved bicycle trail (RCRRA right-of-way/Bruce Vento Trail).

The Corridor Location Map, attached as Figure 1 in Appendix B, depicts the proposed BRT alignment, existing stations, and proposed stations. The Corridor De Minimis Map and the Corridor Site Ranking Map, attached as Figures 2 and 3, respectively, in Appendix B, depict the individual sites within the Corridor. Partial legal descriptions are provided in individual site summaries included in Appendix C.

2.2. HISTORICAL CORRIDOR USE

Based on a review of historical files, buildings in the Corridor have been developed for residential, commercial (including gasoline filling/service stations), and industrial uses since at least 1885. The Robert Street portion of the Corridor has been present in its current configuration since at least 1885. The Phalen Boulevard portion of the Corridor has been present in its current configuration since at least 2009; previously, this portion was occupied primarily by railroad property including tracks, spurs, and storage/maintenance yards along with vacant land and portions of large industrial properties dating back to at least 1887. The RCRRA right-of-way (Bruce Vento Trail) portion of the Corridor has been present in its current configuration since at least 2009; previously, this portion was occupied by railroad tracks dating back to at least 1887. The Highway 61 portion of the Corridor has been present in its general alignment since at least 1902; it has been present in its current configuration as a divided highway since at least 1953.

2.3. CURRENT CORRIDOR USE

At the time of this assessment, the Corridor along Robert Street runs through the downtown district of St. Paul and consisted of commercial development and state offices. The Corridor along Phalen Boulevard in St. Paul consisted largely of industrial development, with some commercial and residential development. The Corridor along the RCRRA right-of-way (Bruce Vento Trail) north until Beam Avenue in St. Paul and Maplewood was primarily residential with some commercial development. The Corridor along the RCRRA right-of-way (Bruce Vento Trail) north until Buerkle Road in Maplewood and Vadnais Heights was a densely developed commercial area with the Maplewood Mall, St. John's Hospital, and several car dealerships. The Corridor along Highway 61 in Vadnais Heights, Gem Lake, and White Bear Lake consisted of commercial (including several car dealerships), residential, and few industrial developments.

3. PHYSICAL SETTING

3.1. TOPOGRAPHY

According to the United States Geological Survey (USGS) 7.5-minute topographic map series, St. Paul East and White Bear Lake West, Minnesota quadrangle, the Corridor has an elevation range from approximately 720 feet to 960 feet above mean sea level. The topography of the Corridor generally increases northward. The low area is located at the southern end of the Corridor. The high area is located north and south of County Road E near the border of Vadnais Heights and Gem Lake. The northern end of the Corridor has an elevation of approximately 930 feet.

3.2. GEOLOGY AND SOILS

Surficial Geology

The unconsolidated sediments within the Corridor consist 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 Grantsburg Sublobe sandy lake sediment deposits. This listing of unconsolidated sediments is generally what is encountered in a south to north direction within the Corridor.

The postglacial-age stream sediment deposits consist of sand and gravel with areas of fine sediment and organic material.

The Pleistocene age stream sediment of glacial River Warren deposits consist of sand and gravel with some fine sediment (silt and clay). These deposits are the terraces of the Mississippi River.

The Pleistocene age Superior Lobe till deposits consist of a reddish brown sandy loam and in some places, clay loam to silty clay. The till topography has been modified by flowing water. Till prominences commonly form low, streamlined hills (former bars in channel) and are covered in some places by thin, discontinuous deposits of sand and gravel.

The Pleistocene age Grantsburg Sublobe till deposits consist of loam-textured till that can range from loamy sand to clay. This deposit can be as much as 20 feet beneath stream sediment.

The Pleistocene age Grantsburg Sublobe till deposits consist of loam-textured till ranging from loamy sand to clay. The till topography has been modified by running water, locally the deposit is fluvially eroded and streamlined. The till deposits in some areas, are covered with thin, discontinuous sand and gravel.

The Pleistocene age Grantsburg Sublobe till deposits consist typically of loam-textured till, that ranges from loamy sand to clay. The till deposits can be gray to yellow-brown in color. The deposits are commonly banded with reddish brown Superior lobe till or sand. Thick yellow-brown (or gray) bands with thin red stringers are typically found near the land surface. With depth, the yellow bands get thinner as red layers thicken.

The Pleistocene age Grantsburg Sublobe meltwater-stream sediment deposits consist of medium to coarse sand with pebbles. It is a predominantly quartz sand, which can be distinguished from Superior lobe sand by the presence of Cretaceous shale, limestone, and rare lignite grains. Shale and lignite grains are common in the coarse-sand fraction and may be concentrated in layers.

The postglacial-age organic sediment deposits consist of peat and shallow lake/marsh deposits. Some deposits, which were identified from older maps and air photographs, may have been excavated and/or artificially filled.

The Pleistocene age Grantsburg Sublobe sandy lake sediment deposits consist of fine to medium sand with minor amounts of silt and clay. The deposit may have scattered dropstones.

Bedrock Geology

The uppermost bedrock units within in the Corridor 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 (Mossler and Bloomgren, 1992).

The Platteville Formation is described as fine-grained dolostone and limestone underlain by thin, green, sandy shale (3 to 5.5 feet thick) of the Glenwood Formation. The Platteville Formation within the Corridor consists of isolated pockets in the central and southern portions.

The upper half to two-thirds of the St. Peter Sandstone unit is described as fine- to medium-grained, quartz sandstone, which is generally massive to thick-bedded. The lower portion of the St. Peter Sandstone unit contains multicolored beds of mudstone, siltstone, and shale, with interbeds of very

coarse sandstone. The St. Peter Sandstone within the Corridor is predominately located in the central portion and at the southern end.

The upper half to two-thirds of the Prairie du Chien Group is described as commonly sandy or oolitic and thin-bedded dolostone; thin beds of sandstone and chert; thin beds of intraclastic (conglomeratic) dolostone. The lower part is generally massive or thick bedded dolostone; not oolitic or sandy, except for thin, sandy, transitional zone at base. The upper part of Prairie du Chien dolostone may contain karst solution cavities. The Prairie du Chien Group within the Corridor is located at both ends of the Corridor with several areas bisecting the central portion of the Corridor.

The upper part of the Jordan Sandstone is described as medium- to coarse-grained, friable, quartzose sandstone. The lower part is primarily fine-grained, feldspathic sandstone. The Jordan Sandstone within the Corridor consists of a thin vein in the area of Lake Phalen.

The depth to bedrock in the Corridor ranges from approximately 50 feet to 300 feet below land surface (Mossler and Cleland, 1992). The deepest area is located in a bedrock valley at Lake Phalen in the central portion of the Corridor.

3.3. HYDROGEOLOGY

The depth to groundwater within the Corridor ranges from less than 10 feet to approximately 50 feet below land surface. According to published geologic information, the regional groundwater flow direction within the unconsolidated deposits in the Site vicinity varies from northwest, west, southwest, south, and southeast (Kanivetsky and Cleland, 1992). The general groundwater flow direction within the uppermost bedrock aquifer in the Site vicinity, the Prairie du Chien-Jordan Aquifer, ranges from southwest to southeast (Kanivetsky and Cleland, 1992).

The local direction of groundwater flow may be affected by nearby streams, lakes, wells, and/or wetlands. Based on parcel-specific information obtained through review of the Minnesota Pollution Control Agency (MPCA) petroleum tank release and brownfields files, localized groundwater flow on parcels within the Corridor was measured in site-specific environmental investigations and is discussed, where applicable, in the site summaries included in Appendix C.

The Corridor-specific groundwater flow direction was not measured by Braun Intertec through direct measurements during this Modified Phase I ESA. Additional field investigation was beyond the Scope of Services of this Modified Phase I ESA and would be required to determine this information.

4. HISTORICAL LAND USE REVIEW

The objectives of the historical land use review are: 1) develop a general summary of the previous uses of the Corridor and 2) develop a history of the previous uses of properties located within the Corridor to help evaluate the likelihood of past uses of these properties having led to environmental issues that could affect the Corridor. The sections below provide the general summary of the Corridor; historical findings related to specific properties are noted in the site summaries included as Appendix C.

4.1. FIRE INSURANCE MAPS

Braun Intertec retained Historical Information Gatherers (HIG) to obtain historical fire insurance maps within the Corridor and surrounding areas. Fire insurance maps were produced by private fire insurance companies and indicated uses of properties at specific dates. The information noted on the maps commonly includes uses of individual structures, locations of fuel and/or chemical storage tanks, and storage of other toxic substances. HIG provided fire insurance maps for the years 1885, 1887, 1891, 1892, 1896, 1901, 1903, 1908, 1916, 1925, 1926, 1927, 1928, 1951, 1952, 1965, and 1969. The maps did not provide complete coverage of the Corridor. Coverage was limited only to St. Paul from downtown north to approximately Johnson Parkway and to White Bear Lake from approximately Whitaker Street north to the end of the Corridor. Not every year was available for every location.

Information obtained for the low, medium, and high potential contamination sites from the review of the fire insurance maps are included in the site summaries in Appendix C. Copies of fire insurance maps are attached as Appendix E.

4.2. AERIAL PHOTOGRAPHS

Braun Intertec retained HIG to obtain aerial photographs for the Corridor and surrounding areas. Braun Intertec obtained aerial photographs from HIG for years 1923 (partial coverage of Corridor), 1940, 1947, 1953, 1958, 1966, 1974 (medium resolution, and partial coverage of Corridor), 1980 (partial coverage of Corridor), 1982 (partial coverage of Corridor), 1985, 1991, 1994, 2000, 2004, 2009, 2012, and 2016.

Information obtained for the low, medium, and high potential contamination sites from the review of the fire insurance maps are included in the site summaries in Appendix C. Copies of the aerial photographs are attached in Appendix F.

4.3. CITY DIRECTORY INFORMATION

Braun Intertec retained HIG to obtain city directory information for streets and any identified historical street names within the Corridor. HIG provided city directories for the years ranging from 1929-2012; several streets requested were identified to have no listings available.

Braun Intertec reviewed the city directories to assist in identifying properties by name alone that could affect the Corridor. Information obtained for the low, medium, and high potential contamination sites from the city directory review are included in the site summaries in Appendix C. Copies of the city directories are attached in Appendix G.

4.4. HISTORICAL TOPOGRAPHIC MAPS

Braun Intertec retained HIG to obtain USGS topographic maps for the Corridor and surrounding areas. Braun Intertec obtained USGS topographic maps from HIG for years 1902, 1951, 1952, 1955, 1967, 1972, 1980, 1993, 2013, and 2016.

Information obtained for the low, medium, and high potential contamination sites from review of the topographic maps are included in the site summaries in Appendix C. Copies of historical topographic maps are included in Appendix H.

5. REGULATORY DATABASE REVIEW

Braun Intertec obtained regulatory information pertaining to the Corridor and surrounding area from GeoSearch. The GeoSearch report is a compilation of records of sites that are included on current federal and state environmental regulatory databases. The databases were searched to a distance of up to one half mile from the Corridor. Braun Intertec reviewed the GeoSearch report to identify records that indicate known or potential environmental hazards within the Corridor and/or surrounding area and to evaluate the likelihood for those hazards to impact the sites within the Corridor. Information obtained from the GeoSearch report was used to determine which facilities are located within the Corridor and have known or potential contamination associated with current and/or past uses. The GeoSearch report also includes a description, source reference, and date of acquisition. In addition to the information obtained from the GeoSearch report, Braun Intertec reviewed select petroleum tank release, VIC, Petroleum Brownfields, state Site Assessment, RCRA remediation, and Superfund/CERCLIS files at the MPCA and a spill file at the MDA. Pertinent information obtained from GeoSearch or the MPCA file review is summarized on the site summaries in Appendix C. Copies of the GeoSearch report and information collected and reviewed as part of the MPCA file review are included as Appendices D and I, respectively.

5.1. GEOSEARCH REVIEW

5.1.1. Corridor

Sites identified in the GeoSearch report that were determined to be located within or partially within the Corridor are presented in the table below.

GeoSearch Regulatory Database Summary

Database Name	Site Numbers Identified
Aerometric Information Retrieval System / Air Facility Subsystem (AIRSAFS)	**30, 40, 53, 90, 112, 121, 161, 172, 176, 178, 197, 269, 274, 318, 339, 353**
Agricultural Spills Listing (AGSPILLS)	**132**
Alternative Fueling Stations (ALTFUELS)	**4, 19, 21, 41, 63, 87, 259, 292, 296, 307, 326, 335, 381**
Biennial Reporting System (BRS)	**90, 112, 114, 127, 132, 178, 282**
Brownfields Management System (BF)	**121, 122, 123, 125, 168, 169, 177, 178, 186, 197, 221, 343, 388**
CERCLIS Sites (CERCLIS)	**1, 51, 127, 131, 172, 176, 212, 222**
Closed Landfills (CLF)	**117, 131**

Database Name	Site Numbers Identified
Emergency Response Notification System (ERNSMN)	**89, 104, 127, 178, 200, 221, 227, 333, 375, 473**
Enforcement and Compliance History Information (ECHOR05)	**3, 6, 11, 14, 15, 16, 20, 21, 27, 30, 31, 33, 36, 37, 40, 41, 42, 43, 44, 45, 47, 49, 50, 51, 53, 55, 56, 58, 60, 61, 66, 67, 68, 72, 73, 75, 76, 77, 81, 82, 83, 84, 86, 87, 88, 90, 92, 93, 94, 95, 99, 104, 107, 109, 112, 113, 114, 115, 117, 118, 120, 121, 122, 123, 125, 127, 130, 131, 132, 134, 136, 137, 139, 140, 141, 142, 144, 147, 149, 151, 155, 158, 161, 164, 165, 167, 172, 174, 176, 178, 183, 186, 188, 191, 192, 193, 194, 196, 197, 198, 200, 202, 206, 209, 210, 211, 212, 213, 215, 217, 221, 222, 223, 227, 240, 245, 248, 253, 255, 256, 259, 260, 261, 262, 263, 269, 271, 272, 274, 278, 280, 281, 282, 283, 286, 294, 297, 298, 301, 302, 305, 306, 307, 308, 311, 314, 315, 316, 318, 319, 320, 321, 322, 323, 324, 326, 327, 328, 330, 332, 333, 334, 335, 336, 337, 338, 339, 343, 345, 347, 350, 353, 354, 356, 357, 358, 359, 360, 361, 363, 365, 366, 369, 370, 372, 375, 376, 380, 381, 383, 388, 389, 391, 392, 401, 402, 405, 411, 412, 414, 416, 421, 425, 426, 430, 431, 432, 433, 435, 439, 441, 444, 445, 449, 452, 454, 458, 460, 462, 463, 467, 471, 473**
EPA Docket Data (DOCKETS)	**30, 60, 125, 172, 176, 178**
Facility Registry System (FRSMN)	**1, 2, 3, 4, 6, 11, 13, 14, 15, 16, 20, 21, 22, 27, 30, 31, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 47, 49, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 68, 72, 73, 75, 76, 77, 80, 81, 82, 83, 84, 86, 87, 88, 90, 91, 92, 93, 94, 95, 99, 101,102, 104, 107, 109, 112, 113, 114, 115, 116, 117, 118, 120, 121, 122, 123, 125, 127, 129, 130, 131, 132, 133, 134, 136, 137, 139, 140, 141, 142, 144, 146, 147, 148, 149, 150, 151, 155, 158, 161, 164, 165, 166, 167, 168, 169, 172, 174, 175, 176, 177, 178, 181, 182, 183, 184, 185, 186, 188, 190, 191, 192, 193, 194, 196, 197, 198, 200, 202, 206, 207, 209, 210, 211, 212, 213, 215, 217, 221, 222, 223, 225, 226, 227, 229, 231, 236, 238, 240, 241, 245, 246, 248, 253, 254, 255, 256, 257, 259, 260, 261, 262, 263, 270, 271, 272, 274, 277, 278, 280, 281, 282, 283, 286, 287, 289, 292, 294, 296, 297, 298, 300, 301, 302, 303, 305, 306, 307, 308, 309, 311, 312, 313, 314, 315, 316, 318, 319, 320, 321, 322, 323, 324, 326, 327, 328, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 341, 342, 343, 345, 347, 349, 350, 353, 354, 356, 357, 358, 359, 360, 361, 363, 365, 366, 369, 370, 371, 372, 373, 374, 375, 376, 378, 380, 381, 383, 386, 388, 389, 391, 392, 399, 401, 402, 405, 408, 411, 412, 414, 416, 420, 421, 425, 426, 431, 432, 433, 434, 435, 439, 441, 444, 445, 447, 448, 449, 451, 452, 453, 454, 458, 459, 460, 460, 461, 462, 463, 464, 466, 467, 471, 473, 474**
Hazardous Materials Incident Reporting System (HMIRSR05)	**127, 178, 283**

Database Name	Site Numbers Identified
Hazardous Waste Cleanup Sites (HWCS)	**99, 132**
Hazardous Waste Generator Sites (HWGS)	**1, 11, 14, 16, 20, 21, 27, 30, 31, 36, 41, 42, 44, 45, 47, 49, 50, 51, 53, 55, 56, 58, 62, 67, 72, 73, 83, 84, 86, 87, 90, 91, 93, 94, 95, 112, 113, 114, 115, 118, 120, 121, 125, 127, 130, 131, 132, 134, 137, 139, 141, 142, 144, 147, 150, 151, 155, 164, 165, 166, 174, 175, 176, 177, 178, 185 ,186, 191, 193, 194, 196, 197, 198, 209, 210, 211, 212, 213, 215, 217, 221, 222, 227, 240, 248, 253, 257, 260, 261, 269, 271, 272, 274, 276, 278, 280, 281, 282, 283, 286, 287, 289, 294, 297, 298, 301, 302, 306, 307, 308, 311, 312, 314, 315, 316, 318, 320, 323, 326, 330, 332, 333, 334, 335, 336, 337, 338, 339, 343, 345, 350, 351, 353, 354, 356, 357, 358, 359, 360, 361, 363, 365, 366, 370, 372, 375, 376, 380, 381, 383, 389, 402, 405, 411, 414, 426, 430, 433, 439, 441, 445, 448, 457, 458, 462, 463, 471**
Hazardous Waste Treatment Storage Disposal Sites (HWSTSD)	**276**
Integrated Compliance Information System (ICIS)	**30, 45, 50, 60, 112, 172, 176, 221, 274, 375**
Integrated Compliance Information System National Pollutant Discharge Elimination System (ICISNPDES)	**20, 45, 92, 176, 375**
Material Licensing Tracking System (MLTS)	**20, 60, 90, 260, 280, 282**
MPCA Remediation Sites (REMSITES)	**1, 2, 4, 13, 14, 39, 51, 59, 63, 73, 87, 88, 90, 94, 99, 102, 112, 113, 115, 118, 120, 122, 123, 125, 127, 129, 130,131, ,132, 133, 136, 139, 144, 147, 148, 150, 155, 161, 166, 168, 169, 176, 177, 178, 181, 182, 185, 186, 194, 197, 207, 211, 212, 221, 222, 226, 227, 235, 236, 248, 262, 274, 275, 326, 334, 336, 338, 345, 354, 361, 375, 381, 386, 388, 392**
National Compliance Database System (NCDBI)	**30, 41, 60**
National Pollutant Discharge Elimination System (NPDESR05)	**176, 178, 375**
No Longer Regulated RCRA Non-CORRACTS TSD Facilities (NLRRCRAT)	**90, 197**
Open Solid Waste Facilities (SWF)	**117, 131, 211**

Database Name	Site Numbers Identified
PCB Activity Database System (PADS)	**33, 171**
Permit Compliance System (PCSR05)	**47, 51, 58, 90, 161, 176, 260, 375**
Permitted Air Facilities (AIRS)	**40, 50, 55, 61, 90, 112, 117, 127, 161, 172, 176, 178, 186, 197, 221, 222, 269, 282, 318, 330, 334, 337, 345, 353, 366, 375, 381, 405, 445**
Permitted By Rule Landfills (PBRLF)	**207**
Petroleum Brownfields Program Sites (PBF)	**4, 13, 14, 63, 87, 90, 102, 113, 130, 131, 132, 133, 134, 136, 139, 147, 148, 150, 155, 161, 197, 221, 236, 248, 326, 334, 336, 345, 361, 381, 386, 392**
Recycling Markets Directory (RECYCLERS)	**127**
Registered Drycleaning Facilities (CLEANERS)	**14, 121, 161, 389, 414**
Registered Leaking Storage Tanks (LUAST)	**4, 13, 38, 39, 50, 52, 60, 65, 66, 72, 73, 75, 76, 86, 87, 90, 91, 92, 95, 104, 115, 120, 121, 122, 123, 125, 126, 127, 132, 140, 150, 155, 161, 168, 169, 178, 184, 186, 198, 200, 221, 222, 225, 238, 248, 254, 261, 297, 309, 315, 318, 334, 336, 337, 343, 350, 354, 360, 361, 363, 366, 372, 375, 378, 381, 389, 391, 392, 401, 402, 408, 409, 415, 416, 426, 451, 452, 459, 461, 464, 466, 474**
Registered Storage Tanks (UAST)	**20, 21, 27, 30, 32, 33, 36, 38, 39, 40, 44, 47, 50, 55, 56, 57, 58, 60, 61, 64, 72, 73, 75, 76, 77, 80, 86, 87, 88, 90, 91, 92, 95, 104, 109, 112, 115, 117, 121, 125, 127, 131, 132, 140, 146, 150, 161, 168, 172, 177, 178, 182, 184, 185, 192, 196, 197, 211, 217, 221, 222, 225, 241, 248, 254, 259, 260, 261, 262, 272, 297, 309, 315, 318, 326, 334, 336, 337, 339, 341, 343, 345, 350, 353, 354, 357, 361, 363, 371, 372, 373, 375, 378, 380, 381, 389, 391, 392, 399, 402, 408, 416, 420, 421, 426, 434, 447, 451, 452, 458, 462, 464, 466, 474**
Resource Conservation & Recovery Act – Corrective Action Facilities (RCRAC)	**99, 127, 132**
Resource Conservation & Recovery Act – Generator (RCRAGR05)	**16, 20, 21, 30, 31, 36, 41, 44, 45, 47, 49, 50, 51, 53, 55, 56, 67, 72, 84, 86, 88, 90, 92, 93, 112, 113, 114, 115, 117, 118, 121, 127, 130, 132, 134, 136, 139, 140, 144, 147, 151, 155, 164, 174, 176, 186, 191, 193, 209, 211, 213, 215, 217, 222, 227, 240, 248, 253, 256, 260, 261, 262, 263, 278, 280, 281, 282, 283, 286, 294, 297, 298, 301, 302, 305, 306, 307, 311, 314, 315, 318, 319, 323, 326, 327, 330, 332, 333, 334, 335, 336, 337, 338, 339, 343, 347, 350, 353, 354, 356, 358, 360, 363, 365, 366, 370, 372, 375, 376, 380, 381, 383, 388, 389, 402, 405, 414, 416, 426, 435, 439, 444, 445, 454, 458, 460, 462, 463, 471, 473**

Database Name	Site Numbers Identified
Resource Conservation & Recovery Act - Non-CORRACTS Treatment, Storage & Disposal Facilities (RCRAT)	**127, 132**
Resource Conservation & Recovery Act – Non-Generator (RCRANGR05)	**3, 4, 6, 11, 14, 15, 16, 21, 27, 30, 33, 36, 37, 40, 41, 42, 43, 45, 47, 50, 51, 58, 61, 66, 68, 73, 75, 76, 77, 81, 82, 87, 91, 92, 94, 95, 99, 104, 107, 109, 112, 114, 115, 17, 118, 120, 121, 122, 123, 125, 131, 132, 137, 141, 142, 149, 158, 161, 164, 167, 172, 174, 176, 178, 183, 188, 192, 194, 196, 197, 198, 200, 202, 206, 209, 210, 211, 212, 217, 221, 223, 227, 245, 248, 255, 259, 271, 272, 274, 282, 297, 308, 316, 318, 320, 321, 322, 323, 324, 326, 327, 328, 334, 339, 343, 345, 347, 356, 357, 359, 361, 365, 369, 389, 391, 392, 401, 402, 411, 412, 414, 421, 425, 431, 432, 433, 439, 441, 444, 449, 453, 460, 462, 467**
Resource Conservation & Recovery Act - Subject to Corrective Action Facilities (RCRASUBC)	**127, 132**
Section Seven Tracking System (SSTS)	**127**
Site Response Section Database (SRS)	**2, 4, 14, 39, 59, 63, 73, 87, 88, 90, 94, 99, 102, 112, 113, 115, 120, 121, 22, 123, 127, 130, 132, 133, 134, 139, 144, 147, 155, 161, 166, 168, 169, 172, 177, 178, 181, 182, 183, 185, 186, 194, 197, 207, 211, 221, 226, 227, 235, 236, 248, 262, 274, 275, 326, 336, 338, 345, 361, 392, 463**
Sites with Institutional Controls (IC)	**94, 121, 122, 123, 125, 130, 131, 132, 133, 134, 139, 147, 166, 172, 177, 178, 181, 182, 183, 185, 186, 197, 277, 336**
Spills Listing (PCASPILLS)	**1, 4, 6, 20, 33, 39, 40, 45, 57, 58, 60, 70, 81, 87, 90, 92, 104, 105, 113, 114, 115, 117, 120, 121, 125, 126, 127, 134, 137, 151, 155, 161, 170, 172, 176, 177, 178, 182, 183, 185, 190, 197, 198, 200, 217, 227, 248, 259, 260, 261, 262, 265, 274, 277, 282, 294, 297, 307, 326, 333, 334, 335, 339, 343, 344, 347, 350, 354, 368, 375, 381, 385, 402, 406, 408, 415, 425, 426, 428, 434, 442, 457, 463**
State Assessment Sites (SAS)	**4, 118, 121, 122, 123, 125, 129, 139, 155, 172, 176, 355, 375, 388**
Superfund Enterprise Management System Archived Site Inventory (SEMSARCH)	**1, 51, 127, 132, 172, 176, 212**
Superfund Site Information Listing (SF)	**121, 122, 123, 125, 381**
Tier Two Facility Listing (TIERII)	**21, 33, 41, 50, 55, 58, 90, 109, 112, 121, 127, 161, 170, 176, 178, 192, 207, 218, 221, 272, 274, 282, 305, 309, 330, 339, 354, 363, 375, 402, 421, 434**

Database Name	Site Numbers Identified
Toxics Release Inventory (TRI)	**112, 127, 161, 172, 178, 200, 375**
Unpermitted Dump Sites (UNPERMDUMPS)	**36**
Voluntary Investigation and Cleanup Program Sites (VICP)	**2, 4, 14, 39, 59, 63, 73, 87, 88, 90, 94, 112, 113, 115, 120, 121, 122, 123, 125, 130 ,131, 132, 133, 134, 136, 139, 144, 147, 155, 161, 166, 168, 169, 172, 177, 178, 181, 182, 183, 185, 186, 194, 197, 207, 211, 221, 222, 226, 227, 235, 236, 248, 262, 274, 275, 326, 336, 338, 345, 361, 381, 392**
Water Discharge Permits (WDP)	**3, 20, 21, 33, 45, 47, 49, 58, 60, 90, 92, 94, 95, 101, 112, 116, 117, 118, 121, 125, 127, 130, 132, 139, 149, 151, 157, 161, 168, 176, 177, 178, 182, 185, 186, 197, 207, 211, 221, 222, 226, 227, 229, 235, 248, 257, 258, 259, 270, 274, 276, 282, 283, 287, 292, 296, 297, 298, 300, 312, 313, 326, 328, 334, 338, 339, 344, 345, 361, 371, 375, 380, 389, 392, 416, 421, 447**
What's In My Neighborhood Database (WIMN)	**1, 2, 3, 4, 11, 13, 14, 16, 20, 21, 27, 30, 31, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 47, 49, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 72, 73, 75, 76, 77, 80, 81, 82, 83, 83, 86, 87, 88, 90, 91, 92, 93, 94, 95, 99, 101, 102, 104, 107, 109, 112, 113, 114, 115, 116, 117, 118, 120, 121, 122, 123, 125, 127, 129, 130, 131, 132, 133, 134, 136, 137, 139, 140, 141, 142, 144, 146, 147, 148, 149, 150, 151, 155, 158, 161, 164, 167, 168, 169, 172, 174, 175, 176, 178, 181, 182, 183, 184, 185, 186 ,188, 191, 192, 193, 194, 196, 197, 198, 200, 202, 206, 207, 209, 210, 211, 212, 213, 215, 217, 221, 222, 223, 225, 226, 227, 229, 235, 236, 238, 240, 241, 245, 246, 248, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 269, 271, 272, 274, 275, 276, 277, 278, 280, 281, 282, 283, 286, 287, 289, 292, 294, 296, 297, 298, 300, 301, 302, 306, 307, 308, 309, 311, 312, 313, 314, 315, 316, 318, 319, 320, 323, 324, 326, 327, 328, 330, 332, 333, 334, 336, 337, 338, 339, 341, 343, 344, 345, 347, 350, 353, 354, 355, 356, 357, 358, 359, 360, 361, 363, 365, 366, 369, 370, 371, 372, 373, 374, 376, 378, 380, 381, 383, 386, 388, 389, 391, 392, 399, 401, 402, 405, 408, 411, 412, 414, 415, 416, 420, 421, 425, 426, 430, 431, 432, 433, 434, 435, 439, 444, 445, 447, 448, 449, 451, 452, 457, 458, 459, 461, 462, 463, 464, 466, 467, 471, 473, 474**

The following listings in the GeoSearch report appeared to be located within the proposed Rush Line BRT right-of-way (ROW) but could not be associated to one specific site:

Database Listings within the Corridor Not Associated with a Specific Site

Name	Address	Database(s)
Not listed	Kellogg Boulevard and Robert Street Area, St. Paul	Spills Listing (PCASPILLS) – Spill #54464 was reported on May 2, 2001. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.
Xcel Energy	4th Street and Robert Street, St. Paul	PCASPILLS – Spill #84184 was reported on June 9, 2012 as from a transformer. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.
Performance Office Papers	7th Place and Robert Street, St. Paul	PCASPILLS – Spill #54527 was reported on May 5, 2001 resulting from a transportation accident. The spill listing is reported as closed or completed. Closure type is listed as no action necessary. No additional information was included in the database report.
St. Paul Port Authority	7th Place and Robert Street, St. Paul	Facility Registry System (FRSMN) – Listed under the MN-TEMPO and RCRA Information programs.
		Enforcement and Compliance History Information (ECHOR05) – Identified as an inactive hazardous waste generator with no violations reported.
		Resource Conservation & Recovery Act – Non-Generator (RCRANGR05) – Listed as a non-generator of hazardous waste (no releases, violations, or enforcement actions noted).
		What's In My Neighborhood Database (WIMN) – Listed for the generation of hazardous waste; status is listed as inactive.
Phalen Boulevard	Mississippi Street to Maryland Avenue, St. Paul	The Phalen Boulevard corridor was identified on regulatory databases as part of multiple inactive Petroleum Brownfields Program and Voluntary Investigation and Cleanup (VIC) Program sites; therefore, for the purposes of this report, it was given its own site ID. Please refer to the site summary for Site 120 in Appendix C for the full database listing associated with this site.

Name	Address	Database(s)
Not listed	Buerkle Road, Vadnais Heights	PCASPILLS – Spill #28048 was reported on May 17, 1998 resulting from a leaking container. The spill listing is reported as closed or completed. Closure type is listed as not reported. No additional information was included in the database report.
Not listed	61 N Buerkle Road, Vadnais Heights	PCASPILLS – Spill #52192 was reported on May 31, 2000. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.
Xcel Energy	Highway 61 and Willow Lake Boulevard, Vadnais Heights	PCASPILLS – Spill #70893 was reported on August 15, 2007 resulting from a transformer. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.
S.P. 6222-160	TH 61, White Bear Lake	FRSMN – Listed under the MN-DELTA and MN-TEMPO programs.
		Water Discharge Permits (WDP) – A construction stormwater permit was issued; status is listed as inactive.
		WIMN – A construction stormwater permit was issued; status is listed as inactive.
Not listed	Highway 61 and County Road F, White Bear Lake	PCASPILLS – Spill #54660 was reported on June 7, 2001. The spill listing is reported as closed or completed. Closure type is listed as no action necessary. No additional information was included in the database report.
Kohler Mix	Highway 61 and County Road F, White Bear Lake	PCASPILLS – Spill #59050 was reported on May 29, 2003. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.
		PCASPILLS – Spill #65035 was reported on August 13, 2005. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.

Name	Address	Database(s)
MCES-Eagan	Whitaker Street and White Bear Avenue, White Bear Lake	PCASPILLS – Spill #55758 was reported on November 10, 2001. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.
Wiseman	Highway 61 and Old White Bear Avenue, White Bear Lake	PCASPILLS – Spill #66869 was reported on April 12, 2006. The spill listing is reported as closed or completed. Closure type is listed as no action necessary. No additional information was included in the database report.
Not listed	Highway 61 and Lake/White Bear Avenue, White Bear Lake	PCASPILLS – Spill #64877 was reported on October 29, 2004. The spill listing is reported as closed or completed. Closure type is listed as no action necessary. No additional information was included in the database report.
White Bear 6901 Diversion Interceptor Project	Bald Eagle Avenue, White Bear Lake	FRSMN – Listed under the MN-TEMPO program.
		Petroleum Brownfields Program Sites (PBF) – The status of PB3604 is listed as inactive. The file PB3606 has been requested from the MPCA, but has yet to be received as of the date of this report. Based on the address description listed in the database report, this listing could not be assigned to a specific site within the Corridor.
		MPCA Remediation Sites (REMSITES) – Listed as a petroleum brownfield site. The site closure date is listed as January 1, 2007.
		WIMN – Listed as a petroleum brownfield site; status is listed as inactive.
Spur Station	Highway 61 and 4th Street, White Bear Lake	PCASPILLS – Spill #17927 was reported on January 1, 1996. The spill listing is reported as closed or completed. Closure type is listed as not reported. No additional information was included in the database report.
34204 Ramsey County TH 61 S.P. 6222-162	Address Unknown, White Bear Lake	FRSMN – Listed under the MN-TEMPO program.
		WDP – A construction stormwater permit was issued; status is listed as inactive.
		WIMN – A construction stormwater permit was issued; status is listed as inactive.

Name	Address	Database(s)
Waste Management - Blaine	SB Highway 61 and 7th Street, White Bear Lake	PCASPILLS – Spill #77880 was reported on April 21, 2010. The spill listing is reported as closed or completed. Closure type is listed as response/action completed. No additional information was included in the database report.

5.1.2. Adjoining Properties

Braun Intertec reviewed the GeoSearch report for properties that adjoin the Corridor and are located within the approximate minimum search distances on the standard environmental records sources as specified in the ASTM Standard. Based on factors that include regulatory status, distance from the Corridor, and/or location relative to the regional groundwater flow direction, as referenced in Section 3. Physical Setting, numerous facilities are identified in the GeoSearch report that pose a potential recognized environmental condition (i.e., potential for contamination). The properties adjacent to the downtown St. Paul, the Phalen Boulevard, and the downtown White Bear Lake portions of the Corridor are areas of current and/or historical industrial use. Numerous properties are listed in the regulatory report in the vicinity of the Corridor with reported releases of hazardous substances and/or petroleum products. However, these regulatory files were not reviewed since they are located outside the Corridor.

5.1.3. Unmapped Sites/Orphan Sites

The GeoSearch report identified no “unplottable” sites, which, because of poor or inadequate address information could not be mapped by GeoSearch.

5.2. MPCA/MDA FILE REVIEWS

Over 250 sites warranted an additional MPCA/MDA file review based on their complexity and/or size in order to evaluate the potential impact to the Corridor. When available, Braun Intertec completed MPCA file reviews for available petroleum tank release, VIC, petroleum brownfields, state site assessment, RCRA remediation, and Superfund/CERCLIS files for the Corridor. In addition, Braun Intertec reviewed an MDA spill file. The file review information is summarized by site on the site summaries in Appendix C.

Due to the volume of information obtained from the current assessment of MPCA and MDA files, it was not practical to include hard copies of the information as appendices to the bound hard copy of this report. However, this information is provided as Appendix I in the pdf version of this report as a separate pdf volume. Selected diagrams and tables referencing the MPCA and MDA files for subsurface investigations are included under the Detailed Regulatory File Review section in the site summary sheets in Appendix C. Any additional documentation obtained from the MPCA and MDA file reviews is on file at Braun Intertec.

6. ADDITIONAL RECORDS

6.1. MINNESOTA WELL INDEX

The Minnesota Geological Survey (MGS) maintains the Minnesota Well Index (MWI), which is a limited database of water well records. The MWI was accessed through the Minnesota Department of Health (MDH) website. Numerous private wells were identified within the Corridor. The locations of the wells are indicated on Figure 4 in Appendix B. Information obtained for wells identified on the low, medium, and high potential contamination sites is included in the site summaries in Appendix C. Copies of available well logs for the wells identified on the low, medium, and high potential contamination sites are included in Appendix J.

It should be noted that Unique Well ID #200490 was identified on the proposed Rush Line BRT alignment just east of the intersection of Phalen Boulevard and Payne Avenue in St. Paul (see Figure 4, Sheet 7 in Appendix B; and Site Summary 162 in Appendix C). According to the well log, the well is sealed; Phalen Boulevard currently occupies this location.

Braun Intertec also accessed the MWI to determine the location/boundaries of any Wellhead Protection Areas (WHPA) and Drinking Water Supply Management Areas (DWSMA) that exist within the Corridor. The Corridor is located within four WHPAs: Vadnais Heights 2, White Bear Township NW, Mahtomedi, and White Bear Lake. The Corridor was not located within a DWSMA.

6.2. PRIOR REPORTS

Braun Intertec reviewed the following previous environmental documents as they pertain to the Corridor:

***Phase II Environmental Site Assessment – Interim Investigation Report; Civil East, Section 12 – Along 4th Street from the Intersection of 5th Street/Cedar Avenue to Operations and Maintenance Facility, Central Corridor Light Rail Transit Project, St. Paul, Minnesota*; prepared by Braun Intertec and dated September 23, 2009.**

***Phase II Environmental Site Assessment Results Transmittal Letter; Civil East, Section 11 – Along Cedar Street from 12th Street E to 5th Street E, Central Corridor Light Rail Transit Project, St. Paul, Minnesota*; prepared by Braun Intertec and dated December 15, 2009.**

***Response Action Plan and Construction Contingency Plan Implementation Report; 4th Street Advanced Utility Construction Segment, Central Corridor Light Rail Transit Project, Along 4th Street from the intersection of 5th Street/Cedar Avenue to Operations and Maintenance Facility, St. Paul, Minnesota*; prepared by Braun Intertec Corporation and dated November 10, 2011.**

The three reports referenced above are relative to the environmental investigation and construction of the Central Corridor Light Rail Transit Line (CCLRT) project, which is now known as the METRO Green Line. The downtown St. Paul portion of the CCLRT project was constructed in close proximity to the downtown St. Paul portion of the Corridor and results identified as part of the CCLRT environmental investigation are likely representative of conditions that may be encountered during future construction of the Corridor. As part of initial environmental investigation activities for the CCLRT project, fill soils (typically identified as “urban fill”) impacted with debris, polycyclic aromatic hydrocarbons (PAHs), diesel range organics (DRO), and metals were identified immediately below the

roadway to thicknesses ranging from 5 to 15 feet below ground surface (bgs). In addition, soil borings encountered shallower bedrock in the subsurface (less than 5 feet) in areas closer to the Interstate 94 intersection.

During construction of the CCLRT project in downtown St. Paul, multiple areaways were encountered directly below the sidewalks and within the project's construction limits. Areaways were historically used to house heating systems and related equipment; including boilers, coal storage, fuel oil tanks, and piping. Several of the areaways encountered were discovered to have contained asbestos containing materials and other equipment containing mercury and polychlorinated biphenyls (PCBs). These materials were removed prior to areaway demolition for project construction.

***Limited Phase I Environmental Site Assessment – Trunk Highway 952A (Robert Street), Annapolis Street to 12th Street, St. Paul, Minnesota, State Project Number: 6217-73*; prepared by Braun Intertec and dated March 8, 2018.**

Braun Intertec conducted a Limited Phase I ESA for State Project 6217-73, which included improvements to Trunk Highway (TH) 952A (also known as Robert Street) between Annapolis Street and 12th Street in St. Paul, Ramsey County, Minnesota (Robert Street project). The length of the Robert Street project was approximately 2.52 miles. Relevant data from the Limited Phase I ESA for the Robert Street project was incorporated in this report, where feasible.

6.3. INSTITUTIONAL CONTROLS

As identified in Section 5.1.1, Sites 94, 121, 122, 123, 125, 130, 131, 132, 133, 134, 139, 147, 166, 172, 177, 178, 181, 182, 183, 185, 186, 197, 277, and 336 were listed on the Institutional Control regulatory database. Copies of the institutional control documents are provided in the appropriate MPCA files included in Appendix I in the pdf version of this report as a separate pdf volume. Summaries of the associated MPCA files are available in the individual site summaries in Appendix C.

6.4. RAMSEY COUNTY RECORDS

Braun Intertec obtained individual parcel information for legal land parcels in the Corridor from the Ramsey County web page. The county information includes property identification number (PIN), a partial tax description, property address (if available), and property owner. Information obtained for low, medium, and high potential for contamination parcels from the county web page reviews is included in the site summaries in Appendix C.

6.5. STATE REGULATORY WEB PAGES

Braun Intertec accessed MPCA's Aboveground/Underground Storage Tank Site Search web page, MDA's "What's In My Neighborhood" Agricultural Interactive Mapping web page, MPCA's Petroleum Remediation Program Maps Online web page, and MPCA's "What's In My Neighborhood" web pages for information regarding the potential for sites located within the Corridor to be of environmental concern that were not identified in the GeoSearch report. Any additional facilities identified that were not included in the GeoSearch report are included in the site summaries in Appendix C.

7. SITE RECONNAISSANCE

Braun Intertec environmental professional Julie Baumeister and project engineer Kevin Zalec conducted reconnaissance of the Corridor on May 10, 14, 16, and 24, 2018. Additional reconnaissance of the Corridor was conducted by Julie Baumeister and staff scientist John Swiecichowski on October 8, 2018. General observations were made along the length of the Corridor from public areas such as roads and sidewalks. Observations of the facilities included, but were not limited to the following:

- Occupant/property use
- Structures
- Evidence of demolished/removed structures
- Tanks
- Unidentified containers (drums, cylinders, etc.)
- Wells
- Septic system or cistern
- Use/storage/disposal of petroleum products, hazardous materials, or other chemicals
- Evidence of dumping, landfilling, or non-native fill
- Evidence of spill or release of petroleum products, hazardous materials, or other chemicals
- Unpaved roads/paths with no outlet
- Outdoor storage
- Surface water features
- Stained soil or stressed vegetation
- PCB-containing equipment
- Odors
- Poor housekeeping
- Past structure use or property ownership

Specific observations of the sites with a low, medium, and high potential for contamination within the Corridor are included in Appendix C.

8. INTERVIEWS

Braun Intertec made inquiry to the following users and local government officials to obtain knowledge or records of historical and current land-use information regarding the Corridor and surrounding area:

Kimley-Horn Representative (User)

Braun Intertec contacted Ms. Jessica Laabs of Kimley-Horn, regarding any environmental knowledge or the Corridor. Ms. Laabs did not have any specific records or recollection of environmental concerns within the Corridor. However, Ms. Laabs mentioned she was aware of anecdotal reference to potential contamination at the Northern Iron site (Site 176). Additionally, she stated that a rail depot was historically located near Frost Avenue in Maplewood (Site 235, Gladstone Savana). Ms. Laabs also indicated that the RCRRA right-of-way (Bruce Vento Trail) is a former railroad corridor; she stated that

soil corings are being collected within this portion of the Corridor as part of the archeological investigations (which will be presented under separate cover) for the Rush Line BRT.

Ramsey County Representative (User and Local Representative)

Braun Intertec contacted Mr. Frank Alarcon, Planning Specialist for Ramsey County Public Works, regarding any environmental knowledge of the Corridor. He indicated that their property management department was not aware of any specific environmental concerns (USTs, citizen complaints, hazardous materials, spills, etc.). However, Mr. Alarcon suggested reaching out to the City of St. Paul to inquire about environmental hazards as part of the construction of Phalen Boulevard (Site 120) and to reach out to the City of Maplewood to inquire about the rehabilitation of Gladstone Savanna (Site 235), which historically operated as a rail yard.

Metropolitan Council and MnDOT (Future Users)

Braun Intertec contacted Mr. James DeLuca, Environmental Coordinator for MnDOT/Environmental Transit Liaison to Metropolitan Council regarding any environmental knowledge of the Corridor. Mr. DeLuca indicated that he was not currently involved with this project and suggested that we reach out to Ms. Carolyn Boben of MnDOT Office of Environmental Stewardship.

Braun Intertec then contacted Ms. Boben who indicated that MnDOT encountered contamination near the Phalen Avenue/Cayuga area as part of the Cayuga Bridge project. From our knowledge of the Cayuga Bridge project, the contamination encountered was likely associated with former historical industrial uses of the area and relevant information is included within the site summaries for Sites 120, 127, 131, 130, 132, and 134. Ms. Boben also indicated that there is a Superfund site near Arcade Street, which is identified in this report as Site 176, Northern Iron & Machine. Finally, Ms. Boben recommended that Braun Intertec reviews the MDH website for information on known perfluoroalkyl substances [PFAS, which are also known as perfluorochemicals (PFCs)] impacts related to 3M dumpsites. Ms. Boben indicated that the known PFAS impacts are widespread and may be present in the Corridor. As a follow-up, Braun Intertec reviewed the MDH website and the known PFAS plume is further east and outside of the Corridor.

Representatives from cities in the Corridor:

- **St. Paul, Bill Dermody, City Planner, Planning and Economic Development** – Mr. Dermody stated that Phalen Boulevard (Site 120) is currently located in a former railroad corridor. Mr. Dermody indicated that the valley in which Phalen Boulevard is located may have pollution related to the previous railroad use or related to adjacent historical businesses (e.g., 3M and Whirlpool). He went on to note that most, if not all, of the former Whirlpool and 3M properties have been purchased and subsequently remediated by the St. Paul Port Authority, which is a separate entity from the city of St. Paul. Mr. Dermody also provided the following report for review: *Final Environmental Impact Statement and Final Section 4(f) Evaluation – Phalen Boulevard: I-35E to Johnson Parkway*; prepared by City of St. Paul and MnDOT and dated September 20, 1999 (Final EIS). The Final EIS indicated that the Draft EIS, which was not available for review, noted that several parcels with potential soil and groundwater contamination issues would be acquired for the land area north of York Street. These parcels would be affected by construction of the new Cayuga Street interchange as part of the I-35E and Phalen Boulevard project; the Final EIS indicated that these soil and groundwater impacts were the results of historical uses at the 215 Cayuga Street parcel, which appears to be located outside of the Rush Line BRT Corridor. However, the Draft EIS was quoted in the Final

EIS as stating "…most of the property in the immediate [Phalen Boulevard] corridor area is or was former railroad right-of-way, or is or was occupied by railroad-related or heavy manufacturing businesses, or scrap yards or waste transfer businesses. It has been assumed and confirmed by Phase I research that many of the [Phalen Boulevard] corridor properties may be contaminated." No additional environmental information was included in the Final EIS.

- **Maplewood, Michael Martin, Economic Development Coordinator, and Steve Love, Public Works Director** – There have been no responses to our inquiries from these local government officials.
- **Vadnais Heights Fire Department, Edward Leier, Fire Chief** – Mr. Leier indicated that there were no "issues" involving hazardous materials and no records of hazardous materials spills on the portion of the proposed Rush Line BRT in Vadnais Heights.
- **Gem Lake** – Gem Lake does not have its own fire department. The request for inquiry for Gem Lake was sent to the White Bear Lake Fire Department, which according to its website provides services to the City of Gem Lake.
- **White Bear Lake Fire Department, Greg Peterson, Fire Chief** – Mr. Peterson was not aware of any environmental concerns along the portion of the Corridor in White Bear Lake or Gem Lake. However, Mr. Peterson also stated that he has only served as the Chief of the department for just over a year and was hired from outside; therefore, he stated, the area is relatively new to him.

An addendum will be provided if information is received after the issuance of this report that alters the findings of this report. Refer to Section 1.5 for a discussion regarding Data Gaps encountered during our inquiry.

9. FINDINGS AND MnDOT CONTAMINATION POTENTIAL RANKING

As indicated, identified sites within the Corridor were ranked/classified as having a low, medium, or high potential for contamination to the Corridor using criteria established by MnDOT, as amended and discussed in Section 1.4 Corridor Ranking Definitions. The remaining sites, which were evaluated but did not meet the ranking criteria for low, medium, or high potential for contamination, were grouped into areas which were assigned a site number and were ranked as having a *de minimis* potential for contamination.

Based on Braun Intertec's assessment, 506 total sites were identified within the Corridor as *de minimis* or as a low, medium, or high potential for contamination.

9.1. *DE MINIMIS* SITES

De Minimis Sites include sites that do not qualify by definition as low, medium, or high potential for contamination ranked sites and are unlikely to be considered contaminated. Braun Intertec identified 31 *De Minimis* Sites within the Corridor. The specific sites identified are included in the Site Summary Table included as Table 1 in Appendix A and on the De Minimis Sites Table included as Table 2 in Appendix A.

9.2. SITES WITH LOW POTENTIAL FOR CONTAMINATION

Low Potential for Contamination Sites include 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. Braun Intertec identified 170 Low Potential for Contamination Sites within the Corridor. The specific sites identified are included in the Site Summary Table included as Table 1 in Appendix A and on the Sites with Low Potential for Contamination Table included as Table 3 in Appendix A.

9.3. SITES WITH MEDIUM POTENTIAL FOR CONTAMINATION

Medium Potential for Contamination Sites include sites with closed leaking underground or aboveground storage tanks (LUSTs/LASTs), closed spill sites, all sites with underground or aboveground storage tanks (USTs/ASTs), 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. Braun Intertec identified 161 Medium Potential for Contamination Sites within the Corridor. The specific sites identified are included in the Site Summary Table included as Table 1 in Appendix A and on the Sites with Medium Potential for Contamination Table included as Table 4 in Appendix A.

9.4. SITES WITH HIGH POTENTIAL FOR CONTAMINATION

High Potential for Contamination Sites include all active and inactive Voluntary Investigation and Cleanup Program (VIC) sites, all active and inactive Minnesota Environmental Response and Liability Act (MERLA)/Superfund sites, Resource Conservation and Recovery Act (RCRA) sites, all active and inactive dumpsites, all active LUST/LAST 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 laboratory, and all historic industrial sites with likely chemical use on the premises. Braun Intertec identified 144 High Potential for Contamination Sites within the Corridor. The specific sites identified are included in the Site Summary Table included as Table 1 in Appendix A and on the Sites with High Potential for Contamination Table included as Table 5 in Appendix A.

10. CORRIDOR-WIDE CONCERNS/ ADDITIONAL CONSIDERATIONS

Based on a review of historical information, many properties within the Corridor were residential or formerly residential. Fuel oil tanks or other hazardous materials may be present within these residential properties. In those cases where historical and/or regulatory information confirmed the presence of tanks or other contaminants, the property was assigned a site number and was ranked in accordance with the MnDOT definitions of having a low, medium, or high potential for contamination. For those properties where historical and/or regulatory information or site reconnaissance did not confirm tanks or hazardous materials were present, the properties were grouped into areas that were assigned a site number and were ranked as having a *de minimis* potential for contamination.

Historically, residential and/or commercial buildings were previously located on several of the sites within the Corridor. It is unknown if the demolition debris associated with these buildings was buried on the sites or hauled away for disposal. The potential exists that buried materials are present that may require management as solid or hazardous waste if encountered during redevelopment activities. If fill soils, which could include demolition debris and other wastes, are encountered during construction, then additional evaluation of the fill soils might be required for management and disposal purposes.

Review of the MDH MWI records indicate the presence of water wells at multiple properties throughout the Corridor. The locations of many of these wells were confirmed based on review of regulatory agencies files.

The Corridor is located within the Vadnais Heights 2 WHPA, White Bear Township NW WHPA, Mahtomedi WHPA, and White Bear Lake WHPA. Future construction in the Corridor will need to take into account minimizing effects to the hydrology based on the WHPA status, the presence of municipal wells, and locations of contaminant sources.

Additionally, environmental data generated as part of the CCLRT project (now known as the METRO Green Line) indicated that urban fill is prevalent in many areas of downtown St. Paul, including areas immediately adjacent to the Robert Street portion of the Corridor. The urban fill was characterized by the presence of debris, as well as concentrations of PAHs, DRO, and metals. In many areas, the urban fill was identified to be present below the roadways and immediately above shallow bedrock (less than 20 feet). Construction activities along the CCLRT project in downtown St. Paul also encountered numerous areaways immediately beneath the sidewalks. Areaways were historically used to house heating systems and related equipment; including boilers, coal storage, fuel oil tanks, and piping. As such, there is the potential to encounter asbestos, petroleum, or other contaminated/regulated materials in areaways that will be impacted for the future project. Areaways, like bridges and other structures, should be assessed for the presence of asbestos and other regulated materials prior to significant renovation and/or demolition.

11. CONCLUSIONS

Based on Braun Intertec's assessment, 506 sites were identified within the Corridor as *de minimis* or having a low, medium, or high potential for contamination. More specifically, 31 *De Minimis* Sites, 170 Low Potential for Contamination Sites, 161 Medium Potential for Contamination Sites, and 144 High Potential for Contamination Sites were identified.

Generally, there is a significant number of High Potential for Contamination Sites and Medium Potential for Contamination Sites in the downtown St. Paul, the Phalen Boulevard, and the east/west trending RCRRA right-of-way (Bruce Vento Trail) portions of the Corridor and to a slightly lesser extent along the Highway 61 and the downtown White Bear Lake portions of the Corridor. These properties are located in areas of current and/or historical industrial use, railroad use, and commercial use (including gasoline filling/service stations and several car dealerships).

12. REFERENCES

References are listed in Appendix M.

13. STANDARD OF CARE

The Modified Phase I ESA was conducted in general conformance with guidelines recommended by MnDOT and in general accordance with ASTM methodology E1527-13. Qualifications of the environmental professionals are attached in Appendix N. In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Sincerely,

BRAUN INTERTEC CORPORATION

Julie L. Baumeister, M.S., G.I.T.
Staff Scientist

07/30/2019
(dd/mm/yyyy)

Jaclyn E. Dylla, CHMM
Principal

07/30/2019
(dd/mm/yyyy)

PHASE II ENVIRONMENTAL SITE ASSESSMENT

RUSH LINE BUS RAPID TRANSIT (BRT) PROJECT
ST. PAUL, MAPLEWOOD, VADNAIS HEIGHTS, GEM LAKE, WHITE BEAR LAKE, AND WHITE BEAR TOWNSHIP, MINNESOTA

PREPARED FOR

KIMLEY-HORN ASSOCIATES, INC.

RAMSEY COUNTY REGIONAL RAILROAD AUTHORITY

METROPOLITAN COUNCIL

MINNESOTA DEPARTMENT OF TRANSPORTATION

Project B1801478.00

September 18, 2020

Braun Intertec Corporation

Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438

Phone: 952.995.2000
Fax: 952.995.2020
Web: braunintertec.com

September 18, 2020 Project B1801478.00

Ms. Jeanne Witzig
Kimley-Horn and Associates, Inc.
767 N. Eustis Street, Suite 100
St. Paul, MN 55114

Re: Phase II Environmental Site Assessment
Rush Line Bus Rapid Transit (BRT) Project
St. Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Lake, and White Bear Township, Minnesota

Dear Ms. Witzig:

In accordance with Individual Project Order #RL2-Braun, Braun Intertec Corporation conducted a Phase II Environmental Site Assessment (ESA) of the Rush Line Bus Rapid Transit (BRT) Project (Corridor) in St. Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Lake, and White Bear Township, Minnesota in anticipation of future construction activities. The purpose of this Phase II ESA was to evaluate the potential risk for the project to encounter existing soil contamination. Findings from this analysis will be included in the Rush Line BRT Project Environmental Assessment (EA) and the final environmental determination. Additionally, information generated for the Phase II ESA will effectively inform decisions regarding type and placement of potential stormwater best management practices (BMPs). In addition to areas of proposed significant acquisition and areas of proposed construction, the Phase II ESA focused on areas of the Rush Line BRT Project Corridor that were identified as areas of potential environmental concern in the previous *Modified Phase I Environmental Site Assessment* prepared by Braun Intertec for the Corridor dated July 30, 2019.

We appreciate the opportunity to provide our professional services for you for this project. If you have any questions regarding this letter or the attached report, please contact Jackie Dylla at 952.995.2490.

Sincerely,

BRAUN INTERTEC CORPORATION

Joseph M. Foline, CHMM
Senior Scientist

Jaclyn E. Dylla, CHMM
Vice President/Principal Scientist

Attachment:
Phase II ESA Report

TABLE OF CONTENTS

LIST OF APPENDICES

Note: Appendices are available upon request.

EXECUTIVE SUMMARY

Braun Intertec Corporation was retained by Kimley-Horn and Associates, Inc. (Kimley-Horn) and Ramsey County Regional Railroad Authority (RCRRA) to conduct a Phase II Environmental Site Assessment (ESA) in preparation for future construction of the Rush Line Bus Rapid Transit (BRT) project. The proposed Rush Line BRT project alignment is located generally along Robert Street, Phalen Boulevard, RCRRA right of way (Bruce Vento Trail), and Trunk Highway (TH) 61 within the cities of St. Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Lake, and White Bear Township, Minnesota. The project alignment spans a total distance of approximately 15 miles. The project alignment (Corridor) is depicted on Figure 1 in Appendix A. This Phase II ESA focused on areas of potential environmental concern as identified in the previous *Modified Phase I Environmental Site Assessment* prepared by Braun Intertec for the project dated July 30, 2019 (Modified Phase I ESA).

The Modified Phase I ESA and Phase II ESA were prepared in conjunction with the overall environmental analysis phase for the Rush Line BRT project being led by RCRRA. Key components of this phase of the project include completing an Environmental Assessment (EA), up to 15% conceptual engineering design, and public engagement. Findings from this Phase II ESA will be included in the EA and the final environmental determination for the project. Additionally, this Phase II ESA was completed concurrently with a preliminary geotechnical evaluation. Information collected from both the Phase II ESA and the preliminary geotechnical evaluation will be used for engineering design and specifically for the placement and construction of various project features such as bridges, guideway, stations, and stormwater best management practices (BMPs).

A total of one hundred and thirty-seven (137) soil borings [one hundred and eighteen (118) hollow stem auger borings, fourteen (14) push probe borings, and 5 hand auger borings] were advanced between January 6 and April 17, 2020. The locations of soil borings completed during this Phase II ESA are shown on Figure 2 in Appendix A and are summarized in Table 1 in Appendix B. Note that areas along Phalen Boulevard could not be directly investigated during this Phase II ESA due to in place restrictive covenants placed as a result of previous environmental activities. In addition, many planned investigation locations could not be accessed due to private property access issues or physical impediments.

The Phase II ESA results identified the following potential environmental impacts for the planned Rush Line BRT project:

Soil and Groundwater Impacts

The Phase II ESA identified several areas of confirmed soil contamination where analytical testing and/or field screening identified impacts in soil exceeding an established Minnesota Pollution Control Agency (MPCA) Soil Reference Value (SRV), Soil Screening Leaching Value (SLV), or regulated fill criterion. In addition, the Phase II ESA identified several areas of groundwater contamination where analytical testing identified impacts exceeding an established drinking water criteria (DWC) and/or groundwater pump-out discharge limit criteria for construction dewatering. The locations of soil borings where impacts have been identified are shown on Figure 2 in Appendix A. For ease of discussion within this report, the Corridor has been divided into five areas based on geography and planned construction features and are summarized below (from south to north):

Downtown St. Paul (From the Southern Corridor Terminus to Interstate-35 East)

Planned construction in the downtown St. Paul portion of the Corridor consists mainly of guideway and stations along existing roadways, retaining walls with easement acquisitions along the eastern side of Jackson Street between University Avenue East and Pennsylvania Avenue West, and stormwater BMPs within the Jackson Street and Pennsylvania Avenue West interchange. This area is represented by the samples collected from soil borings ST-01 to ST-20. Field screening observations indicated that a combination of concrete, brick, coal, clinker, wood, and/or glass debris was observed in fill soils in 6 of the 17 borings completed. Debris of this nature is typical of urban fill common in city centers. Soil with debris is considered regulated in accordance with MPCA guidelines. No other field indications of contamination or analytical exceedances of concern were noted in the soil samples in this area.

One groundwater sample, B-9 (water) collected from soil boring ST-9, was collected from this portion of the Corridor. This sample exhibited a trichloroethene (also known as TCE, a dry cleaning or parts cleaning solvent) concentration that exceeded the DWC. This solvent-based type of contamination is typical for groundwater located in an urban area with various historic commercial and industrial uses and is likely the result of an off-Corridor release.

During construction in this portion of the Corridor, it is likely that shallow fill containing debris as described above will be encountered during construction. Based on the percent of debris present, excavated fill from these areas may require landfill disposal.

Although present, based on depth it is unlikely that contaminated groundwater will be encountered during construction. If discharge of contaminated groundwater is required, a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Industrial Groundwater Pump Out General Permit to the storm sewer, or a Metropolitan Council Environmental Services (MCES) sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

Phalen Boulevard, St. Paul (From Interstate-35 East to Johnson Parkway)

Planned construction along Phalen Boulevard will consist mainly of guideway, stations, retaining walls, and easement acquisitions along the existing roadways; several stormwater BMPs within the roadway right of way (ROW); and a bridge ramp connecting Phalen Boulevard and Arcade Street. The Phalen Boulevard portion of the Corridor has a history of railroad and industrial uses. During the redevelopment of the area into its current configuration, soil contaminated with semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and diesel range organics (DRO) and/or soil containing debris was left in place in some areas, as well as intentionally placed at depth in other areas within the Phalen Boulevard ROW. Restrictive covenants have been filed with Ramsey County in several areas in which contaminated soil was placed. The restrictive covenants limit the subsurface activities within these areas and therefore they could not be directly investigated during this Phase II ESA. Copies of the available Phalen Boulevard Restrictive Covenants are included in Appendix C and the approximate boundaries of these areas are shown on Figure 2. It is assumed that BRT construction in this area will encounter contaminated materials.

As part of this Phase II ESA, locations outside of restrictive covenant areas are represented by the samples collected from soil borings ST-21 to ST-88. Field screening observations indicated that a combination of bituminous, concrete, glass, plastic, brick, and/or coal debris was observed in the fill soils in 13 of the 32 borings advanced. A chemical-like odor was also noted in soil collected from boring ST-51 at approximately 10 feet to 29 feet below ground surface (bgs). Additionally, DRO,

PCBs, and/or naphthalene were detected at concentrations exceeding an established MPCA criterion in 9 of the borings. Two groundwater samples that were collected in this portion of the Corridor exhibited DRO concentrations that exceeded the groundwater pump-out discharge limit.

The debris, soil impacts, and groundwater impacts identified in this portion of the Corridor are consistent with the documented contamination along Phalen Boulevard and are likely associated with past railroad and industrial uses.

During construction in this portion of the Corridor, it is likely that shallow fill containing DRO impacts and debris as described above will be encountered. In addition, deeper fill soil containing both debris and various chemical contaminants may be encountered, particularly during bridge construction. Fill excavated from areas of identified debris and soil contamination will require landfill disposal. Furthermore, based on existing restrictive covenants, soil containing debris and VOC, polycyclic aromatic hydrocarbons (PAHs), DRO, and/or PCB contamination is widespread throughout the Phalen Boulevard ROW. Previous intentional placement of debris and contaminated soil was completed below the paved portions of much of the roadway as well as below a minimum 4 foot clean soil buffer within the green space areas. Prior to construction, an MPCA approved Response Action Plan (RAP) will be required that details construction activities planned within restrictive covenant areas, as well as the handling and management of contaminated materials. It should be anticipated that the majority of excavated soil in the Phalen Boulevard portion of the Corridor will require landfill disposal.

Although present, based on depth it is unlikely that contaminated groundwater will be encountered during construction. If discharge of contaminated groundwater is required, a NPDES/SDS Industrial Groundwater Pump Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

RCRRA Right of Way Alignment, St. Paul, Maplewood, and White Bear Lake (From Johnson Parkway to Buerkle Road)

Planned construction along the RCRRA right of way alignment consists mainly of guideway, stations, retaining walls, bridges, stormwater BMPs, and a trailhead with parking (to be located just west of the RCRRA alignment at 1840 to 1870 English Street, Maplewood). This area is represented by the samples collected from soil borings ST-89 to ST-147, ST-150 and ST-151, and ST-161 to ST-187. Soil borings in this portion of the Corridor were advanced primarily along an elevated fill berm formerly occupied by railroad tracks prior to the existing paved Bruce Vento Trail. Trace amounts of bituminous and/or plastic debris was observed in the fill soils in 6 of the 64 borings advanced in this area. Two borings exhibited elevated photoionization detector (PID) readings in the upper one foot of soils. No other field evidence of impacts were observed in the field during the completion of the soil borings in this portion of the Corridor.

Soil analytical results indicated several discrete locations of contamination within this portion of the Corridor. Specifically, concentrations of petroleum compounds (benzene, DRO), PAHs, and arsenic were identified at levels exceeding an established MPCA criterion. The sources of these impacts are likely due to the import of fill materials or historic railroad use. Fifteen groundwater samples were collected in this portion of the Corridor. Of the 15 groundwater samples collected, seven samples exhibited tetrachloroethene [also known as perchloroethene (PCE), a common dry cleaning or parts cleaner solvent] concentrations that exceeded the DWC. In addition, two groundwater samples contained elevated PAH concentrations (reflective by calculated BaP equivalent) that exceeded the DWC. Finally, five groundwater samples contained DRO concentrations that exceeded the ground

water pump-out discharge limit. Based on the locations of the groundwater contamination identified, off-Corridor sources are likely.

Based on the findings of this Phase II ESA, the majority of soil excavated from this portion of the Corridor during construction will be reusable on or off the project. However, fill containing trace debris and/or other impacts will be encountered within discreet areas. It should be anticipated that soil excavated from areas with elevated PID readings, odors, and/or identified contaminants that exceed the MPCA Industrial SRVs or regulated fill criteria will require landfill disposal.

Based on the varying depth of groundwater in this portion of the Corridor it is likely that contaminated groundwater will be encountered during construction, particularly during the planned BMP construction south of Beam Avenue. If discharge of contaminated groundwater is required, a NPDES/SDS Industrial Groundwater Pump Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

Harvest Park, Maplewood

Planned construction within Harvest Park includes a parking structure with a partially below-grade level and an upper level. This area is represented by the samples collected from soil borings ST-148, ST-149, and ST-152 to ST-160. Elevated headspace readings were noted in the approximate upper 7.5 feet of two of the soil borings. PCE was detected to depths of 10 feet bgs at concentrations exceeding the SLV in three soil borings. One groundwater sample exhibited PCE and gasoline range organics (GRO) concentrations that exceeded an established MPCA criterion. The Modified Phase I ESA did not identify a specific source of the identified impacts and the contamination present in the soil and groundwater may be due to historic use of contaminated fill or an unreported release at the parcel.

Based on the findings of this Phase II ESA, during construction soil excavated from the northeastern portion of the planned parking ramp will require landfill disposal. Soil excavated from above the groundwater level in the remaining portions of the area would be eligible for reuse on the project. Saturated soil excavated from below the groundwater level throughout this portion of the Corridor should be assumed to be contaminated and managed accordingly.

Based on the groundwater level observed in this portion of the Corridor, it is likely that the discharge of contaminated groundwater will be required during construction of the parking ramp. Prior to discharge, a NPDES/SDS Industrial Groundwater Pump Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. In addition, a vapor barrier should be incorporated into the parking ramp design in order to mitigate vapor intrusion into the structure.

TH 61 from Buerkle Road to the northern Project limit, White Bear Lake

Planned construction along TH 61 will consist mainly of guideway, stations, and BMPs. This area is represented by the samples collected from soil borings ST-191 to ST-209. Field screening results indicate minor headspace readings and debris in discrete shallow locations in this area. Soil analytical results indicate DRO concentrations above the MPCA regulated fill criteria in samples collected from shallow soils (upper 5 feet) in two soil borings. Based on the locations relative to TH 61 and depths, the identified soil impacts in this portion of the Corridor may be the result of auto-related surface releases. Two groundwater samples exhibited elevated DRO and/or PAH concentrations that exceeded either the DWC or the ground water pump-out discharge limit. The groundwater impacts can likely be attributed to area uses as auto repair and gasoline dispensing sites.

Based on the findings of this Phase II ESA, the majority of soil excavated from this portion of the Corridor during construction will be reusable on or off the project. However, fill containing elevated headspace readings, debris, and/or DRO impacts above the MPCA regulated fill criteria will likely be encountered within discreet areas. It should be anticipated that soil excavated from these areas will require landfill disposal.

Although present, based on depth it is unlikely that contaminated groundwater will be encountered during construction. If discharge of contaminated groundwater is required, a NPDES/SDS Industrial Groundwater Pump Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

Conclusions and Recommendations

Discrete areas of soil and groundwater impacts were identified along the Corridor at locations that will likely be encountered during the planned construction project. In addition, portions of the planned project, particularly along Phalen Boulevard, are currently under restrictions placed by environmental covenants. Based on previous environmental data, the areas under environmental restrictive covenants should be assumed to be contaminated.

Appropriate handling of contaminated materials during any construction project should consider the potential environmental risks based on accessibility of the materials and planned use. Most transportation and transit-related projects have limited accessibility and are classified by the MPCA as “industrial.” Therefore, clean-up actions are generally limited to only those contaminated materials that are readily accessible (for example soils in the upper two feet that can be impacted as part of roadway maintenance), exceed an industrial standard, or have the potential for migration through the infiltration of stormwater. Project planning should take into account design features relative to the identified impacts. 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 (see below).

The MPCA Voluntary Brownfield programs offer regulatory assistance for projects that will likely encounter contamination during construction. These programs provide liability assurances that ensure that project owners are not “associated” with identified releases, provided thorough due diligence is conducted and materials are handled appropriately during construction. As part of voluntary program involvement, the project will be required to prepare a RAP and Construction Contingency Plan (CCP) to be submitted to the MPCA for review and approval. The RAP and CCP outline the methods for identifying, segregating, and handling of contaminated materials that may be encountered during construction. Remedial (cleanup) actions that are included within the RAP and CCP can be formulated concurrently with design to reduce construction costs and assist with project estimation (schedule and price). Typically, a final RAP and CCP is prepared after the design has progressed to 60% or more complete.

1. INTRODUCTION

1.1. PROJECT PURPOSE AND DESCRIPTION

Braun Intertec Corporation received authorization from Kimley-Horn and Associates, Inc. (Kimley-Horn) and the Ramsey County Regional Railroad Authority (RCRRA) to conduct a Phase II Environmental Site Assessment (ESA) for the planned Rush Line Bus Rapid Transit (BRT) project. The proposed Rush Line BRT alignment is generally along Robert Street, Phalen Boulevard, RCRRA right of way, and Trunk Highway (TH) 61 in the cities of St. Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Township, and White Bear Lake, in Ramsey County, Minnesota. The project alignment spans a total distance of approximately 15 miles. The project alignment (Corridor) is depicted on Figure 1 in Appendix A.

Proposed construction includes widening roadways and a trail to accommodate transit lanes (guideway), construction of station platforms, sidewalks, bridges, a multi-level parking structure, and stormwater sewer improvements. The project includes possible acquisitions to accommodate the BRT alignment and construction features.

This Phase II ESA focused on areas of potential environmental concern as identified in the previous *Modified Phase I Environmental Site Assessment* prepared by Braun Intertec for the project dated July 30, 2019 (Modified Phase I ESA). The Modified Phase I ESA and Phase II ESA were prepared in conjunction with the overall environmental analysis phase for the Rush Line BRT project being led by RCRRA. Key components of this phase of the project include completing an Environmental Assessment (EA), up to 15 percent conceptual engineering design, and public engagement. Findings from this Phase II ESA will be included in the EA and the final environmental determination for the project. Additionally, this Phase II ESA was completed concurrently with a preliminary geotechnical evaluation. Information collected from both the Phase II ESA and the preliminary geotechnical evaluation will be used for engineering design and specifically for the placement and construction of various project features such as bridges, guideway, stations, and stormwater best management practices (BMPs).

This Phase II ESA was prepared on behalf of and for use by Kimley-Horn, RCRRA, the Metropolitan Council, and the Minnesota Department of Transportation (MnDOT) in accordance with the contract between Kimley-Horn and Braun Intertec. No other party has a right to rely on the contents of the Phase II ESA without written authorization by Braun Intertec. All authorized parties are entitled to rely on the attached report according to Braun Intertec's contract with Kimley-Horn, and under the same terms, conditions and circumstances.

1.2. GENERAL DEFINITIONS

The following are definitions of terms used in this report:

- Corridor: The proposed bus rapid transit line alignment and features subject to this Phase II ESA.
- Parcel: A property, or portion of a property, based on a review of the county property information web page located within the Corridor that has been evaluated as part of the Modified Phase I ESA.

- Site: A parcel/facility or group of parcels/facilities that were collectively investigated or documented within a regulatory listing and reviewed as part of the Modified Phase I ESA.
- Facility: A building, business, or land use located on the parcel.
- Right of Way (ROW): Publicly owned streets and associated land used for sidewalks and utilities.
- Stormwater BMPs: Planned stormwater features of various sizes and construction that may include infiltration or filtration practices.

1.3. PHASE II ESA SCOPE OF SERVICES

The Phase II ESA consisted of the following tasks:

- Cleared private and public utilities through private utility locators and Gopher State One Call prior to soil borings activities.
- Coordinated with MnDOT and the cities of St. Paul, Maplewood and White Bear Lake to obtain required permits and public access agreements.
- Assisted RCRRA and Kimley-Horn in obtaining private property access.
- Coordinated with project design and geotechnical engineers on soil boring placement for geotechnical and environmental evaluation purposes.
- Advanced a total of 137 borings (118 hollow stem auger borings, 14 direct push-probe borings, and 5 hand auger borings) for the purposes of soil and groundwater sample collection.
- Screened soil samples collected from the soil borings for visible staining, incidental odors, and organic vapors using a photoionization detector (PID).
- Submitted selected soil and groundwater samples from the soil borings for laboratory analysis.
- Prepared this Phase II ESA Report summarizing laboratory analytical results and findings.

1.4. PHASE II ESA LOCATION

The Rush Line BRT alignment (from south to north) starts in St. Paul and generally follows Robert Street, Phalen Boulevard, RCRRA right of way, and TH 61 to end in White Bear Lake, Minnesota as indicated on Figure 1. The Corridor is located in the cities of St. Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Township, and White Bear Lake, in Ramsey County, Minnesota. The length of the Corridor is approximately 15 miles. The layout/preliminary design for the proposed construction project that was available at the time of this Phase II ESA is shown on Figure 2 in Appendix A.

This Phase II ESA focused on specific areas of the construction project that were identified as areas of potential environmental concern identified in the Modified Phase I ESA report relative to proposed design and property acquisition to accommodate BRT construction.

For ease of discussion within this report, the Corridor has been divided into five areas based on geography and primary construction features planned. These areas are:

- Downtown St. Paul (From the Southern Corridor Terminus to Interstate 35 [I-35] East)
- Phalen Boulevard, St. Paul (From I-35 East to Johnson Parkway)
- RCRRA right of way Alignment, St. Paul, Maplewood, and White Bear Lake (From Johnson Parkway to Buerkle Road)

- Harvest Park, Maplewood
- TH 61, White Bear Lake

1.5. CORRIDOR BACKGROUND

The Corridor along Robert Street runs through the downtown district of St. Paul and consists of commercial development and state offices. The Corridor along Phalen Boulevard in St. Paul consists largely of industrial development, with some commercial and residential development. The Corridor along the RCRRA right of way north until Beam Avenue in St. Paul and Maplewood is primarily residential with some commercial development. The Corridor along the RCRRA right of way north to Buerkle Road in Maplewood and Vadnais Heights is a densely developed commercial area with the Maplewood Mall, St. John's Hospital, and several car dealerships. The Corridor along Highway 61 in Vadnais Heights, Gem Lake, White Bear township and White Bear Lake consists of commercial (including several car dealerships), residential, and few industrial developments.

According to previous research, buildings in the Corridor have been developed for residential, commercial (including gasoline filling/service stations), and industrial uses since at least 1885. The Robert Street portion of the Corridor has been present in its current configuration since at least 1885. The Phalen Boulevard portion of the Corridor has been present in its current configuration since at least 2009. Previously, this portion was occupied primarily by railroad property including tracks, spurs, and storage/maintenance yards along with vacant land and portions of large industrial properties dating back to at least 1887. The RCRRA right of way portion of the Corridor has been present in its current configuration since at least 2009. Previously, this portion was occupied by railroad tracks dating back to at least 1887. The portion of TH 61 included in the Corridor has been present in its general alignment since at least 1902 and has been present in its current configuration as a divided highway since at least 1953.

1.6. PHASE I ESA RESULTS

As part of a 2019 Modified Phase I ESA completed by Braun Intertec, all parcels within the Corridor (hereafter referred to as a sites) were evaluated and either identified as *de minimis* (i.e., no potential for contamination) or were ranked with a low, medium, or high potential for contamination using the ranking criteria developed by MnDOT. In addition, site summaries, which described the site's historical use and environmental regulatory data, were prepared for each ranked site. Locations of the high and medium ranked sites included within the Corridor are depicted on Figure 2 in Appendix A.

As part of the Modified Phase I ESA, Braun Intertec identified 506 sites within the Corridor as *de minimis* or having a low, medium, or high potential for contamination. A summary of identified sites is provided below:

1.6.1. *De Minimis* Sites

De Minimis Sites include sites that do not qualify by definition as low, medium, or high potential for contamination ranked sites and are unlikely to be considered contaminated. Braun Intertec identified 31 *De Minimis* Sites within the Corridor.

1.6.2. Low Potential for Contamination Sites

Low Potential for Contamination Sites include 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. Braun Intertec identified 170 Low Potential for Contamination Sites within the Corridor.

1.6.3. Medium Potential for Contamination Sites

Medium Potential for Contamination Sites include sites with closed leaking underground or aboveground storage tanks (LUSTs/LASTs), closed spill sites, all sites with underground or aboveground storage tanks (USTs/ASTs), 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. Braun Intertec identified 161 Medium Potential for Contamination Sites within the Corridor.

1.6.4. High Potential for Contamination Sites

High Potential for Contamination Sites include all active and inactive Voluntary Investigation and Cleanup Program (VIC) sites, all active and inactive Minnesota Environmental Response and Liability Act (MERLA)/Superfund sites, Resource Conservation and Recovery Act (RCRA) sites, all active and inactive dumpsites, all active LUST/LAST 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 laboratory, and all historic industrial sites with likely chemical use on the premises. Braun Intertec identified 144 High Potential for Contamination Sites within the Corridor.

1.7. DEVIATIONS FROM WORK PLAN

Prior to the investigation, an informal Phase II ESA work plan was prepared. Because of access constraints due to private parcels, underground utilities, and physical impediments, several planned boring locations required offsets, alternative drilling methods, or elimination. Also, large portions of the Phalen Boulevard ROW could not be directly investigated due to environmental covenants that restrict subsurface activities. The approximate boundaries of the Phalen Boulevard restrictive covenant areas are shown on Figure 2. A copy of the Work Plan is included in Appendix D.

2. METHODS AND PROCEDURES

Fieldwork for the Phase II ESA was conducted between January 6 and April 17, 2020. Prior to initiation of fieldwork activities, Braun Intertec prepared a site-specific health and safety plan (HASP), which was reviewed by Braun Intertec personnel prior to initiation of field activities. The Braun Intertec personnel involved in field activities have completed 40-hour hazardous waste operations (HAZWOPER) training and yearly refresher training as required by Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120.

Field methods and results are discussed in the following sections. The informal work plan is provided in Appendix D, MDH well and boring sealing records are provided in Appendix E, soil boring logs are

provided in Appendix F, laboratory analytical reports are provided in Appendix G, and Braun Intertec Standard Operating Procedures (SOPs) are provided in Appendix H.

2.1. INVESTIGATION LOCATIONS

The investigation locations were selected based upon the results of the Modified Phase I ESA combined with areas of proposed construction or significant acquisition. In general, the locations of soil borings were selected at or near *Medium* and *High Potential for Contamination Sites* that were determined to be locations of possible contaminant sources relative to Corridor construction or parcel acquisition. In addition, several soil borings were advanced along the RCRRA right of way, which was constructed along a former elevated railroad, in order to evaluate the former railroad berm. Investigation locations are summarized in Table 1 in Appendix B. The table includes the boring identification, the boring location, the boring rationale, boring depth, intervals sampled, depth to groundwater, analytical testing parameters (soil and groundwater), field observations, and analytical exceedances.

A total of 137 soil borings (118 hollow stem auger borings, 14 direct push-probe borings, and 5 hand auger borings) were advanced within the Corridor. Prior to beginning the field investigation, public utilities were cleared through Gopher State One Call and private utilities were cleared through a subcontracted private utility locator. The soils borings were completed using a combination of hollow-stem auger, direct push probe (Geoprobe™), and hand auger technologies to depths ranging from 5 to 91 feet below ground surface (bgs). Soil boring locations are shown on Figure 2 in Appendix A.

There were no significant deviations from Braun Intertec SOPs during this Phase II ESA.

2.2. SOIL BORINGS

Braun Intertec advanced 118 hollow stem auger soil borings, identified using the “ST” designation, to depths ranging from 2.5 to 91 feet bgs. Soil borings were performed with a core-and-auger drill equipped with 3 1/4-inch inside-diameter hollow-stem. Soil sampling for the borings was conducted in general accordance with American Society for Testing and Materials (ASTM) D 1586, “Penetration Test and Split-Barrel Sampling of Soils.” The boreholes were advanced with the hollow-stem auger to the desired test depths. A 140-pound hammer falling 30 inches was then used to drive the standard 2-inch split-barrel sampler a total penetration of 1 1/2 feet below the tip of the hollow-stem auger. After advancing the tooling, the split-barrel sampler was removed from the borehole and the soil sample was retrieved for field screening and classification. The process was then repeated to the termination depths of the borings.

Braun Intertec also advanced 14 push probe soil borings, identified using the “GP” designation, to depths ranging from 15 to 21 feet bgs. These soil borings were completed with a hydraulically-driven push-probe sampling rig. To collect the soil samples from the borings, a disposable thin-walled PVC liner was placed inside of a 5-foot long sampling tool. The borehole was then advanced using a macrocore system where the borehole was then advanced using the sampling tool to a total penetration depth of up to 5 feet. After advancing the tooling, the sampler was removed from the borehole and the soil sample was retrieved from the PVC liner for field screening and classification. The process was then repeated to the termination depths of the borings.

Finally, Braun Intertec advanced 5 hand auger soil borings, identified using the “HA” designation, to depths ranging from 2.5 to 5 feet bgs. These soil borings were advanced using a hand driven bucket auger.

Prior to arrival onsite, all drill rig(s) and sampling equipment were cleaned with a high pressure, hot water sprayer. Between sampling locations, non-dedicated sampling equipment was cleaned with a soap and water scrub followed by a clean water rinse.

This investigation includes soil borings and temporary wells advanced to depths of 15 feet or deeper. Upon completion of the soil borings and the use of temporary wells, the well materials were removed, and the boreholes were sealed in accordance with Minnesota Department of Health (MDH) regulations. MDH Well and Boring Sealing Records are included in Appendix E. The soil, concrete, or asphalt surfaces at the boring locations were patched as appropriate.

Soil boring logs are presented in Appendix F. The Global Positioning System (GPS) coordinates for the soil borings are included in Table F-1 in Appendix F.

2.3. SOIL CLASSIFICATION

The soils encountered in the soil borings were visually and manually classified in the field by an environmental technician in general accordance with using ASTM D 2487 “Unified Soils Classification System” and ASTM D 2488 “Recommended Practice for Visual and Manual Description of Soils.” A geotechnical engineer verified soil classification for the soil borings in the Braun Intertec soils laboratory. The depths shown as changes between the soil types are approximate. The actual changes may be transitional, and the transition depths are likely to be horizontally variable.

2.4. SOIL SCREENING

Soil samples retrieved from the soil borings were examined in the field by an environmental professional for unusual staining, odors, or other apparent signs of contamination. In addition, the soil samples were screened for the presence of organic vapors using a PID. The PID was equipped with a 10.6-electron-volt (eV) lamp and calibrated to an isobutylene standard.

The PID was used to field screen total organic vapor levels in soils in accordance with Braun Intertec SOPs and the Minnesota Pollution Control Agency (MPCA) recommended procedures. The procedure consists of half filling a new quart size sealable plastic bag with a soil sample. After the sample has been placed in the bag, the bag was quickly sealed. Headspace development proceeds for a minimum of 10 minutes. The bag was shaken vigorously for 15 seconds, both at the beginning and the end of the headspace development period. After headspace development, the PID probe was inserted through the bag to one-half the headspace depth. The highest PID reading observed was then recorded.

2.5. TEMPORARY MONITORING WELLS

Temporary monitoring wells were installed in 25 of the soil borings to evaluate groundwater conditions within the Corridor. The temporary wells were permitted with the MDH.

Generally, after the soil borings were advanced 5 feet into the water table, temporary monitoring wells were constructed using 1-inch-diameter polyvinyl chloride (PVC) riser and 5-foot long, 10-slot screens. Following well use, the well materials were removed, and the boreholes were sealed in accordance with MDH requirements.

2.6. SAMPLING PROCEDURES

2.6.1. Soil Sampling

Soil samples collected from the soil borings for laboratory analyses were obtained from the depth interval exhibiting indications of contamination, including intervals where elevated PID readings or intervals with debris were observed. In general, if no indications of contamination were encountered, soil samples were collected from the depth most likely to be excavated based on design feature. As drilling methods were determined as the investigation proceeded, for consistency all soil samples were labeled as "B" followed by the boring number and depth interval from which the sample was collected. The soil samples were analyzed by Pace Analytical Services, Inc. (Pace) of Minneapolis, Minnesota and Pace National of Mt. Juliet, Tennessee for a combination of the following analytical parameters:

- Volatile organic compounds (VOCs) using United States Environmental Protection Agency (EPA) Method 8260B or 8260D
- Polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270C
- Semi-volatile organic compounds (SVOCs), using EPA Method 8270D or 8270E
- Polychlorinated biphenyls (PCBs) using EPA Method 8082A
- Eight Resource Conservation and Recovery Act (RCRA) total metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) using EPA Methods 6010C or 601D and 7471B
- Diesel-range organics (DRO) using the Wisconsin Department of Natural Resources (WDNR) modified method WI DRO
- Gasoline-range organics (GRO) using the WDNR modified Method WI GRO
- Toxicity characteristic leaching procedure (TCLP) lead and chromium using EPA Method 1311

Analytical parameters for soil samples collected from each soil boring are summarized in Table 1 in Appendix B. Soil sampling was completed in accordance with Braun Intertec SOPs.

2.6.2. Groundwater Sampling

Groundwater samples were collected from the soil borings by installing temporary PVC well casing and screen into the borehole and using dedicated polyethylene tubing with stainless steel check valves. As drilling methods were determined as the investigation proceeded, for consistency all groundwater samples were labeled as "B" followed by the boring number. After documentation of groundwater level measurements, the groundwater samples were collected and submitted for laboratory analysis by Pace for a combination of the following analytical parameters:

- VOCs using EPA Method 8260B or 8260D
- PAHs using EPA Method 8270C
- SVOCs using EPA Method 8270D or 8270E
- PCBs using EPA Method 8082A
- Dissolved RCRA metals using Methods 6010C and 7470A
- DRO using WDNR modified method WI DRO
- GRO using WDNR modified method WI GRO

Analytical parameters for groundwater samples collected from each temporary well are summarized in Table 1 in Appendix B. Groundwater sampling was completed in accordance with Braun Intertec SOPs.

3. RESULTS

3.1. RESULTS OF SOIL SCREENING

All soils collected during the Phase II ESA were field screened for evidence of contamination. Elevated PID readings (above a nominal background level of about 10 parts per million [ppm]) were observed in soil borings ST-140, ST-155, ST-160, and ST-191. The locations and depth ranges of observed elevated PID readings are included in Figure 2. Additional detail is provided below:

- An elevated PID reading of 23.9 ppm was detected in the upper one foot of fill in soil boring ST-140. ST-140 was advanced in the RCRRA right of way investigation segment, through the TH 36 roadway, and the elevated PID reading observed can likely be attributed to bituminous fragments in the grab sample (as noted on the boring log in Appendix F).
- An elevated PID reading of 158.5 ppm was observed in soil collected from approximately 2 to 3.5 feet bgs at ST-155. ST-155 was advanced at the location of planned multilevel parking ramp at Harvest Park in Maplewood, Minnesota.
- Elevated PID readings ranging from 26.7 ppm to 364.5 ppm were observed in soil in soil collected from the surface to approximately 7.5 feet bgs at ST-160. ST-160 was also advanced at the location of a planned multi-level parking ramp within Harvest Park.
- An elevated PID reading of 27.3 ppm was detected in the upper 2.5 feet of fill in soil borings ST-191. ST-191 was advanced through the TH 61 roadway in White Bear Lake and the elevated PID reading observed may be attributed to bituminous fragments in the grab sample.

In addition to PID readings, evidence of debris/solid waste and odors were identified in multiple soil borings. A summary is provided below:

- A combination of concrete, brick, poly sheeting, coal, clinker, wood, and glass debris was observed in the shallow fill in several borings advanced in downtown St. Paul (soil borings ST-2, HA-4, HA-6, ST-17, ST-18, and ST-20). This debris is typical of urban fill commonly present in city centers.
- Within the Phalen Boulevard ROW (soil borings ST-21, ST-34, ST-36, ST-48 through ST-52, ST-62, ST-74, ST-78 and ST-79, and ST-85) debris was noted to depths of up to approximately 17.5 feet bgs. In addition, chemical-like odors were noted in soil boring ST-51 at depths between approximately 10 and 29 feet bgs. These observations are consistent with the previously identified contamination within this portion of the Corridor as discussed in the Modified Phase I ESA.
- Along the RCRRA right of way (soil borings ST-89, GP-103, ST-131, ST-133, ST-140, and ST-146) trace amounts of bituminous and/or plastic debris was noted to depths of up to approximately 27 feet bgs. With the exception of soil borings ST-131 and ST-140, the debris was generally limited from the ground surface to a depth of approximately 4 feet. Trace

bituminous and plastic debris was noted in soil boring ST-131 at depths ranging between approximately 12 and 27 feet bgs and trace bituminous debris was noted in soil boring ST-140 from the surface to an approximately depth of 9 feet bgs.

- Along TH 61 in White Bear Lake concrete debris was noted at a depth between 7 and 9 feet bgs in soil boring ST-206 and wood debris was noted at a depth of 5 feet bgs in soil boring ST-207.

No debris or other signs of contamination were observed in any of the other soil borings. No sheen or odors were observed in any of the groundwater samples collected.

Field observations and PID readings are included on the soil boring logs included in Appendix F, and summarized in Table 1 in Appendix B. PID readings are also included in Table 2 in Appendix B. Elevated PID readings detected above background are also included in Figure 2 in Appendix A.

3.2. RESULTS OF GEOLOGIC AND HYDROGEOLOGIC SITE INVESTIGATION

The published information reviewed for the Phase I ESA indicated that the depth to bedrock ranges from approximately 50 feet to 300 feet below land surface. The unconsolidated sediments beneath the Corridor consist 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 Grantsburg Sublobe sandy lake sediment deposits. This listing of unconsolidated sediments is generally what is encountered in a south to north direction within the Corridor. According to published geologic information, the depth to groundwater beneath the Corridor ranges from approximately 10 to approximately 50 feet bgs and the regional groundwater flow direction within the unconsolidated deposits in the Site vicinity varies from northwest, west, southwest, south, and southeast.

Where present, fill soils observed in the borings generally consisted of silty sand, poorly graded sand with silt, poorly graded sand, clayey sand, silty clayey sand and sandy lean clay from the ground surface to varying depths ranging from a few inches to 31 feet bgs. Soil underlying the fill material generally consisted of glacial outwash, glacial till, and alluvial deposits of sand, silty sand, silt and clay with some alluvial deposits of clay and silt and peat and organic clay swamp deposits. Groundwater was observed in 55 of the soil borings at depths ranging from approximately 2.9 to 55 feet bgs. Limestone bedrock was encountered in only two of the soil borings, ST-1 at 2 feet bgs in downtown St. Paul and ST-181 at 78 feet bgs in the median of I-694 in White Bear Lake. The bedrock depth, soil depth/types, and groundwater depth observed during this investigation are generally consistent with anticipated depths and types from the Modified Phase I ESA research.

3.3. RESULTS OF SOIL LABORATORY ANALYSIS

Soil analytical results are summarized in Table 3 in Appendix B. The soil analytical results can be compared with the Soil Reference Values (SRVs) and Screening Soil Leaching Values (SLVs) which are also listed on Table 3. SRVs and SLVs are allowable risk-based contaminant concentrations derived by the MPCA using risk assessment methodology, modeling, and risk management policy to guide investigation and cleanup actions. SRVs relate to direct-contact exposure scenarios and SLVs

relate to potential leaching of contaminants to groundwater. Concentrations of contaminants in soil, SRVs, and SLVs are expressed in units of milligrams per kilogram (mg/kg).

Two hundred and fifty-seven (257) soil samples were collected during the investigation. Due to the number of samples and amount of data, only those results that exceed regulatory criteria or exhibited other evidence of contamination are included on Figure 2 in Appendix A. Soil sample analytical testing intervals are summarized in Table 1 in Appendix B. Complete soil analytical results are summarized in Table 3. The laboratory analytical reports and Chain-of-Custody forms are included in Appendix G.

A summary of the laboratory analytical results for the soil samples follows.

- Petroleum and chlorinated solvent-related VOCs were identified in four soil borings advanced as part of this Phase II ESA.
    - Benzene, a petroleum-related VOC, was detected in two soil borings. Soil samples B-110 (10-12.5') exhibited a benzene concentration of 0.031 mg/kg and B-121 (0-2') exhibited a benzene a concentration of 0.026 mg/kg, which exceeded the MPCA SLV of 0.017 mg/kg. Soil boring ST-110 was advanced to evaluate the soil berm along the RCRRA right of way. Soil boring ST-121 was advanced to evaluate a planned trail access.
    - Tetrachloroethene [also known as perchloroethylene (PCE)], a compound associated with dry cleaning or automotive parts washing] was detected in two soil borings. The detected PCE concentrations in soil samples B-155 (0-2.5') at 0.51 mg/kg, B-160 (5-7.5') at 0.33 mg/kg, and B-160 (7.5-10') at 0.15 mg/kg exceeded the MPCA SLV of 0.042 mg/kg. Soil borings ST-155 and ST-160 were advanced at Harvest Park in Maplewood, Minnesota where a proposed multi-level parking facility is planned. The presence of PCE can be correlated to the elevated PID readings observed. The source of the PCE impacts is unknown.
- Various SVOCs and PAHs (a subset of VOCs) were detected at various concentrations in numerous soil samples collected as part of this Phase II ESA. The presence of SVOCs and or PAHs is often attributed to the presence of bituminous pieces in the sample or contamination related to the incomplete combustion of coal, gas, trash, or other organic substances. The presence of SVOCs/PAHs is very common in urban soils. Of the SVOCs detected only naphthalene and the benzo(a)pyrene (BaP) equivalent were detected at concentrations that exceeded regulatory levels.
    - The detected naphthalene concentration in soil sample B-51 (10-12.5') at 38.4 mg/kg exceeded the MPCA Industrial SRV of 28 mg/kg. Boring ST-51 was advanced at a planned bridge location on Phalen Boulevard. The Phalen Boulevard corridor has a long history of industrial and rail uses and is a known area of contamination.
    - The calculated BaP equivalent concentrations, which is derived based on a calculation of several carcinogenic PAHs, was detected in soil samples B-113 (0-2.5') at a concentration of 1.6 mg/kg and B-124 (0-2.5') at a concentration of 1.9 mg/kg. These

concentrations exceeded the MPCA SLV of 1.4 mg/kg. These borings were advanced within the RCRRA right of way corridor. Due to the shallow nature of the samples, the elevated BaP concentrations may be attributed to bituminous pieces from the paved RCRRA right of way.

- Total PCBs were detected in soil borings ST-34, ST-36, ST-50, and ST-65 at concentrations that exceeded the MPCA SLV of 0.13 mg/kg. Specifically, soil samples B-34 (7.5-10') at 0.387 mg/kg, B-36 (7.5-10') at 0.213 mg/kg, B-50 (7.5-10) at 0.881 mg/kg, and B-65 (0-2.5') at 0.142 mg/kg.

- Various RCRA metals were detected in all 257 of the samples analyzed.

    - The detected arsenic concentration exceeded the MPCA Residential SRV of 9 mg/kg in soil sample B-108 (10-12.5') at 9.9 mg/kg, B-125 (0-2.5') at 9.8 mg/kg, and B-126 (0-2') at 15.6 mg/kg. Several additional soil samples had arsenic concentrations which met or exceeded the MPCA SLV of 5.8 mg/kg ranging between 5.8 mg/kg and 8.8 mg/kg. According to *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States*, USGS, 1984, background threshold values (BTV) for arsenic can range from 8 to 11 mg/kg. Therefore, with the exception of sample B-126 (0-2'), the arsenic concentrations detected in these soil samples are considered to be within the BTV for arsenic.

    - The detected total chromium (chromium III and chromium VI) concentrations exceeded the MPCA Residential SRV for chromium VI of 87 mg/kg in soil samples B-113 (0-2.5) at 120 mg/kg and B-123 (0-2.5') at 232 mg/kg. These concentration also exceeded the RCRA "Rule of 20" in which the detected concentrations were greater than 20 times the hazardous waste threshold concentration for chromium and therefore the samples were also analyzed using the TCLP to determine if the chromium present could leach at hazardous levels. The TCLP results indicated that chromium did not leach at concentrations above the laboratory detection limits and therefore, the soil represented by these samples would not be considered hazardous waste. Several additional soil samples had total chromium concentrations which exceeded the MPCA SLV for chromium VI of 36 mg/kg ranging between 41.9 mg/kg and 67.5 mg/kg. It is unknown what percent, if any, of the detected chromium was chromium VI. In addition, according to the *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States*, USGS, 1984, BTV for chromium can range from 1 mg/kg to 2,000 mg/kg. Therefore, the chromium concentrations detected are considered to be within the BTV.

    - Although detected lead concentrations did not exceed the MPCA SRVs or SLV in any of the soil samples analyzed, the detected concentrations did exceed the RCRA "Rule of 20" in several soil samples. These samples were analyzed using the TCLP to determine if the lead present could leach at hazardous levels. The TCLP results

indicated that lead did not leach at hazardous concentrations and therefore, the soil represented by these samples would not be considered hazardous waste.

- Soil TCLP results are presented in Table 4 in Appendix B. Table 4 also lists respective hazardous waste regulatory levels. TCLP results are expressed in units of milligrams per liter (mg/L).

- DRO, a parameter associated with the evaluation of petroleum impacts, was detected in 62 of the 257 samples analyzed at concentrations above the laboratory reporting limits. The presence of DRO can be associated with elevated PAHs or can be indicative of a petroleum release, both of which are common in urban settings. There are no established MPCA SRVs or SLV for DRO. However, the MPCA considers excavated soil with DRO concentrations greater than 100 mg/kg to be regulated. DRO concentrations were detected above 100 mg/kg in the following soil samples B-21 (0-2.5') at 184 mg/kg, B-23 (10-12.5') at 146 mg/kg, B-35 (1-3') at 211 mg/kg, B-36 (7.5-10') at 115 mg/kg, B-74 (0-2.5) at 315 mg/kg, B-113 (0-2.5') at 179 mg/kg, B-124 (0-2.5') at 108 mg/kg, B-140 (5-7.5') at 170 mg/kg, B-145 (0-2.5') at 172 mg/kg, B-191 (2.5-5') at 101 mg/kg, and B-198 (0-2.5') at 298 mg/kg.

- GRO, another parameter associated with the evaluation of petroleum impacts, was detected in one of the 257 samples analyzed, B-50 (7.5-10') at 21.3 mg/kg. Similar to DRO, there are no established MPCA SRVs or SLV for GRO. However, the MPCA considers excavated soil with GRO concentrations greater than 100 mg/kg to be regulated.

3.4. RESULTS OF GROUNDWATER LABORATORY ANALYSIS

Twenty-five (25) groundwater samples were collected for analytical testing from soil borings ST-9, ST-49, ST-86, ST-90, ST-101, ST-128, ST-129, ST-131, ST-136, ST-141, ST-147, ST-151, ST-156, ST-163, ST-168, ST-170, ST-173, ST-179, ST-180, ST-184, ST-191, ST-197, ST-204, ST-206, and ST-209. Groundwater samples were collected at select locations relative to Corridor construction for future dewatering considerations and/or at areas of parcel acquisition. Groundwater analytical results are summarized in Table 5 in Appendix B.

For comparison purposes, Table 5 includes current Drinking Water Criteria (DWC) applicable for groundwater data. The DWC include a combination of MDH Health Risk Limits (HRLs), MDH Health Based Values (HBVs), MDH Risk Assessment Advice (RAA), and Maximum Contaminant Levels (MCLs) established by the EPA. There are no established criteria for DRO and GRO for water that is not collected directly from wells used as drinking water sources. Consequently, the DRO and GRO results on Table 5 are compared to the MPCA Ground Water Pump-Out discharge limits identified in General Permit MNG790000. Concentrations of contaminants in water and DWC are expressed in units of micrograms per liter (µg/L). Figure 2 and Table 1 include groundwater analytical results that exceed the DWC. The laboratory analytical reports and Chain-of-Custody forms are included in Appendix G.

- Two non-petroleum related VOCs were detected in soil borings ST-9, ST-156, and GP-163, at concentrations that exceeded the MPCA DWC including:

  - Detected trichloroethene [also known as trichloroethylene (TCE)] concentration exceeded the DWC of 0.4 micrograms per liter (µg/L) in groundwater sample B-9 (water) at 2.2 µg/L.

  - Detected PCE concentrations exceeded the DWC of 4 µg/L in groundwater samples B-156 Water at 1,120 µg/L and B-163 Water at 58.2 µg/L. These samples were collected at the Harvest Park/future park and ride. The PCE in the groundwater is likely associated with the same unknown source as the PCE impacts identified in the soil samples.

- The BaP equivalent concentrations, calculated from the carcinogenic PAHs, exceeded the DWC of 0.1 µg/L in the groundwater samples B-168 Water at 0.28 µg/L, B-170 Water at 0.12 µg/L, and B-206 Water at 0.23 µg/L.

- PCBs were not detected at concentrations exceeding the laboratory reporting limits in the groundwater samples analyzed.

- Barium was the only RCRA metal detected at concentrations that exceeded the laboratory reporting limits in the groundwater samples. The detected barium concentrations did not exceed the DWC.

- DRO was detected in 14 of the 25 groundwater samples at concentrations ranging from 100 µg/L to 1,200 µg/L. The MPCA Ground Water Pump-Out discharge limits identified in General Permit MNG790000 for DRO as 200 µg/L. DRO concentrations met or exceeded 200 µg/L in groundwater samples B-86 at 240 µg/L, B-131 Water at 280 µg/L, B-147 at 290 µg/L, B-151 (Water) at 260 µg/L, B-168 Water at 200 µg/L, B-173 Water at 1,200 µg/L, and B-191 at 260 µg/L.

- GRO was detected at a concentration exceeding the laboratory reporting limits in only one groundwater sample, B-156 Water at a concentration of 214 µg/L. Similar to DRO, the MPCA Ground Water Pump-Out discharge limits identified in General Permit MNG790000 for GRO is 200 µg/L.

4. QUALITY CONTROL/QUALITY ASSURANCE

A quality assessment of field procedures and analytical laboratory reports was performed to evaluate potential effects on data quality used to support project objectives. All applicable Braun Intertec SOPs were followed as prescribed unless otherwise noted in this report. Notable findings are provided in more detail below and incorporated, where necessary, into this report.

Samples were placed in clean, laboratory supplied containers, preserved, labeled, and transported to the Pace Analytical laboratory in Minneapolis, Minnesota under refrigerated conditions using chain-of-custody procedures. Some samples were sub-contracted out by Pace Analytical Minnesota to Pace National Laboratory in Mt. Juliet, Tennessee. Analyses were performed using EPA or other recognized standard procedures.

Of the 59 laboratory reports, Pace noted that the sample cooler temperatures for four laboratory reports (report IDs 10505621, 10512752, 10513311, and 10513432) were outside the acceptable temperature range of 0 to 6 degrees Celsius. Laboratory report 10505621 represents samples collected on January 16, 2020, and had a cooler check-in temperature below the acceptable temperature range. This scenario is not unexpected during winter conditions. The remaining three laboratory reports represent samples that had cooler check-in temperatures above the acceptable temperature range. However, the soil and groundwater samples in the affected coolers were noted to be on ice per protocol and submitted to the laboratory soon after collection and before the samples had time to cool down further. Therefore, the out of temperature coolers for the affected soil and groundwater samples do not affect the results of the investigation and the data are considered acceptable for the intended purpose in this report.

A total of 59 soil and 18 water trip blanks accompanied the investigative samples and were analyzed for VOCs and GRO. Pace noted that four water trip blanks (which were submitted to the laboratory on January 1, January 15, January 17, and March 10, 2020) arrived to the laboratory broken and thus were invalid. These deviations are not likely to have an impact on data quality as samples were shipped and delivered under chain-of-custody procedures. No contaminants were detected in any of the remaining trip blanks at concentrations greater than the laboratory reporting limits.

Notable laboratory deviations and their effects on data quality include the following:

- Soil sample B-194 (0-2.5') was incorrectly identified as "B-194 (0.2.5')" on the laboratory report. For purposes of this report, the sample will be referred to as B-194 (0-2.5') where applicable.

- Pace noted that 1,2,4-trimethylbenzene was detected in the associated laboratory method blank for one soil sample, B-36 (7.5-10'). 1,2,4-Trimethylbenzene was not detected at or above the laboratory reporting limit in soil sample B-36 (7.5-10'). Therefore, the detection of this VOC in a laboratory method blank does not affect the analytical results for this investigation.

- The reporting limits for arsenic and cadmium exceeded their respective Drinking Water Criteria for all 25 groundwater samples analyzed. Cadmium was not detected above regulatory criteria in any of the soil samples associated with this investigation. Arsenic was detected in several soil samples at varying concentrations (see Section 3.3). With the exception of soil sample B-126 (0-2'), which has an arsenic concentration of 15.6 mg/kg, the arsenic concentrations detected in these soil samples are considered to be within the BTV for arsenic according to *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States*, USGS, 1984. Since these two metals are not considered contaminants of concern for the Corridor overall, the elevated reporting limits do not affect the results of the investigation and should be accepted.

- Elevated reporting limits, up to 2 µg/L, for TCE were identified during the quality review for six groundwater samples. The reporting limits were found to be above the drinking water criteria of 0.4 µg/L for TCE. TCE was not detected above laboratory reporting limits in any soil samples. Specifically, the corresponding soil samples to these six groundwater samples were reviewed and reporting limits appeared reasonable.

Certain laboratory criteria were not met, and although not discussed in this report, the data remains usable with applicable qualifiers as noted in the analytical tables (Appendix B) and laboratory reports (Appendix G). In summary, data quality control items identified during the quality review are considered to be minor and all data collected are acceptable for use in this investigation for the intended purpose of identifying soil and groundwater impacts within the Corridor.

5. SUMMARY OF FINDINGS

This Phase II ESA was completed to evaluate subsurface conditions at locations of potential environmental concern associated with the planned Rush Line BRT construction project between downtown St. Paul and Downtown White Bear Lake, Minnesota. The Phase II ESA included completion of a total of 137 soil borings, environmental monitoring, and collection of soil and groundwater samples for laboratory analysis.

The Phase II ESA results identified the following potential environmental impacts for the planned Rush Line BRT project:

Soil and Groundwater Impacts

The Phase II ESA identified several areas of confirmed soil contamination where analytical testing and/or field screening identified impacts in soil exceeding an established MPCA SRV, SLV, or regulated fill criterion. In addition, the Phase II ESA identified several areas of groundwater contamination where analytical testing identified impacts exceeding an established DWC and/or groundwater pump-out discharge limit criteria for construction dewatering. The locations of soil borings where impacts have been identified are shown on Figure 2 in Appendix A. For ease of discussion within this report, the Corridor has been divided into five areas based on geography and planned construction features and are summarized below (from south to north):

Downtown St. Paul (From the Southern Corridor Terminus to Interstate-35 East)

Planned construction in the downtown St. Paul portion of the Corridor consists mainly of guideway and stations along existing roadways, retaining walls with easement acquisitions along the eastern side of Jackson Street between University Avenue East and Pennsylvania Avenue West, and stormwater BMPs within the Jackson Street and Pennsylvania Avenue West interchange. This area is represented by the samples collected from soil borings ST-01 to ST-20. Field screening observations indicated that a combination of concrete, brick, coal, clinker, wood, and/or glass debris was observed in fill soils in 6 of the 17 borings completed. Debris of this nature is typical of urban fill common in city centers. Soil with debris is considered regulated in accordance with MPCA guidelines. No other field indications of contamination or analytical exceedances of concern were noted in the soil samples in this area.

One groundwater sample, B-9 (water) collected from soil boring ST-9, was collected from this portion of the Corridor. This sample exhibited a TCE concentration that exceeded the DWC. This solvent-based type of contamination is typical for groundwater located in an urban area with various historic commercial and industrial uses and is likely the result of an off-Corridor release.

During construction in this portion of the Corridor, it is likely that shallow fill containing debris as described above will be encountered during construction. Based on the percent of debris present, excavated fill from these areas may require landfill disposal.

Although present, based on depth it is unlikely that contaminated groundwater will be encountered during construction. If discharge of contaminated groundwater is required, a NPDES/SDS Industrial Groundwater Pump-Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

Phalen Boulevard, St. Paul (From Interstate-35 East to Johnson Parkway)

Planned construction along Phalen Boulevard will consist mainly of guideway, stations, retaining walls, and easement acquisitions along the existing roadways; several stormwater BMPs within the roadway ROW; and a bridge ramp connecting Phalen Boulevard and Arcade Street. The Phalen Boulevard portion of the Corridor has a history of railroad and industrial uses. During the redevelopment of the area into its current configuration, soil contaminated with SVOCs, metals, PCBs, and DRO and/or soil containing debris was left in place in some areas, as well as intentionally placed at depth in other areas within the Phalen Boulevard ROW. Restrictive covenants have been filed with Ramsey County in several areas in which contaminated soil was placed. The restrictive covenants limit the subsurface activities within these areas and therefore they could not be directly investigated during this Phase II ESA. Copies of the available Phalen Boulevard Restrictive Covenants are included in Appendix C and the approximate boundaries of these areas are shown on Figure 2. It is assumed that BRT construction in this area will encounter contaminated materials.

As part of this Phase II ESA, locations outside of restrictive covenant areas are represented by the samples collected from soil borings ST-21 to ST-88. Field screening observations indicated that a combination of bituminous, concrete, glass, plastic, brick, and/or coal debris was observed in the fill soils in 13 of the 32 borings advanced. A chemical-like odor was also noted in soil collected from boring ST-51 at approximately 10 feet to 29 feet bgs. Additionally, DRO, PCBs, and/or naphthalene were detected at concentrations exceeding an established MPCA criterion in 9 of the borings. Two groundwater samples that were collected in this portion of the Corridor exhibited DRO concentrations that exceeded the groundwater pump-out discharge limit. The debris, soil impacts, and groundwater impacts identified in this portion of the Corridor are consistent with the documented contamination along Phalen Boulevard and are likely associated with past railroad and industrial uses.

During construction in this portion of the Corridor, it is likely that shallow fill containing DRO impacts and debris as described above will be encountered. In addition, deeper fill soil containing both debris and various chemical contaminants may be encountered, particularly during bridge construction. Fill excavated from areas of identified debris and soil contamination will require landfill disposal. Furthermore, based on existing restrictive covenants, soil containing debris and VOC, PAHs, DRO, and/or PCB contamination is widespread throughout the Phalen Boulevard ROW. Previous intentional placement of debris and contaminated soil was completed below the paved portions of much of the roadway as well as below a minimum 4 foot clean soil buffer within the green space areas.

Prior to construction, an MPCA approved Response Action Plan (RAP) will be required that details construction activities planned within restrictive covenant areas, as well as the handling and management of contaminated materials. It should be anticipated that the majority of excavated soil in the Phalen Boulevard portion of the Corridor will require landfill disposal.

Although present, based on depth it is unlikely that contaminated groundwater will be encountered during construction. If discharge of contaminated groundwater is required, a NPDES/SDS Industrial Groundwater Pump-Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

RCRRA Right of Way, St. Paul, Maplewood, and White Bear Lake (From Johnson Parkway to Buerkle Road)

Planned construction along the RCRRA right of way Alignment consists mainly of guideway, stations, retaining walls, bridges, stormwater BMPs, and a trailhead with parking (to be located at just west of the RCRRA alignment at 1840 to 1870 English Street, Maplewood). This area is represented by the samples collected from soil borings ST-89 to ST-147, ST-150 and ST-151, and ST-161 to ST-187. Soil borings in this portion of the Corridor were advanced primarily along an elevated fill berm formerly occupied by railroad tracks prior to the existing paved RCRRA right of way. Trace amounts of bituminous and/or plastic debris was observed in the fill soils in 6 of the 64 borings advanced in this area. Two borings exhibited elevated PID readings in the upper one foot of soils. No other field evidence of impacts were observed in the field during the completion of the soil borings in this portion of the Corridor.

Soil analytical results indicated several discrete locations of contamination within this portion of the Corridor. Specifically, concentrations of petroleum compounds (benzene, DRO), PAHs, and arsenic were identified at levels exceeding an established MPCA criterion. The sources of these impacts are likely due to the import of fill materials or historic railroad use. Fifteen groundwater samples were collected in this portion of the Corridor. Of the 15 groundwater samples collected, seven samples exhibited PCE concentrations that exceeded the DWC. In addition, two groundwater samples contained elevated PAH concentrations (reflective by calculated BaP equivalent) that exceeded the DWC. Finally, five groundwater samples contained DRO concentrations that exceeded the ground water pump-out discharge limit. Based on the locations of the groundwater contamination identified, off-Corridor sources are likely.

Based on the findings of this Phase II ESA, the majority of soil excavated from this portion of the Corridor during construction will be reusable on or off the project. However, fill containing trace debris and/or other impacts will be encountered within discreet areas. It should be anticipated that soil excavated from areas with elevated PID readings, odors, and/or identified contaminants that exceed the MPCA Industrial SRVs or regulated fill criteria will require landfill disposal.

Based on the varying depth of groundwater in this portion of the Corridor it is likely that contaminated groundwater will be encountered during construction, particularly during the planned BMP construction south of Beam Avenue. If discharge of contaminated groundwater is required, a NPDES/SDS Industrial Groundwater Pump-Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

Harvest Park, Maplewood

Planned construction within Harvest Park includes a parking structure with a partially below-grade level and an upper level. This area is represented by the samples collected from soil borings ST-148, ST-149, and ST-152 to ST-160. Elevated headspace readings were noted in the approximate upper 7.5 feet of two of the soil borings. PCE was detected to depths of 10 feet bgs at concentrations exceeding the SLV in three soil borings. One groundwater sample exhibited PCE and GRO concentrations that exceeded an established MPCA criterion. The Modified Phase I ESA did not identify a specific source of the identified impacts and the contamination present in the soil and groundwater may be due to historic use of contaminated fill or an unreported release at the parcel.

Based on the findings of this Phase II ESA, during construction soil excavated from the northeastern portion of the planned parking ramp will require landfill disposal. Soil excavated from above the groundwater level in the remaining portions of the area would be eligible for reuse on the project. Saturated soil excavated from below the groundwater level throughout this portion of the Corridor should be assumed to be contaminated and managed accordingly.

Based on the groundwater level observed in this portion of the Corridor, it is likely that the discharge of contaminated groundwater will be required during construction of the parking ramp. Prior to discharge, a NPDES/SDS Industrial Groundwater Pump-Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. In addition, a vapor barrier should be incorporated into the parking ramp design in order to mitigate vapor intrusion into the structure.

TH 61 from Buerkle Road to the northern Project limit, White Bear Lake

Planned construction along TH 61 will consist mainly of guideway, stations, and BMPs. This area is represented by the samples collected from soil borings ST-191 to ST-209. Field screening results indicate minor headspace readings and debris in discrete shallow locations in this area. Soil analytical results indicate DRO concentrations above the regulated fill criteria in samples collected from shallow soils (upper 5 feet) in two soil borings. Based on the locations relative to TH 61 and depths, the identified soil impacts in this portion of the Corridor may be the result of auto-related surface releases. Two groundwater samples exhibited elevated DRO and/or PAH concentrations that exceeded either the DWC or the ground water pump-out discharge limit. The groundwater impacts can likely be attributed to area use as auto repair and gasoline dispensing sites.

Based on the findings of this Phase II ESA, the majority of soil excavated from this portion of the Corridor during construction will be reusable on or off the project. However, fill containing elevated headspace readings, debris, and/or DRO impacts above the MPCA regulated fill criteria will likely be encountered within discreet areas. It should be anticipated that soil excavated from these areas will require landfill disposal.

Although present, based on depth it is unlikely that contaminated groundwater will be encountered during construction. If discharge of contaminated groundwater is required, a NPDES/SDS Industrial Groundwater Pump-Out General Permit to the storm sewer, or a MCES sanitary sewer discharge permit will need to be obtained. Furthermore, saturated soil excavated from below the groundwater level in areas of identified groundwater contamination should be assumed to be contaminated and managed accordingly.

6. CONCLUSIONS & RECOMMENDATIONS

Discrete areas of soil and groundwater impacts were identified along the Corridor at locations that will likely be encountered during the planned construction project. In addition, portions of the planned project, particularly along Phalen Boulevard, are currently under restrictions placed by environmental covenants. The approximate boundaries of the Phalen Boulevard restrictive covenant areas are shown on Figure 2. Based on previous environmental data, the areas under environmental restrictive covenants should be assumed to be contaminated.

Appropriate handling of contaminated materials during any construction project should consider the potential environmental risks based on accessibility of the materials and planned use. Most transportation and transit-related projects have limited accessibility and are classified by the MPCA as "industrial." Therefore, clean-up actions are generally limited to only those contaminated materials that are readily accessible (for example soils in the upper two feet that can be impacted as part of roadway maintenance), exceed an industrial standard, or have the potential for migration through the infiltration of stormwater. Project planning should take into account design features relative to the identified impacts. 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 (see below).

The MPCA Voluntary Brownfield programs offer regulatory assistance for projects that will likely encounter contamination during construction. These programs provide liability assurances that ensure that project owners are not "associated" with identified releases, provided thorough due diligence is conducted and materials are handled appropriately during construction. As part of voluntary program involvement, the project will be required to prepare a RAP and CCP to be submitted to the MPCA for review and approval. The RAP and CCP outline the methods for identifying, segregating, and handling of contaminated materials that may be encountered during construction. Remedial (cleanup) actions that are included within the RAP and CCP can be formulated concurrently with design to reduce construction costs and assist with project estimation (schedule and price). Typically, a final RAP and CCP is prepared after the design has progressed to 60% or more complete.

7. LIMITATIONS

The analyses and conclusions submitted in this report are based on field observations and the results of laboratory analyses of soil and groundwater samples collected for this project. It is important to note that our investigation is limited to the diameter of our investigation locations and cannot be assumed to be completely representative of the soil and groundwater conditions throughout the Rush Line BRT Corridor.

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

NOISE AND VIBRATION TECHNICAL REPORT

APRIL 2021

Prepared by:

Cross•Spectrum Acoustics

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1. INTRODUCTION

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 technical report has been prepared in support of the EA.

Noise and vibration have been assessed in accordance with guidelines specified in the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment Manual* (referred to as the Federal Transit Administration guidance manual in this report).[1] The objective of the assessment is to identify noise- and vibration-sensitive receivers, document the noise and vibration impacts at those sensitive locations and identify mitigation measures as part of the project.

2. REGULATORY CONTEXT AND METHODOLOGY

2.1. OPERATIONAL NOISE

2.1.1. Noise Basics

Sound is defined as small changes in air pressure above and below the standard atmospheric pressure, and noise is usually considered to be unwanted sounds. The three parameters that define noise include:

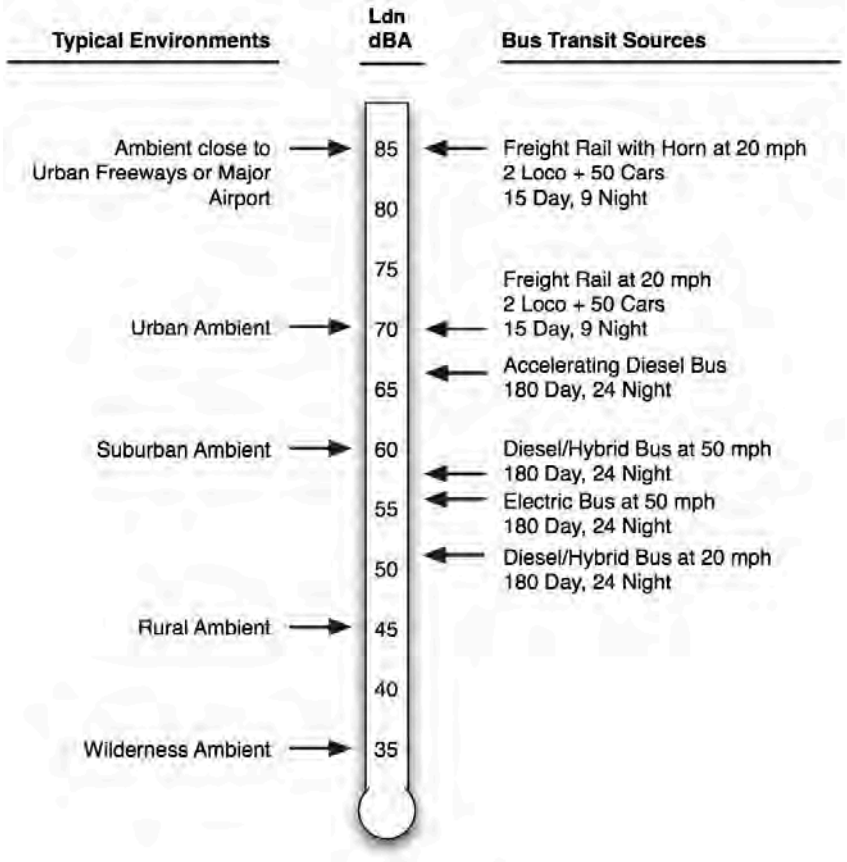
- **Level:** The level of sound is the magnitude of air pressure change above and below atmospheric pressure and is expressed in decibels (dB). Typical sounds fall within a range between 0 dB (the lower limits of human hearing) and 120 dB (the highest sound levels experienced in the environment). A 3 dB change in sound level is perceived as a barely noticeable change outdoors, and a 10 dB change in sound level is perceived as a doubling (or halving) of the sound level.
- **Frequency:** The frequency (pitch or tone) of sound is the rate of air pressure changes and is expressed in cycles per second, or Hertz (Hz). Human ears can detect a wide range of frequencies from around 20 Hz to 20,000 Hz; however, human hearing is not effective at high and low frequencies, and the A-weighting system (dBA) is used to correlate frequency with

[1] Federal Transit Administration. *Transit Noise and Vibration Impact Assessment Manual*. September 2018. Available at https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123.

human response to noise. The A-weighted sound level has been widely adopted by acousticians as the most appropriate descriptor for environmental noise.

- **Time pattern:** Because environmental noise is constantly changing, it is common to condense all this information into a single number, called the "equivalent" sound level (Leq). The Leq represents the changing sound level over a period of time, typically 1 hour or 24 hours in transit noise assessments. For transit projects, the Day-Night Sound Level (Ldn) is the common noise descriptor used by most agencies to describe how people respond to noise in their environment. Ldn is a 24-hour cumulative A-weighted noise level that includes all noises that happen within a day, with a 10-dB penalty for nighttime noise (10 p.m. to 7 a.m.). This nighttime penalty means that any noise events at night are equivalent to 10 similar events during the day. Typical Ldn values for various transit and freight operations are shown in Figure 1.

Figure 1: Cumulative Noise Levels from Transportation Sources[2]



[2] Source: Cross-Spectrum Acoustics Inc., 2019

2.1.2. Operational Noise Impact Criteria

This section describes Federal Transit Administration and Minnesota Pollution Control Agency noise impact criteria and their applicability to the noise assessment.

FEDERAL TRANSIT ADMINISTRATION NOISE IMPACT CRITERIA

The noise impact criteria used for the Rush Line BRT Project are based on the information contained in Section 4 of the Federal Transit Administration guidance manual. The Federal Transit Administration noise impact criteria are based on well-documented research on community response to noise and compare the existing level of noise and the change in noise exposure due to a project (not the noise under the No Build Alternative).[3]

The Federal Transit Administration noise criteria are based on the land use category of the sensitive receiver and use Ldn for locations where people sleep (Category 2) and Leq for locations with daytime and/or evening use (Category 1 or 3). A noise-sensitive land use is a use that is susceptible to noise due to its function, such as residences where people sleep or institutional uses where it is important that noise does not interfere with functional activities. Examples are shown in Table 1.

The noise impact criteria are defined by the two curves shown in Figure 2, which allow increasing project noise as existing noise levels increase, up to a point at which impact is determined based on project noise alone. As shown in Figure 2, the Federal Transit Administration noise impact criteria include three levels of impact:

- **No impact:** In this range, the project is considered to have no impact because, on average, the introduction of the project will result in an insignificant increase in the number of people highly annoyed[4] by the new project noise.
- **Moderate impact:** At the moderate impact range, changes in the cumulative noise level are noticeable to most people but may not be enough to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation, such as the existing noise level, predicted level of increase over existing noise levels and the types and numbers of noise-sensitive land uses affected.
- **Severe impact:** At the severe impact range, a significant percentage of people would be highly annoyed by the new project noise. Severe noise impacts are considered "significant" under the National Environmental Policy Act and should be avoided if possible. Noise mitigation should be applied for severe impacts where feasible.

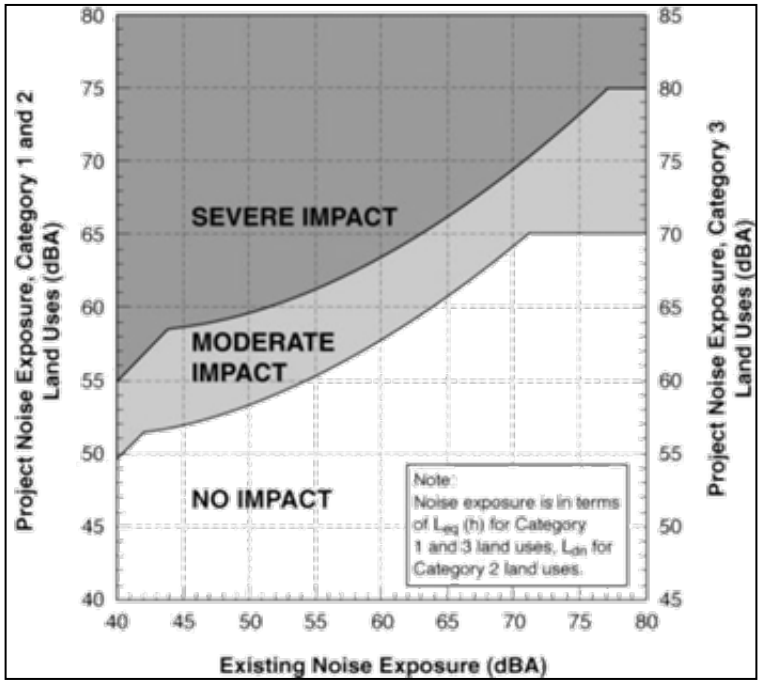
[3] The No Build Alternative is defined as the existing transportation system with planned and programmed improvements as presented in the Metropolitan Council's *2040 Transportation Policy Plan* (October 2018) but without the Rush Line BRT Project.

[4] Federal Transit Administration noise criteria are based on social surveys conducted by the US Environmental Protection Agency to establish levels of annoyance. Annoyance is described in the US Environmental Protection Agency documentation as "a description of the human reaction to what is described as noise interference…it is a subjective reaction to interference with desired human activity." Source: *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (US Environmental Protection Agency, 1974).

Table 1: Noise-Sensitive Land Use Categories and Metrics for Transit Noise Impact Criteria[5]

Land Use Category	Noise Metric (dBA)	Land Use Category
1	Outdoor Leq(h)[6]	Tracts of land where quiet is an essential element of their intended purpose. This category includes lands set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions and National Historic Landmarks with significant outdoor use.
2	Outdoor Ldn	Residences and buildings where people normally sleep. This category includes homes and hospitals, where nighttime sensitivity to noise is of utmost importance.
3	Outdoor Leq(h)[6]	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries and churches, where it is important to avoid interference with such activities as speech, meditation and concentration. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios and concert halls fall into this category, as well as places for meditation or study associated with cemeteries, monuments and museums. Certain historical sites, parks and recreational facilities are also included.

Figure 2: Federal Transit Administration Noise Impact Criteria[7]



[5] Source: *Transit Noise and Vibration Impact Assessment Manual* (Federal Transit Administration, 2018)
[6] Leq for the noisiest hour of transit-related activity during hours of noise sensitivity
[7] Source: *Transit Noise and Vibration Impact Assessment Manual* (Federal Transit Administration, 2018)

MINNESOTA POLLUTION CONTROL AGENCY NOISE STANDARDS

The Minnesota Pollution Control Agency has an established set of noise standards (Minnesota Rules, chapter 7030) that provide limits on environmental noise using the L10 and L50 descriptors, which represent the noise level exceeded 10 percent (6 minutes) and 50 percent (30 minutes) of the time during an hour, respectively. The standards include both daytime and nighttime limits for three different categories of land use or noise area classification, with residential lands included in noise area classification 1. Classifications 2 and 3 are generally for commercial and industrial land uses, respectively. The standards are shown in Table 2.

Table 2: Minnesota Pollution Control Agency Noise Standards

Noise Area Classification	Daytime		Nighttime	
	L10 (dBA)	L50 (dBA)	L10 (dBA)	L50 (dBA)
1	65	60	55	50
2	70	65	70	65
3	80	75	80	75

Due to the time limit component of the Minnesota Pollution Control Agency noise standards, the project will not exceed the standards under the proposed operating conditions. Buses will pass by a location for approximately 10 seconds 12 times an hour (based on the operating assumptions of 10-minute headways in each direction during peak hours) for a total of 120 seconds (2 minutes). Since the duration of exposure to BRT noise does not exceed the L10 (6 minutes) and L50 (30 minutes) time components, there is no potential for the project to exceed Minnesota Pollution Control Agency thresholds. Because the project does not exceed the Minnesota Pollution Control Agency thresholds, the Federal Transit Administration noise impact criteria described previously are more protective than the Minnesota Pollution Control Agency standards and, therefore, have been used to assess and mitigate noise impacts identified within this report.

The measured existing noise levels in the study area (typically within 200 feet of the proposed route) are not assessed under the Minnesota Pollution Control Agency criteria but are included for context in Section 3.1.3.

2.2. OPERATIONAL VIBRATION

2.2.1. Vibration Basics

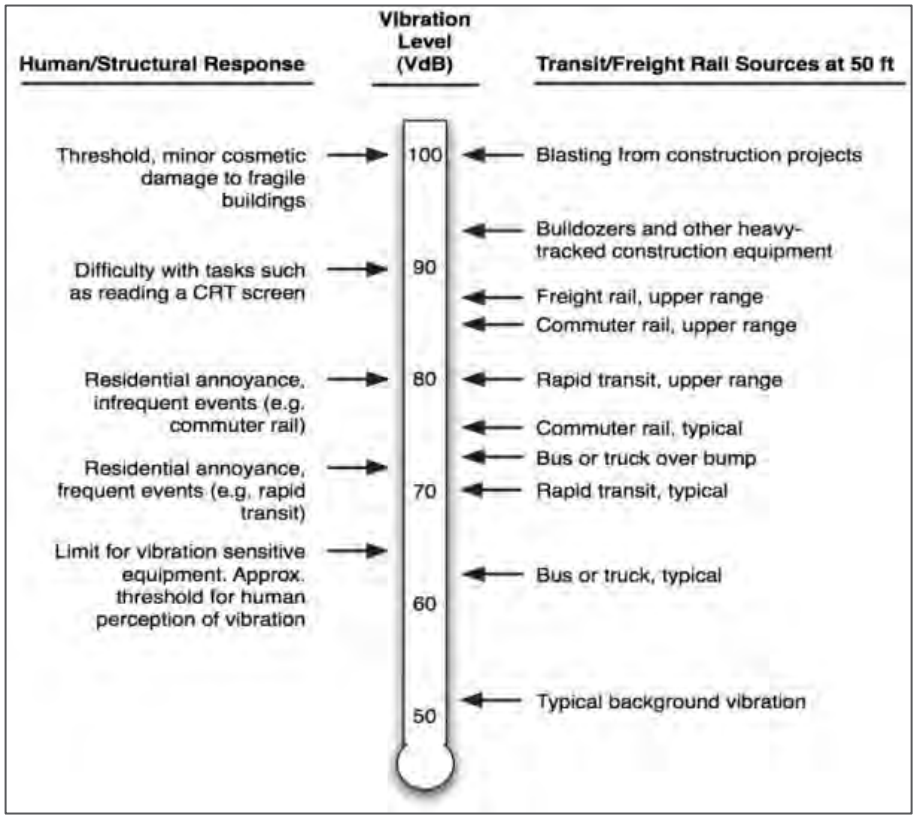
Ground-borne vibration is the motion of the ground transmitted into a building that can be described in terms of displacement, velocity or acceleration. Vibration velocity is used in transit and is defined by the following:

- **Level:** Vibration is expressed in terms of vibration velocity level using vibration decibel (VdB), with a reference of 1 micro-inch per second. The level of vibration represents how much the ground is moving. The threshold of human perception of transit and freight rail vibration is approximately 65 VdB, and annoyance begins to occur for frequent events at vibration levels over 70 VdB.
- **Frequency:** Vibration frequency is expressed in Hertz (Hz). Human response to vibration is typically from about 6 Hz to 200 Hz.

- **Time pattern:** Environmental vibration changes all the time, and human response is roughly correlated to the number of vibration events during the day. The more events that occur, the more sensitive humans are to the vibration.

Figure 3 shows typical ground-borne vibration levels for transit projects as well as the corresponding human and structural responses to vibration.

Figure 3: Vibration Levels[8]



2.2.2. Operational Vibration Impact Criteria

FEDERAL TRANSIT ADMINISTRATION TRANSIT VIBRATION CRITERIA

The vibration screening procedure for BRT projects is detailed in Section 6 of the Federal Transit Administration guidance manual. The vibration screening procedure is designed to identify locations where a project has the potential to cause vibration impact. This approach identifies areas where impacts are likely for further vibration analysis at later stages of the project and eliminates locations where no impacts would be identified. The screening procedure is conservative enough to include all locations with the potential for vibration impact and provide assurance that any areas outside the screening distances would have no vibration impacts.

[8] Source: Cross-Spectrum Acoustics, Inc., 2015

A vibration assessment considers potential impacts to vibration-sensitive land uses. A vibration-sensitive land use, such as a hospital or research facility with finely tuned equipment or certain historic buildings, is susceptible to vibration due to its function or construction.

For projects that involve rubber-tire vehicles, such as a BRT or bus project, vibration impact is unlikely except in unusual situations, including vibration-sensitive land uses near expansion joints, speed bumps or uneven road surfaces, or buses operating in or very close to a vibration-sensitive building, such as a research facility or hospital. If these scenarios do not exist on a BRT or bus project, then the vibration screening procedure does not need to be conducted, and no vibration impacts would be expected for the project.

2.3. CONSTRUCTION NOISE AND VIBRATION

Construction activities associated with a transit project can generate noise and vibration complaints even though they only take place for a limited time. Construction noise and vibration impact is assessed where the exposure of noise- and vibration-sensitive receivers to construction-related noise or vibration is projected to occur at levels exceeding standards established by the Federal Transit Administration and other thresholds for architectural and structural building damage.

2.3.1. Construction Noise Impact Criteria

Table 3 shows the Federal Transit Administration noise assessment criteria for construction. The last column applies to construction activities that extend over 30 days near any given receiver. Day-night sound level, Ldn, is used to assess impacts in residential areas and 24-hr Leq is used in commercial and industrial areas. The 8-hr Leq and the 30-day average Ldn noise exposure from construction noise calculations use the noise emission levels of the construction equipment, their location, and operating hours. The construction noise limits are normally assessed at the noise-sensitive receiver property line.

Table 3: Federal Transit Administration Construction Noise Assessment Criteria[9]

Land Use	8-hour Leq (dBA)		Noise Exposure, Ldn (dBA)
	Day	Night	30-Day Average
Residential	80	70	75[10]
Commercial	85	85	80[11]
Industrial	90	90	85[11]

2.3.2. Construction Vibration Impact Criteria

Guidelines in the Federal Transit Administration guidance manual provide the basis for the construction vibration assessment. The Federal Transit Administration provides construction vibration criteria designed primarily to prevent building damage and to assess whether vibration might interfere with vibration-sensitive building activities or temporarily annoy building occupants during the construction period. The Federal Transit Administration criteria include two ways to express vibration levels: (1) root-mean-square vibration velocity level (L_v, in VdB) for annoyance and activity

[9] Source: *Transit Noise and Vibration Impact Assessment Manual* (Federal Transit Administration, 2018)
[10] In urban areas with very high ambient noise levels (Ldn greater than 65 dB), Ldn from construction operations should not exceed existing ambient noise levels + 10 dB.
[11] 24-hour Leq, not Ldn.

interference, and (2) peak particle velocity, which is the maximum instantaneous peak of a vibration signal used for assessments of damage potential.

To avoid temporary construction-related annoyance to building occupants or interference with vibration-sensitive equipment such as a magnetic resonance imaging (MRI) machines inside special use buildings, the Federal Transit Administration recommends using the long-term operational vibration criteria detailed in Section 6.2 of the Federal Transit Administration guidance manual.

Table 4 shows the Federal Transit Administration building damage criteria for construction activity; the table lists peak particle velocity and approximate L_v limits for four building categories. These limits are used to estimate potential problems that should be addressed during final design.

Table 4: Construction Vibration Damage Criteria[12]

Building Category	Peak Particle Velocity (inch per second)	Approximate L_v [13]
I. Reinforced concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

2.4. IMPACT ASSESSMENT METHODOLOGY

2.4.1. Noise

OPERATIONAL NOISE

Noise has been assessed in accordance with guidelines specified in the Federal Transit Administration guidance manual. This section describes the methodology for assessing the potential impact from the Rush Line BRT Project.

The methodology for assessing noise impact from BRT operations included the following steps:

- Identify noise-sensitive land uses (see Table 1 for examples) in the corridor using aerial photography, geographic information system data and field surveys, typically within 200 feet of the alignment (see Section 3.1.1).
- Measure existing noise levels in the corridor near sensitive receivers (see Section 3.1.2).
- Predict future project noise levels from transit operations, using preliminary engineering plans and information on speeds, headways and vehicle type. The project noise level assessment includes BRT operations and station noise. Details regarding the information used to predict future project noise levels can be found below.
- Assess the impact of the project by comparing the projected future noise levels with existing noise levels using the Federal Transit Administration noise impact criteria in Section 4 of the Federal Transit Administration guidance manual.

[12] Source: *Transit Noise and Vibration Impact Assessment Manual* (Federal Transit Administration, 2018)
[13] A root-mean-square vibration velocity level in VdB relative to 1 micro-inch/second.

- Recommend mitigation at locations where projected future noise levels exceed the Federal Transit Administration impact criteria.

In addition, a construction noise impact assessment was conducted using the methodology contained in Section 7 of the Federal Transit Administration guidance manual.

Project noise levels from operations are based on source reference levels found in the Federal Transit Administration guidance manual and the current design of the proposed project. This information was used to project noise levels from the proposed alignment at sensitive locations. Specific inputs used in the noise impact assessment include the following:

- Location of the noise-sensitive receivers in relation to the roadway.
- A bus source noise level for electric buses of 80 dBA at 50 feet and 50 miles per hour.
- Speed of buses along the roadway, which vary from 25 to 50 miles per hour.
- The operating schedule for the buses is as follows:
    - 5 a.m. to 6 a.m.: 15-minute headways.
    - 6 a.m. to 9 a.m.: 10-minute headways.
    - 9 a.m. to 3 p.m.: 15-minute headways.
    - 3 p.m. to 6:30 p.m.: 10-minute headways.
    - 6:30 p.m. to 12 a.m.: 15-minute headways.
- Based on the schedule, the average volume of buses per hour will be as follows:
    - Daytime (7 a.m. to 10 p.m.): 4.73 buses in each direction.
    - Nighttime (10 p.m. to 7 a.m.): 2 buses in each direction.
- The only sources of noise at stations are idling buses. However, the noise levels generated by idling electric buses are not high enough to contribute to project noise levels.
- The three park-and-ride locations do not have any noise-sensitive receivers within the Federal Transit Administration screening distance, and no additional assessment was conducted.

CONSTRUCTION NOISE

Construction noise levels depend on the number of active pieces and type of equipment, their general condition, the presence or lack of noise-attenuating features such as walls and berms, and the location of the construction activities relative to the sensitive receivers. Most of these variables are left to the discretion of the construction contractor selected as the project approaches the construction phase.

The equipment that is likely to be used during the noisiest periods of construction, along with their measured sound levels at 50 feet, are listed in Table 5. Reference noise levels for the different construction equipment are provided in Chapter 7 of the Federal Transit Administration guidance manual.

Table 5: Construction Noise by Equipment Piece at 50 Feet[14]

Equipment	Maximum Sound Level at 50 Feet (dBA)
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Crane, derrick	88
Crane, mobile	83
Dozer	85
Grader	85
Loader	85
Paver	89
Pile driver (impact)	101
Pump	76
Roller	74
Truck	88

2.4.2. Vibration

OPERATIONAL VIBRATION

Because the Rush Line BRT Project includes a rubber-tired vehicle, a vibration screening assessment would only be conducted under unusual circumstances, as described in Section 2.2.2. However, there are no highly vibration-sensitive land uses along the proposed project within the screening distance of 100 feet. The proposed project design includes use of newly paved dedicated guideway with no irregularities or shared use of existing traffic lanes (where the current roadway condition would not change). Therefore, this project meets none of the guidelines for conducting a vibration screening, and there are no locations with the potential for vibration impact on the project. No further vibration assessment is required.

CONSTRUCTION VIBRATION

Similar to construction noise, construction vibration levels depend on the type and condition of the construction equipment, the soil type and the location of sensitive receivers relative to the vibration-generating activities. The equipment that may be used during the highest vibration-generating periods of construction are shown in Table 6, along with reference peak particle velocity vibration levels at 25 feet. The vibration level for each piece of construction equipment is predicted using the peak particle velocity of the equipment adjusted for distance, the reference vibration level in inches per second at 25 feet and the distance from the equipment to the receiver. This construction vibration assessment is used to assess for potential for damage to nearby structures.

[14] Source: *Transit Noise and Vibration Impact Assessment Manual* (Federal Transit Administration, 2018)

Table 6: Construction Vibration by Equipment at 25 Feet[15]

Equipment	Peak Particle Velocity at 25 Feet (inches per second)
Vibratory roller	0.210
Hoe ram	0.089
Loaded trucks	0.076
Impact pile driver	0.644
Vibratory pile driver	0.170

3. EXISTING CONDITIONS

This section includes a description of the noise- and vibration-sensitive land use within the study area, as well as the noise and vibration measurements conducted to characterize the existing conditions for the project.

3.1. EXISTING NOISE CONDITIONS

Noise-sensitive land use within the study area was identified based on geographic information system data, aerial photography, drawings, plans and a field survey. Based on the information from these sources, a noise measurement program was developed and carried out as described below.

3.1.1. Noise-Sensitive Land Uses

UNION DEPOT TO I-94

The noise-sensitive land uses along the route between Union Depot and Interstate 94 (I-94) include Twin Cities PBS, St. Paul Preparatory School, New Horizons Academy childcare center, Union Gospel Mission Child Development Center, Hyatt Place and various apartment and condominium buildings. The dominant existing noise source is traffic on local streets.

I-94 TO I-35E

The noise-sensitive land uses along the route between I-94 and I-35E include the Minnesota Transportation Museum and single- and multi-family residences. The dominant existing noise sources are traffic on local streets, I-94 and I-35E.

ALONG PHALEN BOULEVARD

The noise-sensitive land uses along Phalen Boulevard include HealthPartners Neurosciences Center, Christian Mission Elim Minnesota and apartment buildings. The dominant existing noise source is traffic on Phalen Boulevard.

JOHNSON PARKWAY TO HIGHWAY 36

The noise-sensitive land uses along the Ramsey County rail right-of-way between Johnson Parkway and Highway 36 include single- and multi-family residences and the Kingdom Hall of Jehovah's Witnesses. Many of the single-family properties abut the part of the rail right-of-way that also includes

[15] Source: *Transit Noise and Vibration Impact Assessment Manual* (Federal Transit Administration, 2018)

the Bruce Vento Regional Trail. The trail itself is not considered a noise-sensitive land use because it is used primarily for active recreation. The dominant existing noise source is traffic on local streets.

HIGHWAY 36 TO I-694

The noise-sensitive land uses along the route between Highway 36 and I-694 include single- and multi-family residences and St. John's Hospital. The dominant noise source is traffic on local roads.

I-694 TO HIGHWAY 96E

The noise-sensitive land uses along the route between I-694 and Highway 96 include single- and multi-family residences. The dominant existing noise source is traffic on Highway 61.

WHITE BEAR LAKE

The noise-sensitive land uses along the route in White Bear Lake include single- and multi-family residences and the First Church of Christ - Scientist. The dominant existing noise source is traffic on Highway 61.

3.1.2. Noise Measurement Procedures and Equipment

To document the existing noise conditions for the project, a series of noise measurements were taken in June 2018 and April 2019 at or adjacent to noise-sensitive locations along the proposed route. Because the thresholds for impact in the Federal Transit Administration noise criteria are based on existing noise levels, measuring the existing noise and characterizing noise levels at sensitive locations is an important step in the impact assessment. The noise measurements included both long-term (24-hour) and short-term (1-hour) monitoring of the A-weighted sound level at noise-sensitive locations within the study area.

The noise measurements were performed with NTi Audio model XL2 noise monitors that conform to American National Standard Institute standards for Type 1 (precision) sound measurement equipment. Calibrations, traceable to the National Institute of Standards and Technology, were conducted before and after each measurement. The noise monitors were set to continuously monitor and record multiple noise level metrics as well as obtain audio recordings, where appropriate, during the measurement periods.

At each site, the measurement was conducted at the approximate setback of the building or buildings relative to the proposed route. The measurement microphones were protected with windscreens and positioned approximately 5 feet above the ground and at least 10 feet away from any major reflecting surface.

3.1.3. Noise Measurement Locations and Results

Table 7 summarizes the results of the existing noise measurement program, and Figure 4 shows the locations of the 10 long-term (LT) locations and five short-term (ST) locations. The results of the existing noise measurements were used to characterize the existing noise levels at all noise-sensitive locations within the study area. Appendix A includes photographs of the noise measurement sites, and Appendix B provides detailed noise measurement data.

Table 7: Summary of Existing Ambient Noise Measurement Results[16]

Site No.	Measurement Location	Measurement Start		Duration (hours)	Noise Level (dBA)	
		Date	Time		Leq	Ldn
LT-1	718 Capitol Heights, Saint Paul	June 5, 2018	5 p.m.	24	63	64
LT-2	1355 Phalen Boulevard, Saint Paul	June 5, 2018	11 a.m.	24	57	61
LT-3	1327 McAfee Street, Saint Paul	June 5, 2018	2 p.m.	24	49	57
LT-4	1665 McAfee Street, Saint Paul	June 5, 2018	12 p.m.	24	51	57
LT-5	1349 Belmont Lane E, Maplewood	June 4, 2018	12 p.m.	24	49	52
LT-6	2643 Barclay Street, Maplewood	June 4, 2018	12 p.m.	24	53	55
LT-7	1587 County Road D E, Maplewood	June 4, 2018	11 a.m.	24	67	66
LT-8	3791 Scheuneman Road, Gem Lake	June 4, 2018	11 a.m.	24	57	59
LT-9	4642 Shady Lane, White Bear Lake	June 4, 2018	10 a.m.	24	63	64
LT-10	2174 8th Street, White Bear Lake	April 22, 2019	12 p.m.	24	53	55
ST-1	Kellogg Boulevard and Broadway Street, Saint Paul	June 6, 2018	4:35 p.m.	1	69	67
ST-2	115 10th Street Unit 536, Saint Paul	June 5, 2018	6 p.m.	1	68	66
ST-3	91 Arch Street, Saint Paul	June 7, 2018	3:02 p.m.	1	57	55
ST-4	York Avenue and Frank Street, Saint Paul	June 6, 2018	8:01 a.m.	1	59	57
ST-5	1650 Beam Avenue, Maplewood	June 6, 2018	2:48 p.m.	1	63	61

SITE LT-1: 718 CAPITOL HEIGHTS, SAINT PAUL

The Ldn measured at this location was 64 dBA. Noise levels were measured for 24 hours in the backyard of the property. The dominant noise sources were traffic on Capitol Heights and Jackson Street.

SITE LT-2: 1355 PHALEN BOULEVARD, SAINT PAUL

The Ldn measured at this location was 61 dBA. Noise levels were measured for 24 hours in the southwest corner of the yard on the west side of the property. The dominant noise sources were traffic on Johnson Parkway and Phalen Boulevard.

SITE LT-3: 1327 MCAFEE STREET, SAINT PAUL

The Ldn measured at this location was 57 dBA. Noise levels were measured for 24 hours in the backyard of the property. The dominant noise sources were residential and nature noises.

[16] Source: Cross-Spectrum Acoustics, Inc., 2019

SITE LT-4: 1665 MCAFEE STREET, SAINT PAUL

The Ldn measured at this location was 57 dBA. Noise levels were measured for 24 hours in the backyard of the property. The dominant noise sources were residential and nature noises.

SITE LT-5: 1349 BELMONT LANE EAST, MAPLEWOOD

The Ldn measured at this location was 52 dBA. Noise levels were measured for 24 hours west of the garage. The dominant noise sources were residential and nature noises.

SITE LT-6: 2643 BARCLAY STREET, MAPLEWOOD

The Ldn measured at this location was 55 dBA. Noise levels were measured for 24 hours in the backyard behind the shed on the property. The dominant noise sources were local traffic on County Road C and nature noises.

SITE LT-7: 1587 COUNTY ROAD D EAST, MAPLEWOOD

The Ldn measured at this location was 66 dBA. Noise levels were measured for 24 hours on the second-floor balcony of the southernmost townhouse. The dominant noise source was traffic on County Road D East.

SITE LT-8: 3791 SCHEUNEMAN ROAD, GEM LAKE

The Ldn measured at this location was 59 dBA. Noise levels were measured for 24 hours in the front yard of the property. The dominant noise source was traffic on Highway 61.

SITE LT-9: 4642 SHADY LANE, WHITE BEAR LAKE

The Ldn measured at this location was 64 dBA. Noise levels were measured for 24 hours in the yard on the west side of the house. The dominant noise source was traffic on Highway 61.

SITE LT-10: 2174 8TH STREET, WHITE BEAR LAKE

The Ldn measured at this location was 55 dBA. Noise levels were measured for 24 hours in the yard on the west side of the house. The dominant noise source was traffic on Highway 61 and 8th Street.

SITE ST-1: KELLOGG BOULEVARD AND BROADWAY STREET, SAINT PAUL

The Leq measured at this location was 69 dBA. Noise levels were measured for an hour on the northeast corner of Kellogg Boulevard and Broadway Street. The dominant noise sources were traffic on Kellogg Boulevard and bus and car traffic at Union Depot.

SITE ST-2: 115 10TH STREET UNIT 536, SAINT PAUL

The Leq measured at this location was 68 dBA. Noise levels were measured for an hour on the balcony of Unit 536. The dominant noise sources were traffic on Robert Street and I-35E.

SITE ST-3: 91 ARCH STREET, SAINT PAUL

The Leq measured at this location was 57 dBA. Noise levels were measured for an hour west of the Mt. Airy Community Center. The dominant noise sources were traffic on Jackson Street and Pennsylvania Avenue.

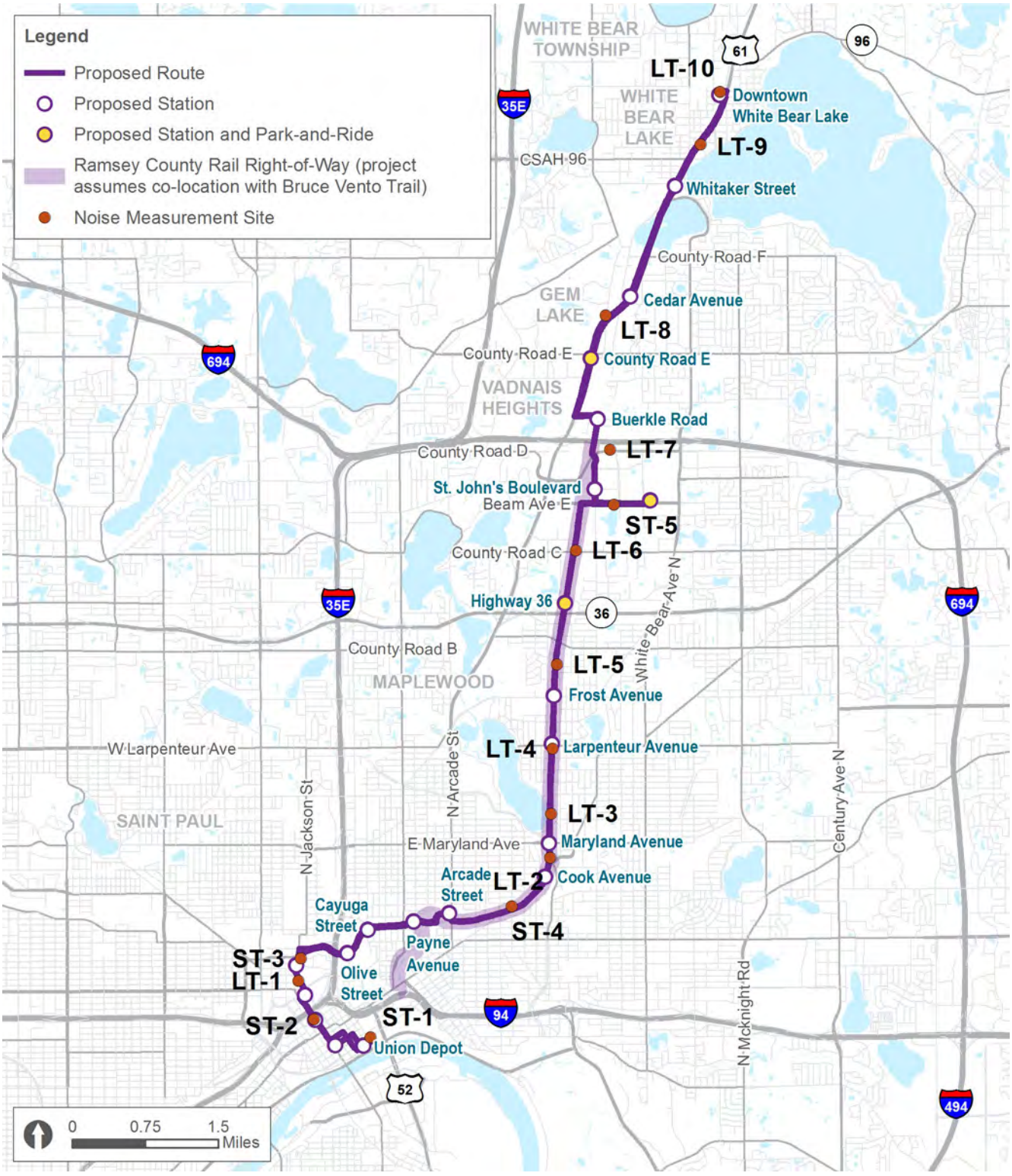
SITE ST-4: YORK AVENUE AND FRANK STREET, SAINT PAUL

The Leq measured at this location was 59 dBA. Noise levels were measured for an hour on the sidewalk on the west side of Frank Street south of York Avenue. The dominant noise sources were traffic on Frank Street and Phalen Boulevard.

SITE ST-5: 1650 BEAM AVENUE, MAPLEWOOD

The Leq measured at this location was 63 dBA. Noise levels were measured for an hour in the parking lot of the Neurological Associates of Saint Paul. The dominant noise source was traffic on Beam Avenue.

Figure 4: Noise Measurement Sites



MINNESOTA POLLUTION CONTROL AGENCY NOISE STANDARDS ANALYSIS

Using the existing noise measurement data described above, the L10 and L50 noise levels were calculated at each long-term noise measurement site for comparison with the Minnesota Pollution Control Agency L10 and L50 noise standards.

The results, shown in Table 8, show that at most locations along the corridor, the L10 and L50 standards are already being exceeded by existing noise sources. Most of the exceedances are due to exempt noise sources, such as roadway noise and aircraft overflights. The higher existing L10 and L50 noise levels are at locations close to major roadways along the corridor. At locations further from roadways, the L10 and L50 noise levels are lower.

Table 8: Summary of Existing L10 and L50 Noise Levels at Long-Term Noise Measurement Locations [17]

Site No.	City	Measurement Location	Max L10 (dBA) [18]	Max L50 (dBA) [19]
LT-1	Saint Paul	718 Capitol Heights	67	60
LT-2	Saint Paul	1355 Phalen Boulevard	62	58
LT-3	Saint Paul	1327 McAfee Street	62	55
LT-4	Saint Paul	1665 McAfee Street	59	55
LT-5	Maplewood	1349 Belmont Lane E	61	50
LT-6	Maplewood	2643 Barclay Street	57	51
LT-7	Maplewood	1587 County Road D E	68	61
LT-8	Gem Lake	3791 Scheuneman Road	74	57
LT-9	White Bear Lake	4642 Shady Lane	67	63
LT-10	White Bear Lake	2174 8th Street	60	52

4. ENVIRONMENTAL CONSEQUENCES

4.1. NO BUILD ALTERNATIVE

The Rush Line BRT Project would not be constructed under the No Build Alternative. Therefore, there would be no long-term project-related noise impacts from the No Build Alternative.

4.2. BUILD ALTERNATIVE

4.2.1. Operating Phase (Long-Term) Impacts

Comparisons of the existing and future noise levels are presented in Table 9 and Table 10. Table 9 includes the results for Federal Transit Administration Category 2 (residential) receivers with both

[17] Source: Cross-Spectrum Acoustics, Inc., 2019
[18] The L10 descriptor represents noise levels exceeded 10 percent (6 minutes) of the time during an hour (60 minutes). This standard includes both daytime and nighttime limits.
[19] The L50 descriptor represents noise levels exceeded 50 percent (30 minutes) of the time during an hour (60 minutes). This standard includes both daytime and nighttime limits.

daytime and nighttime sensitivity to noise, and Table 10 includes the results for Federal Transit Administration Category 3 (institutional) receivers with primarily daytime and evening use. In addition to the distances to the alignment and the proposed bus speeds, Table 9 and Table 10 include the existing noise levels and the projected noise levels from bus operations for each location along the proposed route. Based on a comparison of the predicted project noise levels (BRT project) with the impact criteria (moderate and severe), the table also includes an inventory of the moderate and severe noise impacts in each section.

As shown in Table 9 and Table 10, there are no noise impacts projected at residential or institutional receivers. While the project does add a negligible amount of noise, there are no exceedances of the noise impact criteria.

Table 9: Summary of Federal Transit Administration Category 2 (Residential) Noise Impacts Without Mitigation [20]

Location	Side of Route [21]	Distance to Near Lane of Travel (feet)	Max Speed (miles per hour)	Existing Noise Level [22] (Ldn)	Noise Levels – Ldn (dBA)			Number of Impacts	
					BRT Project	Impact Criteria			
						Moderate	Severe	Moderate	Severe
Union Depot to 6th Street	NB	42	25	67	51	62	67	0	0
Union Depot to 6th Street	SB	15	25	67	57	62	67	0	0
6th Street to I-94	NB	No noise-sensitive receivers.							
6th Street to I-94	SB	51	25	66	50	61	67	0	0
University Avenue E to Pennsylvania Avenue E [23]	NB	30	30	55	55	55	61	0	0
University Avenue E to Pennsylvania Avenue E	SB	33	30	64	54	60	66	0	0
Jackson Street to Olive Street	NB	50	40	55	53	55	61	0	0
Jackson Street to Olive Street	SB	No noise-sensitive receivers.							
Olive Street to Payne Avenue	NB	No noise-sensitive receivers.							
Olive Street to Payne Avenue	SB	79	35	57	49	56	62	0	0
Earl Street to Johnson Parkway	NB	60	45	61	54	58	64	0	0
Earl Street to Johnson Parkway	SB	76	45	61	52	58	64	0	0

[20] Source: Cross-Spectrum Acoustics, Inc., 2019
[21] Northbound (NB) or southbound (SB)
[22] Noise levels are based on Ldn and measured in dBA (rounded to the nearest decibel).
[23] The project noise level is below the impact threshold but appears to meet the moderate impact criteria due to rounding.

Location		Side of Route [21]	Distance to Near Lane of Travel (feet)	Max Speed (miles per hour)	Existing Noise Level [22] (Ldn)	Noise Levels – Ldn (dBA)			Number of Impacts	
						BRT Project	Impact Criteria			
							Moderate	Severe	Moderate	Severe
Adjacent to Ramsey County Rail Right-of-Way	Maryland Avenue to Arlington Avenue	NB	46	45	61	55	58	64	0	0
	Maryland Avenue to Arlington Avenue	SB	60	45	57	54	56	62	0	0
	Arlington Avenue to Larpenteur Avenue	NB	46	45	57	55	56	62	0	0
	Arlington Avenue to Larpenteur Avenue	SB	72	45	57	52	56	62	0	0
	Larpenteur Avenue to Frost Avenue	NB	90	45	57	51	56	62	0	0
	Larpenteur Avenue to Frost Avenue	SB	75	45	57	52	56	62	0	0
	Frost Avenue to Highway 36	NB	69	45	52	53	54	60	0	0
	Frost Avenue to Highway 36	SB	72	45	52	52	54	60	0	0
County Road C E to Beam Avenue		NB	109	45	55	50	55	61	0	0
County Road C E to Beam Avenue		SB	98	45	55	50	55	61	0	0
Beam Avenue to County Road D		NB	46	30	66	53	61	67	0	0
Beam Avenue to County Road D		SB	145	30	66	45	61	67	0	0
County Road E to County Road F		NB	140	50	59	48	57	63	0	0
County Road E to County Road F		SB	130	50	59	48	57	63	0	0
County Road F to Highway 96		NB	15	40	64	59	60	66	0	0
County Road F to Highway 96		SB	No noise-sensitive receivers.							
Highway 96 to 2nd Street		NB	37	40	64	55	60	66	0	0
Highway 96 to 2nd Street		SB	121	40	64	47	60	66	0	0
2nd Street to 7th Street		NB	132	40	55	47	55	61	0	0
2nd Street to 7th Street		SB	194	40	55	44	55	61	0	0
7th Street to 8th Street		NB	No noise-sensitive receivers.							
7th Street to 8th Street		SB	37	30	55	52	55	61	0	0

Table 10: Summary of Federal Transit Administration Category 3 (Institutional) Noise Impacts Without Mitigation [24]

Name	Location	Side of Route [25]	Distance to Near Lane of Travel (feet)	Speed (miles per hour)	Existing Noise Level [26] (Leq)	Noise Levels – Leq (dBA)			Number of Impacts	
						BRT Project	Impact Criteria			
							Moderate	Severe	Moderate	Severe
Twin Cities PBS	Union Depot to 6th Street	NB	168	25	69	37	68	74	0	0
St. Paul Preparatory School	Union Depot to 6th Street	SB	187	25	68	39	68	73	0	0
New Horizons Academy	6th Street to I-94	SB	41	25	68	48	68	73	0	0
Union Gospel Mission Child Development Center	6th Street to I-94	SB	75	25	68	44	68	73	0	0
HealthPartners Neurosciences Center	Olive Street to Payne Avenue	SB	97	35	57	44	61	67	0	0
Minnesota Transportation Museum	Jackson Street to Olive Street	SB	53	40	57	49	61	67	0	0
Christian Mission Elim Minnesota	Earl Street to Johnson Parkway	SB	196	45	57	42	61	67	0	0
Kingdom Hall of Jehovah's Witnesses	Maryland Avenue to Arlington Avenue	NB	140	45	57	44	61	67	0	0
St. John's Hospital	St. John's Hospital	NB	138	45	63	44	65	70	0	0
First Church of Christ - Scientist	2nd Street to 7th Street	NB	81	40	63	46	64	70	0	0

[24] Source: Cross-Spectrum Acoustics, Inc., 2019
[25] Northbound (NB) or southbound (SB)
[26] Noise levels are based on Ldn and measured in dBA (rounded to the nearest decibel).

4.2.2. Construction Phase (Short-Term) Impacts

CONSTRUCTION NOISE

Temporary noise impacts could result from activities associated with the construction of new stations, new dedicated guideway and bridges; utility relocation; grading; excavation; demolition and installation of systems components. Such impacts may occur in residential areas and at other noise-sensitive land uses located within several hundred feet of the proposed route. The potential for noise impact would be greatest at locations near pavement breaking and at locations close to any nighttime construction work. Pavement breaking is anticipated in proposed station areas, along Phalen Boulevard, where the dedicated guideway crosses existing streets, along Buerkle Road and along Highway 61. The potential for vibration impact would be greatest at locations close to vibratory compaction and/or pile driving operations if utilized during construction.

A quantitative assessment of construction noise and vibration impacts will be conducted as engineering advances when detailed construction scenarios are available.

For most construction equipment, diesel engines are typically the dominant noise source. For other activities, such as impact pile driving and jackhammering, noise generated by the actual process dominates. Short-term noise during construction of the project can be intrusive to residents near the construction sites. Most of the construction would consist of site preparation and paving. At some locations, more extensive work may occur, such as pile driving for elevated structures and retaining walls, including at the proposed bridges at Arcade Street, Johnson Parkway, Highway 36 and I-694.

Table 5 shows noise levels of typical construction equipment from the Federal Transit Administration guidance manual in terms of the maximum levels at 50 feet. Construction noise predictions at noise-sensitive locations depend on the amount of noise during each construction phase, the duration of the noise and the distance from the construction activities to the sensitive receiver. Conducting a construction noise impact assessment requires knowledge of the equipment likely to be used, the duration of its use and the way it would be used by a contractor. The Leq for a particular set of assumptions is estimated using typical noise levels from Table 5.

Table 11 identifies construction noise predictions for typical roadway construction. Using these assumptions, an 8-hour Leq of 88 dBA is projected at distances 50 feet from the construction site.

Using the criteria in Section 2.3.1 and the projected noise levels for roadway construction identified in Table 11, screening distances for roadway construction noise impact can be determined. For residential land use, short-term roadway construction noise impact can extend to approximately 120 feet from the construction site. However, if nighttime construction is conducted, short-term noise impact from roadway construction can extend to approximately 380 feet from the construction site. For elevated structure construction, the distance for noise impact during the daytime could be up to 250 feet for impact pile driving, assuming a usage factor of 20 percent during the day. If alternative methods of piling are used, the distance to impact could be less. When a specific piling method is determined, a screening distance will be calculated.

Table 11: Typical Construction Noise Levels[27]

Equipment Type	Typical Noise Level (dBA), 50 feet	Equipment Utilization Factor (%)	Leq (dBA)
Grader	85	50	82
Backhoe	80	40	76
Compactor	82	20	75
Loader	85	20	78
Roller	74	20	67
Truck	88	40	84
Crane, Mobile	83	20	76
Total 8-hour workday Leq at 50 feet			88

Typically, the contractor would provide this specific information on equipment and methods as part of a noise control plan for construction on the project.

CONSTRUCTION VIBRATION

Unlike typical transit operations, there is the potential for damage to nearby structures at close distances due to vibration from construction activities, such as pile driving, hoe rams, vibratory compaction and loaded trucks. Most limits on construction vibration are based on reducing the potential for damage to nearby structures.

The buildings in the corridor would be classified as either Category 2 or Category 3, as defined in Table 4. With the exception of impact pile driving, the potential for damage is limited to within 25 feet of construction activities. For impact pile driving, the distance for the potential for damage is 40 to 55 feet. There are no sensitive receivers within 25 feet of the project corridor in areas where construction would occur, and there are no receivers within 55 feet of locations where pile driving would occur.

Because the exact location of construction equipment is important in projecting vibration levels, a more detailed assessment of potential vibration damage would be performed during final design when more accurate equipment locations are known.

5. MITIGATION MEASURES

The Federal Transit Administration guidance manual states that severe noise impacts should be mitigated unless there are no feasible or practical means to do so. For moderate impacts, discretion should be used, and project-specific factors should be included in the consideration of mitigation. However, because there are no operational impacts due to the project, mitigation is not required.

A detailed noise and vibration control plan would be prepared to mitigate short-term noise and vibration resulting from construction activities. A noise control engineer or acoustician would work with the contractor to prepare a noise and vibration control plan in conjunction with the contractor's specific equipment and methods of construction. Key elements of a plan include:

- The contractor's specific equipment types.

[27] Source: *Transit Noise and Vibration Impact Assessment Manual* (Federal Transit Administration, 2018)

- Schedule and methods of construction.
- Maximum noise and vibration limits and certification testing for each piece of equipment.
- Prohibitions on certain types of equipment and processes during nighttime hours without variances.
- Identification of specific sensitive sites near construction sites.
- Methods for projecting construction noise and vibration levels.
- Implementation of noise and vibration control measures where appropriate.
- Acoustic shielding requirements for jackhammers, chainsaws and pavement breakers.
- Methods for responding to community complaints.

APPENDIX A

MEASUREMENT SITE PHOTOGRAPHS

Figure A-1: Noise Measurement Site LT-1 – 718 Capitol Heights, Saint Paul

Figure A-2: Noise Measurement Site LT-2 – 1355 Phalen Boulevard, Saint Paul

Figure A-3: Noise Measurement Site LT-3 – 1327 McAfee Street, Saint Paul

Figure A-4: Noise Measurement Site LT-4 – 1665 McAfee Street, Saint Paul

Figure A-5: Noise Measurement Site LT-5 – 1349 Belmont Lane East, Maplewood

Figure A-6: Noise Measurement Site LT-6 – 2643 Barclay Street, Maplewood

Figure A-7: Noise Measurement Site LT-7 – 1587 County Road D East, Maplewood

Figure A-8: Noise Measurement Site LT-8 – 3791 Scheuneman Road, Gem Lake

Figure A-9: Noise Measurement Site LT-9 – 4642 Shady Lane, White Bear Lake

Figure A-10: Noise Measurement Site LT-10 – 2174 8th Street, White Bear Lake

Figure A-10: Noise Measurement Site ST-1 – Kellogg Boulevard and Broadway Street, Saint Paul

Figure A-11: Noise Measurement Site ST-2 – 115 10th Street Unit 536, Saint Paul

Figure A-12: Noise Measurement Site ST-3 – 91 Arch Street, Saint Paul

Figure A-13: Noise Measurement Site ST-4 – York Avenue and Frank Street, Saint Paul

Figure A-14: Noise Measurement Site ST-5 – 1650 Beam Avenue, Maplewood

APPENDIX B

NOISE MEASUREMENT DATA

Figure B-1: Long-Term Measurement Data – Site LT-1

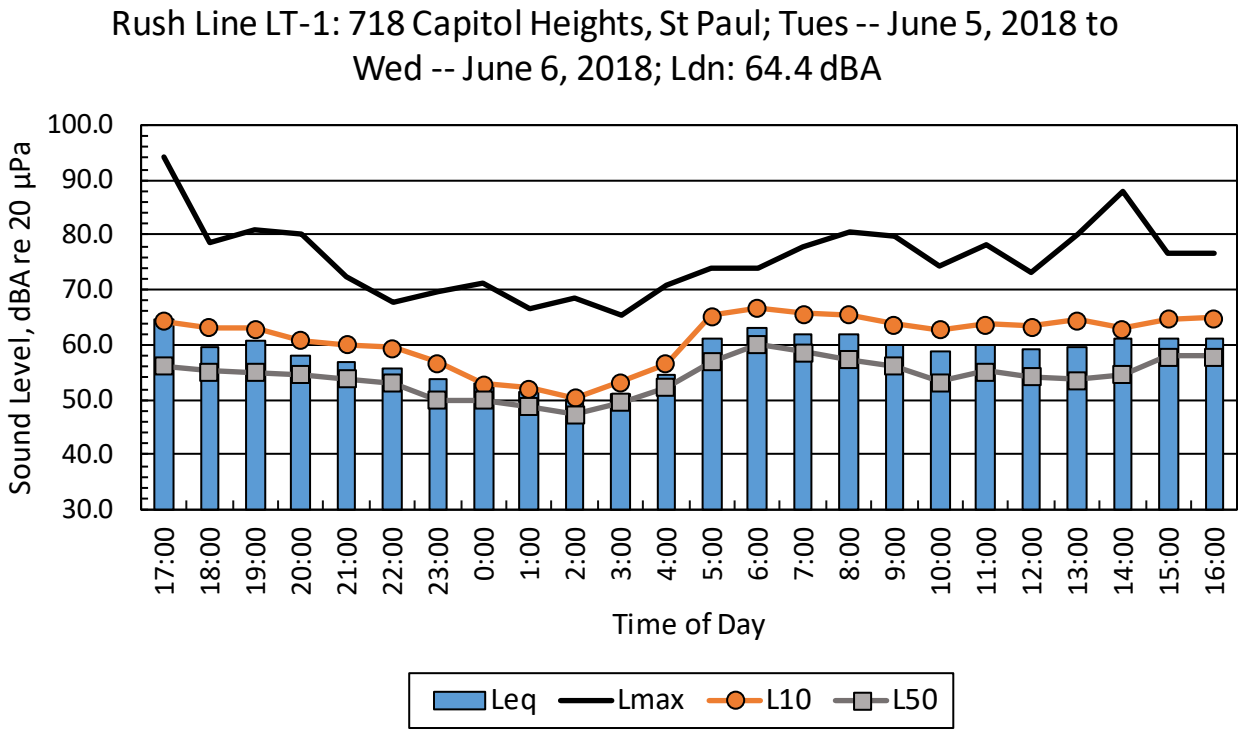


Figure B-2: Long-Term Measurement Data – Site LT-2

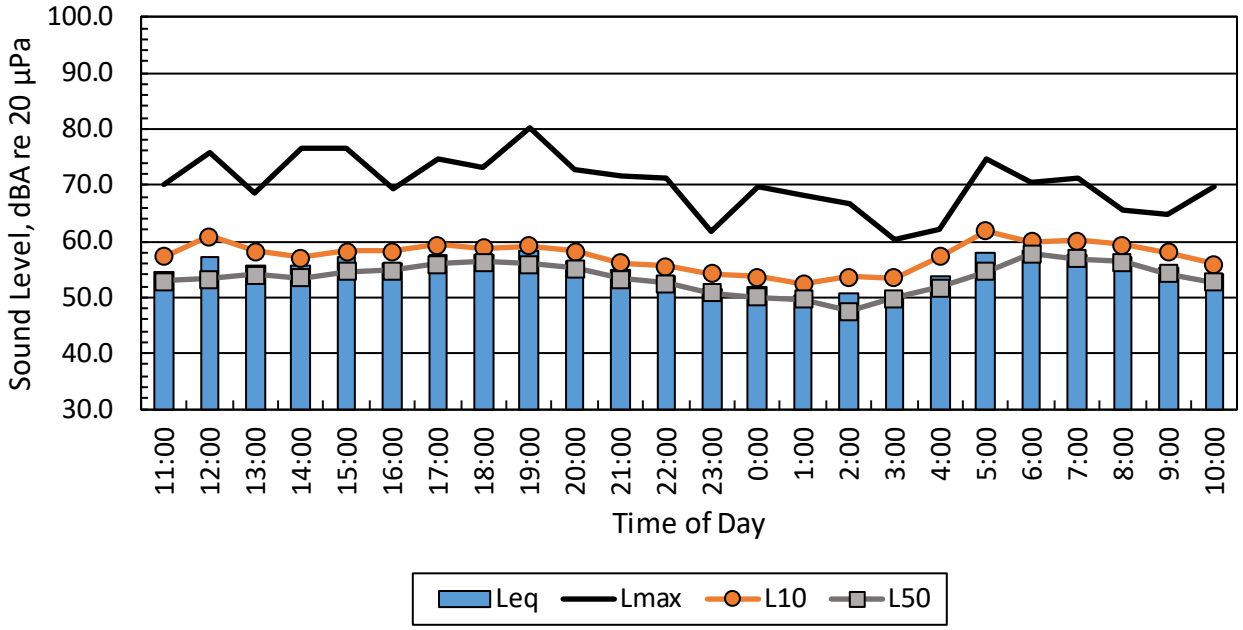


Figure B-3: Long-Term Measurement Data – Site LT-3

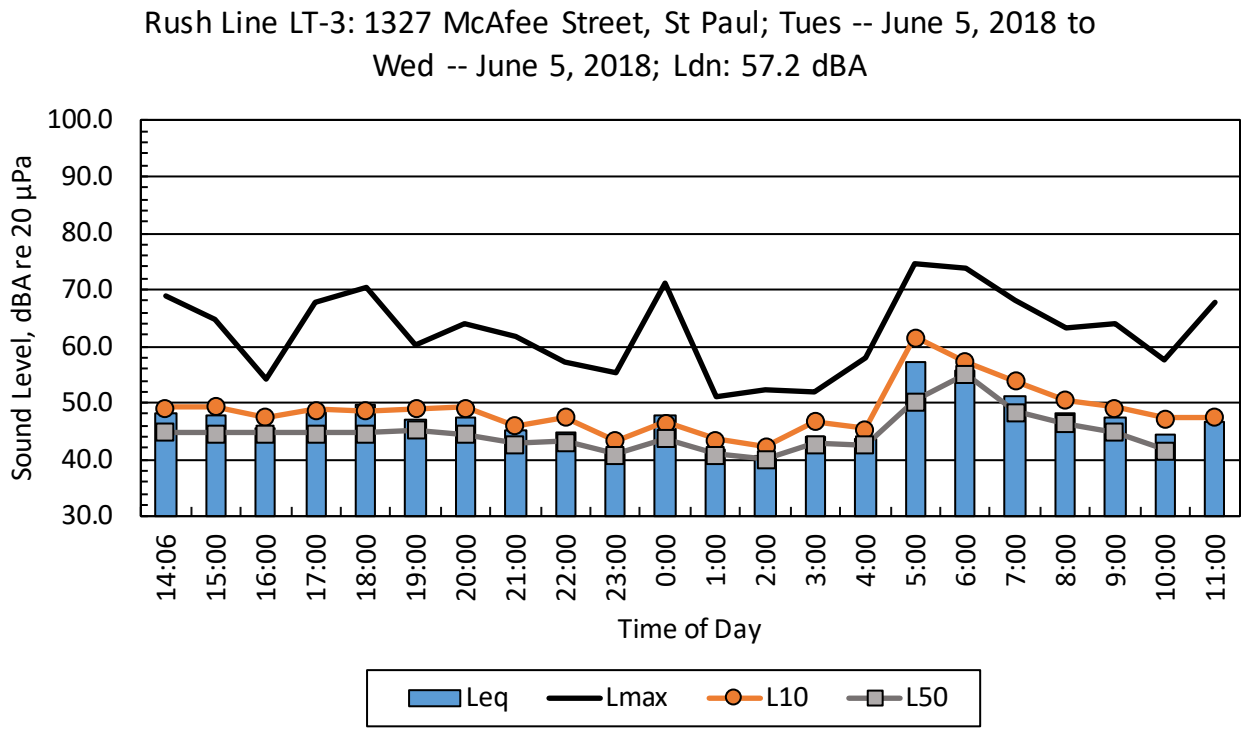


Figure B-4: Long-Term Measurement Data – Site LT-4

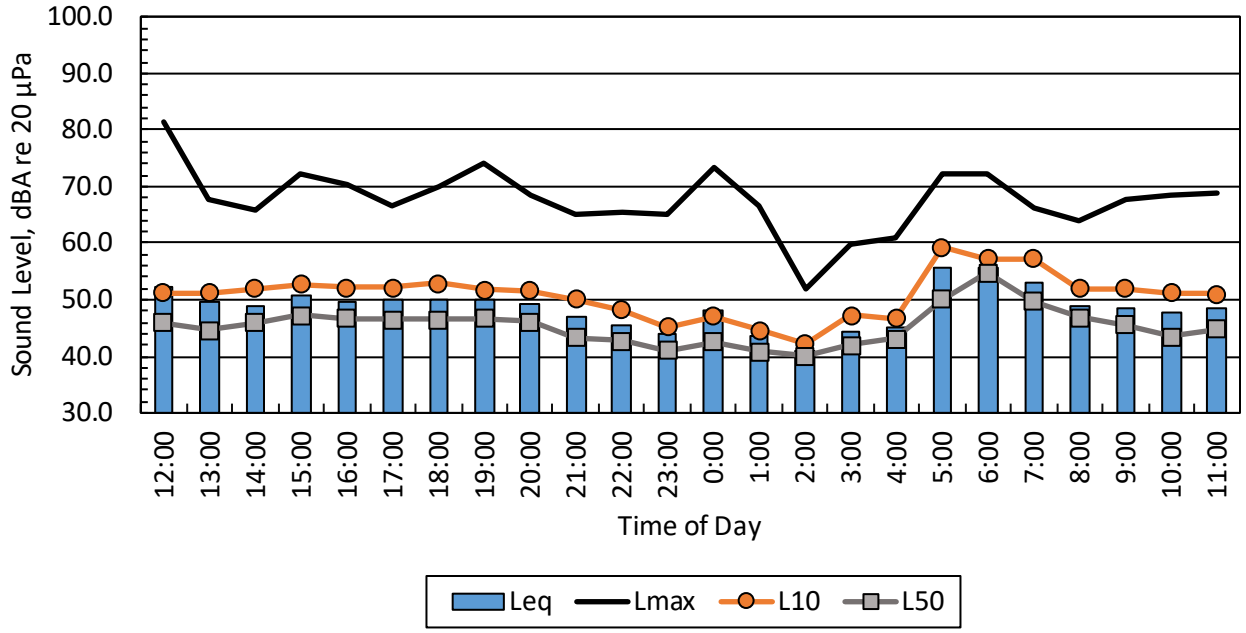


Figure B-5: Long-Term Measurement Data – Site LT-5

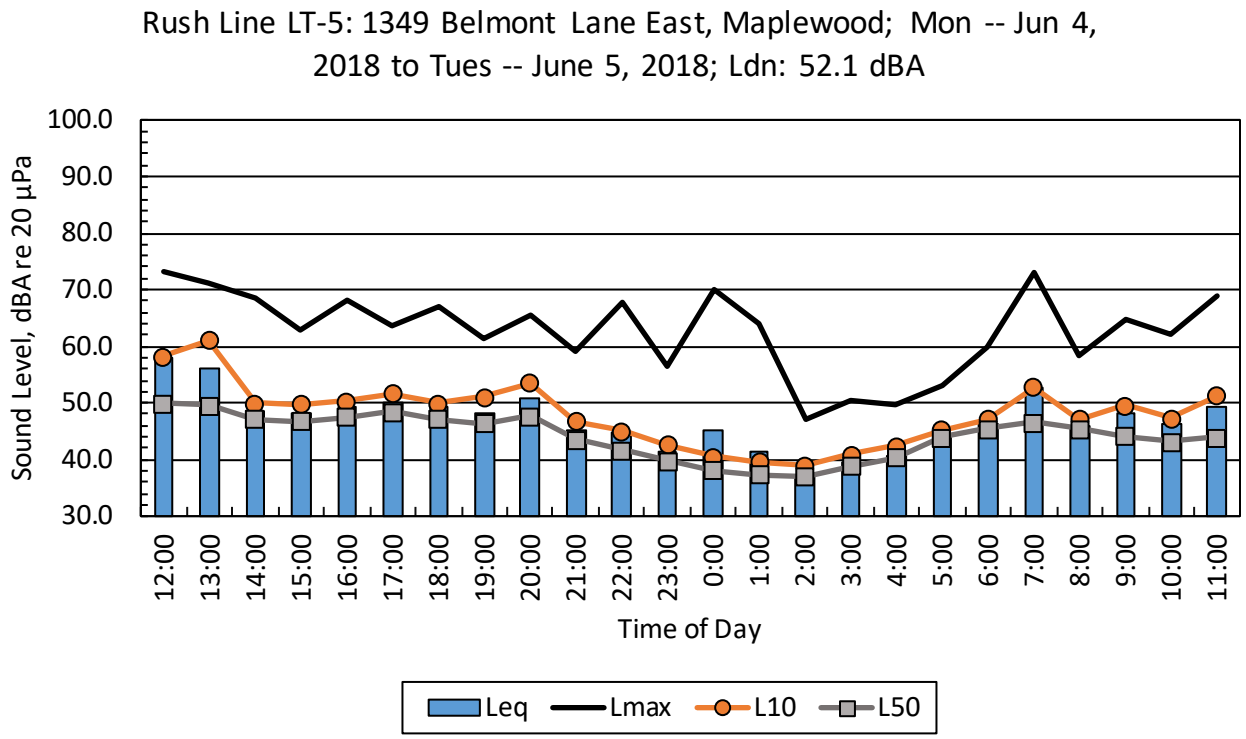


Figure B-6: Long-Term Measurement Data – Site LT-6

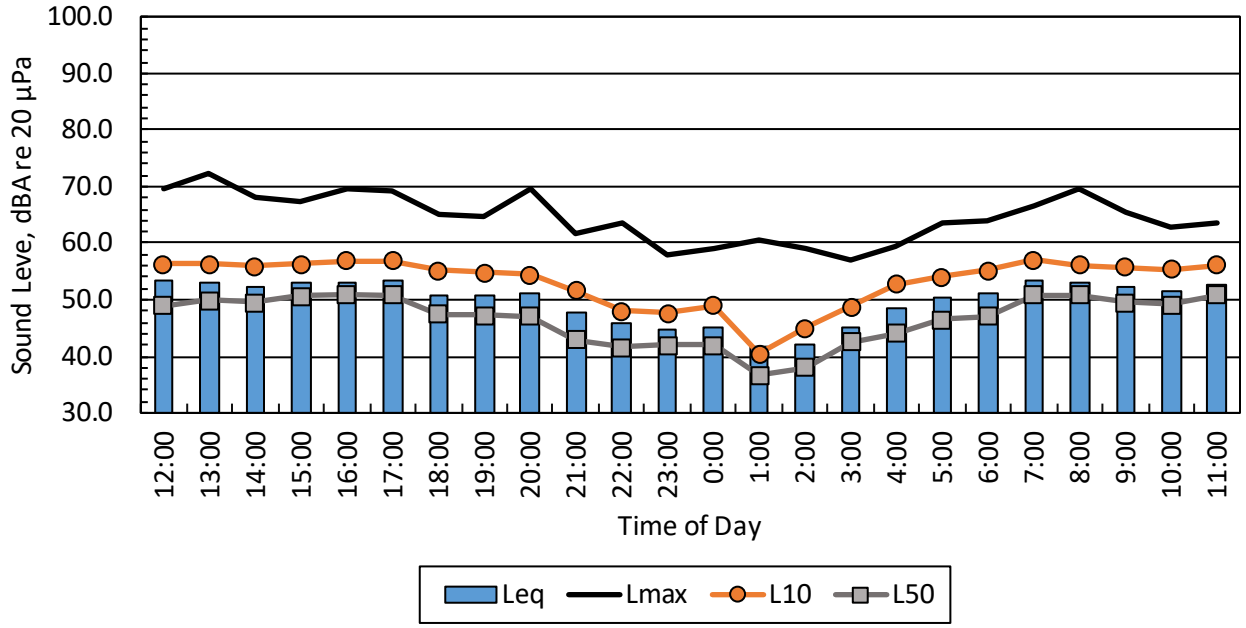


Figure B-7: Long-Term Measurement Data – Site LT-7

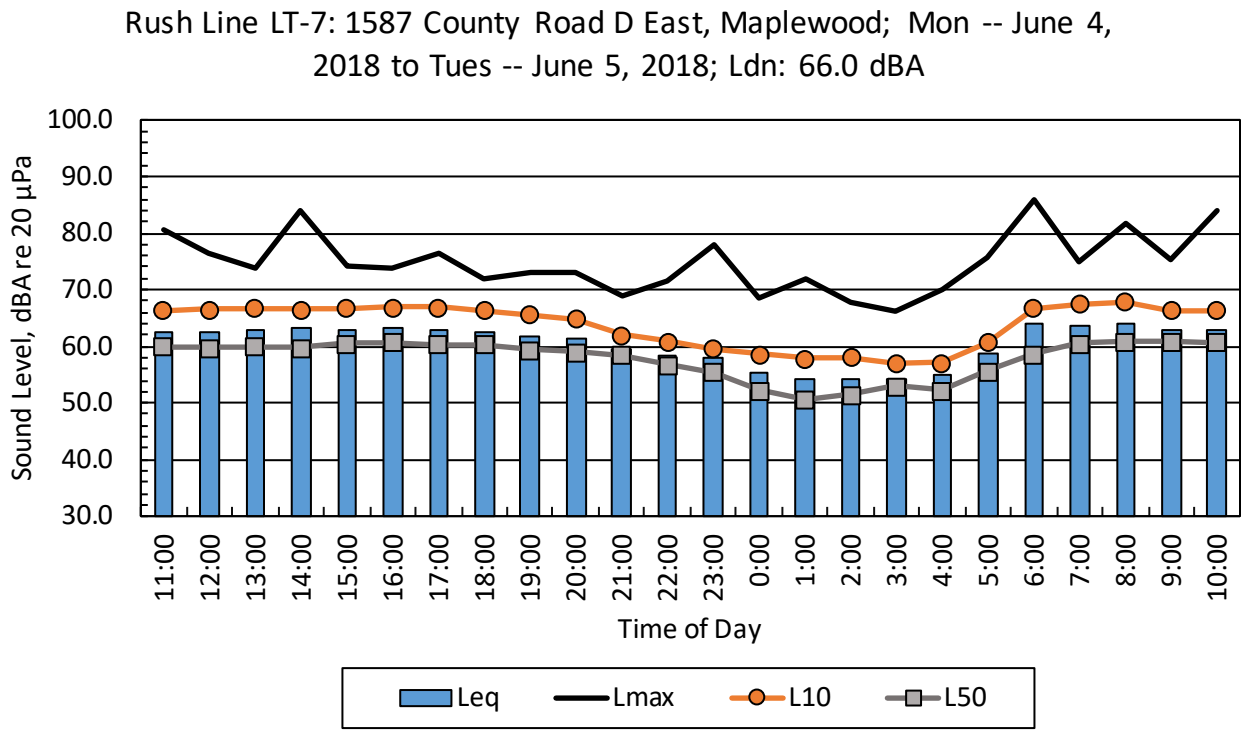


Figure B-8: Long-Term Measurement Data – Site LT-8

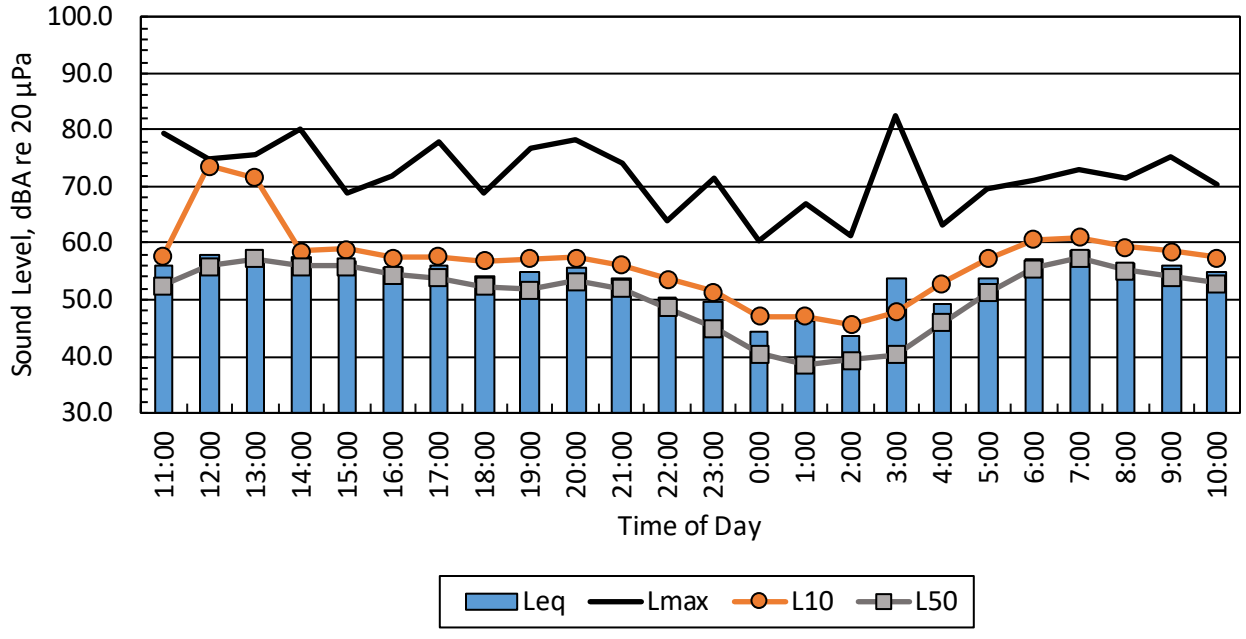


Figure B-9: Long-Term Measurement Data – Site LT-9

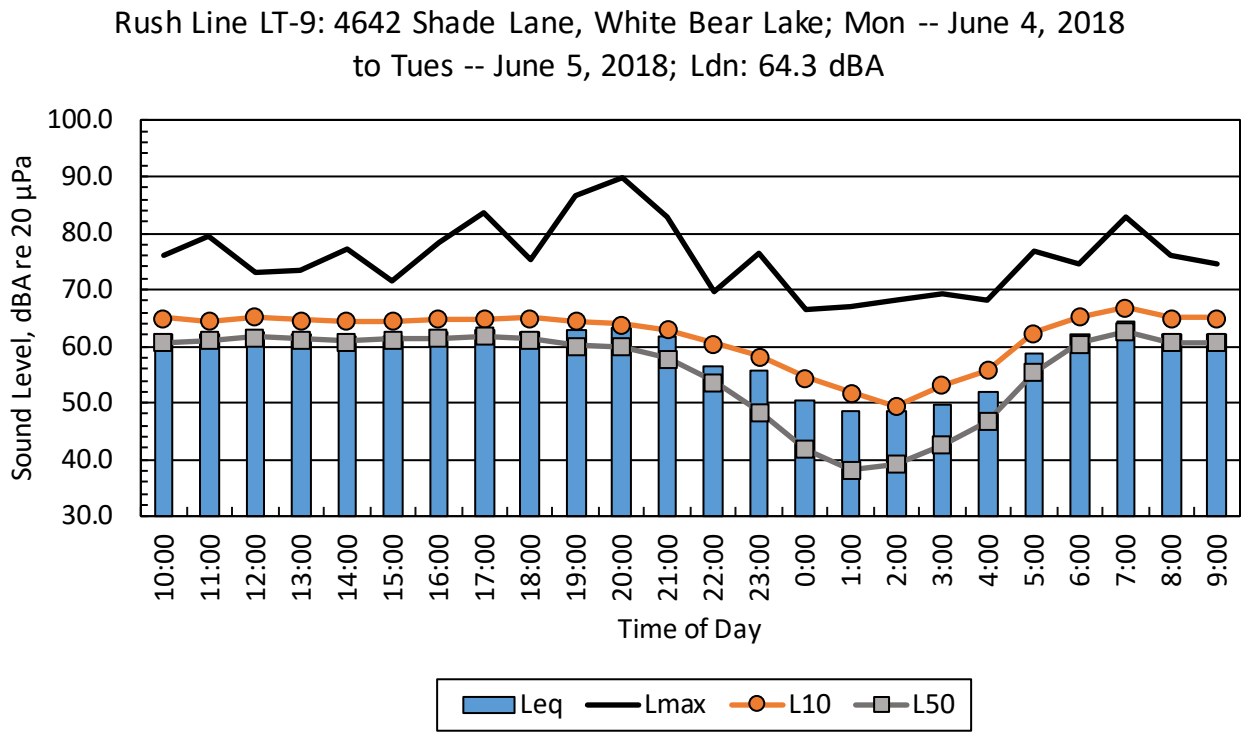
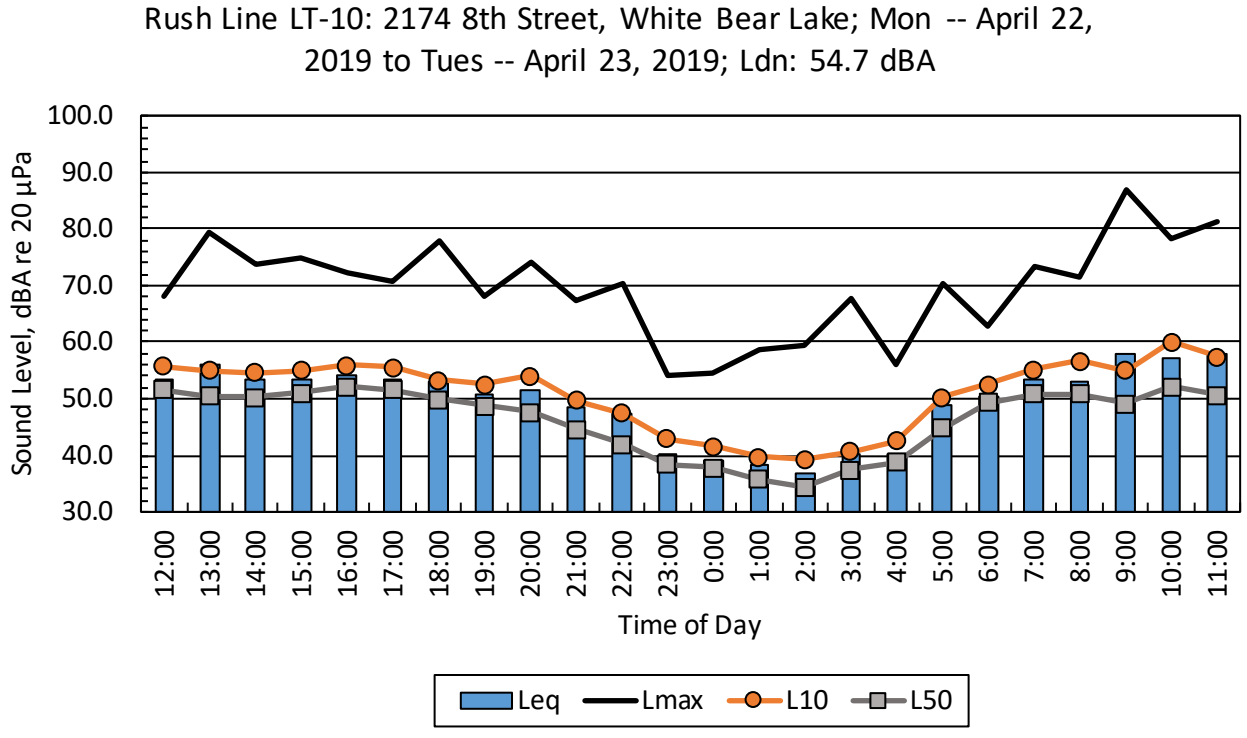


Figure B-10: Long-Term Measurement Data – Site LT-10



AIR QUALITY TECHNICAL REPORT

APRIL 2021

Prepared by:

SRF

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LIST OF APPENDICES

1. INTRODUCTION

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 technical report has been prepared in support of the EA.

2. REGULATORY CONTEXT

The National Environmental Policy Act review process requires that projects receiving federal funding or approvals evaluate potential impacts to air quality[1] in accordance with the Clean Air Act of 1970 and the Clean Air Act Amendments of 1977 and 1990. The US Environmental Protection Agency regulates air quality and delegates this authority to the state of Minnesota, where the Minnesota Pollution Control Agency monitors and enforces the US Environmental Protection Agency's standards.

Criteria pollutants are a group of common air pollutants regulated by the US Environmental Protection Agency. The six criteria pollutants identified by the US Environmental Protection Agency are ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead and sulfur dioxide. Potential impacts resulting from these pollutants are assessed by comparing projected concentrations to National Ambient Air Quality Standards.

In addition to the criteria air pollutants, the US Environmental Protection Agency also regulates air toxics. There are seven air toxic compounds with significant contributions from mobile sources: acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (referred to as diesel particulate matter), formaldehyde, naphthalene and polycyclic organic matter. The Federal Transit Administration does not provide guidance for assessment of mobile source air toxics effects but does accept the Federal Highway Administration's guidance for transportation projects in the National Environmental Policy Act process.[2]

Ramsey County consulted with the Minnesota Pollution Control Agency and Minnesota Department of Transportation on the scope of this air quality analysis (see correspondence in Appendix A).

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[1] The National Environmental Policy Act of 1969, as amended. ("The Public Health and Welfare," Title 42, USC, Sec. 4321 et seq. (1969)). Available at https://www.govinfo.gov/content/pkg/USCODE-2010-title42/pdf/USCODE-2010-title42-chap55-sec4321.pdf.

[2] Federal Highway Administration. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. Available at https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm.

3. METHODOLOGY

3.1. NATIONAL AMBIENT AIR QUALITY STANDARDS CRITERIA POLLUTANTS

The environmental impacts of the Build Alternative are evaluated based on selected criteria pollutants according to the project's location and the attainment, non-attainment and maintenance areas designated by the US Environmental Protection Agency. More details on methodology for each criterion and its current status are provided in the following sections. All roadway segments adjacent to and crossing the Build Alternative were included in the evaluation of air quality impacts.

3.1.1. Ozone

Ground-level ozone is a primary constituent of smog and is a pollution problem throughout many areas of the United States. Exposures to ozone can make people more susceptible to respiratory infection, result in lung inflammation and aggravate preexisting respiratory diseases such as asthma. Ozone is not emitted directly from vehicles but is formed as volatile organic compounds and nitrogen oxide reacts in the presence of sunlight.

Transportation sources emit nitrogen oxides and volatile organic compounds and can therefore affect ozone concentrations. However, due to the phenomenon of atmospheric formation of ozone from chemical precursors, concentrations are not expected to be elevated near a particular roadway.

The state of Minnesota is currently classified by the US Environmental Protection Agency as an ozone attainment area, which means that it has been identified as a geographic area that meets the national health-based standards for ozone levels. Because of these factors, a quantitative ozone analysis was not conducted for this project.

3.1.2. Particulate Matter

Particulate matter is the term for particles and liquid droplets suspended in the air. Particles come in a wide variety of sizes and have been historically assessed based on size, typically measured by the diameter of the particle in micrometers. $PM_{2.5}$, or fine particulate matter, refers to particles that are 2.5 micrometers or less in diameter. PM_{10} refers to particulate matter that is 10 micrometers or less in diameter.

Motor vehicles (i.e., cars, trucks and buses) emit direct particulate matter from their tailpipes as well as from normal brake and tire wear. Vehicle dust from paved and unpaved roads may be re-entrained, or re-suspended, in the atmosphere. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides and volatile organic compounds. $PM_{2.5}$ can penetrate the human respiratory system's natural defenses and damage the respiratory tract when inhaled.

Numerous scientific studies have linked particle pollution exposure to a variety of problems, including:[3]

- Premature death in people with heart or lung disease.
- Nonfatal heart attacks.

[3] US Environmental Protection Agency. "Health and Environmental Effects of Particulate Matter (PM)." Available at https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm.

- Irregular heartbeat.
- Aggravated asthma.
- Decreased lung function.
- Increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.

On December 14, 2012, the US Environmental Protection Agency issued a final rule revising the annual health National Ambient Air Quality Standard for fine particles ($PM_{2.5}$).[4] The US Environmental Protection Agency changed the annual $PM_{2.5}$ standard by lowering the level to 12.0 micrograms per cubic meter ($\mu g/m^3$) from the previous annual standard of 15.0 $\mu g/m^3$. The US Environmental Protection Agency retained the 24-hour $PM_{2.5}$ standard at a level of 35 $\mu g/m^3$. The agency also retained the existing standards for coarse particle pollution (PM_{10}). The 24-hour National Ambient Air Quality Standard for PM_{10} is 150 $\mu g/m$,[4] which is not to be exceeded more than once per year on average over three years.

The Clean Air Act conformity requirements include the assessment of localized air quality impacts of federally-funded or federally-approved transportation projects that are located within particulate matter nonattainment and maintenance areas and deemed to be projects of air quality concern. The Rush Line BRT Project is located adjacent to a maintenance area for PM_{10} that includes a portion of the city of Saint Paul bounded by the Mississippi River from Lafayette Road to Interstate 494 (I-494), I-494 east to Highway 61, Highway 61 north to I-94, I-94 west to Lafayette Road and Lafayette Road south to the Mississippi River.[5] However, due to the project location and type, it is not considered a concern for PM_{10} emissions.

In addition, the project is in an area that has been designated as an unclassifiable/attainment area for $PM_{2.5}$. This means that the project area has been identified as a geographic area that meets the national health-based standards for $PM_{2.5}$ levels and is exempt from detailed analysis.

3.1.3. Nitrogen Oxides

Nitrogen oxides is the term for a group of highly reactive gases that contain nitrogen and oxygen in varying amounts. Nitrogen oxides form when fuel is burned in a combustion process, primarily occurring in motor vehicles, electric utilities and other industrial, commercial and residential fuel-burning.

The Twin Cities metropolitan area currently meets federal nitrogen dioxide standards, as shown in Figure 1 and Figure 2. The Minnesota Pollution Control Agency's *2020 Annual Air Monitoring Network Plan* shows that for five monitoring sites in the Twin Cities metropolitan area, annual and one-hour concentrations are substantially below the National Ambient Air Quality Standard of 53 parts per billion and 100 parts per billion, respectively.

Additionally, Minnesota's nitrogen oxide levels have been steadily decreasing over time in conformity with the US Environmental Protection Agency's Tier 2 regulatory standards announced in December

[4] US Environmental Protection Agency. "Particulate Matter (PM) Implementation Regulatory Actions." Available at https://www.epa.gov/pm-pollution/particulate-matter-pm-implementation-regulatory-actions.
[5] Minnesota Pollution Control Agency. "Minnesota State Implementation Plan (SIP)." Available at https://www.pca.state.mn.us/air/minnesota-state-implementation-plan-sip.

1999, which were intended to "significantly reduce emissions of nitrogen oxides from vehicles by about 74 percent by 2030."[6]

Figure 1: Annual Average Nitrogen Dioxide Concentrations in the Twin Cities Metropolitan Area Compared to the National Ambient Air Quality Standard[7]

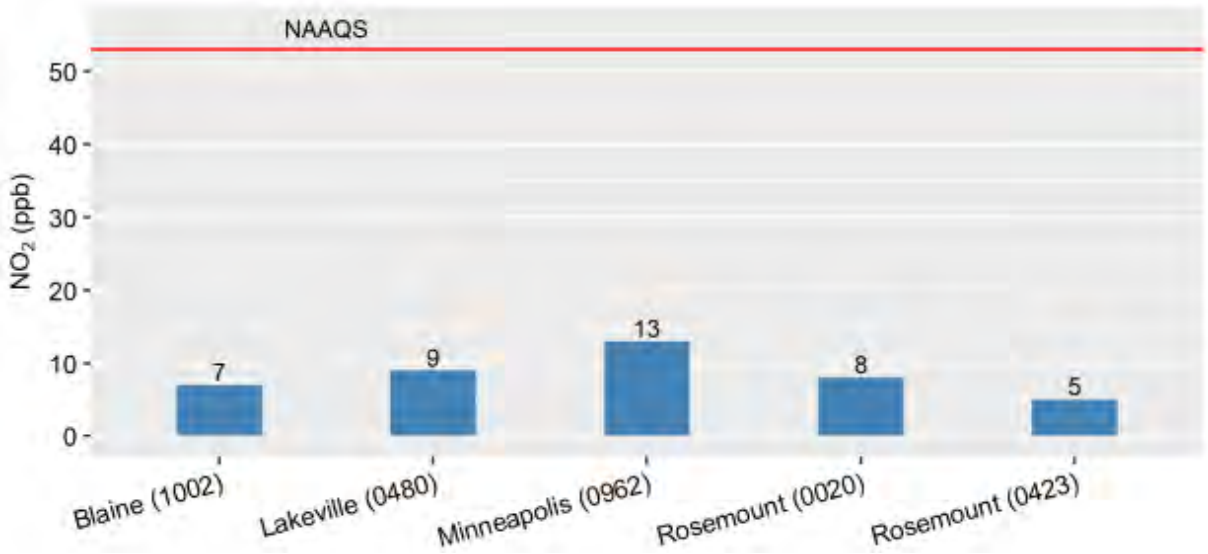
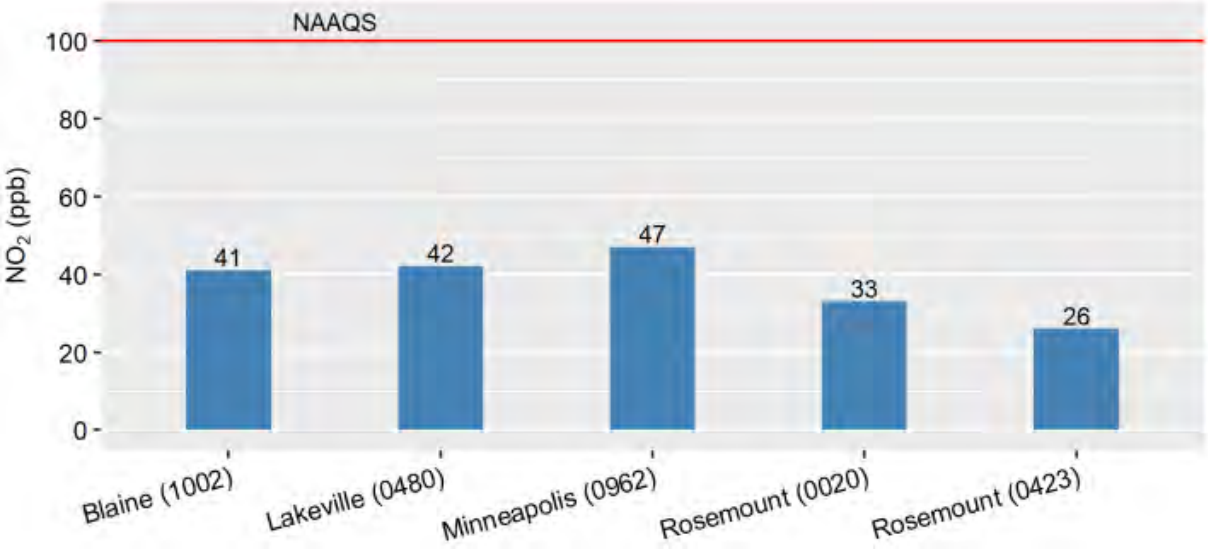


Figure 2: One-Hour Nitrogen Dioxide Concentrations in the Twin Cities Metropolitan Area Compared to the National Ambient Air Quality Standard[7]



[6] US Environmental Protection Agency. "Final Rule for Control of Air Pollution from New Motor Vehicles: Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements." Available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-air-pollution-new-motor-vehicles-tier.

[7] Source: Minnesota Pollution Control Agency. *2020 Annual Air Monitoring Network Plan*. July 2019. Available at https://www.pca.state.mn.us/air/air-monitoring-network-plan.

Nitrogen oxide standards are not likely to be approached or exceeded within the project area based on the relatively low ambient concentrations of nitrogen oxides in Minnesota and the long-term trend toward reduction of nitrogen oxide emissions. Due to these factors, a specific analysis of nitrogen oxides was not conducted for this project.

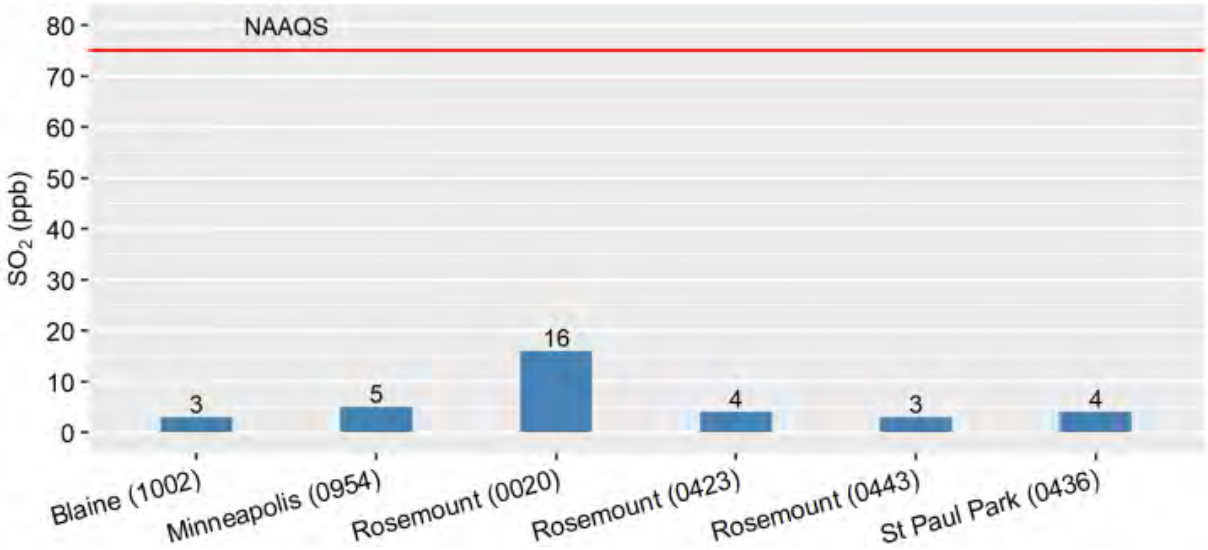
3.1.4. Sulfur Dioxide

Sulfur dioxide and other sulfur oxide gases are formed when fuel containing sulfur, such as coal, oil and diesel fuel, is burned. Sulfur dioxide is a heavy, pungent, colorless gas.

Elevated levels can impair breathing, lead to other respiratory symptoms and, at very high levels, aggravate heart disease. People with asthma are most at risk when sulfur dioxide levels increase. Once emitted into the atmosphere, sulfur dioxide can be further oxidized to sulfuric acid, a component of acid rain.

The Minnesota Pollution Control Agency's *2020 Annual Air Monitoring Network Plan for Minnesota* shows that eight sites were monitored for sulfur dioxide in the Twin Cities metropolitan area from 2016 to 2018 (see Figure 3). The National Ambient Air Quality Standard for sulfur dioxide is met if the three-year average of the annual 99th percentile daily maximum one-hour sulfur dioxide concentration is less than 75 parts per billion. The maximum of the monitoring sites was found to be 16 parts per billion, well below the 75 parts per billion threshold.

Figure 3: One-Hour Sulfur Dioxide Concentrations Compared to the National Ambient Air Quality Standard[8]



The Minnesota Pollution Control Agency also states that approximately 57 percent of sulfur dioxide emissions released into the air in Minnesota are generated by electric utilities.[9] A much smaller proportion of the total sulfur dioxide released into the air in Minnesota is attributable to on-road mobile sources. The Minnesota Pollution Control Agency has concluded that long-term trends in both

[8] Source: Minnesota Pollution Control Agency. *2020 Annual Air Monitoring Network Plan*. July 2019. Available at https://www.pca.state.mn.us/air/air-monitoring-network-plan.
[9] Source: Minnesota Pollution Control Agency. *2016 Pollution Report to the Legislature.* April 2016. Available at https://www.pca.state.mn.us/about-mpca/2016-legislative-reports.

ambient air concentrations and total sulfur dioxide emissions in Minnesota indicate steady improvement.

Emissions of sulfur oxides from transportation sources are a small component of overall emissions and continue to decline due to the desulphurization of fuels. Additionally, the project area is classified by the US Environmental Protection Agency as a "sulfur dioxide attainment area," which means that the project area has been identified as a geographic area that meets the national health-based standards for sulfur dioxide levels. Due to these factors, a quantitative analysis for sulfur dioxide was not conducted for this project.

3.1.5. Lead

Due to the phase out of leaded gasoline, lead is no longer a pollutant associated with vehicular emissions, and no analysis is warranted. No localized emissions of lead are associated with BRT operations.

3.1.6. Carbon Monoxide

Carbon monoxide is a traffic-related pollutant that has been a concern in the Twin Cities metropolitan area. In 1999, the US Environmental Protection Agency re-designated all of Anoka, Hennepin and Ramsey Counties and portions of Carver, Scott, Dakota, Washington and Wright Counties as a maintenance area for carbon monoxide. This means the area was previously classified as a nonattainment area but was found to be in attainment. Due to successful compliance as a maintenance area since 1999, the Twin Cities metropolitan area was designated as a limited maintenance area in 2010, further reducing the evaluation required for carbon monoxide. In 2019, the Twin Cities metropolitan area was re-designated as an attainment area for carbon monoxide. Based on Federal Transit Administration guidance, an area that is in attainment for carbon monoxide does not require a detailed air quality analysis.

3.2. MOBILE SOURCE AIR TOXICS

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that the US Environmental Protection Agency regulate 188 air toxics, also known as hazardous air pollutants. The US Environmental Protection Agency assessed this expansive list in their 2007 rule on the Control of Hazardous Air Pollutants from Mobile Sources[10] and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System.[11]

In addition, the US Environmental Protection Agency identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment.[12] These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (referred to as diesel particulate matter), formaldehyde, naphthalene and polycyclic organic matter. In 2018, the US Environmental Protection

[10] Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007. Available at https://www.govinfo.gov/content/pkg/FR-2007-02-26/pdf/E7-2667.pdf.
[11] US Environmental Protection Agency. "Integrated Risk Information System." Available at http://www.epa.gov/iris/.
[12] US Environmental Protection Agency. "NATA Overview." Available at https://www.epa.gov/national-air-toxics-assessment/nata-overview.

Agency released an updated National Air Toxics Assessment summarizing data collected in 2014.[13] The 2007 US Environmental Protection Agency rule includes cleaner fuel and engine standards aimed at dramatically decreasing mobile source air toxics emissions.

Analysis of the Rush Line BRT Project followed the Federal Highway Administration's *Updated Interim Guidance Update on Mobile Source Air Toxic Analysis in the National Environmental Policy Act*.[14] Based on a Federal Highway Administration analysis using the US Environmental Protection Agency's MOVES2014a model, total annual emissions for priority mobile-source are toxics are projected to decrease by a combined rate of 83 percent from 2010 to 2050 as shown in Figure 4, even if vehicle-miles traveled increase by 102 percent as anticipated. Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle-miles traveled growth rates and local control measures. However, the magnitude of the US Environmental Protection Agency-projected reductions is so great (even after accounting for growth in vehicle-miles traveled), that mobile source air toxics emissions in the project area are likely to be lower in nearly all future scenarios.

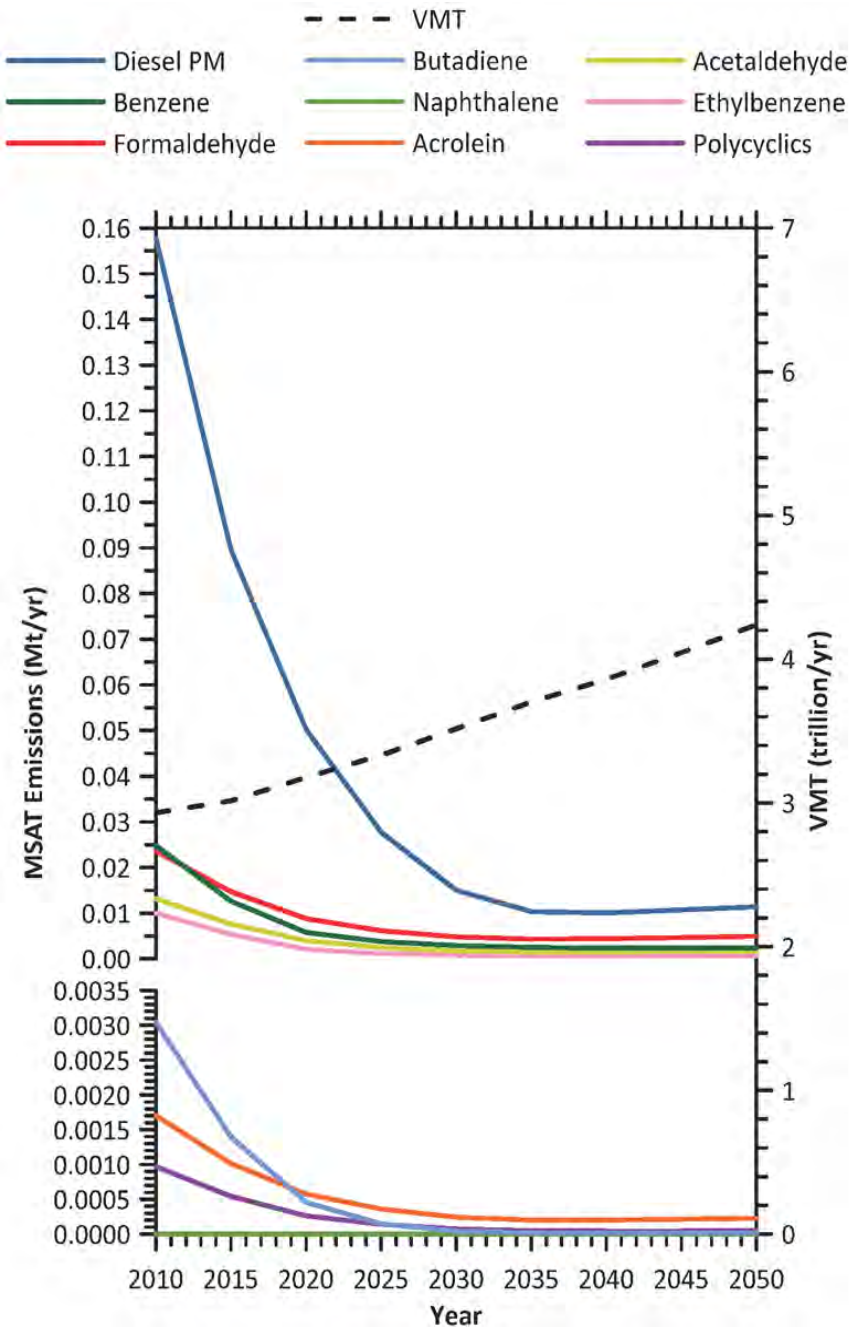
On a regional basis, the US Environmental Protection Agency's vehicle and fuel regulations will significantly reduce mobile source air toxics levels in almost all cases.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime mobile source air toxics exposure remain limited. These limitations impede the evaluation of how potential public health risks posed by mobile source air toxics exposure should be factored into project-level decision-making within the context of the National Environmental Policy Act.

Information needed to credibly predict the project-specific health impacts due to changes in mobile source air toxics emissions associated with a proposed set of transportation alternatives is incomplete or unavailable. The Federal Highway Administration, US Environmental Protection Agency, the Health Effects Institute and others have funded and conducted research studies to clarify potential risks from mobile source air toxics emissions associated with transportation projects. However, available technical tools do not enable us to predict the project-specific health impacts of mobile source air toxics emissions. The Federal Highway Administration will continue to monitor the developing research in this field.

[13] US Environmental Protection Agency. "2014 NATA: Assessment Results." Available at https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results.
[14] Federal Highway Administration. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. Available at https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm.

Figure 4: Federal Highway Administration Projected National Mobile Source Air Toxics Emission Trends 2010-2050 For Vehicles Operating on Roadways Using US Environmental Protection Agency's MOVES2014a Model[15]



[15] Source: US Environmental Protection Agency MOVES2014a model runs conducted by the Federal Highway Administration, September 2016. Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology and other factors.

The methodologies for forecasting health impacts include emissions, dispersion and exposure modeling, followed by a final determination. Each step in the process builds on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevent a more complete differentiation of the health impacts of mobile source air toxics among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because information regarding changes in travel patterns and vehicle technology affecting long-term emissions rates is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime mobile source air toxics concentrations and exposure near roadways, especially because it requires unavailable information about the portion of time that people are actually exposed at a specific location and the extent attributable to a proposed action.

Various factors, such as low-dose extrapolation and concerns about the translation of occupational exposure data to the general population, make existing estimates of mobile source air toxics uncertain. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for mobile source air toxics compounds, and in particular for diesel particulate matter. The US Environmental Protection Agency and the Health Effects Institute have not established a basis for quantitative risk assessment of diesel particulate matter in ambient settings.[16]

There is also a lack of a national consensus on an acceptable level of risk. Currently, the US Environmental Protection Agency, in accordance with the Clean Air Act, determines whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect.

Due to these limitations in the methodologies for forecasting health impacts, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, crash rates and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

A qualitative mobile source air toxics analysis is included in Section 5.2.1.

4. EXISTING CONDITIONS

The project is located within the Minneapolis-Saint Paul Intrastate Air Quality Control Region (AQCR) #131. The project area is in attainment for ozone, particulate matter ($PM_{2.5}$ and PM_{10}), nitrogen dioxide, lead, sulfur dioxide and carbon monoxide.

5. ENVIRONMENTAL CONSEQUENCES

5.1. NO BUILD ALTERNATIVE

The No Build Alternative would have no associated changes in traffic patterns or congestion in the study area and, therefore, would not produce changes to air quality. The Metropolitan Council's *2040*

[16] Federal Highway Administration. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. Available at https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm.

Transportation Policy Plan[17] documented the regional conformity for carbon monoxide emissions, and the US Environmental Protection Agency predicts that emissions of mobile source air toxics would decrease dramatically by 2040, the design year of the project.

5.2. BUILD ALTERNATIVE

5.2.1. Operating Phase (Long-Term) Impacts

Changes in air quality result from changes in traffic patterns and congestion levels on roadways in the project area.

CRITERIA POLLUTANTS

The Twin Cities metropolitan area is in attainment for criteria pollutants. No air quality conformity analysis determinations for carbon monoxide are required. Per Federal Transit Administration guidance, air quality is not considered a concern for this project as it relates to the criteria pollutants.

QUALITATIVE MOBILE SOURCE AIR TOXICS

Current air quality levels are considered acceptable, and the levels are expected to remain at acceptable levels under the Build Alternative. The Build Alternative is expected to carry 7,400 rides per day by 2040, the Build Alternative option without the Highway 36 park-and-ride is expected to carry 6,700 rides per day by 2040.

The project is not anticipated to significantly impact vehicular traffic. Due to new transit riders' shift from cars to BRT, a small decrease in annual vehicle-miles traveled is expected on arterial roadways parallel to the Rush Line BRT Project route; however, additional park-and-ride lots may result in moderate localized increases in vehicle-miles traveled. The projected average daily traffic under the Build Alternative does not differ from that for the No Build Alternative; therefore, the Build Alternative is not anticipated to produce impacts to mobile source air toxics emissions.

The Build Alternative could include realigning travel lanes, which could move some traffic closer to nearby homes, schools and businesses; therefore, the Build Alternative could produce higher ambient concentrations of mobile source air toxics in localized areas than the No Build Alternative. Neither the magnitude nor duration of these potential increases can be reliably quantified and compared with the No Build Alternative because information about project-specific mobile source air toxics-related health impacts is incomplete or unavailable as discussed in Section 3.2. However, the Rush Line BRT Project is anticipating using all electric, zero-emission buses, which would not contribute to localized mobile source air toxics increases.

5.2.2. Construction Phase (Short-Term) Impacts

Construction of the project could temporarily close or reduce the operational capacity of some intersections, resulting in traffic being detoured to parallel roadways. This increased traffic on parallel roadways may temporarily produce increased emissions and higher concentrations of air pollutants near homes and businesses; however, these emissions levels are not anticipated to generate localized concentrations that would exceed state or federal air quality standards.

In addition to traffic-related emissions increases, construction activities could also temporarily increase concentrations of air pollutants. Construction equipment powered by fossil fuels emits the

[17] Available at https://metrocouncil.org/Transportation/Planning-2/Key-Transportation-Planning-Documents/Transportation-Policy-Plan.aspx.

same air pollutants as highway vehicles. Exposed soils can also produce increased particulate matter when moved by construction equipment or disturbed by wind. Concentrations of these air pollutants are not anticipated to exceed state or federal air quality standards, in part due to the measures described in Section 6.

6. MITIGATION MEASURES

There would be no anticipated exceedances of air pollutant concentrations during the operating phase of the project; therefore, no mitigation measures are necessary. The State of Minnesota does not require permits related to air quality for projects of this type.

Exceedances of air pollutant concentrations are also not anticipated during project construction; however, where applicable and prudent, the project would implement US Environmental Protection Agency-recommended measures to reduce short-term construction impacts to air quality, and a series of best management practices would be implemented during construction to control dust. Best management practices and US Environmental Protection Agency-recommended measures may include the following:

- Minimization of land disturbance during site preparation.
- Use of watering trucks to minimize dust.
- Covering of trucks while hauling soil/debris off-site or transferring materials.
- Stabilization of dirt piles that are not removed immediately.
- Use of dust suppressants on unpaved areas.
- Minimization of unnecessary vehicle and machinery idling.
- Re-vegetation of any disturbed land after construction.

Traffic mitigation measures would be developed before construction begins to establish detour routes and maintain traffic flow.

APPENDIX A

AGENCY CORRESPONDENCE

From: Ries, Natalie (DOT) <natalie.ries@state.mn.us>
Sent: Thursday, January 16, 2020 10:23 AM
To: Justin Sebens
Cc: Brett Danner
Subject: RE: Rushline AQ Analysis
Attachments: EPA Ramsey County PM10.pdf; RamseyCoMN_PM10.jpg

Hi Justin,

I agree with the proposed methodology for the Rush Line project. Heads up on a few things that are in the pipeline:

- We are working on updating the HPDP guidance and standard text for criteria pollutants write-up. Goal is to have this ready in February but it may end up rolling into March.
- See attached letter from the EPA. We recently found out that transportation is now being considered for PM10 maintenance area in Ramsey County (see attached map). From a quick check, it looks like the Rush Line project area is just outside of the boundary. But because it is close, it would be a good idea to send a coordination email to Met Council and MPCA (Innocent Eyoh) to confirm there are no PM10 hot spot requirements for the Rush Line project. CC: me and Pete Wasko on this coordination too…we're still figuring out how this will work.

Thanks!

Natalie Ries
Noise/Air Quality Program Supervisor
MnDOT Metro District
Address: 1500 West County Road B2 • Roseville, MN 55113
Email: Natalie.Ries@state.mn.us
Phone: (651) 234-7681

DEPARTMENT OF TRANSPORTATION

From: Justin Sebens [mailto:jsebens@srfconsulting.com]
Sent: Thursday, January 16, 2020 7:40 AM
To: Ries, Natalie (DOT) <natalie.ries@state.mn.us>
Cc: Brett Danner <bdanner@srfconsulting.com>
Subject: Rushline AQ Analysis

Natalie,

Hope you are fully recovered from the holidays and 2020 is treating you well. I wanted to run a methodology by you for the Rushline air quality EA section.

As part of the Rushline environmental process, we propose to analyze air quality in the following way.

- We will provide the stock background information on the six criteria pollutants.

    - Because we are in attainment for criteria pollutants, air quality is not a concern for this project. A qualitative assessment stating this (i.e., air quality is not a concern) will be provided for the Build Alternative. This is consistent with guidance on FTA's website.
- We will not perform a CO hotspot analysis as we are in attainment for CO and we are not touching any of the top ten intersections.
- We will not perform a quantitative MSAT analysis, as we are below the 140,000 AADT threshold within our project area. We will follow the qualitative process that Goldline completed.

As a note the original process was to follow what Goldline did, however since the Metro is in attainment some of the processes laid out by Goldline do not apply.

Please let us know if you have any questions or comments on the air quality approach for the Rushline BRT project. We realize MnDOT is not the regulating authority on the EA, but wanted your thoughts on this.

Thanks and stay warm today,

Justin Sebens PE (MN)
Senior Engineer
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763.249.6743 direct | 763.475.0010 main | 217.898.5409 cell | jsebens@srfconsulting.com

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From: Eyoh, Innocent (MPCA) <innocent.eyoh@state.mn.us>
Sent: Wednesday, January 29, 2020 10:31 AM
To: Justin Sebens
Cc: Ehrlich, Jonathan (Jonathan.Ehrlich@metc.state.mn.us); Ries, Natalie (DOT); Wasko, Peter (DOT); deAlwis, Deepa (MPCA); Rahman, Mehjabeen (MPCA); Brett Danner; Adele Hall
Subject: FW: Rushline BRT Air Quality Methodology
Attachments: EPA Ramsey County PM10.pdf; RamseyCoMN_PM10.jpg

Hi Justin,
I have reviewed your planned air quality analysis methodology for the proposed Rushline RBT corridor and I have agreed that taking a qualitative approach to air quality for this specific project " Rushline EA" is acceptable. Most of the intersections along the corridor are below the Intersection Screening Manual threshold of 82,300 volumes per a day. If the intersections along the corridor were to exceed the above threshold volumes, hot-spot analysis would have been required. Even though we are in attainment for CO, Minnesota NEPA process must still be addressed depending on the magnitude of the project. No air quality conformity analysis determinations for CO are required except within the PM10 area boundary.

Therefore, qualitative discussion of criteria pollutants as well as MSATs in the air quality section of the EA is acceptable. There should also be a statement that the proposed project lies just outside PM10 maintenance area boundary. Please give me a call if you have further questions or seeking an additional clarification.

Thanks,

Innocent

Innocent and Jonathan,

Due to the recent changes within the metro area from maintenance to attainment we do not anticipate to complete any quantitative analyses as part of the Rushline EA process. Based on guidance from FTA, we are not required to analyze air quality while in attainment. The only potential issue with this approach is that there is a section of Ramsey County that is still in the maintenance phase for PM 10. The project lies just outside of the maintenance area boundary. Natalie suggested we contact you to verify that taking a qualitative approach to air quality for the Rushline EA is acceptable? The air quality section of the EA will include a qualitative discussion of criteria pollutants and MSATs. We will also not complete a CO hot spot analysis.

Please let us know if you have any concerns with this approach.

Justin Sebens PE (MN)
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INDIRECT AND CUMULATIVE EFFECTS TECHNICAL REPORT

APRIL 2021

Prepared by:

Kimley»Horn

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1. INTRODUCTION

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 technical report has been prepared in support of the EA.

2. REGULATORY CONTEXT

The indirect and cumulative impact assessment follows the National Environmental Policy Act (40 CFR Part 1500-1508) and the following specific guidance documents for indirect and cumulative effects:

- *Considering Cumulative Effects Under the National Environmental Policy Act* (Council on Environmental Quality, 1997).[1]
- *Consideration of Cumulative effects in Environmental Protection Agency Review of National Environmental Policy Act Documents* (US Environmental Protection Agency, 1999).[2]
- *Questions and Answers Regarding the Consideration of Indirect and Cumulative effects in the National Environmental Policy Act Process* (Federal Highway Administration, 2003).[3]
- *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (Council on Environmental Quality, 2005).[4]
- *Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects* (National Cooperative Highway Research Program Report 466).[5]

Since indirect and cumulative effects may be influenced by actions taken by others either outside of the immediate study area or within the study area at different times, assumptions must be made to

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[1] *Considering Cumulative Effects Under the National Environmental Policy Act* (Council on Environmental Quality, 1997). Available at https://ceq.doe.gov/publications/cumulative_effects.html.

[2] *Consideration of Cumulative Impacts in Environmental Protection Agency Review of National Environmental Policy Act Documents* (US Environmental Protection Agency, 1999). Available at https://www.gpo.gov/fdsys/pkg/USCODE-2011-title42/pdf/USCODE-2011-title42-chap55-sec4321.pdf.

[3] *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the National Environmental Policy Act Process* (Federal Highway Administration, 2003). Available at https://www.environment.fhwa.dot.gov/guidebook/qaimpact.asp.

[4] *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (Council on Environmental Quality, 2005). Available at https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/Guidance_on_CE.pdf.

[5] *Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects* (National Cooperative Highway Research Program Report 466). Available at https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_466.pdf.

estimate the result of these actions. The Council on Environmental Quality's *Considering Cumulative Effects Under the National Environmental Policy Act* document states that the analysis must include all the cumulative effects that are known and make a good faith effort to explain the impacts that are not known but which are "reasonably foreseeable." The Council on Environmental Quality has provided guidance on how to define reasonably foreseeable actions based upon court opinions. Court decisions on this topic indicate that indirect impact analyses should consider impacts that are sufficiently "likely" to occur.[3] The Council on Environmental Quality is clear that actions that are probable should be considered while actions that are merely possible, conceptual or speculative in nature are not reasonably foreseeable and need not be considered in the context of cumulative effects.[1,3] This direction on identifying reasonably foreseeable actions is accounted for in both indirect and cumulative effects analyses described in the following sections. Specific methods used to conduct these analyses are described below.

3. METHODOLOGY

3.1. CUMULATIVE EFFECTS

The Council on Environmental Quality defines cumulative effects as "impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR § 1508.7 (1978)).

Cumulative effects are not necessarily linked to the proposed project. Rather, they consist of the total effect of all known actions (past, present and future) in the vicinity of the proposed project that impact the same types of resources. The purpose of the cumulative effects analysis is to identify impacts that may be individually minimal, but which could accumulate and become significant and adverse when combined with the effects of other actions.

For the purpose of this analysis, development actions were considered according to the following:

- **Past:** Past actions are summarized in the existing conditions section of each issue area in the EA (see Chapter 3) and reflect the current state of the resource within the boundaries of this analysis.
- **Present:** Present actions are those projects by local, state or federal agencies just completed or under construction, or private development projects known to local jurisdictions.
- **Future:** Reasonably foreseeable future actions are those that have received some local, state or federal government approval (including private development approvals) and thus could be under construction anytime between the present through the year 2040, which is a reasonable planning horizon to identify foreseeable future actions. These actions are reasonably foreseeable because they are likely to be funded, approved or part of an officially adopted planning document.

The study area for the analysis of cumulative effects is the area within 1 mile of the Build Alternative route. This area was selected based on guidance documents and the study areas used in the EA.

The cumulative impact analysis used the following specific methods:

- **Existing conditions and trends:** Reviewed and analyzed the existing condition of each potentially affected resource. The assessment of existing conditions, by definition, includes the

impact of past actions on the condition of the resource. Thus, the review focused on understanding the status, viability and historical context of each resource to determine the relative vulnerability of the resource to cumulative effects.

- **Project impacts:** Reviewed and analyzed the direct and indirect impacts of the project on each resource. To anticipate how the project would contribute to cumulative impacts, the review focused on how project implementation would affect the state of the resource.
- **Impacts of other actions:** Identified other present actions and reasonably foreseeable future actions and their potential impacts to each resource (see Table 1). The evaluation includes each resource in relation to each action, examining the status of existing resources (provided by the existing conditions analysis) and typical road or development project impacts to identify the resources that the project likely would affect.

3.2. INDIRECT EFFECTS

The Council on Environmental Quality defines indirect effects as "…effects which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR § 1508.8(b) (1978)). Given the urban and suburban nature of the study area, the indirect effects assessment focuses on changes in land use and intensity of development that could occur around the project and the impacts that may result from these changes. The project itself does not propose residential, commercial or industrial development; however, high quality transit investment can catalyze such development, particularly in areas surrounding stations. This is referred to as transit-oriented development.

This analysis identified potential indirect impacts for each specific resource by examining existing conditions and trends, reviewing project-related impacts and assessing potential impacts on physical and natural systems (i.e., ecosystems).

The study area for indirect effects is the area within one-half mile of the proposed stations. A 2002 National Cooperative Highway Research Program report supports this approach, stating: "development effects are most often found up to one-half mile around a transit station."[6]

Project-induced development is less likely to occur beyond one-half mile from the stations, but the project itself could indirectly impact the area beyond one-half mile as impacts to a natural resource often extend throughout the entire resource and are not contained by a one-half mile boundary. To address this, potential indirect impacts to natural resources such as waterways, wetlands, floodplains and habitats were analyzed according to the boundaries of that resource.

The analysis identified potential indirect impacts for each resource qualitatively using the following methodology:

- **Existing conditions and trends:** Review of the existing conditions of each potentially affected resource to determine its relative vulnerability to indirect impacts. The existing conditions analysis also provided an understanding of the condition of the resources over a

[6] *Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects* (National Cooperative Highway Research Program Report 466). Available at https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_466.pdf.

broader geographic area, which is critical to assessing the potential for indirect impacts that both space and time might separate. The existing conditions analysis used quantitative and qualitative methods, depending on the approach to each relevant resource area. For example, quantitative data was used to understand the total number of land acquisitions and relocations needed for the project, whereas qualitative data was used to understand land use compatibility, including a review of existing local land use plans to understand existing and future land use trends.

- **Project impacts:** Review of the project-related impacts on each resource that accounts for existing conditions and past trends to determine its vulnerability to secondary impacts. To anticipate how the project might result in indirect impacts, the analysis assumed the project had been implemented.
- **Indirect impacts:** Review of the project-related impacts on the built and natural environments likely to result from development, using qualitative methods and drawing on analyses for similar projects.

4. REASONABLY FORESEEABLE FUTURE ACTIONS

Many other projects, both planned and currently underway, could compound anticipated impacts and contribute to cumulative effects. In addition to the proposed Rush Line BRT Project, there are numerous planned state, local and private projects within the cumulative effects study area (the area within 1 mile of the Build Alternative route). Future projects identified through coordination with jurisdictions and agencies in the study area are included in Table 1 and are grouped by project proposer.

Table 1: Reasonably Foreseeable Future Actions Within 1 Mile of the Build Alternative Route

Project Description	Project Type	Location of Future Action	Proposer	Estimated Construction Timing	Potential Environmental Impacts of Actions
Sidewalk infill	Sidewalk	Various sites in the Payne/Phalen neighborhood	City of Saint Paul	2021	Transportation, neighborhood and community resources
Robert Street bridge repairs, resurfacing and reconstruction	Roadway	Robert Street from 12th Street to Annapolis Street	City of Saint Paul, Minnesota Department of Transportation	2020-2022	Transportation, economics, water quality and stormwater, land acquisition and relocations
Trailhead with restroom building and other amenities	Recreation	1298 Arlington Avenue	City of Saint Paul	2020-2024	Transportation, neighborhood and community resources
East Shore Drive area full street reconstruction, installation of concrete curb and gutter, expansion of stormwater facilities, sanitary sewer repairs, watermain repairs and pedestrian improvements	Roadway	East Shore Drive from Larpenteur Avenue to Round Lake, Adele Street from Shore Drive to Frost Avenue, Gordon Avenue from Adele Street to Edward Street, Ripley Avenue from Edward Street to Shore Drive, Walter Street from Frost Avenue to Gordon Avenue, Fenton Avenue from Walter Street to Phalen Place, Phalen Place from Sophia Avenue to Frost Avenue, Sophia Avenue from Shore Drive to Edward Street and Ide Street from Ripley Avenue to Sophia Avenue	City of Maplewood	2023	Transportation, economics, water quality and stormwater

Project Description	Project Type	Location of Future Action	Proposer	Estimated Construction Timing	Potential Environmental Impacts of Actions
Partial street reconstruction	Roadway	Cope Avenue from English Street to White Bear Avenue	City of Maplewood	2022	Transportation, economics
Mill and overlay	Roadway	Streets north of Highway 36 and east of Barclay Street, including Gervais Avenue, Gervais Court, Flandreau Street, Barclay Street, Sextant Avenue, Germain Court, Eleventh Avenue and Arial Street	City of Maplewood	2022	Transportation, economics
Partial street reconstruction	Roadway	Frost Avenue between English Street and White Bear Avenue	City of Maplewood	2023	Transportation, economics
Replace intersection bridge and ramps	Roadway	White Bear Avenue/I-694 interchange	City of Maplewood, City of White Bear Lake and Ramsey County	2028	Transportation, economics
Police and Fire garage expansion at existing Public Safety Building	Facilities	2nd Street and Miller Avenue	City of White Bear Lake	2022	No anticipated impacts
House demolition	Residential	4659 Murray Avenue	City of White Bear Lake	2022	No anticipated impacts
White Bear Lake Area High School North Campus expansion	Facilities	5045 Division Avenue	White Bear Lake Area Schools	2024	Transportation

Project Description	Project Type	Location of Future Action	Proposer	Estimated Construction Timing	Potential Environmental Impacts of Actions
Riverview Modern Streetcar	Transit	West 7th Street from the Mall of America in Bloomington to Union Depot in Saint Paul	Ramsey County	2028-2030	Transportation, neighborhoods and community resources, land acquisitions and relocations, economics, water quality and stormwater, visual resources
Full street reconstruction, installation of concrete curb and gutter, expansion of stormwater facilities, sanitary sewer repairs, watermain repairs and pedestrian improvements	Roadway	Rice Street between Larpenteur Avenue and County Road B	Ramsey County	2024	Transportation, economics, water quality and stormwater
Bridge reconstruction	Roadway	Jackson Street between Pennsylvania Avenue and Acker Street	Ramsey County	2024	Transportation, economics, water quality and stormwater
Concrete pavement repair	Roadway	White Bear Avenue between Larpenteur and Frost Avenues	Ramsey County	2022/2023	Transportation
1.5-mile multi-use trail along South Shore Boulevard	Trail	South Shore Boulevard from White Bear Avenue to County Road F	Ramsey County	2022	Transportation, neighborhood and community resources

Project Description	Project Type	Location of Future Action	Proposer	Estimated Construction Timing	Potential Environmental Impacts of Actions
Bruce Vento Regional Trail extension	Trail	Buerkle Road to Highway 96	Ramsey County Parks	2022	Transportation, neighborhood and community resources
Mill and overlay, concrete pavement repair, Americans with Disabilities Act improvements, signing	Roadway	Highway 52 from Highway 52/I-494 interchange in Inver Grove Heights to Plato Avenue in Saint Paul	Minnesota Department of Transportation	2021	Transportation, economics, water quality and stormwater
Bridge rehabilitation, sidewalk replacement	Roadway	Over BNSF and Canadian Pacific Railway freight tracks southwest of Highway 61 in Saint Paul	Minnesota Department of Transportation	2021	Transportation, land acquisition and relocations
Dual left turn lane construction	Roadway	Northbound Highway 61 at the intersection with I-694 (westbound ramp)	Minnesota Department of Transportation	2021	Transportation
Drainage infrastructure repair/replacement and erosion repair	Water resources	Highway 61 in Maplewood from County Road B to intersection with Arcade Street	Minnesota Department of Transportation	2021	Transportation, water quality and stormwater
Mill and overlay, bridge rehabilitation, drainage, Americans with Disabilities Act improvements, signals, sidewalk replacement	Roadway	Robert Street from Annapolis Street in West St. Paul to 12th Street in Saint Paul	Minnesota Department of Transportation	2022	Transportation, economics, water quality and stormwater, land acquisition and relocations

Project Description	Project Type	Location of Future Action	Proposer	Estimated Construction Timing	Potential Environmental Impacts of Actions
Major concrete pavement repair, mill and overlay, drainage repairs, Americans with Disabilities Act improvements, bridge repair	Roadway	I-94 westbound on-ramp at 12th Street, eastbound I-94 from Western Avenue to Mounds Boulevard, and I-35E from 10th Street to University Avenue in Saint Paul	Minnesota Department of Transportation	2022	Transportation, economics, water quality and stormwater, land acquisition and relocations
Concrete overlay	Roadway	Highway 36 from Edgerton Street in Maplewood to Greeley Avenue in Stillwater	Minnesota Department of Transportation	2022	Transportation, economics, water quality and stormwater, land acquisition and relocations
Mill and overlay, Americans with Disabilities Act improvements	Roadway	Highway 61 from Highway 5 (via Arcade Street) to south of Roselawn Avenue	Minnesota Department of Transportation	2024	Transportation, land acquisitions and relocations
Bridge repair	Roadway	Cedar Street & I-35E in Saint Paul	Minnesota Department of Transportation	2023	Transportation
Traffic signal revisions	Roadway	Arcade Street between 7th Street E and Wheelock Parkway	Minnesota Department of Transportation	2023	Transportation
Mill and overlay, repair/replace drainage infrastructure, Americans with Disabilities Act improvements	Roadway	Highway 5 from Arcade Street/E 7th Street in Saint Paul to Highway 120 in Maplewood	Minnesota Department of Transportation	2023	Transportation, water quality and stormwater, economics

Project Description	Project Type	Location of Future Action	Proposer	Estimated Construction Timing	Potential Environmental Impacts of Actions
Mill and overlay, Americans with Disabilities Act improvements, sidewalk repair	Roadway	Highway 5 from Munster Avenue to Highway 61/Mounds Boulevard	Minnesota Department of Transportation	2025	Transportation, land acquisitions and relocations
Concrete overlay	Roadway	Highway 26 from I-35W to Edgerton Street in Roseville	Minnesota Department of Transportation	2025	Transportation, economics, water quality and stormwater, land acquisition and relocations
Construct MnPASS lanes	Roadway	Highway 36 from I-35W to I-35E	Minnesota Department of Transportation	To be determined[7]	Transportation, economics, water quality and stormwater
Construct MnPASS lanes	Roadway	I-694 from I-35W to I-35E	Minnesota Department of Transportation	To be determined[8]	Transportation, economics, water quality and stormwater
Resurface, repair concrete and improve sidewalk access and retaining wall	Roadway	Concord Street from I-494 in South St. Paul to Highway 52 in Saint Paul	Minnesota Department of Transportation and City of South St. Paul	2021-2022	Transportation, economics

[7] Construction of an eastbound MnPASS lane is identified as a Tier 2 investment priority in the Metropolitan Council's *2040 Transportation Policy Plan*, and construction of a westbound MnPASS lane is identified as a Tier 3 investment priority, meaning these projects are not funded under the current revenue scenario. For more information, see the *2040 Transportation Policy Plan* at https://metrocouncil.org/Transportation/Planning-2/Key-Transportation-Planning-Documents/Transportation-Policy-Plan/The-Adopted-2040-TPP-(1)/Final-2040-Transportation-Policy-Plan/2040-TPP-Chapter-5-Highway-Investment-Direction-an.aspx.

[8] This project is identified as a Tier 3 investment priority in the Metropolitan Council's *2040 Transportation Policy Plan*, meaning it is not funded under the current revenue scenario. For more information, see the *2040 Transportation Policy Plan* at https://metrocouncil.org/Transportation/Planning-2/Key-Transportation-Planning-Documents/Transportation-Policy-Plan/The-Adopted-2040-TPP-(1)/Final-2040-Transportation-Policy-Plan/2040-TPP-Chapter-5-Highway-Investment-Direction-an.aspx.

Project Description	Project Type	Location of Future Action	Proposer	Estimated Construction Timing	Potential Environmental Impacts of Actions
Bus stop and shelter improvements	Transit	Robert Street between 5th and 6th Streets in Saint Paul	Metro Transit	2021	Transportation, neighborhoods and community resources
Metro Transit electric bus fleet plan	Transit	Purchase up to 125 electric buses	Metro Transit	2022	Transportation, air quality
B Line BRT	Transit	Lake Street in Minneapolis and in Saint Paul: Marshall Avenue, Selby Avenue, 5th and 6th Streets, Sibley and Wacouta Streets, Union Depot	Metro Transit	2022	Transportation, neighborhoods and community resources, economics, water quality and stormwater, visual resources
Construction of an auto dealership, frontage road and fourth leg of the Willow Lake Boulevard/Highway 61 intersection	Private development	East side of Highway 61, south of County Road E in Vadnais Heights and Gem Lake	Private developer	2021	Transportation, economics

5. POTENTIAL INDIRECT AND CUMULATIVE EFFECTS

This section describes the cumulative impacts associated with the project by resource and how the project, in tandem with other infrastructure or development projects planned in the study area, would affect the transportation system, land use and natural environment. The cumulative impacts described focus on long-term, rather than short-term, impacts because cumulative impacts are not just the result of the proposed project but also other projects that occur in the study area over time. Resources that were not found within the study area or were determined to have no or negligible operating phase or construction phase effects were not evaluated for potential cumulative effects.

This section also describes the potential indirect effects of the project and other reasonably foreseeable actions. Anticipated new development near stations makes up most of the project's indirect effects. New developments can change the transportation system, land use in the corridor cities and the surrounding environment. The indirect effects described focus on long-term, rather than short-term, issues because indirect effects tend to occur later, but they can still be reasonably foreseen.

5.1. TRANSPORTATION

5.1.1. Cumulative Effects

It is anticipated that future development would increase the demand on the transportation network in the study area. The project is expected to cause shifts from single-occupant vehicles to transit use, which would reduce the cumulative demand on the roadway system while increasing the demand on transit, bicycle and pedestrian facilities. The project would share four platforms in downtown Saint Paul with the METRO Gold Line (on 5th, 6th, Sibley and Wacouta Streets) and would introduce additional buses in that area.[9] The METRO Gold Line is included in the definition of the No Build Alternative and, therefore, is part of the baseline for considering the effects of the project.

The project would incorporate improvements on nearby roadways and intersections to provide acceptable operations (defined as a level of service D or better) at all evaluated intersections. This would allow for safe and efficient traffic and BRT operations and reduce the project's cumulative effects. Future station area planning activities would address needs for pedestrian and bicycle connections in relation to future land use plans beyond what the project is proposing for pedestrian and bicycle facilities.

The project would require temporary easements from railroad property to construct pedestrian improvements. Construction activities may impact freight operations, but the impacts would be temporary and would not result in cumulative impacts to freight rail.

5.1.2. Indirect Effects

Potential indirect effects of the project include higher demands on traffic, transit, parking and pedestrian/bicycle facilities related to mode shifts, increased ridership and changes to access. The project would provide more opportunities for transit use, which could minimize the number of vehicle

[9] The METRO Gold Line is anticipated to operate from 5 a.m. to midnight on weekdays and weekends with frequencies of 10, 15 or 30 minutes depending on the time of day.

trips in the area. The potential mode shifts to transit could also increase bicycle and pedestrian facility use to and from the stations. Additionally, project-induced development could increase the demand for on- and off-street parking spaces, driveways and new access points in the study area.

The proposed crossings over Highway 36 and I-694 have been designed to not preclude reasonably foreseeable future highway expansion and therefore, would not have an indirect effect on those roadways.

5.1.3. Mitigation

The indirect and cumulative effects on transportation facilities would be incorporated into station area planning, as well as local and regional comprehensive plans, which include improvements to accommodate future transportation demands. For example, comprehensive plans are intended to direct the growth and physical development of a community while taking into account other agency led projects to better plan for community and transportation facilities needed to accommodate anticipated growth. Therefore, the project would not require additional mitigation measures.

5.2. LAND ACQUISITIONS AND RELOCATIONS

5.2.1. Cumulative Effects

The project is not expected to require the displacement of residents or commercial properties; however, project-induced development and redevelopment over time could cumulatively result in voluntary displacements of residents and/or businesses in the study area.

5.2.2. Indirect Effects

Changes to property access resulting from the project (i.e., loss of nearby parking spaces), combined with new development (especially in station areas), could indirectly result in the displacement of existing residents and/or businesses.

5.2.3. Mitigation

New development would likely generate more jobs and create a net increase in housing opportunities. The project area municipalities' comprehensive plans are required to address local housing needs and policies that include affordable housing for renters and owners. Therefore, no additional mitigation is needed.

5.3. VISUAL RESOURCES

5.3.1. Cumulative Effects

Continued development of transit and transportation facilities in the study area would cumulatively change or affect the visual resources in the study area over time. The visual resources could become more built out and views could change to be more obstructed.

5.3.2. Indirect Effects

New development induced by the project may impact nearby visual and aesthetic resources. The type and degree of impact would depend on the location, size and context of any new development.

5.3.3. Mitigation

The continued development of transit and transportation facilities and the design of new development would be regulated through applicable municipal codes and land use plans. The project would not require additional mitigation measures.

5.4. CULTURAL RESOURCES

5.4.1. Cumulative Effects

Continued development of transit and transportation facilities in the project area and new development induced by the project could result in changes that diminish the integrity of a historic property's setting, feeling or association.

5.4.2. Indirect Effects

Development and redevelopment associated with the proposed transit stations could change the setting, context and land use in the station areas (typically within one-half mile of the station). Such changes could have indirect effects on existing historic properties, such as altering the integrity of the visual setting by adding new buildings, adding a transportation facility or increasing the density of the area. It is also possible the development induced by the project could directly affect historic properties through demolition or other impacts.

5.4.3. Mitigation

Identified adverse effects to historic properties from the Rush Line BRT Project will be minimized through the consultation process under Section 106 of the National Historic Preservation Act of 1966, as applicable. The Federal Transit Administration, with assistance from the Minnesota Department of Transportation Cultural Resources Unit, State Historic Preservation Office and other consulting parties, will resolve adverse effects in accordance with the terms of a Section 106 Memorandum of Agreement.

Further, local communities along the Rush Line BRT route are also actively engaged in historic preservation, helping to minimize impacts to historic properties from private actions that do not have to adhere to Section 106. The city of Saint Paul's Heritage Preservation Commission and Heritage Preservation Ordinance protect historically designated properties from inappropriate changes or destruction. The city of Maplewood has a Heritage Preservation Commission to help the city achieve its historic preservation goals. This is accomplished through an ordinance that requires applicants for new development to submit a land use permit that may result in alterations to historic landmarks, sites or districts.

5.5. SAFETY AND SECURITY

5.5.1. Cumulative Effects

The development of transit and transportation facilities in the project area, combined population growth and private development, may cumulatively add to the demands on law enforcement and security providers, potentially affecting municipal and county staffing levels and budgets over the long term.

5.5.2. Indirect Effects

Continued development in station areas could affect the demand on law enforcement and security providers. The project would create more transit riders, pedestrians and bicyclists in proximity to vehicles and roadway crossings, potentially creating safety conflicts.

5.5.3. Mitigation

While no long-term impacts are identified for the project, the Metropolitan Council would implement measures to avoid impacts to safety and security within the project area, including patrols by the Metro Transit Police Department authorized by Minnesota Statutes, section 473.407, and would coordinate with local communities on future development that interacts with transit facilities and operations.

5.6. UTILITIES

5.6.1. Cumulative Effects

The continued development of transit and transportation facilities in the project area over time, combined with population growth and private development, may cumulatively add to the demands on utilities in the study area. However, compact development patterns anticipated in station areas could create operating efficiencies for utility providers over the long term.

5.6.2. Indirect Effects

New development induced by the project could result in increased private and public utility demand that may affect utility providers and municipalities.

5.6.3. Mitigation

The project area municipalities have plans to expand and enhance utility infrastructure to meet the demand of population growth over time. Private utility providers would plan appropriately through their regular planning processes to address population growth and increased service demand.

5.7. SURFACE WATERS

5.7.1. Cumulative Effects

New development of transit and transportation facilities in the project area could cumulatively affect surface waters. However, future actions are subject to regulations protecting surface waters and would use best management practices to avoid, minimize and/or mitigate potential impacts.

5.7.2. Indirect Effects

New development induced by the project may impact or fill nearby wetlands and other surface waters. These impacts are less likely to occur if actions include typical best management practices.

5.7.3. Mitigation

New development would be required to avoid and minimize impacts to surface waters and provide mitigation in accordance with local, state and federal regulations, including the Wetland Conservation Act and Section 401 and Section 404 of the Clean Water Act.

5.8. WATER QUALITY AND STORMWATER

5.8.1. Cumulative Effects

Future actions in the study area could cumulatively increase sediment and pollutant loads to a level that may affect water resources. However, future actions are subject to the same water quality regulations as the project and would use similar best management practices during construction and operation.

5.8.2. Indirect Effects

New development induced by the project would likely add impervious surface areas and involve temporary soil disturbance, leading to additional stormwater runoff that could indirectly affect water resources. These future activities would be subject to current water quality regulations and best management practice requirements.

5.8.3. Mitigation

New development must meet the standards and requirements of regulatory bodies, such as municipalities, counties, watershed organizations, and state agencies including the Minnesota Pollution Control Agency and Minnesota Department of Transportation, to minimize potential impacts to protected water resources.

5.9. HAZARDOUS MATERIALS

5.9.1. Cumulative Effects

Continued development of transit and transportation facilities in the project area over time would contribute to the remediation of hazardous materials sites, as any contaminated sites would require cleanup as a condition of development or redevelopment.

5.9.2. Indirect Effects

New development and redevelopment induced by the project could affect hazardous materials sites if the proper and legally required best management practices are not implemented. Contaminated sites require cleanup as future development occurs.

5.9.3. Mitigation

Developers and agencies involved in future development must follow all applicable state and federal laws concerning hazardous materials in accordance with Minnesota Pollution Control Agency and Minnesota Department of Health regulations.

5.10. SUMMARY OF INDIRECT EFFECTS AND CUMULATIVE IMPACTS

5.10.1. Cumulative Effects

The potential resource impacts of other past, present and reasonably foreseeable future actions in the project area may contribute to cumulative effects on the transportation system, land use and the natural environment. However, based on the cumulative impact assessment, the combined project-related impacts are not anticipated to require avoidance, minimization or mitigation measures other than those identified in the EA.

5.10.2. Indirect Effects

Anticipated new development near stations makes up most of the project's indirect effects. Project-induced development that occurs in accordance with local plans would generally benefit the project area municipalities by helping them achieve their long-range land use and transportation goals for the station areas.

Local, state and federal regulations and policies that manage growth and protect resources can minimize indirect effects. Local jurisdictions along the route have the authority to regulate the use and development of land, and they promote orderly development of their communities with a range of growth-management tools including comprehensive plans; zoning, subdivision and floodplain ordinances; capital improvement plans; access management plans; historic preservation commissions; affordable housing policies; and surface water and stormwater management plans.