Technical Memo 7: Environmental Scan

Highway 169 Mobility Study

Version 1.0

Minnesota Department of Transportation

SRF Consulting Group, Inc. | Engineers Planners Designers

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Introduction

Purpose

The purpose of the Highway 169 Mobility Study is to develop and evaluate potential options for improving transit and reducing congestion on Highway 169 between Shakopee and Golden Valley. The study focuses on a constrained set of alternatives that includes highway bus rapid transit (BRT), MnPASS Express Lanes, and spot mobility improvements such as the addition of auxiliary lanes or interchange modifications. These improvements are intended to increase mobility, reliability, and safety through the study area. See Figure 1 and Figure 2 for maps of the study area and alignments considered.

As part of the Highway 169 Mobility Study potential environmental and community impacts of the alternatives will be evaluated. A high-level preliminary evaluation of environmental and community impacts is meant to inform decision makers about the potential impacts and benefits that may result from operations and construction of the BRT and MnPASS Alignments. The results of this analysis will contribute to the evaluation of alternatives, as detailed in the purpose and need document. More specifically, this document provides data to evaluate the alternatives fulfillment of Goal #6: Preserve and enhance the quality of the built and natural environments.

Study Area Location

The Highway 169 Corridor study area is a 23-mile segment from approximately Marschall Road in Shakopee to Highway 55 in Golden Valley. Located in the southwest quadrant of the Twin Cities region, in the study area Highway 169 passes through Plymouth, Golden Valley, St. Louis Park, Minnetonka, Hopkins, Edina, Eden Prairie, and Bloomington in Hennepin County, and Savage and Shakopee in Scott County.

Because the two BRT alternatives would use either TH 55 or I-394 to access downtown Minneapolis, the study area includes these two corridors between General Mills Boulevard and downtown Minneapolis, as well as part of downtown Minneapolis itself.

The study area is comprised of areas within one mile of the corridor; although, when documenting many of the sensitive resources throughout this document a more detailed review area is used.

Alignments

The Alignments carried forward for study are:

- BRT using Highway 169 and Highway 55
- BRT using Highway 169 and I-394
- MnPASS Express Lanes – using Highway 169 from Marschall Road to Highway 55 – (referred to as Full MnPASS Alignment)

- MnPASS Express Lanes – using Highway 169 from Marschall Road to I-494 – (refered to as Truncated MnPASS Alignment)

Each of the alignments above will undergo a high-level review that includes an inventory of environmental and community resources and provides a high-level assessment of the impacts of each build alignment on sensitive resources. This review is intended to raise potential issues and flag any possible resources that may need to be further explored in an environmental document; however, it does not replace the environmental document.

Figure 1: BRT Alignments Studied

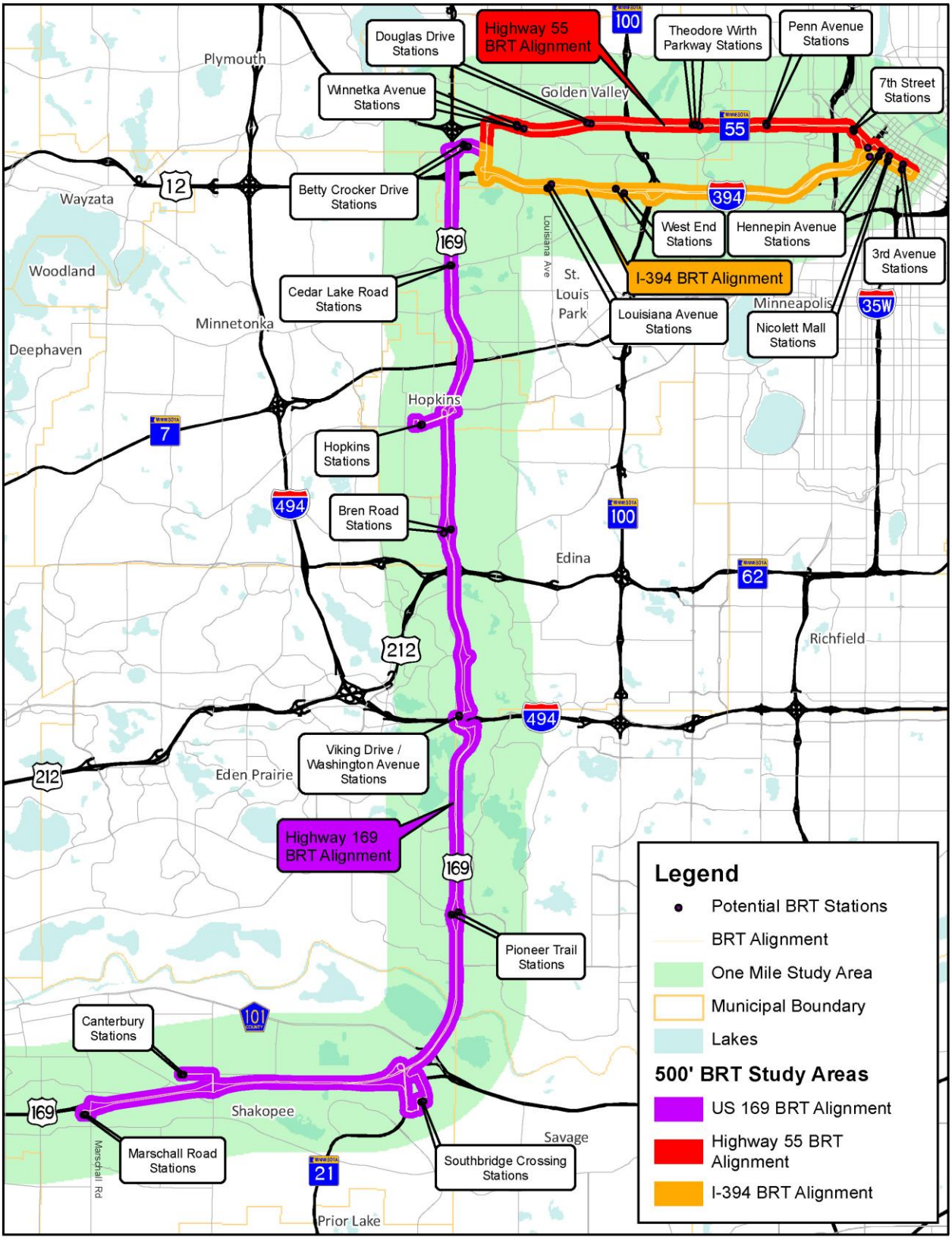
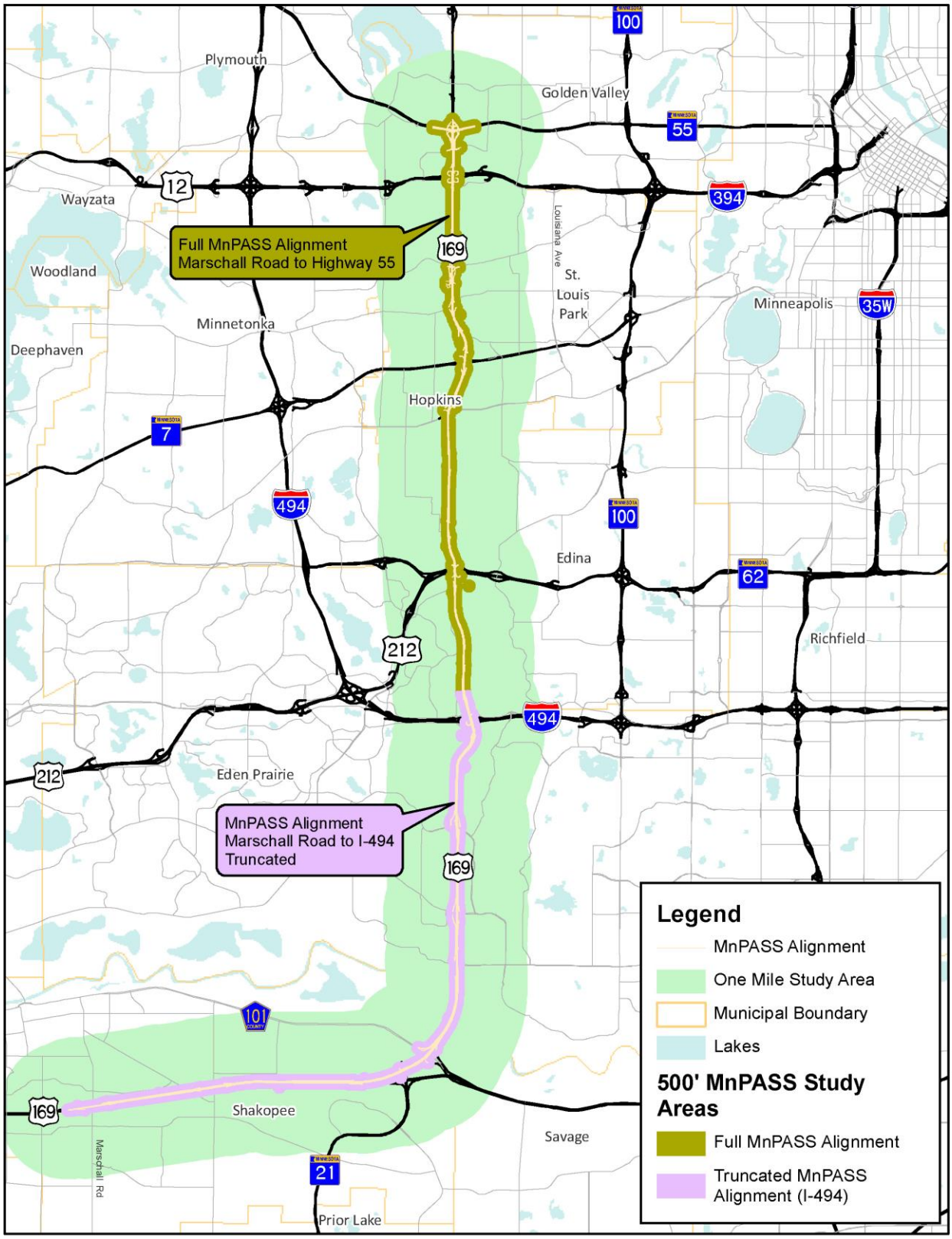


Figure 2: MnPASS Alignments Studied



Highway Bus Rapid Transit (BRT)

Two alignments are being considered for BRT on Highway 169. The first alignment would use Highway 169, Betty Crocker Drive, General Mills Boulevard, and Highway 55 to reach a terminus in downtown Minneapolis. The second alignment would use Highway 169, Betty Crocker Drive, General Mills Boulevard, and I-394 to reach downtown Minneapolis.

Common Segments

Both BRT alignments will operate on Highway 169 between Marschall Road and Betty Crocker Drive. They will use nine common stations along Highway 169 and three common station pairs on 6th and 7th Streets in downtown Minneapolis. Station locations are displayed in Figure 1.

Common stations include:

- Marschall Road Station
- Canterbury Station
- Southbridge Crossing Station
- Pioneer Trail Station
- Viking Drive/Washington Avenue Station
- Bren Road Station
- Hopkins Station
- Cedar Lake Road Station
- Betty Crocker Drive Station
- Hennepin Avenue Stations (at 6th and 7th Streets)
- Nicollet Mall Stations (at 6th and 7th Streets)
- 3rd Avenue Stations (at 6th and 7th Streets)

Highway 169 and Highway 55 BRT Alignment

The Highway 169/Highway 55 corridor will operate from General Mills Boulevard to downtown Minneapolis along Highway 55.

The Highway 55 BRT alternative serves six stations in addition to the common stations listed above:

- Winnetka Avenue Station
- Douglas Drive Station
- Theodore Wirth Parkway Station
- Penn Avenue Station
- 7th Street Station
- Glenwood Station

Highway 169 and I-394 BRT Alignment

The Highway 169/I-394 corridor will operate from General Mills Boulevard to downtown Minneapolis along I-394. The I-394 BRT alternative serves two stations in addition to the common stations listed above:

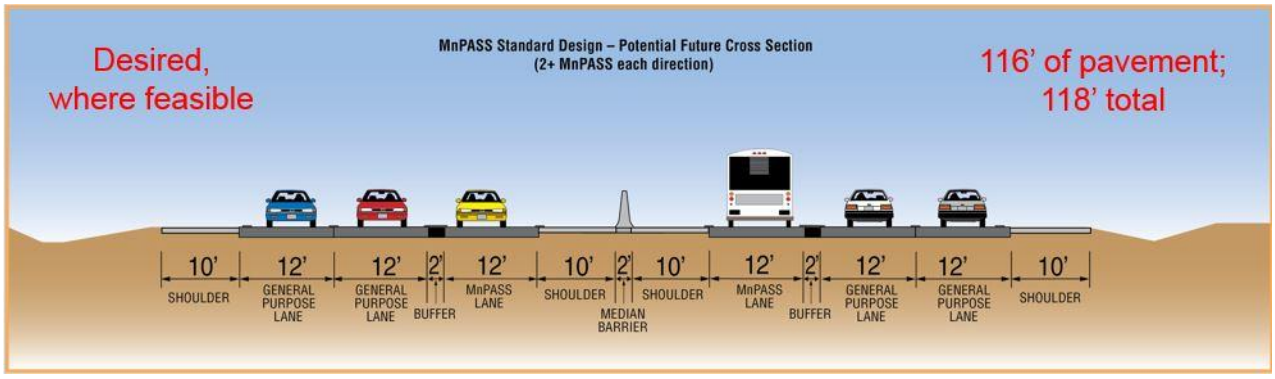
- Louisiana Avenue Station
- West End Station

MnPASS Express Lanes

MnPASS Express Lanes are also being considered on Highway 169. MnPASS lanes allow transit, and vehicles with two or more occupants to drive in designated lanes for free, allowing for a faster and more dependable driver experience. Solo drivers can obtain a MnPASS account and pay a fee to drive in the express lanes during peak travel times, and all motorists can use MnPASS lanes during non-peak travel times.

There are two MnPASS alignments being considered. The first is for MnPASS lanes on Highway 169 from Marschall Road to Highway 55 (also referred to as the full MnPASS alignment in this document) or a shorter alignment utilizing Highway 169 from Marschall Road to I-494 (also referred to as the truncated MnPASS Alignment in this document). The full MnPASS alignment, if implemented, could be directly or indirectly connected to the existing MnPASS lane on I-394 or to possible future MnPASS lanes on I-494 or Highway 62.

MnPASS Express Lanes use the innermost travel lane in each direction from Marschall Road to Highway 55. For the majority of the Highway 169 route, travel lanes include a 10-foot shoulder, 12-foot MnPASS Lane, two 12-foot through lanes, and a 10-foot shoulder, with the exception of the Bloomington Ferry Bridge segment from County Road 21 to Old Shakopee Road, where the lanes briefly narrow to 11-foot MnPASS and two 11-foot through lanes with varied shoulder widths.



Report Format

The comparative analysis being completed for this report is primarily qualitative in nature. Where appropriate, quantitative analysis was completed at a high level to emphasize an order of magnitude type impact differential. Each issue section within this report includes the following areas:

- Environmental overview stating why each topic is important
- Regulatory framework referencing specific federal, state, regional, and local requirements associated with each issue area, if applicable
- Comparative analysis of alternative similarities and differences
- General conclusions on what the assessment means to decision makers, and what would be studied in greater detail in a potential subsequent phase of the project
- Summary matrix of issue areas, by alignment where appropriate

This report will focus on the following topics which have the potential to influence decision-making on the alignments:

- Noise and Vibration
- Cultural and Historic Resources
- Parks, Trails, and Recreational Areas
- Threatened and Endangered Species
- Wetlands
- Floodplains
- Hazardous Materials and Existing Contamination
- Land Use
- Business Impacts
- Environmental Justice
- Property Acquisition

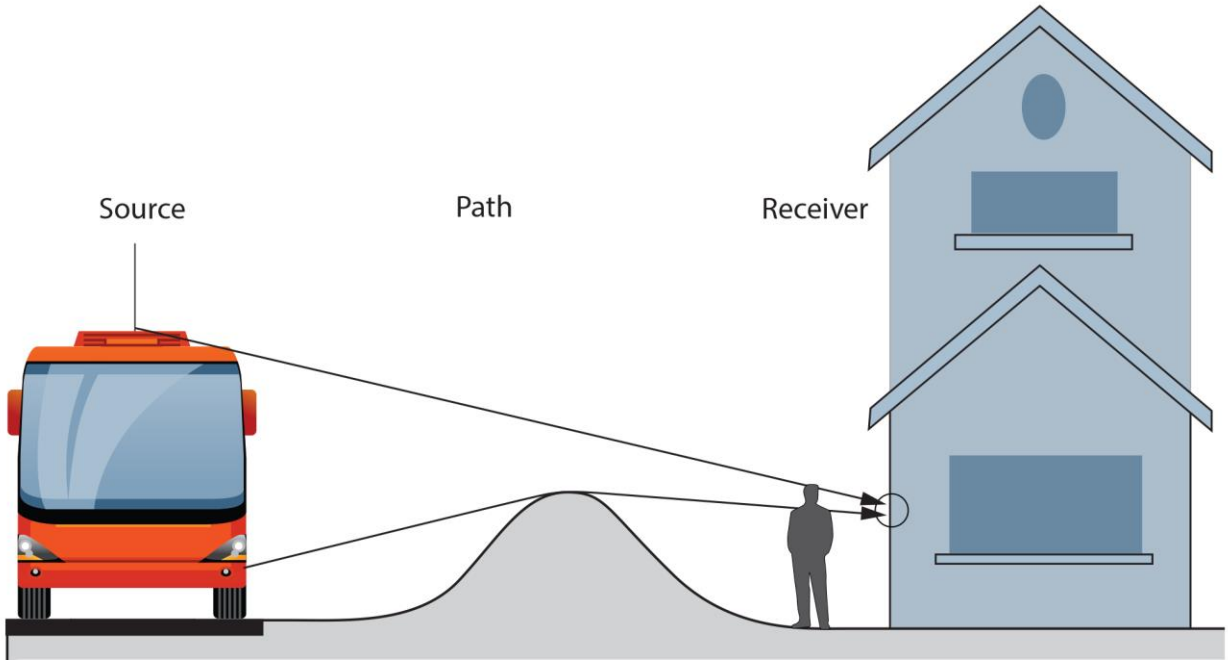
Environmental Scan Elements

Noise and Vibration

Overview

Noise and vibration assessments are key elements of the environmental impact assessment process for transit and highway projects.

Noise is defined as unwanted sound. Ambient noise, which includes the pre-project background noise level, must also be taken into consideration for transit and highway projects. The Source-Path-Receiver framework is used to describe the relationship between noise source, topography, and proximity to land uses which are all important factors in determining noise levels for a project. Each transit **source**, such as a bus, generates close-by noise levels which depend upon the type of source and its operating characteristics. Then, along the propagation **path** between all sources and receivers, noise levels are reduced (attenuated) by distance, intervening obstacles, and other factors. And finally at each **receiver** (e.g., residence or building), noise combines from all sources to interfere, perhaps, with receiver activities. Noise impacts (as defined by the FTA) related to transit projects should be avoided or mitigated, as feasible and reasonable. Avoiding areas most sensitive to noise will help avoid expensive noise mitigation. Noise barriers and other mitigation measures can help shield sensitive land uses from excessive noise but are expensive and require space.



Ground-borne vibrations can be caused by trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operating heavy earth-moving equipment. Vibrations follow a similar Source-Path-Receiver framework for propagation. Vibrations rarely cause human annoyance

or damage to buildings, but can cause problems for vibration-sensitive activities. These types of uses include high-tech manufacturing and research facilities where vibrations can interfere with equipment such as microscopes.

Regulatory Framework

The National Environmental Policy Act (NEPA) and the Minnesota Environmental Policy Act (MEPA) require analysis of noise impacts and appropriate mitigation of impacts. These acts require the examination of noise and vibration impacts for all highway projects during project development. Additional noise and vibration analysis will be completed once the Highway 169 Mobility Study moves into more advanced project development stages.

Data Sources and Methodology

Noise

The FTA screening procedure for noise was followed to identify noise-sensitive land uses and areas of potential impact. This screening procedure is similar to the FHWA analysis of traffic noise impacts, which is based on activity categories similar to the land use categories used for this analysis. Land uses sensitive to noise are grouped according to sensitivity. The FTA Noise and Vibration manual (*Transit Noise and Vibration Impact Assessment*, May 2006) describes appropriate levels of analysis for noise impacts for FTA projects. Land uses in Category 1 include tracts of land where quiet is an essential element in their intended purpose, such as outdoor amphitheaters, National historic landmarks with significant outdoor use, recording studios, and concert halls. Land uses in Category 2 include residences and buildings where people normally sleep, including homes, hospitals, and hotels. Land uses in Category 3 include institutional land uses with primarily daytime and evening use, including schools, churches, theatres, libraries, cemeteries, monuments, museums, campgrounds, and certain historical sites and parks. The screening examined existing aerial photography and comprehensive plans to identify noise-sensitive uses. The screening distance for noise-sensitive land uses is 40 feet for BRT (considered intermediate capacity transit). Those resources will be identified, however, for purposes of this high level analysis, the potential impact area was defined as approximately 500 feet on either side of the center line of all Alignments, in order to account for the low level of precision in this early phase of planning and design, and to include noise sensitive land uses in proximity to the project.

Vibration

The screening procedure for vibration identified in the FTA Noise and Vibration manual was followed to identify vibration-sensitive land uses. Land uses in Category 1 (most sensitive) include vibration-sensitive research and manufacturing, hospitals with vibration-sensitive equipment, and university research operations. Examples include use of microscopes and manufacturing of computer chips. Category 1 land uses were identified through an examination of comprehensive plans and online mapping programs.

The screening distance for vibration-sensitive land uses is 100 feet for BRT. However, for purposes of this high level analysis, the potential impact area was defined as approximately 500 feet on either side of the center line of all Alignments, to account for the low level of precision in this early phase of planning and design, and to include vibration-sensitive land uses in proximity to the project.

Comparative Analysis

A general scan of the area shows over 55,400 residential parcels, 106 schools, 82 churches, 37 hotels, 33 theaters, 13 hospitals, 7 libraries, and 6 cemeteries are located within one mile of the BRT and MnPASS Alignments. Those resources identified within 500 feet on either side of an alignment centerline are listed below in this analysis.

Table 1 shows noise and vibration sensitive resources that were identified within one mile and 500 feet of any alignment and required further investigation.

- Category 1 - Recording studios
- Category 2 – Residential land uses, hospitals
- Category 3 – Theaters, churches, schools, cemeteries

These categories are identified in greater detail and resources within 500 feet of an alignment are shown in Figure 3.

Table 1: Potential Sensitive Noise/Vibration Resources along the Study Area

Resource Name	Number within 500' of an Alignment	Category
Recording Studios	6	1
Hospitals	0	2
Hotels	16	2
Churches	10	3
Cemeteries	2	3
Schools	10	3
Theaters[1]	12	3
Libraries	1	3

Specific sensitive noise and vibration resources within 500 feet were further investigated to evaluate impacts for each alignment. Results are shown in Table 2.

Table 2: Potential Sensitive Noise/Vibration Resources within 500 feet of the Study Area

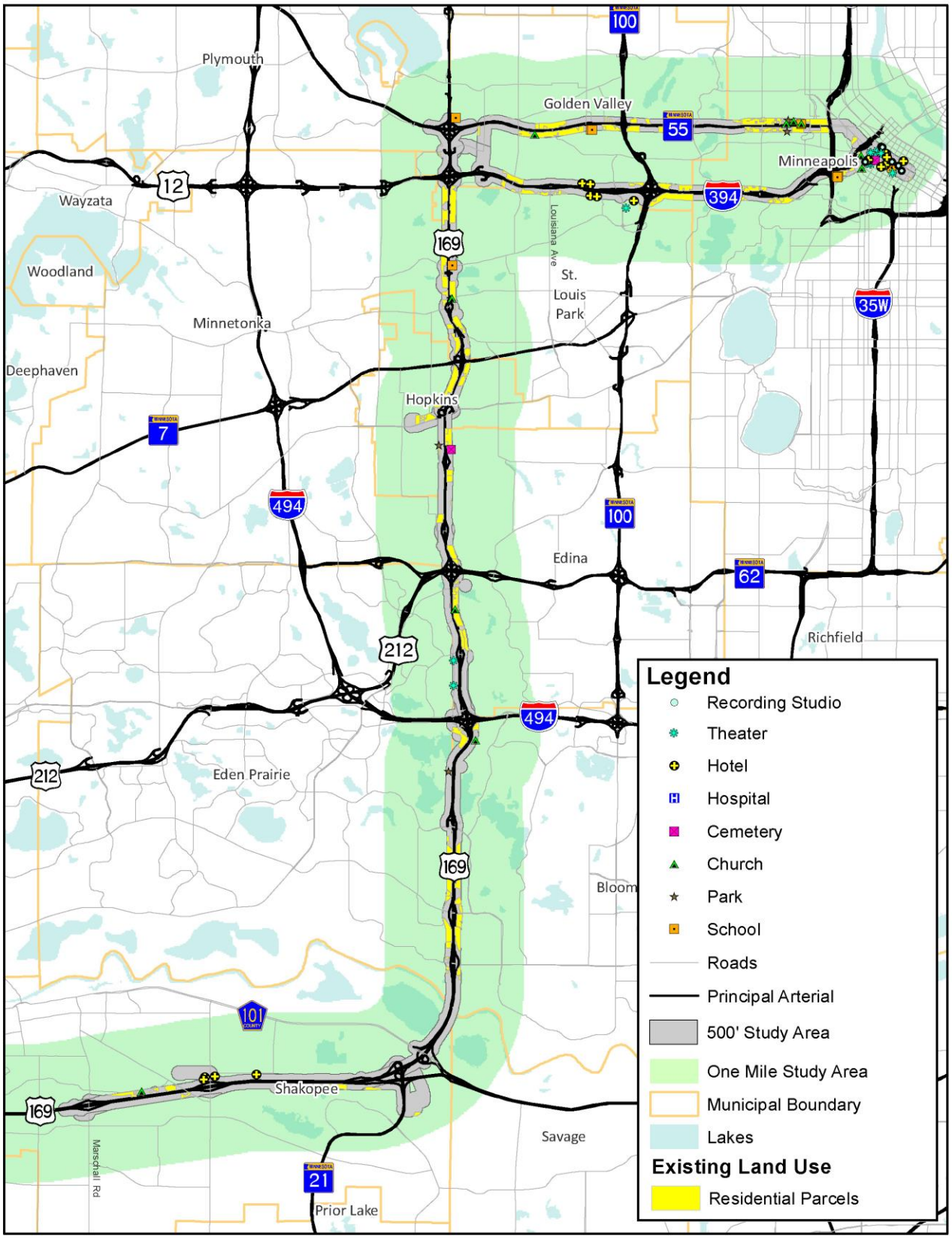
Resource Name	Type	Location
Audio Ruckus	Recording Studio	Highway 55 BRT Alignment
BWN Music	Recording Studio	Highway 55 BRT Alignment
After Glow Studios	Recording Studio	I-394 BRT Alignment

[1] Properties identified as 'theaters' have the potential to be Category 1 Noise Impacts. Further investigation is needed to determine if properties/resources could be classified into or "concert halls".

Rumble Studios Minneapolis	Recording Studio	I-394 BRT Alignment
In the Groove Music	Recording Studio	I-394 BRT Alignment
Syring Music	Recording Studio	I-394 BRT Alignment
Hennepin County Public Library	Library	Highway 55 BRT Alignment
Grand View Park Cemetery	Cemetery	Both BRT and full MnPASS Alignment
Unnamed Cemetery	Cemetery	I-394 BRT Alignment
Bush Lake Church	Church	All BRT and MnPASS Alignments
Calvary United Methodist Church	Church	All BRT and MnPASS Alignments
Kingdom Hall of Jehovah's Witnesses	Church	Highway 55 BRT Alignment
Salvation Army	Church	I-394 BRT Alignments
Spirit of Hope United Methodist Church	Church	Highway 55 BRT Alignments
Twin Cities Chinese Evangelical Church	Church	I-394 BRT Alignments
Wayman African Methodist Church	Church	Highway 55 BRT Alignments
Zion Baptist Church	Church	Highway 55 BRT Alignments
Cross View Lutheran Church	Church	Both BRT and full MnPASS Alignment
Calvary Worship Center	Church	Both BRT and full MnPASS Alignment
Sandalwood Studios and Suites	Hotel	All BRT and MnPASS Alignments
Americas Best Value Inn	Hotel	All BRT and MnPASS Alignments
AmericInn Lodge and Suites	Hotel	All BRT and MnPASS Alignments
Holiday Inn Express	Hotel	I-394 BRT Alignments
Holiday Inn Express – Shakopee	Hotel	All BRT and MnPASS Alignments
Super 8 Minneapolis	Hotel	I-394 BRT Alignment
Spring Hill Suites by Marriott	Hotel	I-394 BRT Alignment
Towne Place Suites by Marriott	Hotel	I-394 BRT Alignment
Homewood Suites Hilton	Hotel	I-394 BRT Alignment
LeMeridien Minneapolis	Hotel	I-394 BRT Alignment
Crown Plaza Northstar	Hotel	I-394 BRT Alignment
Kimpton Grand Hotel	Hotel	I-394 BRT Alignment
Westin Minneapolis	Hotel	I-394 BRT Alignment
Loews Minneapolis	Hotel	Highway 55 BRT Alignment
Embassy Suites	Hotel	Highway 55 BRT Alignment
Hotel Minneapolis	Hotel	Highway 55 BRT Alignment
Basilica School	School	I-394 BRT Alignment
Cedar Manor Intermediate Center	School	Both BRT and full MnPASS Alignment
Golden Valley College	School	Highway 55 BRT Alignment
Chiron Middle School	School	I-394 BRT Alignment
Harvest Preparatory School – Seed Academy	School	Highway 55 BRT Alignment
Lincoln International School	School	I-394 BRT Alignment
Connection Center	School	I-394 BRT Alignment
Perpich Center for Arts Education	School	Highway 55 BRT Alignment
Downtown Open School	School	I-394 BRT Alignment
Fraser Academy	School	I-394 BRT Alignment
CBO Casablanca Orchestra	Theater	Both BRT and full MnPASS Alignment
Admit One Home Cinema	Theater	Both BRT and full MnPASS Alignment

Kerasotes Minneapolis Showplace	Theater	I-394 BRT Alignment
Orchestra Hall	Theater	I-394 BRT Alignment
State Theater	Theater	I-394 BRT Alignment
Orpheum Theater	Theater	I-394 BRT Alignment
Brave New Workshop Comedy Theater	Theater	I-394 BRT Alignment
Skyway Theater	Theater	I-394 BRT Alignment
Pantages Theater	Theater	I-394 BRT Alignment
Illusion Theater	Theater	Highway 55 BRT Alignment
Cowles Center	Theater	I-394 BRT Alignment
New Century Theater	Theater	Highway 55 BRT Alignment

Figure 3: Noise and Vibration Sensitive Sites



Conclusions

Table 3 lists the potential noise sensitive land uses by alignment.

Table 3: Noise and Vibration Sensitive Land Uses with 500 feet by Alignment

Alignment	Category 1	Category 2	Category 3
BRT Alignment via Highway 169 and Highway 55	2 Recording studios	2,769 Residential Parcels 7 Hotels	5 Schools 4 Theaters 8 Churches
BRT Alignment via Highway 169 and I-394	4 Recording studios	3,488 Residential Parcels 13 Hotels	7 Schools 10 Theaters 6 Churches 2 Cemeteries 1 Library
Truncated MnPASS Alignment	0 Recording studios	970 Residential Parcels 1 Hotels	2 Churches
Full MnPASS Alignment	0 Recording studios	2,342 Residential Parcels 1 Hotels	2 Schools 2 Theaters 4 Churches 1 Cemeteries

The BRT Alignments are longer in length in comparison with the MnPASS Alignments and therefore, do have greater potential for noise and vibration impacts, especially in the city of Minneapolis. Each of the BRT Alignments travel within 500 feet of four different recording studios. The BRT alignment via Highway 55 travels closer to more residential properties and churches, while the BRT alignment via I-394 is closer to more hotels, schools, theaters, cemeteries, and libraries. However, given the existing noise levels along Highway 55 and I-394, additional bus trips per hour will likely have no impact on existing noise levels.

Vibration-related impacts are not anticipated under any of the project Alignments; however, more analysis may need to be done in the future if additional vibration-sensitive resources are identified as part of future environmental documentation. It is anticipated that a more detailed noise and vibration study will be undertaken as part of a future NEPA process, including a General Assessment[2].

[2] A General Assessment identifies location and estimated severity of noise and vibration impacts in the noise and vibration study areas identified in the screening procedure. A full General Assessment as described by the FTA Transit Noise and Vibration Impact Assessment manual would include a comparison of Average Daily Traffic (ADT) with the likely noise increase from each alignment.

Cultural and Historic Resources

Overview

This review identifies historic resources located along the corridor. The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation and is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archaeological resources. There are several known historic resources that are listed on the National Register of Historic Places (NHRP) located within and along the alignment corridors.

Regulatory Framework

Section 4(f)

The Section 4(f) legislation, as established under the Department of Transportation Act of 1966 (40 USC 303, 23 USC 138), provides protection for historic sites (publically or privately owned) from conversion to transportation use. Conversion to transportation use is not allowed unless all prudent and feasible Alignments to the Section 4(f) use and all possible planning activities to minimize harm have been considered.

A "use" of a Section 4(f) property occurs when: (1) land is permanently incorporated into a transportation facility (i.e., direct use); (2) there is temporary occupancy of land that is adverse in terms of the Section 4(f) statute's preservation purposes; or (3) there is a constructive use of a Section 4(f) property (i.e., indirect use). Constructive use occurs when the proximity impacts of a project on an adjacent or nearby Section 4(f) property, after incorporation of impact mitigation, are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired.

Section 106

Like Section 4(f), Section 106 of the National Historic Preservation Act of 1966 mandates consideration of a project's effect on historic sites. Projects that apply to receive federal funds must comply with Section 106 and with other applicable federal mandates. To comply with Section 106, potential impacts to historic properties (those listed in or eligible for listing in the NRHP) must be taken into account during project planning and design. Section 106 requires federal agencies to consider the effects of their actions on historic properties before undertaking a project.

During future project phases, Section 106 analysis provides a determination of effects caused by the project Alignments. Possible determinations are: (1) no historic properties affected; (2) no adverse effects to historic properties; or (3) adverse effect to historic properties. A determination of "adverse effect" is made if a project has the potential to alter characteristics that make a property historically significant. Adverse effects can be direct or indirect and include all immediate and reasonably foreseeable effects to the property.

The Section 106 determinations are a critical part of determining the applicability of Section 4(f) and the outcome of Section 4(f) evaluation. However, at this early phase of the project, both the Section 4(f) and Section 106 analysis of historic resources only focus on identifying known historic resources in the study area and discussing potential effects to those resources. Determining additional as yet unlisted historic resources, and determining any adverse effects to historic resources under Section 106 or Section 4(f) will take place during the official NEPA process in future study phases.

Data Sources and Methodology

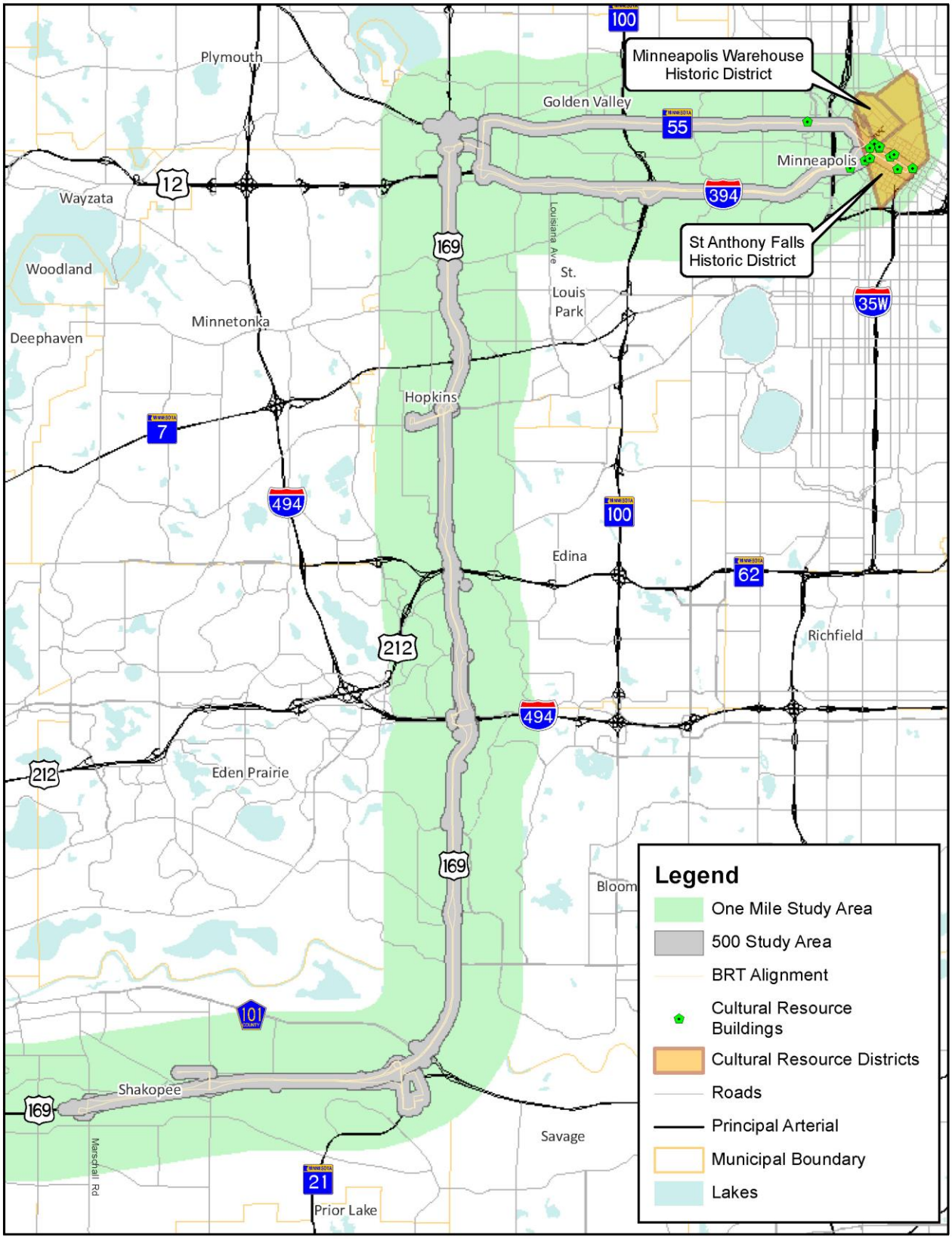
Data used for this environmental scan was provided by the National Park Service – U.S. Department of the Interior. The National Register provides a geospatial dataset that is intended to be a comprehensive inventory of all cultural resources that are listed on the NRHP, however, this dataset excludes all "sensitive" features including sensitive archaeological sites.

A baseline assessment was conducted to determine the potential impacts to cultural and historic resources and impacts associated with each proposed alignment. The assessment identifies the number of historic properties within 500 feet of alignments that could be potentially impacted as a result of any build alternative Further investigation to determine potential adverse effects to historic properties that may be affected by the proposed project would be part of future stages of the project to support the NEPA and Section 106/Section 4(f) processes.

Comparative Analysis

Historic resources located within 500 feet of any of the alignments were inventoried. A total of twelve NRHP listed historic buildings and two historic districts were found within 500 feet of the BRT alignments. These resources are displayed in Figure 4 and are also identified in Table 4. All of the identified historic buildings and districts are located in the City of Minneapolis, on the far northeast side of the study area.

Figure 4: Corridor-wide Historic Properties



Conclusions

Overall, there are no listed NRHP properties along Highway 169 and therefore, the potential for Section 106 adverse effects and Section 4(f) use of NRHP listed historic properties are non existant for the MnPASS Alignments. All of the listed NRHP buildings and districts are located in the City of Minnapolis on the extreme east end of the BRT Alignments.

As such, the MnPASS Alignments are not expected to have any adverse effects to historic properties. Comparing the BRT alignments, there are twelve listed NRHP properties located within 500 feet of the corridor. Eight of the properties lie within 500 feet of the Highway 55 BRT Alignment, while four are within 500 feet of the I-394 Alignment. See Table 4.

Table 4: Historic Resources within 500 feet of the Study Area

Resource Name	Address	Alignment	Location	NRHP Determination
Minneapolis Armory	500 6th Street	Highway 55 – BRT Alignment	Minneapolis	Listed – (1985)
Masonic Temple	528 Hennepin Avenue	Highway 55 – BRT Alignment	Minneapolis	Listed – (1975)
Turnblad, Swan, House	2600 Park Avenue	Highway 55 – BRT Alignment	Minneapolis	Listed – (1971)
Shubert, Sam S., Theatre	516 Hennepin Avenue	Highway 55 – BRT Alignment	Minneapolis	Listed – (1995)
Summer Branch Library	611 Emerson Avenue	Highway 55 – BRT Alignment	Minneapolis	Listed – (2000)
Farmers and Mechanics Savings Bank	115 S. 4th Street	Highway 55 – BRT Alignment	Minneapolis	Listed – (1984)
First National Bank--Soo Line Building	101 5th Street	Highway 55 – BRT Alignment	Minneapolis	Listed – (2008)
Lincoln Bank Building	730 Hennepin Avenue	Highway 55 – BRT Alignment	Minneapolis	Listed – (2012)
Butler Brothers Company	518 1st Avenue	I-394 BRT Alignment	Minneapolis	Listed – (1971)
Swinford Townhouses and Apartments	1213 Hawthorne Ave	I-394 BRT Alignment	Minneapolis	Listed – (1990)
Hennepin Theatre	910 Hennepin Avenue	I-394 BRT Alignment	Minneapolis	Listed – (1996)
Pence Automobile Company Building	800 Hennepin Avenue	I-394 BRT Alignment	Minneapolis	Listed – (2007)

In the city of Minneapolis, two NRHP districts (St. Anthony Falls, and Minneapolis Warehouse Historic District) may be impacted by the BRT alignments. Both BRT alignments would travel within the St.Anthony Falls historic district, while the Highway 55 and I-394 BRT alignments travel within or very close to the Minneapolis Warehouse Historic District.

It is important to know that the results above only consider NRHP listed properties. Further investigation to identify potential eligible or eligible properties are needed. Determinations of

potential adverse effects to historic properties as a result of the selected alignment would be part of future stages of the project to support NEPA, Section 106, and Section 4(f) processes.

Parks, Trails, and Recreational Areas

Overview

This section discusses the existing Section 4(f) and Section 6(f) parks, trails, and recreation areas located within the Highway 169 Mobility study area. Because of their high level of protection, Section 4(f) and Section 6(f) resources are important assets to consider when developing a transitway.

Regulatory Framework

Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 (40 USC 303, 23 USC 138), protects publicly owned parks and recreation areas, waterfowl and wildlife refuges. Conversion to transportation use is not allowed unless all prudent and feasible Alignments to the Section 4(f) use and all possible planning activities to minimize harm have been considered.

Section 6(f)

Section 6(f) of the Land and Water Conservation Fund (LAWCON) was enacted by Congress in 1964 to strengthen the health and vitality of the citizens of the United Sates through planning, acquisition, and development of land and water outdoor recreation facilities. A trust fund was created by congress to appropriate and distribute funds to states that will use lands solely for outdoor recreation. Any conversion of these lands to uses other than outdoor recreation must be approved by the National Park Service. If approved, the state must acquire replacement lands of at least equal fair market value and recreational usefulness.

Minnesota DNR inventories and updates a database named the Parks and Natural Areas Subject to Permanent Land Use Requirements through Grant Agreements Administered by the Minnesota Department of Natural Resource. The database lists properties by county that have received grant funds.

Data Sources and Methodology

Minnesota Department of Natural Resources maps and databases, along with U.S. Fish and Wildlife Service maps, were reviewed to locate any state or federal wildlife and waterfowl refuges within the study area.

Regional parks and trails were mapped in ArcGIS using Metropolitan Council data. Aerial photography was examined and compared to city comprehensive plans and park maps to identify

local parks and trails. Identified parks and trails were then checked against the most recent published version of LAWCON-funded properties.

An inventory of parks and trails located near the Highway 169 Mobility Study corridor was identified through this analysis. For purposes of the park and trail analysis, the potential impact area was defined as approximately 100 feet on either side of the center line for all alignments considered.

Comparative Analysis

Parks

Publicly-owned land is considered to be a park when the land has been officially designated as such by a Federal, State, or local agency, and the officials with jurisdiction over the land determine that its primary purpose is a park. The study area has over 150 parks located within one mile of the Highway 169 Mobility study corridor and the number of potential parks affected for each alignment can be found in Table 5.

Table 5: Potential Parks Located within 500 feet of each Alignment

Alignment	Potential Parks Affected
BRT Alignment via Highway 169 and Highway 55	23
BRT Alignment via Highway 169 and I-394	23
Truncated MnPASS Alignment	5
Full MnPASS Alignment	14

Information for parks including the type of resource, location, and alignment that has the potential to impact a park in Scott and Hennepin County can be found in Tables 6 and 7. Figure 7 shows the locations of these parks and recreation areas, as well as regional and local trails.

Two Scott County parks and two recreation areas are located within 500 feet of the corridor, and have the greatest potential for impact for both the BRT and MnPASS Alignments. They include: Killarney Hills Park, Quarry Lake, James Wilke Refuge, and Wilkie Refuge Unit.

Table 6: Scott County Parks and Recreation Areas within 500 feet of Alignments

Resource Name	Location	Alignment(s)
Wilkie Refuge Unit	Shakopee	All BRT and MnPASS Alignments
James Wilke Refuge	Shakopee	All BRT and MnPASS Alignments
Killarney Hills Park	Shakopee	All BRT and MnPASS Alignments
Quarry Lake Park	Shakopee	All BRT and MnPASS Alignments

Twenty-nine Hennepin County parks and recreation areas are located within 500 feet of the corridor. Five parks including Tierney Woods Park, Bloomington Ferry Unit Park, Boone Pond, Anderson Lakes Park Reserve, and Braemer Park need to be evaluated for all possible Alignments. Nine parks should be considered for both BRT Alignments and the MnPASS Alignment between Marschall Road and Highway 55. Six parks should be considered when evalutating the Highway 55 BRT alignment, while another six parks should be considered for the I-394 BRT alignment.

Table 7: Hennepin County Parks and Recreation Areas within 500 feet of Alignments

Resource Name	Location	Alignment(s)
Tierneys Woods Park	Bloomington	All BRT and MnPASS Alignments
Bloomington Ferry Unit Park	Bloomington	All BRT and MnPASS Alignments
Boone Pond	Bloomington	All BRT and MnPASS Alignments
Anderson Lakes Park Reserve	Eden Prairie	All BRT and MnPASS Alignments
Braemar Park	Edina	All BRT and MnPASS Alignments
Walnut Ridge Park	Edina	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Lincoln Drive Floodplain	Edina	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Schaper Park	Golden Valley	Highway 55 BRT Alignment
North Tyrol Park	Golden Valley	I-394 BRT Alignment
Lions Park	Golden Valley	Highway 55 BRT Alignment
General Mills Nature Preserve	Golden Valley	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Brookview Com Center and Golf Course	Golden Valley	Both BRT Alignments
Brookeview Park	Golden Valley	Highway 55 BRT Alignment
Perpich Center for the Arts	Golden Valley	Highway 55 BRT Alignment
Downtown Park	Hopkins	Both BRT Alignments
Valley Park	Hopkins	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Buffer Park	Hopkins	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Overpass Skate Park	Hopkins	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Bryn Mawr Meadows	Minneapolis	I-394 BRT Alignment
Harrison Park	Minneapolis	Highway 55 BRT Alignment
Parade Park	Minneapolis	I-394 BRT Alignment
Theodore Wirth Park	Minneapolis	Both BRT Alignments
Bassetts Creek Park	Minneapolis	Highway 55 BRT Alignment
Brownie Lake	Minneapolis	I-394 BRT Alignment
Cedar Lake Park	Minneapolis	I-394 BRT Alignment
Ford Park	Minnetonka	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Knollwood Green	St. Louis Park	Both BRT and MnPASS Alignments between Marschall Road and Highway 55
Westwood Hills Nature Center	St. Louis Park	I-394 BRT Alignment
Cedar Manor Park	St. Louis Park	Both BRT and MnPASS Alignments between Marschall Road and Highway 55

Section 6(f)

From the parks listed above, four properties within 500 feet are protected by Section 6(f) including: Tierney Woods Park, Valley Park, Westwood Hills Nature Center, and Anderson Lakes Park Reserve.

Even the smallest impacts to these identified sites are subject to Section 6(f) protection. In most cases, the whole site is affected by the grant program requirements even though only a small part may be acquired or developed with grant funds. Conversion of any of these properties to a non-recreational use rquires prior approval by the Minnesota Commissoner of Natural Resources and the National Park Service.

Golf Courses

Section 4(f) applies to golf courses that are owned, operated, and managed by a public agency for the primary purpose of public recreation. Section 4(f) does not apply to privately owned and operated golf courses even when they are opened to the general public.

Four golf courses are located within 500 feet of the project alignments including three public golf courses that would be subject to Section 4(f) protection. The courses are listed in Table 8.

The likelihood of potential impacts to these golf courses as a result of any alignment considered is extremely low because of the nature of the project design.

Table 8: Golf Courses within 500 feet of Alignments

Resource Name	Public or Private	Location	Subject to Section 4(f)
Brookview Golf Course	Public	Golden Valley	Yes
Braemer Golf Course	Public	Edina	Yes
Theodore Wirth Golf Course	Public	Minneapolis	Yes
Golden Valley Golf Course	Private	Golden Valley	No

Regional Trails

Six regional trails and one planned regional trail are located within the 500-foot study area. Any impacts, temporary occupancy, permanent limited easement, and temporary limited easement, or right-of-way acquisitions as a result of the proposed project would be subject to Section 4(f). Regional trails are listed below in Table 9 and displayed in Figure 5.

Table 9: Regional Trails within 500 feet of Alignments

Resource Name	Location
Luce Line Trail	Golden Valley, Minneapolis
North Cedar Lake	Hopkins, St. Louis Park
Victory Memorial Parkway	Golden Valley, Minneapolis
Cedar Lake LRT	Minneapolis
Cedar Lake	Minneapolis
MN River Bluffs LRT	Hopkins
Nine Mile Creek - PLANNED	Edina

Local Trails

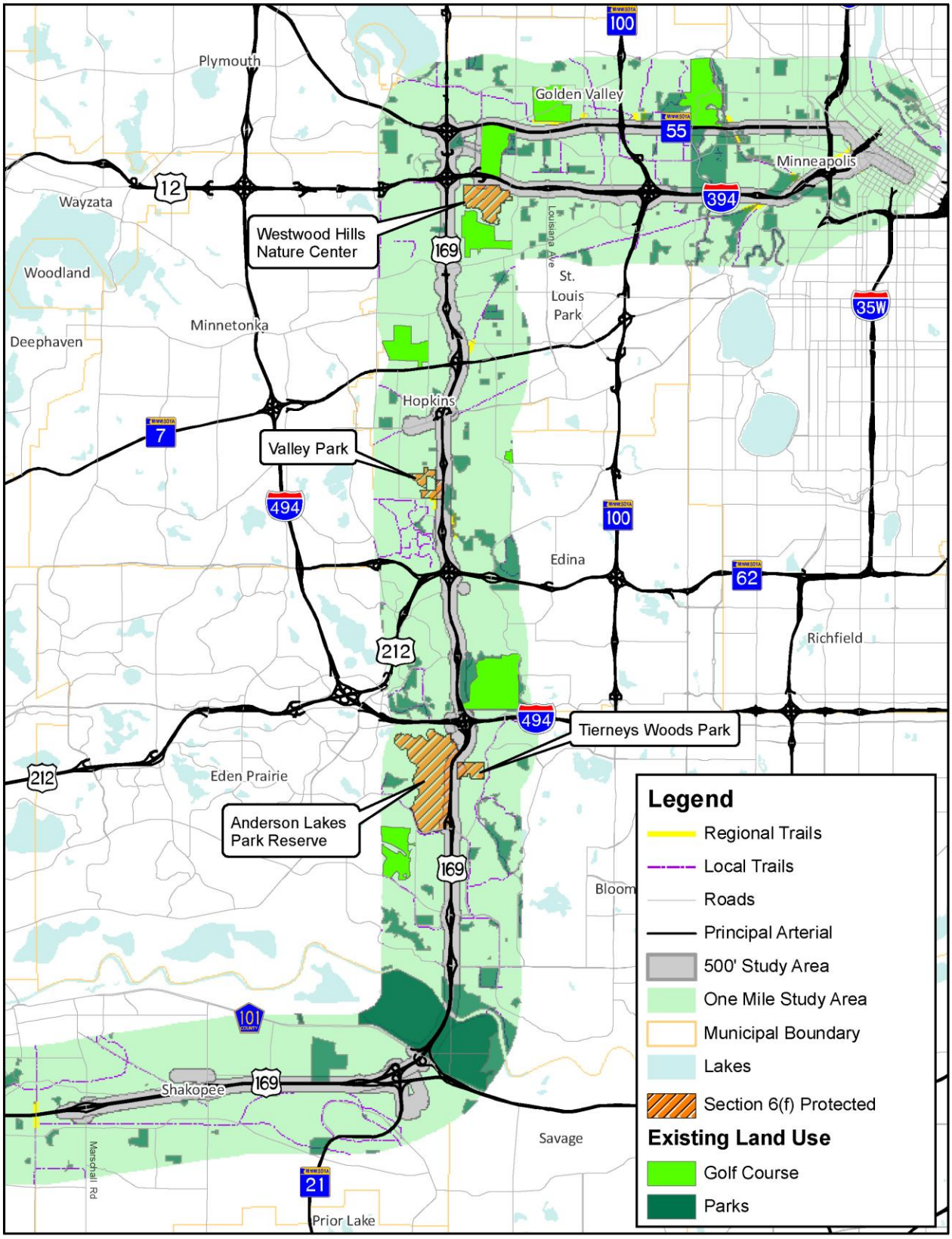
There are over 61 miles of existing trails within the one mile study area. An additional 25 miles of funded trails have been approved and yet another 14 miles of local and regional trails are proposed.

Eighteen existing named local trails and dozens more unnamed trails are located within the one mile study area. Named local trails are listed below in Table 10 and displayed in Figure 7. Any impacts, temporary occupancy, temporary limited easements (TLE), permanent limited easements (PLE), or right-of-way acquisitions as a result of the proposed project would be subject to Section 4(f).

Table 10: Local Trails within 500' of Alignments

Resource Name	Location
Franlo Road Trail	Eden Prairie
Homeward Hills Road Trail	Eden Prairie
Anderson Lakes Parkway Trail	Eden Prairie
Center Way Trail	Eden Prairie
Rowland Road Trail	Eden Prairie
Lake Smetana Trail	Eden Prairie
Loop Trail	Minnetonka
North Hennepin Regional Trail	Golden Valley, Plymouth
Grand Round Trail	Minneapolis
Bassetts Creek Trail	Minneapolis, Golden Valley
South Hennepin Regional Trail	Golden Valley
Southwest LRT Trail	Hopkins
Hutchinson-Spur SW Segment	Hopkins, St. Louis Park
North River Road Trail	Minneapolis
Stone Arch Bridge	Minneapolis
Wirth Memorial Parkway Trail	Golden Valley
Bush Lake Trail	Bloomington
Lake of the Isles Trail	Minneapolis

Figure 5: Parks, Trails, and Recreational Areas



Conclusions

Four sites have been identified as receiving DNR grant funds and subject to Section 6(f) requirements. Any conversion of land from four sites including: Anderson Lakes Park Reserve, Tierneys Woods Park, Valley Park, and Westwood Hills Nature Center would be subject to Section 6(f) protection.

Any impacts to parks, recreation areas, wildlife and waterfowl refuges, or public golf courses need to be identified early in the planning and design process. Impacts to trails or parks as a result of the alignments, regardless of duration, need to be identified early, as these have potential for Section 4(f) temporary occupancy, deminimis, programmatic, or full Section 4(f) evaluations. No impacts to Section 4(f) properties are known at this time.

Threatened and Endangered Species

Overview

The alignments included in the Highway 169 Mobility Study would be subject to state laws and, if the projects pursue federal funding, federal laws protecting threatened and endangered species. The Endangered Species Act of 1973 defines "endangered" as "any species which is in danger of extinction throughout all or a significant portion of its range." "Threatened" is defined as "any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range." Both federal- and state-listed threatened and endangered species are typically listed by county.

Regulatory Framework

Section 7 of the Endangered Species Act (ESA) of 1973 (16 USC 1531-1544) requires that all federal agencies consider and avoid, if possible, adverse impacts to federally listed threatened or endangered species or their critical habitats, which may result from their direct, regulatory, or funding actions.

State-listed (endangered, threatened) species are subject to Minnesota's Endangered and Threatened Species Statutes, which protects species at risk of extinction. Special concern species are either extremely uncommon or unique to Minnesota, and require special attention, but are not governed by the regulations encompassing endangered and threatened species.

Data Sources and Methodology

The U.S. Fish and Wildlife Service's Environmental Conservation Online System (ECOS) was accessed to identify federally-listed threatened and endangered species for Hennepin and Scott Counties.

A one-mile search surrounding the Alignments was evaluated for the presence of rare plants, animals, native plant communities, and other rare features using Geographical Information Systems (GIS) in conjunction with the DNR Natural Heritage Information System (NHIS). A one-mile

search area is the standard search area for the NHIS to account for locational uncertainty and travel ranges of some species. The Natural Heritage data is provided by the DNR Division of Ecological Resources. These data are not based on an exhaustive inventory of the state.

A summary of any potential impacts to any federal- or state-listed (endangered, threatened or special concern) species, rare plant communities, or other sensitive ecological resources associated with the Highway 169 Mobility Study was inventoried.

Comparative Analysis

Federally Listed Species

Three federally-listed endangered species and one threatened species were identified in Hennepin and/or Scott County, Minnesota. They can be found in Table 11:

Table 11: Federally Listed Species

Common Name	Scientific Name	Category	Status
Rusty patched bumble bee	Bombus affinis	Insects	Endangered
Higgins eye (pearlymussel)	Lampsilis higginsii	Clams	Endangered
Snuffbox mussel	Epioblasma triquetra	Clams	Endangered
Northern Long-Eared Bat	Myotis septentrionalis	Mammal	Threatened

In January, 2017, the Rusty patched bumble bee became the first bee in the continental United States to be listed as endangered. These bumble bees once lived in grasslands and prairies across the Upper Midwest but many of these areas have depleted. The Rusty patched bumble bee depend on a variety of habitats with flowering plants and woody debris available. Regulations are currently in process and will go into effect on February 10, 2017.

The habitat area for the Snuffbox and the Higgins eye are in small- to medium-sized creeks with a swift current, including the Mississippi River which is located several miles east of the study area. Further investingation is necessary to determine if these clams inhabit the Minnesota River.

The northern long-eared bat roosts and forages in upland forests during the spring and summer and hibernates in caves and mines during the winter. Due to the urban nature of this project, is unlikely that there will be impacts to any large tree stands where bats may roost. Therefore, it is unlikely that the project will impact the northern long-eared bat.

State Listed Species

Minnesota Department of Natural Resources Natural Heritage Information System (NHIS) data was used to provide information on the state's rare plants, animals, native plant communities, and other rare features. Based on an NHIS review of state-listed species 37 species were identified including: seventeen vertebrate animals, eight invertebrate animals, seven terrestrial communities, five vascular

plants, were found within one mile of the project area in addition to three animal assemblage areas were found within one mile of the project alignments. The species can be found in Table 12.

Table 12: Minnesota DNR State Listed Species

Common Name	Scientific Name	Category	Status
Bald Eagle	Haliaeetus leucocephalus	Vertebrate Animal	Watchlist
Black Buffalo	Ictiobus niger	Vertebrate Animal	Threatened
Black Sandshell	Ligumia recta	Invertebrate Animal	Special Concern
Blanding's Turtle	Emydoidea blandingii	Vertebrate Animal	Threatened
Bullfrog	Lithobates catesbeianus	Vertebrate Animal	Watchlist
Common Gallinule	Gallinula galeata	Vertebrate Animal	Special Concern
Dry Barrens Prairie (Southern)	Dry Barrens Prairie (Southern)	Terrestrial Comm.	
Dry Sand – Gravel Oak Savanna (Southern)	Dry Sand – Gravel Oak Savanna (Southern)	Terrestrial Comm.	
Dry Sand – Gravel Prairie (Southern)	Dry Sand – Gravel Prairie (Southern)	Terrestrial Comm.	
Dwarf Trout Lily	Erythronium propullans	Vascular Plant	Endangered
Ebonyshell	Fusconaia ebena	Invertebrate Animal	Endangered
Forster's Tern	Sterna forsteri	Vertebrate Animal	Special Concern
Gophersnake	Pituophis catenifer	Vertebrate Animal	Special Concern
Graminoid – Sphagnum Rich Fen (Basin)	Graminoid – Sphagnum Rich Fen (Basin)	Terrestrial Comm.	
Hooded Warbler	Setophaga citrina	Vertebrate Animal	Special Concern
Kitten-tails	Besseya bullii	Vascular Plant	Threatened
Mucket	Actinonaias ligamentina	Invertebrate Animal	Threatened
Mudpuppy	Necturus maculosus	Vertebrate Animal	Special Concern
Northern Poor Fen	Northern Poor Fen	Terrestrial Comm.	
Peregrine Falcon	Falco peregrinus	Vertebrate Animal	Special Concern
Pistolgrip	Tritogonia verrucosa	Invertebrate Animal	Endangered
Plains Hog-nosed Snake	Heterodon nasicus	Vertebrate Animal	Special Concern
Plains Pocket Mouse	Perognathus flavescens	Vertebrate Animal	Special Concern
Pugnose Shiner	Notropis anogenus	Vertebrate Animal	Threatened
Purple Martin	Progne subis	Vertebrate Animal	Special Concern
Regal Fritillary	Speyeria idalia	Invertebrate Animal	Special Concern
Rhombic-petaled Evening Primrose	Oenothera rhombipetala	Vascular Plant	Special Concern
Round Pigtoe	Pleurobema sintoxia	Invertebrate Animal	Special Concern
Shovelnose Sturgeon	Scaphirhynchus platorynchus	Vertebrate Animal	Watchlist
Spikerush – Bur Reed Marsh Prairie	Spikerush – Bur Reed Marsh Prairie	Terrestrial Comm.	
Tamarack Swamp (Southern)	Tamarack Swamp (Southern)	Terrestrial Comm.	
Trumpeter Swan	Cygnus buccinators	Vertebrate Animal	Special Concern
Valerian	Valeriana edulis var. ciliate	Vascular Plant	Threatened
Virginia Water Horehound	Lycopus virginicus	Vascular Plant	Watchlist
Wartyback	Quadrula nodulata	Invertebrate Animal	Threatened
Washboard	Megalonaias nervosa	Invertebrate Animal	Endangered
Western Harvest Mouse	Reithrodontomys megalotis	Vertebrate Animal	Special Concern
***Bat Concentration**	Bat Colony	Animal Assemblage	

***Colonial Waterbird Nesting**	Colonial Waterbird Nesting	Animal Assemblage	
***Freshwater Mussel Concentration Area**	Freshwater Mussel Concentration Area	Animal Assemblage	

*Animal Assemblages are not included as one of the 37 species listed in the write-up statistics above

Conclusions

Based on the urban nature of the project, it is unlikely that either of the Alignments would adversely affect any federally-listed or state-listed threatened and endangered species.

However, according to the NHIS database, bat concentrations were recorded in Scott County near the southern portion of the project in 2000. Although less likely for impacts, colonial waterbird nesting sites, and mussel sampling sites were recorded in the 1980s.

Future project review will re-evaluate data from the U.S. Fish and Wildlife Service and Minnesota DNR NHIS database to verify that the information on wildlife, fisheries, and ecological areas is up to date when an official environmental document is prepared.

Wetlands

Overview

During the Alignments evaluation portion of a project, it is important to identify known wetland areas and evaluate potential opportunities to avoid and minimize adverse impacts to wetlands. Federal and state regulations require that wetlands be protected under no net loss principles. Therefore, the most efficient way to prevent loss of wetland functions and the high costs associated with mitigation measures (either through restoration of purchase from a wetland bank) is to avoid and minimize wetland impacts.

Regulatory Framework

Wetlands are protected through Section 401 and Section 404 of the Clean Water Act, with the exception of those that are isolated hydrologically on the landscape. Section 404 of the Clean Water Act requires a permit to be issued by the United States Army Corps of Engineers (USACE) prior to the placement of any dredged or fill material into any waters of the United States, including wetlands. In Minnesota, wetland protection is augmented through the Minnesota Wetland Conservation Act (WCA), except where specific exemptions apply.

The Minnesota DNR regulates all public waters wetlands through its Public Waters Inventory (PWI). Impacts to any wetlands/water bodies listed on the PWI require a DNR Public Waters Work Permit for proposed impacts below the Ordinary High Water Level (OHWL).

Data Sources and Methodology

Wetlands in the study area were inventoried using published data sources, including high resolution aerial photography, National Wetland Inventory (NWI) mapping, Public Waters Inventory (PWI) mapping, topographic maps, and hydric soils mapping. For purposes of the wetland survey, the potential impact area was defined as approximately 500 feet on either side of the center line of the Alignments. A GIS shapefile identifying all NWI mapped wetlands was used to classify and inventory sensitive areas.

Comparative Analysis

Overall wetland acreages and types of wetland are listed below in Table 13. Areas of NWI-mapped wetlands within the study area are identified in Figure 6. No known wetland impacts are known at this time.

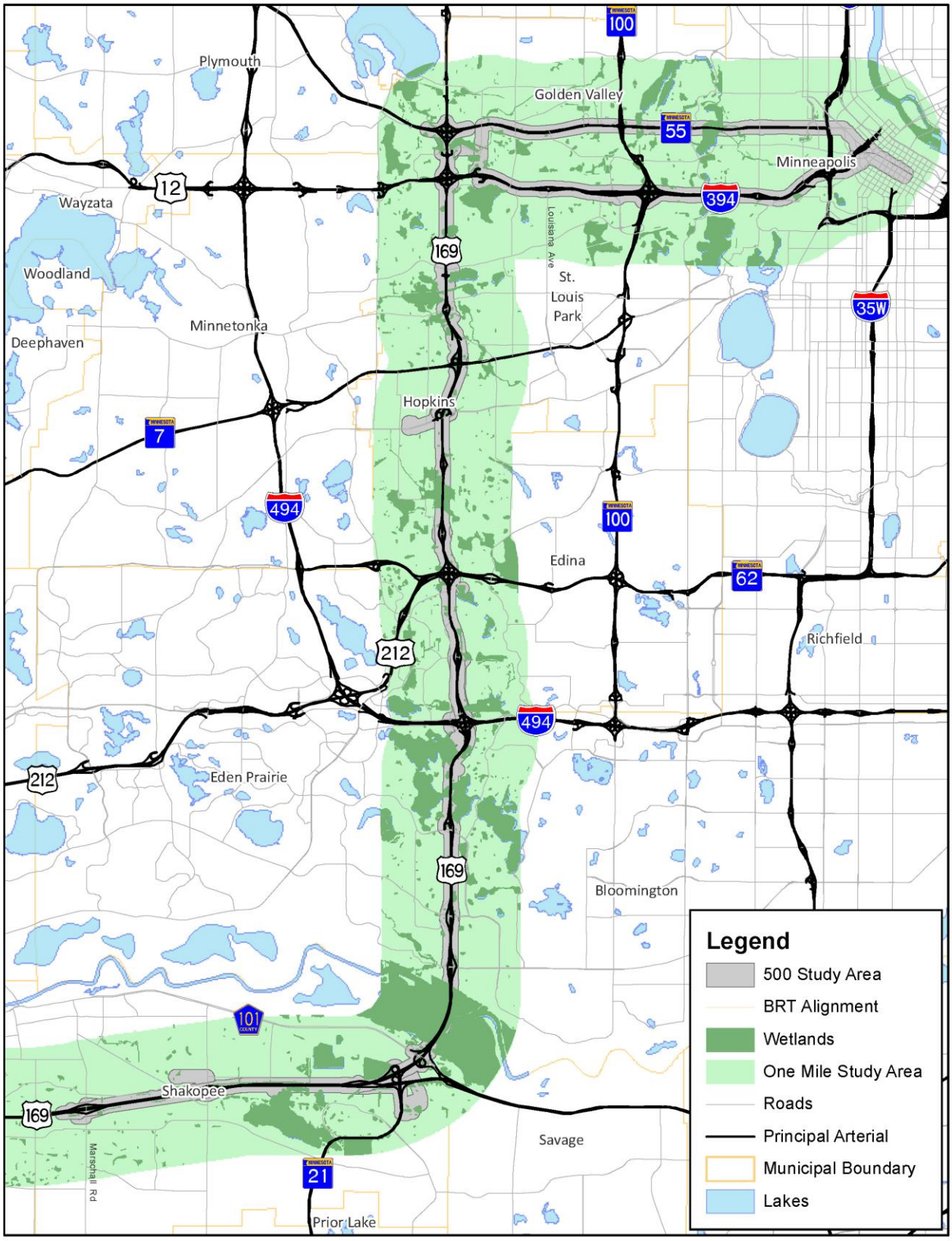
Table 13: Wetland Types within 500' of the Proposed Action

Alignment	Unique Wetlands	Total Wetland Acres	Riverine Acres	Lake Acres	Freshwater Pond Acres	Freshwater Forested/ Shrub Wetland Acres	Freshwater Emergent Wetland Acres
BRT Alignment via Highway 169 and Highway 55	332	491	18	55	90	127	201
BRT Alignment via Highway 169 and I-394	298	461	14	44	90	126	187
Truncated MnPASS Alignment	135	262	11	38	42	75	96
Full MnPASS Alignment	279	455	17	50	75	111	202

Conclusions

Based on the nature of the project and modest to no road width expansions, it is unlikely that either of the Alignments would adversely affect any nearby wetlands.

Figure 6: Wetlands



Floodplains

Overview

A floodplain is the area adjacent to streams or lakes that is inundated from time to time and is the area required to store and/or allow passage of flood waters. Communities must regulate development in floodplains/floodways to ensure that there are no increases in upstream flood elevations. The floodplain also contains the floodway fringe, which may be inundated during larger flood events such as the 100-year or 500-year flood. A 100-year flood zone is defined as the area inundated during a one-percent annual chance flood. A 500-year flood zone is the area inundated during a 0.2 percent annual chance flood.

Regulatory Framework

Floodplains for the various water bodies and water courses in the study area are regulated under a number of agencies. The 100-year and 500-year floodplain boundaries for many water bodies are established via the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) program. Municipalities and watershed management organizations use these maps to establish rules and/or ordinances that regulate the use of and fill encroachment into floodplains. The Minnesota DNR assists the communities in establishing ordinances, interpreting, and reviewing proposed floodplain boundary changes. The DNR also has regulations regarding the maximum allowable increase in flood stage that can occur due to a floodplain encroachment within DNR-protected streams and lakes.

Data Sources and Methodology

Flood Insurance Rate Maps for Scott and Hennepin Counties were examined online[3] for determination of potential floodplain and floodway impacts for all communities and Alignments considered in the Highway 169 Mobility Study corridor. The Metropolitan Council provided a GIS shapefile layer named FEMA Unmodernized Floodplains and Floodways that indicate areas within the 100-year and 500-year Floodplain boundaries. That data is shown in Figure 7.

The Minnesota Board of Water and Soil Resources provided a GIS shapefile of current Watershed Management Districts and Organizations. There are two Watershed Management Organizations (WMOs) within the one mile study area. They include: the Basset Creek WMO and Mississippi River WMO. Five Watershed Management Districts were located within the study area. They include: Lower Minnesota River, Prior Lake-Spring Lake, Riley-Purgatory-Bluff Creek, Nine Mile Creek, and Minnehaha Creek.

3 FEMA Flood Map Service Center: https://msc.fema.gov/portal

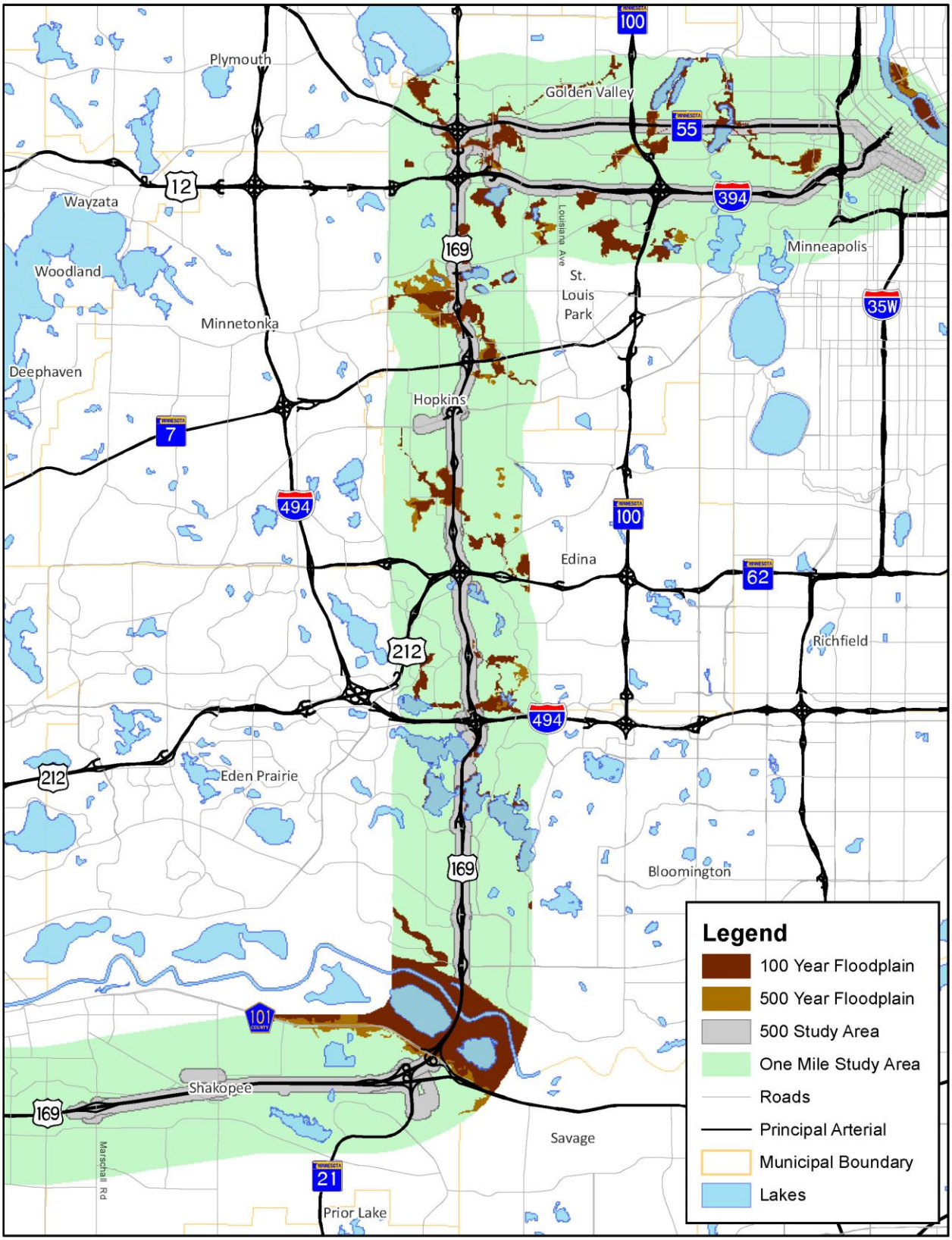
Comparative Analysis

100-year and 500-year floodplains are displayed in Figure 7.

Conclusions

The project is not anticipated to have any floodplain impacts as a result of BRT and/or MnPASS Alignments. If necessary, further floodplain assessment would be completed as part of future environmental documentation, including coordination with Minnesota DNR and the five local WMOs.

Figure 7: 100 and 500-Year Floodplains



Hazardous Materials and Existing Contamination

Overview

Properties with potential to contain contaminated materials should be identified in the early stages of a project to avoid impacts caused by disturbing hazardous soils. The property owner or operator is liable for cleanup for contaminated areas within the project area, so it is critical to identify these areas before agency acquisition to prevent unexpected costs and delays.

Regulatory Framework

The cleanup of contaminated materials is regulated by the Minnesota Environmental Response Liability Act[4] (MERLA), Chapter 115B, Petroleum Tank Release Cleanup Act[5], Chapter 115C, and two United States Environmental Protection Agency (EPA) acts - Comprehensive Environmental Response Compensation and Liability Act[6], and the Resource Conservation and Recovery Act[7] (RCRA). At the federal level, the EPA manages Superfund cleanup sites regulated by the Comprehensive Environmental Response, Compensation, and Liability Act, while in Minnesota, contaminated materials are regulated by the Minnesota Pollution Control Agency (MPCA).

Data Sources and Methodology

Potentially contaminated properties are often found in industrial and commercial areas. Buildings may contain materials such as asbestos, lead paint, fluorescent lights, and chemicals. Properties may contain buried or above ground storage tanks which may or may not be leaking. Contaminated materials or soils may also have been abandoned at the ground surface or buried.

A search of the MPCA "What's in my neighborhood?" database was conducted to inventory previously investigated properties, properties suspected of contamination, and currently enrolled cleanup sites, including those managed under the Superfund program. These sites will include the following WIMN categories: Feedlots, Voluntary Investigation and Cleanup (VIC), Tanks and Leaks, and Multi-Use sites. The analysis concludes with a summary of sites found within the West Broadway Transit study area and a comparison of the number of potentially contaminated sites found within the area of potential effects (approximately 1,000 feet from existing Highway 169 centerline).

[4] https://www.revisor.mn.gov/statutes/?id=115B

[5] https://www.revisor.mn.gov/statutes/?id=115C

[6] https://www.epa.gov/laws-regulations/summary-comprehensive-environmental-response-compensation-and-liability-act

[7] https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act

Comparative Analysis

A total of 801 hazardous material sites can be found within 500 feet of the alignments. The BRT Alignments have more total contaminated sites and active sites in comparison with the MnPASS Alignments. Of the BRT Alignments, the I-394 alignment has more hazardous waste sites, and more active sites, tank sites, and leak sites than the Highway 55 BRT alignment. Many of the hazardous material sites are confined to the city of Minneapolis at the east end of the corridor As can be expected, the MnPASS Alignments due to their shorter distances have less hazardous material sites as compared to each of the BRT Alignments. The MnPASS Alignments have a lower overall density of sites as well. A comparison of each of the Alignments can be found in Table 14, and displayed in Figure 8.

Table 14: Potentially Contaminated Sites within 500' of the Alignments

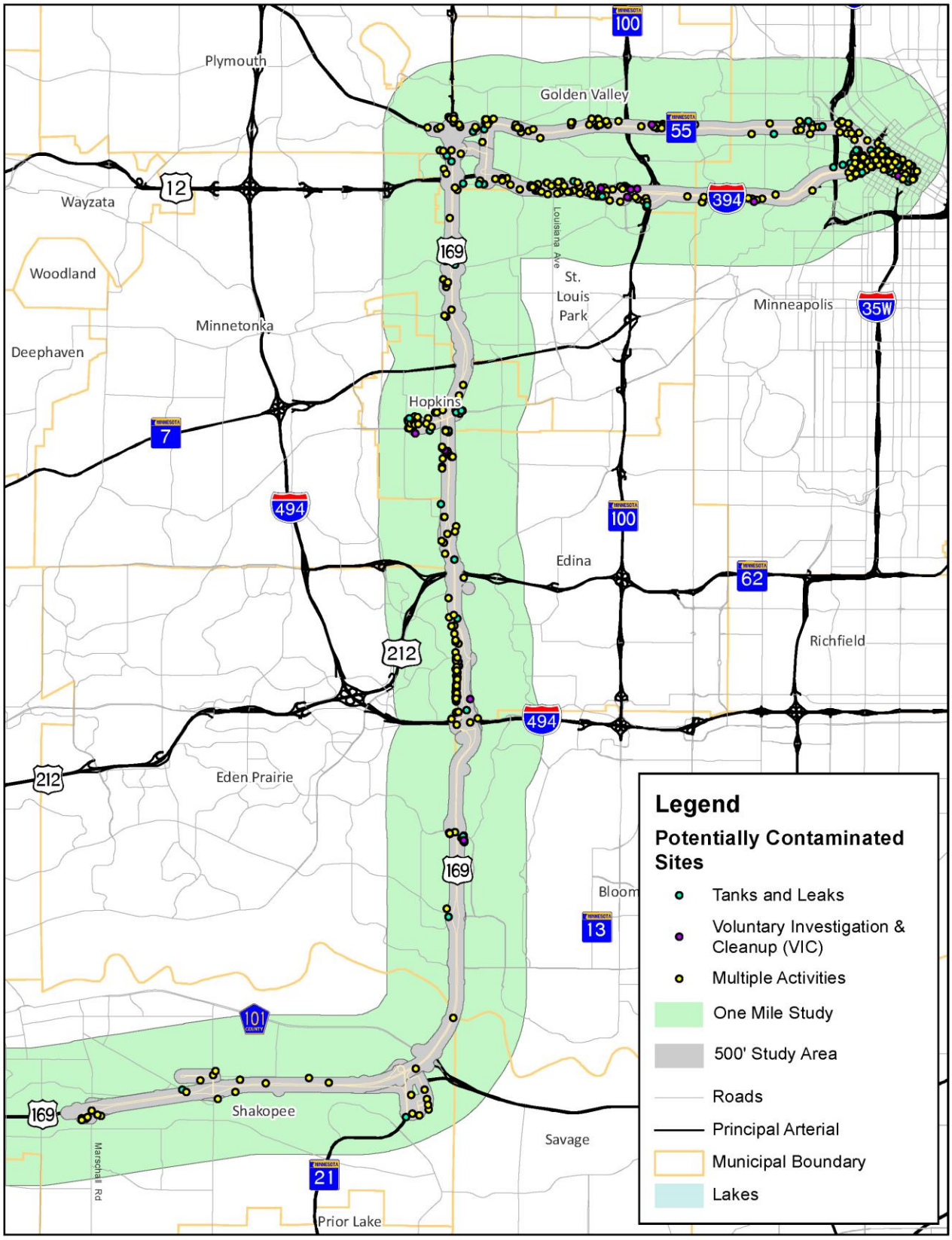
Alignment	Total	Active Sites	Tank Site	Leak Site	Industrial	Voluntary Investigation and Cleanup	Construction Stormwater Permit	Petroleum	Air Permit	Hazardous Waste	Multiple Activities
BRT Alignment via Highway 169 and Highway 55	494	282	25	20	15	9	33	1	5	191	73
BRT Alignment via Highway 169 and I-394	607	344	62	34	11	22	43	6	5	321	98
Truncated MnPASS Alignment	49	28	3	3	1	3	11	-	-	26	2
Full MnPASS Alignment	201	112	10	11	9	9	24	-	3	116	20

Conclusions

The BRT alignment runs through areas of past and present industrial and commercial land uses. The potential for encountering contaminated soils or groundwater is high, however, soil and groundwater contamination are most likely to be encountered in areas where the project requires soil excavation. For the BRT Alignments, soil excavation may be required at station sites. For the MnPASS Alignments, soil excavation may be required where land is converted to a transportation use.

More detailed analysis is necessary to determine if construction of any of the project Alignments is likely to encounter contaminated soils or groundwater. A Phase I Environmental Site Assessment will be completed for the corridor as part of a future environmental document and will further assess impacts to potentially contaminated sites located within the project's construction limits.

Figure 8: Hazardous Material Sites



Land Use

Overview

Land use plays a vital role in determining the success of a transitway investment. Denser, higher-activity land uses are more conducive to transit use than low-density uses. Future development plans for areas surrounding proposed transit stations in the various Alignments are examined for consistency with a large-scale transitway investment.

Regulatory Framework

No specific laws or executive orders regulate the topic of land use. The National Environmental Policy Act (NEPA, 41 USC 4321) and Minnesota Environmental Policy Act (MEPA 2007 c 116DD) form the general basis of consideration for land use within environmental documents.

Data Sources and Methodology

A quantitative approach was used to measure consistency of future land use plans. Using GIS, a half-mile buffer was used to evaluate existing and future land uses in each community. The half-mile radius is commonly used by planners to represent the distance transit users are willing to walk to access a BRT station.

Existing and planned land use GIS shapefiles were provided by Met Council and were evaluated and inventoried. Acreages of each land use type were caluculated for all of the corridor communities.

Comparative Analysis

Because the two BRT Alignments overlap along the Highway 169 segment corridor, the analysis of nearby land uses reveals no differences between the land use qualities in that section and at the following station locations:

- Marschall Road Stations
- Canterbury Stations
- Southbridge Crossing Stations
- Pioneer Trail Stations
- Viking Drive/Washington Avenue Stations
- Bren Road Stations
- Hopkins Stations
- Cedar Lake Road Stations

However, the segments along Highway 55 and I-394 offer different land use environments that bear analysis. Because operation of the BRT Alignments on existing highways/interstates is not anticipated to have land use impacts between stations, the BRT impact is near (within a half-mile of) station locations. Existing and future land use maps for the entire corridor as well as the half-mile buffer areas around station locations can be found on Figure 9 through Figure 12.

Highway 169 and 55 BRT Alignment

The Highway 169 and 55 BRT Alignments extends from the western limits of Golden Valley to Minneapolis, a distance of approximately six miles. The Highway 55 BRT Alignment uses four stations locations including Winnetka Avenue Station, Douglas Drive Station, Theodore Wirth Parkway Station Penn Avenue Station, and 7th Street Stations. The Betty Crocker Drive Station (west), and the Downtown Station in the City of Minneapolis (east) are used by both Highway 169 and 55 BRT Alignment and the Highway 169 and I-394 BRT Alignments.

Betty Crocker Drive Stations:

The Betty Crocker Drive Stations are located along the western edge of the city of Golden Valley. The station is located north of the General Mills Headquarters office on Betty Crocker Drive, and serves as the station location for both the Highway 169 and 55 BRT and Highway 169 and I-394 Alignments. The station primarily serves General Mills Headquarters, the General Mills Nature Preserve, Brookview Golf Course, and offices and single family residential homesites. Employment denisities in the TAZ nearest the station locations range from 15-25 employees per acre.

Future land use within ½ mile of the Betty Crocker Drive Station will go largely unchanged. Undeveloped land north of Betty Crocker Drive may infill with medium low density residential (5-12 units per acre).

Winnetka Avenue Stations:

The Winnetka Avenue Station is located in the city of Golden Valley. Existing uses within ½ mile of the station location include retail and commercial, office, and institutional land immediately north of the stations with industrial and single family residential approximately ¼ mile north. To the south, Brookview Golf Course and Brookview Park dominate along with, single family and a pocket of undeveloped properties exist. Employment denisities in the TAZs nearest the station locations range from 12-15 employees per acre.

Future land use for the area will remain largely the same with the potential to infill or convert some single family residential to medium-high density (12-20 units per acre) residential north of highway 55. To the south, undeveloped land will hold additional low to medium density residential (5-12) units per acre.

Douglas Drive Stations:

The Douglas Drive Station is located in Golden Valley. Existing land uses support employment north of Highway 55 and include primarily industrial, retail and commercial, and office uses. South of Highway 55, is almost exclusively single family residential with the exception of institutuional land associated with the Perpich Center of Arts Education. Employment denisities in the TAZs nearest the station locations range from 1-15 employees per acre.

South of Highway 55, there are no current plans to convert future land use. North of Highway 55, existing uses will remain with the possibility for multi-optional development immediately north and east of the station Douglas Drive Station location, which is currently industrial.

Theodore Wirth Parkway Stations:

The Theodore Wirth Parkway Station is located near the eastern limits of Golden Valley. Existing land use to the north of Highway 55 is a mix of office and institutional uses including the Breck School Anderson Arena to the northwest and the Theodore Wirth Park and Golf Course to the northeast.

South of Highway 55, single family residential land is located west of Theodore Wirth Parkway along with South Wirth Apartments (multifamily) north of Woodstock Avenue. Wirth Lake and surrounding park/open space dominate land use east of Theodore Wirth Parkway within ½ mile of this station. Employment denisities in the TAZs nearest the station locations range from 2-6 employees per acre.

There are no planned changes to future land use within ½ mile of the Theodore Wirth Parkway Station.

Penn Avenue Station:

The Penn Avenue Station is located in the City of Minneapolis. Existing land near the station is a mix of residential uses, including single family attached and detached homes with the occasional multifamily unit/apartment. Some park land (Basset's Creek Park) and open space near Bassett Creek exist ¼ to ½ mile south and southwest of the station locations. Due to the largely residential makeup of the areas around the Penn Avenue Station, employment denisities in the TAZs nearest the station locations are less than one employees per acre.

Future land use is almost entirely multi-optional development and described as an urban neighborhood with 8-20 units per acre. Exceptions include the park and open space areas near Basset Creek Park which will remain park and open space.

7th Street Stations:

The 7th Street Stations are located in the City of Minneapolis east of I-94. This area is surrounded by industrial and utility, commercial, and multifamily apartment buildings. This location is within two blocks of Target Field, home of the Minnesota Twins, and four blocks of Target Center, home of the Minnesota Wild, and Minnesota Timberwolves. Employment denisities in the TAZs nearest the station locations range from 6-30 employees per acre.

Future land use is likely to remain much the same with some institutional and multi-optional development with a mixed use residential focus and residential development of greater than 20 units per acre north of Highway 55.

Highway 169 and I-394 BRT Alignment

Betty Crocker Drive Station:

As mentioned in the previous section, The Betty Crocker Station serves as the station location for both the Highway 169 and 55 BRT and Highway 169 and I-394 Alignments, and is described above.

Louisiana Avenue Station:

The Louisiana Avenue Station is located along the northern border of the City of St. Louis Park and the south border of the City of Golden Valley. Existing land near the station is primarily retail and commercial adjacent to I-394, transitioning to industrial uses to the north. Specific uses include big box retail, restaurants, gas stations and auto dealerships. To the south of I-394, single family residential with the occasional multifamily unit/apartment and park land exist. Employment denisities in the TAZs nearest the station locations range from 2-10 employees per acre.

Existing commercial and industrial land uses north of I-394 near Louisiana Avenue will transition to mixed uses with 20-30 units per acre in the future. Single family land uses will dominate the ½ mile area south of Louisiana Avenue. Any future development will likely become medium density residential with 6-30 units per acre.

West End Station:

The West End Station is located east of Xenia Avenue/Park Place Boulevard along the northern border of the City of St. Louis Park and the south border of the City of Golden Valley.

Existing land use north and west of Xenia Avenue is a mix of office and industrial uses with single family and multifamily residential approximately ¼ - ½ mile from the station locations. East of Xenia Avenue, office and commercial uses give way to single family residential homesites west of Highway 100. South of I-394, office retail and commercial, wholesale, and restaurants can be found. Employment denisities in the TAZs nearest the station locations range from 15-45 employees per acre.

Future land use north of I-394 will convert to mixed uses over time with 20-30 units per acre west of Xenia Avenue. Single family residential land will remain. To the south of the stations, existing office and commercial will remain and will likely infill with higher densities.

Hennepin Avenue Stations (6th and 7th Streets):

The Hennepin Avenue Stations are located in downtown Minneapolis south of I-394 and east of I-94. This area is urban providing a mix of multifamily and condominium residential uses as well as commercial shopping areas, industrial, hotels, restaurants, office space, institutional and recreational land uses. High rise buildings are preveleant near Hennepin Avenue and 7th Street increasing employment denisities drastically in this area to as high as 100-700 employees per acre in the TAZs nearest the station locations.

Future land uses will consist of commercial, office space, and institutional infill and redevelopment opportunities. Some high density mixed use residential development (with over 20 units per acre) are possible north of the stations in the future.

Nicolett Mall Stations (6th and 7th Streets)

Nicollett Mall is a twelve block shopping and dining district in downtown Minneapolis that provides many jobs to nearby residents. Similar to other downtown station locations, high rise buildings increase employment densities between 150-700 employees per acre in the TAZs adjacent to the Nicolett Mall Stations.

Future land uses near the Nicolett Mall Station will remain commercial, with restaurants and hotels nearby

3rd Avenue Stations (6th and 7th Streets):

The 3rd Avenue Stations are located in downtown Minneapolis adjacent to the Hennepin County Courthouse. The area surrounding the stations consist of high rise commercial and financial office buildings and hotels. Several restaurants and some downtown greenspaces can be found in this location as well. Employment densities range between 200-250 employees per acres in the TAZs adjacent to the 3rd Avenue Stations.

Future land uses near the 3rd Avenue Stations will remain commercial.with possible public and institutional land north of 6th Street. Any mixed use residential opportuniites will likely be high density with 20 or more units per acre.

Planned land uses in the City of Minneapolis, with their higher residential and employment densities and abundance of commercial, industrial, and mixed use options, provide the most condusive environment for successful BRT operations and ridership.

Conclusions

Based on the urban nature of the project, it is unlikely that either of the Alignments would adversely affect any federally-listed or state-listed threatened and endangered species.

Figure 9: Existing Land Use – Corridor-wide

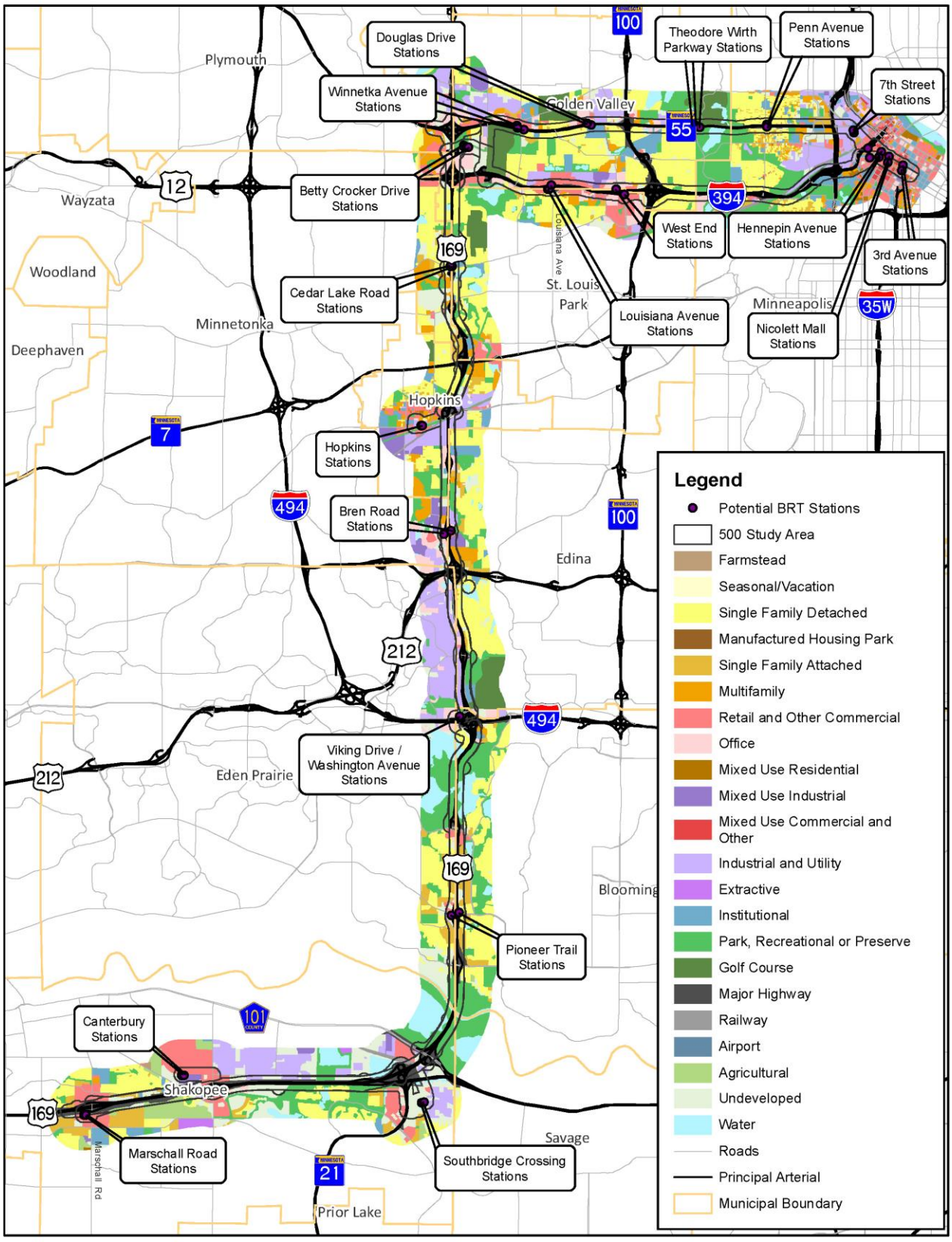


Figure 10: Existing Land Use within ½ mile of Potential Station Locations

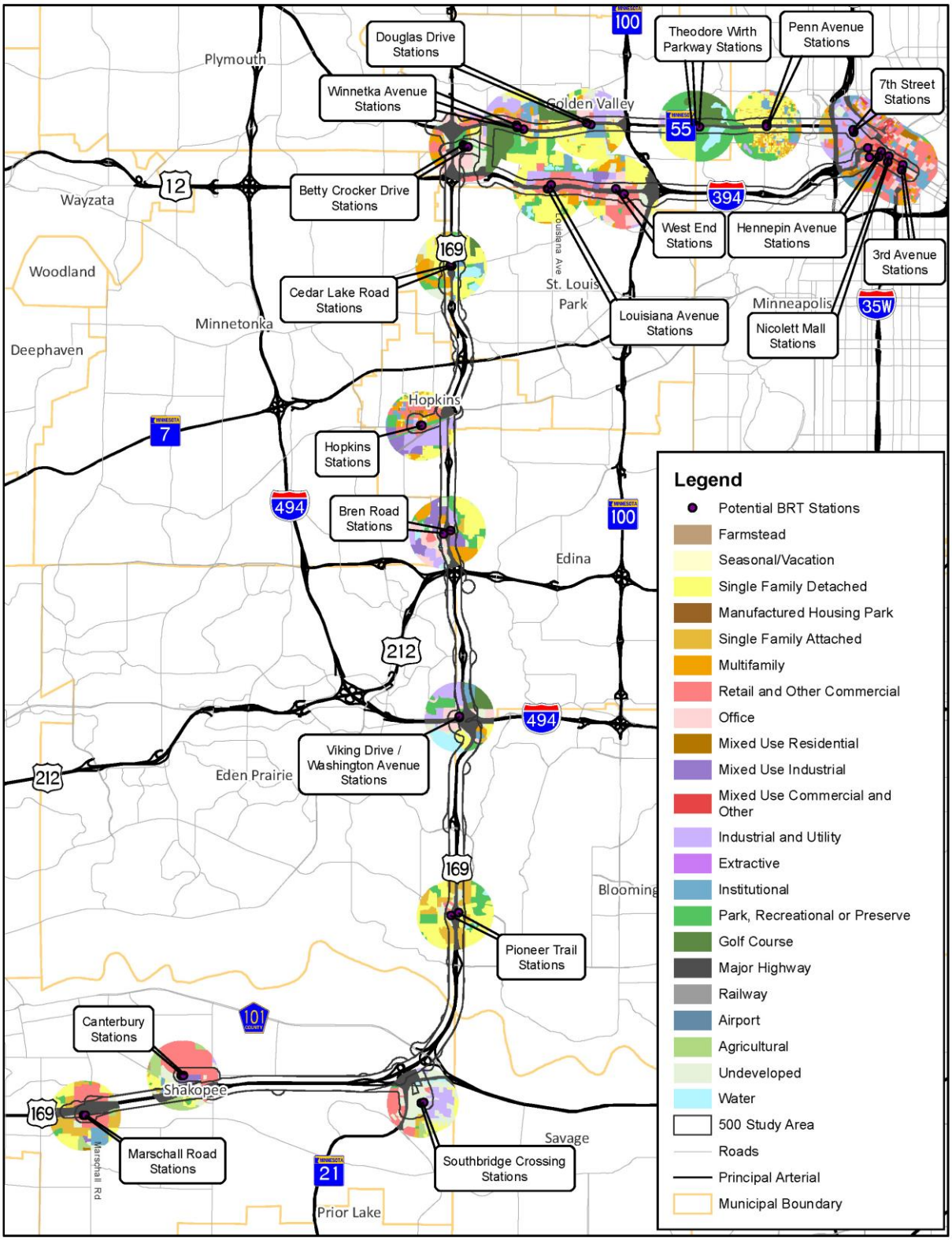


Figure 11: Future Land Use – Corridor-wide

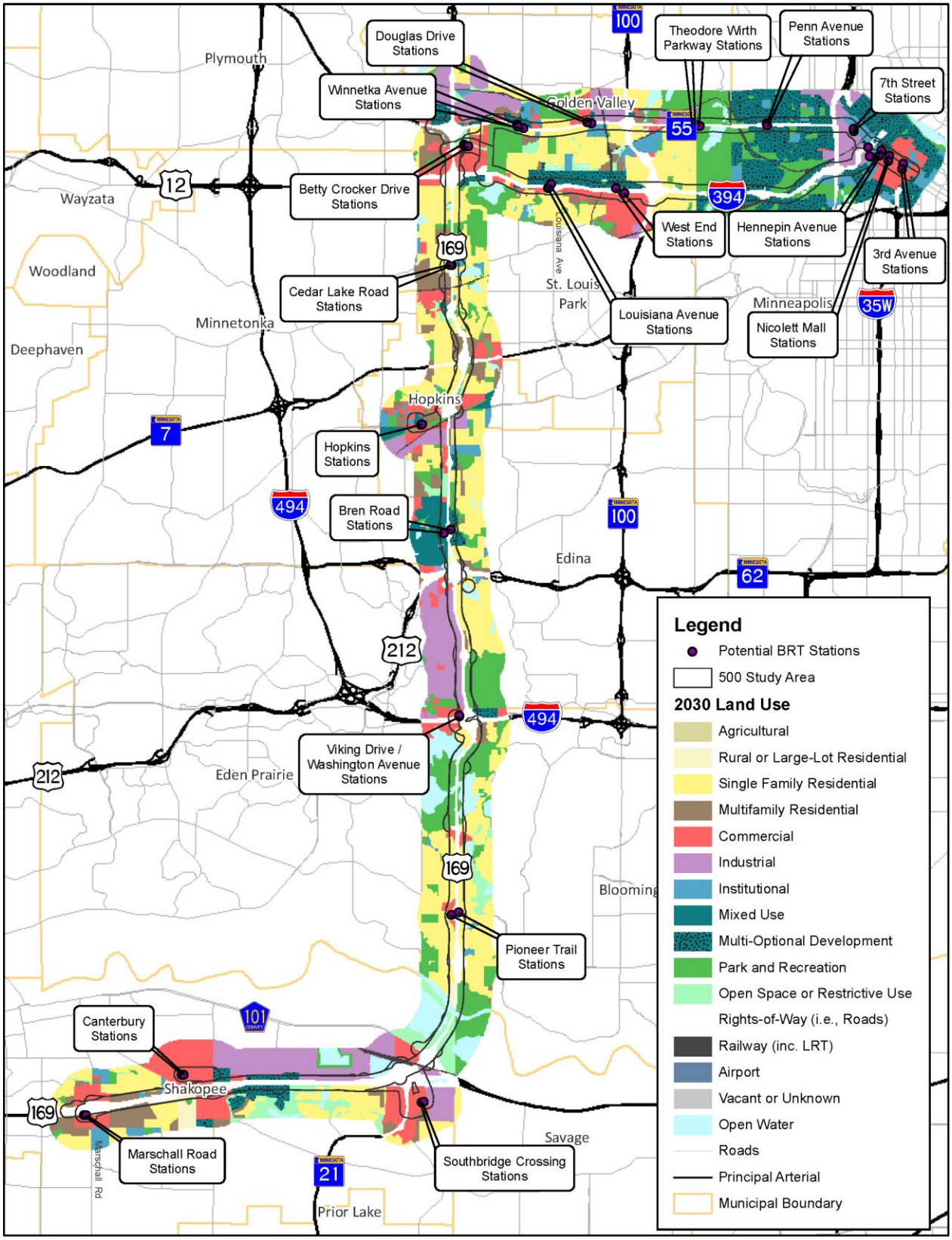
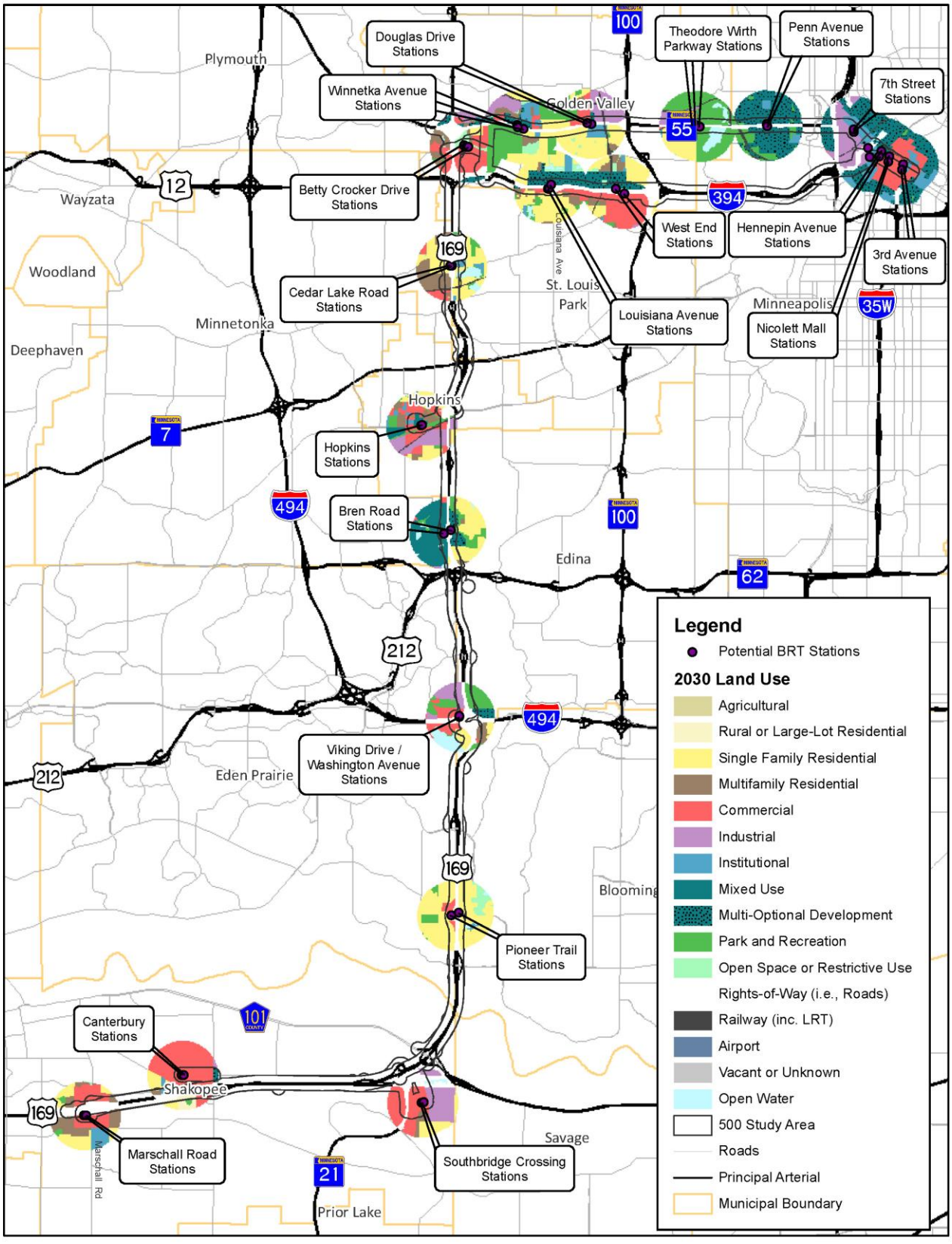


Figure 12: Future Land Use within ½ mile of Potential Station Locations



Multi-modal, Bicycle, and Pedestrian Access to Stations

Overview

This section outlines existing bicycle and pedestrian policy and infrastructure near proposed station locations along two alternatives for Highway 169 Bus Rapid Transit (BRT.) Below is a table with stations south to north, denoting municipalities, counties, and alternatives for each.

Table 1. Alternative 1 (I-394) and 2 (TH 55) Highway 169 BRT Stations

Station	Municipality	County	Alternative(/s)
Marschall Road	Shakopee	Scott	Both
Canterbury	Shakopee	Scott	Both
Southbridge Crossing	Shakopee	Scott	Both
Pioneer Trail	Eden Prairie, Bloomington	Hennepin	Both
Viking Drive/Washington Ave	Eden Prairie	Hennepin	Both
Bren Road	Edina, Minnetonka	Hennepin	Both
Hopkins	Hopkins	Hennepin	Both
Cedar Lake Road	Saint Louis Park, Minnetonka	Hennepin	Both
Betty Crocker Drive	Golden Valley	Hennepin	Both
Louisiana Avenue	Saint Louis Park, Golden Valley	Hennepin	Alt 1, I-394
West End	Saint Louis Park, Golden Valley	Hennepin	Alt 1, I-394
Winnetka Avenue	Golden Valley	Hennepin	Alt 2, TH 55
Douglas Drive	Golden Valley	Hennepin	Alt 2, TH 55
Theodore Wirth Parkway	Golden Valley	Hennepin	Alt 2, TH 55
Penn Avenue	Minneapolis	Hennepin	Alt 2, TH 55
7th Street	Minneapolis	Hennepin	Alt 2, TH 55
Downtown Minneapolis (4)	Minneapolis	Hennepin	Both

Data Sources and Methodology

This section explores the bicycle, pedestrian and multi-modal policy and priorities for each municipality and county, and the existing infrastructure at each station. Sources for local policy come from municipalities comprehensive plans, visioning documents, and related policy priorities. Quotes are sourced with footnotes. Existing infrastructure was examined using Google Streetview and Google Earth imagery.

Comparative Analysis

Local Policy

Local policy on multi-modal, bicycle, and pedestrian infrastructure has a great impact on how easy it is to get around. For each municipality, there is a bulleted list of related language in comprehensive plans that surrounds either the priority of pedestrian or bicycle infrastructure, any future plans to expand active transportation infrastructure to areas near proposed station locations, and priority to connect people biking and walking to transit stations. Multi-modal policy language is included for Golden Valley and Saint Louis Park. Because many comprehensive plans are currently under review and reaching the end of their usefulness, any discoverable information about feedback or visioning for the comprehensive plans in production is included.

Shakopee

- Shakopee Transportation Plan:
- "… to promote pedestrian safety, as well as access, is to provide a coordinated network of sidewalks in locations where there is **sufficient demand**. The City's policy for sidewalks has been to provide a five-foot sidewalk on one side and an eight-foot bike trail on the other side for all roadways of collector functional classification and higher. This policy will continue. In addition, the City will now formally require that all local feeder streets have sidewalks."[8]
- No specific listed plans to expand pedestrian or bicycle networks, just to include off street facilities on collector roadways and require feeder streets to have sidewalks.
- No formal priority to connect pedestrian and bicycle infrastructure to transit or definition of "sufficient demand."

Shakopee has very little language in their transportation plan on biking and walking, but they do have a strong commitment to off-street facilities on collector roads. Information on updates to the comprehensive plan is not yet available.

[8] Shakopee Transportation Plan, December 2008 http://www.shakopeemn.gov/home/showdocument?id=384

Eden Prairie

- Comprehensive Plan, Transportation Element:
- "Transportation Goal Three: Plan for and promote the use of bicycle and pedestrian facilities in the effort to reduce single-occupant vehicle use."[9]
- Comprehensive Plan, Active Community Planning:
- "Active Community Planning Goal One: Promote planning and design that improves physical and mental health in the community."[10]
- "9.5 PATHWAYS AND ACCESSIBILITY People need direct, accessible, and convenient pathways to destinations that satisfy their daily recreation and transportation needs. The City will encourage walking and biking by requiring redevelopment projects to connect to citywide sidewalks and trails system." [11]
- Eden Prairie adopted the Southwest Corridor Investment Framework, which supports new and improved pedestrian and bicycle facilities near proposed Southwest LRT stations.

Eden Prairie has both a transportation chapter, and an Active Living chapter of their last comprehensive plan. Eden Prairie did not have specific language about connecting those walking and biking to transit stations. There is no specific language supporting the active transportation networks to job centers, where the stations are in Eden Prairie. Information on updates to the comprehensive plan is not yet available.

Bloomington

- Has an Alternative Transportation Plan (2008, updated 2016) and passed a complete streets policy in Feb 2012.
- Alternative Transportation Plan:
- "Principle #3: Include alternative transportation features into public and private built infrastructure as new development or redevelopment occurs over time."[12] (ATP 2016)

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[9] City of Eden Prairie, Transportation Element 10-20-09, page 5-2, http://www.edenprairie.org/home/showdocument?id=392

[10] City of Eden Prarie, Active Community Planning 10-20-09, page 9-1, http://www.edenprairie.org/home/showdocument?id=387

[11] City of Eden Prarie, Active Community Planning 10-20-09, page 9-2, http://www.edenprairie.org/home/showdocument?id=387

[12] City of Bloomington Alternative Transportation Plan, Vision and Values Section 2, page 2-13, https://www.bloomingtonmn.gov/sites/default/files/media/Section%202.pdf

- No routes that connect to/across Highway 169 are highlighted as a priority in the implementation section of the Alternative Transpiration Plan, but there are 3 existing off-street paths.[13]
- Documentation of participation in setting goals for the new comp plan show residents are asking for improved mobility options.

Bloomington has robust documented policy and plans to support pedestrian and bicycle facilities, and there is public support to continue and support the work. Though there are no planned improvements to facilities near station areas, there is existing infrastructure that connects Eden Prairie and Bloomington over Highway 169.

Edina

- Hardly any mention of pedestrians in the Transportation Chapter of the Comprehensive Plan, Edina does have a stand-alone Bike Plan from 2007, but it is outdated to consider for this study.
- Vision Edina (Foundation for the Comprehensive Plan):
    - "Participants in the Vision Edina process expressed a strong desire to continue to expanda variety of transportation options to both reduce dependency on automobiles and enhance the community's work and life balance, and ease of connectivity. Walking, biking, and transit options represent key amenities that help residents feel connected to their community, and improve the overall quality of life."[14]
- "Continue to promote and develop the sidewalk, trail and bike networks to improve accessibility and connectivity throughout the city and beyond."

Edina does not have a lot of recent policy or plans to support development of bicycle and pedestrian infrastructure, but they do have documented public outreach in support.

[13] City of Bloomington Alternative Transportation Plan, Implementation Section 4, page 4-6, https://www.bloomingtonmn.gov/sites/default/files/media/Section%202.pdf

[14] Vision Edina – Strategic Vision Framework, May 2015, page 8. http://edinamn.gov/edinafiles/files/About_Edina/VisionEdina/VisionEdina_FINAL.pdf

Minnetonka

- Minnetonka 2030 Comprehensive Plan:
    - "Policy No. 6: Encourage the expansion of multi-modal and transit services in the city with other government agencies to support resident and business transportation needs."
    - "Policy No. 7: Plan for trails and pedestrian ways as a transportation mode and provide a network of trails and pathways connections to: … and access to transit services." [15]

Minnetonka takes a forward approach to ensuring access to active transportation, and they recognize the need for connections between pedestrian and bicycle networks to transit. Minnetonka has also adopted the Southwest Corridor Investment Framework, which supports new and improved pedestrian and bicycle facilities near proposed Southwest LRT stations.

Hopkins

- Hopkins Comprehensive Plan:
- "The City will improve pedestrian and bicycle accessibility between the regional trails and the Hopkins central business district."
- "Hopkins will strive to create excellent pedestrian environments in and around its future LRT stations and TOD areas."[16]
- No meaningful Hopkins comprehensive plan update info yet, they are still issuing an RFQ for their update.

Hopkins has a nearly full pedestrian network and taken great efforts to support new transit stations with pedestrian and bicycle access. Specific to the proposed Southwest LRT station near the BRT station in this study, Hopkins has worked to strengthen the crossing of Excelsior Boulevard at 8th Avenue S. Hopkins has also adopted the Southwest Corridor Investment Framework, which supports new and improved pedestrian and bicycle facilities near proposed Southwest LRT stations.

Saint Louis Park

- Does not call out creating connections to transit for people walking & biking, but does focus on making a city-wide system where every part of the city is close to somewhere you can safely walk or bike.
- Focus is on active living. Wayzata Blvd is mapped as part of both conceptual bike and bicycle grids, though not highlighted as an immediate priority, and ranked as the lowest priority for a

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[15] Minnetonka 2030 Comprehensive Plan, Chapter 3, August 2008, page 17.

https://eminnetonka.com/documents/comprehensive_guide_plan/2030/ch_3_overall_policies.pdf

[16] Hopkins Comprehensive Plan, Chapter 8, 2009, pages 1 and 9.

http://www.hopkinsmn.com/development/plan/pdf/08-transportation.pdf

future bikeway.

- Comprehensive Plan, Chapter V Connecting Our Community:
- "Goal 1: Systematically review and improve bicycle and pedestrian crossings at major road intersections, highways and railroad tracks."
- "Goal 2: Provide for the needs of pedestrians, bicyclists and transit riders when designing roads and road improvements."
- "Transit Goal 3 Provide comfortable, safe and accessible transit stops for pedestrians along transit lines including bicycle parking, benches and shelters where warranted and feasible."
- "Transit Goal 2 Promote increased use of transit, through support of a multimodal system including buses, light rail, local circulators, and access via sidewalk and trails.

  Strategy A Work with employers to encourage use of such programs as Transit Pass and Ridesharing to increase transit usage." [17]

Saint Louis Park has a long and deep commitment to active transportation, but has not focused their attention on connections with Golden Valley to the north across I-394.

Golden Valley

- Bike & Pedestrian Task Force minutes suggest community members are more supportive of protected bikeway on Glenwood Avenue than city staff. Glenwood is a corridor parallel to TH 55 that would serve as a connection to many now unconnected bikeways.[18]
- In the spring of 2016, a team of Humphrey students completed a capstone on how the City could create a bike plan, and the City is using it as a guide for their plan now.[19]
- Golden Valley Comprehensive Plan:
- "Goal 3: Implement Bicycle and Pedestrian Facility Improvements"[20]

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[17] City of Saint Louis Park Comprehensive Planning 2030, Section V, 2009.

https://www.stlouispark.org/webfiles/file/community-dev/v_bicycles_and_peds.pdf

[18] 03-08-17 Bike and Ped Task Force Agenda, City of Golden Valley, 2017. http://weblink.ci.golden-valley.mn.us/Public/Browse.aspx?startid=546766&dbid=2

[19] Creating a Golden Valley Bicycle Plan, Berner, Jorgensen, Kleingartner, 2016. http://www.goldenvalleymn.gov/planning/comprehensiveplanupdate/pdf/GoldenValleyBikePlan2016.pdf

[20] Golden Valley Comprehensive Plan, Chapter 7, 2008. http://www.goldenvalleymn.gov/planning/comprehensiveplan/pdf/07-Transportation.pdf

- "2. The City will work with residents, businesses, and partnering agencies to improve the connectivity of existing facilities by providing links through gap areas that warrant new facilities."
- "6. The City will, if appropriate, integrate future pedestrian and bicycle facilities with roadway improvements to reduce construction costs, maintenance issues, and private property impacts."

- Golden Valley Comprehensive Plan:
- "Goal 4: Improve Community Connectivity"
  - "Objective: Provide solutions for all modes of travel that demonstrate connectivity concerns."

Although Golden Valley's support of bicycle and pedestrian facilities was weak compared to their municipal neighbors in the past, they are currently in the planning process to bolster not only their network internally but also connections to other municipalities.

Minneapolis

- Adopted a Complete Streets Policy (May 2016.)[21], a Pedestrian Master Plan (2009) and a Bicycle Master Plan (2011) as part of the fulfillment of Access Minneapolis—a Ten Year Transportation Action Plan that began in 2005.
- Plans to update Glenwood bicycle and pedestrian facilities in the current round of funding. Glenwood is a corridor parallel to TH 55.
- Comprehensive Plan Goals:
  - "2.3.1 Ensure that there are safe and accessible pedestrian routes to major destinations, including transit corridors, from nearby residential areas."
  - "2.5.1 Complete a network of on- and off-street primary bicycle corridors."[22]

Minneapolis has dedicated funding and priorities to enhance pedestrian and bicycle infrastructure, though at times the dense urban environment makes it difficult to create safe facilities.

[21] Complete Streets Policy, City of Minneapolis, 2016. http://www.minneapolismn.gov/publicworks/transplan/WCMSP-181980

[22] The Minneapolis Plan for Sustainable Growth, Chapter 2 Transportation, City of Minneapolis, 2009. http://www.ci.minneapolis.mn.us/www/groups/public/@cped/documents/webcontent/convert_277813.pdf

Existing Infrastructure & Possible Improvements by Station

The following assessments of access to stations by people walking and riding bikes focuses on existing infrastructure and the types of infrastructure improvements that would enhance access. For reference, please view Appendix 1 which includes detailed maps of station areas.

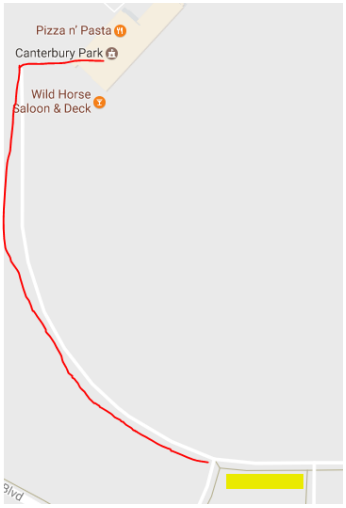
Marschall Road

The station will be added to the existing Marschall Road Transit Station

Pedestrian Access- There is a sidewalk along the northbound side of Weston Court, which is the only formal entrance to the Transit Station. This sidewalk connects to a trail that goes both east and west along 17th Avenue E. There is no pedestrian crossing from the south side of 17th Avenue E.

There is a missed opportunity for a path from the corner of Marschall Road and the Highway 169 exit ramp, shown below. This could serve people who are coming to the station from north of Highway 169 on Marschall Road.

Bicyclists will not find any formal bike facilities on Weston Court, but off-street path on 17th Avenue E leads right to Weston Court, and Weston Court is likely low volume enough to be welcoming to most cyclists. There are no formal protected crossings on 17th Avenue E, which would leave most cyclists to navigate a crossing on their own.



Canterbury Road

Station is by Seagate Technologies. There is an off-street path for people walking and biking on 12th Avenue E, but it doesn't connect to much else. Notably, there is no pedestrian or bike connection from Canterbury Park to the station. See the missing bicycle/pedestrian connection to the right in red to the station in yellow.

Southbridge Crossing

Station is in the existing Southbridge Crossings park and ride. Both the bike trail and sidewalk reach this station. Connections for the bike trail at Crossings Boulevard and Hansen Avenue could be improved, and the sidewalk ends at Stagecoach Road on Hansen failing to connect other sidewalks.

Pioneer Trail

The station for northbound and southbound busses will be at a new facility on slip ramps for Highway 169.

There are off-street multipurpose trails on both the Bloomington and Eden Prairie sides of Pioneer Trail that connect to larger networks of sidewalks and trails. Minimal improvements to crosswalks at the highway ramps are necessary. There are no crossings on Pioneer Trail east of the highway for a considerable distance, and the closest crossing to the east is along Hennepin Town Road. In order for the stations to serve a greater amount of pedestrians and cyclists, introducing crossings would be necessary.

Viking Drive/Washington Ave

The southbound station is on the west travel lane of W 78th Street before it enters the traffic circle, and the northbound station is on the eastbound travel lane also just east of the traffic circle with Viking Drive and Washington Avenue S. There are multipurpose trails and crossings around three sides of the traffic circle. There is a proposed crossing in the design across W 78th Street between the stations.

Pedestrian access reaches west on Viking Drive, east underneath Highway 169, and north on the west side of Washington avenue. The trail ends not far north of the traffic circle, creating a gap in coverage to all the buildings between Washington and Highway 169 north of an electrical substation. Either striped crossings or extending the trail north to West 76th Street on both sides would solve the issue. Because the only facilities are multi use trails, cyclists would encounter the same issues as pedestrians in this area. There is no striping to differentiate space between pedestrians and cyclists, which could create confusion.

Bren Road

The stations will be on far-side slip ramps for the highway at Bren Road. There is decent pedestrian infrastructure surrounding the station locations and on Bren Road as it passes over Highway 169, the crossings are wide and intimidating but clearly marked. There is a serviceable north-south crossing on the east side of the highway where Bren Road becomes Londonderry Road. On the west side of Highway 169, there is an awkward and long crossing where Bren Road splits and meets with Smetana Drive.

The pedestrian facilities do not connect to many existing networks on the Edina side of the highway. Off-street trails in Minnetonka connect to the Nine Mile Creek regional trail about a mile northwest of the station, but on the Edina side, there are no bicycle facilities nearby. Nine Mile Creek Trail is unfinished, but will eventually span 15 miles from Bloomington to Hopkins.

Hopkins

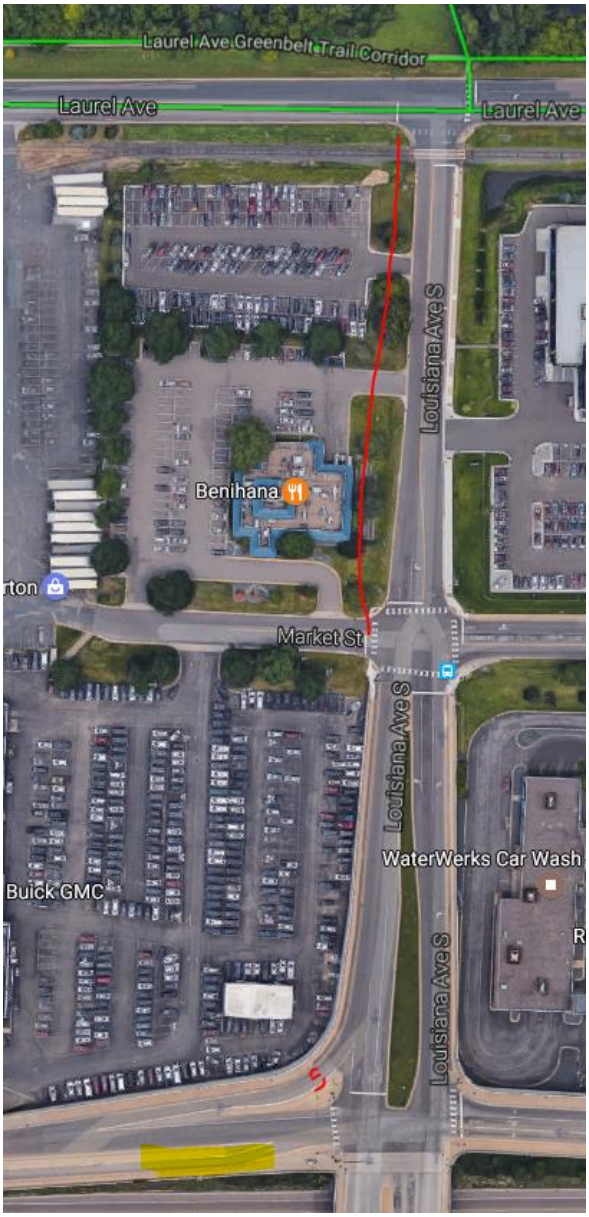
The Hopkins station will be at the Excelsior Boulevard & 8th Avenue Park and Ride, adjacent to downtown and a future Green Line station. There are quality sidewalks in downtown Hopkins, but there is a long crossing over Excelsior Boulevard to get there. Hopkins has spent a lot of resources improving the crossing into downtown. Behind the Park and Ride, the Minnesota River Bluffs Trail connects to the Cedar Lake trail and provides both pedestrians and cyclists access to other parts of Hopkins and to other cities both east and west. This is a challenging intersection, but the pedestrian and bicycle environment is supportive.

Cedar Lake Road

There are currently many different configurations for this station in design. Current pedestrian access is limited to the north/westbound side of the street over the highway on Cedar Lake road and in both directions into Saint Louis Park and Minnetonka. There are no bicycle facilities in this area.

Betty Crocker Drive

This station is just north of the parking lot for General Mills Headquarters. There is a recreational trail north of the facility that connects to a few homes hemmed in by highways, but there are no bike or pedestrian connections to the station. There are residences nearby on the west side of Highway 169, but the sidewalk on the bridge over the highway is insufficient, shown right.



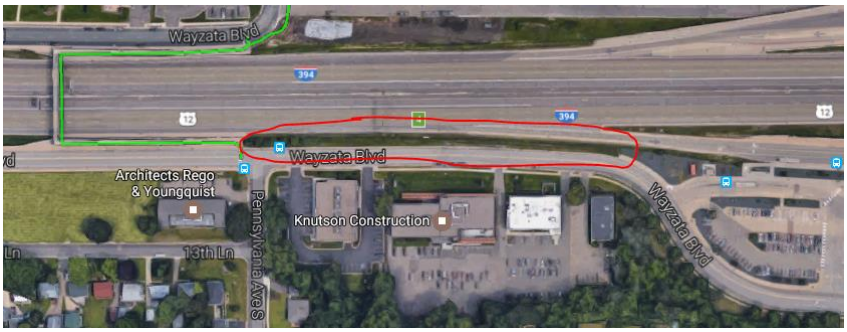
Louisiana Avenue

The northbound station is next to the existing park and ride, while the southbound station will be on the highway entrance ramp just west of Louisiana Avenue. The northern side of I-394 with the southbound station is in Golden Valley, the southern side with the northbound station is in Saint Louis Park.

Pedestrian access near the northbound station is weak along Wayzata Boulevard, including an unpainted connection between a pedestrian ramp over I-394 and the park and ride transit center, shown left. The residential streets nearby have sidewalks.

The only crossing to the transit center on Louisiana Avenue is wide and intimidating and would be out of the way for someone coming south across the pedestrian bridge over I-394. Access to the northbound station could be greatly improved by improving the sidewalk facility on the west side of Louisiana Avenue, as the Laurel Avenue Greenbelt Trail Corridor connects many homes just 2 blocks north to the proposed station, shown left. There is currently no easy way to access the pedestrian bridge from the Louisiana Avenue Transit Center because there is a missing pedestrian facility, shown circled in red below.

Bicyclist access to the northbound station and the southbound station is not supported by any dedicated bicycle facilities. A connection from Laurel Avenue Greenbelt Trail Corridor south along Louisiana Avenue or Pennsylvania Avenue to the pedestrian bridge would make it much easier for people to reach both stations on bicycles.



West End

The northbound station in Saint Louis Park would be at the existing park and ride triangle lot. The southbound station in Golden Valley is on the highway entrance ramp just west of Xenia Avenue South.

Pedestrian access to the northbound station is limited to two crossings across Wayzata Boulevard near Park Place Boulevard, both of which cross many lanes of traffic. However, the pedestrian network in the West End is robust, and navigating to buildings or bus stops in the area is relatively easy; sidewalks are generous widths and on every street. Near the southbound station north of I-394, the sidewalk network is less robust and features large and intimidating pedestrian crossings. Walking north on Xenia Avenue S connects to the Laurel Avenue Greenbelt Trail. There is a missing sidewalk on an undeveloped vacant site on the west side of Xenia Avenue, shown left.

Bicycle facilities in the West End are non-existent. Not even the bravest cyclist would be wise to try and bike with cars in this area, and there aren't bike facility connections nearby. If there were a connection on the north side of I-394 from the bus station on Xenia Avenue up to the Laurel Avenue Greenbelt Trail, shown in red above, that would connect many residences to the westbound station

Winnetka Avenue

Winnetka Avenue northbound station is on the westbound side of the intersection of Winnetka and TH 55 underneath a pedestrian bridge. The southbound station is directly across the highway from the northbound station, also underneath the pedestrian bridge.

Pedestrian access from the north to the southbound station is complicated by a block-long section tessellating brick sidewalk (portion shown left) on the southbound side of Winnetka right next to the curb. The uneven surface of this sidewalk can create difficulties for people with disabilities or who use mobility devices with wheels that may get caught in small grooves between bricks. However, the Luce Line Trail is less than half a mile north up Winnetka, so improving this sidewalk connection could make the walk a more attractive option. From the south to the northbound station, there is a dedicated off-street trail that allows for access to the pedestrian bridge. Although the pedestrian crossings at Winnetka and TH 55 look intimidating, there are many opportunities to avoid them altogether.

Bicyclist access is hampered by a lack of any bike facilities north of TH 55 between the Luce Line Trail and the southbound station. There is a dedicated off-street trail for bikes and pedestrians south of the intersection that connects to the pedestrian bridge and the Golden Valley bicycle network, which also gathers anyone coming from the east of the stations at intersections further south.

Douglas Drive

The station at Douglas Drive is directly before the intersection of Douglas Drive in the direction of travel. The current pedestrian and bicycle facilities are scant on both sides of the highway, except for the Luce Line Trail a few blocks north of the southbound station. An improved crossing for trail users to the station would need to be created, as none exists. The pedestrian crossings across the highway are poor and dangerous; there would need to be significant improvements to make them safe and attractive.

Pedestrian Access on the south side of the highway is stymied by a lack of sidewalk on Olson Memorial Hwy Service Road east of Douglas, pictured left. There are no sidewalks or bicycle facilities on residential roads south of the highway and service road, but they look low-traffic enough to be supportive of at least biking.

Theodore Wirth Parkway

This station would be on the western-most edge of Theodore Wirth Park. Both pedestrians and bicyclists are connected to the Minneapolis and Golden Valley trail systems by the Luce Line and Grand Rounds trails nearby. Immediate connections to those trails and crossings are not perfect, but supportive of people walking and biking.

On the north side of TH 55, the sidewalk is disrupted by a loading bay. If the sidewalk is extended or connected to the crossing at Meadow Lane N, this station could be a good connector to job centers located west of the park.

There are no meaningful bicycle connections southwest of the station, though to the north there is a connection to the Luce Line Trail to travel westward.

Penn Avenue

Both northbound and southbound stations are on TH 55 east of Penn. The crossing from one side of TH 55 to the other at Penn is notoriously dangerous, but likely due for an update with either the Blue Line LRT extension planned in the median at this location. The station plans are expected to be released to the public later in 2017.

This location is connected to the Minneapolis sidewalk network, which despite age and areas of disrepair, spans nearly the entire city. Currently there is no bicycle facility on Penn, but there are bicycle facilities 2.5 blocks south on Glenwood and 4 blocks north on Plymouth that connect to the larger bicycle network.

7th Street

This station is near the terminus of TH 55 into N 6th Avenue at the crossing with N 7th Street. There is a new floating bus stop at this corner. There are sidewalks on every street, though the pedestrian crossings at the intersection of TH 55 and 7th Street are very intimidating. There is an unprotected bike lane in both travel directions on N 7th Street that connects to North Minneapolis and to downtown. The area is dominated by many lanes of motor vehicle traffic and proximity to highway on and off ramps.

Downtown Minneapolis (4 stations)

There are four downtown Minneapolis stations which are common to both routes along 6th and 7th Streets for northbound and southbound routes respectively. These stations are served by sidewalks and bicycle facilities within a block that connect to the greater city networks.

Conculsion

Although Saint Louis Park has a longer commitment to providing pedestrian and bicycle infrastructure reflected in policy and plans than Golden Valley has, the proposed stations along I-394 do not see the best active transportation infrastructure that either city offers. Both cities have prioritized pedestrian and bicycle networks and connections within the city, and have not put their focus on connections between Saint Louis Park and Golden Valley. For this reason, the proposed stations along I-394 see some of the poorest conditions and biggest opportunities for improvement.

The stations unique to Alternative 1: I-394, Louisiana Avenue and West End, do not feature bicycle facilities and are dominated by automobile-oriented uses and design. The areas surrounding both stations have sidewalk gaps and very busy intersections that are intimidating to cross. Stations unique to Alternative 2: TH 55 have some difficult connections to stations, but are closer to existing trails and due to lower auto traffic volumes exiting TH 55 as compared to I-394, the crossings are less intimidating.

In sum, Alternative 2: TH 55 has better bicycle and pedestrian facilities, connections, and potential than Alternative 1: I-394.

Similar to their more robust pedestrian and bicycle policy, Saint Louis Park has more robust language supporting multi-modal infrastructure and development as compared to Golden Valley. Saint Louis Park has also attracted notable private development that uses multi-modal principles as both a design element and a selling point to residents. Proposed stations unique to Alternative 1: I-394 already have significant bus traffic nearby, supporting bus connections. For these reasons, Alternative 1: I-394 stands out as more supportive of multi-modal development.

Business Impacts

Overview

The study of business impacts is generally catergorized under temporary impacts (e.g., temporary sidewalk, lane, median, terrace, or driveway closures, and noise and vibration during construction. Impacts to businesses could also include the loss of parking or right-of-way to accommodate for the proposed routes and/or stations. Because impacts tend to be fairly localized, the study area for the BRT and/or MnPASS Alignments was limited to those businesses that face or have access directly to a BRT route or MnPASS route.

Regulatory Framework

No specific laws or executive orders regulate the topic of economic impacts. The National Environmental Policy Act (NEPA, 41 USC 4321) and Minnesota Environmental Policy Act (MEPA 2007 c116F) form the general basis of consideration for economic/business issues.

Data Sources and Methodology

Project design files with station locations were used to determine businesses that can expect temporary or permanent impacts as a result of the proposed action. Several GIS layers were used to preliminarily identify and analyze existing businesses, job centers areas, and major employers within or near the corridor. Specific impacts and findings will be investigated in greater detail as the project advances.

Transportation Analysis Zones (TAZs) from the Metro Council were used to determine existing (Year 2014) employment. Major Employers and job activity centers were extracted from the data and graduated symbols are used to show job center magnitudes.

Comparative Analysis

Table 15: Potential Business Impacts

Business	Type of Impact
Marschall Road Transit Station Bldg	Remove ten parking stalls, install platforms, and construct new driveway, noise and debris
Seagate Technology	Remove 26 parking stalls, install platforms, and construct new driveway, noise and debris
McFarland Hotwater Technology	Noise impacts and debris from driveway connection
General Mills Campus	Remove 38 parking stalls, install platforms, and construct new sidewalk, noise and debris

Economic Climate of the Corridor

The corridor is populous; more than 266,000 people live in one of the 209 TAZs within one mile of the corridor. The municipalities range in size from Minneapolis with approximately 383,000

residents, to just under 18,000 residents in Hopkins. Overall, the corridor population is fairly wealthy, well educated, and somewhat racially diverse.

An analysis was performed to determine the growth per TAZ for population and employment. Population and employment data has been determined per TAZ by Metro Council and used as a traffic and planning tool for many planning efforts. The TAZs were first tied to municipalities in which they reside. For this high-level effort, only the TAZs that fall completely within the one-mile study area are used in the detailed analysis to determine annual growth rates, and all other zones that have more than one municipality were lumped together in the "multiple communities" classification.

The corridor as a whole, is expected to grow at about a 0.9 percent annual growth rate for population, and a 1.0 percent increase in employment over the next 26 years (2014-2040). Specific growth rates for each community can be found in table 42 below. It is important to note that these numbers indicate growth in the zones within a community and do not reflect the rates of the community as a whole.

Table 16: Annual Population and Employment Growth Rates by Municipality

Community	Number of TAZs	Pop 2014	Pop 2040	Annual Growth Rate	Emp 2014	Emp 2040	Annual Growth Rate
Bloomington	7	14,579	15,430	0.22	2,752	2,880	0.18
Eden Prairie	7	11,506	15,840	0.15	9,952	13,180	1.25
Edina	7	12,672	11,520	-0.35	3,503	11,230	8.48
Golden Valley	20	17,968	18,900	0.2	25,623	29,600	0.6
Hopkins	9	12,045	13,750	0.54	10,301	12,370	0.77
Jackson Twp	2	682	630	-0.29	67	60	-0.4
Minneapolis	69	83,864	118,520	1.59	159,093	186,020	0.65
Minnetonka	6	7,271	9,540	1.2	7,181	11,090	2.09
Plymouth	2	1,919	1,900	-0.04	6,834	8,160	0.75
St. Louis Park	12	19,344	18,010	-0.27	7,049	8,140	0.6
Savage	2	2,230	2,370	0.24	1,454	3,140	4.46
Shakopee	22	29,278	36,990	1.01	15,549	27,690	3.00
Mulitiple Communities	43	52,893	66,800	1.01	69,530	88,160	1.03
TOTAL	**209**	**266,251**	**330,200**	**0.9**	**318,888**	**401,720**	**1.0**

*Table indicates TAZs within one-mile of any of the BRT or MnPASS Alignments

Within the study area, portions of Minneapolis, and Shakopee are the two highest ranked commuties for population growth, with each expecting over a one percent annual increase for zones within the study area.

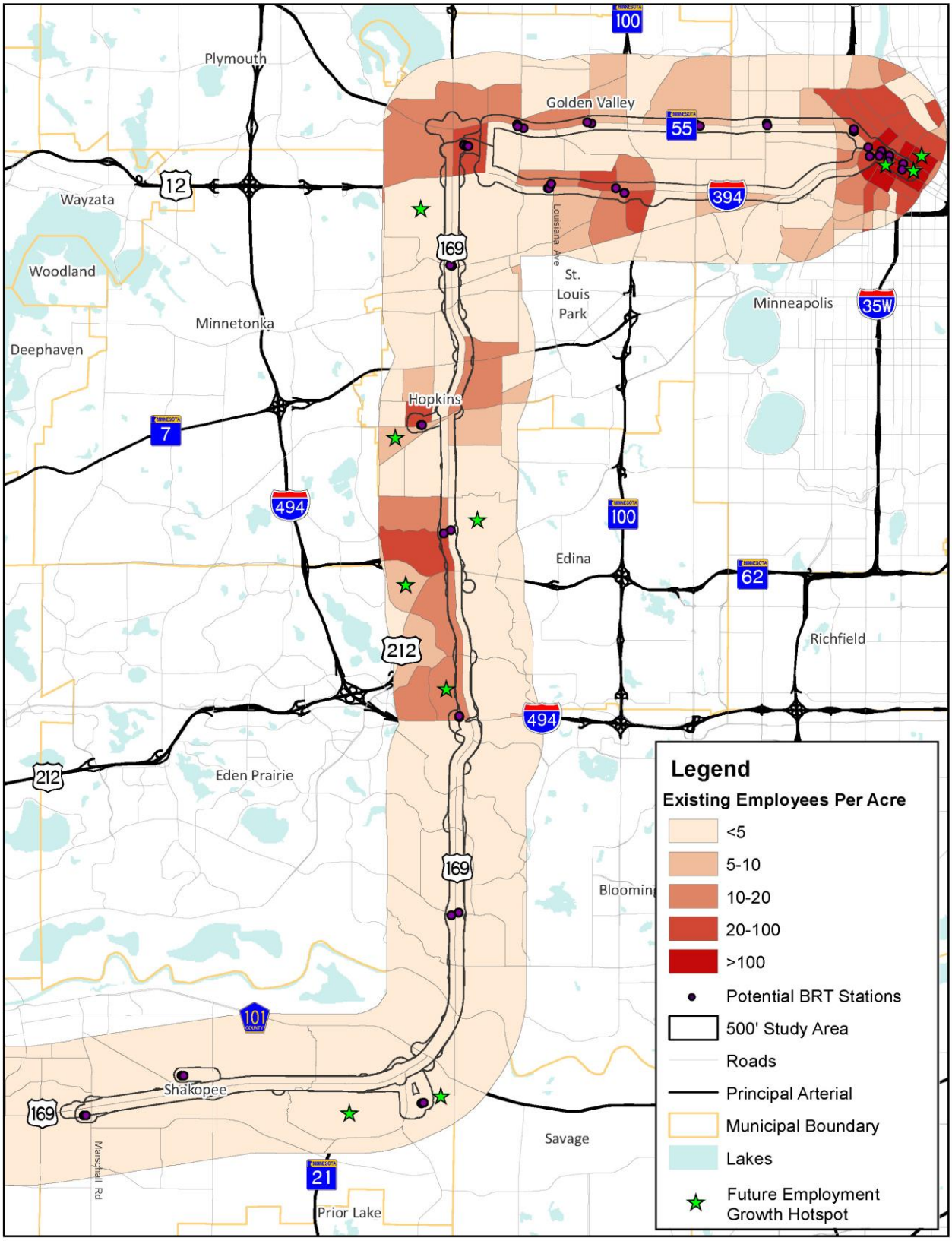
Edina is expected to increase employment dramatically over the next 26 years within the corridor, with an annual growth rate of 8.48 percent. This will add over 7,700 jobs to the community, especially in the northeast quadrant of Highway 169 and Highway 62. Other communities expecting large annual growthe rates include the City of Savage (4.46 percent annual growth and almost 1,700 jobs), and the City of Shakopee (3 percent annual growth and over 12,000 jobs).

Figure 15 shows the Major Employers in the one-mile study area and displays where the current major employers are located.

There are seven TAZs that currently contain over 7,500 jobs. Six of the seven are located in the downtown Minneapolis area, while the other is in the city of Minnetonka in the northwest quadrant of Highway 169 and Highway 62, anchored by the United Health Corporate Headquarters.

Ten TAZs have been identified as areas to support at least an additional 1,900 jobs between the base year (2014) and future year (2040). The largest growth areas are identified with green stars in Figure 13.

Figure 13: Employees Per Acre



Environmental Justice

Overview

Consistent with the framework outlined in FTA Circular 4703.1 (August 2012), the study identified low-income and minority populations in the corridor. This will allow for consideration of EJ populations in the alignment selection process, and set the stage for a full analysis of the project's impacts to EJ populations as part of its NEPA process.

Regulatory Framework

Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 1994), requires the U.S. Department of Transportation (DOT) and the FTA to make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and/or low-income populations (collectively "EJ populations"). Environmental justice at FTA includes incorporation of environmental justice and non-discrimination principles into transportation planning and decision-making processes and project-specific environmental reviews. Furthermore, U.S. DOT order 5610.2(a) sets forth steps to prevent disproportionately high and adverse effects to minority or low-income populations through Title VI analyses and environmental justice analyses conducted as part of Federal transportation planning and NEPA provisions.

Data Sources and Methodology

Decennial census data was used as a primary source for mapping and locating minority populations in the Highway 169 study area. The U.S. Census, mandated by Article I, Section 2 of the Constitution, takes place every 10 years and counts every resident in the United States. Year 2010 U.S. Census data was used to quantify minority populations at the block level, which is the smallest geographic unit for which race and ethnicity data are available.

American Community Survey (ACS) data was used as a primary source for mapping low-income populations in the study area. The ACS is an ongoing survey that provides data on age, sex, race, family and relationships, income and benefits, health insurance, education, veteran status, disabilities, where people work and how they get there, and where people live and how much people pay for some essentials. The purpose of the ACS is to provide an annual data set that enables communities, state governments, and federal programs to plan investments and services. In general, ACS estimates are period estimates which describe the average characteristics of population and housing over a period of data collection. The ACS is administered continually and unlike the census, is a random sampling of people from all counties and county-equivalents in the United States. ACS 2010-2014 5-Year estimates were used to quantify low-income populations at the block group level, which is the smallest geographic unit available for this data.

A GIS platform was used to draw a half-mile buffer[23] around the corridor study area. For the analysis of minority populations, each census block that intersects with the half-mile buffer or is completely within the half-mile buffer will be included in the study area. For the analysis of low-income populations, each census block-group that intersects with the half-mile buffer or is completely within the half-mile buffer will be included in the study area.

Comparative Analysis

As mentioned previously, the corridor is populous with over 266,000 residents located within one mile of the alignments, and over 168,000 located within ½ mile of the alignments. Overall, the corridor population is fairly wealthy, well educated, and somewhat racially diverse.

See Figure 14 for detailed maps of minority and low income populations.

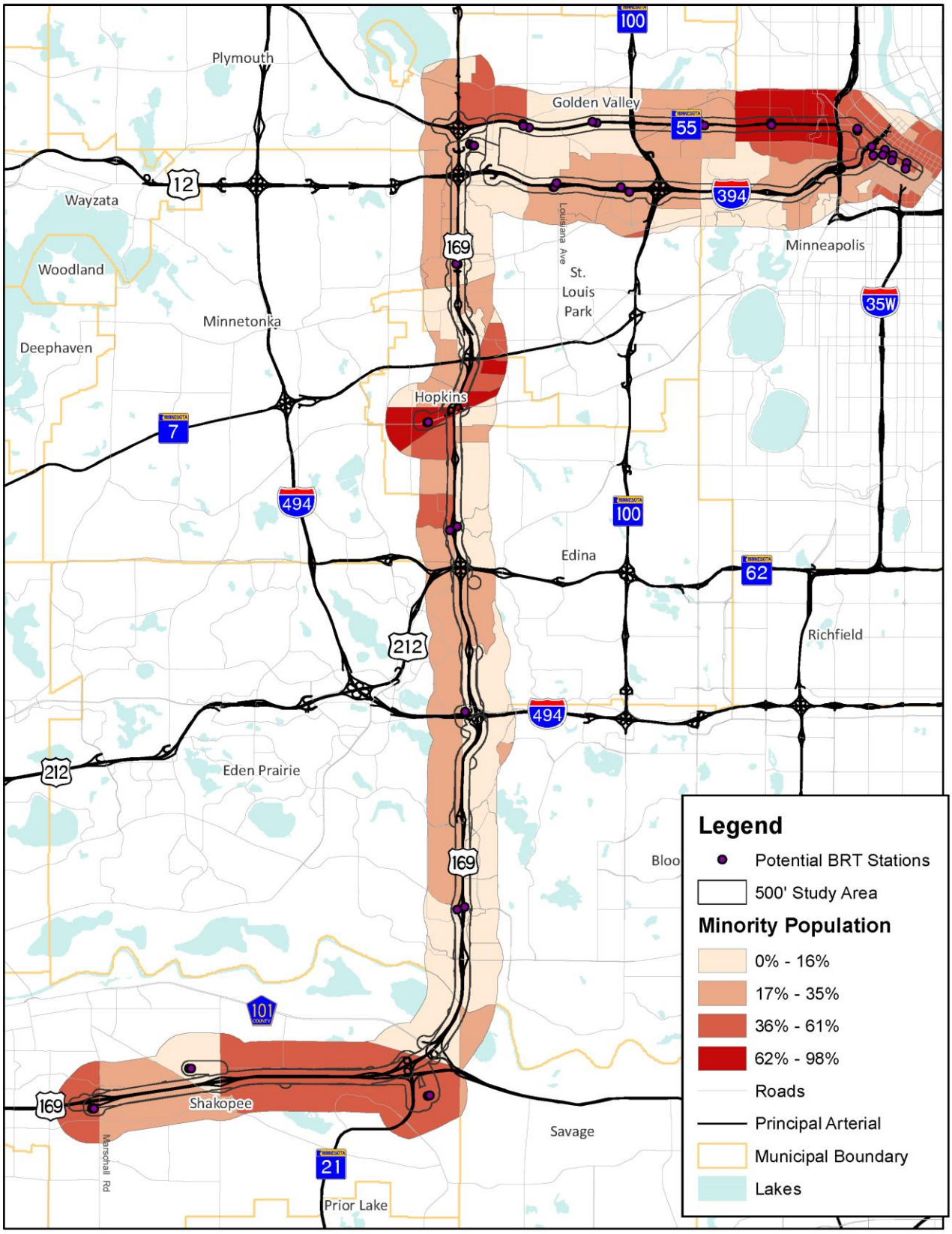
Minority Populations

Minneapolis has the highest concentration of minority populations within the corridor, especially in block groups along Highway 55 and west of I-94 where minority percentages reach as high as 98 percent. Other areas in the northern part of the corridor, including Hopkins and St. Louis Park also have high (above 62 percent) minority populations.

Higher concentrations of African-American populations can be found in this same area as well as west of Highway 169 and north of Highway 62 in Minnetonka. Asian populations are spread out throughout the corridor, in block groups in the downtown Minneapolis area, east of Highway 169 in St. Louis Park and in Shakopee and Savage in the southern part of the study area. Hispanic populations are fairly evenly distributed in the corridor with a few areas of high concentration in Minneapolis, Hopkins, and Shakopee. American Indian populations make up a small percentage of the corridor population and are fairly evenly distributed throughout the corridor.

[23] A half-mile radius is commonly used by transit planners to represent the distance transit users are willing to walk to access an Bus Rapid Transit station

Figure 14: Minority Populations



The U.S. Census Bureau defines poverty thresholds based on the size of family, and number of related children under 18 years. Poverty thresholds are shown in table 43 below:

Table 17: 2016 U.S. Census Bureau Poverty Thresholds

Poverty Thresholds for 2016 by Size of Family and Number of Related Children Under 18 Years

Size of family unit	Related children under 18 years								
	None	One	Two	Three	Four	Five	Six	Seven	Eight or more
One person (unrelated individual):									
Under age 65	12,486								
Aged 65 and older	11,511								
Two people:									
Householder under age 65	16,072	16,543							
Householder aged 65 and older	14,507	16,480							
Three people	18,774	19,318	19,337						
Four people	24,755	25,160	24,339	24,424					
Five people	29,854	30,288	29,360	28,643	28,205				
Six people	34,337	34,473	33,763	33,082	32,070	31,470			
Seven people	39,509	39,756	38,905	38,313	37,208	35,920	34,507		
Eight people	44,188	44,578	43,776	43,072	42,075	40,809	39,491	39,156	
Nine people or more	53,155	53,413	52,702	52,106	51,127	49,779	48,561	48,259	46,400

Source: U.S. Census Bureau.

Overall, the corridor reveals several areas of low income households, particularly in the city of Minneapolis along Highway 55. In this area, poverty rates are as high as 86 percent. Other highly concentrated areas of low income residents are south of 12th Street in downtown Minneapolis (above 31 percent of households).

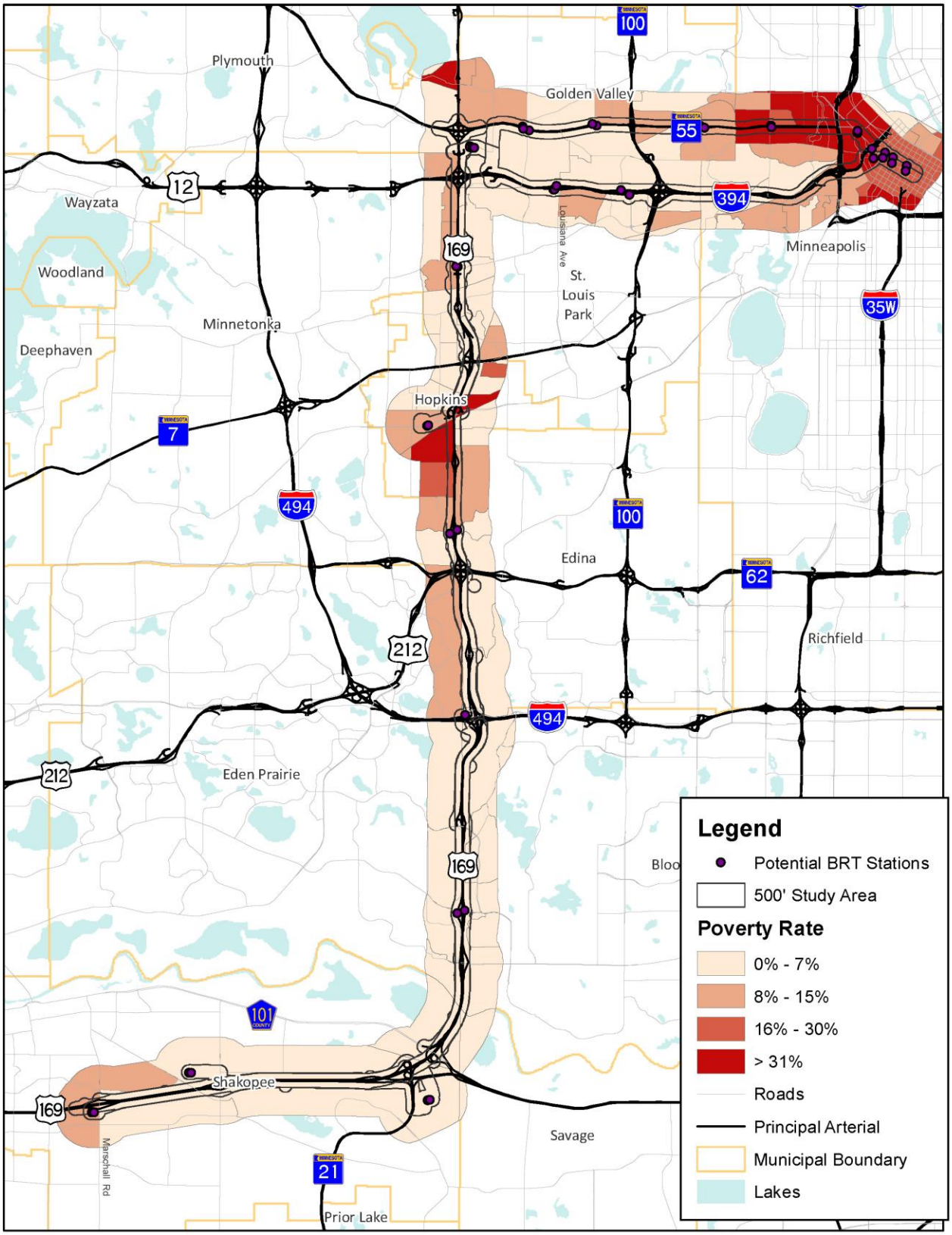
One block group in Plymouth, (31 percent) and two in the city of Hopkins (31 and 43 percent) also have higher poverty numbers as compared to the corridor and the rest of their respective communities.

Block groups south of Highway 62 have the lowest low-income rates with all block groups under 15 percent exceeding the poverty threshold.

Conclusion

Both alternatives serve EJ populations, though Alternative 2: TH 55 serves a high concentration of minority residents and an area of high poverty rate in North Minneapolis that is not served by Alternative 1: I-394. Engagement of minority and low-income populations will be essential in future phases of the project.

Figure 15: Poverty Rates



Property Acquisition

Overview

Each of the alternatives being considered in this study will likely require a certain amount of additional land beyond that already dedicated to transportation purposes.

Regulatory Framework

Public agencies are required by law to compensate land owners for property acquired for public uses. Any potential acquisition of property as a result of this project would be conducted in accordance with the Uniform Relocation and Real Property Acquisition Act of 1970, as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987 and 49 Code of Federal Regulations, Part 24, and effective 1989 (revised January 2005).

Data Sources and Methodology

Right-of-way acquistions can be divided into two catergories: partial takes and full takes. A partial take occurs when a public agency acquires part of a property but the original use of the property remains intact. For example, a partial take may occur whan a strip of land is acquired from the front of a residential lot for transitway project, but the residence remains intact and undisturbed. A full take on the other hand, occurs when the entire property is taken for public use.

Aerial photography, parcel data, and concept drawings will be used to estimate the magnitude of full and partial takes required by each alternative. Right-of-way acquisitions will be counted and summed for each alternative.

Comparative Analysis

Stations for both the BRT alternatives would be located mostly within the existing public roadway right-of-way. However, property acquisition will be required at some locations, including:

BRT Alignment via Highway 169 and Highway 55:

- Douglas
- Theodore Wirth Parkway

BRT Alignment via Highway 169 and I-394:

- Betty Croker Drive

Further investigation to identify potential right-of-way impacts are needed. Exact acreage and fees associated with the acquistions would be part of future stages of the project.

Findings

A summary of environmental and community impacts for each alternative is listed below based on the detailed analysis provided in previous sections of this report.

Noise and Vibration:

The BRT Alignments are more likely to have noise and vibration impacts due to the length and urban nature (downtown Minneapolis) where buildings are closer to the roadway. The BRT alignments travel close to Category 1 recording studios (where quiet is an essential element of its intended purpose), and travel closer to more Catergory 2 (where people sleep) properties.

Further noise and vibration study is needed, however given the existing noise levels along Highway 55 and I-394, additional bus trips as a result of these alignments will likely have no impact on existing noise levels.

Alignment	Category 1	Category 2	Category 3
BRT Alignment via Highway 169 and Highway 55	2 Recording studios	2,769 Residential Parcels 7 Hotels	5 Schools 4 Theaters 8 Churches
BRT Alignment via Highway 169 and I-394	4 Recording studios	3,488 Residential Parcels 13 Hotels	7 Schools 10 Theaters 6 Churches 2 Cemeteries 1 Library
Truncated MnPASS Alignment	0 Recording studios	970 Residential Parcels 1 Hotels	2 Churches
Full MnPASS Alignment	0 Recording studios	2,342 Residential Parcels 1 Hotels	2 Schools 2 Theaters 4 Churches 1 Cemeteries

Cultural and Historic Resources:

Twelve listed NRHP properties are located within 500 feet of the alignments. All of the properties are located within 500 feet of Highway 55 and I-394, so the MnPASS alignments will not have any adverse effects to listed NRHP properties. Eight of the properties coincide with the Highway 55 BRT Alignment, while four are within 500 feet of the I-394 BRT Alignment.

Parks, Trails, and Recreational Areas:

Four sites including: Tierney Woods Park, Valley Park, Westwood Hills Nature Center, and Anderson Lakes Park Reserve have been identified as receiving DNR grant funds and are subject to

Section 6(f) requirements and protection. Three public golf course including: Brookview Golf Course, Braemer Golf Course, and Theodore Wirth Golf Course, are subject to Section 4(f) requirements and protection. In addition to golf courses, any temporary or permanent impacts to local or regional trails would be subject to Section 4(f) requirements.

The BRT alignments each have 23 parks located within 500 feet of their alignments while the full MnPASS alignment has 14, and the truncated MnPass Alignment has 5 parks located within 500 feet.

No known impacts to parks, golf courses, or trails are known at this time. It is unlikely that these resources would be impacted as a result of any alignment.

Threatened and Endangered Species:

Three federally-listed endangered species and one threatened species were identified in the project area. In addition, 37 state-listed species were identified.

Based on the urban nature of the project, it is unlikely that any of the alignments would adversely affect any federally-listed or state-listed threatened or endangered species. Future project review will re-evaluate data when an official environmental document is prepared.

Wetlands:

There are no NWI or PWI mapped wetland impacts known at this time for any of the alignments. Detailed wetland deliniations may need to be performed when an official environmental document is prepared.

Floodplains:

There are no floodplain encroachments or impacts anticipated with any of the alignments.

Hazardous Materials and Existing Contamination:

A total of 801 hazardous material sites can be found within 500 feet of the alignments. The BRT Alignments have more total contaminated sites and active sites in comparison with the MnPASS Alignments. Of the BRT Alignments, the I-394 alignment has more hazardous waste sites, and more active sites, tank sites, and leak sites than the Highway 55 BRT alignment. Many of the hazardous material sites are confined to the city of Minneapolis at the east end of the corridor.

More detailed analysis is necessary to determine if construction of any of the project Alignments is likely to encounter contaminated soils or groundwater. A Phase I Environmental Site Assessment will be completed for the corridor as part of a future environmental document and will further assess impacts to potentially contaminated sites located within the project's construction limits.

Land Use:

Existing and planned land use, and the abundance of commercial, industrial, and mixed use options along the corridor, especially in the higher residential and employment densities in the City of Minneapolis, provide the most condusive environment for successful BRT operations and ridership.

Business Impacts:

Employment densities along the study alignments range between <1 to more than 700 employees per acre. Overall improvements as a result of additional BRT stations or road improvements should be a net benefit to users after construction is complete. Impacts or disruptions to businesses as a result of construction are anticpated to be minor in nature, but may include temporary access or lane closures, construction noise, and dust.

Environmental Justice:

Minority and poverty populations are present within the study area especially within areas of Minneapolis and Hopkins. All efforts should be made to coordinate and include underserved populations.

Property Acquisition:

Most proposed station designs at the time of this writing use existing facilities, or are close enough to existing road ways that they will not require property acquisition. At Betty Crocker Drive there would probably be a land-use agreement, possible land purchase for the Doulglas southbound station and Theodore Wirth Parkway southbound station. Cedar Lake and Viking Drive stations have many different proposed designs, but none should require land acquisition.